

# architectural **forum**

**July 1954**

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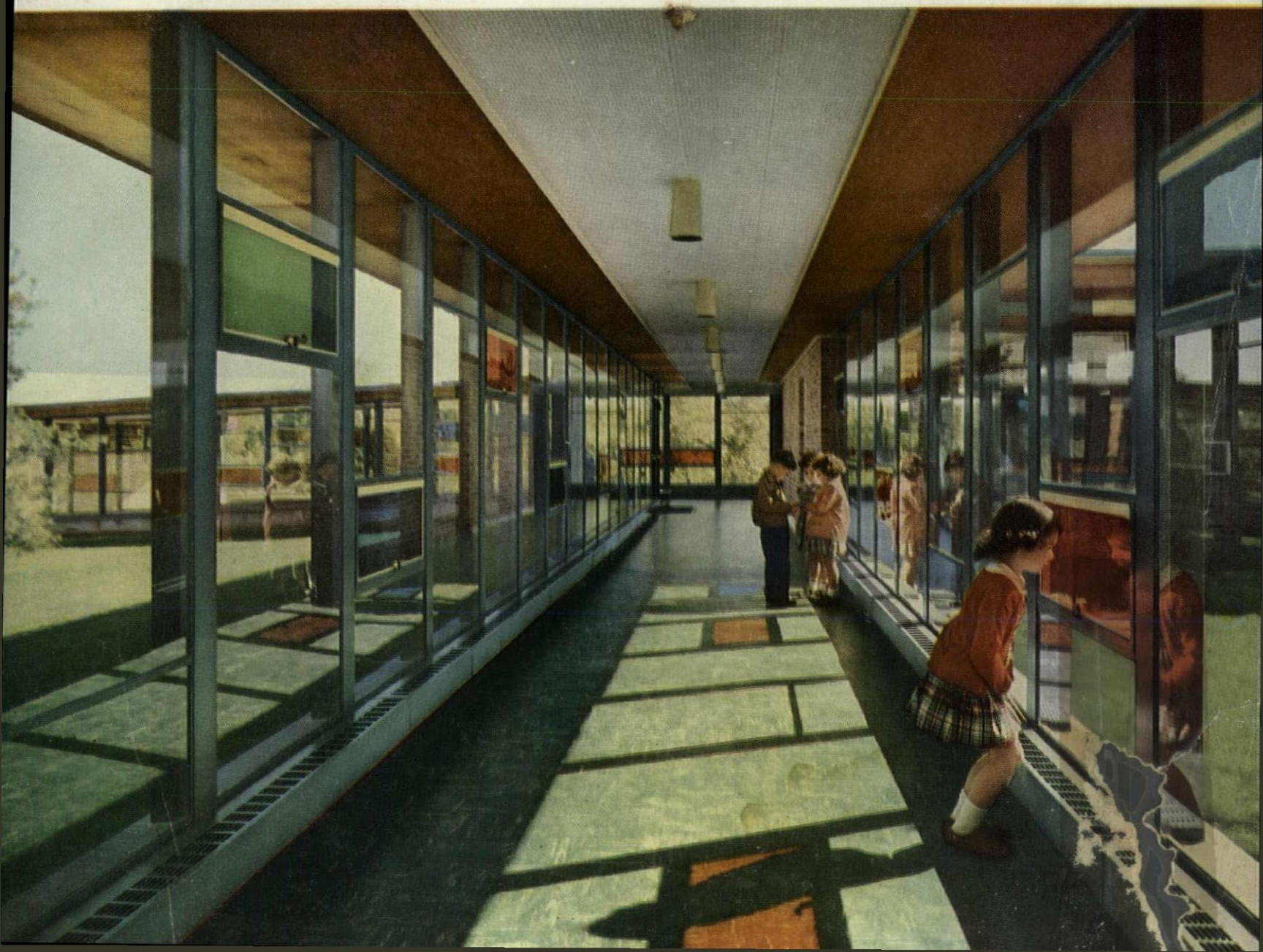
**Most-talked-about hospital**

Its corridors are nurses' workrooms; its windows are visitors' doorways (p. 108)

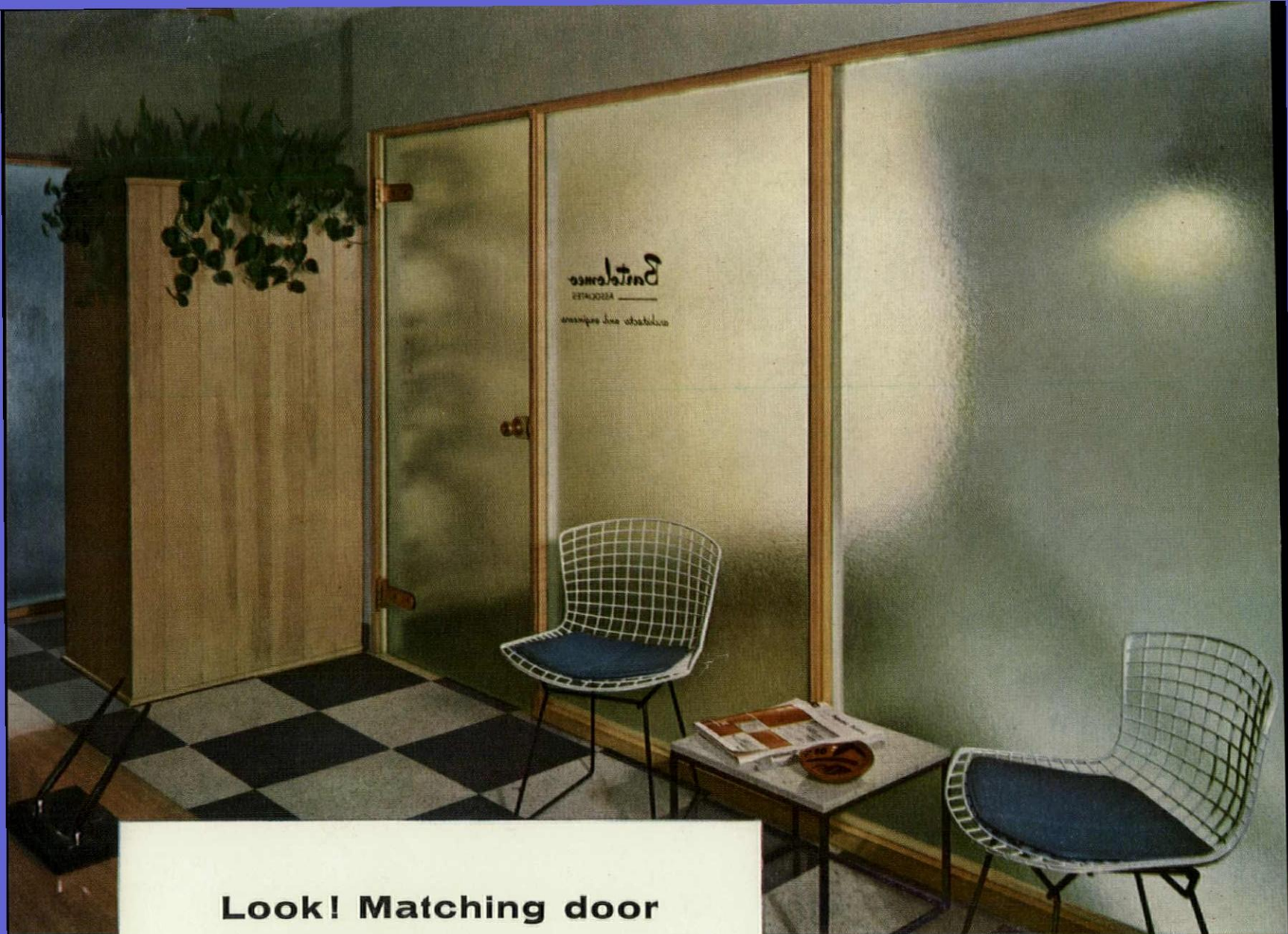
**Pioneering school**

Clustered classrooms, glazed corridors, landscaped courts raise the spirits of Scarsdale children (below and p. 98)

Library of the  
Minneapolis School of Art







## Look! Matching door completes the decorative wall of light

Here's unity in color, tone and pattern with beauty that speaks for itself. The decorative glass door and wall pick up color and light in the hall outside and bring them through in a lovely, interesting blend. Yet the view is obscured for privacy.

The Blue Ridge *Securit*\* Interior Glass Door is a single piece of glass patterned on both sides. It's an attractive door in other settings, too. The neutral tone of this glass complements all colors, goes well with other materials. The *Securit* Door is tempered—toughened to take hard usage.

Here's a door that is easy to hang. It requires no cutting, no mortising. It arrives at the job with distinctive, easily applied hardware.

The price compares favorably with that of high-quality doors of ordinary materials—and you save on installation and maintenance costs. For more information see your L·O·F Glass Distributor or Dealer. Look for his name in your phone book yellow pages under "GLASS". Or write us direct.



**securit**® **L·O·F**  
**GLASS**

**INTERIOR GLASS DOORS**

*Securit Door and matching panels of Muralex patterned glass in offices of Bartolomeo Associates, Architects and Engineers, Chicago.*

### BRIEF DATA

**Glass**— $\frac{3}{8}$ " thick. Muralex patterned on both surfaces.

**Tempered**—three to five times stronger than untempered glass of same thickness.

**Reversible**—can be used right or left hand.

**Standard Sizes**— $2'6" \times 6'8"$   $2'5\frac{1}{16}" \times 6'7\frac{1}{16}"$   
 $2'8" \times 6'8"$   $2'7\frac{1}{16}" \times 6'7\frac{1}{16}"$   
 $3'0" \times 6'8"$   $2'11\frac{1}{16}" \times 6'7\frac{1}{16}"$   
 $3'0" \times 7'0"$   $2'11\frac{1}{16}" \times 6'11\frac{1}{16}"$

**Closers**—when specified, the door can be shipped with a Sargent closer or prepared for use with an LCN concealed closer.

For more complete information, see the *Securit Door* insert in Sweet's Architectural File.

### Many uses for beautiful patterned glass

Blue Ridge *Patterned Glass* offers many possibilities in offices, homes, stores and institutions. In partitions . . . for decorative windows to shut out bad views . . . to lighten halls . . . for distinctive built-in furniture. Choose from linear, checkered and over-all designs in plain, textured or *Satinol*\* finishes. \*®

Libbey-Owens-Ford Glass Co., Dept. B-2074  
 Patterned & Wire Glass Sales  
 608 Madison Avenue, Toledo 3, Ohio

Please send me your folder "Blue Ridge *Securit* Interior Glass Doors".

I would also like the booklet of ideas for using Blue Ridge *Patterned Glass* in ☐ homes ☐ other buildings. (Check one or both.)

NAME (PLEASE PRINT) \_\_\_\_\_

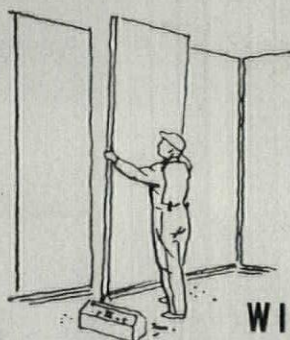
ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_

STATE \_\_\_\_\_





**FAMOUS MILWAUKEE BREWERY**

*Saves \$24,107  
in Just Four Years*

**WITH HAUSERMAN MOVABLE WALLS**

Although its modern administrative building is just four years old, the Miller Brewing Company of Milwaukee already has proved that using premium quality materials pays dividends, in modern movable walls just as it does in brewing "the Champagne of Bottle Beer."

Because of the unvarying uniformity of Hauserman *Movable Walls*, constantly changing work area requirements have been met quickly and easily . . . with practically no inconvenience or interruptions of normal business efficiency. Yet office and corridors alike provide a dignified atmosphere of lasting permanence throughout the building. Savings in rearrangements costs to date: \$20,453.

Further evidence of premium quality—color that never fades or needs refinishing—has paid dividends, too. Redecorating savings during the four year period: an additional \$3,654.

Now, before you move, build or remodel present offices, let us send you the facts about Hauserman premium quality and the savings it can mean to you.

**WRITE FOR FREE DATA MANUAL 53!** This 96-page comprehensive guide for architects contains complete technical details as well as stock sizes, general instructions and specifications on all types of Hauserman Movable Interiors. Write to The E. F. Hauserman Co., 7146 Grant Ave., Cleveland 5, Ohio.



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*Movable Interiors*

**OFFICES • SCHOOLS • LABORATORIES  
HOSPITALS • INDUSTRIAL PLANTS**





# REYNOLDS



## Equitable Life Building, San Francisco

### Architects:

Loubet and Glynn, successors to W. D. Peugh, San Francisco

### Consulting Architect:

Irwin Clavan, New York

### General Contractor:

Dinwiddie Construction Company, San Francisco

### Architectural Metal:

The Kawneer Company, Berkeley, Calif., and Niles, Mich.

### Windows:

Reynolds Metals Company, Louisville

### ALUMINUM APPLICATIONS IN THIS BUILDING:

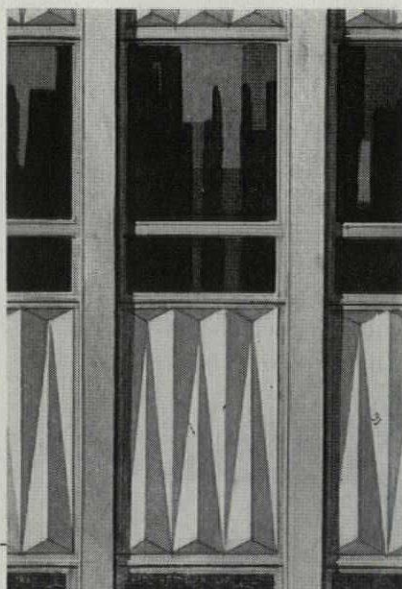
Spandrels, formed sheet

Framing members for exterior metal work

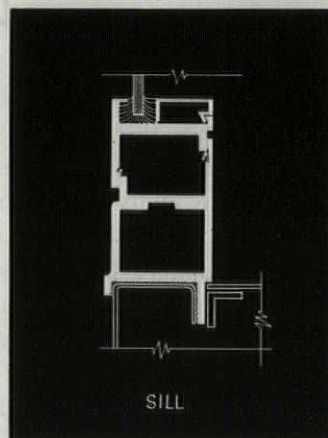
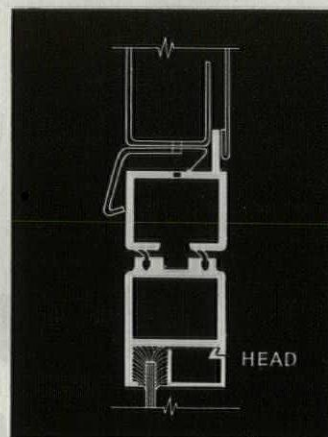
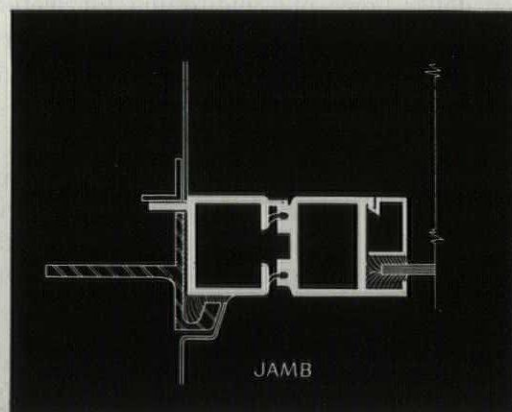
Reynolds Aluminum Windows, Series #100, Center Pivoted Vertically with Hopper Vent

### REYNOLDS ALUMINUM SERVICE TO ARCHITECTS

Reynolds Architect Service Representatives offer specialized assistance on aluminum design problems, on applications of standard aluminum mill products, and on the use of commercially fabricated aluminum building products. They can help to coordinate varied aluminum requirements for procurement efficiency and economy. Please address inquiries to . . . Architect Service, **Reynolds Metals Company**, Louisville 1, Kentucky.



Aluminum spandrel and window unit—one of about 1500 in the building. Assembly was tested under hurricane conditions simulating 12" rainfall with winds up to 70 mph.



SEE "MISTER PEEPERS," starring Wally Cox, Sundays, NBC-TV Network.



# ALUMINUM



## LANKENAU HOSPITAL • PHILADELPHIA

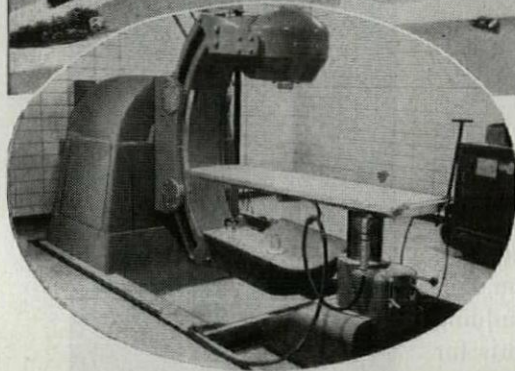
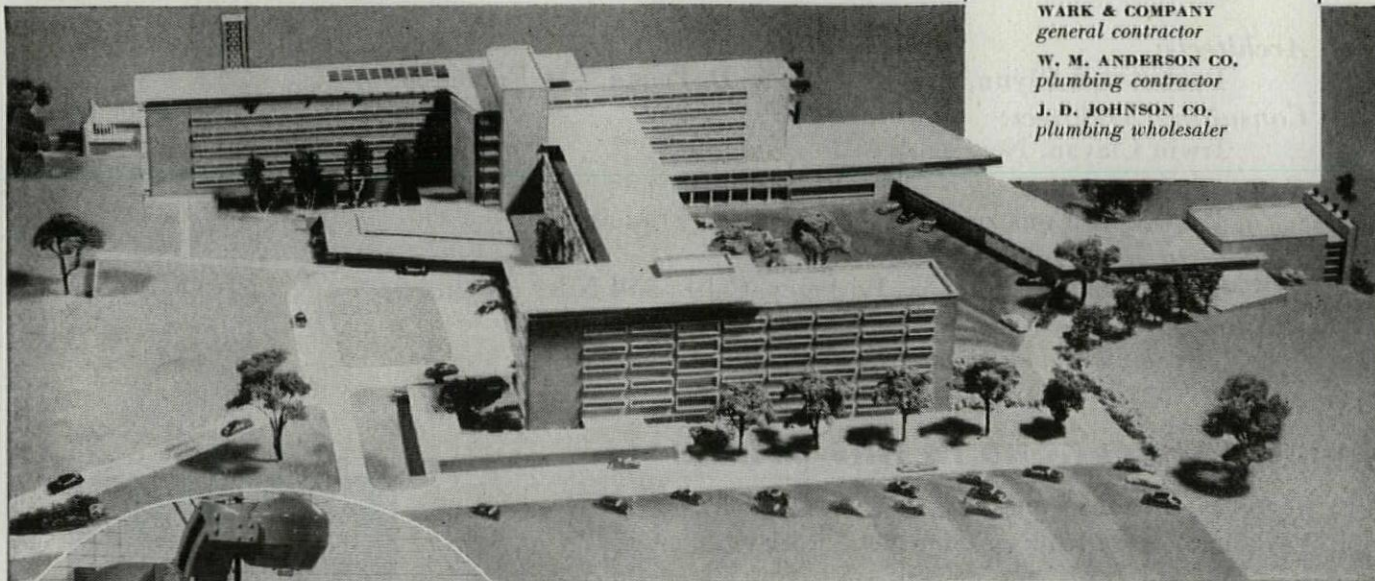
VINCENT G. KLING  
architect

A. ERNEST D'AMBLY  
mechanical engineer

WARK & COMPANY  
general contractor

W. M. ANDERSON CO.  
plumbing contractor

J. D. JOHNSON CO.  
plumbing wholesaler



In a lead-lined room 18 feet beneath this new hospital is a 7-ton "Cobalt Bomb" device that provides cancer-fighting radiation equivalent to that given off by \$50,000,000 worth of radium

## IT EVEN INCLUDES A HEALTH MUSEUM

• On a hilltop crowning a former 90-acre country club stands the new ten million dollar home of Philadelphia's long-famed LANKENAU HOSPITAL—classified by many as "the most modern hospital in America." The entire institution is distinguished by originality. One of its distinctions is the nation's first Health Museum located in a general hospital, the main purpose of which is to teach people how to stay well. The Museum contains exhibits, models and machines that show how all

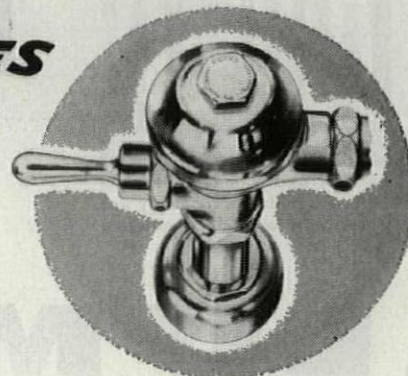
parts of the body function. It houses a 335-seat auditorium for lectures and health demonstrations. Patients are treated in an atmosphere resembling a resort hotel. Rooms have large picture windows. Each room has its own closet and bathroom facilities. As in the high majority of buildings of all kinds throughout the nation, efficient, economical and enduring SLOAN Flush VALVES were installed throughout this new ultra-modern hospital—more proof of preference that explains why...

more **SLOAN Flush VALVES**  
are bought 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. Architects specify, and Wholesalers and Master Plumbers recommend the Act-O-Matic—the better shower head for better bathing.

Write for completely descriptive folder





# CONTRACTORS SAVE UP TO 40% ON SHORING COSTS



Norwich State Hospital, Norwich, Conn.  
 Architect: Walter P. Crabtree, Jr., West Hartford, Conn.  
 Contractor: Mondelci & Benvenuti, New London, Conn.  
 Superintendent of Construction: Raymond Banks

**HICO\*** Girders span  
 29 feet  
 without support  
 Can be reused  
 100 times  
 or more . . .

HICO Girders offer contractors unprecedented savings in time and in the cost of supporting forms for cast-in-place or precast concrete construction. Adaptable to spans of any length, they are quickly erected and stripped. In less than one hour, four men can erect or take down all the HICO Girders required to support 800 square feet of forms.

And because they can be used again and again—100 times or more—HICO Girders eliminate the waste in timber shoring, pay for themselves in the savings they effect.

HICO Girders provide an exclusive and convenient method of cambering. By tightening a turnbuckle the girder is bowed upward by a predetermined amount based on the length of span and the load to be applied.

As concrete is poured, or precast blocks are set in place, the girders are deflected by the load to a perfectly straight line and held immovably in position until the forms are stripped.

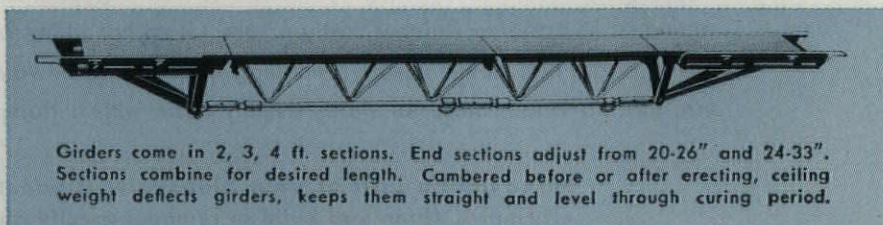
Stripping is accomplished by loosening turnbuckle and then disengaging end slides from their supports and removing girder in one piece.

**Widely Adaptable**—HICO Girders may be used with equal facility in reinforced concrete or fireproof structural steel construction. Because they require no shoring, height of ceiling is never a problem. The small sections also readily form arches, tunnels, and irregular shapes.

**Technical Help Furnished**—From drawings furnished by contractor, Webrib engineers make a detailed layout showing the number and type of HICO Girders required. These are

shipped to the job site already assembled and marked for identification. Although cambering is quickly, easily done without special tools, a Webrib engineer will visit the site and work with contractor personnel to familiarize them with all phases of use.

**Lease or Buy**—HICO Girders are available on lease with the option to buy; lease can be applied against purchase price. They can be purchased outright if desired. Reuse permits the cost of HICO Girders to be amortized at so low a rate per job that savings they effect soon pay for them. Write for Bulletin H-101 for complete technical data and price information.

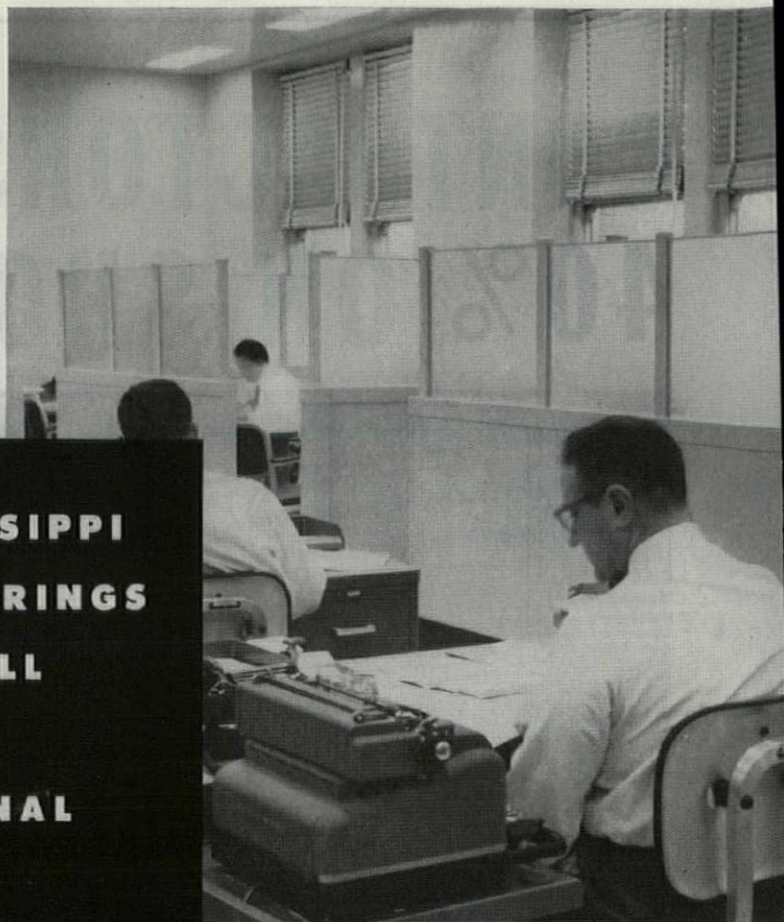
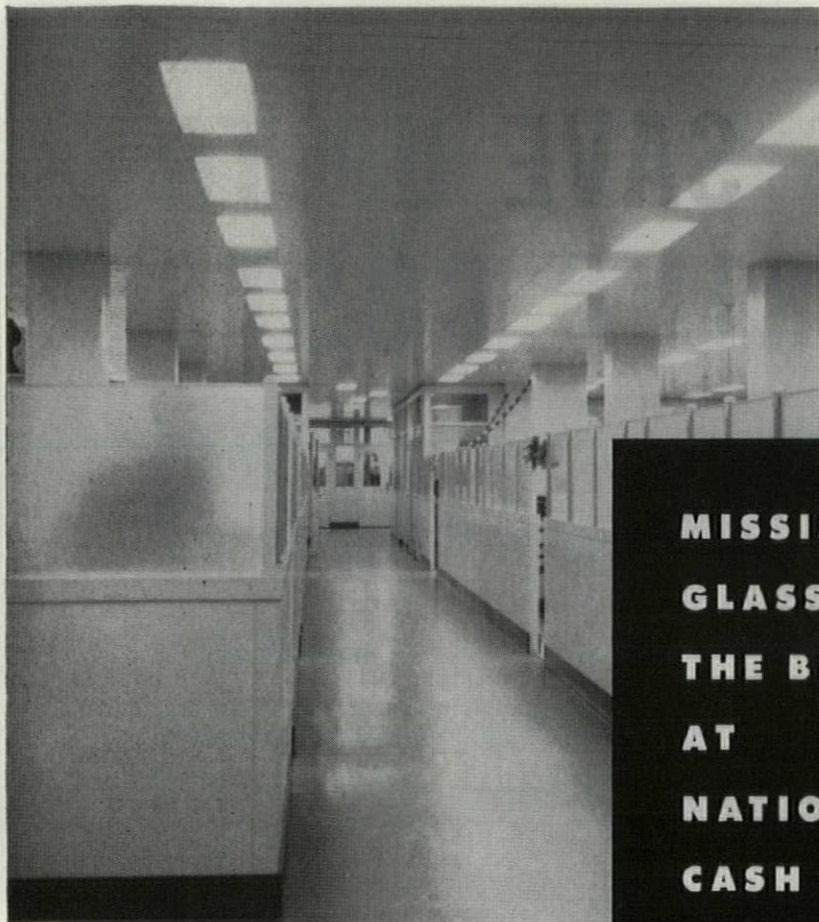


Girders come in 2, 3, 4 ft. sections. End sections adjust from 20-26" and 24-33". Sections combine for desired length. Cambered before or after erecting, ceiling weight deflects girders, keeps them straight and level through curing period.

**HICO\*** **GIRDERS**  
**WEBRIB STEEL CORP.**  
 120 BROADWAY, NEW YORK 5, NEW YORK

\*HICO is a trade mark of the Webrib Steel Corp., makers and distributors of HICO Girders.





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GLASS RINGS  
THE BELL  
AT  
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CASH  
REGISTER**

10,000 sq. ft. of Mississippi figured glass glazed  
in Mill's Movable Partitions. Glazing by  
George Behm & Sons, Dayton, Ohio.

**"Borrowed Light" is Added to Advantages of Moveable Walls  
by Installation of Translucent, Light Diffusing Glass**

National Cash Register Company long recognized as a model of efficiency and management, makes walls do double duty and gain beauty. Office space flexibility is assured by the use of Mill's movable walls . . . while the added advantages of borrowed light provided by glass promote efficiency in present or future arrangements.

Translucent without being transparent, this modern glass protects privacy completely—yet floods adjoining areas with copious quantities of soft, diffused, glare-free light. Interiors appear larger, brighter, more cheerful . . . and more pleasant working conditions boost employee morale. The higher illumination levels makes seeing tasks easier—reduces costly errors. Glass has utility as well as beauty—it never wears out, never needs refinishing or painting. Always new, always modern, this marvelous material wipes shining clean with a damp cloth.

**Make light a part of your plans—let it boost your efficiency. When you build or remodel specify glass by Mississippi. Available in a wide variety of patterns and surface finishes wherever quality glass is sold.**



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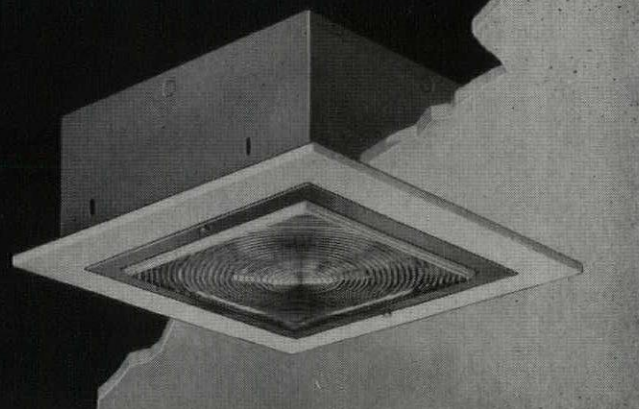
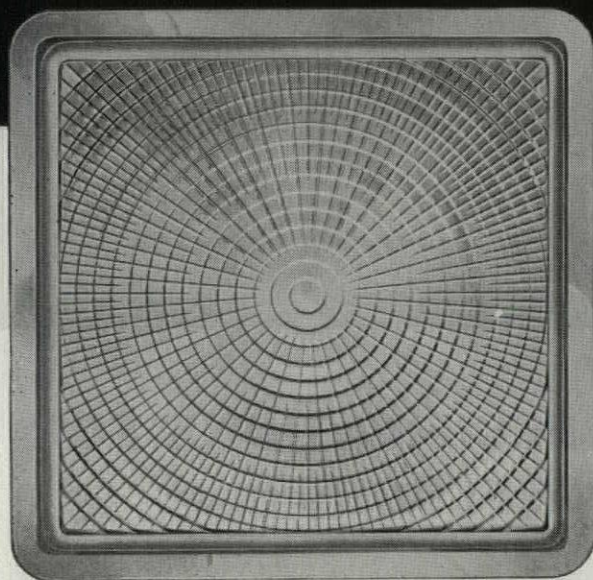
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ARCHITECTURAL  
FILE  
or write for copy

WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS



Offer clients these benefits by specifying

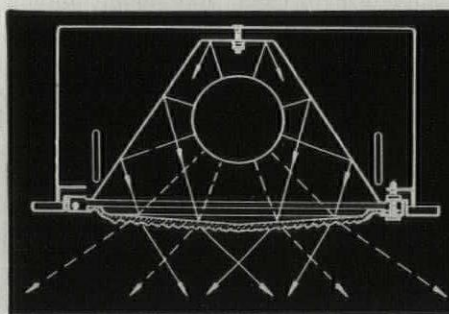
# ART METAL advanced ELIPTISQUARE



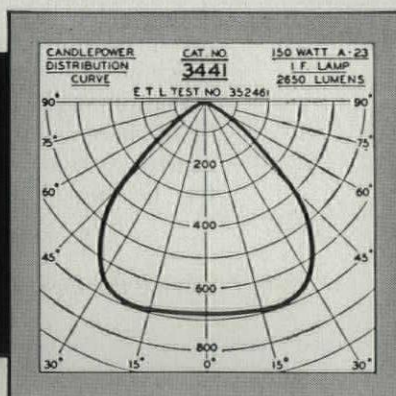
with clear, prismatic  
**AMCOLENS**

- Lighted objects reflect their true color value
- Highest light transmission efficiency
- Precise light direction control
- Edge light to ceiling for visual comfort
- Shallow recessed lens lighting

**advanced  
ELIPTISQUARE**  
Multiplies Light Output



Eliptisquare reflector redirects *all* box-enclosed light downward through AMCOLENS to multiply lamp light utilization.



Please notice that the candlepower distribution curve is by Electrical Testing Laboratories, Inc., not The ART METAL Company.

May we send Bulletin 254 which gives complete details?  
Please write:

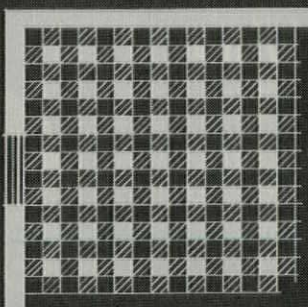
THE **ART METAL** COMPANY  
CLEVELAND 3, OHIO



**Manufacturers of Engineered Incandescent Lighting**



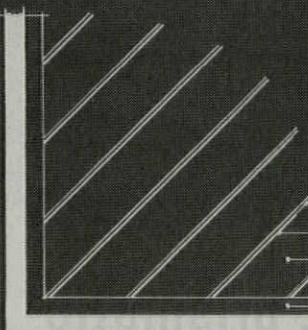
## FROM DETAIL DRAWING



FLOOR DESIGN  
ROOMS  
6 · 10 · 13 · 14

ARMSTRONG'S  
1/8" ASPHALT TILE  
ALL TILE · 9" x 9"

- ☒ D · 342
- ☐ C · 324
- ☐ B · 335



FLOOR DESIGN  
OFFICE · Rm 125

ARMSTRONG'S  
1/8" GAUGE LINOLEUM

- # 23 · 1" LINOSTRIP
- # 27 · 1/2" LINOSTRIP
- # 13 · JASPE
- # 27 · PLAIN

Simple detail drawings of the floor design with the manufacturer's color numbers indicated eliminate the need for a full description of the materials to be used. From the drawings and general specifications, the bidding contractor can quickly see the work involved in the flooring job.

## FROM SPECIFICATIONS

### Section No. 10 — Resilient Flooring

Furnish and install 1/8" Armstrong's De Luxe Asphalt Tile and heavy gauge Armstrong's Linoleum in the colors, patterns, sizes, and designs shown on the drawings and in the areas listed in the schedule of finishes.

All products covered by these specifications are to be installed in accordance with the latest edition of Armstrong's Installation Specifications by a qualified Armstrong flooring contractor whose bid shall include all the materials and labor required.

## CLEAR SPECIFICATIONS FOR RESILIENT FLOORS

The complexities of resilient flooring installation, labor, and material costs are generally of no great concern to the architect. However, it is important that he be able to classify the materials and work to be done so that all bidding contractors will base their estimates on the same standards. In many instances, the misunderstandings that occasionally arise between the architect and the flooring contractor stem from the specification writer's incomplete knowledge and understanding of the details which affect the contractor's labor and material costs.

Because of the wide scope of the specification writer's work, it is impractical for him to become familiar with all such details. However, if he has a working knowledge of variations in cost of resilient flooring materials, labor, and subfloor preparation, he should have little trouble in writing clear and concise specifications.

### Price Variations in Flooring Materials

Among the factors which govern resilient flooring material prices are:

- Type and Style of the Resilient Flooring
- Gauge or Thickness of the Material
- Color and Graining
- Standard or Special Sizes

Resilient flooring materials are manufactured in several types and gauges to meet various service requirements. In many cases, each type is made in a number of stylings to permit greater opportunities in interior design. For example, Arm-

*Armstrong Floors*

**LINOLEUM**

PLAIN  
SPATTER®

JASPE  
RAYBELLE®  
ROYELLE  
MARBELLE®

STRYPPEL®  
CRAFTLINE INLAID  
EMBOSSED INLAID  
STRAIGHT LINE INLAID



strong's Linoleum is made in nine stylings, Armstrong's Corlon plastic in four, and Armstrong's Asphalt Tile in two grainings.

One of the items most often omitted from resilient flooring specifications is the naming of the particular flooring style and color group. This part of the specification is a very important factor in figuring costs. For example, Armstrong's Linoleum falls into three separate price groupings according to style and color. Plain Linoleum in regular colors, Jaspé, Raybelle, Marbelle, and Royelle are all in one price range, while Embossed Inlaid, Spatter, Straight Line Inlaid, and Craftline Inlaid are priced slightly higher. Plain Linoleum in special colors is in the highest linoleum price grouping.

Asphalt tile is another example. It falls into two price groupings — De Luxe or swirl grain, and a lower priced Standard, or straight grain styling. Prices within these two groups vary according to color. The "A" or darkest colors are the lowest in cost and grade up in price to the "D" or lightest colors.

Armstrong's Rubber Tile, Cork Tile, Custom Corlon Tile, Linotile and Excelon Tile vary in product cost, but there is no price differential within the color line of each.

One of the clearest ways to specify resilient flooring materials is to indicate the manufacturer's name and color number. When this is not possible, or if a floor design cannot be selected in advance, it is important that a clear understanding be given of the amount of each material to be used. For example,

"Asphalt tile design to be composed  
of color groups: B—25%, C—50%,  
D—25%, . . . . . or,  
". . . Linoleum in rooms 110 and  
112 to be 1/8" jaspé with 12" bor-  
ders of 1/8" plain regular colors."

Such a specification will give each flooring contractor a standard basis for bidding.

#### Variations in Contractor's Installation Costs

The labor involved in laying a particular floor design is another big factor in figuring price. If the architect fails to give a clear idea of the complexity of the design, the contractor may base his bid on fewer installation man hours and underbid the job. In such cases, there is sure to be an expenditure of time and words—if not money—before the misunderstanding is settled.

To prevent such misunderstandings, it is recommended that the architect show detail drawings of at least one typical floor design when they are too complex for adequate description in the specifications. An example of such a drawing is shown above. Simplified specifications of materials, colors, gauges, and sizes shown on, or supplied with, the drawings will also be helpful to the contractor in accurately understanding and figuring the labor and materials required for the installation. It should be noted that special tile sizes add to the over-all cost of the flooring and should be used only when they are required to complete a particular floor design.

#### Underlayment Requirements in Remodeling Jobs

On remodeling work it is always advisable to list all necessary repairs in the specifications, such as replacing badly worn boards, sanding floors, filling cracks in concrete, etc. Never use a blanket specification such as, ". . . the old subfloor shall be repaired to provide a suitable base for resilient flooring." Such specifications invariably invite the least expensive method of subfloor preparation, which is seldom in the best interest of the client. From the contractor's point of view, competition leaves him no choice but to base his bid on the least expensive method of subfloor repair. Tight subfloor preparation specifications put all contractors on an equal bidding basis.

When hardboard or plywood underlayments are being specified, the architect should indicate the type, thickness, and grade recommended by the manufacturer of the resilient flooring being specified.

It is not necessary for the architect to specify how the flooring contractor should install the flooring materials. It is far safer and more exact to specify that the materials be "installed in accordance with the manufacturer's latest printed instructions."

Armstrong Cork Company makes all types of resilient floors for all types of interiors. Almost any flooring problem can be met with one or more of the floors in the Armstrong Line. As a result, we have no special bias toward any one type and can offer architects impartial recommendations on any flooring problem. Our main interest is to aid you in making a sound flooring selection.

Armstrong's sales representatives throughout the country will be glad to consult with architects and make specific recommendations for individual jobs. Your Armstrong representative has a wide variety of experience and training in resilient flooring and can also call upon Armstrong's Research and Development Center for assistance with special problems.

For helpful information on any flooring question, just call your nearest Armstrong District Office or write direct to Armstrong Cork Company, Floor Division, Lancaster, Pa.

**PLASTICS**  
CUSTOM CORLON® TILE

EXCELON® TILE  
DECORESQ CORLON  
GRANETTE CORLON  
TERRAZZO CORLON

**RESILIENT TILES**

ASPHALT TILE De Luxe  
Standard Flagstone

RUBBER TILE  
LINOTILE®  
CORK TILE  
LINOLEUM TILE







*Now more than ever before...*

**LUDMAN . .**

LUDMAN ENGINEERING  
AND PLANNING SERVICE  
is available for any job, large or  
small.

COMPLETE QUALITY CON-  
TROL from raw metal to finished  
windows. Produced in the largest  
plant of its kind in the world.

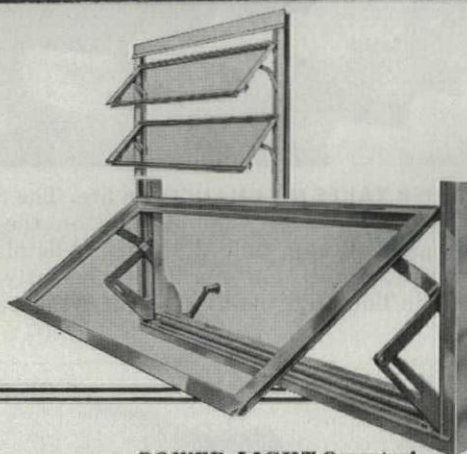


# HERE IS NO EQUAL TO



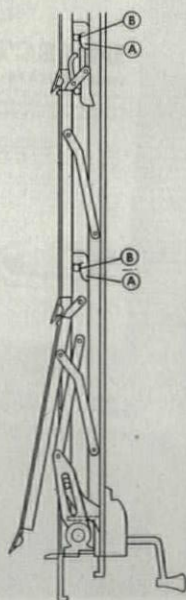
## The World Leader in Window Engineering, Introduces Another in its Series of Major Fenestration Achievements!

### AUTO-LOK MODEL B WITH TORQUE BAR OPERATION and POWER LIGHT, strip-proof operator.



#### Other Awning Type Windows with Torque Bar

Since it is virtually impossible for all vents in most awning type windows to be brought in at the same time, where there are no locking devices pulling in the vents, pressure must be exerted on the hinge points of those vents (see 1 and 2 on adjacent illustration) that are closed first in order to bring in the other vents. This excessive pressure will cause wear and tear on the hinge points and will throw the vents out of alignment. Minor adjustments can be made a few times, but ultimately it will be impossible because of the constant pressure on the hinge points and the limits of the adjustments to secure a permanent type closure.



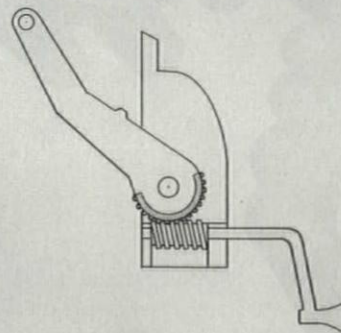
#### Ludman Auto-Lok MODEL B Window with Torque Bar

Showing all vents closed and locked, with fresh air night vent automatically left open. Torque bar operation is required only to bring in the bottom night vent. Keepers A engaging pin B on each vent eliminate the necessity for any pressure being exerted on the hinge points of all other vents, as occurs on other awning type windows, enabling Ludman Auto-Lok windows to last for the life of the building.

Ludman's MODEL B with torque bar operation Auto-Lok window, retains all the fundamental operating principles of the Auto-Lok Standard Model A window.

#### POWER-LIGHT Operator!

Note cross section showing nearly four tooth engagement of strip-proof worm thread gear and oil impregnated powdered metal (bronze and steel) gear cast into operator arm (see shaded area). Ludman's exclusive graceful and compact POWER-LIGHT Operator, (available in both over-the-sill and angle types) supplied on no other awning type window, will provide smoother and easier operation, furnish maximum power and give lifetime satisfaction.



# LUDMAN

## CORPORATION

NORTH MIAMI, FLORIDA

Refer to SWEET'S FILE 16



Member of the Producers' Council, Inc. SEND COUPON TO-DAY for illustrated literature showing various styles and sizes, with complete information and name of nearest Auto-Lok Dealer.

LUDMAN CORPORATION—Dept. AF-7  
North Miami, Florida

Gentlemen: Please send complete information about Auto-Lok Windows.

☐ Wood ☐ Aluminum ☐ Windo-Tite Jalousies

Name .....

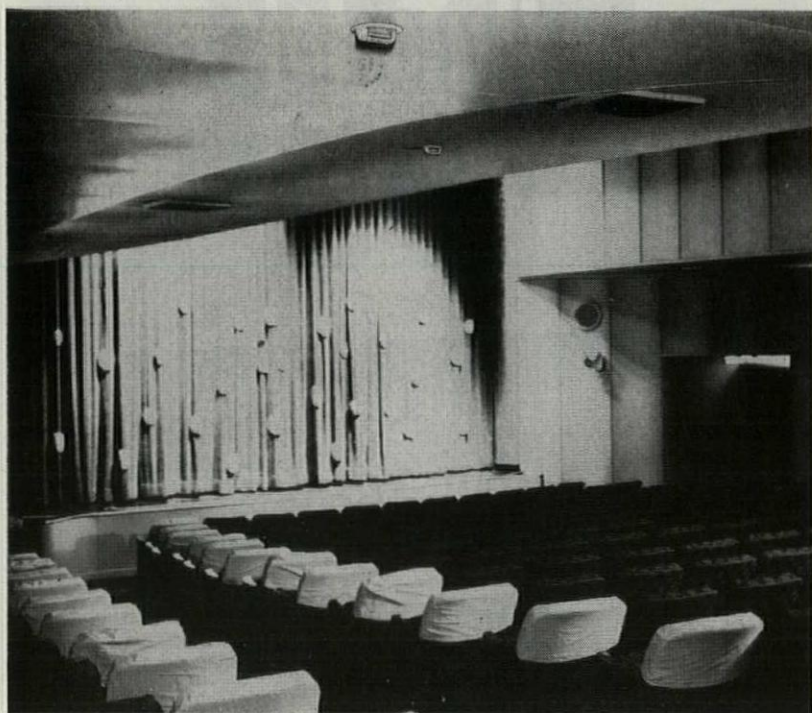
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City ..... State .....

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# The MOST DEPENDABLE, PERMANENT detector for fire alarm or release systems is DETECT-A-FIRE®



**1. SHIP'S THEATER TAKES NO CHANCES** on fire. The S. S. United States has DETECT-A-FIRE thermostats on the job in its beautifully designed theater, and all other public places. These thermostats are constantly on guard, permanently protecting this most modern liner and the lives of those sailing on her.



**2. WHY RISK CHILDREN'S LIVES?** The menace of school fires, like the one shown in the illustration above, need no longer exist. The protection of lives and valuable property should be of prime consideration in planning construction of all public buildings.



**3. AUTOMATIC FIRE ALARM SYSTEMS** are a permanent installation and must always be ready to function immediately and repeatedly as fires occur. Fenwal DETECT-A-FIRE units are worth the slight extra cost since they pay for themselves in two ways — Greater Safety — Permanent Dependability.



**4. FREE BULLETINS** (above) contain complete details on Fenwal DETECT-A-FIRE thermostats, the only unit bringing you the benefits of Rate-Compensation Actuation, a unique principle of fire detection. Fenwal engineers will gladly work with your system installer so that you will enjoy the advantages of *full* fire protection and *long term* economy. Write Fenwal Incorporated, 257 Pleasant Street, Ashland, Mass.



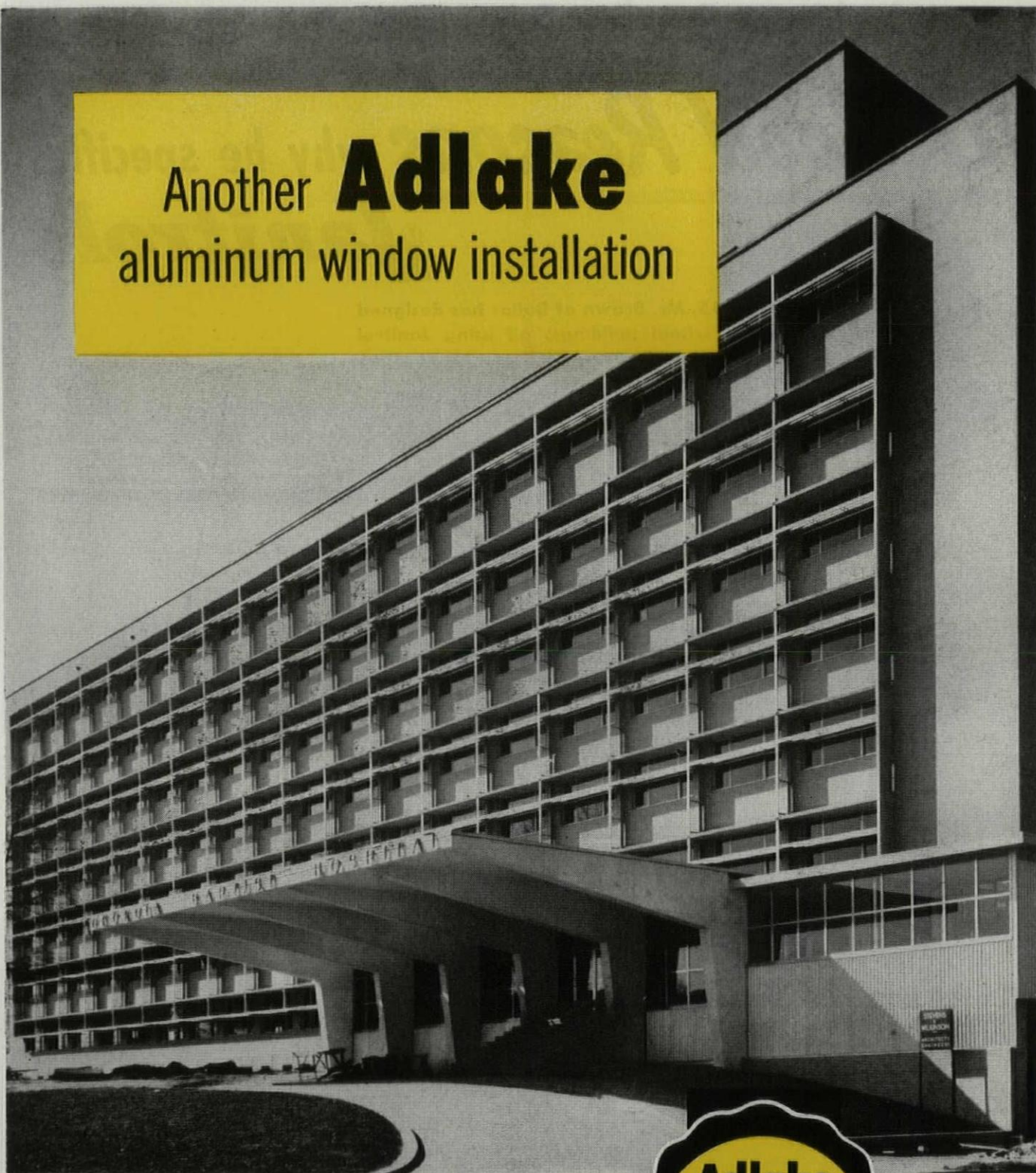
**DETECT-A-FIRE®**

Thermostats

DYNAMIC, RATE-COMPENSATION ACTUATED FIRE DETECTORS



# Another **Adlake** aluminum window installation



Georgia Baptist Hospital—Atlanta, Georgia; Stevens & Wilkinson, Inc.—Architects; Henry C. Beck—Contractor.

- Minimum air infiltration
- Finger-tip control
- No painting or maintenance
- No warp, rot, rattle, stick or swell
- Wool woven-pile weather stripping and exclusive patented serrated guides

**The Adams & Westlake Company**

Established 1857 • ELKHART, INDIANA • Chicago • New York  
Also Manufacturers of ADLAKE Mercury Relays and ADLAKE Equipment for the Transportation Industry

**Adlake**  
**PROVEN**  
**QUALITY**  
**WINDOW**

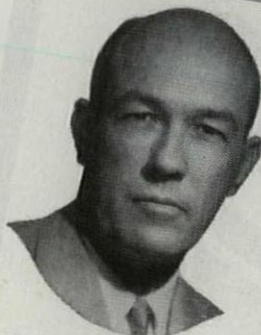
This window meets or exceeds  
all quality industry specifica-  
tions for aluminum windows.

THE  
Adams & Westlake  
COMPANY  
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*97<sup>th</sup> year*  
of serving the transportation  
and building industries

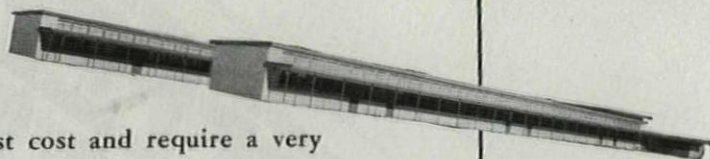


Architect Stanley Brown, A. I. A. gives  
**10 Good Reasons** why he specifies  
**Janitrol**



Since 1945, Mr. Brown of Dallas has designed over 50 school buildings, all using Janitrol Gas-Fired Unit Heaters, here are his reasons...

1. Janitrol units have met with the approval of every client.
2. They are economical in first cost and require a very minimum of maintenance.
3. Ceiling suspended, they occupy no valuable floor area.
4. Installation provides absolute safety for school children.
5. Thermostat control assures good heat at the right place and at the proper time regardless of outside weather conditions.
6. Blower fan is often used as air circulator in summer.
7. Classrooms can be heated very quickly.
8. Forced-air heat gives a good distribution of warm temperatures.
9. Heaters are compact, with a pleasing appearance.
10. Janitrol Unit Heaters have been satisfactory in every way and the service given by your distributors has been excellent.

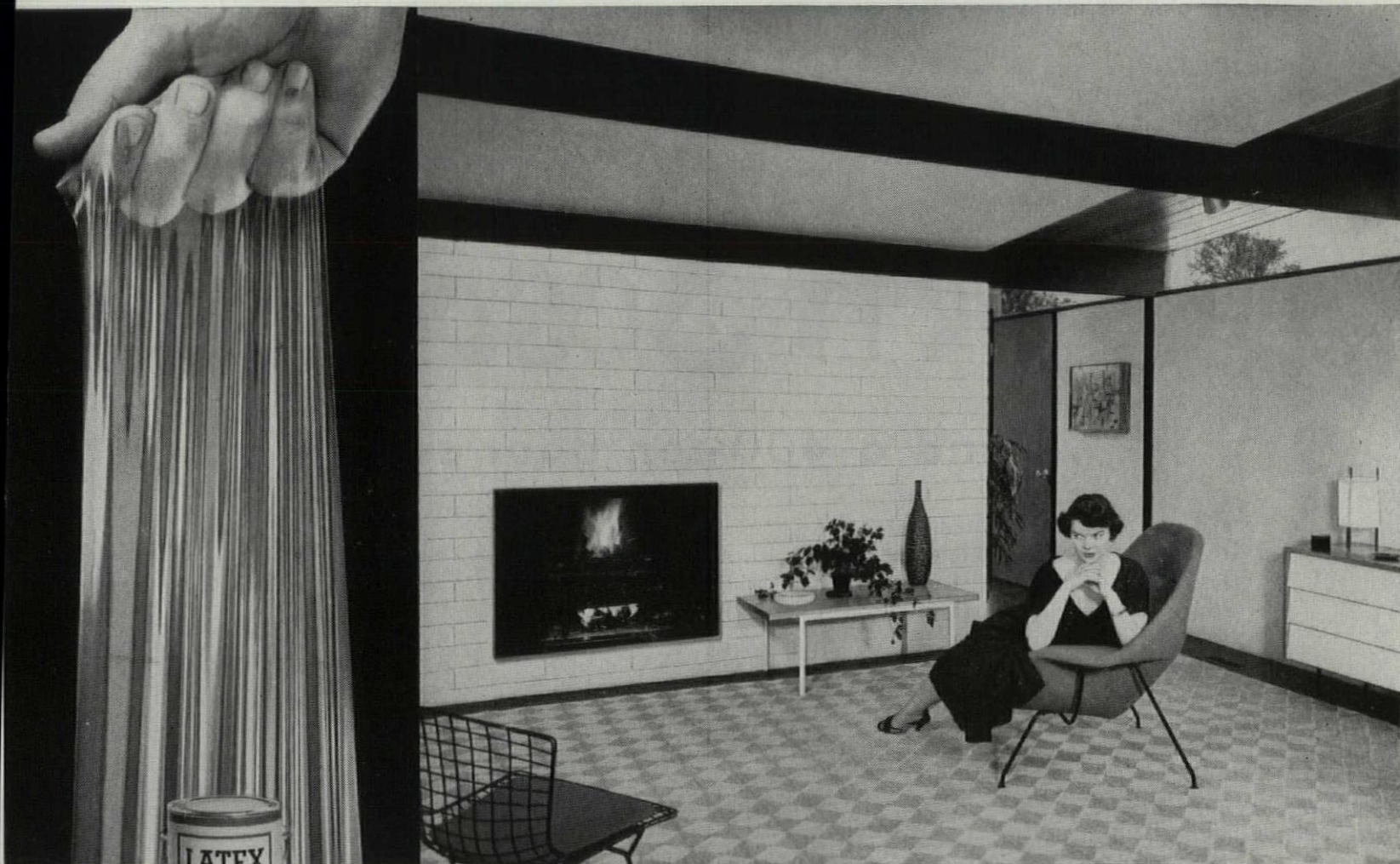


**Janitrol** Gas-Fired  
 UNIT HEATERS

JANITROL DIVISION  
 SURFACE COMBUSTION CORPORATION

Write for A. I. A. Files on Commercial  
 and Industrial Heating with Gas  
 DUBLIN AVENUE, COLUMBUS 16, OHIO





Joseph Dworski, A. I. A., Architect — Edward Elliott, A. R. I. B. A., Designer

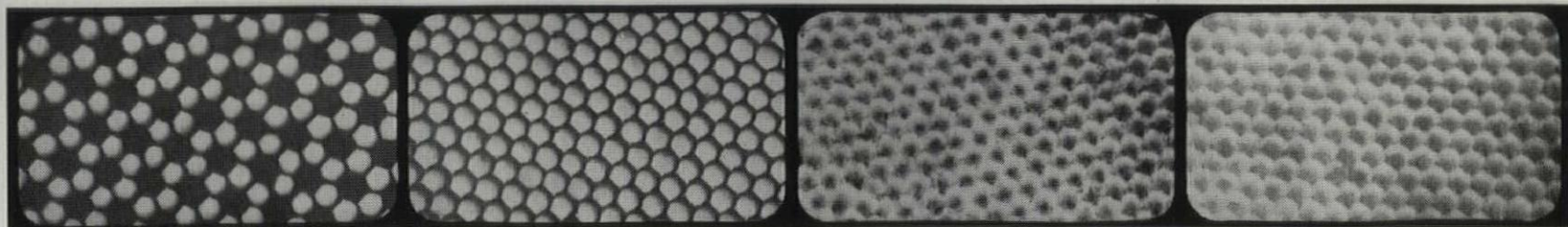
## Only LATEX PAINTS protect walls with this tough, continuous, protective film

That's why they're unusually cleanable and durable . . . give uniform finish to many types of surfaces

Latex paints are different! Based on a new concept of paint chemistry, they offer you a combination of advantages no other paints can match. They dry to a tough, impermeable film that's highly resistant to acids, alkali and greases. Because of this smooth film surface they can easily be cleaned with soap and water and are so durable even repeated scrubbing won't change their color and light-reflecting surface.

But those aren't the only advantages of latex paints. They apply easily, dry quickly, leave no

objectionable odor, save cleanup time. In addition, latex paints can be applied over hot plaster with savings up to \$75.00 in a five room house! Leading paint manufacturers make latex paints in a wide range of colors to match or complement every conceivable decorating scheme . . . in soft pastels, modern deep tones and bright, warm hues. For further information on these wonderful new paints, write to Dow, Plastic Sales, Department PL 514M, THE DOW CHEMICAL COMPANY, Midland, Michigan.



This Dow microphoto shows how latex looks as a paint raw material. Tiny latex balls suspended in water.

As the latex spreads out in a layer and the water evaporates, the little balls start to move closer together.

As the latex dries further, the balls crowd closer until they all touch . . . a film of latex is now starting to form.

Now tremendous forces of cohesion take part. The latex balls are fused together into a continuous elastic film.

you can depend on DOW PLASTICS

DOW



# "Open Sesame"

...and a 400-ton door swings up

• Magic? Not really. A little engineering magic maybe, but mostly good, sound planning and the right choice of structural materials—the right choice in this case being USS Structural Steel, the strongest, yet most economical, of load-carrying materials.

Two of these mammoth Tele-canopy doors form the sides for the huge new hangar at Lockheed Aircraft Corporation-operated Government Aircraft Plant Number 6 at Marietta, Georgia. Each door consists of eight leaves, or sections. Each section weighs 50 tons. Any of the leaves can be raised or lowered independently, or all eight can be operated simultaneously. In order for these sections to operate smoothly and join perfectly, they must be rigid and strong—must retain their shape under frequent operation and under all conditions of wind and weather. That's why USS Structural Steel was chosen to do the job.

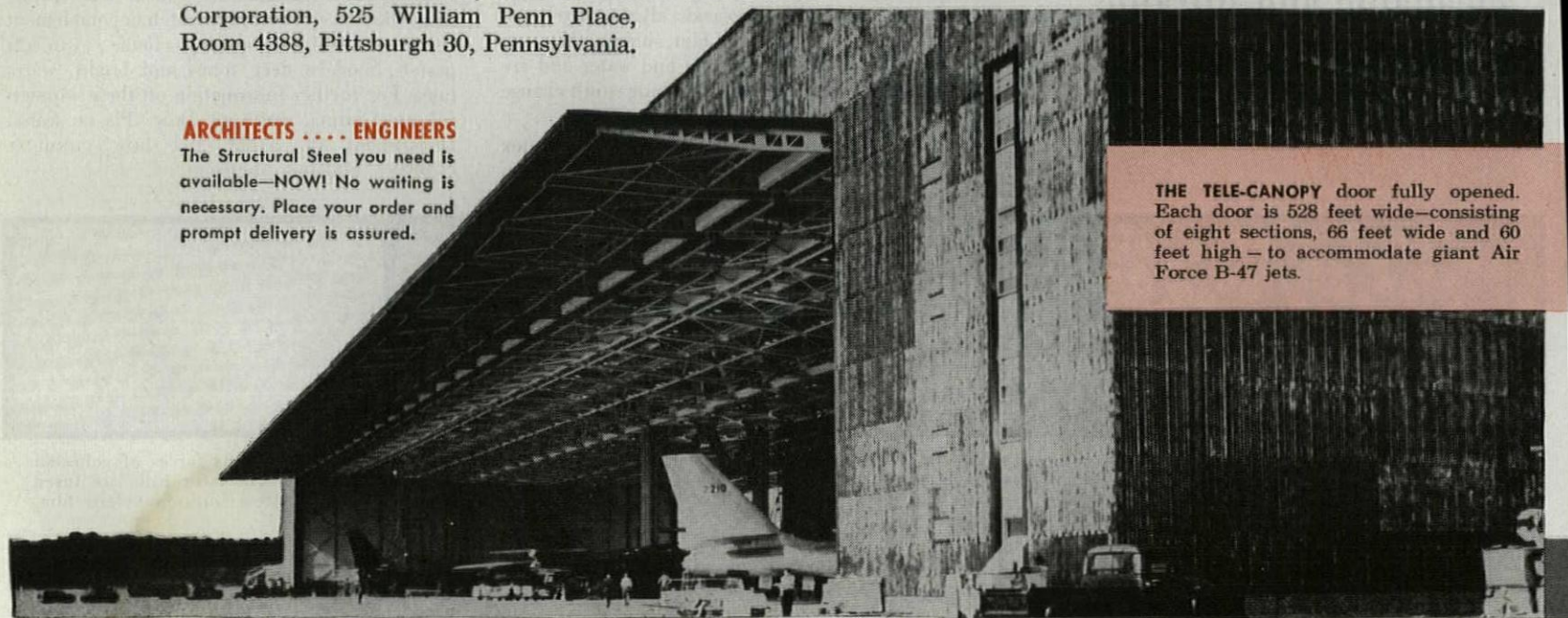
Structural Steel will withstand more abuse than other structural materials. It resists tension, compression, torsion, and shear. Enclosed in buildings, Structural Steel will last indefinitely—requiring no maintenance. Equally adaptable to riveting, welding or bolting, it can be erected in any weather in which men can work. Moreover, since steel members are fabricated indoors, weather can have no effect on the quality of workmanship.

For further information, write to United States Steel Corporation, 525 William Penn Place, Room 4388, Pittsburgh 30, Pennsylvania.

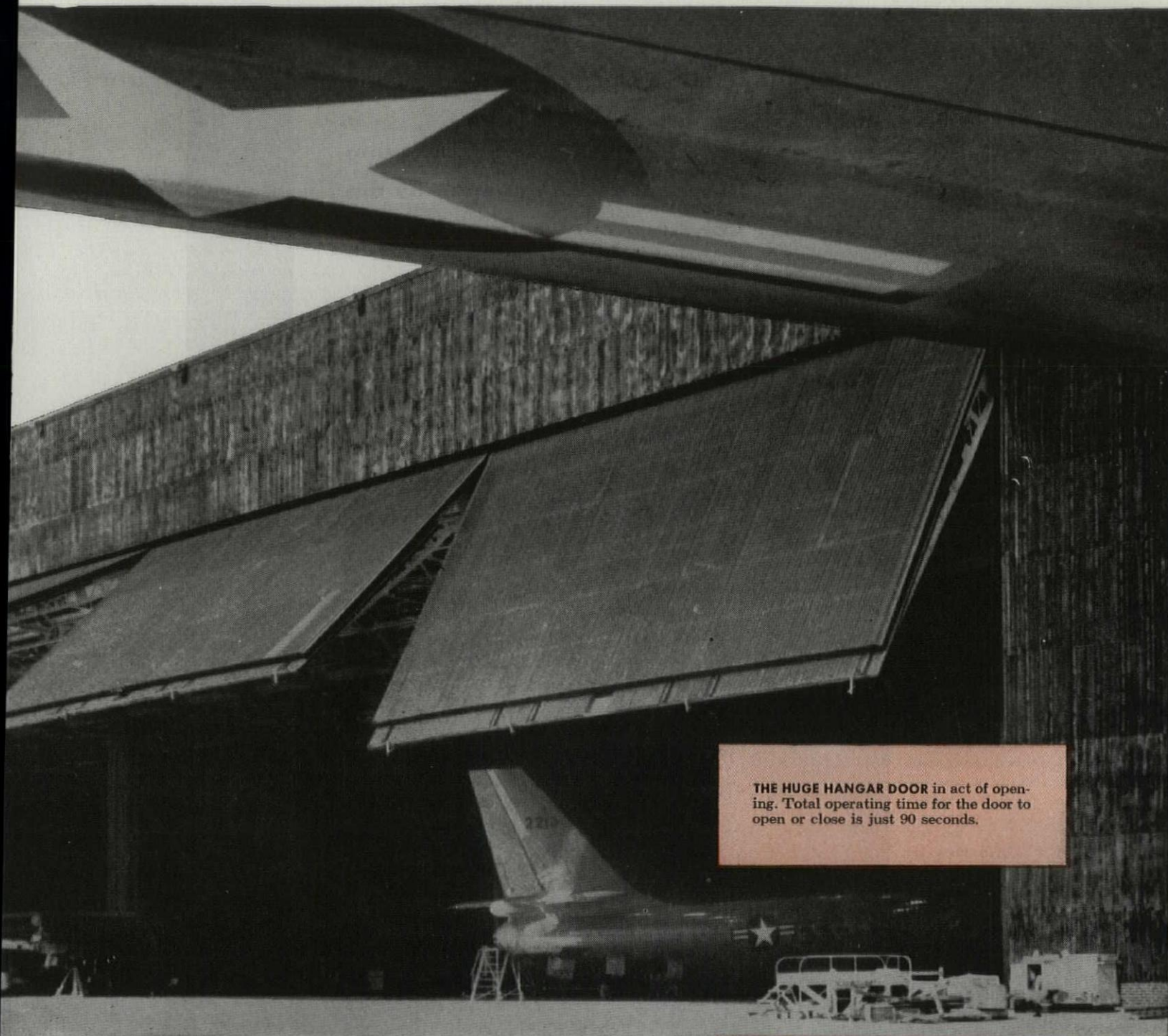
## ARCHITECTS . . . . ENGINEERS

The Structural Steel you need is available—NOW! No waiting is necessary. Place your order and prompt delivery is assured.

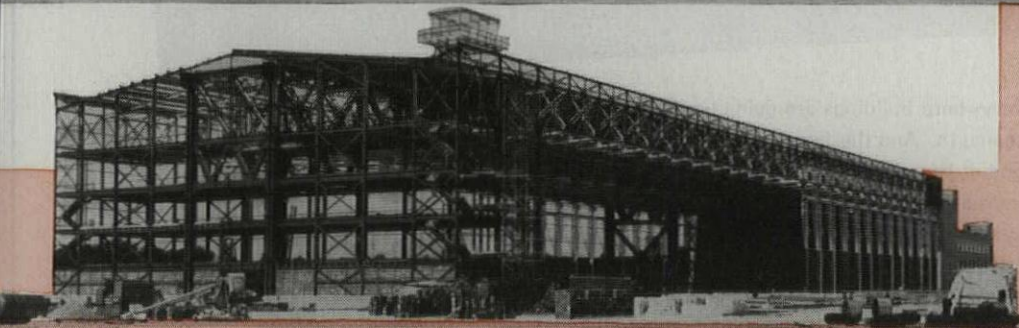
THE TELE-CANOPY door fully opened. Each door is 528 feet wide—consisting of eight sections, 66 feet wide and 60 feet high—to accommodate giant Air Force B-47 jets.







**THE HUGE HANGAR DOOR** in act of opening. Total operating time for the door to open or close is just 90 seconds.



**THE STRUCTURAL STEEL FRAMEWORK** of the hangar during erection. Notice the door sections already in place at the right end of the structure. The doors were engineered and built by International Steel Company, Evansville, Indiana, in cooperation with Robert & Co. Associates, Atlanta, Ga., Architects and Engineers. The Contractor was Blount Bros. Construction Co., of Montgomery, Alabama.

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
 TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS  
 UNITED STATES STEEL EXPORT COMPANY, NEW YORK

# USS STRUCTURAL STEEL



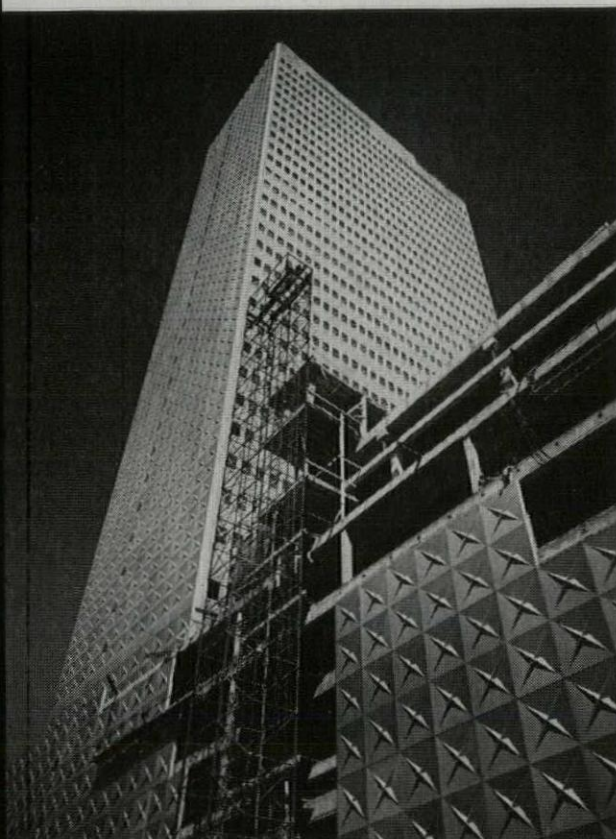
U N I T E D   S T A T E S   S T E E L



**Another distinguished building  
air conditioned by the  
Carrier Conduit Weathermaster System**

Scores of modern  
buildings, new or under  
construction, choose  
Conduit Weathermaster  
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New York  
Phoenix Insurance, Hartford  
Prudential Insurance,  
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Prudential Insurance,  
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Republic National Bank Building, Dallas

Everywhere buildings are going up, air conditioning is going in. And the finest new buildings are installing Conduit Weathermaster\* Systems. This year-round air conditioning, perfected by years of unmatched experience, requires a minimum of space, permits more usable floors in the same building height. Occupants of each room can dial their own climate. Operation is quiet; there are no moving parts within the room. And maintenance is simplified; all operating equipment is centralized. Carrier Corporation, Syracuse, New York. \* Reg. U. S. Pat. Off.

Architects: Harrison and Abramovitz. Associate Architects: Gill & Harrell and Associates.  
Consulting Engineers: Jaros, Baum & Bolles. Associate Consulting Engineers: Zumwalt and Vinther.  
General Contractors: J. W. Bateson & Co., Inc. Mechanical Contractors: Farwell Company, Inc.

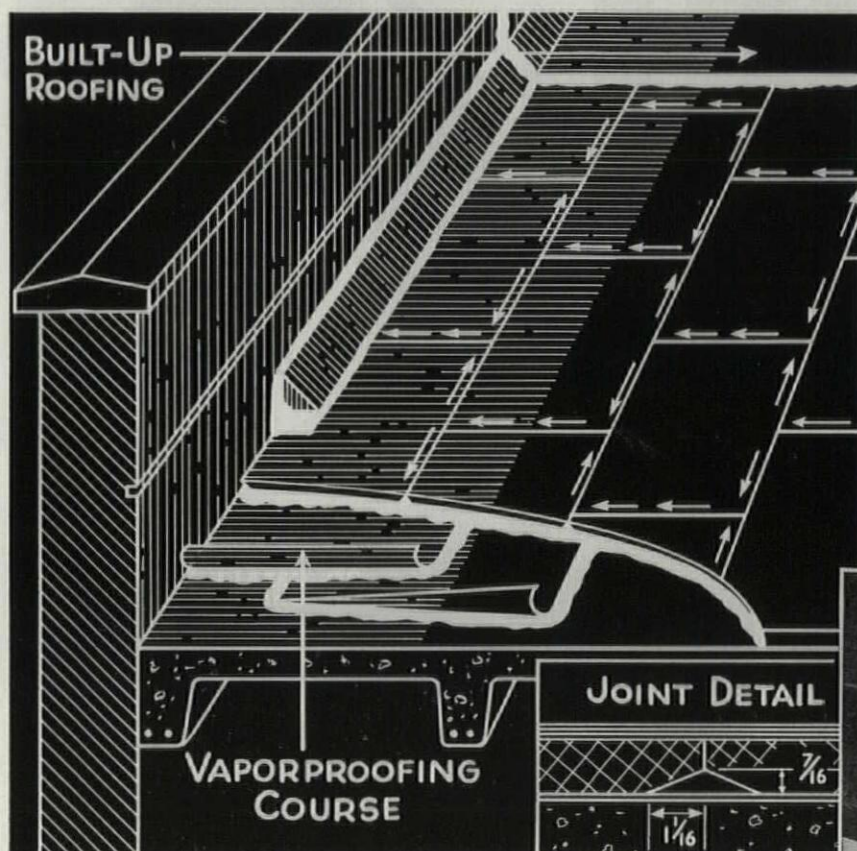
first name in air conditioning





# EXCLUSIVE NEW CHANNELING

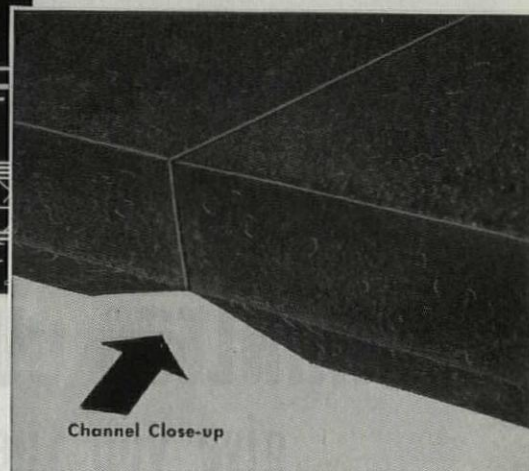
has no equal in guarding against



## 1. Blistering

## 2. Separation of felt and insulation

This shows how Celotex Channel-Seal Roof Insulation prevents build-up of high-pressure air pockets. Pressures due to temperature differences are constantly being equalized by movement of air through the channels. This channeling principle of roof protection has been proved effective by years of use on jobs of every type and size.



## Celotex Channel-Seal Roof Insulation gives Positive Protection!

Installed, Celotex Channel-Seal Roof Insulation forms a network of channels that permit free circulation of air beneath roof surface. In this way, an *extra margin* of safety against costly roof damage is provided. These built-in "safety releases" equalize pressure of air trapped in the roof, give protection found in no ordinary roof insulation!

### Trapped Air Finds Escape

Each piece of Channel-Seal has bevels 7/16" high by 1-1/16" wide on all bottom edges. When units are laid on the deck, these bevels form interconnecting channels across the entire roof.

High pressure areas, building up from rising surface temperatures, are relieved by air and vapor movement through the channels. This equalizes and reduces pressure — minimizes the danger of blistering, or separation of felt from insulation!

Celotex Channel-Seal Roof Insulation is made of a low density board of high insulating efficiency. It comes in a range of thicknesses to meet the specific insulation requirements of each job. Both sides, all edges asphalt coated for extra moisture protection in storage and on the job.

### Low-Cost, Quickly Applied

Light and easy to handle, yet remarkably

rigid and tough, Channel-Seal is low in both initial and applied cost. Resists damage from job handling. Quick, easy to apply. Smooth surface assures positive bond to both roof deck and roofing felt.

Insist on genuine Celotex Channel-Seal . . . the only roof insulation made of tougher, stronger, long Louisiana cane fibers — and protected by the patented Ferox® Process from dry rot and termite attack. Write now for full data on Channel-Seal and other types of job-proved Celotex Roof Insulation.

Just address The Celotex Corporation, Dept. AF-74, 120 S. La Salle St., Chicago.

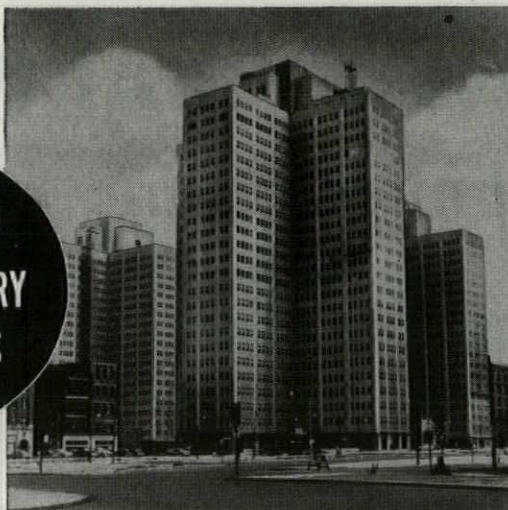
*For a better roof...specify genuine*

THE CELOTEX CORPORATION  
120 SOUTH LA SALLE STREET • CHICAGO 3, ILLINOIS

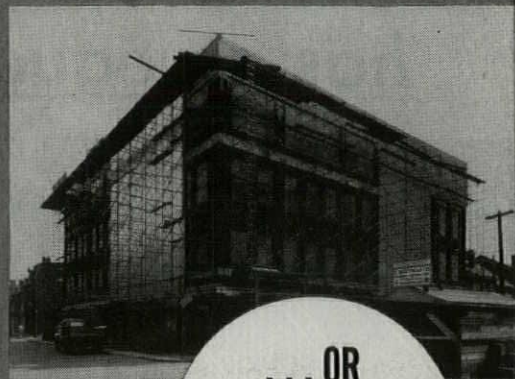
**CELOTEX**  
REG. U. S. PAT. OFF.  
**ROOF INSULATION**



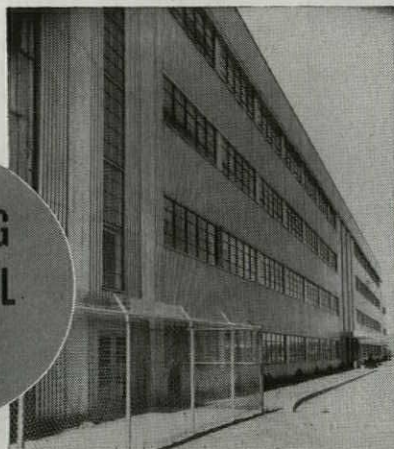
FOR NEW  
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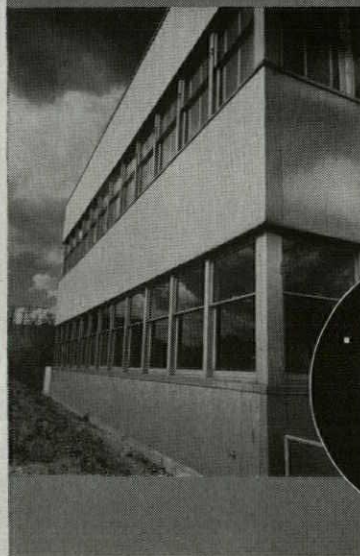
... OR  
SHEATHING  
OLD ONES



... OR BIG  
INDUSTRIAL  
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... OR SMALL  
INDUSTRIAL  
BUILDINGS



## STAINLESS CURTAIN WALLS

give you the best "long pull" investment

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- 1 "AL Structural Stainless Steels"—12 pages on stainless grades, properties, forms, finishes, standard "specs," uses and advantages.
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- 3 "Stainless Steel Curtain Walls"—A 24-page progress report on methods. A1A File No. 15-H-1.

Write for Details

Address Dept. B-55

Curtain wall panels faced with Allegheny Metal have *all* the advantages. They can give your building the truly modern look. They have a soft, highly attractive luster and permit wide latitude in design for individual appearance. They're light and strong . . . can be used for sheathing or "face-lifting" operations on existing structures, as well as for any type or size of new commercial building or institution.

*Compared to brick or masonry construction,* stainless curtain walls present savings at every turn: in lighter foundations; in enlarged floor space; in fast all-weather erec-

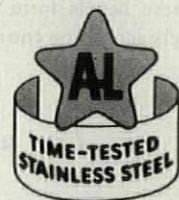
tion; in reduced maintenance, easy cleaning and freedom from painting. And—*compared to any other curtain wall facing material*—stainless steel is the hardest, strongest and most resistant to smoke, fumes, weather, wear, etc. It is the one material that can best take a beating . . . that costs the least in the long run because it lasts the longest.

Our Engineering and Research Staffs, etc., are at your service—anywhere, anytime. • Let us work with you. *Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.*

Make it **BETTER**-and **LONGER LASTING**  
with **Allegheny Metal**

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*Here's a new way to cut costs and save time on duct take-off installations!*

**ANEMOSTAT®**

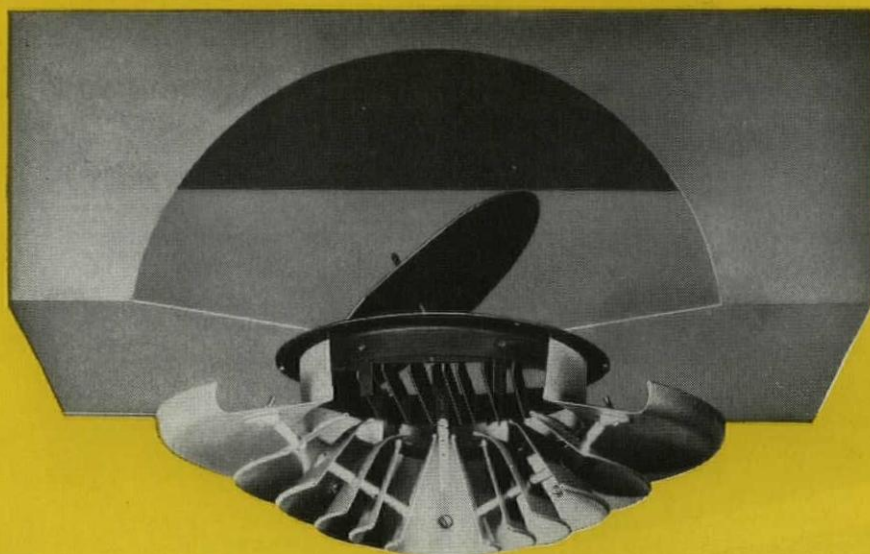
**COMBO-UNIT  
COMBINES**



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**EQUALIZING DEFLECTOR**



Anemostat's NEW Combo-Unit is a combination volume control, angle ring and equalizing deflector. ***This prepackaged unit cuts installation costs in half.*** Extra rings, screws and odd parts are not required. Installation time is reduced to a minimum, and it's a cinch to install. • Use Anemostat Combo-Units on your next job.

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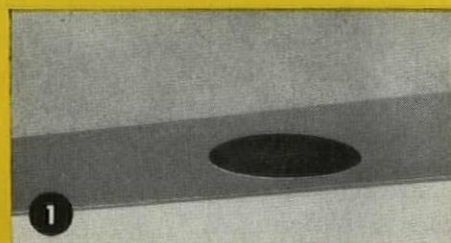
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*"No Air Conditioning System Is Better Than Its Air Distribution"*

*Easy, Quick Installation*



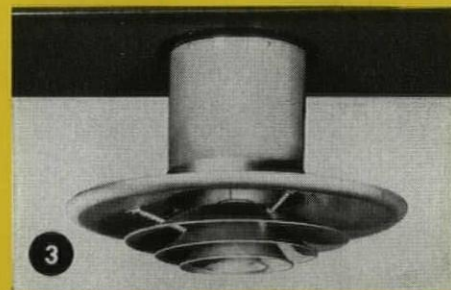
1

**Cut Hole in Duct**



2

**Fasten Combo-Unit**



3

**Fasten Take-Off and Air Diffuser or**



4

**Fasten Air Diffuser to the Combo**



*Client satisfaction  
assured with*

# The Kawneer Touch

*Designed and Specified  
by Reisner & Urbahn, A. I. A.,  
New York City*

The Clifton Fine School in Star Lake, New York shows how the front and entrance by Kawneer make the *right* impression *right* away . . . just what the client specified.

The designing architects entrusted their carefully planned entrance to Kawneer because they know *The Kawneer Touch* means product quality plus the dependable craftsmanship of factory-trained Kawneer Installing Dealers.

Besides superiority of product, architects specify *The Kawneer Touch* because it is designed by architects for architects. And that means structural grace and strength and the blending of the products into a "family" resemblance. In addition, these small but all important points give *The Kawneer Touch* a distinguishing high quality:

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But of prime importance to any well designed structure is the execution contribution *The Kawneer Touch* makes. Kawneer's factory-trained Installing Dealers pay meticulous attention to details and to the mechanical niceties that mean so much to the architect's design and to customer satisfaction.

Kawneer Installing Dealers are listed under "Store Fronts" in the classified pages of your telephone directory. Call your Dealer today and learn how easy it is for you to entrust your designs to *The Kawneer Touch*, or write Kawneer, Niles, Michigan.



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Full-Size Details







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ACIDPROOF, ALL-METAL **DURCO**

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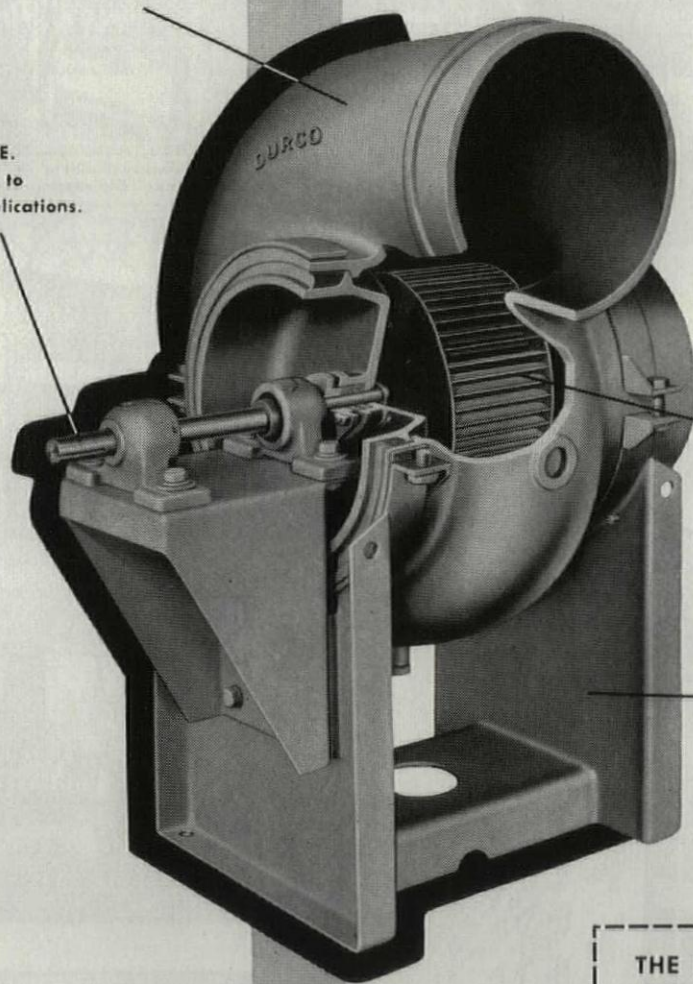
**DURIRON CASING.**  
All metal sections for complete corrosion resistance.

**BELT DRIVE.**  
Adaptable to varied applications.

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Also available for angular discharge.

**DURIMET 20 MULTI-BLADE ROTOR.**  
High corrosion resistance and capacity increase of over 50%.

**FABRICATED STEEL BASE.**  
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Please send Bulletin F/1 on DURCO B-124 Fans.

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# Illinois Institute of Technology, Chicago, uses

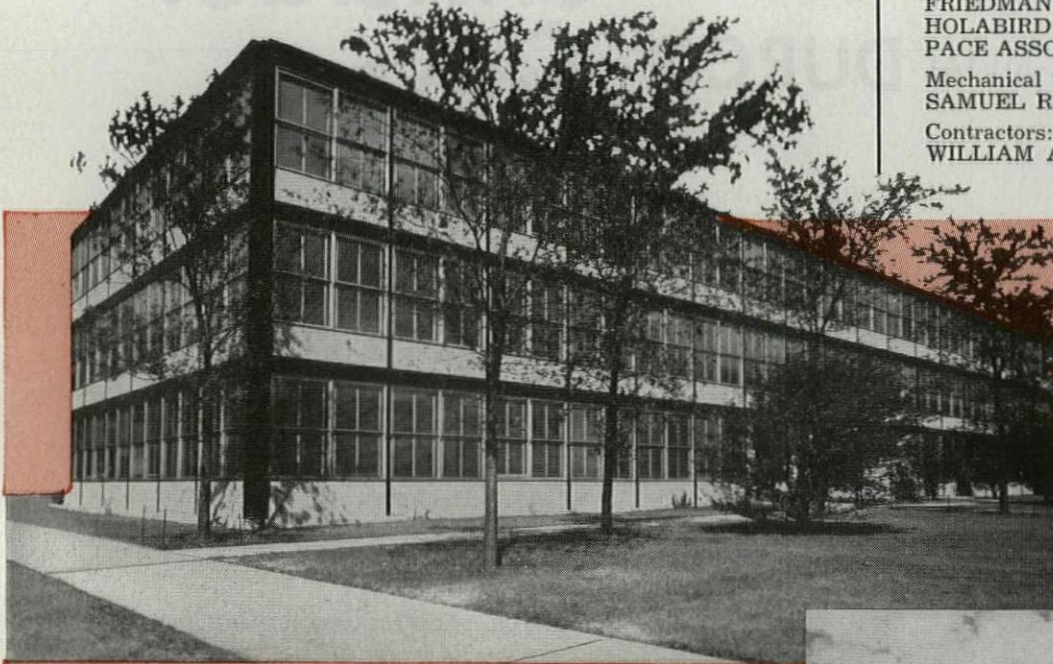
Illinois Tech Buildings Received 1953 Award from A.I.A., Chicago Chapter,  
"for their simplicity of design and compatability of design to function."

Architect: MIES VAN DER ROHE

Associate Architects:  
FRIEDMAN, ALSCHULER & SINCERE  
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Mechanical Engineers: ROBERT E. HATTIS  
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Contractors: ECONOMY PLBG. & HEATING CO.  
WILLIAM A. POPE CO.



Left: Chemistry Building • Below: Metallurgical and Chemical Engineering Building



Below: Carman Hall.

One of three similar apartment buildings. They provide modern living quarters for students and staff. Each apartment has a POWERS Thermostat controlling hot water radiant heating. Ventilation is also POWERS controlled.



Since 1891





# POWERS

## pneumatic systems of temperature control

to regulate heating systems

in these prominent buildings:

Armour Research Laboratory • Chemistry Building  
Metallurgical and Chemical Engineering  
Institute of Gas Technology  
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Carman Hall and two other Apartment Buildings  
New Commons Building

"Illinois Institute of Technology is growing to be the best architectural expression of a technical college in the world . . . and perhaps the only really consistent one." — *From Architectural Forum, Nov. 1952.*

In modern buildings of many famous colleges from coast to coast, such as Massachusetts Institute of Technology, Harvard University, Carnegie Tech, U.C.L.A., and California Institute of Technology, you'll find POWERS pneumatic systems of temperature control. Since 1891 they've been outstanding for their many years of dependable service with a minimum of maintenance.

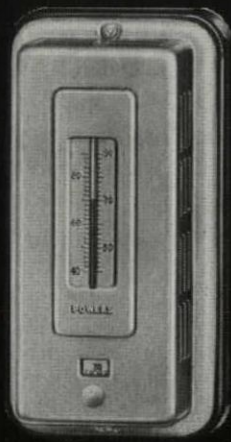
When you have problems of control for heating and air conditioning systems or industrial processes, call in a POWERS engineer. Experience we have gained in all types of prominent installations should be helpful to you.

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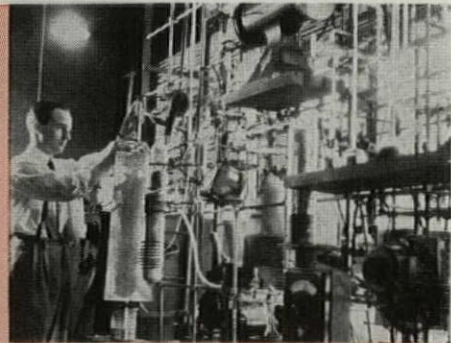


**Powers Room Type Thermostat**  
pneumatically regulates heating and air conditioning systems. Users often report over 30 years of accurate dependable service.

**Many other types of Powers Control**  
are used at Illinois Tech: Recording Controllers for Wet and Dry Bulb; Master-Submaster Controls; ACCRITEM Regulators; LIMITEM Thermostats; Powers FLOWRITE diaphragm Valves and Packless Valves for Convectors, Radiant Panel Control, etc.; Powers POWERSTROKE Damper Operators, etc.



Acoustical Research Chamber



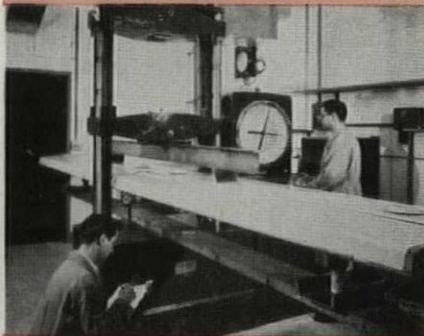
Vacuum Fusion Test Apparatus



AC Network Calculator

**"Research Improves Everybody's Future.**  
It accelerates industrial progress, buttresses national security, and advances technological frontiers. It is a means of harnessing science to serve man's economic ends."  
*H. A. Leedy, Director of Armour Research Foundation, Illinois Tech, Chicago.*

**Students, Research Scientists and Engineers**  
do their best work in the comfortable thermal environment provided by a Powers pneumatic system of Temperature Control.



Strength Testing Fluorescent Lighting Unit  
in Engineering Mechanics Lab.

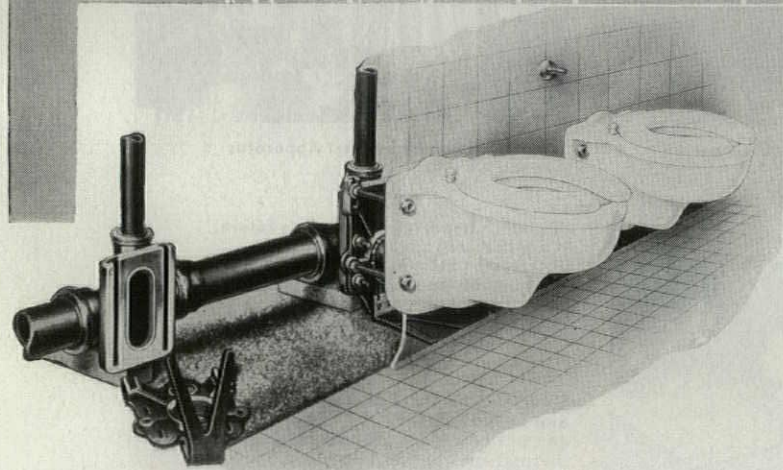
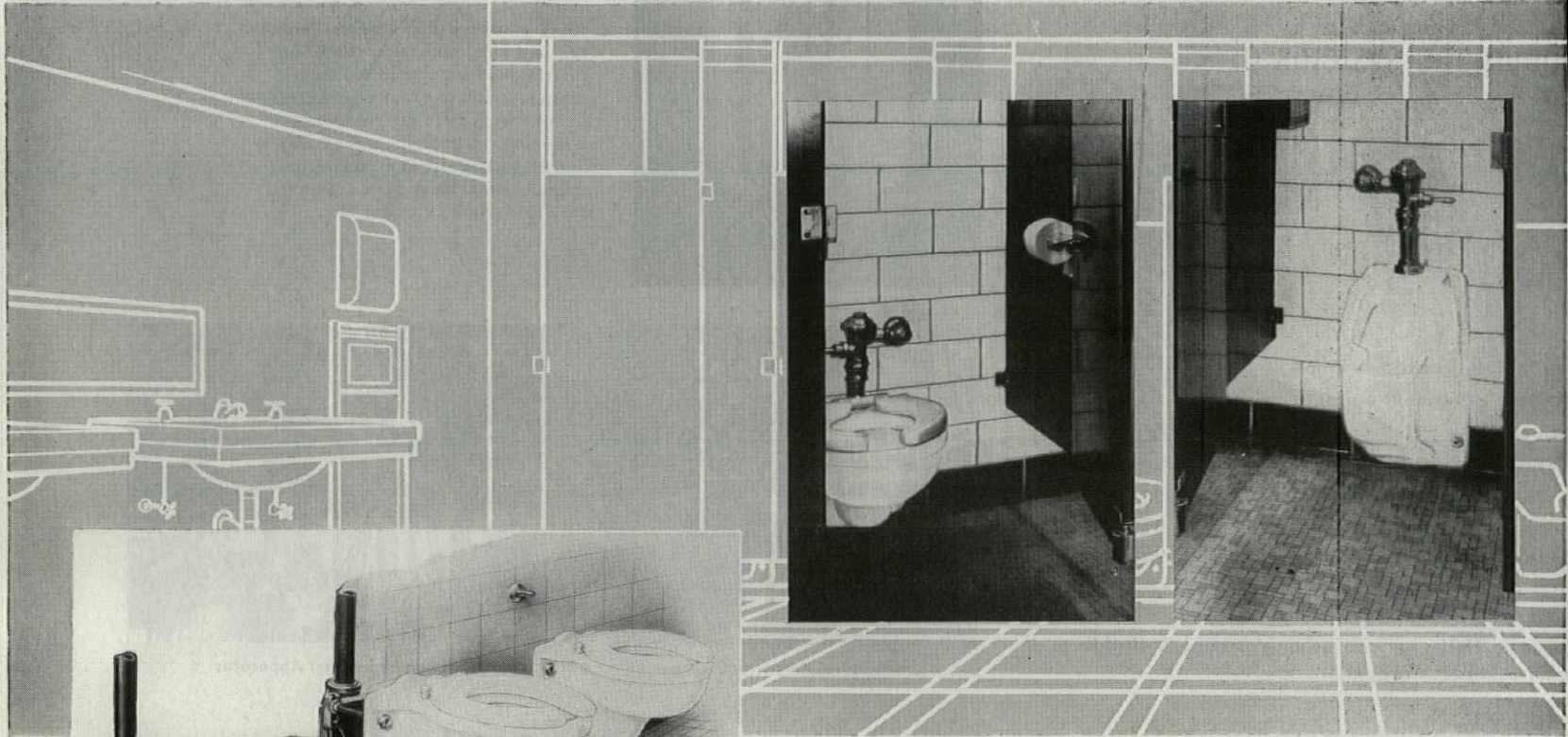


Roll Test Model for Developing Airplane  
and Rocket Flight Control Devices

*Over 60 years of Automatic Temperature Control*



# *This combination* **GIVES GREATER FLEXIBILITY** **FOR PLANNING REST ROOMS . . . insures against untimely obsolescence**



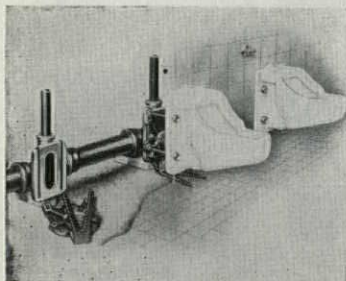
A battery of American-Standard Wall-Type Toilets installed with Zurn Systems which relieve the wall of all the load! There is a Zurn Adjustable Carrier System for every wall-type plumbing fixture—lavatory, toilet, urinal, sink and fountain.

## **AMERICAN-Standard** off-the-floor plumbing fixtures

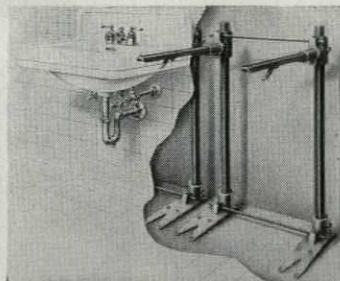
INSTALLED WITH **ZURN** systems\*

Greater flexibility in the choice of floor constructions and wall constructions and height of ceiling—flexibility that can result in a gain of more usable floor space. When you use American-Standard Off-The-Floor Plumbing Fixtures installed with Zurn Systems, virtually all elements of design and construction are unfettered, and you will find unrestricted opportunity to exercise your imagination, skill and ingenuity in planning modern rest rooms that will win both owner and user approval. This combination opens the way to major savings in the over-all cost of a building and usually reduces the day-to-day, dollar cost of rest room maintenance as much as 25 to 30%.

**J. A. ZURN MFG. CO. • PLUMBING DIVISION, ERIE, PA.**  
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION, PITTSBURGH, PA.



Wall-type model of the famous Sani-standard Urinal—a urinal especially designed for women by American-Standard. It is installed with a Zurn System especially designed for this fixture which lifts sanitation in public rest rooms to an all-time high and reduces maintenance cost.



Showing use of Zurn System No. Z-1231 for installing American-Standard Lucerne Wall-Type Lavatory Fixture. Zurn Systems for wall-type fixtures reduce wall thickness and are usable with all types of wall construction.

### **WRITE FOR THESE FREE BOOKLETS**

These booklets present up-to-date factual information for planning Modern Rest Rooms.



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Please send me the two booklets on Modern Rest Rooms, "You Can Build It and Maintain It for Less A NEW WAY," and "The American-Standard Better Rest Room Guide."

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Street .....

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Please attach coupon to your business letterhead, Dept. AF-723.



For lasting value in roof insulation, specify

# FIBERGLAS<sup>★</sup>



Penn Valley School, Penn Valley, Pa. Architect: Carcher & Smith—Philadelphia. General Contractor: C. S. Rohleder—Philadelphia. Roofer: W. C. Kulzer Company—Philadelphia.

**1. More thermally efficient,**  
*thickness for thickness*

**2. Longer lasting** *because it*  
will not rot

- ★ Its low "k" value provides more insulation in relation to thickness.
- ★ Resists fire and moisture, will not decay, swell, shrink or buckle.
- ★ Light weight and easy to apply, can be cut on job.
- ★ Resilient and non-brittle, absorbs shock and pressures on felts without rupturing.
- ★ Approved for bonded roofs.

## PRODUCT DATA— FIBERGLAS ROOF INSULATION

Standard Size—24" x 48"

Packaged in  
Paper-wrapped Bundles

AVAILABLE THICKNESS (Inches)	HEAT CONDUCTANCE at 75°F Mean Temp. (Btu/hr./ Sq. Ft./°F.)*
1/2	.50
3/4	.33
7/8	.30
1	.25
1 1/4	.20
1 1/2	.17
1 3/4	.15
2	.13

\*Subject to manufacturing and testing tolerances.

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When you specify roof insulation, remember . . . It's  
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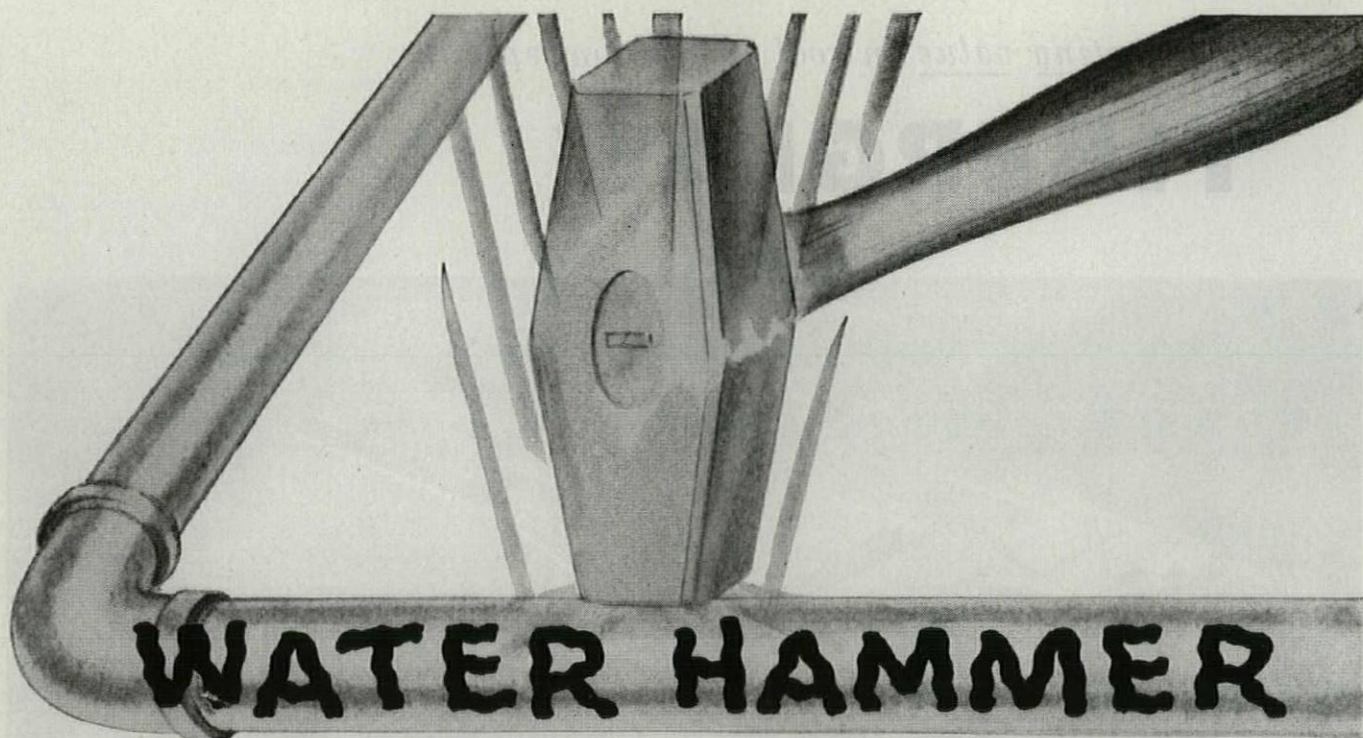
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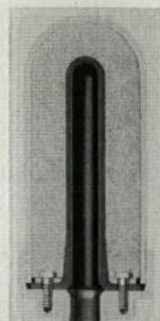
with the **NEW Josam**

## **SHOCK ABSORBER**

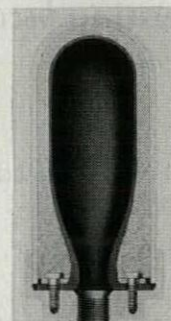
**simple...trouble-proof...easy to install!**

• Now, you can provide permanent protection against the annoyance and destructive action of water hammer—with the new Josam Shock Absorber. Water hammer is unpredictable. It happens in the finest installations—it happens without warning! It is a common problem on pipe lines where there are quick closing faucets and valves, spring operated mechanisms and similar devices.

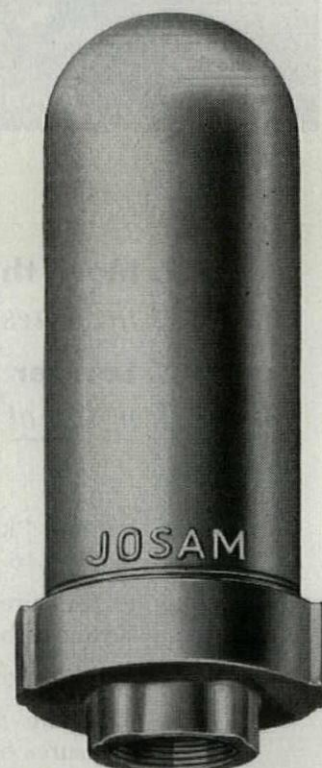
The new Josam Shock Absorber gives you "hospital quiet" in all plumbing lines. Due to the specially designed Absorbo tube and insert, the Josam Shock Absorber dissipates the thrust and impact of the water entering the tube. As the shock recedes, the tube and insert regain their original form, ready to receive the next shock impulse. To eliminate water hammer permanently . . . specify them on all piping installations. Send coupon for descriptive literature.



Cutaway view showing Absorbo tube and insert in normal position.



Showing how Absorbo tube and insert expand to absorb shock.



Series No. 1480

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Please send free copy of new folder on Shock Absorbers

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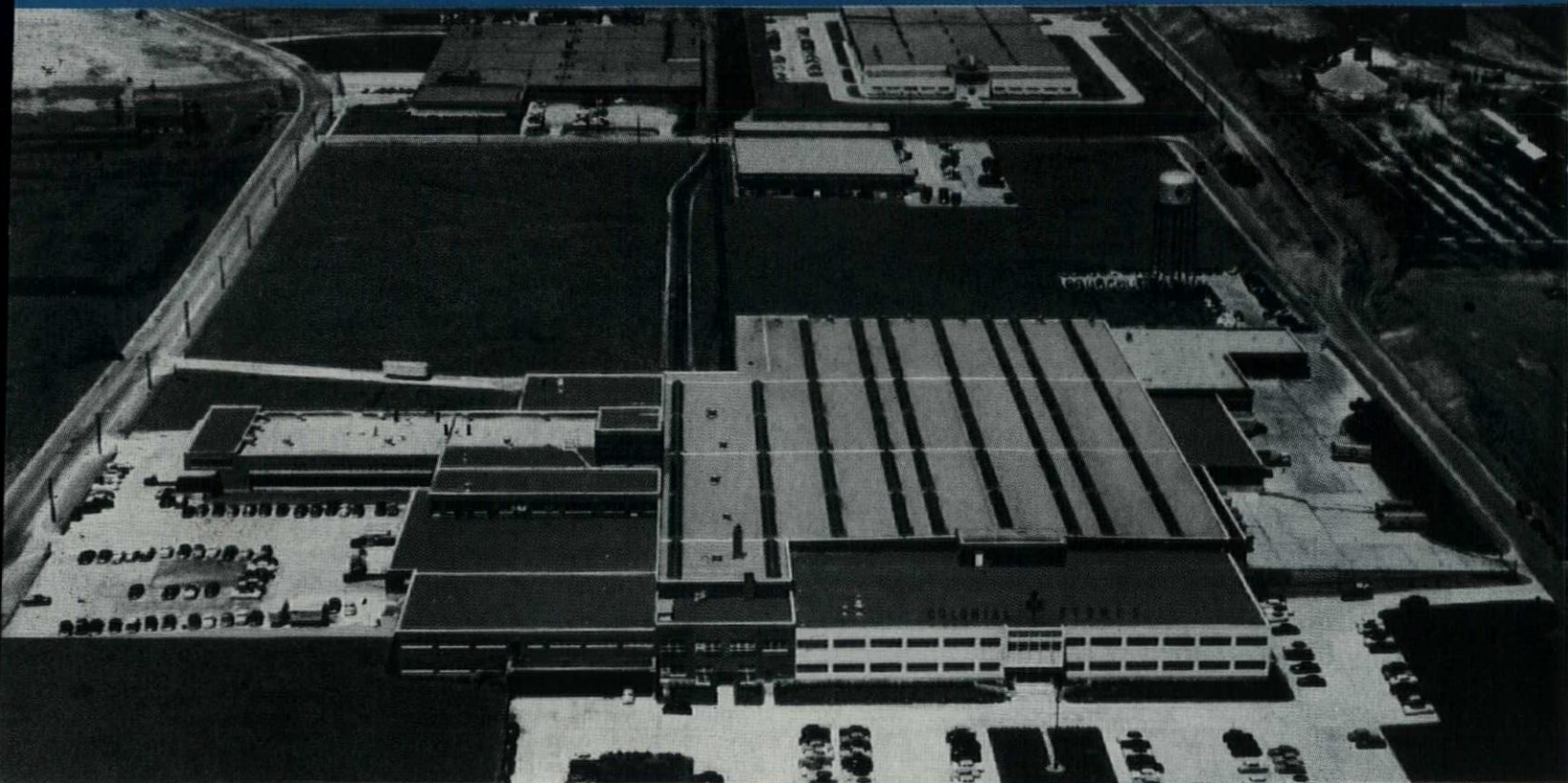
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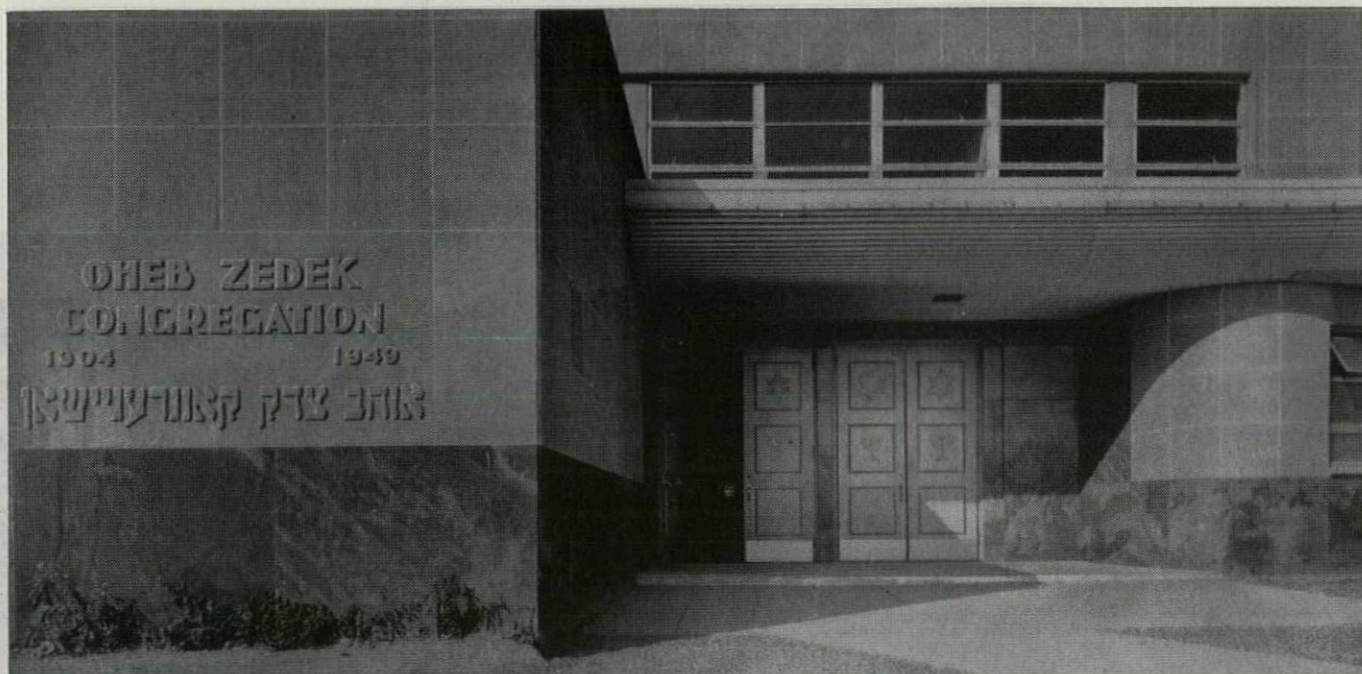
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The Taylor Road Synagogue, Cleveland Heights, Ohio—one of the outstanding institutional buildings in the area.

## Cleveland synagogue solves all its hot water problems with new *Two-Temperature* heating system!

Let us show you how ONE tank will simultaneously provide water at 180° for dishwasher—140° for faucets!

Builders of the Taylor Road Synagogue realized the importance of plenty of hot water at two different temperatures: *Sanitizing* hot water for the dishwashing machine; *regular* hot water for pot sinks and other faucets. So they called in Ruud's hot water engineers during the planning stage.

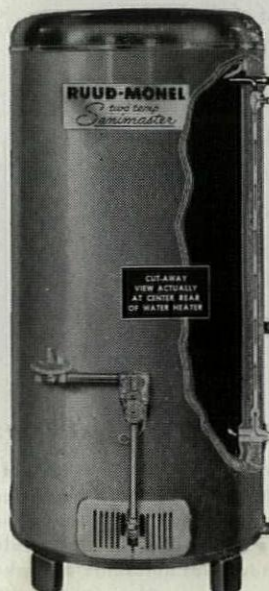
Ruud engineers found that three Ruud-Monel Sanimasters, connected in parallel, would meet all the hot water demands of this modern building. And Sanimasters supply *both* the needed temperatures *from the same tank at the same time!*

**Large and small operations profit with SANIMASTER**

Sanimaster provides an expandable hot water service—install what you need now, connect additional units if your hot water needs increase. And Sanimaster is a compact, self-contained, space-saving unit—you need no external or auxiliary storage tanks.

**Rust-Proof Monel—the Wonder Metal—safely holds water at 180°!**

Meets all temperature and flow-rate requirements of the National Sanitation Foundation. Will supply clear, rust-free hot water for years and years.



### 180° SANITIZING HOT WATER

is piped directly to the dishwasher to destroy bacteria, air-dry dishes and eliminate costly hand-towelings.

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is always on tap at the five kitchen sinks and the nine lavatories. Both temperatures from the same tank at the same time!

### FREE CONSULTANT SERVICE!

A Ruud factory-trained specialist will gladly analyze your specific hot water problem. Or, if you prefer, we will send you literature.

*Mail this Coupon Today!*

## RUUD-MONEL *two temp* SANIMASTER

### RUUD MANUFACTURING COMPANY

Dept. A-3, 2934 Smallman Street, Pittsburgh 1, Pa.

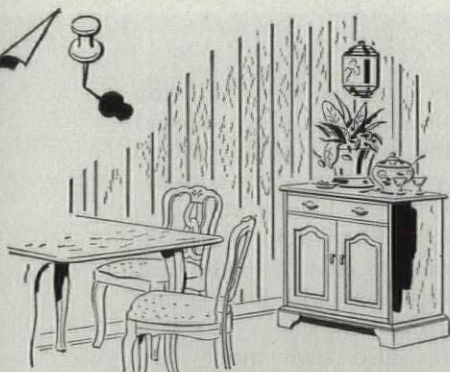
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Floor to ceiling Craftwall adds height to rooms with its straight-lined beauty.



Horizontal Craftwall dado with its matching grooves gives round the room continuity. Craftwall above can match or contrast.



Paper or paint above a vertical Craftwall dado gives contrast in textures.



Sixty-four inch Craftwall panels permit plate rail heights without wastage of material.



Variety in design can also be achieved by mounting Craftwall horizontally, floor to ceiling.

For unlimited  
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*New*  
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**Craftwall**

The Plywood Paneling  
That Looks Like  
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**Beautiful hardwood plywood paneling.**  
In 7 woods, 4 styles, 3 sizes . . . lets you  
easily match, contrast or combine with  
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**T**HERE'S no limit to design opportunities with  
new prefinished Craftwall paneling. It's pro-  
duced in seven woods . . . Oak, Birch, Cherry,  
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With this wide selection of woods, plus the vari-  
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can now create interiors of outstanding interest  
. . . without incurring excessive costs.

To complete the job, Roddiscraft offers a com-  
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and contemporary designs. And, with Roddis  
Craftwall Finishes, you can perfectly match trim  
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Yes, I want to learn more about prefinished Craftwall. Please  
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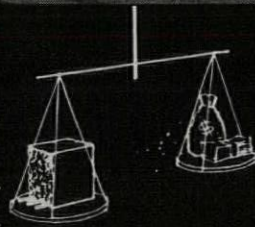
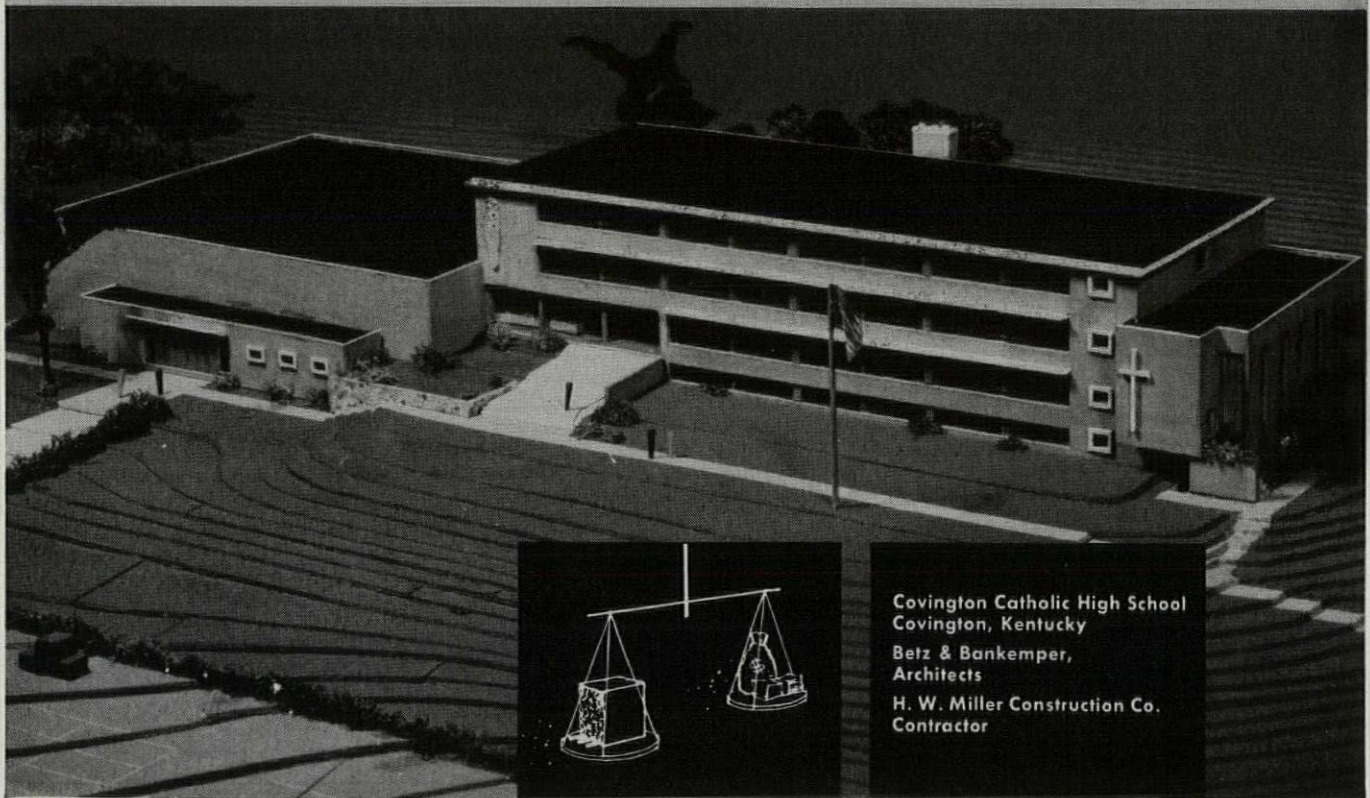
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A comparative cost analysis of a typical bay (16' wide x 61' long x 4 floors high) in this school building showed that flat plate reinforced concrete, with columns cast in round forms, was \$1300 less expensive than other conventional types of construction. This saving helped attain an average cost of only \$11.77 per sq ft. Furthermore, according to the architect, reinforced concrete gave "... the best fireproofing" and "... a structure that will take severe abuse without springing or deflecting."

Reinforced concrete structures also save money by saving erection time. Work can start sooner, because all construction materials are available locally in a matter of days instead of months. In addition, reinforced concrete can be erected faster than other types of structures. Take advantage of reinforced concrete on your next job.

**cost analysis shows flat plate  
REINFORCED CONCRETE  
saves \$1300 per bay!**



Covington Catholic High School  
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*Compare...*

**YOU'LL SAVE WITH  
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A building's  
character comes alive  
with colorful

Architectural  
Porcelain

## DAVIDSON ARCHITECTURAL PORCELAIN

*is a life-time building material—not just a finish!*

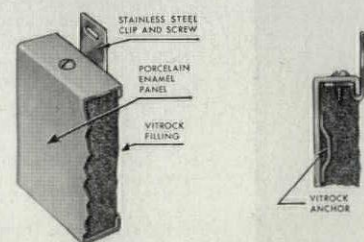
Colorful Architectural Porcelain! . . . a material that opens up an entirely new range of treatments in designing buildings of character—colorful treatments that are otherwise unavailable. Davidson Architectural Porcelain provides greater flexibility in designing than any other material—new freedom of expression for your imagination, skill and ingenuity that will win both owner and public approval. Its color and brilliance are fadeless! Its structural characteristics, combining the natural beauty of glass with the strength of steel, are ageless!

Davidson Architectural Porcelain is custom-designed, processed and enameled at the same time to insure trouble-free application and color uniformity for each building project. There are no standardized, pre-fabricated or stock panels. Davidson Architectural Porcelain comes in whatever shapes are needed for each exterior or interior application. Davidson Architectural Porcelain is being used on schools, hospitals, theatres, stores, and several types of public buildings. Special features of Davidson Architectural Porcelain include two types of panels and a Koroseal\* joint section that forms a water-tight seal. A complete file on Davidson Architectural Porcelain Enamel for architects contains details of all types of panels, and illustrations of basic and special shapes, and details showing application of each type of panel. This complete file is available on request.



The Davidson Organization includes Franchised Distributors at strategic locations, Engineers, Technicians, Fabricators and Erectors. A specification for Davidson Architectural Porcelain insures a complete job with *Undivided Responsibility*.

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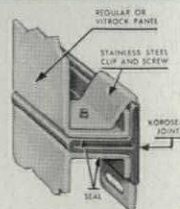


#### DAVIDSON VITROCK PANEL

Specify Davidson Vitrock where a filled panel is required. It has no equal! It has the soundness of a masonry unit and possesses insulating and sound-deadening qualities. Filled with a quick-setting, shrink-proof, gypsum base material. An excellent panel where unusually "flat" surfaces are desired. Applied in same manner as the regular panel; weighs 8 pounds per square foot. Supplied in any practical size and shape.

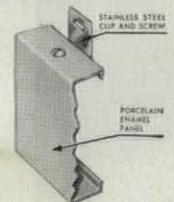
#### DAVIDSON KOROSEAL\* JOINT

Developed solely for the application of Davidson Architectural Porcelain panels. This gasket material comes in continuous rolls and is installed as the panels are erected. The horizontal joints are continuous; the vertical joints are scribed to the horizontal at the intersections of panels to form a water-tight seal. Goodrich Koroseal\* is a polyvinyl chloride plastic. It will not deteriorate or lose its resilience due to weathering.



#### REGULAR DAVIDSON PANEL

One of two panels available. Fabricated of 16 gauge porcelain enameling steel, double-return flanges, and stainless steel clips for attachment; supplied in any practical size and shape, weighs 3 pounds per square foot.



Davidson Architectural Porcelain erected on Tums Building by The Porcel Company of St. Louis, one of Davidson's many Franchised Distributors.

Architect: Widmer Engineering Company, St. Louis, Missouri

**Davidson**  
**ENAMEL PRODUCTS, INC.**

There is a Davidson Franchised Distributor ready to help you design for the application of Architectural Porcelain to new and existing buildings.

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\*Reg. T. M. The B. F. Goodrich Co.





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The world's first  
fissured fiber  
acoustical tile is  
installed only by  
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acoustical experts

**Forestone**  
...fissured  
for beauty  
...fiber  
for economy



# RADICALLY

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## IN ACOUSTICAL MATERIALS

# Forestone

## FISSURED FIBER

## A C O U S T I C A L T I L E

(PATENT PENDING)

Simpson's acoustical experts and laboratory scientists have created something entirely new . . . an acoustical tile made of economical, easy-to-apply woodfiber, *but with the beautiful surface characteristics of fissured mineral tile.*

Simpson's sensational new *Forestone* combines three basic features for the first time: the *beauty* of fissured tile, with its travertine-like appearance . . . the *economy* of fiber, with its low cost and ease of installation . . . and high *efficiency*, with sound absorption coefficients comparable to fissured mineral tile or perforated fiber tile of equal thickness.

### AVAILABLE IN SQUARE EDGE

*Forestone* is not only the first fissured fiber tile, it is also the first practical *square edge* fiber tile. Although also made with bevels for those who prefer a tile pattern, it is in its square edge form that *Forestone* departs most radically from the mechanical appearance of the usual perforated fiber material, which can only be satisfactorily installed with bevels.

### FLAME RESISTANT FINISH

*Forestone* either beveled or square edge, creates ceilings with rich texture, completely natural in appearance and with a soft, warm beauty. As in fissured mineral tile, a delightful variation enhances the appearance of the finished installation; no two tiles are exactly alike. The easily-cleaned white finish is flame resistant, meeting the "slow-burning" requirements of Federal Specification SS-A-118a.

Simpson research and production know-how have created the world's first fissured fiber tile. Ask the Simpson Certified Acoustical Contractor nearest you (list at left) to show you an installation, or photographs . . . and quote prices. *Forestone* brings a new concept to the acoustical treatment of ceilings; be among the first to capitalize on this modern miracle.

### GUARANTEED

A written guarantee covering materials and workmanship is available.

**EXCLUSIVE WITH SIMPSON LOGGING COMPANY**  
AT SHELTON, WASHINGTON

Address inquiries to Simpson Logging Company. 1010 White Building, Seattle 1, Washington

rely on Simpson

and Simpson Acoustical Contractors





Mosaic Impervious Pre-Tested Electrically-Conductive Floor Tile, Pattern 1778-A3, and Mosaic Glazed Wall Tile, color 141 Sea Spray Green, Operating Room, Easton Hospital, Easton, Pa. Architect: William H. Lee. Tile Contractor, Allentown Tile and Marble Co. Photo: Lionel Freedman.

*design permanence, safety and sanitation into hospital anesthetizing areas  
by specifying floors of **Mosaic Impervious Electrically-Conductive Tile!***

Mosaic Impervious Pre-Tested Electrically-Conductive Ceramic Mosaic Floor Tile reduces danger of anesthesia explosion resulting from electrostatic spark discharge and electrical shock in surgical and obstetrical suites.

It is unglazed, dust-pressed, square-edge, porcelain-type  $1\frac{9}{16}'' \times 1\frac{9}{16}'' \times \frac{1}{4}''$  tile. This tile meets the resistance limitations of June, 1952 NFPA No. 56 "Recommended Safe Practice for Hospital Operating Rooms." It efficiently dissipates static electricity and prevents accumulation of dangerous electrostatic charges by providing moderate electrical conductivity for all personnel and equipment in electrical contact with the floor. Every tile is conductive . . . and permanent! No loss of pre-tested conductive properties . . . ever . . . because it has all the unequalled qualities of regular impervious ceramic mosaic tile.

Mosaic Impervious Electrically-Conductive Floor Tile is set with flush joints of gray non-conductive waterproofed Portland Cement, by the modified-conventional method, in a special pulverized conductive cement mortar bed (requires  $1\frac{1}{4}''$  min. depth

below finished floor). Or, for alteration without structural change, it can be installed in a thin-setting bed of conductive adhesive (increases existing floor line approx.  $\frac{5}{16}''$ ).

The neutral warm brown color of this tile has a restful low light-reflecting factor. It is impervious to moisture, stain or insulating contamination and is easily maintained to highest standards of sanitation. Every shipment is fully covered by Warranty.

Another Mosaic product, Mosaic Glazed Wall Tile, is the ideal material for hospital walls and ceilings—operating suites, wards, corridors, kitchens, showers etc. It's a beautiful material, easily maintained, permanently sanitary. You'll be interested in Mosaic's new large  $9'' \times 6'' \times \frac{1}{2}''$  Glazed Wall Tile for large wall areas. Wide selection of colors includes several developed specifically for hospital application.

For Mosaic Impervious Electrically-Conductive Floor Tile installation specifications and performance test reports, and complete data on all Mosaic Tile for hospital use, call your Mosaic Representative, or write The Mosaic Tile Company, Dept. 51-1, Zanesville, Ohio.



**MOSAIC**  
1954 Our Sixtieth Year

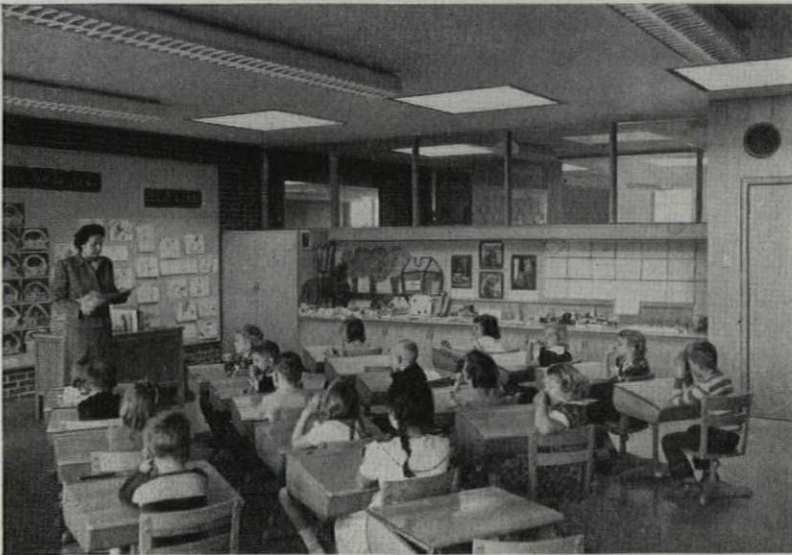
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Over 4000 Tile Contractors to serve you

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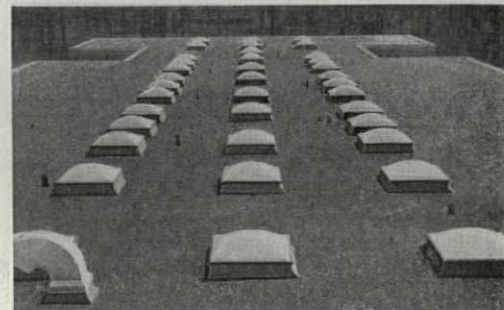
# TOPS IN TOPLIGHTING



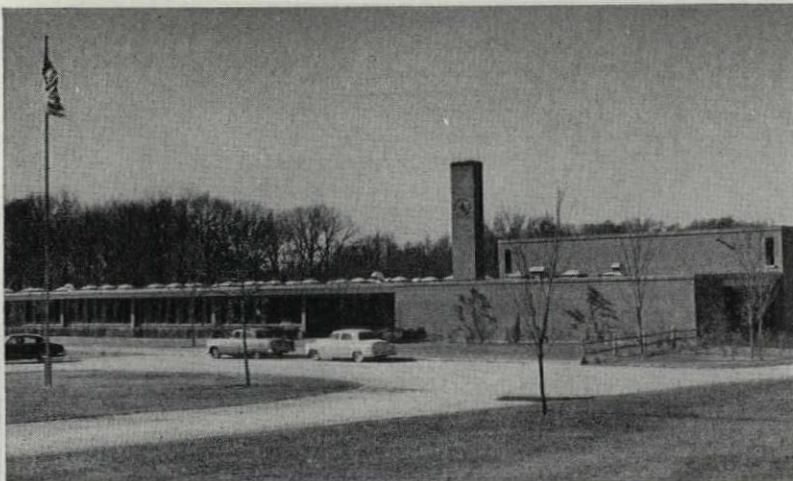
**TAXPAYERS, STUDENTS AND FACULTY BENEFITED** when Frazier & Raferty, Geneva (Ill.) architects and engineers, specified Wascolite Skydomes for the new John B. Turner School in West Chicago. Skydomes enabled architects to plan evenly daylighted classrooms — 28' wide x 33' deep, thus reducing exterior wall perimeter and cutting over-all building costs.



**ELECTRIC LIGHTS RARELY NEEDED** in corridors and classrooms. "Classroom electric lighting costs have been reduced approximately 60% over other classrooms in the school system."

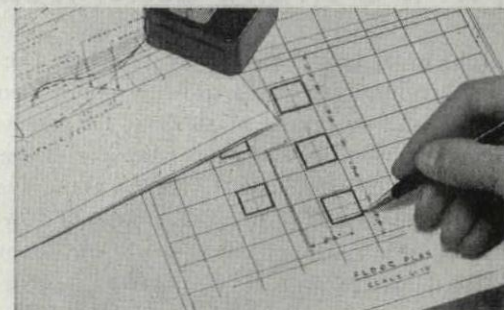


**CLASSROOM AREAS** farthest from windows are lighted by three 4' square Skydomes. "Shape of classroom permits varied seating arrangements without regard to source of light."




**LOWERING OF CEILING HEIGHT** to 9' by the use of WASCOLITE SKYDOMES reduced masonry costs — gave classrooms an intimate air that benefits students psychologically. Architects report: "Glare is far less than in the clerestory method of lighting the deep classroom."

**CREDITS:** Frazier & Raferty, Architects; Edward H. Fairbank, Partner in charge; Wm. A. Gavelek, Mechanical Engineer; Thomas R. Shaver, Structural Engineer; H. G. Booth, Superintendent of Schools; Perkins & Will, Consulting Architects; Ragnar Benson, Inc., General Contractor.

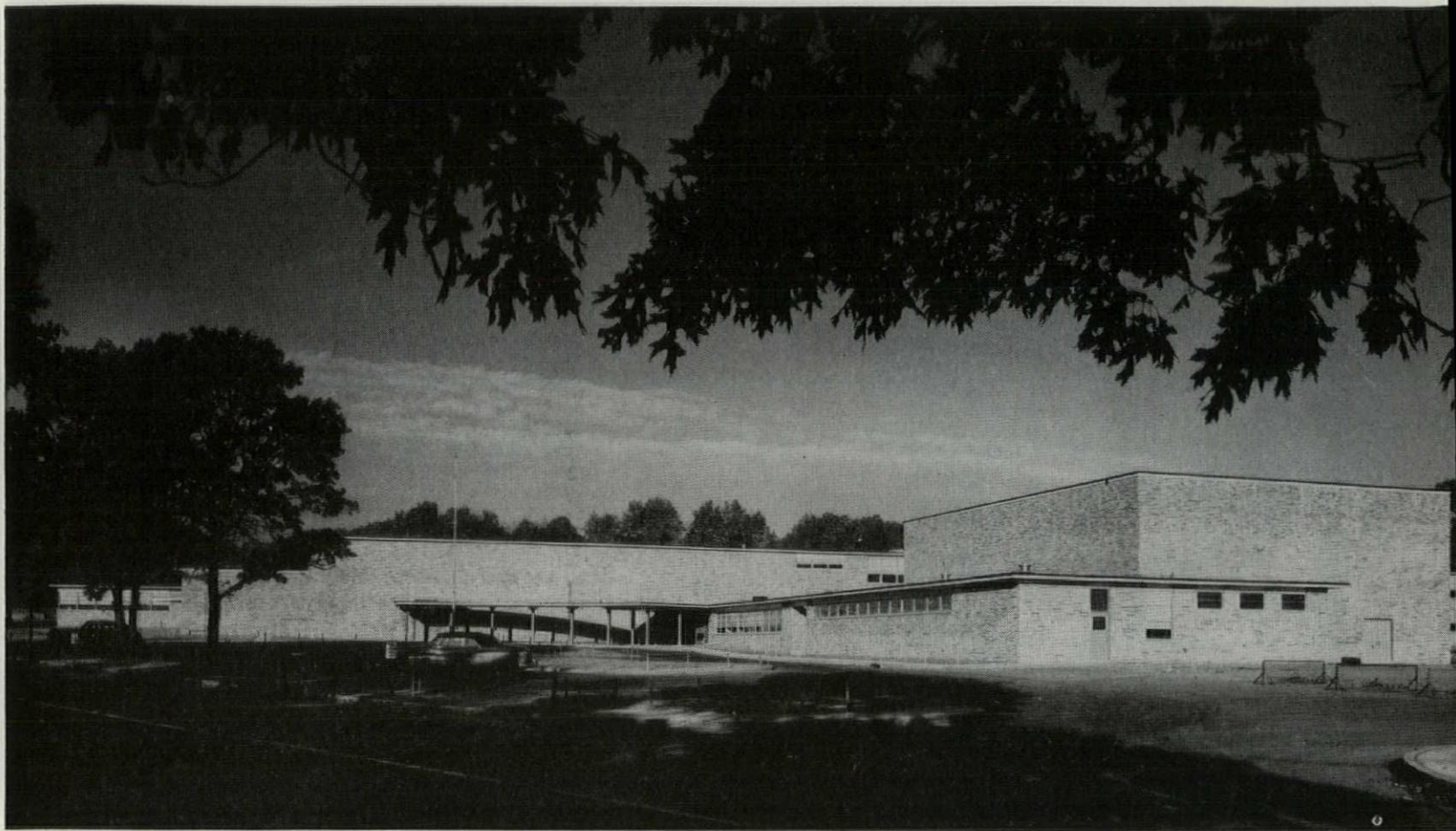


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## Critical design and budget problem met in building of Fair Lawn School

*(with a strong assist from paint)*

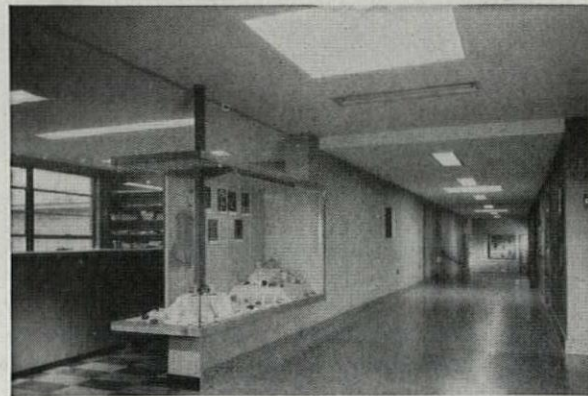
The problem of Fair Lawn, New Jersey, is the problem of every residential community with a growing population . . . how to house an ever-expanding school enrollment efficiently and at low cost. Though Fair Lawn, New Jersey, is in one of the highest labor cost areas in the country, the school shown above was constructed at a cost of \$1,200,000 or 84¢ per cubic foot and now houses 750 pupils.

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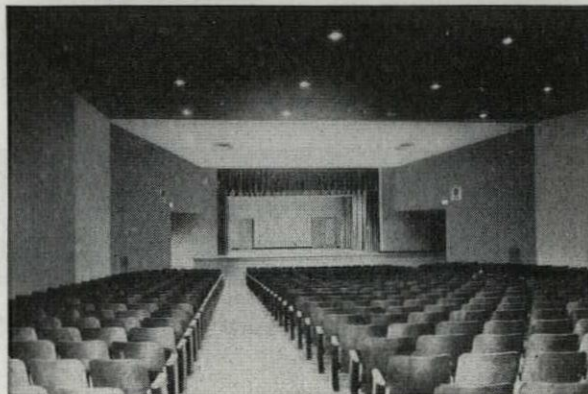
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# Outlook for '54 building

**Government raises its estimate of dollar outlays for new construction to a record \$36 billion and ups estimate of repairs to \$14 billion—indicating a \$50 billion year**

Construction's biggest news last month was statistical: the industry apparently will reach a record \$50 billion clip this year.

The biggest ingredient will be the unforeseen strength of new construction. The Commerce and Labor Depts., revising their forecast of last November, predicted new construction expenditures this year will reach a new high of \$36 billion—2% above 1953's record level (table, below.) The estimate was a \$2-billion upward revision of last November's prophecy. An unexpected increase in homebuilding—the result of easy mortgage credit—was chiefly responsible.

The second ingredient was revealed casually before the Producers' Council at Boston by Walter W. Schneider, construction statistics chief for Commerce. A six-month study had led him to revise official estimates of the 1952 repair and maintenance market from \$11.2 to \$14 billion. There was no indication, he said, that it has shrunk since then. Hence \$36 billion new construction plus \$14 billion for repairs equals a probable \$50-billion market this year. At \$50 billion, construction would account for 14% of gross national product.

## GOVERNMENT VIEW OF EXPENDITURES FOR NEW CONSTRUCTION

(Millions of dollars—continental US)

(Joint estimates by Labor and Commerce Depts.)

	Current estimate of 1953	Last fall's forecast for 1954	Current forecast of 1954	% change from '54 early estimate	% change from '53
<b>Total new construction</b> .....	<b>35,256</b>	<b>34,000</b>	<b>36,000</b>	<b>5.9</b>	<b>2</b>
<b>PRIVATE CONSTRUCTION</b> .....	<b>23,877</b>	<b>22,800</b>	<b>24,150</b>	<b>5.9</b>	<b>1</b>
Residential building (nonfarm) ..	11,930	11,225	12,125	8.0	1
New dwelling .....	10,555	9,650	10,675	10.6	1
Additions and alterations .....	1,108	1,300	1,150	-11.5	4
Nonhousekeeping .....	267	275	300	9.1	12
Nonresidential building .....	5,680	5,575	5,850	4.9	3
Industrial .....	2,229	1,950	1,950	same	-13
Commercial .....	1,791	1,950	2,050	5.1	14
Warehouses, office & loft bldgs....	739	850	900	5.9	22
Stores, restaurants, & garages...	1,052	1,100	1,150	4.5	9
Other nonresidential building ....	1,660	1,675	1,850	10.4	11
Religious .....	472	500	525	5.0	11
Educational .....	426	450	520	15.6	22
Social and recreational .....	163	175	215	22.9	32
Hospital and institutional .....	317	300	315	5.0	-1
Miscellaneous .....	282	250	275	10.0	-2
Farm construction .....	1,731	1,300	1,560	20.0	-10
Public utilities .....	4,416	4,575	4,510	-1.4	2
Railroads .....	442	475	410	-13.7	-7
Telephone and telegraph .....	615	625	625	same	2
Other public utilities .....	3,359	3,475	3,475	same	3
Local transit .....	30	25	25	same	-17
All other private .....	120	125	105	-16.0	-13
<b>PUBLIC CONSTRUCTION</b> .....	<b>11,379</b>	<b>11,200</b>	<b>11,850</b>	<b>5.8</b>	<b>4</b>
Residential building .....	556	365	350	-4.1	-37
Nonresidential building .....	4,352	4,275	4,705	10.0	8
Industrial .....	1,771	1,600	1,830	14.4	3
Educational .....	1,728	1,925	2,000	3.9	16
Hospital and institutional .....	353	275	325	18.2	-8
Other nonresidential building ..	500	475	550	15.8	10
Military and naval facilities .....	1,307	1,200	1,050	-12.5	-20
Highways .....	3,165	3,450	3,650	5.8	15
Sewer and water .....	861	825	1,000	21.2	16
Miscellaneous public service .....	201	200	210	5	4
Conservation and development ...	830	750	745	0.7	-10
All other public .....	107	135	140	3.7	31

Booming private housing (public housing is down 30% from last year) was the biggest reason but by no means the only reason why the government reversed its earlier prediction that construction outlays would drop to \$34 billion this year. Private starts have been running well above an annual 1.1-million pace so far. BLS and the Commerce Dept. now figure the year will bring 1,080,000 private nonfarm starts; last fall they thought the total would be less than 1 million.

**Office, school gains.** As Schneider told the Producers' Council, "most other types of civilian construction also are showing greater activity than previously anticipated and are expected to reach record or near-record levels." Some of these:

► Commercial construction, sparked by the surge in office buildings and shopping centers, appears likely to top the \$2-billion mark for the first time. For warehouses, office and loft buildings alone, the government now predicted a 22% gain from last year.

► Social and recreational building would apparently be up 32% from last year's levels—a reflection, said BLS officials, of the fact that such construction follows new suburban homes. The fact that the government's new estimate was up 23% from last fall's forecast (the largest single revision in its predictions) also suggested that this realm of government statistics was another one that could stand improving.

► Religious building was headed for a new all-time high—\$525 million—mirroring the nation's reviving interest in religion itself.

► Public construction was pointed at a new record in 1954 (and a 4% gain over 1953) despite the prospect of a \$250-million decline in military construction and smaller shrinkage in hospital building, public housing, conservation and development work.

► Public school building was on its way to a new high of \$2 billion, up 16% from last year. Lower estimates for public industrial building were attributable to a stretch-out in atomic construction. The 21% change in predicted levels for sewer and water facilities (to a new all-time peak) was mostly due to revised bookkeeping; but local bond issues have been easier to float at lower interest rates and hundreds of communities are reaching capacity loads on existing systems as populations grow.

**Industrial strength.** All these expanding categories of building would be enough, Commerce and BLS said, to offset the 13% drop still expected in private industrial construction. Counting anticipated outlays for both plant and equipment, the government foresaw only a 4½% drop this year from 1953 spending levels. The SEC and Commerce Dept. reported last month that businessmen's plans for spending on new plant and equipment through October indicate they will invest just over \$27 billion this year, compared to last year's record outlay of \$28.4 billion.

That kind of a dip was a lot less than many



analysts had expected once the Korean war buildup ended. Commented the New York *Herald-Tribune*: "It had been generally supposed that postwar plant expansion would be well nigh over by the forepart of this year. But it was only the beginning. The end of the seller's market was the harbinger of a new look in industrial plant and equipment expansion. Manufacturers are earnestly looking forward one to five years to make sure they keep ahead of competition."

Evidences of plant modernization and expansion spurred by competition were abundant. Benson Ford announced Ford Motor Co., which has spent over \$1 billion on expansion and modernization since World War II, is considering another expansion plan involving still larger outlays. Chairman Ernest T. Weir of National Steel Corp. declared the steel industry must spend at least \$30 billion in the next 30 years to expand, modernize its facilities and develop new material sources. In the more immediate realm, New Jersey Standard Oil Co. recently announced it was boosting its capital investment more than \$500 million this year.

**Materials' sales good.** Another measure of building's surprising prosperity this year was the optimism reflected in talks by materials makers. For instance, Vice President R. S. Hammond of Johns-Manville Sales Corp. told the Producers' Council that building product sales had topped expectations for the first five months of the year. At the end of the first quarter, he noted, J-M was within 1% of the first quarter of 1953; then April and May brought a good pickup. Watson Malone, vice president of the National Retail Lumber Dealers' Assn. and president of Watson Malone & Sons in Philadelphia, reported that a majority of retail lumbermen replying to a May survey of business prospects thought this year would be better than last. Six months ago, 40% expected a decline and only 13% foresaw a bigger year. Distributors' costs, he said, were leveling off; inventories were modest.

AIA's 12 regional directors, reporting at the architects' annual convention (see p. 116), called business on drafting boards generally good. In eight of the dozen regions, work coming into architects' offices was either expanding or remaining at the same level, they said. In the Middle Atlantic, Gulf and Western Mountain areas, activity was reported up 5 to 10% since March.

**Longer look: bullish.** For the longer run, the forces underlying construction demand were strong indeed. Commerce's Walter Schneider said they "assure an expanding volume for many years to come." He summed up the reasons this way: "Our population is increasing at an astonishing rate. Total births in 1953 were about 4 million, the highest annual figure ever recorded. Every year we're adding a state the size of Maryland. We have more new families. Of an estimated 37 million married couples living together in 1953, over half were married in the last 13 years. Not only are more people getting married,

they're having more children.

"People are living longer. By 1960 our population over 65 years of age will number 15½ million—equal to the present population of New York State. With the spread of pension plans and social security, old people today are more active, travel more, have more money to spend and want homes of their own. . . . America is going suburban. In the 12 largest metropolitan areas, 72% of the growth between 1940 and 1950 was in the suburbs. These economic pressures are creating pressing needs—and the satisfaction of those needs will sustain the construction industry. We will need to expand our school facilities. . . . Today we have almost 70% more children under five years of age than we had in 1940. . . . Mounting public opinion will force action to relieve the [traffic] congestion. We need to rebuild or remodel a lot of our housing; 50% of our homes are now over 30 years old. . . . More civilian hospitals must be built. . . . Four million people in 41 states are still without adequate hospital facilities. We must continue to modernize industry's plant and equipment. Rapid technological progress makes it obsolete and too expensive to operate."

## State jurisdiction upheld in building labor dispute

Last December, the US Supreme Court, in the now celebrated Garner case, held that picketing by the AFL teamsters union of a trucking company operating entirely inside Pennsylvania was covered by the Taft-Hartley act and therefore beyond the jurisdiction of the state. The employer had sought injunctive relief in state courts. Jubilant union spokesmen called the decision "the most important labor victory since the Taft-Hartley Act was passed in 1947."

Before winding up its 1953-54 term, the Supreme Court took another look at the buffer territory between federal and state jurisdiction in labor controversies. This time, the court upheld state authority. In the Laburnum Construction Corp. case, the court sustained a Virginia court award of \$129,326 damages against the United Construction Workers, an affiliate of John L. Lewis' United Mine Workers, for intimidation and violence. The Richmond, Va. firm had complained that union organizers forced a work stoppage on a coal tipple it was trying to build for the Pond Creek Pocahontas Coal Co. in Breathitt County, Ky. with AFL labor. As a result, Laburnum lost the contract.

Before the high court, the union pleaded that the Garner decision meant state courts had no jurisdiction in the case. It claimed that state courts were excluded from entertaining "common law tort" actions as well as from enjoining unfair labor practices. In its 6-to-2 decision written by Justice Burton, the Supreme Court endeavored to draw a fine line of distinction between the Garner and Laburnum cases. "In the Garner case," Burton wrote,

**Specifics of the potential.** For local and federal public works, the President's Council of Economic Advisers recently suggested big increases in outlays to catch up with past accumulations and to keep pace with the nation's growth for the next decade. These make startling comparisons with the present rate of expenditures:

Type of construction	Present annual rate (in billions of dollars)	Recommended annual rate
Streets & highways..	\$3.7	\$7.
Schools .....	2.6	6.75*
Hospitals .....	1.5	0.6
Water facilities ....	0.5	1.2*
Sewers & wastes....	0.6	1.8*

\* For five years.

Financing such a volume of construction will be a problem. But, as the US Chamber of Commerce observed last month in its "Construction Markets" bulletin, the real question is "how to be able to afford what we cannot afford to do without." Warned the chamber: "Unless public works are provided as needs for them arise, the growth and expansion of the private economy may be held back. . . . The inadequacies of current outlays are actually a deflationary influence of no small weight."

"Congress had provided a federal administrative remedy. Here, Congress has neither provided nor suggested any substitute for the traditional state court procedure for collecting damages. For us to cut off the injured respondent from this right of recovery will deprive it of its property without recourse of compensation."

The Senate labor committee, in its report on the stymied redraft of the Taft-Hartley Act, sought to eliminate some of the vacuum created by the Garner decision, which the Supreme Court has now removed to some extent itself. The committee's recommendation: grant state agencies and courts the right to act if NLRB refuses to assert jurisdiction.

## Michigan court voids ban by union on paint rollers

The Michigan Supreme Court last month affirmed a lower court decision that union demands for regulating the use of paint roller applicators "do not have any reasonable connection with wages, hours of employment, health, safety, right of collective bargaining, or any other condition of employment. . . ." A group of about 20 contractors in the Detroit-Pontiac area had filed suit against District Council 22 of the AFL painters, decorators and paperhangers brotherhood over a contract provision giving the union "indisputable right" to decide what equipment was "hazardous" and asking the employers to agree, too. Judge Thomas F. Maher watched demonstrations of roller techniques and said experienced painters had testified that "the only time they used rollers was in painting their own homes." It was the first clear-cut decision against a paint roller clause among several cases.



## Mortgaging out ban—milder than Congress plans for FHA—chokes off Wherry housing

Maybe there would be real statesmanship when the 1954 housing bill got into conference. But last month it looked as though it would take a miracle to avoid giving the building industry some of the worst housing law ever. For this, the scandal over FHA so gratuitously kicked up by the Eisenhower administration was chiefly to blame. Another difficulty was that the struggle over public housing was assuming so much political importance that the 158 other differences between the House and Senate versions of the housing bill were getting scant attention outside of industry circles.

Economically, the 158 other differences were much more important to the health of the building industry. No matter what Congress votes, it will be physically impossible to build more than 35,000 public housing units in fiscal 1954-55. That would be roughly 3 or 4% of the nation's housing.

**Exit rental housing?** FHA's rental housing program is of almost equal size. In 1953, it accounted for 35,460 of the nation's 93,000 new multifamily units (most of them for rent). While the administration was making support of public housing a matter of party fidelity, it was doing nothing at all last month to dissuade Congress from clamping restrictions on government-backed rental housing that may well cripple the program and perhaps kill it.

The Senate—as its banking committee recommended—adopted an amendment requiring builders of rental projects to certify costs (plus 10% profit), then apply any excess mortgage *above the allowable percentage of loan to value ratio* toward reducing the loan. This was much more drastic than the cost certification now required for Title VIII, Wherry housing and Title IX housing.

But even this mild ban on mortgaging out had virtually brought the Wherry Act program to a standstill. Franklin G. Floete, assistant defense secretary, told the House armed services committee last month: "Since the amendment of last year requiring sponsors to return any excess amount of the mortgages over costs, we have had only five new projects submitted. That law apparently has done it."\*

Although Floete's testimony had a direct bearing on the housing bill, House committee-men gave no sign they got the point.

\* The Defense Dept. asked Congress last month to legalize trick bookkeeping to permit direct government construction of 25,000 more family housing units in the US and overseas without breaching the national debt limit. The plan was set aside for more study by the House armed services committee, however, who felt that the projected use of unspent and unobligated funds that the Defense Dept. has left over each year was not the way to finance such building. A special subcommittee was handling the question, would probably recommend a direct appropriation by Congress. One hitch in the original plan was that the unspent money would otherwise revert to the US Treasury. Moreover, the Pentagon's initial list of projects included many where realtors and builders would question the need for direct government building; for example, at Bethesda, Md. and San Diego, where realty men said private housing was in ample supply.

**Tax bill changes.** What struck many industry men as a more sensible approach to the bugaboo of "windfall profits" was taken by the Senate finance committee. It wrote into the pending general tax-revision bill an amendment to make mortgaging out profits subject to ordinary income tax rates instead of capital gains, which most builders say now apply. Specifically, the committee voted to tax as dividends the distribution of "proceeds of loans guaranteed by the US which exceed the cost of the property by which such loans are secured." This change would not be retroactive.

**Public housing & segregation.** The ruckus over public housing threatened for a time to get mixed up with a fight over racial

segregation (AF, June '54, News). The US Supreme Court had refused without comment to hear an appeal from the California Supreme Court which held unconstitutional the San Francisco Housing Authority's policy of segregating races in public housing projects according to existing neighborhood racial patterns. This had led Sen. Burnet Maybank (D, S.C.), long a powerful advocate of public housing, to lead a revolt against it.† Without Southern Democratic support, there did not seem to be enough

† Because it came on the heels of the high court's ruling against school segregation, the California case was widely regarded as tantamount to a decision that public housing, henceforth, must draw no color lines. Actually, it meant no such thing legally, although the court's position in the school case hinted broadly that it would bar segregation in public housing if and when it actually rules on the issue.

In the San Francisco case, the court denied a writ of certiorari. As Justice Felix Frankfurter observed in a 1950 case (Maryland vs. Baltimore Radio Show), all such a denial means "is that fewer than four members of the court thought it should be granted." He added: "This court has rigorously insisted that such a denial carries with it no implication whatever regarding the court's views on the merits of a case which it has declined to review. The court has said this again and again; again and again the admonition has to be repeated."

AF staff photo



## Public housers hear urban renewal attacked, defended

Urban renewal—a cornerstone of the Eisenhower administration's housing program—was sharply criticized (and immediately defended) at the 23rd annual meeting of the National Housing Conference last month in Washington. Predicted Ben Fischer, CIO housing director (pictured speaking): "Urban renewal will not work and will never be put into operation in any significant way in slum areas. Any suggestion by opponents of public housing that this will be done is a hoax and fraud and will prejudice the necessary, legitimate role of urban renewal and rehabilitation in nonslum areas that do require the attention of this kind of a program. Renewal of slums is not a sound investment." NHC President Ira Robbins debunked rehabilitation. Said he: "Blight control may be good face-washing, but it's not face-lifting." He accused unnamed sponsors of rehabilitation drives of not realizing that "any extensive conservation movement faces serious difficulties" because extensive repairs on run-down housing means 1) raised rents,

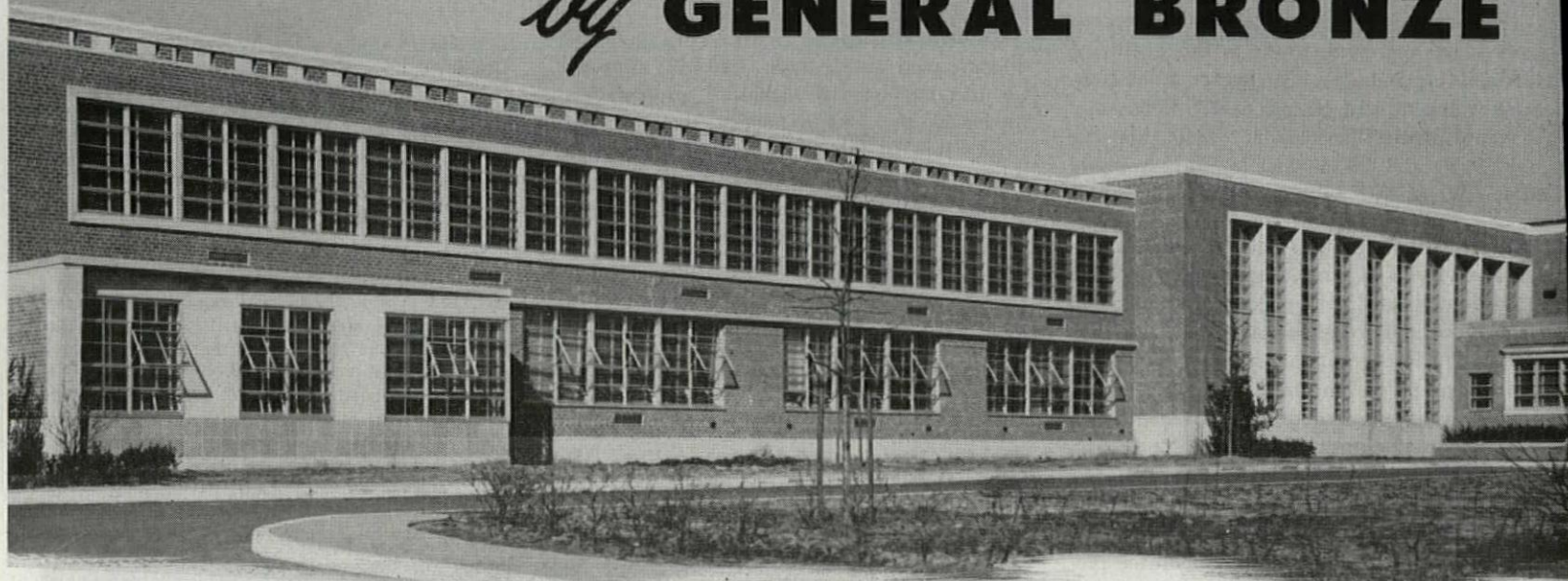
and 2) cities in financial straits cannot often afford to improve services.

Ernest J. Bohn (third from left), Cleveland public housing chief, asserted there is "serious danger that in our anxiety to make urban renewal work, we will patch up and repair structures and perpetuate worn-out neighborhoods which should be eliminated." Replying, James W. Follin (right), HHFA slum clearance chief, called Bohn's fear needless, said: "Our planning requirements [for urban renewal] will be so severe that there will be a physical inspection of every structure in the area... Urban renewal... will make possible much better housing for American families and it will go far toward preventing as well as eliminating slum housing and blight..." The conference—public housing's chief lobby group—went on record, however, against rehabilitation "in slum areas," called for 200,000 public housing units a year plus new federal aids to build 500,000 to 700,000 middle-income family homes.



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votes in the Senate to revive the program (the House voted to kill it). But Republican strategists had some second thoughts. If public housing was knocked out of the housing bill, voters would probably blame the party in power. With fall elections so crucial to the GOP, and with the outcome perhaps dependent on the Negro vote in many states, would letting public housing die sweep Republicans out of control of Congress next year? Top party strategists, events showed, decided to make support of President Eisenhower's request for 35,000 units a year for four years a party "must." Better to accept public housing, the argument went, than to take chances with the election.

**Deal in the Senate.** The result was what the propublic housing *Washington Post* called a "happy housing deal." The Republicans agreed not to force a roll-call vote on Sen. Maybank's amendment on the floor to kill public housing. This, as the *Post* also noted, "enabled Southern senators to let off a little steam without splitting their ranks in an embarrassing fashion on the eve of the midterm campaigns." In return, Democrats let the President's four-year program for 140,000 units go through intact. The vote was 66 to 16, with even such antipublic housers as Sens. Dirksen (R, Ill.) and Bricker (R, Ohio) voting for public housing.

#### LABOR NOTES

### Cement strike in East near its end; price boost looms

A month-long cement strike that had tied up production in five East Coast states appeared about over as AFL cement, lime and gypsum workers gave preliminary approval to a settlement at month's end. The workers were in line for a pay increase. Still at issue: how much retroactivity for the increase and the cement workers' old chestnut—a union shop. Eastern contractors seemed about to join users in parts of the Midwest and South who were already faced with a price increase for cement. But they would probably prefer the rise rather than the dollar-a-barrel premium they have been paying for cement brought in from strike-free areas.

In Mobile, Ala., 5,000 building trades workers agreed to drop travel-time allowance (between \$1 and \$4, depending on distance) in preference to a 17½% increase in a one-year contract with the local AGC.

A federal court trial in Chattanooga, in which members of the National Electrical Contractors Assn. and the International Brotherhood of Electrical Workers were fined on a conspiracy charge, has spurred electrical contractors to rid their working agreements of closed shop or union-shop provisions which violate Taft-Hartley or state right-to-work laws. Southern NECA chapters have had particular success gaining the cooperation of the IBEW.

## SIDELIGHTS

### Railroad stations for autoists

Patrick B. McGinnis, the new president of the New Haven Railroad (he wrested control away from Frederick Dumaine Jr.), is a man whose ideas about railway stations should gladden modernists. Manhattan's massive Grand Central Terminal, he declared last month, is "on its way out." Such "tremendous mausoleums are no longer functional," he said. "All I need for a station is a shelter, with a canopy and radiant heat and parking space—in substitution for all the elaborate architectural



pieces built in the heyday of railroading when we had a monopoly on the [travel] business. I am sure the commuter could be just as happy if he caught the 5:08 in a tent rather than in a marble edifice of years gone by."

Acting on his own theory, McGinnis has long-range plans to build a small New Haven terminal in northern New York City or suburban Westchester County—strategically close to parkways, bridges and subways. It will be "just a glass-enclosed structure to protect people from the weather" with plenty of parking space around it to accommodate passengers who want to drive to the train.

### Code fight in San Francisco

In San Francisco, advocates of high density urban construction were winning a round in their perennial struggle with the champions of more light, air and open space in cities. Over the objections of Planning Director Paul Opperman, the city-county planning commission approved a new building code that will permit downtown office buildings of about 25 stories. The actual requirement is 125 sq. ft. of lot space for every apartment plus a height limit of ten times the ground area for inside lots and 12½ times the ground area for outside lots. Opperman wanted at least 160 sq. ft. of lot per apartment, with height limits of 7 times ground area for inside and 9.6 times for corner lots. Said he: "This is a victory [for the realty board] that the people of San Francisco will pay for and regret." The realtors' position: "We must have room to grow and since we lack the area, we can grow only upward. The privilege of building multistory buildings must not be denied." Next step: approval of the code by the board of supervisors.

### When luxury is a bargain

The glamour of its new \$9 million, 21-story office building in Houston (which even includes an employees' swimming pool) is paying off in a big way for Prudential Insurance Co. "This building," says Vice President Charles Fleetwood, "is one of the biggest bargains we ever got. . . . We picked a very dramatic site out near the Medical Center, Rice Institute and The Shamrock. People can see

this great building and they can't help but be impressed with its good looks and good taste. If we'd built in the downtown area, we wouldn't have made anywhere near the impression. A good public impression makes it easier for us to attract and hold the right kind of people."

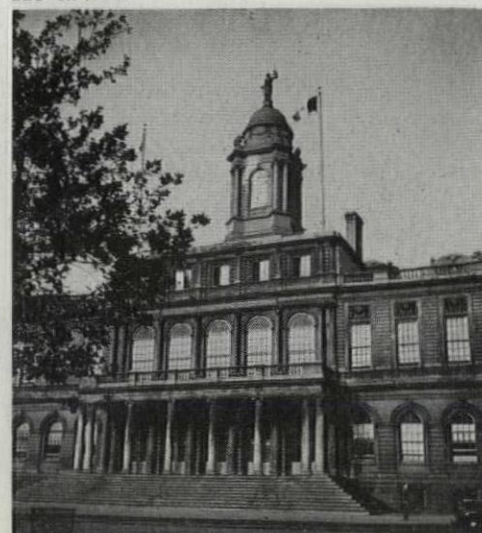
Statistically, Prudential's separation rate this year in Houston was running about 36% less than in 1953. The company has about 1,000 employees there, mostly low-paid clerical help. Said a personnel man: "A large percentage of our applicants tell us they are prompted to apply because they have a relative or a friend working in the office who has told them what a nice place it is."

### New stone for an old hall

New York's city hall—begun in 1803 and completed in 1811—has long been regarded not only as a historic landmark of the city but also as a splendid period piece of municipal architecture. Since 1948, however, its facing of ornately carved Massachusetts marble has been crumbling off, victim of 143 years of New York climate plus the corrosive action of hydrochloric acid in the air that is a by-product of industrialization.

Last month, workmen began a \$1,956,800 face lifting job on the venerable building (which cost only \$538,000 to build and furnish). They will chip away 4" of outer stone, replace it with gray-veined Alabama limestone which Architects Shreve, Lamb & Harmon (who planned the restoration) think is an almost perfect match for the old Stockbridge stone. Public Works Commissioner Frederick H. Zurmuhlen said the work may take a year and a half. "It all depends on how many stone carvers we can find" to replace the ornamental carving, he said. The American Scenic and Historic Preservation Society has urged that samples of the old decorative work, when removed, be kept on permanent exhibit as a public check on the accuracy of the reproduction as well as for their historic interest.

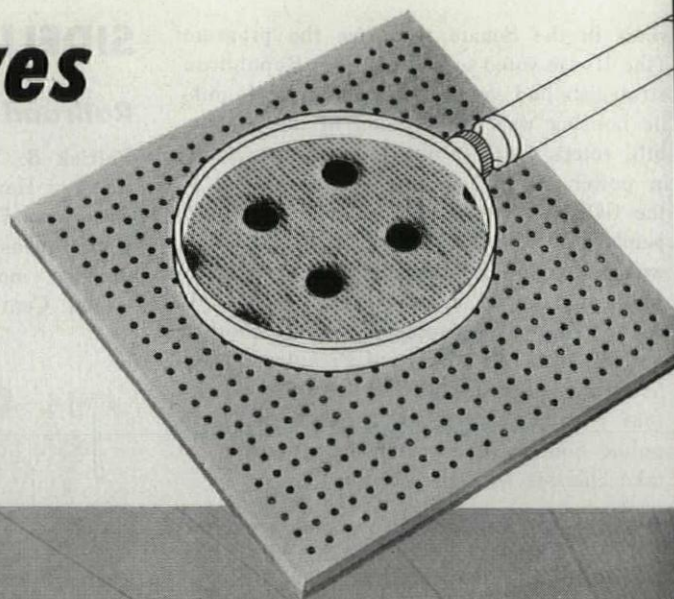
LIFE—R. Morse



NEW YORK'S 143-YEAR-OLD CITY HALL



# NEW "linen finish" gives balanced light reflection



Gold Bond Acoustifibre's new "linen finish" provides acoustical ceilings that are *free* from variations in light reflection. The finely knurled, linen-like surface of each tile eliminates dull spots and high-glare areas, helps distribute light evenly to all parts of a room.

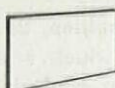
As shown in the typical installation above, "linen finish" Acoustifibre creates both an attractive and efficient acoustical ceiling. There are no projecting fibres, unsightly paint blobs or blemishes.

Tiles are cleanly drilled (see inset) by Gold Bond's exclusive Einhipte Process for good looks and maximum sound absorption. Acoustifibre has noise reduction coefficients up to .70, according to thickness and mounting. And for easy maintenance, "linen finish" Acoustifibre can be washed or repainted without affecting the tile's acoustical efficiency.

For more information, write Architects Service Department for Technical Bulletin No. 1546-J.

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# BUILDING STATISTICS:

## Fir plywood production outstrips sales; strike sends lumber, plywood prices up

The spectacular postwar growth of Douglas fir plywood production at last was confronting the industry with a problem: output was getting ahead of sales. As a result, plywood men were readying a major step-up in sales promotion. "The 15-year plywood bonanza has come to an end," President Reno Oldin of Puget Sound National Bank told the Douglas Fir Plywood Assn.'s annual convention at Gearhart, Ore. last month. "Manufacturers must learn to keep sales and production in reasonable balance." Eberly Thompson, executive vice president of M & M Wood Working (who was re-elected association president), called for "harder selling" to meet the challenge of overproduction amidst sales that "actually are topping last year's record high by 6% and are nearly three times 1946." Added DFPA Managing Director W. E. Gifford: "The plywood problem has come full circle since . . . 1933. We hope to set another all-time high in sales of close to 4 billion sq. ft. this year, but it will take a big sales job. The 27,000 US retail yards will be given every possible sales tool. A doubled DFPA field force will promote plywood among the 15,000 [sic] US builders with the slogan 'builds better at lower costs.'"

The big West Coast strike of AFL and CIO lumber workers stiffened sagging plywood prices somewhat ( $\frac{1}{4}$ " AD index bounced up \$10 in three weeks to as much as \$85 MSF). Dimension fir, on the other hand, shot up to within \$1 of its highest point since 1950 when the Korean war outbreak was coupled with a freight car shortage. In April Grade 2 and better 2 x 4s were bringing \$59.50 to \$61; by the end of June, strike prices ranged from \$79 to \$85. The strike—over demands for a 12½¢ an hour pay boost—idled 100,000 men, two thirds of the logging and milling workers in Washington, Oregon and California. Lumber shipments by rail were off as much as 50%. Many a dealer had taken advantage of the long warning of the shutdown to stock up. But stocks in general would begin to pinch this month—at the height of the building season—if the strike continues. The struck area produces a third of the nation's softwood lumber, nearly all its softwood plywood.

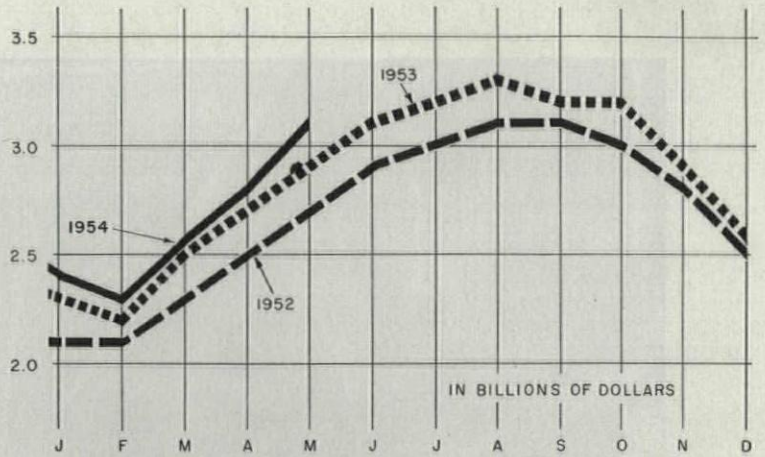
## NEW CONSTRUCTION ACTIVITY

(millions of dollars)

Type of construction	May			First five months		
	1953	1954	Percent change	1953	1954	Percent change
<b>PRIVATE</b>						
Residential (nonfarm) .....	1,012	1,064	5.1	4,413	4,473	1.4
New dwelling units .....	885	935	5.6	3,915	3,965	1.3
Additions and alterations ...	105	103	-1.9	400	391	-2.3
Nonresidential building .....	451	493	9.3	2,173	2,387	9.8
Industrial .....	191	165	-13.6	986	862	-12.6
Commercial .....	129	170	31.8	577	797	38.1
Warehouses, office and loft buildings .....	53	71	34.0	253	358	41.5
Stores, restaurants and garages .....	76	99	30.3	324	439	35.49
Other nonresidential building .....	131	158	20.6	610	728	19.3
Religious .....	35	42	20.0	170	205	20.6
Education .....	32	43	34.4	156	197	26.3
Social and recreational ...	13	18	38.46	55	82	49.1
Hospital and institutional ..	26	28	7.7	131	134	2.3
Miscellaneous .....	25	27	8.0	98	110	12.2
Farm construction .....	161	145	-9.9	659	594	-9.9
Public utilities .....	377	379	.5	1,611	1,676	4.0
*PRIVATE TOTAL .....	2,013	2,090	3.8	8,901	9,168	3.0
<b>PUBLIC</b>						
Residential building .....	50	31	-38.0	241	168	-30.3
Nonresidential building .....	371	399	7.5	1,769	1,850	4.6
Industrial .....	158	149	-5.7	752	722	-4.0
Educational .....	140	171	22.1	674	794	17.8
Hospital and institutional ..	33	32	-3.0	169	133	-21.3
Military .....	113	74	-34.5	550	328	-40.4
Highways .....	243	310	27.6	811	955	17.8
Sewer and water .....	71	83	16.9	327	374	14.4
Conservation and development	75	63	-16.0	331	272	-17.8
*PUBLIC TOTAL .....	947	992	4.8	4,127	4,078	-1.2
*GRAND TOTAL .....	\$2,960	\$3,082	4.1	\$13,028	\$13,246	1.7

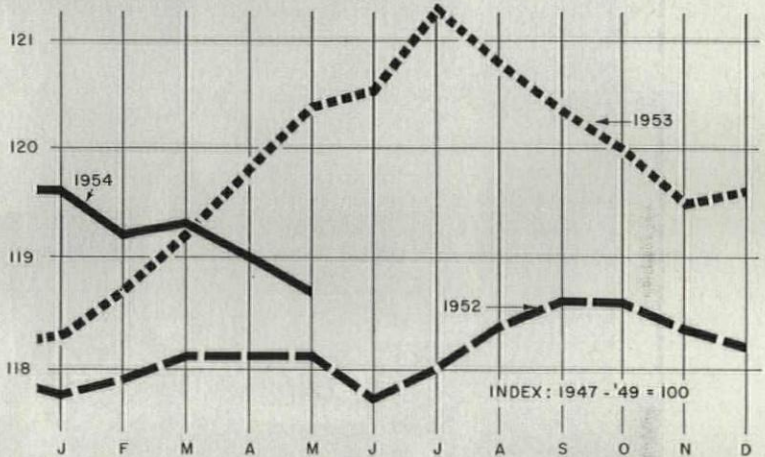
\* Minor components not shown, so total exceeds sum of parts. Data from Depts. of Commerce and Labor.

## TOTAL CONSTRUCTION EXPENDITURES



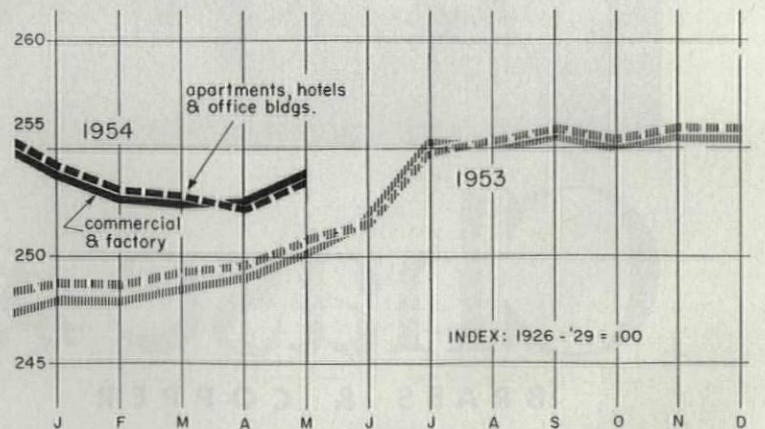
Construction spending, with monotonous regularity, broke another record. In May, it climbed to almost \$3.1 billion, an amount unequalled by any other May of record. New construction activity for the first five months of 1954 thus topped \$13.2 billion, nosing out 1953 by 2% (\$13.0 billion).

## MATERIALS PRICES



Wholesale prices of building materials dipped a trifle in May to 118.7, or 0.3% below a month before. April '54, originally estimated at 119.2, was revised downward to an even 119. Most conspicuous May plunge: prepared asphalt roofing, which hit a seven-year low, dropping 11.6% to an index of 95.8 from April to May. Great productive capacity and cheap, plentiful raw materials (old newspapers, residual asphalt from oil refineries) had stimulated production until the rate exceeded consumption and prices tumbled.

## BUILDING COSTS



Building costs were almost becalmed in May, showing either no change at all, or the slimmest of gains, depending on the index consulted. Two remained static: Smith, Hinchman and Grylls' at the April level of 269 (1926=100), AGC at 130.5 (1947-'49 base). The American Appraisal Co. index inched up two tenths of a point to a May reading of 124.7 (1917-'49 base), while the Boeckh indexes (above) rose 1.2 and 1.3 points to 253.6 (apartments) and 253.9 (commercial).





## Another Radiant Heating job that called for Chase Copper Tube

Why was Chase Copper Tube chosen for radiant heating in the Sacred Heart Cathedral of Newark, New Jersey? Because: Chase Tube is corrosion-resistant and can't clog with rust—*ever*. It can be bent by hand... and fewer joints are needed because it comes in long lengths. Do you have a radiant heating job to do? Specify Chase Copper Tube and leakproof, pressure-tight Chase Solder-Joint Fittings for long-lasting satisfaction.

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**Heating Engineer:**  
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## PEOPLE: Zeckendorf, in biggest deal, offers \$80 million for Statler hotels; Rexford Newcomb and Talbot Hamlin retire

Hotelmen were strenuously active last month—buying, selling, announcing plans for new and expanded structures. Items:

► **William Zeckendorf**, president of Webb & Knapp, made an offer to **Arthur F. Douglas**, president of Hotels Statler, Inc. to buy control of the Statler chain (third biggest in the country) for \$50 a share (vs. over-the-counter value of \$43.50) or for a fixed price for the assets that would realize \$50/share for stockholders. Total would run about \$80 million. Statler trustees approved the plan, but at least two other parties were interested in buying control of Statler and any formal agreement would have to be approved by two-thirds of present shareholders. If the deal went through, it would be Zeckendorf's biggest yet.

► **Ernest Henderson** of Sheraton Corp. of America (the second largest chain) bought a controlling interest in the ivy-covered Huntington Hotel in Pasadena.

► In Milwaukee, **Walter Schroeder**, owner of the 25-story Schroeder Hotel, expressed faith in Milwaukee's future and said he would expand his hotel, most probably with a 450-room, 25-story addition for "somewhere between five and six million dollars." This would be Milwaukee's first hotel construction since the Schroeder opened in 1928. Architects: Holabird & Root & Burgee.

► Miami, Florida looked forward to a new hotel boom. Interest centered around purchase of 500' of ocean front property in Bal Harbour, with **Ben Turchin** of Miami Beach, **David Siff** of Cleveland and **Frank McKay**, wealthy Indiana businessman, listed as taking pieces of it. Other pieces of property—which also seemed to lend themselves to new hotels—were bought by moviemanager **Albert Warner** and hotelman **Arnold Kirkeby**.

► Dallas Realtor **Leo F. Corrigan** had ideas for a downtown hotel in Houston for \$20 million and an outlying resort hotel for \$10 million. He has also said he will put up an \$18-million hotel in Portland, Ore. if local businessmen put up \$2 or \$3 million.

Changes in architectural faculties, prefacing the start of a new academic year, were announced by half a dozen universities. At the University of Illinois, **Rexford Newcomb**, FAIA, retired at 68 as dean of the college of

fine and applied arts, which includes art, architecture, landscape architecture and music. The vigorous, always-busy Newcomb has headed the school since its organization in 1931, has been a stimulating member of the Illinois faculty for 35 years.

He served as chairman of the executive committee of the university's Small Homes Council from its inception in 1944, in between times wrote 18 books in the architectural field. His successor is Art Historian **Allen S. Weller**. Illinois also has a new chairman of the architectural faculty—**Alan K. Laing**—who studied at the University of Denver, MIT, and Harvard and has taught at Illinois for the past 14 years. He succeeds **Turpin C. Bannister**, effective Sept. 1.

**Harold D. Hauf**, ex-Yale professor, ex-editor, and public relations director for AIA for the past five months, accepted an appointment as head of the department of architecture at Rensselaer Polytechnic Institute. Hauf was on the Yale faculty for 24 years (including time as chairman of the department of architecture) took time out for two terms of naval service and was editor of *Architectural Record* in 1949-51. He will start his new job Oct. 1.

**Dr. T. J. Killian**, a physicist who has worked for the government for 13 years—most recently as chief scientist in the office of ordnance research—was named dean of the school of engineering and architecture at the Catholic University of America in Washington. He replaces **Dr. Anthony Scullen**, who resigned as dean a year ago, but stayed on to teach.

At Columbia, **James Marston Fitch**, architect, town planner, student of population growth and weather forecaster, was named an associate professor of architecture. Fitch has had a varied career, including service as a housing analyst with FHA and as an associate editor of *FORUM*. Columbia's grand old man of architecture, **Talbot Hamlin**, 65, author of the vast and impressive *Forms & Functions of 20th Century Architecture* (and others, including *Architecture Through the Ages*) retired late in June. It was three years before he would be due for compulsory retirement, but the famed Hamlin, white-bearded and diminutive, announced he wanted to do some more books, paint watercolors and cruise on his 33' boat, *Aquarelle II*.

The University of Michigan announced a

departmentalization of its college of architecture and design and appointed men to head up the separate departments: **Walter B. Sanders**, architecture; **Aare K. Lahti**, art; **Harlow O. Whittemore**, landscape architecture.

**Robert Moses**, city construction coordinator in New York, received honorary degrees from several colleges, notably Colgate University, Manhattan College and Long Island University. The versatile **Buckminster Fuller** received an honorary degree of doctor of design from North Carolina State College for his "dynamic influence on the creative youth of our time." Architect **Frank Lloyd Wright** got an honorary degree of doctor of fine arts from Yale.

**NAMED:** **Stephen D. Bechtel**, president of the Bechtel Corp. in San Francisco, as a director of J. P. Morgan, Inc.; **Carter Page**, as chief of planning and development for civil works for the Army Engineers; **Warren W. MacGeorge**, as president of Stone & Webster Building, Inc., in New York; **Robert S. Hutchins**, as president of the New York chapter of AIA; **Richard G. Kimbell**, as vice president of technical services for the National Lumber Manufacturers Assn., a new post; **Robert N. Kelly** of Portland, Ore., as president of the Fir Door Institute, succeeding **A. C. Peterson** of Tacoma; **William Roy Glidden**, nominated for president of the American Society of Civil Engineers, to succeed **Daniel V. Terrell**; **Norman L. Mochel**, elected president of the American Society for Testing Metals, succeeding **L. C. Beard Jr.**

**Henry C. Turner**, 82, founder and longtime president of the Turner Construction Co., died June 5 in Newton Square, Pa., near Philadelphia. A pioneer in use of reinforced concrete, Turner pushed his



TURNER

company from its small beginning in 1902 to a position as one of the nation's major contracting firms. Graduated in the class of 1893 at Swarthmore College, he was president of his company through 1941 and chairman of the board until his retirement in 1946.

Some of the company's jobs: stairways for the New York subway system in 1903; the Harvard Stadium; the Breakers Hotel in Palm Beach; the John Hancock Mutual Life building in Boston and the Port of New York Authority's bus terminal. Turner was a former president of the American Concrete Institute and an organizer and first president of the Metropolitan Builders Assn. of New York.

**OTHER DEATHS:** Architect **Burton Schutt**, 48, who built more costly showplaces for the Hollywood trade than any other architect, May 31 in Los Angeles; Architect **John F. Corman**, 68, consultant on hotel planning, restaurant and store designer, June 15 in Patterson, N. Y.; Architect **Arrigo M. Young**, 70, senior partner in Seattle's Young, Richardson, Carleton & Detlie, June 27 in Seattle.



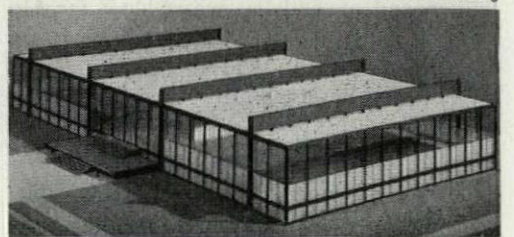
## NEW BUILDINGS

**Dorms with built-in classrooms**

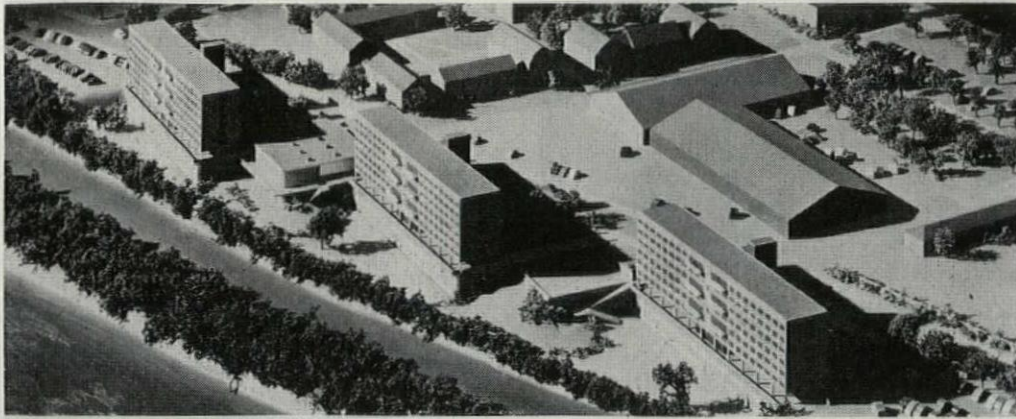
Rutgers University has contracted for three unique residence halls (see cut), including classroom space, on a strip of land between a street edging the present campus and the Raritan Delaware Canal and the river. Architects Kelly & Gruzen, faced with the narrow,  $5\frac{1}{4}$ -acre site, have angled the buildings to provide a maximum view of the river and have made good use of the fact that the canal side of the plot is 46' below the campus side. The dormitories are seven stories on the upper side and nine on the riverbank, with the classrooms cut into the bank on the lower levels. The architects have also raised the dormitory section of the buildings a story above the ground (and the tops of the classrooms) with stilts. This maneuver allows free pedestrian traffic on a terrace area under the living quarters, permits an unobstructed view of the river from the campus and raises studying students a floor above the glare of auto headlights. Placing the classrooms under the residence halls stemmed as much from simple logic as from desire to shave costs. One measure that did cut costs: elevators that stop between floors (three stops instead of six) and give into lobbies, with half-flights of steps up and down. A student recreation center is part of the program. Cost of the project is estimated at \$3.5 million.

**Mies hangs a roof**

Ludwig Mies van der Rohe has designed a single-story glass-and-steel building (see cut) at Illinois Institute of Technology to house his own department of architecture, the present design department and subsequently a department of urban and regional planning. It will be the twentieth modern building (most of them designed by the ex-Bauhaus director) to go up on the campus in the past ten years. Cost will be in the neighborhood of \$750,000. Mies hung the roof from four exposed steel girders (which are placed 60' apart and span 120') and gained a column-free main hall—exemplifying his philosophy that a building ought to have universal space adaptable to changing conditions. The main hall will contain two 28'-high drafting areas on either side of a central core defined by freestanding wood walls. The exterior glass walls will have opaque lower sections. Total area: 52,000 sq. ft., counting a full basement.



COLLEGE BUILDING BY MIES VAN DER ROHE



RUTGERS UNIVERSITY COMBINES RESIDENCES AND CLASSROOMS ON A CANAL

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**ARCHITECTS & DESIGNERS**—Basic units provide intercommunication between any desired number of stations, supplied in units of 10, 25, 40 or more stations. Special unit for apartments.

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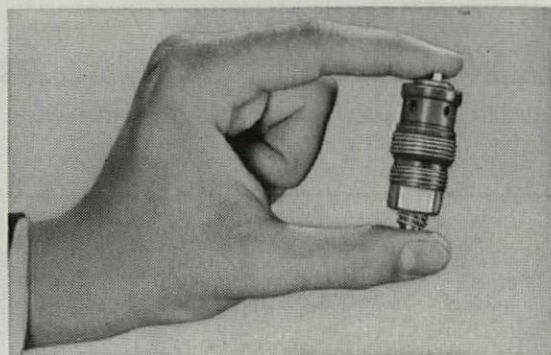


# Why architects choose CRANE for public buildings

Buildings that are used by vast numbers of people are generally designed both to serve them efficiently and to please them visually. Also, of course, such buildings should be easy to maintain.

This applies to the buildings' equipment, too... and public washrooms are an important example of this. That's why so many architects specify Crane plumbing.

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Above, you see Crane "Norwich" 1-240-S lavatories with "Embassy" trim, and Crane "Correcto" 7-87-R urinals.

## New York Air Terminal features Crane plumbing

Four million people a year will use the new \$7,500,000 East Side Air Terminal in New York City. It will be, for most air travelers, the first point of entrance into New York and the last point of exit. Until a similar West Side Terminal is built, air line busses for all New York airports will serve this block-square building—a total of some 550 bus trips a day.

Naturally—for a building so important and so busy—

Crane plumbing was specified. In all types of commercial as well as domestic installations, Crane enjoys a justly superior reputation. Yes, Crane plumbing equipment will serve your clients better.

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## NEW BUILDINGS (continued)

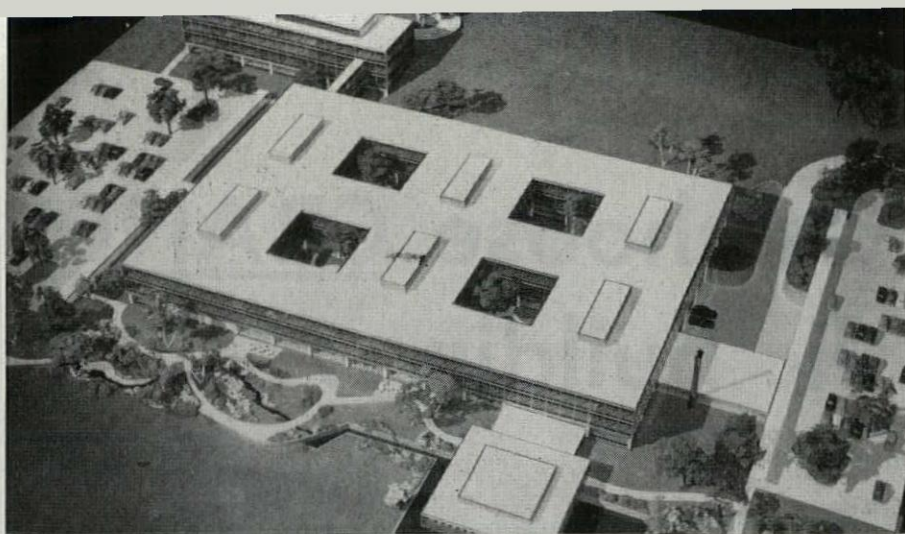
### Horizontal insurance building

Connecticut General Life Insurance Co. will move to a 268-acre suburban site 5 mi. from town and combine its four present offices in Hartford into what it says will be the world's largest horizontal office building (585,000 sq. ft.) for private industry. Work is under way on the \$10-million structure (see cut, left) whose chief components are a three-story main office building, a four-story administrative wing and a ground-level cafeteria overhanging a reflecting pool (skating rink in winter). Skidmore, Owings & Merrill designed the buildings, planned for use of heat-absorbent glass for about half the wall area (windows will not open at all) and porcelain-enameled steel for the rest. Connecticut General decided that an insurance company's work flow was similar to the operations of a light manufacturer and that a horizontal building, therefore, would be preferable to the traditional skyscraper. Moreover, it found building costs in the country were cheaper. And it could provide more amenities for employees and thus make it easier to get help. Sample: a 400-seat theater, bowling alleys, employees' store, tennis courts, picnic grove.

The office area (the whole place is air conditioned) can be quickly divided with movable acoustical screens; escalators will handle passenger traffic, elevators will be used for freight; there will be vertical and horizontal conveyor belts for interoffice mail. The air-conditioning water will come (at 52°) from 12 wells, then run into the reflecting pool, and flow from there to form a small lake. About 2,000 persons will occupy the offices, which will have capacity for 3,000. The buildings are so designed that with additions the eventual population could be 5,000. Turner Construction Co., the general contractor, is working on a cost plus fixed-fee basis.

### Glass medical tower in Texas

A 16-story, glass-and-aluminum addition to the Texas Medical Center in Houston (see cut) will combine tower space for 175 doc-



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A SUBURBAN INSURANCE COMPANY DEVELOPMENT WITH FOUR INTERIOR COURTS

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MEDICAL CENTER WITH BUILT-IN GARAGE



# 31,000-ton steel framework for 41-story Chicago skyscraper rises above busy railroad tracks



## AMERICAN BRIDGE safely handles difficult construction problem with minimum interruption in rail traffic

CONSTRUCTION of the new Mid-America Headquarters building of the Prudential Insurance Company, being built above 18 tracks of the Illinois Central Railroad located at Michigan Avenue and Randolph Street in Chicago, is now well under way. The big, 600-ft. skyscraper, which straddles eighteen railroad tracks, is moving upward according to schedule with little or no interruption of rail traffic.

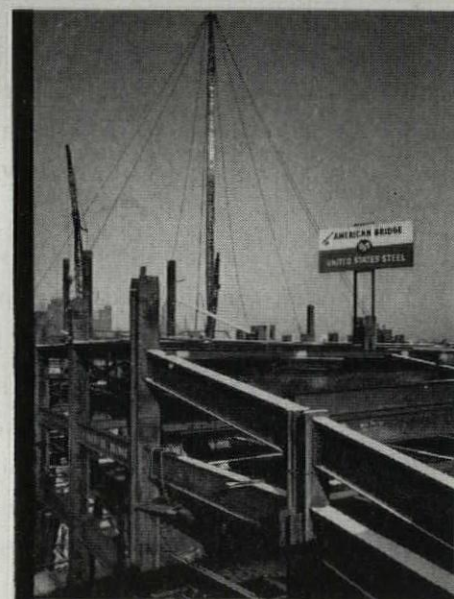
Approximately 31,000 tons of steel will be used for the framework for this tall, modern structure—all of

which is being fabricated and erected by American Bridge. It will take 125 American Bridge men about one year to erect the big steel columns, beams and girders for the towering structure.

When completed next year, the Prudential Building will rank among the world's most outstanding office buildings. And it will take its place alongside the Empire State Building, the Chrysler Building, the United Nations Headquarters, and other notable American Bridge structures from coast to coast.

AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION  
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## PRUDENTIAL LIFE INSURANCE COMPANY BUILDING Chicago, Illinois

Architect and Engineer:  
Naess and Murphy, Chicago

General Contractor:  
George A. Fuller Co., Chicago

Steel Fabricators:  
American Bridge

Steel Erectors:  
American Bridge



# AMERICAN BRIDGE

UNITED STATES STEEL



tors and dentists with a 600-car garage and at least seven ground-floor shops. Plans for the handsome, \$4-million **Center Medical Building**, showing solid end walls and sheer glass siding, smack of New York's Lever House and the UN building. Horizontal stripes in the Houston building are porcelainized steel; vertical strippings, aluminum. Architect Albert S. Golemon—who designed the building with partner Walter T. Rolfe—noted that the aluminum screen around the lower floors of the tower is there to hide the four-story, open-air garage. Further shelter for in-

coming patients is provided by a parabolic shell at entranceway.

Ground level will be devoted to various types of retail stores. Rents for the stores will be the same as for office space, but since the ground-floor construction cost will be lower than that for the tower (an estimated \$28 per sq. ft.), the gross income from the ground-floor rentals will be 50% to 60% higher per sq. ft.—in proportion to cost—than that from the upper stories according to J. J. Hiller, general manager. Skidmore, Owings & Merrill are consulting architects; Bernard Johnson & Associates and Walter Moore are consulting mechanical engineers.

## Penn Center addition

The **Pennsylvania Railroad** announced a \$35-million "package deal" for a transport center on the edge of the huge Penn Center development in Philadelphia (AF, April '53, *et seq.*). Builder Matthew H. McCloskey will buy the 24-story Pennsylvania Suburban Station building now occupied by the railroad and also an adjoining block. McCloskey will build a four- or five-story transport center topped by a tower of eight or more stories to house the railroad's executive offices. Tied in with the deal is McCloskey's earlier agreement to build a 500-unit apartment. All will be designed by Architect Vincent Kling.

## Palatial offices for labor unions

"In time, most unions will move to Washington," according to Harry C. Bates, whose AFL bricklayers have been ensconced in the capital since 1925. The move was well under way. As the unions gained power—both political and financial—it seemed only logical to them to take up positions strategically close to their friends and enemies. In addition to a new AFL headquarters, a penthouse-equipped teamsters' building and a \$2½-million structure for the **AFL machinists** on the former site of the British Embassy (see cut), there were a number of others planned or under construction. Whether under the portentous influence of the old-fashioned Washington "official school" or simply because the unions had moved so far toward big business as to feel it necessary to order buildings of monumental prestige value, notably few of the new offices were far off the beaten track. **Milk Drivers Local 246** planned a four-story rectangular building by Architect Leo Chatelain Jr. which would fit marvelously with other straight-faced Washington facades. The **AFL Letter Carriers** had already moved their headquarters into a \$1.8-million, eight-story monolith designed by Arthur L. Anderson. Architect A. R. Clas had gotten away from the traditional with a six-story building for the **CIO Electrical, Radio & Machine Workers**, an open-faced brick structure with a sheer front finished in black and white granite and buff limestone.



AFL MACHINISTS' NEW HEADQUARTERS

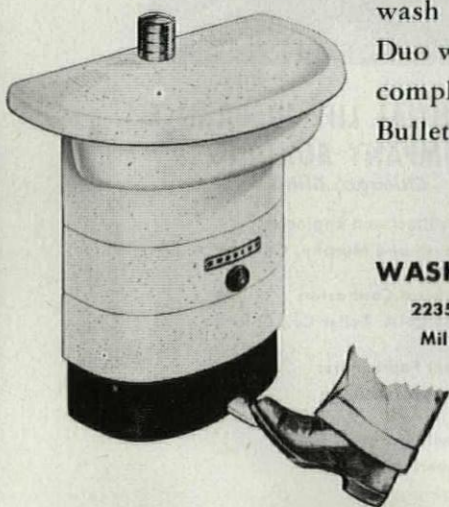
## Why use two when one BRADLEY DUO will do?

● Bradley Duo-Washfountains provide the maximum in sanitary washing facilities. Faucets and faucet contacts are eliminated since a sprayhead supplies the water controlled by the handy foot-pedal.

No water collects because the bowl is self-flushing,—no water left running because supply is cut off instantly foot is removed from the foot-pedal.

The amount of piping and piping connections is cut in half. These modern Bradleys are easily installed in new or remodeled washrooms, so why

install two conventional wash bowls when one Duo will do the job. For complete data, write for Bulletin K-958.



### BRADLEY WASHFOUNTAIN CO.

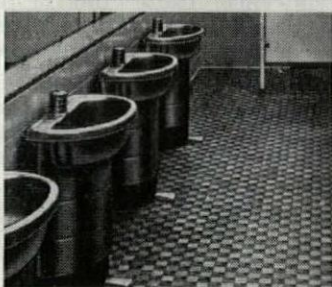
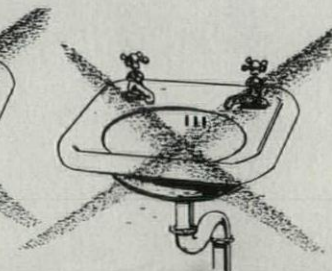
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Milwaukee 1, Wisconsin

Write  
for Bulletin  
K-958



**BRADLEY**  
*Duo Washfountains*

Distributed through Plumbing Wholesalers

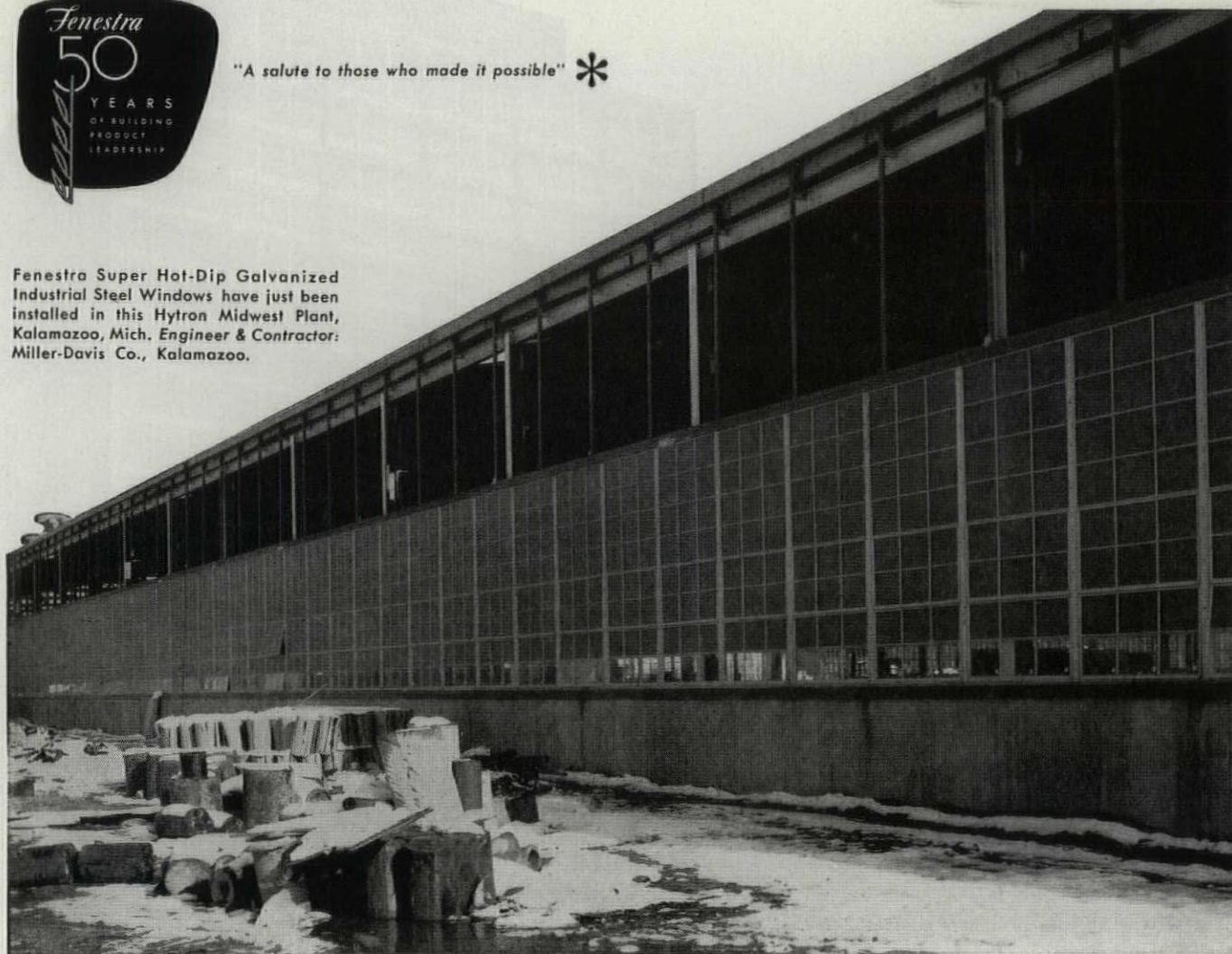






"A salute to those who made it possible" \*

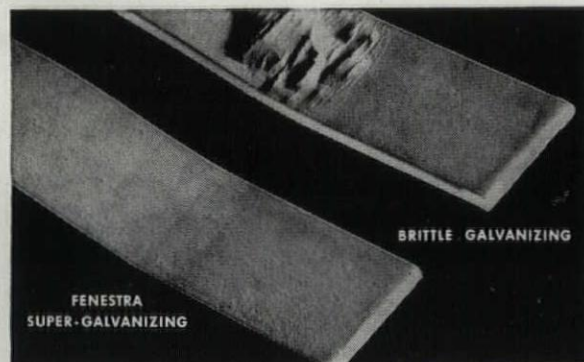
Fenestra Super Hot-Dip Galvanized Industrial Steel Windows have just been installed in this Hytron Midwest Plant, Kalamazoo, Mich. Engineer & Contractor: Miller-Davis Co., Kalamazoo.



## They've just finished installing an annual saving here

These Fenestra\* Super Hot-Dip Galvanized Industrial Steel Windows *cost no more than regular steel windows with two inside-outside field coats of paint!* And they will probably *never* need painting. That's a saving of thousands of dollars in paint and painting labor—every few years—for the life of the building.

Fenestra has the only plant and equipment in America especially designed for the highly specialized job of window galvanizing. For complete details on Fenestra Super Hot-Dip Galvanized Industrial Steel Windows, call your Fenestra representative—he's listed in the phone book yellow pages—or write the Detroit Steel Products Company, Dept. AF-7, 2296 East Grand Blvd., Detroit 11, Michigan. \*



**BEND TEST** shows why Fenestra Steel Windows are called Super Hot-Dip Galvanized. When two pieces of galvanized steel are bent, then straightened, some types of galvanizing crack open, leaving the steel vulnerable. The Fenestra piece stays protected.



Your desire for windows of strong material that would resist rust, resulted in Fenestra Super Hot-Dip Galvanized Industrial Steel Windows—a great advancement in building products.

# Fenestra

**SUPER HOT-DIP  
GALVANIZED INDUSTRIAL  
STEEL WINDOWS**



## MILE HIGH CENTER

### Another of America's

### newest buildings

### chooses a Yorkaire System

### of air conditioning!

The Yorkaire System brings new standards of comfort to the modern miracle of air conditioning—and building after building, old and new, across the country, is installing it!

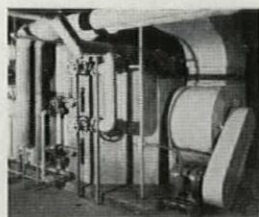
One of the more recent is the Mile High Center, now being built in Denver. This magnificent structure will rise 23 stories above its spacious plaza—and because its walls are mostly glass, it posed a “heat-load” problem of sizable proportions. York engineers—who have a great variety of systems from which to choose, who even design special systems to bring the right kind of air conditioning to unusual buildings—are furnishing a Yorkaire System as the perfect answer.

York has been solving cooling problems since 1885. You can start applying this knowledge and experience to your home or business by picking up your telephone. York District Offices are located in principal cities. Or you may write directly to York Corporation, York, Pennsylvania.

Webb & Knapp, Inc.—I. M. Pei, designer  
Kerby Saunders, Inc.—mechanical contractors  
Jaros, Baum & Bolles—consulting engineers  
George A. Fuller Company—general contractor



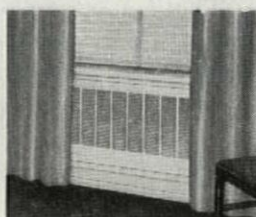
Source of comfort cooling in the Mile High Center is two rugged 800-ton York Turbo Water Cooling Systems. In your building these may be located on the roof or at other points.



“Raw” air from outdoors is filtered, washed, cooled or heated, and moisture conditioned. When it’s “just right for comfort,” it begins its swift, silent journey to you.



Through small, tightly sealed tubes the “comfort” air is sent under mild pressure, while small pipes carry hot or cold water to help you obtain comfort temperatures you want.



In room units (1848 in the Mile High Center) air tube and water pipes meet. The conditioned air is released in a gentle, quiet stream. A simple control lets you refine temperatures.

#### IF YOU ARE ABOUT TO AIR CONDITION

... consult with experienced York engineers as so many others have done. York brought the right kind of comfort cooling to the Empire State Building, Cincinnati's Netherland-Plaza Hotel and the S. S. United States, for example. And recent contracts include the Equitable Life Assurance Society in San Francisco, the Esso Standard Oil Company in Philadelphia and Atlanta's Fulton National Bank.

## air conditioning by york

In homes and offices, ships and stores, skyscrapers, factories, hospitals, theaters . . . almost everywhere you go, when the air conditioning is just right, chances are it's York Air Conditioning.

YORK CORPORATION



YORK, PA.

HEADQUARTERS FOR MECHANICAL COOLING SINCE 188





"A salute to those who made it possible"\*



## CAN YOUR BUILDING RESIST EARTHQUAKES, GREAT WINDS OR BOMB SHOCK?

Your next one can.

Fenestra has developed a method to increase the "lateral diaphragm" action of a building. Fenestra\* Cellular Steel Floor Panels in combination with a correct welding pattern provide shear resistance to seismic forces of earthquakes and to excessive wind loads and bomb shock.

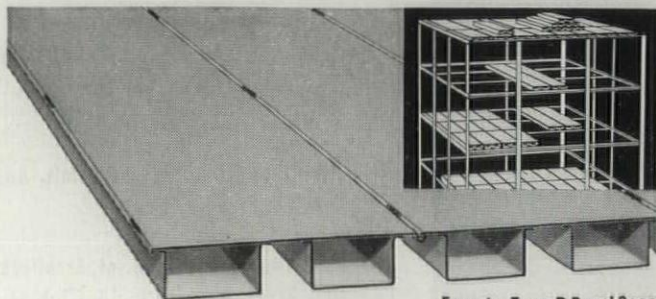
Exhaustive tests by Fenestra and independent consulting engineers in earthquake-experienced Southern California have resulted in predictable performance patterns and de-

sign formula values, approved by the Pacific Coast Building Officials Conference and now available in the Fenestra Building Panels Catalog to assist architects and engineers in planning your buildings.

Long-span Fenestra Cellular Steel Panels also provide structural floor and finished ceiling in one material, thus saving building time, labor, material and money. Mail the coupon for your copy of Fenestra Building Panels Catalog.

\*Trademark

\* Your need for protection of your buildings against external destructive forces encouraged us to develop a lateral diaphragm design using Fenestra Cellular Steel Panels.



Fenestra Type-D Panel floor with interlocking joints. Note the welding pattern.

*Fenestra*

**METAL  
BUILDING  
PANELS**

Detroit Steel Products Company,  
Dept. AF-7, 2296 East Grand Blvd.,  
Detroit 11, Michigan

Please send immediately  
the 1954 Fenestra Building Panels Catalog.



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the new nylon-and-wool blended

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A headache saving carpet to install, to specify, or to recommend. Sturdy wools blended with tough and strong Nylon to give multiple life and maintain original colors and smartness.

A sponge rubber back is built into LOMA LOOM for permanent resilience and to stay put as long as the carpet is down. It is economically installed and almost no carpet is wasted in the laying. No underlay, no nailing and no under tacking. It conducts heat and retards the suffusion of cold air. It has perfect noise absorption.

It is replenishable in worn and damaged spots; cutting out and replacing is done with no visibility of patching. It is 54" wide, but looks like Broadloom when down—because of invisible seaming. LOMA LOOM should be of great interest to Architects, Builders and Contractors.

Samples will be sent on request along with Booklet 70.

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*The Shelton Looms*

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A CENTENNIAL FABRIC

*Loma Loom*

The Carpet With The  
Built-In Sponge Rubber Back

## EVENTS

New developments in Industrial design, conference sponsored by Virginia Polytechnic Institute, Aug. 4-6, at the Institute. For details address Prof. D. H. Pletta, Applied Mechanics Dept., VPI, Blacksburg, Va.

Northwest District, American Institute of Architects, conference, Aug. 19-21, Eugene, Ore.

City and regional planning, two-week special summer program offered by Massachusetts Institute of Technology, Aug. 23-Sept. 3, MIT. For details address Prof. E. H. Hutcheson, Room 7-103, MIT, Cambridge, Mass.

Fall trek to Spain, Italy, Greece, Egypt and France, Sept. 4-Oct. 7 under the leadership of Edmund Purves, FAIA, from whom details may be obtained at AIA headquarters, 1735 New York Ave. N.W., Washington, D.C.

The Producers' Council, annual fall meeting, Sept. 13-14, Commodore Hotel, N. Y.

Illuminating Engineering Society, annual meeting, Sept. 13-16, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

American Hospital Assn., annual convention and architectural exhibit of hospitals, Sept. 13-16, Navy Pier, Chicago, Ill.

Pennsylvania Society of Architects, annual meeting, Sept. 16-19, Great Lakes cruise on the South American, leaving from Erie, Pa.

Midwest Conference of Building Officials and Inspectors, annual conference, Sept. 20-22, Hotel Commodore Perry, Toledo, Ohio.

Gulf states district, American Institute of Architects, regional conference, Sept. 26-28, Marion Hotel, Little Rock, Ark.

American Society of Planning Officials, annual meeting, Sept. 26-30, Benjamin Franklin Hotel, Philadelphia, Pa.

Porcelain Enamel Institute, annual meeting, Sept. 29-Oct. 1, The Greenbrier, White Sulphur Springs, W. Va.

California Council of Architects, annual convention, Sept. 30-Oct. 2, Hoberg's, Lake County, Calif.

Pacific Coast Building Officials, annual meeting, Oct. 5-8, Denver, Col.

New York State Assn. of Architects, convention, Oct. 21-23, Lake Placid Club, Lake Placid.

North Central states district, American Institute of Architects, regional meeting, Oct. 28-30, Kahler Hotel, Rochester, Minn.





"A salute to those who made it possible" \*

## ► Better daylight for every student . . .

Look at the wonderful "learning atmosphere" here. Fenestra® Intermediate Steel Windows fill this elementary school room with eye-easy daylight. They help create an open friendly feeling for students who study here. With Fenestra, you see, you get extra glass area per window, because the window frames are designed to be strong and rigid without being ponderous. And tilt-out vents give you controlled ventilation.

## ► More architectural beauty inside and out . . .

Notice the clean, modern, architectural lines of this university science building with its Fenestra Intermediate Steel Windows.

*Note:* These windows will *always* look new and *they will never need painting!* They are Fenestra Super Hot-Dip Galvanized Steel Windows. They will save thousands of dollars in paint and painting labor and *they cost no more than ordinary steel windows with two inside-outside field coats of paint!*

## ► For any size or style of school . . .

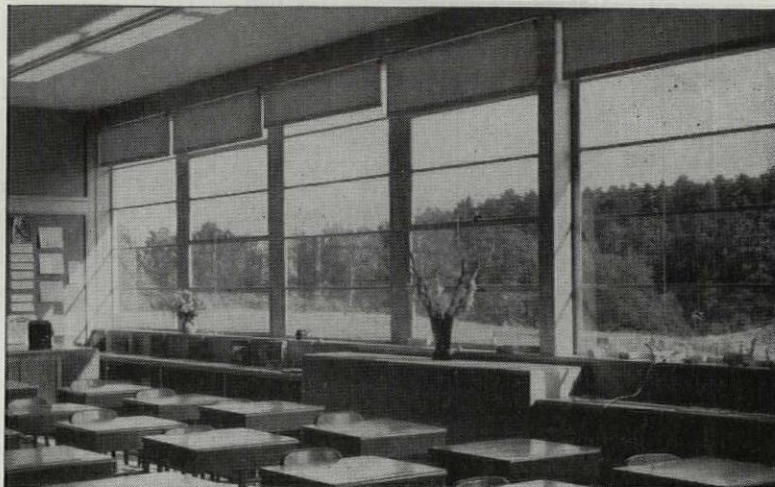
Here's an unusual Fenestra Window treatment in a college building.

Fenestra Intermediate Steel Windows offer architects amazing flexibility of design. They offer students a better atmosphere in which to learn. And they help make any school a proud part of its community.

*Check on Fenestra Today*—Call your Fenestra Representative, listed in the yellow pages of your phone book. Or write Detroit Steel Products Company, Dept. AF-7, 2296 East Grand Blvd., Detroit 11, Mich. And ask for your free copy of *Better Classroom Daylighting*.

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\* Your need for windows that would give better school daylighting, protected ventilation and lower maintenance costs encouraged us to develop today's Fenestra Intermediate Steel Windows . . . a great advancement.



Elementary School at Kingston, Mass. Architects: Bogner & Richmond, Cambridge, Mass. Contractors: L. C. Blake Construction Co., Milton, Mass.



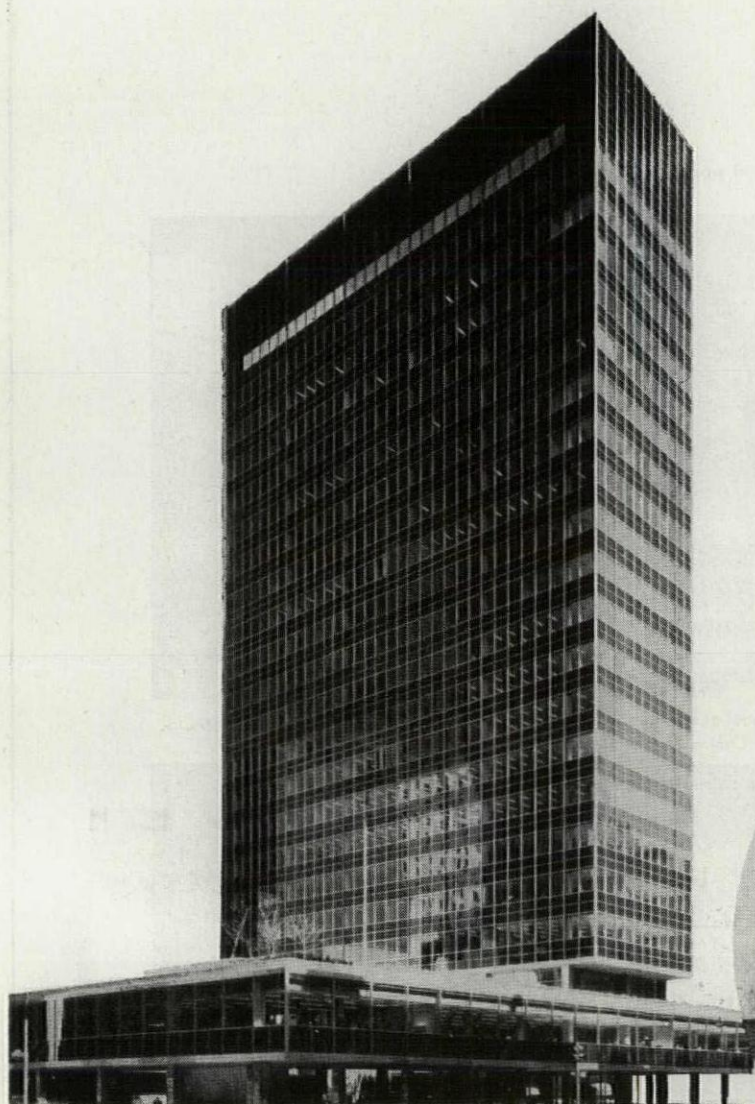
Science Hall at St. Mary's University, San Antonio. Architects: Julian & White—San Antonio. Contractors: Lynn & Morsey—San Antonio.



Continuing Education Building, Michigan State College, East Lansing. Architect: Lewis J. Sarvis, Battle Creek. Contractor: Reniger Construction Company, Lansing.

**Fenestra** | **INTERMEDIATE  
STEEL WINDOWS**





# LEVER HOUSE

*New York City*

*has wall-to-wall carpet with*

## No Tack Marks



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SMOOTHEDGE makes its invisible contribution by firmly gripping flawless wall-to-wall carpet from beneath . . . no ugly tack marks!

In this case, SMOOTHEDGE was anchored to the cement floors with waterproof adhesive and concrete nails.

For wooden floors, architects may now specify Pre-nailed SMOOTHEDGE and have added assurance that maximum labor savings will be effected. Permanent anchoring nails are pre-started in the strip. One stroke of the hammer sets each nail with minimum time and effort.

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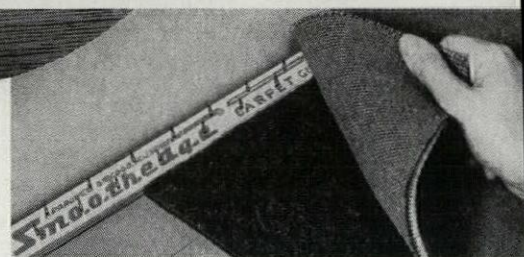


PRE-NAILED for easier, better installation. An exclusive SMOOTHEDGE feature.

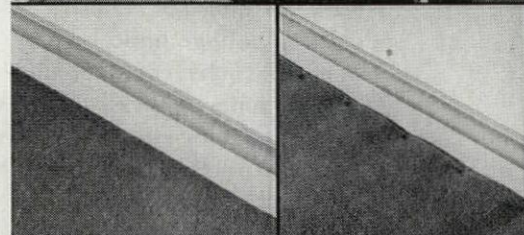
BEVELED EDGE permits installation without removing quarter-round!

EXTERIOR GRADE PLYWOOD. Easy to cut, nail or cement. Millions of feet now in use.

RUST-PROOF, ZINC-PLATED PINS. Precision set every 5/8" with proper length and gripping angle.



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See Sweets AIA File No. 19J or write direct for complete file of explanatory literature and samples. Dept. AF-47.

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## PICK ONE UP IN EVERY DOORWAY

Up to \$100 savings for every single door opening you fill with a Fenestra\* Hollow Metal Door-Frame-Hardware Unit. Compare the installed cost of these Units with the cost of other hollow metal doors.

Here are four sound reasons why Fenestra Door Units can bring you such important savings:

1. *They cost less to buy* because you get production-line economy—not custom job costs. They are mass produced on special jigs that avoid expensive time and labor.
2. *They come to your job complete* with pre-fitted door, frame and hardware specifically made for each other. You save time because you *eliminate* planning, ordering and assembling special elements.
3. *You save on installation costs* because these

complete units need no cutting, no fitting, no mortising or tapping. Each door is installed and in use in minutes.

4. *And you save year after year* on maintenance because Fenestra Hollow Metal Doors can't warp, swell, stick or splinter. They always open easily . . . smoothly. They close quietly because inside surfaces are covered with sound-deadening material.

For strong, solid quality at low cost, check on Fenestra Doors. There's a door for every purpose in the Fenestra line: Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, Doors with the Underwriters' B Label. For pictures and details, write the Detroit Steel Products Company, Dept. AF-7, 2296 East Grand Blvd., Detroit 11, Michigan.

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HARDWARE UNITS



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transmission  
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controlled...let

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With RIVERBANK DOORS, there's no need for "guessing" how much noise or sound you can eliminate from doorway openings. These sound insulating doors are pre-measured for sound reduction so that you know in advance just what the final noise factor of the room will be. RIVERBANK DOORS come in 35, 40 and 43 decibel degrees of transmission loss — For example, the noise level from a stenographic room of 70 decibels can be reduced to 30 decibels, or made practically inaudible, by using a RIVERBANK "40" door. Specified by leading architects and acoustical engineers for TV and radio studios, music and band rooms, schools, hospitals, doctors' and private business offices. Write for details or consult ARCHITECTURAL FILE <sup>16c</sup>HA



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## LETTERS

### PUBLIC RELATIONS

Your "Pocket Guide for Better Public Relations" (AF, April '54) is excellent and should be most useful. This short-form minder should be reviewed constantly every architect.

Congratulations to the FORUM for supporting the work of the AIA Public Relations Committee in this most practical manner.

HAROLD R. SLEEPER, architect  
New York, N.Y.

#### Forum:

It helps further the program to acquaint the architects of the nation with the tools used in public relations work. . .

FRANCIS JOSEPH MCCARTHY, architect  
San Francisco, Calif.

#### Forum:

The job is extremely well done and should be very helpful.

I cannot agree with your opening statement, "Architects do not even have to ask their best friends. . ." I deplore the reiteration of this negative and, in my opinion, untrue statement. It has gotten to be a habit with all of us to harp on the pernicious assumption that architects are badly understood. We all do it and I have done it myself, but I still think it is wrong and I think it is in itself poor public relations.

It is my conviction that, relatively speaking, we are far better understood than most other professions—far better understood, for instance, than engineers or lawyers who are not understood at all or doctors who enjoy such a confusion of understanding that nobody knows really what they can do or what sort of men they are. If you want to set a criterion, then I suppose the only professionals that are really thoroughly understood by the public are barbers and dentists whose services and schedule of fees are common knowledge and never questioned, nor does anybody wonder what they can really do and what they cannot do. But other than those two, comparatively speaking, I find that we are well-understood by the public. Our trouble may be that we do not capitalize successfully on that understanding. . .

Congratulations on an excellent job.

EDMUND R. PURVES, executive director, AIA  
Washington, D.C.

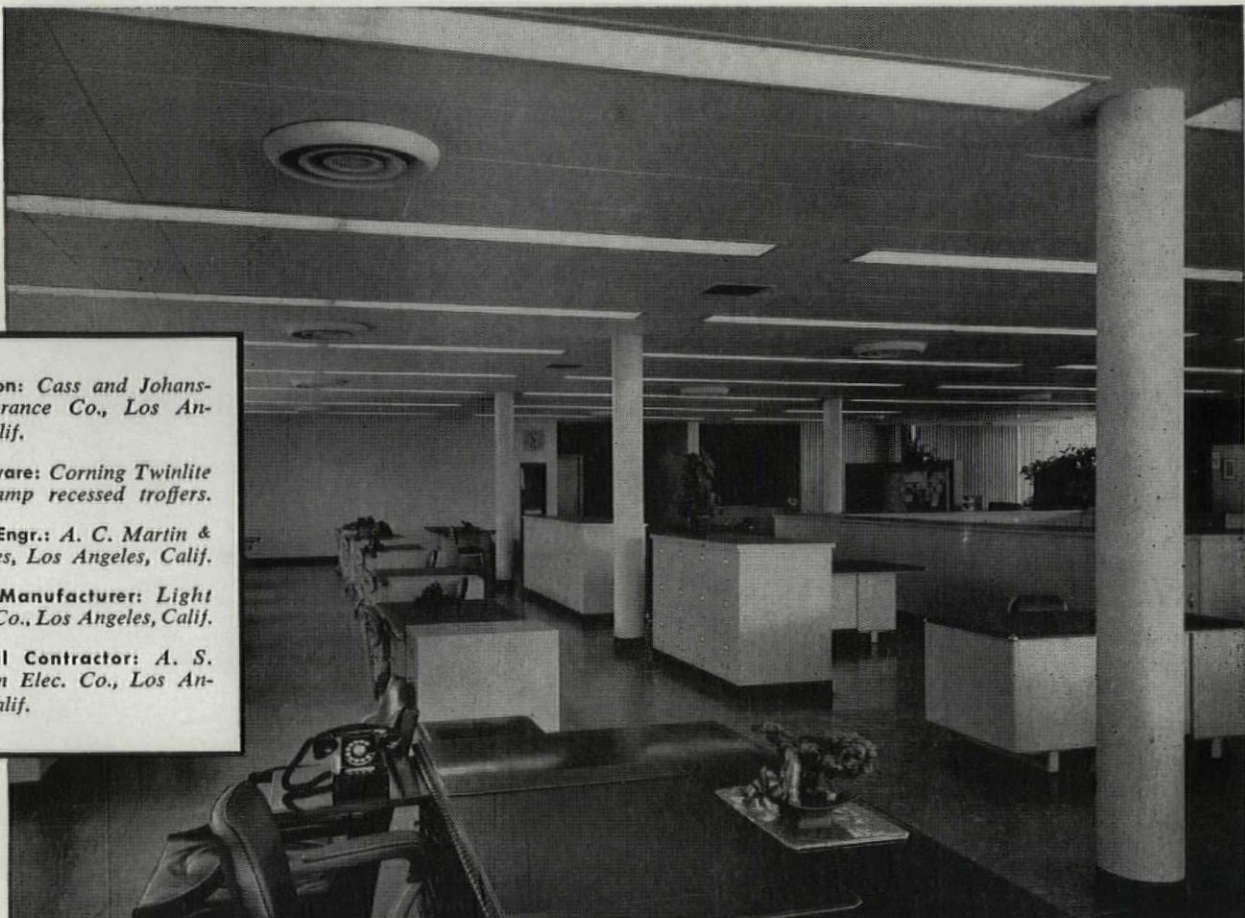
### SPACE FRAMES

#### Forum:

It was a pleasure to read your "Construction of the Future" (AF, April '54). More power to FORUM if it is able to convince engineers and architects to emulate the approach you have advanced. However, you have misinterpreted my opinions on the "space-

continued on p. 64





**Installation:** Cass and Johans-  
ing Insurance Co., Los An-  
geles, Calif.

**Lightingware:** Corning Twinlite  
in two-lamp recessed troffers.

**Arch. & Engr.:** A. C. Martin &  
Associates, Los Angeles, Calif.

**Fixture Manufacturer:** Light  
Control Co., Los Angeles, Calif.

**Electrical Contractor:** A. S.  
Schulman Elec. Co., Los An-  
geles, Calif.

*The illumination achieved in this engineered lighting assignment is approximately 55-foot candles.*

## Insurance firm solves two lighting problems at once

Just think—combining beauty and high lighting efficiency used to be one of your toughest problems. Now—it's one of your easiest!

This insurance office is a case in point. Requirements called for high illumination—necessary to facilitate comfortable reading of detailed information—and functional beauty to match a modern office.

In this case, CORNING Twinlite panels provided efficiency with beauty. A prismatic fluorescent lightingware made of water-white crystal glasses, CORNING Twinlite panels give controlled bright-

ness with true color transmission.

Prisms accurately direct light to working areas and they keep glare from critical zones. Twinlite panels have a special configuration on their back surfaces. CORNING Twinlite is excellent for use in banks, stores and restaurants. You can order Twinlite in flat and curved panels in a standard width of 11 inches and a standard length of 50 inches. And you can use Twinlite with low ceilings or high. Your clients will endorse your selection of Twinlite for its beauty, its efficiency—and for its easy cleaning.

You can call on Corning to help you simplify many lighting problems. Corning makes lightingware for prismatic fluorescent, diffusing fluorescent, louvering fluorescent and prismatic incandescent applications. "Architects and Engineers Handbook of Lighting Glassware" gives you the facts on all of them.

You'll find this handbook helpful in estimating lighting requirements and in writing specifications, too. It suggests lighting plans to help you even further. Let us send you a free copy. Mail the coupon today.



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*Corning means research in Glass*

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Please send me a copy of the "Architects and Engineers Handbook of Lighting Glassware," LS-43.

Name.....Title.....

Company.....

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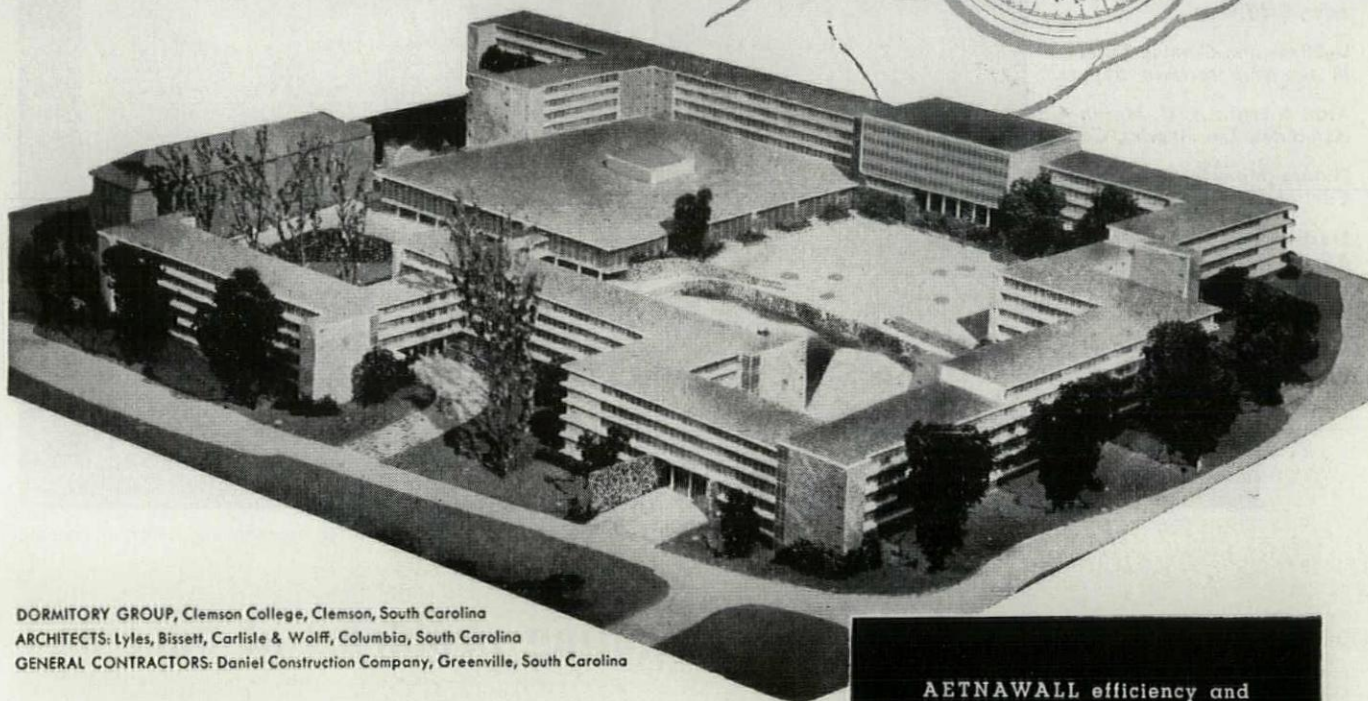
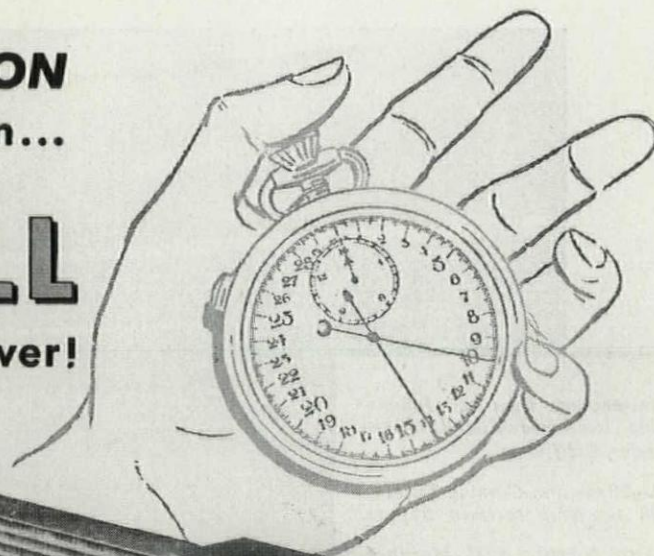
City.....Zone.....State.....



**SPEED of CONSTRUCTION**  
the question...

**AETNAWALL**

the answer!



DORMITORY GROUP, Clemson College, Clemson, South Carolina  
ARCHITECTS: Lyles, Bissett, Carlisle & Wolff, Columbia, South Carolina  
GENERAL CONTRACTORS: Daniel Construction Company, Greenville, South Carolina

Everything about the Dormitory Group project at Clemson College was co-ordinated to the purpose of speedy construction. For this reason, 3" thick AETNAWALL of furniture steel, insulated with Fiberglas, practically wrote itself into the specifications for this job—a perfect solution where speed is essential.

Over 1,000 rooms in this entirely prefabricated project are enclosed by prefabricated AETNAWALL, equipped with built-in, concealed electrical and plumbing services. AETNAWALL's comparative light weight was appropriate to the building's over-all speedy mode of construction and AETNAWALL, itself, was erected in a fraction of the time required by masonry or other methods.

Add to this AETNAWALL's characteristic advantage of re-usability.

AETNAWALL efficiency and know-how stem from a background of over 26 years in the manufacture and installation of movable steel walls. AETNAWALL users include the top names of every phase of American business and industry. You can be sure of quality production, experienced and faithful engineering follow-through and prompt delivery when you specify ... AETNAWALL.

The best in pre-fabricated movable walls for all uses . . . Product of

**E.J. BOYLE**

**E. J. BOYLE DIVISION**  
**AETNA STEEL PRODUCTS CORPORATION**

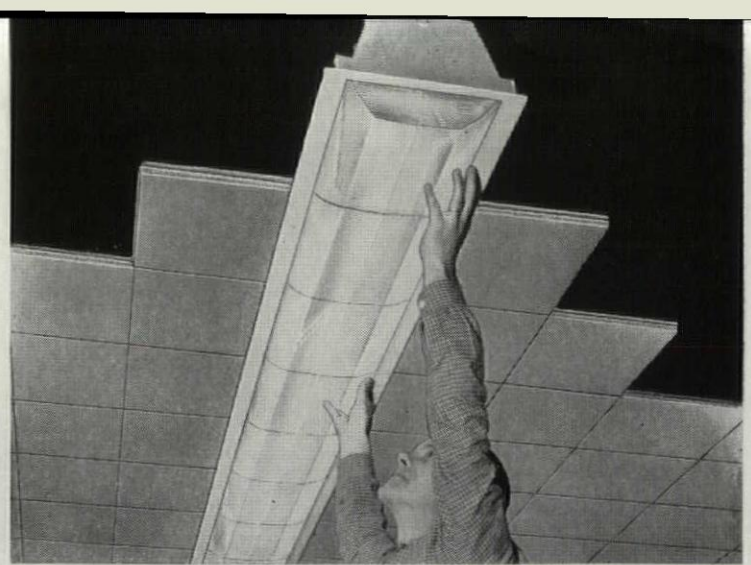
14 Charlton Street, New York 14, New York



**PRODUCERS OF:** The new Arnot Partition-ettes; Arnot Functional Office Furniture; Hospital and Laboratory Equipment; Under-Counter Bank Equipment; Aetna Steel Doors and Frames; Kahr Bearings; Boyle Metal Office Partitions (Aetnawall).



# NEW PRODUCT



Functional troffers installed to form unbroken line of light



LPI troffers give architects complete freedom in planning lighting arrangements

New troffers, designed and built by *Lighting Products, Inc.*, can be installed glass to glass to form a line of light unbroken by dividers. These troffers are adaptable to any known form of ceiling, and offer a wide selection of shielding media, including metal and plastic louvers, Holophane lenses (flat and curved), Albalite glass (flat and dished), and dished Plexiglas. All are interchangeable in the LPI troffer frame. This frame is quickly and easily slipped into place (no tools required) and is secured by a stable floating hinge, hidden from view. This eliminates the need for screws or other fastening devices which would mar the neat, clean appearance of the trim.

The unitized boxed construction of the LPI troffer body results in exceptional rigidity and assures perfect alignment in long runs. Engineered to prevent light leakage, the LPI troffer will accommodate from one to four lamps (preheat, rapid start, and slimline). It requires less than 8 inches in the ceiling and is suspended by LPI's patented Flexahanger which permits the contractor to install and adjust the troffer with complete accuracy. All lengths are standardized—24", 48", 72", and 96". They come in 12" and 24" widths.

For additional information and literature write *Lighting Products, Inc.*, Dept. 2A, Highland Park, Illinois.

No screws or other devices mar the appearance of the troffer trim





## ANOTHER INDUSTRIAL LEADER...

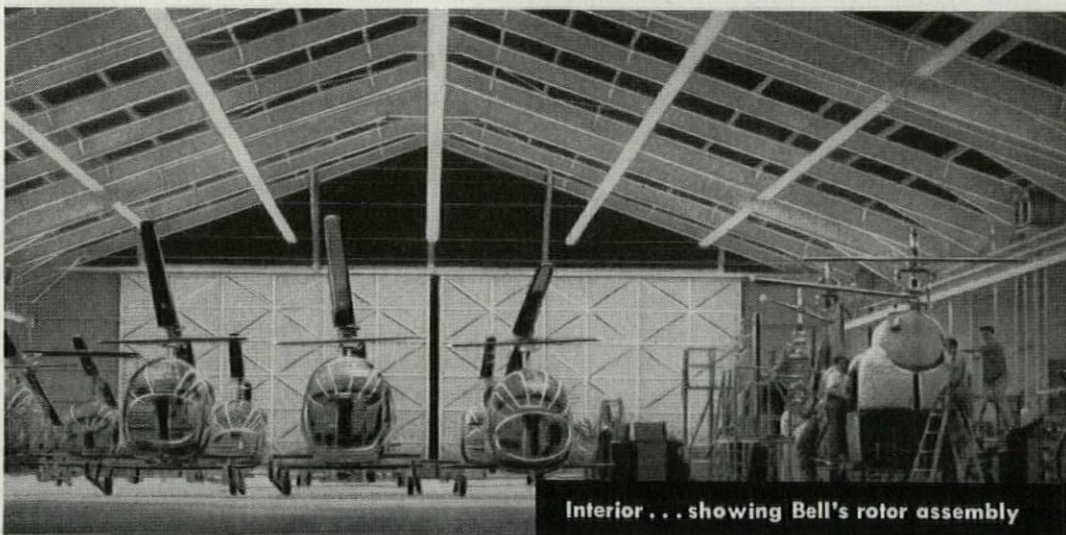


Exterior view of new Luria installation

**BELL** *Aircraft* CORPORATION  
TEXAS DIVISION

Chooses

**LURIA** Standardized Buildings



Interior... showing Bell's rotor assembly

## THE "LURIA SYSTEM OF STANDARDIZATION" LOWERS YOUR BUILDING COSTS...AND ADDS HIGH SPEED TO YOUR INDUSTRIAL EXPANSION

One of the primary reasons why Luria Buildings were selected by Bell Aircraft... and became a vital part of the world's most up-to-date facilities for manufacturing helicopters... was because these standardized buildings of structural steel components *surpass the requirements called for in the building codes.*

But *permanency of structure* is just

one of many assets provided by Luria. Among the others are *adaptability* and a *flexibility of design* that make possible almost any type of structure and almost any type of architectural treatment. As a result, Luria Buildings can be "custom-built" to your *individual requirements*... without sacrificing the advantages of standardization.



**LURIA ENGINEERING Company**

511 FIFTH AVENUE, NEW YORK 17, N. Y.

District Offices: ATLANTA • PHILADELPHIA • BOSTON • CHICAGO • WASHINGTON, D. C. • Plant: BETHLEHEM, PA.

## LETTERS *continued*

frame problem." To amplify: I do not object in any way to the concept or the use of space frame but, rather, to the misuse of the word itself.

PAUL WEIDLINGER, consulting engineer  
New York, N.Y.

## CURIOSITY ONLY

Forum:

Your article, "Moscow's Eight New Worth Buildings," (AF, March '54) is of general curious interest, but of no value whatsoever from a technical point of view. It does reassure my faith in "us" and the way we do things.

The article probably has served its purpose in jolting us into a realization of our own technical abilities and pointing up the fallacy of Communism.

JAMES M. HUNTER, architect  
Boulder, Col.

## ENGINEERS AND WELDING

Forum:

Man's material progress depends on how well and how economically in time and money he can join things together. This has been true since the dawn of history and especially true since the steel age began.

For over 40 years, arc welding has been a big factor in building the modern equipment used by man in every walk of life. However, progress is now being held back by limitations placed around the welding process by various codes, rules and regulations which are unduly severe.

With modern arc-welding equipment and electrodes, and with proper technique, it is almost impossible to make a weld which will be weaker than a riveted joint.

Every day we see riveted joints which are made tight by caulking. This is a standard accepted process. The resulting undercut is enormous yet a welding undercut that is almost infinitesimal in comparison is frequently made the reason for rejecting welds.

The contour of the deposit of the weld is a matter of close inspection but no one examines the contour of any rivet or the hole it may only partially fill.

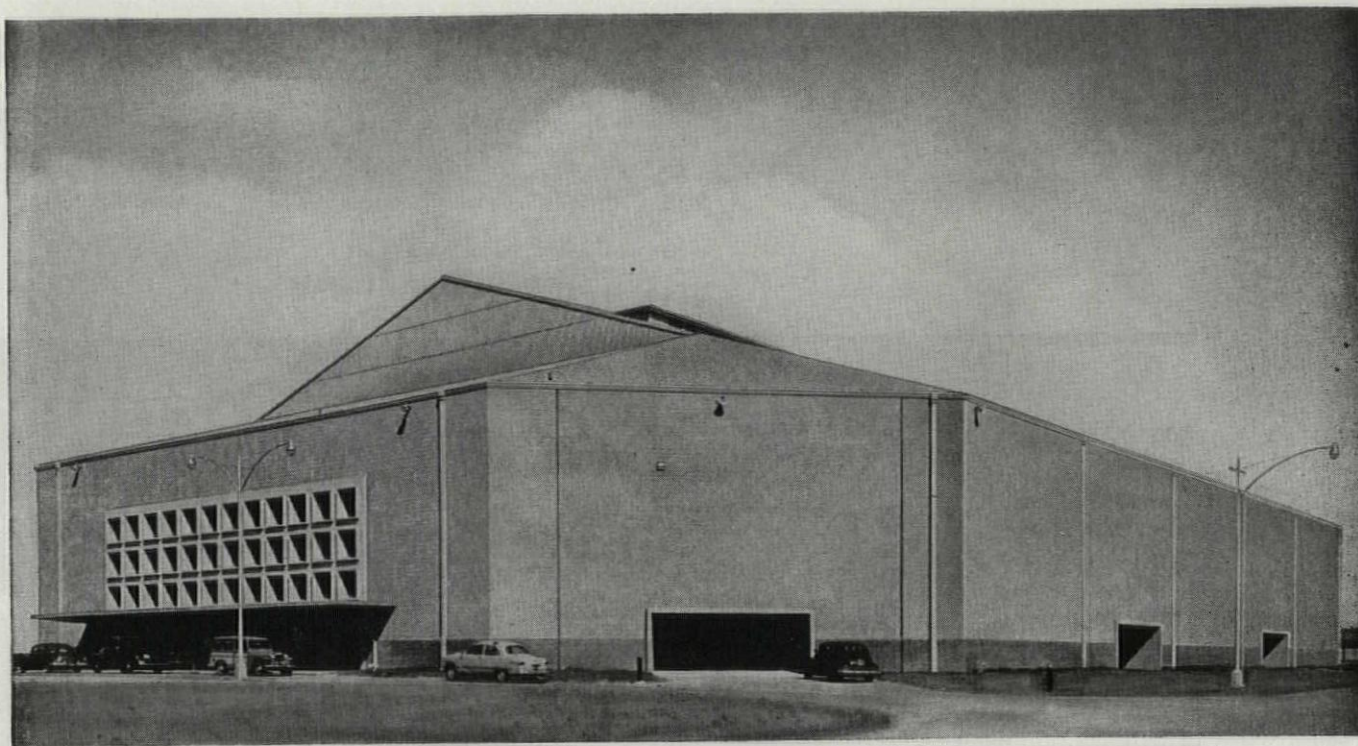
Over the 40 years since arc welding has been in commercial existence, it has consistently done a more reliable job than rivets or castings. In spite of this experience, the engineering profession continuously requires these excessive and uneconomic tests and requirements.

This continued suspicion of the engineering profession toward welding, in spite of its enviable record, does not reflect credit on the profession.

J. F. LINCOLN, president  
The Lincoln Electric Co.  
Cleveland, Ohio

*continued on p. 68*





Heart O' Texas Coliseum, Waco; Owner, McLennan County; Contractor, Farnsworth and Chambers Co., Inc., Houston; Architect, Harris H. Roberts, Waco.

## Built High, Wide and Handsome with concrete block made with Duraplastic\*

Built high and wide enough to seat 11,500, Waco's Heart O' Texas Coliseum matches size with good looks. To achieve good looks on such a large scale, the builders specified concrete block—98,000 of them—all made with Duraplastic air-entraining portland cement.

More and more builders, with an eye to appearance and durability, are choosing concrete block made with Duraplastic cement. They like the clean, true edges . . . the richer face texture. Another desirable feature of such block is their high resistance to the passage of water.

Many contractors specify Duraplastic cement for their regular concrete work because it provides greater plasticity and workability, aids proper placement and increases durability.

### YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.



42'-HIGH wall shows fine masonry wall of Duraplastic-made block. True edges, pleasing color and texture of Duraplastic block help assure better-looking block jobs.

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

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

**ATLAS®**

**DURAPLASTIC**

AIR-ENTRAINING PORTLAND CEMENT



AF-D-157

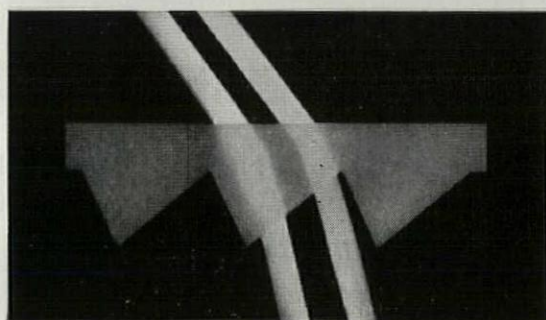
**Makes Superior Concrete Products at No Extra Cost**

UNITED STATES STEEL HOUR—Televised alternate weeks—See your newspaper for time and station.



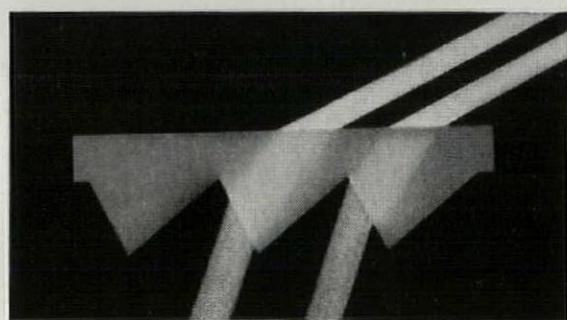
# TOP

*The "daylighting fixture" that permits complete freedom in planning*



## **Transmits North Light**

Maximum transmission of north light is a desirable quality in toplighting because of its uniformity and freedom from glare and solar heat. Note how the prism structure of Toplite affords efficient transmission of north light.



## **Accepts Winter Sun**

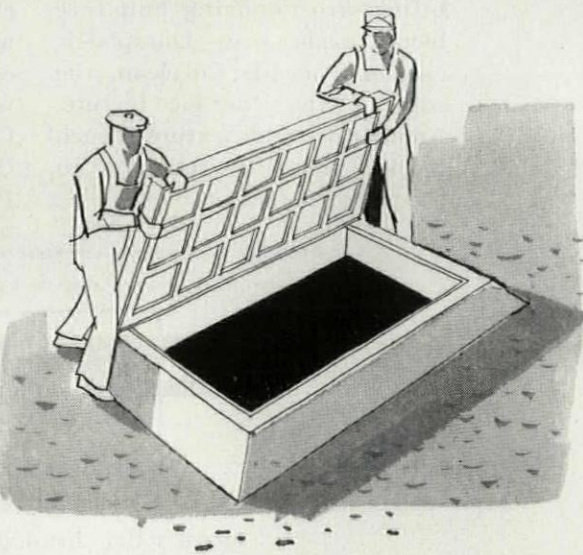
Since low winter sun is comparatively weak in relation to high summer sun as far as glare and solar heat are concerned, maximum transmission is again desirable. This photograph shows how Toplite accepts and transmits winter sunlight.

## **factory fabricated for easy, fast installation**

Toplite Roof Panels are factory-fabricated. They arrive on the job complete and ready to install. They are set on prepared curbs and anchored, ready for flashing by the roofer.

### **NEW INFORMATION CATALOG**

Want more information about this great advance in daylighting? Send for our new free, technical catalog on Toplite. Address: Kimble Glass Company, subsidiary of Owens-Illinois, Dept. A, Box 1035, Toledo 1, Ohio.

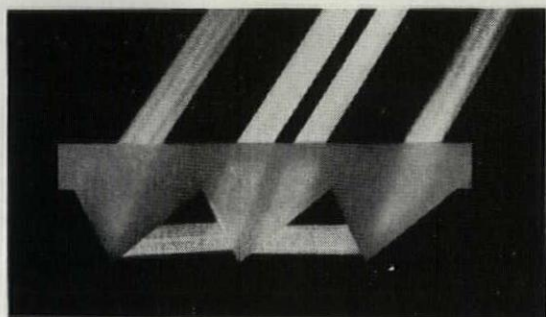




# TOPLITE

TOPLITE ROOF PANELS permit daylighting of all building areas regardless of location or distance from exterior walls.

TOPLITE PANELS are flat, lay close to the roof and allow the architect complete freedom in exterior design.

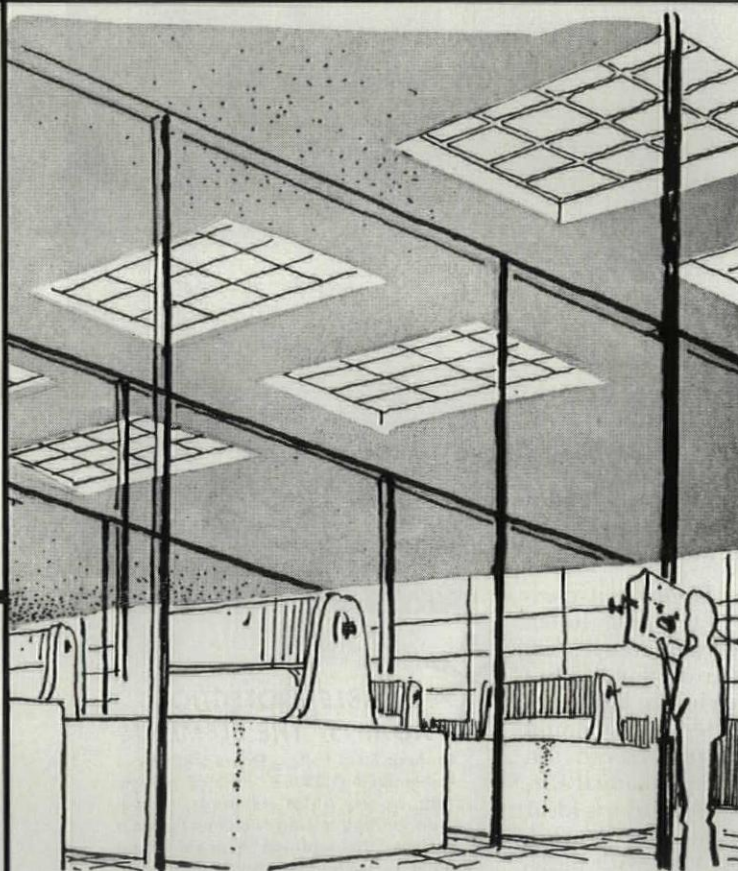


## Rejects Summer Sun

Other materials which transmit north light and low winter sun also transmit high percentages of light during the hot, summer months. Toplite rejects the direct light and heat from the hot, summer sun, but transmits much of the cool, north light.

## spot them where you need daylight

You can use Toplite to bring daylight in wherever it is needed without increasing cubage. Use a Toplite Panel as you do a lighting fixture. They may be installed in continuous strip, pattern, or in individual panels.



TOPLITE ROOF PANELS  
AN **I** PRODUCT

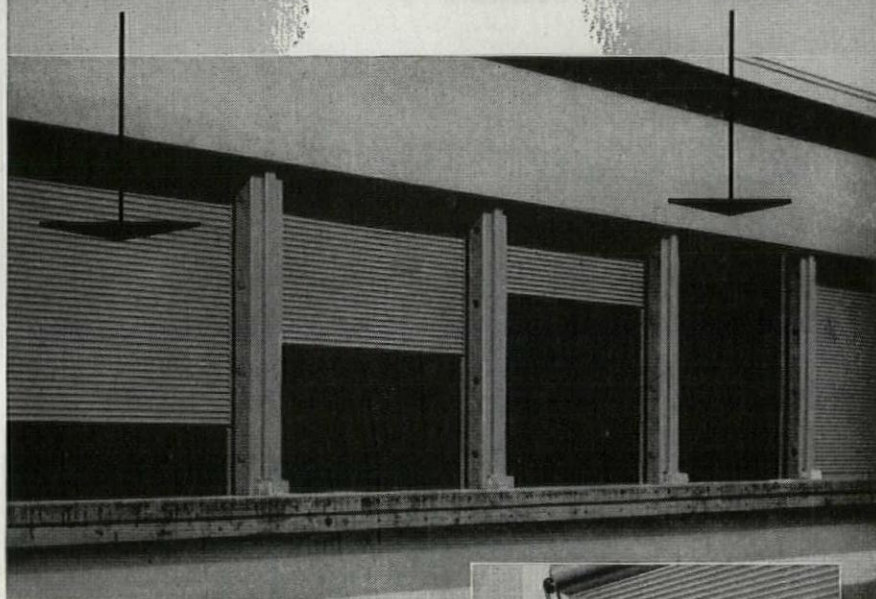
OWENS-ILLINOIS  
GENERAL OFFICES • TOLEDO 1, OHIO



Interlocking  
steel-slat  
construction  
assures extra  
protection and  
longer life at  
lower cost\*

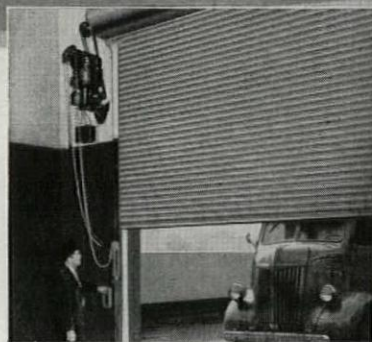
# Kinnear Steel Rolling Doors

Smooth coiling  
upward action  
makes all  
floor and wall  
space fully  
usable  
at all times



With Kinnear Rolling Doors, all overhead space remains clear for hoist, crane or conveyor equipment or other superstructure. No floor or wall space is lost *inside or outside* of Kinnear Rolling Doors because they open straight upward. Light from overhead fixtures is never obstructed.

Kinnear Rolling Doors coil compactly, directly over the door lintel. Edges of the steel curtain are securely anchored in tracks from floor to lintel, insuring secure closure and extra protection against fire, intrusion and the elements. Kinnear's smooth upward action assures easy manual lift, chain or crank operation, and is ideal for time-saving electric control, using Kinnear Motor Operators with push-buttons at any number of convenient points. Kinnear Rolling Doors are built any size . . . easily installed in old or new buildings. Write today for full details.



## DOUBLE PROTECTION AGAINST THE ELEMENTS

Kinnear Steel Rolling Doors are heavily galvanized (1.25 oz. of zinc per sq. foot, as per ASTM standards) to provide a long-lasting weather-resistant surface. In addition Kinnear Paint Bond, a special phosphate application, provides for easy, thorough paint coverage and lasting paint adhesion.

Records show that many Kinnear Rolling Doors have been in continuous service for 20, 30 and 40 years.

**KINNEAR**  
ROLLING DOORS  
Saving Ways in Doorways

## The KINNEAR Manufacturing Co.

FACTORIES:

1640-60 Fields Avenue, Columbus 16, Ohio  
1742 Yosemite Ave., San Francisco 24, Calif.  
Offices and Agents in All Principal Cities

## LETTERS *continued*

### H-BOMB AND CITY PLANNING

Forum:

. . . There exists a great temptation for city planners to use the hysteria and fear of total destruction to bring about a much desired dispersal of choking congestion we all experience in growing cities (AF, June '54 p. 39). Although I believe in organized dispersal, especially in a satellite pattern, I believe that any such movement undertaken in fear will result in failure to serve human purposes satisfactorily. There is no escape from this terror except in our hearts.

I believe in cities and the great conveniences they offer. I believe they can be immeasurably improved. On the other hand, it would be shortsighted to believe that a great military weapon like the H-bomb will not affect the future development of cities. That is, if you can call a great cluster of humanity, living and working most of their lives below ground, a city. This will happen and is already on the way. The entire history of city planning is the history of storable food and ever-changing weapons. Cities will change as a result of these most recent developments, but I am opposed to the policy of advocating a desirable constructive end because of a destructive reason, no matter how compelling. As technicians, we stand ready to serve the best ends of humanity as they are demanded by the times and we shall not fail in our purpose.

ROBERT E. ALEXANDER, *architect*

*American Society of Planning Officials  
Los Angeles, Calif.*

Forum:

. . . The threat of the bomb will leave us unmoved from our present programs. The use of the bomb will move many of us. I'm unprepared to say where I'll move but I'm certain it won't be toward further concentration.

R. FOELLER, *director*

*Toledo-Lucas County Plan Commissions  
Toledo, Ohio*

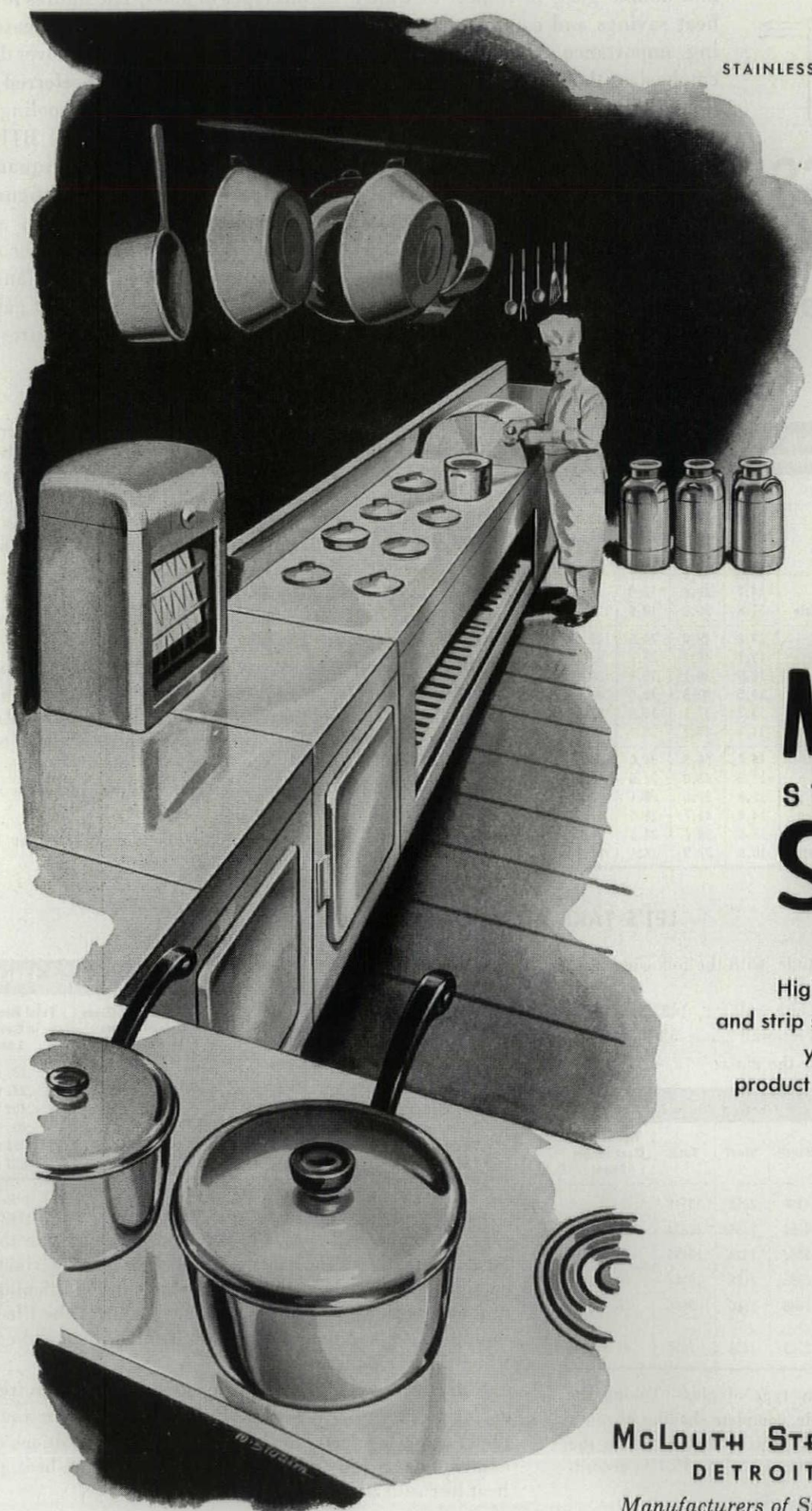
Forum:

. . . The H-bomb is so devastating that it not only renders dispersal of cities futile but it renders discussion of city planning, all other forms of physical planning and cultural development, and indeed the future of civilization futile. . . . Once we eliminate the possibility of the use of the H-bomb, we can then return to discussion of our urban problems. These will not necessarily be solved either by dispersion or concentration. It is rather a question of how we combine dispersion and concentration—which elements or parts of the city are dispersed or concentrated and just how it is done. Both forces are operating in our cities now in a more or less uncontrolled way. The result is the destruction of both the

*continued on p. 72*



STAINLESS STEEL FOR KITCHENS



# McLouth

STAINLESS

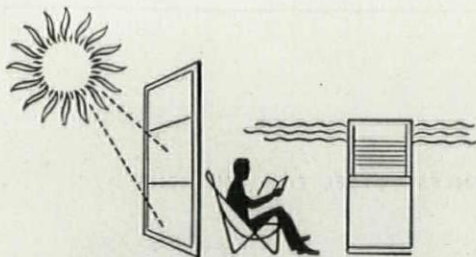
# Steel

High quality stainless sheet  
and strip steel . . . for the product  
you make today and the  
product you plan for tomorrow.

**McLOUTH STEEL CORPORATION**  
**DETROIT, MICHIGAN**

*Manufacturers of Stainless and Carbon Steels*





# WHICH GLASS

## Is Best for Air-Conditioned Buildings?

Architects and designers are familiar with the relative values of single glass and double glass in respect to winter heat savings and comfort. The growing importance of air conditioning emphasizes the need for careful selection of the right glass in respect to differences in heat gain as well. Demand for large areas of glass for light and view makes this especially necessary.

The American Society of Heating and Ventilating Engineers recently concluded a seven-year study of heat gain from solar and sky radiation. With the facts from this study, it is now

possible to estimate quite accurately the comparative heat gain with various types of glass. The figures for comparison are based on a measure of hourly heat gain, averaged over the day. This has become the preferred method for calculating the cooling load.

Table 1 shows the total BTU heat gain in an hour for each square foot of glass in windows. The figures include direct solar radiation, sky or diffuse radiation, heat transfer due to differences between indoor and outdoor temperatures, and heat gain due to increased glass temperatures when the sun is shining on it.

**TABLE 1—Cooling load BTU per sq. ft. hr. (L-O-F Glasses)**  
Design day—August 1—Design temperature 95°F—75°F

Lat.	Kind of Glass	North	East	South	West
24° N	D. S. Sheet	21.2	48.3	18.8	48.3
	¼" Plate	20.4	46.0	18.1	46.0
	¼" Heat Absorbing Plate	17.5	35.6	15.8	35.6
	Thermopane®—D. S. Sheet	15.5	39.9	13.7	39.9
	Thermopane—¼" Plate	14.7	36.6	13.0	36.6
	Thermopane—¼" Heat Absorbing Plate	11.8	26.8	10.6	26.8
32° N	D. S. Sheet	19.8	49.0	24.6	49.0
	¼" Plate	19.1	46.7	23.7	46.7
	¼" Heat Absorbing Plate	16.5	36.1	19.8	36.1
	Thermopane—D. S. Sheet	14.5	40.5	18.0	40.5
	Thermopane—¼" Plate	13.7	37.1	16.9	37.1
	Thermopane—¼" Heat Absorbing Plate	11.1	27.2	13.4	27.2
40° N	D. S. Sheet	19.4	50.3	34.0	50.3
	¼" Plate	18.9	48.0	32.6	48.0
	¼" Heat Absorbing Plate	15.8	37.0	26.1	37.0
	Thermopane—D. S. Sheet	14.4	41.7	26.5	41.7
	Thermopane—¼" Plate	13.6	38.2	24.8	38.2
	Thermopane—¼" Heat Absorbing Plate	10.9	27.9	18.4	27.9

For every 1°F increase in outdoor design temperature or decrease of indoor temperature, add 1.07 to single sheet glass values, 1.06 to single plate or heat absorbing values and 0.61 to values for *Thermopane*.

### Conclusions from this table

1. *Thermopane* insulating glass will save in over-all operating costs of the air-cooling system.
2. *Thermopane* will usually reduce the size and cost of the equipment required and the reduction will be substantial where Heat Absorbing *Thermopane* is used.
3. Heat Absorbing *Thermopane* is of greatest value on east and west exposures. Its value is also important on south exposures.
4. Shading of east and west windows is highly desirable. An overhang or other shading device will exclude at least some solar or sky radiation.
5. The desirability of shading of south windows increases as latitude increases.
6. Heat gain through north windows is almost constant for all latitudes in the U. S.

### LET'S TAKE AN EXAMPLE:

Assume a small building at 40° N latitude, with the following glass areas:

North wall ..... 140 sq. ft.      South wall ..... 147 sq. ft.  
East wall ..... 60 sq. ft.      West wall ..... 52 sq. ft.

Here are the heat gain comparisons for the glass:

**TABLE II**

Kind of Glass	North	East	South	West	Total	Reduction Over Single Sheet
D. S. Sheet	2716	3018	4998	2616	13348	—
¼" Plate	2646	2880	4792	2496	12814	4.0%
¼" Heat Absorbing Plate	2212	2220	3837	1924	10193	23.6%
Thermopane—D. S. Sheet	2016	2502	3895	2168	10581	20.7%
Thermopane—¼" Plate	1904	2292	3646	1986	9828	26.3%
Thermopane—¼" Heat Absorbing Plate	1526	1674	2705	1451	7356	44.9%

**Shading**—This is important with any type of glass. Taking the building referred to above as an example, complete shading of south windows from March 21 to September 21 will further reduce the total heat gain through glass, varying from 16.4% to 19.4%, according to the type of glass used.

**WHAT ARE THE SAVINGS?**

**TABLE III**

Kind of Glass	Combined Glass and Shade Reduction	Total Reduction in Cooling Load
D. S. Sheet	18.6%	.207 ton
¼" Plate	21.5%	.241 ton
¼" Heat Absorbing Plate	40.0%	.403 ton
Thermopane—D. S. Sheet	40.3%	.403 ton
Thermopane—¼" Plate	45.7%	.452 ton
Thermopane—¼" Heat Absorbing Plate	62.3%	.607 ton

**Summary**—This example is for a *small* building. Larger savings, of course, will accrue in reduction of heat gain through larger glass areas. The example does show how the right glass can materially reduce the size of the air-conditioning unit required and decrease the cost of operation for the life of the building... in addition to the winter heat savings and comfort which *Thermopane* provides.

Climate need not materially hamstring your design freedom, as far as glass is concerned. Put windows where you want them, using the versatility of glass to meet conditions of sun and climate. If you desire further information on heat gain or heat loss as it pertains to glass, write to:

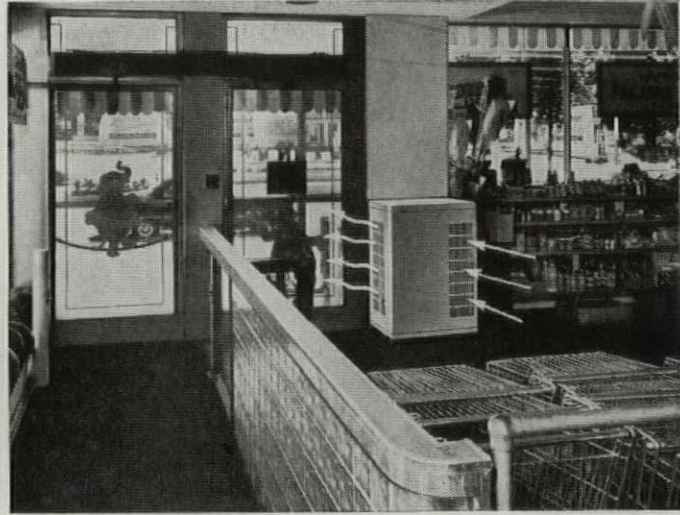


**LIBBEY • OWENS • FORD GLASS COMPANY**  
608 Madison Avenue, Toledo 3, Ohio

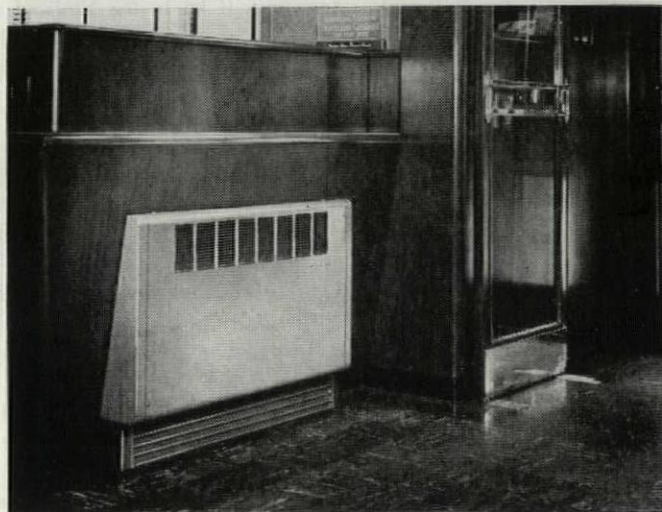




**CEILING MOUNTED** Type BT Cabinet, connected to duct with inlet at floor level, replaced a bulky, unattractive cast iron radiator that formerly was located below show window.



**BLANKETING OPENING DOORS** with a curtain of heated air, Modine Type FE Cabinet Unit protects customers and employees of this supermarket from the coldest wintry blasts.



**RECESSED IN THE WALL** and blending unobtrusively with the modern decor, a Modine Type BF Cabinet Unit provides economical heating, requires almost no floor space.



**HARD-TO-HEAT CHURCHES** offer no problems for Modine Cabinet Units. Here cold air, drawn into opening in bottom of unit, is heated and discharged through wall grille.

## SEE YOUR HEATING JOB HERE? Then Modine Cabinet Units are your low-cost answer!

**Y**ES, for the steam and hot water heating applications pictured above—and hundreds of others—versatile Modine Cabinet Units provide economical comfort. Quiet blower fans assure positive yet gentle circulation of heated air. Some models have provision for cooling with chilled water.

What's more, Cabinet Units' attractive appearance—plus their ability to replace at least two or three cast iron radiators—makes them ideal for new construction or modernization. If you've a difficult heating problem, get all the facts about Cabinet Units from the Modine representative listed in your classified phone book. Or mail the handy coupon at the right.

**Modine**  
CABINET UNITS

### MODINE MFG. CO.

1507 DeKoven Ave., Racine, Wis.

Please send me immediately a free copy of Bulletin describing Modine Cabinet Units.



Name .....

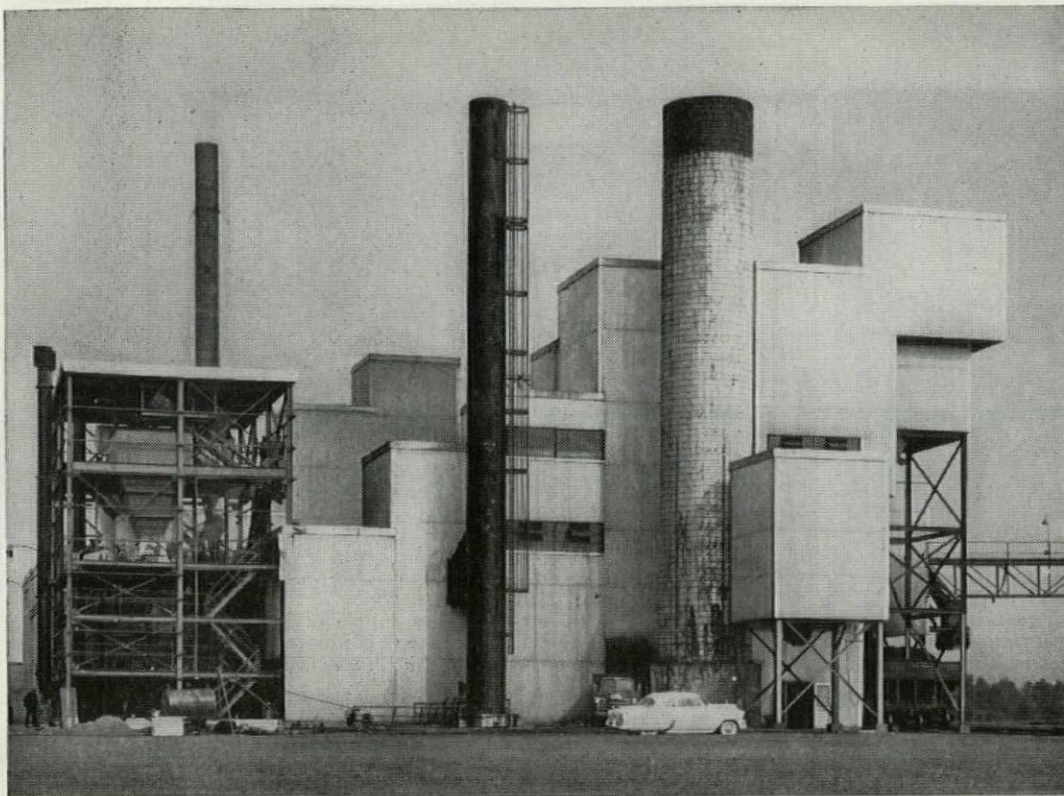
Firm .....

Address .....

City ..... Zn ..... State .....

C-1234





MR. MERLE C. KELCE, of the Sunlight Coal Company, St. Louis, Mo. says they specified Kaiser Aluminum corrugated industrial sheet for their Lynnville, Indiana plant (above) because, in his words:

## "Aluminum sheet gave us best value"

"ALUMINUM SHEET was an obvious choice for our Lynnville plant," says Mr. Kelce, "because it was lower in cost than any other building material offering so many advantages.

"The corrosion resistance of Kaiser Aluminum sheet was a big plus, because the plant is subjected to corrosive fumes and gases. And of course, aluminum sheet is so strong and durable it will last many years without maintenance of any kind."

Not only does Kaiser Aluminum Industrial

Roofing and Siding give extra value at low cost, it provides immediate savings. Its light weight means reduced transportation, handling and erection. In addition, it often requires a lighter, less-expensive under-structure.

For A.I.A. File and complete information contact any Kaiser Aluminum sales office listed in your telephone directory. Or write Kaiser Aluminum & Chemical Sales, Inc. General Sales Office, Palmolive Bldg., Chicago 11, Ill.; Executive Office, Kaiser Bldg., Oakland 12, Calif.

## Kaiser Aluminum

### INDUSTRIAL ROOFING AND SIDING

#### Get all these advantages with Kaiser Aluminum Corrugated Sheet

**Light Weight**—Reduces transportation costs. So easy to handle that construction is faster, lower in cost. Often permits the use of lighter, less expensive framing.

**Strong**—The increased depth ( $\frac{7}{8}$ " ) of the corrugations of Kaiser Aluminum Roofing provides greater load carrying capacities over the longer spans required in modern industrial construction.

**Corrosion Resistance**—High resistance to most industrial fumes. Can't streak with red rust stains. Maintains its attractive appearance indefinitely.

**Low Maintenance**—Never needs painting. Resists heavy winds and hail.

**Cooler, Brighter Interiors**—By reflecting hot sun rays, aluminum keeps interiors as much as 15° cooler. Aluminum's high reflectivity insures extra interior light.

**Low Cost**—Provides a combination of advantages not available in other materials at any price.

## LETTERS *continued*

city and the country around it insofar as visual quality and real livability are concerned.

The only way to solve this will be a thoroughgoing and realistic city planning process which thinks in terms of final physical results as well as in terms of traffic and land use patterns. Either one of these without the other is proving irrelevant to our community problems.

CARRETT ECKBO  
Eckbo, Royston & Williams  
planning consultants  
Los Angeles, Calif.

#### Forum:

I doubt that anyone knows the answer as yet and I hope that answer may be better defensive developments or, still better, that the answer will be in the souls of men.

S. HERBERT HARE  
Hare & Hare, city planners  
Kansas City, Mo.

#### Forum:

Now that we know half the world's population can be destroyed by the explosion of a cobalt bomb, the question of *where* people are at the time of a big bang becomes academic. But the question of urban dispersal is not academic. The trend is outward—for industry, commerce and living—and the result is a new type of city—the regional city, in which the central districts are forming 10 to 25 mi. out from the old center. We refuse to recognize this fact and still apply small-town thinking to our new big-town problem. Metropolitan and regional planning is the answer; we need a whole new set of tools: regional zoning, regional taxation, regional highway and park systems and regional government. We won't get them without regional thinking or while architectural leaders like Frank Lloyd Wright keep telling us "even the small town is too large."

There is no need for the existing downtown commercial centers of our present cities to deteriorate in the process, although they are threatened. Competition from farther out will be a spur to urban improvement in the older areas. But they will have to be made far more attractive than they now are, as well as more convenient. When will the merchants and bankers realize that architecture and civic design—really splendid architecture and imaginative civic design—are the answer to their problem?

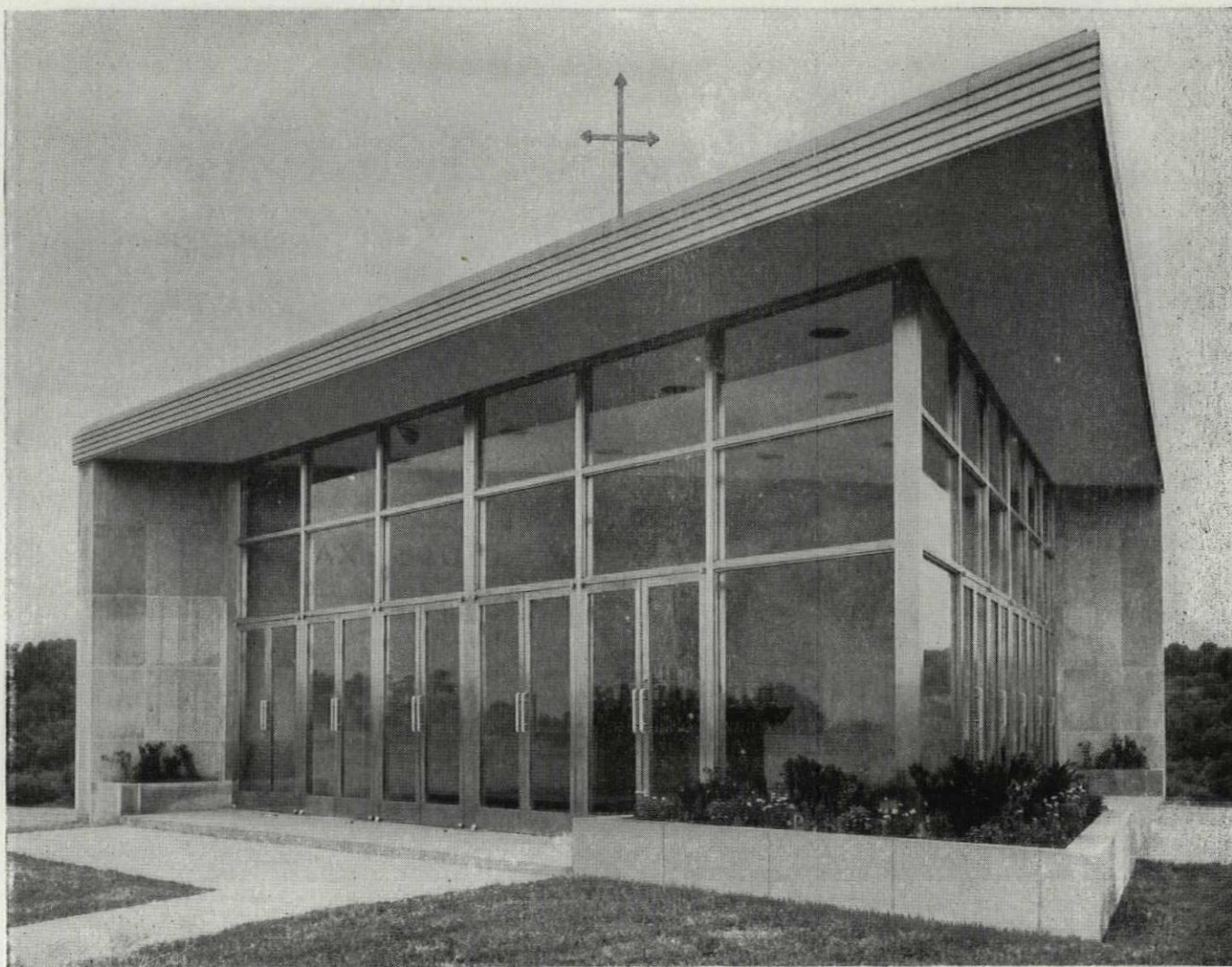
CHRISTOPHER TUNNARD, director  
Graduate Program in City Planning  
Yale University  
New Haven, Conn.

#### Forum:

... The H-bomb's threat only underlines the necessity of doing something about our cities. Communities are primarily to aid communications but modern communications

*continued on p. 76*





*For Beauty Eternal...*

## *Overline*<sup>®</sup> **STAINLESS ENTRANCES**

On a hilltop near Greensburg, Pennsylvania, stands this modern shrine to St. Philomena. It is part of Seton Hill College, and the culmination of the efforts of Marie Helene Mohr, Sister of Charity. The architect is Francis O'Connor Church, Greensburg. • Designed as an equilateral triangle, the shrine combines an Italian marble and limestone wall with Overline gleaming stainless steel entrance work. The 20 hollow metal doors . . . the transoms, mullions, muntins . . . the cross, gravel stop and fascia . . . as well as the downspouts are of Type 302 stainless, all fabricated by Overly. The architectural concept employs doors to afford protection of the shrine interior. During a ceremony, however, all doors may be kept open to enable large groups of worshipers to participate. • Overline entrances are in tune with the times. Their stainless construction gives lasting beauty, economy. Write us today for our Folder "O.D."

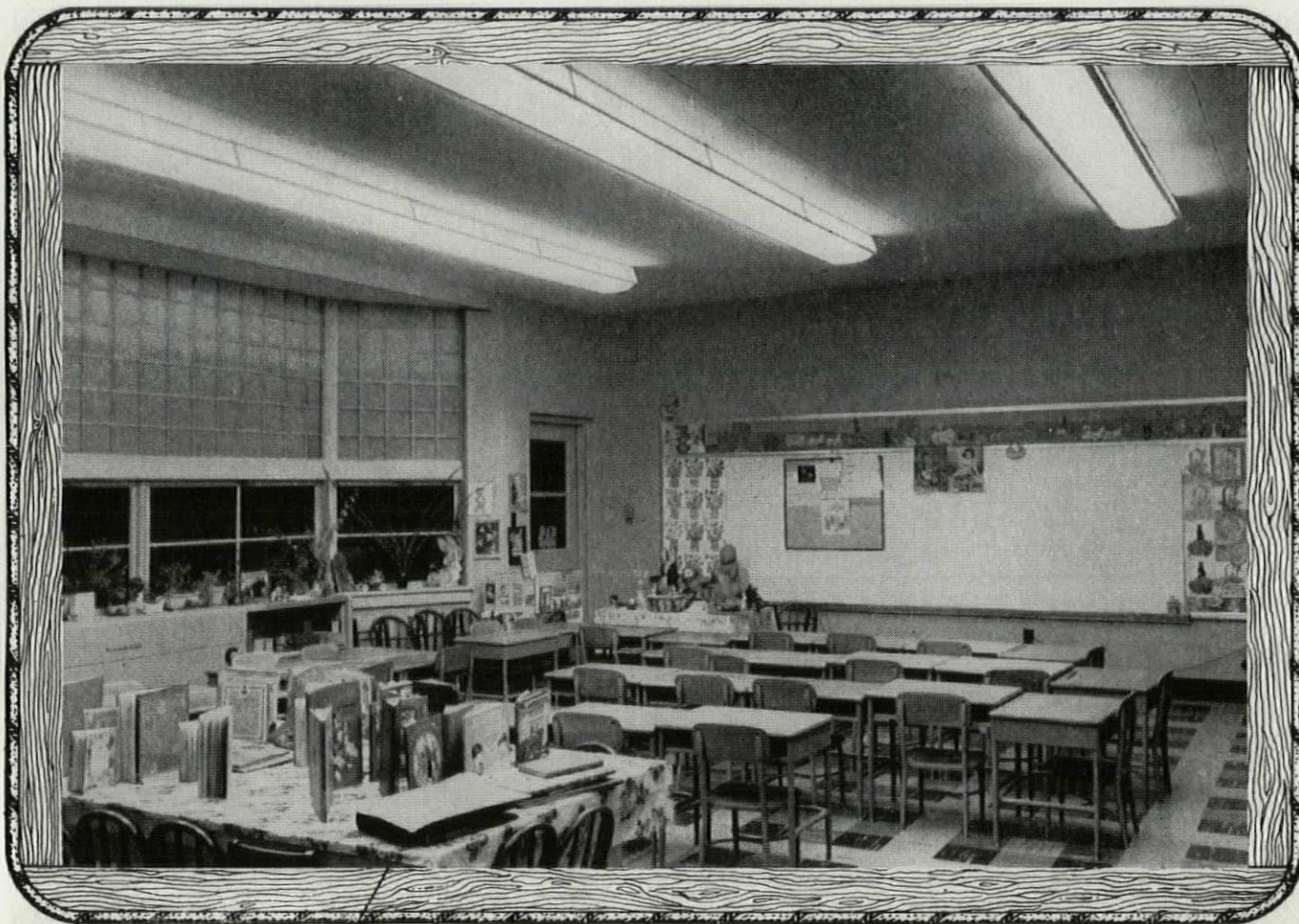


### **OVERLY MANUFACTURING COMPANY**

GREENSBURG, PENNSYLVANIA

LOS ANGELES 39, CALIFORNIA





INSTALLATION: North Coventry Township School,  
Pottstown, Pennsylvania.  
DESIGNED BY: Eastern Engineering Co., Reading,  
Pennsylvania.  
AREA: Lower Grade Elementary Classroom 24' x 30'.  
CEILING HEIGHT: Approximately 9'-6".

FIXTURES: 15 - Litecontrol No. 9224 surface mounted,  
using Holophane No. 9100 CONTROLENS®  
SPACING: 8'-0" on centers.  
INTENSITY: On desk top beneath fixtures, 70 foot-  
candles initially. Average over room, 47 footcandles  
initially.

## Bright Solution to an old classroom problem ...furnished by LITECONTROL

EYES have it easy in this light, attractive classroom. Note the even illumination... the absence of glare... the ease of seeing... all carefully calculated to protect young eyes... keep them alert and learning all day long.

Add to this the smart appearance of LITECONTROL's standard lighting fixtures No. 9224... plus their unusually low cost of upkeep... and

there you have the three big advantages offered by LITECONTROL's complete line of standard lighting fixtures: Good light for good sight, with good looks, and easy maintenance.

When you want the same — a lighting installation that's custom in appearance... at standard fixture costs — consult your local LITECONTROL Representative. \*Reg. Trademark



### LITECONTROL *Fixtures*

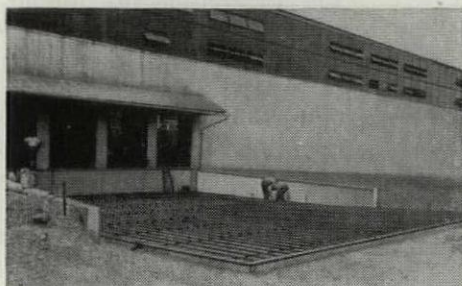
KEEP UPKEEP DOWN

LITECONTROL CORPORATION, 36 Pleasant Street, Watertown 72, Massachusetts

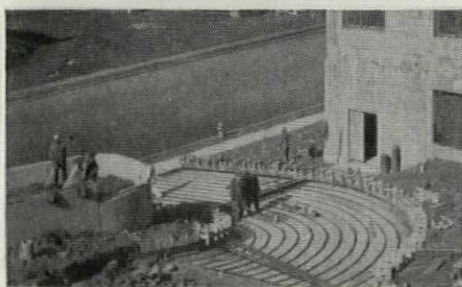
DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS



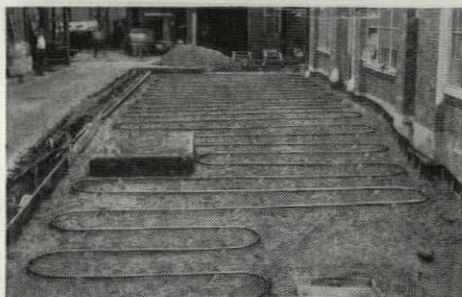
# No more shipping ~~snow~~ slowdowns!



Trucks and trailers will never get stuck in this dock approach.



All-weather access assured by snow melting at warehouse ramp.



Snow will never block the truck approach to this mill.



## Snow Melting helps industry move what it makes!

Transportation slowdowns, caused by snow or ice at loading and receiving docks, in road or driveway approaches, on private tracks and spurs, are costly penalties to pay when modern snow melting systems are available.

The constant, uninterrupted flow of both raw materials and finished products *in* and *out* of plants, warehouses and other business buildings is as vital to the nation's commerce as production and manufacturing itself!

So, where hazardous weather may be expected even occasionally, steel pipe snow melting systems provide practical insurance . . . while in areas where snow and ice may be every-winter plagues, snow

melting stops delay at the approaches dead-in-its-tracks!

You would expect, and rightly so, that steel pipe is the favored heat transmission medium for these industrial and commercial snow melting installations. For steel pipe has been the faithful stand-by of industry for more than 60 years . . . for plumbing, heating, fire sprinkler systems, power, steam and air transmission, and a host of mechanical uses. Once again industry turns to this economical and durable product for the panels, coils and runs of its snow melting installations.

Yes, for snow melting, *steel pipe is first choice*, the most widely used pipe in the world!

Send for new, free 32 page color booklet "Steel Pipe Snow Melting and Ice Removal Systems".

### COMMITTEE ON STEEL PIPE RESEARCH

AMERICAN IRON AND STEEL INSTITUTE

350 Fifth Avenue, New York 1, N.Y.

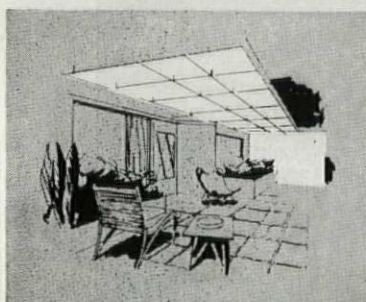
**Steel Pipe  
is First Choice**



# Sturdalite

**THE QUALITY  
FIBER GLASS PANEL**

**is lighter than aluminum  
... yet stronger than steel!**



Pound for pound, this reinforced polyester has a higher strength-weight ratio than any other type of material.

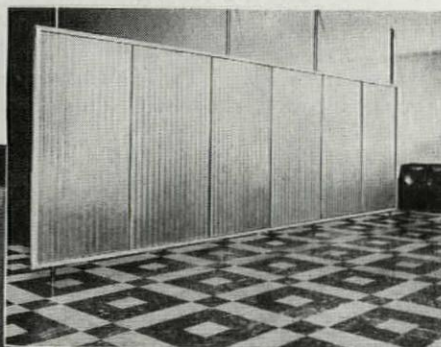
Sturdalite is threaded through with myriad glass fibers which not only impart strength but, in addition, act as thousands of tiny prisms . . . each refracting light at a different angle. Thus, instead of transmitting only the light which plays directly upon it, Sturdalite takes light from all angles and turns it into soft, usable light within. Even in the indirect rays of early morning and late evening, Sturdalite appears almost luminous.

Sturdalite has proven all but indispensable for plant skylights and other daylighting uses. In residential construction, Sturdalite is of great value wherever daylight, shelter, privacy and safety are musts.

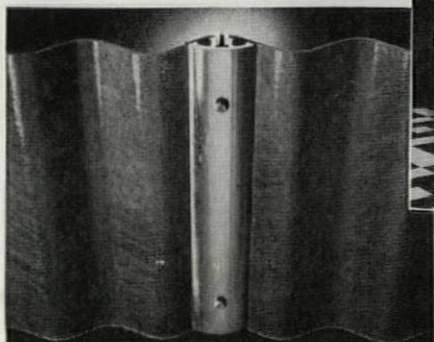
Sturdalite is available in a wide range of colors and sizes, either flat or corrugated. A sample will convince you that Sturdalite is the finest product of its kind that can be produced today.

**WRIGHT MANUFACTURING COMPANY**  
5205 Post Oak Road - Houston, Texas

see our catalog in  
**ARCHITECTURAL  
FILE**  
or write for copy



**Exclusive! Sturdalite SEAL STRIP—**  
weathertight aluminum molding  
neatly joins butting sheets of Sturda-  
lite without lapping. Ask  
for information.



4622

## LETTERS *continued*

make it unnecessary for us to preserve existing concentrations which are the products of an earlier age. . . .

Modern technology indicates that small communities scattered over the countryside will be economically feasible, socially desirable and will preserve our heritage from the past and enhance our contributions to the future. Just as our cities have adapted themselves to the demands of the past so they may, by careful planning, adapt to the needs of the present and future. High population densities are uneconomic and do not represent the best environment for our people. Even without the threat of nuclear bombs, our cities require attention to restore a sound ecology for future generations.

**PAUL VAN T. HEDDEN**

*Planning, zoning and municipal consultant  
Atlanta, Ga.*

### Forum:

. . . We recommend planned decentralization, preserving the benefits of cities and breathing new life into congested and outmoded central areas by encouraging the development of satellite cities and green belts.

**JOHN A. PARKER**, department head

*Department of City and Regional Planning,  
University of North Carolina  
Chapel Hill, N.C.*

### Forum:

. . . What practical difference do we find in the end result if a city is destroyed by a bomb, or whether a city is decimated as a result of the intentional acts of its inhabitants in their efforts to escape the bombs?

. . . The Frankensteins in the physical field of atomic and nuclear energy, so far as their effect upon civilization is concerned, do not equal the chain reaction which they initiate in the mental field of panic and hysteria. It would seem that the destruction of reason is our greatest hazard. So long as we still possess reason we can employ it to evaluate the realities and in the doing of which we discover that the A-bomb is but one hazard, the H-bomb is another, dispersed radioactive materials such as cobalt is even worse and, while we are enjoying the experience of nightmares, let us add germ warfare and nerve-paralyzing gas. We don't stop eating today because we may die tomorrow, and there seems little reason to refrain from increasing our knowledge of the art of living and perfecting the technological and mechanical aids to living by building ever better cities that shall multiply the advantages of those factors that brought cities into existence in the first instance. . . .

The practical, the intelligent, the realistic thing to do is to continue in our endeavor to learn why gregarious humans congregate in

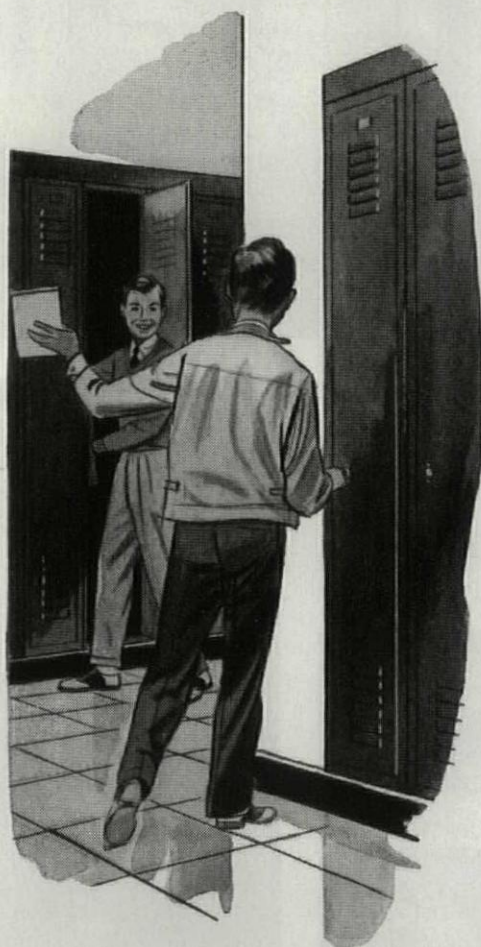
*continued on p. 80*



# LOCKER HANDLE...



# LATEST STYLE



When students carry their locker handles on their key rings, they get automatic locking. That's the big feature of Berger's exclusive new Key-Control steel locker.

Key-Control is the first steel locker that's completely handle-free. The key is the only handle required. The door *pre-locks* when key is removed, and locks *automatically* when shut. Where students might forget, a Key-Control locker always "remembers" that clothing, books, and equipment deserve full-time locked protection. That's important.

Absence of a conventional handle also means freedom from handle maintenance and from handle noise. Locker fronts are smooth and flush, with no projections of any kind.

Berger offers a complete locker planning, engineering, and installation service, too. Berger service assumes all responsibility . . . right down to the tightening of the final bolt.

You can look to Berger—world's leader in lockers—for (1) exclusive Key-Control, (2) the largest selection of standard steel lockers, (3) competent engineering and installation assistance. Write:

## REPUBLIC STEEL CORPORATION

*Berger Manufacturing Division*

1082 Belden Avenue, Canton 5, Ohio

GENERAL OFFICES • CLEVELAND 1, OHIO

Export Department: Chrysler Building, New York 17, N.Y.

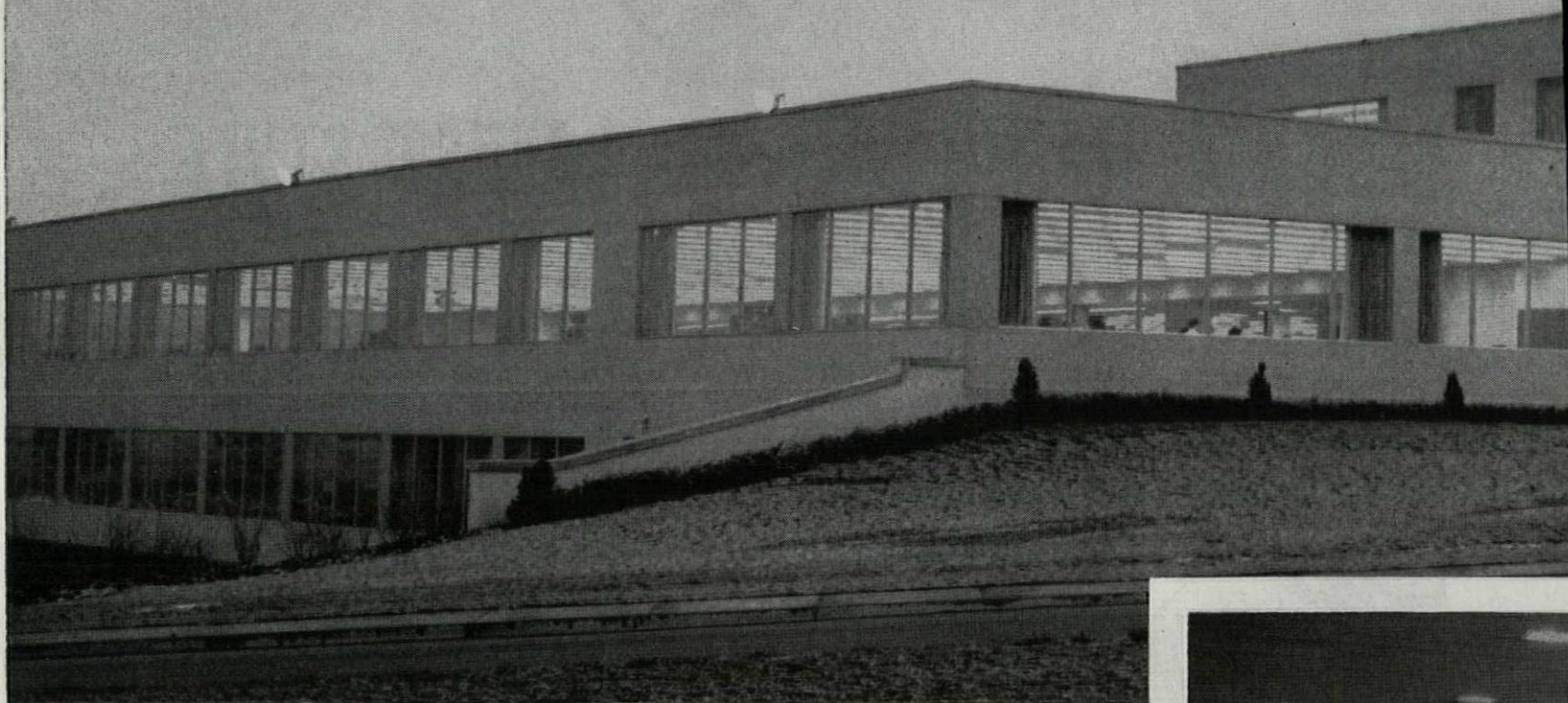
*Berger*  
**STEEL LOCKERS**





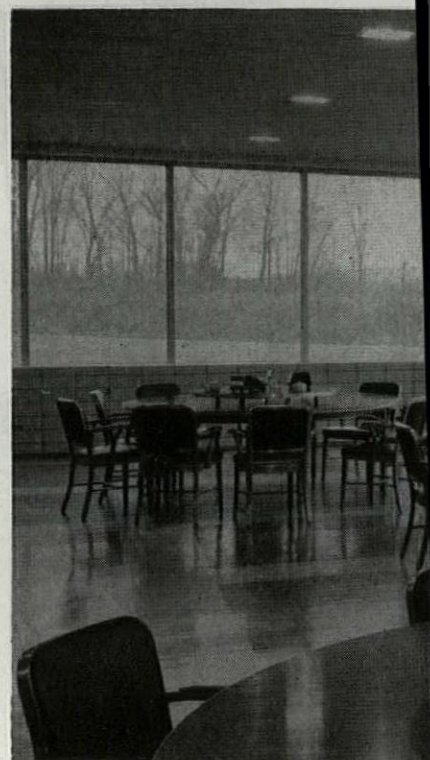
# Utica Mutual Insurance Company

## in New Hartford, N. Y.



*Below*

**HERCULITE DOORS**, surrounded by large panes of Herculite Tempered Plate Glass, and the clear Plate Glass windows beyond, give this reception room a cheerful, open atmosphere.



**THIS PARTIAL VIEW** of the private dining room shows the use of Twindow units. Here, as the other areas of the building, Twindow set in Pittco Metal. Summer or winter, employees can eat, relax and enjoy the outside view, because of the exceptional insulating properties of Pittsburgh's Twindow.



# new headquarters building features PITTSBURGH GLASS



THIS NEW, MODERN building of the Utica Mutual Insurance Company is glazed with approximately 400 large Pittsburgh Polished Plate Glass Twindow units—"the windows with built-in insulation"—for maximum efficiency, good employee morale and adequate lighting. The high insulating value of Twindow reduces the load on the air conditioning and heating system. Among the other Pittsburgh products utilized in this building are Polished Plate Glass interior partitions and doors, Pittsburgh Doorways, Mirrors, Pittco De Luxe Metal, Gunmetal Carrara Structural Glass for the reception desk. Architects and Engineers: Childs & Smith, Chicago, Illinois.

*Design it better with*

## Pittsburgh Glass

Your Sweet's Catalog File contains detailed information on all Pittsburgh Plate Glass Company products...Sections 7a, 13e, 15b, 16b, 21.  
PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

**PITTSBURGH PLATE GLASS COMPANY**

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



SYLVANIA ANNOUNCES—

# SONO-LUME\*



Close-up of Sylvania Sono-Lume unit showing perforated metal wings backed with sound-deadening glass fiber batting. Fixtures may be also equipped with louvers instead of plastic shielding. Mounted singly or in continuous rows.

## The Fixture which Controls Sight and Sound!

**New fluorescent lighting fixture† has built-in sound-conditioning system . . . easily installed!**

Now Sylvania introduces SONO-LUME . . . a new concept of sight and sound control!

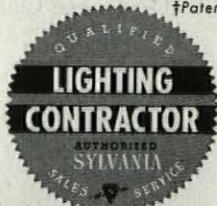
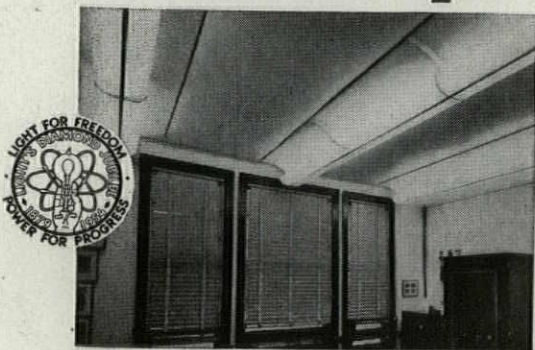
Basically, Sono-Lume is an attractive fluorescent fixture incorporating principles worked out by Sylvania engineers.

The perforated wings on each side of Sono-Lume fixtures are backed with glass fiber batting. This element has the excellent noise reduction coefficient of 0.85. Thus the fixture serves a double

purpose: (1) It provides high levels of clear, soft, all-over illumination for comfortable seeing. (2) It holds unnecessary noise to low levels for comfortable hearing.

**Saves modernization costs!** Sylvania Sono-Lume fixtures can be readily installed in any office, conference or consultation room. In instances where sound-proofing and better lighting are separate projects, this new combination fixture keeps costs well within modest budgets. A note on your letter-head will bring you detailed information. Simply address Dept. 4X-1207, at Sylvania.

\*Sylvania Trade Mark  
†Patent Pending



Look for this emblem—  
your guide to a  
Qualified Lighting  
Contractor.

# SYLVANIA

Sylvania Electric Products Inc., 1740 Broadway, New York 19, N. Y.

In Canada: Sylvania Electric (Canada) Ltd., University Tower Bldg., St. Catherine Street, Montreal, P. Q.

**LIGHTING • RADIO • ELECTRONICS • TELEVISION**

## LETTERS continued

cities, and what makes for good cities, and then proceed to make them better than ever.

GORDON WHITNALL

Gordon Whitnall & Associates,  
consultants in planning and government  
Los Angeles, Calif.

### Forum:

. . . Most analyses of urban problems indicate that further decentralization of urban centers is desirable for improvement of normal city functioning and for attainment of sociologically acceptable living patterns. . .

If vulnerability to bombing attack is to be the principal determinant of our urban pattern, then logic would require the maximum of dispersion, regardless of whether the radius of complete devastation is 3 mi. or 30, since such dispersion reduces to the theoretical minimum both the attractiveness of targets and the magnitude of potential destruction.

It must be emphasized that neither planners nor, apparently, defense experts, know in what specific ways urban vulnerability may or should influence future urban patterns. At present neither the government nor other auspices are sponsoring any significant research into these problems (except perhaps for some classified research unavailable to planners and formulators of local policy). If the answers to such questions are important then there is great need for basic research in this field.

ROLAND B. GREELEY

Department of City and Regional Planning  
Massachusetts Institute of Technology  
Cambridge, Mass.

### Forum:

. . . By no stretch of the imagination could the essential vulnerability of this country to atomic attack be materially reduced even by decades of the most concentrated effort. The physical task alone is too great. . .

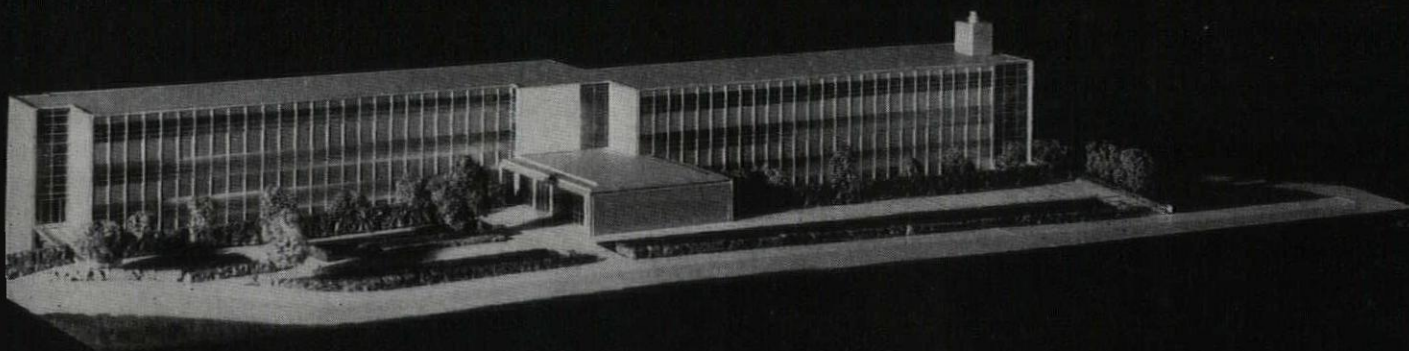
Transformation of our present 40 major target areas into several hundred lesser ones would surely put a heavy strain on the enemy. Making the plans for some such dispersal of targets would not be too difficult. Paper indication of the five great metropolitan areas broken into 50 or 100 safely separated entities, for instance, would be quite simple, but what could be more of an ivory-tower exercise in futility?

Most planners, of course, would love the job of making plans for the reasonable dispersal or decentralization of people and industry. Many have long felt that there is no good social or economic sense in piling a fifth of the nation's population and a quarter of its business in five great cities. They are convinced with much reason that the cultural and economic life of the country would be better served, and that many of its problems

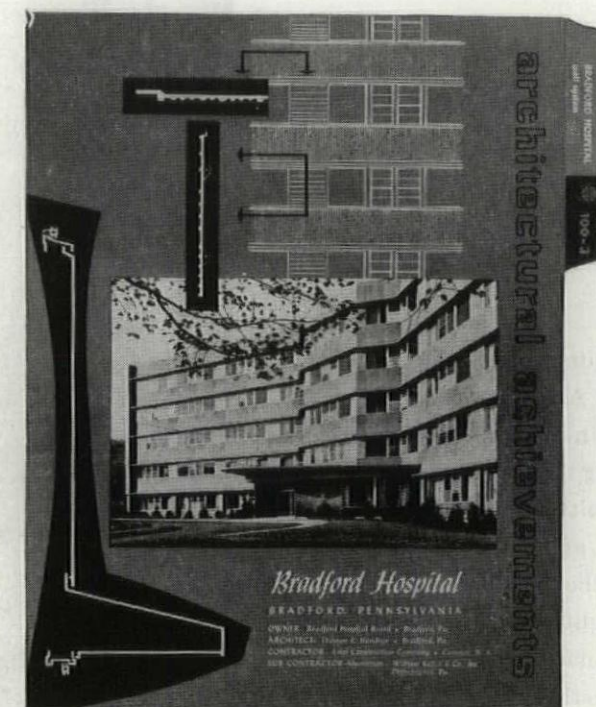
continued on p. 87



Carnegie Tech  
Men's Dormitory  
adopts Alcoa® Aluminum  
for wall facing...  
to obtain  
maximum design flexibility,  
integration and beauty



## Details of Hospital Innovation in Alcoa Aluminum Now Available



As an additional service to architects and the building industry, Alcoa has prepared the architectural details of Alcoa Aluminum as used in the wall system of the Bradford Hospital.

Architect Thomas K. Kendryx and the Bradford Hospital Board selected Alcoa Aluminum as the major material for their wall system because of its modern beauty and easy maintenance.

If you have not yet received your copy of Alcoa's Architectural Achievement series which includes complete details of the Bradford installation, write:  
**ALUMINUM COMPANY OF AMERICA**, 1887-G Alcoa Building,  
Pittsburgh 19, Pennsylvania.

**ALCOA**  
**ALUMINUM**  
ALUMINUM COMPANY OF AMERICA





Pittsburgh architects Mitchell & Ritchey adopted Alcoa Aluminum for the wall system to obtain maximum design flexibility in planning the new men's dormitory at Carnegie Institute of Technology.

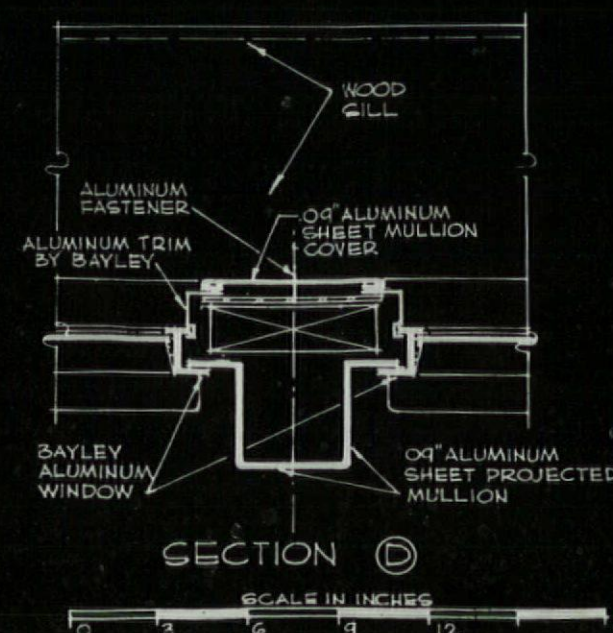
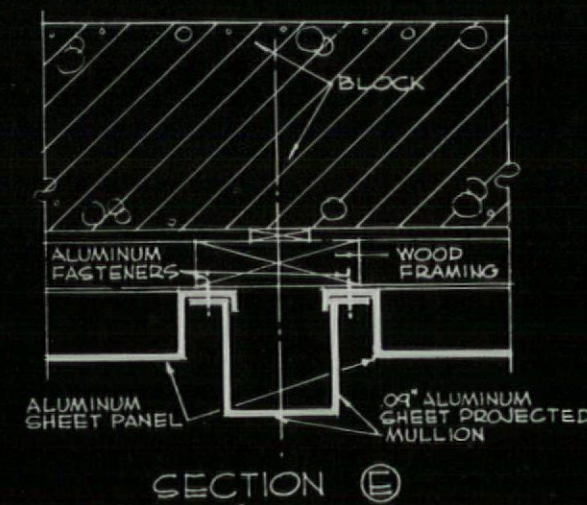
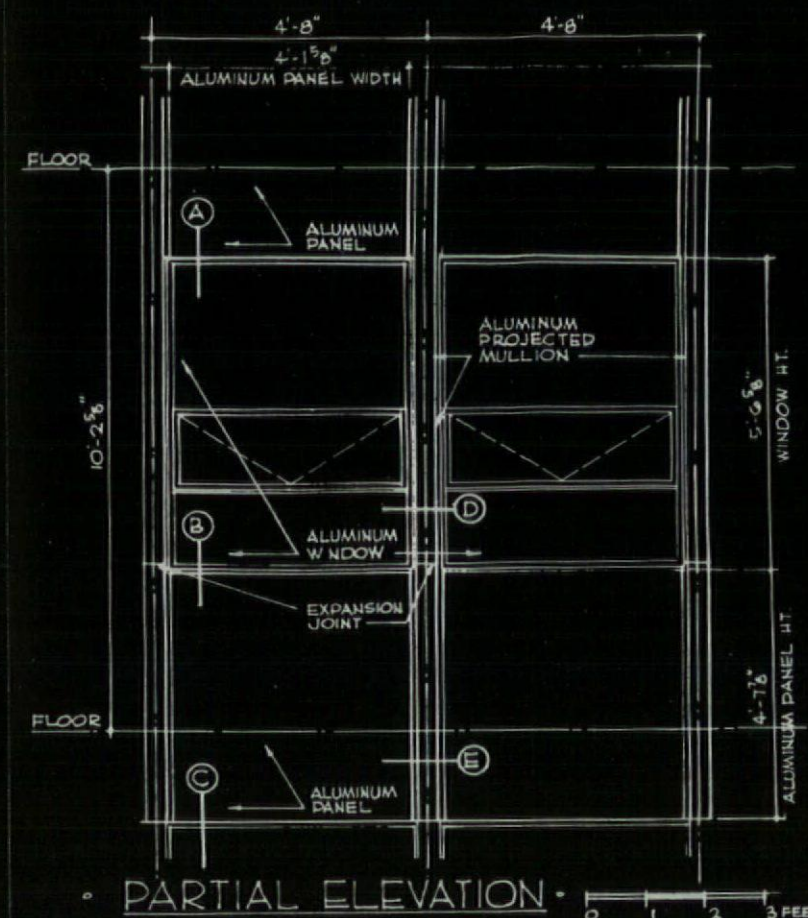
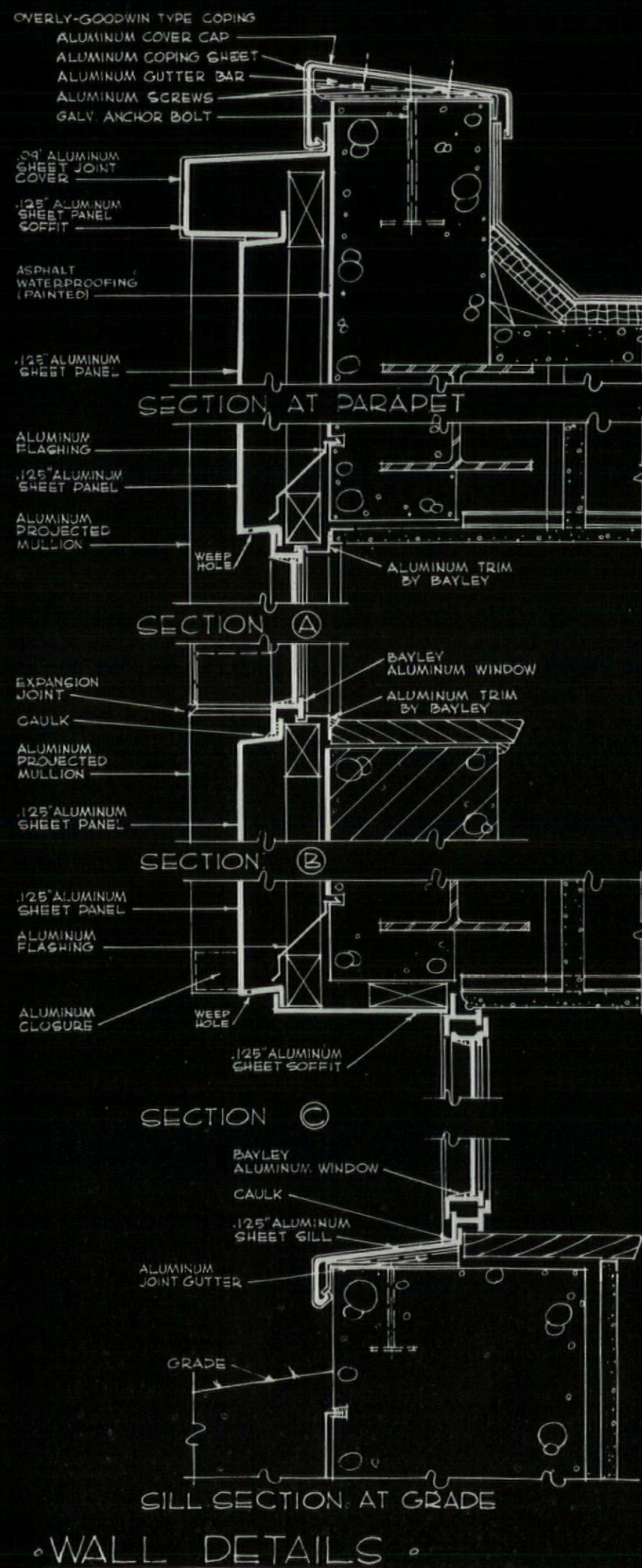
Working to an economical budget, Mitchell & Ritchey combined the advantages of the lightweight aluminum wall facing and modular construction. Results: economies in erection time, in construction costs and in maintenance.

Details shown are a report on this new application of Alcoa Aluminum in wall facing systems. Complete details will be available in Alcoa's Architectural Achievement series when the building is completed. Meanwhile, for additional information on this and other applications of aluminum in architecture, call your local Alcoa sales office. The number is listed under "Aluminum" in your classified directory. ALUMINUM COMPANY OF AMERICA, 1887-G Alcoa Building, Pittsburgh 19, Pa.

**ALCOA**  
**ALUMINUM**  
ALUMINUM COMPANY OF AMERICA

CARNEGIE INSTITUTE OF TECHNOLOGY,  
owner.  
MITCHELL & RITCHEY, architects.  
GEO. H. CHILLI, general contractor.  
OVERLY MANUFACTURING Co.,  
panels, mullions, copings.  
WM. BAYLEY Co., windows.

see our catalog in  
ARCHITECTURAL  
FILE  
or write for copy



## Advantages of Alcoa Aluminum for Curtain Wall Systems

### • Design and Fabrication Advantages

*Design versatility* offers an almost unlimited variety of architectural effects through cast, extruded or sheet shapes with wide range of colored, textural finishes.

*Thin wall construction* can increase rental income by providing more usable square feet of floor area.

*Workability* permits speedy fabrication with equipment and lower fabrication investment.

### • Construction Advantages

1. Smaller foundations, lighter structural framework.

2. Larger and fewer wall facing units.

*Ease and speed of wall erection* (when anchorage and alignment devices are properly engineered).

1. Reduces labor costs.

2. Normal construction time can be substantially reduced.

a. Savings in overhead construction costs.

b. Savings through earlier occupancy rental return for owners.

### • Maintenance Advantages

*Permanent material* eliminates painting needs.

*Fewer joints* provide greater weather tightness, reduce wall deterioration.

*Special joint designs* reduce need for caulking.

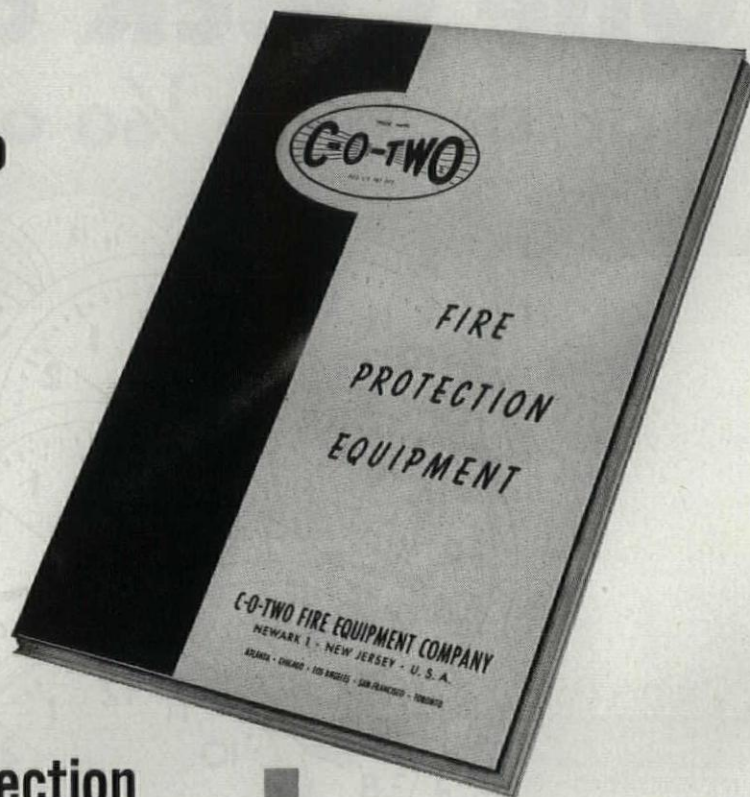
*Cleaning* of wall areas is assisted by rainfall.



# WORKING ON INDUSTRIAL CONSTRUCTION?

Get this handy guide to

- SPECIFICATION DETAILS
- LAYOUTS
- ENGINEERING DATA



for specialized fire protection

With today's high costs and delayed replacements, it is becoming more and more a "must" for you to assure your clients of receiving the lowest insurance rate and the maximum in fire protection at a justified all over expenditure.

This personal sense of responsibility is inherent with C-O-TWO Fire Protection Engineers . . . a definite plus in your behalf. Whether it's fire detecting or fire extinguishing . . . portables or built-in systems . . . C-O-TWO means top quality backed by experienced engineering that results in operating superiority for your clients at all times.

Any qualified architect or consulting engineer working on industrial construction is welcome to utilize the benefits of our extensive fire protection engineering experience, as well as obtain a free copy of our comprehensive brochure entitled, "C-O-TWO Fire Protection Equipment (Code A/CE)" by writing on his letterhead. Get the facts today!

You'll find this comprehensive brochure a highly valuable source . . . especially where the recognized fire hazards parallel the following typical types:

- ✓ DIP AND QUENCH TANKS
- ✓ SPRAY BOOTHS
- ✓ MIXING VATS
- ✓ DRYERS AND OVENS
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MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeeze-Grip Carbon Dioxide Type Fire Extinguishers  
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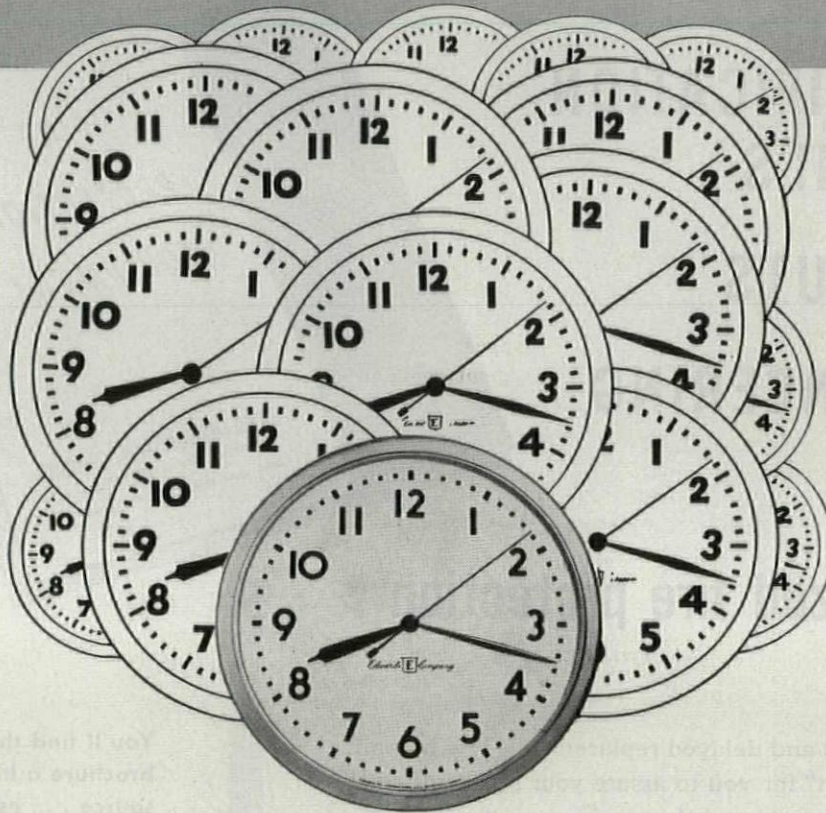
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# One Clock or 2000

accurate to  $\frac{1}{60}$  of a second!



Talk about accuracy! Edwards Synchronomatic Clock and Program Control gives it to you. And dependability with it!

The Edwards System operates on the always accurate alternating current of the central power station. Instantaneous stopping and starting eliminates "scattering" . . . all clocks are accurate to within  $\frac{1}{60}$ th of a second! No master clock needed. No pendulums, rectifiers, condensers or radio tubes to "blow" and give trouble. In case

of power failure or stoppage each clock can be operated at ten times its normal speed until exact time is restored.

You can be sure when you specify Edwards. Our leadership in the electrical timing field assures your client of maximum satisfaction and service . . . protects your reputation as an architect. For further information write for Bulletin "CL". Edwards Company, Inc., Dept. AF-7, Norwalk, Conn.

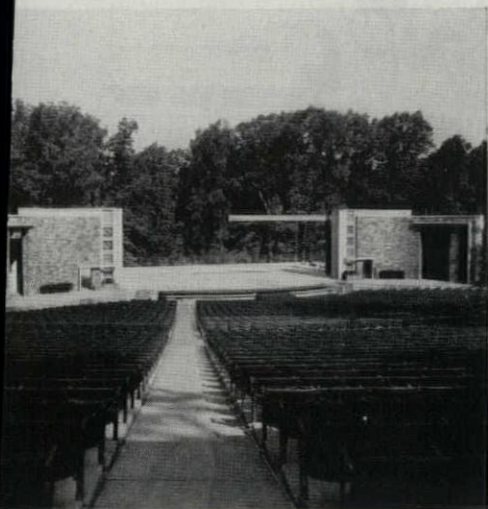
See "Sweet's" Architectural File for Complete Catalogs of  
Edwards Signaling Equipment

**EDWARDS** *Synchronomatic Clock Systems*  
for SCHOOLS • HOSPITALS • OFFICES • INDUSTRY!





# SURCO Stops Water Seepage



General Floors Service Co.,  
Contractor, Washington, D. C.  
Howat, Incorporated,  
SURCO Distributor, Washington, D. C.

This concrete stage at the Carter Barron Amphitheater, Washington, D. C., had cracked in numerous places permitting water to leak into the rooms below. To correct this, the entire stage, consisting of 11,600 square feet, was resurfaced with SURCO  $\frac{1}{4}$  inch thick. A coating of SURCO waterproofed the concrete and provided a tough, yet resilient, surface to the stage.

Deterioration of concrete in most types of structures is a problem that SURCO can stop . . . fast and economically.

● Write today for further information  
or see Sweet's Files



**Surface Coatings, Inc.**  
110 Pear St., S. E.  
ATLANTA, GEORGIA

## LETTERS *continued*

including those of circulation would be reduced, if urban growth beyond a certain stage were by splitting into new satellite communities instead of by the now customary continuous and limitless accretion.

. . . But even in approaching the less formidable task of redirecting future growth and development nothing will be gained by going blind to those counterforces at play which are not yet clearly understood by the planner or anybody else. How do you explain the fact that, when blockbusters were real, the Defense Dept. put all its eggs in the one-basket Pentagon? There was nothing mythical about the atomic bomb when the United Nations elected to build its headquarters on already overconcentrated Manhattan Island. The greater threat of the hydrogen bomb does not deter the present unprecedented rate of construction on the Island. Nor, in the face of threatened annihilation, does there appear to be any hesitancy in Philadelphia about going ahead with the first great internal construction program in several decades—or in Boston, Detroit, Chicago or any of the other great cities. "Who," they seem to say, "is afraid of the big bad wolf?"

. . . Nothing but a great fear of God, as perhaps induced by actual attack, can much divert the present tide of urban overconcentration. . . . Our great cities, with all their ineptitudes and hazards, are a phenomenon of this civilization, likely to remain as long as this civilization survives.

RUSSELL VANNEST BLACK  
New Hope, Pa.

### ERRATA

#### Forum:

I find your journal a particularly fine publication, but you have made an incorrect acknowledgment for the design of the British Dome of Discovery. I was the architect for this dome, and Messrs. Freeman Fox & Partners were the consulting engineers. The main engineering contractors were Messrs. Horsley Bridge & Thomas Piggott to whom Messrs. S. M. D. acted as subcontractors.

RALPH TUBBS, *architect*  
London, England

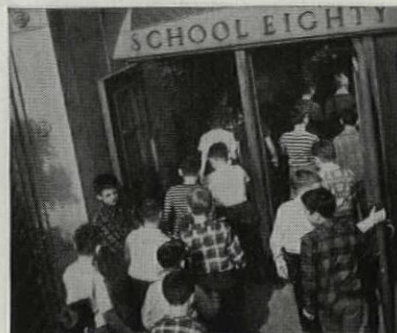
● The mosaic in the Basilica of St. Vitale in Ravenna shown on p. 133 of the June FORUM is, of course, a sixth-century work of art, not a sixteenth-century masterpiece as the caption erroneously indicated.—ED.

● The San Pedro community hotel (AF, May '54) is the design of the firm of Richard J. Neutra and Robert E. Alexander, not the work of Mr. Neutra alone.—ED.

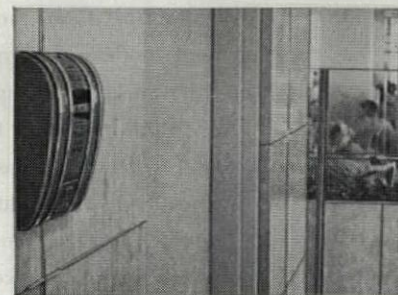
● In reporting the Hartford Park housing project at Providence, R. I. (AF, Feb. '54, p. 164), FORUM failed to credit Consulting Engineer Arthur Mather Jr. for the design of the heating system (developed by the C. A. Dunham Co.) and the project's plumbing, water supply and drainage system.—ED.

## Specify Edwards and Be Sure

America's schools run more smoothly  
. . . America's school children are  
better protected thanks to Edwards.



Edwards clock and program systems provide an accurate, simple and flexible means of programming activities of large groups in schools, institutions, offices and industrial plants. A program instrument is used having as many circuits as there are different programs. Standard sizes contain 1, 2, 4, or 6 circuits. Signals may be sounded any minute, 24 hours a day, 7 days a week. With a signal control panel it is possible to change program or signal schedule in any room or location to another program without disturbing the overall program setting or wiring. The Edwards program instrument is powered by the same heavy duty Telechron motored movement used in the clock systems.



### TRIM, MODERN, EFFICIENT:

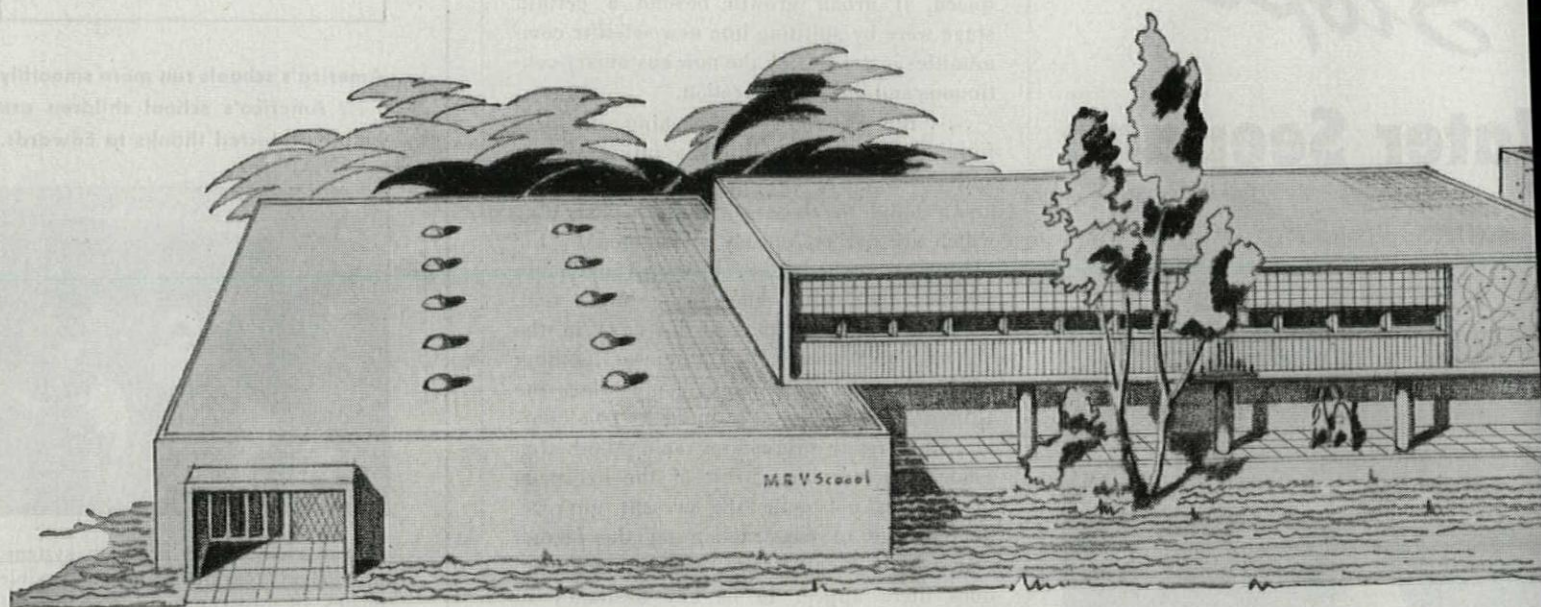
Edwards Fire Alarm Systems are chosen by leading architects to protect America's schools, hospitals and important buildings. Write for Bulletin on Fire Alarm Systems.

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*protects . . . everywhere!*







## IT TAKES MORE THAN MODERN DESIGN TO KEEP SCHOOL BOARDS HAPPY

We're talking about modern electrical practices that complement modern design and directly effect a majority of the functions a building must perform.

We're talking about the kind of controlled lighting and power facilities it takes to provide:

- completely adequate and dependable power for the many electrically operated building services;
- safe, positive power control through modern, automatic protective devices;
- electrical flexibility to meet future expansion programs easily and economically.

Those are things modern electrical practices mean. Certainly, they are an integral part of the building that should

be weighed heavily in the study stage and developed as a part of your design planning.

If carried out properly, this objective is automatically realized: You have matched the electrical facilities to the standards you've set for design. And, you'll be giving the school board a better building—one that provides for the maximum comfort, safety and well-being of its students.

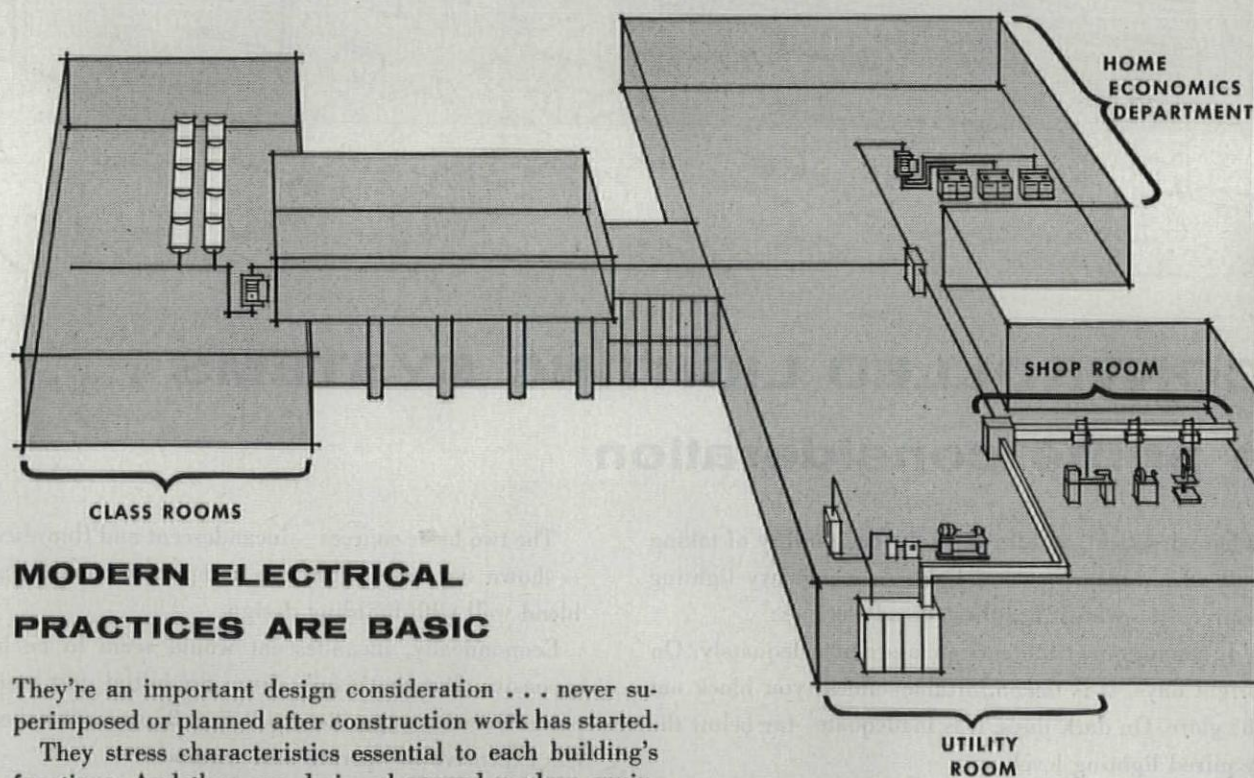
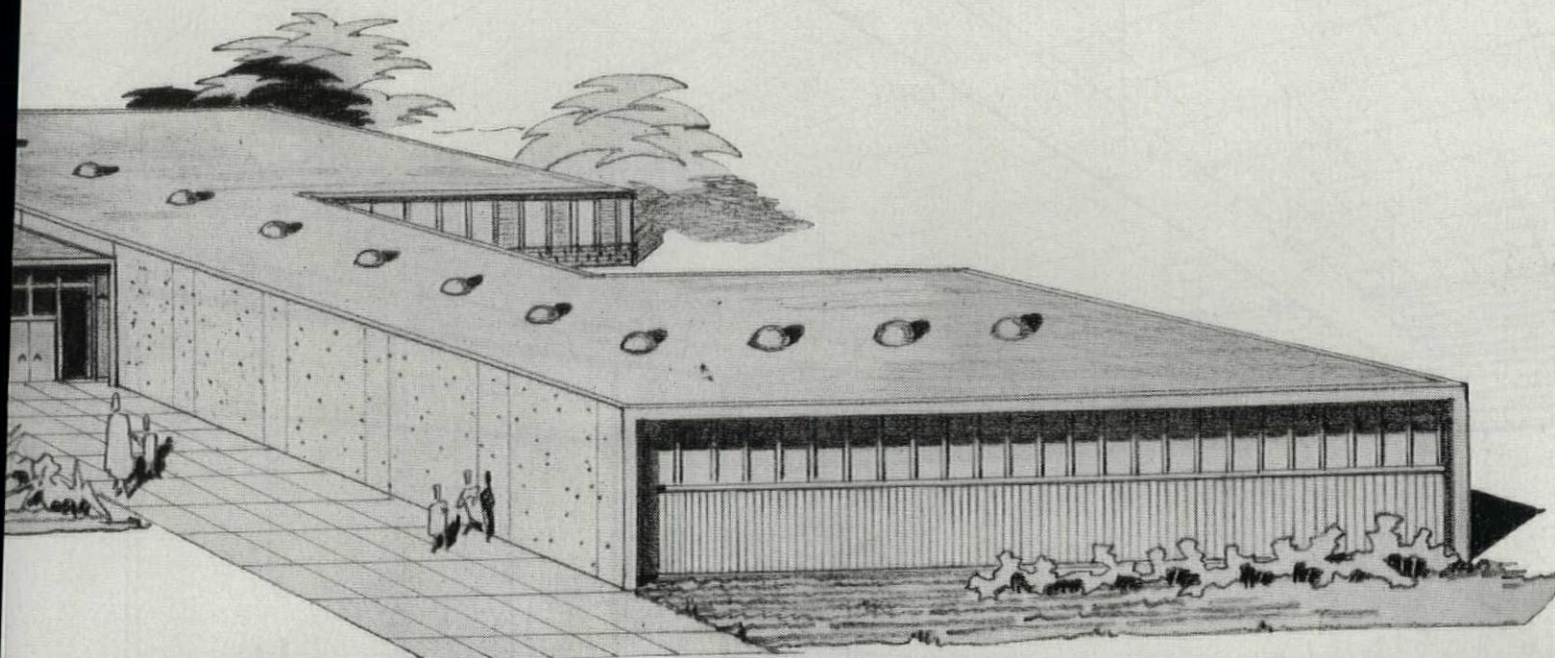
A call to your nearby Westinghouse Office will bring a construction application engineer ready to help you integrate modern electrical practices into your next school design. Get in touch with him during the study stage. Westinghouse Electric Corporation, 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa.

DP-5005-A

YOU CAN BE SURE...IF IT'S  
**Westinghouse**







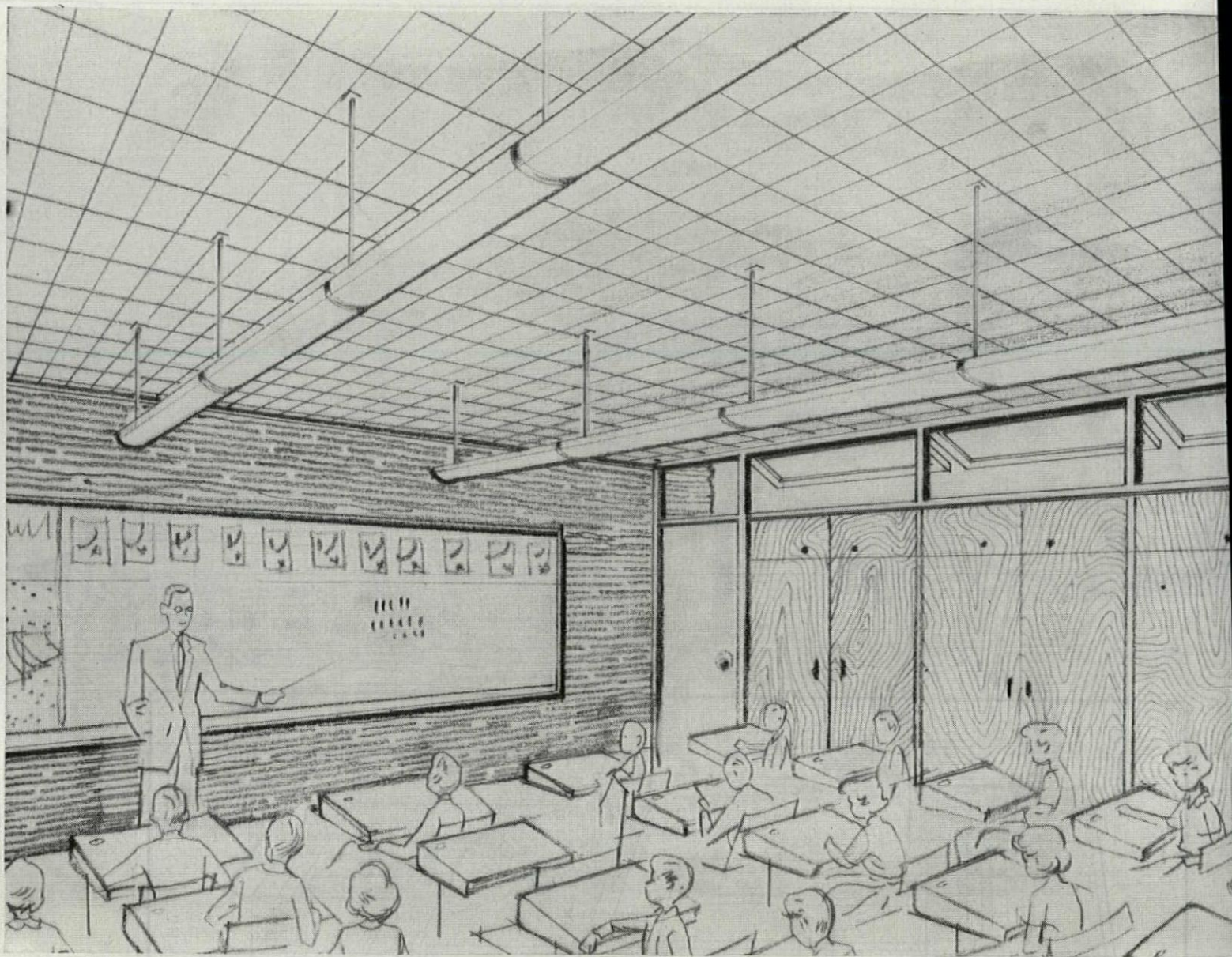
## MODERN ELECTRICAL PRACTICES ARE BASIC

They're an important design consideration . . . never superimposed or planned after construction work has started.

They stress characteristics essential to each building's functions. And they are designed around modern equipment—electrical “blocks” that build electrical reliability, safety and convenience . . . and have the inherent versatility to handle changing power loads easily and economically.

Specific examples of modern electrical practices as well as the “blocks” that serve as their foundation are shown on the next four pages.





## CONTROLLED LIGHTING SYSTEMS . . . a prime consideration

Where practical, we all realize the desirability of taking full advantage of natural light. As a primary lighting source, however, it has these disadvantages:

It cannot cover the entire classroom adequately. On bright days, it is uncomfortable—unless you block out the glare. On dark days, it is inadequate—far below the required lighting level.

*And the trend to lower ceiling heights and larger classrooms is further eliminating daylight as a principal lighting means.*

Therefore, it is a basic architectural assignment to provide adequate *controlled* lighting systems . . . for day-in, day-out use . . . in all parts of the room.

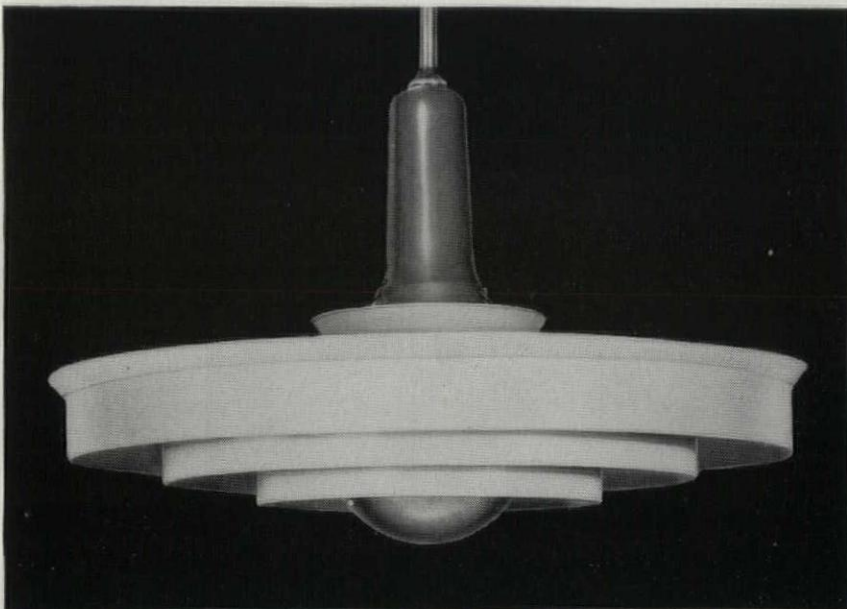
The two basic sources—incandescent and fluorescent—shown on these pages are completely modern and blend well with building design.

Economically, incandescent would seem to be less expensive. But that's only from an initial cost standpoint. Over-all, your client will find fluorescent systems less expensive to operate and maintain.

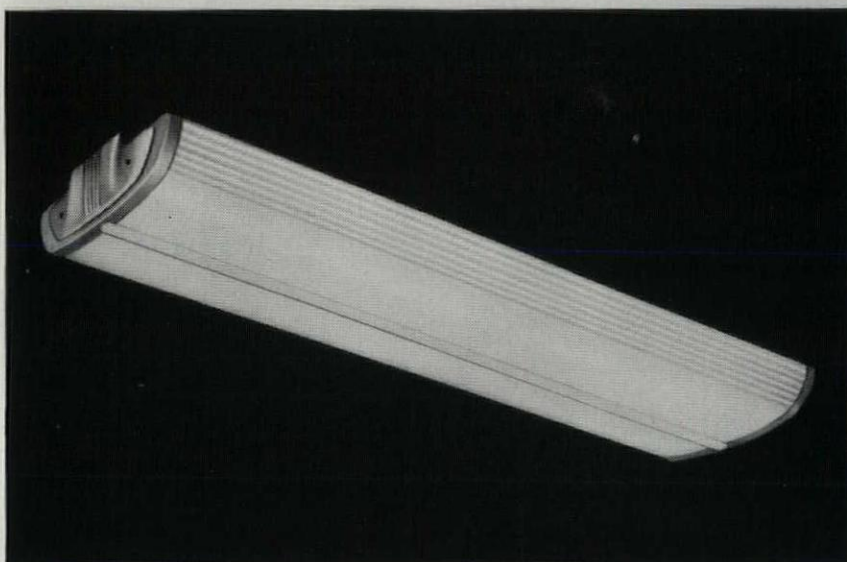
Regardless of the system you design, *if done well* it will provide adequate wiring for future lighting improvements. Proper installation of an incandescent system today means that a change-over to higher level fluorescent lighting can be made tomorrow without a need for rewiring.

DP-5005-B





**Concentric Ring Incandescent** luminaires are low in first cost to meet quality lighting requirements when initial funds are limited. Metal rings shield silver bowl lamps—eliminating glare and shadows. All light is directed to the ceiling.



**CD-160 Semi-Indirect Fluorescent** luminaires spell the ultimate in comfort for classroom lighting. They direct 72% of the light to the ceiling—the best method for illuminating classrooms. And they readily adapt to varying requirements... become an integral part of the room.

## CIRCUIT BREAKER PANELBOARDS ... for modern circuit protection

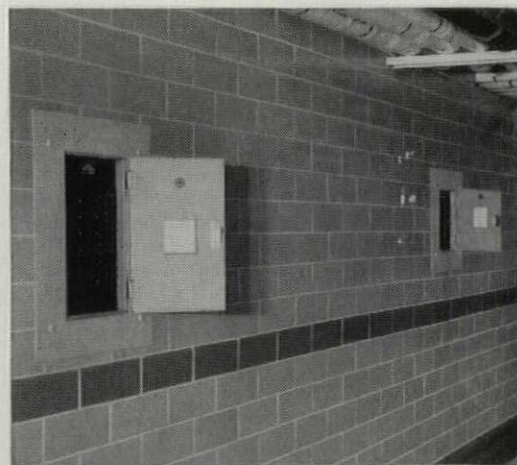
School lighting systems are only as modern as the type and quality of the panelboards that back them up. Here's why:

Panelboards are the nerve center of a building's electrical system... the means of controlling and protecting the lighting, appliance and power circuits.

Modern electrical practices call for a panelboard like the Type NPLAB for lighting and appliance loads, at right. It provides circuit breaker protection—eliminating the danger of over or under fusing since there are no fuses to replace. Even inexperienced personnel can spot the tripped breaker after an overload. The breaker handle will have moved to a center position. By flipping it back, service is safely restored.

Further, the NPLAB houses more circuits in less space than most other panelboard types. It can be fabricated with blank spaces to provide for easy, economical addition of new circuits.

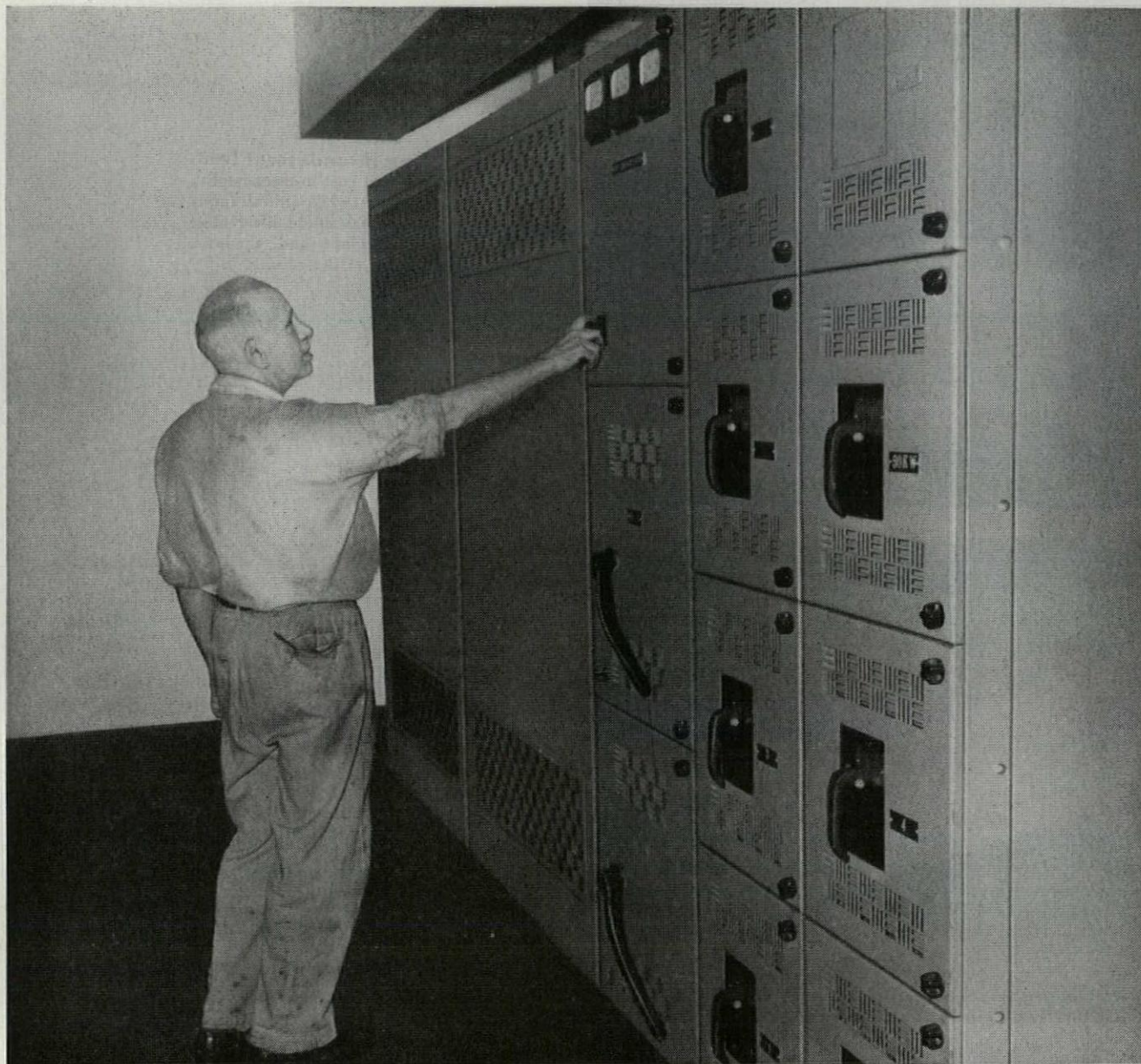
DP-5005-C



YOU CAN BE SURE...IF IT'S **Westinghouse**



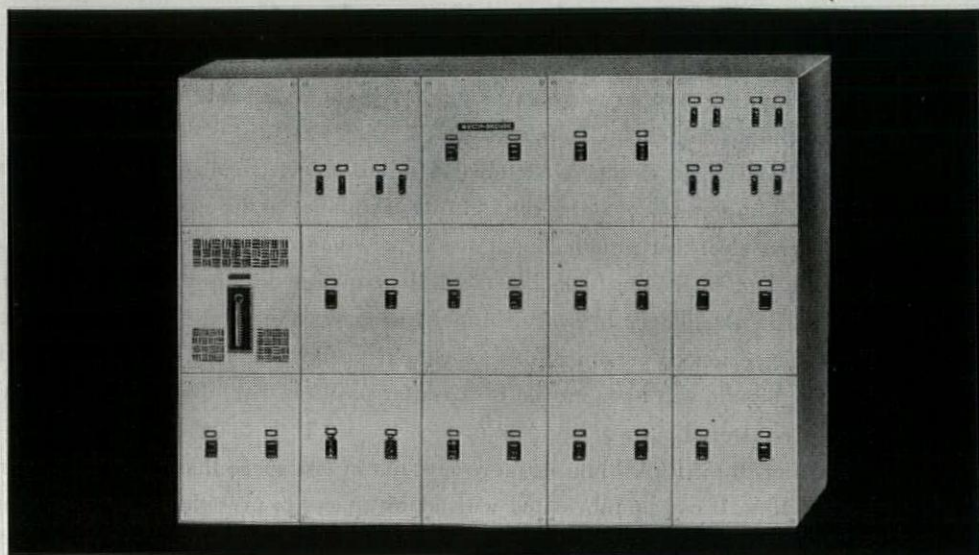




**Coordinated Dry-Type Power Center**—is the modern way to step down high-voltage power. Virtually a packaged substation that includes a transformer and air circuit breakers in a safe enclosure. Delivered to the building ready for immediate installation.

**Building-Type Switchboard**—the foundation of all electrically operated services when a building is supplied with low-voltage power. Provides positive circuit protection and switching equipment for incoming line and main feeders. Totally-enclosed sheet steel construction for added safety.

DP-5005-D





# MODERN POWER CONTROL . . .

**safe, convenient, flexible**

Inclusion of modern power control and distribution facilities in your design planning means this: You will have provided for completely dependable and safe operation of a building's many power consuming services.

And more. Not only will you have covered today's ventilating and lighting needs, the cafeteria appliances and shop machines . . . but also any electrical requirements that develop in the future.

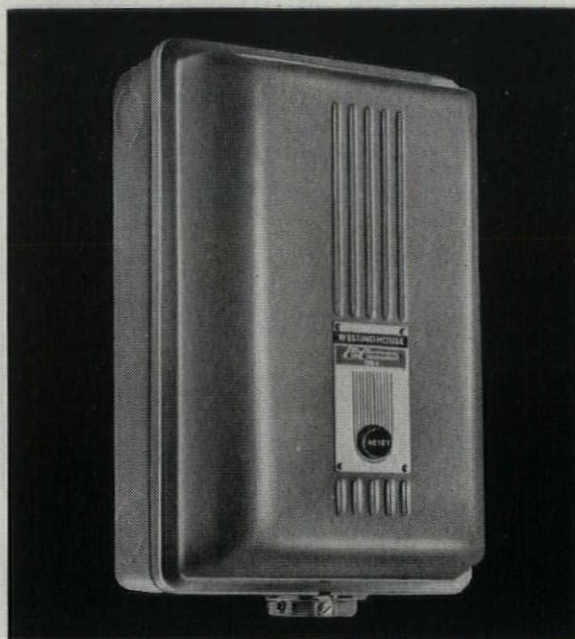
Consider the *Building-Type Switchboard* (lower left)—an example of modern distribution facilities. It is used when a school is supplied from a low-voltage power source. It contains in a single, compact unit the control for the incoming line and main distribution feeders. New sections can be added easily and economically because all parts are standardized.

Consider the *Coordinated Power Center* (at upper left). Here is a packaged substation that reduces high voltage to utilization levels and provides modern circuit protection. Its dry-type transformer eliminates the vault required for liquid filled transformers and reduces maintenance. It is housed in a compact steel enclosure for maximum safety to personnel.

Other examples of the kind of equipment that goes with modern electrical practices are shown at right.

DP-5005-E

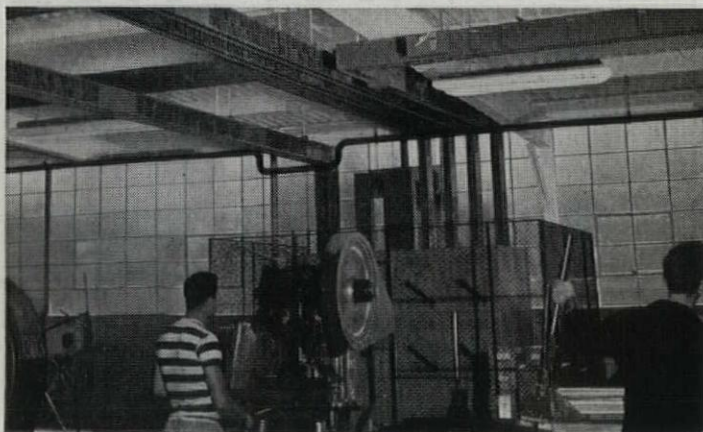
YOU CAN BE SURE...IF IT'S  
**Westinghouse**



**Linestarter**—in shops and utility rooms. Provides special control for starting, stopping and protecting the many motors in today's buildings. Groups of Linestarters in a single enclosure become a control center.



**AB-1 Circuit Breaker**—protects circuits and students wherever power equipment is used. No fuses to replace. No danger of over or under fusing. After overloads, service is safely restored by flipping handle on outside of enclosure.



**Bus Duct**—the modern method of distributing power throughout the building. Plug-in type, above, is ideal for manual training departments and machine shops. Plug-ins every foot make it easy to relocate the machines.





# **MATICO**

## **ASPHALT TILE**

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the world's toughest  
testing laboratories!

The most rigid test for any floor tile is right in those rugged testing laboratories — the homes and offices throughout the country. And MATICO Asphalt Tile—and all the other fine MATICO products—has been passing these grueling tests with flying colors in installation after installation.

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What does all this mean to you? It's your assurance that MATICO Asphalt Tile — or any MATICO product — will always meet your exact specifications.

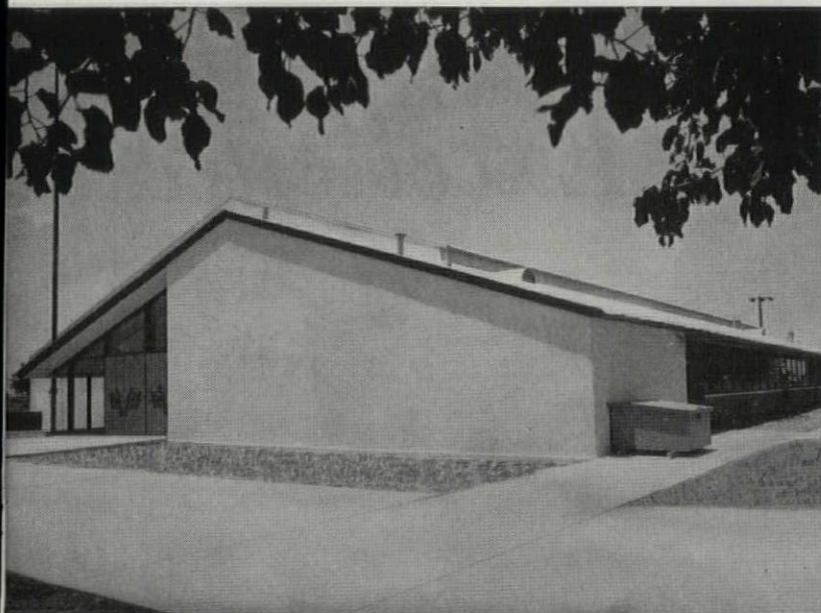


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Canada Dry Bottling Plant, Phoenix, Arizona



St. Francis Xavier Cabrini Church, Richland, Iowa

## How architects provide good looks, low cost, fast erection with **BUTLER** steel buildings

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buildings. And speed of erection—often as little as four weeks with Butler steel buildings—is an important consideration for architects.

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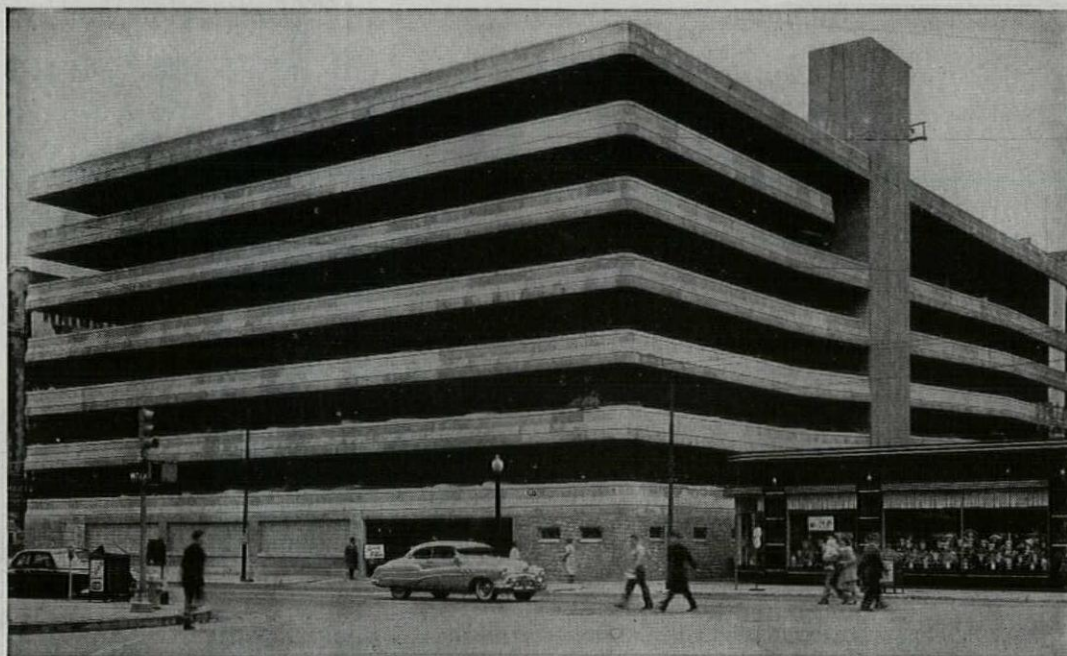
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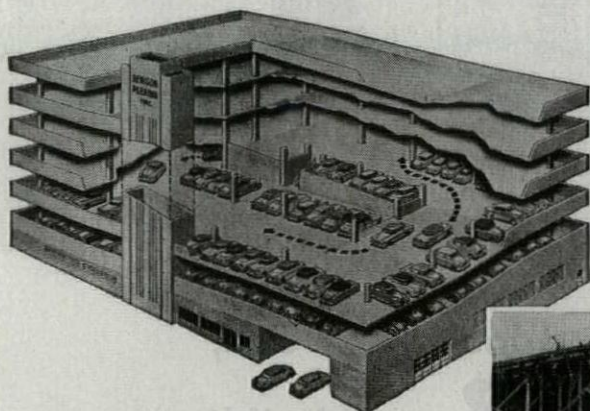


# PARKING-*Par Excellence*

**Denison  
Park-It-Yourself  
Garage  
in Downtown  
Indianapolis**



## 'INCOR'-Built for Earlier Occupancy, at Less Cost



● Downtown garage-parking is fast becoming a big-time industry. Standing out among the rapidly-growing number of well-designed, all-concrete parking structures is 700-car Denison Park-It-Yourself Garage, in the heart of downtown Indianapolis.

Instead of steep ramps, this attractive, ultra-firesafe building, concreted throughout with "INCOR" 24-HOUR CEMENT, has gradually-sloped floors with only 4% grade, for continuous, easy-drive spiral.

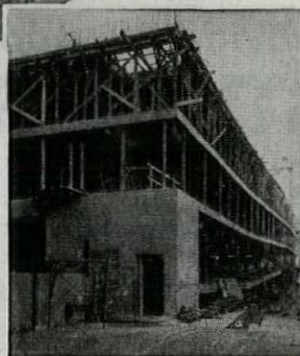
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Save time and money . . . use America's FIRST high early strength portland cement.

\*Reg. U. S. Pat. Off.

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## architectural forum

JULY 1954

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THE MAGAZINE OF BUILDING

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Olivetti's Fifth Ave. showroom—the first detailed presentation of this new kind of store prepared in collaboration with the owner and architect.

Cover: Heathcote Elementary School, Scarsdale, N. Y.; Perkins & Will, architects.  
 Photo: Hedrich-Blessing



© Ezra Stoller

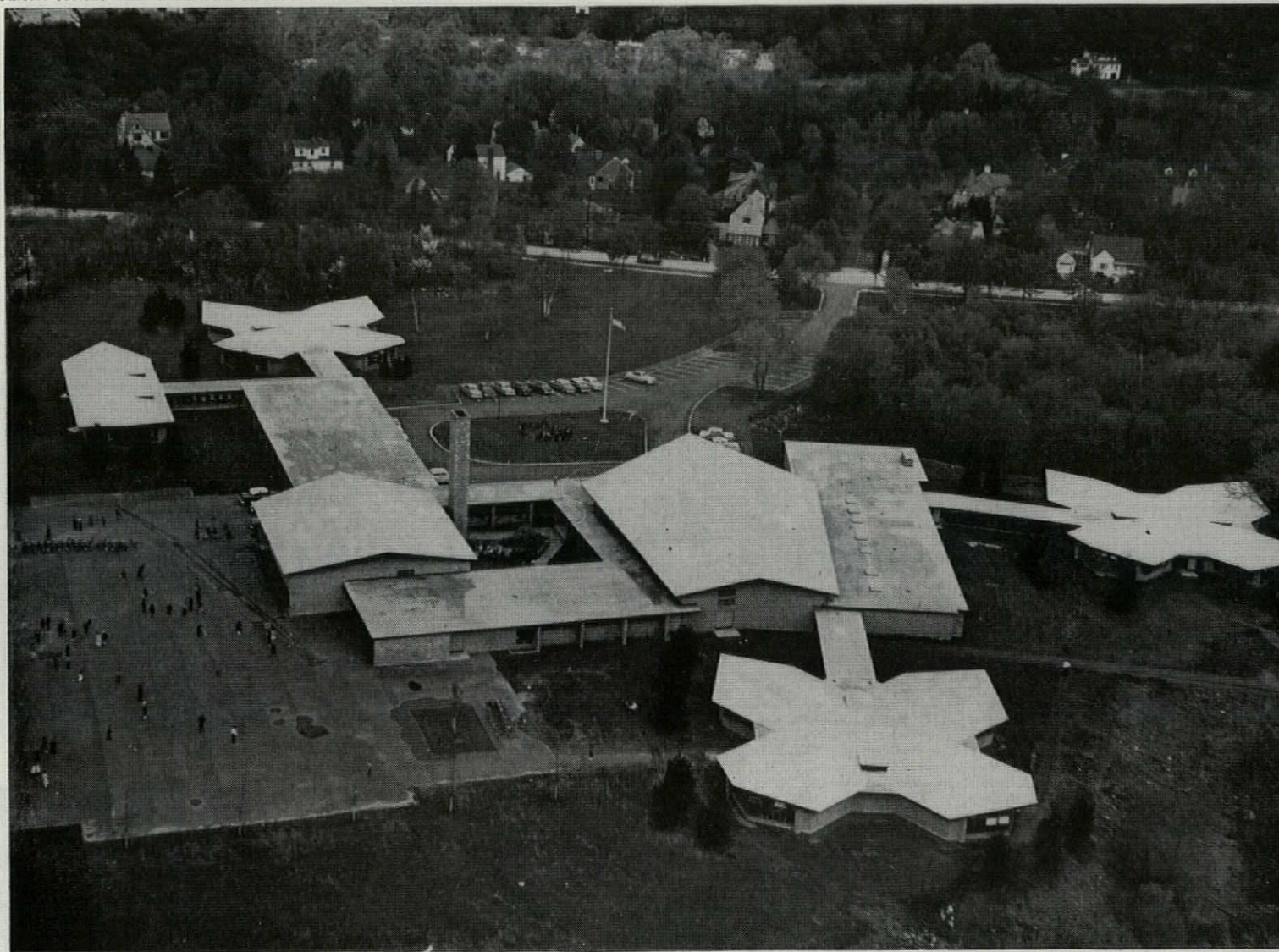




School spreads over hilltop, is never seen all at once. High auditorium is most prominent element

## HEATHCOTE: A PIONEERING SCHOOL

Photos: (below) LIFE—Walter Sanders; (above & top opp. p.) Hedrich-Blessing



Aerial view shows rear with kindergarten unit at far left, three other dispersed classroom clusters





Classroom units burgeon like separate little schools at ends of ramped corridors

## PLAN AND ATMOSPHERE like the famous 1941 Crow Island school by the same architects, it is a reference point in school design

PERKINS & WILL, architects and engineers  
BOLT, BERANEK & NEWMAN, acoustics consultants  
ARTHUR D. STOLLE-DELVAL CORP., general contractor

When FORUM previewed this school in Oct. '52 it posed the question, "Will Heathcote be a maverick or a bellwether?" and expressed the hope that it marked a trend toward more humanistic and psychological values in schools.

By this time it is plain that Heathcote was not a freak but a forecast. Perkins & Will had the advantage here (as at Crow Island in Winnetka, Ill.) of building for a prosperous community with a tradition of generosity toward its public schools. But Heathcote's principal features, separate classroom clusters with little-schoolhouse atmosphere, have already proved feasible for many an economy school (AF, Oct. '53, March '54).

Because Heathcote throughout is so careful a translation of educational theory into architecture, many other features—such as its treatment of the administrative suite or its children's auditorium for instance—promise to become reference points. And one of Heathcote's greatest values is its rich and happy use of details that children find fun.

Like taxpayers anywhere, Scarsdale's Citizens' Committee was suspicious about the cost of the town's new, unfamiliar-looking school plan, asked that it be compared with the cost of a good traditional building. A comparison was at hand: Scarsdale's Fox Meadow school (photo left), built in 1928 for about the same number of pupils as Heathcote. In 1928 Fox Meadow was the last word in school facilities, but its kindergartens, shop, music room, library and auditorium-gym are substandard by today's standards.

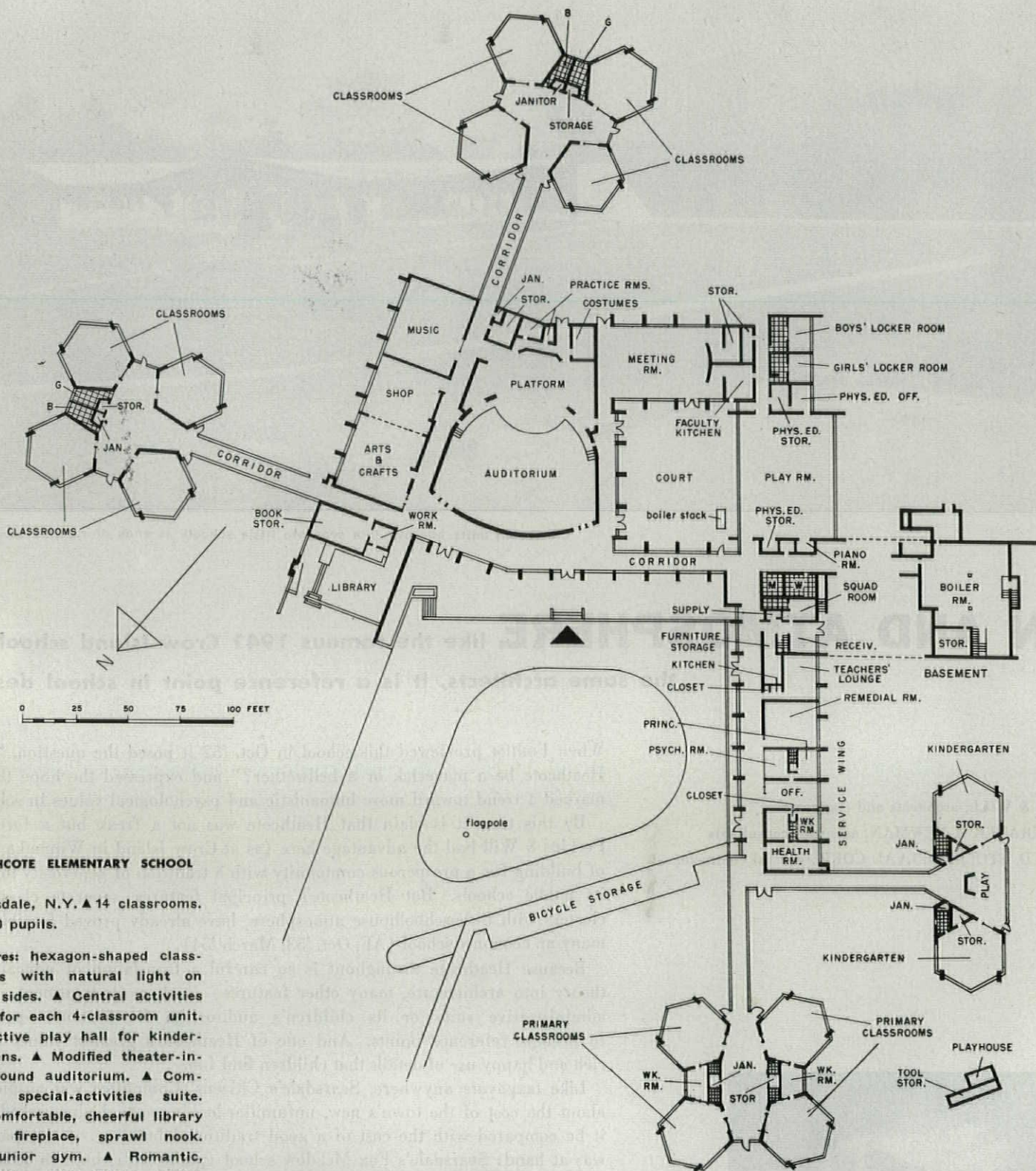
Heathcote, in which these defects are corrected, had a construction cost of \$1,094,821 (area 57,744 sq. ft.). Contractor's estimate for reproducing Fox Meadow as it stands (area 43,732 sq. ft.) is \$965,000, or with the same area as Heathcote, \$1,274,410. Heathcote: \$18.95 per sq. ft.; Fox Meadow: \$22.07. Even with the same areas, Fox Meadow could not come up to Heathcote in educational space; Fox Meadow uses 19,434 sq. ft. for circulation, boiler, etc.; larger Heathcote uses 15,534 sq. ft. Circulation alone in "compact" Fox Meadow takes 26% of area, in "rambling" Heathcote, 20.5%. Heathcote's core will also support eight more future classrooms.

These comparisons reflect what has happened to school building generally: structural economy and space efficiency give taxpayers more for their comparative school dollar today. Like most good things, Heathcote not only offers a contribution; it is also very much the beneficiary of this generation's collective store of new contributions to structure, planning and mechanics.



Fox Meadow school was 1928 version of the "last word" in elementary school facilities. Comparison with Heathcote (see text, right) shows modern gains in construction economy, facilities. Rossiter & Muller, architects.





HEATHCOTE ELEMENTARY SCHOOL

Scarsdale, N.Y. ▲ 14 classrooms.  
▲ 350 pupils.

**Features:** hexagon-shaped classrooms with natural light on four sides. ▲ Central activities hall for each 4-classroom unit. ▲ Active play hall for kindergartens. ▲ Modified theater-in-the-round auditorium. ▲ Complete special-activities suite. ▲ Comfortable, cheerful library with fireplace, sprawl nook. ▲ Junior gym. ▲ Romantic, rambling plan fitting hilltop contours.

**Construction:** slab on grade. ▲ Exterior walls, masonry with face brick exterior, brick or block interior; block partitions. ▲ Classroom roof framing, laminated wood trusses on laminated beams supported by brick piers. ▲ Central block framing, steel pipe columns and steel trusses or bar joists; steel bents in playroom. ▲ Corridor mullions bent at top to form roof members. ▲ Circulating hot-water heat.

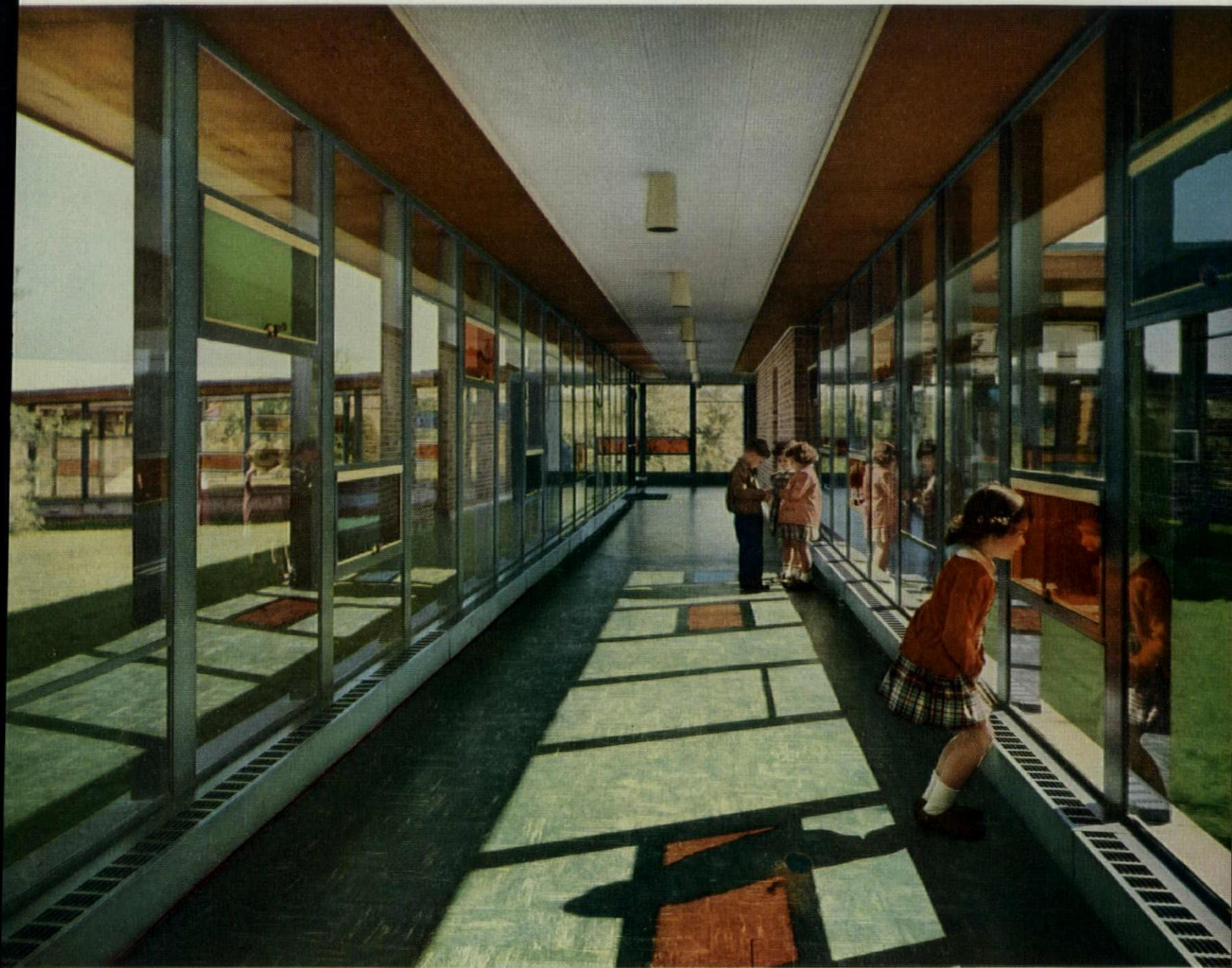
**Costs:** construction, \$1,094,821 exclud. architect's fee of \$63,685. ▲ \$18.95 per sq. ft.

Heathcote's plan is a zoned core

**Plan** is clear-cut expression of three-fold emphasis: 1) on the child as an individual; 2) on the classroom family; 3) on the school community. Hexagonal classroom shape facilitates both dispersal of small learning groups, and gathering in unified classroom circle; cluster-unit halls provide both special-project nooks and class theater or exercise space. Focus of whole-school activities is the auditorium, specifically designed for elementary school needs with large, three-part stage; short sight lines; excellent acoustics for small, possibly timid voices; shallow, semicircular seating for intimacy. Arts and crafts, shop and music rooms are related to

auditorium, are scene of preparations for school shows. Outdoor court is also used as informal theater. Playroom and library are secondary centers of school community life. Meeting room, court and auditorium are much used by neighborhood and PTA. Office suite is called "service wing" rather than administration, because here children get services such as health care, remedial teaching, tests; fascinating knickknack displays and low benches make suite definitely children's part of school. Emphasis on home shows in plan too; lunchroom is lacking because it is school policy for children to return to their homes at midday.





Corridors between clusters and main school are cheerful promenade with attraction of see-the-world-in-different-colors

## surrounded by little schoolhouses

**Full glazing** of each classroom faces foliage. Sun control is provided by overhangs and tree planting but plan deliberately gives each classroom some sun each day for sanitary and psychological benefits.



Photos: Hedrich-Blessing





**Kindergarten unit** has two classrooms, big activities hall and own playground and digging space

*Photos: Hedrich-Blessing*

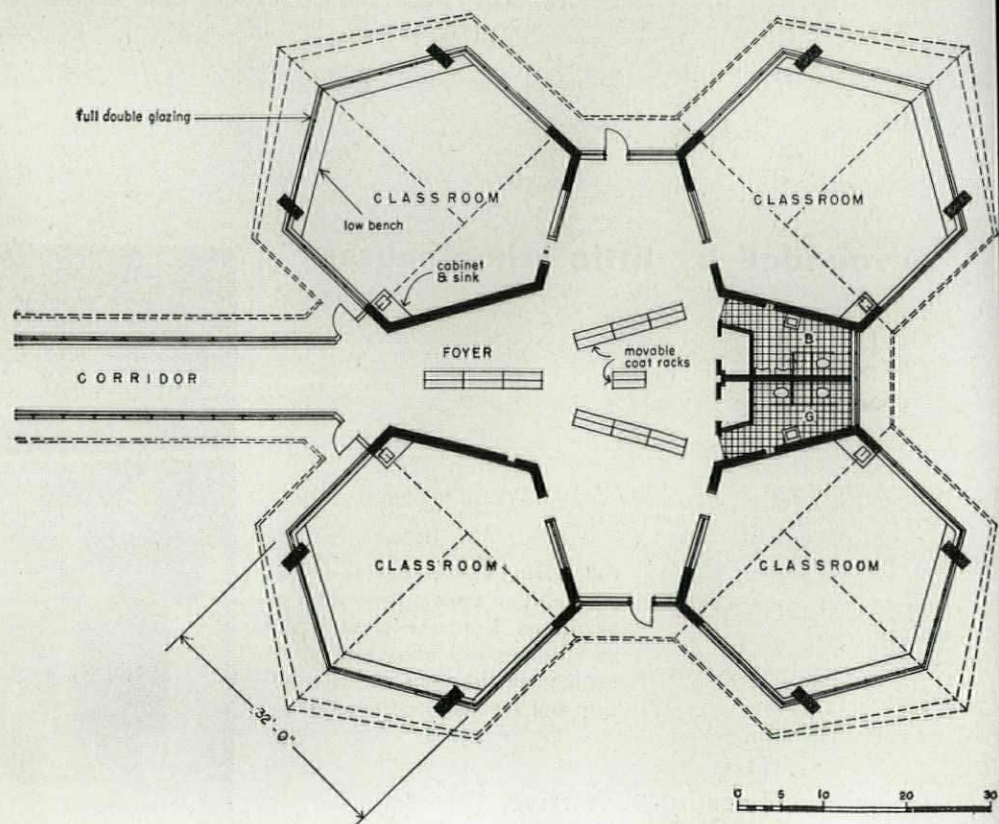


**Play area** is kindergarten unit's central hall



**Central hall** in four-classroom unit

**Heathcote's nucleus is**

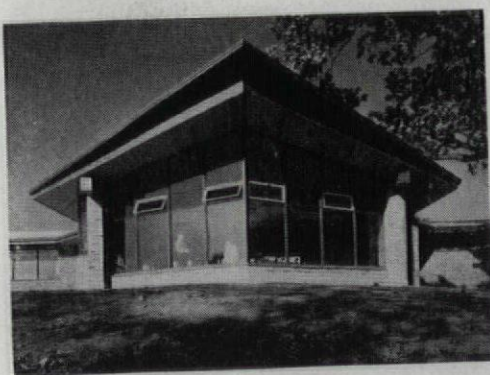




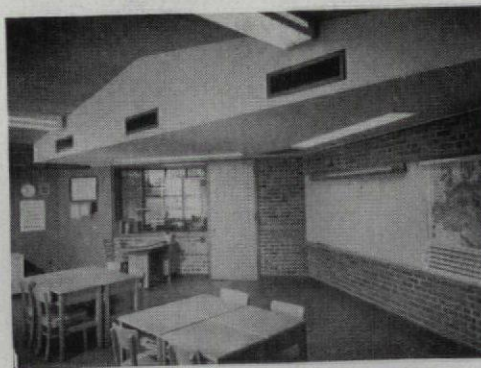


**Typical classroom** has ceilings sloping upward to emphasize openness of glazed sides, coziness of low interior side

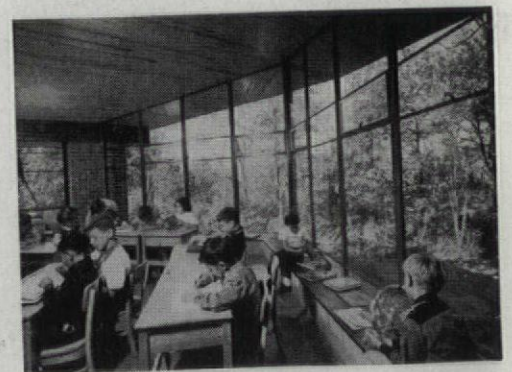
## a cluster commons surrounded by classrooms



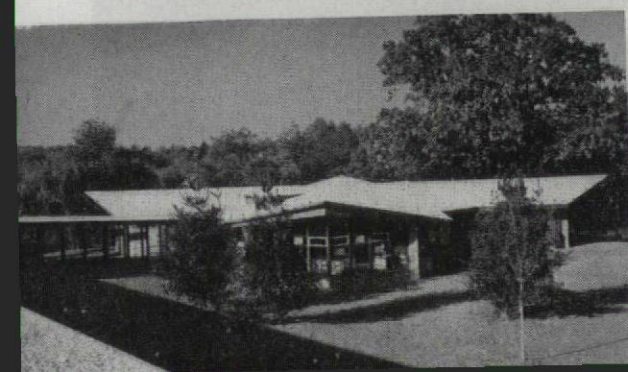
**Prowl** dramatizes indoor-outdoor relationship



**Interior end** of classroom has wall teaching aids



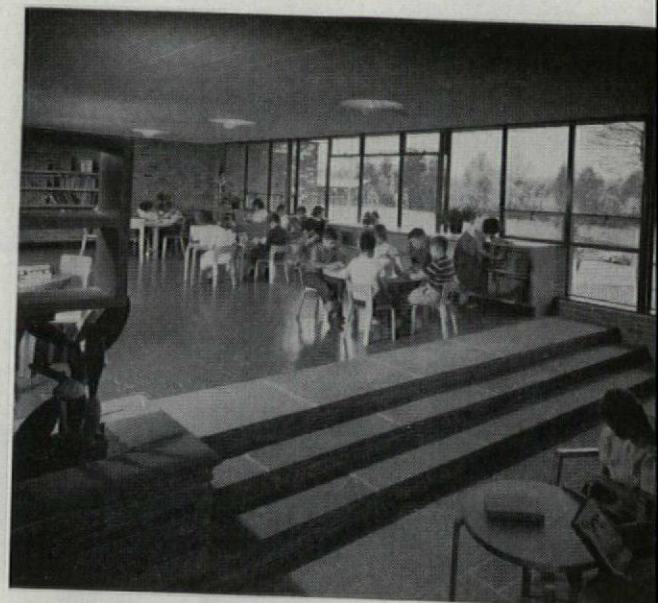
**Open end** has long display and seating shelf



**Cluster** nestles into landscape



**Heathcote's special rooms are not scaled-down**



Library, viewed from low fireplace end

**versions of high school but freshly designed for little children**

*Photos: (top, opp. p.) LIVE—Walter Sanders; (others) Hedrich-Blessing*



**Auditorium** stage can have three scenes set up simultaneously, one in large center portion, one in 9' opening to each side. Ceiling is finished in acoustic and hard plaster. Capacity: 420.





**Shop and arts rooms share glazed partition**

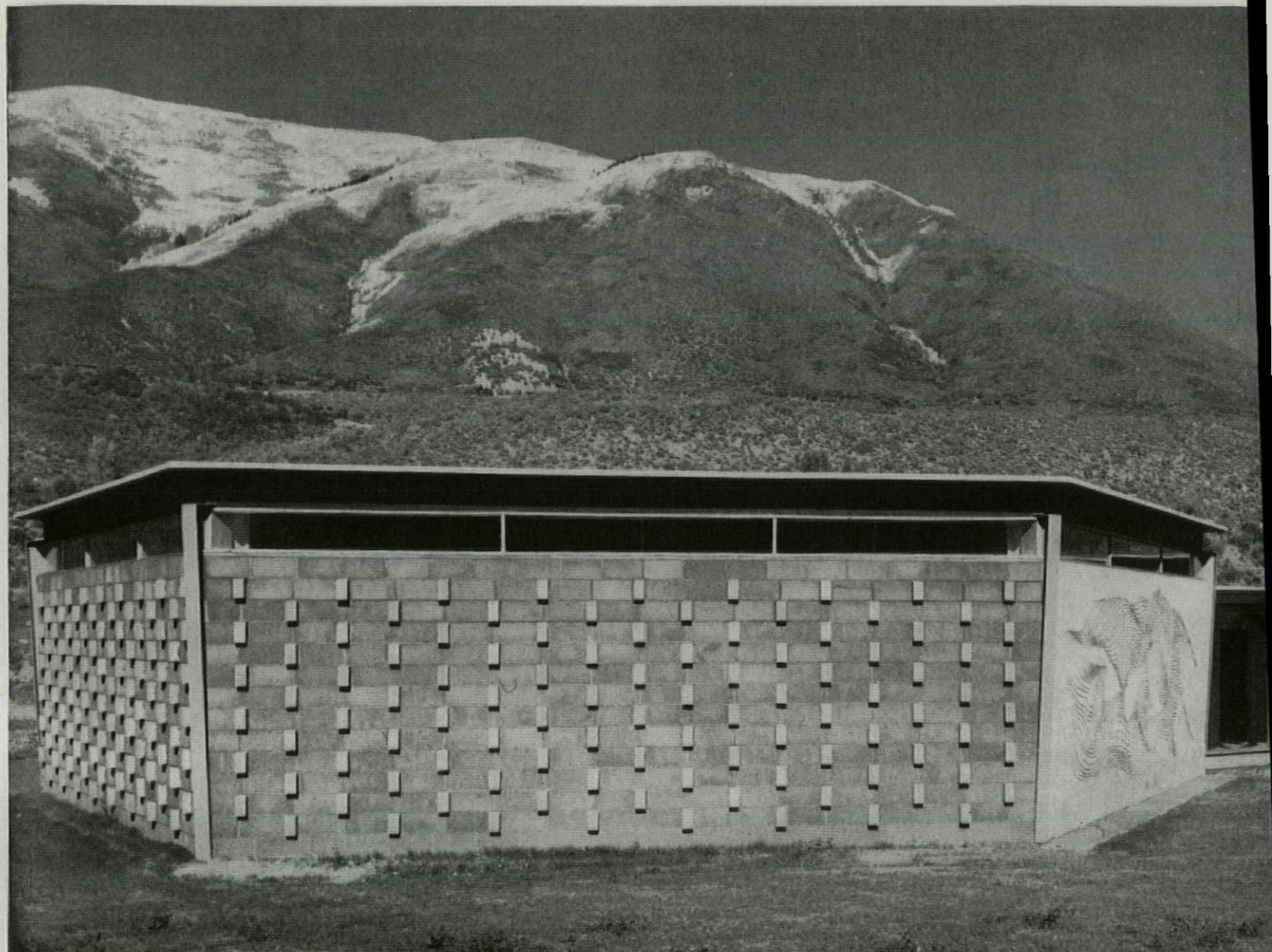


**Playroom** is framed with rigid steel bents painted bright coral. Tempered glass windows absorb knocks, have proved safe. Emphasis is on sports participation so resting benches are only seating.

**Interior court** provides romantic setting for special programs, outdoor, study or rock climbing, is also good-weather adjunct of meeting room.







Projecting block in wall cast lively shadow pattern which changes each hour of day

## HEXAGONAL SEMINAR BUILDING

—inside is a new kind of conference room

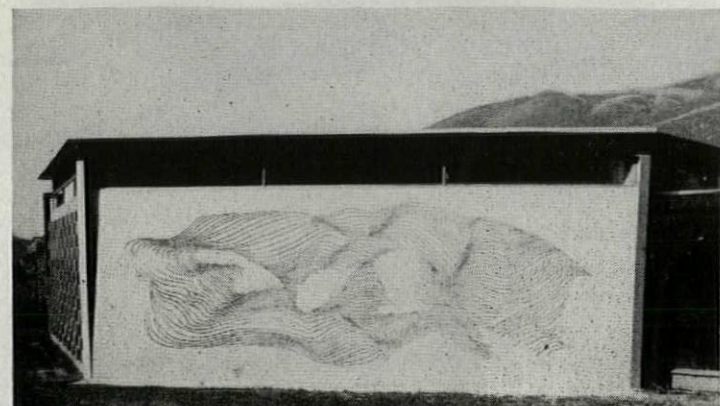
LOCATION: Aspen, Col.

HERBERT BAYER and FRITZ BENEDICT, designers

MILO S. KETCHUM, structural engineer

FRANCIS STARK, mechanical engineer

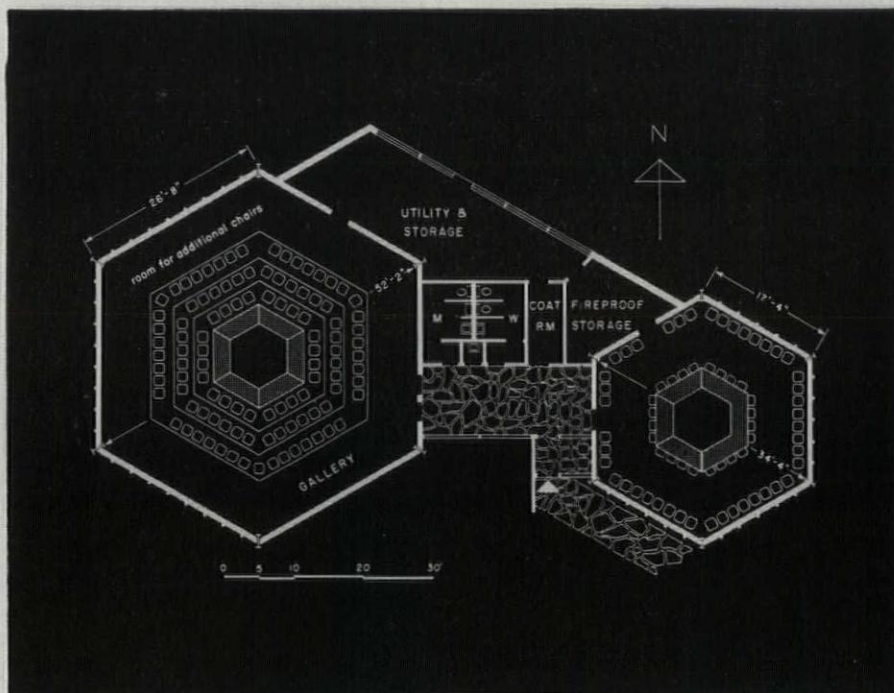
**Mural** scratched through layer of light stucco on dark gray stucco (sgraffito technique) has no title, but suggests undulating movement of mountains and valleys to some observers. Says Bayer: "As long as it stimulates imagination and thinking, it serves its purpose."



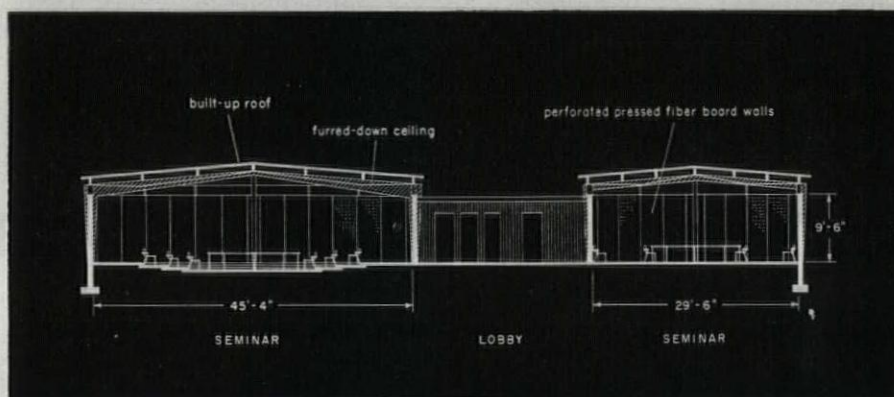
"The phrase 'round table' must be given physical reality if its intellectual significance is to be realized. For a group of persons to be able to talk with, not just at, each other, they must somehow confront one another in as nearly a face-to-face manner as possible." Thus Mortimer J. Adler, a conductor of seminars at Aspen Institute, explains the two hexagonal meeting rooms in this little building.

These rooms have other helpful details worth noting for anyone interested in the design of conference rooms: ▶ Perforated pressed wood wall finishes improve the rooms' acoustics and double as exhibition surface. ▶ Transomlike windows screen out the beautiful but disturbing surroundings, yet admit adequate daylight and a limited view (the building is air conditioned, thus needs no natural ventilation). ▶ Electric lighting is effective yet economical—exposed fixtures aimed at the ceiling flood the room with indirect light while direct spots highlight the central tables, and continuous fluorescent fixtures light the walls.





Two hexagons are connected by lobby and store rooms. Section (below) shows how three-hinged steel arch structure avoids need for interior columns and how radiant-heated floor is dished to increase visibility. Total cost: \$52,700, or \$14 per sq. ft.



Photos: Berko

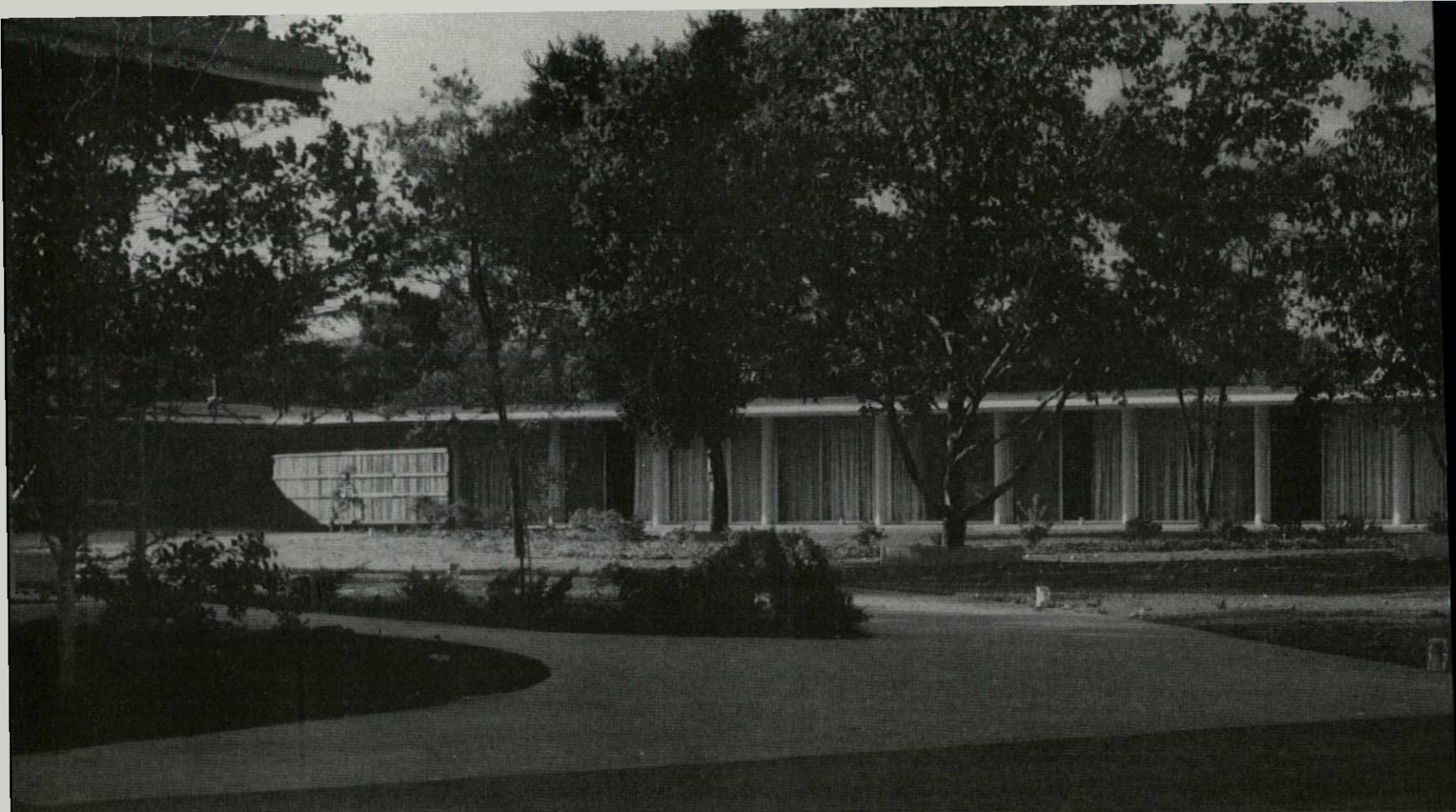


Large hexagon seats up to 200, has brightly painted ceiling panels (gray-blue, earth red, warm brown) which contrast with white and dark gray walls. Chair seats are blue.



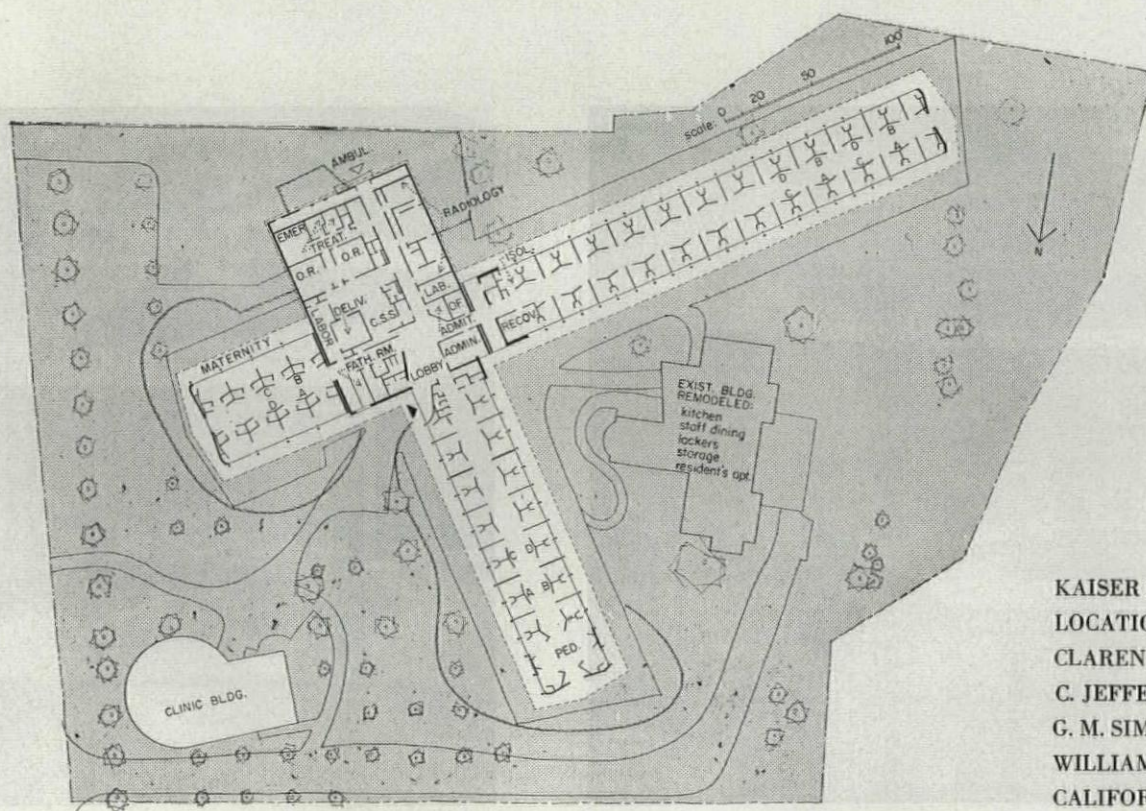
Small hexagon seats 60 to 100, has dark gray and white ceiling, colored wall panels.





Photos: Phil Fein

## TODAY'S MOST-TALKED-ABOUT HOSPITAL . . .



### KAISER FOUNDATION MEDICAL CENTER

LOCATION: Walnut Creek, Calif.

CLARENCE MAYHEW, architect

C. JEFFERSON SLY, structural engineer

G. M. SIMONSON, mechanical engineer

WILLIAM LEE OLDS, interiors

CALIFORNIA BUILDERS, general contractor

SIDNEY R. GARFIELD, M.D., functional designer  
and medical consultant





Domestic, friendly appearance and efficient one-story plan are achieved in spite of hospital's 94-bed size

for four good reasons:

1. *Its architecture is part of its cure (above)*
2. *Its corridors are actually long workrooms (p. 110)*
3. *Its bedrooms are designed for patient self-help (p. 112)*
4. *Its economics make it self-supporting at low rates (p. 114)*

Overhangs on both sides of nursing wings form visitors' corridors







## THE CORRIDORS put equipment and nurses exactly where they are needed

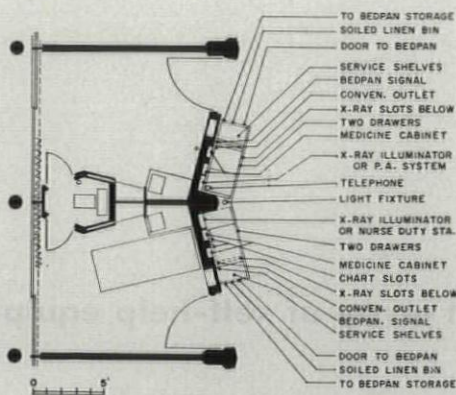


**Utility unit** (designated D on plan, p. 108) has sink, instrument sterilizer, bedpan washer and sterilizer, waste can, storage and same receptacles for bedpans and soiled linen as other units.

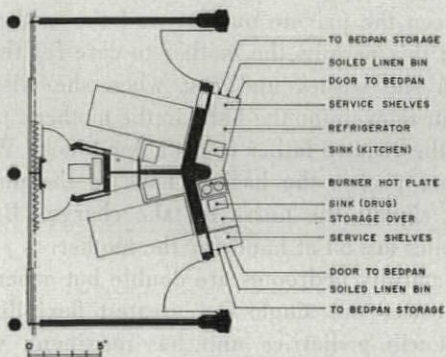
This remarkable corridor puts everything a nurse needs for patient-care close to the patient, thus keeps the nurse close to the patient, too. Medical Director Garfield's aim was to cut down the appalling amount of time nurses ordinarily must spend in unproductive, errand-girl work, instead give them more time for direct patient care and observation. Statistical studies of the efficiency of this corridor and its prototype in the Kaiser Los Angeles hospital (AF, July '53) are not yet complete, but nurses say it saves them six steps out of seven. Physicians like it because before they enter a patient's room they have all records, drugs, orders, films and reports in front of them. The exterior visitors' corridors keep the public out of the work corridor.

Each group of eight beds, served by one nurse and her attendants, has complete nursing equipment. This consists of two nurse's stations (similar except that station A has X-ray viewers while station B has pneumatic tubes and intercommunication equipment), a drug and kitchen unit C and a utility unit D, a total of four corridor units. The two stations face each other across the corridor, as do the utility and the drug and kitchen units (see plan, p. 108).

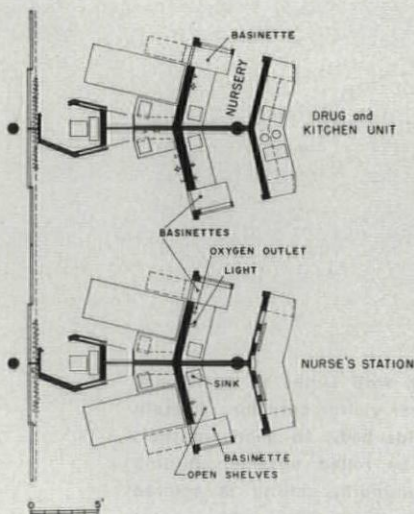




**Nurse's station** (designated A or B on plan, p. 108) has records, charts, medication, reports for four patients. One nurse takes care of two facing stations (eight patients). "A" station has X-ray viewers; "B" station (photo) has intercommunication equipment.



**Drug and kitchen unit C** is eight-bed version of floor pantry, also has some clean utility functions. Note bedpan pass-through common to all units. On bedroom side, compartment door is next to bed; patient's signal toggle tells nurse to empty bedpan.



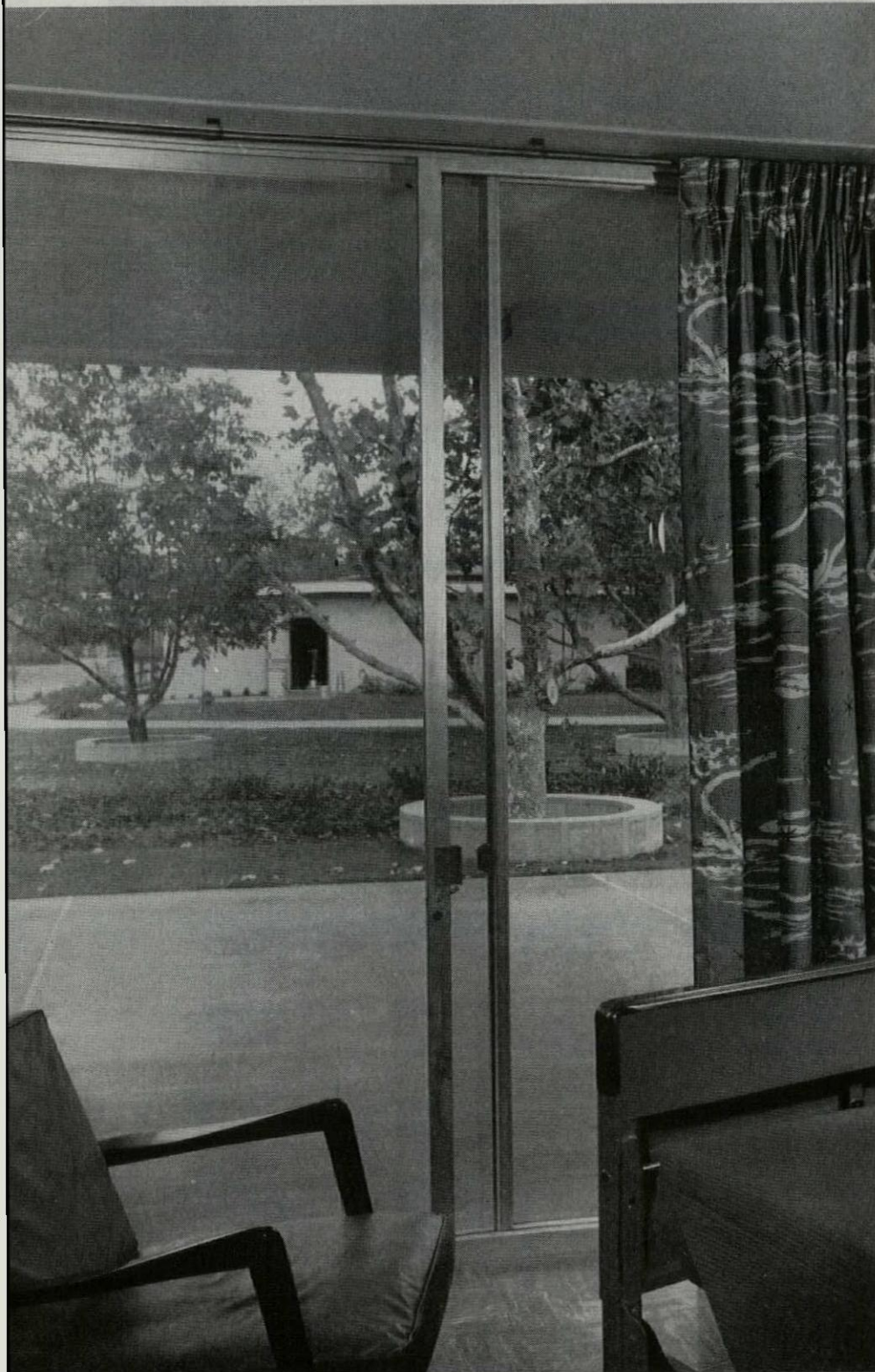
**Maternity corridor units** have view windows into infants' private nurseries. Photo shows maternity drug and kitchen unit in foreground, nurse's station in background. Door between corridor and bedroom leads into nursery.





## THE BEDROOMS

**feature outdoor visitor corridors and an array of self-help equipment**



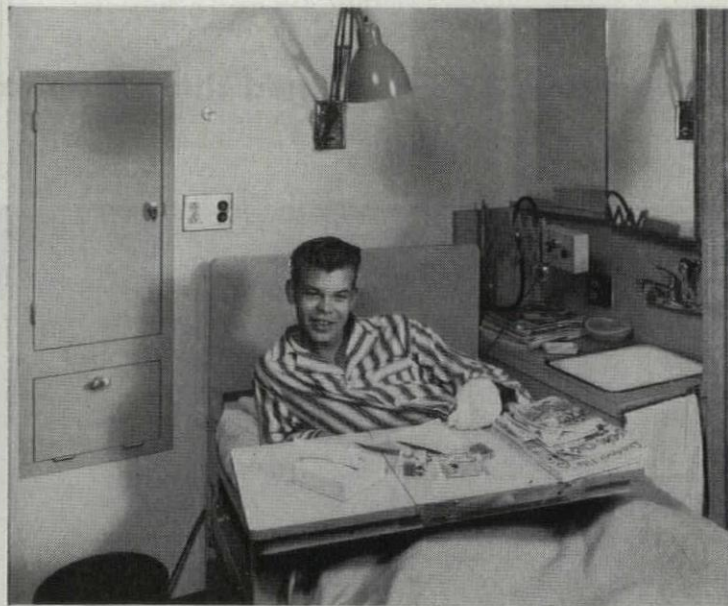
Like the work corridor, patient bedrooms are planned to eliminate errand-girl demands on nurses' time, in this case by giving patients able to help themselves the wherewithal. Patients are enthusiastic about the scheme; apparently it reduces the usual feeling of helplessness, impatience and frustration at being in bed, and provides a kind of entertainment.

Note in particular the basinet drawer that slides between the private nursery and the mother's bedside; this permits the mother to care for the infant when she wishes and rest when she wishes, the doctor to examine the baby in the mother's presence, and the visiting father to get a good look. When the mother pushes the basinet back to the nursery, a light signals the nurse to take charge. Baby-care supplies are all at hand for the mother.

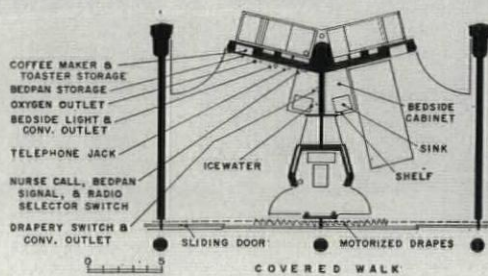
Maternity bedrooms are double but general nursing rooms are single for greatest flexibility. The eight-crib pediatrics unit has maximum visibility from room to room, both for nurses' convenience and because the last thing a hospitalized child wants is solitude.

**Glass exterior wall slides to open bedroom on outdoor visitor corridor. Curtain control is beside bed. In good weather, patients can be rolled outside. Sliding doors are aluminum, ceiling is colored acoustic plaster, walls have rubber paint finish. Building is reinforced concrete. Note the easygoing grace with which Architect Mayhew has imbued a necessarily machinelike plan.**

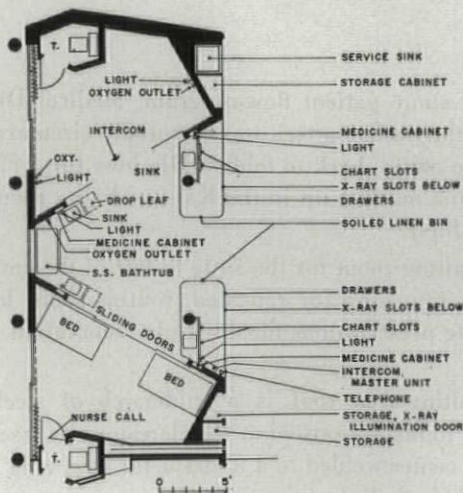
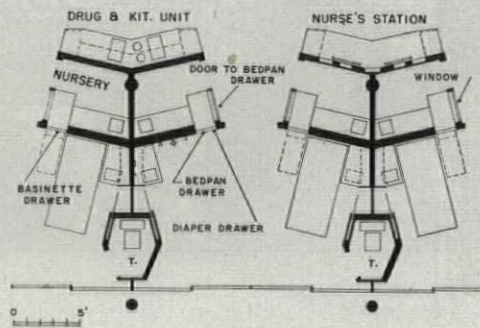




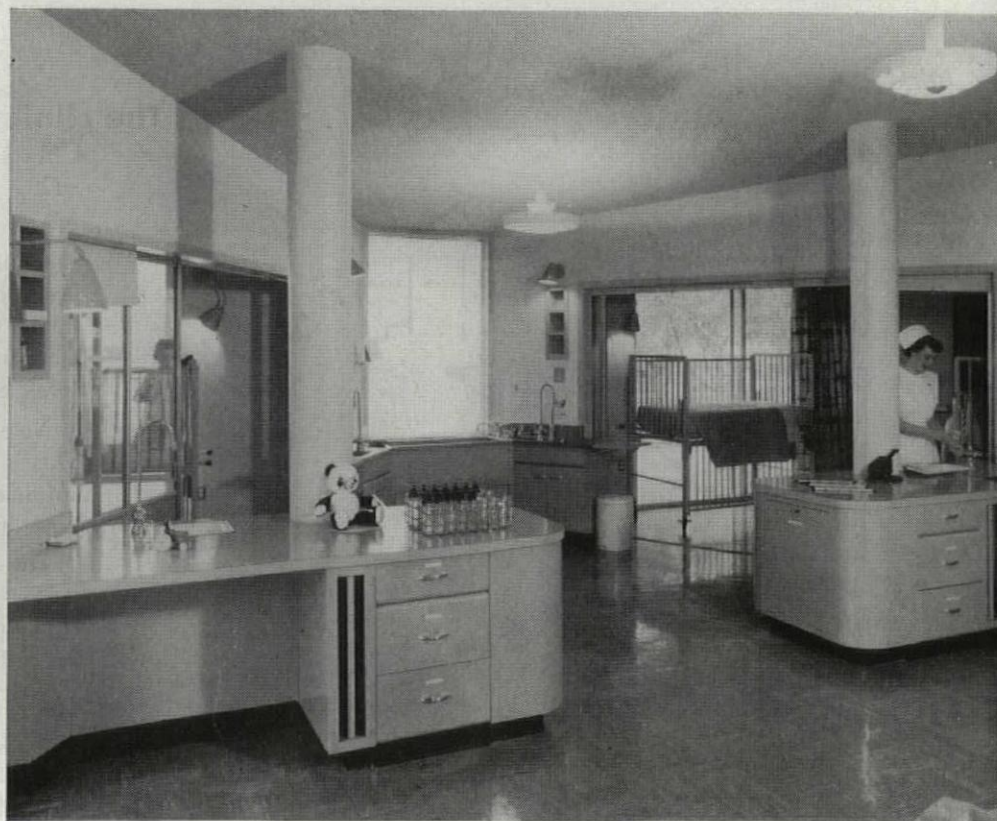
**General nursing room** has fascinating array of practical self-help devices. Lower compartment door (at left in photo) contains bedpan; upper door has toast and coffeemaker. Call buttons are beside it, radio and sink with hot, cold and ice water at right, mirrored cabinet above.



**Maternity nursing room** backs against nursery: basinet shuttles between the two rooms at mother's option. Visitors other than father must look at baby through view window above drawer. Note bottle warmer on mother's bedside cabinet.

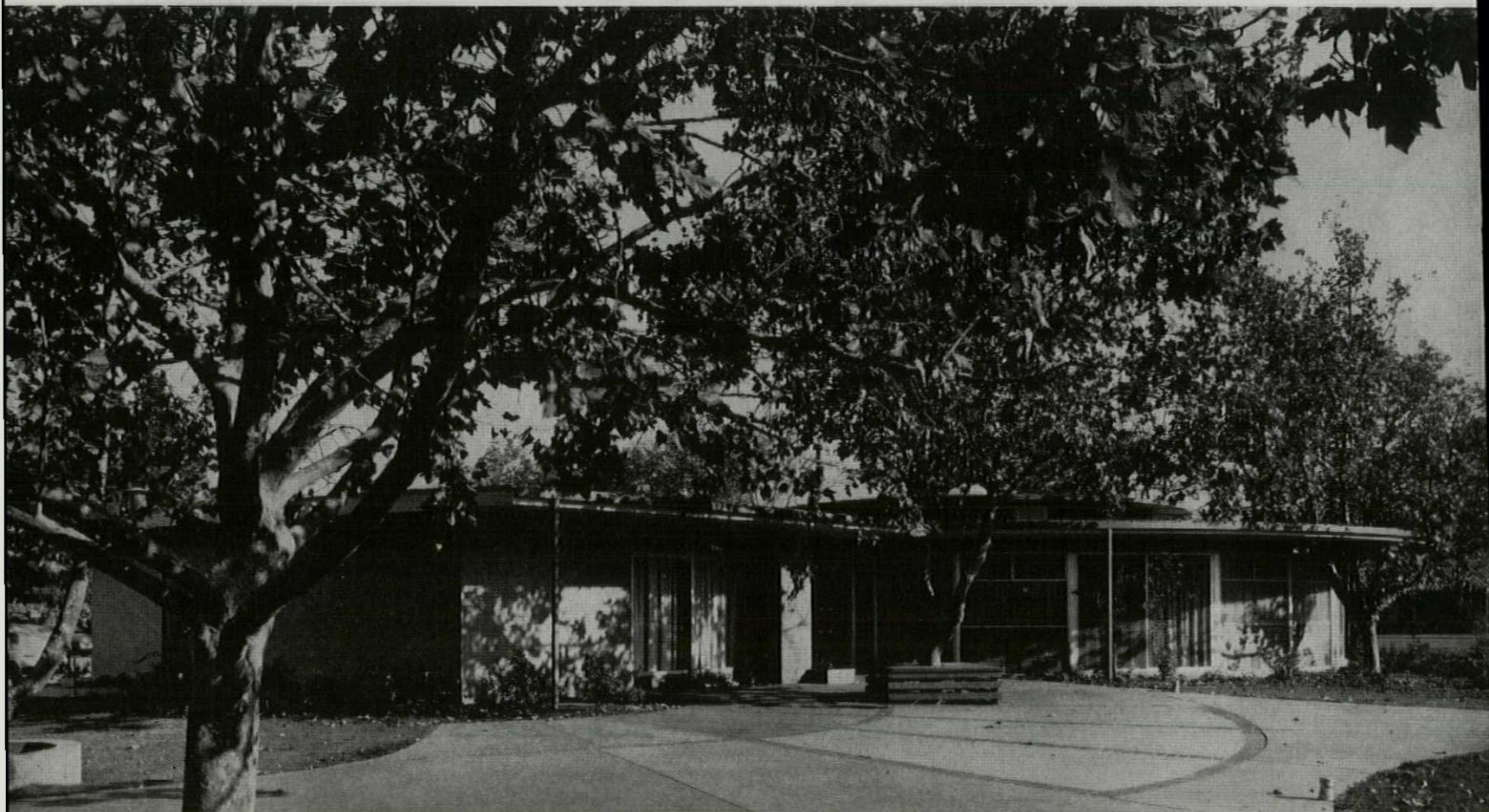


**Pediatrics section** has four two-crib rooms separated from diamond-shaped nursing and utility core by sliding glass doors (see also plan, p. 108). Children who are well enough come into core to wash, visit and enjoy a change of scene.



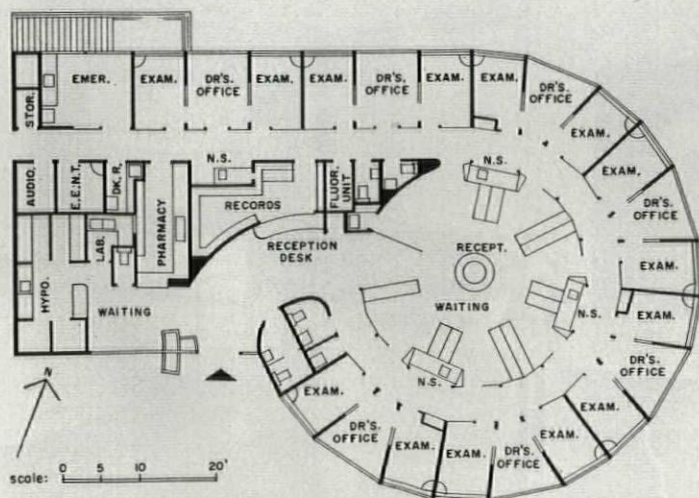


## THE ECONOMICS are based on combined clinic-hospital



In hospital side yard clinic is convenient to hospital's medical-core facilities. Clinic doctors, engaged in group practice, are personal physicians of health-plan members. Scheme, knitting doctors' regular practice with hospital, obviates need for usual outpatient clinic.

### The clinic is an efficient circle of doctors' offices



Studying the usual clinic patient flow-diagram, Medical Director Garfield noted that the traffic pattern was essentially circular: from lobby, to waiting, to offices, back to lobby. His idea for a circular office pattern was first mocked up in the Kaisers' living room with sofas, chairs and tables.

Note the small waiting room for the suite to left of the entrance. This is for patients returning for repeated, routine shots, leaving specimens, or having prescriptions filled—a nice separation of two types of traffic.

The circular waiting-area roof is a spiderweb of steel pipe trusses with welded joints, supported at the clerestory by steel pipe columns and at the center welded to a 5'-diameter steel ring which holds the plastic bubble skylight.

**Costs:** hospital construction, fees, Group I equipment and remodeling 8,500 sq. ft. of existing buildings: \$1,326,000; \$14,100 per bed; \$26 per sq. ft. Clinic construction, fees and Group I equipment: \$134,000; \$28 per sq. ft.



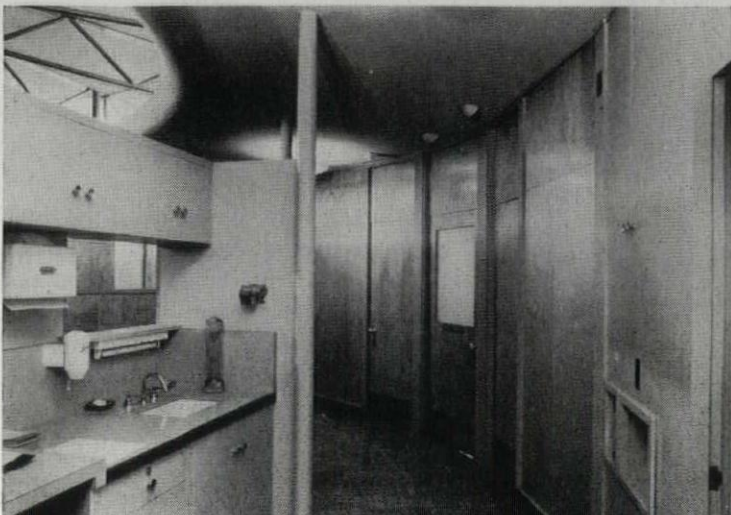
are which makes it self-supporting at low, prepaid rates



**Reception desk** and record counter in lobby is patient's first clinic stop. Receptionist takes patient's file from him, sends it to proper clinic nursing station by pneumatic tube, directs patient to proper section in circular waiting area. Small waiting room at left is for routine calls.



**Waiting-room** patients are seated outside proper nurse's station. Station with view portes can be seen behind receptionist; another is at far left. Between, screens separate waiting area from office corridor. Nurses call in patients. Receptionist makes return appointments, answers phone.



**Corridor** surrounding waiting area leads to seven consulting offices, each with two examination and treatment rooms. View shows corridor side of nurse's station with writing desk, work counter, sink, locker, storage, pneumatic tube station.

Both Walnut Creek hospital and the group-practice clinic are completely self-supporting (including amortization of capital costs) on an income derived from very reasonable prepaid medical-care rates plus some low service fees (depending on the type of coverage a member selects). Economies are basic:

► Both the hospital and the patients' regular physicians jointly use the same medical-core facilities and core personnel, doing away with multiplication of equipment and technicians.

► The usual hospital outpatient clinic is unnecessary; the group-practice clinic is the ambulatory patient unit.

► Drugs and supplies for both hospital and doctors are purchased in quantity on a rational, planned, over-all basis.

► Average hospital days per member are relatively low because patients need not be hospitalized for diagnostic studies or treatment that can be more desirably provided on an ambulatory basis, and because preventive care (which members use when care is prepaid) cuts down costly, advanced cases of disease. The number of hospital days per health-plan member last year in the Kaiser Foundation's northern California division was 0.56, significantly lower than for Blue Cross membership in the same area (0.72). The Kaiser figure is about the same as for comparable health-plan memberships in other parts of the US.

The Foundation hospitals' occupancy level runs 75 to 90%, a relatively high figure, but income is not dependent on high occupancy because the health-plan memberships pay the hospitals a regular, steady income through monthly prepayment dues. Members are guaranteed 111 days' hospital care without charge in each calendar year for each illness.

Walnut Creek members formerly belonged to the Oakland Kaiser center. They got their own suburban center when membership demanded it. The first Kaiser Foundation medical center was opened in 1942 as a wartime expedient for Kaiser industrial workers. Today the Foundation has 35 hospitals, medical centers, clinics and rehabilitation centers, and a membership close to half a million. According to Foundation experience, a group of 30 doctors can take care of 30,000 members with a 60-bed hospital and clinic constructed for about \$1 million.

#### How can construction costs be financed?

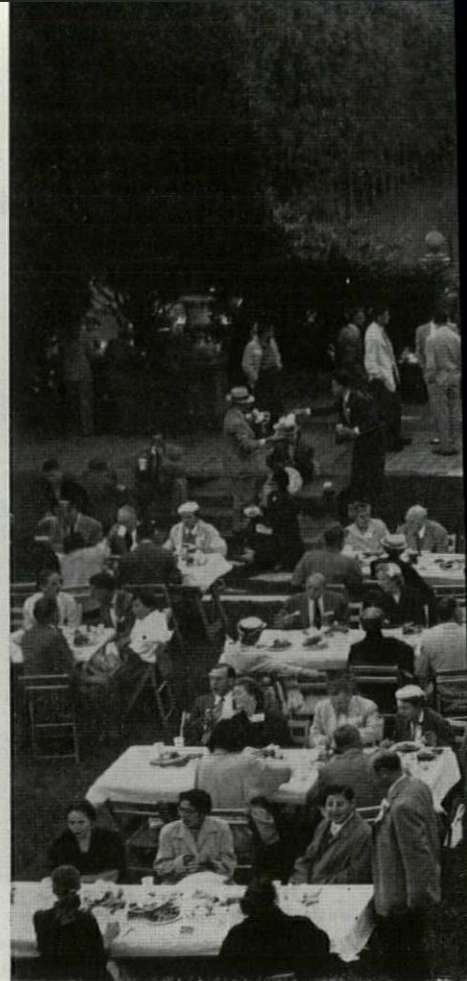
When the first Kaiser medical center was built, the only condition on which lenders would advance money for hospitals was a guarantee by Henry J. Kaiser. A decade's demonstration that these institutions are sound financial risks changed that.

For most other group-practice health plans, the problem is still very tough. A fairly typical instance is that of an eastern group in which the doctors put aside 25% of their earnings before taxes, from 1947-'52, amounting to \$493,500, half their needed capital. Fifteen savings banks and insurance companies turned down their request for a mortgage covering the other half. The Wolverton Bill now before Congress, given touch-and-go chances to pass this session, would provide FHA-type insurance for such loans. Kaiser thinks this is the answer.

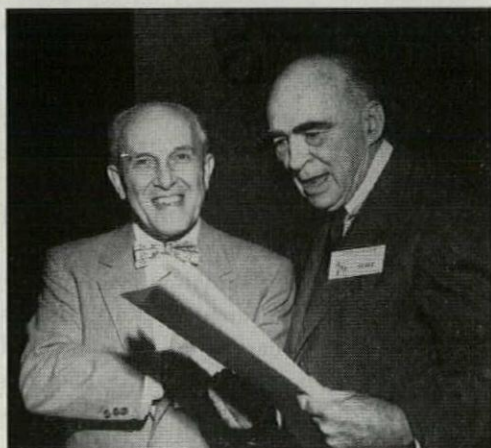




**At President's reception** in Tapestry Gallery of Museum of Fine Arts, Sam Lundeen of Los Angeles receives hearty handshake from President Clair Ditchy (l) of Detroit.



Photos: James Coyne; Nicholas Dean; AIA

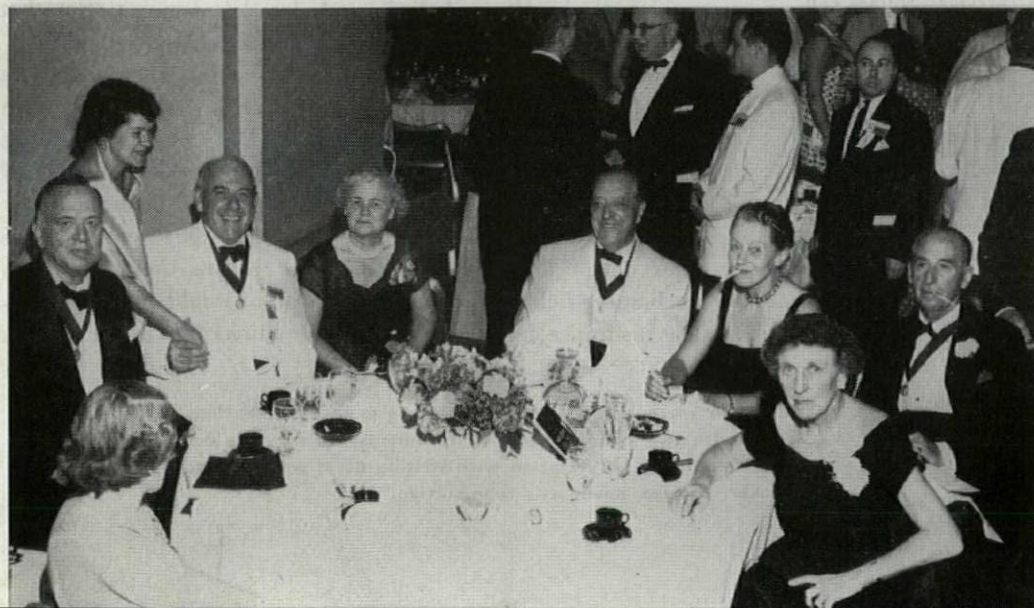


**AIA Journal Editor** Henry H. Saylor of Washington receives from President Ditchy Edward C. Kemper Award as a "master of words."



**Colonial expert** Lois Lilley Howe of Cambridge, only woman Fellow, receives certificate from Isidor Richmond of Boston.

**At annual dinner** 21 were made Fellows in AIA, including (l to r) William Wilson Wurster, Royal Barry Wills, Ludwig Mies van der Rohe and Marion Sims Wyeth. (For full list, see AF May '53.)



# AIA

## Boston's shore dinners and

Boston's sophisticated but unpretentious intellectualism captivated the 86th annual convention of the American Institute of Architects last month. Not dutifully, but for a treat, the delegates flocked in the largest numbers to those sessions devoted to philosophical discussions of design or architecture's artistic and cultural facets.

The tone was set at the very start in a witty, provocative keynote address by erudite but scintillating Editor Edward A. Weeks of *The Atlantic Monthly*, a New Jerseyite turned Bostonian. With a superb delivery he quipped his hearers into hearty laughter and vigorous applause at many points. He brought down the house when he half-sang, half-recited the satirical lyrics for "Design for Living" from a current London revue (p. 119).

More seriously, Weeks listed the three "great charges" or responsibilities he sees confronting architects: 1) to design and build all the new houses and community facilities required by the "inescapable, cheerful fact" the nation's population is fast increasing; 2) to solve the problems



For the month's news  
of other industry developments  
see p. 39.



Lobster dinner took most delegates to Castle Hill in Ipswich, former estate of Richard T. Crane, Jr.

## CONVENTION

### Colonial heritage share program with profession's problems

of decentralization and urban redevelopment, or "the care and revival of cities," including preservation of certain "beautiful fragments of our historic past—such as Rittenhouse Square and Georgetown," and 3) to assist the large migration of industry to the South "to capitalize on power and labor, and to be closer to raw materials."

**S.R.O. panel.** Highlight of the convention was a probing symposium of "The Changing Philosophy of Architecture" that filled to standing room only the large Dorothy Quincy auditorium in the new John Hancock Insurance Co. building. This started with the stimulating paper by 35-year-old Paul Rudolph (see p. 120). His older, more illustrious colleagues on the panel repeated or expanded on many of his main points, added their own:

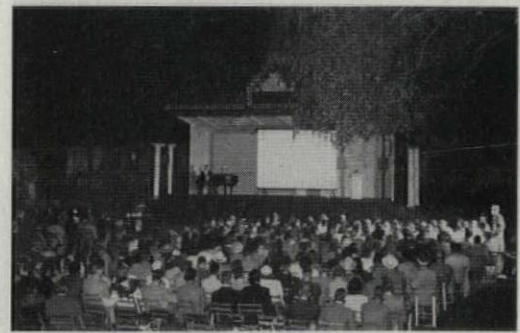
► Eero Saarinen—"We must constantly question the validity of many of our practices. Have we gone overboard on too big windows, creating too many thermoproblems? Is the flat roof really the answer to all problems? Might a

better relation to sky be achieved by other means? These are some of the embarrassing questions we must be allowed to ask ourselves without our friends yelling 'Benedict Arnold' or a certain editor yelling 'Friend.'"

► Jose Luis Sert—"We hear frequent talk about modern methods and materials, but we rarely discuss good proportions, which are also an essential part of architecture. When new materials lose their novelty and the engineering know-how of today is surpassed by that of tomorrow, what will remain of the buildings that have only those novel factors to recommend them, and no other merit?"

► William Wurster, speaking extemporaneously, stressed the ordinary human qualities of architecture by recalling the picturesque quality of Japanese laundry hung between buildings.

► Ralph Walker—"Most modern styles are but fashion, rather than cultural development. . . . If we are truly interested in the historic beginnings of the architectural style which now springs up all about us, we will admit it is the factory and its influence to which we must go,



Despite chilly breezes, hundreds braved outdoor theater performance at Castle Hill by Singer-parodist Tom Lehrer and Cartoonist-lecturer Al Capp.



Lecturer Capp (center) sat in the audience while Lehrer was on stage; in his self-illustrated talk he refrained entirely from ribbing architecture.

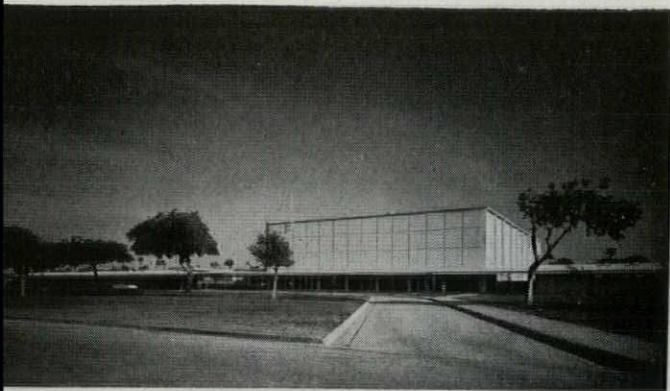


To escape cold at Ipswich many moved into service building, ate from floor and window sill.

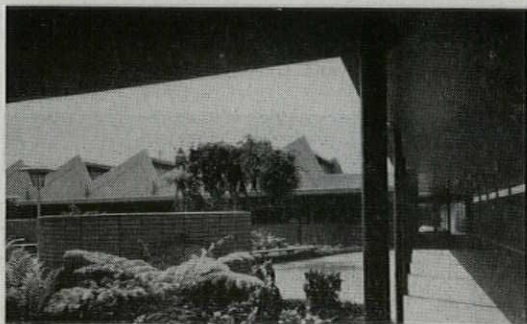
**Craftsmanship medal** for 1954 was awarded to Maria Montoya Martinez of San Ildefonso, N. M., for "design and execution of pottery."



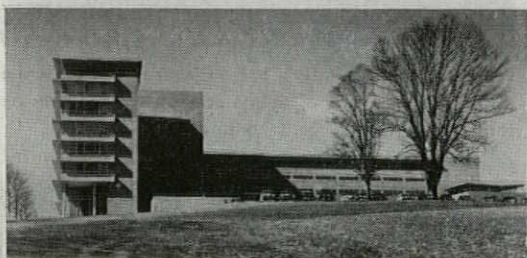




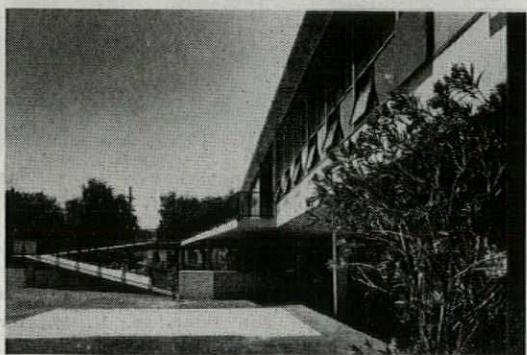
**Five honor award winners:** civic center, Brownsville, Tex. (above) by John P. Wiltshire & J. Herschel Fisher, architects (AF, future).



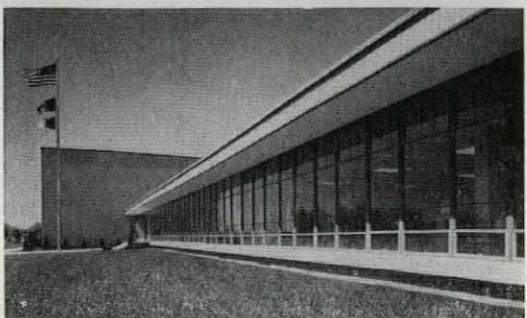
**Santa Monica City College** was cited for landscaped courts. Marsh, Smith & Powell (AF, future).



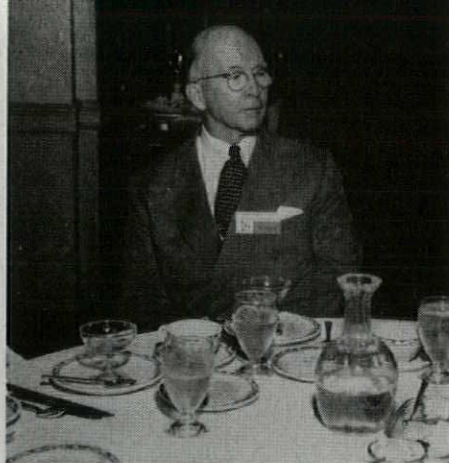
**Lankenau Hospital**, Philadelphia, won praise for siting and interiors. Vincent G. Kling, architect.



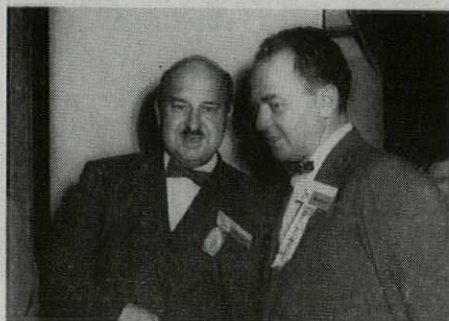
**Thomy Lafon School**, New Orleans, is up on stilts. Curtis & Davis, architects. (AF, April '53.)



**High school and city auditorium**, Norman, Okla. Perkins & Will; Caudill, Rowlett, Scott & Associates. Sixth award: a house by Richard Neutra.



**Breakfast session** on public relations was presided over by Chicago's John W. Root, AIA's national PR chairman.



**Private critique** of design jury selections is made by Walter F. Bogner of Harvard (l), and Edgar Tafel of New York.



**In lobby** (l to r) F. K. Hummel of Boise, Donald Kirby of San Francisco, Herbert Millkey, Atlanta, C. E. Silling, Charleston.



**Boston's mayor**, John B. Hynes (l), is welcomed by Convention Chairman Phillip D. Creer of Providence.

and that its pioneer designers will be found to be engineers and factory managers, rather than architects."

**Vanishing tribe?** One of the profession's most important long-range problems was brought out at a session on architectural education. The 1950 ratio of 26.5 architects for each 100,000 of urban population is one third less than in 1910, and the lowest ratio since 1880. Unless 20% more students than attended last year are enrolled in architectural schools each year for the rest of this decade, this ratio will shrink even more. So reported Prof. Turpin C. Bannister, FAIA, department of architecture, University of Illinois, as he summarized a comprehensive two-volume report just released by the special commission of the 1949 AIA Houston convention, established to study the profession's various training and registration problems.

"To its surprise," Bannister reported, "the commission was able to secure few trustworthy statistics on the results of current [registration] examinations, and those obtained indicated such wide variations as to cast strong doubt on the reliability of present techniques." As a result the commission urged a greater effort "to assemble the facts needed to determine whether these crucial tests

have any validity or reliability . . . [and] a study of existing national examining agencies in medicine and accounting with a view to developing a comparable plan for architecture."

**Ethics code overhauled.** At its business sessions the Institute adopted a completely revised version of its code of ethics or "standards of professional practice." Biggest revision: elimination of that portion of mandatory rule No. 7 that declared "an architect shall not guarantee any estimate of construction cost."

Mandatory rule No. 2 was completely reworded, and no longer specifically forbids "free sketches." Now it reads: "An architect shall not render professional services without compensation. He shall neither offer nor provide preliminary services on a conditional basis prior to definite agreement with the client that if the contemplated project proceeds, he will be employed as its architect."

A new mandatory rule (No. 14) says "an architect shall conform to the registration laws" and "local" professional standards wherever he practices. The original draft stated that he should "conform forthwith." But over objections of delegates from California and Florida, where competition from prospective and speculative immigrants plagues all pro-





At FORUM reception: Left: Editorial Chairman Douglas Haskell engages in light discussion with George V. Russell of Los Angeles, Herbert Millkey,



and Ludwig Mies van der Rohe of Chicago. Center—Mr. & Mrs. M. S. Wyeth are welcomed by Temple H. Buell of Denver. Right—color



photography is discussed by Brooks Cavin of St. Paul, Robert Elkington of St. Louis, Paul Grotz, FORUM's art director, and William Lane.



Design panel listens with varying degrees of approval to Paul Rudolph of Sarasota (not shown) opening discussion of "The Changing Philosophy of Architecture": (l to r)



Dean Jose Sert, Eero Saarinen, Ralph Walker, William Wurster, and John Harbeson, moderator. Rudolph's remarks appear on p. 120.

fessions, the convention deleted "forth-with" as too difficult to define precisely.

The convention also received a report from a special committee on organization that included recommendations for: a 50% reduction in the number of official delegates to national conventions, but still at least one delegate for each chapter; a change in by-laws to limit the presidency to one year, but allow re-election after a two-year interim. To become effective, however, both proposals still would have to be submitted and formally approved at another convention.

**Ditchy, Chatelain win.** When all the Boston convention ballots had been counted, President Clair W. Ditchy was re-elected for his second (customary) term, leading John W. Root of Chicago by a margin of more than 2 to 1. Leon Chatelain Jr. of Washington, D.C. was elected treasurer (over Edward L. Wilson of Fort Worth), succeeding Maurice J. Sullivan. Other new national officers elected without opposition: Earl T. Heitschmidt of Los Angeles, first vice president, and as regional directors, Frank N. McNett of Grand Island, Neb., Central States; Donald Beach Kirby of San Francisco, Sierra-Nevada; Herbert C. Millkey of Atlanta, South Atlantic; and Albert S. Golemon of Houston, Tex. region.

## DESIGN FOR LIVING

by Michael Flanders

*We're terribly House & Garden  
At Number Seven B.  
We live in a most amusing new  
Ever so very contemporary!  
We're terribly House & Garden,  
The money that one spends  
To make a place that won't disgrace  
Our House & Garden friends . . . !*

*We're terribly House & Garden,  
Now at last we've got the chance,  
The garden's full of furniture,  
And the house is full of plants!*

*It doesn't make for comfort  
But it simply has to be,  
You mustn't be left behind the times  
(mustn't be left behind the times).*

*Why not . . . save those little metal bottle-tops  
and nail them upside down to the floor  
of your hall? This will give a sensation  
of walking on little metal bottle-tops,  
turned upside down and nailed  
to the floor.*

*With wattle screens, and little lamps,  
and motifs here and there,  
Mobiles in the air, icy everywhere.  
You mustn't be surprised  
to find a cactus in the chair,  
But we call it home sweet home.*

*We're terribly House & Garden  
As I think we said before,  
But though Seven B is madly gay—  
It wouldn't do for every day—  
We actually LIVE in SEVEN A—  
In the house next door!*



Hospital panel: Richard Adams of Montgomery, Frederick Roth (who read paper by Vincent Kling of Philadelphia), Dr. Albert Snook of New Haven, Marshall Shaffer of Washington.



School panel: Charles Gibson of Los Angeles, Stanley Sharp of New York, Samuel Homsey of Wilmington, John McLeod of Washington.

**Architectural education panel:** Prof. Turpin Bannister, Illinois U., O'Neil Ford, San Antonio, Dean William Wurster, Calif. U., Carl Feiss, Washington, moderator.





BY PAUL RUDOLPH



N. B. Dean

In his address before the best-attended session of AIA's recent Boston convention, an eminent young designer, critic and instructor sets a course for his fellow architects through the next transition:

## THE CHANGING PHILOSOPHY OF ARCHITECTURE

The unique element in architecture is, to quote Dudok, "this serious and beautiful game of space." This has nothing whatsoever to do with the allotment of so many square feet to this and that function, important as that may be, but with the creation of living, breathing, dynamic spaces of infinite variety, capable of helping man forget something of his troubles.

Modern architecture's range of expression is today from A to B. We build isolated buildings with no regard to the space between them, monotonous and endless streets, too many gold-fish bowls, too few caves. We tend to build merely diagrams of buildings. The diagram consists of regularly spaced bays, with the long sides filled with glass and the end walls filled with some opaque material. If we raise it on a *pilotis* we might even snare an important prize—as in the recent Ottawa Competition. We need creativity as well as unity.

Modern architecture is tragically lacking in eloquent space concepts partially because we are constantly bombarded with various specialists in architecture who do not relate their worthy findings to the whole:

► First on the list of specialists are the new functionalists who apparently think of architecture as an assemblage of workable parts without regard to proportion, scale and composition. The masters of the twenties were never functionalists in this sense. One does not understand why the sensitive, traditional architect who "goes modern"—to use that detestable and revealing phrase—usually forgets all principles of architecture, which indeed do not change.

► Second, we have the climate controlists with their extreme distortions of form in the name of the pseudoscientific and their naïve contentions about orientation—as if they had discovered the compass.

► Third, we have the structural exhibitionists. Exciting as Buckminster Fuller's domes may be or the latest space frames,

they are merely a means to an end and not architecture. Of course, such devices can be used to produce great architecture.

► Then we have too many site planners who are concerned only with ratios of people to land and "how quickly one can get there"—never "how to get there."

► Most tragic of all, we have Robert Moses, who is forming the most important building of the decade, the Coliseum in New York. The list of dissectors is endless.

### Facades finished in wallpaper

Architectural space is related to a room and to a city. The characteristic space created in the typical American city is the endless street leading "on, on, on" with advertisements shouting "stop, stop, stop." They suggest "I'm a bird in passage," as Gordon Cullen so aptly describes it. We abound in technical progress but our cities are incoherent assemblies of structures, each crying for as much attention as possible. The alignment of buildings alongside our endless streets suggests large rolls of wallpaper pasted on. Sometimes the wallpaper appears as if it is about to crumple and fall. We need desperately to relearn the art of disposing of buildings to create different kinds of space: the quiet, enclosed, isolated, shaded space; the hustling, bustling, space, pungent with vitality; the paved, dignified, vast, sumptuous, even awe-inspiring space; the mysterious space; the transition space which defines, separates and yet joins juxtaposed spaces of contrasting character.

We need sequences of space which arouse one's curiosity, give a sense of anticipation, which beckon and impel us to rush forward to find that releasing space which dominates, which climaxes and acts as a magnet, and gives direction. For instance, the Duomo in Florence is a magnet which dominates the whole city and orientates one. In Manhattan we are reduced to the Third Ave. elevated to perform this vital function. Most important of all we need those outer spaces which encourage social contact.

I have just returned from Europe and the Middle East and one realizes again more forcibly than ever that man accomplished these things in other cultures. He used piazzas, courtyards, squares, freestanding sculptures, manipulating the approaches, and sequences of space. However, we must realize that the motor-car has rendered the traditional solutions invalid. At the same time it has given us a new scale, for now we must perceive our environment from a quickly moving vehicle as well as on foot. We must find our own solutions.

### Down with the tyranny of endless streets

The superblock derived from the gridiron plan of the majority of our cities, has tremendous potentiality. However, the superblock still leaves us with endless streets rushing forward to apparently nothing. Formerly the building, the fountain, the statue, the arch, the picturesque grouping of buildings acted as a focal point and indeed they have given delight for centuries. Why do buildings always have to flank the street? Why can they not sometimes be placed over the street, thereby forming an enclosure and a focal point? Perhaps the area left alongside the street might then become a plaza, thereby starting a whole new sequence of spaces. We desperately need more imagination in the siting of our buildings. The tyranny of the endless street must end.

The Grand Central complex in New York which bisects Park



Ave. is perhaps unsurpassed in this country. Buildings which respect each other, flanking Park Ave. and defining its space, form a valid concept, especially when the avenue acts as a great processional to one of the major gateways to the city. This means that sometimes we still have need of facades, buildings of uniform height, to define outer space. Park Ave., along with many other avenues and squares, is being destroyed.

Just as a row of FLLW houses would be abominable, a row of some of our most admired buildings would result in utter chaos.

Our difficulty is that we think too much in terms of individual buildings. In our search for light and air we tend to design freestanding buildings often unrelated to their neighbors or the spaces formed between them. Actually, our cities are indeed strange expressions of a democracy, for each building seems to say to its neighbor: "You stink, so keep your distance."

### Lessons from Rome and Japan

We still have many lessons to learn from Rome. If one wants to create more human outer spaces, one gives thought to siting. Camillo Sitte, in *The Art of Building Cities*, writes: "Of the 255 churches in Rome, 41 are set back with one side against other buildings; 96 with two sides against other buildings; 110 with three sides against other buildings. Only six stand free."

The lessons from Rome also indicate that it is possible to design a building which is complete in itself but is also related to its neighbors. Indeed we are coming to realize that our architecture is much more akin to Renaissance architecture than we formerly thought. The "skin and bones" concept led us to see readily its relationship to Gothic architecture, although actually the "skin and bones" advocates are relying more and more on symbols of construction rather than on the actual structure. This principle is again beautifully illustrated by the Japanese house in the Museum of Modern Art's garden where the actual structure is hidden and we are presented with a system of *symbols of structure*.

We tend to admire nowadays those buildings which have a single generating idea behind them and even the centralized space idea of the Renaissance. For instance, we are leaving behind the house of the forties as a confused one which tried to express what went on behind each bay. Thus the living-room bay could be filled with glass which went to the floor, but the bedroom bay had to have the glass stop at the 2'-6" height to provide privacy (I never quite understood that one because we so seldom crawl in our bedrooms). The kitchen bay had its windows a few inches higher still, making a series of steps. Today we are more interested in the total expression.

The "keep your distance" theory obtains in suburban areas, too. The no-man's land between single-family houses caused by our setback rulings has no meaning whatsoever. The individual house has received tremendous attention but its relationship to its neighbors and the forming of coherent, usable outer spaces, are almost completely neglected. Our setback restrictions hinder manipulation of the small amount of land available. Our great architects have shown us how to house people in multistored buildings, but we as architects have not contributed much to the question of what to do about the single-family house which must be repeated many times for economic reasons. All too often we merely criticize the speculative builder. The key to this problem undoubtedly lies in restudying our setback restrictions. No

society has ever before worked under such stupid restrictions. We plant our orchards more intelligently than our houses.

I mentioned earlier that our buildings aligned along a street often have the appearance of strips of wallpaper pasted on. The manufacturers have observed this tendency toward wallpaper architecture and now one sees advertisements of systems of windows, mullions, spandrels, etc., which may be bought by the yard. This is a natural expression of the industrialization of structure and could be used to good advantage if these elements were so arranged as to create coherent inner and outer space. The important thing about these glass-sheathed, taut buildings, as Mies van der Rohe pointed out long ago, is their reflective quality and not alone the effect of light and shadow viewed from outside. Glass in most lights appears opaque. The isolated building reflecting the sky, trees, and distant building is one thing, but a group of glass-sheathed buildings, one reflecting the other, will provide multiple images which need to be controlled. The light screen wall is here to stay, but its esthetics have not been completely solved.

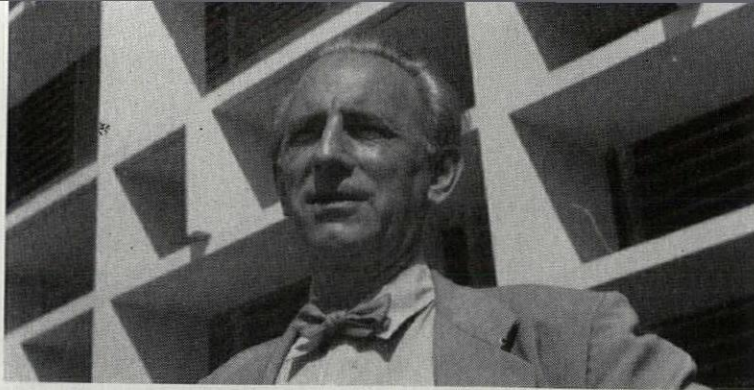
One can say that the present tendency to reduce everything to a system of rectangles, both in plan and elevation, is an outgrowth of the modular concept and machine processes. We accept this discipline but we still long innately for the old play of light and shadow, for something curved. The work of Le Corbusier is still conceived in terms of light and shadow and not so much in terms of reflections. In his building at Marseilles the shaping of the *pilotis* and elements of mechanical equipment is a satisfying foil for his rigid geometry. For many years now he has exploited the visual delights inherent in the forms of mechanical equipment. For instance, why shouldn't ductwork be a veritable tree inside, or a vine climbing over the facade? If we are to spend up to 60% of our budget on mechanical equipment we should derive more than physical comfort from it. Visual exploitation of it may become the sculpture of our time.

### The prime ingredient: visual delight

Yes, the architect's prime responsibility is to give visual delight and the treatment of space is the prime determinant and the most important architectural measure of a culture. The public is confused as never before about the exact function of an architect, for we have gone through a long period where the specialist talked only of social responsibility, techniques, economy, "the architect as a coordinator." We have apologized for being concerned with visual design and indeed there has been little discussion of it even in our schools. This fact is demonstrated again by the difference between a drawing, a model or a photograph, and the actual appearance of so many of our buildings. The conception is constantly discussed, but seldom visually perceived. An architect should be concerned with a building's looks in the rain, or on a summer's day, its profile on a misty day, the different treatment required for that which is close at hand vs. that which is 20 stories removed; with angles of vision, symbolism and content. We are in a transition stage and our ideals of beauty are in a state of flux. We cannot agree on this or that specific treatment but each can study and relate his efforts to principles which do not change.

An architect is not merely a beautifier, but our profession should and will die unless we produce that which meets man's highest aspirations.





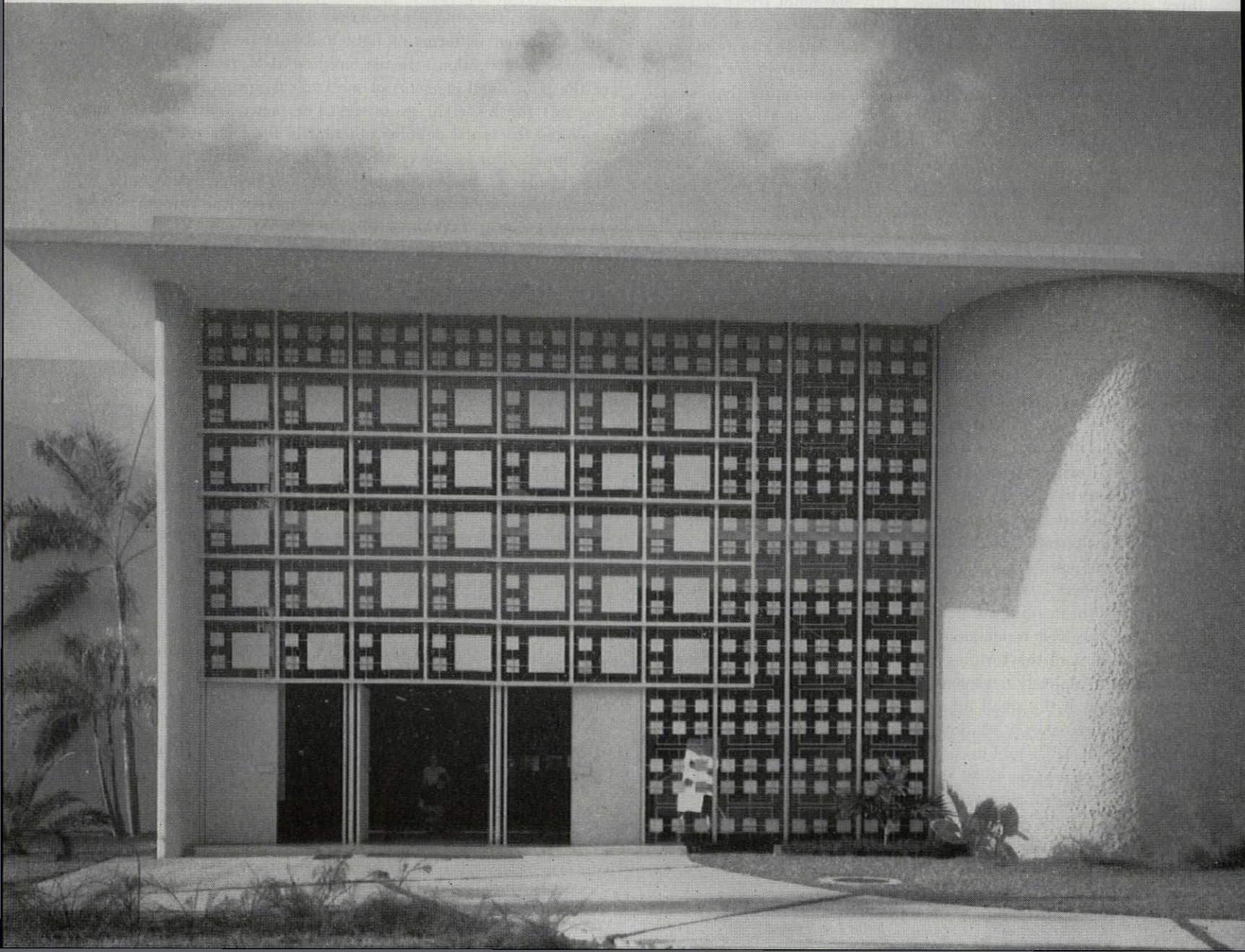
*J. Alex Langley*

## HENRY KLUMB FINDS A



**His home** is a porch house

**His style** is concrete and openness—library entrance, University of Puerto Rico





# ARCHITECTURE FOR PUERTO RICO

**A Wright student develops his own regionalism under the warm influences of the Caribbean**

A few days before Christmas 1943, when he was in Los Angeles working with the city planning commission, Architect Henry Klumb received a long-distance phone call offering him a job with the committee on design for public works of Puerto Rico. "What?" he asked.

"Henry," the friend who was calling said, "Come on. Everything you design will get built." To Klumb, as to any architect who had trekked across the construction desert of the depression thirties, this was an electrifying statement. With his wife and two sons he set sail.

A few days later they arrived in Puerto Rico, a naturally rich, economically poor island on the edge of the Caribbean, a place of paradoxes. It was a land with a strong Spanish tradition which was eagerly becoming Americanized, a natural agricultural tract which had to import food to supplement its people's sparse rice, bean and codfish diet, a place of many workers but little industry, an island which simultaneously was in a boom and in impoverishment—a colonial island in transition.

Klumb's job was with the insular government of the territory. In building, the big need was schools and hospitals, and Klumb was put to work on schools. There was a poverty of both money and materials; he had to design one rural school budgeted complete at \$800. But his friend was right; almost everything that came off his drawing board was built. It was not long, only a little over a year, before Klumb began planning to open his own office, to settle down permanently in Puerto Rico, and soon he got the chance. His first big commission was the seven-story New York department store and office building in San Juan. Eight years later, Klumb is still busy. He has a staff of ten, and has never been without a backlog. His important clients still include the local government, in particular the commonwealth's University of Puerto Rico.

## **Spanish colonial, strong sunshine and FLLW**

Today, at 49, Klumb is a good example of the effect of environment on the architect and on his architecture. He was born in Germany, and still indicates it faintly in his inflections. He left Germany in 1928 to spend five years working with Frank Lloyd Wright in the American Midwest and Southwest, and his buildings show the basic strength he acquired there. Leaving Wright to go on his own in 1933, he survived the depression with an attitude which reveals both obstinacy against artistic compromise and a willingness to work within any given set of conditions—a personality which appeals for agreement, rather than demanding it.

Klumb has needed all his powers of adaptation and persuasion in his practice on Puerto Rico. He was not the first, nor is he by any means the only, modern architect on the island, but all new building ideas still are up against a colonial Spanish tradition there, which insists that buildings should be heavy, that they should be broken up into many separate rooms, and that they should be

formally enclosed. Klumb's ideas attack these traditions. He has built open plans with open walls, drawing the trade winds through the buildings. Windows are few in these buildings, jalousies are standard.

The pictures on these pages tell better than words how his buildings differ from his beloved master's, Wright's. The first obvious difference is that there is less ornamentation. Even in the strong sunshine of the island, Klumb's work throws fewer intricate shadows than Wright's. The shadows which do fall across the surfaces of his walls are mostly textural, not patterned. Similarities to Wright in his work are less obvious, but equally strong. They are most marked in quality of open planning.

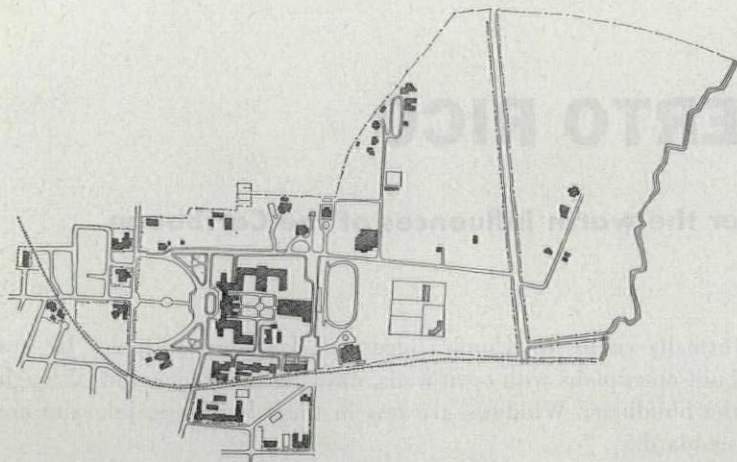
## **Open plans, simple finishes**

No more complete example of the openness of his designs is available than the house in which Klumb himself lives. When he bought it, it was a conventional frame house with a porch around it, standing in the center of a small jungle, a seven-acre park of rich tropical plants—bananas, mangoes, avocado trees. Each year that Klumb has occupied the house, however, he has knocked down more walls, until today you can see through it from any side. It is almost a porch (photos, left); the real exterior boundaries are the dense, leafy plants thrusting up at the edge of the raftlike floor. Sitting listening to Beethoven singing out of the several loudspeakers Klumb has stationed about, you can sometimes reach out and pick a banana. The sudden tropical downpours just add to the magic of the nonconfining shelter, lashing down outside the boundary of the overhang. You turn the amplifier up for the music, and sit and watch the rain and feel its coolness as it drives down like a waterfall.

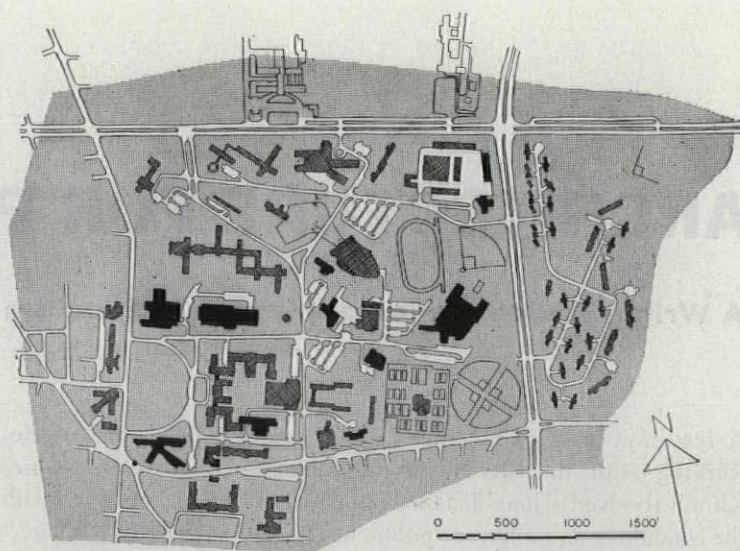
Klumb has also brought this openness to his larger buildings, like the library he built for the University of Puerto Rico (left and p. 125) on whose campus most of his larger work can be found. He is author of the long-term development plan for the university, in itself a good example of how to liberalize a stiff, symmetrical campus plan without losing the old buildings (p. 124).

The lack of complexity in finish in Klumb's work is partially to be explained by his construction methods. Almost all his buildings are concrete, plastered for finish. There is a simple reason for this: Puerto Rican workmen are good with concrete, poured in place. Klumb found this out soon after he had arrived in Puerto Rico and had specified some precast concrete fins on a building. Instead of precasting as specified, seemingly the simple way, the contractor put up elaborate formwork and poured them in place, then shrugged when questioned about it. Because T & G plank-ing is still used for formwork almost exclusively on the island and because concrete color varies from batch to batch, the contractors also prefer to plaster the completed buildings. Klumb goes along. "We do it their way."

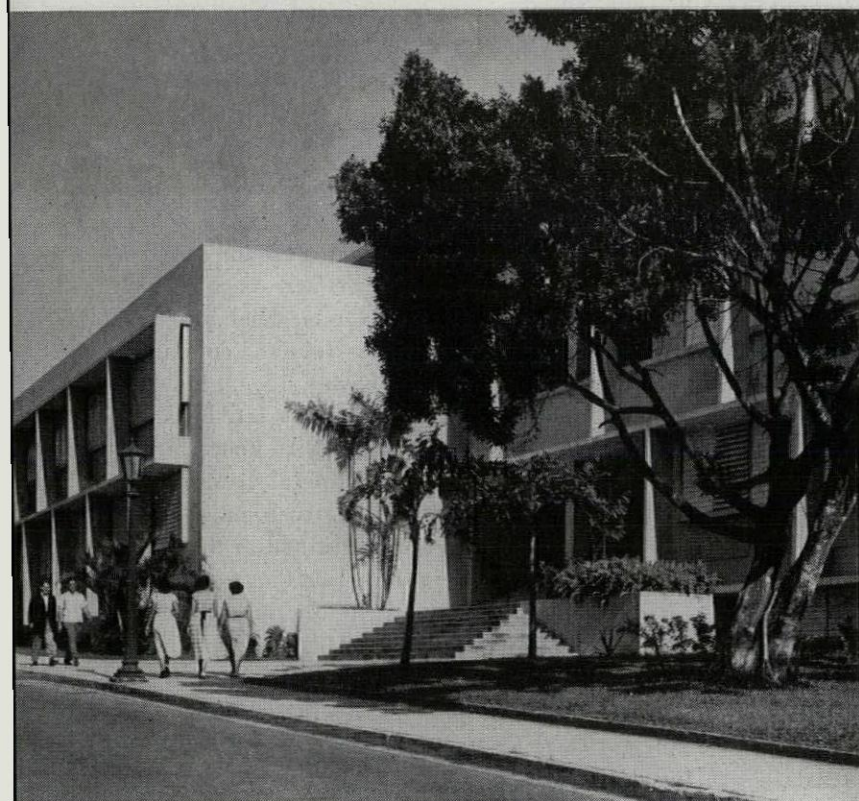




**Original plan** of University of Puerto Rico, before Klumb became master planner, was rigid, classical arrangement of buildings—beginning of arrangement of multiple, closed courts.



**Klumb's plan** for development loosened organization without chaos, and angled axis of many buildings to make use of prevailing wind across campus.

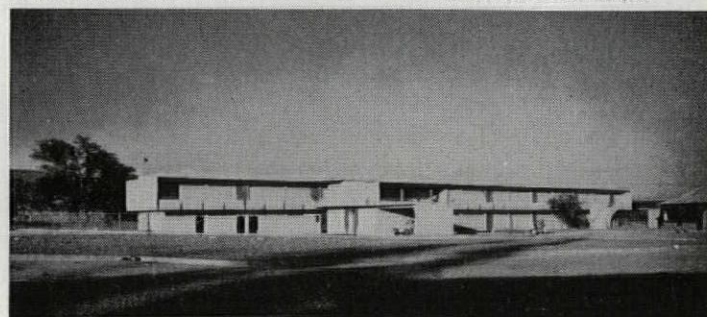


**Science building** at university deflects breeze into classrooms with exterior fin structure. Slots at sides are to eliminate wind scream.

Educational assignments have ranged from tiny to big. Klumb's least ambitious jobs architecturally have been most important socially: little one-room rural schools consisting virtually of a roof raised up like a canopy on permanent posts. His most ambitious job has been the master planning of the university.

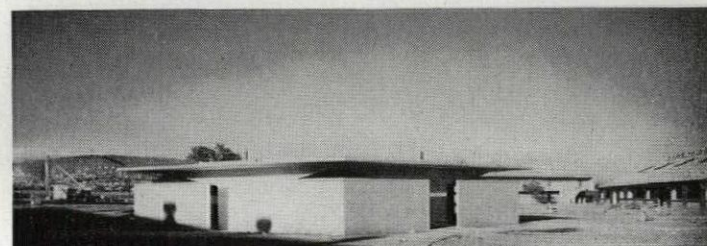
## Klumb's material, concrete, makes his

Photos: (above) Samuel Santiago; (below) © Ezra Stoller; (opp. p.) J. Alex Langley



**From other side**, vocational school reveals outdoor corridors, hung like balconies on second floor, allowing cross-classroom circulation.

**Washroom building** for vocational school has cantilevered slab roof over the walls which screen entrances.

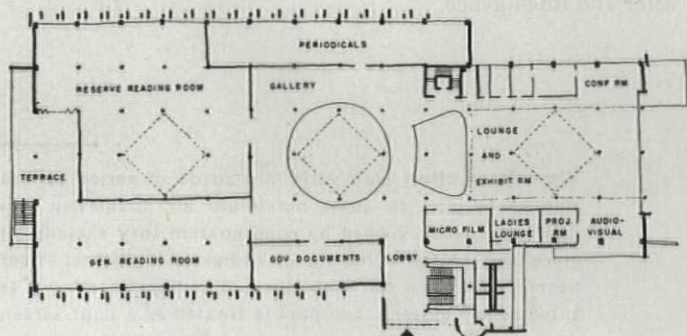


**Vocational school** bears cast ornament. Long window is screened with adjustable louvers, as are most of Klumb's buildings.



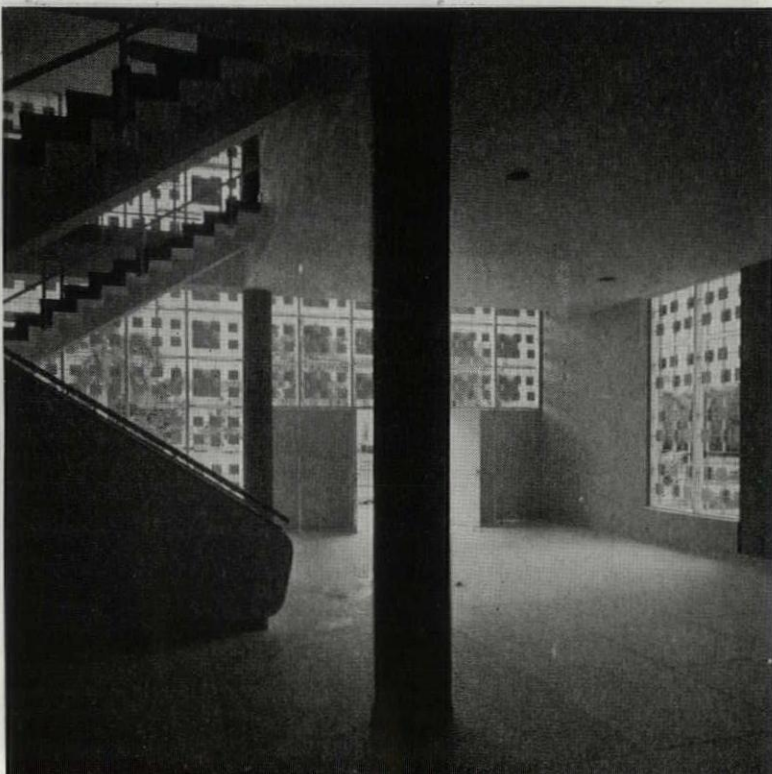


## architecture planar, simple in form



**University library**, viewed from above circulation desk, is easily supervised from central point. Reading rooms seat 1,600.

**Entrance lobby** of library (see also exterior photo, p. 122) is enclosed with screen. No solid exterior wall is necessary in Puerto Rico's gentle climate; only stacks are air conditioned.







Dominican church emphasizes entrance with complex of intersecting planes

## Klumb's openness, even in church walls, makes his designs buoyant



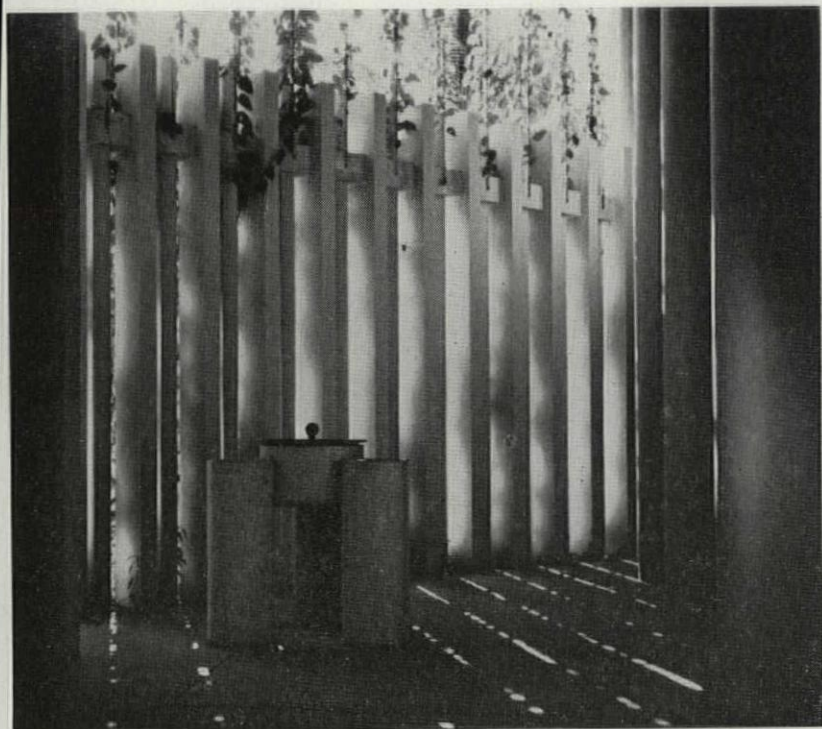
**Nature** is never forgotten in Klumb's work. Coarseness of stone and tropical foliage complements smooth finish of concrete walls.

Klumb's outstanding religious assignment has been this charming church for the Dutch Dominican Brothers, led in Puerto Rico by intrepid Father Maas, a priest of strong character and intelligence.

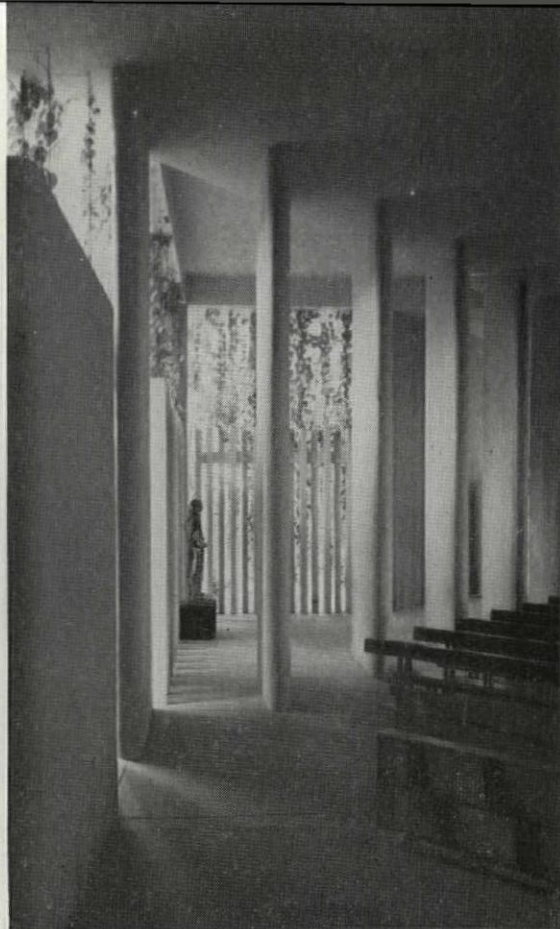
→  
**View from altar:** side walls are made of series of fins slanted in plan to allow maximum air circulation and light. Yet when viewed by congregation they exclude all glare and create a feeling of complete enclosure. Roof beams are atop a flat slab, leaving ceiling smooth. It is tilted gently upward, and part is treated as a light-screen with glass block.

Photos: Maria Luisa Padilla;  
Samuel A. Santiago; J. Alex Langley





**Baptistry:** vined framing is only enclosure, gives pleasant lighting in church. Wires supporting vines are delicate elements of pattern.



**Side chapel** is visible from church through structural fins. Klumb designed mahogany pews.







INDUSTRY

SERVICE CENTER

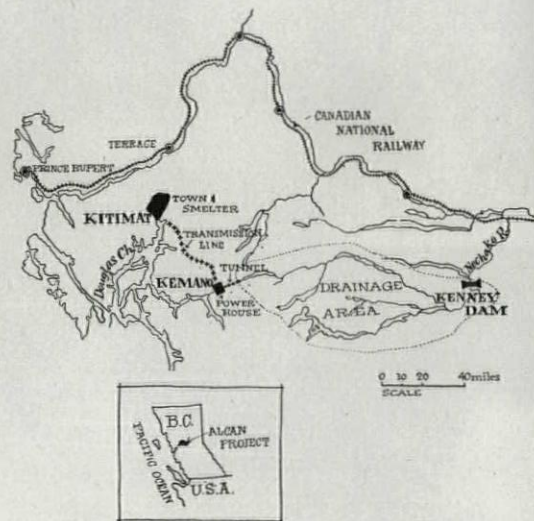
## Industry builds **KITIMAT**

**People make cities.** In the process, people use so many complicated instruments that the direct connection can get quite lost between the city as built and the city as people really want it.

Rarely does the process of city building start fresh. Usually there is a city already on the spot, or another close by, that distorts the calculations.

To conceive a city directly for the people in it, and to start fresh, the planner likes to dream of building on an island or in a wilderness, under conditions of pioneering. Strong new city-planning ideas sprang up in the young American colonies in the wilderness, and later on in the West, under strong men.

The combination of a pioneering wilderness site, and a statesmanlike promoter, and planners not only interested directly in people but skilled in their craft, happens only with great rarity. It has happened on Canada's western coast, at Kitimat in British Columbia. And that is why FORUM is privileged to present a first complete twentieth-century "new town," completely new, completely modern, in North America. Every word in that long list of adjectives is necessary to the description.







CITY CENTER

TOWN SITE

MINETTE  
BAY

## —first complete new town in North America

**E**VEN were there no new town of Kitimat at all, the story of the Kitimat power development would be fascinating as a saga of pioneer engineering.

High up in the coastal range in British Columbia, tantalizingly close to the Pacific Ocean waterway but separated from it by the Cascade Mountains, the Aluminium Company of Canada viewed the Nechako River and its tributaries—a basin of some 50 snow-fed lakes whose water, and vast potential water power, was being carried off uselessly into the wilderness to the east. So Alcan, under President R. E. Powell, undertook the daring scheme of damming up the roaring Nechako River with the great Kenney Dam (third largest rock-filled dam in the world) to the east, drilling a 10-mi. tunnel through the mile-high western mountains to their western face, there

letting the water of the great new storage basin drop 16 times as far as Niagara Falls to a powerhouse at sea level at Kemano, then carrying the power over mountains and glaciers 50 mi. to Kitimat, where the Kitimat River flows into the Kitimat Inlet. Here Alcan started what will ultimately be the largest aluminum smelter in the world, with an ultimate capacity of 550,000 short tons, using water-borne alumina from Jamaica and shipping ingot out again from the ice-free harbor.

Steady workers would be needed for so vast and permanent an installation. Men must be ready to come and stay and bring up their children. For this there must be more than a city of homes—a home city for industrial workers, to hold them securely content and endeared to it as a community.



## Why is Kitimat, far off in the wilderness, so important to town planning in settled areas?

The first reason is that the wilderness, far from complicating the basic problems, swept away the usual complications that are basically irrelevant. The second reason lies in seven favorable circumstances which Planner Clarence Stein listed under seven P's:

**The PROMOTER**, Alcan, has brought into the "new town" equation an element all too often missing in fully planned "new towns"—*strong industrial sponsorship* which looks to continuing economic stability for the town.

Alcan is indeed, by its size, statesmanship and experience, an unusual industrial sponsor. Its managers have already done town building at Arvida, Isle Maligne and other places world-wide.

They are old hands at pioneering and exploration.

They decided on a democratic public town, *not* a company-operated town, but were ready none-the-less for the ticklish operation of initiating, before a town existed, all those broad provisions that a rounded town would need to start with.

They didn't "know it all," but sought the best planners at the outset so later events would not be handicapped by unwise early decisions.

They accepted the idea of operational plans as part and parcel of physical plans.

And they retained their planners on a continuing basis, after the master plan was complete, to insure smooth operation.

**The PURPOSE** of Kitimat has accordingly been clear, limited and simple, restricted enough to be workable, in contrast with "new towns" too vaguely based on well-meaning theory.

The basic purpose had to be a town so attractive that it would draw workmen with their families, for permanent residence, against the wilderness drawbacks of "remoteness, strangeness and climate."

**The PEOPLE** and their needs were therefore made the focus of study, rather than the customary institutions. This led to many revisions in the planning of institutions, and sometimes in the concept of them.

**The PLACE** was sufficiently difficult to demand the kind of close study that is rarely given to natural elements such as topography and weather, yielding many results of general significance. Yet the wilderness character also guaranteed a *clean slate* free of confusing and basically irrelevant complications such as competition from nearby existing communities.

**The POLITICS** of British Columbia were favorable to long-term action: a deputy-minister form of administration afforded a high-type and long-term kind of specialist to deal with.

Kitimat's planning included the political framework to insure its transfer to the citizens, so they will run the town themselves.

**The PLANNERS** chosen were architect-planners. As contrasted with statistical or administrative planners they were uniquely equipped to handle an operation not ready-made, and to couple the program, the *functional* (or operational) plan and the *physical plan* at every point of development.

**The PLANNING METHOD** involved a new and modern use of experts: a unique double command was set at the head—a consultant and his aides concerned with over-all policy and guidance only, paralleled by a physical planning team concerned with implementation. Both were greatly aided by a company planning division created for liaison and continuing action.

A special type of leadership was evolved, where all experts were interacting together all the way, instead of following one after the other in the usual manner, which binds each to *faits-accomplis* by his predecessors.

Economy of research was possible because the leaders were men of broad experience.

And finally, as reported, continuity was assured by retention of the planners as consultants.



## THE PLANNING TEAM

### CLARENCE S. STEIN

coordinator and director  
of planning;  
Roger Willcox,  
assistant to Mr. Stein

### MAYER & WHITTLESEY

architects, engineers and  
town planners;  
Albert Mayer,  
Julian Whittlesey,  
M. Milton Glass

Besides the seven advantages listed, Kitimat has an underlying philosophy. Many new towns have been improvised very creditably, but have soon revealed serious deficiencies for a lack of comprehensive thinking. Kitimat represents the work of experienced and highly practical planners, but with the difference that their life work has not been opportunistic. They have consistently sought the development of a comprehensive modern town planning philosophy, based squarely on the concept of a better life in terms of the twentieth century.

Kitimat's ancestors as to basic planning concepts include the garden cities of England, the Radburn idea, the Greenbelt city, and the neighborhood unit idea of a human scale of community relationships and activities.

**England's Garden Cities** are planned today with room for growth at all times, until the ultimate designed size of the city is reached—after which both natural limitations and design will push any further expansion into *another community* some distance off.

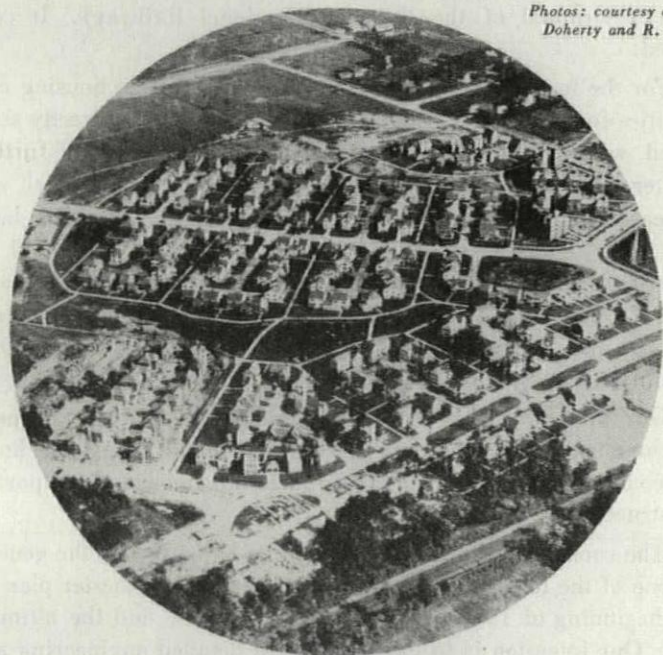
**The Radburn Idea**, first executed under great handicaps at Radburn, N.J. just before the great depression, is largely concerned with a "town for the motor age," separating different kinds of *traffic* minimizing today's interference and danger: guiding through-traffic so as to by-pass as much as possible the activities of the locality; decreasing the number of traffic streets by arranging dwellings in superblocks on short, inexpensive driveway patterns in place of the costly and dangerous gridiron pattern.

**The Greenbelt City** shares the Radburn traffic plan but emphasizes that a city should be preplanned to a maximum growth and surrounded by a permanent forest and farming greenbelt which is not to be violated by amorphous strung-out development.

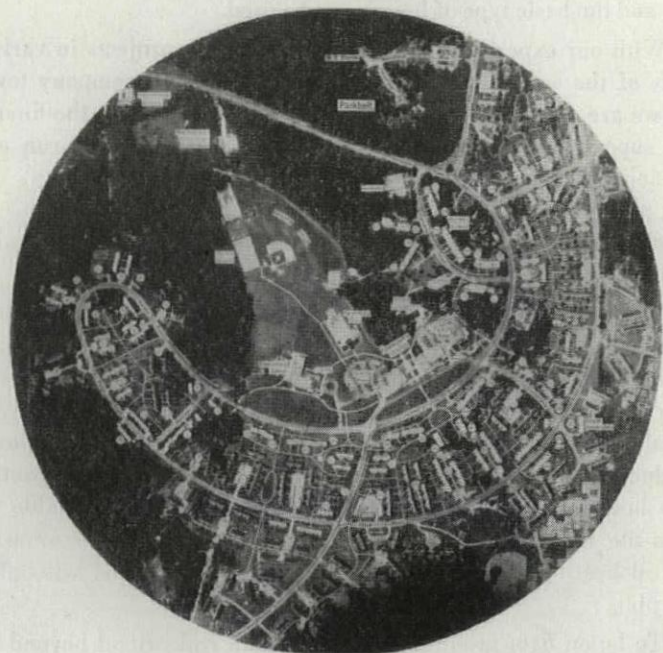
Perhaps a still more important key element is the central green. Residential areas have been turned inside out so that (in the full development at Kitimat) every home *and* store *and* community building faces toward peaceful open spaces, removed from intrusion and hazard by the automobile. These central greens form the core of great superblocks, through which pedestrian paths quickly link homes with parks, playgrounds, schools and shopping centers. Greens and superblocks vary greatly in size and character to serve the topography and other conditions of the site. (Photo shows Greenbelt, Md.)

**The Neighborhood Unit Idea** brings one or more superblocks into an organized neighborhood. Homes in each neighborhood share such centers of daily use as local stores and elementary schools.

Photos: courtesy of C. F. Doherty and R. B. Hall



RADBURN, N.J.



GREENBELT, MD.



## The PROMOTER and his PURPOSE

From the start, Alcan divided its program into physical planning and social planning.

**Physical needs** were covered in the initial statement of the company, which described the industrial geography already outlined (adding the fact that a rail spur and highway will ultimately connect Kitimat with the town of Terrace, 40 mi. north, which is the western terminal of the Canadian National Railway). It continued:

"For the initial phase, we have in mind permanent housing and facilities for upwards of 1,000 employees who will be directly associated with Aluminium Company of Canada, Ltd. As further smelter capacity is authorized by the company, personnel will increase to an ultimate of about 6,000. From the outset, we hope that other industries, such as a pulp and paper mill, will be erected there concurrently with the aluminum smelter. [The town is to be successively enlarged as new increments of power are brought in.] In the end, we envisage a community of 30,000 to possibly as many as 50,000 persons.

"Our present plans call for the initial phase of the townsite development to be completed by early 1954, but permanent housing could be used next year to minimize the amount of temporary construction. . . .

"The consultant will have to determine by early fall the general outline of the townsite and to complete the general master plan by the beginning of 1952 for both the initial phase and the ultimate city. Our intention is to have the actual detailed engineering and architectural work done by firms in Canada. We shall expect the master plan to show transportation and utility analyses, shopping center, civic buildings, schools, churches and recreational facilities, and the basic type of housing to be used.

"With our experience in developing housing projects in various parts of the world, our intention is not to have a company town, but we are prepared, if necessary, to enter heavily into the finance and supervision of the town to see that it is properly run and developed. . . ."

**Comprehensiveness and completeness** of physical planning from the start were stressed by the planners in their reply:

"We would like to base the master plan upon the total industrial potential of the site, the port, and the total available power. Accordingly, we will examine the industrial potential closely with your company and define at the outset the total economic and social profile for Kitimat. We will not be concerned with power production or transmission of industrial power except as its routing may bear upon the plan. Power as it may become available for intra-site transportation, and even possibly for central or semi-central heating will, however, be of interest to us and will affect our plan.

"To be on firm ground, our master plan will extend beyond the residential town and its commercial area, taking in all facilities with which Alcan is concerned. . . ."



Alcan on reconnaissance: (l to r) S. W. Whitaker Jr., vice president; P. E. Radley, manager of Kitimat project; J. S. Kendrick, chief resident engineer, Kitimat project.

**Social needs** were more closely detailed by the company's vice president in charge of Personnel, J. B. White, in a British Columbia speech:

"No modern large-scale business can be successful without a loyal, competent and happy work force. . . . We want the very best possible living and working conditions at Kitimat. . . . We are not real estate operators nor are we politicians. We are not seeking to make money out of townsite developments nor do we wish to run a company town, but we do want the future residents to enjoy adequate town planning and community development.

"We are interested in building neither palaces nor monuments but we are extremely anxious to avoid a shack town. . . . We must not be extravagant or encourage the community to be extravagant. Through proper planning we will try to avoid many needless mistakes and expenses of haphazard growth. . . .

"Once under way the destiny of the town will be in the hands of the local citizenry. . . .

"Whatever the outcome, the company's responsibility will decrease over the years until it occupies a position similar to any other reliable and responsible citizen. . . .

"We want to see housing standards meeting National Housing Act requirements. We don't wish to provide or build housing ourselves. We hope we can induce contractors and private builders to build all the houses. That of course is difficult, and we may not meet with success. There are not many builders, even including government and other lending institutions, prepared to finance and erect the required housing in a new community of this kind. Nor will many of our workmen likely have the money initially or the desire to build houses for themselves. We know that many people will be anxious to build substandard houses and will be distressed with us when they are not permitted to do so.

"While Kitimat will most likely remain predominantly an aluminum producing center, we are anxious to attract to it other industry as well. It is a natural location for industry based on timber resources of the countryside. Substantial areas in the community have been set aside for light industries.

". . . Kitimat plans contemplate reservation of large areas for public parks, playgrounds, recreation; central recreational areas will occupy about 50% of the land."





**THE REAL "CLIENT" at Kitimat was a compound group extending well beyond the company;  
and linking this client with the plans was an important element of the planning technique**

Let us see who is the client. Initially, planning policy decisions, and the employment of the planner, are the functions of the high command: president, executive vice president, general manager of the industry. These are busy men whose interest, once the few basic decisions are made, is hard to retain. Yet if it isn't actively retained, there is one strike against the plan's vital career. In the case of Alcan, the "head office" men stuck with us, argued across the table, understood, participated, were co-planners.

But in fact and in actions Big Industry gives the men on the ground very great leeway. Unless they too are vitally in the picture, there is a second big hole for the plan to drop through. These local men are generally not involved in the earliest stages; but the maximum of overlap and of joint meetings is essential. These men are often even busier than the top men; they often feel initially that planning—other than industrial process planning which they are very keen on and good at—is a frill; and that when the time comes later for really doing the job, they will know what to do.

So, there are two principles: keeping up the initial interest and participation; and involving each successive group before the preceding one has finished its part, has made its decisions. And, the

subtle difficulty is this: in the early stages, especially, practically everyone is only too glad to leave the planning to the planners (isn't that what they were hired for; and isn't it flattering that the planners are so well thought of?). But this is not nearly good enough. Their allegiance to the plan and its evolution must be deeply achieved at this stage, and their contribution really built into it. Otherwise, when they finally come in heavily—i.e., when the bulldozers begin to move—the plan which had such smooth sailing before the chips were really down will be an early casualty.

Then, there are the provincial and state officials. Obviously their policy approvals are indispensable, their departmental approvals essential. But here again, this basis is too thin. This might be called the negative or barely minimal side. This new town has got to make a deep indentation on their imagination, has got to become their baby. The school system, the public health system, the recreation system must be a real marriage between their ideas and the planners'. Otherwise, the innovation, the new ideas, the distinctive and important features, whose conception and development were so exciting, will water down in practice into a soggy routine solution.



THE REAL CLIENT *continued*

Who else is the client? The client is also the new city's officials: the reeve, the city manager, the superintendent of schools. In the case of Kitimat, this part of the client group did not appear until the plans were pretty well finished and the reports were written. Not enough overlap, but it couldn't be helped. There had to be ex-post-facto correlation, meaning a lot of homework for the officials, which they did conscientiously and creatively, and a lot of conferences to go over matters point by point.

And last, the client is the people and their council, who weren't there until later. With them there was need for similar participation, similar study and discussion, and adjustment and agreement. The final stage, or rather the final stage before the plan is actually put to work and actually becomes part of the life of the people, is its formal adoption and the framing of "bylaws" to implement it in detail.

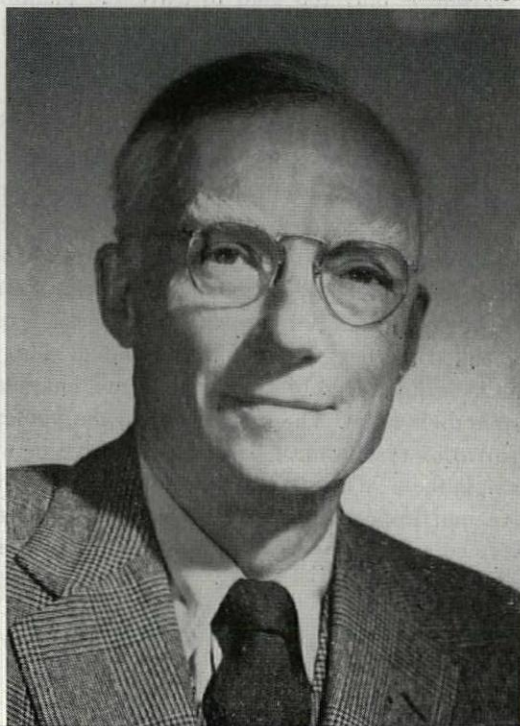
Every step in this human adventure of plan development is essential, and is deeply rewarding. Without it, the plan has no life, and is subject to the most arbitrary treatment or neglect. But if the human job has been done well, the plan will be understood, valued, defended and *carried out*. This is not to say, of course, that its every detail is eternally valid, no matter how many people have participated in it. Built in it are flexibility and the means for adjustment. But basically it is there to stay. And in no less painstaking a way can we be sure it is there to stay, to guide.

We were lucky that our multiple client was willing to make the whole adventurous trip with us, that there was a reasonable though varying degree of overlap and continuity as the dramatis personae of the clients changed. It was particularly lucky and important that the planners have been continually retained since the completion of the master plan in 1952, as consultants, interpreters of the plan, coadjutors of unexpected situations, including last-minute topographic surprises.

This carry-over of the planner's services by a continuing annual retainer is particularly valuable. It means that the planners are freely called upon, that the joint participation continues fruitfully, that the full joint original team is still in action as the plan changes from static paper to dynamic development.

Arnott & Rogers

Alcan's  
President  
Powell



**Planning purposes summarized.** Here was Clarence S. Stein's initial interpretation of Alcan's purposes, which led to the selection of this group of planners:

The purpose of Kitimat is the industrial success of the plant. That success will depend on the degree that workers are content, that they like living in Kitimat. Unless the town can attract and hold industrial workers, there will be continuous turnover and difficulty, interfering with dependable output.

The workers must find Kitimat more than temporarily acceptable. They must be enthusiastic about it as a particularly fine place in which to live and bring up their families. It must become the place they want as homeland, the town they are going to make their own.

There is much to contend against in making this possible, including climate, remoteness, strangeness.

There is the weather—seemingly incessant rain, snow, winds. There is strangeness—and wilderness. There is remoteness from all habitual things and places—old friends, markets, customs. There is the counterattraction of the big city with its varied life and entertainment, and the chance of easily getting another good job.

Men will pioneer for a time in the wilderness for good pay and plenty of good food and a free trip every two months. However, labor turnover is incompatible with an efficient plant, particularly in an industry that requires lengthy training for its workers.

At Kitimat the setting for a good life must be hewn out of the unknown wilderness. Pioneers must become old-timers, bound to Kitimat by enthusiastic love of their town and its unusual qualities. They must be given the utmost freedom to develop their lives and that of their community to fit their needs, their desires and their pocketbooks. And so the plans of Kitimat, both operational and physical, have been developed to serve as a flexible setting for good living that is open to continuous growth and expansion.

#### Among Alcan officers who gave their time generously were:

##### In Montreal

R. E. POWELL, *president*  
A. W. WHITAKER JR., *vice president and general manager*  
McNEELEY DeBOSE, *vice president*  
J. B. WHITE, *vice president and director of personnel*

##### In Vancouver

PERCEY E. RADLEY, *manager, British Columbia project*  
J. S. KENDRICK, *assistant manager, B. C. project*  
J. S. SHAKESPEARE, *manager, B. C. properties*

Liaison with the planners and within the company

JAMES E. DUDLEY, *manager of real estate and development for Kitimat*

Within the provincial government there was close cooperation and participation of various departments, among them:

Department of Lands and Forest  
Department of Municipal Affairs  
Department of Education  
Department of Health and Welfare  
—whose ministers, deputy ministers and staffs conferred closely with the planners and with Alcan.

There were similar close contacts with the Kitimat municipal government represented by W. H. SPARKS, *reeve*, and CYRIL McC. HENDERSON, *city managers*.





Kitimat Arm viewed from above townsite

## PEOPLE and PLACE

Not the least important contribution to the town planning was retention of Sociologist Lois Barclay Murphy to help solve problems of family life in the isolated Kitimat valley.

Women and children were the ones Dr. Murphy concentrated on: "frustrated and cross children drive their mothers crazy; cross wives frustrate their husbands."

Among special assets of the area for whole families, Miss Murphy listed first the "varied terrain," with woods and hilly ground to be salvaged for beauty, exploration, hiking; plentiful wood for fireplaces and picnic fires to be had from trees marked for clearing; brooks to be dammed for fishing, boating, sailing, or raising ducks and geese; wild country to invite hunting, fishing, skiing, photography. (Houses, she remarked parenthetically, must provide plentiful storage space for gear and tackle.) Next she listed as an asset the chance for flexible planning: the chance to use the lessons of the first stage in later stages.

### For adults: cultural resources

Among special problems of a pioneer community she stressed isolation: the distance from other towns, absence of a metropolis, big stores, zoos, museums, theaters. Loneliness of adults might well reproduce symptoms from North American pioneer life of the nineteenth century: aggressive roughhousing, brawling, disorganized sex behavior, especially if the settlement were made quickly and by lonely, unmarried men. Other drawbacks: the monotony of life in a town largely dominated by one industry, the rainy weather (calling for extra areas under cover), and "the lack of wealthy, public-spirited citizens to endow a library, a zoo, music, art, a theater, a museum and the like. This will require special planning by the industry to provide cultural resources."

Leading from the home outward she proposed measures

"beyond building": a plane service to Vancouver for excursions; roads into surrounding hills and woods, with hunting lodges, ski lodges; a local radio station; for children a local "habitat" museum such as Bear Mountain has to aid in learning of animals in the area; and even a work schedule letting fathers of young children be free for late-afternoon, early-evening family life. And care in selecting the first families whose tone would set the atmosphere of the town.

### For children: a sense of participancy

The theme of "leaving unfinished areas for initiative" was a recurrent one in the report, because this would let the inhabitants participate, using their own imagination and initiative; it was stressed especially for children. Among the "recreational" needs listed for children (there was an adult list too) there were two kinds not listed very often today: 1) the inclusion of natural expedients—trees to climb on, not only jungle gyms; stone walls to walk on, not only areas of asphalt; 2) a chance for children to associate themselves with adults in producing things needed. Listed as a major contributing cause of today's juvenile delinquency was the fact that today's city children, no longer depended on to drive in and milk cows, to feed the pigs, to churn the butter, have lost the important sense of being genuinely needed. This led to suggestions for the initial planning of school and high school on lines already successfully laid down in certain eastern boarding schools and colleges which do not wait for remedial action but let students alternate learning in class with learning through useful work within their capacity, so they early get the sense of *participancy*. This document clearly influenced the plans for Kitimat's ultimate school system.



PEOPLE and PLACE *continued*

Forest, river, wind and weather were each of concern in planning. The forest had uses while presenting dangers and obstacles. So too the river, and the weather. Each is related to the other and had in turn to be related to the city. To work wherever possible with, rather than against, these elements is not only practical but likely to be more rewarding.

**How to work with nature**

Even a cursory examination of the river revealed its wayward habits and promised violences to come. Of these it gave vivid demonstrations in due course—rising, for instance, some 15' within a few hours one night and driving encamped surveyors up into the trees. Expert advice was sought from Kenneth W. Ross. Flood potentials were estimated—there being no records, except physical clues observed in the valley itself. Directional tendencies were studied and maximum floor-heights computed at various points, taking account of speed, slope and friction coefficient.

A flood plain was planned to provide this excitable river sufficient elbowroom, while retrieving valuable land which its slews need no longer invade. Constriction of the river was nowhere attempted except in leading two dangerous tributary mountain torrents laterally across the industrial site. Thus was avoided one of the great sinkholes for spending public money, like the endless levees of towns that too closely hug such rivers as the Mississippi. Estimated flood elevations called for further raising of the industrial plant site, and established safe heights for the service center, for protective levees and adjacent roads, and for the bridge. The extent of open trestles needed to relieve constriction at the bridge approaches was figured and planned. We trust that the river will honor the pact drawn with it and not rise or plunge aside in anger. (Cities built too close to rivers deserve the floods they get.)

**A pact with river and forest**

The forest is involved in this river pact because it provides an essential sponge in the flood plain and controls runoff above it. Loss of the forest would upset all flood estimates and incite the river to take out the bridge, jump the levee, inundate the service center and perhaps the smelter. The last, charged with electricity, must be assured a dry substructure at all times. A shut-down is expensive, even damaging.

Various factors lend some assurance that the forest will be kept to play its part. The valley and water shed are by and large crown land controlled by the province. Lumbering is by forest license from the province and this today assures crop yield practice rather than devastation. Furthermore, where crown land is released to private ownership, its use is subject to provincial approval after giving due weight to the views of other landowners affected. Further assurance is possible by establishing the Kitimat valley as a regional planning area under a regional planning board on which the provincial minister of municipalities and affected municipalities and unincorporated areas are represented.

The forest gives way to the town's expansion in the following planned sequence: at the start much of the land within the municipality, including the city's greenbelt, is under forest license already. The permanent greenbelt will for the most part continue to be operated as forest and is municipally zoned for forest agriculture use and recreation. Permanent parks in gullied areas and

on steep slopes between neighborhoods are withdrawn from crown land status and released at the outset to the municipality. In these parks the forest remains intact unharvested, except as cleared for dramatic views of Kitimat Arm and to the surrounding mountains. As further land for the town's development is required, it is released from the reservoir of raw land, meantime available for licensed forest operation, and municipally zoned for forest agriculture use. Release is by units, each comprising a complete neighborhood district. Once released, each unit is further zoned into detailed neighborhood-use areas referenced to the master plan. Here virtually is a case of planning on green paper.

**Problems of sparing trees**

The forest, on the other hand, can be a tough obstacle to development. Dense hemlock, balsam and spruce from 80' to 150' high and up to 5" caliper are foreign to the domestic scale. They are unfriendly in shutting out light and view besides presenting great danger. Not being wind-firm, they thunder to the ground when wind penetrates thinned or cleared areas. Total clearing, when clearing at all, is hard to avoid. Exceptions to this require careful planning, as along roads and edges of clearings. Where isolated forest masses are retained, they must be sizable and lozenge-shaped to meet the wind. The expense of clearing, burning and grubbing is not less than \$1,000 per acre and may be several times this where clearing is done selectively to retrieve merchantable lumber or to suit landscape objectives.

What Kitimat needs, after due clearing, is new trees and plenty of deciduous ones of friendly scale. A pilot nursery for trees and shrubs was early established at Kitimat on the planners' recommendation. During our early and arduous foot explorations of the site, Dan Kiley of Vermont found abundant evidence of the many varieties of trees and interesting plants which would thrive.

Climatology, on which Dr. Helmuth Landsberg was consultant, was closely related to landscape design and plant ecology. Microclimate analysis favored some parts of the town site over others. It disfavored the western end of the site in the path of damp airs and winds funneled along the river. The topographic complexity of this area had already defied efficient development planning, including practical school districting. So it was disqualified.

**Wind and the site plan**

Microclimatology, landscaping and site planning were allied in several ways. An instance is the arrangement of trees to form windbreaks and arrest drifting snow on the high, exposed western ridge in the first neighborhood. Street pattern, wherever possible, was designed to break up wind and drifting snow. Diagonal alignment to the prevalent north and south winds was the preferred rule.

The concept in all this work is that good living be brought close to nature in the daily life of people. This can, however, be carried too far, especially in British Columbia where many a native wishes to put nature at arm's length, rather than keep it in his hair. Evidence of cultivated land lends a sense of security in the midst of wilderness. Inclusion of an agricultural area, and of allotment garden space, contributes to this at Kitimat. To achieve domestic scale, security, some urbanity, yet with nature retained close at hand, is a matter of delicate balance.





Clearing at the city center, working up to the first neighborhood (to be described in the next issue).



Clearing "matchstick" or "dog hair" timber out of the first neighborhood, looking toward the city center.

## Political and social background of British Columbia

British Columbia is a rapidly growing, mountainous, pioneering province. Its land area, nearly half again as large as Texas, is furrowed and ribbed with jagged evergreen-covered ranges. Its population, though increasing as rapidly as California, Washington and Oregon, was still only 1,138,000 in 1950. Of its residents, 80% live in two areas—Vancouver with a metropolitan population of 800,000, and the capital, Victoria, with a metropolitan population of over 100,000. Elsewhere there are only small towns, the largest less than 15,000 population, still tenuously linked by only a few first-class highways and railways. Its biggest industry is based on its timber—logging, pulp, paper, plywood and cellulose. Mining, fishing and farming are its other major occupations.

Warmed by the Japan current, the coast seldom has snows at sea level. But the mountains overlooking Vancouver and Victoria are capped with snow, and inland from the jagged coastline it gets much colder in winter.

Since World War II ever greater numbers of people have migrated from the plains provinces and elsewhere. Perhaps 70% are of British extraction, Scotch and English predominating. The three major churches are Anglican, Presbyterian and Roman Catholic, in that order.

The population is generally young and energetic, looking forward to the province's expanding industrial future. Its politics are touched with the experimentation in social advances of Saskatchewan and Alberta.

The government of the province is organized on the parliamentary system. Over the elected legislature rules a cabinet whose premier and ministers take charge of policy for the various branches of government as long as they command a parliamentary majority. Day-to-day affairs are in the hands of professional civil-service, headed up by the deputy-ministers.

Municipalities are granted specific powers by or under the supervision of the provincial government. The voluminous municipal act, to-

gether with the school and health acts and a few others, sets forth the basic regulations for local government. Therefore the planners had to make frequent trips to Victoria on Vancouver Island to consult with the deputy ministers and their staffs, especially those concerned with education, health and welfare, municipal affairs and lands and forests.

Here were officials who were intelligent, progressive, devoted and ready to grasp their work. They understood from the outset that Kitimat would be a new kind of town and they cooperated in anticipating its special problems.

Typical of the provincial foresight were two extraordinary decisions of decades ago which together made Kitimat possible. The Kitimat valley, a comparatively level oasis among jumbled mountains and fjords, was a principal untouched coastal site for a major city north of Vancouver in 1895. It was made a provincial reserve until the time might be ripe for its planned development. And Tweedsmuir Park was created a generation later largely to conserve the gigantic power potential of its lake system.

Kitimat itself has a cultural background similar to all the river-mouth coastal areas of British Columbia. The Kitimat Indians had numbered many thousands, living in an economy of never ending abundance based on the myriads of salmon spawning in the swift streams. They had a wood culture that even today is remembered by the old-timers in the little Indian village across the fjord from the new docks.

For a few years just before the turn of the century a land boom came to Kitimat, when it was considered as the western terminus for the railway that now goes to Prince Rupert. But the few dozen settlers gradually moved away after the boom burst and the provincial reserve prevented further piecemeal development. In 1941 the last white resident in the entire 100-sq.-mi. Kitimat area moved away.



Planners Albert Mayer and Clarence Stein (l & r, foreground) inspect the "beach head" in 1952. In background (l & r): A. L. King and James C. Buckley, transportation consultants.



Planner Julian Whittlesey contemplates the 1952 survey camp at Minette Bay, Kitimat.



## PLANNERS

As can be seen from the list of credits, there was a galaxy of experts all the way from a river diagnostician to the student of family life.

Instead of using such a galaxy in the usual way, one after the other, we sought in general to let all the experts sit in on many of the conferences and some on all of them, so we all went forward together.

### The "wholistic" use of experts

One reason the usual use of experts in sequence does not work so well is that people do not live separately in compartments such as "schools, recreation, health, shopping." The interrelations and interactions among these aspects of life are almost as important as the aspects themselves. At the very least our "wholistic" approach enhances the potential of each separate aspect or element. What we were really after was the life of the individual, the family, the group; and only secondarily the school system, the health system, the transportation system, which are only joint means to that end.

So each expert, continuously participating, was continuously conscious of the importance of other factors. The product was something like a set of chemical reactions rather than an additive process.

Another fine feature developed from this. We had very experienced experts, who had plenty of common sense, too. They were encouraged to put in their oar at any point, in any discussion, whether it concerned their specialty or not. What came out of this was a lot of gifted laymanship. Some very fine suggestions in one field came from an expert in another field. Everybody's imagination was stretched.

### Re-examining the assumptions

If one were to apply an X-ray to the brain of the modern planner, one would find a number of concepts or stereotypes: the neighborhood; the school community center; a thousand families; no mixture of residential and shopping areas; hospitals in quiet but not-too-withdrawn areas; and the like.

One of the happy luxuries the planner of a new city can afford, which of course turns out to be an essential, is to observe his customary assumptions with a fresh eye. Do they still hold? Have they ceased to hold at all, or do they only need modification? Let us see some of the things that happened during this re-examination.

Take the neighborhood and its elementary school center. One thinks of the rough figure of 1,000 families or so, which is current. This is based on the "economical" size of the neighborhood school which usually comes to, say, 600 pupils, in order to justify the amount of equipment considered necessary, and to minimize

administrative overhead. A number of questions really arise here. Are 1,000 families not too big for face-to-face neighborly relationships—especially when densities are low and distances greater? Are 600 pupils not too large a number for the elementary school child to find his intimate place, and should not children come ahead of equipment, in reaching conclusions? Reinforcing these considerations, there was the gullied topography. All of this led to the concept of subneighborhoods, the neighborhood being linked by its shopping-community center and broken down into school-based subneighborhoods of varying sizes.

Further analysis led to the introduction of the "K-3" school, i.e. kindergarten and first three grades only—which results in a sub-neighborhood and mothers' meeting place for only 125 families. Land has been earmarked for these. They will come later if our intentions hold, for early in the city's development its small population of children will not support such age separation.

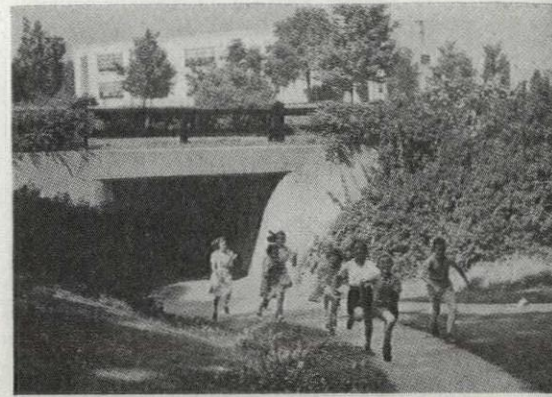
The provision of neighborhood shopping facilities was the occasion for some rethinking. We accept the validity of the concentrated neighborhood shopping-entertainment-cultural area near enough to be within walking distance of any home in the neighborhood. But, "convenient walking distance" is also something of an assumption, especially in a rainy or snowy locale. What about suddenly finding oneself on a snowy night with no cigarettes in the house? Or without the mixings? Thus our planning revived an old institution, the local general store, and questioned the classic zoning concept of complete separation of business and residential areas. In our first neighborhood, which was laid out in greater detail, we have, in addition to the shopping center, three such general stores. They may or may not have a cracker barrel for local yarning convenience.

In our health program, the combined hospital-health center is of course no new concept. But its location, quite handy to the main stem, is new as far as we know. Why at the main stem? The overriding idea is to make it very convenient. It is really a sales proposition. When the family is downtown for a shopping visit or an afternoon movie, they should find it natural and convenient to run in for a health check-up. In fact, we have put the health center as near to the "100% area" as we could without making it too hectic. The doctors in the city will have their offices here. In short, it will be a complete health focus.

One more instance of re-examination leading to an unexpected solution: the bus terminus-garage-maintenance center is just across the road from the city center; it is not across the river in the main service-center area as might be expected. Crossing the river would have meant a dead "back-haul" of 6 to 7 mi. per day per bus.



**Planned crossing:** street underpass at Greenbelt, Md., provides safety for children on way to school.



G. van Tassel

## and NEW PLANNING METHODS

### Two aspects of planning: functional and physical

The physical planning of Kitimat is coupled throughout with the functional planning. Maps and drawings are not alone sufficient. By functional planning we mean how things work or operate: local government, the school and health systems, transportation, commercial development, etc. As an example, the functional plan for education is expressed in terms of school administration, composition of schools, optimum size and number of classes per grade, students per grade. This is translated into a physical plan showing the number, location and size of school sites relating these to parks, transportation, health clinics. Another example is in the commercial areas. Here the physical plan depends upon a scheme for operation related in turn to a recommended method of control and financing. In the case of police and fire protection, the physical layout takes account of the functional arrangement recommended for the government's organization.

The physical and functional planning are interdependent and are shaped together. They are vitalized and implemented by land agreements, regulations and bylaws, including zoning. Implementation will spell the success or failure of the plan.

The planning of Kitimat involved both the main-stem master plan and a number of supporting "functional" studies by consultant specialists.

Top-flight consultants were engaged to study and recommend fundamentals for each functional plan: government and administration, shopping, health, education, recreation, transportation, microclimatology, flood control, insect control, etc. Their contributions were welded together by the planning coordinator, Clarence Stein. Conferences with Alcan and provincial officials tested the

proposed arrangements. Then Mayer and Whittlesey, in charge of developing the actual physical plan, integrated the findings with their work.

Emphasis on developing these operational, these functional, plans, is in a real sense the most important contribution to the science of town planning in the Kitimat plan. And tribute must be paid to the executives of the Aluminum Co. who saw and understood the parallel between planning a gigantic industrial enterprise and planning a city. They understood the need for studying processes—functions—first, as basic for devising physical layouts. And this was the key to their acceptance of Clarence Stein's basic approach.

### Urbanity and completeness of city at every stage

In preconceiving Kitimat in physical form and relationships, there were two dominant negative-positive ideas.

In the first place, in the revulsion against the oppressive over-density of the big cities that most planners live in, the tendency has been to rush to underdensities when we have been allowed to. In the planned city of New Delhi, and in some English new towns, there is probably too much open space—or at least the feeling of it. It doesn't feel like a city. One doesn't feel the compactness, the stimulating intimacy of the close-coupled streets as well as the freedom of freestanding houses. The quality of urbanity vs. what might be called sub-urbanity seemed to us particularly important to achieve in Kitimat's isolated location with more than enough of nature and forest. We emphasized this in certain more central neighborhoods. This may not succeed to the extent we hoped, due to the prestige-tradition of the freestanding house, however small.

### CONSULTANTS CALLED IN BY THE PLANNERS

#### By Clarence Stein

LARRY SMITH, *commercial facilities*  
WALTER KROENING,  
LAWRENCE H. TUCKER, *government and administration*  
KENNETH W. ROSS, *river control*  
DR. MARGARET W. BARNARD, *health*  
GEORGE D. BUTLER, *recreation*  
CHARLES S. ASCHER, *legislation*  
BENTON MACKAYE, *conservation*

#### By Mayer and Whittlesey

RALPH EBERLIN, *site engineering and utilities*  
DR. HELMUT E. LANDSBERG, *climatology*  
JAMES C. BUCKLEY Inc., *transportation*  
DAN KILEY, *landscape*  
DR. LOIS B. MURPHY, *family and community living*  
DR. N. L. ENGLEHART JR., *education*  
ROBERT L. DAVISON, *building materials and methods*

#### Other consultants for Alcan

T. C. LOCKWOOD, *transportation*  
P. S. BONNEY, *timber and forestry*





**Paths across blocks** in planned communities make it easy and safe for children on their way to and from school.

## PLANNERS and NEW PLANNING METHODS *continued*

Another central purpose was to assure a compact city in all stages of time, with no great undeveloped gaps between, whether of open land, forest or unbuilt lots. Our outstanding example in our time of what not to do is Canberra, the planned capital of Australia, with open miles between the small, built-up area and the official buildings—"the garden city without a city." We know for sure that Kitimat will have a population of 7,000 to 8,000 at the go-off. We also know that utilizing all the power being presently developed will result in a population of 25,000. Finally, if the remaining potential power of Nechako is developed, we shall reach the ultimate 50,000 for which the city is planned. The town must be and look complete at every stage—not moth-eaten like so many pioneer towns that never caught up with their early ambitions and expectations.

Thus the space planning had to be weighed always against stage-and-time planning. Within the first neighborhood there needed to be included the higher-cost managerial and entrepreneurs' houses, and the neighborhood was planned to include these naturally with neither excessive jumbling nor excessive isolation. From the point of view neither of economy nor of space-continuity could there be any separate "gold coast." The location of the two high schools must be right for the final town of 50,000. But the first one has to be close at hand for when the town has reached only 12,000 or 15,000, particularly because its auditorium and its playfield will double in the early stages for civic use.

This kind of simultaneous equation requirement runs through the planning. The main shopping and civic center obviously has to be the focus at all stages. At first glance, the problem seems simple. You say: "While the town consists of just the first neighborhood, develop the neighborhood shopping center. Don't develop the main center until you have two or more neighborhoods. So, avoid the headaches of the simultaneous equation." But that just won't work. If you fully develop the first neighborhood center, the big main center will just never get a starting foothold. *Underdevelop* the neighborhood center to start with, *start* your main center at once with some of the shops that ultimately are needed in the local center, form the habit of people going to the main center; and only, a good deal later, when that is really on its feet, go back and round out the first local center. This makes sense, and again your space-location criterion is heavily affected by your development-time criterion. And from this flows the further fact: that your incomplete neighborhood center and your incomplete city center themselves have both got to look satisfyingly complete over the years until they are indeed complete.

## Planning but not overplanning

The story is told of a New Jersey war housing project where everything was wrong: the walls cracked, the streets eroded, the roofs leaked. But struggling with these conditions the community developed a remarkably cohesive spirit.

This contains a backhanded lesson for planners. Too rigorous a plan, too fine a finish, may forestall development, dampen citizen initiative.

In making a larger plan, it is well to leave room for the unforeseen development. . . . At Kitimat we tried to create an envelope rather than a glove. For example, the service center and light industry center has area to spare and plenty of siding possibilities. Where a second road may enter town, the chance is left to develop a secondary main shopping center. There are places for clubs, public buildings, churches, beyond present expectation.

In the house plans and property development plans, too, room is left for the citizen's own ideas: areas for "self-built" houses and unfinished space in the individual house scheme where the citizen can work out an attic, a garage, a garden. A less-tailored town may result, but one with greater vitality.

## Architecture and the planning interlinked

The question must arise, especially among those not familiar with the Kitimat planning process, as to how much room it leaves for creative architecture and esthetic impulse? How much architecture is there in it? Is such a plan merely a triumph of sociological-economic-transportational-educational manipulation? Could not an economist or engineer do the job as well as an architect? The answer is no. The real synthesis, fusion, sublimation of functional and spiritual elements with the requirements of nature, climate, topography calls for an enhancement of both by arrangements, form, scale, climax. This is architecture, on the grand scale. The master planner is ideally the architect.

At Kitimat the planner appropriately gave way to local architects for design of specific buildings and building groups. The planner must resist the temptation to hamper detail; but it is his duty and great privilege to determine the total scale and the overall three-dimensional shape that express functional interrelationships, carried down to the mass design of squares and confluences and avenues. This cannot be done apart from the functional arrangement, or afterward.

The moment the architect-planner sees the site, some kind of a vision has started to germinate. It develops, grows, changes as





**Hazardous congestion** for school children is often the price paid for inadequate planning.

new requirements are considered. But the essence is that the whole multiprocess must grow together, synchronistically.

What comes first: the idea of an elementary school or the architectural feeling for a subneighborhood center on a promontory bounded by two tongues of a gully? Actually in this case the latter did; and the school consultant agreed it would be exactly right for his reasons. Curved streets were conceived both for visual reasons and to serve as a windbreak.

Thus we may nail two credos to our mast:

That there are the highest creative rewards for the architect-planner, were he never to design a single individual facade. And, that the functional-technical-economic plan and its civic-architectural embodiment should evolve at one and the same time, with the detailed architecture evolving later.

### **Economy of research through modern planning practice**

Now that the master plan of development is completed it seems natural to describe it in relation to various data in the form of tables, schedules and the like. However much this data may look like a "program" to which the physical planning responded from the outset, it is worth noting that it did not exist as such prior to the plan, nor is it simply a translation into planning terms of a set of definite requirements and criteria which was handed originally to the planners and from which they proceeded. The program was built up concurrently with the physical plan, each interacting upon the other until finally adjusted with all objectives satisfied. This interaction of purpose and result—like climbing up between two ladders—is certainly experienced in planning something where nothing was before, as at Kitimat. Anything utterly new proceeds in some measure from abstract thought, and we get tired of people who recognize no room for this, whether in the architect, or in the engineer or builder—or in the planner who connects them up—not to mention in the philosopher and poet who break trail.

An intuitive planner from India, puzzled by the lengthy statistical research which his teachers seemed to be advancing as an end in itself, asked: "But when does the planning start?" He had put his finger on the crux of planning practice, which requires the planner to work in upon his objective from all sides at once. It takes some resolution and faith to do this. The planner does not await the finality of all data before proceeding, nor does he later cast about for data in support of preconceived designs. The former method produces, if any plan at all, one without ideas; and the latter produces a plan of questionable substance. He must pro-

ceed resolutely at first from approximations, and strike out with tentative physical conceptions, testing each against the other till data is firm and plan mature.

Kitimat planning followed this thesis with one important refinement which holds that the planner is an earthly strategist and not a heaven-sent seer. Accordingly he does not presume to reduce his data to absolutes which no one can guarantee. If a plan is tailored only to absolute figures which are later undershot or overshot, the plan is vulnerable. He must find rational minima and maxima between which his plan is designed to work at any point. His research and that of his specialists should be to establish the statistical envelope within which a plan will be secure. This is common sense. Once recognized, it saves arduous pin-pointing and frees the mind.

### **Prototype forms for Kitimat**

If there were any preconceptions of form at the outset of Kitimat planning, they proceeded from principles fairly well proven in our time starting with Ebenezer Howard's "garden city." The greenbelt concept is but one. This may mean surrounding, as well as interpenetrating, the city with land reserved for agriculture and forest and recreation uses, as at Kitimat. Another concept is of the neighborhood embracing its own elementary schools, its shopping center for daily needs, its own parks, and through-traffic kept out of it. This has taken various forms in our "greenbelt towns" and in English "new towns"—some quite old now. An early start was at Radburn where auto and pedestrian were clearly separated, the park "built-in," where housing gave onto it, and pedestrian circulation was via the internal park.

Another concept is the modern shopping center which has brought new plan forms, being arranged for pedestrians on the inside, autos on the outside. The city center at Kitimat—a more comprehensive set of functions—grew from this. It drew also upon the forum or piazza concept where public and cultural buildings are sited in proximity to everyday commerce. The neighborhood center combining shopping, amusement, worship and education was also influenced by these.

Another modern concept, less definable in form, was the industrial estate or "planned industrial district." This led to the Service Center concept. Here the "dirty parts of town," namely service industry, warehousing, trucking, heavy repair, freight interchange yards, were pulled together into an efficient and well located working inter-arrangement presenting its best face to the outer view.



# THE TOWNSITE

The total buildable townsite area, after excluding land having slopes in excess of about 10%, and excluding broken-up areas of tortuous shape, was but 2,750 acres. This buildable land lay within an area roughly twice as big, into which gullies and steep slopes intruded. Beyond it, the general terrain rose into the mountains or fell off into the flood plain. The pattern and extent of buildable land became clear only as planning proceeded. This at times lent a sporting uncertainty to the work, and occasioned rugged field explorations in advance of the survey parties. In fact, final topography, coming in right up to construction time, occasioned major adjustments where deep branch gullies in the first neighborhood had been missed when the first winter closed in on the initial ground survey crews.

*The main functions at first located were:*

**The port and industrial area** at the head of Kitimat Arm, which is a deep, fjordlike "branch" coming in 75 mi. from the open ocean.

**The flood plain** and river coming down from the north, hedged in by mountains, and spreading into a delta at the head of the arm.

**The townsite**, a limited area rising from the flood plain, connected to the mountains only from the east side of the valley, lying 4 mi. upriver from the proposed plant site and on the other side of the river.

*The following major elements of the plan were easily discernible (see map):*

## **The residential townsite**

Parts of the townsite were favored over others. Study would determine the site for the first neighborhood, and also location of the city center. The center should not lag behind the first neighborhood, lest the neighborhood's local center become the city center and warp that neighborhood.

## **Heavy industry**

The requirement for rail connection, direct access to navigable water, protection from flood and assurance that the townsite not be subject to smoke and fumes from the industries—all favored the general area on the west side of the flood plain northward from the head of Kitimat Arm.

Here there was ample room for Alcan's smelter site, 1,000' x 10,000', lying along the west side of the valley on land to be heavily filled out into the present flood plain. This, in turn, could be safely curtailed by a levee 2,000' to 4,000' east of the smelter site, leaving 500 to 600 acres of intervening land for other industry, subject to expansion of the fill. A 500-ton pulp and paper industry would take up some 150 acres and require water frontage for log booming. This would leave ample room for other industry back in from the head of the Arm, but having corridor access to the port.

Microclimate study and on-the-spot observation of smoke movement were undertaken at the very outset. Smoke very rarely carried from this area over the townsite. When not taken south down the Arm, it hugged the western slopes of the river valley and passed by the townsite. Climate inversions would be rare and of short duration.

**A possible rail and highway route** down the valley on the west side, past the townsite lying a mile east across the river, and thence to the head of Kitimat Arm.

**A bridge site**, possible only in one limited section of the river where the flood plain narrowed opposite the townsite, and where rock might be found at the abutments.

Since there was only one likely bridge site to connect townsite and industry, the city would probably have only one main entry. An added connection to the town (but not to the industry) may come in from the north, because later surveys show that the highway from the terrace may be built easiest on the east rather than the west side of the valley.

## **The port**

The northwest "corner" of the Arm was best for ship handling and offered most direct connection with rail and highway down the west side of the valley. It offered the shortest conveyor route to take alumina from ships to smelter. A ship channel built in this corner would leave ample space east of it for the pulp mill wharf, and a short intervening frontage available to other industries not directly on the water, but reaching it by a corridor between the aluminum smelter and the pulp mill site. The problem here was to find a port arrangement which yielded maximum efficiency for two major industries, while also serving public storage and transit sheds, and other industries.

## **The town service center**

Its functions required a close linking of rail and highway, proximity to the city proper and separation from the industrial rail-holding yard serving heavy industry. These requirements placed it opposite the townsite on a line with the bridge site, leaving ample room between it and the industrial sites for a holding yard of some 250' x 2,000' at stage IV. The original gross reservation for this center was approximately 50 acres. This was later increased to about 90 acres, when the requirements were more fully studied.

This location permitted the center to lie between rail and highway, thus backing up on both, and with the highway by-passing it en route from townsite to industrial area. A minimum depth of 450' between center lines of rail and highway was originally held. Engineering of the flood plain, rail bed and bridge approach later permitted this to be increased to 850'.









### Kitimat is projected as a city of ten neighborhoods

Bisected laterally by a strong slope, and cut vertically by another, the town lies on three levels of irregular shape to which neighborhoods and traffic had to be fitted. Where roads from the various levels meet to form the single road out to the west (which leads across the river to the industrial area) is the city center. Neighborhood "A," to the northeast of this center, will be the first developed. Cutout shows the area of municipal incorporation. Large black point in middle is city center; shaded area is the industrial development.

- Elementary school
- △ Junior high school
- High school
- † Church site
- ⊙ Neighborhood center
- ⊙ Upper business center



# THE TOWN

The planners set out in all directions at once—Montreal, Arvida, Vancouver, Kitimat and various places in British Columbia where information was to be had or observations were to be made on many subjects. The physical survey of Kitimat was an arduous and thrilling one.

## Population

Kitimat's four-stage program was roughed out. When refined—months later—it had become:

Stage I.....	7,000 people
Stage II.....	13,000 people
Stage III.....	23,500 people
Stage IV.....	31,000 to 46,000

Stage IV is dependent on the second great power tunnel being built—doubling the aluminum capacity. What ultimate population figure is reached will depend upon employment in other industries than aluminum and pulp, namely miscellaneous service and processing industries.

The ultimate population estimates include a total number of workers twice those in basic industry. This ratio may not come about for some years, and would be likely only for a city having a normal economic and social life, as opposed to a town initially created to support a single industry, where the number of workers outside basic industry would at first be small. Estimates contemplate  $1\frac{1}{4}$  workers per family,  $1/5$  of all workers being single workers, and the average size of family at four persons, including single workers,  $3/4$  of which assumed living with families, and the balance in other accommodations. This briefly describes the estimated mature population, rather than that initially. The decision to provide family accommodations for 80% of the workers was based on the desire to secure a stable working population. This is not typical of the British Columbia coastal industrial towns.

## Framework of the townsite

While the major elements of the city were being formulated and roughly placed, results of the survey and field explorations were coming in. The townsite proved to be a complex of irregular buildable areas and not that blank piece of paper or virgin land of which planners dream. Nature had already placed heavy marks on it. Rising from the flood plain, the site was a formation of clay and gravel left by retreating glaciers. It was a "remnant" frayed on the north side by gulley erosions into the flood plain, and worst of all much of the heart land had been eaten out by interior gullies flowing south. This remnant was anchored between the east mountain slopes and a rock bastion around which the river had made its course.

The site was bisected from west to east by a sharp slope over which the glacier had poured gravel, leaving a deep clay bed with occasional lenses of gravel as it withdrew to the north. Above this slope to the north lay some 700 acres of buildable land at elevations 250' to 350'. Below the slope lay 1,100 acres at elevations 150' down to 50', with a flood plain and Minette Bay to the south beyond it. At the extreme east, up against the mountain slope, were some 760 acres of buildable land arranged in benches at elevations 400' to 550'. This east land lay at right angles to the

other two "levels" connected to them only by a small link of buildable land of but 150 acres. Otherwise the eastern section was separated from the rest of the site by a steep slope running north and south forming a "T" with the east to west dividing slope (see plan).

## Locating the city center and upper business center

The high rocky west end of the site (top left in plan) guarded it from the bridge approach. Any entrance road coming in eastward from the bridge west of the town had first to skirt this area which later proved too complex for development planning. Once past it and across the outfall from the big internal gulley formation (which had taken out the heart of the high land to the north), there was the first opportunity for a three-fold deployment:

1. to veer steeply left (and northward) to this highland,
2. to turn off right (and southward) into the lowland, and
3. to punch through centrally with an assault on the end of the west-east ridge road to go up and carry through to the extreme eastern benchland.

This then was the point of first choice in taking off to the various levels of the town. Likewise it was the place to which all must return before leaving the townsite to reach the industrial area.

The junction point just described, which all important routes to and from the townsite must cross or pass, was an obvious candidate for the city center, although not at the geographical center of the ultimate city. More essential was that it be centered *functionally* in the city at any stage of its growth, including the outset—an early successful start of this center being of prime importance. A chief centering function is transportation. At Kitimat this means above all the journey to work—to and from the industrial area via the single west entrance to the city. This then was an entering and leaving location. Any other alternative proved poor. A high central location farther in could have no satisfactory relation to the lower level. Either alternative would invite the service center, which is directly en route to the industries, to develop central services likely to draw people from any townsite area not naturally or easily related to the city center.

This location well toward the entering end of town had its advantages and disadvantages. Favoring it was the better opportunity given to start the city center at an early date. Also, a further shift in location might leave the center itself "out on a limb," namely at the far side of town, if the city's growth stopped short of stage IV and the second power tunnel were not put through. The disadvantage of its distance from the high western end of the city was met by an upper business center strategically located near the entrance to this part of town. This is shown (UC) where neighborhoods "F" and "H" meet in a "T" shape. It will start out as the center for neighborhood "F" and there will be no need for it to gain the status of upper business or subcity center till neighborhoods "E," "F" and "H" are flourishing.\*

\* If another town-entrance road comes in later from the northeast this upper business center site may be moved westward to this entry point. It would be where neighborhoods "E" and "F" adjoin. Neighborhood "E," by virtue of its small size and topography, is not a true neighborhood able to support a local shopping center. The upper business center, if relocated here, would serve this neighborhood.



# THE CITY CENTER

The city center includes the downtown retail and business area of Kitimat, but is much more. It is also the cultural, entertainment and government center where most activities of city-wide interest are drawn together. Besides central shopping and business offices, it has the public library, auditorium and museum, also the town hall and local offices of the provincial and federal government. These make up the "civic center" within the city center. The central hospital, including doctors' offices, is close by, handy to the exchange point of all public transportation routes. The primary commercial hotel and the bus depot are prominent in the center. One of the city's two high schools adjoins it. Altogether it is a busy place day and night.

Excluded from the city center are many things that are often found in central business districts and which are better placed elsewhere. These are the service, storage and supply businesses and repair shops, bakery, central laundry, auto sales and the like, which are not properly a part of a city's "100% area" but which have often come to be enclosed in it as it grows. In Kitimat these have been put together elsewhere in an efficient working relationship to form the city's service center. One exception to this exclusion however is the bus service depot which, in order to save dead mileage, is placed close to the bus depot and holding point next to the city center.

By and large the entire center is designed around a series of pedestrian malls and squares interconnected and leading out to the surrounding streets where buses stop at points along the outside. These entrance points are well-marked by prominent buildings, including those of the civic center area, which break up what would otherwise be a continuous parking area surrounding it. In this important respect the plan differs from many commercial centers which bring few, if any, elements to the outside. It is not simply a cluster of buildings amidst a sea of parking. The commercial layout within the center follows the successful principles of large-scale shopping centers. These seek to achieve the maximum of sales volume concentrated in optimum space arrangements, and have produced a "system." But the system has here been modified to produce also a civic and cultural center rather than only a technically perfect retail shopping mechanism with some occasional spaces assigned to civic and cultural uses.

## Growth in stages

Design of the center could not assume a one-shot construction program. Like the rest of the city, it is designed for growth by stages. Careful attention to scale and to sequence was required so that at any stage, where it may rest for some years, there will be a feeling of wholeness and completion and not a fragment.

The city center is introduced by a green off the city's main through-road. The hotel and bus interchange are on this green, the main bus loading platform being slightly depressed where adjoining the green. The entire center may be taken in at a glance from the relatively high approach roads coming down to it from the east, north and west. The introductory green leads into the first shopping mall, in turn going to the first commercial square. Stage II will fill out this square. The public buildings of the civic center are on a plaza raised above the first commercial square. The public library has access from both levels. Current thinking calls for the public library to be given a "100% location," so

it may be in the main stream of central urban life or just off it, not where a special trip is required to reach it.

The main office building, as well as the first cinema, is on the first of the two commercial squares. The main department store and the second cinema are on the next square. The sports arena is reached via this square and from the street outside. Stage III of the city's growth will start off this square. Separate plans for each stage of the center's growth show the sequence of development and how certain strong elements like a department store or cinema act as advance elements to pull the plan along.

The two commercial squares, connected by a mall, are reached from the surrounding streets by tributary pedestrian malls leading in from the periphery. There is no vehicular traffic in or through the malls, squares or civic center plaza. Malls may be reached from the parking areas by arcades through or between buildings. Parking rows are arranged between tree-planted sidewalk strips which lead to the arcades without requiring a journey through a complex of moving or parked automobiles.

## Relation of city center to neighborhood centers

Commercial and noncommercial facilities of city-wide interest are confined to the city center. Thus the neighborhoods offer primarily convenience goods, daily necessities and services. Department stores, men's and women's clothing, furniture, sporting goods, etc., are in the city center which provides competitive shops and comparison shopping. The city center will, however, also contain some food stores for daily necessities bought in connection with central shopping trips.

Office space will be confined to the city center except for what is required in the first neighborhood center awaiting start of the city center. Because heavy goods will be required at the outset, it is likely that the first neighborhood center stores will carry some at the start.

Early start of the city center is considered important. While neighborhood "A" center will ultimately have some 30,000 sq. ft. of shopping area, this will at first be held down to 18,000 sq. ft. in order to assist the city center to a good start. Thus of the first two supermarkets, one will be in the city center rather than both in the first neighborhood. When other neighborhoods follow and the city center has developed firm business, neighborhood "A" will get its second food market, bringing it up to its space quota.

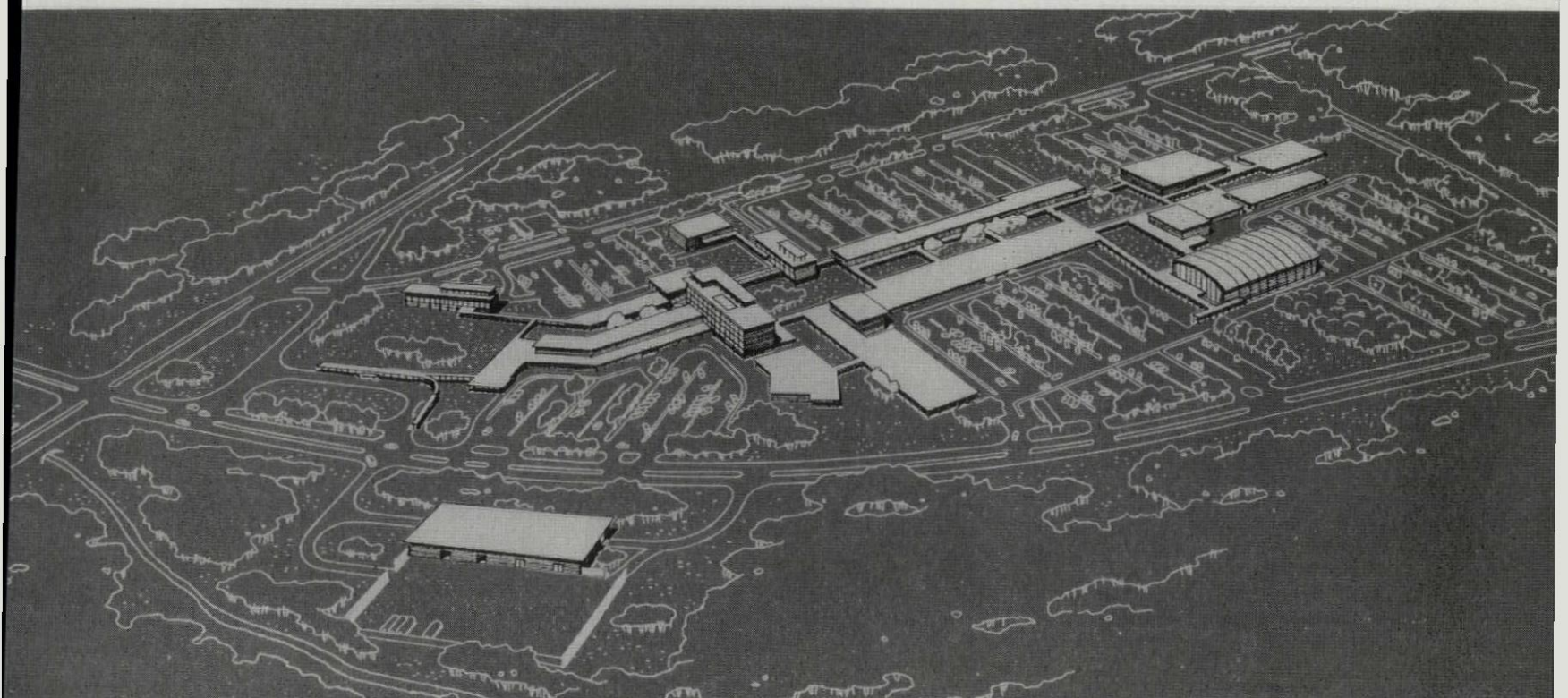
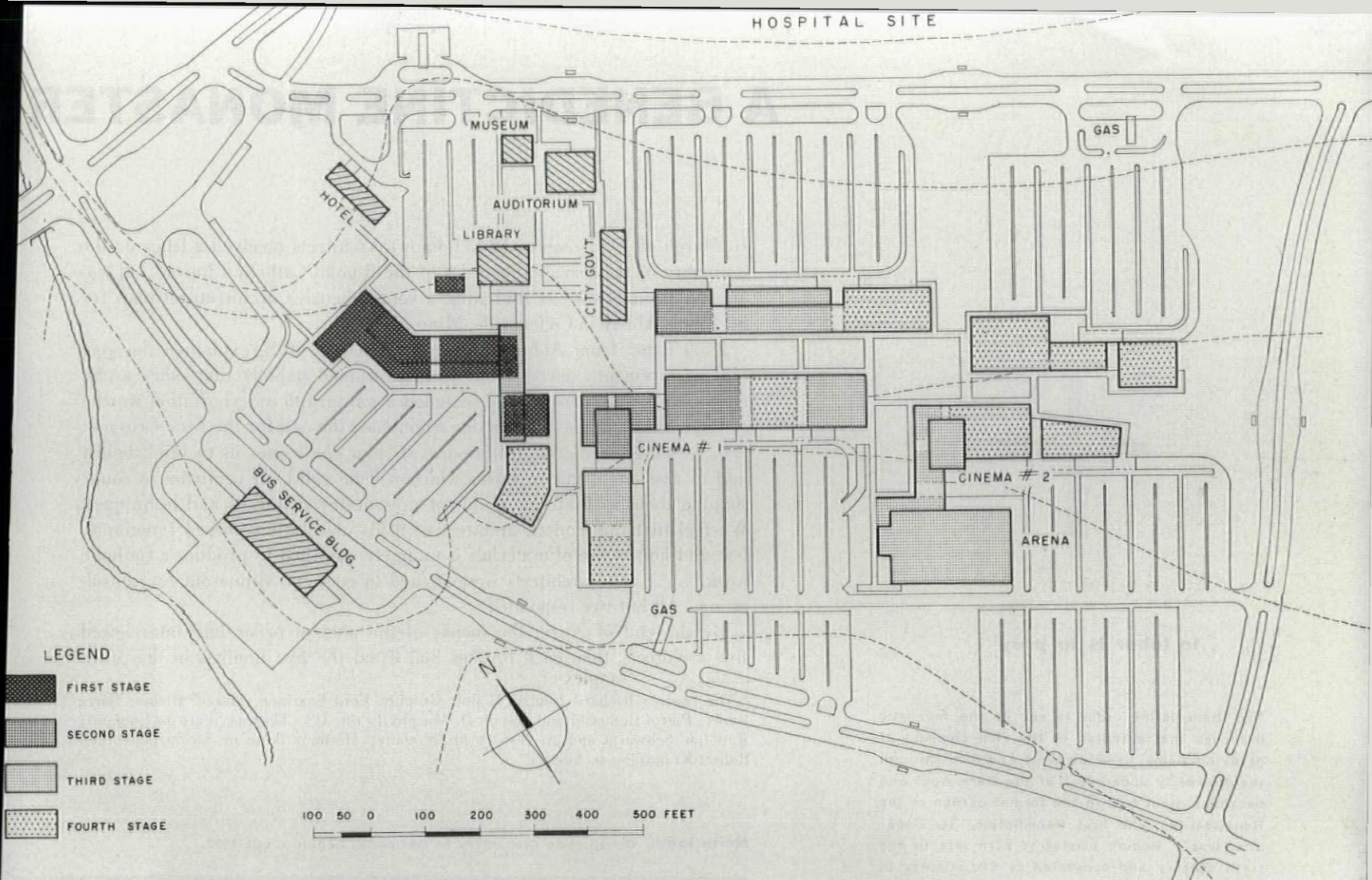
The center at neighborhood "C" will be subordinated due to this neighborhood being so close to the city center.

There is allowance for the "F" neighborhood center to expand into a subcity center to serve the east end of the city, should this be warranted.

Space for a small cinema is reserved in each neighborhood center. Whether the demand will require all of them remains to be seen. However, the city center is to have two 800-seat houses commanding first-run shows.

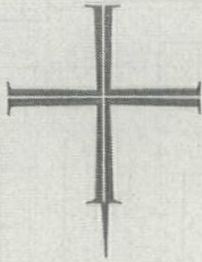
Each neighborhood will have its local recreation building with bowling alleys, billiards, Ping-pong, dancing, for family participation. The city center will have these facilities also, but on a bigger scale, and on a more "professional" or city-wide basis. For example, bowling-league competitions, or competitions with teams from Terrace or Prince Rupert, would be held there. Similarly, each neighborhood will have its small auditorium in the neighborhood community school, and a large city-wide one in the city center.







# A BENEDICTINE MONASTERY



**"... to labor is to pray"**

The Benedictine order is one of the monastic branches that sprouted in the rich compost of decaying Rome, grew straight and firm through the disorderly underbrush of the Dark Ages and became a giant tree in the formal garden of the Renaissance. The first Benedictine, St. Benedict, was a Roman aristocrat born late in the sixth century and converted to Christianity in his youth. He believed in a stern, active religious life, and at the age of 50, in 520, completed writing the Rule, a strict diagram of the religious life and its hourly duties. Ever since, it has directed his order with great success in its expansion around the world from the original Abbey at Monte Cassino (destroyed in four wars, most recently in 1944, rebuilt after each).

St. Benedict was followed by a succession of brilliant organizers and teachers. Pope Gregory the Great, who sent St. Augustine to England to work among the heathen Anglo-Saxons, was a Benedictine, as was his emissary. Abbeys were built across Europe. Following the Rule, each abbey was autonomous, built according to the wisdom of its abbot and brothers, bringing real regional character to the active life prescribed by Benedict—"to labor is to pray." Besides the basic religious and educational purpose of the order, there were always subordinate functions. St. Benedict had written that each monk should do a good full day of physical labor, added to his hours of prayer and meditation; one abbey of the order in France put the worldly hours to making a liqueur, called Benedictine (still famous, but no longer made by monks).

The Benedictine order first came to Minnesota in 1856, when five members of a Pennsylvania monastery arrived in the territory and started to work near St. Paul. Today the abbey which these men began, St. John's, has grown to become the largest Benedictine community in the world, including more than 300 members, whose principal worldly duty is teaching at St. John's Seminary, Liberal Arts College, and college prep school (total enrollment, more than 1,200) or in missions in Puerto Rico, Mexico, the Bahamas and Japan. Besides St. John's, there are 27 other Benedictine abbeys in the US, each firm about the kind of architecture it prefers, but none so advanced as St. John's.

In March of 1953 each of 12 well-known architects received a letter on the stationery of the Benedictine order of the Roman Catholic Church\*. It was an invitation to discuss designing a comprehensive architectural plan for St. John's Abbey in Collegeville, Minn.

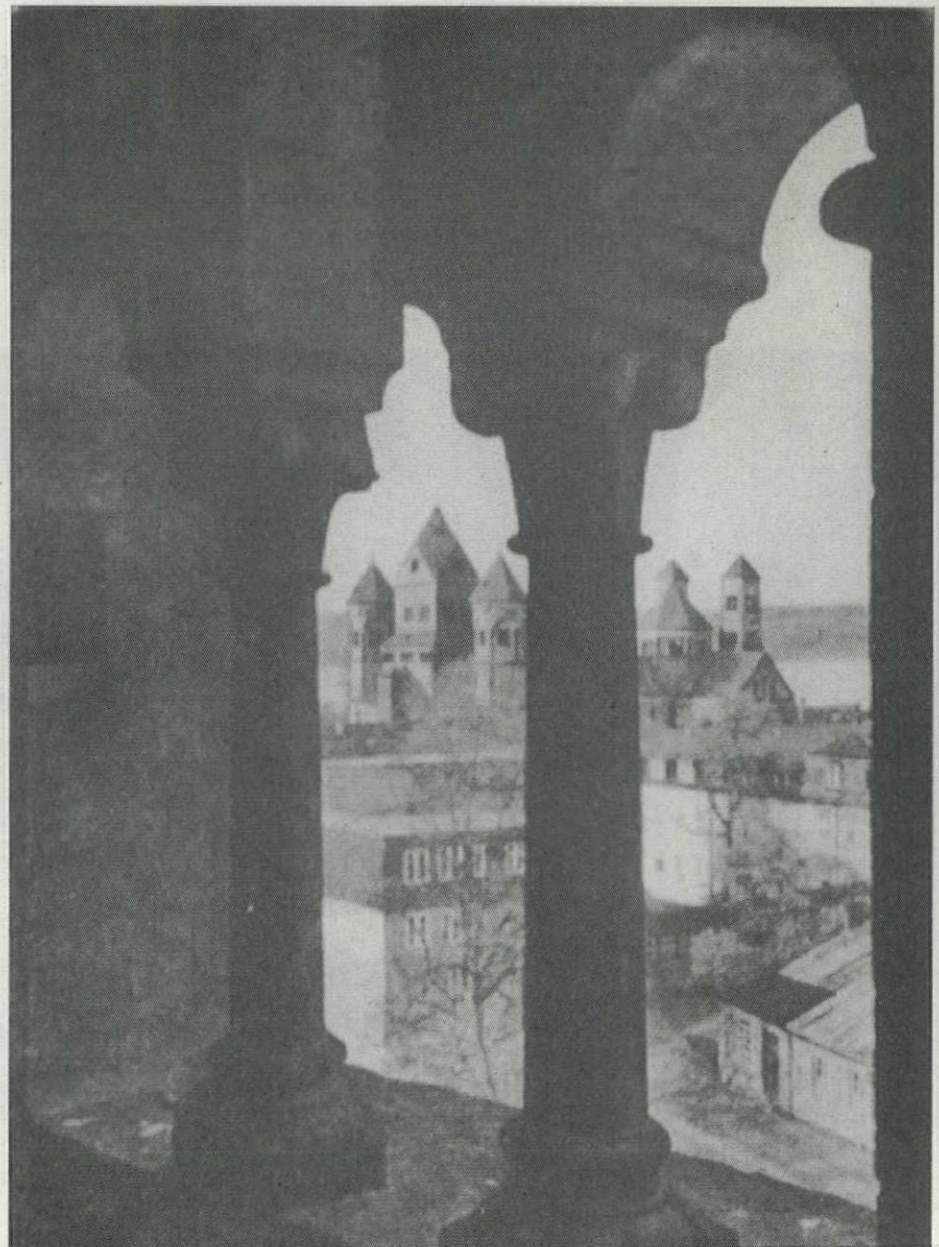
Each letter from Abbot Baldwin Dworschak, OBS, explained the general requirements, asked about fees, mentioned politely that other architects were being queried, and included a paragraph of exhortation worthy of Pope Urban II, the Benedictine who issued the call for the First Crusade:

"... The Benedictine tradition at its best challenges us to think boldly and to cast our ideals in forms which will be valid for centuries to come, shaping them with all the genius of present-day materials and techniques. We feel that the modern architect with his orientation toward functionalism and honest use of materials is uniquely qualified to produce a Catholic work. . . ." The architects were invited to come to Minnesota for consultation. All but two responded.

By the end of April, the monks of the ancient order had interviewed five architects, then each brother had listed the five finalists in the order

\* The twelve: Richard Neutra, Walter Gropius, Eero Saarinen, Marcel Breuer, Barry Byrne, Pietro Belluschi and Joseph D. Murphy in the US; Thomas Sharp in England; Rudolph Schwartz and A. Bosslet in Germany; Herman Baur in Switzerland; and Robert Kramreiter in Austria.

**Maria Laach**, Benedictine monastery in Germany, begun about 1100





# BY MARCEL BREUER

MARCEL BREUER, architect

PIER LUIGI NERVI and FARKAS & BARRON, structural engineers

FRED DUBIN ASSOCIATES, mechanical engineers

SIDNEY K. WOLFE & WALTER HOLTKAMP, acoustical engineers

he preferred. Their overwhelmingly favored choice: Marcel Breuer. Their reason: "The humility and clean-lined simplicity of Breuer's basic architectural conceptions . . . were especially appropriate to monastic buildings. He struck us as being not only an outstanding architect, but as a simple, straightforward and rather humble person."

Today the first of the new monastic buildings is under construction in Collegeville, and Breuer's office is sprinting to keep ahead of the energetic monks' building program. Breuer has not disappointed the brothers with his designs. Not only has he put into this work all his subtle skill in instrumenting the discordant range of modern materials, of playing calculated crude against calculated perfect finishes, quickly impressed coarse concrete against polished glass, bright raw elementary paint colors against porous soft natural hues, but he has also gone into an expression new to him—sculptural forms of structure.

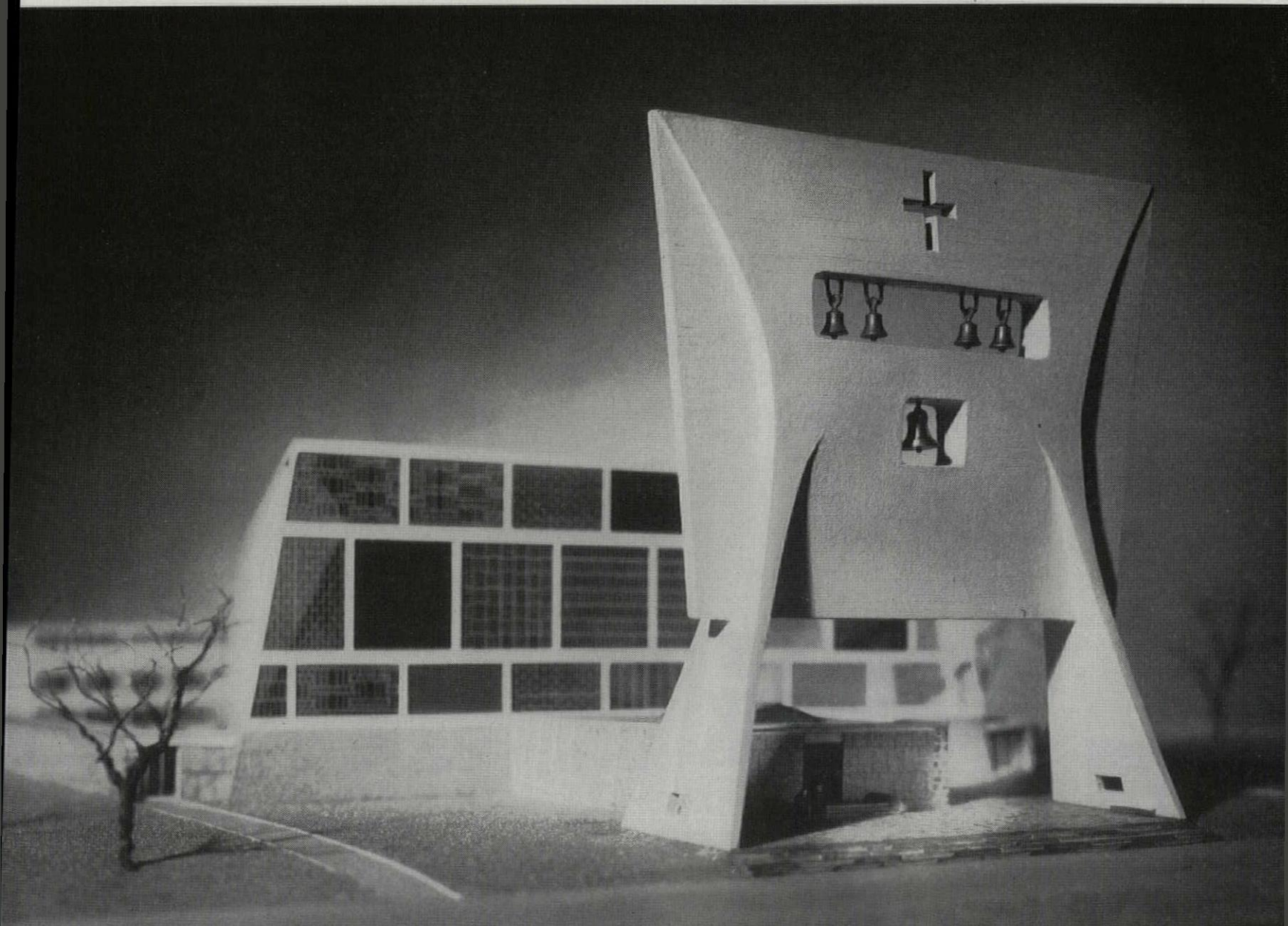
Checked out by his collaborator in the UNESCO building, the brilliant Italian engineer, Pier Luigi Nervi, Breuer will bend a thin cowl of concrete into walls and roof over this monastic church, creased into folds for structural stiffness. And in front of the church will stand a symbolically modern bell tower for this 1,400-year-old client—a pierced banner of reinforced concrete.



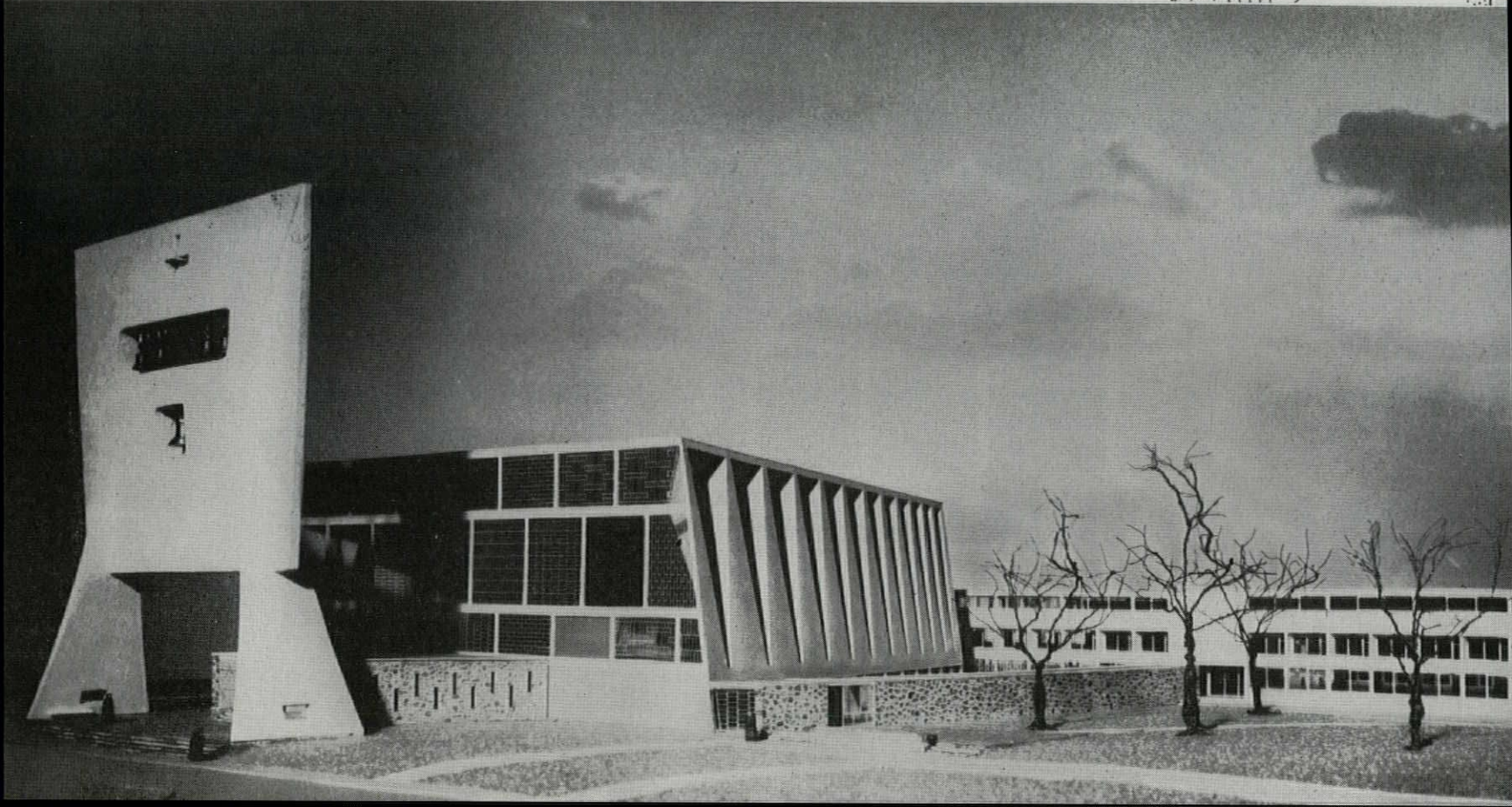
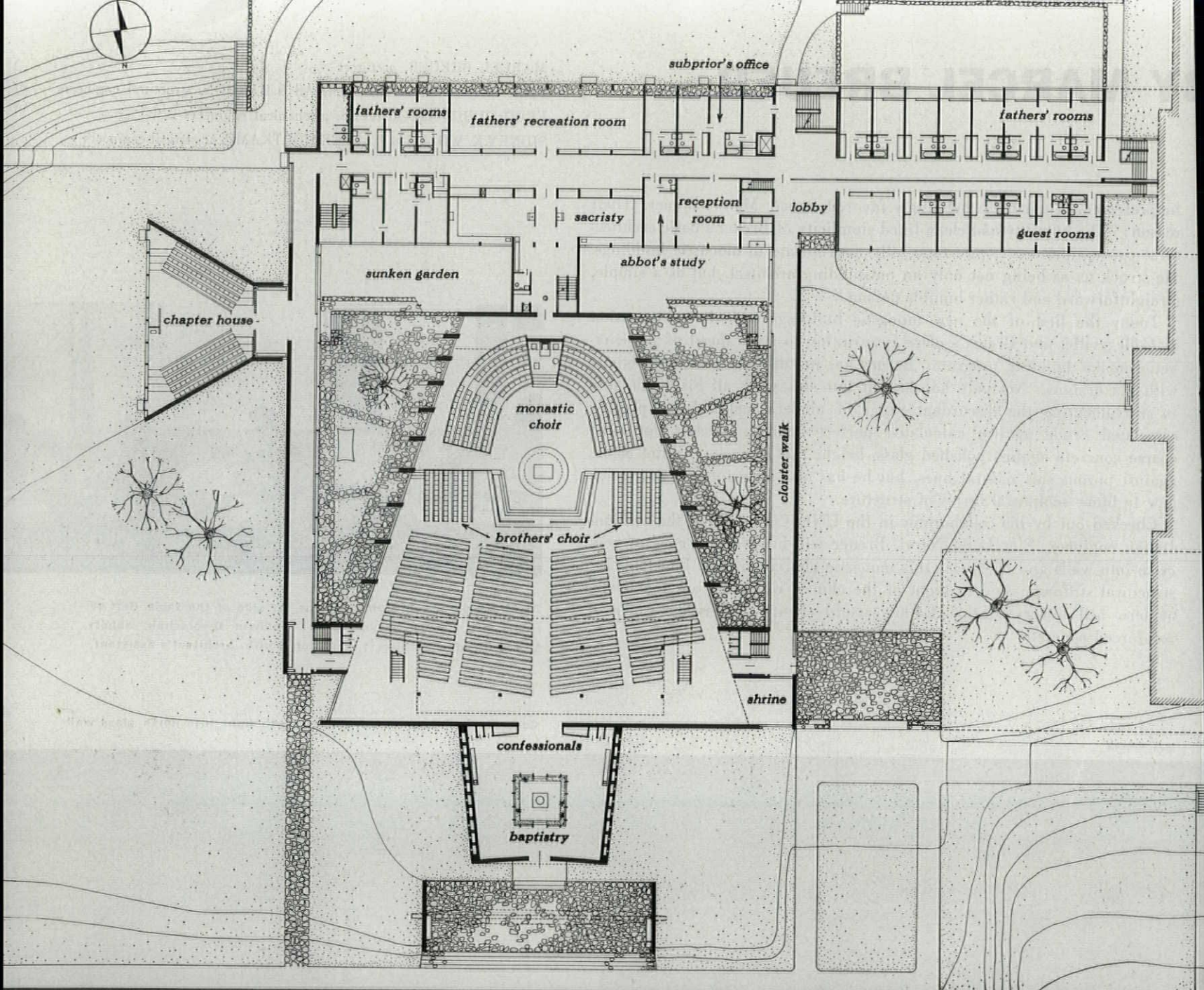
**Architect-client conference:** on the far side of the table (left to right) are Clarus Graves, prior; Baldwin Dworschak, abbot; Marcel Breuer, architect; Hamilton Smith, architect's assistant.

Ben Schnall

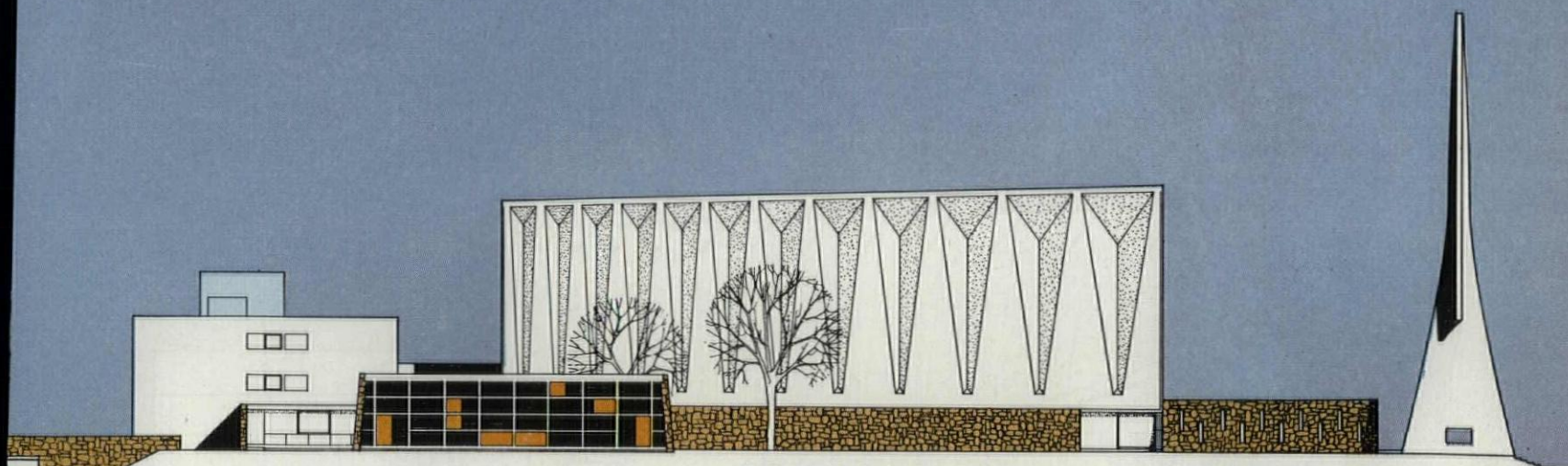
**Concrete bell banner** will reflect south light into north glass wall



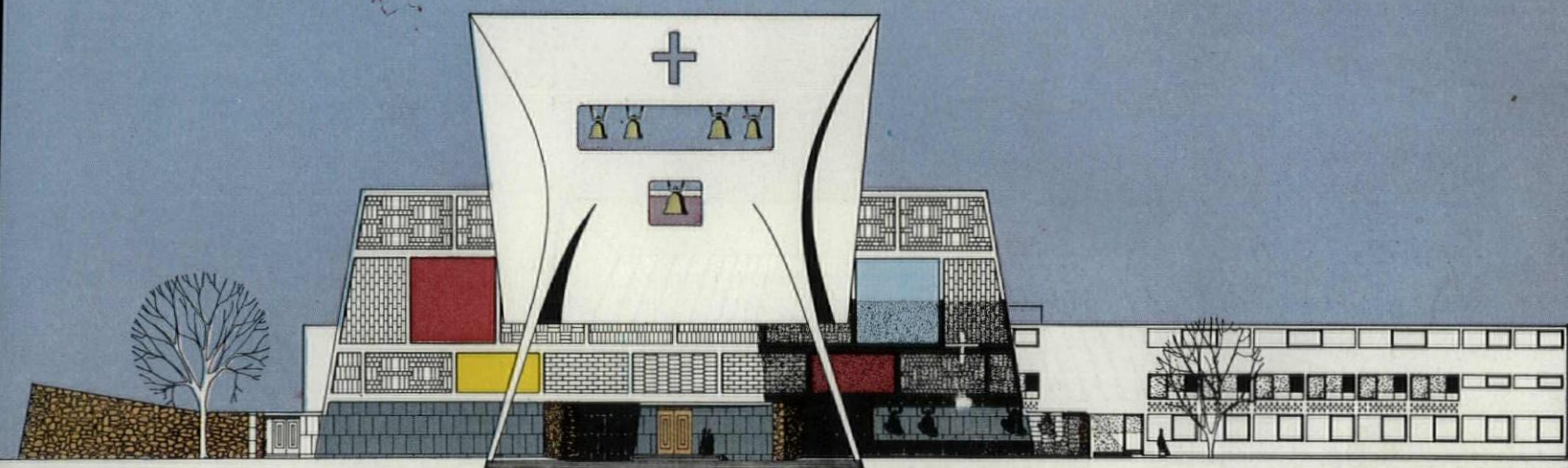








East elevation: serrations in concrete sidewall are for structural stiffness



North elevation: pierced concrete banner for bells has character of liturgical vestment

## A strongly symbolic plan to match the sinewy concrete elevations

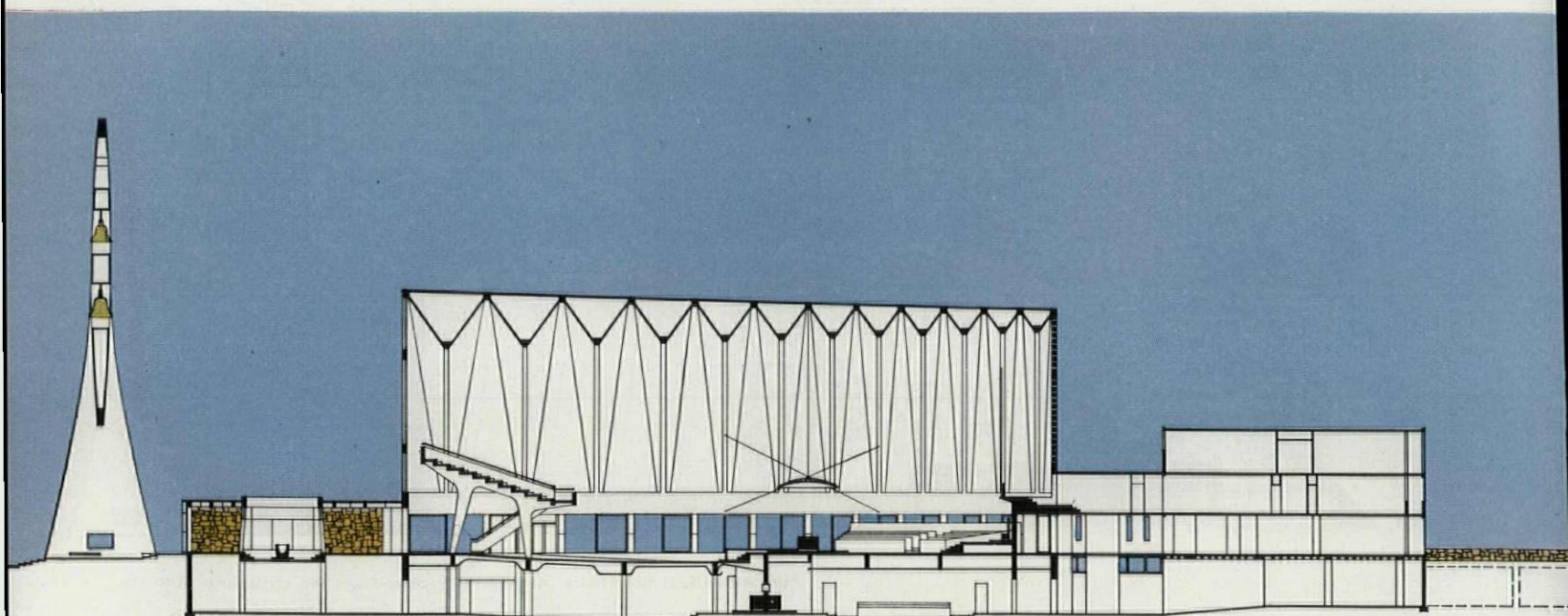
The symbolism of this church starts in the plan. The Benedictines at St. John's, world famous as liturgical authorities, were confident enough to disregard some current church-planning practices and return to "the originally correct" church-planning practices. The most prominent example of this is in the placing of the baptistry at the entrance, squarely on the central axis. This, Breuer points out, is like the original atrium, the outdoor baptistry in front of some early European churches. Glass-walled, gardenized, with a skylight above, this baptistry will be as open to the outdoors as Minnesota's climate permits. More important, its location will symbolize the steps of entry into the church: first baptism, then admission to the church and the Eucharistic sacrifice. The plan symbolism continues: the stalls of the monks who have not been ordained are on either side before the altar, while the seating for

the monks who are priests is around the altar, dominated by the abbot's throne in the center. The monastery, itself, of course, is the next step. Most of the 1,530-man congregation will normally be students at St. John's College. They will be surrounded by a quiet church garden, visible through low glass side walls.

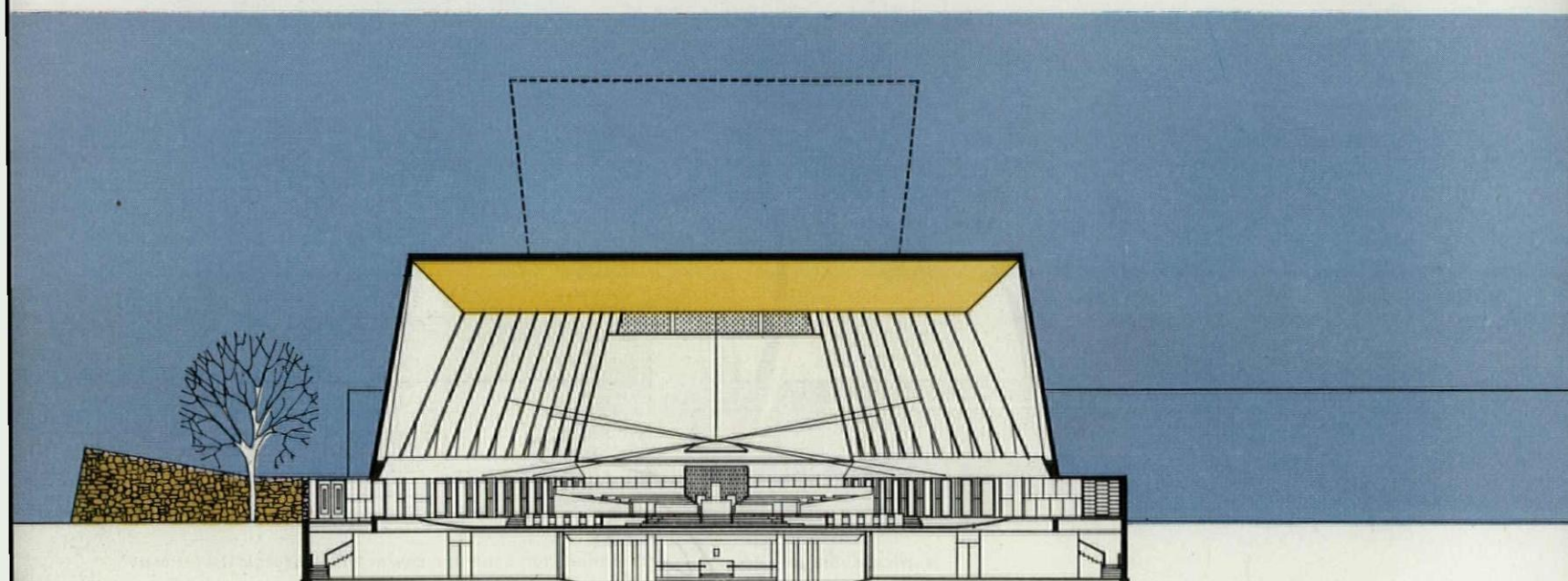
First of the 19 new buildings master-planned to be built at St. John's is the monastery wing (shown on these pages) behind the bold shapes of the monastic church, and its banner of concrete. This wing (already under construction) will provide sorely needed housing for the fathers and guests of the monastery, but will also include the sacristy of the church, which is next on the building program.

More of Breuer's thinking on the symbolism of the structure, particularly the bell standard, is explained on the following pages.





Longitudinal section. Upper structure will sit like overturned trough on side beams



Transverse section, looking toward altar. Serrated walls and roof will aid acoustically

## Stiffening concrete by shaping it—a unique church wall and roof structure

The structural system sought by Architect Breuer was one with which he could return to the clarity and honesty of the Romanesque, which he admires above all other historical styles ("Gothic already hides and fakes"). He found his opportunity in a continuous concrete slab, molded and dented into a kind of modern groining, a simpler version of the UNESCO structure (AF, June '53) with the same acoustical advantages (especially important to the chanting of the monks' offices). There will be no hung ceiling, no plastered finish. This concrete will be faced with granite on the outside, but inside will be left with the scars of formwork still on it to contrast ruggedly with a gilded ceiling and red brick floor.

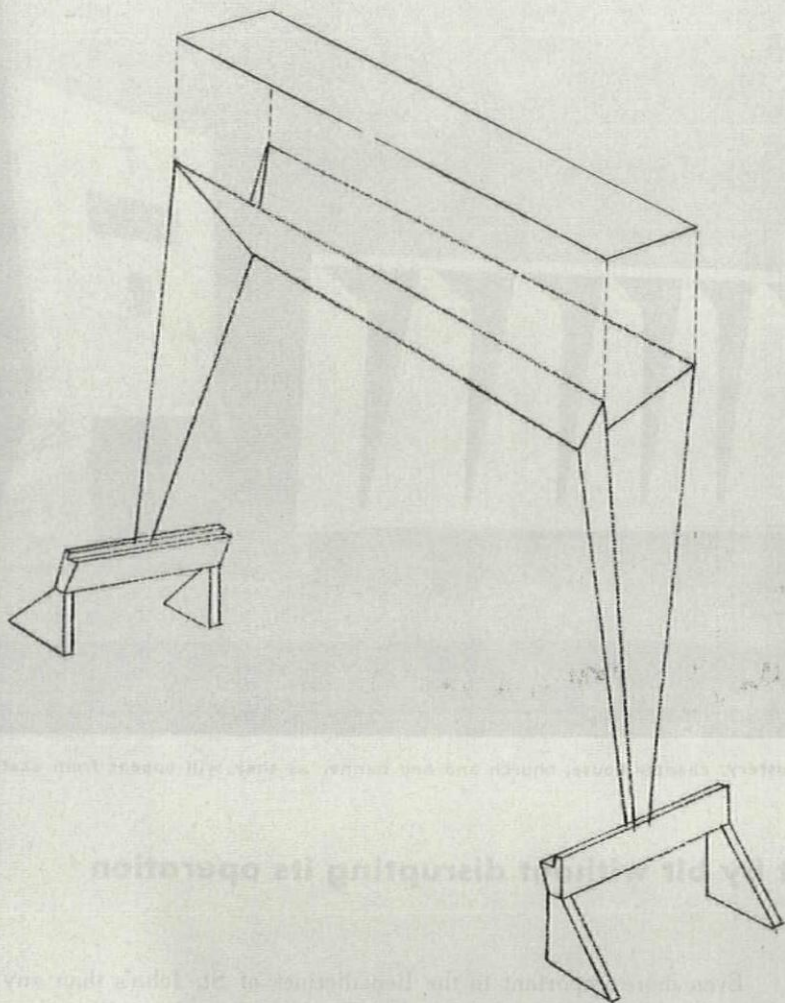
Breuer's bell banner is no mere architectural whim, but is the product of a serious approach on several levels to the problem. "Why build a tower?" he asked. The medieval reason supplied by church historians was as a lookout and bastion of defense. Today's reasons: a structure to carry the electrically operated bells

so they can be heard by the monks at work, a symbol, a distinctive silhouette to be carried in the mind.

Then the architect asked himself a philosophic question: what can be used today as a real architectural symbol, a form which structurally is as characteristic of our time as the dome was in the sixteenth century? His answer: the cantilevered concrete slab. He turned a slab on end so it is cantilevered vertically, broke slots in it to make it more emphatic, and he had his symbol.

Behind the philosophy are also plenty of good workaday reasons for the concrete banner of St. John's: it provides a continuous calm surface in relation to the corrugated rhythm of the church itself. It is a notable entry for the church, suddenly revealing the glass end wall. And it permits this glass wall to be oriented north, virtually a requirement of the site, yet retain reflected south light. But more than anything else, says Breuer, it will be "a strong statement before you come to the church."



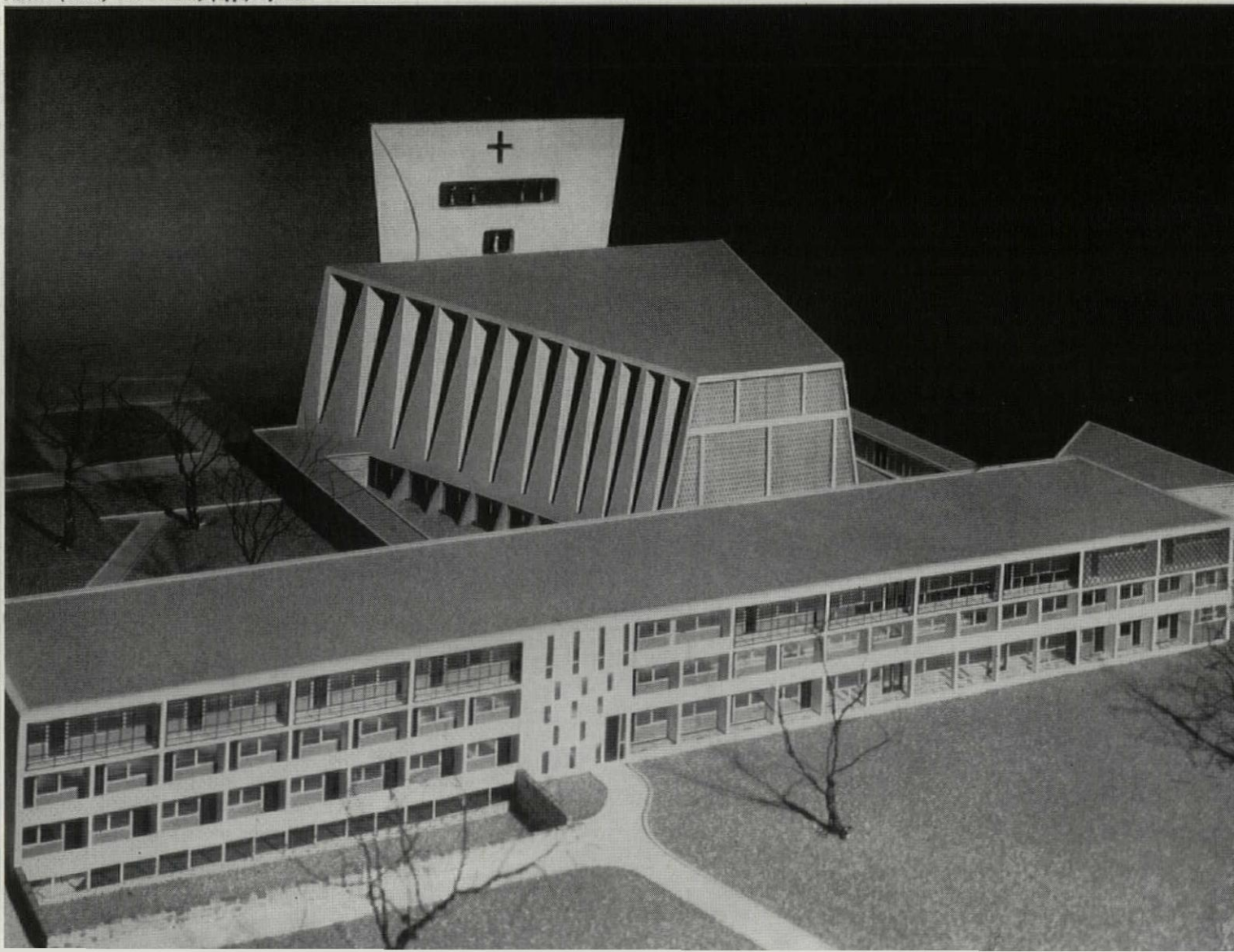


**Structure.** The side walls and roof of the eloquent monastic church will in effect be made up of a series of unique concrete bents, spaced and connected to make up a bearing wall, stiff in the same way corrugated cardboard is stiff. This bearing wall is then lifted on either side on top of a beam supported by masonry piers. The spanning portion of each bent is hollow, with a triangular section.

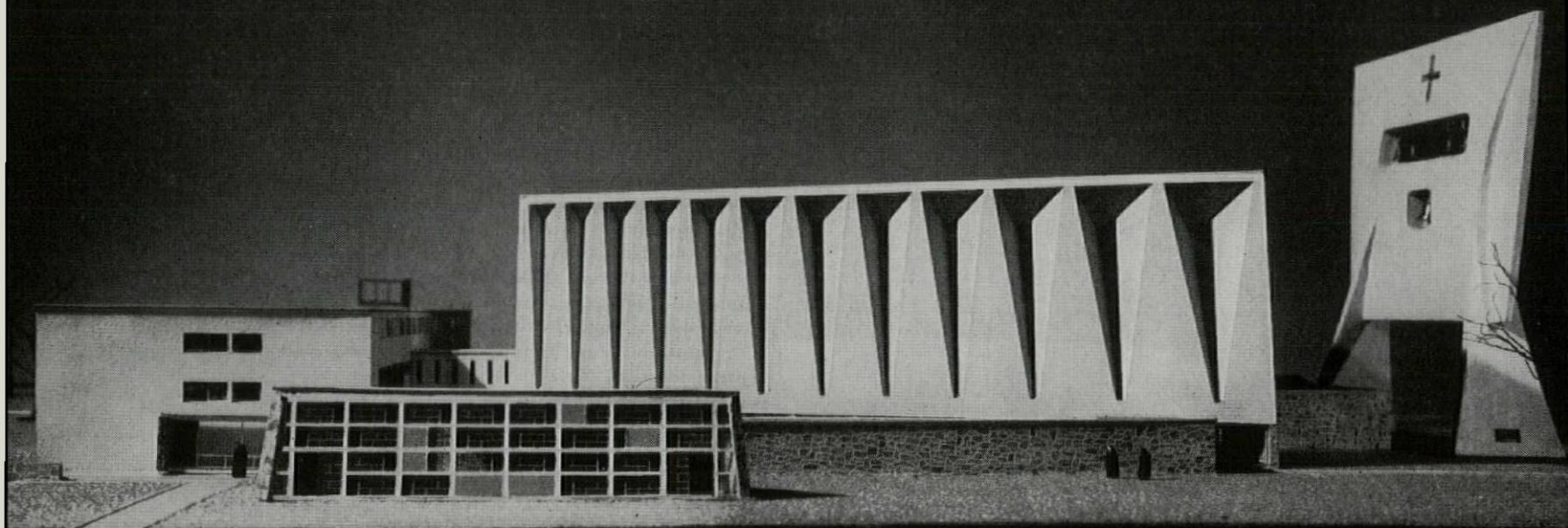
The buttresslike supports under the beams serve another function. Low glass walls between them will allow an awareness in the church of the quiet garden outside, but the buttress will block sight lines before they get long enough to be distracting to the services. The great glass wall at the north end of the church is purely a curtain.

**South wall of monastery** (foreground below) has balconies or sunshades which admit the winter sun so welcome in Minnesota, but block the summer sun.

Photos: (below) Ben Schnall; (opp.) Lydatas







Monastery, chapter house, church and bell banner as they will appear from east

## "Shadow building"—replacing a campus bit by bit without disrupting its operation

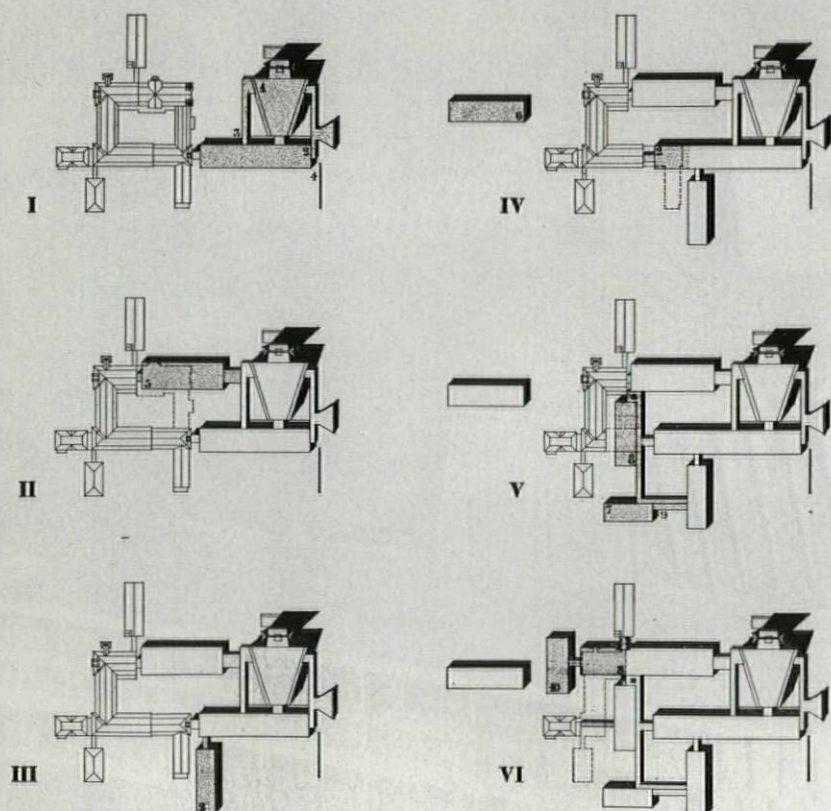


Photo (top): Ben Schnoll

Even more important to the Benedictines of St. John's than any one building is Breuer's over-all design, which in time will replace three quarters of the present monastery and campus, but without disrupting its operation. This the architect calls "shadow building"—erecting a building in the shadow of an existing one, then moving into the new building and razing the old one. How carefully Breuer has plotted his shadows can be seen in the six progressive rebuilding stages shown in the central complex of the group (diagrams left). The new buildings are like an organism which slowly devours and absorbs the old. The timetable of building is indefinite. The complete plan envisions 19 new buildings to be added over the next 100 years, indicating that Breuer's office may outlast even McKim, Mead & White.

St. John's, in function, will be a more traditional monastery when it has been remodeled than it is today. Where present organization of the buildings makes the ancient monastic requirement of sequestered, cloistered living quarters for the monks difficult, the new plan has this as a basic quality. One corner of the entire plan, beginning with the monks' stalls in the church, will be theirs alone, and it will face the quiet of the lake.

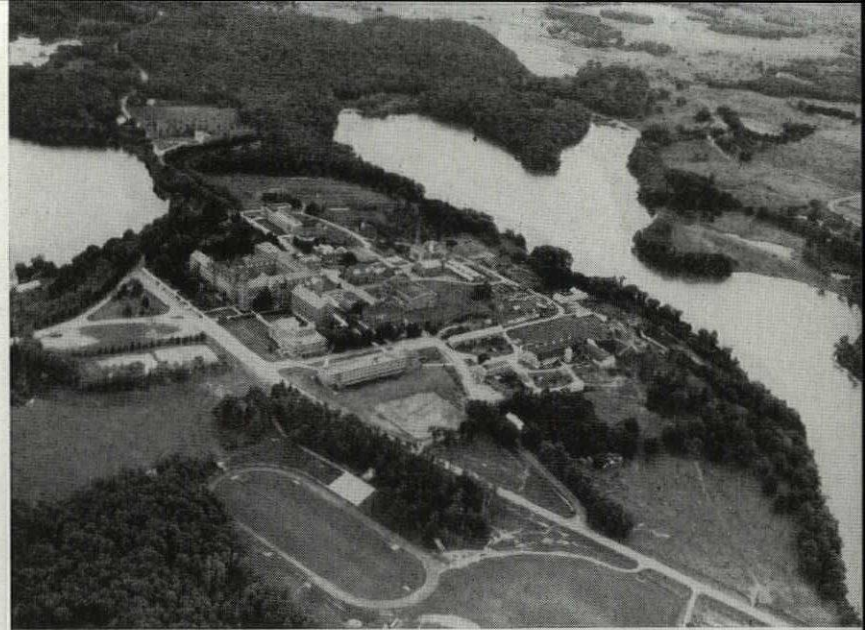
Covered walks, in cloister tradition, lead on the most frequently traveled paths from this monastic community to the school and college groups. The monastery garden itself has similar spaces which are more public:

- ▶ The gardens alongside the church, which are to be "landscaped in an elemental way, not at all a lavish garden."
- ▶ The monastery patio, a small, landscaped square with diagonal walks and sitting areas.
- ▶ A public square—an approach to the church, with a covered walk around it.

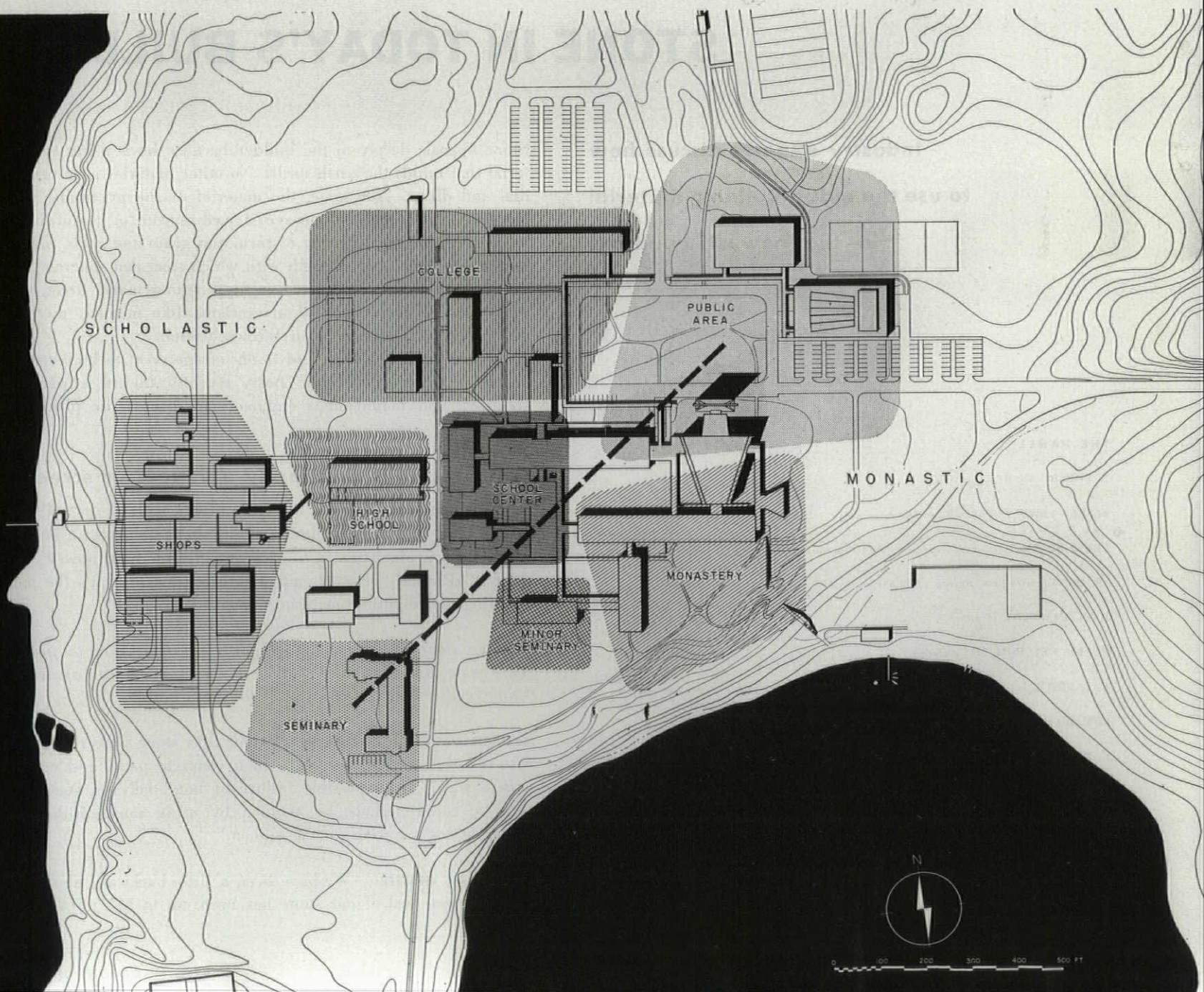
The program is not one of real expansion. Says the abbot: "This whole plan is . . . a containment program . . . a program which permits us to give our present numbers the facilities they need. We don't want at all to give the impression we want to be bigger. We want to be more effective. . . ."



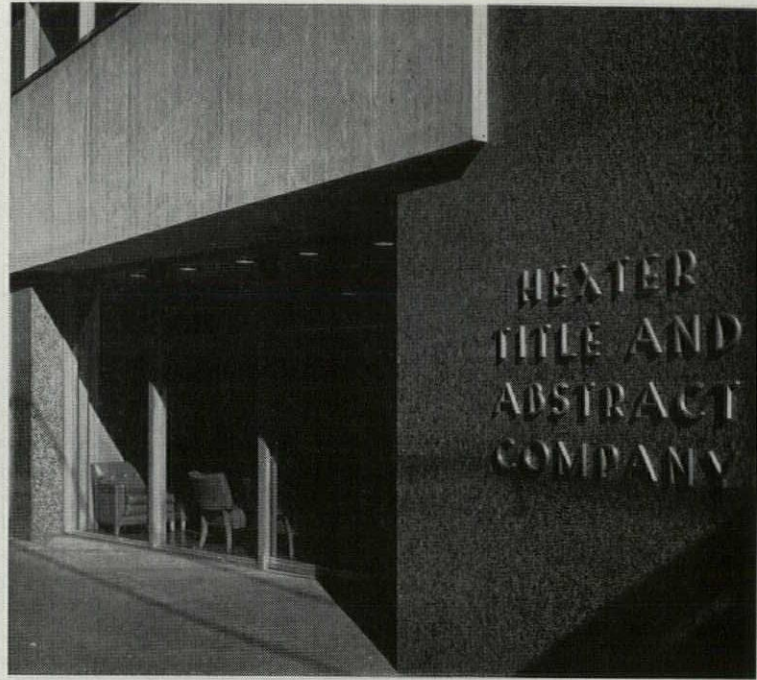
**Present monastery and campus,** sited in the rich lake country of Minnesota in 1856, just grew.



**New master plan:** monastic area and ecclesiastical buildings will be drawn to southeast in eventual grouping, with school and student buildings to the northwest. Church, library and administration will be at the meeting of these two major areas. Dash line defines generally cloistered area of monastery, monastic seminary and diocesan seminary. Planting and landscaping will further distinguish various areas. Outside traffic will enter the main campus only in the square and the parking areas near it. A main service road will join shops with quad-rangle. Other service and maintenance traffic will be carried on pedestrian paths with paved shoulders.







Stone panels in contrasting colors are used by Dallas Architect Howard R. Meyer to give big impact to small building.

## STONE IN TODAY'S BUILDING

**Industry experts discuss how  
to use the oldest building material  
in the newest buildings**

### THE PANEL

S. ROBERT ANSHEN, *architect*

ALFRED LEWIS AYDELOTT, *architect*

LEWIS BEACH, *maintenance engineer, Yale University*

DR. OLIVER BOWLES, *Bureau of Mines, retired*

KARL KAMRATH, *architect*

MORRIS KETCHUM, JR., *architect*

B. A. REITH, *International Cut Stone Assn.*

EDWARD D. STONE, *architect*

E. C. WEBSTER, *International Cut Stone Assn.*

CARL ZIMMERMAN, *International Cut Stone Assn.*

DOUGLAS HASKELL, *editorial chairman, ARCHITECTURAL FORUM, moderator*

Stone appeals deeply to the builder because he is using the material that builds the earth itself. No other material is so primordial and direct. Yet stone, the material of the pyramids, poses new problems in the jet-flight age. Loved as ever for its durability, its strength, its great variety of form and grain and color, natural stone lacks the tensile strength with which steel and concrete have stolen from it today's large structural frames; and stone, with its weight, must be handled in craftsmanlike manner, piece by piece; it cannot be molded or thrown around.

To meet their problems and to encourage creative imagination, the International Cut Stone Assn. recently invited a panel of architects and maintenance engineers to discuss the place and future of cut stone.

### Stone today is principally a veneer or screen

**SCIENTIST BOWLES:** "The old stone buildings with stone walls are nearly gone. Stone in our larger buildings is no longer a bearing material; it is almost down to a veneer in some form now. People want it. Properly selected, manufactured and laid, it's the most enduring and dignified material known."

*Using stone as a veneer, and applying the veneer to precast slabs came into discussion at once as an efficient way of getting "stone quality" into thinner panels for lower cost.*

**MAINTENANCE ENGINEER BEACH:** "Might thin stone veneer, perhaps with a beveled edge, be cast with a concrete panel and erected with a wall? Any possible failure of bond between stone and concrete could perhaps be avoided by using some of the new waterproofing materials such as silicon."

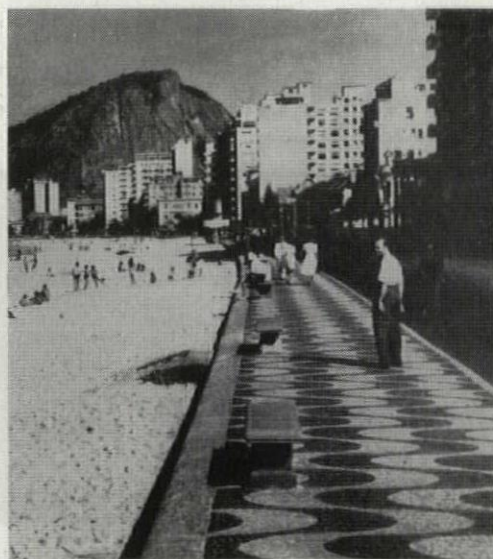
**QUARRYMAN WEBSTER:** "We have been a little backward about this use. A great deal of our stone has been cut to  $\frac{3}{4}$ " thickness to

*Photos: Ulric Meisel; Ben Schnall;  
Wide World; United Press*

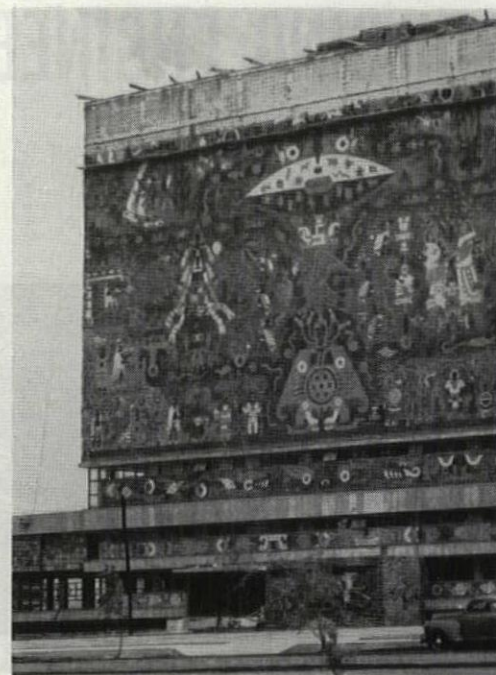




**Stone veneer** of Philadelphia Youth Center is laid vertically like veneer.



**Stone walk** at edge of bathing beach in Rio suggests floor treatment for buildings.



**Stone mosaic**, ancient decorative device, completely covers Mexico University's new library.

be used on a scatter base; but we have hesitated to apply it directly to a concrete slab and then erect it. The next two or three years may see a great deal of such use."

*Using stone as a veneer on a panel—and then omitting the panel—was the humorous description of stone curtain walls without backup. Marble is already being used this way and the subject is still wide open for other stones, such as limestone or granite.*

**ARCHITECT KARL KAMRATH:** "On the Andersen Cancer Hospital at Houston we hoped for a facing of indigenous stone; but we ended with  $\frac{7}{8}$ " marble because, oddly enough, we could not afford *not* to use it. A marble skin (without backup) came to about \$2 per sq. ft. in place. Texas limestone would have had to be 3" thick and would have cost about \$4 in place; Texas granite about \$8. The best grade of brick would have cost about \$1.75. Our savings on the marble curtain wall were dual: we lightened the structure as a whole, using less steel and concrete; and again we picked up 4" of usable space all around the building with the thinner marble, picking up about 15,000 sq. ft. total at \$25 per sq. ft. This alone saved better than \$650,000 for the people of Texas.

"Two incidental gains were important. Against our hurricane rains, this marble has an absorption of only 0.01% compared with absorption up to 15% with other masonry. And we found that the resistance of 1" of marble to dangerous radioactivity from the isotopes used in cancer treatment is equal to  $\frac{3}{16}$ " of lead."

### Stone under, over and all around

The architects declared they could use stone veneer in far greater variety than has yet been achieved, and for wider purposes.

**Underfoot**, today's use of stone in the US for floors and pavement is rudimentary, it was agreed, compared not only with the famous mosaic floors of Ravenna or Pompeii, but compared even with the beautiful modern Copacabana pavement at Rio (photo above) or the lava pavement of Mexico University. Our flagstone, random slate, and small-scale terrazzo treatments should be supplemented by a wider variety of stones, used veneer-style

in a greater variety of patterns. In terrazzolike applications, it was suggested that stone chips might include larger sizes and larger variety of size permitting bolder patterns.

Objections that were once powerful are fading. Where a technical member present pointed to the "danger" of an uneven rate of wear between different kinds and colors of stone used in a floor pattern, some architects half humorously remarked that a pleasant and rounded "unevenness" could even be an advantage, yielding "foot experience." And indeed more than one panel member pleasantly recalled the former Champlain Black and Georgia White floor of the Washington Union Station, once so handsome but now replaced by neutral smooth terrazzo, and the Murray Hill Hotel floor in New York, long since demolished. Both were remembered "through our feet" and such unevenness, reminding the walker that he has feet, may not be unwelcome in an age when the fondness for slick neutrality is passing.

**Stone overhead** as well as underfoot in floors and alongside in walls was another surprise proposal of some of the architects, one of whom recalled the unmatched effect of this consistent use of a single material in Frank Lloyd Wright's theater at Taliesin West. The demand for "caves"—very sophisticated ones—is growing in today's world of so much glass and openness.

**Carried through** from exterior to interior, stone was more seriously discussed as an idea not only for houses but for public lobbies, and using not only rough surfaces but dressed stone.

### The honest stone skin

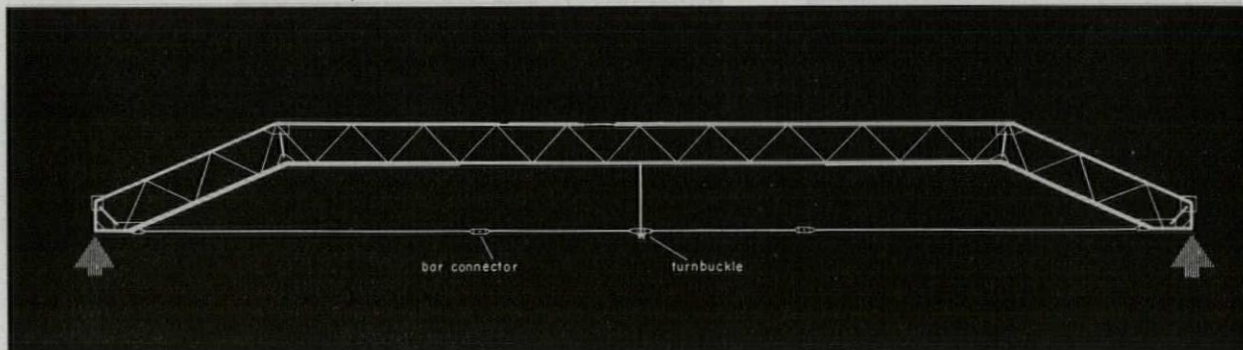
The stone men present were quite amazed at the intensity with which the architects discussed stone veneer as an esthetic problem. Quite obviously a material so structural in all its associations is difficult to treat visually as a "skin." Ledge stone or "orchard stone" gave the architects their roughest time, especially because its strata must lie horizontal and not flat with the wall. The trick seemed to consist of using even this rough-faced material consistently in large panels which neither appear to be supporting anything nor laying the weight of their heavy stone on openings.



# BUILDING ENGINEERING

1. High-tensile steel for strength and economy
2. Precast hipped frames for clerestory lighting
3. Concealed directional lighting for drafting office
4. Welded steel arches for low-cost gymnasium roof
5. Stainless-steel insulated panels for durable curtain wall
6. Cylindrical concrete cores for blast-resistant building

THE SKYLON  
No. 1

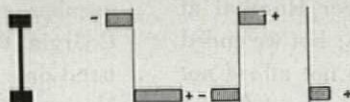


Three prestressing bars are tensioned by turnbuckles beneath 60' lattice girders in British factory roof. Entire structure is fabricated from high-strength rerolled rail steel.

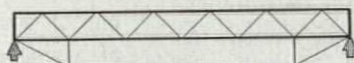
## 1. PRESTRESSING COMES TO STRUCTURAL STEEL



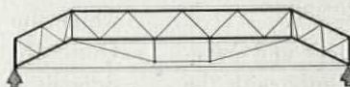
**Prestressed concrete** applies compression at bottom of beam to induce tension at top.



**Prestressed steel** requires prestressing device underneath lower chord to induce tension in upper chord.



**Queen post struts** hold tensioning cables beneath lower chord to induce bending moments shown. Upper chord is in tension, lower chord in compression.



**Double prestressing system** superimposes second trapezium to bending moment diagram, more accurately counteracting bending moments resulting from uniform loading.

**High-tensile steels are applied to mild steel framing to counteract dead weight, double load capacity and improve rigidity**

High-tensile steels can carry up to eight times the working stresses of ordinary mild steels, 160,000 vs. 20,000 psi, yet cost only three times as much. In theory, this might permit weight savings up to 87% and dollar savings up to 62%. Although such an extreme case is impractical because of excessive elongation, it indicates that to carry a given load, high-tensile steel is cheaper than mild steel. Previously limited to suspension bridge cables, these high-strength steels are now being used in prestressed steel structures in Europe and the US.

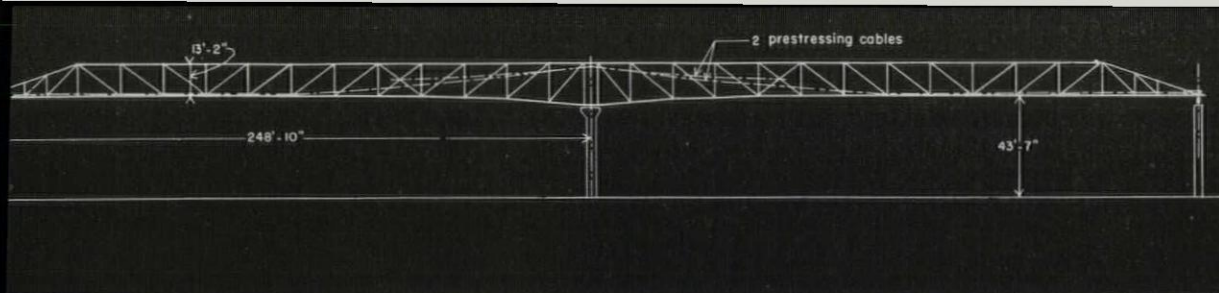
The advantages of prestressing steelwork are twofold: 1) there is the possibility of cutting both weight and costs by more efficient use of materials, and 2) it is likely to produce a stiffer, more continuous structure by reducing the slack between components.

**In Europe, prestressing has been used in four important steel structures:**

► The Skylon, a 250'-high vertical device designed by Structural Engineer Felix J. Samuely for the 1951 Festival of Britain, was suspended some 40' off the ground in a cradle of high-tensile cables held by three

**First prestressing** of a steel structure reduced wind sway on 250' Skylon built for Britain's 1951 festival. High-tensile cables supporting Skylon are tensioned to 140,000 psi by built-in jacks at base of 70'-long struts. This placed lower half of Skylon in compression.

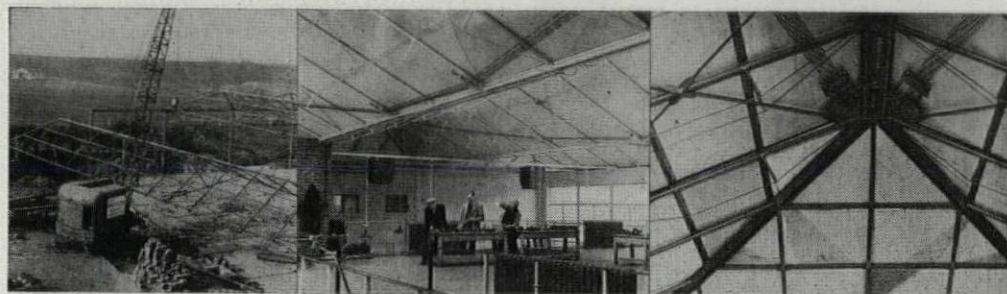
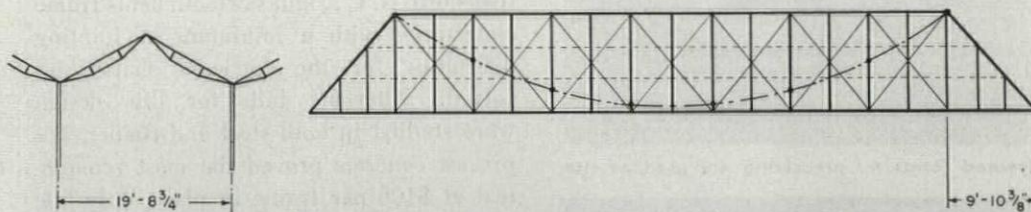




**Prestressed girder** spans 502' over single column in Belgian hangar. Two sets of high-tensile cables are used, a set anchored at each end of the lower ends of the truss, extending over the central support and terminating at about the third point of the other span.



Photos: (opp. p.) B. I. Callender's  
(right) H. Farrimond



**Space frame roof** spans 90' x 90' British school workshop with no internal supports. It is tied together by prestressing wires (in parabolic outline) to form an integrated, homogeneous structure.

supporting struts (diagram left). By prestressing the cables, estimated sway at the top due to 80 mph winds was reduced from a possible 4' to 9". This principle may be applied in the US to high TV towers which are usually tied down by high-strength bridge cables (under tension but with no deliberate prestressing).

► In a Belgian hangar, Professor Gustave Magnel used eight tons of prestressing wires in a 502' two-span girder continuous over a central column. The high-tensile steel replaced 26 tons of mild steel that would have been required in a conventional design, and saved 12% in weight and 4% in erected cost (diagrams, above).

► In a factory roof at Harlow, England, Structural Engineer R. A. Sefton Jenkins bent 60' trusses upward and stretched high-tensile bars with turnbuckles beneath the lower chords to resist applied loading (top).

► In a workshop roof at Wigan, England, Felix Samuely used high-tensile wires to prestress an entire 90' x 90' space-frame structure (above). With no internal columns this roof structure weighs only 3.72 psf.

**In the US,** too, several interesting applications of prestressed steel are under way:

► Structural Engineers Ammann & Whitney have submitted plans for prestressing an existing railway viaduct spanning 84' in Milwaukee. High-tensile steel bars under 95,000-psi tension reduce working stresses in the main plate girders, which, under new increased loading conditions, would other-

wise be overstressed by about 30%. By tensioning three 1"-diameter high-alloy steel bars along the bottom flange of each girder, maximum stresses are reduced below those in the original design, thus avoiding the necessity of replacing the entire structure. ► US Army engineers are prestressing some of their standard prefabricated bridging equipment with high-tensile steel bars to double their carrying capacities. Thus present bridges can be strengthened to carry the army's new 60-ton T-43 tanks.

► US aircraft engineers are prestressing the rotor blades of large passenger helicopters to reduce blade flutter.

**Principles of prestressing.** Prestressed steel usually consists of high-tensile steel tensioned against a mild steel girder or framing system to develop a stronger, more efficient structure. Since steel requires less bracing in tension than in compression, a few highly tensioned bars can counteract the forces created by applied loading and permit precise control of working stresses in any part of a structure. Thus, as in Samuely's space-frame roof, a complex of individual framing members can be tied into a fully continuous rigid structure, in which stresses above the elastic limit in any part will be absorbed by a redistribution of bending moments, thus retarding the failure of the whole structure.

Although prestressed steel structures have yet to be built in the US, the strengthening effects of continuity were recognized

by an American Institute of Steel Construction Specification in 1946, which allows an increase of 20% in the permissible stress at the supports of continuous structures.

While a cross-sectional area of 1 sq. in. of high-tensile steel could, in theory, replace up to 8 sq. in. of mild steel in the bottom chord of a girder, this is not the most effective way to use the more expensive metal. For one thing, elastic deformation would also be eight times greater and deflections might be excessive. For another, high-tensile steel used within the depth of the girder only gives direct compression to both top and bottom chords with no effect of prestressing.

If, however, the high-tensile steel is stretched beneath the lower chord, the effect on the girder is one of direct compression plus a bending moment, which is proportional to the distance between the prestressing steel and the girder and places the upper chord in tension and the lower chord in compression. As Engineer Sefton Jenkins puts it, "the dead load can be 'jacked' out and carried by high-tensile steel."

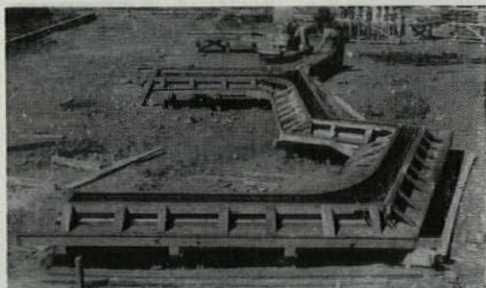
Suppose a mild steel lower member in a girder can take 20,000 psi in tension with safety. Then, by prestressing it and bracing it against buckling, the member can be initially compressed to about 30,000 psi (a reduced safety factor is permissible since the member is a tensile one and no further compression will ever occur). Now the

*continued on p. 174*



## 2. CONCRETE FRAME CUTS SCHOOL COSTS

Precast bents built for \$106 each, hold school cost down to \$8.78 per sq. ft.



Plywood forms for precasting are used at site



Finish is rubbed smooth 24 hours after pouring



Hoisting of frames is done by truck crane

Double-loaded classroom corridors require top lighting or clerestories for good daylighting of the inner third of the room. In the Lindley Park elementary school at Asheboro, N. C., rigid sawtooth bents frame clerestories with a minimum of jointing difficulties for the intricate shapes involved. Alternate bids for this design were studied in both steel and timber, but precast concrete proved the most economical at \$106 per frame in place, only 50¢ per sq. ft. of covered area. Moreover, the insurance rate for the concrete frame proved very favorable, only 7¢ per \$100 vs. 25¢ for a nearby school with fireproofed steel columns, exposed steel roof framing.

Main bents are composed of two identical 28' classroom frames, back to back, joined by an 8' poured-in-place beam over a central corridor (photo below). Classroom frames are precast in one piece, weigh 3,500 lb. Designed by the Hardy Cross moment distribution method, their interior columns are sunk in a 4' x 2' x 3' deep concrete footing, while their exterior columns are semihinged, connected to a 12'-long reinforcing bar set transversely in the floor slab. Bents are placed 8'-4" o.c. and are connected by four cast-in-place longitudinal beams located above the interior columns and beneath the clerestories.

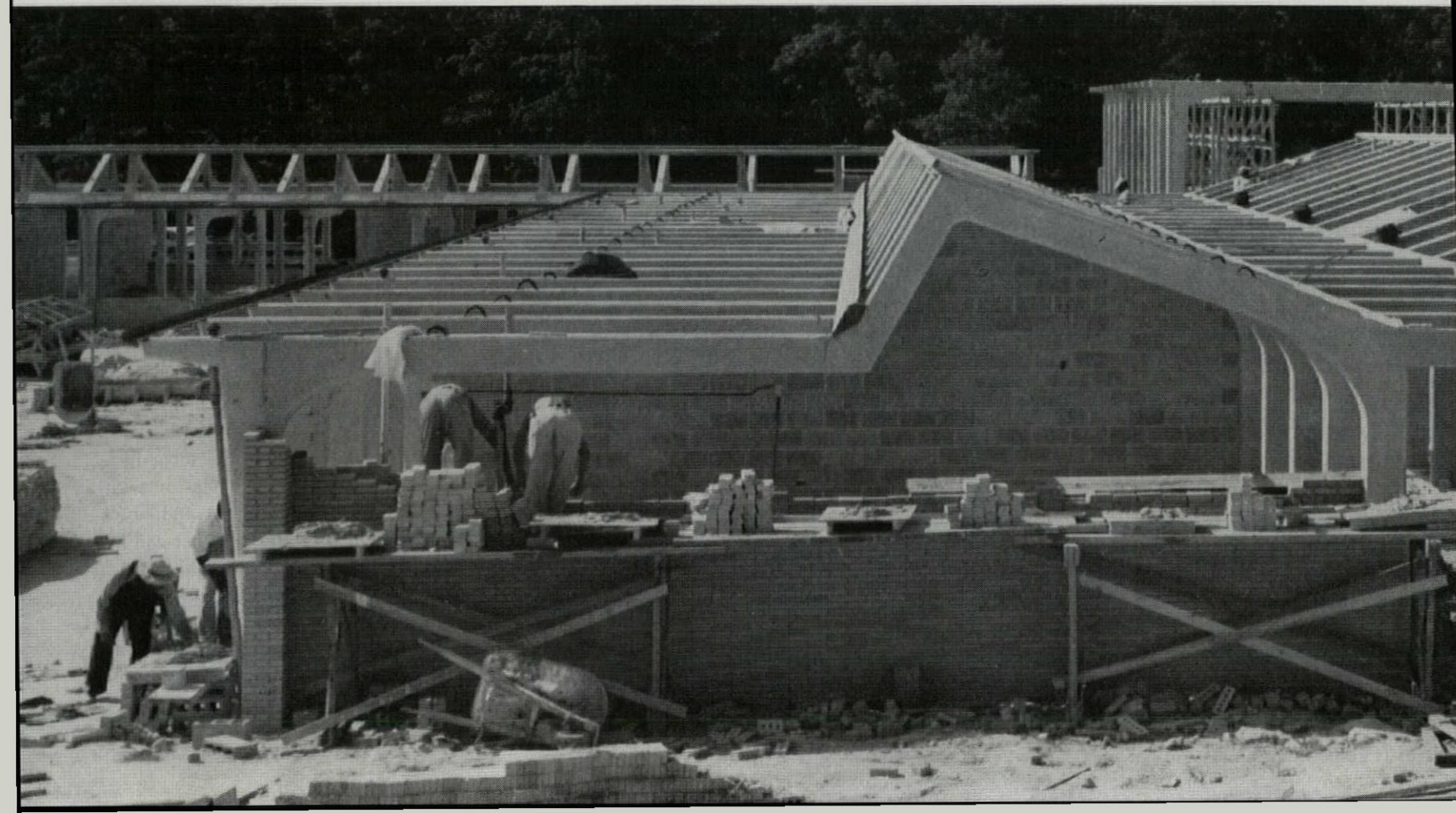
The clerestories, rising 4'-3" above the eaves, are set at an angle of 30° to the vertical to give maximum light to the room below. They are fitted with heat-absorbing, glare-reducing glass, 4' deep and continuous for the full length of the building. No blinds are necessary.

The 92 sawtooth frames used in this school were precast at a rate of five a day in plywood forms on timber platforms. A 3,750-psi concrete was specified, the average strength increasing from 3,500 psi after seven days, when the bents are lifted into position, to 5,000 psi after 28 days. All exposed concrete surfaces are rubbed smooth, at a cost of under \$10 per frame.

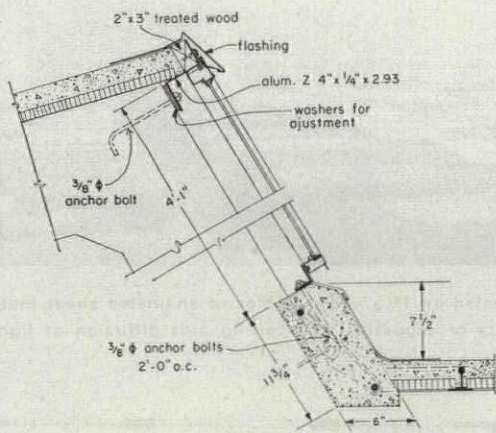
Classrooms are 32' wide, separated by painted masonry block partitions. The roof is poured gypsum on rigid acoustical formboards carried on light purlins spanning between bents; cost 45¢ to 50¢ per sq. ft. This is topped by built-up roofing at 18¢ to 20¢ per sq. ft.—total cost of roof, 65¢ to 70¢ per sq. ft.

Containing 20 classrooms, an auditorium and a cafeteria, the school covers 41,443 sq. ft. and was built for \$8.78 per sq. ft. It was designed by John James Croft Jr., architect, and Walter Preimats, structural engineer. Dickerson, Inc., were the general contractors.

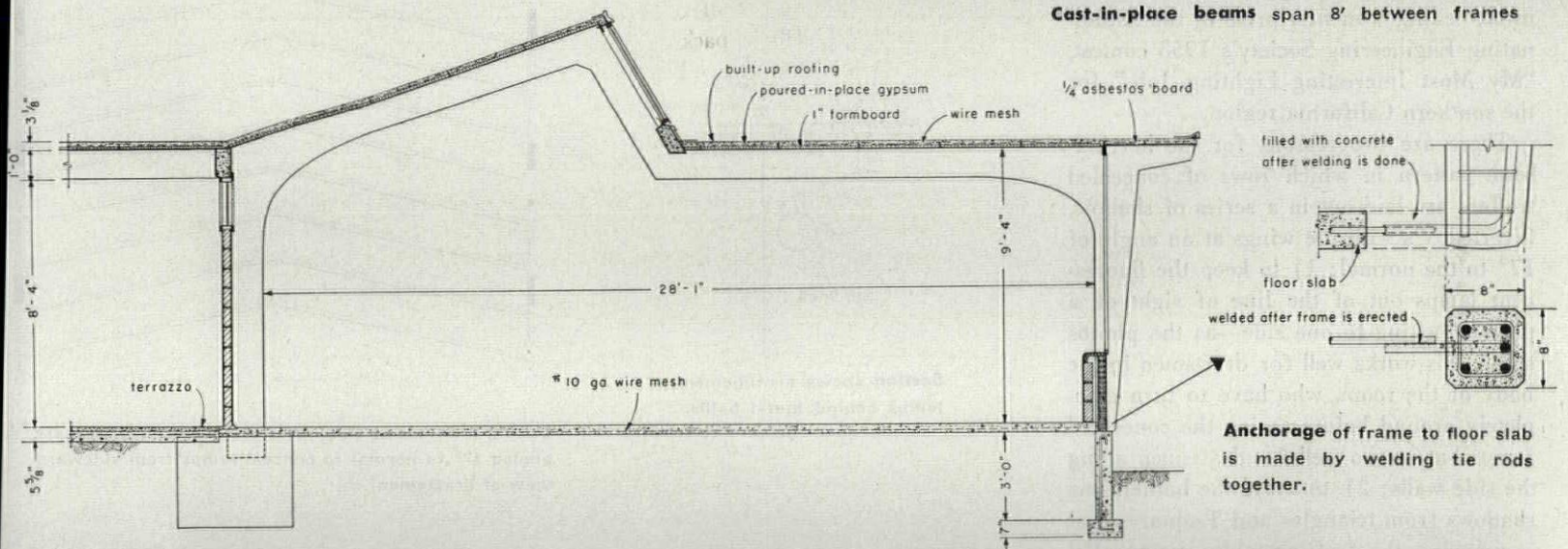
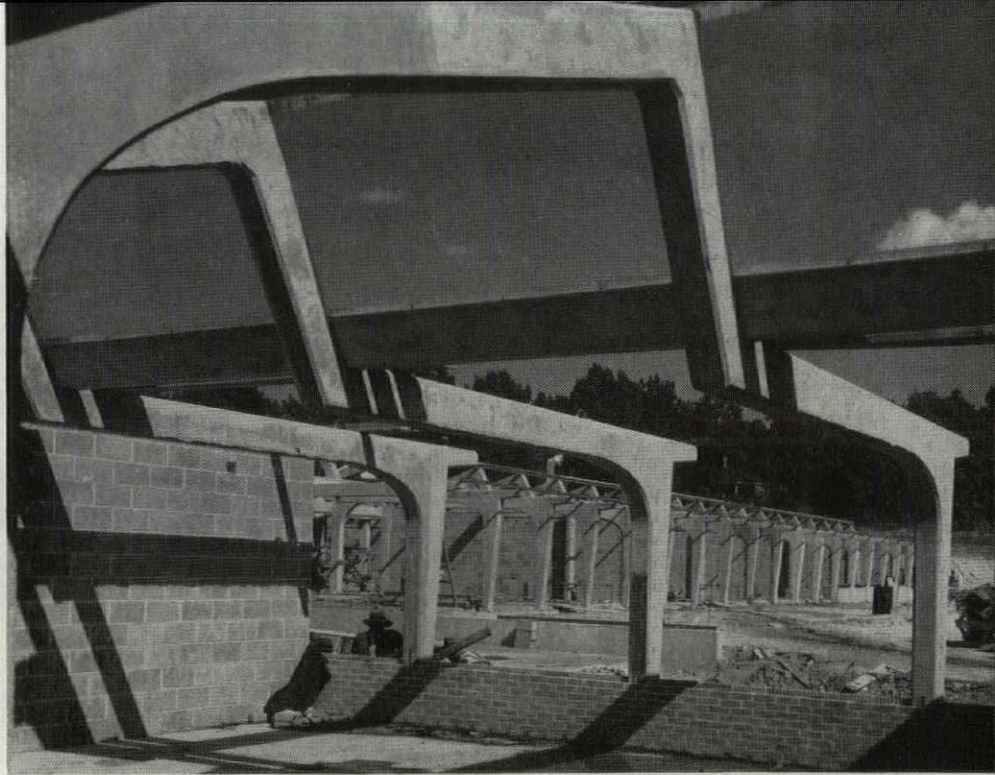
Hipped frames span 28' over classrooms. Larger precast frames in background span 37' over auditorium





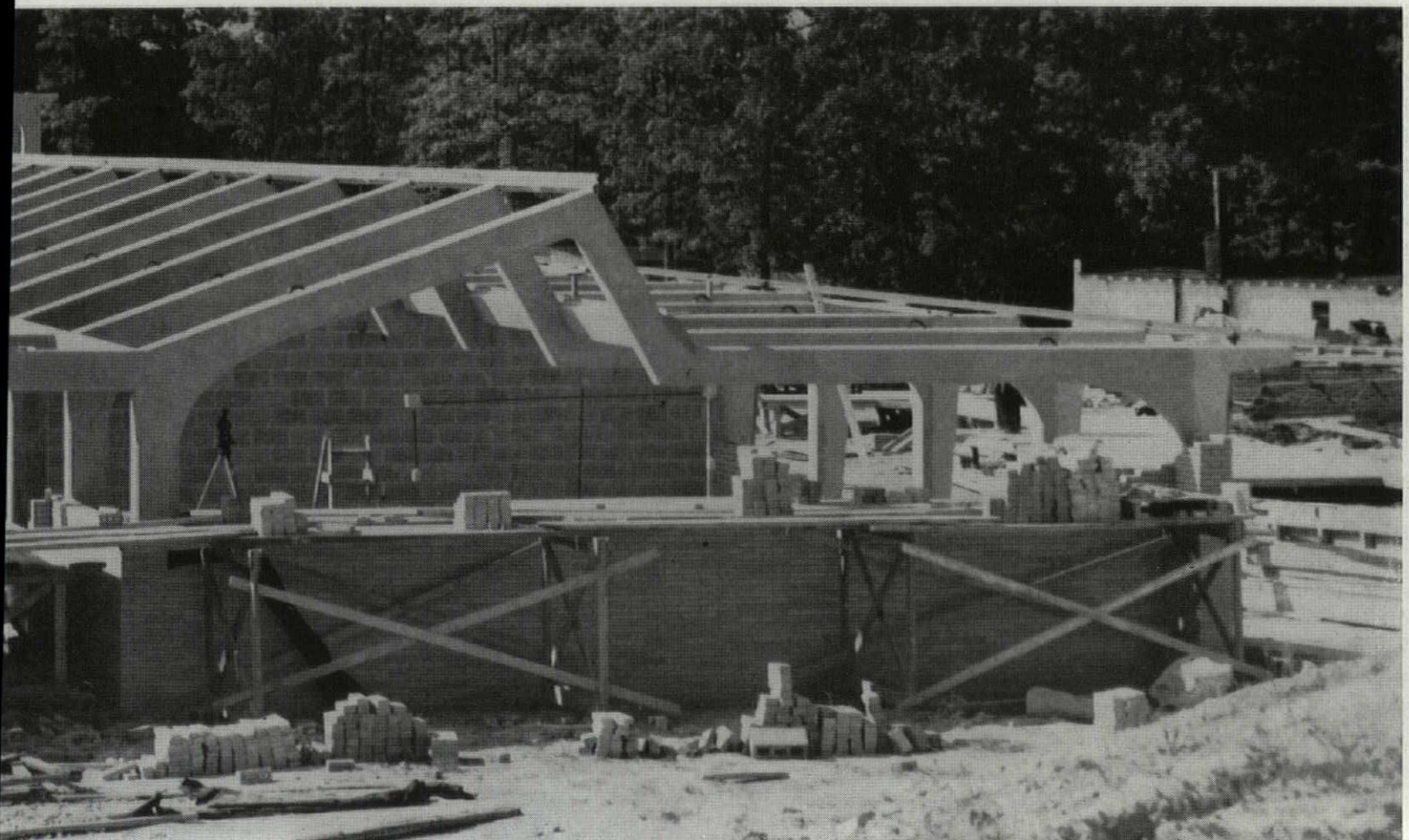


Clerestory windows are continuous throughout classroom wings.



Cast-in-place beams span 8' between frames

Anchorage of frame to floor slab is made by welding tie rods together.





### 3. LIGHTING WITHOUT GLARE

**Herringbone pattern of concealed fluorescent troffers minimizes shadows, produces 105 foot-candles for \$1.50 per sq. ft.**

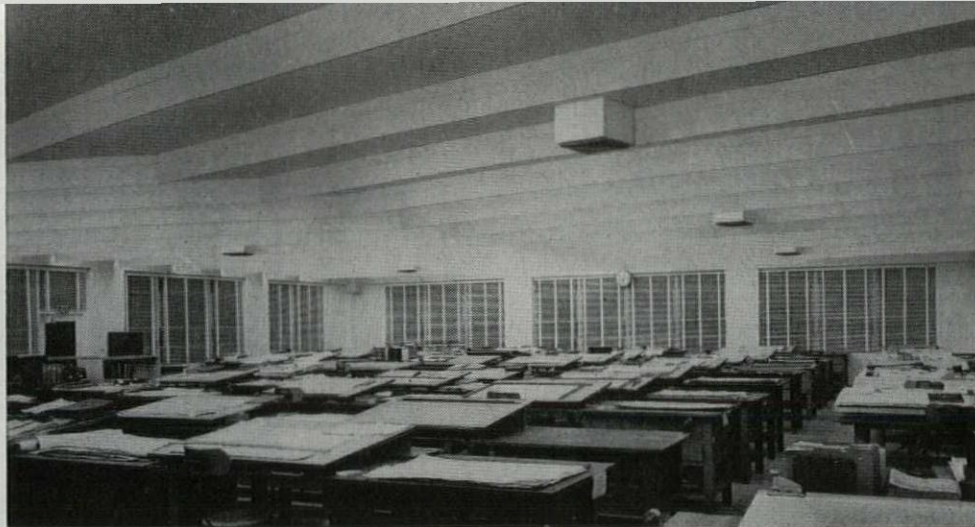
Aided by a permanent arrangement of desks, all facing the same way, this directional over-the-shoulder lighting design provides up to 120 foot-candles of illumination at low cost without fatiguing glare bouncing up from highly reflective drawing boards. It consists of concealed fluorescent troffers arranged in a herringbone pattern of rows 5' o.c. Designed for high efficiency, low installation and maintenance costs, and pleasing appearance, this unusual ceiling won first prize in the Illuminating Engineering Society's 1953 contest, "My Most Interesting Lighting Job," for the southern California region.

There are two reasons for the herringbone pattern in which rows of concealed troffers are laid out in a series of shallow, inverted V's with the wings at an angle of  $17^\circ$  to the normal: 1) to keep the fluorescent lamps out of the line of sight of a person looking to one side—as the photos show, this works well for draftsmen in the body of the room, who have to turn completely around before seeing the concealed lamps but not so well for draftsmen along the side walls; 2) to avoid the bothersome shadows from triangles and T-squares that occur when the drafting tables are parallel to the fluorescent sections.

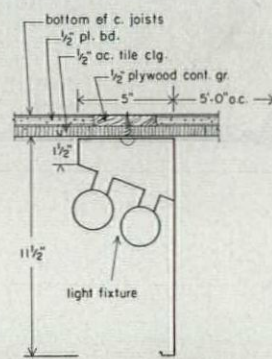
Fluorescent troffers, each fitted with two 40-w. lamps in parallel, are concealed behind  $11\frac{1}{2}$ "-deep enameled sheet metal baffles, fastened directly to the 11'-high acoustical ceiling. There are 14 pairs of lamps in each row, giving a total lighting load of 20 kw, or 4.85 w. per sq. ft. Since all the lamps are identical and easy to get at, maintenance is simple and inexpensive.

Illumination levels range from a high of 120 foot-candles at the center of the room, to a low of 90 foot-candles at the rear corners—an average of about 105 foot-candles. Illumination readings taken in the center of the room on a  $45^\circ$  angle show that 54% of the light comes from behind, 31% from the sides and 15% from the front.

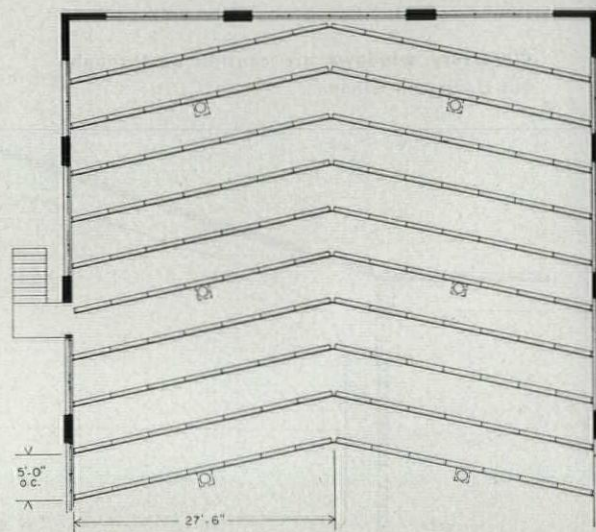
This directional lighting plan was designed for the Western Precipitation Corp.'s drafting offices in Los Angeles by Oscar W. Meissner, illuminating engineer; Heitschmidt and Thompson are the architects, and Chauncey Mauk the electrical engineer.



**Draftsman's view** shows how lamps are concealed by  $11\frac{1}{2}$ "-deep baffles of enameled sheet metal hung from 11' high ceilings. Reflective quality of acoustical tile ceiling aids diffusion of light.

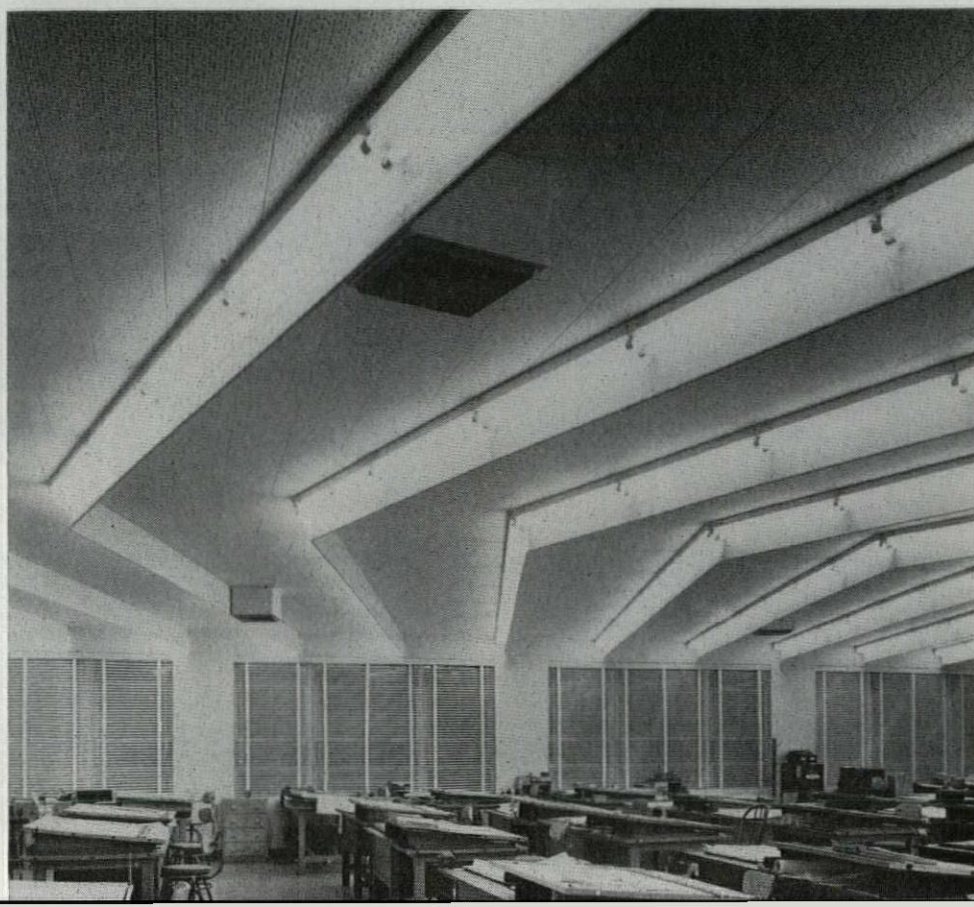


**Section** shows arrangement of lamps behind metal baffle.



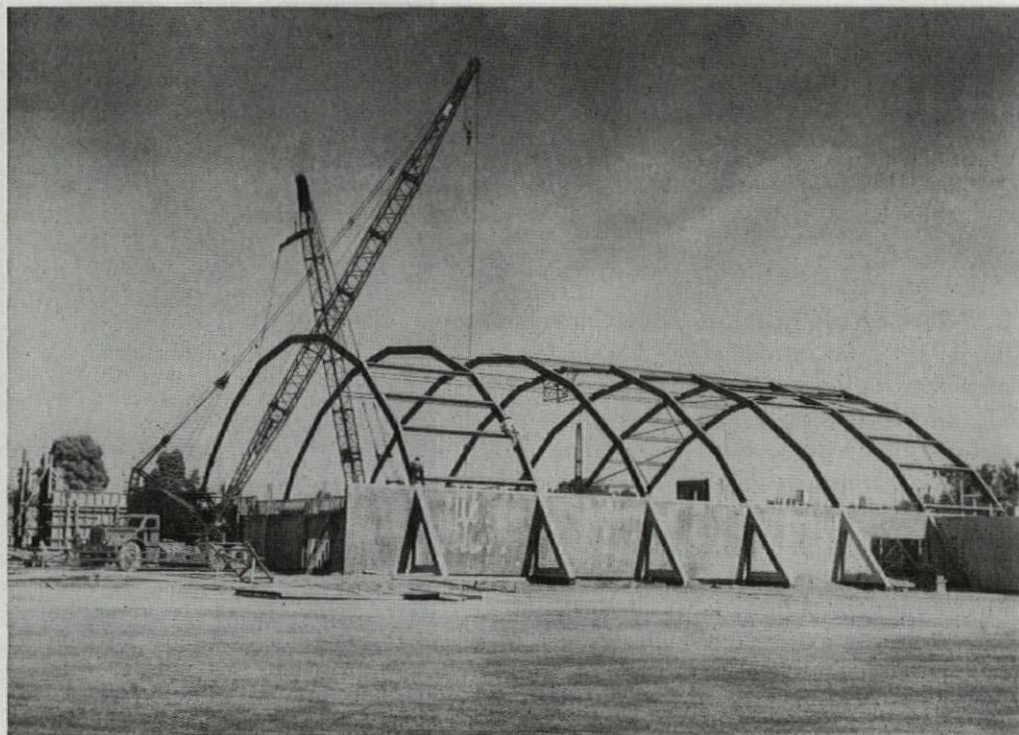
**Ceiling plan** shows how rows of fluorescent lights are angled  $17^\circ$  to normal to conceal lamps from sideward view of draftsmen.

**Locking the "wrong" way** reveals light source, double rows of fluorescent lamps producing an average 105 foot-candles on desks. Boxes attached to ceiling are air-conditioning outlets.





## 4. WELDED ARCHES SPAN GYMNASIUM



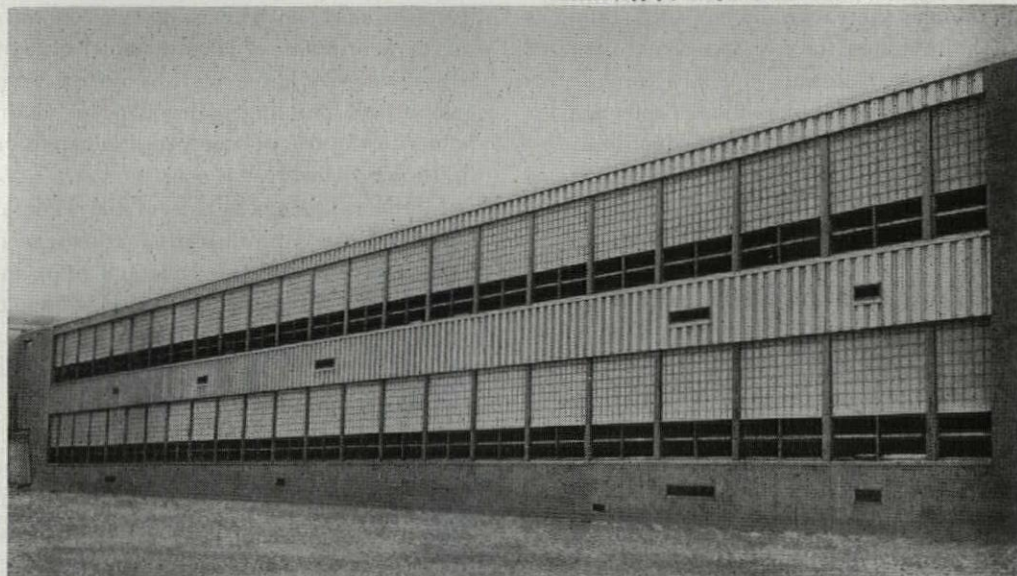
Welded steel arches are hinged at concrete buttresses

Two-hinged welded steel arches proved most economical to span a 125'-wide gymnasium at the Santa Maria Union high school, Calif. Comparative bids: welded steel arches, \$1,085 each, without fire-proofing; *in-situ* concrete arches, \$2,760 each; and laminated timber arches, \$2,000 each.

Composed of 20' long, 18" w.f. 50# sections (with 11'-long sections at each side), the arches are shop-welded in three sections. These are riveted together on the ground before being lifted into position and connected to steel hinges atop triangular concrete buttresses cast with the concrete side walls. Including 20'-long purlins, the steel framing weighs 52.2 tons, 5½ psf. It is clad with composite roofing applied on a 2½" reinforced gypsum slab poured over 1" acoustical form board. This roof weighs 16 psf and cost \$1.02 per sq. ft.

Designed to seat 2,000 spectators, the gymnasium covers 24,360 sq. ft. and cost \$10.97 per sq. ft. including equipment, a multi-use classroom and a foyer. It was designed by Daniel Mann Johnson and Mendenhall, architects and engineers.

Photos: (opp p.) Douglas M. Simmonds; (below) Smith Bros.



Stainless-steel panels are pierced by fresh-air intake openings for unit ventilators

## 5. STAINLESS STEEL WALL RESISTS CORROSION

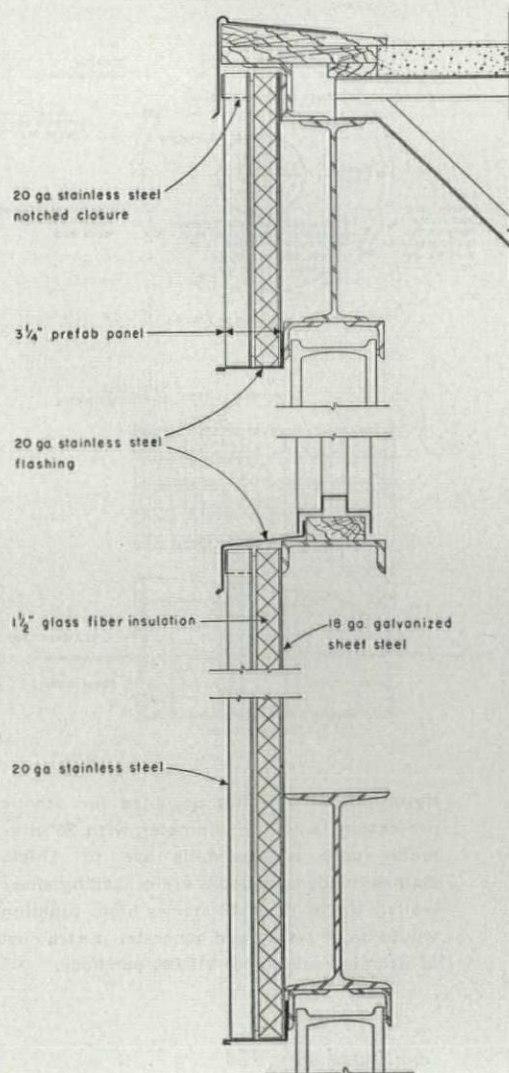
An insulated curtain wall, faced with stainless steel and backed with galvanized steel, proved no more expensive than masonry at the Edison junior high school, West Mifflin Boro, Pa., where the stainless steel was selected to help resist the corrosive atmosphere of a heavy industrial area. Costing \$3.50 per sq. ft. installed, the prefabricated panels went up 50% faster than masonry and will require little maintenance.

Insulated with 1½" of fibrous glass, the panels have a "U" value of 0.15 and weigh

6 psf. Both vertical and horizontal seam joints between panels are flush-fitting and overlap.

The two-story section of the Edison school (shown above) is steel framed. Openings in the spandrel panels are the fresh-air intakes for the unit ventilators in the classrooms.

The school is designed by H. Button and Paul F. McLean, architects. R. C. Mahon Co. engineered and fabricated the stainless-steel panels.





## 6. BLAST-RESISTANT BUILDINGS

**For the Atomic Age a tough cylindrical core inside a frangible shell could mean survival within fringe areas**

—by Engineer Bruce G. Johnston\*

"Protective cores" within multistory buildings are suggested by the Federal Civil Defense Administration in its "Interim Guide for the Design of Buildings Exposed to Atomic Blast." The same idea has been reported and carried further in the professional press (AF, Nov. '51). But what is the proper shape of the protective core from the point of view of maximum effectiveness and minimum cost?

Regardless of type of bomb, it is obvious that there will be a certain area of the target city within which destruction will be more or less complete, a fringe area wherein there will be partial destruction, and an outer area wherein damage is relatively minor. Because in bomb-resistant buildings there can be no such thing as definite design for a known load, one must simply use materials and structural forms that will offer the maximum protection for whatever added cost appears justified.

There are four principal considerations in atomic-resistant construction for fringe areas:

**1. Protection against radiation** is simply a matter of interposing as much mass of material as possible between the source of the radiation and the person being shielded. Concrete, water, earth are effective in approximate proportion to their weight per unit volume.

**2. Resistance against external pressure** is most effectively provided by the hollow sphere. Man has descended to great depths in the ocean within a spherical shell that has withstood pressures many times those within a reasonable range of a "nominal" atomic bomb. But the hollow sphere is hardly adaptable to tall building construction. The hollow cylinder of circular cross-section is the next best simple structural form—50% as effective per lb. of material as the hollow sphere—and its pressure-resistant use is exemplified by the submarine shell. It is also the most resistant to bending moment, to shear and to column action when the plane of the loads cannot be predetermined.

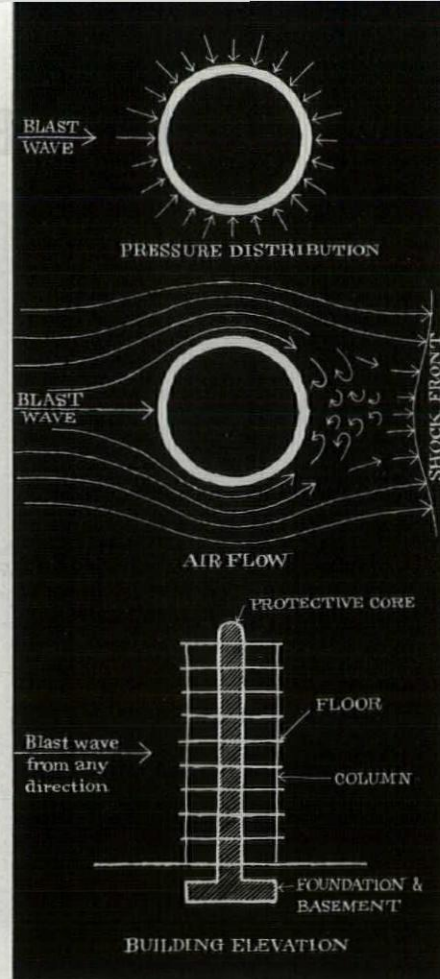
\* Professor of structural engineering, University of Michigan, Ann Arbor

**3. Effect of air gust** can be minimized by using a structural form that offers minimum resistance to aerodynamic drag. The best section is that of a streamlined airfoil—provided the gust comes from a direction parallel to the long axis of the airfoil—but if the gust comes from a direction that cannot be predetermined, a circular cylinder is again the preferred structural form. Thus, the cylinder offers minimum generalized drag in combination with maximum structural effectiveness with regard to external pressure and lateral and downward load. These qualities are schematically illustrated (below).

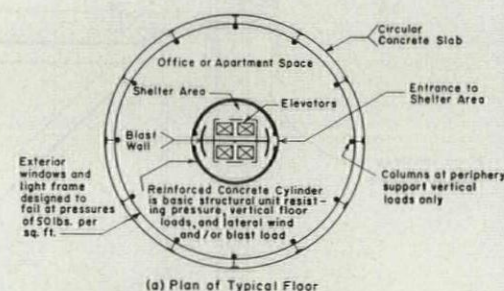
**4. Reduction of fire hazard** subsequent to blast can be accomplished by having a minimum of inflammable content within the building and by using non-combustible building materials. This again points to the use of reinforced concrete or fireproofed steel-frame construction.

In the recommendations of the Federal Civil Defense Administration it had been suggested that exterior walls and some interior partitions exterior to the core should be made of reinforced concrete. However, in fringe areas, the interior of such a building is liable to be gutted by fire; thus, the interior contents will be lost in any case with the additional hazard of temperature rise and depletion of oxygen within the core due to sustained fire. In the proposed scheme, a narrow building, the interior contents would be swept out of the structure, thus reducing the fire hazard. This event, however, might be unfortunate, since numerous small fires in the immediate neighborhood could be started by the scattered building contents. Thus the ideal concept for over-all community protection requires relatively wide intervals between individual structures as well as their improved resistance.

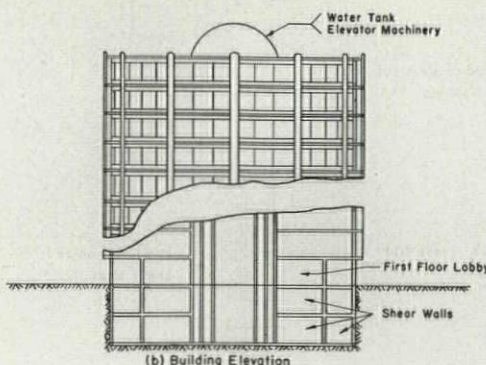
These concepts together suggest a building of circular plan with a circular cylindrical core in the center running through the complete height of the building (see sketch). Such a core would provide both vertical support and lateral shear resistance, thus making the building highly resistant to earthquake as well as to atomic



Cylindrical shape of building and protective core is suggested as best bulwark against pressure and air gust from atomic blast.



(a) Plan of Typical Floor



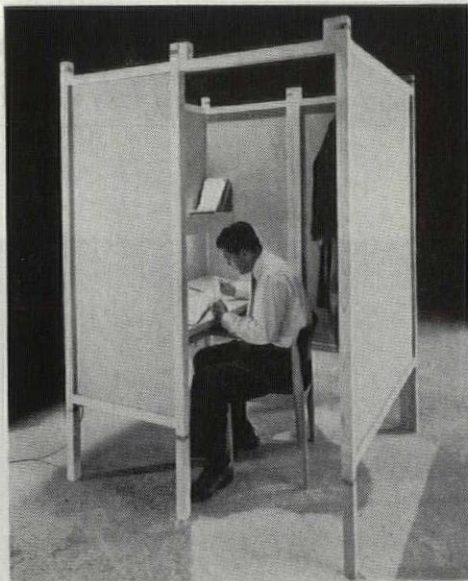
(b) Building Elevation

**Hypothetical building** designed for atomic protection is 108' in diameter with 36' diameter core whose walls are 12" thick. Baffles inside core doors are braced by shear walls. Up to 10 or 12 stories high, building would be of reinforced concrete. Extra cost of atomic resistance: \$15,000 per floor.

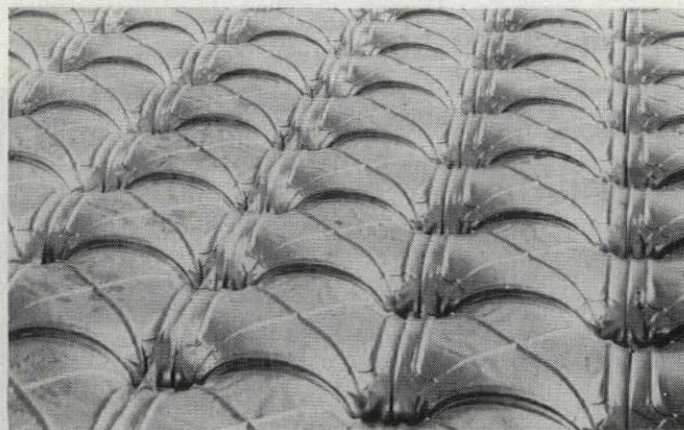
continued on p. 178



## NEW PRODUCTS

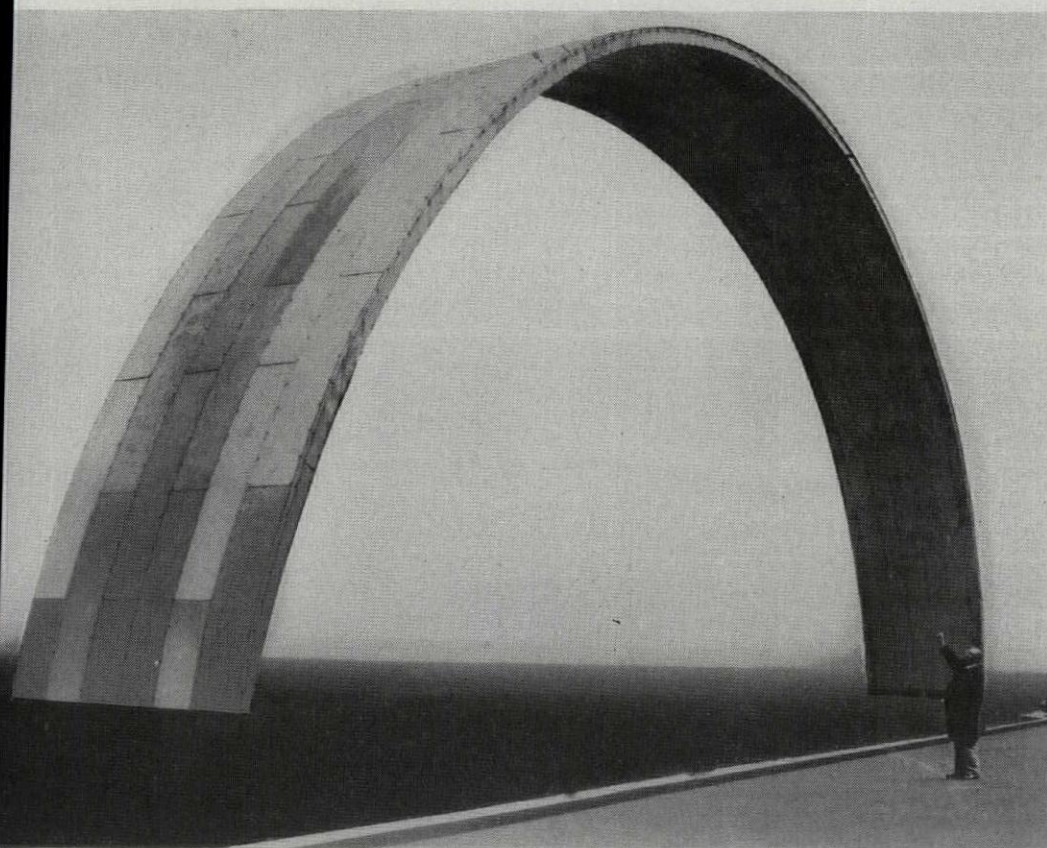


**Prefabricated privacy for scholars** (p. 222)



**Groined vaults of metal for floor plenum** (p. 210)

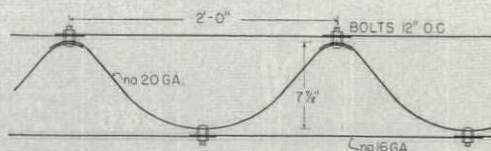
### Standard building offers 100' clear span at low cost



Standard metal buildings for industrial, commercial and general-purpose use, have been with us for a long time. But a 100' clear-span standard building is news. Such a building has been designed and tested by a Chicago manufacturer and will soon be put on the market. The 100' span is achieved by the use of nothing more substantial than 16-ga. sheet metal and bolts. There are no ribs, trusses or other structural members in the usual sense of the terms. Erection is rapid and requires no skill, since it consists of simply bolting together the standard 2'-wide sections. The structure was designed by Arthur Bassin, architect and engineer, to take a 39-lb. snow load and to withstand a 100 mi. an hour wind.

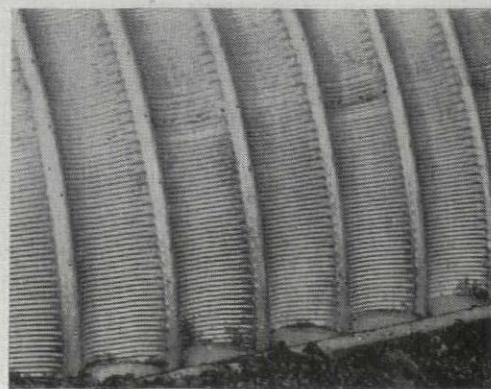
Similar buildings of much smaller span (20' to 60') have been successfully marketed for the past year and a half. These smaller

*continued on p. 206*



**Span of 100'** is demonstrated above. Wall section (right) shows how 16- and 20-ga. steel panels, 2' wide, are bolted together on job

**Lesser spans** (below) are achieved by single thickness of 18-ga. steel, doubly corrugated





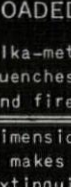

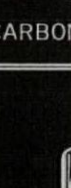


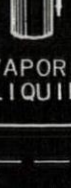



## FIRE EXTINGUISHERS

## FIRE CLASSIFICATION

- CLASS A.** Incipient fires on which quenching and the cooling effect of water is prime importance. Fires of wood, paper, textiles and rubbish
- CLASS B.** Incipient fires on which blanketing or smothering effect of extinguishing is prime importance. Fire of gasoline, oil, grease, and fat.
- CLASS C.** Incipient fires in electrical equipment where the use of non conducting extinguishing agent is needed.

The number after the fire class (A<sub>1</sub>, B<sub>2</sub>, etc.), designates the number of extinguishers needed in each protection unit. Class I, light hazards (schools, offices, and public buildings), require one unit for each 5000 square feet of floor space. Class II, ordinary hazards (drygoods & warehouses) require a minimum of one unit for each 2500 square feet of floor space. Class III, extra hazardous (paint shops etc.) require a minimum of one unit for each 2500 square feet and must conform to local code.

TYPE	CLASS	CAPACITY & SIZE (approximate size)					SERVICE SPECIFICATIONS
 <b>WATER</b> quenches cools	class <b>A</b> only	CAP. IN GALS.	2½	2½ & 5 PUMP	5 BACK PUMP		EFFECTIVE RANGE: Water, Pump 30-40 ft. pressure 45-55 ft. Soda-Acid 30-40 ft. foam 35-40 ft Loaded Stream 35-40 ft.
		height	25"	26"	25"	15½"	
		diameter	7"	8"	10"	14"	
 <b>SODA-ACID</b> quenches cools	class <b>A</b> only	CAP. IN GALS.		2½			RECHARGE: Soda-Acid & Foam - recharge after use; discharge & recharge yearly. Water - weigh use cylinder and check annually. In all cases, follow instructions on extinguisher label.
		height		25"			PRESSURE SOURCE: Water - hand pump & gas cartridge. Soda-Acid & Foam - chemical reaction Loaded Stream - Pressure
		diameter		7"			TEMPERATURE EFFECT: Soda-Acid, Foam & Water will freeze. Loaded Stream - minus 40°F.
 <b>FOAM</b> smothers cools	class <b>A &amp; B</b> only	CAP. IN GALS.		2½			ELECTRICAL CONDUCTIVITY: All water base extinguishing agents will conduct.
		height		25"			
		diameter		7"			
 <b>LOADED STREAM</b> Alka-metal salt quenches, cools and fireproofs	class <b>A &amp; B</b> fires	CAP. IN GALS.	1	1½	2½		
		height	17"	23"	25"		
		diameter	6"	6"	7"		
 <b>CARBON DIOXIDE</b>	class <b>B &amp; C</b> fires	CAP. IN LBS.	2½	5	10	15	EFFECTIVE RANGE: 3 to 8 feet
		height	17"	16"	27"	34"	DISCHARGE TIME: 2½ lbs., 12 sec.; 5 lbs., 22 sec., 10 lbs., 23 sec.; 15 lbs., 26 sec.; 20 lbs., 25 sec.
		diameter	8"	9"	11"	11"	RECHARGE: after use.
 <b>DRY CHEMICAL</b>	class <b>B &amp; C</b> only	weight	10	17	30	40	PRESSURE SOURCE: compressed gas.
		class	B2 & C2	B2-C1	B1 & C1	B1 & C1	TEMPERATURE EFFECT: will operate at minus 40°F.
		height	17"	16"	26"	36"	ELECTRICAL CONDUCTIVITY: will not conduct.
 <b>VAPORIZING LIQUID</b>	class <b>B &amp; C</b> fires	weight	8	14	32	42	
		class	B2 & C2	B2-C1	B1 & C1	B1 & C1	
		height	17"	17"	28"	31"	
 <b>HAND PUMP</b>		weight	8"	9"	11"	11"	
		diameter	9	16	34	42	
		class	B2 & C2	B2 & C1	B1 & C1	B1 & C1	
 <b>PRESSURIZED</b>		weight	17"	17"	28"	31"	
		diameter	8"	9"	11"	11"	
		class	B2 & C2	B2 & C1	B1 & C1	B1 & C1	
 <b>SPACE USED</b>		weight	19"	20"	23"	30"	
		diameter	5" x 8"	5" x 8"	5" x 10"	12" x 6"	
		class	6	19	23	38	
 <b>WEIGHT CLASS</b>		weight	19"	20"	23"	30"	
		diameter	5" x 8"	5" x 8"	5" x 10"	12" x 6"	
		class	6	19	23	38	



# for architects only

The chance to work during the past months with Clarence Stein, on the fine and tremendous story of the new town of Kitimat which begins in this issue, has yielded a refreshing reminder of how much greatness can live in quiet.

Never one of those who "storm hastily across the astonished earth," Stein has shed a steady light in contrast with the meteor flashes of our more publicized architects of genius. Like sunlight, the illumination of quiet men comes to be taken for granted. It would be rewarding to anyone to sit down and strike an estimate of Stein's contribution to architecture as the art that forms our surroundings, and to do so on an undisturbed evening of contemplation.

It is impossible to think of Clarence Stein apart from a brilliant group, of whom Albert Mayer and Julian Whittlesey and Roger Willcox have been active on Kitimat and have all been co-contributors to our story. If Stein is singled out, it is because he is their dean as well as their elder, and for our editors he did the best job of distilling out the most important and most permanent values of a complicated story, till we felt we could understand them.

Let us none the less pause for a moment to testify to the value of work done by what might be called teams of friends, as contrasted with teams of experts.

G. Van Tassel



From our youngest days this particular team was always thought of as a group: the late Henry Wright was its ever fertile and tireless inventor, Lewis Mumford its invaluable publicist (preceded by the great editor of the *AIA Journal*, Charles Whitaker), men like Alexander Bing were its public-spirited businessmen backers, Herbert Emmerich and Charles Ascher were more than its lawyers, they were its men of public counsel. If other important names are neglected (e.g., Henry Churchill, Catherine Bauer, William Wurster) it is because the list gets too long, especially if we include such English allies as the late Sir Raymond Unwin.

Stein has been pre-eminently the architect of the group. Few know that he trained under that great independent, Bertram Goodhue, or that he still goes over now and then to do things to St. Bartholomew's on which he was Goodhue's proud chief designer.

As an architect, Stein displayed qualities of leadership and a sense of over-all strategy that kept wisely to essentials, kept the movement disembroiled and on the main track.

Two years ago, when his book appeared, *Toward New Towns for America*, it flashed upon us that finding the top limit of Stein's contribution to current American architecture might be difficult.

Continuity is one of the rare elements the book attests, the steady conversion of experience. Not here could one utter the fre-

quent complaint that architectural genius abandons its children, working only in great orgasms of creation. *FORUM's* own review, we are ashamed to say, failed adequately to describe the book as a great fund of knowledge about modern architecture—*planning in operation*, never dodging that indispensable instrument of checkup, often hated by planners—the balance sheet. But Stein and Wright never stopped with that. One or another of them more than once lived in the housing he had helped to create, in the spirit of a scientist checking, but checking on the human factors. To visit a project and participate with these men in talking with the occupants was an illuminating event always.

## Stein's constructive secret

The ability to recognize a human motive and a human action has been part of Stein's constructive secret shown in his dealings with the magazine. Stein brought out marked copies which showed he appreciated the way in which the outstanding *FORUM* stories start with people always, and he encouraged us to our best by saying that this was what he, too, wanted.

Surely no reader can miss the deeply human purposes that Stein and his collaborators (never forgetting President R. E. Powell of the Aluminum Company of Canada) put foremost in the whole Kitimat endeavor.

Having followed our own advice and spent an evening in contemplation, we have come to wonder how soon the profession as a whole, through its official recognizers, will come to recognize this kind of strength and greatness. On hearing that this year no AIA Gold Medal was to be given out (presumably for lack of a deserving candidate), we recalled that it takes time to

recognize superiority that stays quiet. Gentlemen: of all men whose recognition would do you honor have you not overlooked the most obvious?

## Minority housing

A significant first event in New York a few weeks back was reported by the faithful *New York Times* alone, and we return to it because it does our whole industry credit. For the first time a group of important building industry representative came to a meeting of social and civic leaders of the Anti-discrimination League and reported with candor and fairness just what the industry has been able—or not able—to do about minority housing. The circumstances that create the problem need scarcely be detailed here—that since World War II easy markets have made all new housing quickly salable to white people, leaving Negroes and other nonwhites worse supplied than ever, even though more of them than ever before have acquired incomes that would permit them to pay for nice homes if these were made available to them.

The panel gained authority especially because the lending groups—mortgage bankers, insurance companies, building and loan societies—were all represented by heads of their minority housing committees or their appointees. The atmosphere that week was tense, for the Supreme Court decision on school segregation had just been announced. Naturally not all that was said that day suited everybody but the tone was so constructive and fair-minded that we think solid progress was made by these sensible men in removing the subject from hysteria and hatred. At a time when hatred and attack from the outside so threaten our American community, nothing is more important than cooperation and understanding among all Americans, and we hope the building community will consider the fine showing it made in New York as just the beginning toward a more constructive handling of the minority housing problem. It belongs to the country as a whole, not to any one region. Architects as professional men should be among the leaders. *Have* we a minority housing committee?

—DH.



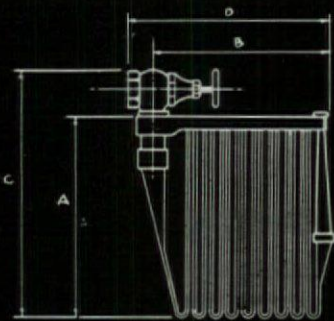
# FIRE HOSE RACKS AND CABINETS

Hose installed for use with building standpipes should not exceed 1½" in diameter and 75 feet in length. A larger hose used by amateurs is likely to tangle and cause excessive water damage.

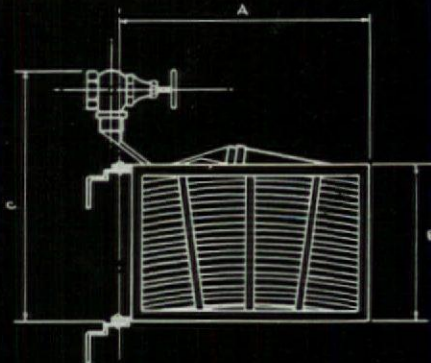
In addition a connection for 2½" hose should be available to each station for the use of fireman. Many codes require 2½" outlets at all standpipes. By using a reducing coupling 1½"

hose can be attached. When 2½" stream is required the coupling may be removed. Industrial installations use 2½" hoses and train personnel in the use of the heavier equipment.

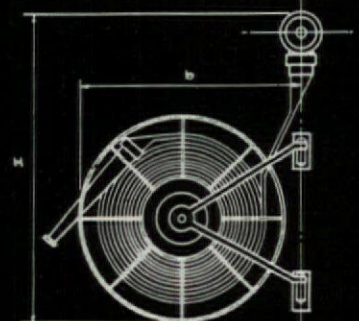
Unlined woven linen hose is recommended for use on stand pipe installations. Cotton rubber lined hose is the standard fire department and heavy equipment hose.



SWING RACK - SEMI-AUTOMATIC  
1½" LINEN HOSE



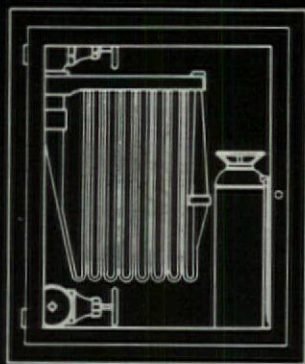
HUMP BACK - SWING RACK  
1½" & 2½" LINEN HOSE



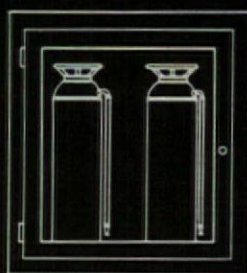
SWING REEL  
1½" & 2½" HOSE

HOSE CAPACITY	25	50	75	100	HOSE CAPACITY	50	100	150	200	HOSE CAPACITY	50	100	150
A	10"	20"	24"	29"	A	30"	30"	34"	40"	diameter	15"	21"	26"
B	15"	15"	19"	19"	B	17"	21"	28"	39"	height	38"	38"	36"
C	14"	23"	26"	33"	C	30"	33"	40"	50"	width	29"	29"	34"
D	17"	17"	21"	22"	WIDTH	4"	4"	4"	4"				

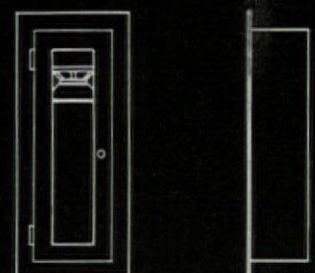
## FIRE HOSE RACKS & REELS



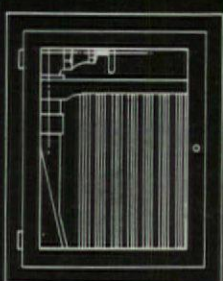
CONTENTS - 75 FT. 1½" LINEN HOSE & RACK  
1½" & 2½" ANGLE VALVE, 2½ GAL. EXTINGUISHER  
33" x 40" x 8½" TO 32" x 40" x 9"



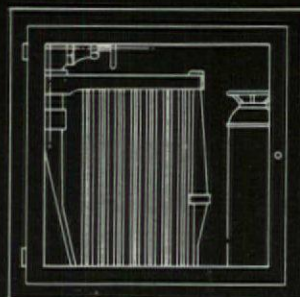
CONTENTS - TWO 2½ GAL. EXTINGUISHERS.  
20" x 29½" x 7" TO 21" x 30" x 8"



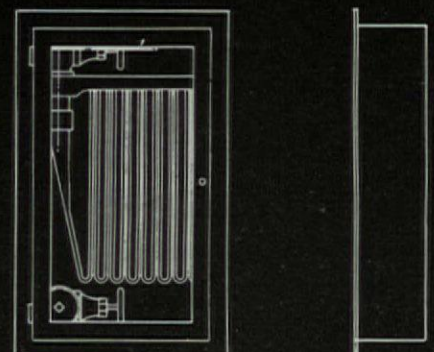
CONTENTS - ONE 2½ GAL. EXTINGUISHER, 10"x28" x8½" TO 13"x28"x8"



CONTENTS - 75 FT. 1½" LINEN HOSE  
RACK & ANGLE VALVE  
22" x 32" x 6" TO 24" x 33" x 8"



CONTENTS - 75 FT. 1½" LINEN HOSE, RACK  
& ANGLE VALVE, 2½ GAL. EXTINGUISHER  
33" x 33" x 8½" TO 33" x 34" x 9"



CONTENTS - 75 FT. 1½" LINEN  
HOSE RACK, 1½" & 2½" ANGLE VALVE.  
23"x 40" x 8½" TO 26"x 40" x 9"

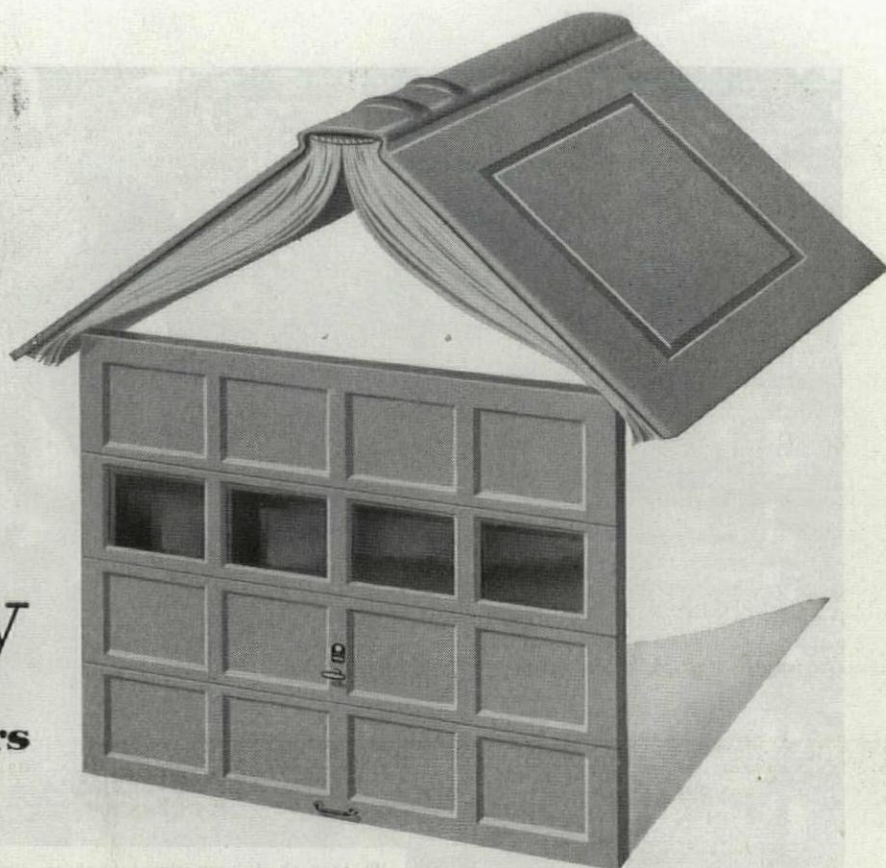
Cabinets are obtainable for 25, 50, 75, & 100 foot hose racks. Rough dimensions are shown.

## FIRE HOSE & EXTINGUISHER CABINETS



# a like-ly story

## about Ro-Way Overhead Type Doors



It's more than likely your clients will LIKE everything about Ro-Way Overhead Type Doors—because customer satisfaction is *built right into every detail.*

They'll LIKE the handsome Ro-Way styling—the clean lines that blend so well with any architectural design.

They'll LIKE the way Ro-Way doors are built of carefully selected west coast lumber . . . with mortise and tenon joints both glued and *steel* doweled for extra strength; muntins, rails and stiles precision squared for precision fit; sections rabbeted for weathertight joints; millwork drum and hand sanded for real smoothness.

They'll LIKE the way Ro-Way heavy gauge hardware

is both Parkerized and painted—*after* fabrication—for maximum rust resistance.

They'll LIKE the quiet ease of Ro-Way operation, assured by such outstanding features as friction-reducing Taper-Tite track coupled with Seal-A-Matic hinges; easy gliding, ball bearing Double-Thick tread rollers; and specially made springs with tension Power-Metered to the weight of each door.

What's more, *you'll* LIKE the client goodwill you earn by specifying Ro-Way—for every commercial, industrial and residential application. It isn't likely you'll ever regret it. So remember Ro-Way—for satisfaction all around.

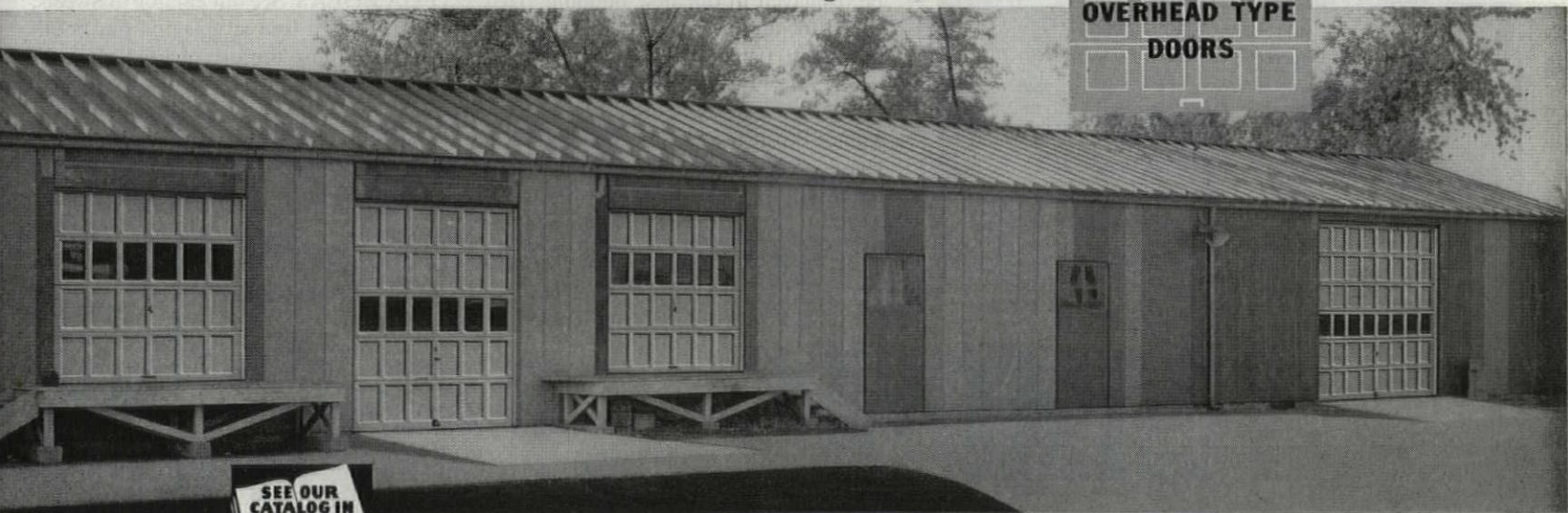
ROWE MANUFACTURING COMPANY, 944 Holton St.,

Galesburg, Ill.

*there's a Ro-Way for every doorway*



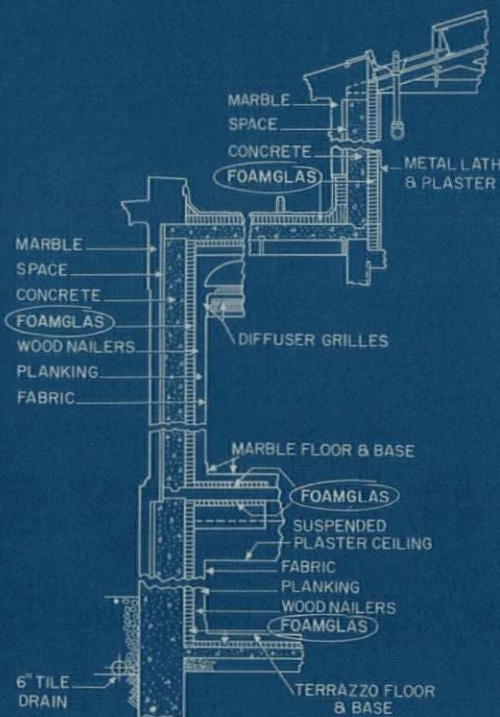
Nationwide sales and installation service. See your classified telephone directory for nearest Ro-Way distributor.







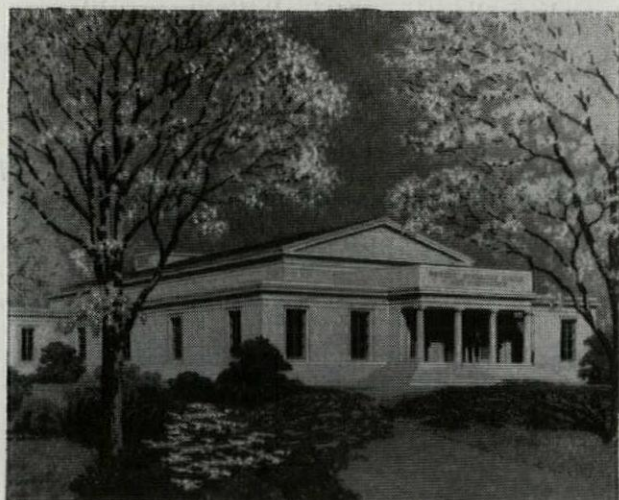
Photograph shows workmen applying asphalt seal to joints of FOAMGLAS laid on forms for boiler room ceiling slab. Clips shown will anchor FOAMGLAS to concrete when poured.



These typical sections show the use of FOAMGLAS in walls, roof and basement floor of the Clark Art Institute. Architect: Daniel Perry, A.I.A., Port Jefferson, N.Y. General Contractor: The George A. Fuller Company.

## “Insulating with **FOAMGLAS** solved a vital temperature-humidity control problem for us!”

reports Sterling and Francine Clark Art Institute



Here is the Architect's rendering of the beautiful new Sterling and Francine Clark Art Institute, Williamstown, Massachusetts. FOAMGLAS insulates the roof slab, all exterior walls and the basement floor.

“The *moisture-proof* insulating protection of FOAMGLAS was an important factor in solving our vital temperature and humidity control problem,” reports the Sterling and Francine Clark Art Institute, Williamstown, Massachusetts. “Precise control of temperature and humidity in all seasons is essential to proper protection of the art treasures to be displayed in our new building. That called for an insulation combining high insulating performance with *moisture-protection*. FOAMGLAS solved this problem because its sealed glass cells cannot absorb or transmit moisture. Here's our Architect's report on the selection of FOAMGLAS:

“We insulate with FOAMGLAS because it combines permanent thermal insulating and vapor sealing qualities with freedom from maintenance. Also, its rigid structure permits us to apply metal lath plaster without anchoring to the structure proper.”

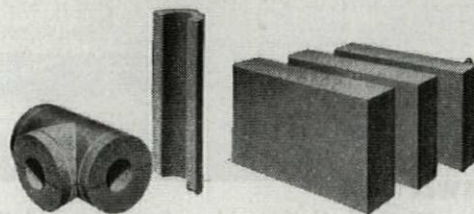
It will pay *you* to investigate the important advantages of insulating with FOAMGLAS. See our catalog in Sweets, or send for a free sample and our booklets describing the use of FOAMGLAS to insulate: 1) walls, floors, roofs and ceilings of normal temperature buildings; 2) cold storage space; or 3) piping, tanks and other equipment. Write, indicating your specific interest.

### PITTSBURGH CORNING CORPORATION

Dept. D-74, One Gateway Center • Pittsburgh 22, Pa.

# FOAMGLAS®

the cellular, stay-dry insulation



Pittsburgh Corning  
also makes  
PC Glass Blocks





## Nothing Protects Wood Like Penta

**No rot, no termites.** Wood is the ideal building material —if it is protected against its natural enemies. Penta preservation offers long-lasting protection.

**Clean, long-lasting Penta,** forced deep into the wood under pressure, will not leach out or evaporate. Penta crystals are deposited in the wood cells, making them toxic to insects and fungi for many years.

**Penta does not bleed out** to stain hands, clothing or brickwork. Treated wood is also paintable, if specified.

**Cost is low.** For the extra years of service life realized, Penta treatment is an economical way to preserve wood. More than 70 treating plants throughout the country will provide technical information on request.

40,000 feet of Penta-treated wood were used for coping at top of buildings in mammoth Pruitt Homes development in St. Louis. Penta-treated wood also was used for batten doors, kitchen sink supports.

## Clean Permanent Economical



*Architects and Engineers: For useful data on what Penta will do and how to specify, see our catalog in Sweet's or write: Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478, St. Louis 1, Missouri.*

**Architect:** Hellmuth, Yamasaki & Leinweber, Inc., St. Louis.

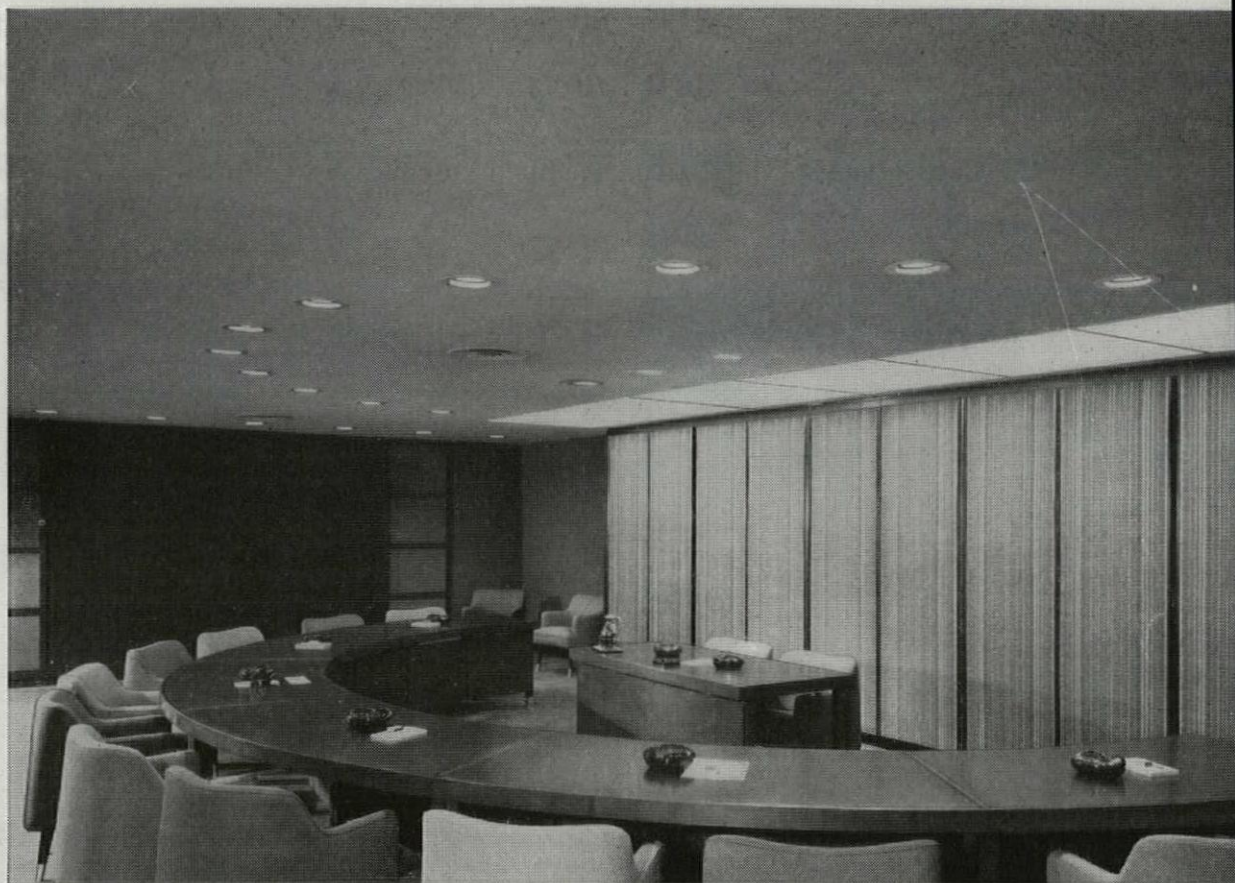
**Contractor:** Millstone Construction Company, St. Louis.

**Owner:** St. Louis Housing Authority.

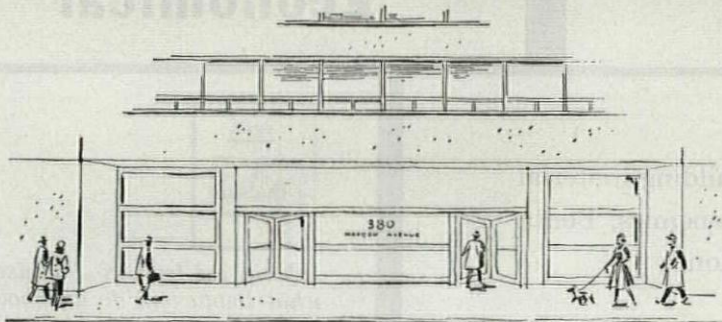




A semi-circular conference table contributes an unusual note to the modern décor of the board room. The fissured, white-painted ceiling of Armstrong's Travertone adds beauty besides promoting quiet.



## Sound conditioning basic in open planned offices



**Columbian Carbon Company,  
New York, N. Y.**

**Architect:** J. Gordon Carr  
**General Contractor:** Cauldwell-Wingate Co.  
**Acoustical Contractor:**  
William J. Scully Acoustics Corp.

Today's modern office is a far cry from most of its pre-war counterparts. Open planning, an extensive use of room dividers, and other features of contemporary design as exemplified in the Columbian Carbon Company's new executive offices provide spaciousness, comfort, and beauty without any sacrifice of functionality.

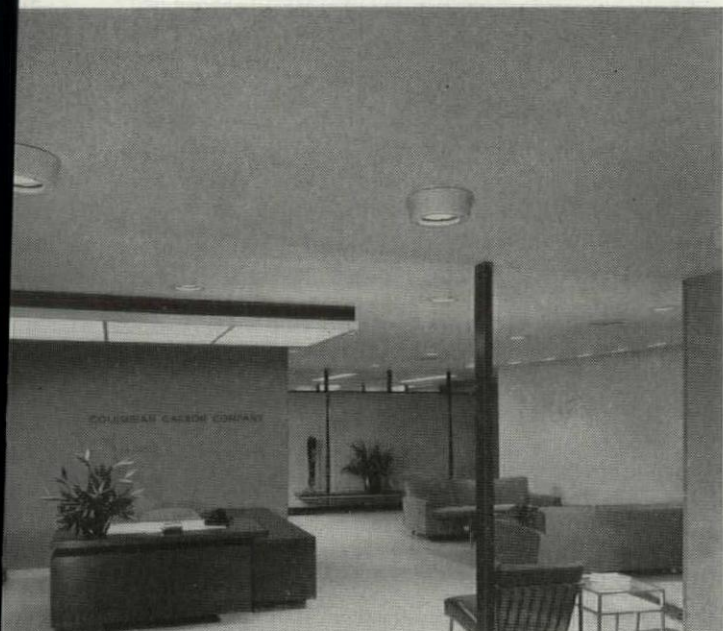
To make these modern interiors practical, architects recognize the need for proper acoustical treatment. To provide the quiet, beauty, and extra fire safety required for Columbian Carbon's two floors of office space, the architect selected ceilings of Armstrong's Travertone and Arrestone®.

Travertone's high acoustical efficiency soaks up as much as 80% of distracting noise and helps maintain a pleasantly quiet atmosphere despite the hustle and bustle of a busy working day. Travertone's handsomely fissured, white-painted surface also adds beauty to the décor, and its mineral wool composition contributes to fire safety.

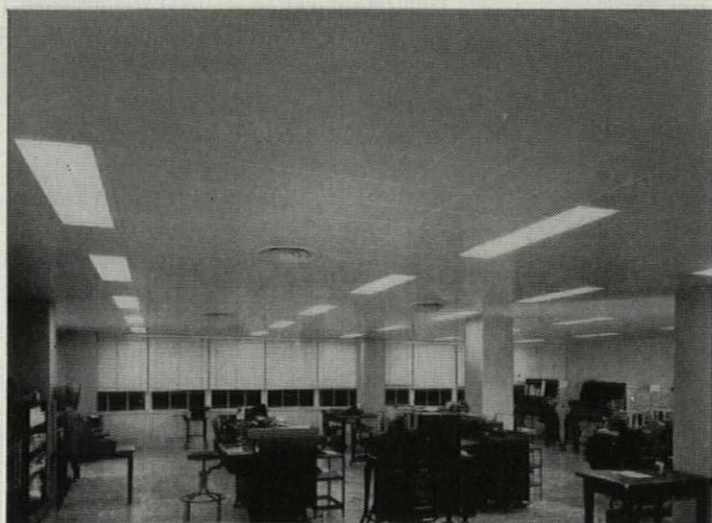
In the machine accounting areas, where noise absorption is especially important, Armstrong's Arrestone has been installed. This perforated metal-pan material is unusually efficient, has a noise-reduction coefficient of 0.85. Get full details on Travertone, Arrestone, and Armstrong's other sound-conditioning materials from your local Armstrong Acoustical Contractor. For the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4207 Rooney Street, Lancaster, Pa.



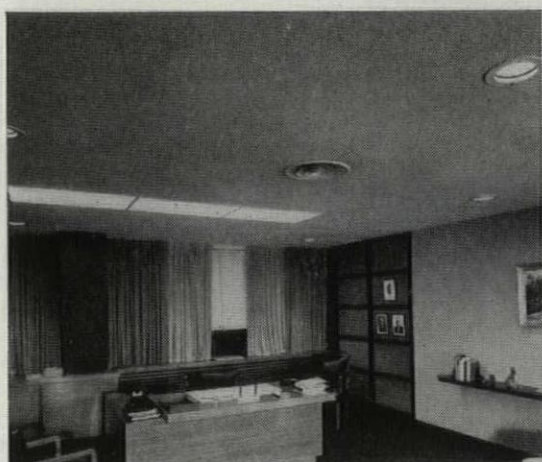




Visitors are welcomed to the Columbian Carbon Company by beautiful, restful surroundings. The noise-absorbing ceiling of Travertone contributes to this atmosphere, blends well with the up-to-date décor.



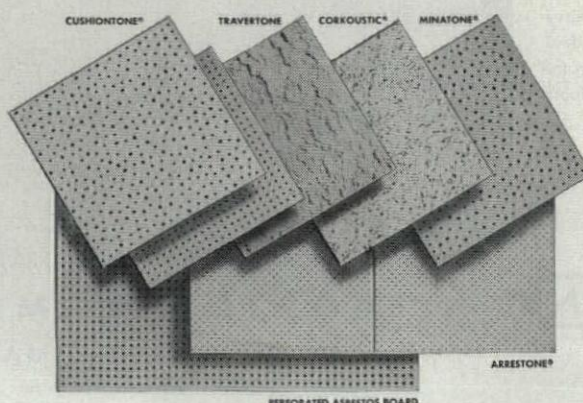
Sound conditioning this punched card accounting machine room required an efficient acoustical material. Armstrong's Arrestone was chosen for its high noise-absorbing qualities as well as its easy maintenance.



Dignity, beauty, and quiet are provided the president's office by the Travertone ceiling. This material will stay smart looking and clean for years with an occasional washing or repainting.



Glass partitions in the executive's secretarial area help promote a feeling of spaciousness. This "open" feeling is further carried out by the monolithic appearance of the square-edged Travertone ceiling.



## ARMSTRONG'S ACOUSTICAL MATERIALS



member can be loaded to carry a tensile force of 50,000 psi, so the final stress will be 30,000 psi compression plus 50,000 psi tension. This leaves only 20,000 psi tension in the member, a figure permitted by most building codes. In every case the great advantage is that stresses can be so controlled that, with the final load, high tensile and mild steel are both stressed to their allowable limit.

Applying the high tensile steel below the

lower chord of a girder permits the degree of prestressing to be varied along the girder to accommodate any pattern of loading. It can be applied either by bending the girder upward as in Engineer Jenkins' Harlow factory, or by keeping the girder horizontal and projecting the prestressing steel out beneath the girder upon queen post struts, the length of which can be varied as necessary.

Tensioning and anchoring devices in prestressed steelwork are simpler than those

used in prestressed concrete construction. In his hangar girder, Magnel uses the anchorages he developed for prestressed concrete while Sefton Jenkins uses simple turn-buckles.

**Corrosion and fire resistance.** As with all steel construction, particular attention must be given to corrosion resistance; galvanized steel is used wherever corrosive action is at all likely. In such locations solid prestressing bars might be preferable to small diameter wires.

Because the high tensile steel supports more of a prestressed structure per pound than mild steel, it must be more efficiently protected against fire. Though research on the fire resistance of prestressed concrete is not yet complete, the British Fire Research Station recommends the equivalent of 2½" concrete cover over prestressing steel for a four-hour fire rating. High tensile steels do not lose strength at high temperatures any quicker than mild steel, but any strength lost does not return as the temperature falls to normal. Therefore, after exposure to fire, high tensile steel in a prestressed structure might need to be replaced.

**Mild vs. high-strength steels.** Structural steel first came into production in the early nineties, using unit stresses of 16,500 psi. Since 1936 AISC maximum allowable working stresses have remained at 20,000 psi using an ASTM A7 steel of 60,000 to 72,000 psi ultimate tensile strength with a minimum yield strength of 33,000 psi. Basic cost of this steel in rolled shapes is 5 to 6¢ per lb.; erected cost, 12¢ per lb.

The strength of steel is improved by a combination of cold-working or hard-drawing, stretching at 90% ultimate strength and stress relieving (by holding steel at 300 to 800° F. for a few minutes or hours as desired to equalize crystal structure throughout the metal). Unlike mild steel, high strength steel has no definite yield point and is subject to creep at high stresses. This creep is proportional to ductility but if the steel has little ductility it becomes brittle, which is undesirable. These characteristics and corrosion resistance can be improved by the addition of certain alloys.

The characteristics and costs of some of the high strength steels now available for prestressing are listed below:

- ▶ High alloy prestressing bars of 145,000 psi ultimate tensile strength and 90,000 psi working strength at 20¢ per lb. erected (including tensioning and anchoring);
- ▶ Hot-dip galvanized, stress relieved, suspension bridge cables of 225,000 psi ultimate tensile strength and 90,000 psi working strength at a basic cost of 16½¢ per lb. and 30 to 40¢ per lb. erected;
- ▶ Hard-drawn, stretched and stress-relieved prestressing wires of 225,000 psi ultimate tensile strength and 160,000 psi working strength at a basic cost of 16 to 17¢ per lb. and 25 to 40¢ per lb. erected and anchored.

## Make Your Walking Surfaces *Safe*

NON-SLIP, WET OR DRY

### IN THE OFFICE

#### ALUNDUM® AGGREGATE in Terrazzo

Provide attractive appearance as well as safety — throughout the office — in all areas where ordinary floors would be slippery, especially when wet. Use terrazzo made non-slip by ALUNDUM® Aggregate in the entrance lobby, in hallways, stairs, washroom, cafeterias and countless other places.



### IN THE PLANT

#### ALUNDUM® AGGREGATE in Cement

Give your factory floors maximum resistance to wear as well as a surface that is non-slip wet or dry. ALUNDUM® (C.F.) Aggregate in cement is ideal for floors, stairs and ramps wherever there is heavy traffic — foot or truck. Ideal for use in areas where water would make ordinary floors slippery.



Send for Catalog 1935-F

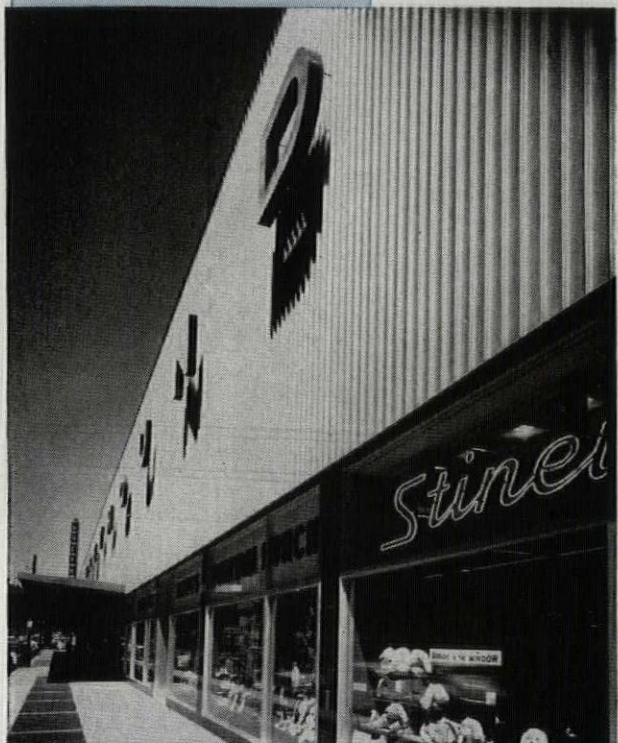
**NORTON COMPANY**  
WORCESTER 6, MASS.

T505



# INSULATED METAL WALLS

For INDUSTRIAL and COMMERCIAL BUILDINGS  
ALUMINUM, STAINLESS or GALVANIZED STEEL

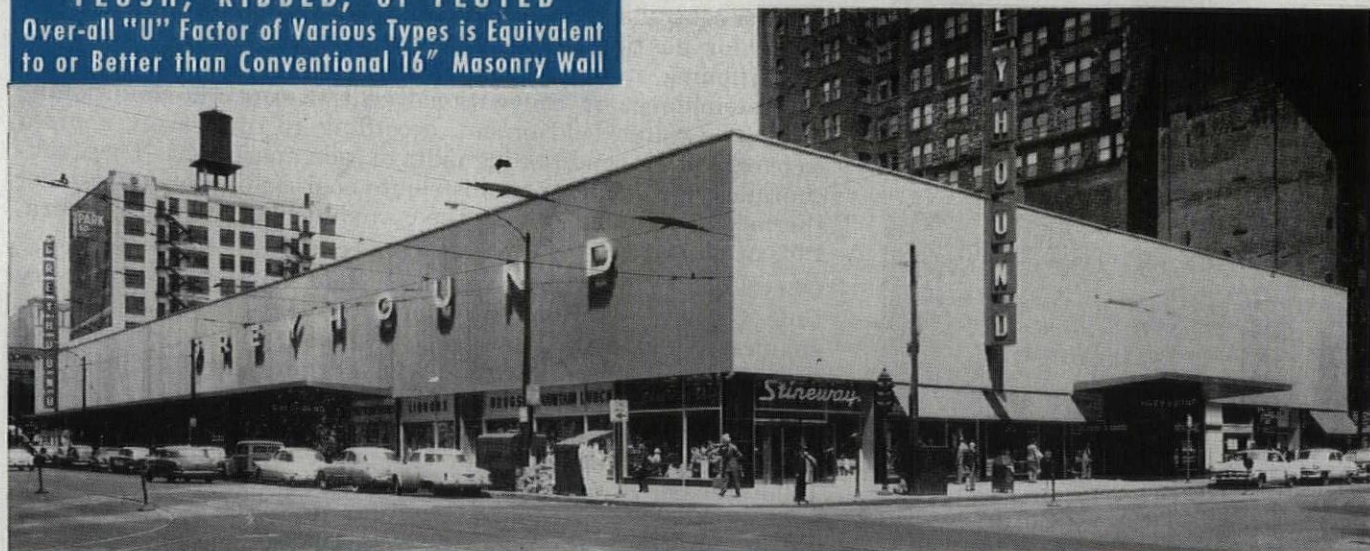


**FLUSH, RIBBED, or FLUTED**  
Over-all "U" Factor of Various Types is Equivalent  
to or Better than Conventional 16" Masonry Wall

Here is another excellent example where Stainless Steel Metal Walls have been employed to good advantage in dressing up a building which, because of its functional characteristics, would otherwise have been rather prosaic in appearance. The architects have achieved in this structure a result in modern design which has attracted much interest and many enthusiastic comments. The advantages of Metal Walls, however, are not confined to appearance and design effects obtainable . . . important building economies are realized through lower material cost, lower labor cost, and the cumulative savings resulting from reduced construction time . . . buildings can be quickly enclosed with Insulated Metal Walls—even under extreme low temperature conditions which would preclude masonry construction. Other important factors to be considered are the light weight of these modern curtain walls and the maintenance-free permanence of Stainless Steel or Aluminum exterior surfaces. Mahon Insulated Metal Walls are available in three exterior patterns . . . the Mahon "Field Constructed" Fluted or Ribbed Wall can be erected up to sixty feet in height without a horizontal joint—a feature of Mahon Walls which is particularly desirable in auditoriums, powerhouses and other types of buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information or write for Catalog No. B-54-B.

## THE R. C. MAHON COMPANY

Detroit 34, Mich. • Chicago 4, Ill. • Representatives in All Principal Cities  
Manufacturers of Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions  
and Permanent Concrete Floor Forms; Rolling Steel Doors, Grilles and Under-  
writers' Labeled Rolling Steel Doors and Fire Shutters.

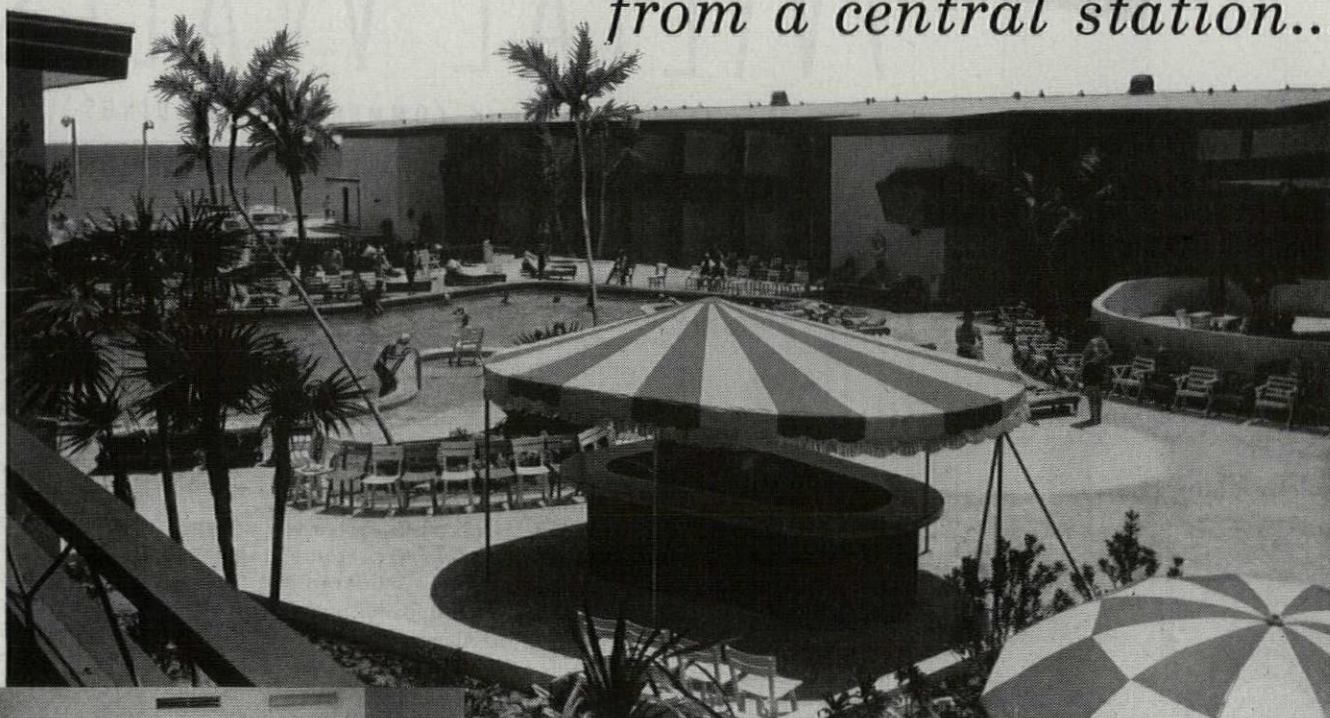


New Greyhound Terminal, Chicago, Illinois.  
17,200 Sq. Ft. of Mahon Stainless Steel Metal  
Walls were employed in exterior surfaces.  
Skidmore, Owings & Merrill, Architects. John W.  
Harris & Associates, General Contractors.

# MAHON



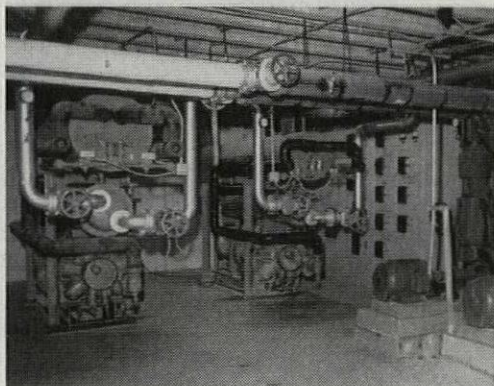
*in this smart miami beach motel*  
**IT'S COOLING + HEATING**  
*from a central station...*



Sahara Motel, Miami Beach, Fla. President: Ben B. Gaines. Architect: Carlos B. Schoppl



Typical apartment of Sahara Motel, showing outlet (over door) for conditioned air and return air grille. Occupant can adjust thermostat to secure temperature desired, or shut off cooling or heating entirely.



Two Chrysler Airtemp "Packaged" Water Chillers from which chilled water for cooling is pumped through small pipes to concealed air conditioners which serve individual apartments.

*BUT with individual room control  
 through a specially-engineered*  
**CHRYSLER AIRTEMP SYSTEM!**

From a central station comes chilled water for cooling and warm water for heating in the Chrysler Airtemp Year 'Round Air Conditioning at the Sahara Motel in Miami Beach. But there the resemblance to conventional central duct air conditioning ends. The water, cold or hot, according to the season, is piped to overhead air conditioning units in each apartment. These self-contained air conditioners distribute cool air or warm air under thermostatic control, giving the occupant his choice of temperature at all times.

Chrysler Airtemp makes precision-built equipment for every type of air conditioning system—conventional or specially-engineered—in a modern air conditioned plant. And through Airtemp Construction Corporation, a wholly-owned subsidiary, offers architects, engineers and contractors a complete air conditioning service. See how this service can make your job easier! Just write Airtemp Division, Chrysler Corporation, Dept. AF, 1600 Webster Street, Dayton 1, Ohio.

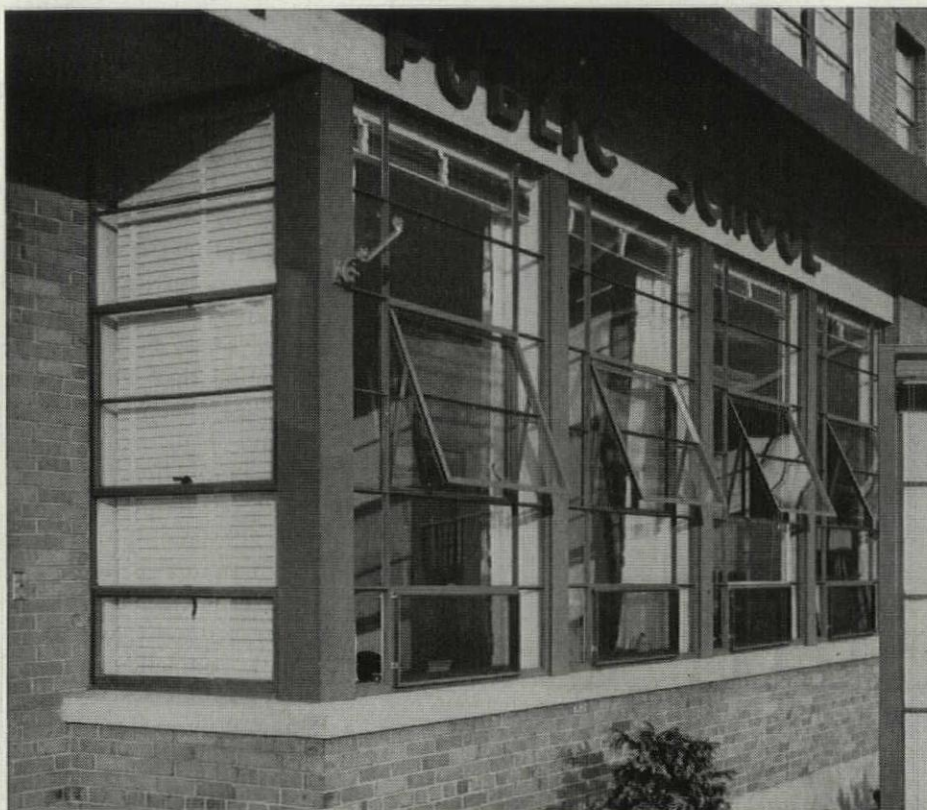
## CHRYSLER AIRTEMP

HEATING • AIR CONDITIONING for HOMES, BUSINESS, INDUSTRY

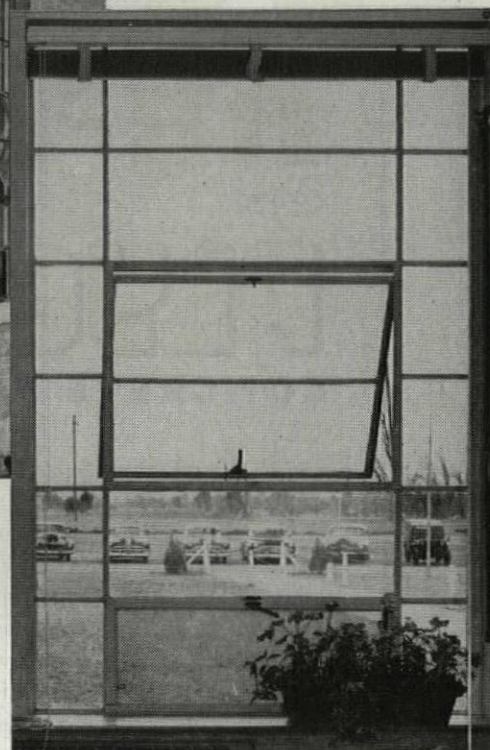
AIRTEMP DIVISION, CHRYSLER CORPORATION

Dayton 1, Ohio





*Queensbury School, District 2, Queensbury, N. Y.  
M. L. Crandell, architect; Adirondack Construction Corp., contractor*



## **Truscon Steel Architectural Projected Windows...**

### **SUPERIOR VENTILATION • PLUS • FULL WEATHERING CONTACT**

Here's the architectural projected window that cuts air infiltration to the bone! Integral baffles of Truscon's own special section provide casement-type full weathering contacts. It's a Truscon exclusive in windows of this classification. Specify these quality windows wherever you want ample ventilation and freedom from drafts. That makes them especially adaptable to school and hospital design. Outward projecting ventilator deflects rain. Lower, inward projecting

ventilator deflects air currents upward, eliminating drafts. Cleaning is easy . . . from inside. Rigidity is assured by the heavy casement-type vent frame section. Hardware is solid bronze. Architecturally handsome, these Truscon windows add a note of distinction to buildings of all types. Specify them with complete confidence in their highest quality. Details, sections, and sizes in Sweet's; or write Truscon for more facts.

TRUSCON®



**TRUSCON STEEL DIVISION  
REPUBLIC STEEL**

1102 Albert St. • Youngstown 1, Ohio  
Export Dept.: Chrysler Building  
New York 17, New York



A NAME YOU CAN BUILD ON

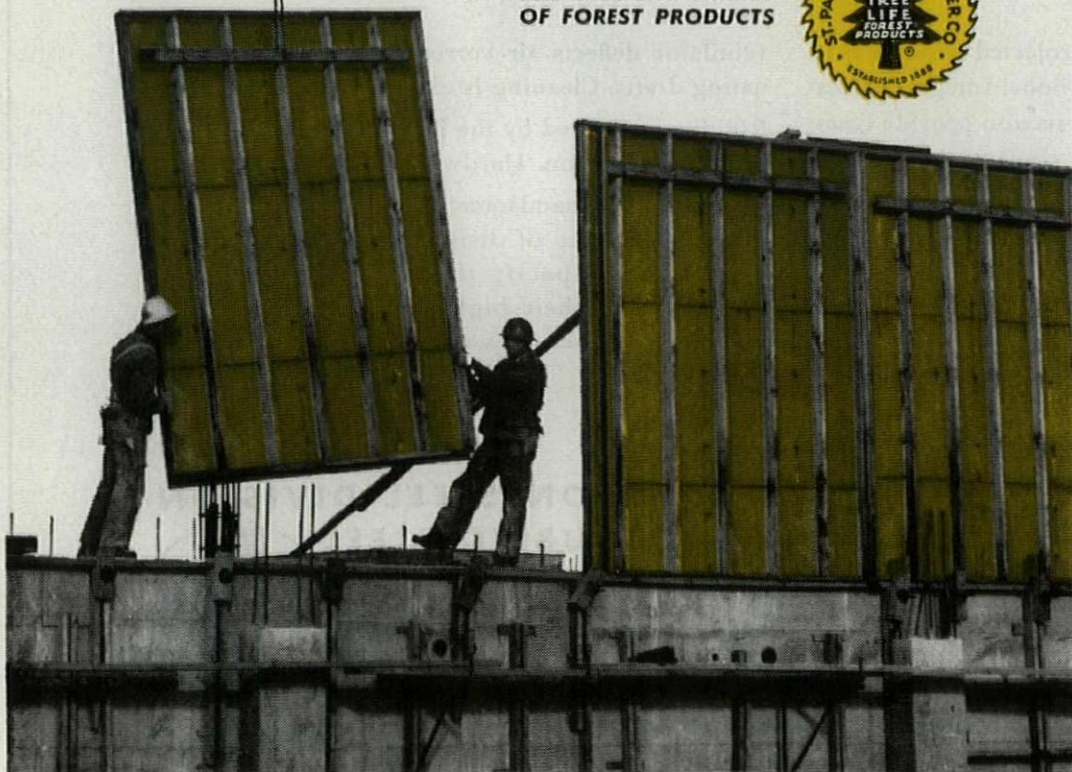


# GET UP TO 200 RE-USES *With* **PLYGLAZE®** CONCRETE FORM PANELS

PLYGLAZE gives you the strength and toughness of Exterior plywood—plus the *extra* stamina, *extra* durability of flint-hard, glass-smooth fused resin fiber surfaces. These tough, virtually indestructible surfaces coupled with plywood's rugged strength, mean maximum re-use—80, 150 or even up to 200. As a matter of fact, *over* 200 re-uses have been recorded. Specify Plyglaze on your next job. Treat it with care, plan and build forms for long service and you, too, can get uses up in the hundreds.

Plyglaze comes in 4' x 8' panels; 1/2", 5/8", and 3/4" thick. For complete data, write St. Paul & Tacoma Lumber Co., Tacoma 2, Wash.

ANOTHER MEMBER OF THE  
FAMOUS TREE LIFE FAMILY  
OF FOREST PRODUCTS



## BLAST-RESISTANT BUILDINGS

*continued from p. 1*

blast. It would also provide personnel shelters at every floor level, as well as protection to elevator shafts and stairways. Small circular columns of reinforced concrete or steel with concrete encasement would be provided at the periphery of the building for vertical support only. Outside walls would be completely expendable—either of glass or of relatively weak wall construction that will disintegrate rapidly under blast pressure but withstand all normal wind loads. Such a building would receive a minimum lateral impulse during the progress of the blast; the central core would withstand the great external pressure and minimize the lateral drag force because of its small frontal area. (In the Japanese cities exposed to blast, circular chimneys were left standing where destruction all around was complete). Finally, radiation waves of an air burst would have to pass through several feet of concrete (floors and cylinder wall) before reaching the sheltered occupants.

Preliminary design studies indicate that 10- to 12-story buildings of this type of construction will withstand blast effects of a nominal atomic bomb at relatively close range—about 3,000'.

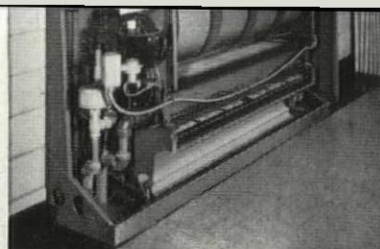
Current interest centers on the H-bomb, and widely publicized figures suggest that such bombs might be as much as 500 times as powerful as the nominal 20-kiloton atom bomb. According to the generally available publication, "Effects of Atomic Weapons," p. 127, "the distance at which a given compressure is achieved in an explosion varies roughly as the cube root of the energy release." One may therefore speculate, as a rough approximation, that the 3,000' blast range of the nominal atom bomb would be revised to 4 1/2 mi. for an H-bomb.

Advantages of the proposal include protection of personnel from blast and radiation, normal sunlit living or working areas, normal external building appearance, minimum damage to the building itself with the exception of exterior walls and interior partitions, which would also be made of light, frangible material. Moreover, blastproof lockers or closets could be provided adjacent to the central circular core in which valuable articles could be placed prior to evacuation of personnel into the central core (if sufficient warning of impending attack were received). Fire damage would be minimized since most of the inflammable contents would be blown out of the building

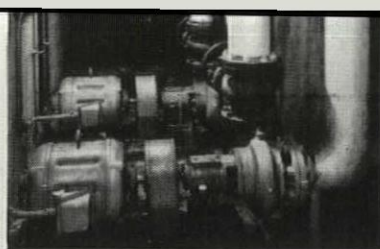
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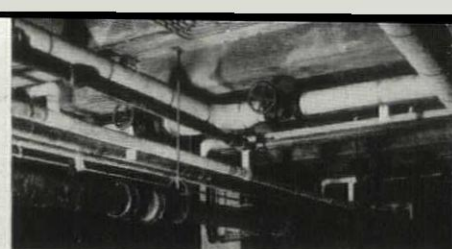
**We've  
been**



Unit Ventilator with cover removed. Hot water heat permits use of 1/2" control valve which results in lower cost and closer control.



Hot water system with high temperature drop requires smaller circulating pumps. Result—reduced installation and operating costs.



View of supply and return piping (large covered lines). High temperature drop system requires smaller piping and less building space—another important savings in initial cost.

# In "HOT WATER" **for years!**

## **If your Choice is Hot Water— Herman Nelson Leadership in Unit Ventilator Design for Hot Water Heating has been proved by Years of Service in scores of Schools**

Cincinnatians have every right to be proud of their Riverside-Harrison Elementary School. Completed in 1951, this modern structure contains 17 classrooms, gymnasium, auditorium and cafeteria. Evidences of careful planning are apparent with the adoption of such cost-cutting and comfort features as forced hot-water heat and Herman Nelson Unit Ventilators.

For the past several years, Herman Nelson Unit Ventilators and high temperature hot water have worked as a "team". It all came about with the development by Herman Nelson engineers of the first practical, high efficiency hot water heating element for unit ventilators. The heating element—a 4-pass serpentine coil designed for high temperature drop—insures even outlet temperatures and minimum resistance to water flow.

It is an accepted fact that lower construction costs and more accurate temperature control result with the use of smaller valves and piping required for high temperature hot water. So, if you're considering hot water as your heating medium, remember this—only Herman Nelson Unit Ventilators permit you to take full advantage of its economies and still maintain the highest standards of classroom heating, ventilating and cooling. Proof? Plenty of it based on many outstanding installations over a period of years. For complete information, write Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.



**DRAFT STOP**

Light, bright and comfortable! A typical classroom in the Riverside-Harrison Elementary School, Cincinnati, Ohio, equipped with a Herman Nelson Unit Ventilator. Architect and Engineer: James E. Allan; Mechanical Contractor: Henry Niemes Co.

**Provides**  
**COOLING, HEATING,**  
**VENTILATION, ODOR CONTROL,**  
**DRAFT ELIMINATION**  
**All at minimum cost**

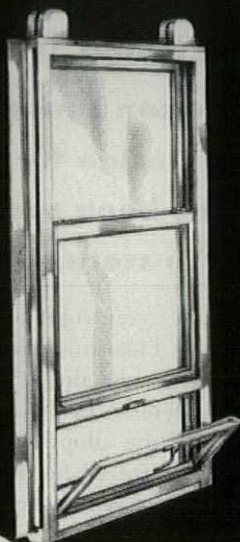
**herman nelson**  
**UNIT VENTILATOR PRODUCTS**

American Air Filter Company, Inc.

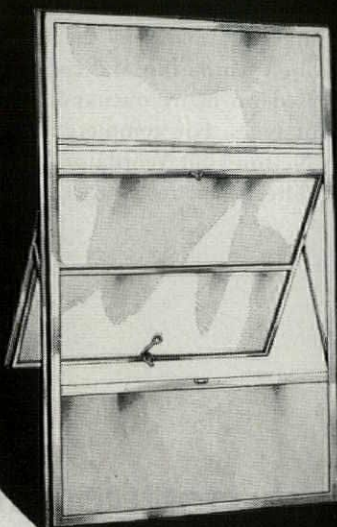
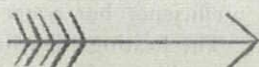
**SYSTEM OF CLASSROOM HEATING, VENTILATING AND COOLING**



# You can't design with

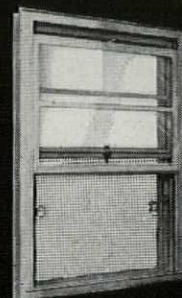
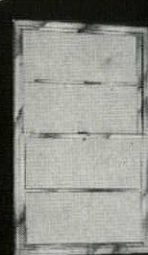


**Series 200-B** with hopper ventilator is especially adapted for schools, hospitals and monumental buildings. Custom-made to fit all design needs. Bead glazing provides clean exterior—eliminates replacing glazing compound. Box sections give maximum strength.



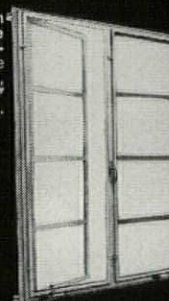
**Aluminum Projected Windows** are suitable for institutional and monumental buildings, such as schools, hospitals, churches. Full range of types and sizes.  $1\frac{3}{4}$ " frame and ventilator sections accommodate double glazing. Inside bead glazing available.

**Aluminum 50-B Residential Windows**—Easy operation—sash floats on stainless weatherstripping.



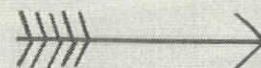
**Aluminum 3-in-1 Windows**—... Prime • Storm Screen. Exclusive Aluminum Double-hung Window with combination unit.

**Aluminum Residence Casements**—Sections are full 1" depth, have full  $\frac{3}{16}$ " thick web.



**Screens** available for all Ceco Aluminum Windows.

**Storm Windows** available for residential windows.





# finer **ALUMINUM WINDOWS** than **Ceco-Sterling...**

## **Wide Selection—Pioneer Engineering—Exclusive Features— Quality Production Methods**

With infinite care quality is guarded all the way in Ceco-Sterling Aluminum Windows. Ceco Window Experts bring you designs with exclusive features developed through years of research... Ceco controls quality from raw material to finished product these 5 ways:

- 1 We make our own extrusions... tolerances are controlled.
- 2 Exclusive aircraft-type welding assures the strongest projected and casement windows on the market.
- 3 Stainless steel weatherstripping in double-hung windows assures a superior weatherseal. Double-contact weathering provides a tight seal on projected and casement windows.

4 Interlocking mullions of double-hung types mean maximum rigidity. Installation is simplified.

5 Quality hardware is standard with every window.

Ceco offers Aluminum Windows as companion products to its broad Steel Window line, forming the world's largest line-up of metal windows. Now from one source you can choose the right window to fit your design needs. So call on Ceco for Aluminum or Steel Windows. Our Experts will help you plan the best installation of the window you select—will help you save, too. See Sweet's File for details and address — write Ceco general offices for illustrated literature.

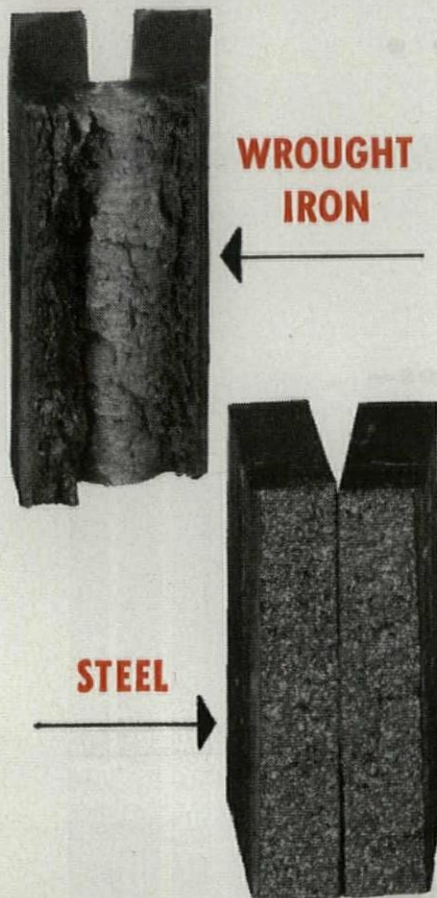
### **CECO STEEL PRODUCTS CORPORATION**

Offices, warehouses and fabricating plants in principal cities  
General Offices: 5601 W. 26th Street, Chicago 50, Illinois

*In construction products  
**CECO ENGINEERING**  
makes the big difference*



## HERE'S THE DIFFERENCE



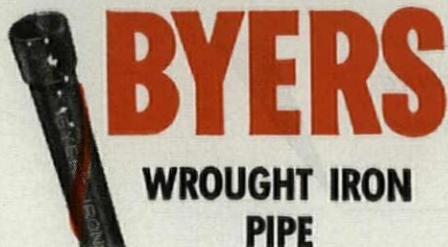
These are actual photographs of fractured pieces of wrought iron and steel. The picture at the left shows the fibrous structure of wrought iron. How this differs from the crystalline structure of steel is readily apparent. It is the presence of many thousands of tiny threads of glass-like iron silicate that gives wrought iron this unique fibrous structure and it is this structural feature, duplicated in no other metal, that gives wrought iron its superior resistance to corrosion and fatigue stresses.

While the initial cost may be higher, actual service records in numerous applications prove that wrought iron is the most economical buy because it lasts longer.

Your Byers Field Service Engineer will be glad to show you fractured pieces, similar to those illustrated above.

**A. M. BYERS CO.**

Clark Building, Pittsburgh 22, Pa.



## BLAST-RESISTANT BUILDINGS

by the blast wave and only the reinforced concrete construction would be retained.

**Structural details.** As illustrated on p. 164 the basic core has a 36' diameter and the building unit itself a diameter of about 108'. These dimensions are open to modification. An additional circle of columns may be added for a large structure. The reinforced concrete floor slabs do not have to be designed for atomic blast pressures since entrance of the blast wave into the building will equalize pressure above and below. The ground-floor slab over the basement would, of course, have to be designed to be completely blast-resistant. The core would have a wall thickness of 12" and the two steel entry doors would be blast-resistant. However, in case of door failure or malfunctioning, a baffle would be placed immediately opposite the doorway inside the core. The baffle is supported by a vertical shear wall which also strengthens the elevator shaft arrangement. Four elevator shafts are accommodated in the present plan and the remaining space at each floor level provides ample room for personnel during attack. For very tall buildings above 10 to 12 stories structural steel would undoubtedly be required as the basic element for the core.

Spread footing at the base of the building would have to be varied to meet the existing foundation conditions. In the basement, shear walls would transmit the forces arising from the bending moment, shear, and vertical load at the base of the building, to a broad foundation.

Extension of this proposal to homes and schools is obvious. In a school the protective core might be enlarged to serve as a small auditorium. In a home the core area might contain the bedrooms. Daylight living areas outside the core would be glass-enclosed as in the multistory building.

To provide cost information a practical application of the foregoing concepts has been made by the Roberts & Schaefer Co. through the cooperation of Robert Zabrowski, vice president. The proposal plan is a modification of an apartment house unit under construction at the present time. In rearranging the plan, the same space for occupancy has been provided as in the original design. Based on current cost figures for the metropolitan area, the writer estimates that the *additional cost per floor* for the core and, in addition, for the substitution of light metal exterior paneling would be approximately \$15,000 or 20 to 25%.

*continued on p. 186*

YOU GET



KEY  
ADVANTAGES  
WITH...

**FIR  
PLYWOOD  
CONCRETE FORMS**

### 1 TIME AND LABOR SAVINGS

Fir plywood forms speed form construction, erection and stripping by up to 25%.

### 2 SMOOTH CONCRETE

Fir plywood formed concrete is smooth, fin-free. Requires less rubbing. Ceilings can be painted direct after a minimum of finishing—eliminating plastering.

### 3 MAXIMUM RE-USE

Interior PlyForm gives several re-uses; up to 12-15 not unusual...over twice as many re-uses with Exterior PlyForm and overlaid panels. Plan and build forms for long service.

#### SPECIFY BY DFPA GRADE-TRADEMARKS



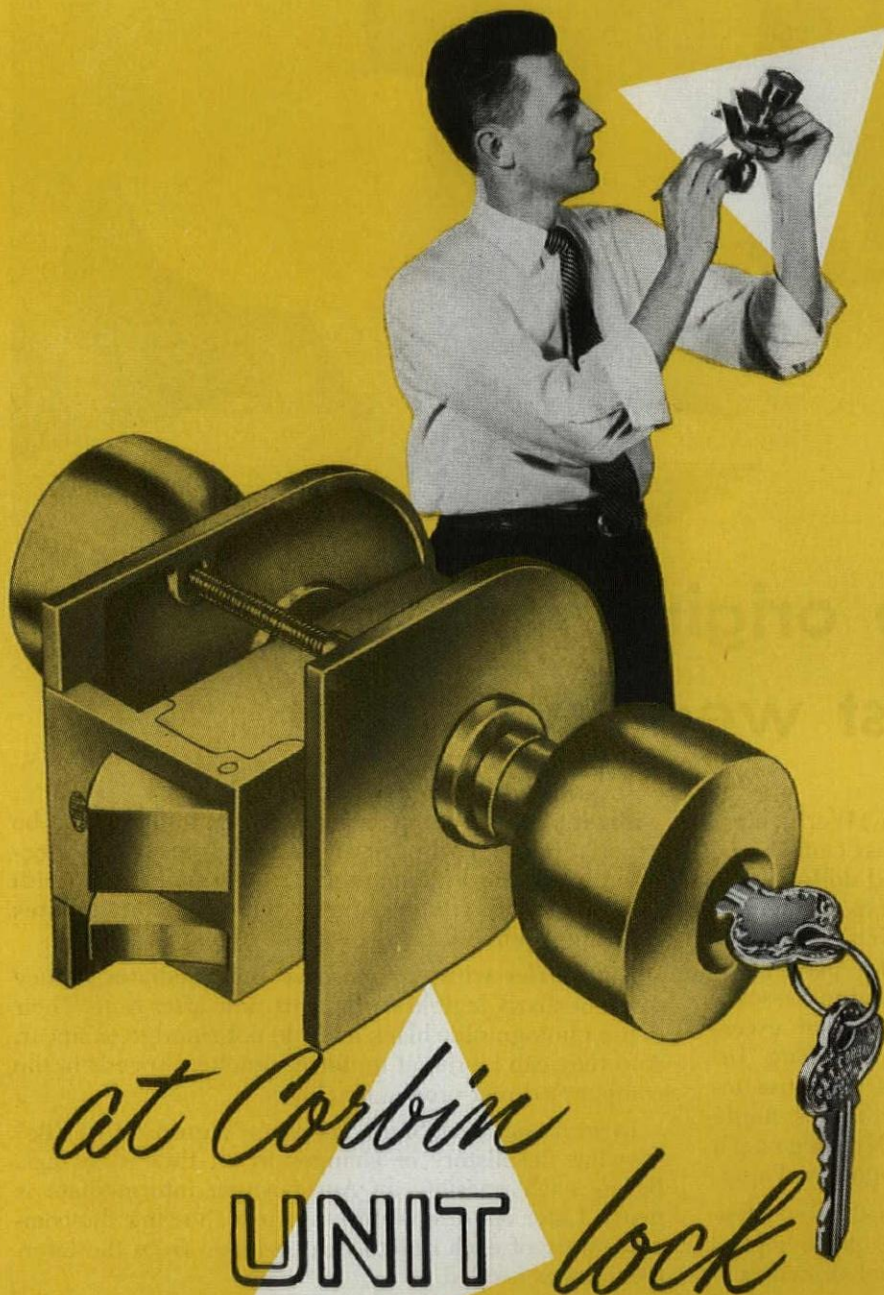
DFPA GRADE-MARKED  
Fir Plywood Industry Product

These grade-trademarks identify quality panels made expressly for form work: 1. Interior PlyForm (moisture-resistant glue) for multiple re-use; 2. Exterior PlyForm (100% waterproof glue) for maximum re-use; 3. Overlaid (hardboard or hard, resin-fiber surface) Exterior plywood for maximum re-use plus smoothest concrete.

©Douglas Fir Plywood Assn., Tacoma, Wn.



# Take a close look



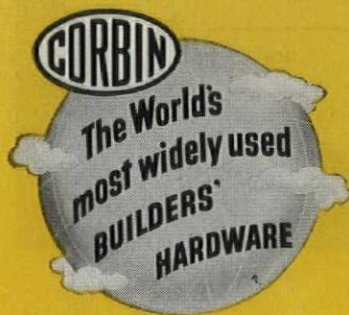
## at Corbin UNIT lock

Here is "The Tiffany of Locks" . . . proven superior in hundreds of thousands of severe-use installations.

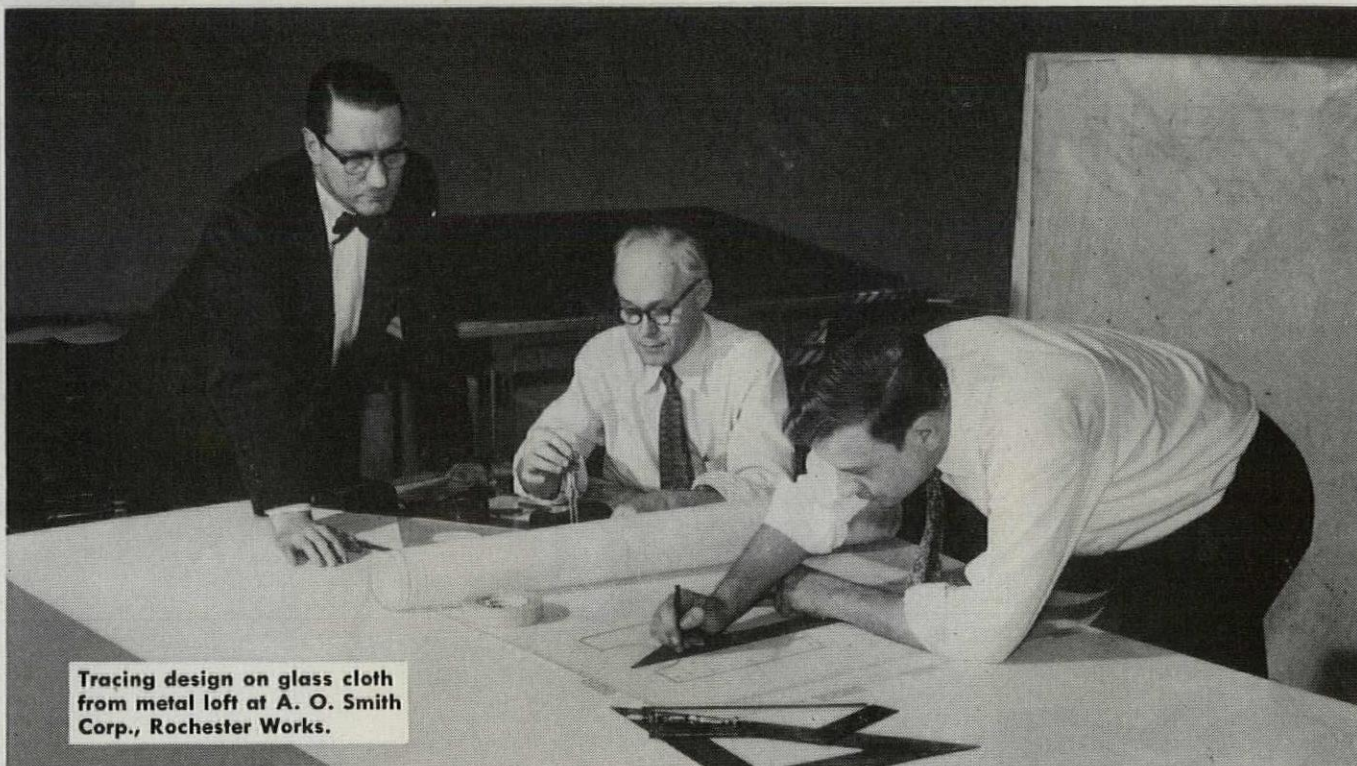
Compact, distinctive, it has no equal for strength, functional smoothness and trouble-free operation.

It can be installed faster and at less labor cost, contractors tell us, than any other type of lock.

P. & F. Corbin Division, The American Hardware Corporation, New Britain, Connecticut.



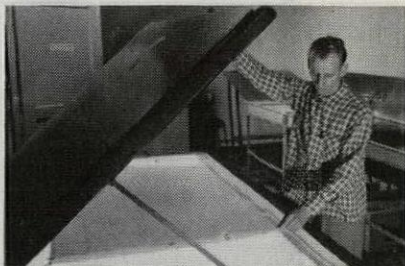




Tracing design on glass cloth from metal loft at A. O. Smith Corp., Rochester Works.

## Valuable originals protected against wear and tear

At the A. O. Smith Corp.'s Rochester (N.Y.) Works, large drawings are made exactly to scale on glass cloth. Since these drawings often cost several hundred dollars each, A. O. Smith naturally does not wish to expose them to possible damage during print-making and to the wear and tear of excessive handling. Instead, they use intermediates made on Kodagraph Autopositive Paper.



Costing but a few cents a square foot, Autopositive produces positive photographic prints directly from the original drawings —

without a negative step or darkroom handling. It can be exposed in standard print-making equipment and processed in standard photographic solutions. (A. O. Smith uses a vacuum-frame printer, which accommodates drawings up to 8 x 4 feet in size.)

No worries with Autopositive intermediates — they turn out sharp, legible shop prints time after time. Their dense photographic black lines do not smudge or smear. And they can be run at uniform, practical speeds in the company's direct-process machine.

In addition, A. O. Smith keeps an "Autopositive File" showing the history of changes in all their drawings. Before each revision, an Autopositive intermediate is made. Later on, direct-process prints showing the complete story of each design can be made from the intermediates as needed.

## Kodagraph Autopositive Paper

"THE BIG NEW PLUS" in engineering drawing reproduction

MAIL COUPON FOR FREE BOOKLET

EASTMAN KODAK COMPANY  
Industrial Photographic Division, Rochester 4, N.Y.

Gentlemen: Please send me a copy of "Modern Drawing and Document Reproduction."

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206

**Kodak**  
TRADE-MARK

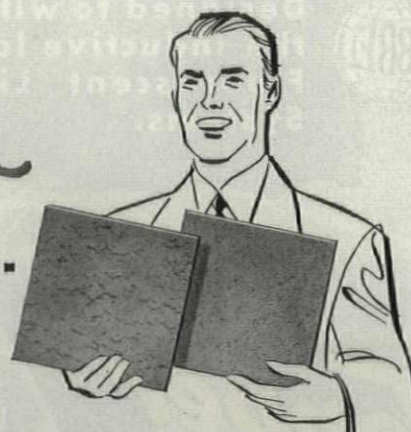


Shows all the ways you can save with Kodagraph Autopositive Paper.



# A beautiful Solution

TO NOISE-CONTROL PROBLEMS...



The Johns-Manville Permacoustic Ceiling in this attractive reception room provides quiet comfort and contributes to its beauty.

## Johns-Manville decorative acoustical tile

# Permacoustic

Specify J-M Permacoustic® tile for ceilings that provide unusual architectural beauty with maximum acoustical efficiency and fire safety.

Johns-Manville Permacoustic is exceptionally sound-absorbent. It is attractive and noncombustible. It is available with either a textured or fissured surface. These random-textured finishes increase its noise-reduction qualities and provide design and decorative interest.

Made of baked rock wool fibres, Permacoustic is fireproof—meets all building code fire-safety requirements. Johns-Manville Permacoustic is easy to install on existing ceilings or slabs, or by suspension using a spline system of erection.

Send for your free copy of the new brochure about Permacoustic tile. Write Johns-Manville, Box 158, New York 16, New York. In Canada, write 199 Bay St., Toronto 1, Ontario.

### INFORMATIONAL DATA ON PERMACOUSTIC

Sizes 12" x 12" 12" x 24"		Thickness 3/4"*	Color: white
ACOUSTICAL EFFICIENCY			
		Test No. A51-98	Test No. A51-99
		cemented to plaster board (mounting No. 1)	mechanically mounted on special metal supports (mounting No. 7)
cycles per second			
125		.04	.56
250		.21	.53
500		.75	.60
1000		.88	.73
2000		.85	.88
4000		.78	.88
noise reduction coefficient		.65	.70
weight per sq. ft.		1.3	1.3

\*Also available in 7/8" thickness



## Johns-Manville





Designed to withstand  
the inductive loads of  
Fluorescent Lighting  
Systems.

new

**Topper Switch**



CAT. No. 1201  
Single Pole

### QUIET OPERATION

According to tests completed recently, this new switch not only meets but exceeds the rigid requirements set up by Underwriters Laboratories for AC switches. It may be used at full rated capacity on fluorescent loads at voltages from 120-277 v., on inductive loads (120-277 v.), on incandescent lamp loads, and on resistance loads for heaters, etc. In addition, it is highly practical for motor loads (120-277 v.) at 80% of current switch rating.

A feature of the new switch is the silver alloy contacts which prevent corrosion and hold temperature rise to an absolute minimum. Units may be used with any standard switch plate.

#### Withstands Inductive Loads at Full Rating

The economical answer for 277-volt instant-start slim-line single-pin base fluorescent systems.

#### Withstands Inrush Loads at Full Rating

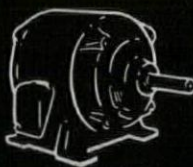
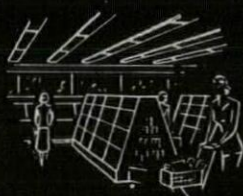
Inrush factor at least 8 times full rating of switch.

#### Withstands Resistance Loads at Full Rating

Silver alloy contacts hold temperature rise to a minimum.

#### Withstands Motor Loads up to 80% of Switch Rating

Practical for the control of motors and can be used up to 80% of rated capacity of the switch at 120-277 volts.



Write for complete  
Information today.

*Highest  
Grade*

**HEAVY DUTY**

**WIRING**



**DEVICES**



**HARVEY HUBBELL, Inc.**

DEPT. A

BRIDGEPORT, CONNECTICUT

16HH54R

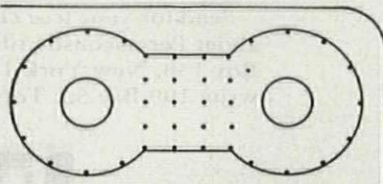
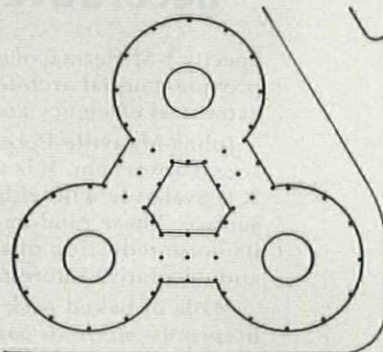
## BLAST-RESISTANT BUILDINGS

This does not include additional foundation costs. The central core could be built with slip forms, with a thickness of 12".

This project provides eight dwelling units per floor and an additional rental unit of between \$15 and \$20 per month might be required to cover the protective advantages afforded.

Of course, if one wishes to add greatly to the building expense and, in addition, live in the interior of a windowless structure, as in a cave, then the proper answer to atomic blast would be the circular building with a solid reinforced concrete exterior wall. However, there is no apparent trend toward cave living or working in this country and it is obvious that most people remain optimistic about future peace and the absence of all atomic warfare. This, indeed, is the only satisfactory solution to the dilemma of the atomic age and one may well hope that the mere existence of the H-bomb will be the greatest deterrent to its use. Nevertheless, the proposed scheme offers a realistic approach to building construction that would not greatly alter the present economy of construction.

Studies on industrial buildings, related to and leading up to the ideas presented herein, have been made possible by means of research grants of the University of Michigan Rockham School of Graduate Studies. In addition, the Engineering Research Institute of the University of Michigan has provided a small fund for more detailed design and dynamic analysis of this type of structure.



Two- and three-unit combinations of cylindrical units show how blast-resistant buildings of various sizes and shapes may be composed. Connecting areas between cylinders are framed with normal column and flat-plate construction.



# NEW

## ADJUSTABLE DOUBLE DUTY

# AIR VOLUME EXTRACTOR & CONTROLLER

**FACTORY ASSEMBLY SAVES UP TO  
50% OVER SLOW HAND-MADE METHODS**

## 11 TREMENDOUS ADVANTAGES:

- 1 FACTORY ASSEMBLED
- 2 INSTALLS WITH 2 SCREWS
- 3 Double Duty Extractor & Vol. Controller
- 4 Replaces Extra Vol. Controller
- 5 Equalizes Air Distribution & Air Flow
- 6 Turns Air from Main Duct
- 7 Reduces Pressure Losses
- 8 Stops Excess Turbulence
- 9 Low Cost
- 10 Rattle Free
- 11 14 & 20 Gauge Steel

See adjustability of AG-45 from full open to full closed positions. Note how curved blades turn, to control air volume, bringing even distribution to entire grille face at all times.

# Airfoil

## AIR CONDITIONING OUTLETS

Slash unit costs with this amazing new Titus AG-45. Make it easy for yourself to *keep bids low*. Use this *cost saver* to beat competition. Eliminate the extra work of putting in volume controllers. Save time, labor. IMPROVE THE AIR CONTROL EFFICIENCY OF EVERY INSTALLATION. Get complete free information now. Order a sample AG-45 today. Remember, not until you have one of these AG-45s in your hand, can you see its *amazing cost-saving value*. IMMEDIATE DELIVERY.



Check Type of Grille on Which Information Is Desired:

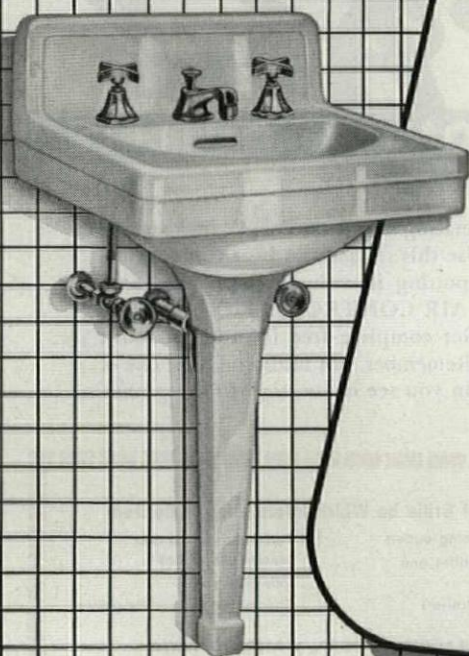
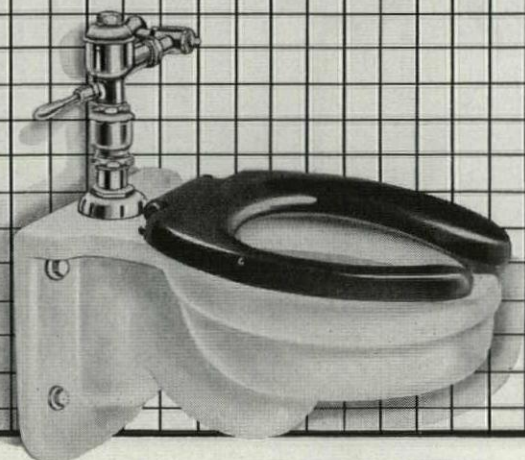
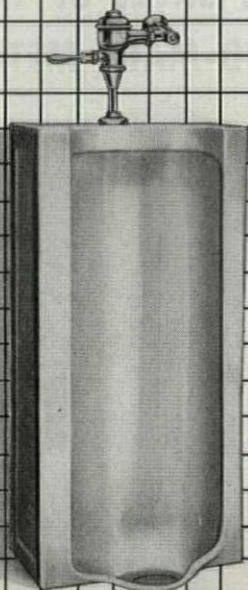
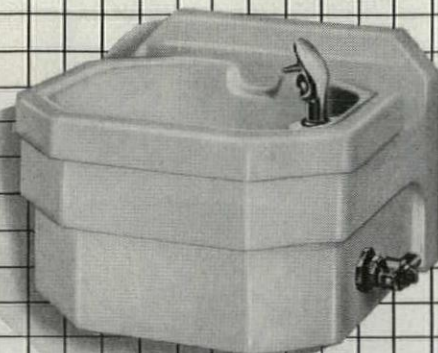
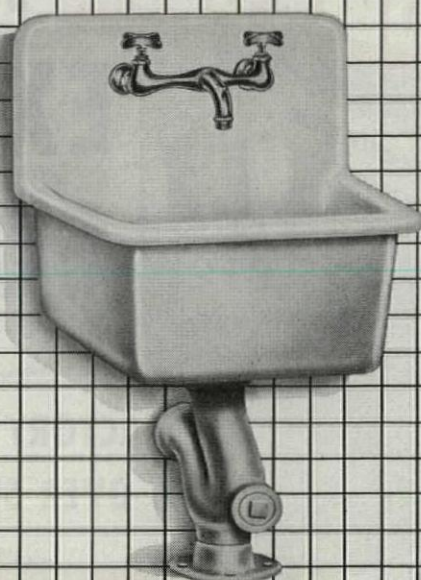
- |   |  |
|---|--|
| <input type="checkbox"/> Air conditioning outlets         | <input type="checkbox"/> Perforated metal and ornamental grilles |
| <input type="checkbox"/> Return air grilles and registers | <input type="checkbox"/> Industrial grilles                      |
| <input type="checkbox"/> Volume controllers               | <input type="checkbox"/> Special made-to-order grilles.          |

TITUS MANUFACTURING CORP., WATERLOO, IOWA

- ☐ RUSH information on AG-45 Extractor & Controller  
☐ Send complete catalog  
☐ Send literature on above checked items

NAME \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_





## WHY Richmond fixtures are the logical choice for commercial, industrial and institutional installation

Where the traffic is heavy and usage is hard you have to pick your fixtures with extra care. That's why you'll find so many public restrooms are Richmond equipped.

Richmond's reputation for plumbing fixtures of maximum durability with minimum maintenance is the result of careful selection of raw materials and close control in manufacturing operations. Richmond vitreous china ware is fired in modern kilns at temperatures up to 2300°F. to produce a surface that is actually comparable in hardness and durability to the natural sapphire. In Richmond cast-iron ware the ceramic glaze is furnace-fused to the base for a permanent, impermeable bond and smooth glass-hard surface. Continuous quality control at all stages of manufacture assures the production of only top-grade fixtures.

Richmond fixtures are available in a wide range of modern stylings, in Richmond's famous "whiter-white" or six lovely decorator pastel colors.

**For long life with minimum maintenance, specify Richmond.**



**RICHMOND**

Affiliate of Reynolds Metals Company

**PLUMBING HEATING**

Richmond Radiator Co.  
— Affiliate of Reynolds Metals Co.  
Metuchen, N. J.

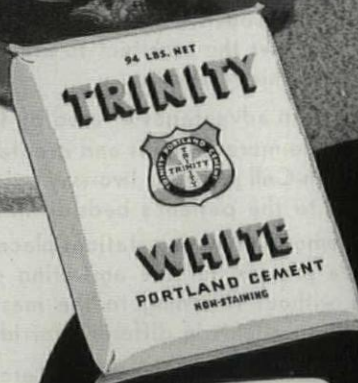


*Whitest by  
Any  
standard*

The extreme whiteness of Trinity White Cement is obtained by selection of raw cement-making materials which are remarkable for absence of color. There is no off-color cast in Trinity White to detract from the beauty of the finished structure.



Trinity is the *whitest* white cement judged by any standard. It is whitest in the bag . . . whitest in the mix . . . whitest in the finished job! You can see the extra whiteness with the naked eye! Trinity White is a true portland cement. It meets all Federal and ASTM specifications. Use it for architectural concrete units; stucco, terrazzo; cement paint; light-reflecting surfaces; mass or contrast; or wherever the purity of white and the purity of color tints is desirable in concrete or masonry. Trinity Division, General Portland Cement Co.



as white  as snow  
... plain or waterproofed

*Trinity White*  
THE WHITEST WHITE CEMENT

A Product of GENERAL PORTLAND CEMENT CO. • Chicago • Dallas • Chattanooga • Tampa • Los Angeles



## BOOK REVIEWS

**AN AMERICAN SYNAGOGUE FOR TODAY AND TOMORROW—A Guidebook to Synagogue Design and Construction.** Edited by Peter Blake. The Union of American Hebrew Congregations, New York, N.Y. 311 pp. 11¼" x 8½". Illus. \$10

A handsome, practical book by more than three dozen noted authors and contributors, edited by a member of the FORUM—HOUSE & HOME editorial staff.

**DESIGN FOR MODERN MERCHANDISING.** By the editors of Architectural Record, 119 W. 40th St., New York 18, N.Y. 247 pp. 12" x 9". Illus. \$8.95

This is an attractively bound reprint of 41 articles on stores, shopping centers and showrooms originally published in *Architectural Record* between March '48 and Dec. '53.

**CONSERVATION AND REHABILITATION OF MAJOR SHOPPING DISTRICTS.** By Richard Lawrence Nelson and Frederick T. Aschman. Urban Land Institute, 1731 K St. N. W., Washington, D.C. 44 pp. Paperback. \$5

A \$5 pamphlet ought to be something special, and this one is. It deals with a most important problem that has had little attention: what to do about conserving or rehabilitating urban shopping districts.

Mature shopping districts occupy only a small proportion of any city's total area, but the investment in them is huge, the tax stake in them is huge and so is their influence on the surrounding city.

This study wastes no words on belaboring or bewailing the obvious. It gets right down to practical, solid suggestions on planning analyses, financing, organization, improvement possibilities, requirements. (See AF, March '53 for condensation of authors' suggestions.) This pamphlet should be required reading for city planners, foresighted urban merchants and store architects.

**THE MODULOR.** By Le Corbusier. Published by Harvard University Press, Cambridge, Mass. 243 pp. 7½" x 7½". Illus. \$5

This is an English translation of Le Corbusier's discussion of his "harmonious measure to the human scale, universally applicable to architecture and mechanics." In it Le Corbusier tells the story of his invention, traces its development, points to its origins in the architecture of the past and sets forth the mathematical and philosophical standpoints from which it springs. The central section of the book illustrates its practical application to several different buildings, including the famous *Unité d'Habitation at Marseilles*.

**ARCHITECTS' YEAR BOOK 5.** Edited by Trevor Dammatt. Published in the US by The British Book Center Inc., 122 E. 55th St., New York, N.Y. 294 pp. 7½" x 10". Illus. \$9

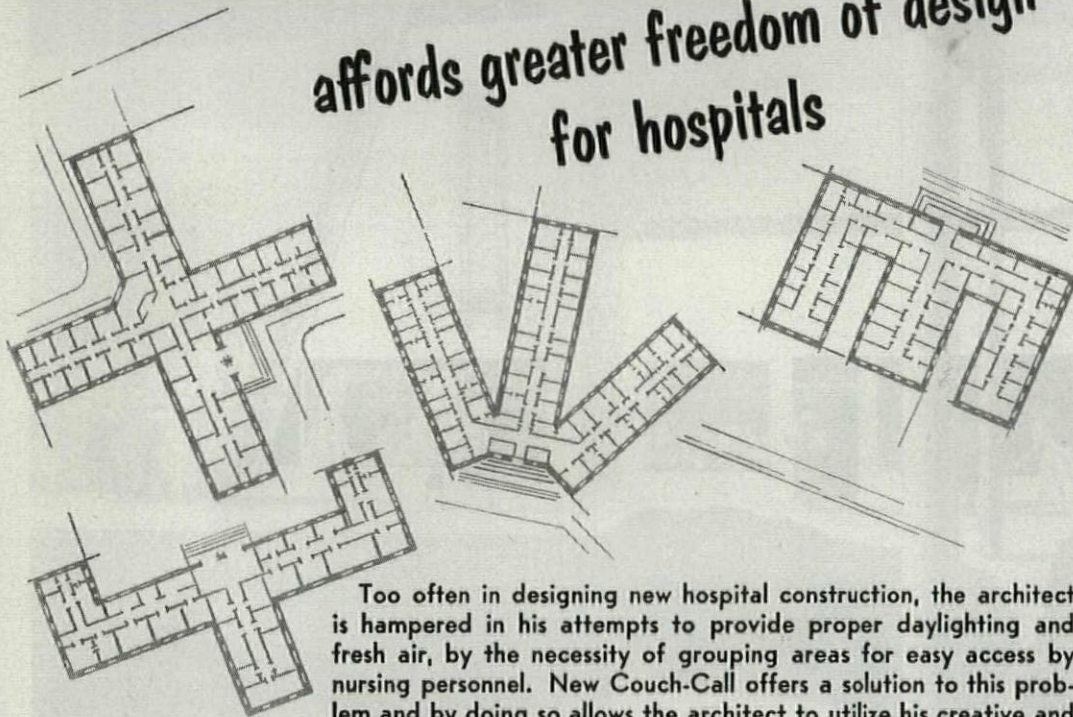
In this year's edition of the *British Year Book*, US architects and their buildings are more conspicuous than ever. It contains a tribute to Walter Gropius, a long review of the architecture of Frank Lloyd Wright (originally published in Rome), an article by Fello Atkinson titled "American Architecture Comes of Age" and detailed presentations of "Six Recent Buildings in the USA"—UN Headquarters, Lever House, Harvard Graduate Center, GM Technical Center, Farnsworth House, Lake Shore Drive Apartments. (Interestingly, all six were first presented in the FORUM—ED.)

The book contains many other chapters on the world-wide development of building design and construction—among which those on prestressed and precast concrete are most noteworthy.

*continued on p. 194*

## NEW COUCH-CALL NURSES' CALLING SYSTEM

*affords greater freedom of design  
for hospitals*



Too often in designing new hospital construction, the architect is hampered in his attempts to provide proper daylighting and fresh air, by the necessity of grouping areas for easy access by nursing personnel. New Couch-Call offers a solution to this problem and by doing so allows the architect to utilize his creative and technical skills without this restriction.

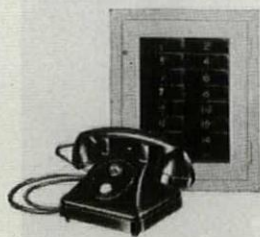
Here are the design advantages offered by Couch-Call:

The nurse can handle more patients and greater nursing area for fully automatic Couch-Call provides two-way voice communication . . . eliminates trips to the patient's bedside in 6 out of 10 calls.

Fully automatic remote answering stations placed at the extremes of the nursing area provide for the answering of calls from any place in the area without returning to the master station. One nurse can now handle patients in different corridors.

Room stations are automatically reset and are ready for re-use immediately when a call is completed.

For complete details on Couch-Call, write for bulletin 126.



S. H.

*Couch*

*Simplified Systems of Communication*  
**Company, Inc.**

Private telephones for home and office . . . hospital signaling systems . . . apartment house telephones and mail boxes . . . fire alarm systems for industrial plants and public buildings.

NORTH QUINCY 71, MASSACHUSETTS, U. S. A.

In Canada: Canadian Marconi Company, Montreal.





tweed

*A new dimension  
in texture ...*

**JOANNA**  
*Vinylized*  
**Wall Fabric**

ruffian

*Bringing a new dimension  
to interior decorating*

... two outstanding new wall fabric textures from Joanna Western, styled to make tomorrow's interiors a reality *today*. The pleasing, relaxing appearance—the nubby *feel* of TWEED ... up-to-the-minute styling in RUFFIAN ... these are the textures that are bringing a new dimension to institutional decorating, *the dimension of texture*.

Yes, there's a world of beauty in the new Joanna Vinylized Wall Fabric—but don't

forget the practical side. Joanna Vinylized Wall Fabric is easy to hang—won't scratch, scuff or chip no matter how many bumps and scrapes it gets—washable forever with soap and water—shrinkproof and stain-proof. Joanna stays bright, beautiful and *new-looking* for years, cutting maintenance and decorating costs to the bone. Joanna Vinylized Wall Fabric is fire-resistant (listed by the Underwriters' Laboratories).

☆ For a closer look at these great new Wall fabrics and the complete line of Joanna Pastels, send for sample book S-23.



**JOANNA WESTERN MILLS CO.**

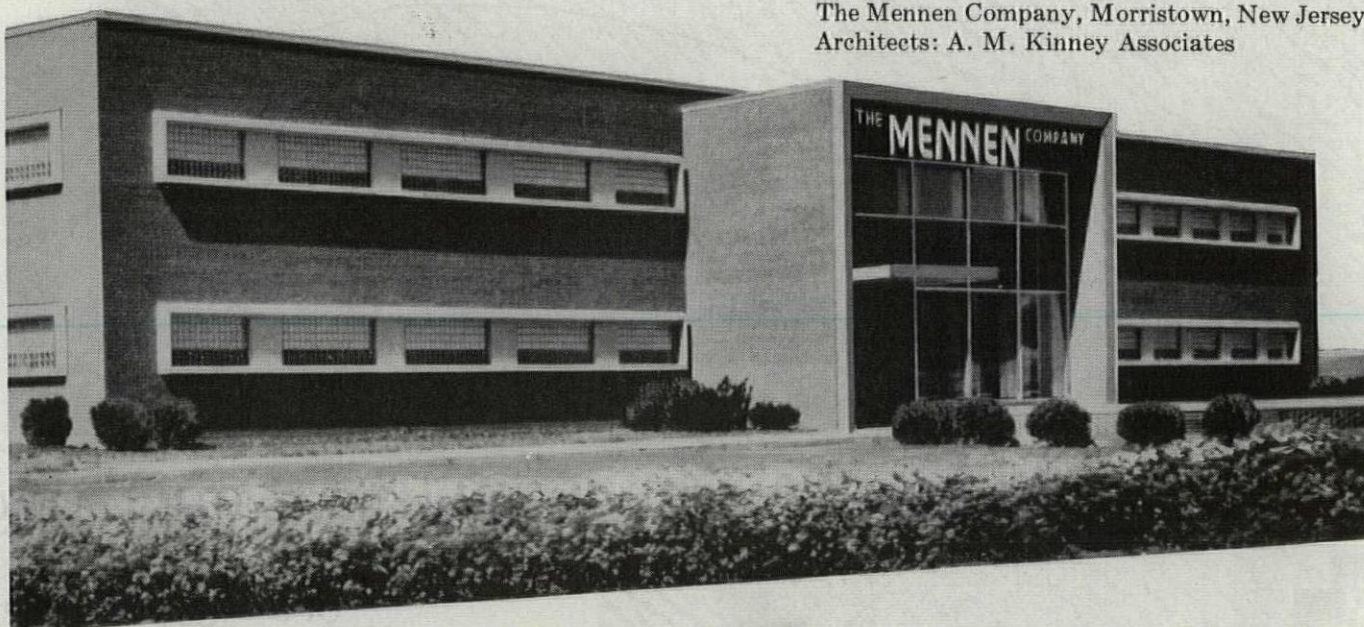
22nd and S. Jefferson • Chicago 16, Ill.

Joanna Western Mills Co., Export Division: 1 Exchange Place, Jersey City 2, N. J., U.S.A.



Library of the  
Minneapolis School of Art





The Mennen Company, Morristown, New Jersey  
Architects: A. M. Kinney Associates

## Another famous building gets the special protection of Sargent Products ...THE MENNEN COMPANY

Have you had a demonstration of the new Sargent "Quick" Exit Device?

You should...and soon...for these products are produced by the Sargent SHELL MOLDING PROCESS for greater strength and finer finish than ever before possible!

The new design is massive, yet graceful. A variety of trims go with any style of building.

"Quick" Exit Devices are equipped with lightning-fast Safety Roll-Back Latch that opens instantly with feather-light touch...and also guarantees positive easy closing.

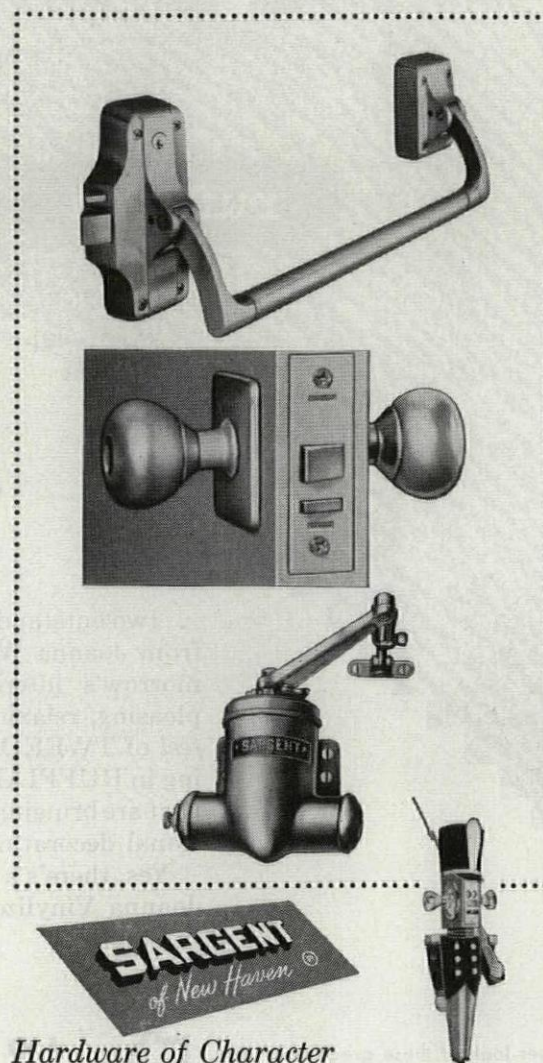
Two other products that architects all over the country specify "from bottom to top" are the Sargent Integrallock and the Sargent Liquid Door Closer.

The beautifully designed, high quality Integrallock is the *only* modern key-in-knob lock with *double protection*. The exclusive Sentry Bolt is operated from the inside by turn lever, from outside by key—plus the protection of set buttons which securely lock the outside knob.

Sargent Liquid Door Closers, which are reversible, insure precision closing, complete control. These products are already installed on hundreds of thousands of doors in the U. S. A.

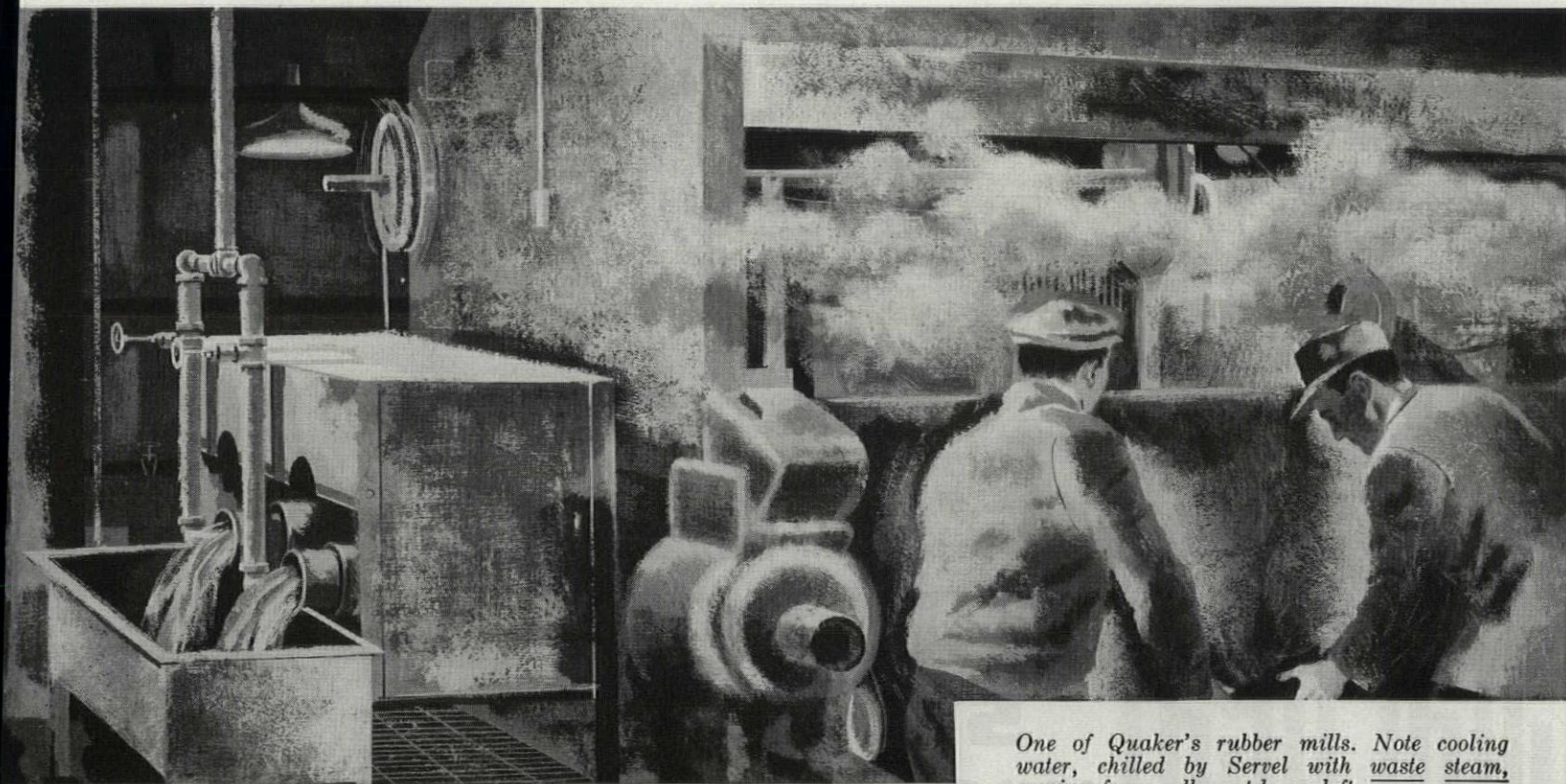
Call your Sargent Representative today. Or write us, Dept. 8-G, for complete data and specifications.

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Hardware of Character





One of Quaker's rubber mills. Note cooling water, chilled by Servel with waste steam, coming from rollers at lower left.

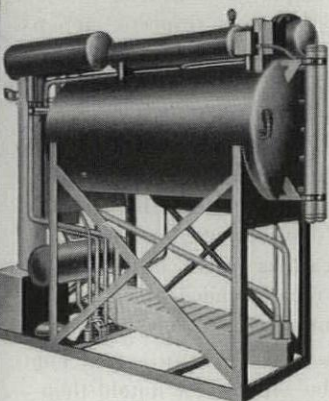
## How **WASTE STEAM** keeps rubber mills cool

*Servel 25-ton Water Chillers save their cost in just over one season for Quaker Rubber Corporation, Division of H. K. Porter Company, Inc.*

The proper quantity and temperature of chilled water supplied to a rubber-mixing operation is critical—permits uniform compounding, shortens the mixing cycle, reduces "down time," decreases defective compounding and improves quality.

The Quaker Rubber Corporation gets this perfect control through the use of four Servel 25-ton Water Chillers, serving two Banbury mixers, two sheeting mills and one mixing mill, with advantages that can mean important savings to any user of chilled water for process cooling, industrial pre-cooling or air conditioning:

- Use of cheapest available heat source. Quaker uses waste steam, for minimum operating costs.
- Low cost—and inexpensive installation. Vibration-free operation, light floor loading



*Servel 25-ton Water Chiller has no moving parts. Operates without vibration, with no wear even at peak loads. Carries 5-year warranty.*



*Quaker makes hose, belting, and many other rubber products. In such products as fire hose, perfect, continuous quality control is essential—and proper cooling helps.*

and compactness add to savings. Quaker almost saved cost of this installation in *one season!*

Check these advantages against your process chilled water requirements. For further facts and engineering assistance, see your Servel dealer or send coupon.



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**REBUILDING THE LAND OF ISRAEL.** By Gershon Canaan. Architectural Book Publishing Co., 112 W. 46th St., New York, N.Y. 205 pp. 8½" x 11". Illus. \$12.50

The architectural situation of modern Israelis, says the author, "might be likened to that of a suddenly recovering victim of amnesia, striving to recall his past and so recover his own true personality."

This book is less a report on Israeli build-

ing than an attempt to divine what the architectural personality of Israel should be. The author—a young architect educated at Haifa Technion, Taliesin and the University of Texas—reports exhaustively on the climate, geology, archaeological finds and ancient ruins of Israel, geographical area by area, and makes a dedicated argument for a native, national architecture reflecting local natural conditions and incorporating a sense of indigenous history. Photographs of contem-

porary architecture are relatively few and comment on them is meager. Conspicuously absent is work in the Bauhaus tradition which Canaan regards as an imported invasion. Ironically, the author's own prototype house designs are strikingly Wrightian, a curious outcome after all the archaeological spade-work.

**MOTOR COURTS—FROM PLANNING TO PROFITS.** By C. Vernon Kane. Ahrens Publishing Co. Inc., N.Y., N.Y. 243 pp. 6¼" x 9¼". \$5.50

This new book is by an expert who has already given some advice to architects and their clients on motels (AF, Feb. '54). Now he presents the full treatment on the same subject. Architects will be able to gauge the level of the book by some of the shrewd things he has to say to the prospective motel operator about the sensitive subject of picking an architect.

"... If an experienced man is selected he can draw upon his experience to test an investor's ideas and tentative plans. The architectural problem is greatly simplified too, if he is presented with some concrete ideas, rather than asked to duplicate some other court—and possibly another person's mistakes. . . .

"Some owners have consulted other operators having experience with architects. But a recommendation, or lack of one, is not a conclusive test. Human nature being what it is, some owners have bitterly condemned an architect despite his having produced a near-perfect building. . . ."

But in the generally flattering mirror Mr. Kane holds up to the profession, architects may also find a few nicks. For instance, here are his seven basic steps suggested for building a motor court: 1) select the type of court—transient or terminal; 2) choose a location and a building site; 3) plan the equipment and facilities; 4) prefurnish the rooms; 5) engage an architect; 6) arrange for financing; 7) employ a contractor.

And he adds: "In many respects, step 6 may have to be considered first."

The architect may at first merely snort at being put into the fifth or sixth place, but when he goes on to read the rest of this shrewd, comprehensive book, it may really give him pause. For Kane covers his subject with consummate thoroughness and great attention to the realities—from bookkeeping procedures to the recommended practices for delivery of telegrams.

It is so well done that it is awesome. For those architects who—like other untold thousands of citizens—have it in the backs of their minds to retire to a motel grove some day and have it easy, this book may be a sobering study, an inducement to continue in architecture.

*continued on p. 198*

# Coal heat

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Will-Burt Stokers give relief from time-wasting grief at the installation stage and throughout the heating season.

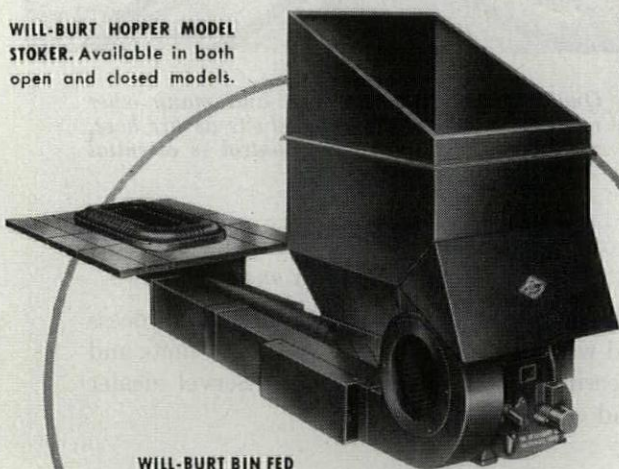
Will-Burt Stokers are used widely with various types of bituminous coal boilers and furnaces for heating schools, hospitals, institutions, greenhouses, country clubs, churches and small factories.

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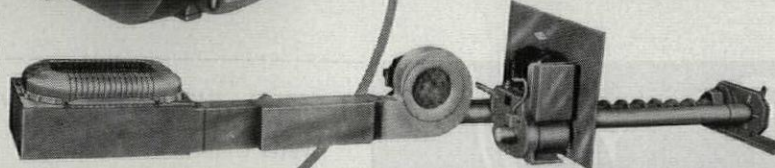
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Famous Los Angeles "Hospital of the Future", with its many modern patient care and comfort features and self service push button devices, is expected to cut the cost of patient care below that of any standard hospital. Note innovations in maternity room in photo at left.

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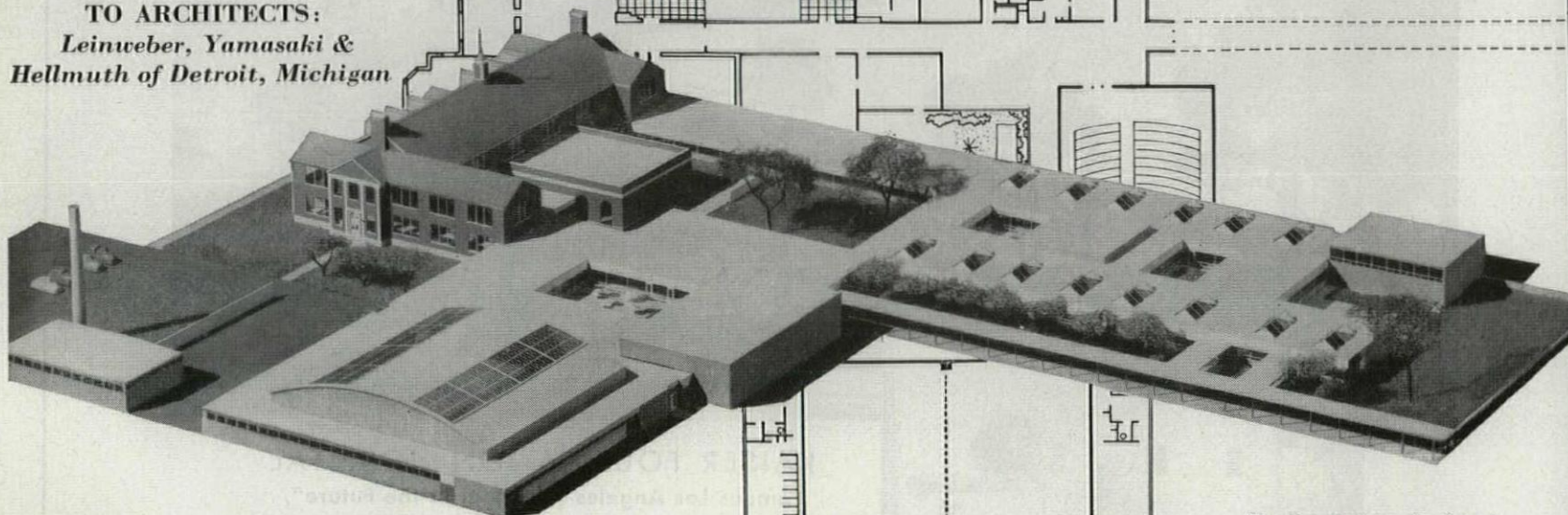


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Hellmuth of Detroit, Michigan

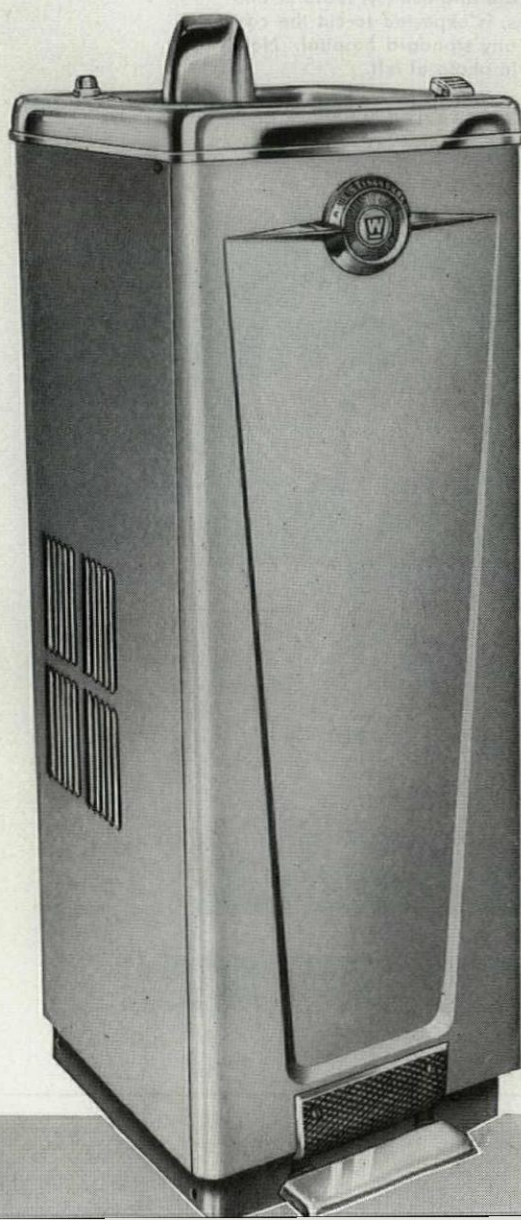


The Detroit University School and Grosse Pointe Country Day School in Grosse Pointe Woods, Michigan, have increased their facilities to 49 classrooms with this new addition.

Imagine trying to separate the academic and recreational activities of boys and girls, aged 3 to 18, and still have an educational center that is contiguous. This problem, presented to the architects, was deftly handled by employing a scheme of courtyards to zone the 13 grades. This exceptional design lends an air of privacy to the affairs of the various age groups, and yet, keeps the plant unified. The nursery school (not shown) and the woodworking and mechanical shops (lower left) are separate buildings. The high school (older building), elementary school and kindergarten (center) and common rooms are all joined by hallways but manage to create the illusion of several, distinct units.

To add to the functional values of this remarkable school, the architects have specified Westinghouse Water Coolers. These coolers have a higher capacity with decreased operating costs and reliable operation. Westinghouse Water Coolers are engineered to withstand the rugged day-to-day usage in schools or any place where cool drinking water is desired.

Model WS8B . . . 8-gallon per hour capacity unit includes feather-touch dual electric control, patented Pre-Cooler, Super Sub-Cooler and automatic stream-height control.



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WA13B  
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Air Cooled



WA17B  
17-Gallon,  
Air Cooled



WW14B  
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foot-pedal and push-button electric controls at *no extra cost* . . . the only water cooler on the market today with this revolutionary feature.

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7-Gallon,  
Remote Cooler



WWP13  
13-Gallon,  
Remote Cooler



WBC1  
Compartment  
Bottle Cooler





**PRESTRESSED CONCRETE.** By Y. Guyon. Edited by W. M. Johns. M. C. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N.Y. 543 pp. 6 1/2" x 9 1/2". Illus. \$12

This translation of a French textbook published in 1951 is a comprehensive treatise on prestressed concrete design and includes much higher mathematics intended for the concrete technologist. The author has been associated with the famous French Engineer

E. Freyssinet since the early thirties and thus has vast experience in the field, but his book might perhaps be more valuable had it included pictures of some of the outstanding prestressed structures built during the past few years, and some discussion of the unique construction methods used to build them.

**PROCEEDINGS OF THE WESTERN CONFERENCE ON PRESTRESSED CONCRETE.** Edited by Edward K. Rice. Dept. of Conferences and Spe-

cial Activities, University Extension, University of California, Los Angeles 24, Calif. 248 pp. 7 1/2" x 10". Illus.

A collection of 19 papers by top prestressing engineers given at the University of California in Nov. '52. The main emphasis is on design analysis plus useful discussions on specifications for prestressed concrete, building codes, costs and current research (including brief reports on 40 research projects on prestressed concrete currently in progress all over the US).

**REINFORCED BRICK MASONRY—LATERAL FORCE DESIGN.** By Harry C. Plummer and John A. Blume. Structural Clay Products Institute, 1520 18th St. N.W., Washington, D.C. 271 pp. 6" x 9 1/4". Illus. \$4.95

This highly comprehensive working textbook on masonry construction reports on the performance of masonry, both reinforced and unreinforced, recommends design and construction procedures based on these data, and pertinently reviews current design criteria relating to lateral forces resulting from wind, earthquake or blast. Lateral force design methods are analyzed in detail, supported by numerous structural diagrams.

**URBAN TRAFFIC—A Function of Land Use.** By Robert B. Mitchell and Chester Rapkin. Columbia University Press, 2960 Broadway, New York 27, N.Y. 226 pp. 9 1/4" x 6 1/4". \$5

Assuming that a better understanding of the movement of people and goods to and from buildings is basic to understanding traffic problems, this book makes important contributions to solving traffic congestion. It develops means of analyzing the flow of people and goods in cities.

Penetrating the facade of traffic, the authors attempt to go beyond the "origin and destination" approach to studying traffic problems. They analyze traffic in terms of its underlying causes—the necessity for people to move, and goods to be transported, from one place to another. Showing which of these movements are regular and predictable, which are sporadic and only predictable in the mass, they find that all movements fall within certain large systems. These large systems in turn are manifestations of organized systems of land-based urban activities. Each type of establishment constituting bases of activity has its own particular relationship to the movement of persons and goods in all its aspects. *Urban Traffic* explores these relationships, the various methods of analyzing them and the techniques of collecting information about them.

*Urban Traffic* uses data for Philadelphia to illustrate its methods and techniques of analysis. The book includes many figures and tables, which draw upon analyses of traffic in many diverse cities.

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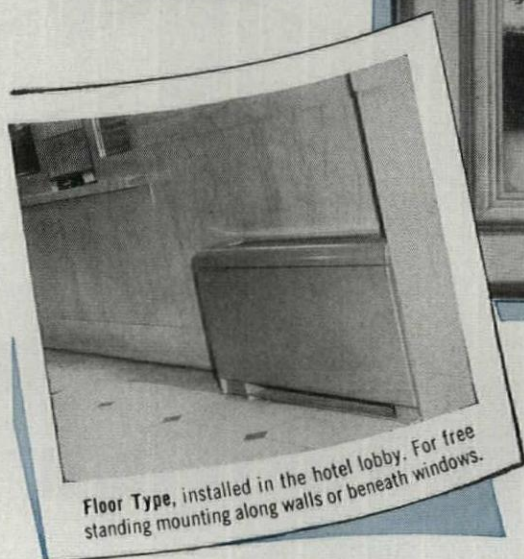
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# HOTEL DE SOTO

SAVANNAH,  
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Floor Type, installed in the hotel lobby. For free standing mounting along walls or beneath windows.



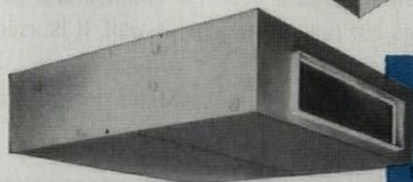
When the management decided to modernize Hotel DeSoto, Savannah, Ga., air conditioning, naturally, was one of the first considerations. J. Garnett Andrews, chairman of the board, and Charles G. Day, president, selected Mingledorff's Inc. as their air conditioning contractor. Through Savannah Refrigeration Supply, Inc., the local McQuay wholesaler, Mingledorff's purchased 183 McQuay Seasonmakers. Their installation assures Hotel DeSoto's guests of individual room air conditioning at its best.

## Modernized with McQuay Seasonmakers

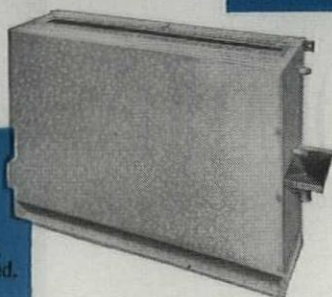
### INDIVIDUAL ROOM AIR CONDITIONERS



Hideaway Type.  
For fully recessed installations, ceiling mounted.



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• Famous McQuay Seasonmakers have made the luxury of individual room air conditioning practical for any multi-room building . . . for new or old construction . . . for hotels, tourist courts, apartment houses, office buildings, institutions and residences—wherever the best in air conditioning comfort is demanded.

Four types in three different sizes, 200, 400 and 600 CFM, simplifies your job of selecting a unit that will meet set requirements such as Floor type for free standing, Ceiling type for suspended mounting, Basic type

for fully recessed wall installations as well as Hideaway type for concealed mountings in furred ceilings, closets, or vestibules. Quiet operation and flexible design allows you to select the correct unit for any job.

Exclusive Ripple-Fin coil construction assures long life and dependable service. Designed for easy installation and maintenance. Get complete details on features and specifications in Bulletin 703. Representatives in principal cities or write McQuay Inc., 1609 Broadway N.E., Minneapolis 13, Minnesota.

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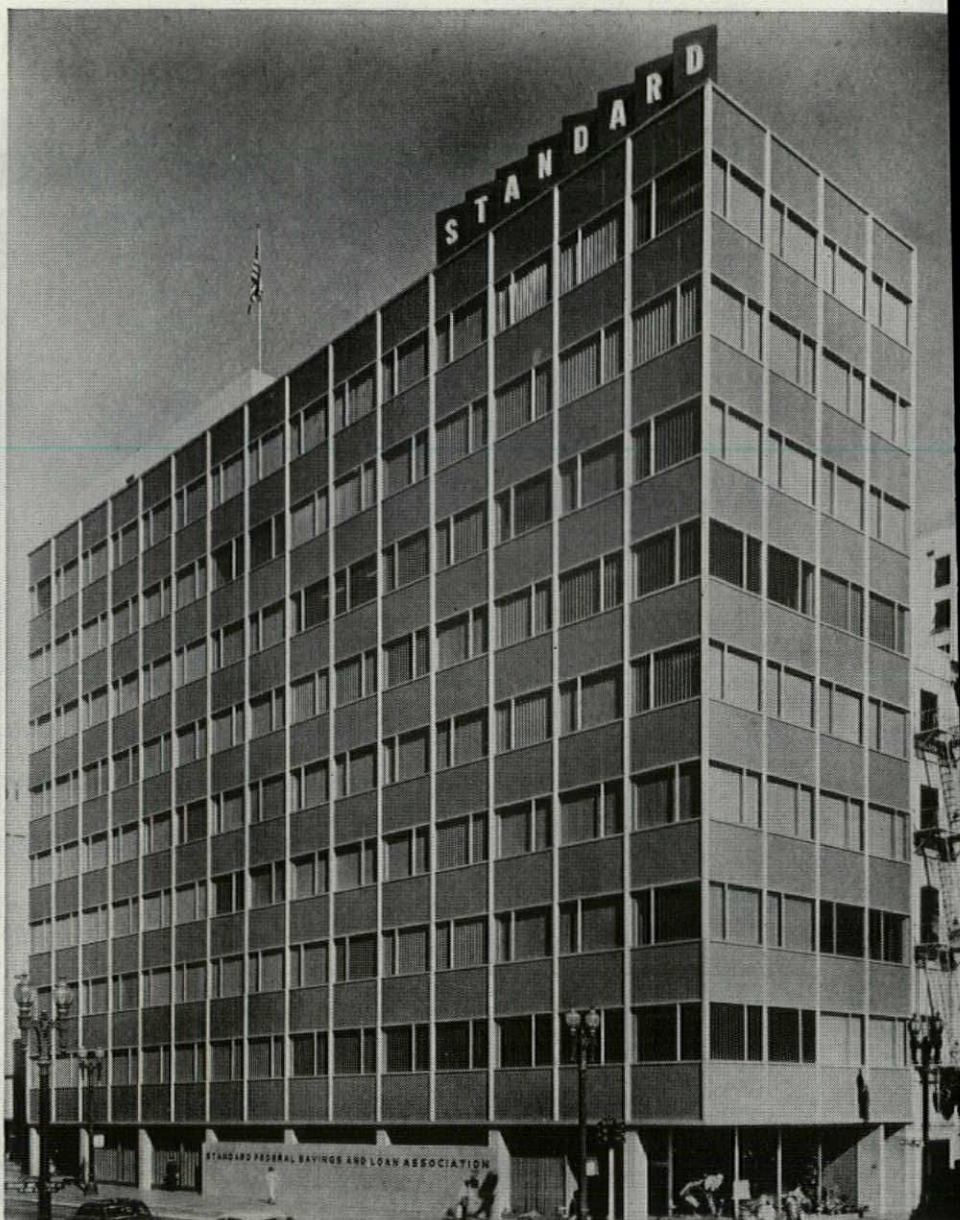




# Porcelain Enameled Spandrels

## BEAUTIFY NEW OFFICE BUILDING

Here's another example of the decorative and architectural advantages of porcelain enameled spandrels. The new Standard Federal Savings Building adds a new colorful note to downtown Los Angeles. Its continuous bands of wide sealed windows harmonize for 9 floors with alternate bands of gray-blue porcelain enameled spandrels.



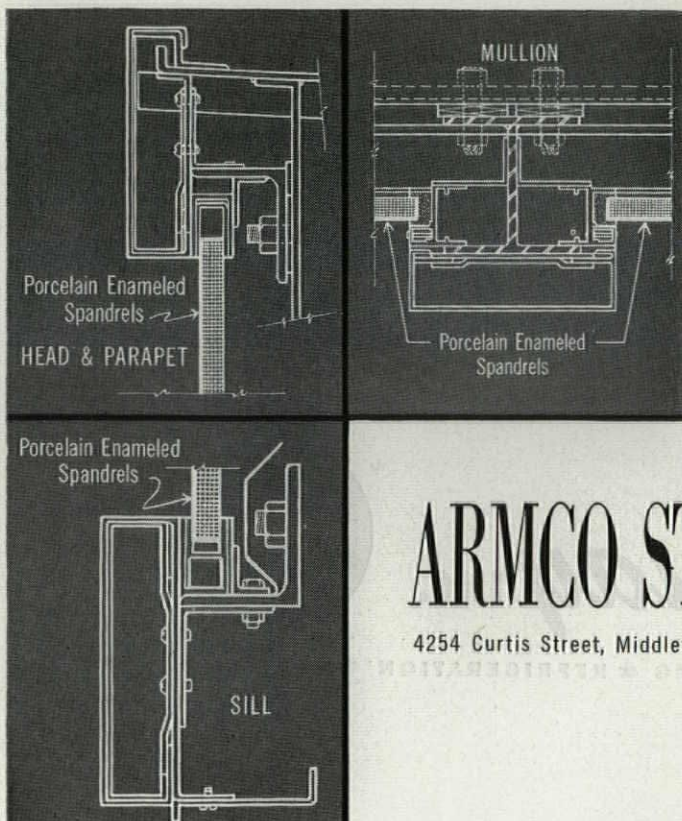
ARCHITECT: WELTON BECKET & ASSOCIATES • Los Angeles and Chicago

These spandrels not only carry out the color scheme but insulate the building. Each spandrel section consists of a porcelain enameled pan filled with honey-comb insulation laminated to the pan, and backed up by a zinc-coated sheet.

Porcelain enameled spandrels and curtain walls eliminate the high material and labor costs of heavy stone and masonry construction—permit installation in a fraction of the time required for older types of construction.

Armco Enameling Iron is widely used as a base for architectural porcelain enamel, not only on new buildings but renovating jobs as well. It is used alone or in combination with Armco Stainless Steel.

For further information on Armco Special-Purpose Steels for building construction, write us at the address below.



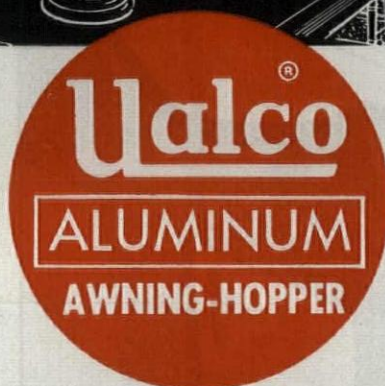
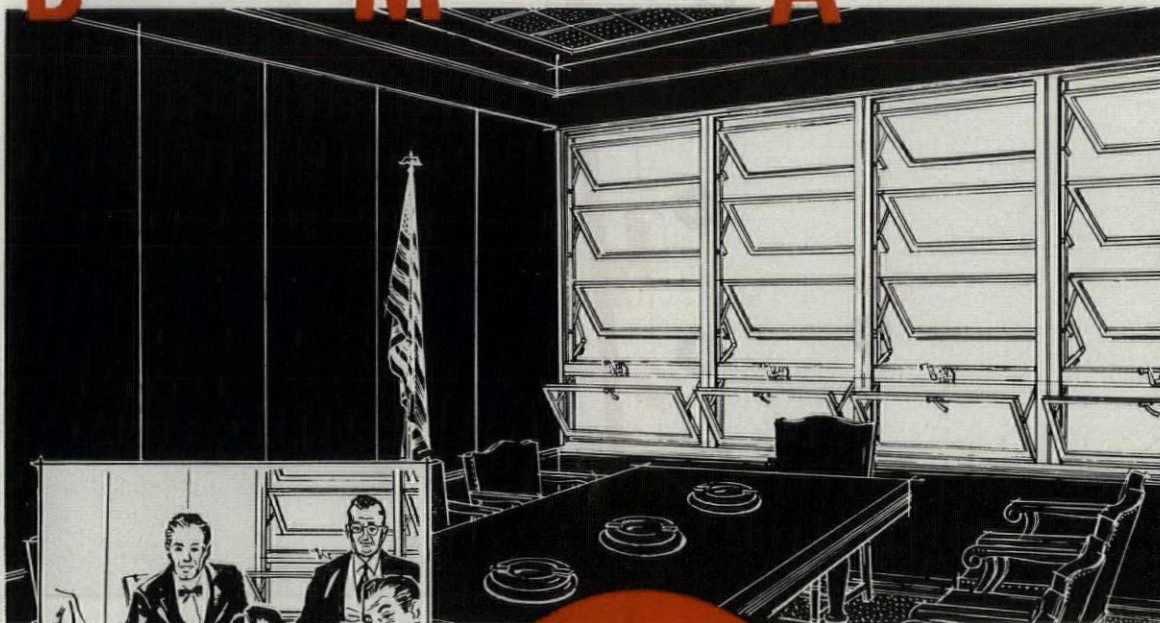
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In schools, hospitals and corporations, this is the window that wins approval! Board members know the importance of lasting beauty and materials which require no upkeep expenses. That's why they'll appreciate the value of Ualco's heavier sections of extruded aluminum which never rust or rot, never require painting!

They know too, the necessity of 100% or controlled ventilation, such as the awning vents provide, and the draft-free, healthy ventilation provided by the hopper! They like the slim, easy-to-clean beauty and operating efficiency of these windows, too!

No wonder more and more architects are specifying the Ualco Awning Hopper for institutional and commercial buildings!

**OTHER FEATURES:** Hopper vent operates independently, adjusts for desired ventilation. Awning vents are activated by an exclusive Strip-Proof Operator which unlocks, opens and locks vents in any position up to 90 degrees. Integral fin completely surrounds window, takes brick fin and fin trim. Completely weatherstripped with Koroseal. Easy to clean from the inside.

**The Ualco Awning Hopper is self-mullioning, Available in sizes to fit all Ualco Awning Windows.**

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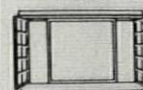
JALOUSIE



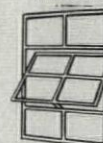
DOUBLE HUNG



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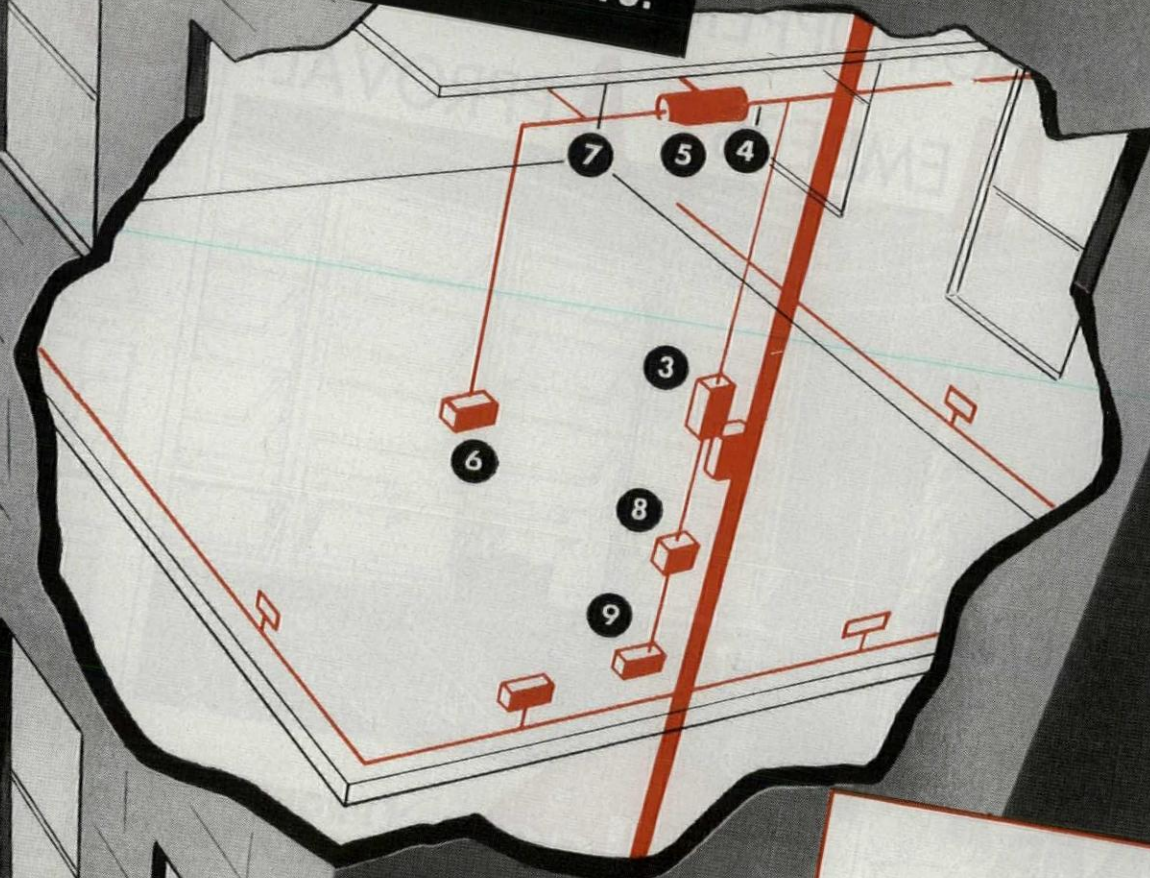
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Ask about our Engineering Planning Service, designed to assist architects, engineers and contractors in making "take-offs" and solving window problems.





## ENGINEERING REPORTS:



### HERE'S HOW THE SYSTEM FITS A TYPICAL BUILDING

(1) 480Y/277-volt power system feeders are protected by secondary switching equipment. (2) Busway the three-phase power to panelboards (3) on each floor. From these panelboards, 277-volt line-to-neutral area fluorescent lighting circuits (4) are run to remote-control relays in the pull boxes (5), or 277-volt wall switches (6), which control power to the lamp ballasts (7). A 480/120-volt transformer (8) supplies power to the 120-volt panelboard (9) from which 120-volt floor circuits are run to accommodate 115-volt business machines. The same distribution system supplies 480-volt three-phase power to pump, air-conditioning and elevator motors (10).



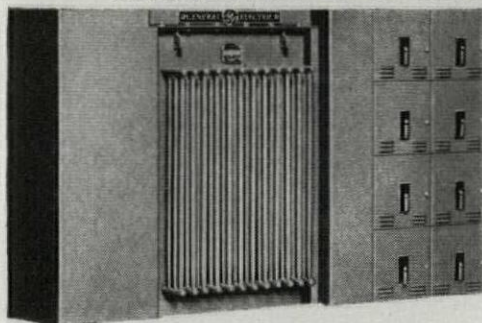
# Lower cost power for commercial buildings made possible by General Electric 480Y/277-volt electrical systems

Many kinds of large commercial buildings—schools, department stores, shopping centers, office buildings,—can now take advantage of the flexibility and substantial savings made possible by 480Y/277-volt electrical systems. This economical system has now been accepted for commercial and public buildings by the National Electrical Code. Pioneered by G.E., it is already in wide use in industry. Co-ordinated standard General Electric components, including the

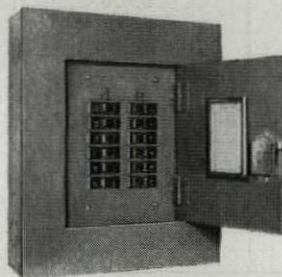
recently developed low-voltage remote-control system, make application easy.

**Building owners and contractors:** With higher-voltage systems you get substantial savings in initial installations. On the next page you will find figures which demonstrate these savings in dollars and cents for a typical building. Area fluorescent lighting fixtures are supplied at 277 volts, while motors can be operated at 480 volts.

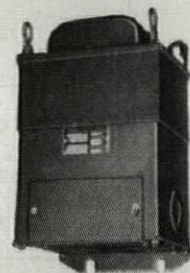
## STANDARD G-E COMPONENTS MAKE SYSTEM APPLICATION EASIER



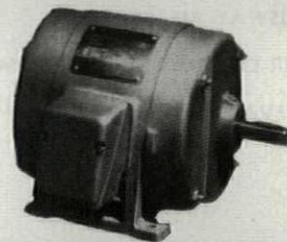
**UNIT SUBSTATIONS**—Where 480-volt power is supplied, only the switchgear section of the substation is required.



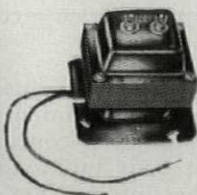
**FLOOR-CIRCUIT PANELBOARDS**—From these panelboards circuits are run to accommodate business machines, etc.



**480/120-VOLT TRANSFORMERS**—Supply power to floor-circuit panelboard. Type M (above) available from 1/4 to 15 kva.



**G-E MOTORS AND CONTROL** supply more reliable drive and control for pumps, air conditioning.



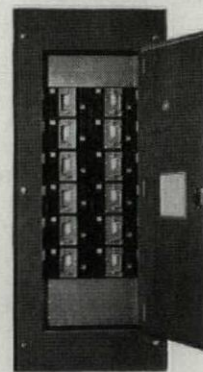
**CONTROL-CIRCUIT TRANSFORMER**—G-E 120/24-volt transformer (right) provides 24-volt power to the remote-control relays (left) and wall switches (center).



**RISERS & FEEDERS** can be either busway, interlocked cable, or cable in conduit for distributing 480-volt power to panelboards.



**LAMP BALLASTS**—This one shown above (rated 265 volts) for use with two 40-watt rapid-start lamps, designed for use with 277-volt systems.



**PANELBOARDS**—Either circuit breaker or fused panelboards may be used to help protect 277-volt circuits.

TURN THE PAGE AND COUNT YOUR DOLLAR SAVINGS

GENERAL  ELECTRIC



# Here's how you can save up to 25% with G-E 480Y/277-volt power systems

EQUIPMENT	Old-Style Low-Voltage System (208Y/120 volts)		New High-Voltage System (480Y/277 volts)	
	Estimated Installed Cost	Weight of Copper, lb	Estimated Installed Cost	Weight of Copper, lb
REMOTE CONTROL	\$ 6,750	240	\$ 6,750	240
BRANCH-CIRCUIT WIRING FOR LIGHTS	42,450	1,530	29,800	1,100
FLOOR CIRCUITS (120 VOLTS)	28,125	1,080	31,650	2,460
PANELBOARDS	4,950	150	4,515	255
UNIT SUBSTATION	55,300	6,700	36,000	6,500
BUSWAY RISERS	12,400	5,200	6,200	2,200
AIR-CONDITIONING EQUIPMENT	23,370	5,855	17,450	3,470
ELEVATOR AND FIRE-PUMP EQUIPMENT	9,010	2,400	6,470	1,145
TOTAL	\$182,355	23,155	\$138,835	17,370
TOTAL PER KVA	\$121.57	15.44	\$92.55	11.58

**BY COMPARING THE EQUIPMENT COSTS** of a 480Y/277-volt system with those of a conventional 208Y/120-volt arrangement for a typical building, the economies of high-voltage distribution become readily apparent. As an example, consider a five-story office building consisting of three units 160 x 75 feet each, with total load of 1500 kva. The table above compares the relative

costs for this building. Note that with two exceptions, one due principally to the need for the 480/120-volt transformer for the floor circuits, the high-voltage system results in dollar savings item for item. The total saving is approximately \$30 per kva. Studies of smaller and larger buildings have indicated similar savings in proportion to size.

**FIRST SAVING IS IN CIRCUITS.** Higher voltage means lighting circuits can carry a much greater kva load. The number of circuits can be halved. Conversely, if increased illumination is the goal, the same circuits used in a 208Y/120-volt system can now carry twice the load.

**FURTHER SAVINGS RESULT** from the lower cost of 440-volt motors and power equipment. Altogether, a complete 480Y/277-volt system can save as much as 25%, as shown in the chart above.

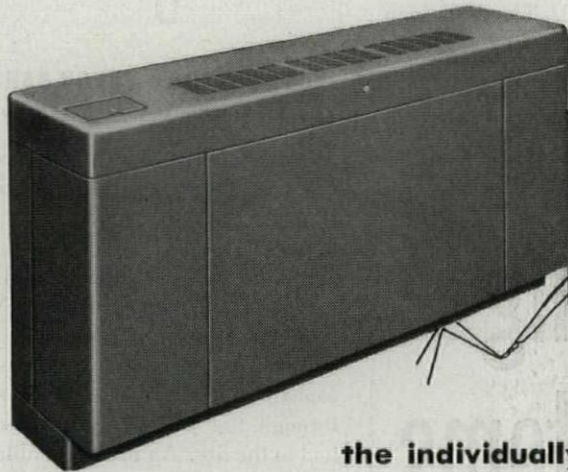
General Electric engineers specializing in power distribution, lighting, and construction materials are ready to work with your consultants or contractors in applying 480Y/277-volt power to your buildings. To arrange for this service, or for further information about the system and its equipment, contact your nearest G-E Apparatus Sales Representative *early in the planning stage*, or write for Bulletin GET-2307 to General Electric Company, Apparatus Sales Division, Section 665-122, Schenectady 5, New York.

Engineered Electrical Systems for Commercial Buildings

GENERAL  ELECTRIC



# Check the reasons why the popular choice for summer cooling and winter heating is



## The REMOTAIRE by AMERICAN-Standard

the individually-controlled unit that filters and circulates the air all year 'round in central-plant, multi-room installations

*Architects, builders and heating contractors like the Remotaire because it's versatile, easy and economical to install, space saving.*

*Building owners like the Remotaire because it provides healthful, draft-free comfort conditioning all year 'round with minimum attention.*

✓ Same simple piping circuit supplies chilled water for summer cooling, hot water for winter heating. No unwieldy ductwork needed.

- ✓ The Remotaire is adaptable to the best system for the job—Wall Aperture System, Interior Ventilation System, Well Water System, Split-coil System, Motel System, Residential System, Modernization System.
- ✓ Units can be installed recessed, partially recessed or free-standing.
- ✓ Three popular sizes to choose from—200, 400, 600 cfm. A size for every job.
- ✓ Easy to service. Every part of the assembly can be reached easily, quickly.
- ✓ Easy to maintain. Motor assembly can be taken out and replaced in less than 15 minutes.
- ✓ Reversible coil is designed for right or left hand connection. Easily reversed in the field.
- ✓ Special electrical junction box is easy to get to.
- ✓ Sturdily built . . . doesn't have to be pampered in installation. (Reinforced grille will support weight of 200 lb. man!)

- ✓ Each unit is individually controlled . . . temperature in each room can be changed without affecting adjoining space.
- ✓ The Remotaire is quiet. No whistling-jet noises.
- ✓ Handsome jacket, furnished in semi-gloss Cooltan, can be painted any color.
- ✓ Toe-step offset permits better fitting of rugs around units and eliminates marring of front when cleaning floors.
- ✓ Drain pan protection. Large pan runs entire length of unit to prevent condensation drip. Grille shield prevents foreign matter from entering through top.
- ✓ Large filters . . . keep air fresh and clean.
- ✓ Adjustable damper. Amount of air intake can be changed at any time.
- ✓ Wall seal. Rubber molding around back panel provides air seal between unit and uneven plaster.

**For further information on the Remotaire see Sweet's Architectural File or contact your nearest American-Standard sales office for descriptive literature.**

  
**AMERICAN-Standard**  
WATER HEATING-COOLING SYSTEMS

American Radiator & Standard Sanitary Corporation, P. O. Box 1226, Pittsburgh 30, Pa.

Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

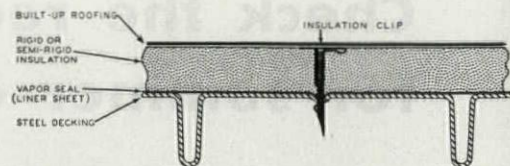


buildings are even simpler in their structure, being formed of a single thickness of 18-ga. steel. All *Wonder Buildings* utilize the principles of shell construction where a thin sheet material is stiffened by being curved in two directions. The typical unit used in the smaller buildings is curved in cross-section, curved in longitudinal section and also corrugated. A reinforced concrete floor slab and floating foundation forms a sill for the metal structure and a tie for the arch. Windows and sky-

lights are available from the manufacturer. Insulation and interior finish can be attached by bolting.

The smaller building (up to 60' span) costs approximately \$1.10 per sq. ft. plus 30¢ for erection, or \$1.40 in all. The 100' span costs \$2.68 per sq. ft. and erection by union labor in the Chicago area costs \$1, a total of \$3.68.

Manufacturer: Wonder Building Corp. of America, 30 N. LaSalle St., Chicago 2, Ill.



**INCOMBUSTIBLE VAPOR BARRIER** contributes to fire resistance of factory roofs

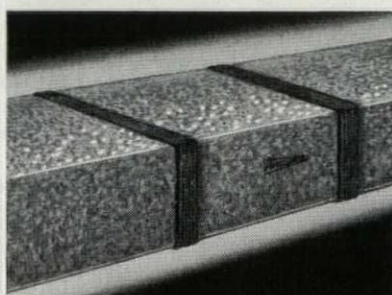
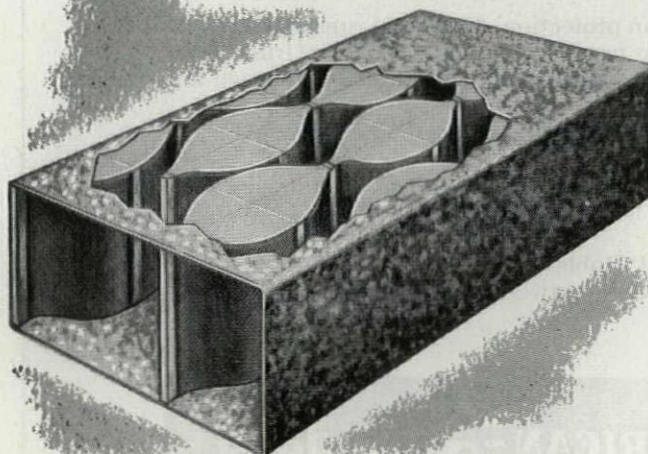
The disastrous fire in the General Motors' Hydramatic plant last year has forced attention to the neglected subject of the fire protection of one-story industrial buildings in outlying areas. It has been established that a major element in the spread of the G.M. fire was the standard two-ply hot-mopped vapor barrier between the steel deck and the insulation. The asphalt vapor barrier melted and ran down through the joints in the deck, thus adding fuel to the fire. An incombustible vapor barrier was obviously needed and *Lexusco* has developed one of a specially compounded Koroseal which chars at about 350° but does not support combustion. This tough, flexible, plastic film, .004" thick, is an efficient vapor barrier and costs 2½ to 3¢ per sq. ft., about the same as the conventional vapor barrier. An adhesive for sealing the joints of the Koroseal film was also developed. This is a reclaimed rubber type and sells for about \$1.75 per gal., which covers some 200 sq. ft. *Lexusco* rec-

# NOW...Packaged Silencing for Air Conditioning Systems

The concern which brought packaged silencing to the aircraft industry, taming the loudest noises on earth — jet engine testing — has applied engineering principles of sound control to the air conditioning field. Result: the amazing **ISC AIRCOUSTAT**... a packaged unit for quieting fan and air noise in air conditioning systems.

Compact, economical AIRCOUSTATS produce amazing results. For Example:

- 7 foot unit reduces noise level below what 100 feet of duct lining could accomplish.
- Pressure drop less than lining entire duct.
- AIRCOUSTATS assure scientific silencing... eliminate hit or miss efforts at noise control.
- AIRCOUSTATS permit silencing of low frequency noises previously impossible to control.



Constructed of galvanized steel or aluminum, AIRCOUSTATS are incorporated as part of the duct work... joined by flexible connections.

Selection is no problem with AIRCOUSTAT. If it fits geometrically, it fits acoustically.

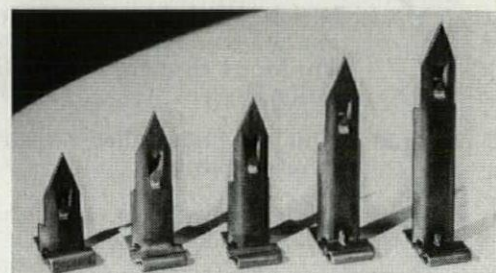
Write TODAY for complete specifications.



**Industrial Sound Control Inc.**  
45 Granby Street, Hartford 12, Conn.

**INDUSTRIAL SOUND CONTROL, Inc.**  
45 Granby St., Hartford, Conn.  
Please send me more information on AIRCOUSTATS.

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_



ommends use of their metal insulation clips to secure the insulation to the steel deck. These sharp pointed clips can be driven directly through the steel deck; a projecting tongue locks on the underside. The clips come in various sizes to match insulation thicknesses of ½" to 2" and cost about \$20 to \$40 per M, depending on size and quantity. Some 40 to 50 clips are used per square. Two layers of dry felt lapped 19" are placed above the insulation before the clips are driven. The usual built-up roof is then installed. The Koroseal vapor barrier is said to seal itself around the clip and tests show no condensation occurring on the tips of the metal clips. If clips are not used, the vapor barrier and the insulation may be secured by the adhesive only.

*Lexusco* and Ford Motor Co. staged a dramatic public demonstration of the improved fire resistance of the new roof system, and Ford and G.M. are both using it on new plants now under construction.

Manufacturer: *Lexusco*, Inc., 4815 Lexington Ave., Cleveland 5, Ohio.

*continued on p. 208*



# Look at this daylighting -from overhead!

● Toplighting doesn't have to be harsh and hot. You don't have to be plagued with condensed moisture that drips and stains your walls or furniture. Instead, you can look forward to soft, filtered daylight and a trouble-free installation with PC Skytrol Blocks. And they cost less than any comparable toplighting method.

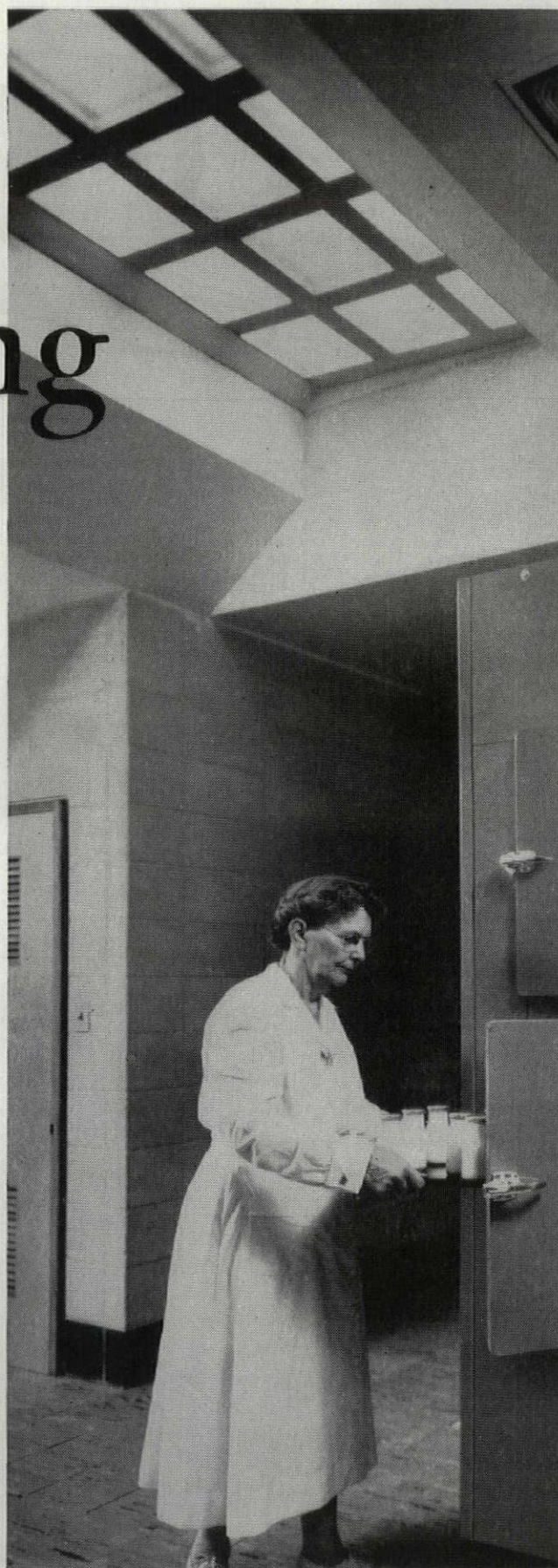
Skytrol Blocks are rigidly bonded into a fool-proof concrete grid that won't sag or flex. The blocks have such a high insulating value ( $U=0.44$ ) that condensation is never a problem and you do not have the "inevitable" higher heating costs that used to go hand in hand with toplighting.

Installed costs are averaging \$4.50 to \$6.50 per square foot of panel area. The price can't be beat, and neither can the quality of the finished job. Consult our section under "Sky-light" in Sweet's, or write for more information. Pittsburgh Corning Corporation, Dept. E-74, One Gateway Center, Pittsburgh 22, Pa.



ALSO PC GLASS BLOCKS AND FOAMGLAS®

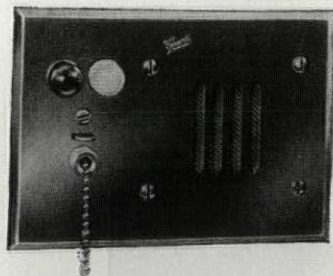
\*T.M. Reg. Applied For



Cafeteria, Mill Street School, Port Allegany, Pa. Architect: Raymond Viner Hall, A.I.A.



## NEW PRODUCTS *continued*



Patient's bedside station is flush-mounted in wall (above). Nurse's station uses desk-type annunciator (right).

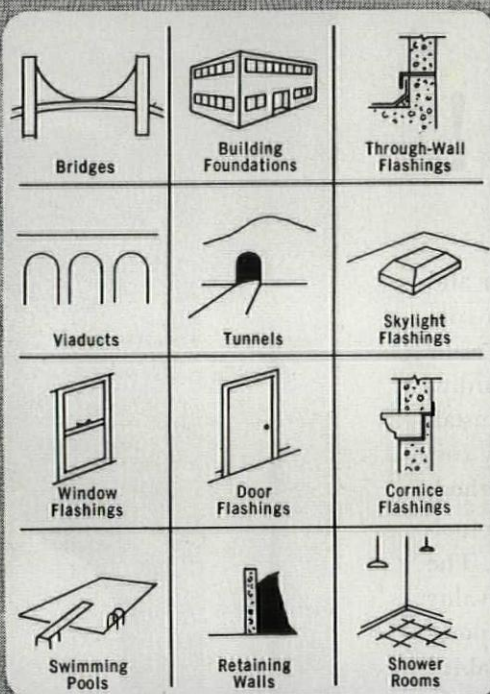


### AUDIOVISUAL NURSE CALL saves time and steps, results in better nursing care

The aptly named *Couch Call* is a complete visual signal system plus automatic two-way voice communication. The patient initiates a call by pulling the nylon cord at his bedside. Immediately the white pilot light on the wall is illuminated, as are the corridor lights over the room door and at the corridor intersection, and the room indication light on the annunciator at the nurse's station. An audible signal is also sounded at the nurse's station. The nurse answers the call by picking up the telephone and talking. This act turns off all of the previous light signals, and illuminates the green light in the patient's room. The nurse may initiate a call or may monitor or listen in on a patient. In either case the green light informs the patient that the nurse is connected to his station. Priority stations are provided for bathrooms. A signal from one of these emergency stations causes all light signals to flash on and off and sounds an intermittent signal. Since these calls require immediate personal attention, no voice communication is provided. Nurse's duty stations can be installed in diet kitchens or other locations so that a nurse can answer a call without returning to her desk. An explosionproof station is available for installation in operating rooms. Nurse's stations may be coupled for night duty, so that one nurse can monitor two sections. Standard units have up to 50 lines. The price for a ten-station system (seven rooms and three priority stations) would be about \$2,200. For 36 stations (24 rooms and 12 priority) and two remote nurse's stations, the price would probably be around \$3,500.

Manufacturer: S. H. Couch Co., Inc., N. Quincy 71, Mass.

what's  
your  
waterproofing  
problem?



# Karnak®

WATERPROOFING PRODUCTS  
PROVIDE POSITIVE PROTECTION AGAINST SEEPAGE OR DAMAGE TO STRUCTURE BY WATER

For 29 years, all over the world the Karnak Membrane Waterproofing System has proven its superiority through actual test. When you have a waterproofing problem call for Karnak. Available through waterproofing contractors or distributors or write us for information.

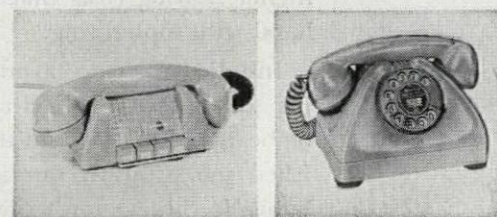
Made by Lewis Asphalt Engineering Corp.,  
30 Church St., New York 7, N. Y.

### OTHER KARNAK PRODUCTS

Asphalt Roof Coatings & Cements	Aluminum Roof Coating
Asphalt Emulsions	Wood Block Mastic
Floor Mastic	Tile Cement
Asphalt Paint	Joint Filler



© L A E Corp.



### OFFICE INTERCOMMUNICATION—a low-cost install-it-yourself system and a big system with special features

A low-cost, fully automatic, neatly designed intercommunication system should be of interest to architects and other professional and business people who have small offices. *Direct-A-Call* offers push-button service for two to five stations, and is so simple to install that it can be considered to be in the do-it-yourself class. The power supply box, about 3" x 3" x 4½", is simply plugged into any convenient 110-v. A.C. receptacle. Flat ribbon-like wire can be run under carpets or glued to walls or desks. Telephones of gray *Hercocel*

*continued on p. 210*



## SHEET COPPER



## Built-in copper gutters: how to design and install them

Architects frequently prefer a gutter of built-in design so that the attractive architectural eave line of the house will not be hidden. Furthermore, a built-in gutter will handle more water and is not so easily damaged by sliding snow, ladders, etc.

A copper gutter of this type presents no problem to the experienced sheet

metal craftsman when accepted standards of design and installation methods are followed. *Copper should be of a gage corresponding to the scale of the work.* Examples: a gutter like that shown on the drawing with a bottom 8" wide—a size common on houses—may be of 16 oz. copper. A bottom 12" wide calls for 20 oz. copper . . . 18", 24 oz.

copper . . . and anything above, 32 oz. *Copper should be cornice temper. Gutters must have free sliding edges and expansion joints midway between the downspouts.*

If these points are kept in mind when you design or install this type of copper gutter you will be assured of a long-lasting, trouble-free installation. 6455



**Do you have the FREE Anaconda file of drawings?** Each drawing shows a new or improved way to apply sheet copper. Each is printed on a separate 8½ x 11 page, handy for quick reference filing. This series may be obtained absolutely FREE by writing for Portfolio S to **The American Brass Company, Waterbury 20, Conn.** In Canada: **Anaconda American Brass Ltd., New Toronto, Ont.**

For sheet and roll copper an

**ANACONDA®**

Distributor will serve you best



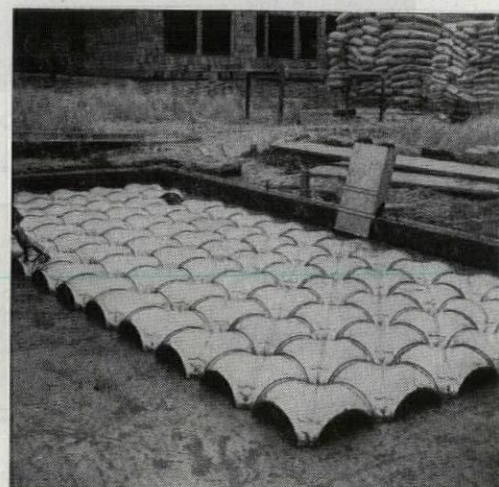
## NEW PRODUCTS *continued*

plastic are available in desk-top and side-mounted models. They cost \$25 each plus \$19.50 for the power supply.

The same manufacturer has also developed a new intercom system for large offices. *Private Line* is a fully automatic dial system ranging from 10 to 50 stations. The system can be expanded to 5,000 lines by adding 50 line systems. Service features include conference facilities, executive priority, voice paging, and "free line finding." The latter

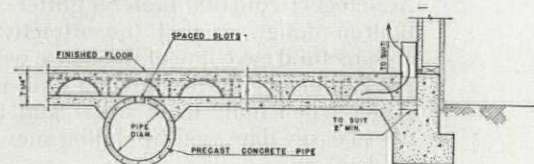
feature eliminates the necessity for dialing several numbers in order to find a free line in a department. It is only necessary to dial the department number and the automatic selector will connect you with any free line. Price of ten-line system is \$285, 27 lines \$1,985, 50 lines \$3,420 plus \$600 power supply. Telephones cost \$44.50 each and wiring is extra.

*Manufacturer:* Connecticut Telephone & Electric Corp., Meriden, Conn.



### HOLLOW CONCRETE FLOOR combines radiant and forced-air heating and cooling

For a decade or more, floor radiant heating has been recognized as probably the most comfortable of all heating systems and ideally suited to basementless structures. But the system has serious disadvantages, chief among them being the slow response to temperature changes and the lack of positive ventilation. Since these are the very points in which the forced warm-air system is strongest, it is only natural that attempts should have been made to combine the two systems. The popular perimeter system is one result of this effort and the underfloor plenum system is another. *Airfloor* is in the latter category. It offers an ingenious method for pouring a hollow concrete floor slab containing a continuous plenum which can be used for heating or cooling. The key to the *Airfloor* system is a 26-ga. steel form, 1' square and 3 1/4" high, in the general shape of a groined vault. On top of 2" concrete slab, these interlocking forms are assembled to cover the entire floor area. The floor slab covers the forms to a depth of 2". Total thickness of floor construction is thus 7 1/4". At each corner of the groin, a 3 1/2"-diameter concrete column is formed for support. Divider strips and other accessories are available from the manufacturer, as is a con-



tinuous baseboard register. Other types of registers, either floor or wall, may be used. Supplies can be precast concrete pipe or other suitable material. The metal forms weigh 1 lb. and cost 34¢ each, F.O.B. South Gate, Calif. The cost of the entire floor heating system (average of three southern California schools) was 52¢ per sq. ft.; complete heating contract, 90¢.

*Manufacturer:* Airfloor Co. of California, Inc., 8620 Otis St., South Gate, Calif.

*continued on p. 214*

LORD & TAYLOR SUBURBAN STORE, WEST HARTFORD, CONN

52,000 sq. ft. of 3 1/4" COMPOSITE POREX PLANK

Designed by: Raymond Loewy

Architect & Engineer: Irving W. Rutherford

General Contractor: Edward Packtor Co.

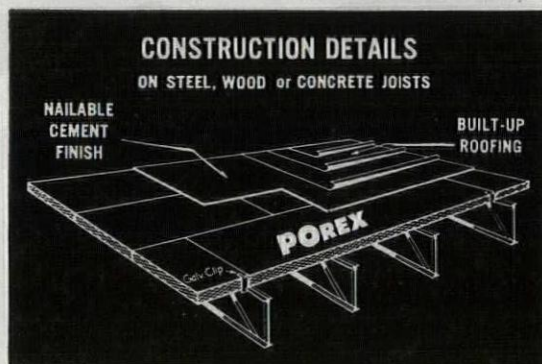


## For Lowest Cost HEAT INSULATION-SOUND CONTROL and FIRE PROTECTION-POREX

When roof decks must provide maximum quality at minimum cost, architect after architect chooses POREX... because POREX combines all these properties:

- STRUCTURAL STRENGTH
- LIGHT WEIGHT
- NAILABILITY
- INCOMBUSTIBILITY
- HEAT INSULATION
- SOUND CONTROL

Plain POREX for short spans and Composite POREX for long spans are also ideal for Auditoriums, Gymnasiums, Schools, Armories and many other uses. For floors, precast lightweight concrete channel slabs and plank are available.

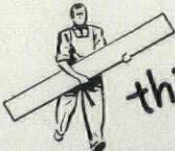


### SAFE UNIFORM LOADS

Type of POREX	Thickness		Weight lbs/ft	Safe loads lbs/ sq. ft.				
	Slab	Finish		1'4"	2'0"	3'4"	6'	8'
Plain	1 3/4"	1/4"	7	100	60	—	—	—
Plain	3"	1/4"	10	—	100	50	—	—
Composite	3"	1/4"	14	—	—	—	100	60

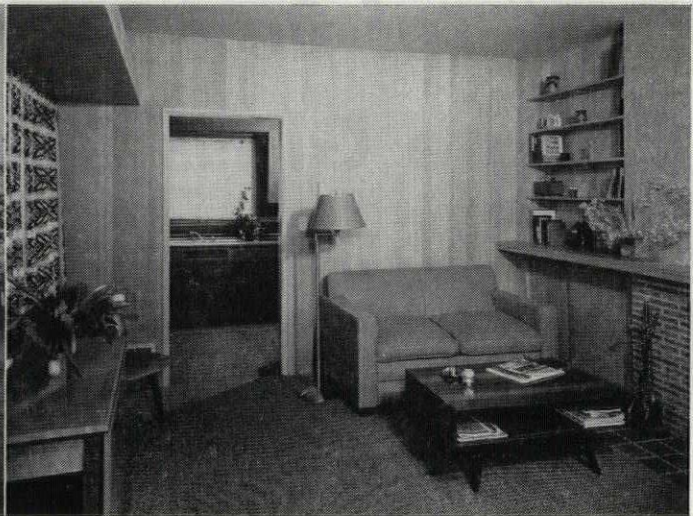
**PORETE MANUFACTURING CO.,** North Arlington, N.J.  
Precast lightweight concrete products since 1920



So many ways to use...  this abundant ability wood



West Coast Hemlock bevel and bungalow siding is durable and highly adaptable to all styles of architecture.



Uniform texture, straight grain and the ability to take a lustrous natural finish make West Coast Hemlock ideal for paneling.

# WEST COAST **HEMLOCK**

## The "Ability Wood"

West Coast Hemlock is one of the leading multi-use softwoods, and for very good reasons.

As siding, for example, West Coast Hemlock is exceptionally easy to apply, being light in weight and easy to cut and fit. This wood also stays tightly in place for generations—it takes nails without splitting and holds them tenaciously.

Its beauty is winning more and more friends

for this fine Western softwood. Light in color, with a slight reddish cast, its natural finish harmonizes delightfully with today's furnishings in homes, offices and commercial buildings. West Coast Hemlock is noted for its straight grain and freedom from pitch. It does not splinter, and takes a beautiful finish, natural or painted.

Naturally, a wood with these characteristics has many uses in fine homes and in commercial construction—all the way from framing to siding, from flooring to ceiling. You can confidently recommend Weyerhaeuser 4-Square West Coast Hemlock for almost any job handled by the other multi-use softwoods. See it at the office of your local Weyerhaeuser 4-Square Lumber Dealer or write for descriptive literature.

### PROPER PROCESSING OF **HEMLOCK**

●Through scientific logging, accurate sawing, controlled kiln seasoning, precision surfacing, proper grading, careful handling and shipping, Weyerhaeuser provides this abundant "Ability Wood" in a wide range of 4-Square West Coast Hemlock lumber products.

## Weyerhaeuser 4-Square LUMBER AND SERVICES

WEYERHAEUSER SALES CO., ST. PAUL 1, MINN.

BUILD BETTER WITH HEMLOCK...THE ABUNDANT "ABILITY WOOD"



**NEW**

# 1/2" Tuf-flex® Tempered Plate Glass Doors

## How do they differ from the widely used 3/4" Tuf-flex Doors?

1. **LIGHTER WEIGHT.** For example, for a 3' x 7' opening, the glass in this new 1/2" door weighs about 131 pounds, compared with 197 pounds for the 3/4" door commonly used in the past. That makes it:

**EASIER TO HANDLE—EASIER TO INSTALL—  
EASIER TO OPERATE**

2. **LOWER COST.** Generally, list prices on the new 1/2" doors, complete with fittings, are comparably less than 3/4" doors of the same size. Many types of framed doors, which fail to carry out the transparency so desired in modern entrances today, are about the same price. This lower cost will enable many more building owners to add attractiveness and appeal of Tuf-flex Doors to their entrances.

## How are they the same as the 3/4" door?

1. **TOUGH.** Like the 3/4" door used so successfully in thousands of buildings, these tempered doors are 3 to 5 times as strong as regular plate glass of the same thickness. Extensive laboratory and application tests have proved the strength of the 1/2" Tuf-flex Door.
2. **APPEARANCE.** In style and design, they look just like the popular 3/4" door. Here's an opportunity to carry out the Visual Front idea in storefronts with transparent doors of lower cost. Tempered Plate Glass side lights are also available to match these beautiful doors.

### New, modern fittings are available

They're clean-lined—in keeping with the sheer beauty of the Tuf-flex Door. The drawing at the right shows the simple lines of the alumilited fittings which are at the top and bottom of the door. Push bars are also attractively designed. See your L·O·F Glass Distributor or Dealer for details.



**TUF-FLEX TEMPERED PLATE GLASS DOORS**

LIBBEY-OWENS-FORD GLASS COMPANY • 608 Madison Avenue, Toledo 3, Ohio



*...the finest structures  
rest on*  
**RAYMOND FOUNDATIONS**

**NEWARK AIRPORT PASSENGER TERMINAL  
Newark, New Jersey**

OWNER, ARCHITECT, ENGINEER:  
The Port of New York Authority

SUPERSTRUCTURE CONTRACTOR:  
Turner Construction Company,  
New York, N. Y.

SUBSTRUCTURE CONTRACTOR:  
Linde-Griffith Construction Co.,  
Newark, N. J.



**RAYMOND'S DOMESTIC SERVICES . . .**  
*Soil Investigations • Foundation Construction • Harbor and Waterfront Improvements • Prestressed Concrete Construction • Cement-mortar Lining of Water, Oil and Gas Pipelines, In Place.*

**RAYMOND'S SERVICES ABROAD . . .**  
*In addition to the above, all types of General Construction.*



**RAYMOND**

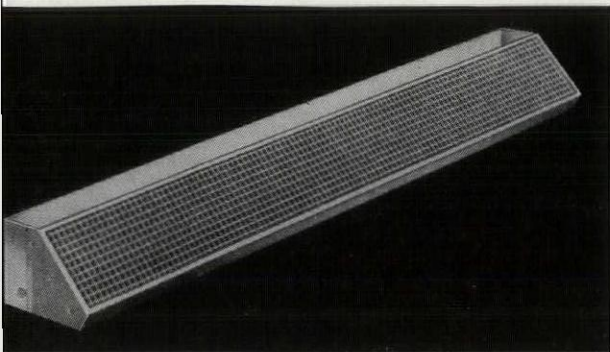
**CONCRETE PILE CO.**

140 Cedar Street • New York 6, N. Y.

*Branch Offices in Principal Cities of the United States,  
Central and South America*



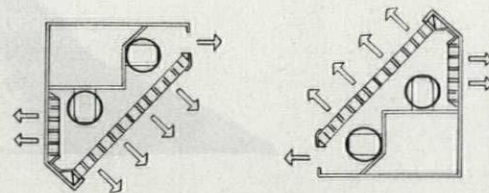
## NEW PRODUCTS *continued*



**Two-way wall fixture** has  $\frac{3}{8}$ " egg-crate louver to shield fluorescent tubes from direct view.

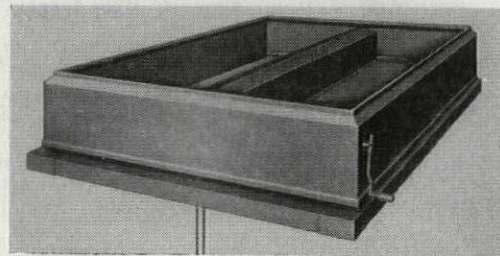
**FLUORESCENT WALL BRACKET** can be mounted as cove or downlight

Cove lights often leave the wall below them disturbingly dark and bracket downlights result in dark walls and ceilings above them. This well-designed fixture solves both problems. About 80% of its light is beamed upward and outward and 20% escapes downward. The 2-in-1 fixture can just as well be mounted the other way around, in which case



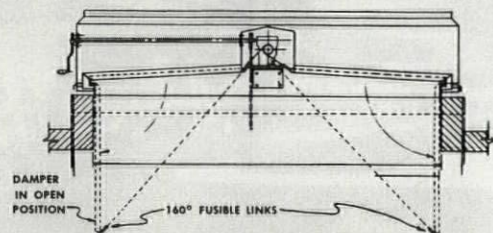
most of the light shines downward and outward but some filters upward to light the wall and ceiling. *Gratelite* louvers, with cells that are  $\frac{3}{8}$ " cubes, shield the tubes from direct view and diffuse the light. They are easily removable for cleaning by dunking in detergent. Flue action through the fixture cools the tubes and lessens the accumulation of dirt. The 2-in-1 is made in three sizes: two 20-w. (\$18), two 40-w. (\$24), and two 75-w. tubes. All sizes may be used singly or in series.

**Manufacturer:** Edwin F. Guth Co., 2615 Washington Blvd., St. Louis 3, Mo.



**FIRE VALVE** in factory roof permits rapid escape of smoke and heat

One way to discourage factory fires is to provide roof vents which open automatically when a fire starts. This permits rapid escape of smoke, gases and heat, and prevents disastrous mushrooming. It also reveals to the firemen the source of the fire and permits them to fight it from the roof. This principle of fire protection has long been required over stairways, shafts and theater stages, but its use in factories is new. Swartwout, old hands in the industrial ventilation field, now offer the *Fire Valve*, a packaged metal unit which fits

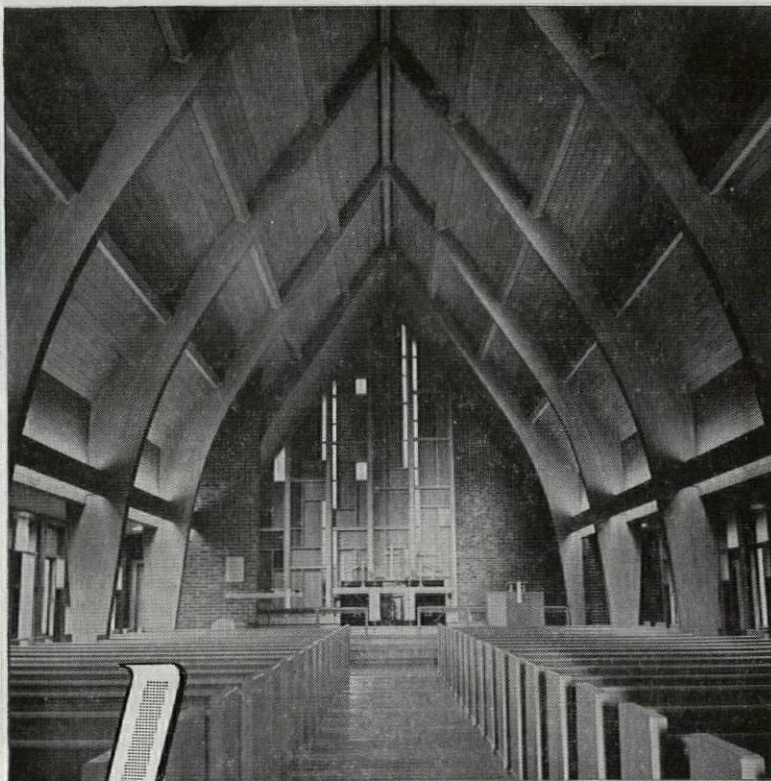


over a 9'-9" x 5'-9" roof opening. When the 160° fusible links let go, the two dampers drop down by their own weight, providing a clear opening of 46 sq. ft. Damper hinges cannot corrode or freeze. In its normally closed position, the *Fire Valve* is weather-tight; dampers can be insulated if desired to reduce heat loss. The *Fire Valve* can also be used as a roof ventilator in fair weather. Operation is by loop chain, emergency one-pull chain, or by crank on roof. Price is \$190 in galvanized steel, \$285 in aluminum.

**Manufacturer:** Swartwout Co., 18511 Euclid Ave., Cleveland 12, Ohio.

*continued on p. 218*

**ST. LUKES  
LUTHERAN CHURCH  
MANHATTAN, KANSAS**  
**ARCHITECTS:**  
RAMEY & HIMES  
WICHITA, KANSAS  
**CONTRACTOR:**  
GREEN CONST. CO.



**RILCO LAMINATED  
WOOD PRODUCTS**

## IMPRESSIVE BEAUTY OF NATURAL MATERIALS

"We used Rilco Laminated Arches and Purlins," says Ramey and Himes, "to express the structure in an honest and interesting manner, and make the structural framing an integral part of the character in the church building.

"Rilco Arches allowed us complete freedom of design. The arches we chose were used to give a feeling of height in smooth, flowing lines.

"The natural wood of the arches and purlins gives a warm, pleasing feeling that blends with the brickwork and paneling of the chancel."

**QUALITY ENGINEERED TO YOUR SPECIFICATIONS**  
Rilco Laminated Wood Products are

fabricated from selected West Coast Douglas Fir, and manufactured with modern precision equipment under rigid factory control. Rilco's experienced engineers will be pleased to consult with you about your requirements and give "on the job" cooperation. See our catalog (2b/Ri) in Sweets or write for complete information.

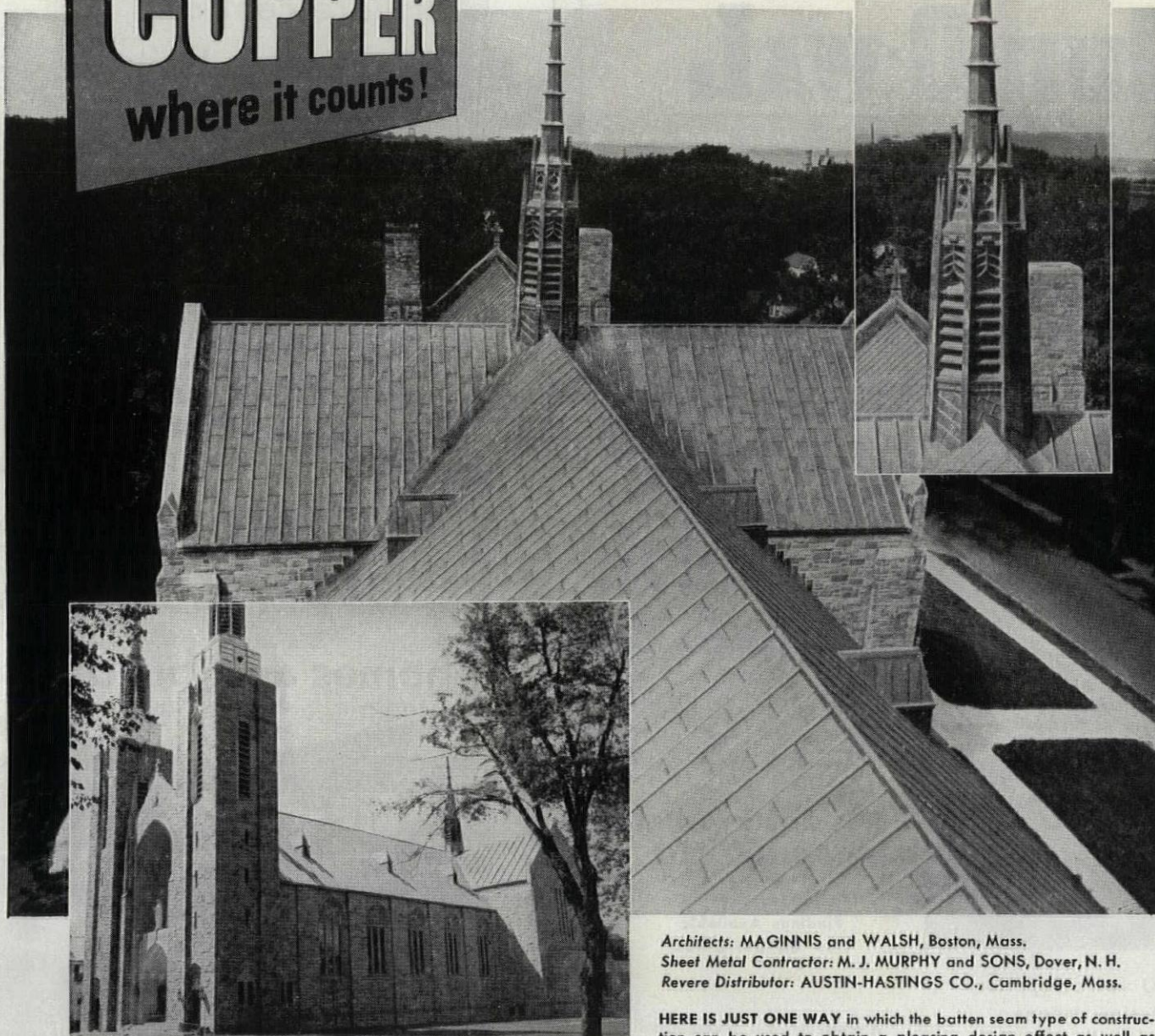


**RILCO LAMINATED PRODUCTS, INC.**  
2524 First Natl. Bank Bldg., St. Paul, Minn.



Another case of  
**COPPER**  
where it counts!

**ST. MARY'S CATHEDRAL**  
Ogdensburg, N. Y.



When we asked the architects why they chose copper for the batten seam roof and spires of this church they said: "Copper is a metal that has proven itself over the centuries. We know what it can do and we know what can be done with it. Copper is so flexible in design possibilities that it gives the architect all the leeway he wants. Sheet metal contractors prefer to work with it, too. Take those spires, for example . . . copper permits the use of intricate designs like that."

Take a look at the jobs you now have on your boards. Whether they are edifices like this or a one-story suburban school building, there are many places where the use of copper will be to your advantage. Not another metal or alloy has all the desirable construction characteristics of copper. There is a Revere Distributor near you who stocks Revere Sheet, Strip and Roll Copper for flashing and roofing. Write us today about the money-saving advantages of Revere Keystone Thru-Wall Flashing\* and the new Revere-Keystone 2-Piece Cap Flashing.\*\* And, if you have technical problems, we will put you in touch with Revere's Technical Advisory Service.

\*Patented \*\*Pat. Pend.

Architects: MAGINNIS and WALSH, Boston, Mass.  
Sheet Metal Contractor: M. J. MURPHY and SONS, Dover, N. H.  
Revere Distributor: AUSTIN-HASTINGS CO., Cambridge, Mass.

HERE IS JUST ONE WAY in which the batten seam type of construction can be used to obtain a pleasing design effect as well as creating a roof that will endure for years and years. Installation was made in accordance with recommendations in Revere's Booklet, "COPPER AND COMMON SENSE." Send for a copy today.

34,000 LBS. OF ENDURING, NON-RUSTING REVERE SHEET COPPER were used for roof, flashing and spires on St. Mary's Cathedral. 27,000 lbs. was 20 oz. Lead Coated and the balance was 16 oz. plain copper.

**REVERE**

**COPPER AND BRASS INCORPORATED**

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.

Sales Offices in Principal Cities, Distributors Everywhere.  
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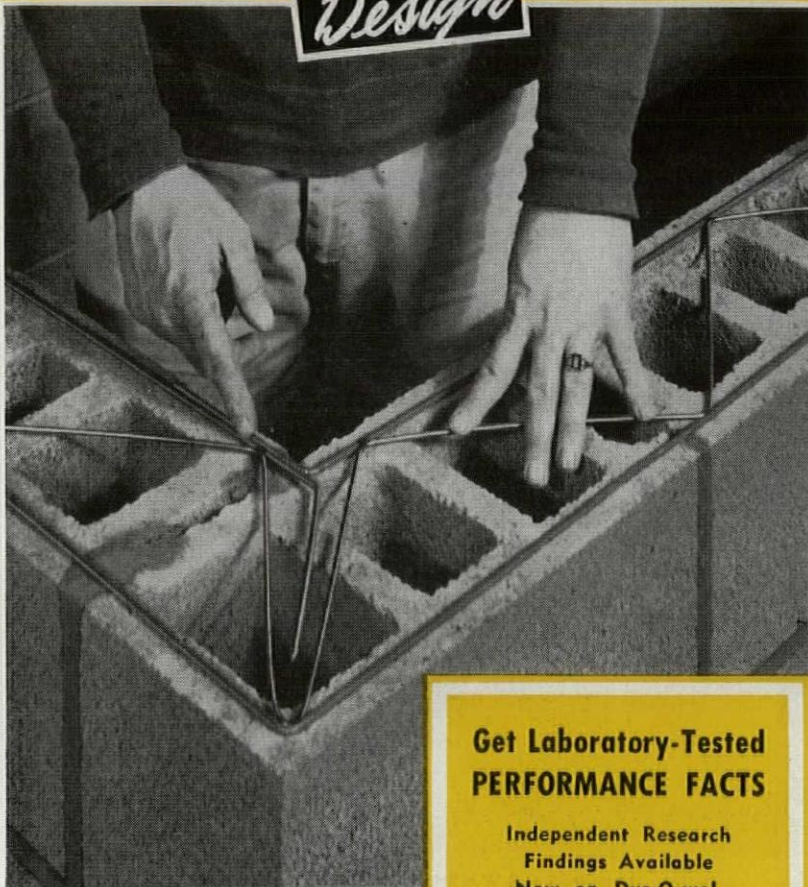


*Specify the Masonry Wall Reinforcing  
that offers Proof of Performance*

# Butt Weld DUR-O-WAL®

WITH TRUSSED

*Design*



## Dur-O-wal's Superior Design Means Top Performance

**Y**ou can specify patented Dur-O-wal with confidence... strategically located plants assure adequate supply... and research findings testify to superior performance. Dur-O-wal is the ideal reinforcing member for block, brick or tile. It reinforces vertically and horizontally to combat cracks... safeguard masonry beauty.

• Data are now available from independent research tests. Get the facts about Dur-O-wal... your key to increased customer satisfaction. Write plant nearest you.

- Dur-O-wal Division  
Frontier Manufacturing Co.  
Phoenix, Arizona
- Dur-O-wal Products of Ala., Inc.  
P. O. Box 5446  
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## Get Laboratory-Tested PERFORMANCE FACTS

Independent Research  
Findings Available  
Now on Dur-O-wal

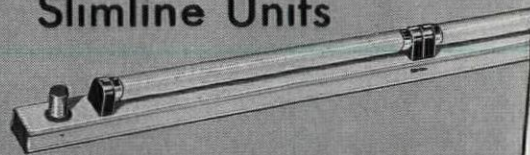
**A**rchitects will profit from studying the summaries of the research studies conducted on Dur-O-wal, which will be furnished upon request. Learn how you can save time, cut costs and combat cracks with this trussed designed reinforcing.

Dur-O-wal is electrically-welded in a single plane of high tensile steel (100,000 p.s.i.); knurled side rods increase mortar bond. All inquiries will receive prompt attention.

- Dur-O-wal Products, Inc.  
P. O. Box 628  
Syracuse 1, New York
- Dur-O-wal Div., Dept. 651  
Cedar Rapids Block Company  
Cedar Rapids, Iowa

## WIDELY ADAPTABLE

Fluorescent and  
Slimline Units



For cove, cornice or valance lighting... or supplementary lighting on shelves, counters or display cases, specify these versatile Wiremold Units. Easily and quickly installed... small cross section. Write for full information.

**WIREMOLD** puts more  
**SALES APPEAL** into your  
homes and buildings!

## TRIP-PROOF overfloor power lines with PANCAKE



In factories, office buildings — anywhere you have to specify overfloor wiring layouts — PANCAKE is your safest, surest way to carry power or communication lines to the point of use. Two interconnecting sizes meet every requirement. Write today for the PANCAKE booklet.

WIREMOLD products are backed by a firm guarantee.  
See page 7 of Wiremold Catalog No. 19.

**The WIREMOLD Company**  
HARTFORD 10, CONNECTICUT



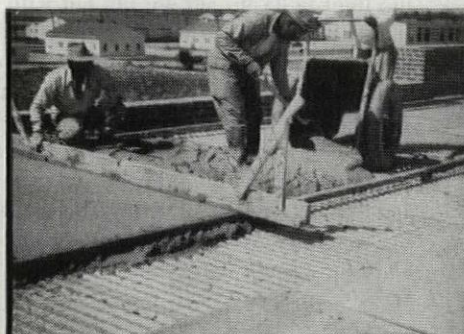
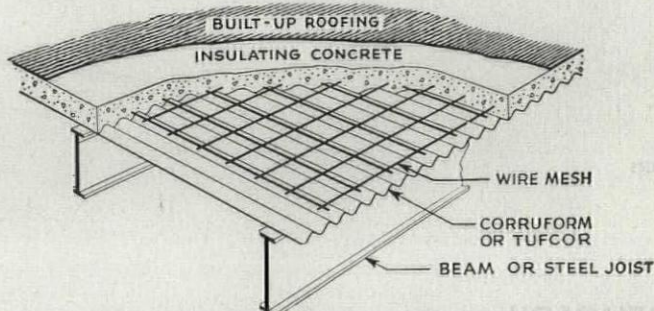
# Fire-resistant roofs

**THEY'RE QUICKLY AND INEXPENSIVELY  
BUILT WITH TUF COR AND  
CORRUFORM... AND YOU ENJOY  
ALL THE BENEFITS OF STEEL DECK**

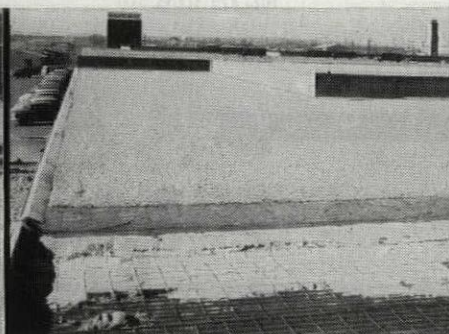
In the building of modern industrial roofs, few construction methods have enjoyed greater success than the combination of lightweight, insulating concrete slabs (wire mesh reinforced for continuity). Now Granco offers two ideal deckings for cast-in-place slabs. Tough-temper, fire-safe, corrugated steel Corruform for spans up to 4'6" and Tufcor, for spans from 4'6" to 7'. Both are far stronger than ordinary steel of the same gauge and provide roofs with fire resistance, insulating value, low dead-load, permanence and rigidity! For information, write for Engineering Data Section SFg-546, Dept. AF-D, Granco Steel Products Company.



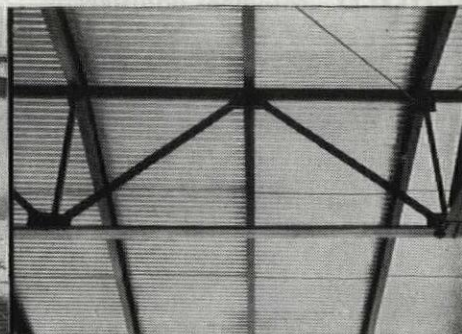
**1. STEEL SHEETS ARE QUICKLY PLACED AND SECURED** by welding or by clips attached to top of joist as soon as joists and beams are erected. Positive attachment of tough-temper sheets gives added rigidity to roof framework, provides immediate working platform. Tufcor and Corruform are galvanized for permanence, give better service than ordinary painted metal deck.



**2. INSULATING CONCRETE FILL IS PLACED** on the deck after it has been welded to the beams and a light mesh has been rolled into position. A tight solid base is provided by Tufcor and Corruform, retaining cement paste in the slab and insuring maximum strength. Granco Vent Clips (attached to side lip of the sheet) prevent vapor pressure build-up.



**3. A BUILT-UP ROOF IS APPLIED** over the slab after it has been cured for 8-10 days. Rigidity of the concrete slab gives strength and long life to the roof. It can't "give" or break under ordinary traffic. Asphalt or tar can't drip through this permanent tightly joined decking and the built-up roof is protected from fire by the layer of insulating concrete.



**4. RESULT: A FIRE-SAFE ROOF WITH AN ATTRACTIVE UNDERSIDE.** Clean, smooth Tufcor and Corruform steel sheets may be left exposed underneath, using the bright galvanized surface for light reflection, or if desired, any normal ceiling treatment may be applied including paint, suspended plaster, sprayed-on acoustic plaster, etc.

**WRITE TODAY!**

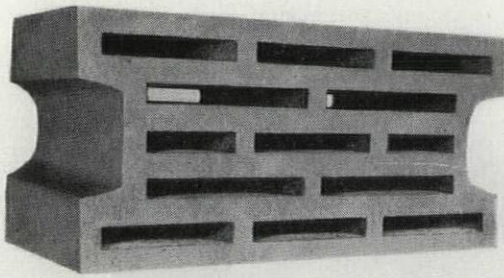


## GRANCO

**STEEL PRODUCTS COMPANY**

Subsidiary of GRANITE CITY STEEL COMPANY  
GRANITE CITY, ILLINOIS





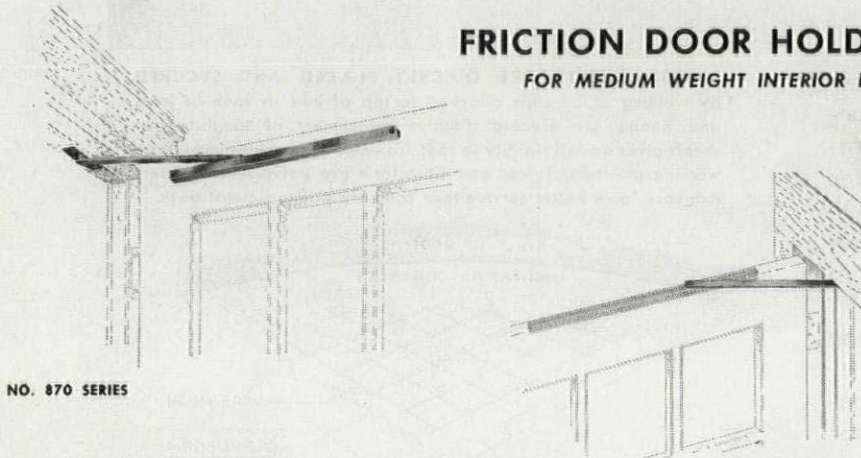
**CONCRETE BLOCK** offers more strength and insulation with no increase in weight or cost

By simply redistributing the solids and voids, notable improvement has been made in the familiar concrete block. Similar to the conventional block in size and weight, the new *Webco* block is 25% stronger because of the more equal distribution of the smaller but more numerous cells. Since no webs run directly from front to back, the new block is also superior in resisting the transmission of sound,

moisture and heat ( $U=0.23$  Btu). These properties make possible the elimination of furring and insulation in many cases. Manufacturers are being licensed to produce *Webco* blocks using various light aggregates. It is estimated that the cinder block soon to be launched in the Pittsburgh area will sell for about 30¢. Production is also under way in the Philadelphia and Cleveland areas.

*Licensors:* American Webco Corp., 501 Broad St., Sewickley, Pa.

**FRICTION DOOR HOLDERS**  
FOR MEDIUM WEIGHT INTERIOR DOORS



NO. 870 SERIES

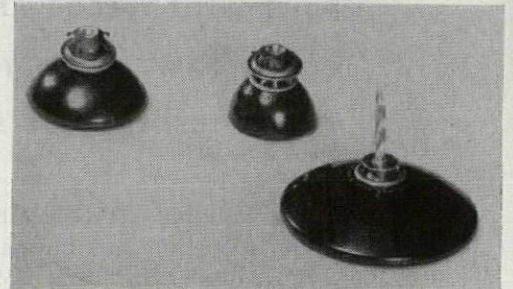
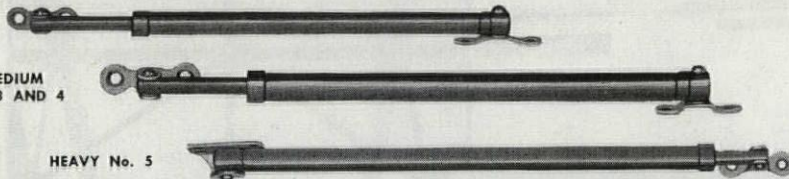
**"CASEHOLD" casement adjusters**

NO. 820 SERIES

LIGHT  
No. 0-1-2

MEDIUM  
No. 3 AND 4

HEAVY No. 5



**FURNITURE RESTS** designed by flooring manufacturer for protection of resilient floors

Proportioning the footings to the bearing capacity of the soil is elementary engineering. The same principle applies to furniture legs resting on the floor. The size of the "footing" must be proportioned to the bearing capacity of the flooring material, if objectionable indentation is to be avoided. There is wide variation in the bearing capacity of popular resilient flooring materials. With asphalt tile, the limit is 25 lb. per sq. in., but with rubber tile it is 200 lb. *Furniture Rests* come in four sizes and a chart tells which size to use for various loads and various flooring materials. Three types of attachment are offered: nail, cotter pin, and, for use in tubular metal legs, a serrated, expanding washer. All have ball and socket joints, insuring even bearing. Prices range according to size from 65¢ to \$1.10 for a set of four.

*Manufacturer:* Armstrong Cork Co., Lancaster, Pa.

**SPRAYED PLASTIC** seals and cures fresh concrete and plaster

As soon as free water has disappeared from the surface of freshly poured concrete, it can be sprayed with *Delrac Transparent* and then forgotten. The plastic forms a hard, smooth, waterproof seal on the surface of the concrete and enforces a long, slow cure, without further attention. The material can also be applied to freshly plastered walls as soon as they are hard, after which they can be painted immediately without the usual long wait for the plaster to dry. *Delrac Transparent* is made of Parlon, which is Hercules Powder's chlorinated rubber, and sells for \$6 a gallon.

*Manufacturer:* Delrac Corp., 142 Mill St., Watertown, N.Y.

*continued on p. 222*

**SASH AND DOOR CONTROLS**

... Better Because

**No. 870 SERIES (FED. SPEC. TYPE 1165)**

Adjustable friction holds door at any position up to 110°. Action stopped by spring cushion shock absorber. (No. 880 has friction element omitted.)

**No. 820 SERIES (FED. SPEC. TYPE 1164)**

Channel is fully mortised in door. Otherwise identical to No. 870. (No. 830 has friction element omitted.)

**"CASEHOLD" tubular casement adjusters.**

Weather-proof friction element permits use inside or outdoors. Friction quickly adjusted by rotating barrel. Surface applied for inswinging or outswinging casements and transoms.

**SARGENT & GREENLEAF, INC. ROCHESTER 21, N.Y. • SINCE 1857**



**Waupun Memorial  
Hospital . . .**

100 Bed Hospital servicing  
three counties in Eastern  
Wisconsin.

**depends on  
this reliable  
"U.S." Unit**



Over twenty-three hours of "emergency" operation have already been credited to this 15 KW U.S. engine-generator in the Waupun Memorial Hospital, since July 1951.

Should additional storms threaten staff or patients, this dependable U.S. Unit will start automatically and carry the emergency load.

When deciding on a stand-by unit—select a U.S. engine-generator. There are over 300 models with a power range from ½ to 300 KW using gas, gasoline or diesel fuel.

*Write for complete information.*

There is a United States Motors Representative  
near you.

**UNITED STATES  
MOTORS CORPORATION**

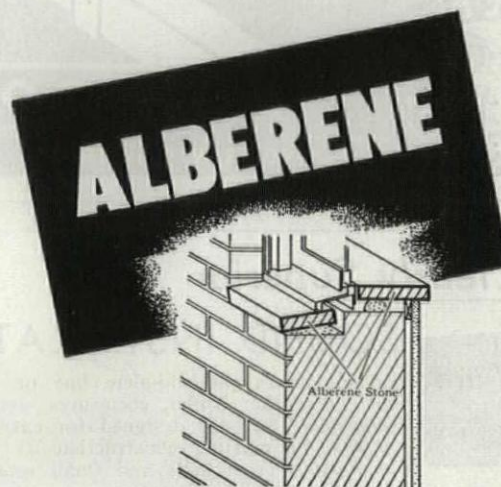
350 NEBRASKA STREET

Oshkosh

Wisconsin



# window sills and stools by



Alberene Stone is moisture-proof and *chemically resistant*. It never chips, spalls, or splits. It is free of maintenance costs—for all time.

That's why the sills and spandrels of the new veterans' hospitals in Albany and Buffalo are of *Alberene Serpentine* . . . and the window stools in these buildings, as well as the new Buffalo State Hospital, are of *Regular Grade Alberene Stone*. And in the U. S. District Court House, Washington, D.C., the stools and spandrel sections are polished *Alberene Serpentine*.

Write today for complete data and samples to —

**ALBERENE STONE CORP.  
OF VIRGINIA**

419 — 4th Ave., New York 16, N. Y.



# ON THE LEVEL!

## HOW DO YOU PLAN TO LAY THAT EXPENSIVE HARDWOOD FLOOR ON CONCRETE?

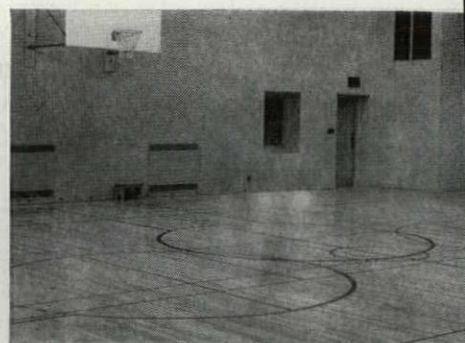
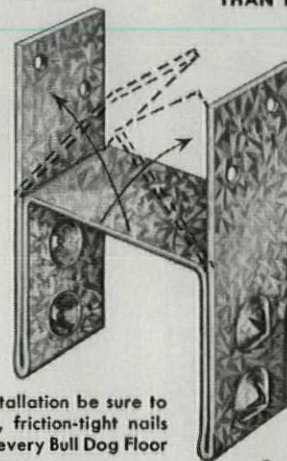
To insure a floor that will stay firm and level for many more years, with a minimum of maintenance, specify the matchless Bull Dog Floor Clip—the best and most economical way of anchoring wood floors securely to concrete.

BULL DOG CLIPS speed laying . . . Stop creaks and squeaks at nail joints . . . prevent dry rot of floor and sleepers . . . assure you a floor that will not buckle . . . offer substantial savings in time and labor. Millions of square feet of tight and level wood floors are in service today after 25 years and more of hardest usage, unfailing proof of the value of Bull Dog Floor Clips.

### OVER 100,000,000 IN USE TODAY

Start inserting BULL DOG CLIPS approximately a half-hour after concrete is poured. After concrete sets, the wing tabs are swung upright with a screw driver or claw hammer and are then ready to hold the sleepers. After simple leveling, sleepers are solidly anchored to Clips, using only hammer and nails.

- For proper installation be sure to use rust-proof, friction-tight nails furnished with every Bull Dog Floor Clip order.



Photograph Courtesy Maple Flooring Mfrs. Assn.

YOUR EXPENSIVE WOOD FLOORS ARE NO BETTER THAN THE BASE UPON WHICH THEY ARE LAID

## BULL DOG FLOOR CLIP

Tests show that BULL DOG CLIP will outpull the sleepers, prove that these powerful anchors provide the very best method of holding wood floors to concrete. The only floor clip designed with a perforated embossing that permits perfect anchorage and assures permanent bond of concrete around Clip. Heavy gauge galvanized metal assures strength and long life.

Send for sample clip and details today

## BULL DOG FLOOR CLIP COMPANY

Division of NEW MONARCH MACHINE AND STAMPING CO.

406 S. W. 9th STREET

DES MOINES 9, IOWA

## for Clearly Superior

### SOUND INSTALLATIONS

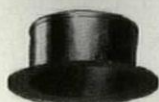
Lowell offers the complete line of scientifically correct speaker baffles, enclosures, grilles and accessories. They are designed for easy installation in new or existing construction . . . for every application from halls and small rooms to auditoriums and railroad stations.

### LOWELL

SPEAKER  
BAFFLES



AND  
PROTECTIVE  
ENCLOSURES



AL Series flush mounting low ceiling baffles afford 360° dispersion of distinct low level, "ear level" sound. Floating conical diffuser is mounted on rubber grommets. Baffle made of heavy gauge aluminum spinings; sizes to accommodate 6" to 15" speakers.

Protective enclosure line includes CP Series for new construction and XCP Series for existing construction installations. Spot welded steel construction with rust preventive coating, protects speaker from fire, dirt, rodents. Heavy interior undercoating prevents metallic resonance. Designed for easy installation in wall or ceiling. Complete with hardware and instructions.

Write for  
complete 1954 Catalog.

**Lowell** MANUFACTURING CO.

3030 Laclede Station Rd., St. Louis 17, Mo., U.S.A.  
In Canada: Atlas Radio Corp., 560 King St., West, Toronto, Ontario

## FOR BUILDINGS OF ALL TYPES

... first in efficiency, economy  
and client satisfaction



## TODD BURNERS GAS OR OIL



COMBUSTION EQUIPMENT DIVISION

**TODD SHIPYARDS CORPORATION**

81-16 45th Avenue  
Elmhurst 73, N. Y.







more light toward the **CEILING**

means more seeing comfort **BELOW!**

• • • new Benjamin Diffuser-Reflector now delivers almost **TWICE THE UPWARD LIGHT!**

- increases brightness control for greater uniformity of light
- eliminates annoying shadows that distract from work
- reduces contrasts that can cause eye fatigue

This improved, all-porcelain-enamel Benjamin Diffuser Reflector enables you to utilize highest light levels and still enjoy comfortable seeing conditions, without materially reducing lighting efficiency.

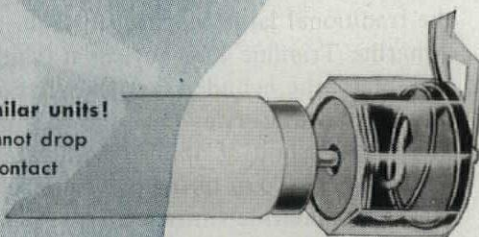
The answer lies in a series of 14 apertures, located on the top of the reflector, 7 above each lamp. Together, they direct 12.6%\* of the light toward the ceiling. This greater upward light helps relieve disturbing contrasts between upper and lower room areas. It wraps the entire room in uniform illumination, so important in reducing eye strain and fatigue caused by excessive brightness contrast. For further details and lighting data, send for Data Bulletin. Benjamin Electric Mfg. Co., Dept. YY, Des Plaines, Illinois.

\*for 2-lamp units. 10.7% for 3-lamp units. As compared with 6.7% and 5.8% respectively, delivered by previous Benjamin diffuser-reflectors.



... and of course, it has "SPRINGLOX,"  
the exclusive, metal-clad lampholder!

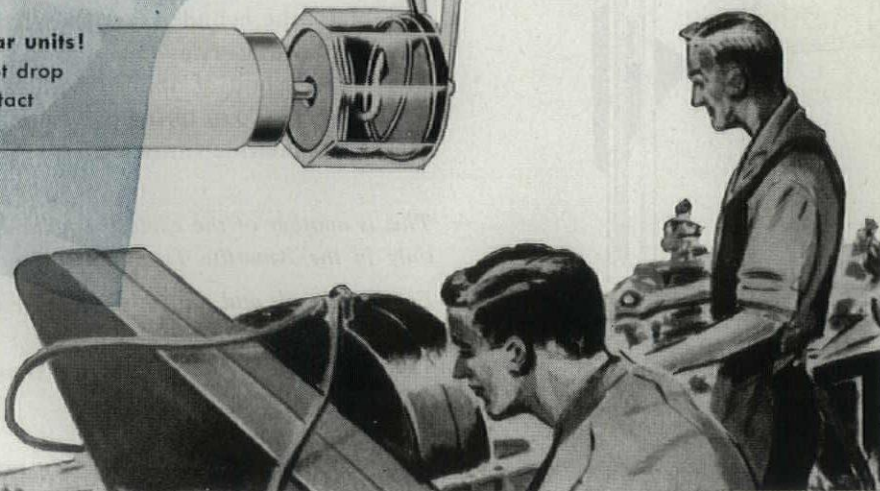
distinguishes Benjamin Diffuser-Reflector from all similar units!  
cuts out-of-service time due to socket failure ... lamps cannot drop  
out or be shaken loose ... never fails to make electrical contact  
the first time ... patented spring construction is the secret!



## **BENJAMIN** *Diffuser-Reflector*

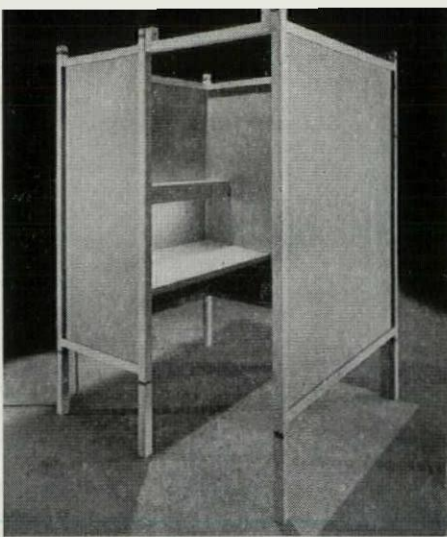
Sold exclusively through electrical distributors  
available in open-end and closed-end units, for single or bi-pin lamps.  
a product of Benjamin Electric Mfg. Co., makers of famous  
Benjamin and Leader Line lighting equipment and  
Sound Signals for Industry, Institutions and Commerce

B-260AFJ





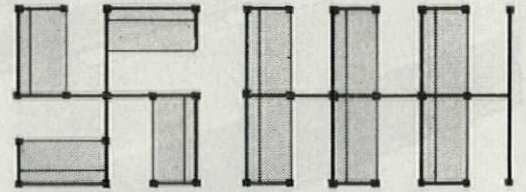
## NEW PRODUCTS *continued*



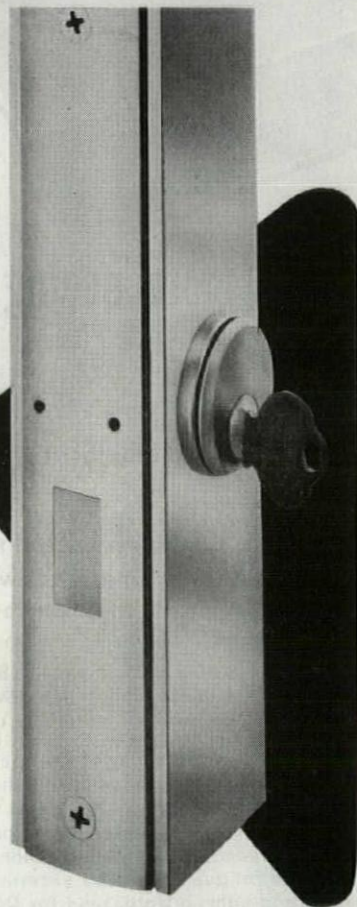
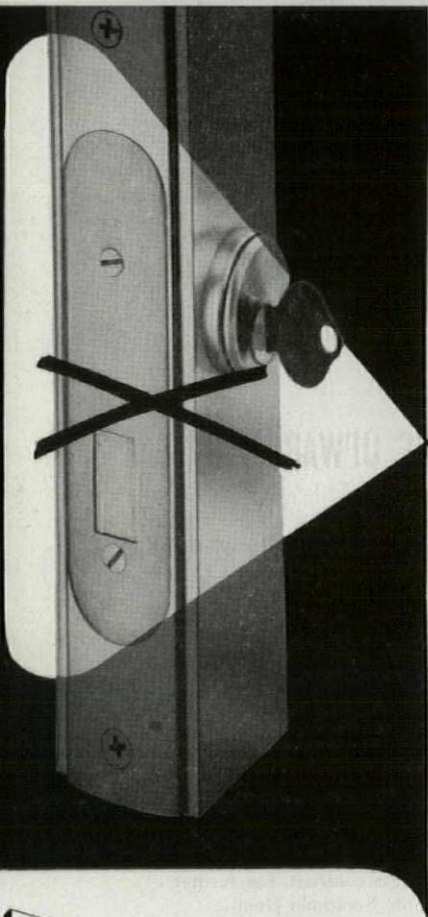
**LIBRARY STUDY CUBICLE** offers features of private office in 16 sq. ft.

*Study Carrel* is a prefabricated modular study cubicle for use in libraries, either singly or in groups. Made of white pine and Homasote, the simple structure can be erected in ten minutes without the aid of tools. Weighing less than 100 lb., it can easily be picked up and moved by two people. In only 16 sq. ft. of floor space, many of the amenities of a private office are provided—desk, concealed fluorescent light, 4' bookshelf, and space to

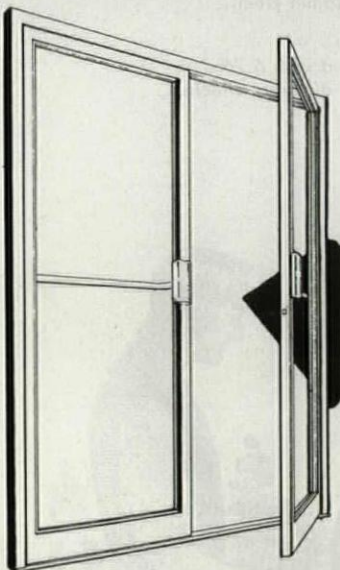
receive a visitor. The walls are sufficiently sound-absorbent so that a student can dictate or confer without disturbing others. This suggests that the *Carrel* might be used in an office



to isolate a noisy bookkeeping or other machine. The unit is finished in neutral gray washable lacquer and sells for \$215 F.O.B. *Manufacturer:* Design & Production, Inc., 1912 Duke St., Alexandria, Va.



The New  
*Face*  
on the  
*Trimline*  
Door



Simple, smooth and strong. The Amarlite Cylinder Lock, designed and manufactured by the American Art Metals Company, eliminates the traditional large mortise. Instead, the Amarlite Trimline lock reveals a continuous face-plate; the cylinder is engineered directly into the meeting-style. Thus the lock becomes more than a unit of applied hardware — now it is an integral part of the precise mechanism that is an Amarlite Entrance.

*This is another of the exclusive features found only in the Amarlite Trimline Entrance.*

For full details and the 1954 Amarlite Catalog, write American Art Metals Company, 433 Bishop Street, N.W., Atlanta, Georgia.

**AMARLITE**

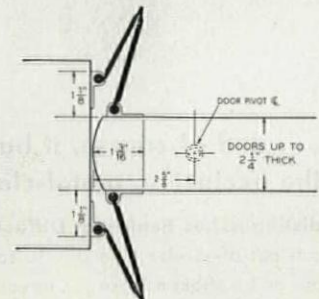
**aluminum entrances**

ATLANTA • BROOKFIELD, ILL.  
DALLAS • ENGLEWOOD, N. J.



**PLASTIC DOOR STRIP** prevents pinched fingers

For as long as there have been doors, children, and adults too, have been mashing their fingers in them. Now, the Stanley hardware people have done something about it. *Stan-Guards* cannot stop you from closing the door on your fingers if you really want to. But they do make it impossible for you to pinch your fingers at the other side of the door, where such accidents most often occur. A strip of flexible plastic is attached to the jamb and to the hinge side of the door and com-



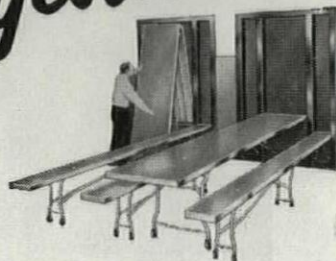
pletely covers the crack between them for its full length. The light gray Plastisol is held in place by extruded aluminum moldings, attached by stainless-steel self-tapping screws. *Stan-Guards* are offered in four styles to fit every condition, including all-glass doors. Price of complete set (one side only) for wood door is \$17.90; for all-glass door, \$21.50. Two sets for each door are required.

*Manufacturer:* Stanley Works, 195 Lake St., New Britain, Conn.

*Technical Publications, p. 226*



# HERE IS A *Suggestion* FOR ARCHITECTS LOOKING FOR *Suggestions*



There's gold in them thar' walls when you use them to provide lunch-hour facilities. School playrooms and factory aiseways can serve double duty as lunchroom, eliminating the need for special purpose areas.

Important to you — they are sturdy, strong, fool-proof, and proven by 17 years' use. You can recommend them as a means of saving money without fear of service problems.

## IN-WALL

Heavy-duty model. Remains attached to wall.



## PORT-A-FOLD

Regular model. Detaches, rolls to any location.

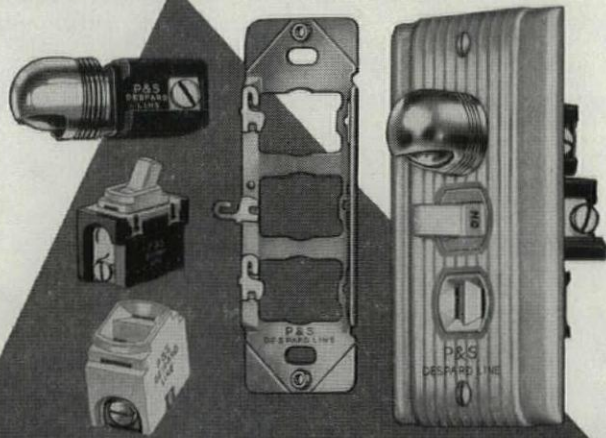


## MOBIL-FOLD

Tables and benches fold into portable truck.

Consult Sweet's or write for Catalog  
**SCHIEBER SALES COMPANY**  
Brightmoor Station  
DETROIT 23, MICHIGAN

## SPECIFY modern wiring



## P&S DESPARD WIRING DEVICES

THE ORIGINAL INTERCHANGEABLE LINE  
for homes, institutions, public buildings,  
industrial and commercial buildings.

### Better four ways

- ① **CONVENIENCE**—You can specify smartly styled combinations of switches, outlets and pilots to meet practically any situation. The electrical contractor can assemble them right on the job without an unwieldy inventory of factory-assembled combinations and long waits for special plates.
- ② **INEXPENSIVE**—While the Despard Line is not built down to a price — it is economical. First quality devices — T-rated switches, double grip outlets — can be installed for only a few cents more, due to savings on multi-gang boxes and wall plates. Where low cost is the prime consideration use of residential type switches will give P&S Despard convenience and modern appearance at low cost.
- ③ **MODERN APPEARANCE**—Compact P&S Despard devices look different — and are different. The distinctive design permits a completely matched installation. Smartly styled, functional combinations have eye-appeal — yet, from a practical viewpoint, provide more convenience per dollar than any other line on the market. This compactness is of the utmost importance where multiple controls are necessary.
- ④ **QUALITY**—Thousands of installations throughout the country in all types of buildings are constant proof of the dependability of these precision-built devices. T-rated switches and double grip outlets meet Federal Specifications.

For information about the Despard Line® and other P&S® quality devices, just check squares and attach this ad to your letterhead.

- |  |                                       |   |
|--|---------------------------------------|---|
| <input type="checkbox"/> P&S Despard Line    | <input type="checkbox"/> P&S Turnlok® | <input type="checkbox"/> Polarized Line     |
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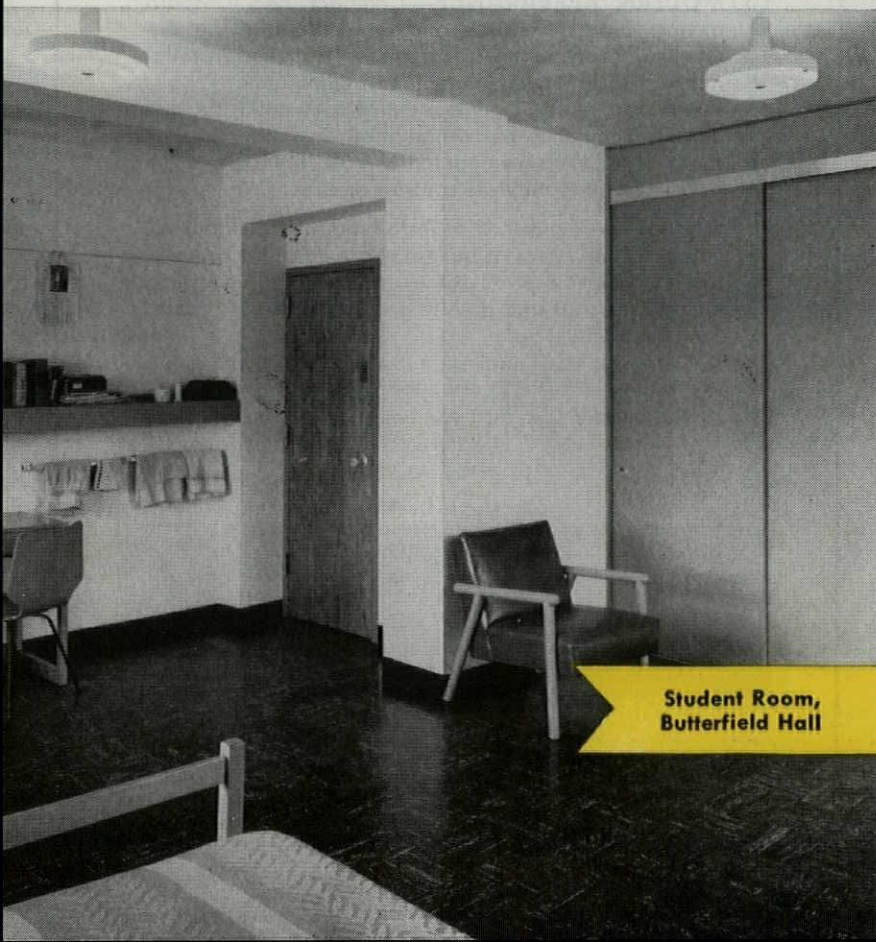
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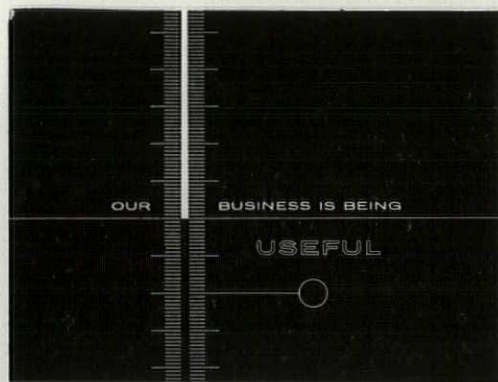
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Continental Power Distribution Equipment, Bul. 1052, Continental Electric Co., Box 1055, Cincinnati 1, Ohio. 4 pp. 8 1/2" x 11"

Cornerstone . . . or Tombstone MCMLIV. Westinghouse electrical systems. Westinghouse Electric Corp., E. Pittsburgh, Pa. 22 pp. 11" x 8"

Magnetic Contractors, Bul. 502, Federal Electric Products Co., 50 Paris St., Newark 5, N.J. 8 pp. 8 1/2" x 10 1/2"

### FLOOR & WALL PANELS

Fenestra Steel and Aluminum Building Panels. Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit 11, Mich. 44 pp. 8 1/2" x 11"

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Plastile "22." Conneaut Rubber & Plastic Co., Div. of U. S. Stoneware, Conneaut, Ohio. 4 pp. 8 1/2" x 11"

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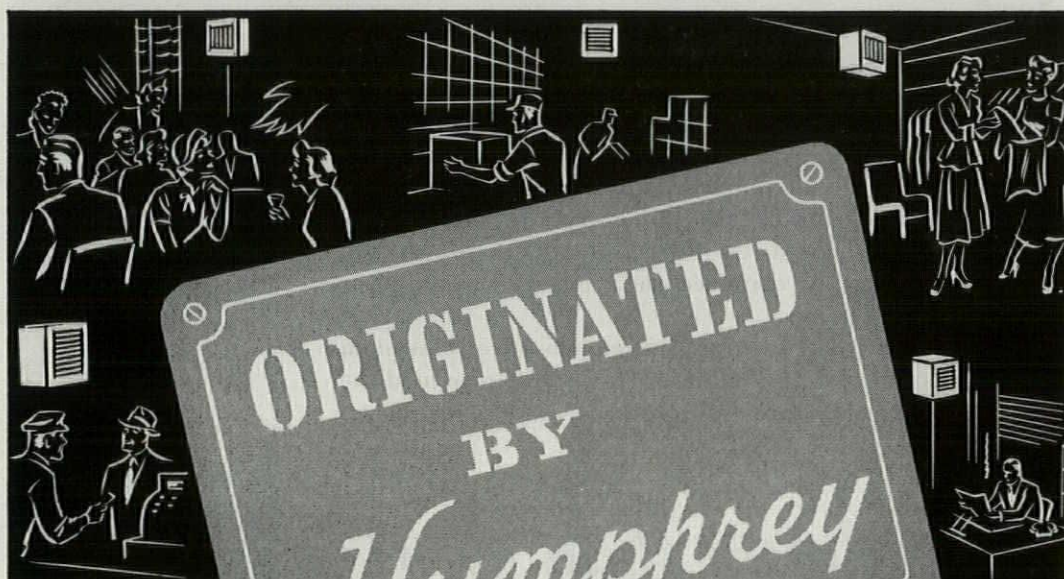
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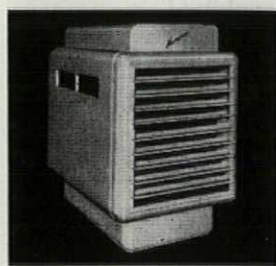
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Dish Handling Plans for Cafeterias of Schools, Colleges and Universities. Samuel Olson Mfg. Co., Inc., 2436 Bloomingdale Ave., Chicago 47, Ill. 12 pp. 8 1/2" x 11"

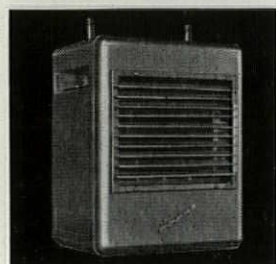
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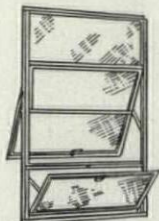
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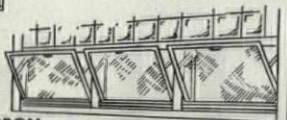
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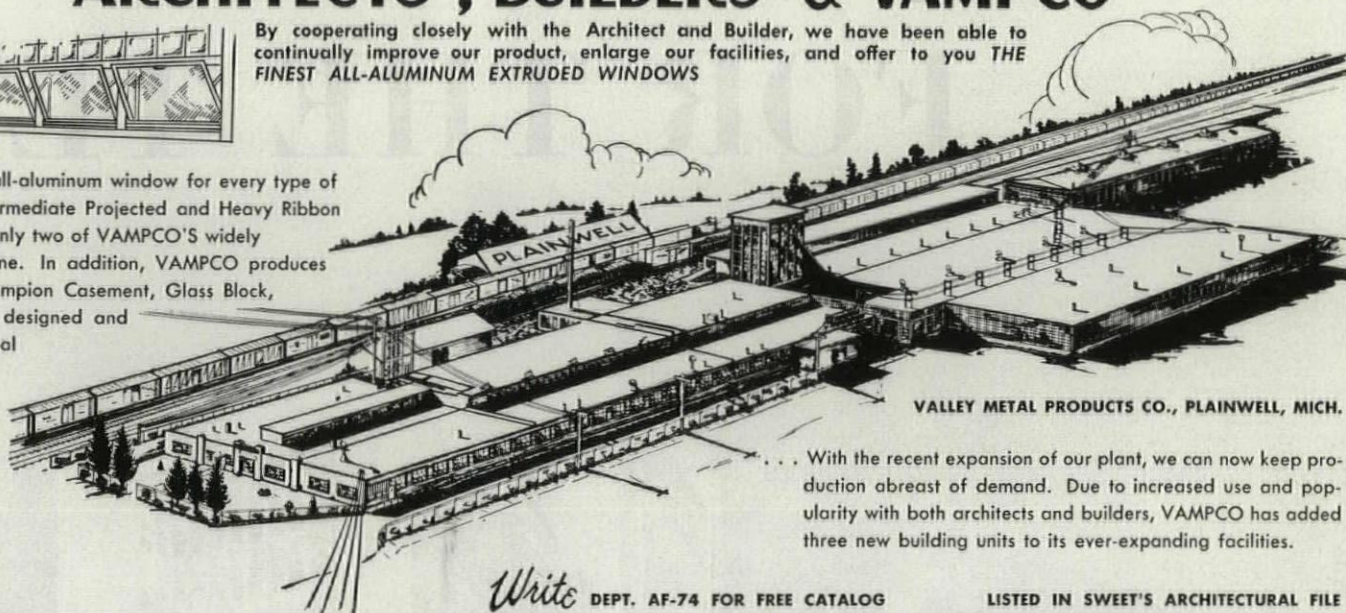
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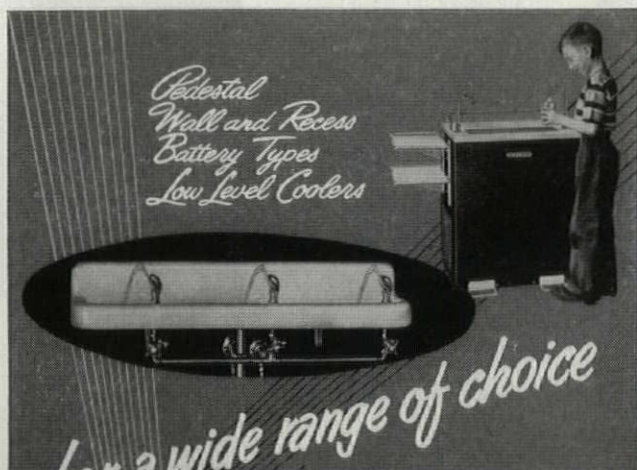


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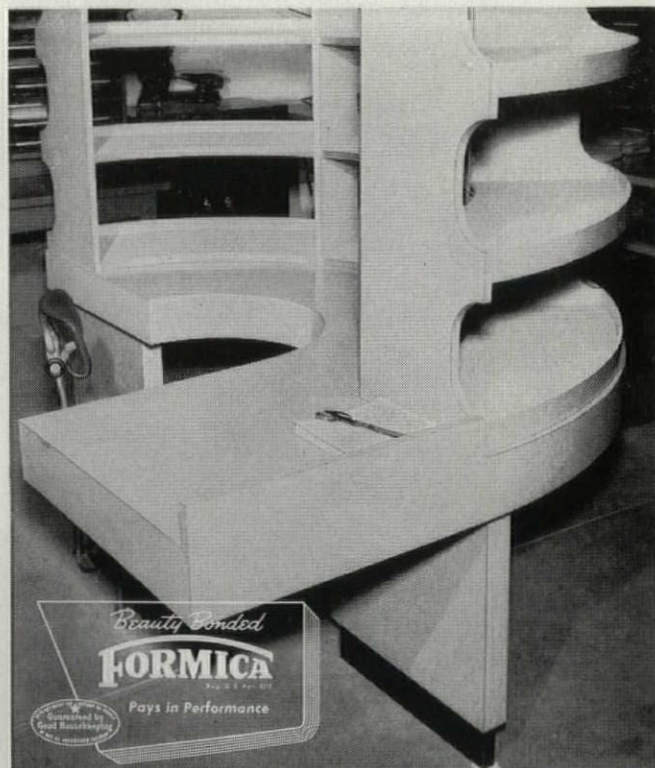
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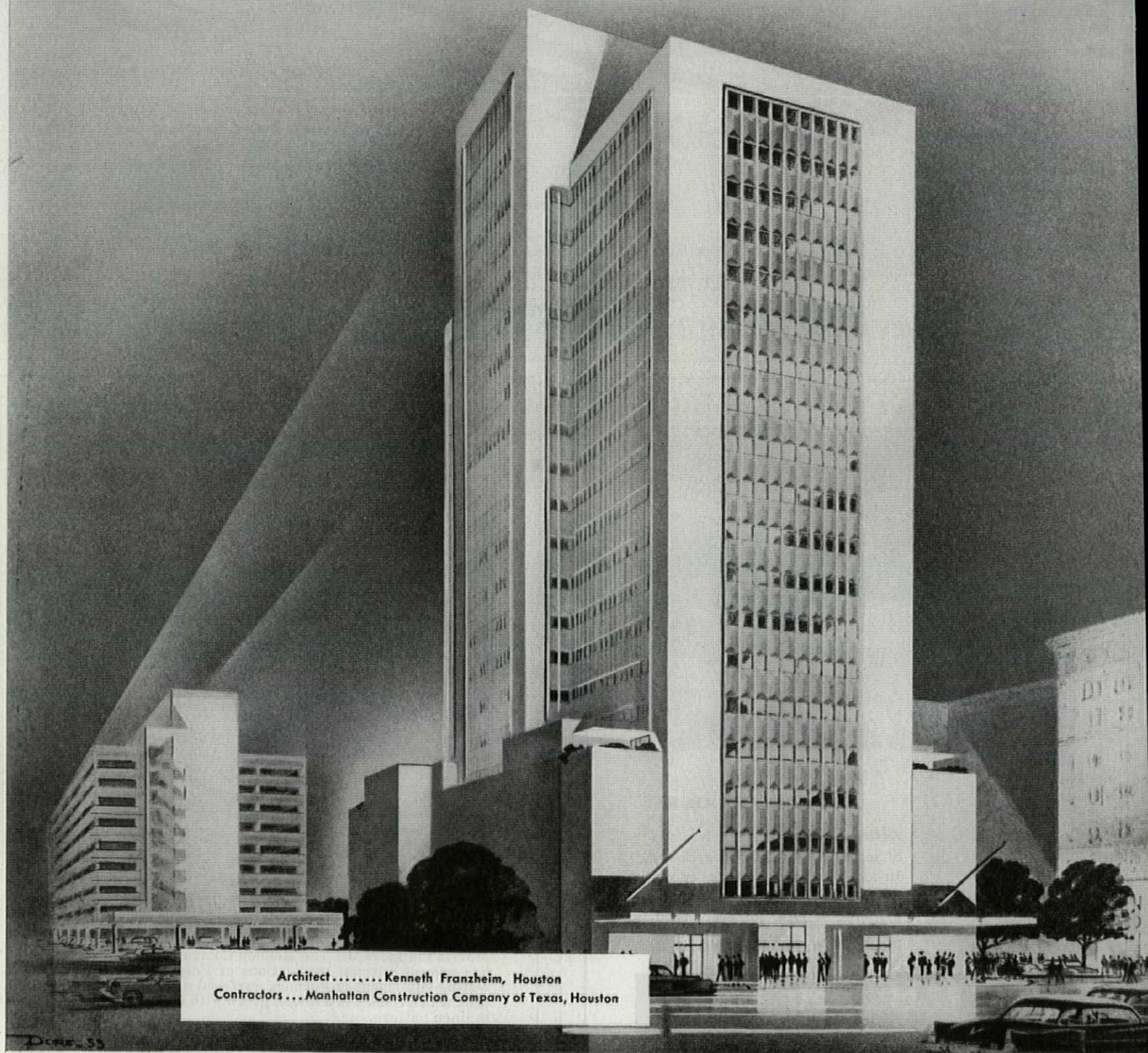


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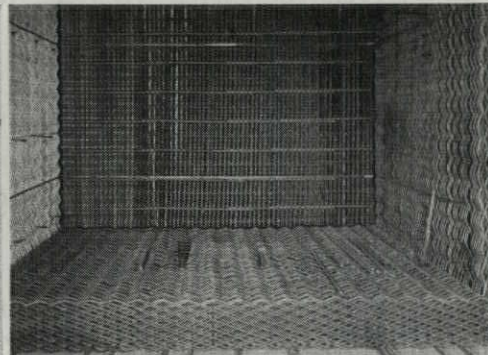
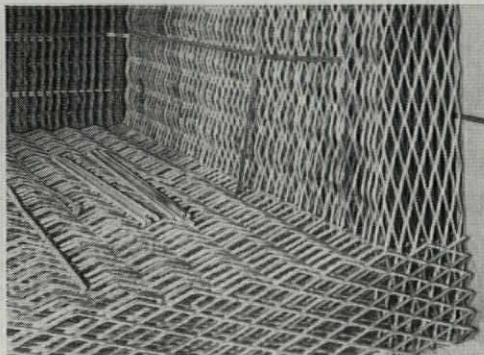
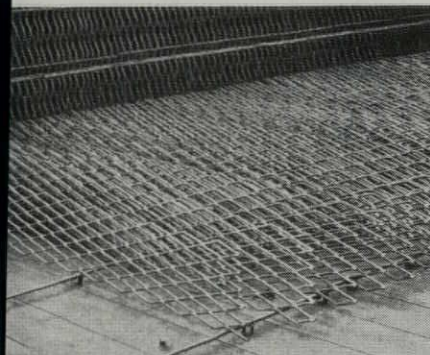
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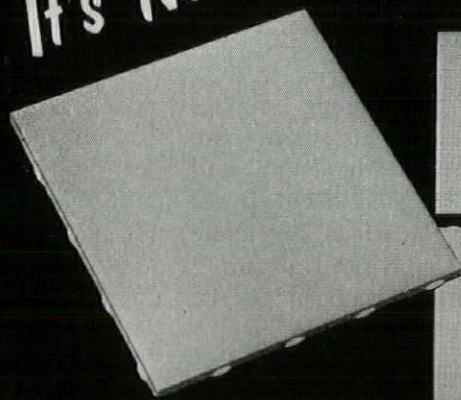
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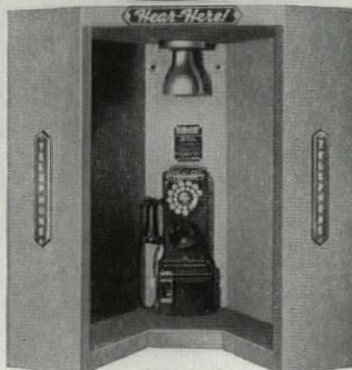
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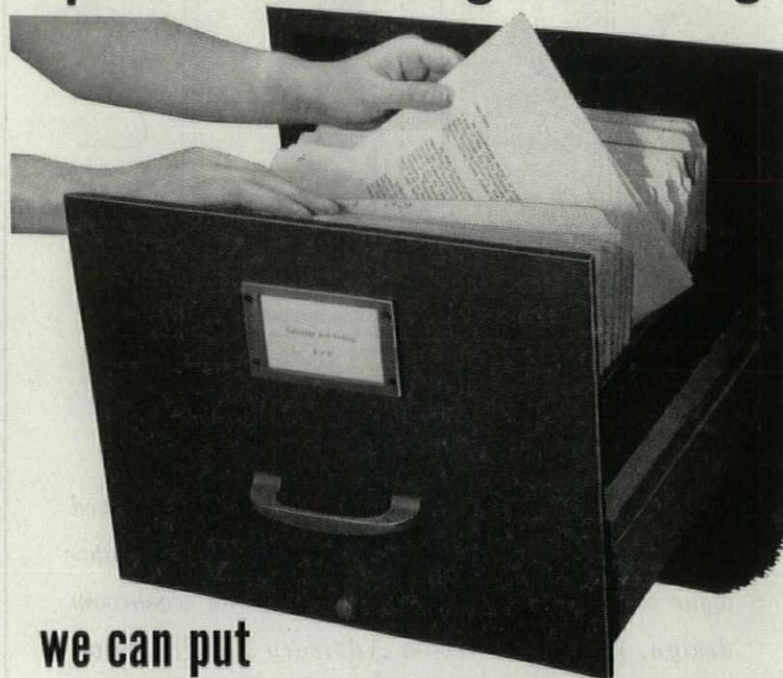
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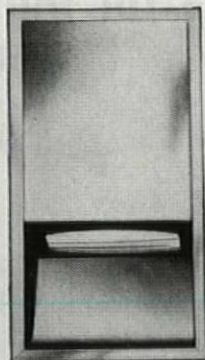
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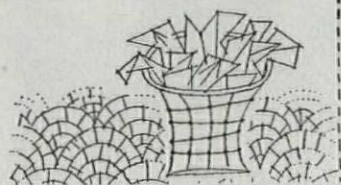
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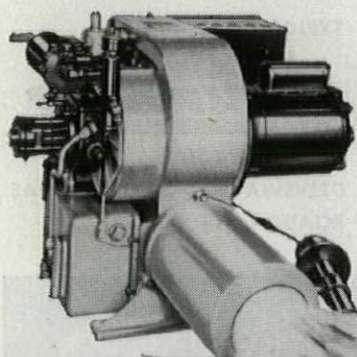
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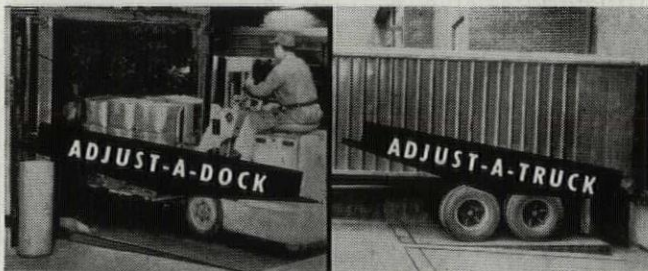
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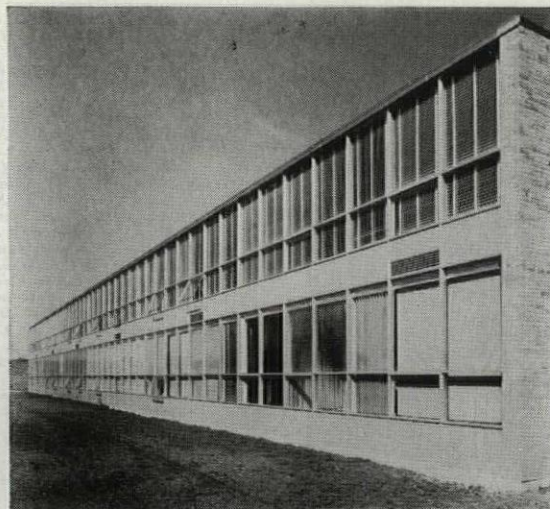
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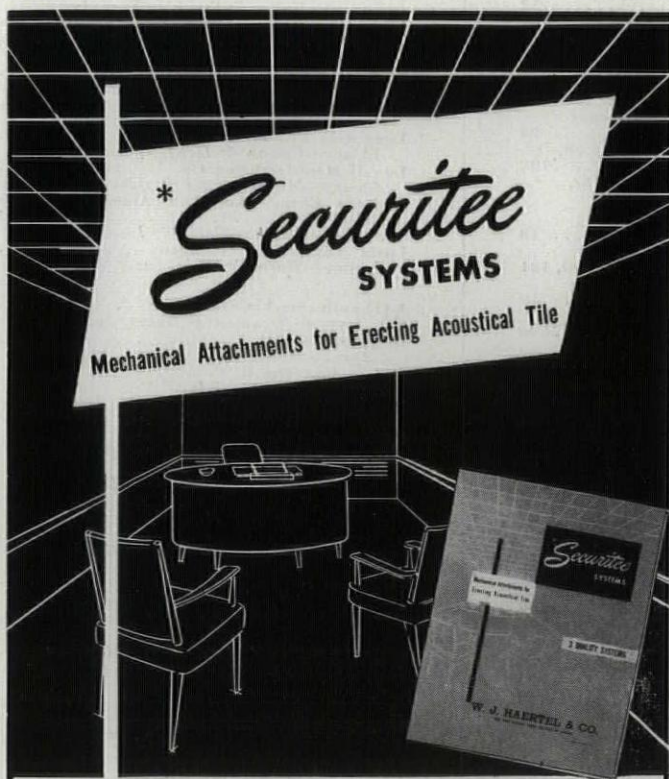
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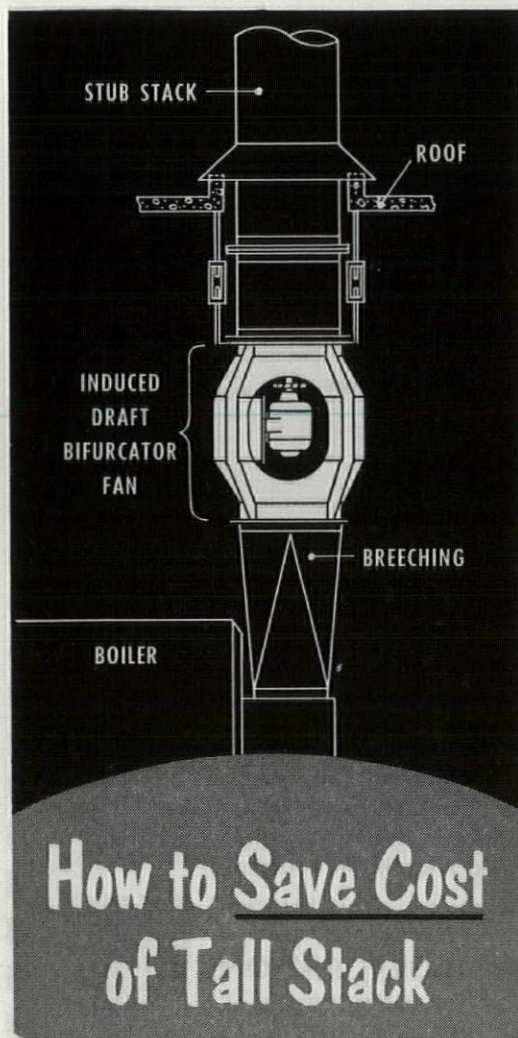
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You can avoid the cost of a tall stack by specifying an Induced Draft Bifurcator Fan for boiler draft. The Induced Draft Bifurcator Fan costs much less than a tall stack and provides controlled boiler draft in any weather. Eliminating a tall unsightly stack also helps preserve the design of a modern building.

**INDUCED DRAFT BIFURCATOR FAN** is an axial-flow fan in a divided housing. Flue gases are by-passed (bifurcated) around motor chamber so that motor stays cool, clean and accessible. The Induced Draft Bifurcator can be installed at any angle, like a flanged section of breeching. It can be mounted indoors or on roof. For high-pressure boilers delivering up to 60,000 pounds of steam per hour and for low-pressure boilers rated up to 190,000 EDR. Ask your DeBothezat representative, listed in phone book, or send coupon for illustrated catalog.

## DeBothezat Fans

DeBothezat Fans Division  
Dept. AF-754  
American Machine and Metals, Inc.  
East Moline, Illinois  
Send Catalog DB-32-53 on Induced Draft Bifurcators.

MAIL COUPON  
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STREET ADDRESS \_\_\_\_\_  
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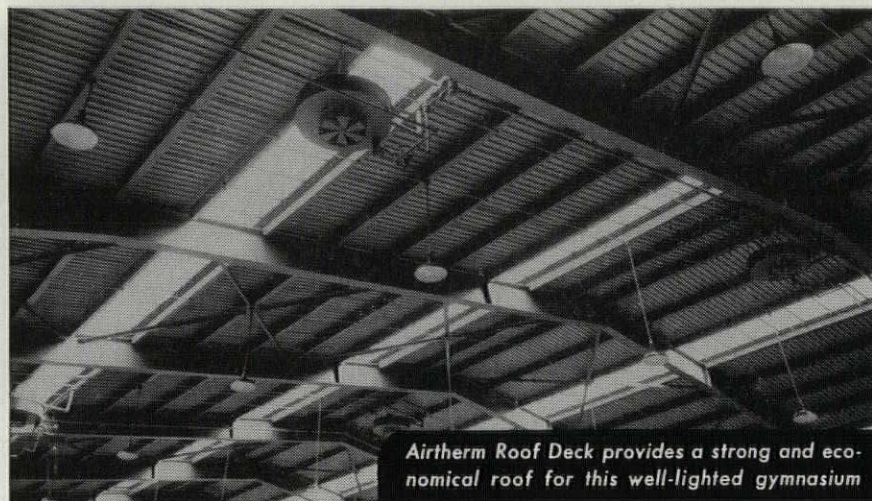
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# WIDER

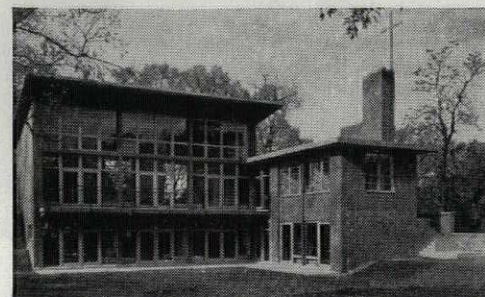
## Airtherm ROOF DECK



Airtherm Roof Deck provides a strong and economical roof for this well-lighted gymnasium

### designed for a wide range of applications

Airtherm Steel Deck Sheets are furnished in 30" widths (the widest in the industry) with five ribs spaced on 6" centers. These ribs, 1 5/8" deep, have a bearing surface of 5/8" and a top opening of only 3/4" wide. These wider, self-aligning sheets mean fewer longitudinal laps with resultant savings in construction time and costs.



In this church the attractive appearance of painted Airtherm Roof Deck adds functional beauty to the clean design

Airtherm Decking provides a strong, safe and durable steel roof in flat, pitched or arched construction. It has been proved in installations as side walls, partitions, canopies, and as a sub-base for concrete or aggregate flooring. This versatility, plus its attractive appearance, has led to many unique applications in a wide range of structures.

#### 18-GAUGE AIRTHERM ROOF DECK

#### PROPERTIES

Section Modulus (in.) 3	.220
Moment of Inertia (in.) 4	.263
Resisting Moment (in lbs.)	3960

To care for all contingencies relative to geographical areas and various purlin spacing, Airtherm Decking is also manufactured in No. 22 Gauge and No. 20 Gauge metal thicknesses.

#### FABRICATED PRODUCTS DIVISION

# Airtherm



For more complete information consult our catalog in Sweet's 2dAi, or write...

#### MANUFACTURING COMPANY

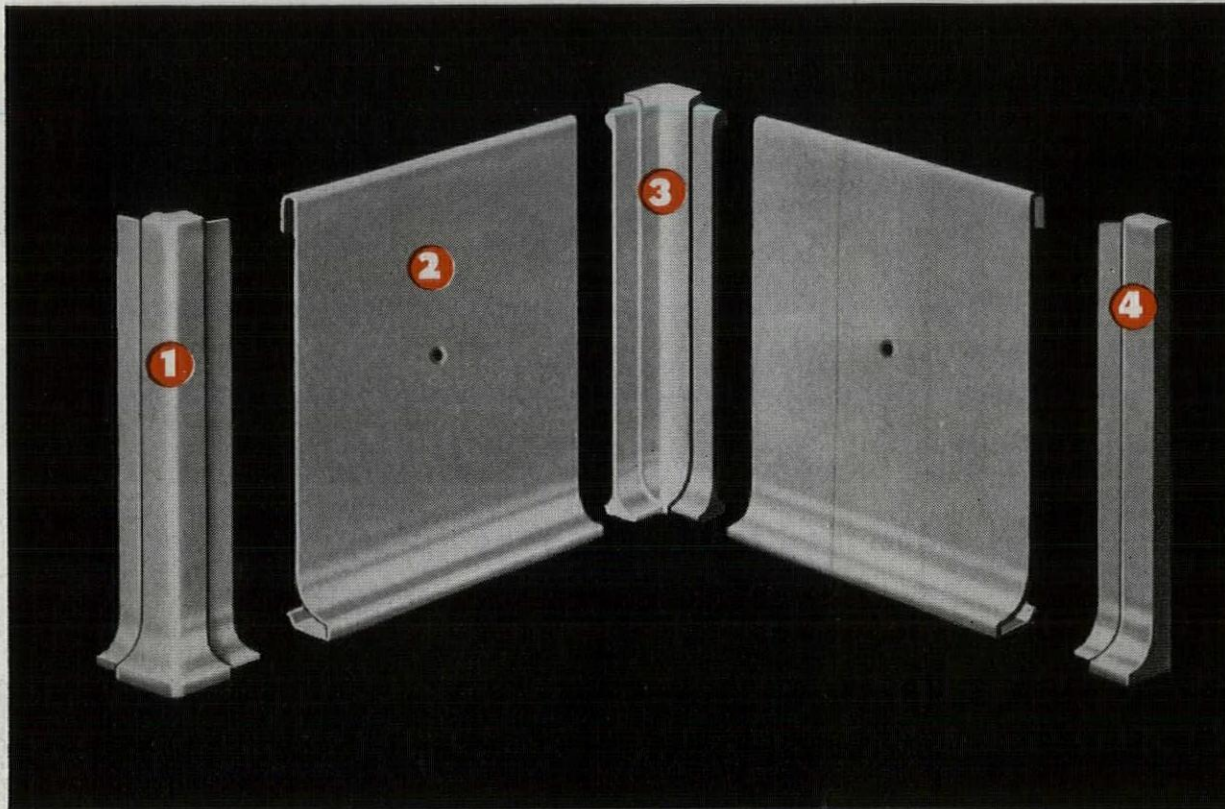
745 South Spring Avenue  
St. Louis 10, Missouri

Member: Metal Roof Deck Technical Institute



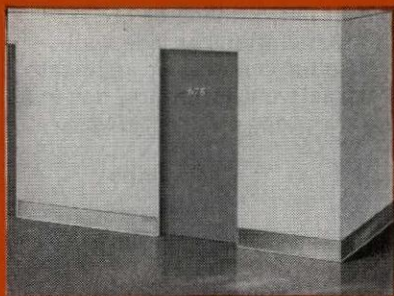
# Another **MILCOR**\* First!

## Friction-Fit Fittings for Applied Metal Base



- 1** Square outside corner,
- 2** No. 675 Metal Base section — available in 4" and 6" heights in standard 10-ft. length,
- 3**  $\frac{3}{4}$ " radius inside corner
- 4** End stop — available in left- or right-hand styles.

Like other Milcor Metal Trim products, Milcor No. 675 Metal Base has the clean lines so desirable in today's interior designs.



No. 675-4" Applied Metal Base



No. 675 Applied Metal Base



### Milcor Friction-Fit Fittings require no punching, no screws. No. 675 Metal Base goes in faster.

Again, Milcor cuts the time required to install metal base.

Milcor pioneered the use of friction-fit fittings with plastered-in metal base. And now Milcor improves the mechanical efficiency of installing Milcor No. 675 Applied Metal Base.

No screws are needed to install friction-fit cast fittings with No. 675—they are simply tapped into place. Installation costs go down — over-all appearance is enhanced.

These new advantages are added to those already present in Milcor No. 675 Metal Base: (1) Sanitation; (2) Fire-safety; (3) Durability; (4) Simplicity; (5) Ease of maintenance. All are important reasons for including Milcor No. 675 Metal Base in your current designs for office buildings, schools, apartments, and industrial buildings.

For planning help, consult the Milcor Manual in Sweet's. Write for bulletin.

### INLAND STEEL PRODUCTS COMPANY

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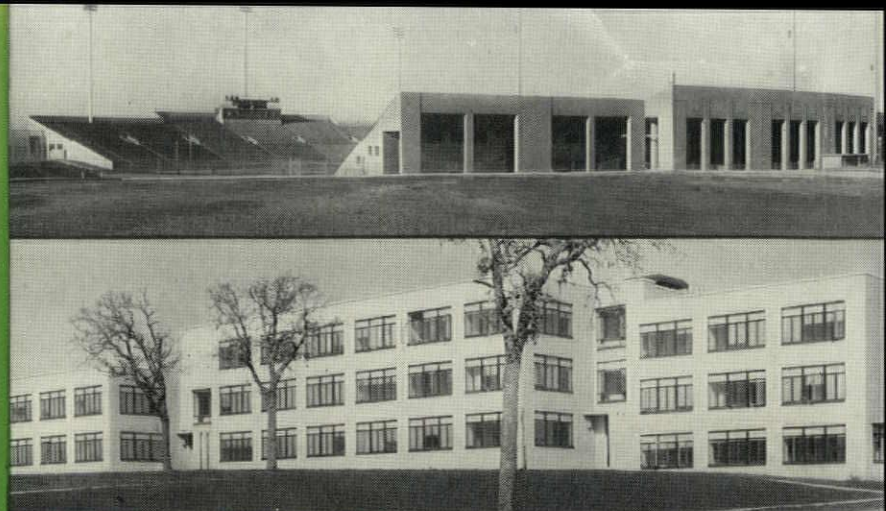
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\*Reg. U. S. Pat. Off.

M-129

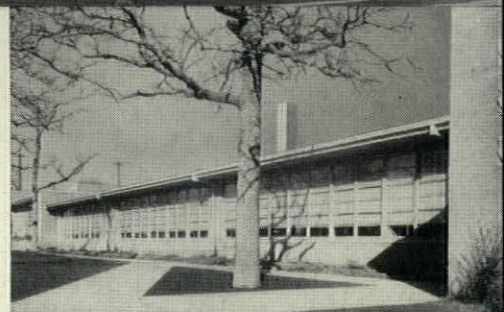


**\* Eljer**  
*excels in*  
**plumbing**  
**fixtures**  
**for schools**



*Men's dormitory, girls' gymnasium, and stadium—North Texas State College, Denton, Texas  
 Architect: Buford and Feinberg  
 Plumbing Contractor: Scheader Plumbing Company*

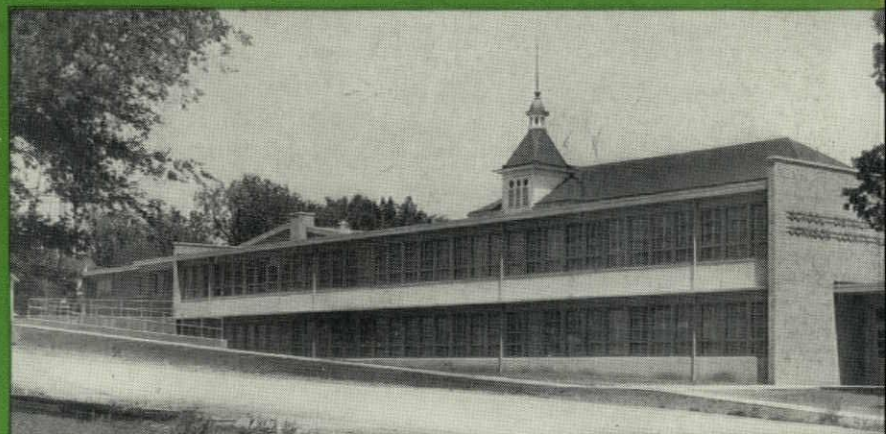
**PLUMBING FIXTURES: ELJER**



*De Soto School, De Soto, Kan.*

**PLUMBING FIXTURES: ELJER**

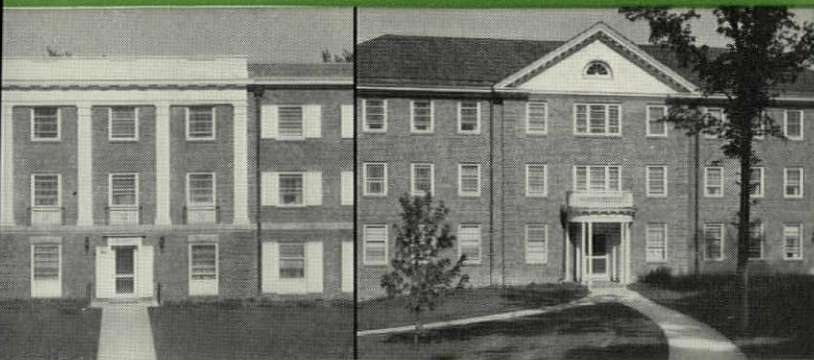
*Architect: Maurice C. Keys  
 General Contractor: Haren & Laughlin Contracting Co.  
 Plumbing Contractor: Guntert Plbg. Co.*



*Primos School,  
 Upper Darby Township, Pa.*

**PLUMBING FIXTURES: ELJER**

*Architect: Norman T. Mansell  
 General Contractor: Laub Construction Co.  
 Plumbing Contractor: Jerry R. Smith*



*Dormitories, University of Kansas*

**PLUMBING FIXTURES: ELJER**

*Pearson Dormitory, Stephenson Hall  
 Architect: Ray Coolidge  
 General Contractor: Martin K. Eby  
 Plumbing Contractor: Guntert Plbg. Co.*

**\* Among the many outstanding examples of modern institutional construction to feature Eljer plumbing fixtures are the schools shown.**

*Eljer has produced more than eighteen million plumbing fixtures since 1904.*

Eljer offers architects and builders a choice of all materials—vitreous china, cast iron and formed steel (matched in style and color) plus Eljer-built brass fittings. A range of styles and models covers every institutional, commercial and residential use.

Check Eljer in the "Plumbing Section" of *Sweet's Architectural and Light Construction Files* or write Eljer Co., Box 192, Ford City, Pa.



*Camp Curtin Jr. High School,  
 Harrisburg, Pa.*

**PLUMBING FIXTURES: ELJER**

*Architects: Lawrie & Green  
 General Contractor: H. B. Alexander & Son, Inc.  
 Plumbing Contractor: S. H. S., Inc.*

**ELJER**

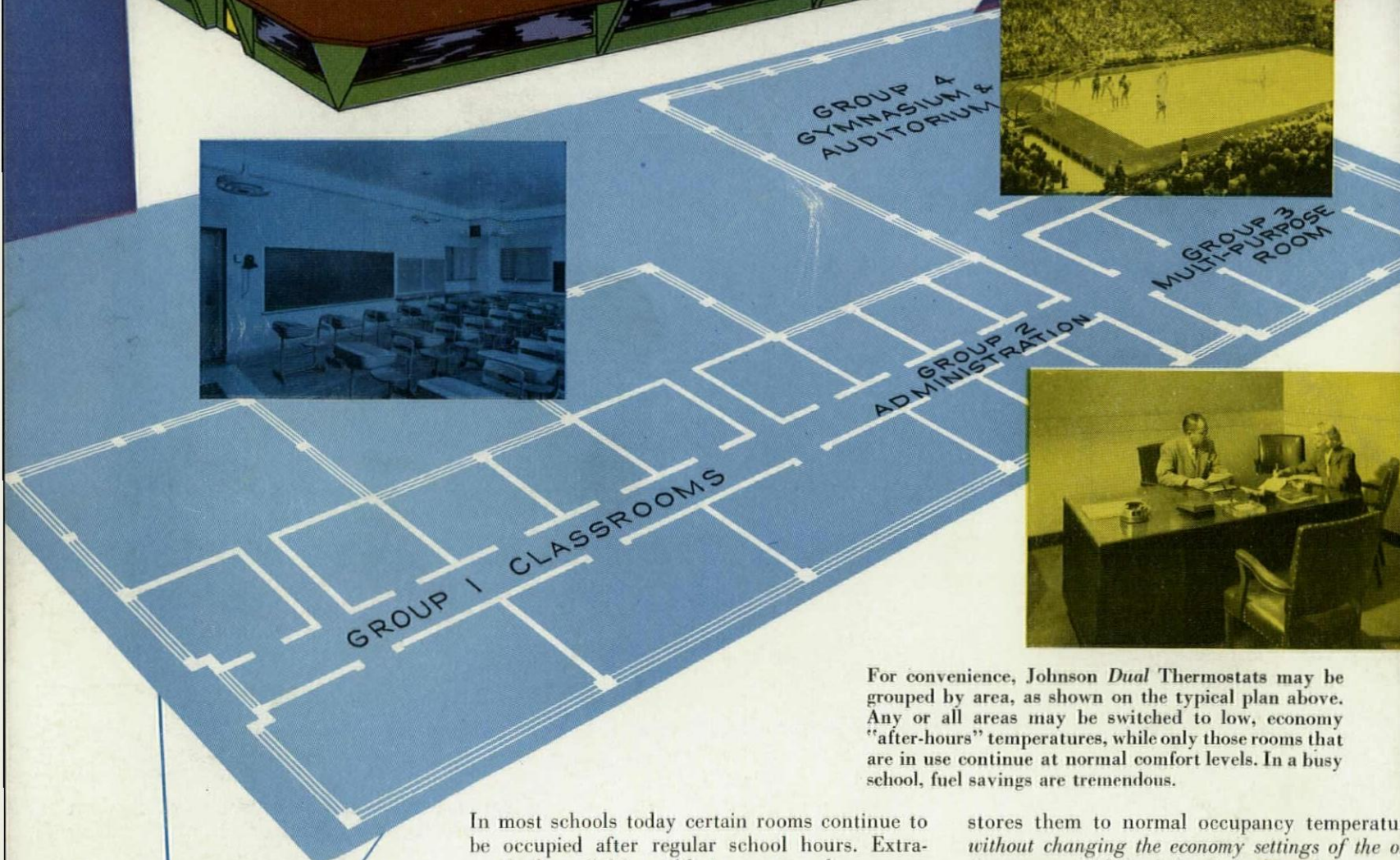
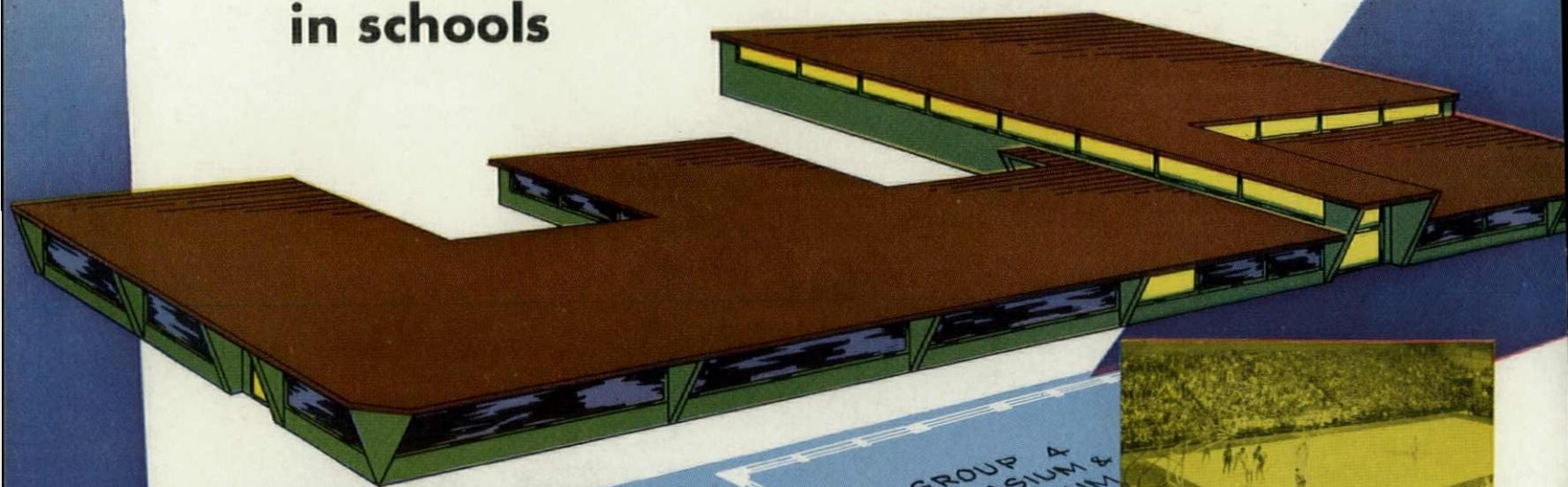
A SUBSIDIARY OF THE **MURRAY** CORPORATION OF AMERICA

The only name you need to know in plumbing fixtures

Minneapolis School of Architecture



# how **JOHNSON DUAL CONTROL** solves the "AFTER-HOURS" heating problem in schools



For convenience, Johnson *Dual* Thermostats may be grouped by area, as shown on the typical plan above. Any or all areas may be switched to low, economy "after-hours" temperatures, while only those rooms that are in use continue at normal comfort levels. In a busy school, fuel savings are tremendous.

In most schools today certain rooms continue to be occupied after regular school hours. Extra-curricular activities, athletic events, and numerous neighborhood and community group meetings create an "after-hours" heating problem. Heating an entire building when it is only partly occupied wastes tremendous amounts of fuel.

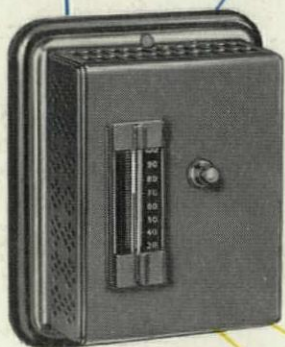
Johnson *Dual* Temperature Control provides a simple, effective solution to this "after-hours" heating problem. During general occupancy periods, a Johnson *Dual* Thermostat in each room automatically assures comfort unlimited. When classes are over, each group of *Dual* Thermostats in the building may be reset, from a central control panel, to operate at *reduced, non-occupancy temperatures*.

In those rooms which continue in use, merely pressing the button on the *Dual* Thermostat re-

stores them to normal occupancy temperature *without changing the economy settings of the other thermostats*. Think of the fuel savings!

Johnson *Dual* Control offers the best in modern room-by-room temperature regulation — and at the lowest possible operating cost. Heating only the *occupied* rooms quickly saves enough fuel dollars to pay for the cost of the entire system!

The benefits of the *Dual* System are not limited to new buildings. Conversion of existing buildings to Johnson *Dual* is easy. Let an engineer from a nearby branch office explain how the many money saving features of Johnson Control can be applied to your next project. He draws upon a vast reservoir of Johnson experience in controlling heating and ventilating systems in all types of buildings. **JOHNSON SERVICE COMPANY, Milwaukee 2 Wisconsin.** Direct Branch Offices in Principal Cities



## JOHNSON CONTROL

TEMPERATURE  AIR CONDITIONING

MANUFACTURING • PLANNING • INSTALLING • SINCE