

9795

architectural forum

November 1952

MINNEAPOLIS COLLEGE OF ART
& DESIGN LIBRARY

Mies van der Rohe

In a wide range of building types, he is redefining the structural steel frame—at its birthplace, Chicago (p. 93)

New thinking on airports

Analysis of the best points of the five best terminals (p. 130)

Big city school

A "banjo" plan to solve the traffic problem presented by 3,200 Manhattan pupils (p. 122)

Building Engineering

Louis Kahn's hollow concrete floor for Yale's design lab....
Buckminster Fuller's "tetrahedral truss" for minimum weight....
Sliding forms for economical concrete construction....
A metal curtain wall for mass production (p. 148)

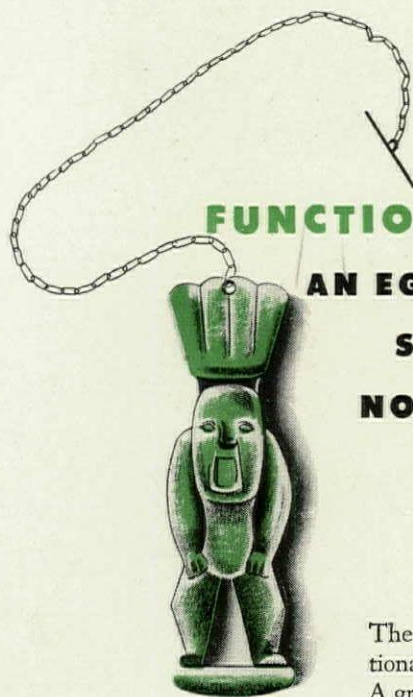
Handsome factory

Its finished design leads passers-by to mistake it for a school (p. 144)

Parallel block hospital

Swedish import by Venezuela calls for a re-examination of US design taboos (p. 112)





FUNCTIONAL COLOR AN EGYPTIAN SUPERSTITION... NOW A TOOL OF PRODUCTION

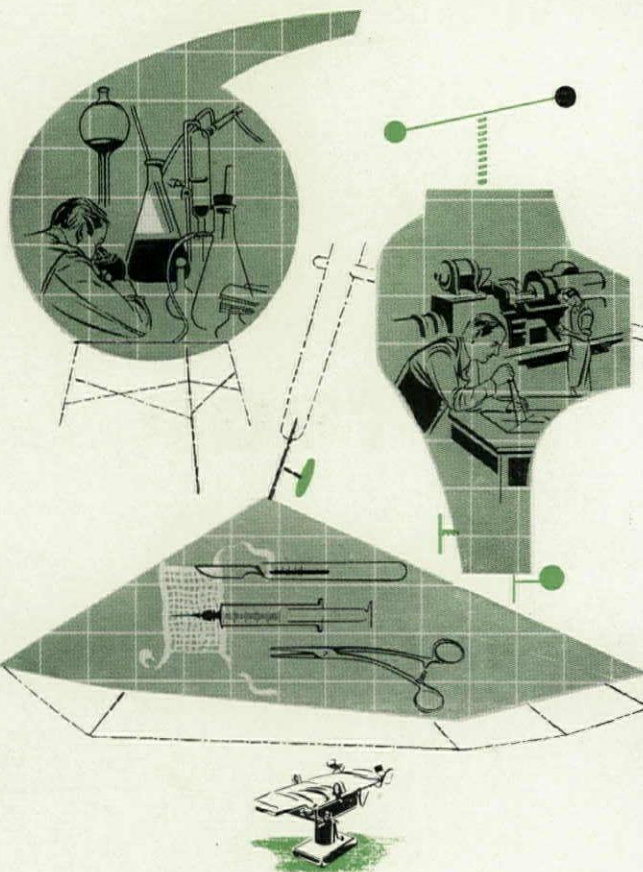


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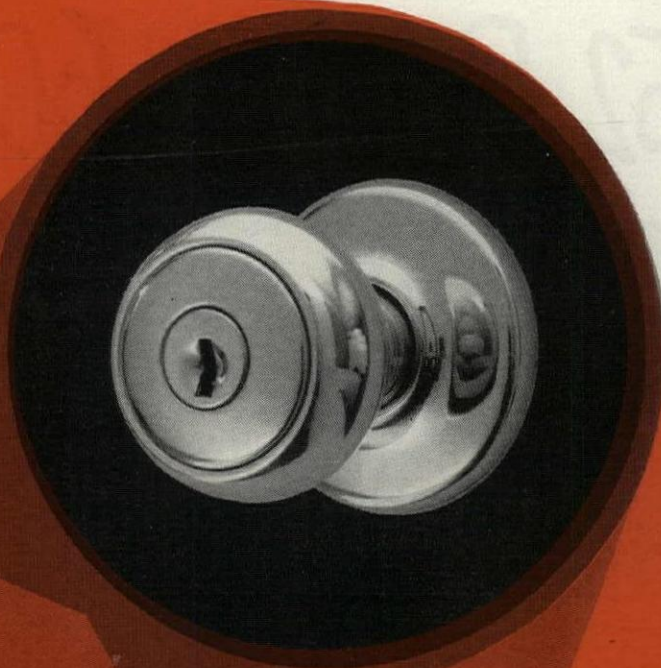
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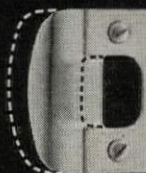
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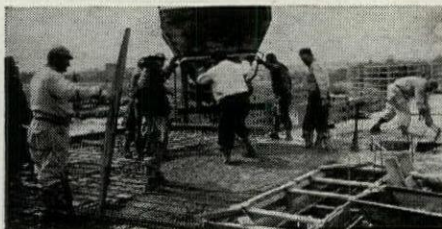
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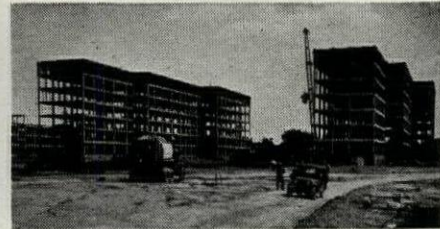
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MIES VAN DER ROHE'S NEW BUILDINGS 93

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Invented in Sweden, developed in Switzerland, abuilding in Maracaibo, Venezuela, this new hospital form makes sense for the US too. Architect: Hakon Ahlberg.

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NEW THINKING ON AIRPORT TERMINALS 130

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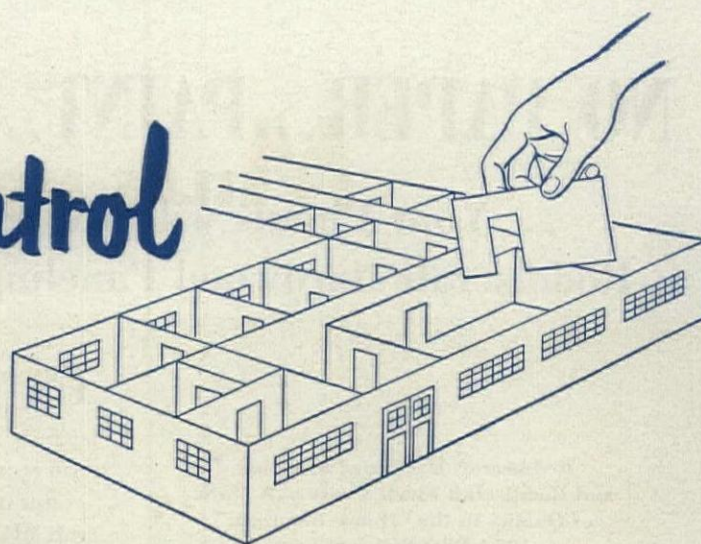


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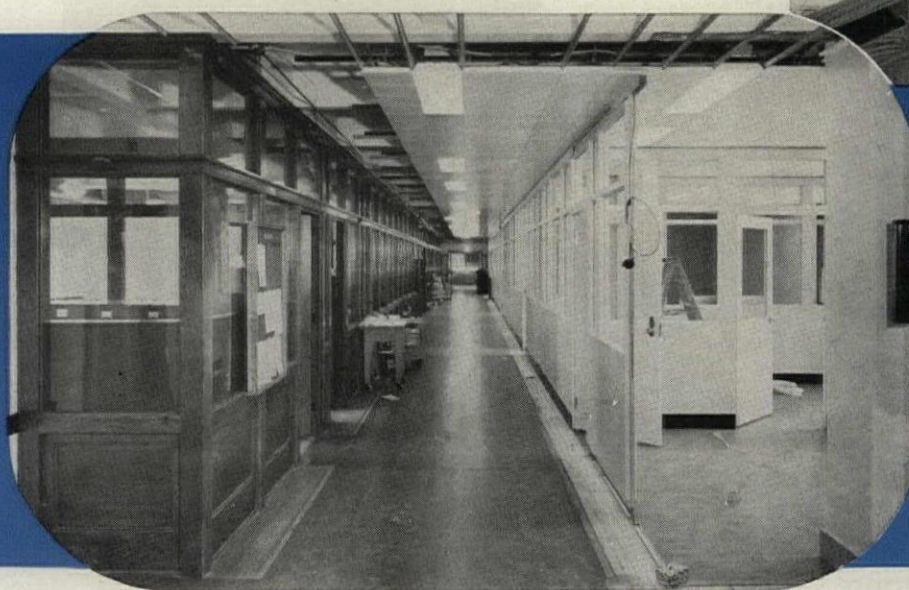


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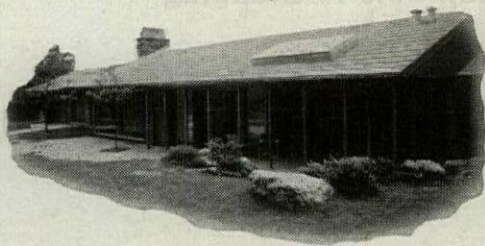
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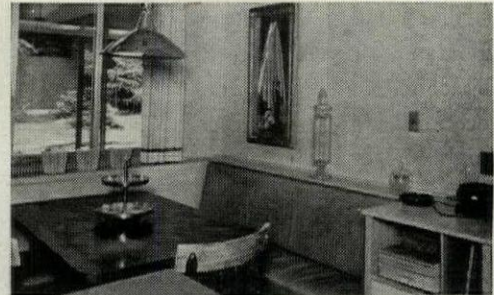
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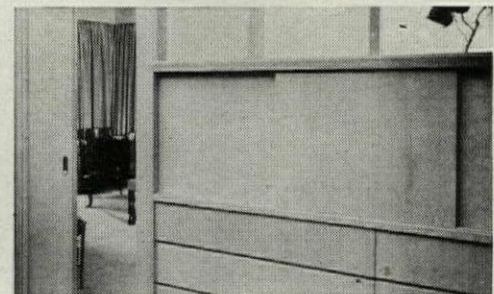
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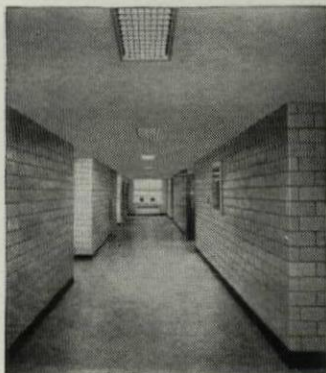




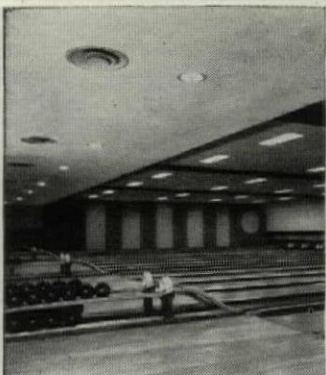
Conrad Hilton Hotel, Chicago. Famed hotel, formerly The Stevens, employed Zonolite Acoustical Plastic throughout in remodeling the Park Row Restaurant.



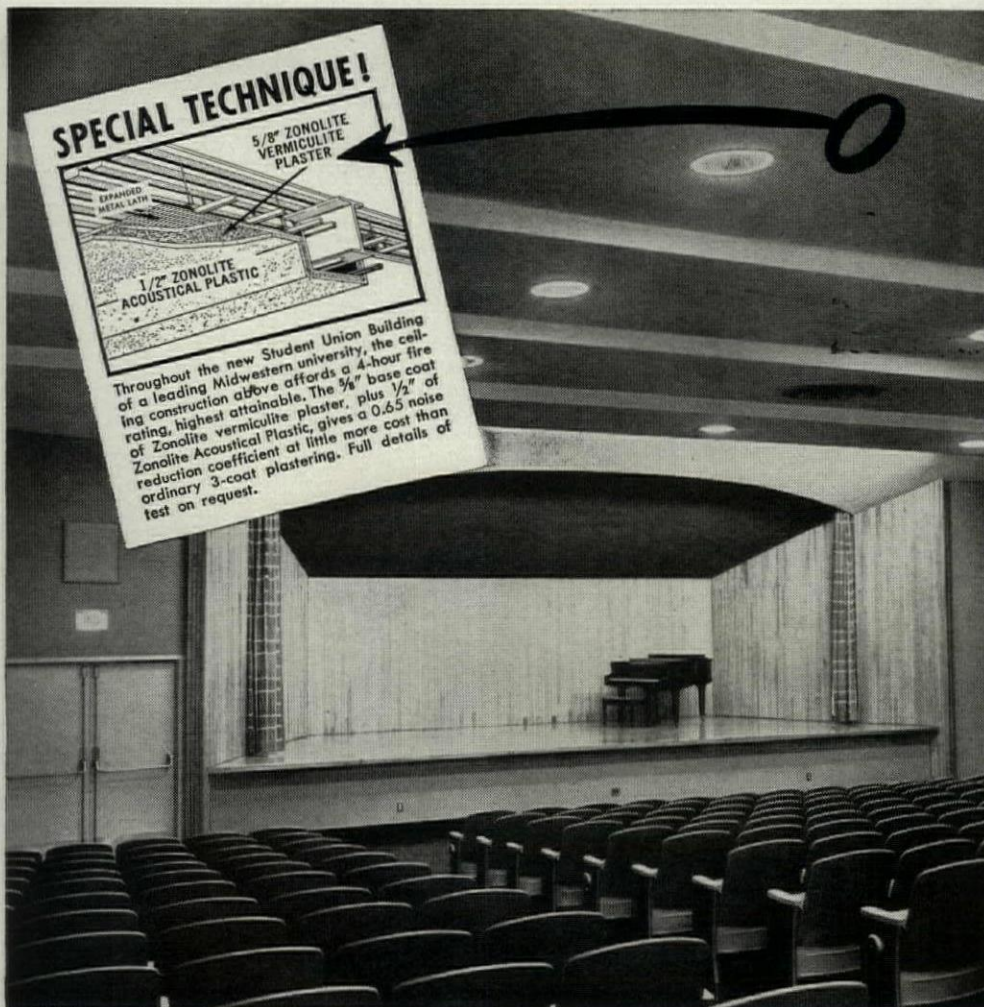
Northwestern Mutual Fire Assn. Building, Los Angeles. Leading architect, Richard Neutra, chose Zonolite Acoustical Plastic for noise reduction.



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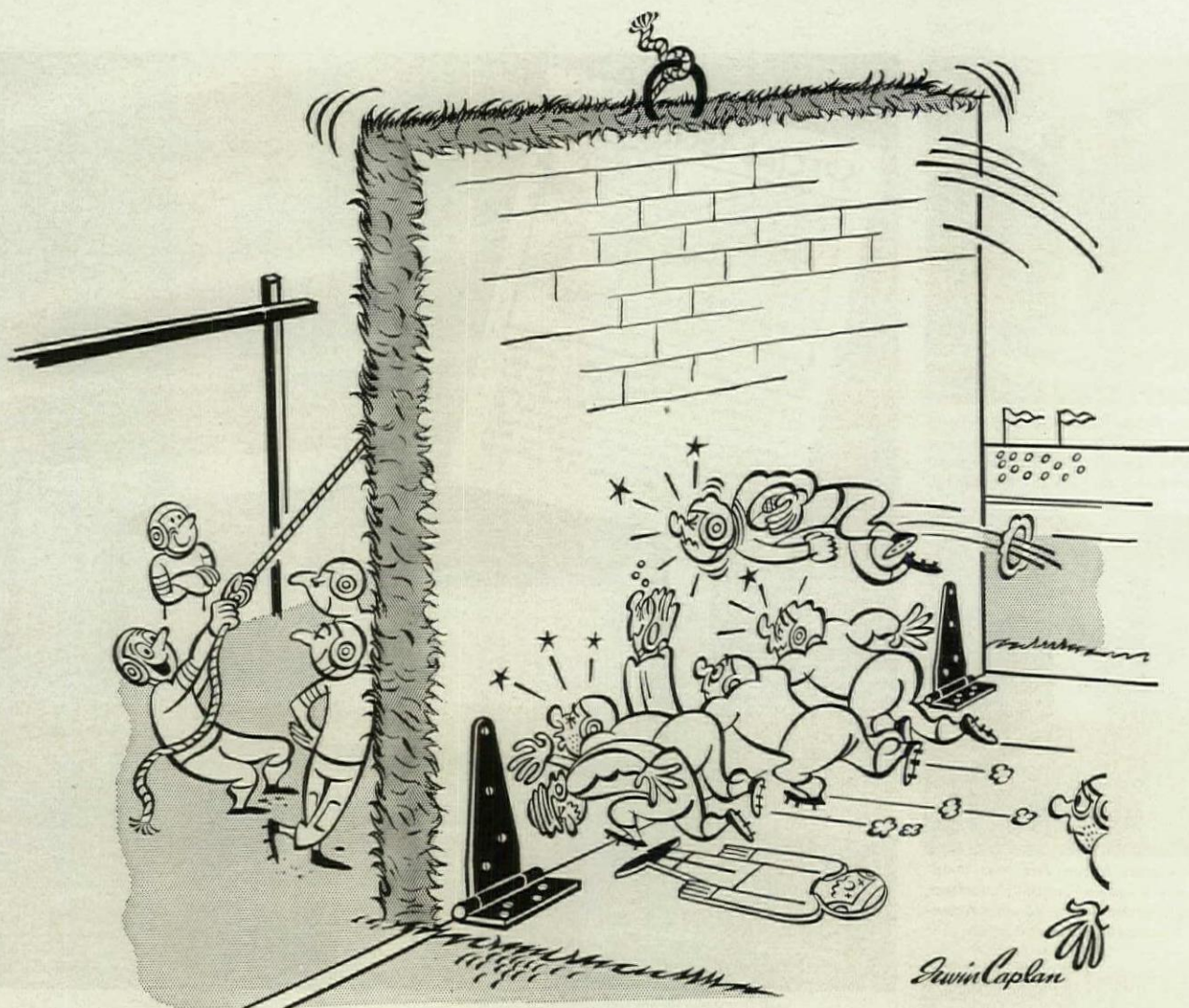
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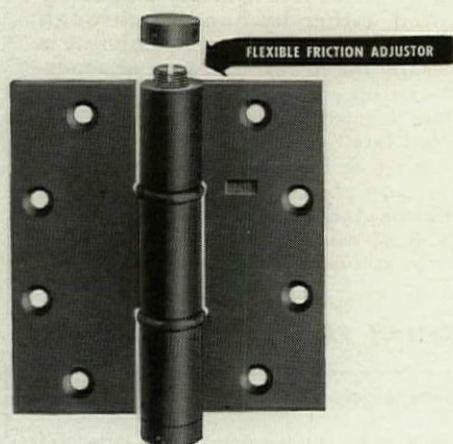
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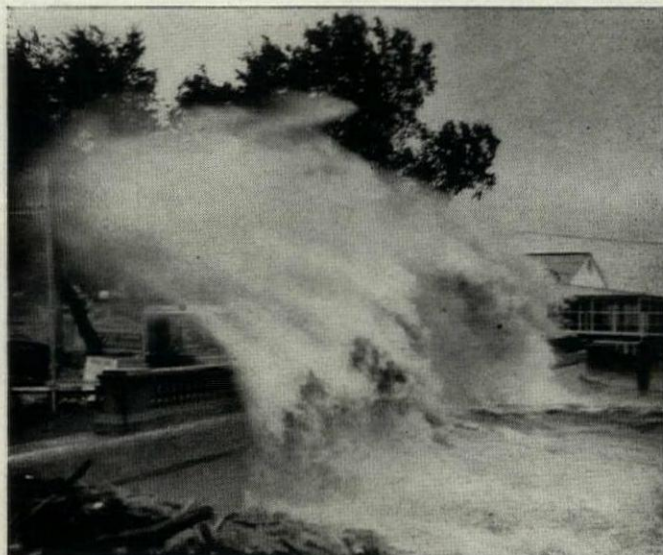
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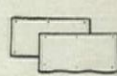
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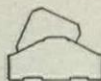


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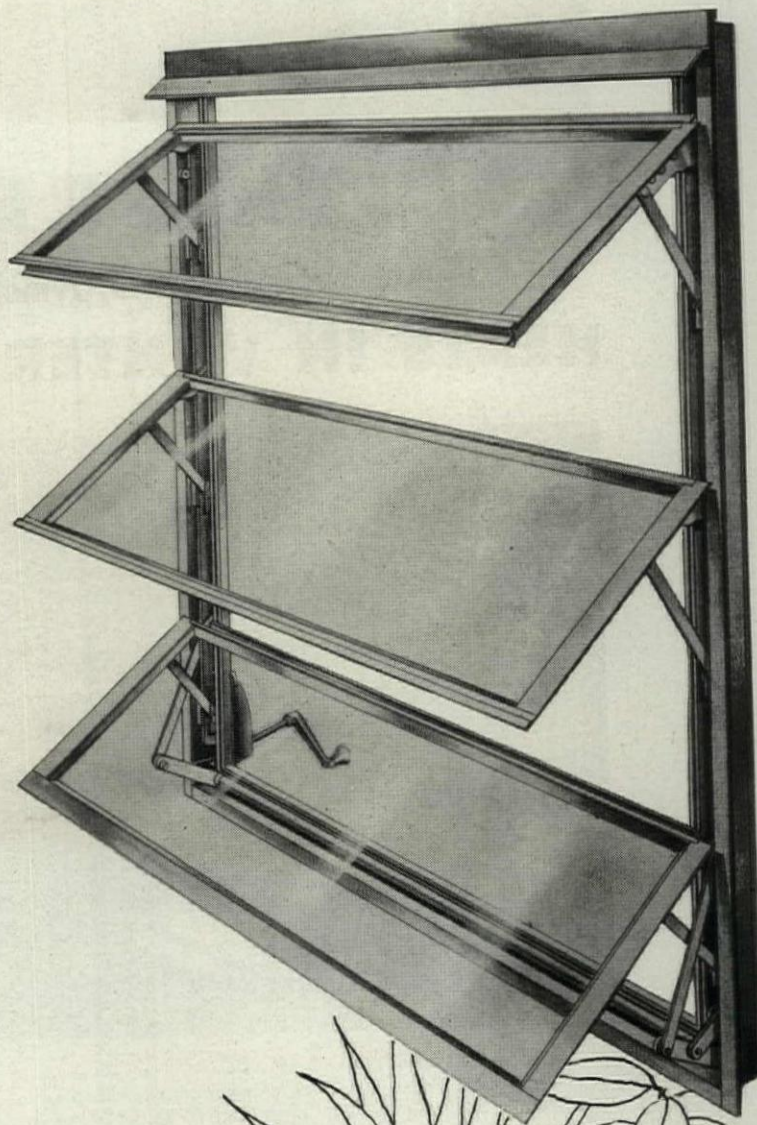


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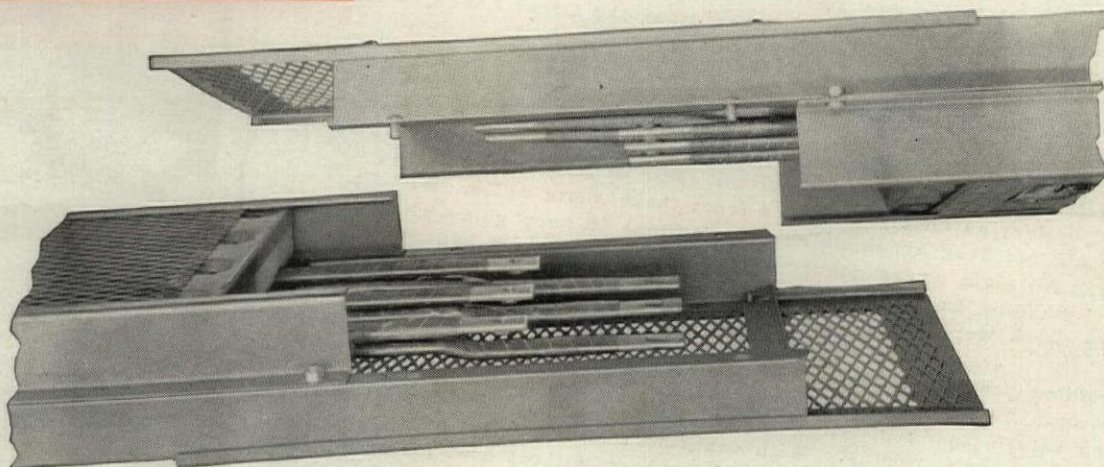
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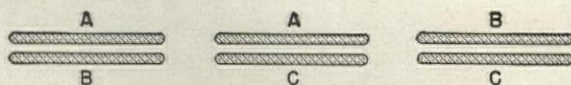
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1902 TO 1952 . . . SERVING INDUSTRY FOR 50 YEARS WITH FINER ELECTRICAL PRODUCTS

READ WHAT A CONSTRUCTION COMPANY SAYS ABOUT Q-FLOORS



CAPITOL BUILDING ANNEX
FRANKFORT KY.

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STRUCK CONSTRUCTION COMPANY INCORPORATED BUILDING CONSTRUCTION

147 N. CLAY STREET

P. O. BOX 1109

LOUISVILLE 2, KY.

July 11, 1952

SUBJECT-

Q-Floor
Capitol Annex
Frankfort, Kentucky

H. H. Robertson Company
Pittsburgh, Pennsylvania

Gentlemen:

I would like to outline our experience with Robertson Q-Floor on the Capitol Annex job at Frankfort, Kentucky.

The erection of Robertson Q-Floor was started November, 1950. In spite of an unexpected severe winter comparable to weather along the Great Lakes, work proceeded with little interruption.

As fast as Q-Floor was laid, we stacked it with stone and masonry materials.

If we had not been able to accept this material, especially the stone, two large limestone mills would have had to cut production. For at least two months, heavy snow stopped deliveries on other orders from these same mills. Without this storage, we could not have accumulated enough stone to keep going when the weather moderated. An eight weeks quarry strike occurred when we had about eighty per cent of limestone on the job. We lost only about a week of setting time because of the stock we had on hand.

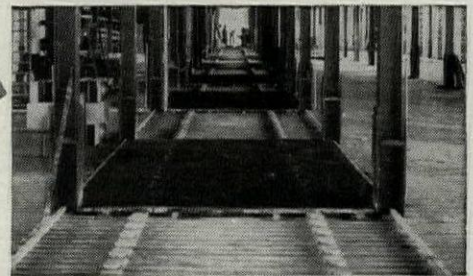
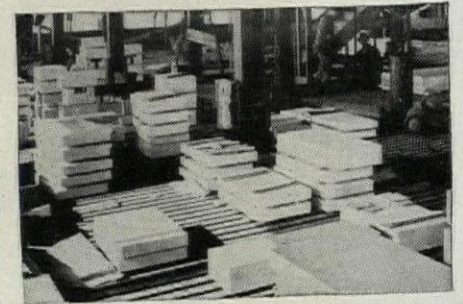
This building is radiant heated. The contractor began welding his coils as the outside walls went up. There were about fifteen miles of coils and probably five miles of steam and return piping installed on the Q-Floor. The welding and testing of these coils took about eight months. With certified welders in short supply, any delay would have meant that this job would have been without heat for finishing in the winter of 1951-52. There was no delay.

The concrete fill on Q-Floor was delayed until weather conditions were favorable. It was possible to do an excellent job of finishing without temporary protection and heating expense necessary with reinforced concrete. The fill was poured checker-board and a mechanical screed was used for striking off, but few hairline cracks appeared except at control points. We had no trouble from bad bonding and warping as is apt to occur on fill over concrete.

Our experience has convinced us that Robertson Q-Floor offers advantages that should not be overlooked by the designer or the builder.

Sincerely yours,

W. J. Pouchot
W. J. Pouchot, Supt.



CAN YOU AFFORD NOT TO GET ALL DETAILS?
Invest 10 more minutes in your building

WRITE FOR FREE CATALOG • Q-FLOOR

H. H. ROBERTSON CO.

Factories in Ambridge, Pa., Hamilton, Ont.,
Ellesmereport, England



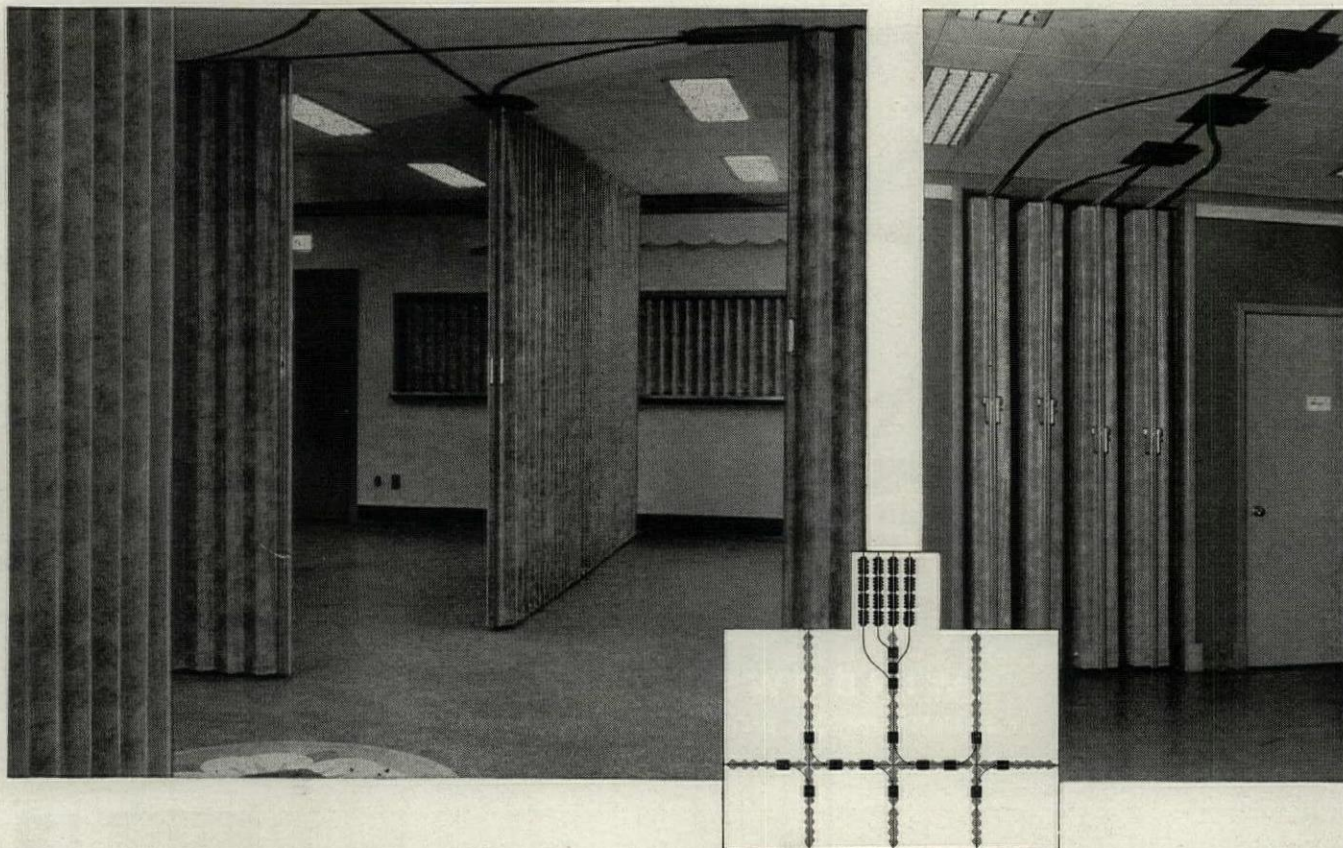
2403 Farmers Bank Bldg., Pittsburgh 22, Pa.
Offices in ALL Principal Cities in the U.S.A. and Canada

WORLD-WIDE BUILDING SERVICE

8 in the side pocket

Eight rooms, that is, thanks to "Modernfold" movable walls—and to patented "Modernfold" switch tracks. One minute this church basement is a single room, perfect for large groups.

The next minute "Modernfold" doors come out of the "side pocket," then roll smoothly and quietly along overhead switch tracks to form as many as eight private classrooms.



Your ideas come to life... for life with "MODERNFOLD" doors

For every room division or door closure problem, there's a simple, economical, space-saving solution. That's "Modernfold," the original folding door.

Specifying "Modernfold" doors keeps clients happy. For these steel-framed, vinyl-covered doors can't be equaled *anywhere* for quality of design... for quality and strength of materials.

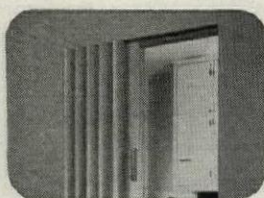
And because this line is *complete*, you're sure to save time and get exactly what you want when you specify better looking, easier operating, longer lasting "Modernfold" doors.

Sold and Serviced Nationally

NEW CASTLE PRODUCTS, NEW CASTLE, INDIANA

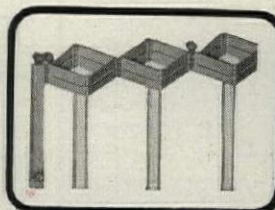
In Canada:

Modernfold Doors, 1315 Greene Avenue, Montreal



Better Looking

Fabric covering conceals all operating mechanism. No cornice needed. Adjustable trolleys keep doors hanging flush to jamb.



Longer Lasting

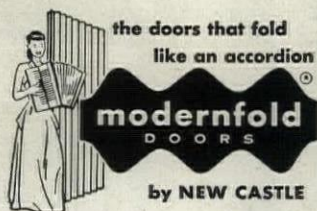
Balanced hinge construction both top and bottom. Trolleys attached at hinge intersections. No sidewise twist or pull possible.



Better Background

Over 100,000 "Modernfold" doors now in operation—a backlog of space engineering experience that's your guarantee of satisfaction.

YOU CAN'T GET MORE IN A FOLDING DOOR



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New Castle Products

P.O. Box No. 808

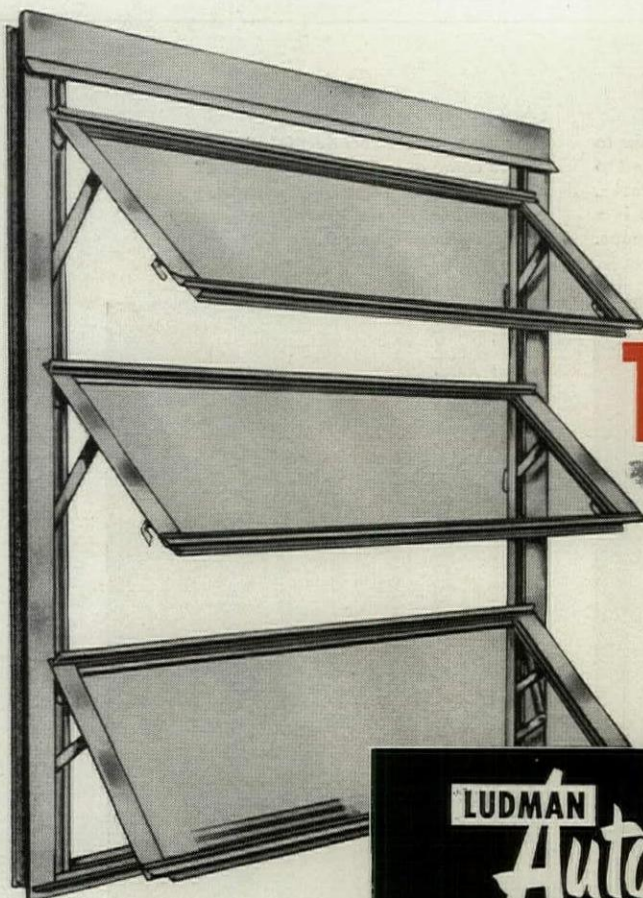
New Castle, Indiana

Please send full details on "Modernfold" doors.

Name.....

Address.....

City.....County.....State.....



Tightest Closing Windows *Ever Made!*

TEN TIMES TIGHTER

*cuts fuel bills or air conditioning costs
for a Lifetime...*

Patented Auto-Lok operation, acting together with "floating seal" weatherstripping, provides and maintains for the life of Auto-Lok Windows a degree of weathertightness heretofore thought impossible in any window.



This degree of weathertightness is maintained always since Auto-Lok hardware eliminates the wear at critical hinge points that results in vents that cannot be closed tight. In other awning-type windows, destructive force must be applied on the hinges at the top of each vent in order to close the vents at the bottom. With patented Auto-Lok operation no force is applied on hinges. Every vent in an Auto-Lok Window closes tight automatically—always. The result: guaranteed minimum air infiltration...no wear, no hinge adjustments...ever!

Watch the "Hook" and the "Lug" Pull it Snug!

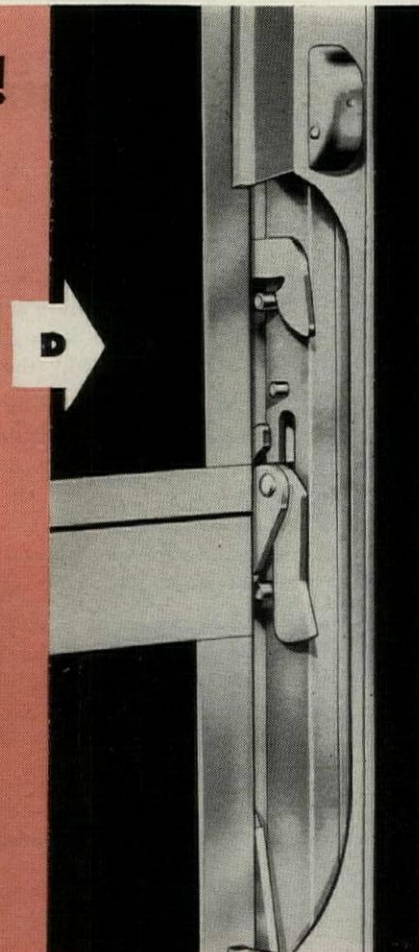
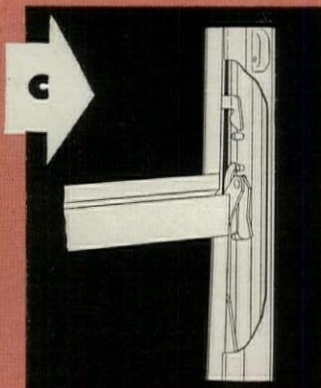
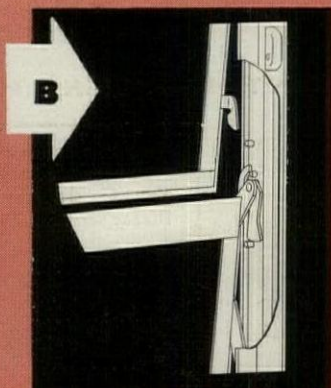
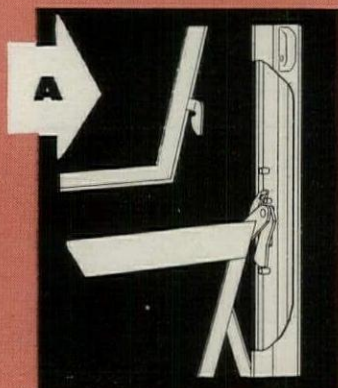
Closes Ten Times Tighter Than Generally Accepted Standards...

Here's how: (a) While vents are swinging in toward the frame, the vertical operating bars at each side of window move up. (b) Note how lugs on operating bars engage hooks on vents as the bar moves up... applying the wedging action that pulls the vents in tightly against the frame. (c) The vents are pulled in snug, and pressure against vinyl weatherstripping assures a complete seal (like the door of your refrigerator). Automatic locking has commenced. (d) Final "locked" stage of AUTO-LOK operation...hooks have moved in, adding extra locking action near the

bottom of the vents, on both sides... without any strain on hinges.

This action is entirely automatic and is accomplished during the normal, effortless turning of the operator handle. There is no destructive force on the hinge points... no periodic adjustments of hinges necessary to close vents tight against frames, and keep them closed tight.

New Center Safety-Lok in convenient center position, pulls bottom vent in tight and securely locks it...provides extra protection against intruders.



L U D M A N L E A D S T H E W O R L D

ONLY **LUDMAN Auto-lok** GIVES YOU ALL 10 OF THESE Outstanding FEATURES



FRESH AIR WHILE IT'S RAINING...

No more running to close windows... slanting vents keep rain out when window is open.



EASIEST TO CLEAN...

Nothing to lift out... no gadgets to disengage. Simply open wide and clean all glass from the inside... top vent, too!



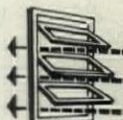
WARMER IN WINTER...

Auto-Lok Windows are the tightest closing windows ever made by actual laboratory tests. Heat stays in... cold stays out... cutting fuel costs!



FRESH AIR NITE-VENT...

Bottom vent opens slightly for night ventilation, while upper vents remain securely locked... fresh air circulation during bad weather, too!



COOLER IN SUMMER...

Auto-Lok Windows open widest... almost 90°. The slanting vents help to scoop in even the slightest breeze... always inward and upward thus eliminating drafts.



PRACTICAL BEAUTY...

Narrow horizontal lines and graceful tilt of vents in every open position add distinction to any home... lend themselves to a wider variety of architectural arrangements.



CONCEALED HARDWARE

Extra heavy extruded aluminum sections conceal operating hardware. No unsafe, unsightly mechanism exposed to collect dust. Operator does not interfere with drapes, blinds, etc.



FINGER-TIP CONTROL...

for a lifetime. Perfectly balanced, friction-free mechanism operates window at the touch of a finger. No adjustments ever necessary... never sticks, never rattles!



CENTER SAFETY-LOK...

A new improved locking feature that securely locks the bottom vent. Center position makes it handier, more accessible. Extra protection against intruders.



INTERCHANGEABLE SCREENS AND STORM SASH...

Can be handled all from the inside. Just flip the clips... no tools required. Reduce a day's work to an hour!

New Control Bar



THE NEW LUDMAN AUTO-LOK CONTROL-BAR... An example of how LUDMAN SOLVES WINDOW PROBLEMS...

THE Simplest OPERATING WINDOW EVER MADE!

Here is a new AUTO-LOK Window especially adaptable for schools and institutions... where extraordinary severe usage makes it advisable to use an operating means that is sturdy yet designed for quick, simple, easy operation. A handsome destruction proof smooth aluminum alloy bar takes the place of the conventional operator... an effortless push-out or pull-in operates the window!

Specify Windows on the Basis of Facts

Here's proof that Ludman Auto-Lok Windows give you every feature that is important in a window! Here's proof that Auto-Lok Windows are designed and manufactured to give a lifetime of outstanding window service... plus a lifetime of trouble-free operation.

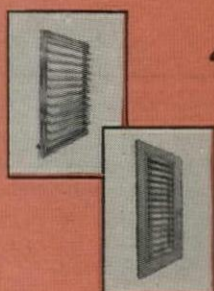
NOTE AIR INFILTRATION COMPARISON FIGURES SHOWN IN THIS CHART... WHICH PROVE AUTO-LOK THE TIGHTEST CLOSING WINDOWS EVER MADE BY ACTUAL LABORATORY TESTS!

shown by this check chart

* Cubic Feet Per Minute per lineal foot of crack perimeter.

** According to Pittsburgh Testing Laboratories.

*** Generally established standards.



other LUDMAN products

LUDMAN WINDOTITE JALOUSIES...
will turn an old-fashioned porch or breezeway into the most talked about room in the house. And in new building construction, their popularity is increasing at an amazing rate.

LUDMAN JALOUSIE DOORS...
These beautiful doors bring brightness and light into dark foyers and hallways! 3 doors in one — regular door, screen door and storm door.

LUDMAN ENGINEERING & ARCHITECTURAL PLANNING SERVICE

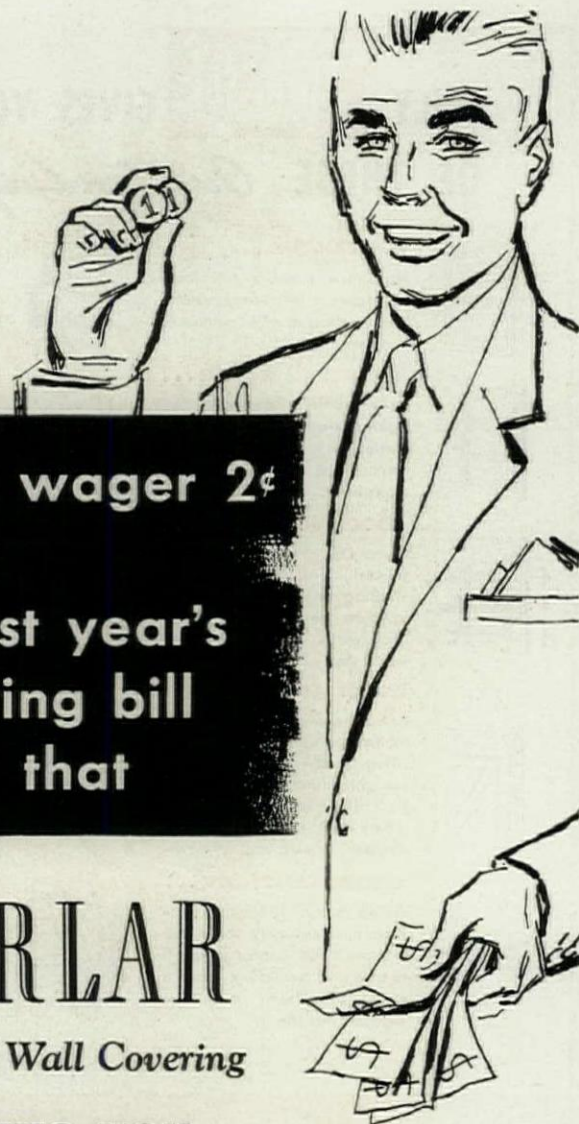
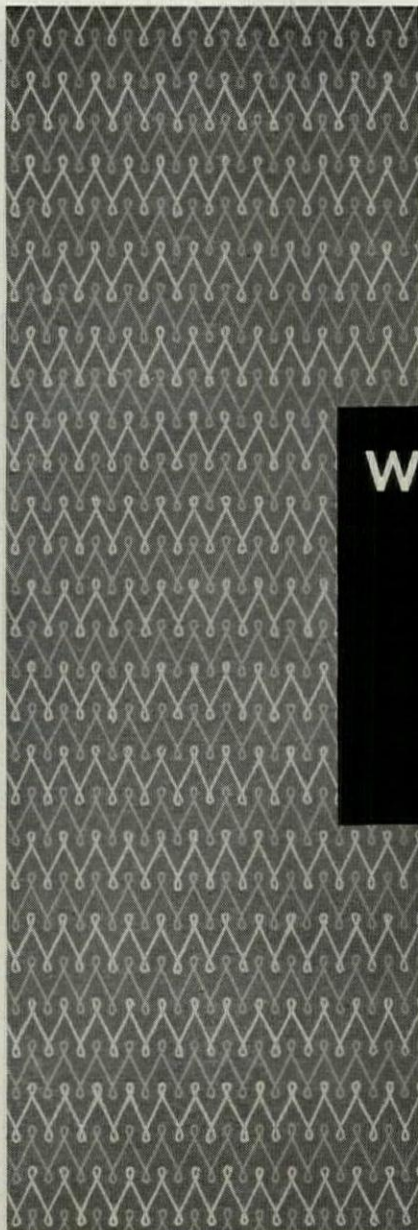
Ludman Window "know how" can help solve your window problems. Our engineering and planning staff is at your service.

LUDMAN Corporation Dept. AF-11
Box 4541, Miami, Florida



FEATURES	LUDMAN Auto-lok	DOUBLE HUNG	CASEMENT	STRENGTHENED WINDOWS
1. Automatic Locking	✓			
2. Elastomeric Vinyl Weatherstripping	✓			
3. Center Safety Lock	✓	✓	✓	
4. Feather-Touch Operation	✓			
5. Clean outside from inside... top vent too... Without removing any part of window	✓		✓	✓ Excepting hinged types
6. Delayed Action Opening	✓			
7. Concealed Hardware	✓	✓	✓	
8. Interchangeable Inside Screens and Storm Sash	✓		✓	✓
9. Flip Clips for screen and storm sash retention	✓			
10. Weather protection when window is open (ventilation even while it is raining.)	✓			✓
11. 100% Ventilation (90° opening)	✓		✓	
12. AIR INFILTRATION*	0.095**	0.5***	1.0***	0.75***
13. Draft Free Ventilation	✓			✓

I N W I N D O W E N G I N E E R I N G



**WILL you wager 2¢
against
your last year's
decorating bill
that**

VARLAR

Stainproof Wall Covering

**can save you
thousands
of decorating dollars!**

Varlar **ENDS** the wall soil hazards that run maintenance costs sky high... because Varlar is actually **STAINPROOF!** Smoke, grime, grease, crayon, lipstick, ink, Mercurochrome... and countless more stains that deface other walls... simply wash off Varlar with ordinary soap and water... up to 25,000 times without injury to surface

or colors! And, Varlar never fades... never streaks! More than 180 extremely smart styles, including the distinctive new Travelers' Collection... give personalized, liveable interiors that are beautiful indefinitely. Decorate with Varlar and you'll redecorate only with plain soap and water... year after year.

**A 2¢ POSTCARD PASTED TO
THIS COUPON WILL SHOW YOU
WHAT VARLAR CAN SAVE YOU...**

Send for your
FREE TESTING SAMPLE of
Varlar Stainproof Wall Covering

**VARLAR, Dept. AF-112
Merchandise Mart, Chicago 54, Illinois**

Please send **FREE TESTING SAMPLE** and full information on VARLAR Stainproof Wall Covering. I am particularly interested in VARLAR for

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| <input type="checkbox"/> Theatres | <input type="checkbox"/> Hospitals | <input type="checkbox"/> Restaurants |
| <input type="checkbox"/> Office Buildings | <input type="checkbox"/> Schools | <input type="checkbox"/> Stores |
| <input type="checkbox"/> Apartment Buildings | | |

Name _____

Address _____

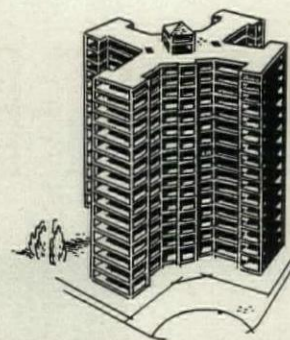
City _____ Zone _____ State _____

VARLAR

Stainproof Wall Covering
a product of United Wallpaper, Inc.

SAVE STEEL

...and Money, too!



...build with **REINFORCED CONCRETE**

Here's how to stretch your steel allotments and save steel for national defense. Design your building frames for reinforced concrete. Not only will reinforced concrete save 60 to 65% of your steel but it will also sharply cut the cost of your building. Furthermore, because it is faster to erect, reinforced concrete provides, in many instances, extra months of rental income.

Reinforced concrete frames are inherently firesafe, and withstand wind, shock, and quakes. On your next structure it will pay you to design for reinforced concrete.

HOW REINFORCED CONCRETE SAVES STEEL



COLUMNS
Use Less Steel



BEAMS
Use Less Steel



Complete BUILDINGS
Use Less Steel

CONCRETE REINFORCING STEEL INSTITUTE • 38 South Dearborn Street, Chicago 3, Illinois

I-T-E announces 4 new circuit breakers

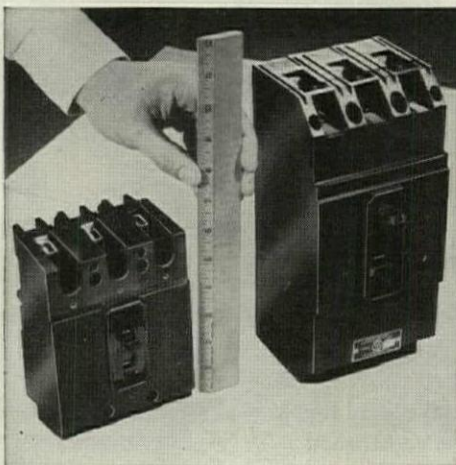


Conference following announcement of four new I-T-E panelboard circuit breaker designs. J. E. Kleinfelder, left, Sales Manager of the Small Air Circuit Breaker Division, listens as W. H. Edmunds, Engineer in Charge, explains the operating advantages of externally-adjustable instantaneous trip feature. Each of the four new breakers was designed specifically to improve construction and operation of panelboard and load center assemblies.



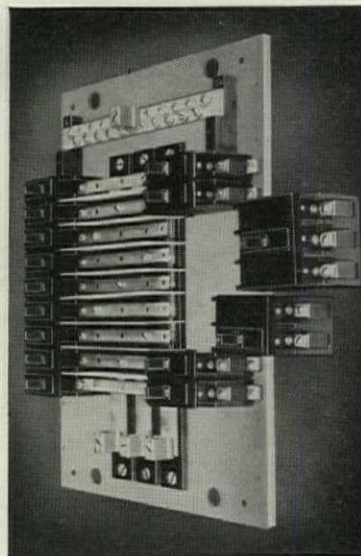
SAVES SPACE

Both I-T-E breakers are rated 225 amperes. New "J" frame, right, is 4½ inches shorter than present "K" frame. Benefits of this new design will be reflected in compact distribution-type panelboards and combination motor starter enclosures.



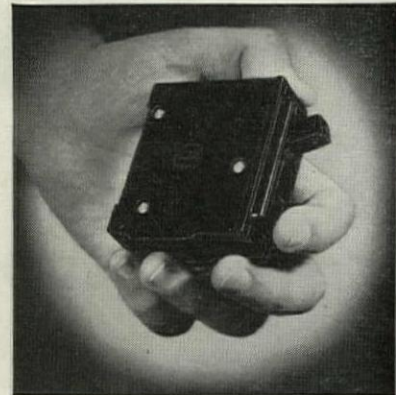
DOUBLES CAPACITY

Small lighting and distribution-type panelboard construction, previously limited to 50 ampere breaker capacity, may now incorporate 100 ampere branch circuits. New I-T-E "E" frame breaker, left, now has the same capacity as the "F" frame breaker shown above. New "E" frame will be advantageously applied up to 250 volts a-c wherever space conservation is required.



FIRST 2- AND 3-POLE EQ

New multipole EQ-type breakers are exact multiples of present single-pole design. Any given number of poles take the same space in panelboard. No tie-bar arrangements are necessary; all poles operate on common trip.



TINY, NEW EQP

This small, new single-pole EQP breaker now provides more compact plug-in lighting panelboards with all the features of I-T-E quality construction.

**YOU STAY YEARS AHEAD
WHEN YOU SPECIFY...**

LOOK FOR RADICAL IMPROVEMENTS IN PANELBOARD AND LOAD CENTER DESIGN

Sweeping new improvements in the construction and reliability of future panelboards and load centers can now be expected, with introduction of four new circuit breaker designs developed by the I-T-E Circuit Breaker Company.

Three of the new units are advanced modifications of proved I-T-E designs in the 50, 100, and 225 ampere ratings. The fourth unit, a new, smaller addition to the present line of I-T-E molded case circuit breakers, is specifically designed for use in lighting panelboard and load center applications.

MORE COMPACT DISTRIBUTION-TYPE PANELBOARDS

Panelboards housing two 225 ampere breakers are shortened 9 inches, as result of a $4\frac{1}{2}$ -inch decrease in height of the present I-T-E "K" frame breaker. This size reduction now makes it possible to double-butt two of these new, short "J" frame breakers in the same vertical space formerly required for the one larger unit. The width of one whole breaker (9 inches) is saved.

SMALLER COMBINATION STARTERS

Motor-starting-equipment enclosures, using a circuit breaker in combination, can now be reduced as much as $4\frac{1}{2}$ inches in height. I-T-E 225 and 100 ampere breakers have been shortened accordingly, without sacrificing electrical clearances or current-carrying capacities.

NOW... LIGHTING- AND DISTRIBUTION-TYPE PANELBOARDS UP TO 100 AMPERES

Where combination lighting and power panelboards were formerly limited to 50 ampere branch circuit ratings, the same type panelboard can now be obtained with 100 ampere capacity branch circuits. Redesign of the I-T-E "E" frame breaker doubles its current rating to 100 amperes at 250 volts a-c.

Also included in this "E" frame revision are 15 and 20 ampere ratings for fluorescent lighting applications at 277 volts a-c.

SIMPLIFIED MULTIPOLE PANELBOARDS

Compactness of multipole 50 ampere panelboards is improved and installation simplified through use of the new I-T-E two- and three-pole EQ breakers. First of their type available anywhere, these new multipole breakers fit all existing panelboard and load center designs in which single-pole breakers were formerly used. No tie-bar arrangements are necessary; all poles operate on common trip.

SMALLER PLUG-IN TYPE LIGHTING PANELBOARDS

Compact lighting panelboards and load centers for residential and commercial service can now incorporate all the advantages of I-T-E quality circuit breaker protection. The new, small I-T-E single-pole EQP design which makes this possible provides quick-make, quick-break operation and convenient plug-in feature.

ONE MANUFACTURER'S BREAKERS THROUGHOUT

Plant and operating engineers, electrical contractors, and electricians desiring uniformity of construction and components throughout their secondary distribution systems can now specify the largest variety of molded case circuit breakers for all applications up to 600 amperes, 600 volts a-c, 250 volts d-c. Frame sizes and types are available to suit any residential, commercial, or industrial requirement.

Standardize on I-T-E circuit breakers to assure service continuity, simplified maintenance, a single source for system expansion or replacements, and—*always*—the same, proved I-T-E dependability throughout.

FULL DETAILS AVAILABLE FROM YOUR LOCAL PANELBOARD BUILDER



MOLDED CASE CIRCUIT BREAKERS

I-T-E CIRCUIT BREAKER COMPANY • 19TH AND HAMILTON STS. • PHILADELPHIA 30, PA.

Canadian Mfg. and Sales: Eastern Power Devices, Ltd., Toronto • Export Sales: Philips Export Corp., N.Y. 17, N.Y.



Here's another view of the living room. The swing leaves of the Fenestra Casements open easily—to reach out and catch a passing breeze. If they must be closed to shut out high winds or rain, the tilt-in vent at the sill will still give draft-free ventilation.



Here in the bedroom, Fenestra Windows give sleepers controlled, "indirect" ventilation through the tilt-in sill vent. Incoming air is sent ceilingward.

Window Treatment in Manhattan House

This is magnificent Manhattan House in New York City, designed by architects Mayer & Whittlesey, and Skidmore, Owings & Merrill, built by the Cauldwell-Wingate Company of New York, owned and managed by the New York Life Insurance Company. The windows are Fenestra* Intermediate Steel Windows. Look at the light and the view and feel the "openness" of these rooms. **



Here's a kitchen window that can't swell or stick. It always opens easily to scoop in fresh, clean air.

Write for your catalog of Intermediate Steel Windows and for full information on Fenestra Super Hot-Dip Galvanizing. Or call your Fenestra Representative. Detroit Steel Products Co., Dept. MB-11, 2296 E. Grand Blvd., Detroit 11, Mich.

FIRST WITH THE FINEST IN WINDOWS... *Fenestra*

You'd save \$10⁰⁰ X 793

This small hunk of hypothetical arithmetic is just to remind you of two things:

First, every building has more doors than sometimes even the owner realizes.

Second, Fenestra* Hollow Metal Flush Door-Frame-Hardware Units can save you important money per door . . . for the life of the new building you're planning.

Here's why: *Fenestra Hollow Metal Flush Doors cost less to buy* because they are mass produced on special jigs that cut out a lot of expensive time and labor. The system was born of Fenestra's years of metal fabricating experience.

You save on installation cost because these handsome doors come complete with strong, pre-fitted, prime-painted steel frames and with shining hardware. Again time and labor are saved. There's no cutting or fitting—the door is in and in use a lot more quickly.

You save on maintenance costs because Fenestra Hollow Metal Flush Doors can't warp, swell, stick or splinter. They always open easily . . . smoothly. And they close quietly—inside the panels is double insulation.

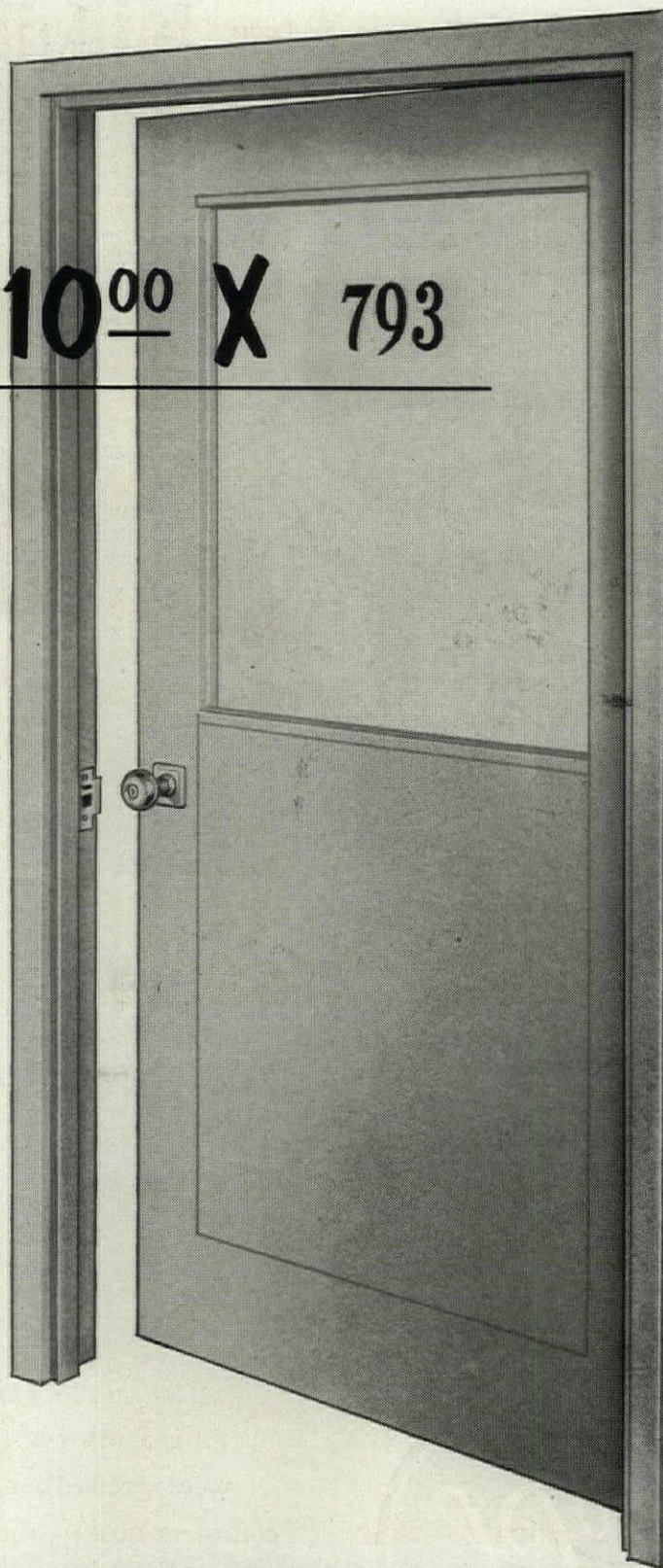
For strong, solid quality at amazingly low-cost, check on Fenestra Doors—there's a door for every purpose in the Fenestra line: Flush Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, doors with the Underwriters' B Label. Call your Fenestra Representative (he's listed in the yellow pages of your phone book) or mail the coupon. *®

Fenestra

Hollow Metal

Door • Frame • Hardware Units

... save building time, labor, materials
and money



DETROIT STEEL PRODUCTS COMPANY
Door Division
Dept. MB-11, 2296 East Grand Boulevard
Detroit 11, Michigan

Please send me full information on Fenestra Door-Frame-Hardware Units.

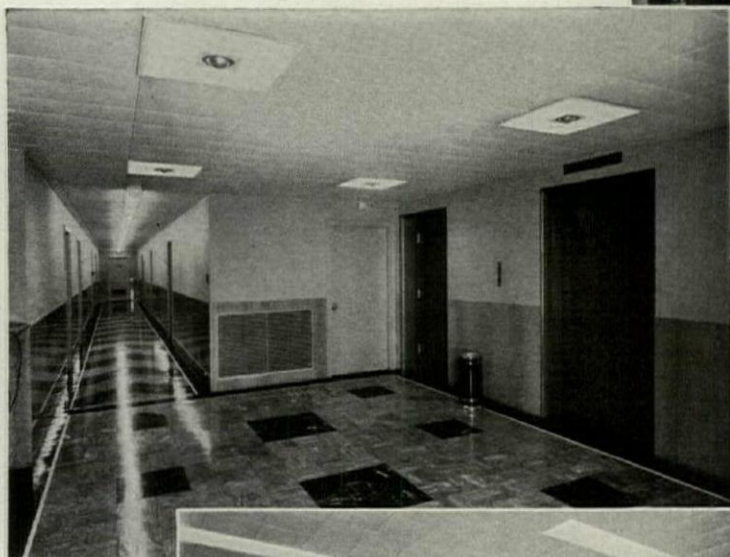
Name _____

Company _____

Address _____

THE SEVEN-UP CO. OFFICE BUILDING, ST. LOUIS
 HUGO K. GRAF, Architect, St. Louis
 MURCH-JARVIS COMPANY, INC., General Contractors, St. Louis
 WARD PAINTING COMPANY, Decorators, St. Louis

In this headquarters building of the parent company there is no manufacturing. Air-conditioned, it contains a laboratory, law library, private administrative offices, sales conference room — complete with projection room and stage — general conference room and a reception room.



Photos, Plaget Studio, St. Louis



7up REG. U.S. PAT. OFF.



Paints Up

WITH "PRATT & LAMBERT"

This fine, new home of The Seven-Up Company in St. Louis is another of the many recent buildings for which Pratt & Lambert products were specified for all paint and varnish needs. This is further proof that consistent quality, through the years, has earned Pratt & Lambert the esteem of architects everywhere. Sound painting specifications and distinctive color plans are readily available through a color-trained Pratt & Lambert architectural representative or the P&L Architectural Service Department nearest you.



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*Paint and
Varnish Makers*



RAYMOND



HELPS TV

SPAN THE COUNTRY

*Rose & Rose, Engrs.—254 W. 54th St., New York, N. Y.
Dr. Ralph B. Peck, Consulting Engr.—University of Illinois.*

Completing another job in record time, the Gow Division of Raymond conducted test borings and made soil investigations for over 150 locations of A. T. & T.'s radio-relay towers which carry television across a major portion of the country. In the accomplishment of this work, Raymond personnel and technique once again played an important part in an outstanding achievement.

*Artist's rendering of the new skyway that spans the nation
—the A. T. & T.'s Microwave Radio-Relay Circuit.*

*Making Gow test borings for one of the towers
at an elevation of 8,900 ft. in Wyoming.*



RAYMOND

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Branch Offices in the Principal Cities of United States
and Central and South America

SCOPE OF RAYMOND'S ACTIVITIES . . . Foundation Construction
. . . Harbor and Waterfront Improvements . . . Soil Investigations
. . . In-Place Pipe Lining . . . Specialized Construction.



Made for each other!



"Built Stronger To Burn Longer"



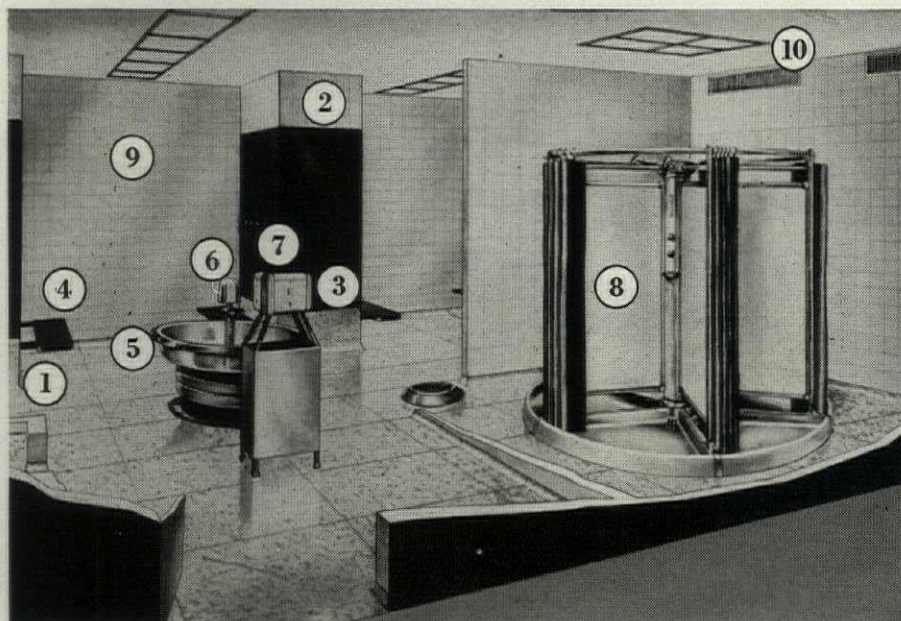
Peak effectiveness in fluorescent lighting demands the *right combination* of fixtures and lamps—a "team" designed to work together.

That's why Duro-Test is unique . . . these premium quality fixtures and long-life lamps out-perform all others. They were made for each other! Made to deliver the highest lighting efficiency for the longest period at the lowest cost. To be sure of the *best*, specify Duro-Test!

P.S. Don't forget to write for complete information on styles, sizes and specifications.

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NORTH BERGEN • NEW JERSEY



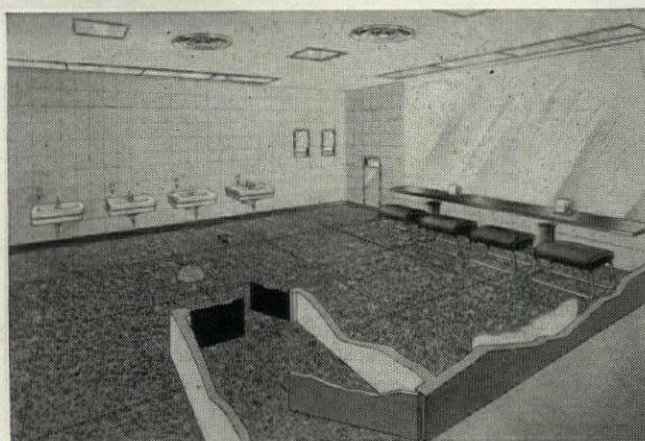
All kinds of man-hour savers, in this modern combination Locker Room, Shower Room and Washroom:

1. Lockers mounted flush on terrazzo or cement islands, without legs.
2. Mechanical ventilation via fresh dry air intake drawn through perforated locker ceiling and floor plates to exhaust duct.
3. Locker floor plates inclined and provided with shoe cleats.
4. Benches off floor projecting from locker islands.
5. Circular stainless steel wash fountain for 8-10 persons. Has foot-ring water control.
6. Soap dispenser on wash fountain.
7. Towel dispenser-waste receptacle unit for heavy traffic.
8. Circular showers for 5 users. Colorful, plastic shower curtains.
9. Walls of tile or glass, moisture-resistant.
10. Recessed ceiling lights directly over shower.

Now man-hour savings can be **"BUILT-INTO"** a building

IN THESE DAYS of pyramiding costs of operation, your client is on the alert for every money saver, waste cutter and man-power saver . . . especially in a new plant. "Save one man-hour a day—save 250 man-hours per man a year!" is his thinking. When he multiplies that by the number of employees, he's thinking about *big* savings.

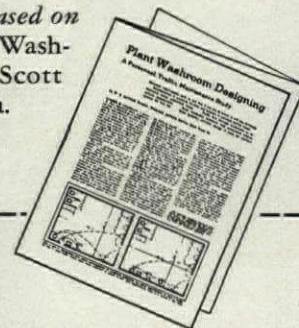
All the more reason you should give him the latest in washroom equipment, *built right into* his plant. Modern fixtures, properly placed, can save man-hours and money by keeping traffic moving—reducing washroom tie-ups and untidiness. Use of off-the-floor fixtures can cut washroom cleaning costs, eliminate dirt-catching corners. Pleasant, modern personal service rooms can pay dividends by reducing illness and boosting morale.



One for morale—this spacious comfortable ladies' washroom. Note "powder-bar" mirror with shelf and light—away from wash basins to keep traffic moving.

Talk to a *specialist* on modern washroom equipment—call in your Scott Washroom Advisory consultant. At his fingertips he has a complete file of washroom fixtures. Above all, he can draw on the "know-how" gained servicing and supplying more than half-a-million washrooms. Get *all* the details—based on *actual experience!* Contact Washroom Advisory Service, Scott Paper Company, Chester, Pa.

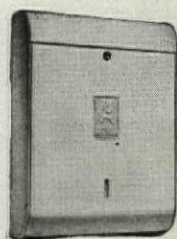
Send for FREE Leaflet...
"Plant Washroom Designing"



Washroom Advisory Service,
Dept. MB-11
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At no cost or obligation, please send me your study of personnel, traffic and maintenance problems, "Plant Washroom Designing."

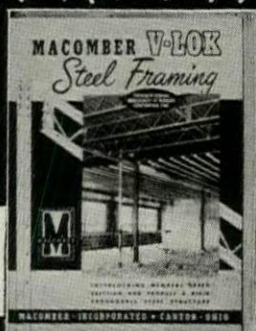
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"Washroom Advisory Service" Reg. U. S. Pat. Off.

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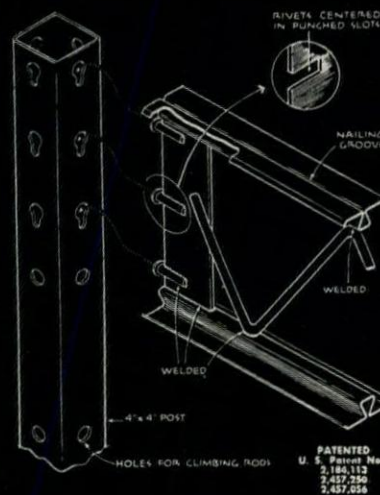
Did you think the time would ever come when large commercial and industrial projects would be erected in days instead of weeks?

Did you think a Steel Frame would ever be designed that would expand in any direction regardless of roof pitch, roof height or topographical conditions?

Did you think a Steel Frame for a large Shopping Center, Industrial Plant, School or Store could be developed that would fit the modern home like a glove?

Did you think that any one-story building you can design could be erected with FIVE STRUCTURAL UNITS?

Did you think that construction costs could ever be tossed for such a loop in the years ahead?



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ACHIEVEMENT IN REDUCING
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INTERLOCKING MEMBERS SPEED
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Can my bed be lowered? I'm getting very sleepy.

Couch-Call brings the nurse who knows in advance what is needed.

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Couch-Call permits the nurse to give an immediate reply without a trip to the bedside.

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Couch-Call brings the nurse with the vase eliminating a trip to find out what the patient wanted.

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For new hospitals (and for old ones faced with mounting costs) Couch-Call provides the ultimate in nurse-to-patient communication combined with the greatest economy of nursing time. For the complete details, write for your copy of the new Bulletin 52101.

* We will be happy to show you how to make such a survey in any designated institute.

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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.



This Sloane Koroseal Tile Supreme floor provides beauty and reliability at low cost in the attractive showrooms of Herbert W. Scott, Inc., Chevrolet-Oldsmobile, Holyoke, Mass.

The Floor that Takes Traffic by the Car Load!

**KOROSEAL
TILE
SUPREME**

stays beautiful, defies the heaviest traffic and the effects of grease and oil... saves money through years of service and low-cost care.

A Koroseal Tile Supreme floor is a sound investment in long-range economy. Its all virgin-vinyl composition provides unequalled toughness that assures service long after most resilient floors require repair or replacement. Grease, oil, acid, alkalies and strong soaps will not affect Koroseal Supreme... the through-and-through clear colors won't fade or stain... it won't crack or break and its indentation recovery

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Sloane Koroseal Tile Supreme comes in a

range of 18 striking colors—either Marbl-tone or Crystaltone pattern—that create attractive floors to match any décor.

For maximum wear, beauty and comfort... for years of money-saving service, specify Koroseal Tile Supreme... the ultimate in resilient floor coverings.

Send today for free samples. Write Sloane-Blabon Corp., Dept. 11F, 295 Fifth Ave., New York 16, N. Y.

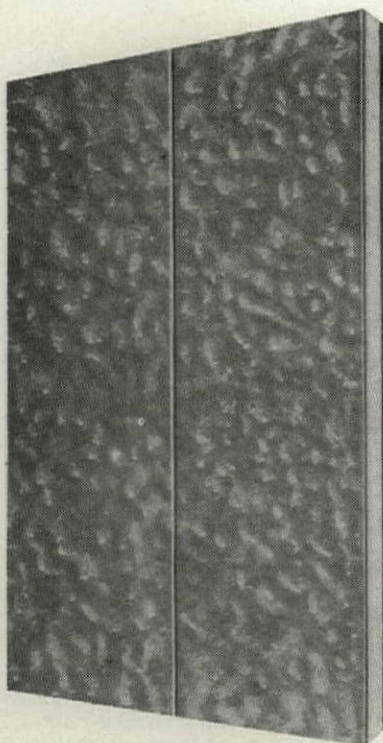


SLOANE *Koroseal** **TILE SUPREME**

*Koroseal is a registered trade-mark of The B. F. Goodrich Company

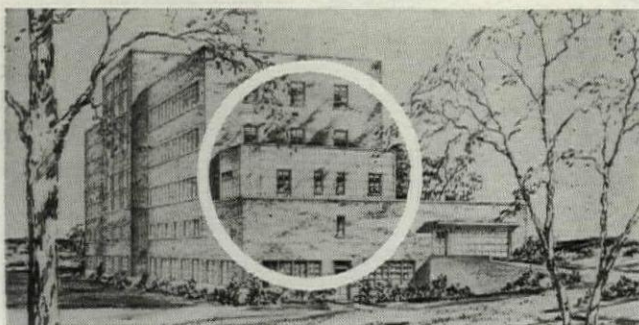
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NEW CURTAIN WALL PORCELAIN ENAMEL BUILDING PANELS REPLACE HEAVY MASONRY WALLS **SEAPORCLAD** by Seaporcel

ALSO SUPERLATIVE AS AN
ASHLAR OR VENEER



James H. Ritchie & Associates
Architects and Engineers, Boston, Mass.

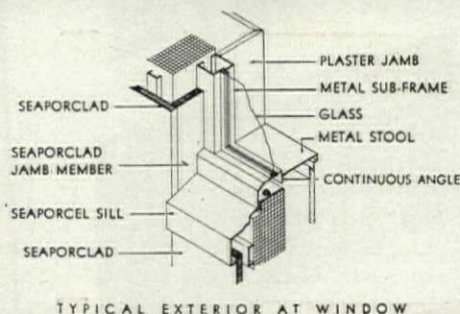
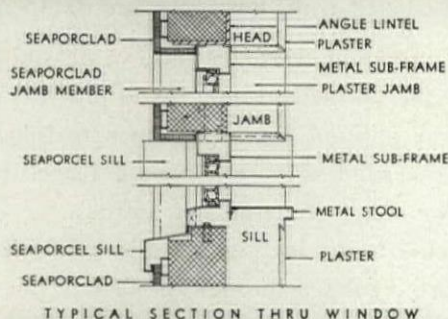
The Holyoke Hospital makes excellent use of the combination of Seaporclad panels to insure sound insulation, weather and fire resistance, as well as Seaporcel shaped architectural parts.

Seaporclad panels combine most harmoniously with the general architectural design and color scheme of this superb hospital structure.

Now, in a single, easy to handle panel you can erect in faster time and at lower cost, a structural wall of great thermal and sound insulating value. With permanent beauty of vivid colors and varied textures, Seaporclad is an insulated porcelain enamel panel of sandwich construction combining the use of various cores laminated under high pressure to other skins of diversified metals. Among these cores are Celotex, Kaylo, Marinite No. 23, Honeycomb Paper, Laminated Wood, etc., etc.

Seaporclad gives you a **FLAT** surface structural wall, interior and exterior, constructed with Seaporcel porcelain enameled architectural panels on both sides of the core, or with Seaporcel* porcelain metals on one side and paint-grip steel, aluminum, stainless steel or any other sheet metal material on the reverse side.

Delivered in panels up to 5 ft. x 10 ft., Seaporclad* is extremely light in weight, is easily and economically maintained. Seaporcel Metals, Inc., manufacturers of Seaporclad, has complete fabricating facilities for the porcelain enameled panels as well as the laminating facilities to produce the finished Seaporclad product. This gives you the assurance of a closely controlled product from start to finish.



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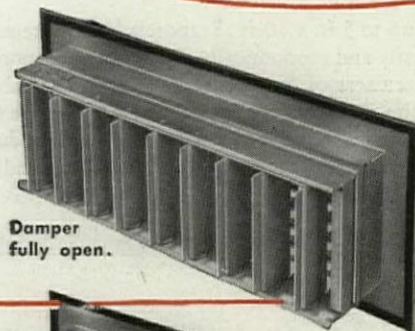
TRI-FLEX and AEROVANE REGISTERS now equipped with

Opposed Blade Dampers

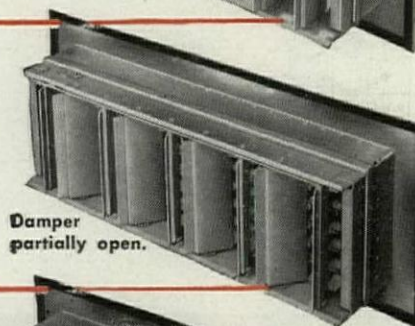
KEY OPERATOR FOR
OPPOSED BLADE DAMPER
Blades are regulated by
key operator which may
be removed or tapped per-
manently into place.



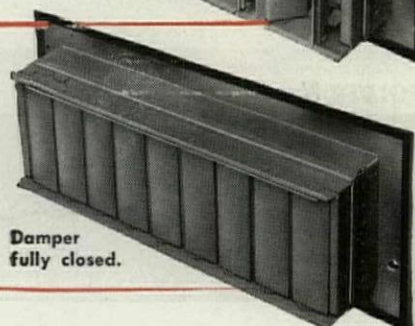
Showing TRI-FLEX T-647
Double Deflection Register
with Opposed Blade Damper



Damper
fully open.



Damper
partially open.



Damper
fully closed.

TRI-FLEX Supply Air Registers and
AEROVANE Return Air Registers —
specified and installed on important air conditioning
jobs — are now constructed with opposed blade dampers.

This improved damper unit insures uniform distribution of air over the entire face of the register . . . and provides positive damper setting in any position from fully open to fully closed regardless of system pressure. Set in a rigid steel frame, blades are formed for extra strength and stiffness, and overlap when closed, eliminating any possibility of air leakage. Blades are regulated through the face of the register by means of a key operator which may be removed or tapped permanently into place.

For complete information and size
selection data for TRI-FLEX and
AEROVANE Registers and Grilles,
write for a copy of Catalog No. 200.

TUTTLE & BAILEY inc

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This Handsome Floor is no sissy, mister!

...Flexachrome floors are tough, rugged, long wearing, grease and oil resistant!

Sure, Flexachrome's good looking! Yes... beautiful!

But don't hold *that* against it.

Flexachrome* Vinyl Plastic-Asbestos Floor Tile is *all-man*, Mister... all-man *all the way* through.

Let's list Flexachrome's advantages... it is moderately priced. It is quickly installed... no long space tie-ups. It can take all that "the traffic will bear." Standing feet... Walking feet... Light trucks... Heavy trucks.

Maintenance is simple. Daily sweeping... periodic washing. Repairs are quick and inexpensive... thanks to tile-at-a-time installation.

Flexachrome is unharmed by vegetable and mineral oils... and greases. It's ideal in machine areas, food packing departments, kitchens, cafeterias, laboratories.

So, *in addition* to a rich choice of colors with high light reflectance that improve working environment and boost employee morale... Flexachrome gives you: *first low cost... low operating cost... long service life.*

Phone your local Tile-Tex* Contractor, listed in your classified telephone book. Ask him to show you samples of TUFF-TEX*, too... another colorful, economical, greaseproof flooring material.

THE TILE-TEX DIVISION, The Flintkote Company, 1234 McKinley Street, Chicago Heights, Illinois.

TILE-TEX—THE PIONEER DIVISION, The Flintkote Company, P. O. Box 2218, Terminal Annex, Los Angeles 54, California.

Tile-Tex
PLASTIC-ASBESTOS

FLOORS AND WALLS

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

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ACOUSTICAL MATERIALS AT WORK

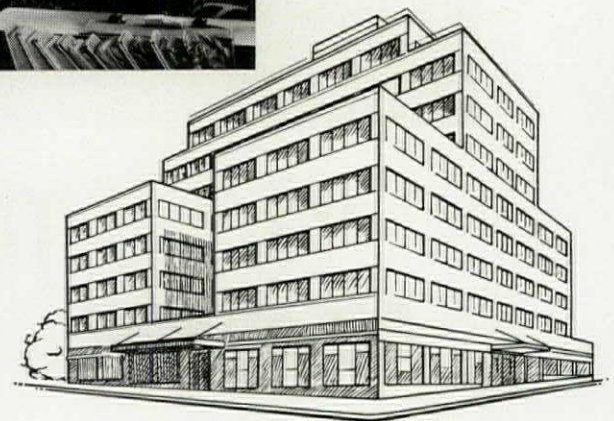
TRADE UNION OFFICE BUILDING, Kansas City, Kansas

Architect: John D. Maultsby

General Contractor: S. Patti Construction Co.

Acoustical Contractor: Kansas City Natural Slate Co.

Owner: Brotherhood of Boilermakers

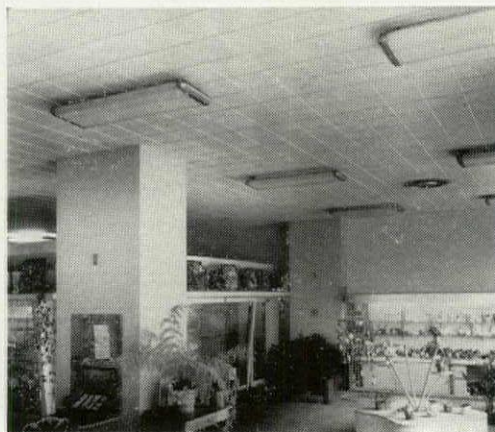


Here, in this modern Kansas City office building, it was necessary to sound condition nearly three acres of ceiling area. The large offices on the eight upper floors and the ground floor stores and showrooms required an acoustical material that was not only high in efficiency but moderate in cost as well. Architect John D. Maultsby solved this problem by specifying Armstrong's Cushiontone throughout.

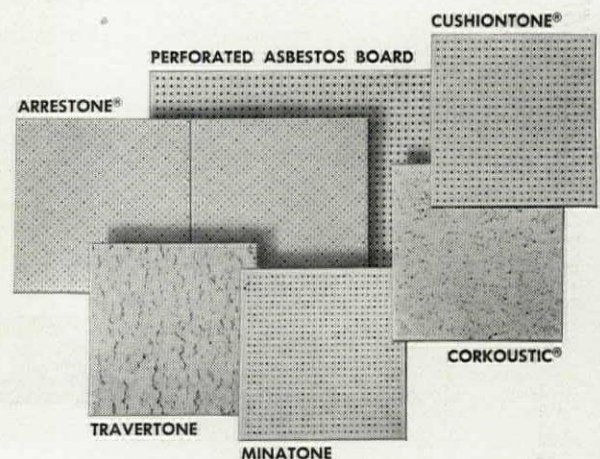
Cushiontone, a wood fiber acoustical tile, is the standard choice of many architects when large ceiling areas

must be treated. It provides high efficiency at low cost. A perforated material with a factory-applied white paint finish, Cushiontone has high light reflection and its smooth surface is easily maintained. It can be repainted to suit any color scheme.

For full details on the complete line of Armstrong's Acoustical Materials and help in making your selection, see your Armstrong Contractor. For the free booklet, "How to Select an Acoustical Material," write to Armstrong Cork Company, 5411 Stevens St., Lancaster, Pa.



The entire first floor of the Brotherhood Building is occupied by stores. These, like the offices above them, are acoustically treated with attractive, economical Cushiontone.



ARMSTRONG'S ACOUSTICAL MATERIALS

Election dooms controls; \$1.3 billion in building bonds voted

"If Ike gets in, no doubt the construction trade associations will have a lot less to keep them busy in Washington."

When he said that—before the election—the association executive was half kidding. By mid-November, his wry remark looked like a pretty good capsule of what the Republicans' widely hailed "new climate for business" could mean to the regulation-ridden building industry.

The most authoritative indication came from Douglas Whitlock, chairman of the Structural Clay Products Institute who, as executive director of the Eisenhower campaign tour, had been as close to the President-elect recently as any building figure. Said Whitlock:

"For the last 20 years, we in the construction industry have been inclined to view our problems against a backdrop of government policies and actions that we have assumed were more or less permanent. We did not like such things as government interference with credit and interest rates, the regulation of rents, the allotment of basic materials and control of wages and prices. But we'd become more or less resigned to them. Now there is going to be a change. It is time for all elements in the building industry to start out on a fresh course and work out a constructive program. I see every reason for being optimistic about a brighter future for the industry."

Dying controls. The Republican sweep meant price and wage control would die, probably along with rent control. It brought nearer the end of CMP (due to expire June 30). Without the steel strike, materials controls would have been on their way out by now. Although officials in charge of allocations insisted steel was still tight (see p. 34), it seemed a good bet that the incoming GOP administration would pay more heed to industry leaders who said supplies had eased enough so controls should be lifted at the start of 1952.

But with or without controls, the role of construction in the US economy seemed sure to remain close to its record level. The big props of today's booming prosperity are national defense expenditures, plus construction of new plants, expansion of old ones. Plant building was running at an annual rate of about \$27.5 billion, including equipment. The rate will drop next year. But pent-up demand for commercial and community building will go a long way toward taking up the slack. Already the Republican victory was inspiring hesitant businessmen to step up plans for construction. For instance, Realtor James Hanson reported obtaining the go-ahead signal for a 150,000 sq. ft. chemical plant near Newark, N. J. "as a direct result of Eisenhower's election." Said Vice-President Frank B.

Morrell, of New York's big Charles F. Noyes real estate firm: "Many industrialists who were uncertain about expanding plants now will have confidence to proceed with new ones. Coupled with easing in material supplies, there will be a first-class effect."

Record bond issues. On a local level, the Nov. 4 elections created a whopping market for construction: voters approved some \$1.3 billion in municipal bond issues to finance schools, hospitals, garages, parks, roads, bridges, sewers and airports. That was 93% of the offerings on the ballot, and tops since the war, except for 1949.

Samples:

California voted a \$185 million school bond issue and \$150 million for veterans' farm and home mortgage lending. Los Angeles County approved a \$179 million bond issue and San Diego County a \$13.5 million issue for storm drains. Cleveland approved \$7 million worth of bonds for urban redevelopment, although they cannot be sold until the Ohio supreme court approved constitutionality of the state's urban redevelopment law in a test case to be heard this month.

Photos: LIFE; Harris Ewing; Halsman; A. P.

BUILDING FACES FOR '53



BEALL



BROYHILL



DODGE



SCHENCK

WASHINGTON DIARY

- 10/27 George E. Meyer moves up from deputy to director NPA's industrial expansion division.
- 10/29 DPA reveals diversion of 77 million lbs. of Canadian aluminum to US to supplement losses from power shortage in Pacific Northwest and Tennessee Valley.
- 10/31 DPA, in new list of basic materials and alternates, reports quick steel comeback following strike, setback in aluminum production due to drought, increase in foreign raw copper supplies.
- 11/5 NPA shifts responsibility for sponsoring priority assistance applications for construction machinery from Defense Department to NPA.
- 11/6 DPA approves distribution to industry of an additional 1,480,000 tons of carbon steel for first quarter, 1953.
- 11/19 DPA grants rapid tax write-offs for 14,514 facilities to date, valued at \$23.3 billion.

Rhode Island voted issues totaling \$14 million to finance hospitals, sewers and university expansion. New Jersey approved a \$25 million bond issue for institutions; \$285 million for a parkway. Baltimore voted for six bond issues totaling \$47 million for school, harbor and water improvements. Spokane, Wash. approved a \$2 million coliseum bond issue and \$2.3 million for schools.

Public housing favored. In six local elections involving public housing, voters sided with public housing in four, against it in two. Cincinnati defeated a city charter amendment which would have killed public housing by 1) requiring a popular vote approving every site before work could begin, and 2) forbidding the city to sign any contract for public housing that would not pay full taxes. Toledo rejected by a 73,813 to 53,100 vote a charter amendment that would have required a popular referendum on all public housing. Elizabeth, N. J. advised its city council, 17,683 to 11,129, to apply for more public housing units when it can get them. River Rouge, Mich. cast a 4,356 to 3,333 advisory vote in favor of public housing.

Near Manhattan, the village of Ossining, N. Y. advised its governing board by a 2½ to 1 margin that it disapproved public housing there. The board promptly began maneuvers to break its contract with PHA, under which it had a \$28,000 planning grant, had spent about \$2,000. Mansfield, Ohio voted 11,270 to 5,686 to cancel its cooperative agreement with the Mansfield Metropolitan Housing Authority.

Realtors in Congress. On Washington's Capitol Hill, the private building industry scored a gain (see cuts). Although Sen. Harry P. Cain (R, Wash.), NAREB's great and good friend, lost his try for re-election, Realtor J. Glenn Beall of Frostburg, Md. won the seat being vacated by retiring Sen. Herbert O'Connor. Rep. Paul F. Schenck, Dayton realtor, was re-elected in Ohio's third district. Homebuilder Joel T. Brophy, 32, won a House seat from the

Virginia suburbs of Washington. When his opponent made a campaign issue of the Teague committee's charge that the Broyhill family firm had built defective VA homes, Broyhill took to television, pointed out that some buyers of his houses have resold them at profits from \$2,000 to \$10,000.

Biggest uncertainty of the new regime remained: what would its housing policy be? Eisenhower had managed to finish his campaign without uttering more than vague generalities. Sample (Oct. 27 in Pittsburgh): "We must have better housing for those Americans who are forced to live in slums and substandard dwellings and blighted neighborhoods." Of the general's housing philosophy, NAHB's Executive Vice-President Frank Cortright hazarded this guess: "It has been made abundantly clear that Eisenhower's basic philosophy of government is the decentralization of power and expenditures from Washington to the community and state levels. . . . It may be assumed he will seek advisers and officials with a conservative approach. . . ."

In picking President Joseph M. Dodge of the Detroit Bank as his liaison man with the Bureau of the Budget, the President-elect bore out Cortright's expectations. As president of the American Bankers Association in 1948, slight, plain-spoken Joe Dodge had attacked the easy credit terms

for housing that many a homebuilder holds dear. Said he: "Extra inflationary government credit for housing was passed at the time installment credit was being limited for those who wanted to buy goods to furnish and equip houses. . . . If we really intend to stop inflation, money has to be made hard to get from the government. We must stop generating inflation by a strong and consistent disinflationary policy with respect to the budget, loans, guaranties and subsidies."

In the key Congressional banking committees where housing legislation is hammered out, Republican control promised to move two conservatives into the chairmanship: Sen. Homer Capehart (R, Ind.), and Rep. Jesse Wolcott (R, Mich.).

Top to bottom shuffle? Whoever Eisenhower picked to head the government's housing and construction agencies, best bet was that the personnel upheaval would go deeper than many a second echelon bureaucrat thought. HHFA Administrator Foley is expected to resign along with many of his chief aides. Not only the head men, but also a surprising lot of their assistants in FHA and PHA, will either quit or be shuffled into positions of obscurity. As one of the nation's leading housing technicians put it this month: "The trouble is that the people in the hous-

ing agencies—especially FHA—have lost sight of the original objective to improve housing standards. The way FHA has been run lately makes it an awfully safe bet. The idea of improving standards is forgotten. Everybody is 20 years older, fatter, tired. There isn't the gleam to do the social job that needs doing."

Whether Republicans will raise interest rates on VA and FHA loans as builders and mortgage bankers demand was not quite a sure thing yet. But the odds favored either an interest-rate increase or a substitute method of improving marketability of government-guaranteed or insured mortgages.

A lot of Washington insiders figured the GOP might well abolish the HHFA. Although the top housing agency cost only \$4.6 million this fiscal year, killing it would restore autonomy to FHA which builders would applaud, perhaps give autonomy to the Home Loan Bank Board, which savings and loan men would like. Such a move, however, would be up to Congress as is the future of public housing. One guess: public housers will be lucky to get as much as 5,000 units for fiscal 1953-54, may get none at all. But PHA will have to stay in business to supervise the 500,000-odd units already built, on which some \$1.5 billion of US-backed bonds are outstanding.

NPA clings to controls despite industry plea steel supplies warrant easing now

The old way of doing business with business was dying hard. NPA's response last month to building's plea for speeding up the promised break for commercial and other non-defense construction was the usual noncommittal: "We'll take it under advisement." A six man task force of the Construction Industry Advisory Committee asked the controllers to:

► Suspend the Controlled Materials Plan by April 1.

► Move up from May 1 to January 1 the date for relaxing self-authorization maximums of steel, copper and aluminum. (When this move comes, it will grant all construction except residences, highways and recreational structures self-certification for 25 tons of carbon and alloy steel per quarter per project—including structural but not including more than 2½ tons of alloy and no stainless—5,000 lbs. of copper and 4,000 lbs. of aluminum. Recreational buildings, now banned except on an individual submission basis, will be allowed to self-certify 5 tons of carbon steel [including not over 2 tons of structurals], 500 lbs. of copper and 300 lbs. of aluminum.)

Ass't NP Administrator Rufe Newman ruled discussion of suspending CMP out of order. Officials were more willing to discuss

steel supply, listened to industry experts present case after case showing that except for wide-flange shapes, steel warehouses were having little trouble filling structural orders for medium and small-size jobs. (On jobs needing several thousand tons of structurals, fabricators could not offer delivery until July or August '53.) Controllers, however, pointed to their own figures showing that steel would remain tight through the first half of next year.

Most plausible explanation for the contradiction: the military was not using its set-asides of structurals. Evidence: fabricators often find they can pick up sizeable quantities of steel on short notice if they are in close touch with mills.

No civilian could find out for sure whether the military was up to its old hogging tricks. Set-asides are considered a military secret. But it was a question that should interest Congressional investigators next year. If half of the unverifiable stories circulating in the industry were true, exposure might well finish CMP.

Some of those who attended the meeting

took an optimistic outlook, thought industry's plea had begun to penetrate the hard shell of official conservatism. Their predictions: self-certification limits would be raised slightly very soon; the May 1 relaxation date might be shoved forward, say, to March 1. The fact that a Republican Congress seemed unlikely to extend the controls law except on a stand-by basis would be a powerful push in that direction.

Suburban branch stores a must, survey finds

In time, said Standard Factors Corp. after a survey in 12 major metropolitan areas, all leading department stores in large cities will be forced to open suburban branches to keep up their sales volume. In none of 14 stores studied did establishment of branches lessen the gross at the main store, said Standard Factors.

Two Chicago AFL crafts ban time out for coffee

In Chicago, business managers of AFL electrical workers and plumbers ordered revival of an old custom in an effort to reduce working time lost to morning and afternoon coffee breaks. They ruled: "Have the boy bring the stuff to you like we did in the old days."

Will building costs dip in 1953? Some economists say yes; more expect plateau

Just as construction costs started to edge down in 1950, the Korean war gave them another 20% shot of inflation. But in the last year, the rise has slowed almost to a halt. Only rising labor costs (up about 8% in the last 12 months) have given construction costs the final push to today's all-time high. Did this hint that a long-range cycle of costs had reached its peak, was poised for decline?

One expert who thinks so is Dow Service's Myron L. Matthews. Said he last month: "All the natural economic laws are tugging at the phenomenally high construction cost level and given half a chance will pull it down." Matthews "best guess": a drop of "10 to 15%" beginning next year and ending by 1954. He expected prices to drop for building materials, products, accessories and services (e.g. profits). One reason: "Prices never remain static for very long and if they can't go up they must go down."

Spotty, regional? Most other construction prophets were forecasting no such price slump. More typical was the viewpoint of Economist Walter E. Hoadley Jr. of Armstrong Cork Co.: "Some slight easing in costs may be in prospect later next year after the seasonal upturn during the spring and early summer. . . . [But] with activity in general continuing at a high level, such cost reductions as materialize promise to be rather spotty by type of project and, no doubt, regionally as well."

Reported Lumberman Norman Mason, after his semi-annual survey of retail lumber dealers: "Suppliers are going along at a very even level and expect to continue so." Said a highly placed official in the government's defense production hierarchy: "With price controls going off and with the cost of producing steel still rising, there is no outlook for a decline in materials prices. Labor wages are rising and I think there is enough demand so there will not be much of an increase in productivity. Labor costs, therefore, are probably not going to drop. . . ."

Symptoms of change. Despite the preponderance of feeling that building costs are likely to be stable next year (and certainly for the first six months), there were symptoms of change. Recently, lead and zinc prices have dropped. Historically, price declines in such basic commodities have often signaled wider price drops. So far, there was no evidence it would spread this time.

But there was little doubt that increasing competition was beginning to be felt all along the line in the building industry. To

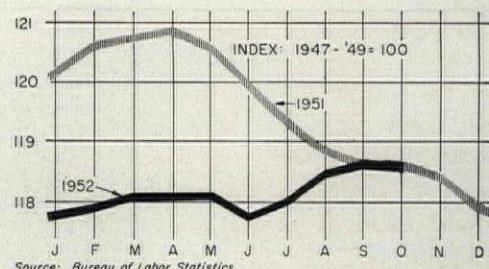
hold big construction organizations together as the peak of defense industrial expansion passes, profit margins would be shaved. Items:

► Reported Dow's Matthews: "Where a 10 to 20% difference between three low-bidders on a job used to be common, now three low bids are often within 5% of each other, sometimes closer."

► Reported Smith, Hinchman and Grylls, Detroit architect-engineer firm: "There are occasionally contracts awarded at prices indicating a drop in construction costs. [This is because of] a sudden hunger for jobs by a few building contractors in scattered localities."

► Reported Lumberman Mason: "There is a tremendous competitive situation in the building industry [in which] the manufacturer has or will have a capacity for overproduction, there may be too many distributors, and contractors are bidding at below the normal margins."

Million homes seen. Because construction forecasting involves not only economics, but politics, it entails an extra risk. So most predictions come pretty well hedged. A big though indirect influence on next year's construction prices will be US monetary policy. If—as some economists expect—money gets easier by next May or June, construction should get a shot in the arm which might pull costs up. But meanwhile, a better flow of materials, as the effects of the steel strike are overcome, should help cut construction costs. Adding it all up, Ass't Commissioner Herman Byer of the Bureau of Labor Statistics (whose forecasts have often been uncannily accurate in the past), said: "I don't look for the slump in prices some think is going to happen in the last



Source: Bureau of Labor Statistics

MATERIALS PRICES remained on an even keel in October, continuing a year-old plateau. Slight increases (under 1%) in lumber and concrete prices left overall wholesale building materials index at 118.6.

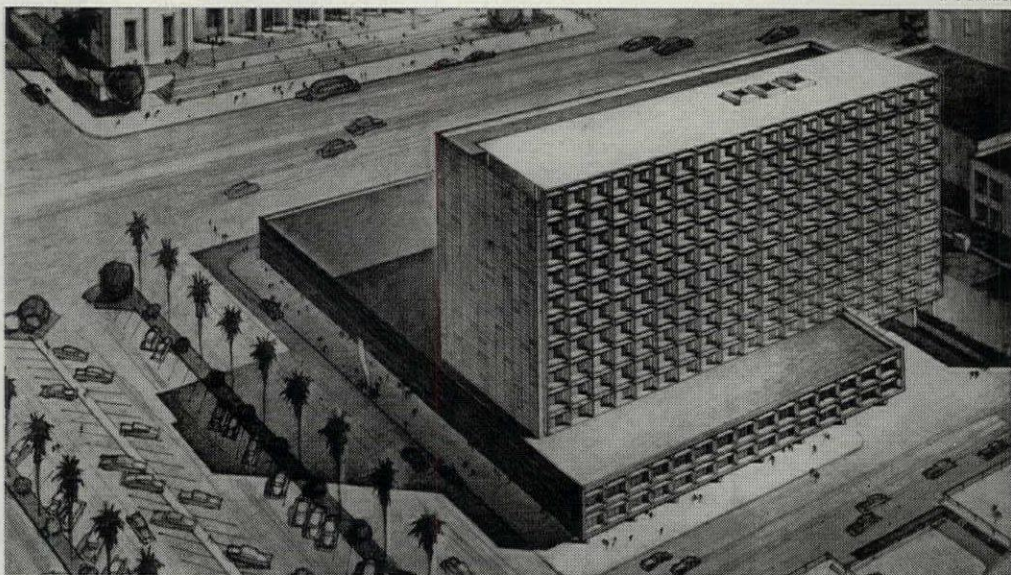
half of next year. They're ahead of time—as they are ahead of time in predicting a slump in housing. I expect we'll build a million houses in 1953. If there is a business dip (which would pull construction costs down) it isn't likely to come before the first part of '54. Even then, I don't expect any pronounced drop—just a slackening off. Not a slump or a recession."

On the other hand, Economist William C. Bober of Johns-Mansville sees it this way: "I expect costs to be stable in early 1953 and decline slowly and moderately then. . . . The long-term trend is many years of strong construction activity broken by setbacks, one of which may be due in late 1953."

No more wing buildings, says GSA Chief Larson

Addressing a New York luncheon, General Services Administrator Jess Larson declared: "Air conditioning has made the block-type building possible, just as steel and the elevator made the skyscraper possible. I doubt if we ever build a wing-type building again. Floor space simply costs too much in a wing-type plan."

W. Romer



New Miami city hall to have ground floor stores

Miami's new \$4 million city hall, for which Architects Robert Law Weed & Associates presented the city commissioners with preliminary plans this month, not only would reach a high water mark in US civic architecture but would earn money for taxpayers by rental of ground floor to stores and a restaurant. The 12-story air-conditioned structure will go in what is now a blighted area across the street from Dade County courthouse. Weed suggested exterior of limestone, brick or marble.



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Congress group finds Navy barracks with terrazzo floors, demands more 'austerity'

WANTED: A military construction program geared to the cold war. Should be a cross between permanent and temporary type of building.

No such ad actually appeared. But that is what the latest congressional investigators to review the subject think is at least part of the answer to oft-heard complaints of waste in military construction. The House appropriations subcommittee on military public works, headed by mild, tenacious John J. Riley (D, S.C.), is in a better spot than most probers who can take only a fleeting look. It holds the purse strings on the military public-works budget, lives with the problem all year.

In a report last month, the Riley group noted that the armed services have only two sets of construction plans: they assume the nation is at peace or on the verge of all-out war. Said the subcommittee: "The Korean crisis fits neither slot." It suggested permanent construction but with "austerity." Although armed-forces construction men have often said they are practicing austerity, after peering at 73 Army, Air Force and Navy installations in 21 states, the committee doubted it. Samples:

▶ At California Institute of Technology, Army ordnance in the spring of 1951 built a cafeteria decked out with \$700 plate-glass doors in bronze frames, a circular snack bar with pedestal leatherette frames, rubber-tile floor.

▶ At Navy barracks in Memphis, "there was excessive plastering and terrazzo flooring . . . much ornamental limestone and green stone facing, a considerable amount of acoustical tile."

A step the committee applauded was ap-

pointment of a civilian director of installations (ex-NPA aide Frank R. Creedon) to ride herd over military construction (AF, Sept. '52, p. 43). If anybody could crack down on construction profligacy, it was meticulous Frank Creedon, who bossed erection of AEC's vast Oak Ridge plant during World War II. As his small but powerful staff started digging into the status of military construction, project by project, Pentagon insiders began murmuring that the military may slice 25% off its request for \$3 to \$4 billion for public works in the next fiscal year.

One reason: Since Korea, Congress has appropriated \$8.7 billion for military construction, but up to Aug. 31, the armed forces has obligated only \$4 billion of it. And spending this year has run well below the rate military spokesmen told Congress they planned.

NPA to study adequacy of structural steel capacity

The controversy over whether steel producers are neglecting the construction industry's need for structural shapes (AF, Aug. '52, p. 112) led NPA to begin an official inquiry last month. The argument: construction men note that the building industry got only 56% as much heavy structural in 1949, the last year before Korea, as it got 20 years earlier; steelmen retort there is no sustained demand for more, among other reasons because erection costs three times what it did in 1929.

To the nation's steelmakers, NPA sent a questionnaire asking for detailed data on

actual 1950 shipments and potential 1954 production (after steel's 20-million-ton expansion program is completed) of eight finished shapes including heavy structural, wide flange beams and bearing piles. NPA will study the answers, try to decide whether the US has enough capacity for all types of finished steel.

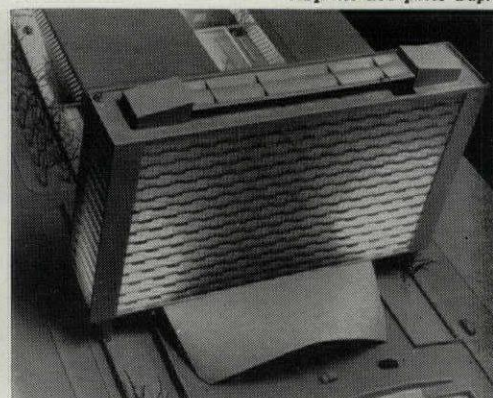
Editors' committee clashes with PHA on censorship

Since May, the San Francisco *Call Bulletin*, campaigning against government spending, had been trying to obtain a list of the names and salaries of public housing employees in San Francisco. As executive editor, Lee Ettelson explained it: "We may be cockeyed in trying to mold public opinion against bureaucracy or in taking these means to achieve our results. But the point involved is: if we think we are right, have we the right to the information?"

Eventually, the Freedom of Information committee of the Associated Press Managing Editors' Association carried the case before PHA Commissioner John Taylor Egan.

Egan, however, rejected the request on the ground that no "useful public purpose would be served by such publication." Observed committee chairman J. R. Wiggins, managing editor of the *Washington Post*: "You have laid down a policy under which information is to be made available only if, as and when government officials think it will be properly used. . . . It is not up to a government agency to decide whether or not publication serves a useful public purpose in a democracy. . . ." There, for the moment, the row rested. But it appeared Egan had done public housing no service. There was too little difference between his stand and that of a political censor.

Maquette EPI photo Duprat



Paris rejects second design for UNESCO headquarters, but reversal looms

When Architect Eugene Beaudouin presented UNESCO with a Paris headquarters design calling for a Perret-like Beaux Arts building (shown above for the first time in a US publication), UNESCO's reviewing experts turned it down. Reason: "We believe this plan lacks clarity and logical rigor and that it does not offer, on a spiritual plane, the high significance expected of it." Last July, UNESCO asked

Architects Marcel Breuer (US), Bernard H. Zehruss (France) and Engineer Pier Luigi Nervi (Italy) to plan afresh on a fresh site. They proposed a more restrained, junior version of UN's Manhattan headquarters, accenting formality and rich detail in keeping with its Paris site (Forum, Oct. '52 and right).

This month, the Seine department's sites commission—a favorite repository for ancient but

worthy architects, writers and artists—struck the proposed \$7.5 million skyscraper sandwich a near fatal blow. It advised Seine Prefect Paul Haag to reject the project. Under the deal giving UNESCO a site overlooking the Bois de Boulogne, French authorities had specified that Haag must approve building plans. At mid-month, the final decision seemed to rest with the French cabinet, which can overrule Haag.

CASE HISTORY: How a modern hospital solves tough flooring problem

Fort Hamilton VA Hospital selects MATICO Asphalt Tile

Selecting a low-cost flooring that meets rigid hospital requirements for durability, sanitation, odor-free characteristics, quietness and comfort underfoot is a large order. But it's easily—and ideally solved with MATICO Asphalt Tile Flooring.

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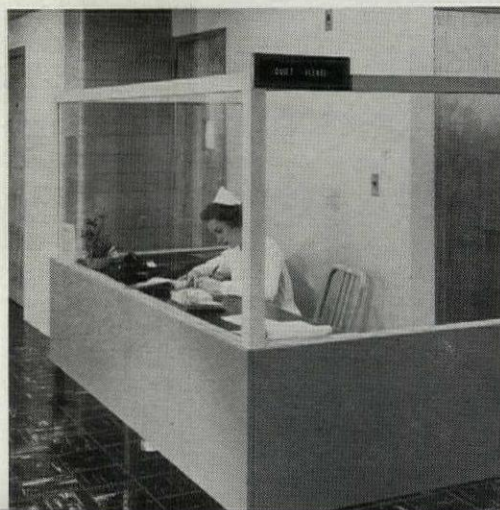
Long Beach, Calif.

Newburgh, N. Y.



16-bed ward (shown above) occurs at either end of typical nursing-unit floor. MATICO floors in wards are easy to maintain, stay "new" looking for years.

Nurses' station is located at center of each of the paired nursing units. Solariums (far right) are placed at center of each floor. MATICO floors are especially desirable in these areas because they help keep underfoot noise to a minimum.



PEOPLE: John F. Jackson heads AISC; former federal construction official named in huge five-percenter deal

American Institute of Steel Construction elevated to its presidency **John E. Jackson**, first vice president for the last two years



JACKSON

and president of Pittsburgh-Des Moines Steel Co. since 1939. He succeeds **R. D. Wood**, chairman of the Mississippi Valley Structural Steel Co., Chicago. **Earle V. Grover**, president of Apex Steel Corp., Ltd., Los Angeles, and **N. P. Hayes**, president of Carolina Steel & Iron Co., Greensboro, N. C., were elected first and second vice presidents. **James M. Straub**, president of Fort Pitt Bridge Works, Pittsburgh, was re-elected treasurer.

Washington's biggest-ever five-percenter deal, disclosed the week before election, brought hasty dismissal by the Democratic National Committee of **Col. Lawrence Westbrook**, pioneer proponent of cooperative housing (AF, June '41) whose energetic development of defense housing during the early days of World War II earned him the title "a one-man government building agency." The 5% deal: under a \$9 million tungsten importation contract negotiated with the General Services Administration, but later revoked, Westbrook and an associate might have netted commissions of more than \$200,000 apiece. (Both denied wrong-doing.) In early New Deal days, Westbrook was assistant administrator for the WPA and Federal Works Administration. Later he was director of the National Rural Rehabilitation program, forerunner of the Farmers' Home Administration. Recently he made a family housing survey for the Defense Department and last January was appointed to the Democratic committee staff at \$12,000 a year.

NAMED: **Edward P. Palmer**, head of Senior & Palmer, Inc. of New York, and **Peter Kiewit**, president of Peter Kiewit & Sons Co. of Omaha, to receive the annual achievement awards of The Moles at their 1953 dinner Feb. 4 at the Waldorf-Astoria; **Arnold E. Chase**, chief of the NPA construction programs and requirements branch, as a special assistant to Frank Creedon, Defense Department director of installations; **Paul Thiry**, president of the Washington State AIA chapter, as a member of the Seattle Planning Commission; **E. Walter Hammer**, eastern construction vice president of Starrett Bros. & Eken

since 1945, as manager of the industrial and building construction division of Merritt-Chapman & Scott Corp.; **Otto F. Sieder**, executive vice president and general manager of the H. K. Ferguson Co., as an honorary doctor of science by Lafayette College.

Having reached the statutory retirement age of 62 on Nov. 18, **Lt. Gen. Lewis A. Pick**, Army chief of engineers, will retire at month's end. The wartime builder of the Ledo Road (Pick's Pike), who has been nation's No. 1 contract officer (\$5.2 billion of flood control and military construction as engineer boss during the last 31½ years) planned to become a consulting



PICK

engineer in Auburn, Ala. Of the future, Pick told an interviewer this month, the government's No. 1 problem will be to provide adequate water for growing US industry and population, forecast lack of water will force industry to decentralize. Pick's successor: **Maj. Gen. Samuel D. Sturgis Jr.**, commander of the communications zone of the US Army in Europe. Sturgis will take over Dec. 1.

The long-growing problem of the high cost of wet-wall construction drew more than its customary spate of comment: said **Harry R. Dowswell**, partner in New York's Shreve, Lamb & Harmon Associates: "I shall be happy to cash in my chips when I get a building without one square inch of plastering. . . . The grade of workmanship is getting worse and worse. . . . My ambition is to design a building with no masonry partitions, no plaster—only shop-finished items, a building in which all interior walls could be rearranged over a single week end, at minimum effort and expense.

Said Concrete Industry Board Chairman **Roger H. Corbetta** at a meeting at the New York BTEA headquarters: "Within the next 25 years the tedious and costly method of placing one brick on top of another to erect a wall, and the laborious method of plastering walls, a handful at a time, will be as outmoded as hand-cranked automobiles. . . . Mounting costs of brick and plaster [are] causing engineers and architects to seek other mediums of construction. The answer will be found in the unlimited possibilities of economical precast concrete units, including complete wall sections, which can be fabricated in any shape, in any size and in

any color, and effectively insulated."

Said Wage Stabilization Board Chairman **Archibald Cox** at the biennial convention of the AFL Bricklayers, Masons, and Plasterers International Union of America, in Minneapolis: "If wage rates in any field of construction became too high there is bound to be the development of substitutes. . . . So the question is whether you should look to the short run and get all [the wage increases] you can at once, leaving the future to worry about itself, or whether some measure of self-restraint is not the wiser policy." Convention delegates re-elected aging (70) President **Harry C. Bates** for another four-year term, dispelling reports he would retire in favor of **John J. Murphy**, who was re-elected secretary. Bates warned bricklayers to be prepared "for a day when a growing number of men in our trade will find themselves out of work."

DIED: **A. J. McKenzie**, former AGC vice president and head of the McKenzie Construction, San Antonio, Oct. 1 in that city; **Joseph W. Holman**, 62, of Marr & Holman, Nashville, Tenn. and architect for the Miami stadium, Oct. 15 in Zurich, Switzerland; **Preston E. Wire**, 49, office and housing builder of Washington, D. C., Oct. 22 at Miami Beach; **Joseph H. Gaylord**, 48, of Fort Worth, former project planner for the US Housing Authority and assisting architect and engineer for planning the Green towns of the Resettlement Administration, Oct. 19 near Alexandria, La., in a futile attempt to rescue his eight-year-old son John in a boating accident; **William T. Vanderlipp**, 70, director of planning and development of the New Jersey Department of Conservation and Economic Development and former State Housing Authority chairman, Oct. 31 at Orange, N. J.

NEW CONSTRUCTION ACTIVITY (expenditures in millions of dollars)

Type	October			1st 10 months		
	'51	'52	% Change	'51	'52	% Change
PRIVATE						
Residential (nonfarm)	963	1,040	+8.0	9,203	9,107	-1.0
Industrial	205	190	-7.3	1,717	1,922	+11.9
Commercial	95	106	+11.6	1,183	881	-25.5
*TOTAL	1,908	1,982	+3.9	18,192	18,066	-0.7
PUBLIC						
Industrial	105	152	+44.8	766	1,379	+80.0
Military	103	128	+24.3	699	1,125	+60.9
Residential	66	50	-24.2	461	549	+19.1
*TOTAL	941	1,025	+8.9	7,711	8,959	+16.2
*GRAND TOTAL	2,849	3,007	+5.5	25,903	27,025	+4.3

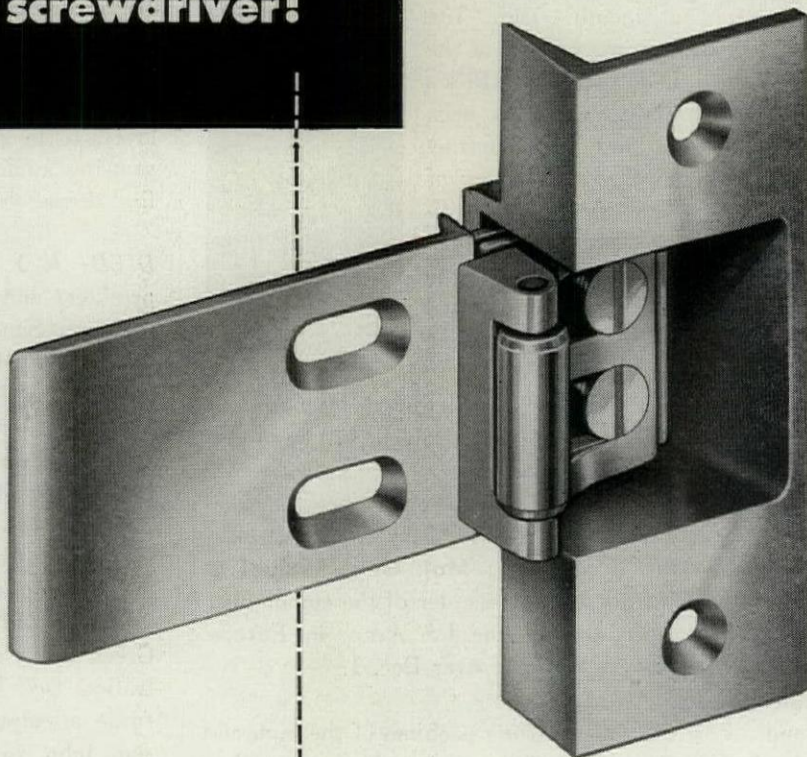
* Minor components not shown, so total exceeds sum of parts. Data from Commerce and Labor Departments.

CONSTRUCTION EXPENDITURES For October declined a less-than-seasonal \$100 million from September to an even \$3 billion. Though new construction outlays for the first ten months of this year were 4% ahead of 1951, actual physical volume was about the same. Rising costs accounted for the 4% difference.

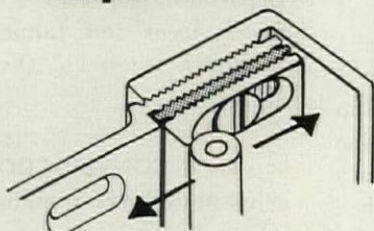
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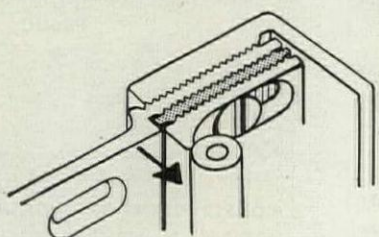


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Photos: Saul Molina



TRANSLATIONS IN THREE LANGUAGES GAVE UN FLAVOR TO SESSIONS IN JAI ALI HALL

Pan-American congress of architects urges hemisphere attack on housing, planning

The Eighth Pan-American Congress of Architects would be as much remembered for Mexico City's glittering hospitality as for its week of work on hemispheric housing and planning problems. Some 2,000 delegates from Latin America, the US and Europe attended the sessions in the fabulous, almost-completed Ciudad Universitaria (AF, Sept. '52, p. 99). Between business meetings, they gathered under black and white canopies in Pedregal Gardens to sip champagne, munch canapes and pheasant. They also watched 38-year-old Director Alonso Mariscal of Mexico's National School of Architecture display his skill as a bullfighter and peered at five miles of exhibitions (including one from Argentina that was boycotted by Mexican students and most Latin American delegates who resented its blatant Peronista propaganda).

Discussions developed the Congress' theme: "Planning and Architecture in So-

cial Problems of America." Said Chilean Architect Luis Vera: "The life-and-death problem of Latin America . . . is 150 million inhabitants and only 16½ million dwellings. . . . The rescue of some 25 million subhumans now living in caves, slums and shacks [may cost] \$1.4 billion. These figures interest us a great deal more than astronomical budgets for war." The hemisphere's hospital shortage also drew Mexico newspaper headlines. Sample: Mexico, with 26 million population, has only 27,816 hospital beds, or a tenth as many per capita as the US, which considers itself short of hospitals. Under the leadership of President Carlos Lazo, the Congress also:

► Founded an Inter-American Institute for Planning, recommended that each American nation create a subsidiary organization if one is not already formed. Institute headquarters will rotate according to the site of the Pan-American Congress, thus remaining

in Mexico City until 1954.

► Urged governments to combine the work and aims of governmental and private social service organizations.

► Asked governments to name architect specialists in low-cost housing as envoys to the Inter-American Economic & Social Congress next February at Caracas, Venezuela, where a continental plan for housing is to be drawn up.

► Suggested that universities orient architecture students more toward the social aspects of their profession.

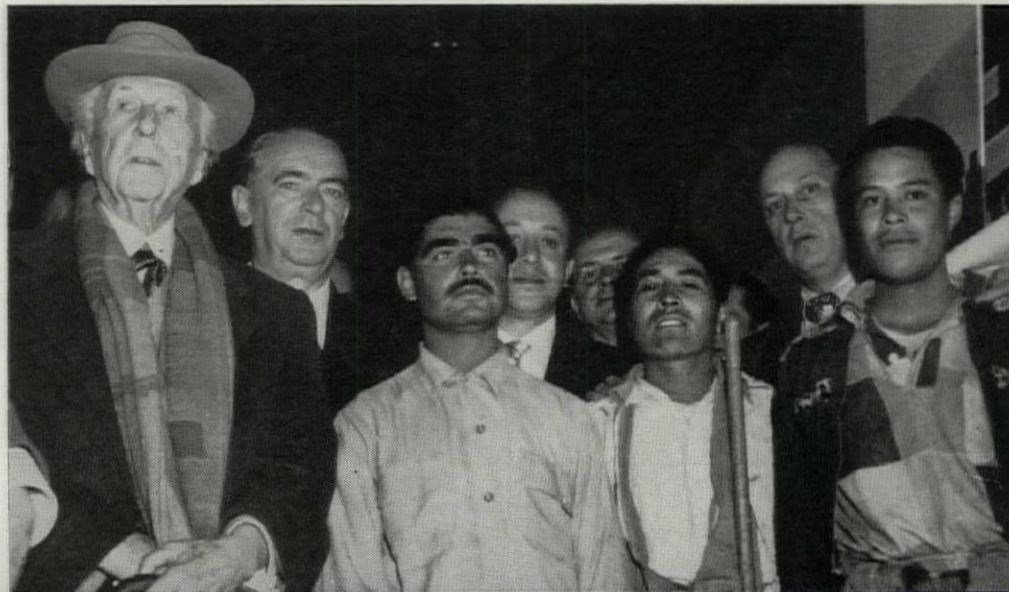
Architects meet in Kansas City, Yosemite, Alabama

For two whole days, central states architects surprised themselves at their AIA regional convention in **Kansas City** by sitting right through discussions of painting, sculpture, other arts used in architecture, momentarily forgetting costs, taxes, fees.

Said keynoter Ed Stone, "We are tired of that 'same old new stuff'"—meaning stripped architecture decked only in clichés. Stone recalled how he once used Sculptor Chambellan to model compound curves of Radio City Music Hall's proscenium arch for study, how he and Sculptor Noguchi once proposed reshaping an entire waterfront for the St. Louis Jefferson Memorial competition. And Charlie Eames fascinated the lunch crowd with lessons to be learned by architectural art from zoos and archaeology, from circuses and anthropology, from telephone instruments and advanced electronic research. Joe Murphy, architect, and Emil Frei, stained-glass maker, regaled listeners with the tale of how an entire church congregation (St. Anne's) was led to enthusiasm for its modern church by step-by-step explanation of modern art.

In recent years, **Yosemite Valley**—one of the nation's most spectacular pieces of scenic outdoors—has drawn such hordes of tourists that smog from campfires often blights the view. Acres of asphalt parking lots cover what once were lush mountain

FLW OPENS EXHIBIT, WITH WORKMEN AND AMB. O'DWYER, CARLOS LAZO, OSCAR STONOROV



ALONSO MARISCAL, LAZO, WALTER GROPIUS



Photos: Adam Ooms

Home of Mr. & Mrs. George W. Walker
276 Bal Cross Drive
Bal Harbor, Florida



DESIGNER'S "DREAM HOME" PROVES DEPENDABILITY OF **SOSS** INVISIBLE HINGES

Architect: Dale Dykema
Ft. Lauderdale, Florida

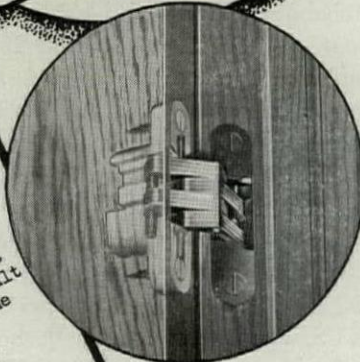
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In four years time there have been no squeaks or rust or sagging and I have substantiated my conviction that the Soss Hinges would withstand the salt air and damp weather of Florida by the Sea.

Yours very truly,
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GEORGE W. WALKER



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SIERRA NEVADA district AIA Director Charles O. Matcham chats with Mrs. Helen Bolton White (l) and Mrs. Virginia Wright (r).

meadows. Conservationists have long since decided that the national park's beauty bears the seeds of its own destruction. But how to induce people to stay away has baffled rangers and nature-lovers alike.

Last month, the AIA's Sierra Nevada regional conference (coupled with the annual convention of the California Council of Architects) supplied a partial answer: a record 538 registrants overflowed Yosemite's only hotel, the swank Awanhee, forcing many an architect into uncomfortable cabins a mile away. Result: so much complaint that California's architects probably will meet at Yosemite no more.

With the collapse of badly built structures in the Tehachapi and Bakersfield earthquakes fresh in their minds, the architects approved a proposal by the State Board of Architectural Examiners to tighten up California's registration act. As the law now stands, anyone may design any building in California as long as he gives notice in writing that he is not an architect. The changes—to be presented to the legislature next spring—would bar all but architects, civil, structural engineers from designing:

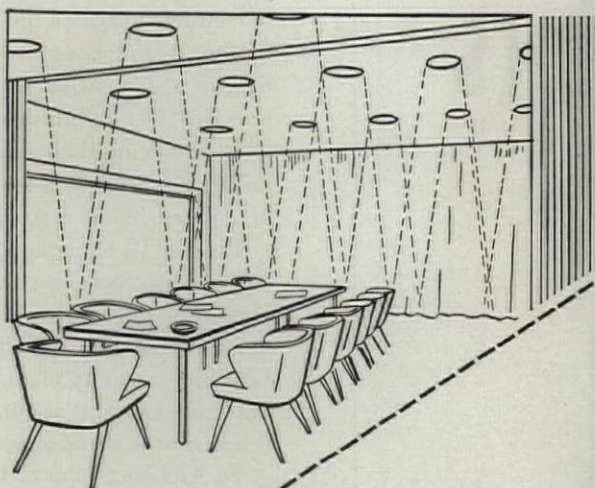
- ▶ Dwellings over two stories plus basement;
- ▶ Other buildings over one story high or with span of more than 25' between bearing walls;
- ▶ Any nonresidential building of steel frame, concrete or masonry. Farm and ranch buildings, however, would not require professional design.

Dr. Charles Bursch, head of California's

(Continued on p. 44)



LIFT SLAB & TILT UP were subjects of panel talk at Yosemite by Henning Vagtberg, Henry L. Wright (moderator) and F. Thomas Collins.



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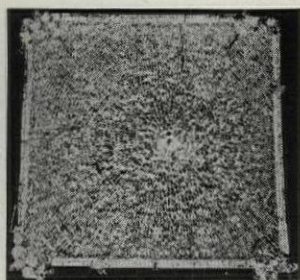
PYREX brand LENSILITES give you unusual design flexibility. Whenever design plans call for controlled incandescent lighting, specify PYREX brand LENSILITES. Used in recessed ceiling fixtures, they provide a wide variety of unusual lighting effects.

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When the limit of strength of a "DOUBLE-TOUGH" (tempered) LENSILITE has been reached it disintegrates into small interlocking fragments, as shown. This "dicing" greatly reduces hazards of lacerations from large, jagged pieces of broken glass.



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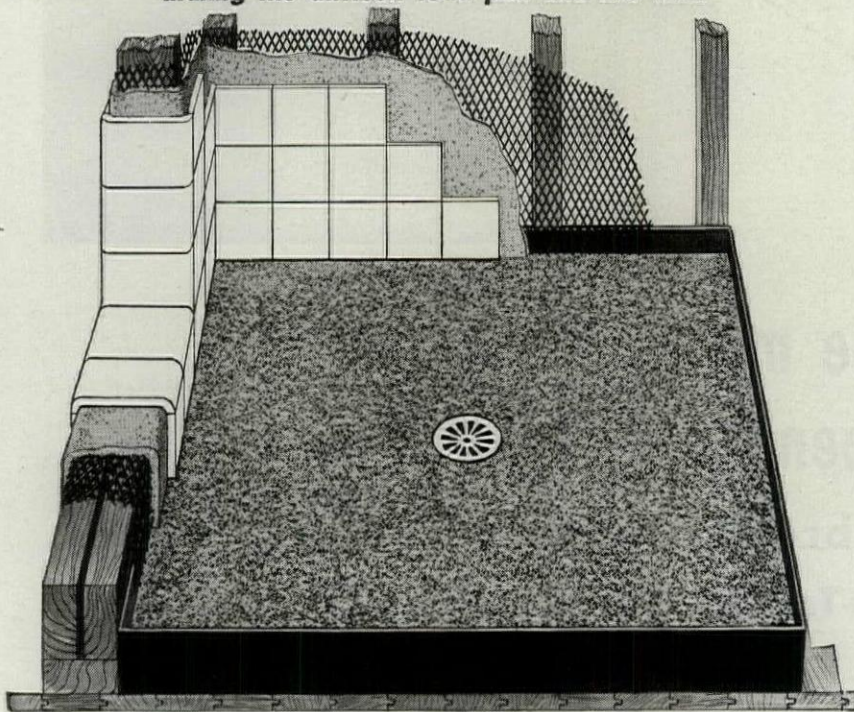


Fiat Precast Receptors

(Regular black & white or special colored terrazzo)

...for Built-up Tile Showers

Save money and speed up the job by eliminating the difficult lead pan and tile floor



Details of suggested construction in building up a tile shower on a Fiat precast receptor. Metal lath and foundation plaster are brought down inside the rust-proofed metal flange. The tile setter starts directly with the wall construction without the delay involved in laying a tile floor and waiting for it to harden to a working surface.

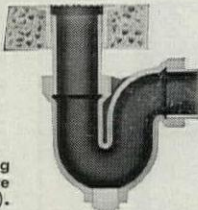
Fiat precast terrazzo receptors are made of black and white marble chips and white cement, ground and polished. A rustproof galvanized reinforcing flange and a 2" brass drain fitting are cast integral with the receptor to form a strong, leakproof, slip-proof, non-absorbent floor for the shower.

The use of a precast receptor eliminates the easily damaged lead pan and the labor consuming job of laying a tile floor. It enables the contractor to complete the shower faster and produce a better job at a lower cost.

Fiat precast receptors reduce the danger of leaky cracks developing in the tile shower walls by providing a solid, rigid foundation that is not affected by shrinkage of supporting wood framing or settling of the building.

The attractive appearance of terrazzo makes a beautiful floor that is in perfect harmony with tile walls. Various colored terrazzo is available on special order, to blend with tile colors.

Your plumbing contractor can get quick delivery of a Fiat receptor as many plumbing wholesalers have Fiat receptors in stock. Standard square type sizes—32" x 32", 36" x 36", 40" x 40". Corner type—36" x 36", 40" x 40".



Section through pre-cast receptor showing brass drain and adaptation to 2" waste pipe and "P" trap. (Trap and pipe by others).



FIAT METAL MANUFACTURING COMPANY

Three complete plants

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office of school planning, reported public demand to save time and money in building schools was increasing pressure for stock plans. He warned: "If the public is going to continue to accept the necessity of custom design, it will have to be told better than has been done what the architect does to earn his fee." Bursch also rapped architects for slicing their fees below the 8% he said the profession's leader told him (and he advised school districts) was proper.

Thomas H. Creighton, editor of *Progressive Architecture*, reported on his unique opportunity of touring Poland with architect delegates from 20 countries last August, said Warsaw's new city planning was interesting but Iron Curtain architecture was coarse, warmed-over Renaissance.

To Architect John S. Bolles of San Francisco went the annual C. V. Kirby award for incorporating original art in his buildings.

In **Montgomery, Ala.**, Mayor Gayle's welcome matched the educated grace found in the state capitol nearby, perhaps the finest in the US. High moment of the Gulf States' regional meeting was Eero Saarinen's illustrated address on integration of sculpture, engineering, construction. Saarinen traced adventures of the growing-child "modern architecture" (sometimes a naughty boy) with functionalism, modern painting, machine fabrication, expression of construction. Three "areas of awareness" now coming into view: 1) the problem of environment—including hamburger stands and gas stations; 2) integration among all design professions—including industrial design, advertising; "a greater spiritual meaning of architecture to our civilization" beyond mere economical enclosure of space.

Another among chairman Clyde Pearson's stimulating guests: mechanical engineer Charles Leopold, lighting up questions such as radiant heating, cooling; warming up questions of adequate (or overadequate) light. Distinguished merit award (from a jury headed by Harold Bush-Brown): Bragg apartments in Montgomery by Sherlock, Smith & Adams.

(News continued on p. 46)

Laurens Pierce



AT GULF STATES luncheon, Howard Eichenbaum, regional AIA director, makes a point to Eero Saarinen and Harold Bush-Brown, head of Georgia Tech's school of architecture.



Heating Units Concealed in

STAINLESS STEEL PILASTERS

ARCHITECT:

HOWELL LEWIS SHAY

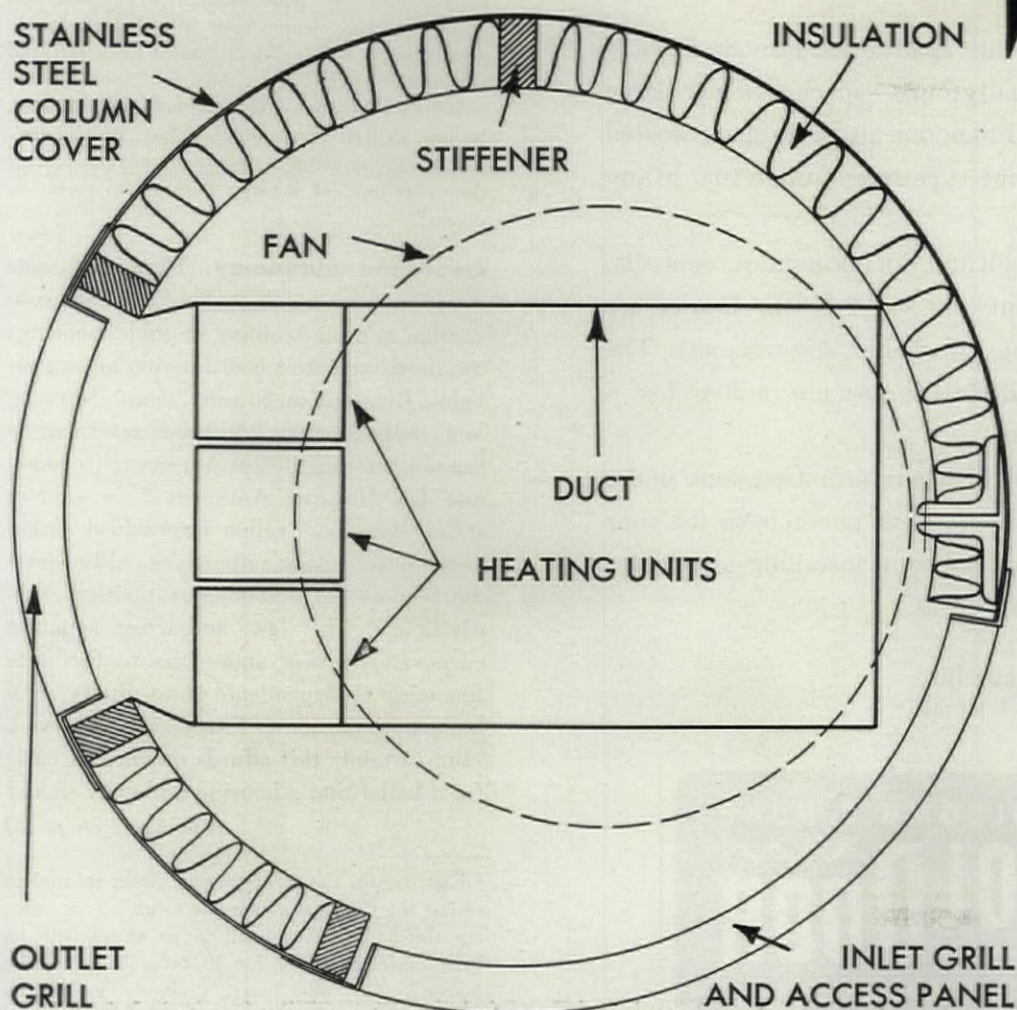
Philadelphia, Pa.

An ingenious and well-thought-out method of eliminating an entrance cold-spot is shown here. At first glance, these stainless steel pilasters serve as an attractive doorway treatment. Yet, on frigid days they compensate for cold air brought in from the outside, greet the visitor with welcome zephyrs of warm air. Each of these two 24-inch diameter cylinders contains a cold-air inlet, hot water heating unit, circulating fan, and a 7-foot grilled warm air outlet.

In this bank building, stainless steel is used also for the revolving doors, canopy, inside and outside covering for window mullions, decorative exterior panels and sign letters.

While chromium-nickel stainless steels like Armco 18-8, Type 302, are now restricted by Government regulations, the chromium stainless steel Armco 17, Type 430, is readily available. It is free from restrictions and suitable for most architectural applications except those in severely corrosive atmospheres.

For complete data on Armco Stainless Steel and its applications, write us at the address below.



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NAHO convention hears pleas for housing peace

Enthusiastic public housers met almost 1,000 strong for the National Association of Housing Officials Convention at Buffalo in mid-October. They roared approval at a special message from Adlai Stevenson and a personal visit from vice-presidential campaigner John J. Sparkman, both pledging Democratic support for re-expanded federal public housing.

After election day it appeared the spirited conclave might be remembered as the "last convention before Eisenhower." It also appeared NAHO's new officers might want to re-examine more earnestly two suggestions made at the convention for seeking unity in place of their bitter differences with private realty and homebuilding interests.

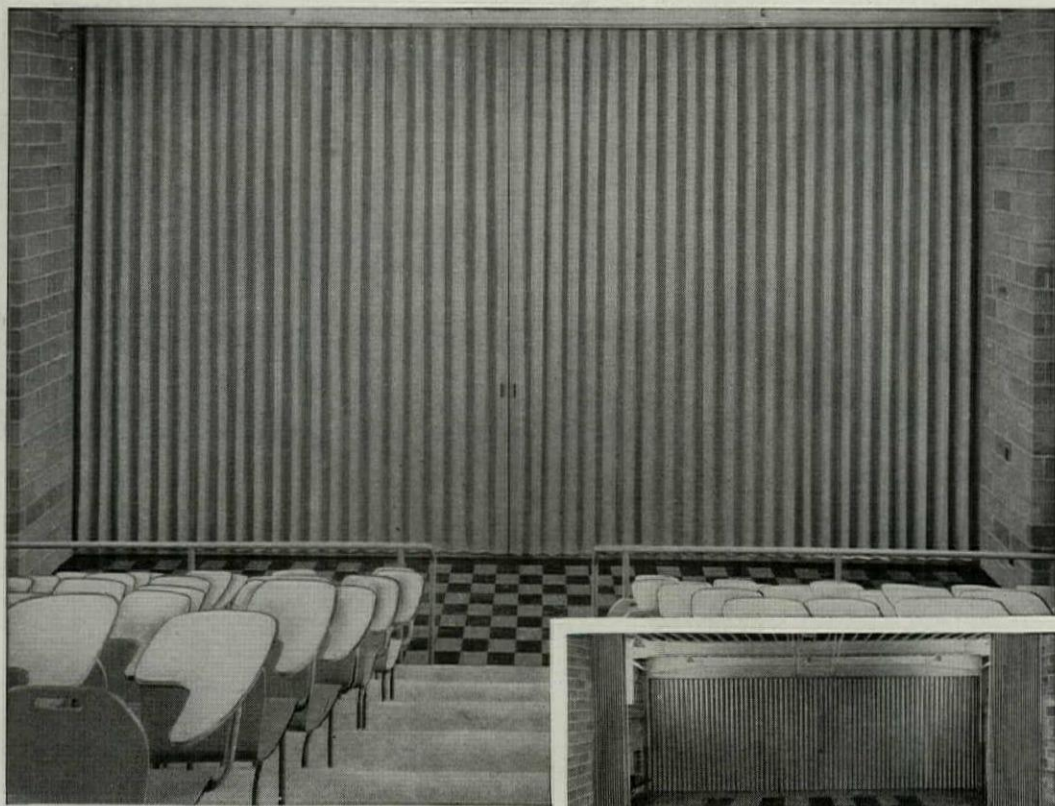
► Philip Klutznick, former FPHA commissioner who is now cobuilder of Chicago's Park Forest, declared the "diabolical division between public and private housing is sheer nonsense that has never achieved anything and never will." Some "high priests" of both factions appear to be acquiring "some recognition that all is not well" in their running feud, he added, and may be willing to settle their grievances. He suggested public housers make the first move for amity.

► B. T. Fitzpatrick, general counsel and deputy HHFA administrator, reminded the convention that public housing has "no monopoly on either the desire or ability to clear slums. . . . Does anyone believe operative homebuilders will ignore the opportunity [if cleared slum areas can be made available for housing development at a fair and reasonable profit]? . . . Any fair appraisal admits they have done a tremendous job. Moreover, by law, as well as by practical fact, we will look to them . . . as the *principal instrument* to provide the great bulk of housing required to meet our needs."

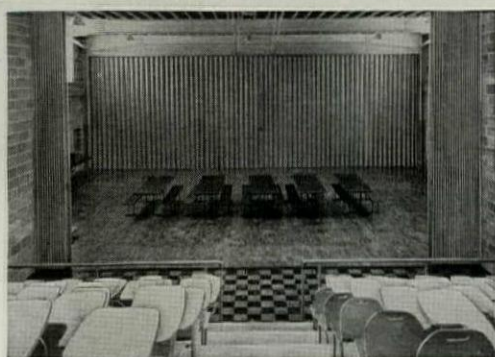
Overdone autonomy. Fitzpatrick also dwelt on another subject held up to the convention as a shortcoming in public housing: the need for better coordination among officials involved in housing, slum clearance and redevelopment. Without referring to the row between the Los Angeles city council and LA Housing Authority,* he said it struck him as a "rather impractical notion that a local housing authority should operate entirely as an autonomous political subdivision." The law authorizes separate corporate housing authorities to facilitate financing independent of ordinary city budget limitations, Fitzpatrick observed. "But certainly this affords no sensible basis for a belief that a housing authority should

(Continued on p. 48)

* Last month, the US Supreme Court refused to review the California Supreme Court's writ ordering the balky LA council to go ahead with its 1949 contract calling for 10,000 units of public housing. The state court promptly hailed the councilmen before it for a contempt hearing.



**Closed for classes...
open for crowds...**



Saint Timothy School, Maple Lake, Minn.
Architects: Shifflet, Blackstrom and Carter

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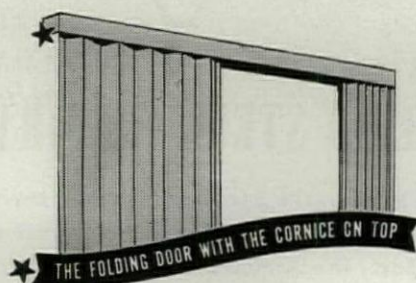
FOLDOORS serve both as door closures and movable walls. They divide the space to suit the need, make a large

room into small ones, provide privacy for small groups—spaciousness for large ones. FOLDOORS also save space wasted by swing-type doors—up to 10% in any room.

You'll find FOLDOOR smart, versatile, efficient. Its vinyl-coated fabrics are durable, washable, fire-resistant. The rugged steel frames are built to last a lifetime.

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Bissonnet Plaza, Houston, Texas. 384 Dwyer Kitchens installed or en route to King & Sheets Corporation who are building this 17-acre apartment project from plans by Architect Joseph B. Reynolds.

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The Missouri-Pacific Lines' new freight terminal at St. Louis—one of the world's most modern and efficient—is equipped with Kinneair Steel Rolling Doors and Kinneair Steel ROL-TOP Doors.

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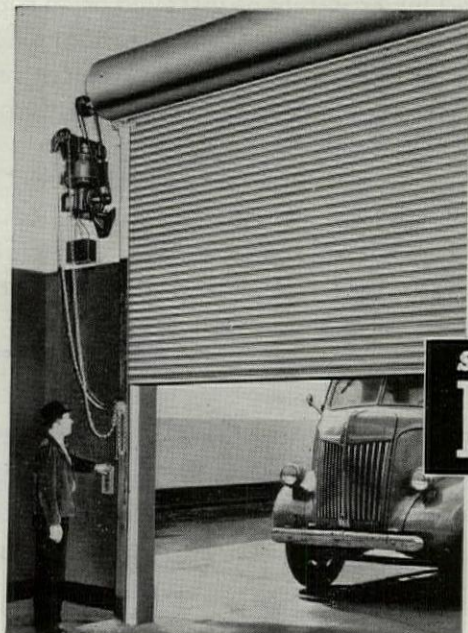
The advantages of Kinneair Rolling Doors *for all types of buildings* are proved by their performance in big installations like this—where doors are the very life-line of efficiency.

The coiling upward action of Kinneair Rolling Doors makes all floor and wall space around doorways fully usable at all times. Freight or materials can be stacked close to the door curtain, *inside and outside the building*, without blocking door action.

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metal curtain that assures long service and low maintenance, plus extra protection against fire, theft, and the elements.

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not be fitted in as an integral part of city governmental organization."

Echoed New York State Housing Commissioner Herman T. Stichman: "Each agency seems to feel it is working in a separate compartment and I know of no instance where they have worked together to accomplish [an] integrated objective."

Good-conduct rules. The convention adopted a resolution ordering preparation of a code of ethics, in keeping with members' aspirations to achieve "professional" stature. As of Sept. 1, NAHO had 2,947 individual members, 468 agency members, operated on a budget of \$136,000 a year.

Brown Nicholson, executive director of the Columbus, Ga. Housing Authority, was elected president for 1953 succeeding Clarence C. Klein of Pittsburgh. Ramsey Findlater of Cincinnati succeeded Nicholson as first vice president. Ferd Kramer, Chicago realtor and mortgage banker, received the association's distinguished achievement award for his work in redevelopment, public and private housing.

Metropolitan Life cuts rent on empty SF apartments

For nearly two years, Metropolitan Life Insurance Co.'s 1,683-unit Parkmerced Towers apartments near San Francisco's fog-bound beach had stood about 95% unoccupied because San Franciscans declined to pay \$115 to \$136 a month for a one-bedroom unit high up in a concrete monolith. Last month, the mighty Met finally abandoned the alibi that 10 of the 11 towers were "not completed," cut rents from 20 to 30%, began a big advertising campaign to woo tenants. New price for one-bedroom units: \$85 to \$128. Two-bedroom, two-bath units dropped from \$150-\$177 to \$117-\$169. Whether the Met could show a profit on the towers at that price, it did not say.

Tax write-off to embrace nondispersible plants

A new policy on granting rapid tax write-off to defense plants seemed in the making in Washington.

In the past few months, DPA has shifted from admonition to compulsion in its policy that factories must be dispersed to minimize bombing targets before the rapid amortization would be granted. But some plants, such as hydroelectric plants or ore mills cannot be dispersed economically. In the works now: a ruling which would make nondispersible plants eligible retroactively for rapid amortization if they include extra protective construction against bomb damage. DPA may also ask Congress to approve tax write-off for the extra cost of protective construction in plants.

U. N.

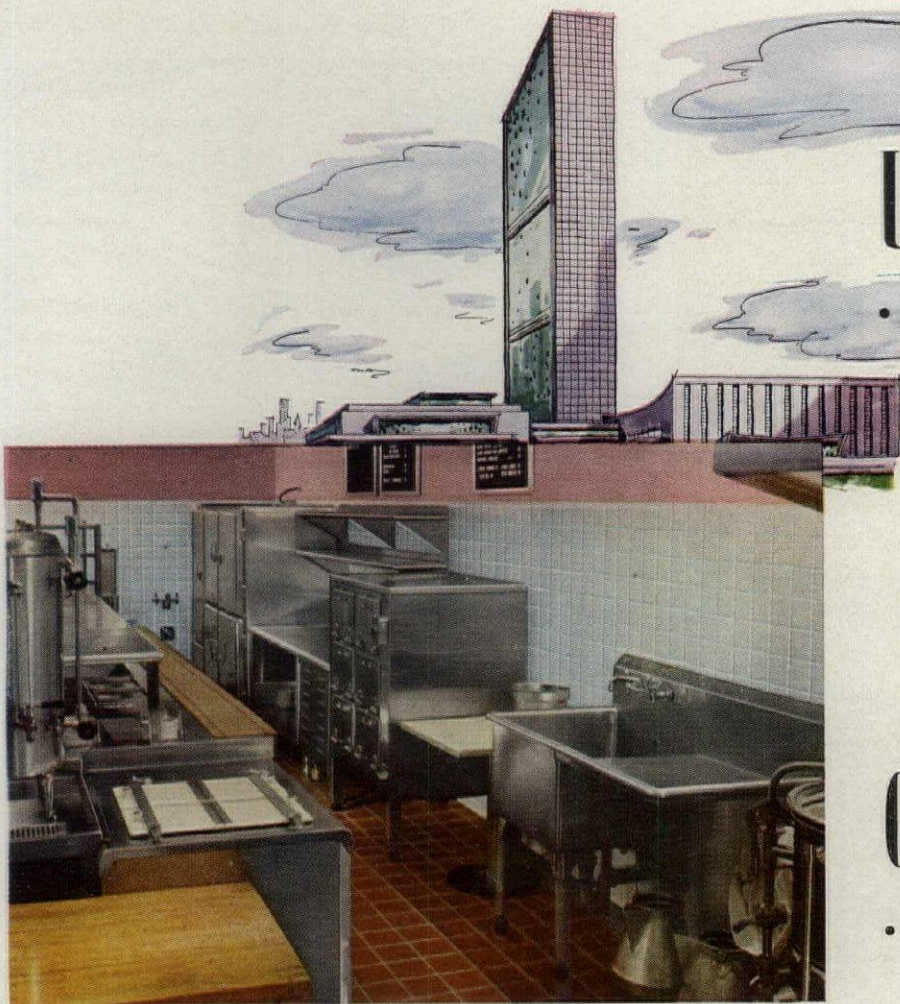
... A REFLECTION OF MODERN DESIGN

When the United Nations Secretariat building was in the drawing board stage, the specification writers were not shackled in their thinking. Materials from far corners of the earth were considered . . . some ultimately were used. Matching the modern spirit and lofty purpose of the structure, the search narrowed down to the best and most modern building materials.

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▲ Wall-to-wall installation of quarry tile makes cleaning the beautiful U. N. kitchen floor a cinch. Heavy traffic won't mar this virtually indestructible surface!

► Clay tile walls and floor in a typical U. N. washroom provide a hygienic, morale-building decorative treatment. Clay Tile is the surest way to permanently attractive washrooms—and lower maintenance costs.



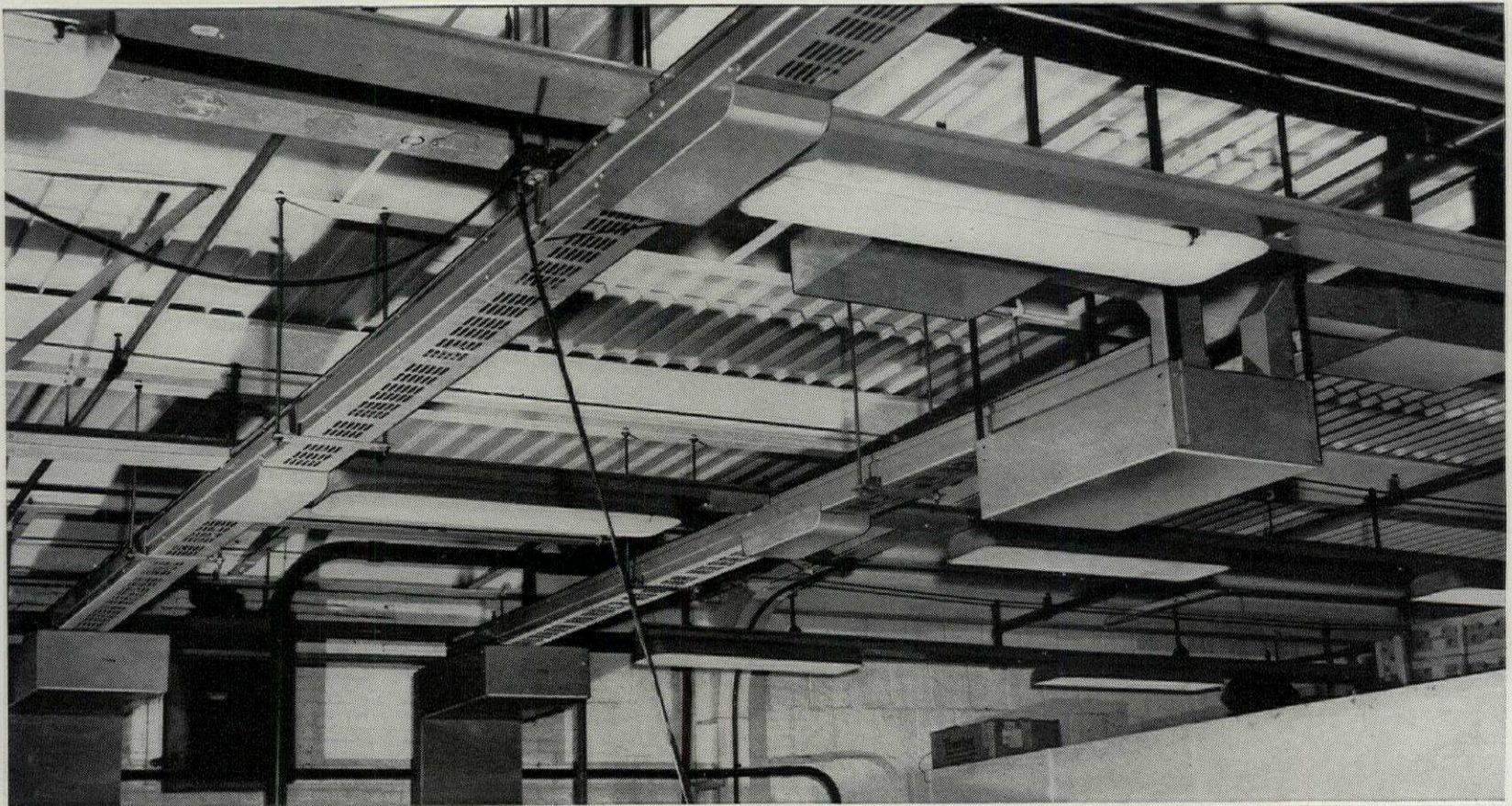
Tile Council of America, Room 3401, 10 East 40th St., New York 16, N. Y. or Room 433, 727 W. Seventh St., Los Angeles, Calif.

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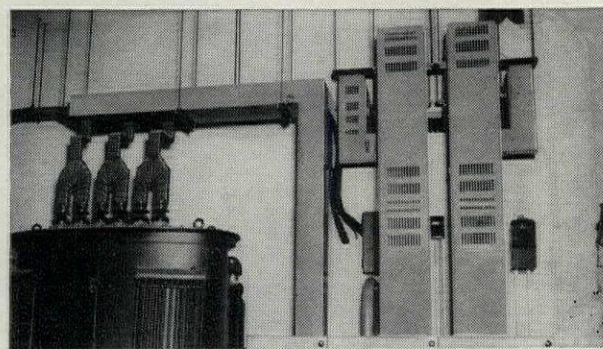
The modern Trumbull LVD FLEX-A-POWER is available with current ratings of from 600 to 3000 amps, in 2, 3 or 4 pole construction, 4000 amps in 2 and 3 pole construction, and is suitable for 600 volt service.

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The newest style trend for your floors—a *texture pattern*—in color combinations to fit any room decor! And for long service life with the least care, it's resilient flooring made of VINYLITE Resins!


Colors will always be fresh and bright on these floors. The smooth, tough, non-porous surface withstands water, grease, soap, and cleansers—even acid and strong alkali solutions. The hard finish stays easy to clean—dirt cannot penetrate it. Waxing is unnecessary, but does add an incomparable luster.

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Architect Arthur E. Tennyson says:



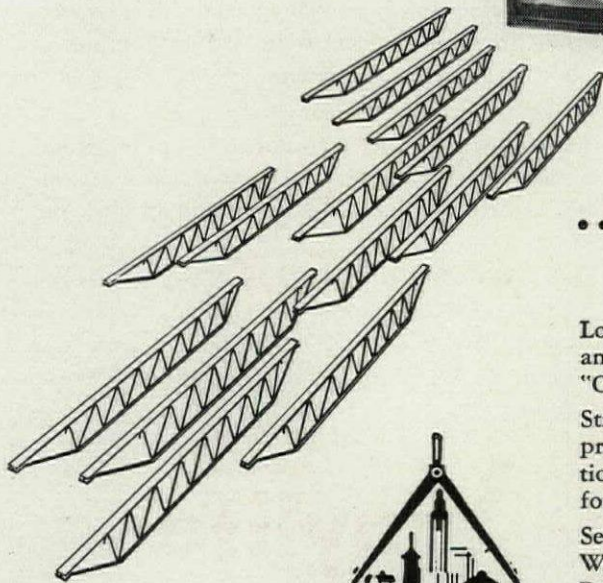
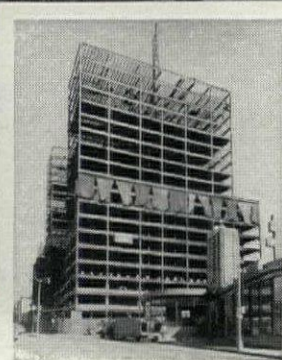
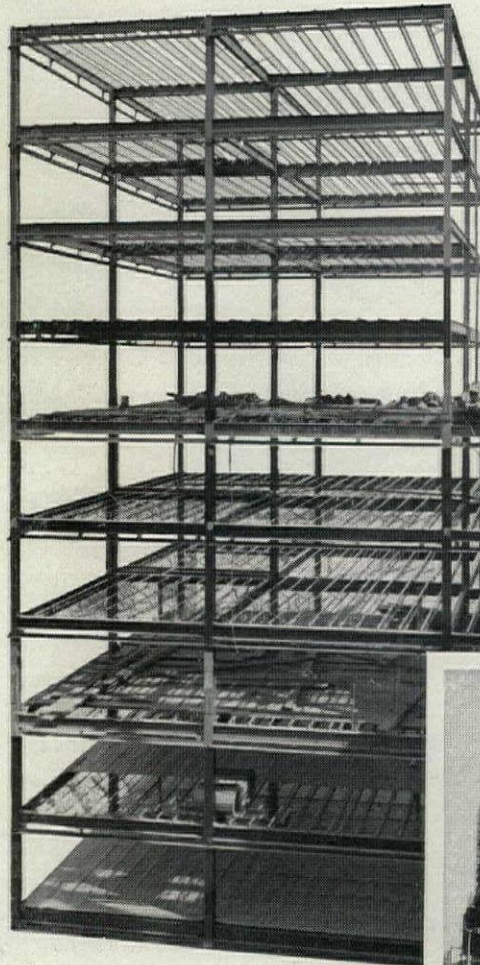
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3452

LETTERS



MEXICO'S UNIVERSITY

Sirs:

Your article on Mexico (AF, Sept. '52) is splendid and very interesting—nature provided the site and the environment; man was intelligent and sensitive enough to make good use of it. . . .

A. J. NOERAGER
Palo Alto, Calif.

Sirs:

The provocative and inspirational value of reports like yours on Mexico's University is terrific. It may be argued that there is a lack of over-all trend of thought co-ordinating the university's various projects, but on the other hand it may be an asset too, to let each individual contributing architect express himself freely.

FORUM readers are indebted to you for giving them this kind of news. More power to you.

This world is getting smaller each year. . . . The more international FORUM becomes, the better I will like it.

HENRY P. GLASS, designer
Glass-Huebner Associates
Chicago, Ill.

Sirs:

The time comes when all good men have to eat their words. In a recent issue you published a letter of mine laying the FORUM staff low for degrading the magazine.

Now in my possession is the September issue which wild horses could not wrest from me. Your coverage of Mexico is a credit to your staff of photographers and editors. . . .

E. ABRABEN, designer
Fort Lauderdale, Fla.

Sirs:

Your presentation and comments on Mexico's new University City were most interesting. . . .

Looking at the campus plan of University City somewhat superficially and comparing it to Le Corbusier's plans for University City in Rio de Janeiro, F. Ll. Wright's campus at Florida Southern or Mies van der Rohe's campus plan for the Illinois Institute of Technology [detailed elsewhere in this issue—Ed.] there is definitely a great lack of a coherent unity and a central dominance in the Mexican Campus. Perhaps greater harmony and the

continued on page 60

INSULATED METAL WALLS

for INDUSTRIAL and COMMERCIAL BUILDINGS

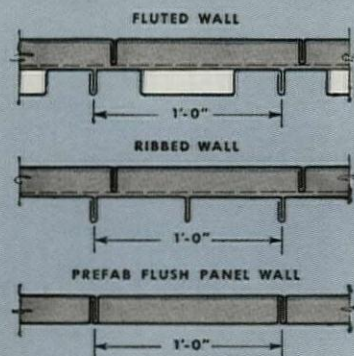
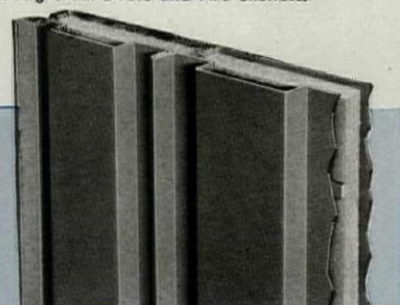
ALUMINUM, STAINLESS or GALVANIZED STEEL

Insulated Metal Walls continue to gain favor with both Architects and Owners throughout the country. And, the reason is obvious . . . these modern walls have revised previous concepts of permanent, firesafe construction. Their lower cost, in both material and labor, and the reduction in construction time—plus the fact that Insulated Metal Walls can be erected under weather conditions which would preclude masonry construction, are just a few of the advantages. Insulated Metal Walls also lend themselves to individual architectural expression in design—the powerhouse illustrated here is a good example. In this building, vertical panels of continuous sash in combination with a Mahon Fluted Metal Wall produces a striking appearance. Mahon Insulated Metal Walls are available in the three patterns shown below. The Mahon "Field Constructed" Fluted or Ribbed wall can be erected up to sixty feet in height without horizontal joints—a feature which is particularly desirable in powerhouses or other buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information and Specifications, or write for Catalog No. B-53-B.

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Manufacturers of Insulated Metal Walls; Steel Deck for Roofs, Partitions and Permanent Concrete Floor Forms; Rolling Steel Doors, Grilles and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.



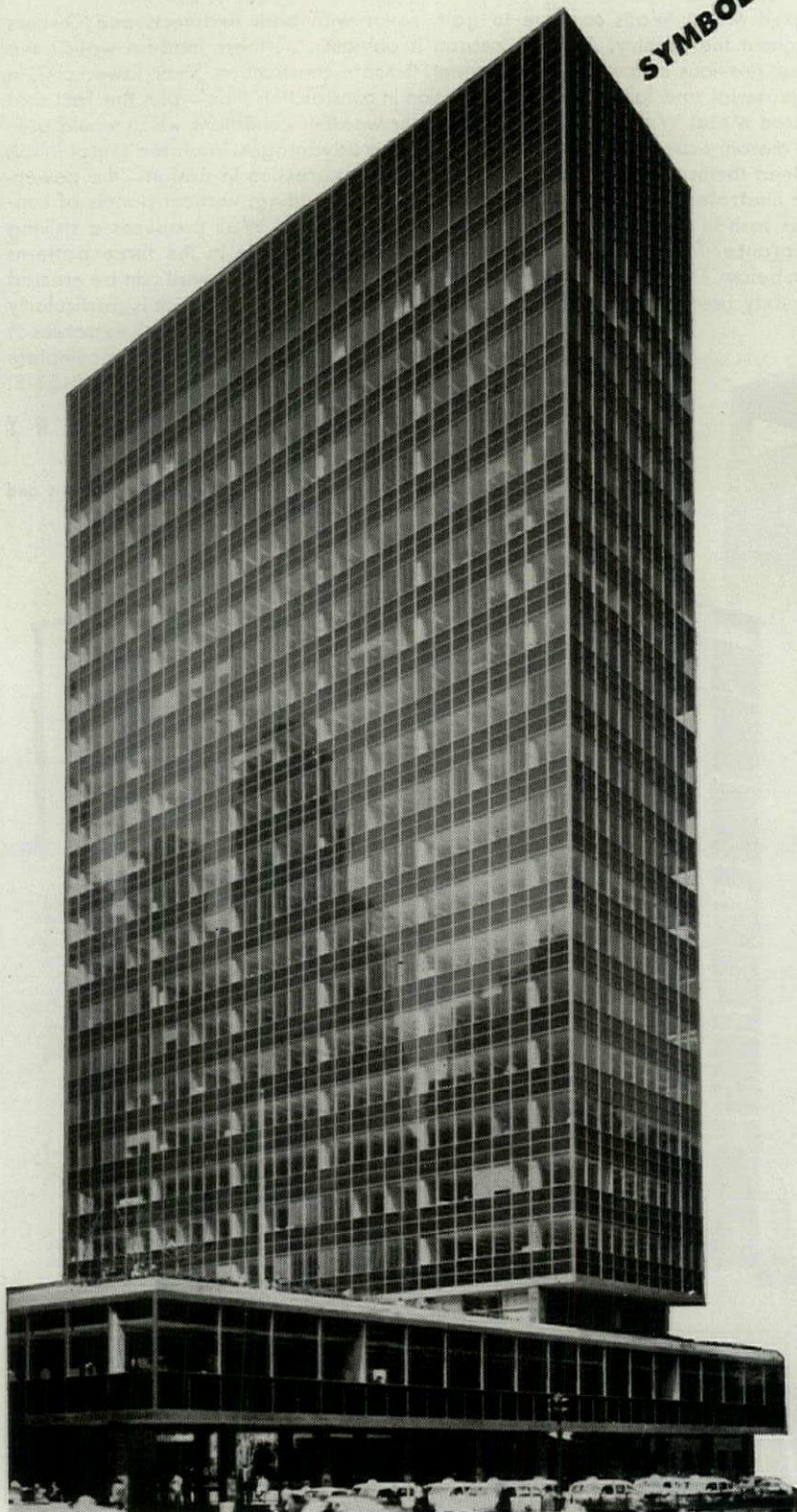
The Over-all "U" Factor of the various Types of Mahon Insulated Metal Walls is Equivalent to or Better than a Conventional sixteen inch Masonry Wall.

In the Powerhouse above, the Insulated Metal Walls up to the first eave line are constructed without a horizontal joint. Continuous Exterior Wall Plates 36'-10" long were employed in these wall areas.

MAHON

LEVER HOUSE...

SYMBOL OF THE WEATHERMASTER IDEA



Lever Brothers Company wanted its building to symbolize cleanliness and comfort. So they built it of stainless steel and glass, and installed a Carrier Conduit Weathermaster System.

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1. Comfort is controlled—Temperature and humidity are under control in both summer and winter. And building occupants don't have that "clammy" feeling during the intermediate seasons.

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Architect: Eggers & Higgins, New York, N. Y.

Contractor: John Kennedy & Son, Inc., New York, N. Y.

Roofers: Wolkow-Braker Roofing Corp., Brooklyn, N. Y.



STATE OFFICE BUILDING, JACKSON, MISS.

Architects: E. L. Malvaney, Emmett J. Hull,
Frank P. Gates and Ransom Carey
Jones—all of Jackson, Miss.

Contractor: J. A. Jones Construction Co.,
Charlotte, N. C. and Jackson, Miss.

Roofers: McDade's, Inc., Jackson, Miss.



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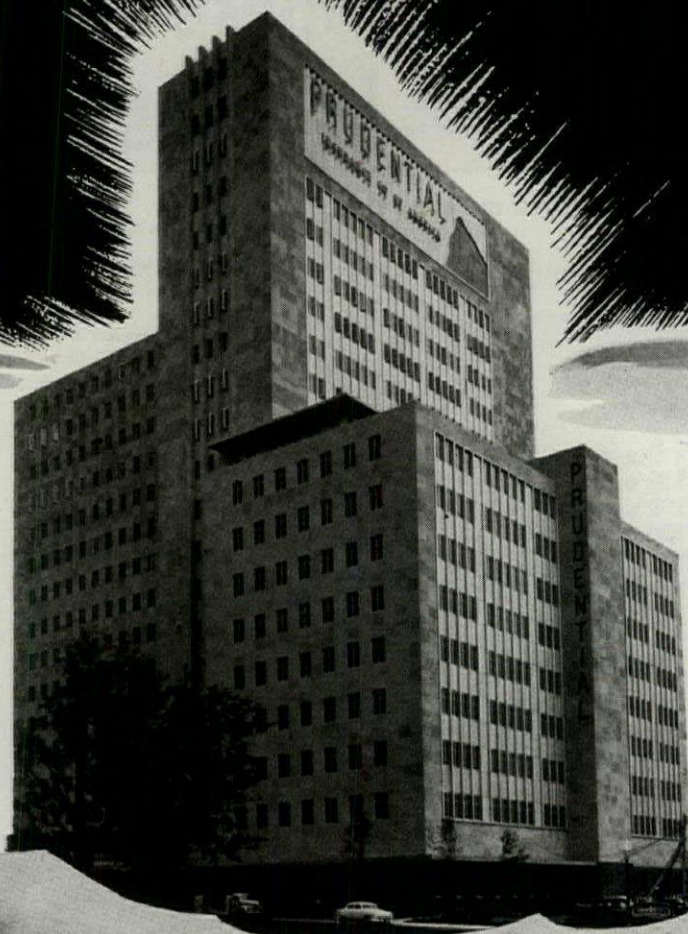


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AKRON 9, OHIO

24-D

LETTERS *continued*

feeling of a related plan could have been realized by the use of some structural module based on a common denominator of requirements such as both Wright and Mies used; or it might have been accomplished by the simplification and repetition of forms as in Corbusier's Rio campus.

Recognizing the fact that Mexico's University City is the remarkable collaboration and production job of 140 architects in contrast to the work of an individual architect, I wonder if program requirements in Mexico City were so varied as to explain the variety and careful "custom tailoring" of building forms—a flat slab, a penthouse on the slab, the frankly expressed outlines of auditoriums, a Maillart bridge, a connector here and another there, a thin steel arch, the bubble skylight, a barrel vault roof, the free flow of sloping laboratory floors and so on. . . . Do not such individual forms limit flexibilities of use and would not future additions and expansion merely add to the assortment of forms and shapes? . . .

A deadline is a great stimulus for job production. . . . However, the wisdom of rushing a job of this scope and importance seems questionable. Had there been more time, perhaps closer collaboration and a meeting of ideals and objectives could have been reached. Then, some of the World's Fair atmosphere that appears in the plans might have been eliminated. It takes time, time to screen the many ideas presented, and time to reconsider the competing skyscrapers (why so many?) and justify their existence. When we find the vertical circulation and floor area approach a ratio of 1:3 as in the administration building, we begin to doubt. . . .

They may have had a very good reason for paving all the main mall, but I wonder about its barrenness, the light glare into the classrooms, and the reflected heat. . . .

GEORGE MATSUMOTO
Associate professor of architecture
N. C. State College
Raleigh, N. C.

FORUM AND LIFE

Sirs:

FORUM is as good a commentary on modern living as any book I know.

I'm serious about this. If I didn't know anything about life in the US in the year 1952, I could get a very broad picture from your journal. . . .

B. DYER, *vice president*
Vitreous Steel Products Co.
Cleveland, Ohio

FLLW AND WORLD ENRICHMENT

Sirs:

Congratulations on your article about Frank Lloyd Wright and Florida Southern College (AF, Sept. '52).

continued on page 66



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Chrysler Building East, center above, reflects modern trend in building design.

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Chrysler again matches modern power with modern architectural design

When the original Chrysler Building was constructed, Westinghouse helped engineer the most modern electrical system available at that time. Since then, it has given 15 years of outstanding service—a vital requirement for this massive, 77-story structure.

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This system assures maximum safety and low-cost maintenance, since there are no live parts

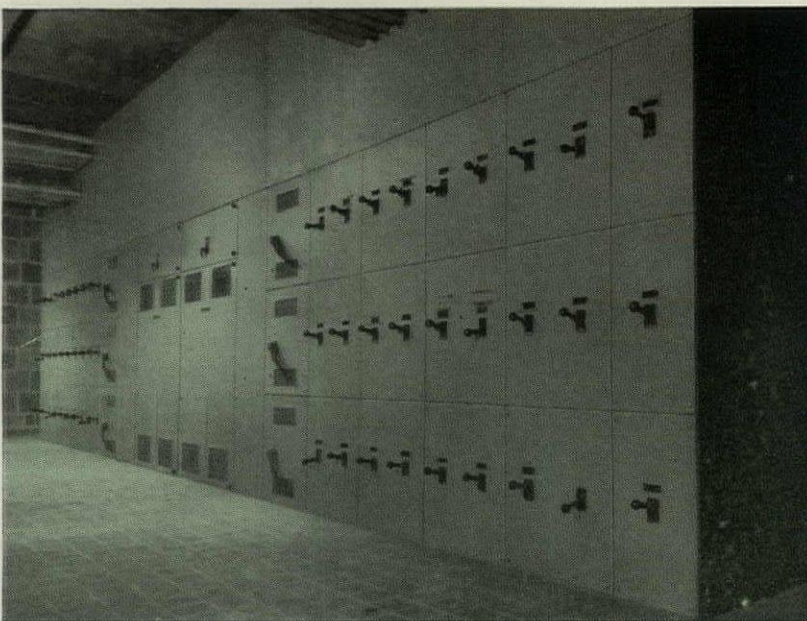
exposed to personnel . . . no fuses to replace. It can be laid out and installed easily.

CONSIDER THIS: A building's distribution system is a vital design consideration. It must be treated as an integral part of the over-all design . . . and be *coupled* with distribution equipment of the highest caliber.

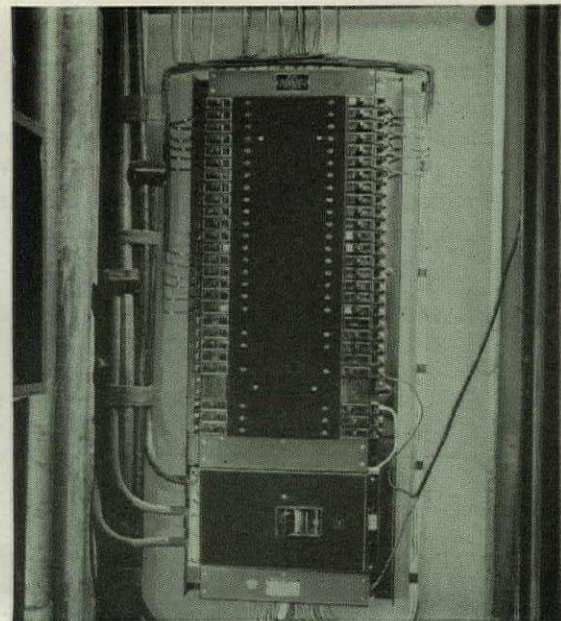
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Wolmanized
PRESSURE TREATED
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LETTERS *continued*

Each article you publish on the works of Frank Lloyd Wright, or those of his followers who have grasped the real sense of architecture, increases the quality of the FORUM greatly. Every work of Frank Lloyd Wright enriches the world we live in. He is a great inspiration to all.

Dr. Spivey's statement about the spirit on the campus is further proof of what Frank Lloyd Wright has been saying for years: true architecture, organic architecture, is more than mere buildings—it is a form of life.

Dr. Spivey's statement should be an encouragement to directors of other schools and colleges to obtain the services of architects like Frank Lloyd Wright.

DELTON D. LUDWIG
Gardena, N. D.

INDUSTRY EDUCATION

Sirs:

Your article on industry education by Mr. Rogers (AF, Sept. '52) is excellent. It promises much good for the construction industry because it emphasizes inclusive thinking and co-operation between members of the team.

A special school or schools of the construction arts and sciences properly geared, staffed and directed toward a comprehensive knowledge of the whole field might do much to smooth the future of this No. 1 industry. Meanwhile, much can be done working within existing schools; much is already being done.

The School of Engineering and Architecture at the University of Kansas has for 40 years been carrying on a close educational co-operation in engineering and architecture. Besides training many architects and engineers, we have had numerous graduates take up contracting or become manufacturers or suppliers for the construction industry.

This university has three basic training points of contact which promote progress toward understanding the related fields:

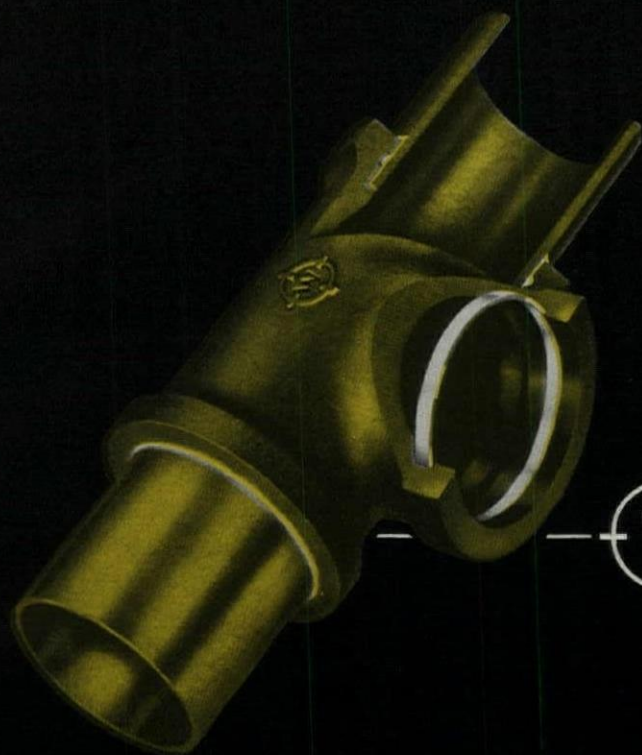
1. All freshman students are required to take a lecture course in which numerous aspects of engineering and architecture are discussed. This course helps toward orientation and understanding between professions.

2. Engineering and architectural students are found in the same classes both by election and requirement of their curriculums. This exchange and mixing of students and teaching staff is another contribution toward breadth and better understanding.

3. In our regular administrative monthly meetings the chairmen of the architectural and the engineering departments sit down together and work out common problems, which makes for fellowship and understanding.

T. DEWITT CARR, dean
School of Engineering and Architecture
University of Kansas
Lawrence, Kan.

continued on page 72



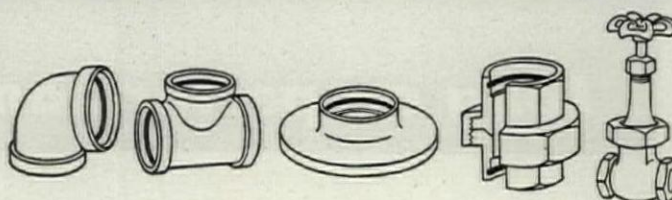
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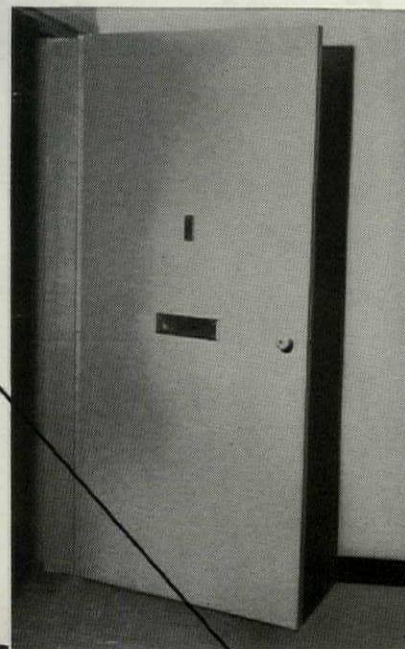


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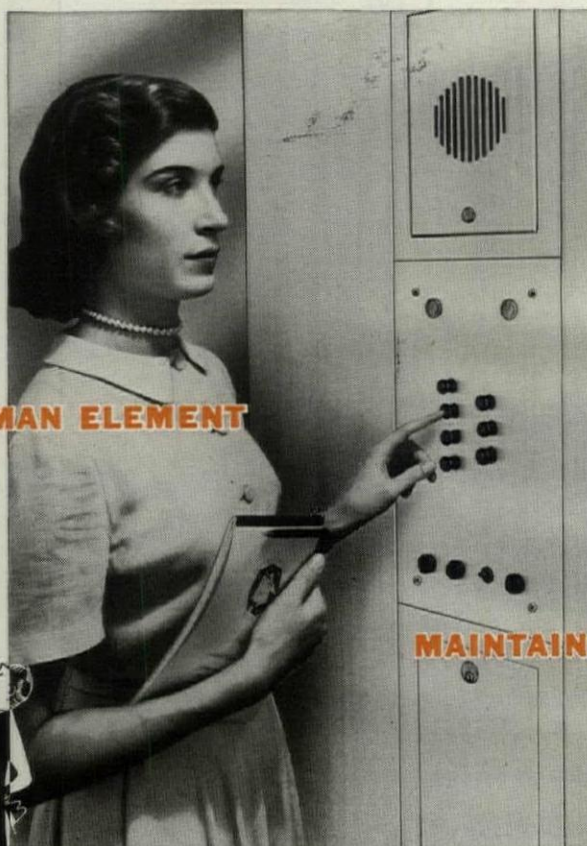




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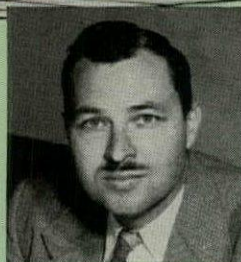
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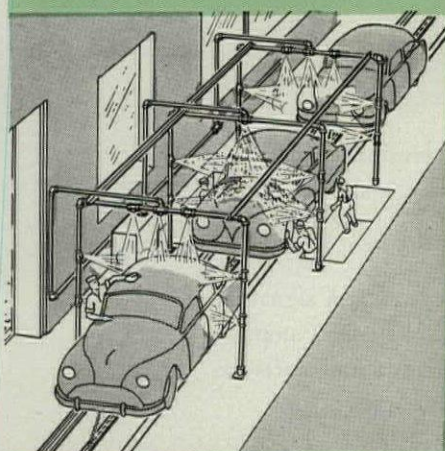
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LETTERS

Sirs:

Let Mr. Rogers visit the University of Florida and see for himself a "construction college."

Here in this century-old university with its more than 9,000 students, the College of Architecture and Allied Arts has been training architects and builders side by side since 1935. Not only does the college have the sixth largest school of architecture in the country, but during the past five years it has produced as many builders as architects.

That Mr. Rogers is apparently ignorant of pioneering efforts like that at the University of Florida is an indication that the universities have not sufficiently taken their own messages to industry.

It is important that education and industry know each other more; it is equally important that they learn to work together. If industry will sponsor more research in institutions like the University of Florida, industry will learn more of education, and education will learn more of industry.

Undoubtedly, as Mr. Rogers points out, there is need to break down instinctive barriers between the design professions, the contractor-builder groups and the manufacturers and suppliers of materials. And as one member of our staff suggests, "education may well be the vehicle on which the assaulting troops may be carried."

WILLIAM T. ARNETT, dean
College of Architecture and Allied Arts
University of Florida
Gainesville, Fla.

ARCHITECT vs. ENGINEER

Sirs:

The position of the individual architect is confounded by two important factors today, both of which need correction.

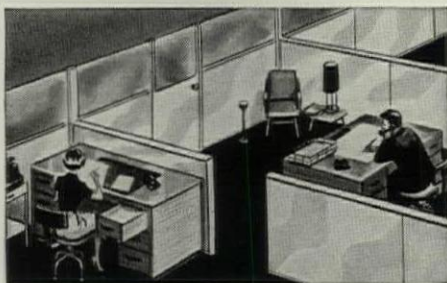
First, wartime practices which gave ascendancy to the engineer in construction lingers in the profession. The architect is too often required to think in the same manner as the engineer. . . . Individual architectural expression cannot be the "arty," irresponsible, early 20th-century type, but must be positive and imaginative, and include a sense of superiority over the fallacy that engineering design per se dictates the ultimate architectural form.

Second, the inhuman theory that "team-work" is essential to the function of the construction must be corrected; otherwise individualism may never recover. . . . There must be a separation of the individuals' duties in construction organization. This does not mean a lack of cooperation, but it does mean the re-establishment of individual rights. . . . Each must be independent, not intrude upon one another and call it "team-work."

HUBERT R. ARNDT
Childs & Smith, architects
Chicago, Ill.

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Practical Partitions



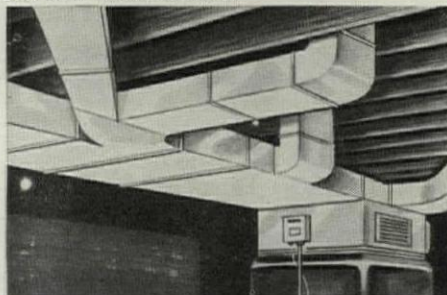
Aluminum, the modern metal, fits in perfectly when it comes to partitioning new offices or modernizing older office space. Rectangular aluminum tube framing minimizes floor load—also serves as wiring conduit. Reynolds embossed or plain aluminum paneling can be perforated for acoustical benefits and painted to harmonize with any color scheme. Extruded aluminum shapes may be used for railing caps, glass retainers, corners, seam covers, base mouldings, etc. Obviously, many design variations are possible.

Modern Store Fronts



Here are just a few of the many reasons why Reynolds Aluminum is so often used in the design of modern store fronts. Aluminum offers greater design flexibility than any other metal and blends well with other materials. It does not streak or stain other surfaces. And with a single lifetime finish, aluminum stays bright indefinitely. Standard extruded and roll-formed aluminum shapes are stocked by most store front fabricators as a part of their complete installation service. Special shapes are easily and inexpensively extruded.

Better Ductwork



It's smart to specify aluminum for ductwork because, at one-third the weight of other metals, aluminum cuts tons from added weight to reduce structural loads in commercial buildings. Aluminum will not rust from condensation in cooling systems. And it is a natural insulator. Non-sparking aluminum also is ideally suited to the removal of inflammable and explosive dust and fumes in industrial installations. Aluminum ductwork installation is easier—usually costs less, particularly when larger sections are involved.



Put Reynolds Architectural Service to work on Your Designs

There's no need to be "in the dark" when it comes to selecting a metal that will complement your designs, improve your buildings and better satisfy your clients. Aluminum, with its amazing design flexibility and unique properties, stands out as the obvious choice—it's the modern metal that offers you attractiveness, strength, light weight, resistance to corrosion and a host of other benefits.

If, by chance, you're faced with an aluminum design problem, Reynolds Architectural Service is yours for the asking. This specialized service, like aluminum itself, helps light the way to better buildings.

For standard applications, aluminum windows, doors, hardware, light fixtures, roofing, awnings, insulation and other building products are made from Reynolds Aluminum by many manufacturers. In fabricating their products, these concerns also rely on the high quality of Reynolds complete line of aluminum mill products—extruded shapes and tubing, structurals, sheet, wire, rod and bar.

Remember—whether your requirements call for special designs or standard building products, aluminum is your soundest choice. And remember, too—*aluminum is the only mass-produced metal that costs no more today than before World War II.*

For complete architectural aluminum information, call the Reynolds office listed under "Aluminum" in your classified directory or write direct.

NEW DESIGN FOLIO

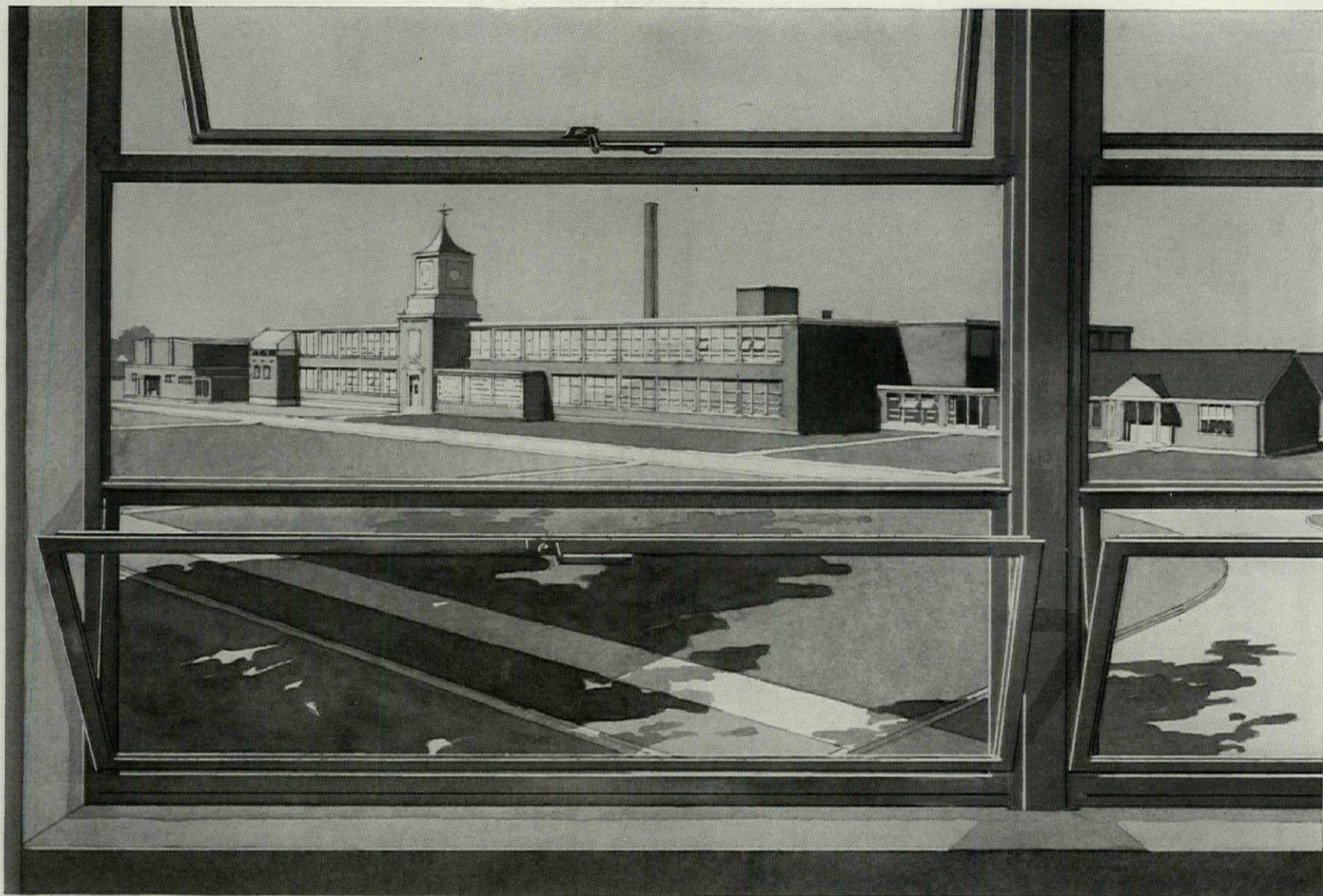
Send for your copy of the completely revised Reynolds Architectural Folio. A complete, up-to-date kit on architectural aluminum. In loose-leaf form with drawings for direct tracing. Free when requested on business letterhead.

Write to Reynolds Metals Company, 2528 S. Third St., Louisville 1, Kentucky.



REYNOLDS ALUMINUM

MODERN DESIGN HAS ALUMINUM IN MIND



Ewing Township High School, Mercer County, Trenton, N. J. Architects: Mickelwright & Mountford. General Contractor: William C. Ebret, Trenton, N. J.

Note—to busy architects

Find out about Lupton "Master" Aluminum Windows before you start your next commission for a Hospital, School or Office Building. Here is modern design, modern construction, in a modern material that means good appearance with economical long life.

Extra deep section members and frames have a deceiving lightness that conceals their strength. Both frame and ventilator sections use solid aluminum extrusions $1\frac{5}{8}$ " deep with all corner connections welded on both frames and ventilators. Windows will accommodate double-glazing up to $\frac{1}{2}$ ". With Lupton "Master" Windows you provide maximum daylight per window opening — with no sacrifice in strength.

Ample controlled ventilation is possible through two ventilators. One opening in, the other out. The bottom ventilator, which opens in, also acts as a safety shield. Precision balanced, each opens at a touch and closes snug and tight for minimum air infiltration.

Lupton "Master" Aluminum Windows offer complete freedom from swelling, shrinking, rattling, warping and painting . . . Etched finish protected with clear lacquer.

Design data for Lupton Steel or Aluminum Windows are given in Sweet's Architectural File. Your local Lupton Representative is listed in the Classified Section of the Telephone Directory, under "Windows — Metal" or "Sash — Steel".

MICHAEL FLYNN MANUFACTURING COMPANY

700 East Godfrey Avenue, Philadelphia 24, Penna.

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LUPTON

METAL WINDOWS

Recipe for comfort



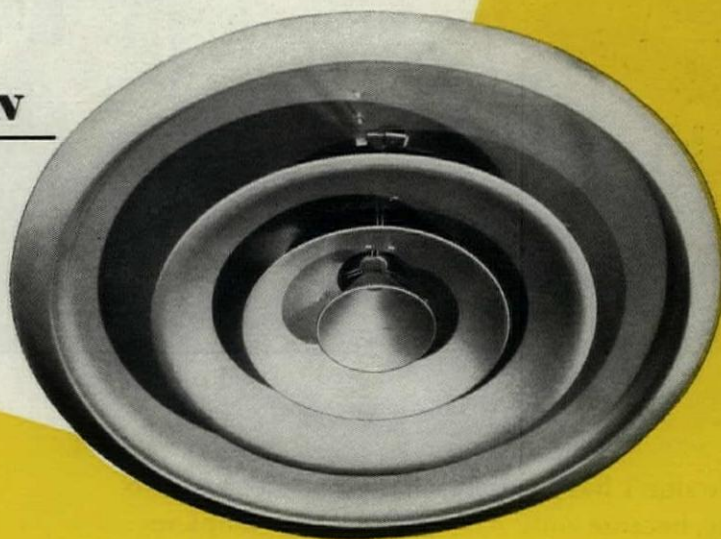
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ANEMOSTAT CORPORATION OF AMERICA

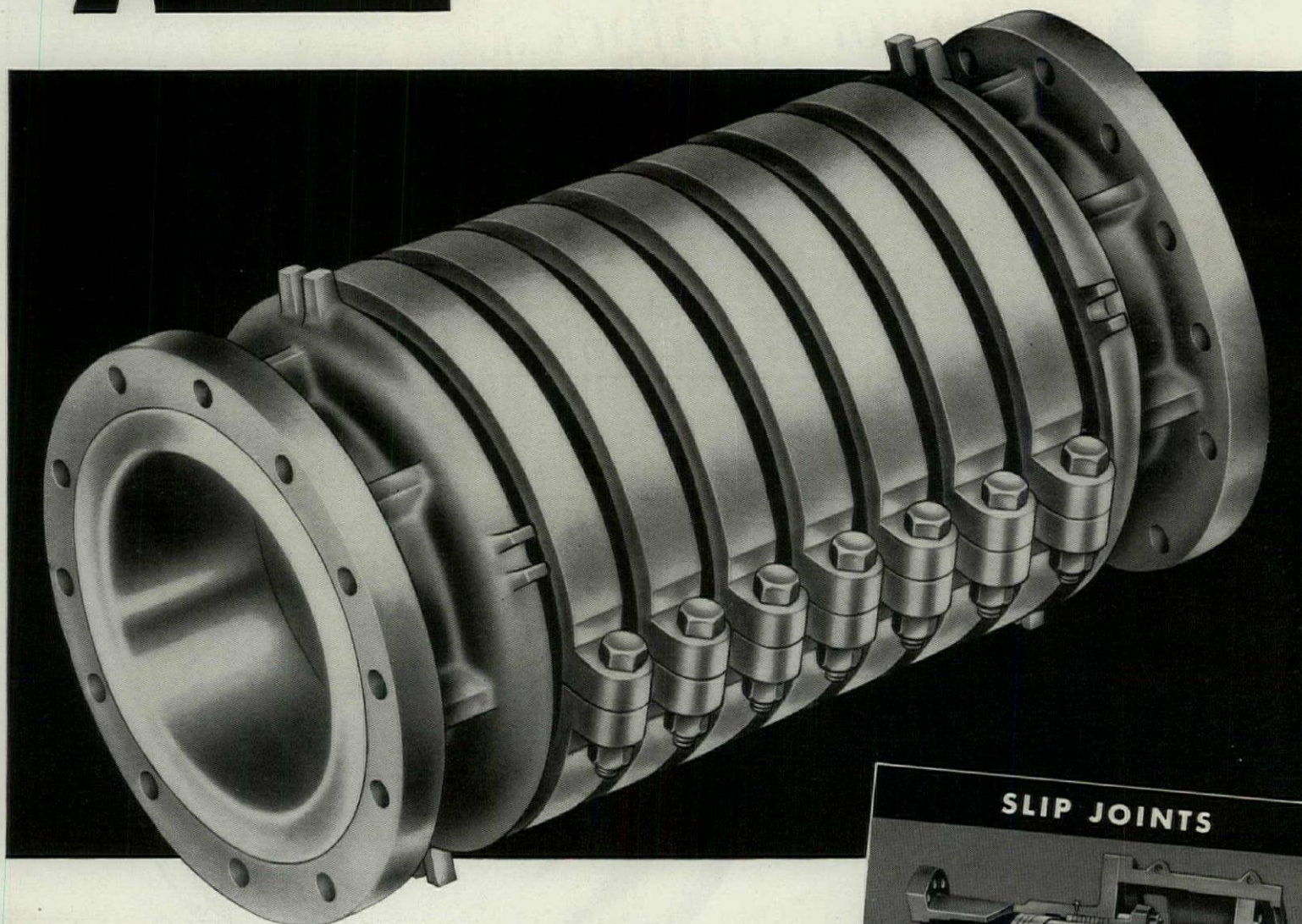
10 EAST 39th STREET, NEW YORK 16, N. Y.

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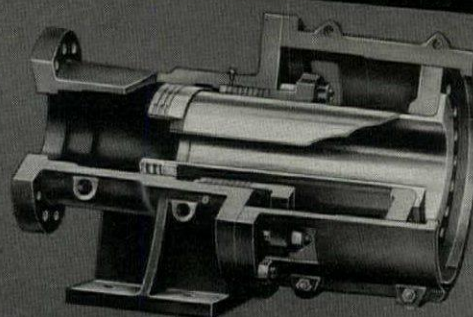
AC 1886

ADSCO EXPANSION JOINTS

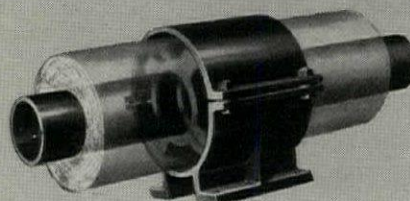


We don't have to sell what you don't want to buy, because only ADSCO makes a complete line of expansion joints. The modern Corrugflex, shown above, is the result of 50 years' experience in packless expansion joints. Equalizing and non-equalizing Corrugflex joints cover wide temperature and pressure ranges and are built in many designs, including universal, tie-rod, hinge, and fully-guided. They will solve nearly all pipe-expansion problems caused by temperature differential, whether the material in the pipes is liquid, gas, or steam. Write for Bulletin 35-51.

SLIP JOINTS



PIPE ACCESSORIES

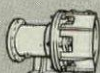


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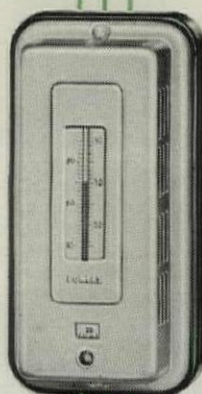
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AIR CONDITIONING
RADIANT HEATING
HOT WATER HEATER

Control



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ENGINEER: GUY B. PANERO
CONTRACTOR: ARTHUR E. MAGHER CO., INC.
(All of New York City)



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860 LAKE SHORE DRIVE

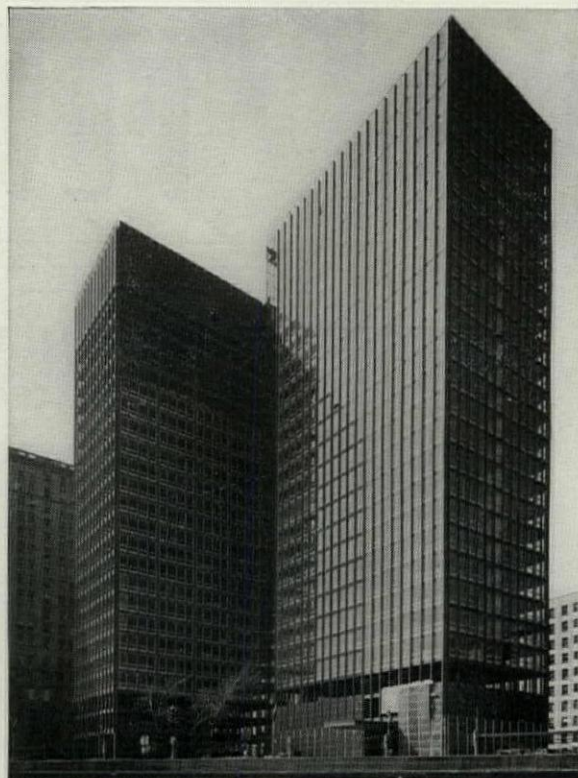
Chicago's Newest and Finest Apartments

ANOTHER *Penmetal* JOB

Congratulations to Associated Architects and Engineers on the brilliant vision which conceived this splendid structure, and on the skill that brought it from plans to realization.

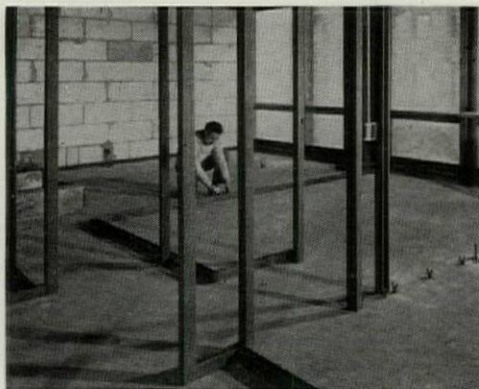
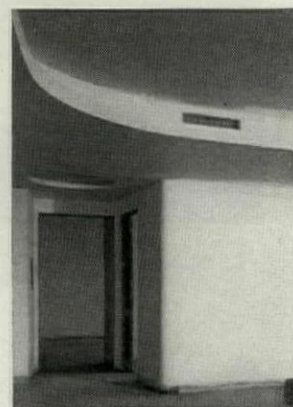
Congratulations too, to Smithson Plastering Company who installed the walls, partitions, ceilings and column fireproofing using more than 80,000 square yards of PENMETAL Lath and Plastering Accessories furnished by Calumet Coal Company on schedule as required.

PENMETAL is proud of the part its products played in the construction of this modern monument to designing and building skill.



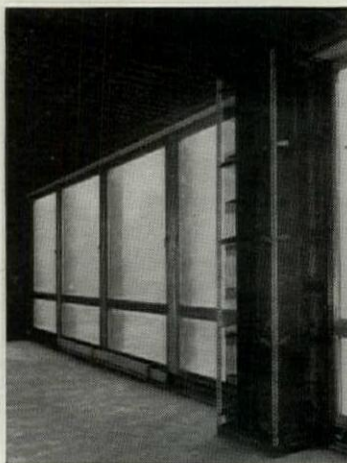
Architects: Ludwig Mies van der Rohe; Pace Associates; and Holsman, Klekamp and Taylor

The finished job, curves, corners, ledges and domes all done smoothly and evenly over Penmetal Lath.



Construction of 2-inch solid partitions was speeded up by using Penmetal flush-type Base. Tenants determined partition locations. Metal Base matches metal door bucks to give a durable, maintenance-free assembly.

Photographs by Hedrich-Blessing, Chicago



Steel columns are fireproofed with Penmetal Lath and gypsum-perlite plaster, saving tons of dead weight, and permitting smaller framing members.

(Below) Penmetal Masterib Lath used for suspended plaster ceilings protects the floor beams as well as the corrugated metal floors making it unnecessary to encase each beam in masonry or concrete.

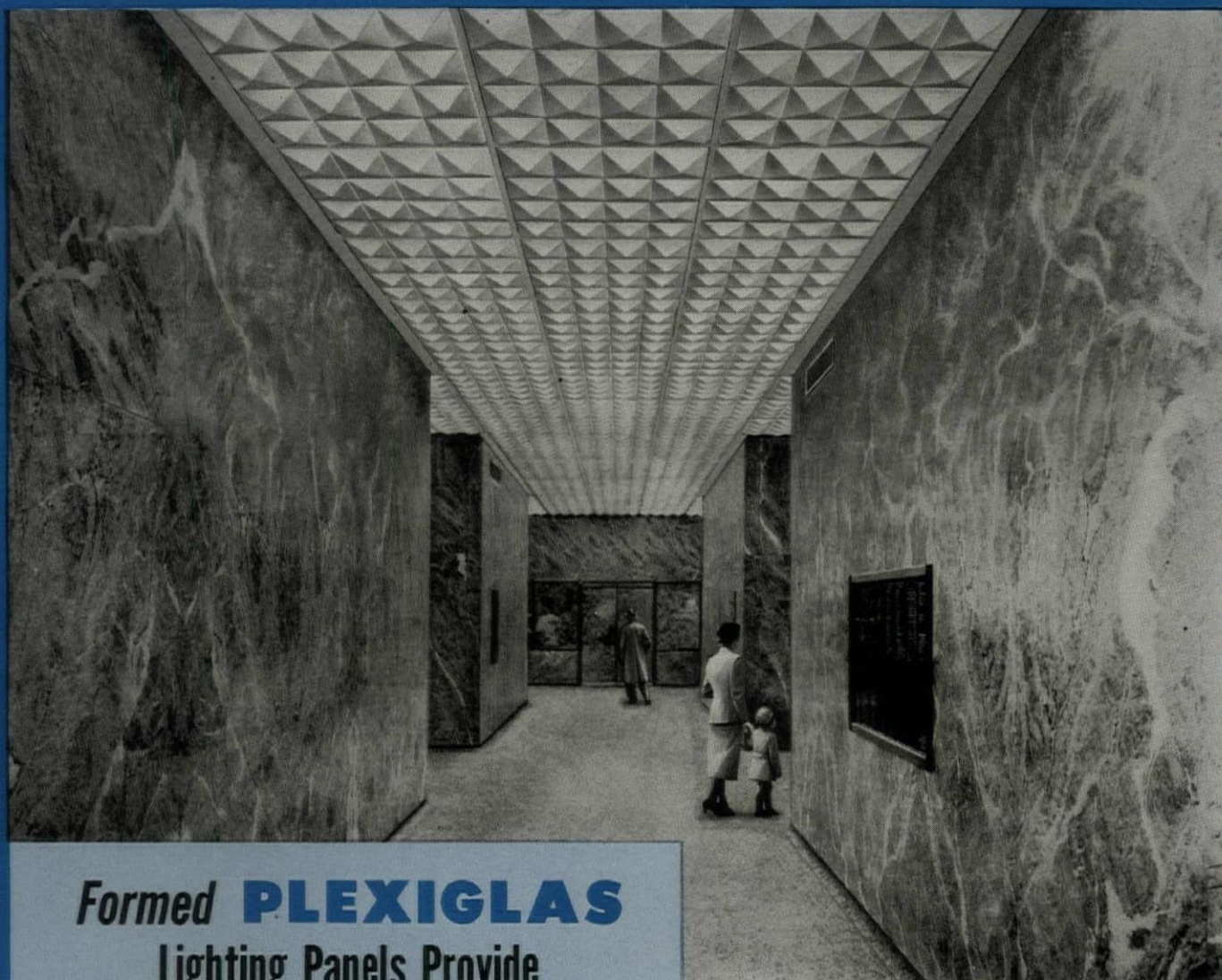


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General Sales Offices: 205 East 42nd Street, New York 17, N. Y.

District Sales Offices: Boston, New York, Philadelphia, Washington, Chicago, Indianapolis, Detroit, Seattle, Los Angeles, San Francisco, Dallas, Parkersburg, W. Va.

Factory: Parkersburg, W. Va.



Formed PLEXIGLAS Lighting Panels Provide Decorative Appeal at Gateway Center

All lobby corridors of the Gateway Center buildings in Pittsburgh are lighted as shown above, by custom-formed panels of PLEXIGLAS acrylic plastic suspended beneath cold cathode tubes.

The architects wanted a faceted ceiling design that would give sparkling texture to the lighting. The designer achieved this by having multiple pyramids formed into each acrylic plastic panel; mounted wall to wall along the corridors, the panels contribute marked decorative appeal to the lighting installation.

Thermoplastic PLEXIGLAS panels can be formed easily to almost any shape or design. This makes it possible to combine lighting with decorative treatments of ceilings—frequently at substantial cost savings. In addition there are the advantages of diffused illumination, low brightness ratios, and fixture-free appearance.

We will be glad to send you design details of the luminous ceiling shown above.

Gateway Center, Pittsburgh, Pa.—a trio of steel-clad office towers erected by the Equitable Life Assurance Society as part of the city's famed redevelopment program. Approximately 11,000 square feet of PLEXIGLAS diffusing panels are used for luminous ceilings in lobby corridors.

Architects:
Irwin Clavan and Eggers & Higgins, New York

Builder:
Starret Bros. and Eken, New York

Lighting Design:
Lighting by Feder, New York

PLEXIGLAS Fabrication:
Dura Plastics, Inc., New York

PLEXIGLAS is a trademark, Reg. U. S. Pat. Off. and other principal countries of the Western Hemisphere.
Canadian Distributor: Crystal Glass & Plastics, Ltd., 130 Queen's Quay at Jarvis Street, Toronto, Ontario, Canada.



ROHM & HAAS **COMPANY**

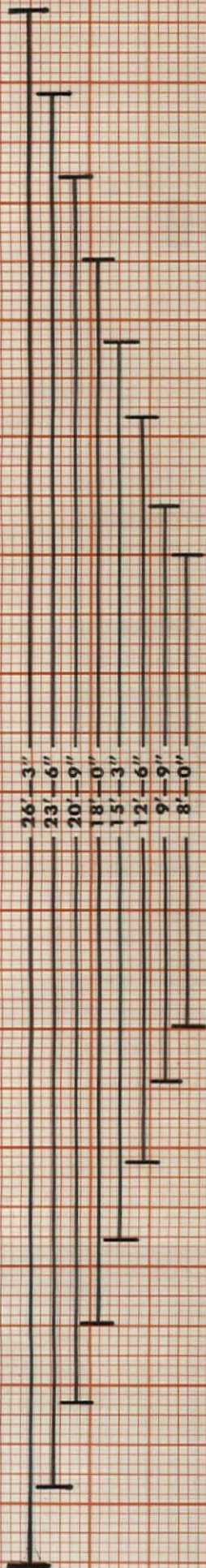
WASHINGTON SQUARE, PHILADELPHIA 5, PA.
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When low cost is of first importance, or when flooring effects require directional graining, Armstrong's Standard Asphalt Tile offers Armstrong quality at minimum cost. Floors to suit any interior design can be created from a full range of regular colors and in certain matching Standard Grease-Resistant Asphalt Tile colors.

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ARMSTRONG'S ASPHALT TILE
ARMSTRONG CORK COMPANY • LANCASTER, PENNSYLVANIA



Conference tables in a practical boat-shape of handsome visual simplicity. Designed to meet the requirements of group discussion in contemporary offices. A versatile collection, offering a choice of birch, walnut, cherry, teak, and other woods, with table and chair bases in metal or wood.



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KNOLL ASSOCIATES, INC. • 575 MADISON AVE., NEW YORK 22, N.Y.

"Off-ceiling" lighting is attractive

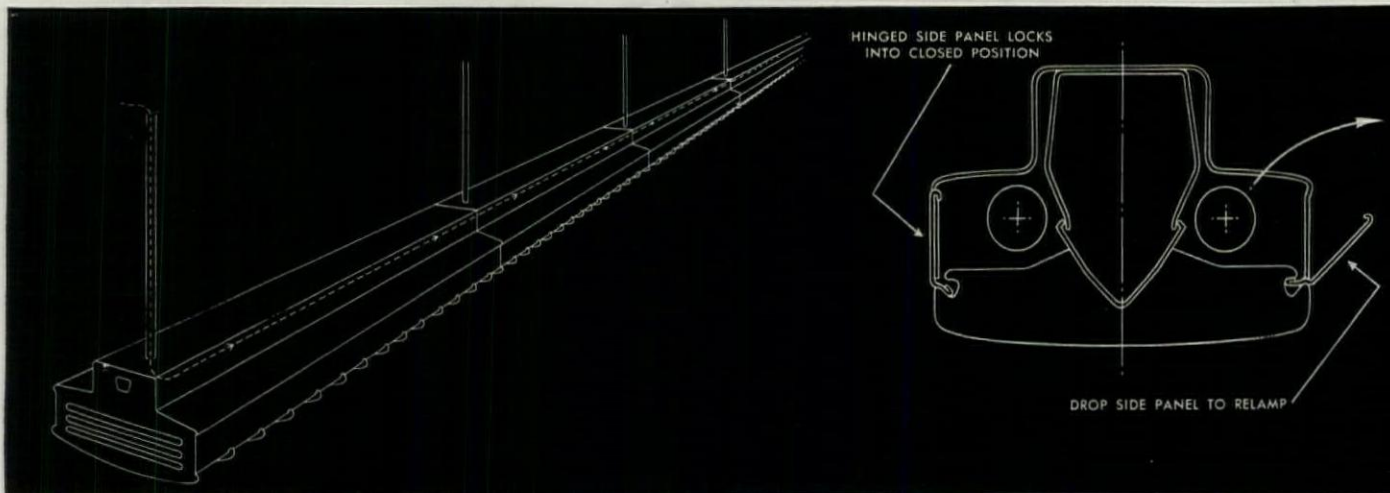
Creative design added spaciousness and beauty to this confined building interior with an unusually high ceiling. Modern, flexible lighting systems and more freedom in architectural design techniques are the basic ingredients.

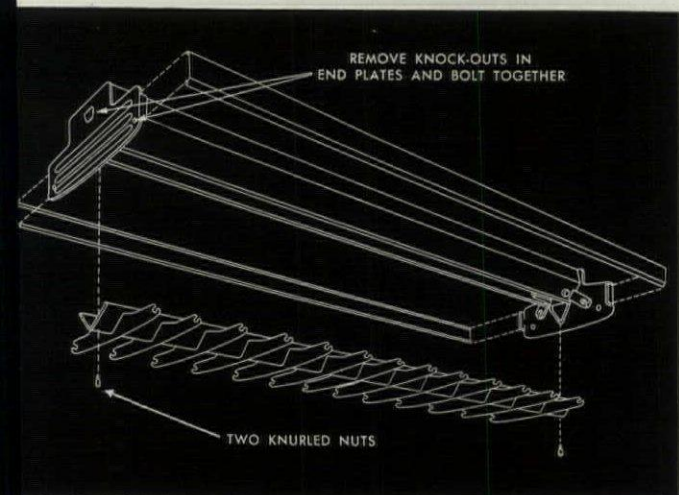
In the Anglo California National Bank's office at Hayward, California, the architect cleverly planned a second working level to minimize the high ceiling. An off-ceiling (or suspended) lighting system became an integral part of this design. Individual working areas are more than adequately lighted (over 40 footcandles) *with good, comfortable lighting.*

Open office spaces and carefully selected decorating colors help provide "spill-over" light for the main area; a device that might be used in many office buildings where the problem is one of high ceilings and limited space.

Westinghouse Type CC, 8-foot slimline fixtures with plastic sides were selected. Low in first cost, they are economical to install and maintain, since a minimum number of fixtures are needed. This is only one of a wide variety of lighting systems designed by Westinghouse for flexibility in planning. Send for B-5254, "Lighting Sets the Stage" and see an analysis of our complete commercial line. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

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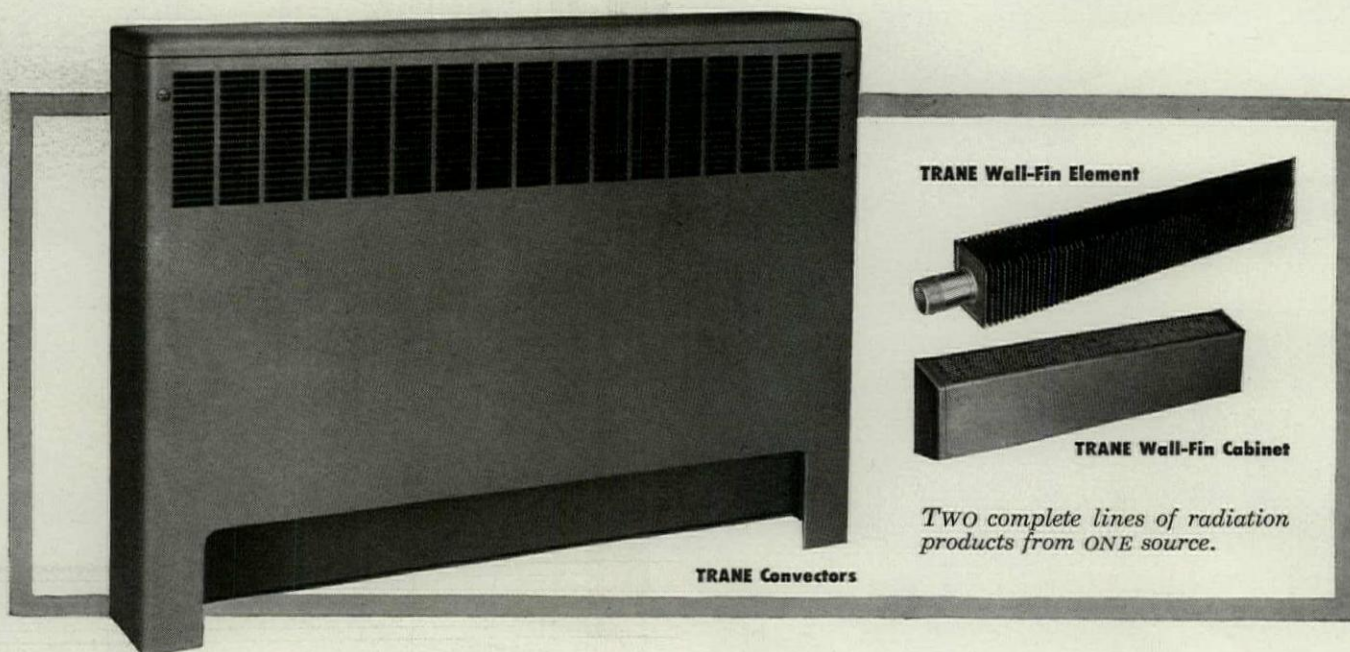


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LIGHTING DIVISION

Edgewater Park, Cleveland, Ohio





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CONVECTORS in 10 attractive cabinet types plus WALL-FIN

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TRANE Convectors—A complete line of ten basic cabinet models (floor type, wall-hung and picture window). Available in a multitude of sizes with sloping or flat tops, for free-standing or recessed installation with either hot water or steam. All are "Code Rated" and meet exacting requirements for efficiency, beauty and easy, low-cost installation.

TRANE Wall-Fin—Again a broad selection range of finned radiation: single or tiered heating elements, hot water or steam, handsome sloping-top cabinets or expanded metal grilles . . . a neat answer to under-window or continuous runs.

This freedom of choice is another reason for TRANE's consistent leadership in expanded surface radiation . . . ever since TRANE introduced the convector 27 years ago.

For the answer to your radiation heating needs, contact your nearest TRANE sales engineer or write TRANE, La Crosse, Wisconsin.



TRANE Steam and Hot Water Fittings—circulators, traps and valves matched for perfect service with TRANE heating equipment.

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Plate No. 323
 Tile Specifications: Walls—28 Pearl Gray and 68 Rose; Base—26 Clover Red; Decorative Strips—R86-C107; Inserts—Gull H21, Duck H22, Flamingo H24; Floor—Slate Textone

NEW... Booklet on Industrial Washrooms Shows How To CUT *Maintenance* and BUILD *Morale*

In industrial and institutional buildings, where maintenance costs and employee morale are important factors, more and more architects are specifying tiled walls and floors.

Our new Booklet 300 has been prepared to help architects plan these types of installations. It shows how real clay tile can cut janitor costs 50% or more... how it will end repair and maintenance expenses for good... how it will build morale with cheerful, colorful, easy-to-keep-clean rest areas.

Page after page of major industrial installations are shown in exact color. Ready-to-use wall and floor tile specifications are included. Colors, patterns and types of tile can be selected easily from accurate color panels.

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Please send me my free copy of Booklet 300,
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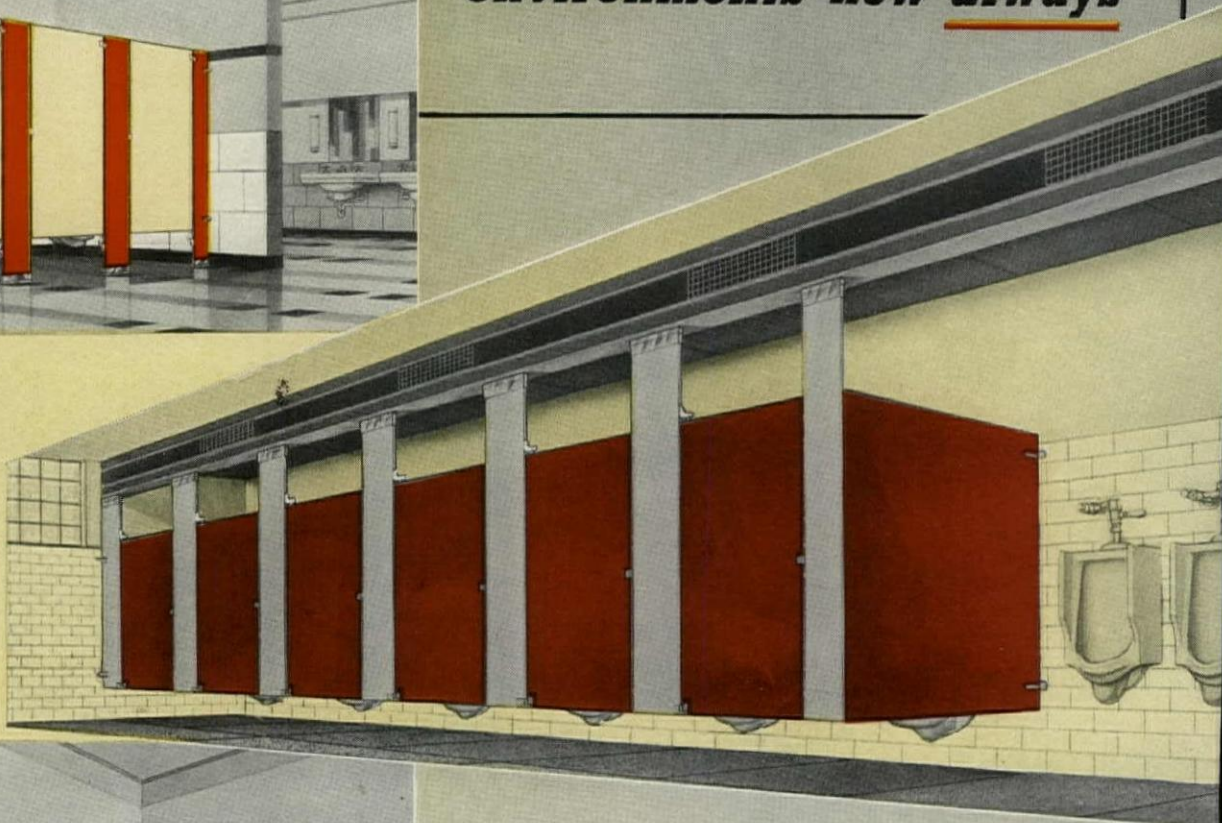
Executive Offices, 910 Kenilworth Ave., Lansdale, Pennsylvania

Sanymetal^{*}

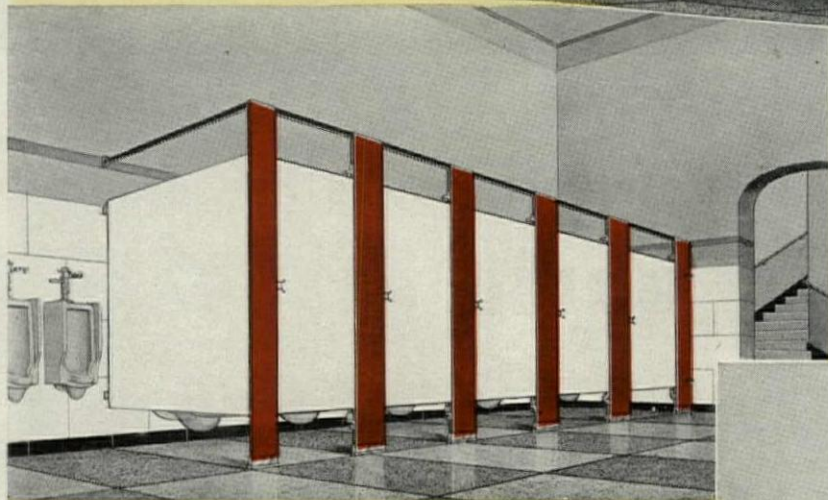
**... Toilet Compartments
help keep toilet room
environments new always**



**Sanymetal NORMANDIE
Type Toilet Compartments** endow a toilet room
environment with dignity
and good taste

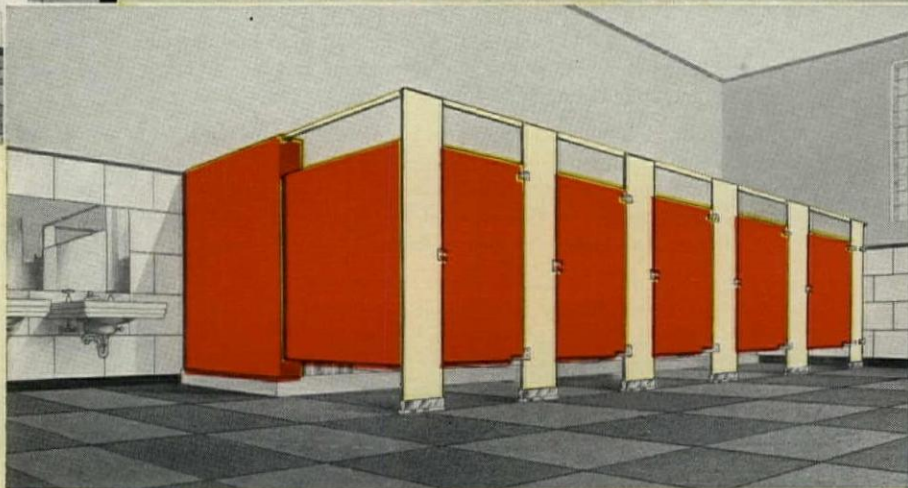


Sanymetal CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive toilet room environments for schools, institutions, terminals and other public buildings.



Sanymetal ACADEMY Type Toilet Compartments are suitable for conservative but modern toilet room environments in all types of buildings.

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



Sanymetal USES TWO FULL-PURPOSE METAL BASE

MATERIALS FOR TOILET COMPARTMENTS AND SHOWER STALLS

This is Sanymetal "TENAC"

(Baked-On Paint Enamel over Galvanized Bonderized* Steel)

A metal base material that is notable for the positive adhesion of the baked-on paint enamel to the metal and its resistance to corrosion. Its lustrous, protective finish assures long-lasting newness. Available in 21 attractive colors.

FINISH COLOR COATS

PRIMER COAT

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STEEL BASE



This is Sanymetal "PORCENA"

(Vitreous porcelain on steel)

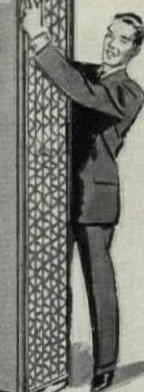
Vitreous porcelain on steel is an ageless and fadeless material that stays new always. It is in every respect unlike painted enamel or lacquer finished steel because it is fused to steel at a temperature of 1350°-1550°F. This impregnates the steel with vitreous porcelain enamel to the extent that it cannot be hammered out. This metal base material is impervious to moisture, odors, cleaning and uric acids, oils and grease. It is rust proof. Available in 21 glistening colors. It has no equal for strength and durability.

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ETCHED SURFACE

BASE COAT OF PORCELAIN

COLORED COATS OF PORCELAIN



The toilet room environment that stays new is the toilet room in which the most suitable type of toilet compartment available has been installed. Toilet compartments usually dominate a toilet room, influence the toilet room environment and emphasize the utility of fixtures and appointments. The bare functional type of toilet room is inadequate according to today's standards.

Sanymetal offers several different types of toilet compartments for creating the most suitable toilet room environment for each type of building. Sanymetal also offers and recommends Two Full Purpose Metal Base Materials which combine colorful attractiveness with long years of service life and effect important, day after day, savings in cleaning and maintenance cost. These Two Full Purpose Metal Base Materials—Sanymetal "Tenac" (galvanized, Bonderized* steel), a highly corrosion-resistant material; and Sanymetal

"Porcena" (vitreous porcelain on steel), the ageless and fadeless, rust proof material—represent years of engineering research and skillful adaptation by Sanymetal engineers of corrosion-resistant steels to the fabrication of new and different types of toilet compartments. Ask the Sanymetal representative in your vicinity for helpful suggestions for planning suitable toilet room environments.

THE SANYMETAL PRODUCTS CO., INC.

1687 Urbana Road • Cleveland 12, Ohio

Installations of Sanymetal Toilet Compartments have been made in over 150,000 different buildings including practically every type of building. Ask the Sanymetal representative in your vicinity for information about planning suitable toilet room environments that will always stay new. Refer to Sanymetal Catalog ^{22b}SA in Sweet's Architectural File for 1952.



Sanymetal *

TOILET COMPARTMENTS • SHOWER STALLS • DRESSING ROOMS

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

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



Above: Governor's Reception Room, State Capitol, Sacramento, Calif. Architect: Harold N. Marquis (Div. of Arch., State of Calif.) Sandalwood Kalistron on walls.

UNBELIEVABLE DURABILITY

on office walls...

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Kalistron is different because its color is fused to underside of clear sheet of wear-resistant Vinylite. Since nothing can touch this under-surface, *Kalistron's* beauty stays fresh and new-looking.

Kalistron cannot chip, crack or peel; minimizes maintenance costs. Cleans easily with a damp cloth. In 28 standard colors: special colors matched.

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Kalistron[†]
COLOR FUSED TO UNDERSIDE
 PLASTIC COVERING MATERIAL

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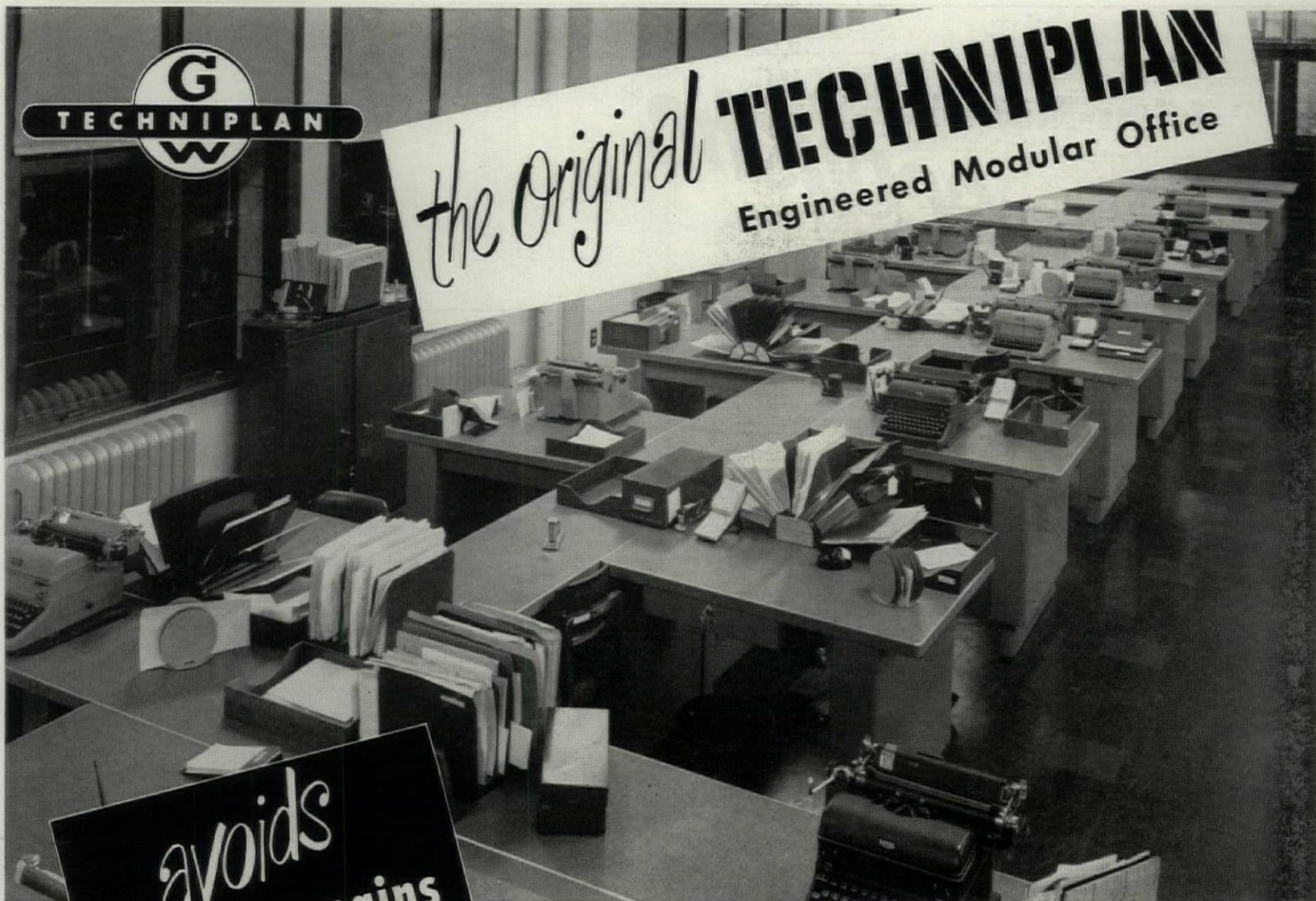
[†]TRADEMARK

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



the Original **TECHNIPLAN**

Engineered Modular Office



*avoids
growing pains*

.....FOR HARDWARE MUTUAL*

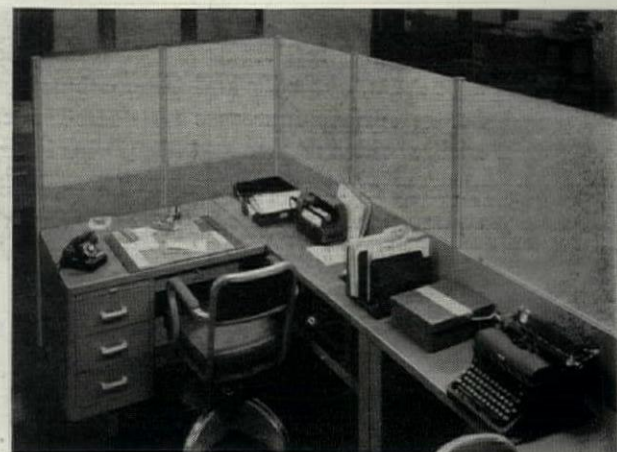
larger staff more comfortable, efficient in "outgrown" office!

TECHNIPLAN Pays 25% Annually in Saved Rentals

TECHNIPLAN ENABLED an expanding Branch Office of *Hardware Mutual Insurance Company of Minnesota to escape these costly measures—leasing additional office space and operating on two floors.

THE LOCAL G/W DEALER showed how steel Techniplan would accommodate additional personnel and equipment within the present space with increased employee comfort and efficiency, *and pay for itself in four years through savings in rent alone!*

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PRIVATE OR SEMI-PRIVATE work areas easily, quickly provided with Techniplan's modular partition units.

WRITE TODAY to Globe-Wernicke, Dept. 13-AF, for this complete, informative Techniplan Catalog. Helps you plan your office more efficiently.

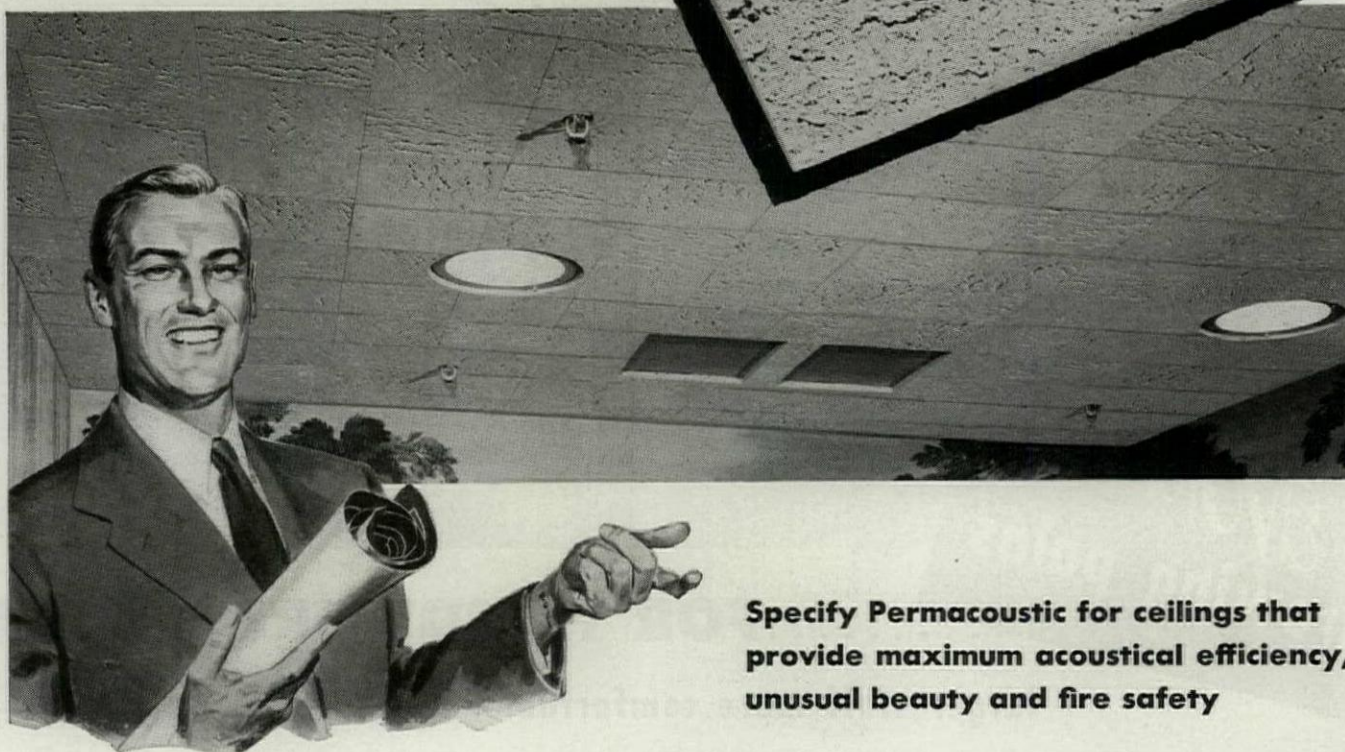


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Johns-Manville Permacoustic*

... a decorative
acoustical unit



Specify Permacoustic for ceilings that provide maximum acoustical efficiency, unusual beauty and fire safety

Johns-Manville Permacoustic is exceptionally sound-absorbent, attractive and noncombustible. Its random-fissure surface increases its noise-reduction qualities and provides texture and decorative interest.

Made of baked rock wool fibres, molded into 12" square panels $\frac{3}{4}$ " thick, J-M Permacoustic is fireproof ... meets all building code fire-safety requirements.

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. Write Johns-Manville, Box 158, New York 16, New York. In Canada, write 199 Bay Street, Toronto 1, Ontario.

*Reg. U.S. Pat. Off.

DESCRIPTION AND DATA CHART, $\frac{3}{4}$ " thickness—12" x 12"—color, white

mounting	acoustical efficiency						noise reduction coefficient	weight per sq. ft.	test no.
	125	250	500	1000	2000	4000			
No. 1—cemented to plaster board	.04	.21	.75	.88	.85	.77	.65	1.3	A51-98
No. 7—furred by 1"x2" wood strips 12" o.c.	.56	.53	.60	.73	.88	.88	.70	1.3	A51-99



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Associate Architects—Altenhof & Bown
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Consulting Engineer—Edward E. Ashley, New York City

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MIES VAN DER ROHE

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Under this letterhead a lot of strong and revealing architecture has been accomplished recently in Chicago. Here is the strength of steel, the clarity of glass, and the lucid structural expressiveness of one of the three most influential architects of our time. But there is more than that; from these buildings can be drawn a new, down-to-earth appraisal of this architect, who is too often discounted as being either an austere prophet of form, or—at the other end of the scale—merely a very gifted structural engineer.

Ludwig Mies van der Rohe (who is commonly addressed by the first part, *Mies*, of his compound last name, *Mies van der Rohe*) is represented in this 19-page folio by work including the two straight towers of the Lake Shore Drive apartments (above), a growing college campus (p. 104), a chapel (p. 106), a boiler plant (p. 107), a row-house design (p. 108), an experimental house structure (p. 110) and a precisely elegant stairway for a Chicago club (p. 111). These structures are strong, spare and surprisingly economical—and more than anything else, robust.



A large part of the Mies misconception revolves around his own personality. He too is robust, not precious. He is a formidably shy man of 66 with massive shoulders, a daring chin now well upholstered in flesh and an expression of gravity which differs greatly from the urgent mobility of Le Corbusier's face, or the wise nobility of Wright's. His eyes, set in areas of intricately pleated and plumped skin, seem distant. He is immovably calm, with a soft manner; at times he becomes a hearty, skillful raconteur, but mostly he is silent. In a meeting with Mies, there are numerous, faintly hopeless stillnesses when he withdraws behind a cloud of cigar smoke, while ideas or images simplify themselves in his mind. Then, when he speaks, his conversation is like his walk: he puts his left hand into the pocket of his double-breasted suitcoat and with his chin erect he goes heavily toward his goal with a rapid, rolling gait and an unstoppable air. When he reaches it he halts abruptly and stands in silence, exhaling cigar smoke and sighing quietly.

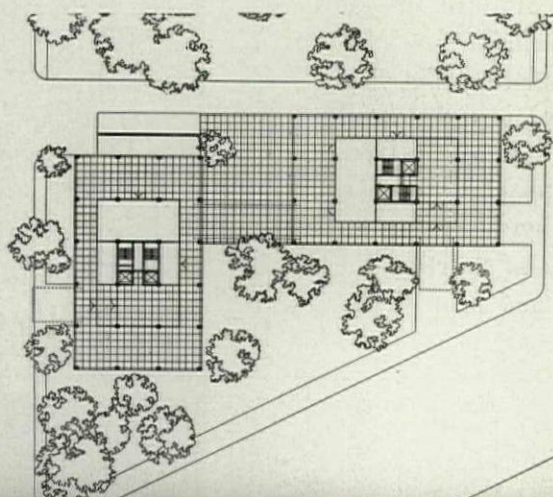
His biggest interest—and it also is robust—is in what he calls *The Structure*. "But we are not decorating," he says. "This is structure. We put up what has to be built, and then we accept it." This acceptance, however, is not pure complaisance to structural engineering. The matter of the mullions on his biggest building, 860 Lake Shore Drive (see p. 99), shows that his objective approach has subjective motivation.

He is an admirer of Louis Sullivan, his historical predecessor in straight steel building in Chicago, but he does not observe the ringing dictum *Form Follows Function*. "We do the opposite. We reverse this, and make a practical and satisfying shape, and then fit the functions into it. Today this is the only practical way to build, because the functions of most buildings are continually changing, but economically the buildings cannot change."

It is in the structure for his large simple shapes that Mies applies his passion for order—but not for rules. Long ago he said that form as an end in itself results in mere formalism, but that the kind of form he was interested in would not—and in his own hands it has not.

In a world which each month sees more Mies-like structures built here are some real Mies buildings by the man who has said, "I hope you will understand that architecture has nothing to do with the inventions of forms. It is not a playground for children, young or old. Architecture is the real battleground of the spirit." Mies should know; he has been there.

860 Lake Shore Drive is a pair of 26-story steel-and-glass cooperative apartments that stand by Lake Michigan in one of the choicest sites, both naturally and socially, in Chicago. One tower is six-room apartments; the other, three-and-a-half-room apartments. The structure is black-painted steel; the wall is glass from floor to ceiling, all the way up.



Photos: (top p. 93 and right) Hedrich-Blessing

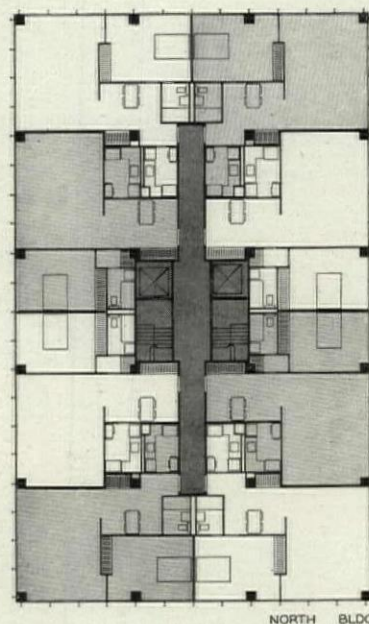






From the city side

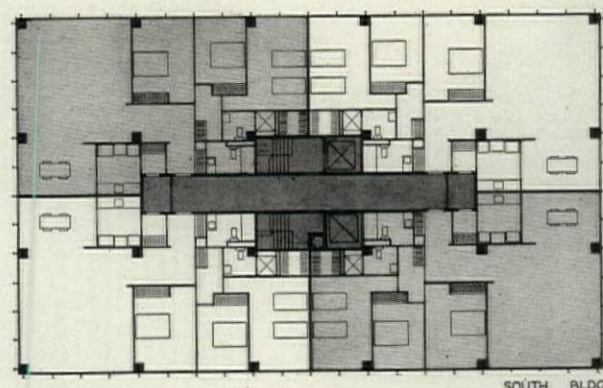
MIES VAN DER ROHE APARTMENTS



North building has three-and-one-half-room apartments; south building has six-room apartments. In plan, lake is to right.

PACE ASSOCIATES
HOLSMAN, HOLSMAN, KLEKAMP & TAYLOR
LUDWIG MIES VAN DER ROHE,
associated architects

Slung canopy connects south tower to north.



This stirring pair of apartment towers was built for a very sober price. Pace Associates, who were collaborators in the design and construction with Holsman, Holsman, Klekamp & Taylor and Mies—"Without them," he says, "it would never have been built—" report the construction cost per sq. ft. at \$10.38. They point out that this is 5 to 10% below most conventional apartment-house costs in Chicago. The total construction cost was \$4,404,000, and this included a swollen sum of \$430,000 for very difficult foundation work, and \$87,000 for drapes and their hardware. The same material, a blend of orlon and acetate, was hung in all apartments, with a second curtain track provided inside the first for owners' individual hangings if they want them.

All walls are glass, even on the main-floor service areas where they are etched glass lighted evenly at night from within. The towers have separate lobbies and entrances, and are linked by an outdoor terrace under a suspended roof. There are communal laundries and deep-freeze rooms on the second floors. Elevators drop directly to a 116-car underground garage which was also sold cooperatively to tenants.

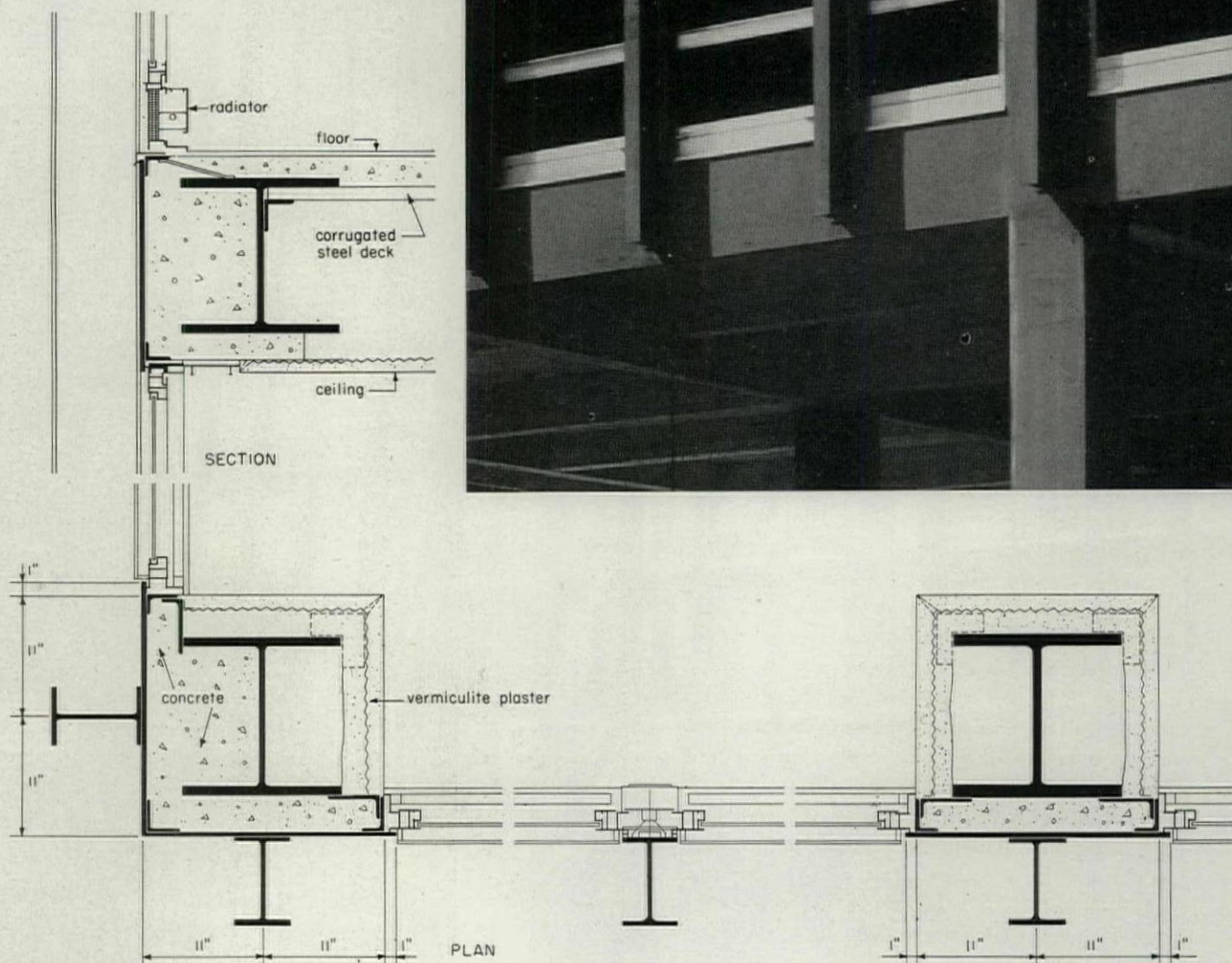
Photos: Hedrich-Elessing

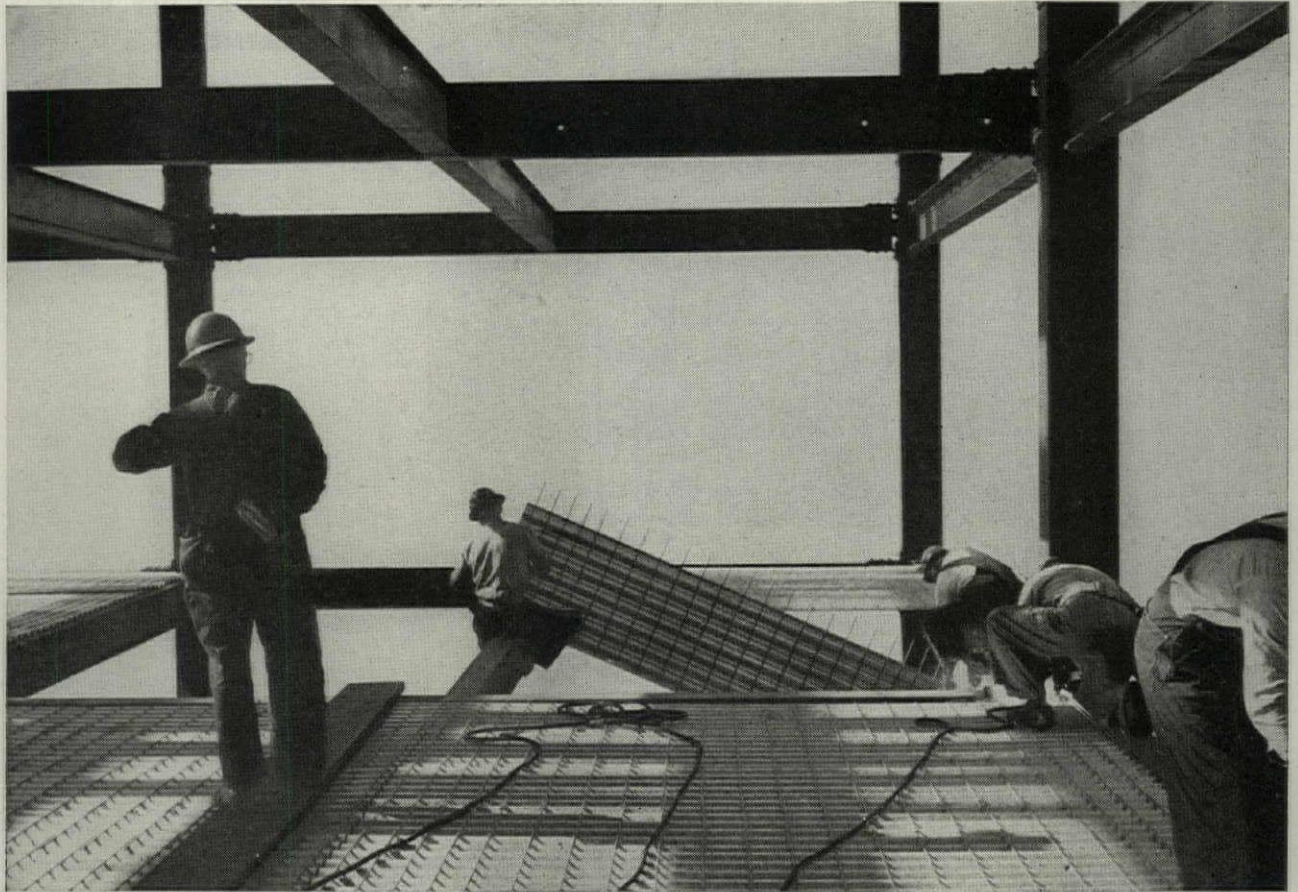


MIES VAN DER ROHE APARTMENTS

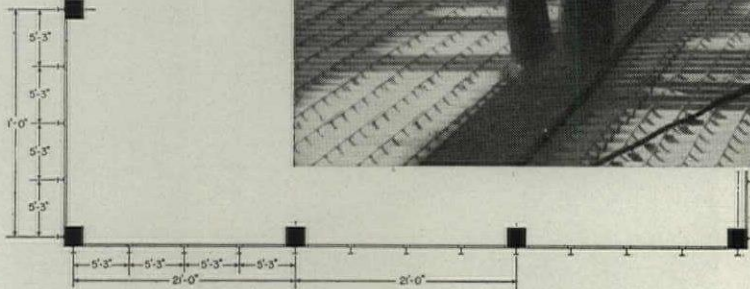
Placing the window frame

In detail below, note how hung ceiling is used to fireproof structure. Finned heating tubes are suspended in the closed-in "plenum" space between slab and ceiling on an average center-to-center dimension of 8'. They warm the ceiling below and the floor above, which reradiate to heat the apartments. There is another finned tube in the base of wall assembly for additional convective heating around the exterior periphery.





Placing the corrugated sheeting to receive the concrete floor pour

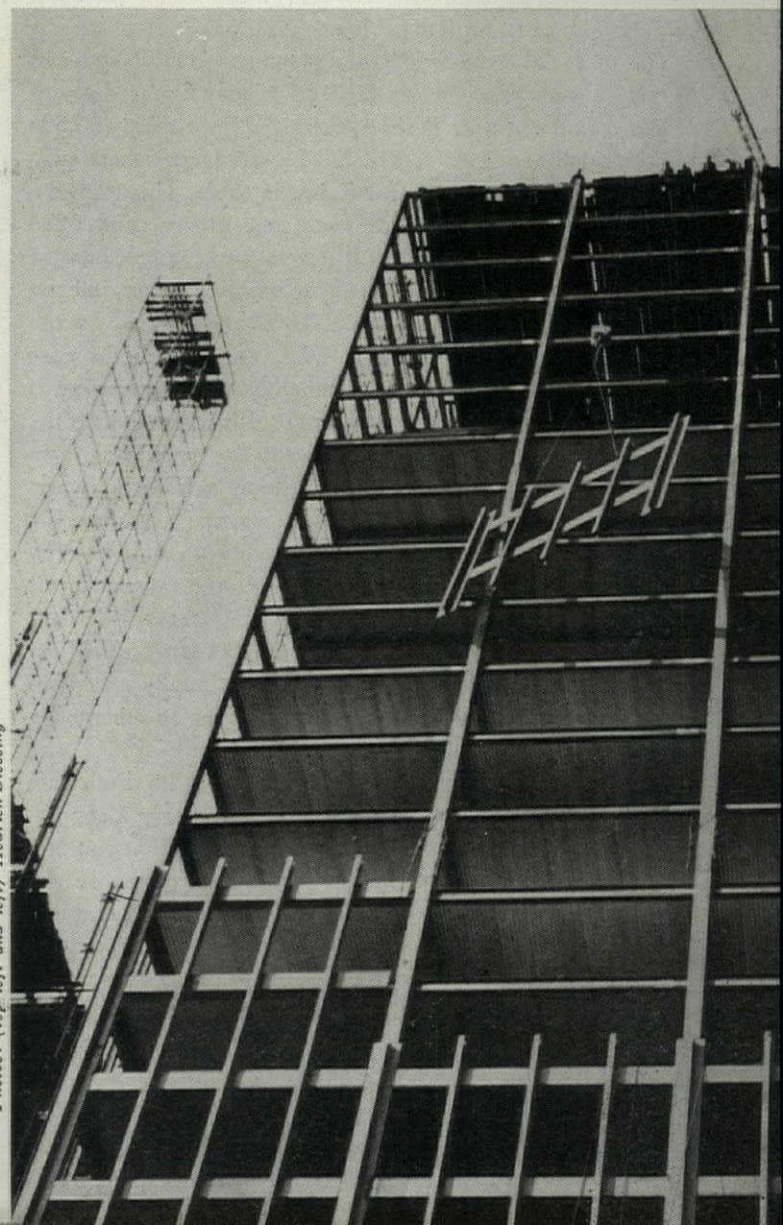


Placing the wall-frame

The repetitive vertical use of steel sections across the exterior walls of the apartment towers has raised eyebrows of some architects, who say they are surprised at Mies because this is not entirely "functional." (The steel sections see drawing occur not only at window divisions, but also on the columns of the building frame.) These have been called pilasters, usually by people who do not like pilasters. But there could not be an explanation for them more functionally honest than Mies'. He says: "Now, first, I am going to tell you the real reason, and then I am going to tell you a good reason by itself."

"It was very important to preserve and extend the rhythm which the mullions set up on the rest of the building. We looked at it on the model without the steel section attached to the corner column and it did not look right. Now, the other reason is that this steel section was needed to stiffen the plate which covers the corner column so this plate would not ripple, and also we needed it for strength when the sections were hoisted into place. Now, of course, that's a very good reason," he laughs, "but the other reason is the real reason."

The buildings were put together with economical simplicity by means of prefabrication. For instance, all vertical exterior wall sections were jig-assembled and welded on the roof, then dangled down into place. This was done in several stages by extending the frame of one building up to 12 stories and then stopping while the jiggling went on for both towers up to that point. Aluminum window sections were tilted into place from inside (see photo). Floors are concrete slabs poured on prefab corrugated steel sheeting, with welded reinforcing mesh. They went in fast, too.



Photos: (top left and left) Hedrich-Blessing

MIES VAN DER ROHE APARTMENTS



Photos: (above) E. Center; (others) Hedrich-Blessing

Probably no architect ever had a better site for an apartment house than Mies and his associates had here. It is near the business section, near the lake, is in a very social belt and its outlook is not compressed by many other tall buildings nearby. And probably no great architect ever had a more effective advocate than Mies has in Herbert Greenwald, the young real estate expert who promoted 860 Lake Shore Drive in collaboration with the Robert Hall McCormicks, Sr. and Jr., who owned the land. Greenwald is friendly, fluent and persuasive. He is an obviously intelligent man who also knows how to get out there and sell—and who likes to build Mies buildings. So far he has built, or is building \$12 million of them.

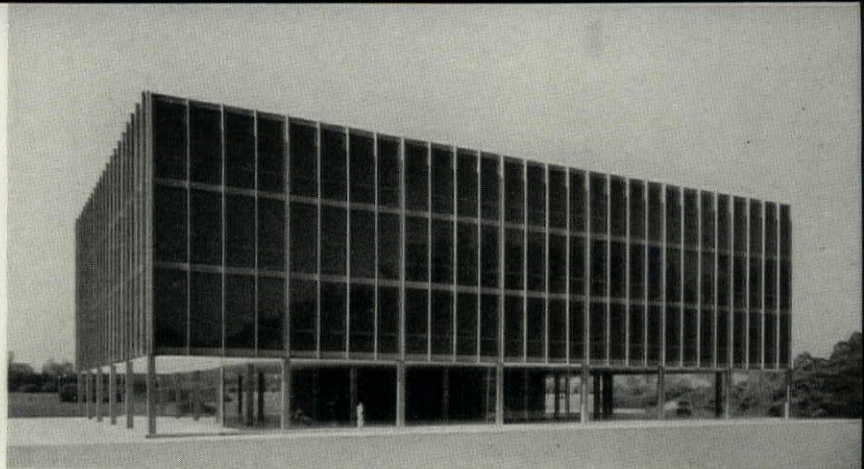
The financial setup for these apartments is alluring—and of proven soundness (in the thirties similarly financed co-ops weathered all storms). Besides the initial investment (\$6,500 for the small apartments; \$12,000 for the large) their owners pay monthly “rentals” for living in them. This averages \$105 for the three-and-a-half-room apartments, and \$210 for the six-room apartments. It covers the tenants’ share of the maintenance and operation of the building, taxes, interest on the mortgage (which is \$3,100,000 and is held by the Mutual Benefit Life Insurance Co.), and it will decrease annually for 20 years until the monthly carrying charge is almost halved. Meanwhile, a good part of it is tax deductible.

There are a number of advantages to this particular form of cooperative, which is called in Illinois a Mutual Ownership Cooperative (AF, Jan. '50): the mortgage is unusually small for a co-op, 60%; most of the apartments could be rented for more than their present carrying charge; ownership is quite stable because of the heavy initial payments which are necessary; amortization is completed in 20 years on the “enforced-savings” plan; the building is continually establishing reserves which could be used to tide over an emergency period.

But the biggest safeguard in the scheme is its discipline. When you buy a share in this Mutual Ownership Cooperative, you do not automatically buy occupancy. What you buy is an “undivided interest” in the whole enterprise; ownership is segregated from occupancy in the agreement, and you have to move out of the apartment if you do not keep paying your “rent.” Your ownership is your railroad ticket, as Greenwald puts it, but your “rent” is your pullman ticket. Apartments can be sold or rented at any time, subject to approval by a three-member controlling board.



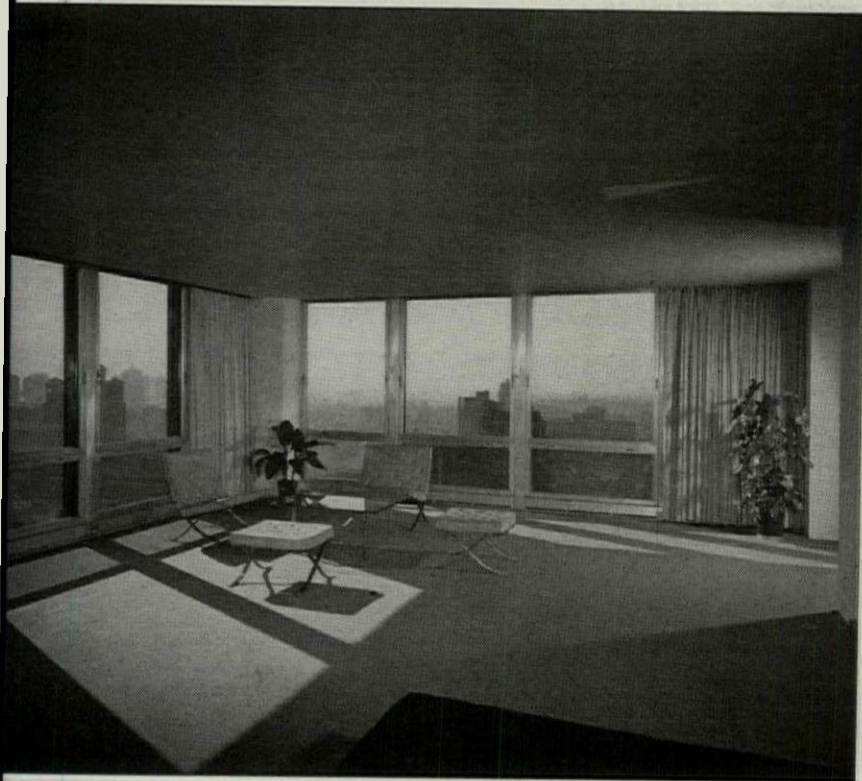
The same basic structure used in 860 Lake Shore Drive was also projected for a small four-story office building to be erected in the Midwest (model, right); it emphasizes Mies' feeling that the proportions of structural members are not dictated only by the height of the structure. He accepts the strength of steel as a useful generality and lets his sense of proportion set the exact sizes—checked by engineers, of course. Mies wanted to build this of stainless steel, which he prefers to black-painted steel. He would still maintain the depth of surface with outstanding mullions, however.



Lobby of the south tower. Floor and walls are travertine



MIES VAN DER ROHE APARTMENTS



*Living room in the apartment of Charles Genthner
of Pace Associates, collaborators with Mies.
This apartment, on the 26th floor of the south tower, faces the city.
Below, a bedroom.*



*Evening view from bedroom in 25th floor apartment
of architect Alfred Mell in north tower,
showing corner of south tower.*

In this first use of a "tower of glass" for living, the expected number of wrinkles have had to be ironed out in occupancy. Most of the criticism of the apartments, however, has come from people who do not live in them, a not unprecedented pattern in the short but acrimonious history of modern architecture.

Apartments in 860 have proved to be remarkably good buys. Originally the three-and-a-half-room co-ops sold for \$6,500, and the six-room units for \$12,000. But their resale price today, only a year after the project was occupied is, by attested sales, as high as \$11,000 for the small apartments and \$21,000 for the large. The north tower of three-and-a-half-room apartments actually contains 19 six-room units—doubles which were thrown together by people who could not obtain the six-room apartments which they wanted.

In the year, the tenant complaints have been about garbage removal, elevators and the thermal situation. The first matter was easy to clear up by perfecting the scheduling of pickups of garbage from a central depository on each floor (the designers did not want chutes, considering them unsanitary). The elevators were a more serious problem. Although the builders have reliable evidence that these towers both are elevatorized up to standard practice specifications, elevators have been out of service for mechanical reasons at times, piling up traffic. This is being corrected now. (There are two elevators in each building, of 13 persons capacity each self-service, at 400' per minute. In the more densely occupied building, this serves 175 apartments on 24 floors, with average peak occupancy of 1.25 persons per apartment.)

The thermal complaints were unique in that some tenants complained about too much heat both winter and summer.

The winter complaints came from an original miscalculation of the balance between the combined radiant and convective system. The ceiling was more emissive than anticipated and, in some cases, is enough to heat apartments without the under-window fin. This is not difficult to adjust.

But the summer sun, particularly on the towers' west sides, was a sterner problem. The drapes which helped insulate cold in winter do not hang near enough to the glass to reflect off excessive sun heat in summer. This situation has called for two solutions. First, air conditioning. There are about 30 room air conditioners in the two buildings, set in the movable low pane of the window (and set, by regulation, so they project *into* the apartments, not out from the building). There are also 12 built-in air conditioners which temper entire apartments, installed during construction. The other solution is roller shades which are very close to the glass—close enough to bounce off most of the summer sun rays before they do much harm in the apartments.



*Photos: (pp. 102 to 110) Hedrick-Blessing;
(p. 111) Robert McCullough*



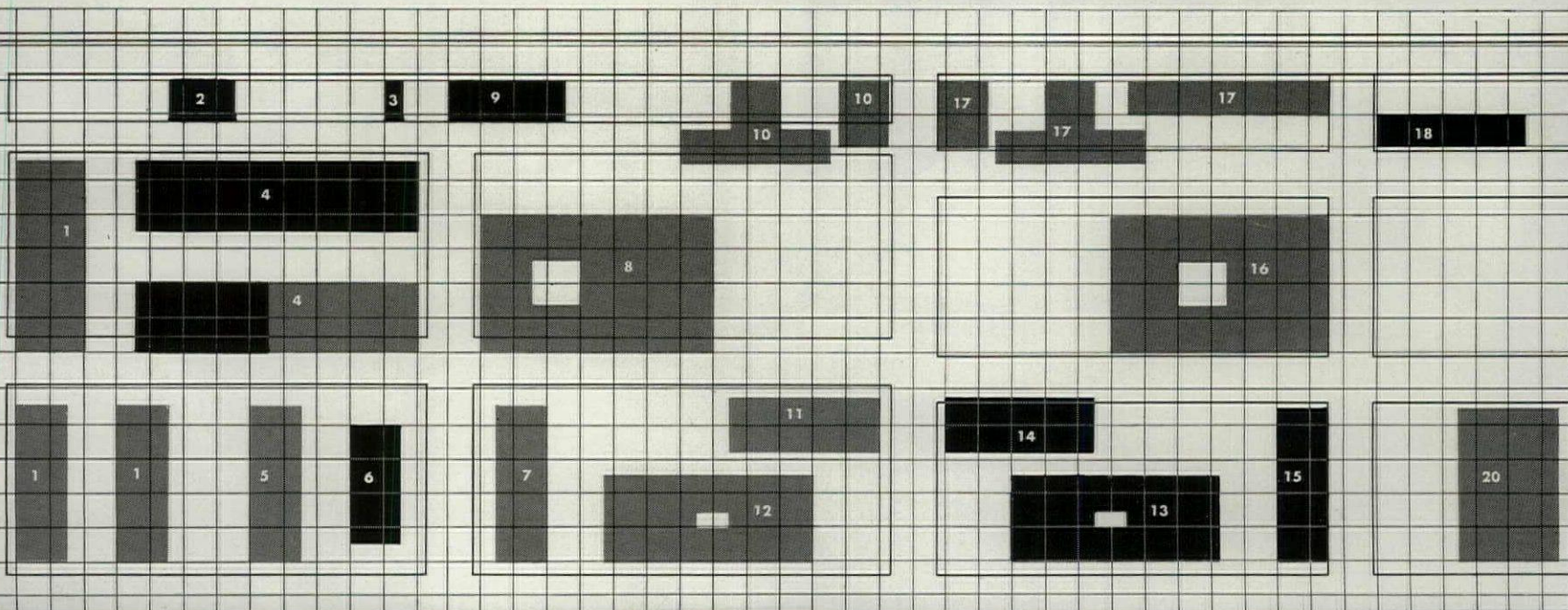
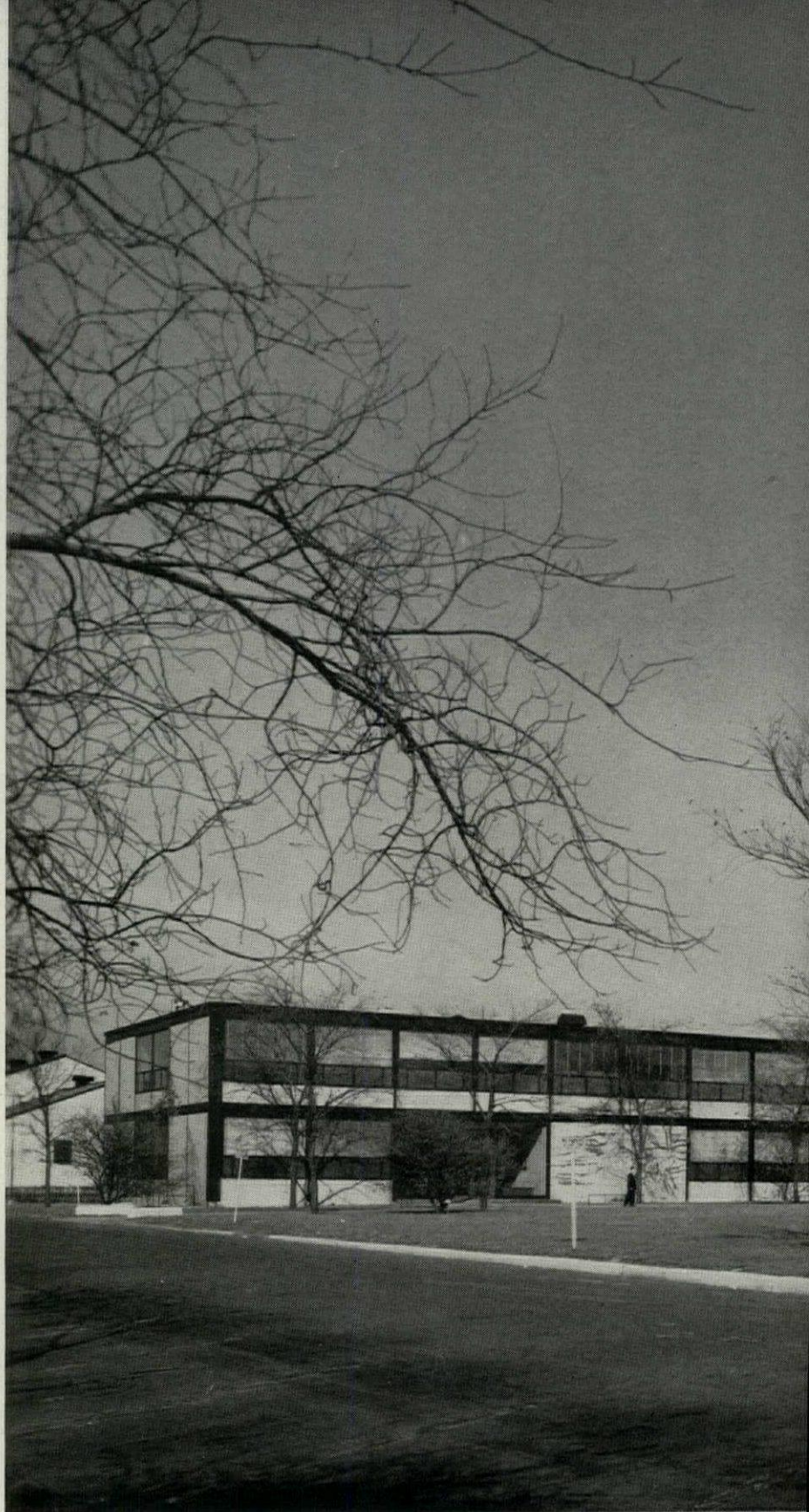
Illinois Institute of Technology is growing, under Mies' guidance, to be the best architectural expression of a technical college in the world—and perhaps the only really consistent one. In 1940 he started designing a new campus on IIT's site by the railroad tracks in Chicago's blighted South Side, the world's biggest slum. Now partially complete (see plan) this campus plan projects Mies' overriding discipline of the grid module out beyond the walls of his buildings to include the entire campus.

Every new building on the IIT campus is constructed on the same grid module, with bays of 12' or 24', and the space between the buildings is also laid out on that same grid. Thus, if one building were to be connected with another at some future time, the space between could be filled in the same structural rhythm as both buildings. But Mies says the primary purpose of this modular siting is to establish order.

"Orderliness is the real reason," he shrugs, and then smiles. "But of course, if you ever have to fill in a space it's good to have it this way. With the standard column spacings you don't have to reach for your buttonhole. It is there."

Even in the unfinished state of this campus, which is pocked with run down empty lots and grotesque, old, painted masonry buildings, this sense of order is already apparent in the relationship of one building to another. And this feeling of quiet orderliness implies much more than utility. When the entire campus has been completed, it will have a unique atmosphere, sober and purposeful—the invisible, but very real, esthetic of restraint.

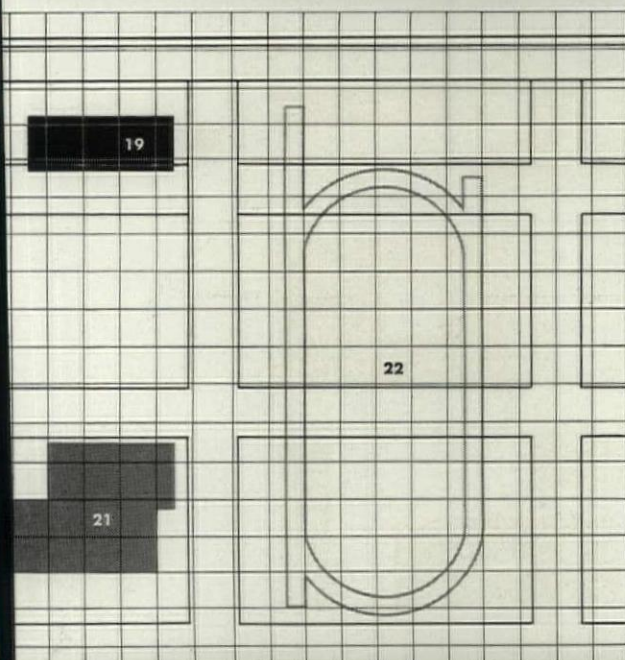
He says about the design of the buildings of the campus, "It was the biggest decision I ever had to make. It was more than ten years ago that we started building and by now it was all supposed to be finished—but of course, it will be another 12 years yet. And you know, if you build one building, you can go away and leave it. But 25 years is a long time these days—and I know our way of building had to reach across this time and not become out of style. And we do not have a lot of money. The gifts do not come \$10 million at a time and perhaps this is good, because if a man gives \$10 million, maybe he wants to say what the building looks like. But if you give only \$10,000 or \$20,000 toward a building that is going to cost \$200,000, you are perhaps willing to let someone else say what it should look like."





View includes Alumni Memorial Hall, Chemical Engineering and Metallurgy Building and Chemistry Building. Associated with Mies in design of Chemistry Building were Friedman, Alschuler & Sincere; in others, Holabird & Root.

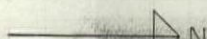
Gray tone denotes future buildings; black denotes completed buildings, or completed portions of buildings



1. Armour Research Foundation Research Lab.
2. Power Plant
3. Central Vault
4. A.R.F. Engineering Research
5. Institute of Gas Technology Laboratory
6. Institute of Gas Technology
7. Architecture and Applied Arts
8. Student Union and Auditorium
9. Metals Research
10. Electrical Engineering and Physics
11. Lewis Institute

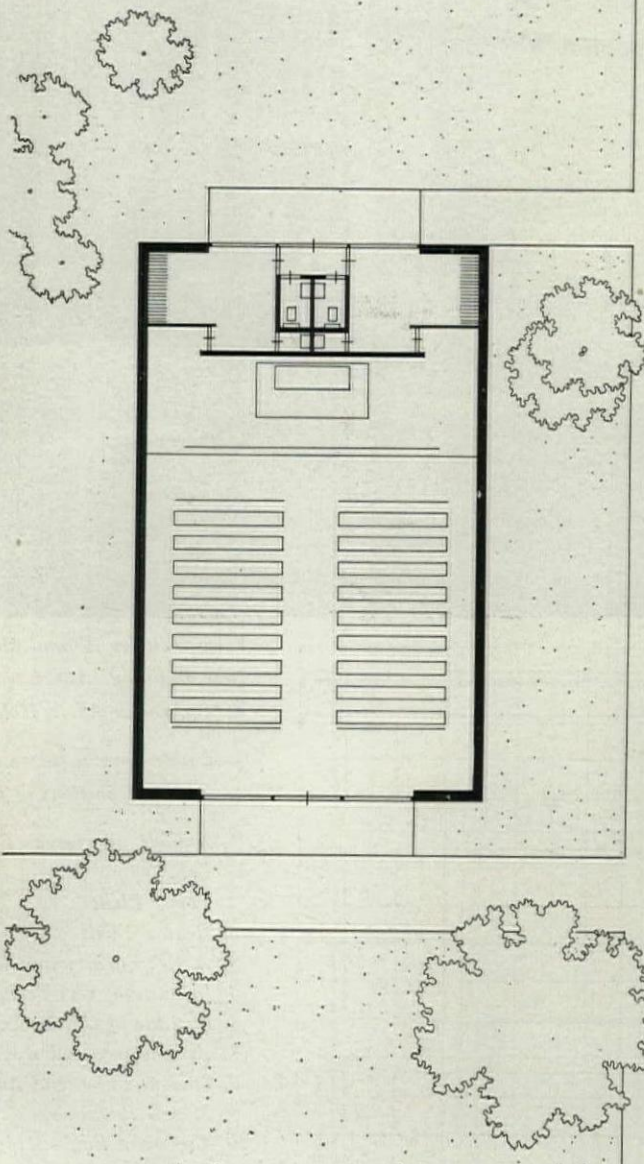
12. Mechanical Engineering
13. Chemical Engineering and Metallurgy
14. Chemistry
15. Alumni Memorial Hall
16. Library and Administration
17. Civil Engineering and Mechanics
18. Association of American Railroads Building
19. Association of American Railroads Lab.
20. Field House
21. Gymnasium and Swimming Pool
22. Athletic Field

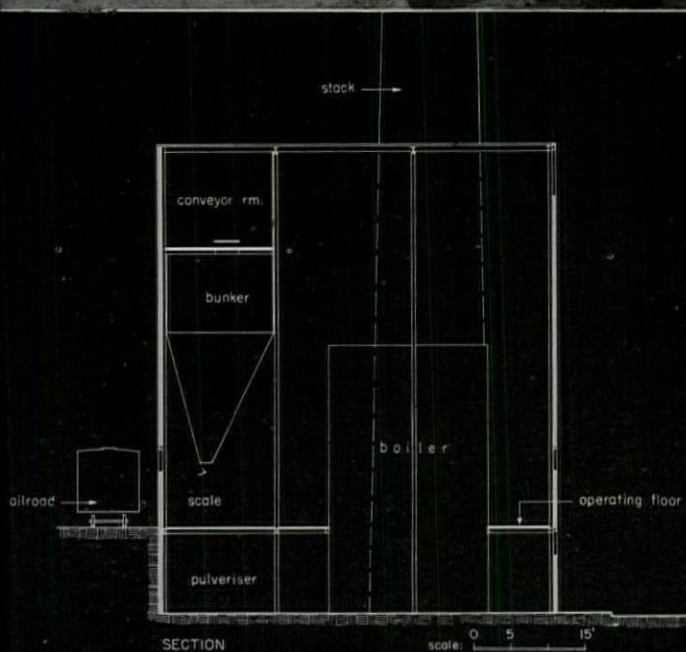
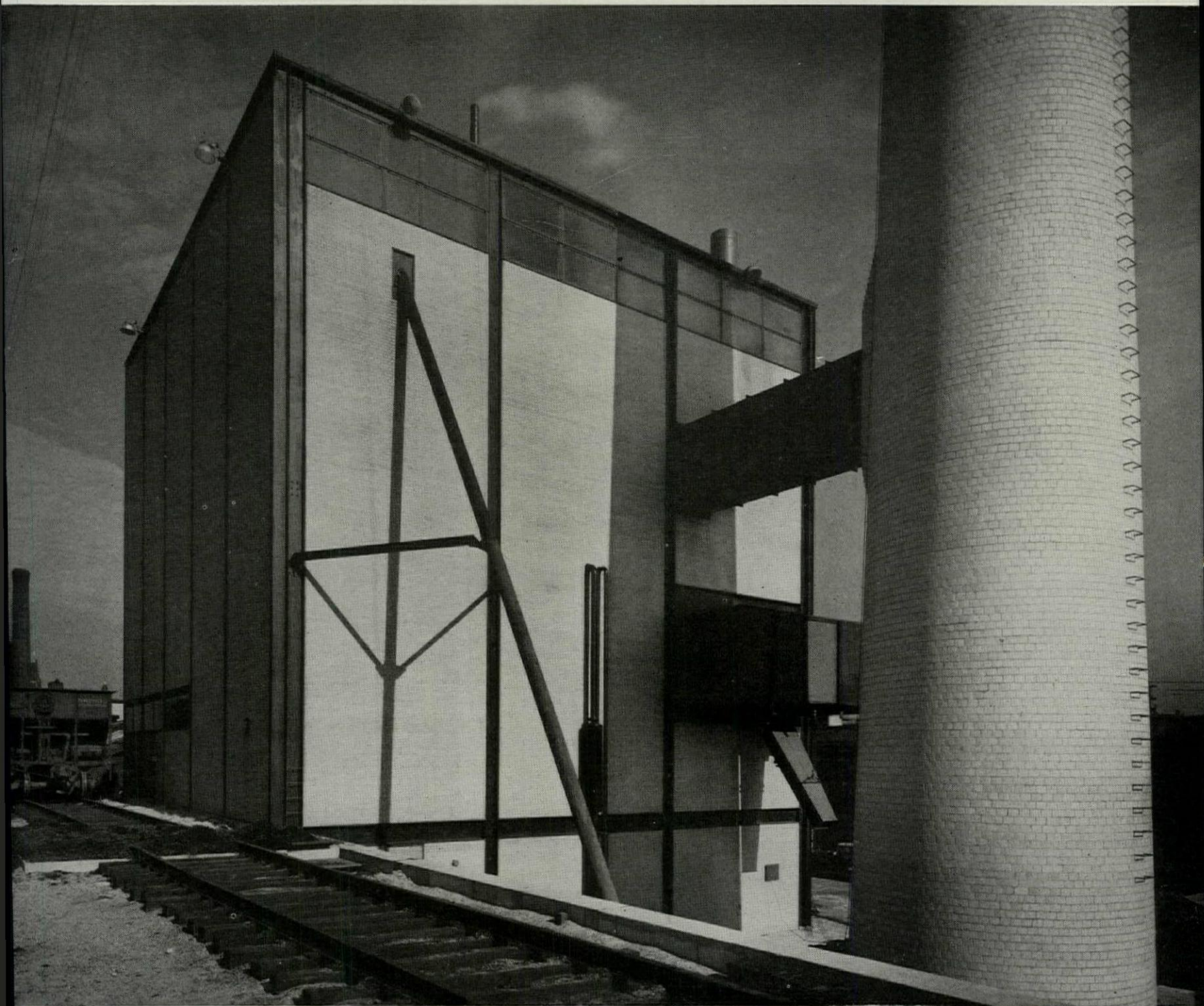
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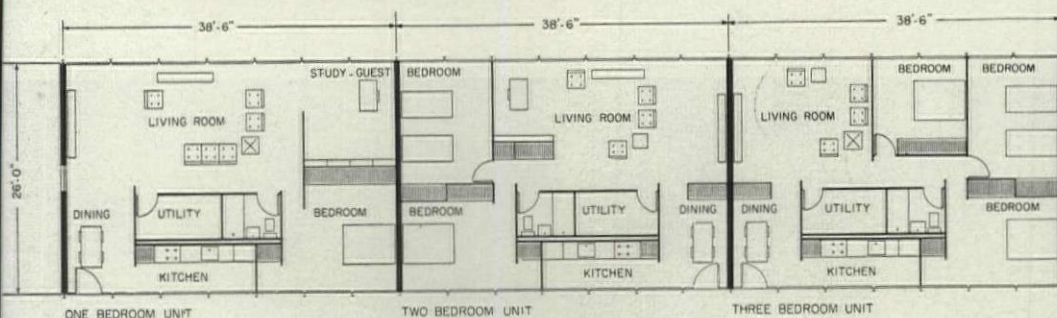
IIT's new chapel, a wonderful example of economy, is a load-bearing brick structure with a prefabricated concrete panel roof on steel beams. The organ is in a case near the entrance (the pastor says acoustics are unusually good). The altar, a massive block of travertine, is divided from the utility space and office by a tall hanging of raw silk. Heating is by radiant floor coils plus radiators under the glass walls at the ends. When this photo was taken chairs had not yet arrived. The entire building cost \$75,000 (\$500 per seat) of which \$64,000 was for the structural shell.





IIT's boiler house was designed around an existing boiler, and its end wall (away from the stack) is temporary. Although fitted to an existing boiler, the rectangular building enclosure is still of a kind adaptable to a change in output. The building will be extended in regular 12' and 24' bays as the campus is completed and additional boilers are needed. For easy fuel delivery, the building is directly beside the railroad tracks. The towering 200' stack is the one departure on the campus from the horizontal line.

MIES VAN DER ROHE ROW-HOUSE

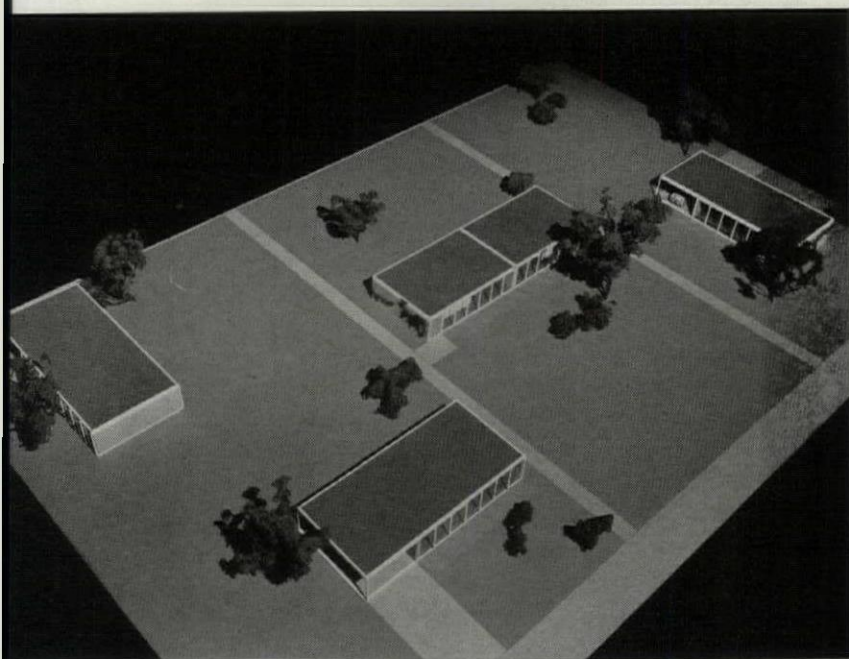


Mies' row-house plan (above) carries the concept of open planning as far as it has ever gone. It is a service core dropped on a clear slab for the buyer to subdivide as he wishes—almost the exact equivalent of the rental of open office space in a new building. The enclosure is to be framed in steel, with clear glass sides and blank ends of brick, and the units could be combined or arranged in numberless ways (for one scheme, see model below of suggested site plan). The larger photo is a house completed recently near Chicago for Robert H. McCormick, Jr., one of the principals behind the apartments on Lake Shore Drive. It is made up of two of the row-house units, joined and overlapped in plan.

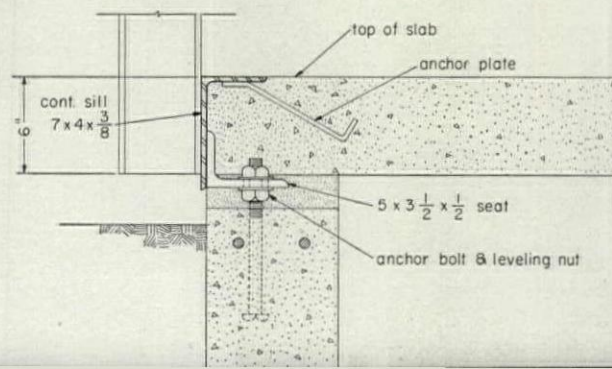
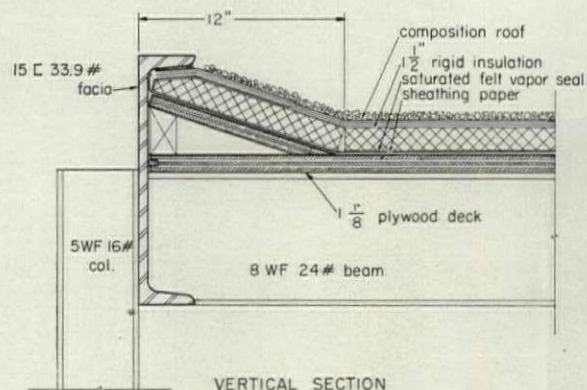
This house was to be a prototype of this construction system, and in general is, except that the proper steel sections for vertical members were not available at the time of construction. These are 1" larger than was specified.

This double-row McCormick house was built for \$45,000, but Herbert Greenwald expects to build the 1,000 sq. ft. row house in quantity in a development for sale at \$12,000. NPA steel restrictions prevent construction today.

This small steel house is an example of Mies' consistency in his framing vocabulary. It is a scaled-down version of the tall steel frame at 860 Lake Shore Drive, with the difference that here he can leave out the columns entirely and let the mullions support the roof.

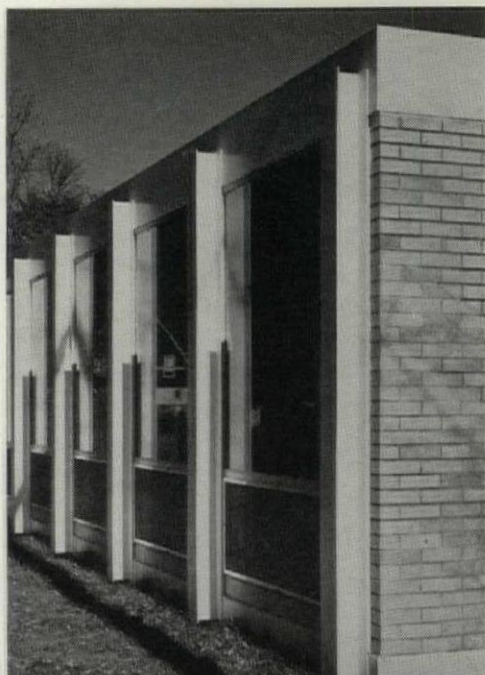


Plot model for possible row-house combination



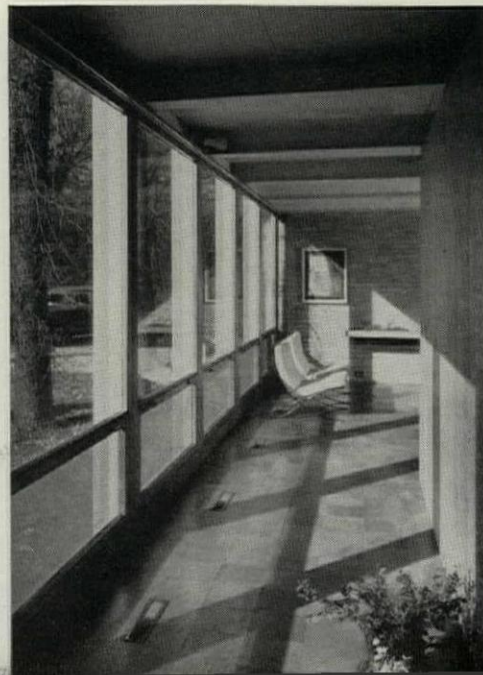


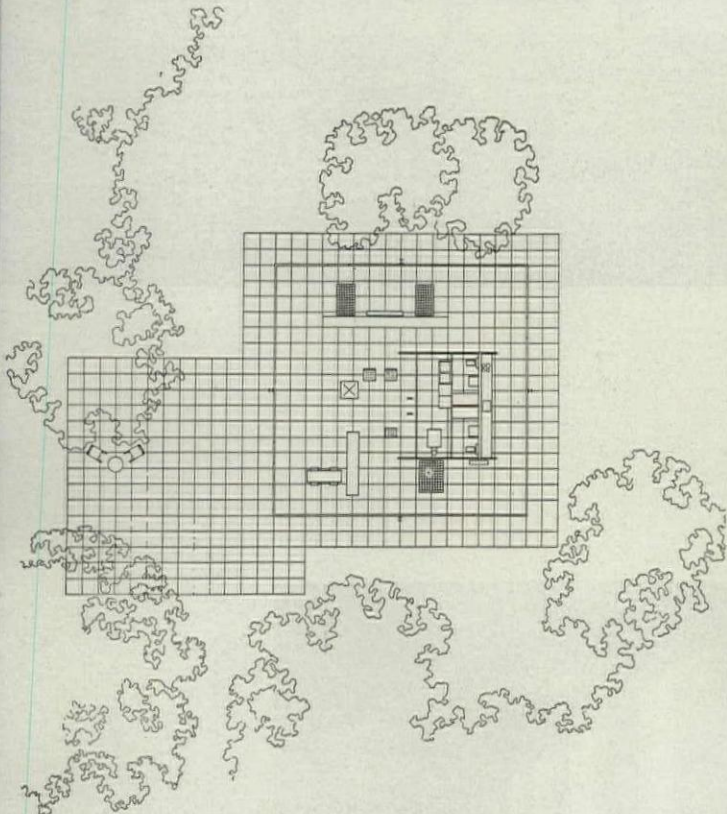
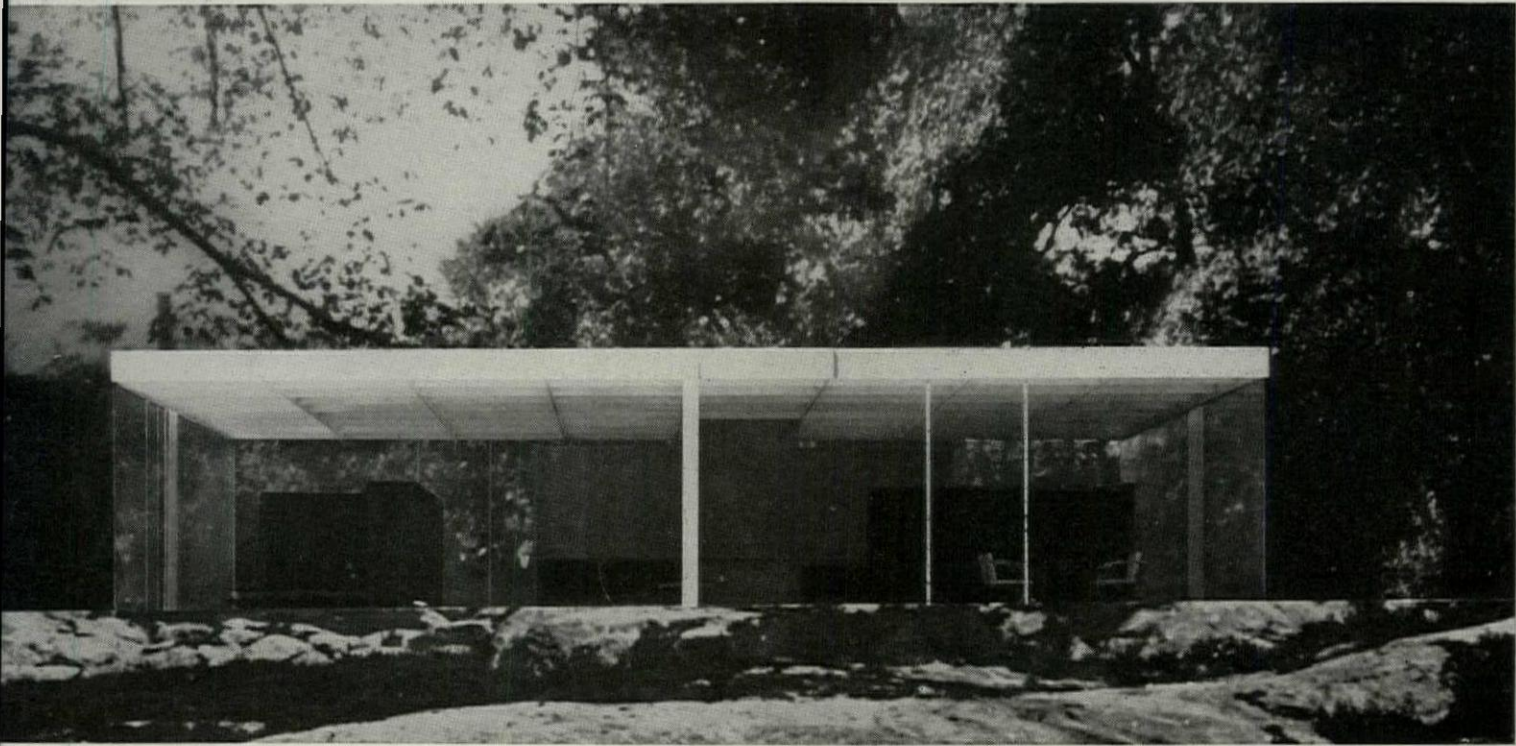
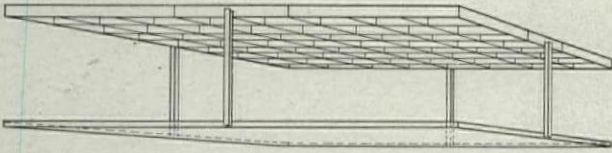
McCormick house is an assembly of two row houses, a prototype for production. Steel wall frames were shop assembled and welded.



Outside prototype wall

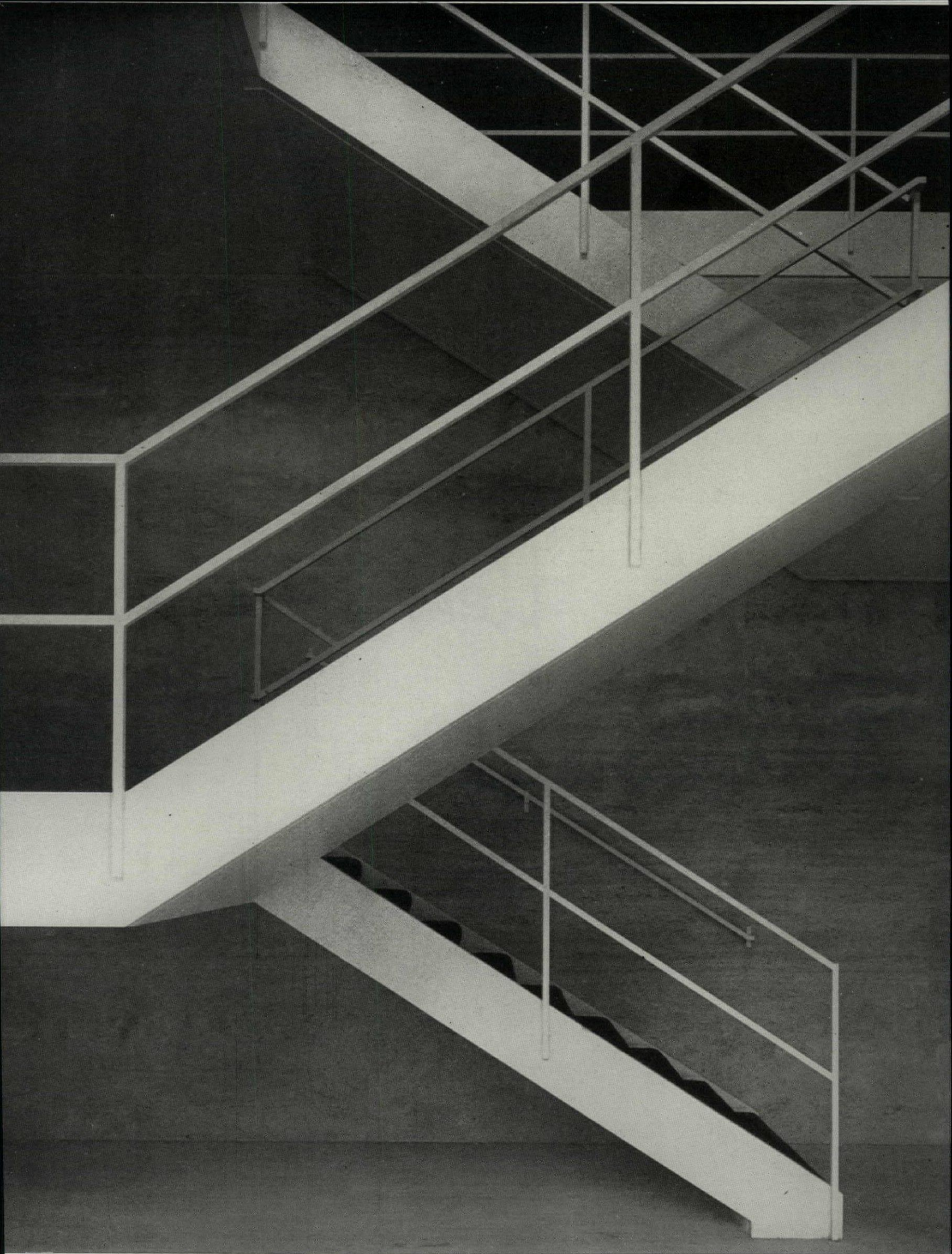
... and inside

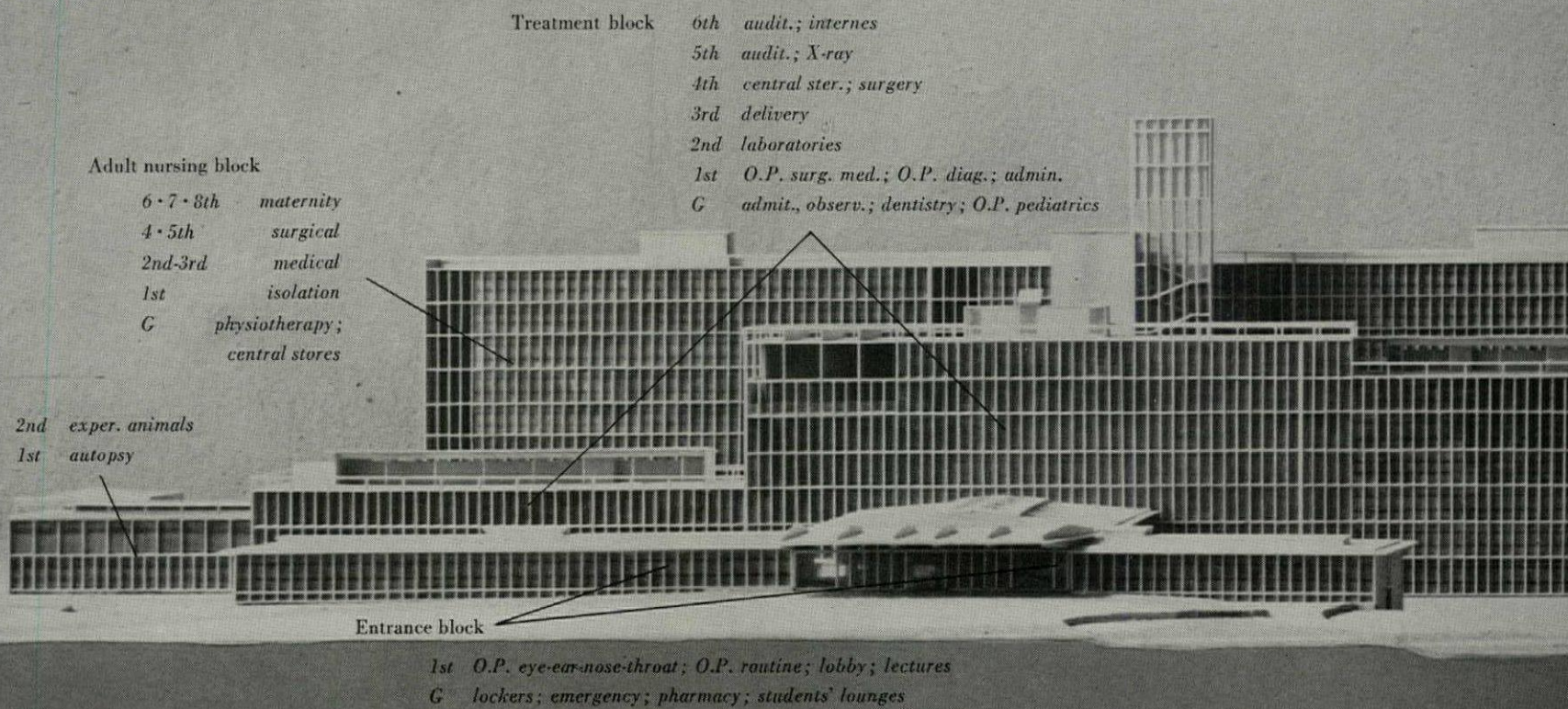




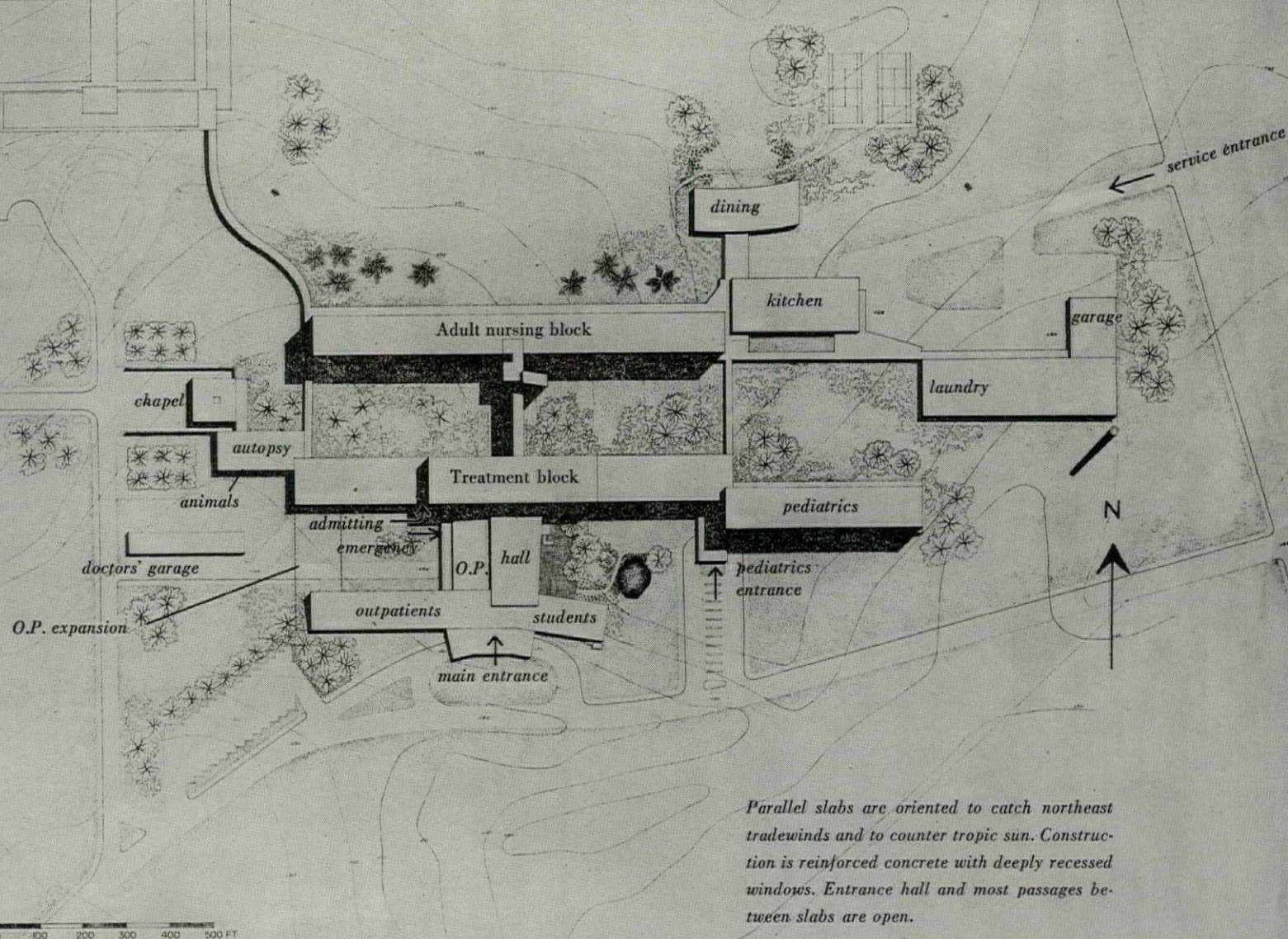
A new adventure in framing is begun in this scheme for a square house. This steel structure (model above) has four columns, but not at the corners. Instead they are pulled back into the center of the 50' span on each side, and the corners are cantilevered out over nothing but glass. Besides placing emphasis truly on the tensile qualities of steel, this approach removes the visual problem of the corner post—although at the same time it enlarges the structural problem of connections. The present plan is to frame the roof in a kind of eggcrate of continuous steel boxes welded to a steel sheet above. This steel frame, for a house 50' x 50', would cost about 40% more than a steel frame with corner posts, but it looks as if it might be well worth it.

The sure and simple touch with steel is also evident in the slim, beautiful stairway that Mies designed for the entrance to the Arts Club, a second-story quarters of the Arts Club of Chicago. The steel is painted white, in an open well walled with travertine. Treads are covered with black carpeting. The frame is filled with lightweight concrete, and the lower landing is supported on a steel column inside the travertine facing. The upper landing is similarly hung.





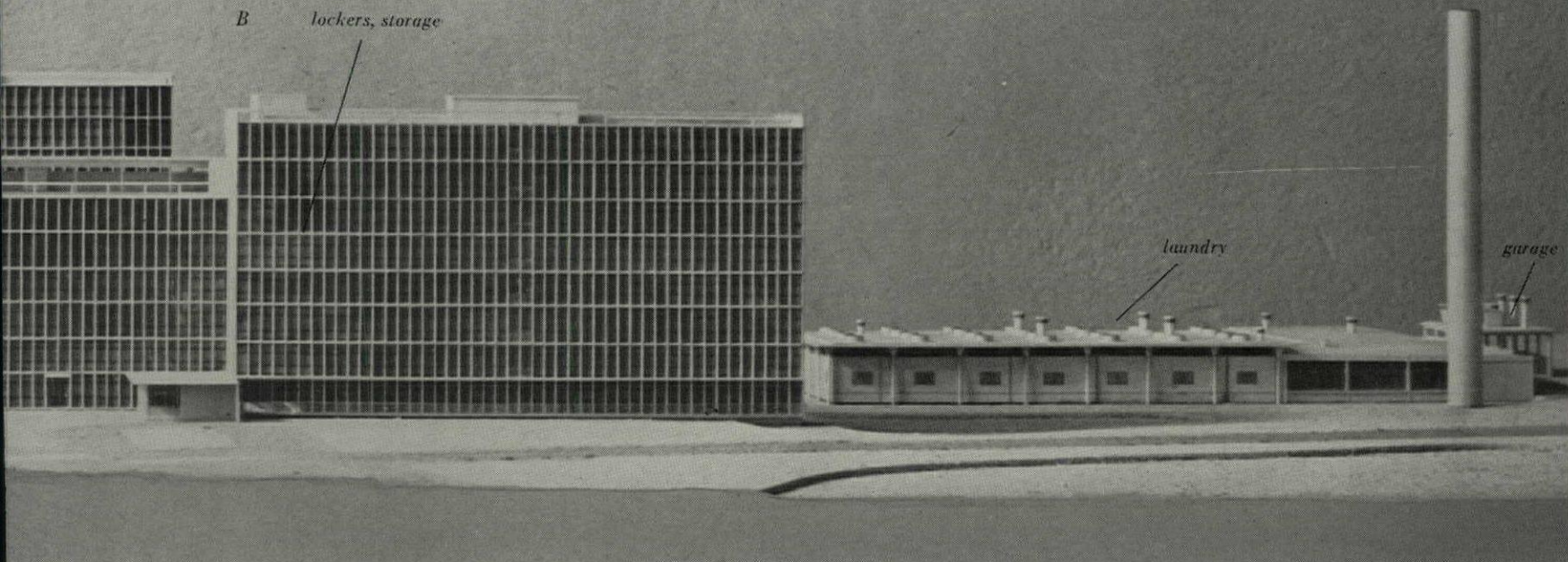
PARALLEL BLOCK



Pediatrics block

1st-7th pediatrics nursing
G isolation
B lockers, storage

LOCATION: Maracaibo, Venezuela
GOVERNMENT OF VENEZUELA, owner
HAKON AHLBERG, architect



Ateljé Sundahl

HOSPITAL

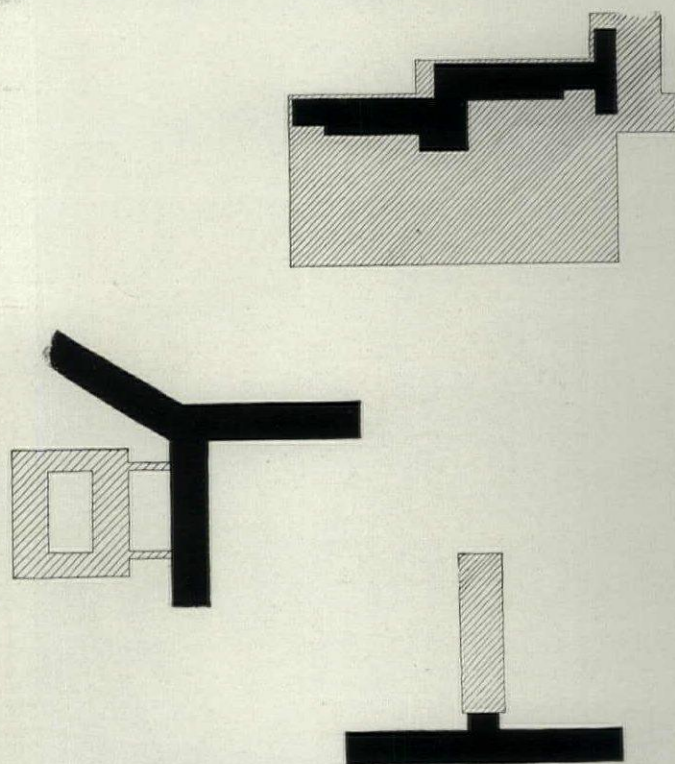
Opened-up plan with new ideas on integration permits better orientation, easier expansion

This 600-bed university teaching hospital is different from anything planned or built in the US today. It demonstrates Sweden's outstanding postwar idea in hospital design,* as transplanted in tropical Venezuela by famed Swedish hospital architect Hakon Ahlberg. This scheme of loosely connected parallel blocks merits serious thought by US hospital people. Four big points in its favor:

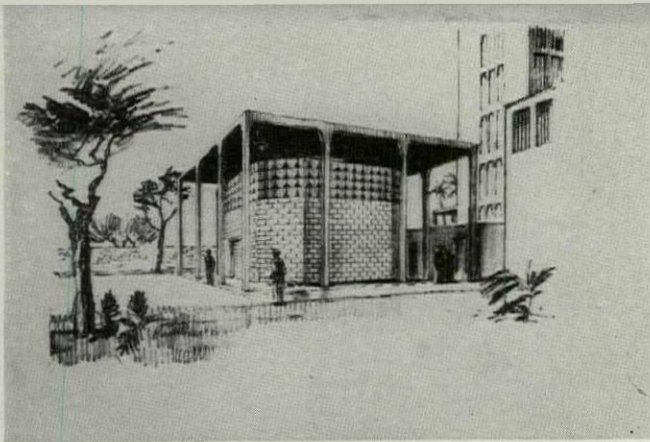
1. Every block in the hospital can have choicest orientation, a vital advantage where cooling breeze or meager sunshine is precious.
2. Number of connecting points between blocks is flexible and location is free, as contrasted with X or T plan.
3. Expansion possibilities are virtually unlimited.
4. Architecturally, the scheme invites a fresh, light opened-up treatment, emotionally suitable to hospitals.

Big disadvantage at first sight is the horizontal travel distance (orientation advantages are lost, of course, if plazas between blocks are reduced to narrow courts). Modern US hospital design is governed by abhorrence of horizontal distance but recently a few bolder souls have tentatively challenged this taboo with sprawling,

*Prototype of the parallel block scheme is 1,200-bed Söder Hospital built in 1946 in Stockholm. It was completely designed by its administrator, H. J. Cederstrom (since become a hospital consultant). Architecturally, Söder Hospital is rather harsh and unappealing but its radically new block scheme was seized upon by Swedish architects who have gracefully developed it. Independently, the same basic scheme has evolved in Switzerland.

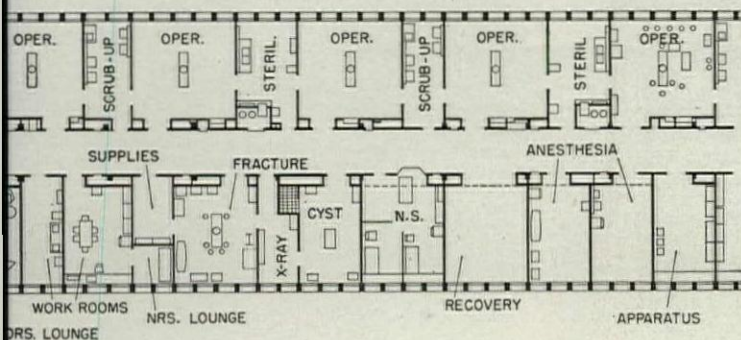


Difference between new Swedish hospital type and current US schemes can be quickly seen by comparing tightly knit US designed slabs (above) with Ahlberg's loose, opened-up scheme on opposite page.

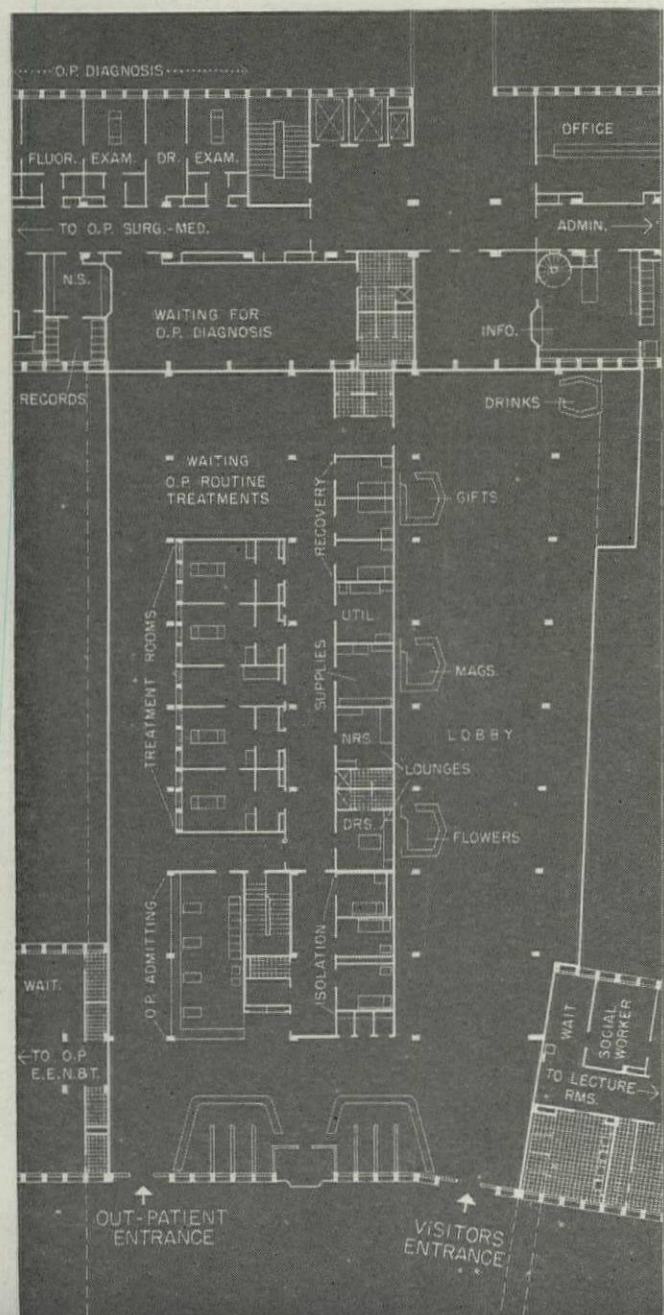


Open-topped marble chapel is roofed with concrete "umbrella"

OPERATING ROOMS



Note unusual separation of scrub-up and sub-sterilizing in surgery (above). Main hall (below) has suite for routine repeat visits of outpatients. Pharmacy is on floor beneath.



patio-dotted ground floors. Now it looks as if the whole question of horizontal travel should be re-examined. Some pertinent observations:

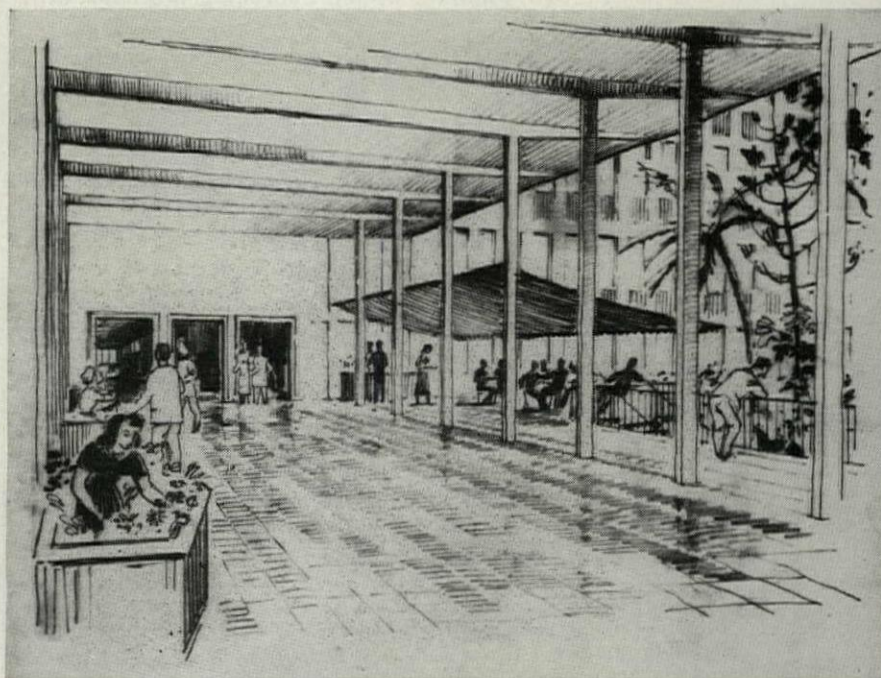
► One US medical center has recently determined that 480' of horizontal travel for its food trucks is negligible as a time factor, actually taking *one-fifth* the time of 120' of vertical travel.

► Factories, past masters of the horizontal, can teach hospital designers a few tricks. Ahlberg, for instance, has here taken a leaf from factory administration in connecting services and distribution points with open gangways for electric trucks.

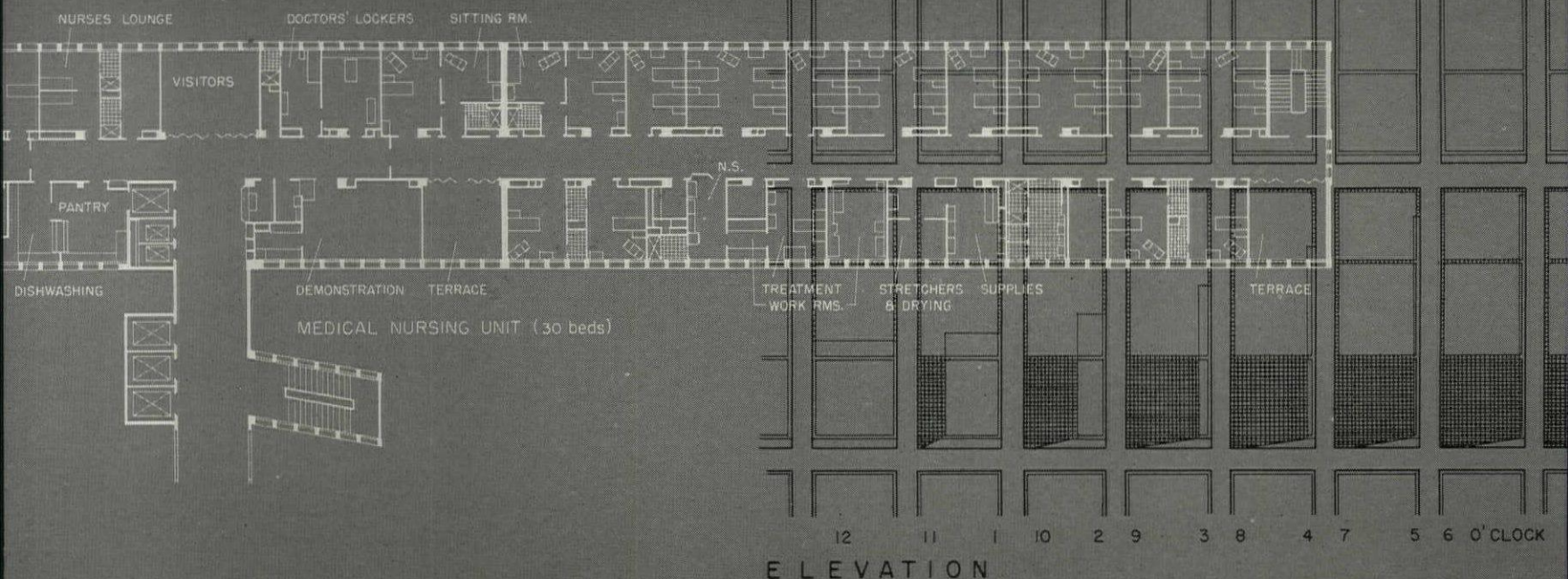
► Since the days of the cumbersome pavilions, designers have learned a lot about integrating hospital elements in a manner roughly analogous to production-line flow. The same kind of thinking that has made the X and T plan efficient, plus the chance for flexibility in block connections, can sharply cut travel in the opened-up hospital, too.

On this last point, note how neatly Ahlberg has arranged a complex group of outpatient departments. Occupying the outpatient half of the lobby are rooms for routine treatments; many outpatients, after a first visit, go no farther. Diagnosis, central processing point for outpatients, is immediately beyond the lobby. All other clinics fan out from this point or from the lobby, each one carefully related to the hospital's other elements. Examples: pediatrics, at one end of the treatment block's ground floor, is closely knit to the whole outpatient complex, is also directly accessible from the pediatric block lobby; the dental clinic at the center of the ground-floor treatment block is central for children and adults, inpatients and out; diagnosis (the core) directly adjoins administration. Working distances in this outpatient scheme are shorter and circulation simpler than in many a jammed-together institution.

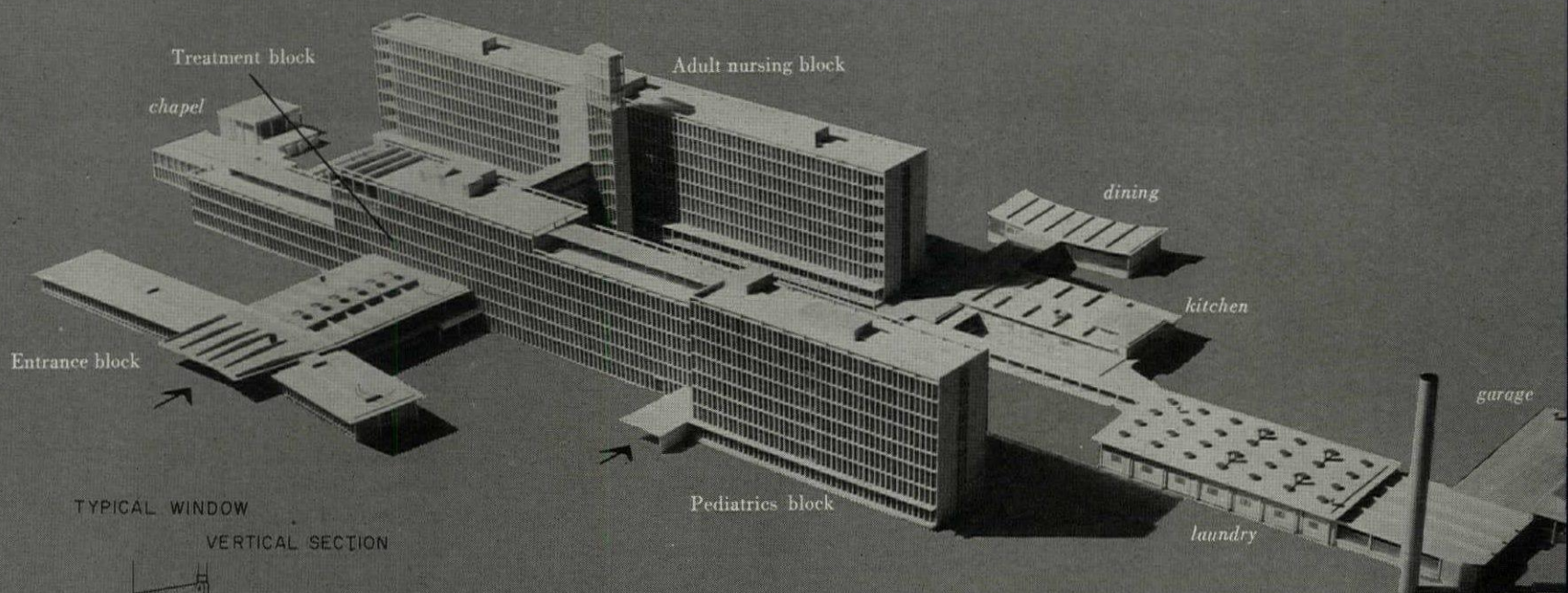
Ahlberg's plan is actually not lavish of enclosed space. Its facilities match those of any US hospital; area per bed is 785 sq. ft., by no means excessive for a big teaching institution. Cost is estimated at 20 to 25 million bolivars (\$6 to \$7½ million).



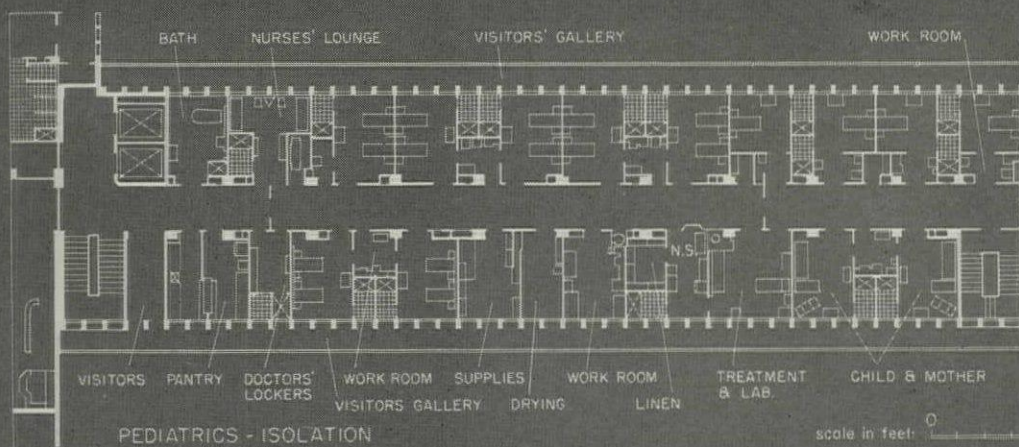
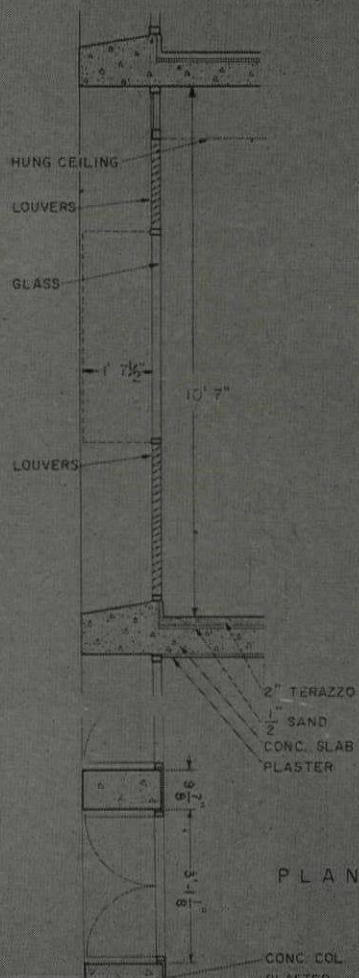
Main entrance hall (plan at left) is open to breeze. Only fully glazed windows in entire hospital are in air-conditioned surgery, delivery and labs.



Little direct sunlight penetrates rooms: sun and shadow on June 21



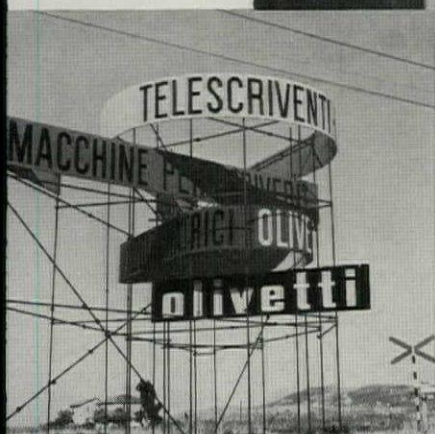
TYPICAL WINDOW
VERTICAL SECTION



All isolation wards have open visitors' gallery.

Note provision of mother-and-child bedrooms.

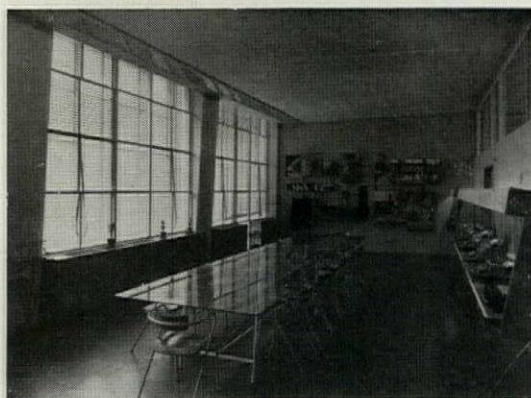
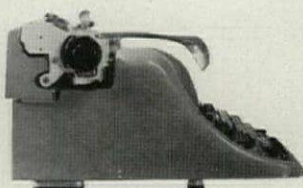
Photo: (billboard) Courtesy Museum of Modern Art



Billboard
along highway



"Crystal Palace" factory and office building was designed by famed architects Figini & Pollini in 1940



Typical conference room
in office building
shows excellence of
furniture design,
display technique.
Close-up view of
Olivetti-designed chair
is shown below.



Graceful business machines designed by Milan's Marcello Nizzoli include printing calculator, office typewriter and portable. Soft putty-beige used as dominant color for machine casings is contrasted with red and white keys.



olivetti

The name of this manufacturer in Italy

Spells "modern design" to an ever-increasing audience

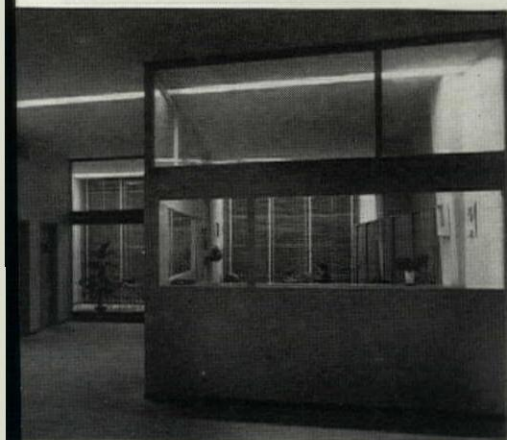
The town of Ivrea (pop.: 17,000), at the foot of the Val d'Aosta, half way between Turin and Milan, is—after Rome—the oldest town in Italy. Yet, by 1956, Ivrea may well be the most modern town in Western Europe.

The reason can be found in one name: Olivetti. This is a 45-year-old family concern that manufactures every kind of business machine—from elegant portable typewriters to teletype equipment of the most modern sort (a recent installation: US Embassy, Paris). Olivetti is the principal industry of Ivrea, employs some 6,000 happy workers. They have plenty of reason to be happy, for Olivetti has built them not only a beautiful "Crystal Palace" to work in (see cut) but also some of the most modern apartments, nursery schools, technical schools, recreational facilities and playgrounds to be found anywhere in Italy—and, perhaps, in Europe—today. And Olivetti is still building and expanding.

The policy has paid off in two ways: first, by reducing turnover of skilled labor; second, by having all the world identify the company's name with "modern design." For throughout Europe today, the name of Olivetti stands not only for first-rate architecture, but also for first-rate advertising art, typography, furniture and product design. The pictures on these six pages show how consistently high the Olivetti standard has been, how well Olivetti has deserved its "modern design" trademark. Last month, when New York's Museum of Modern Art opened an Olivetti exhibition (designed by Leo Lionni), few US businessmen could deny that here art and architecture had combined to give an industry its identity.

Entrance to offices shows light elegance of interiors, simplicity of built-in furniture.

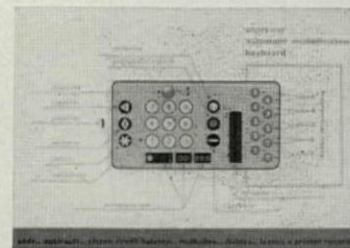
Lighting and acoustics, while relatively primitive by US office standards, are in advance of European practice.



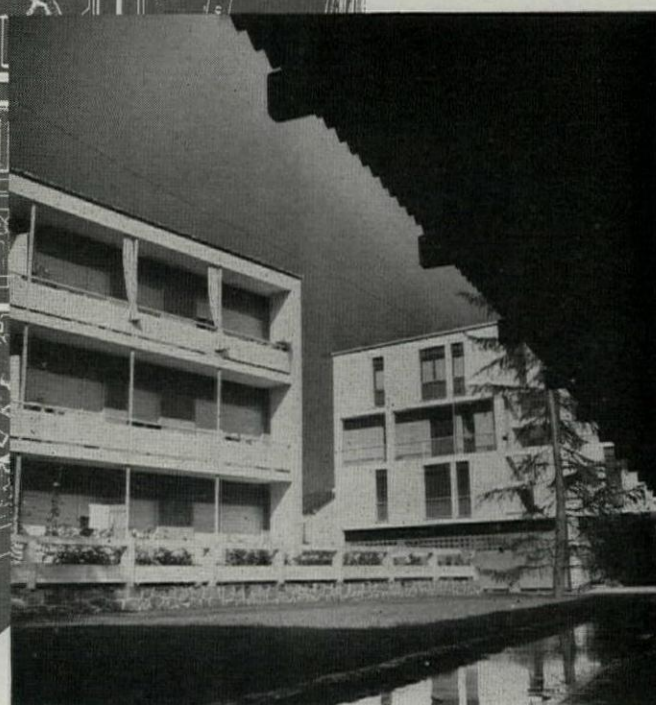
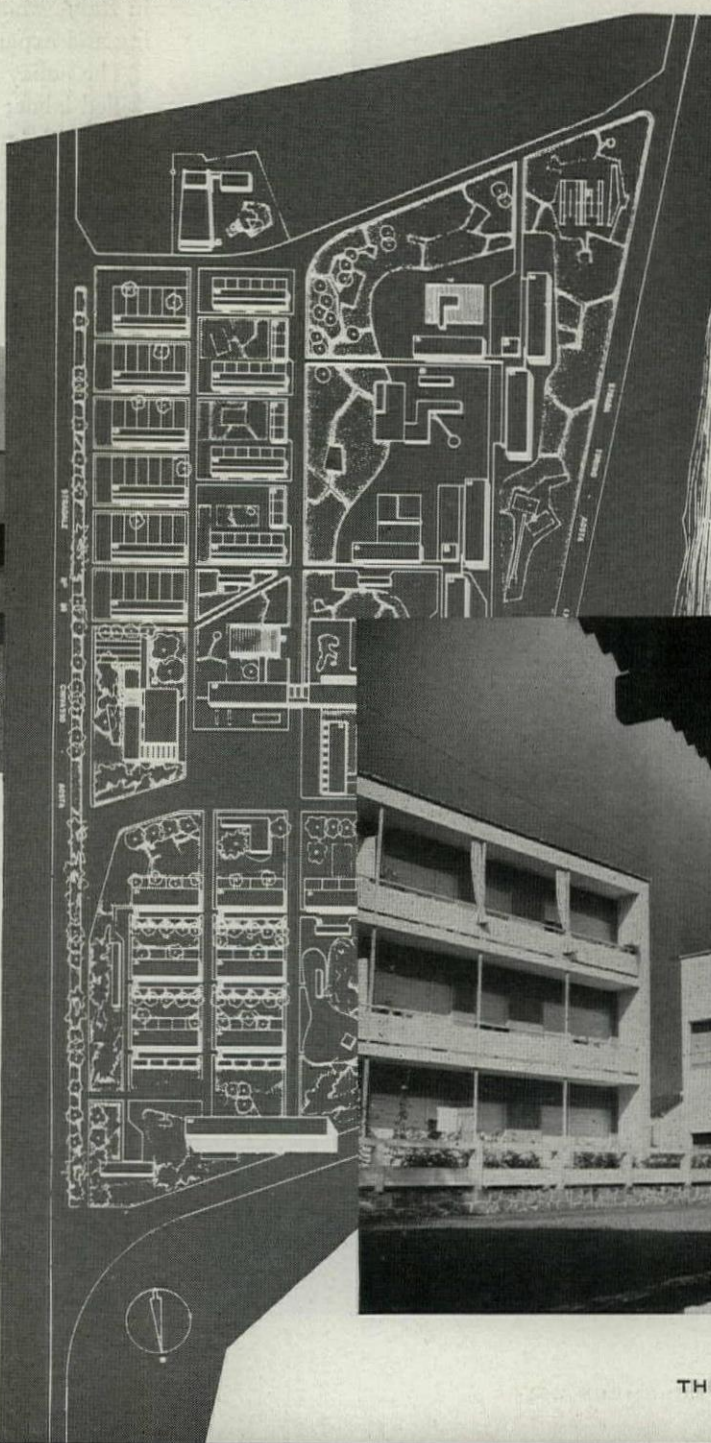
Wood and glass partitions lightly divide concrete-framed office floors. Coffee-bars for employees are located on each floor.



olivetti



Showrooms in Ivrea (above) and Rome (left) are typical of high architectural standards maintained in Olivetti displays. Most Italian showrooms were designed by architects Sissa or Bernasconi. Olivetti also maintains handsome stores in Paris, London, Mexico City, Buenos Aires, Johannesburg and elsewhere.



Workers' housing has been built in Ivrea ever since the late 30s, is still being expanded.

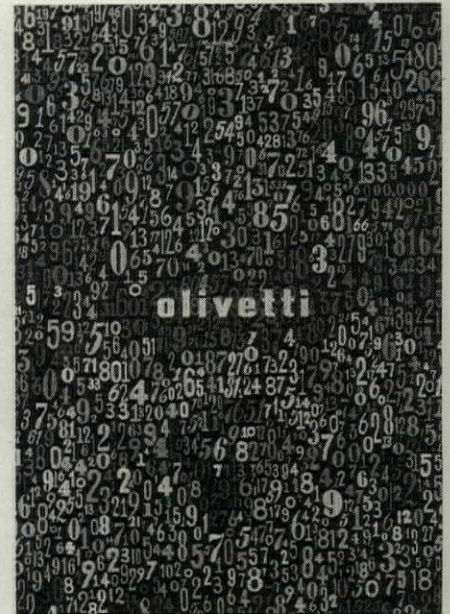
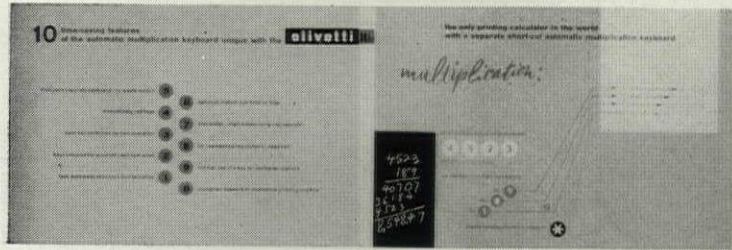
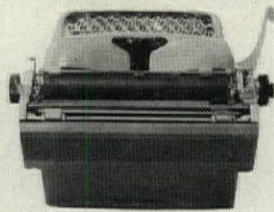
Above: one-family houses for executives; right: typical apartments for workers.

Both were designed by Annibale Fiacchi and Marcello Nizzoli. Plan shows 500-family development in Ivrea by same architects.

This is now half finished and will be completed by 1956.

It will contain schools, movie theater, church recreation center, parking garages and playgrounds.

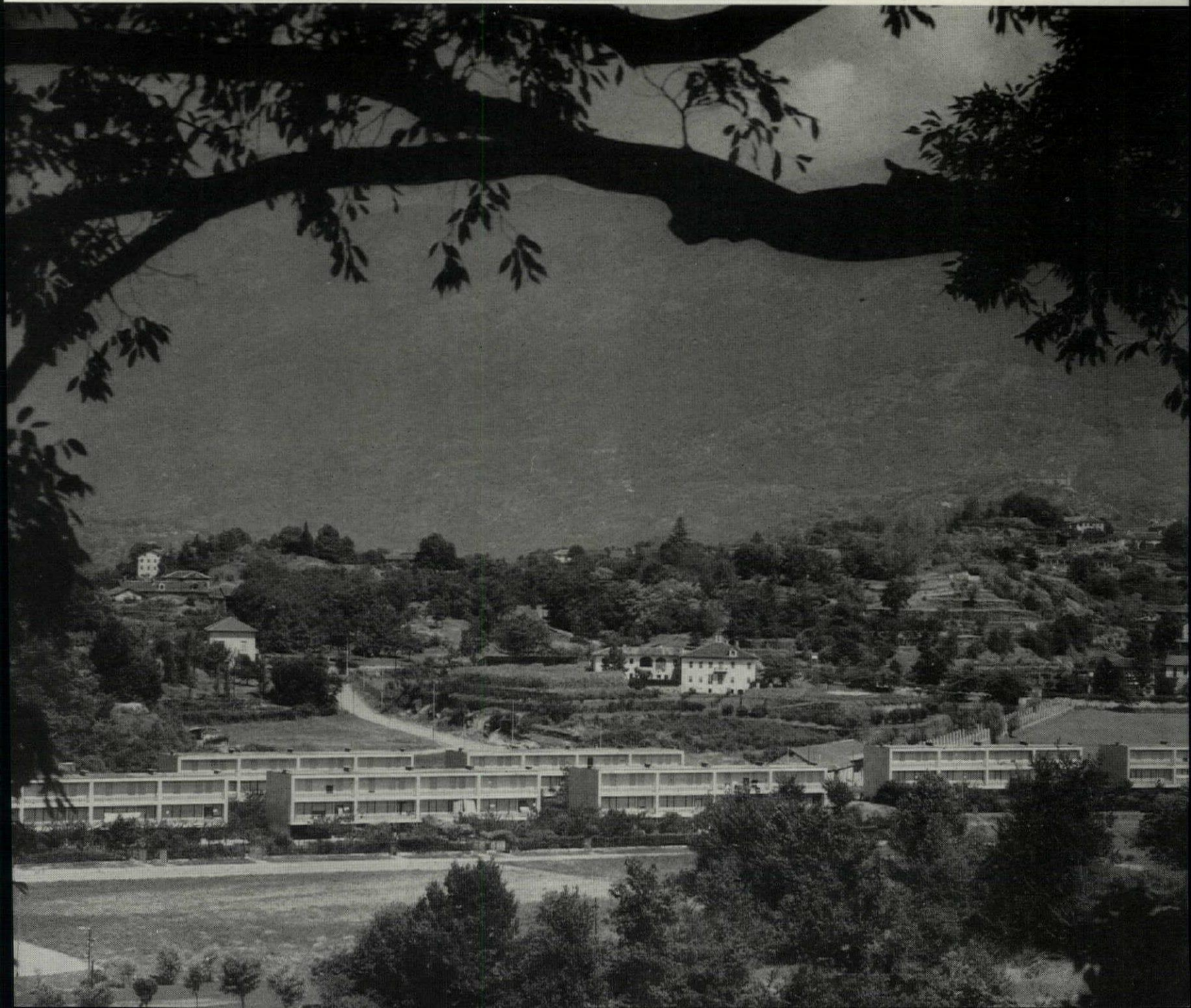
The 20-year mortgages for typical 4-bedroom apartment cost tenants only \$10 per month.

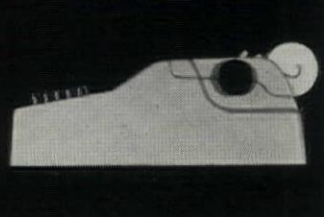


Advertising design such as booklet by Nina Rittenberg (above) and magnificent posters by Giovanni Pintori (right) have made Olivetti's name famous to graphic artists—and general public—everywhere. Art Director Leo Lionni, designed Modern Museum exhibit, some posters and stationery shown on next page.

Apartment buildings by Figini & Pollini were built in 1939, still rank among best housing in Europe

Museum of Modern Art





Furniture, stationery, catalogues and products

are all of the same, high design quality.

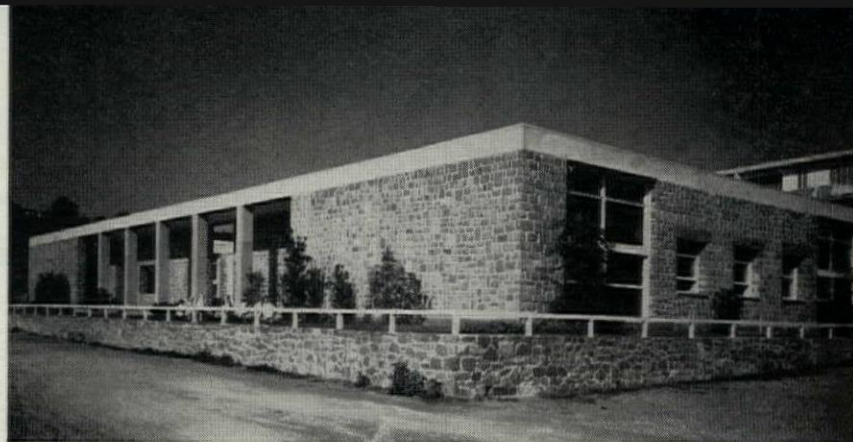
This consistently high quality has enabled Olivetti

to capture public imagination—and many new markets.

Today, factories exist not only in Ivrea, but in Turin, Apuania, Barcelona and Glasgow as well.

Rarely has there been a more convincing demonstration

of what art can do for industry.



BANJO-PLAN SCHOOL

Its circulation scheme and economy cracked the conservatism of New York's school board

General George W. Wingate High School

LOCATION: Brooklyn, N. Y.

KELLY & GRUZEN, architects

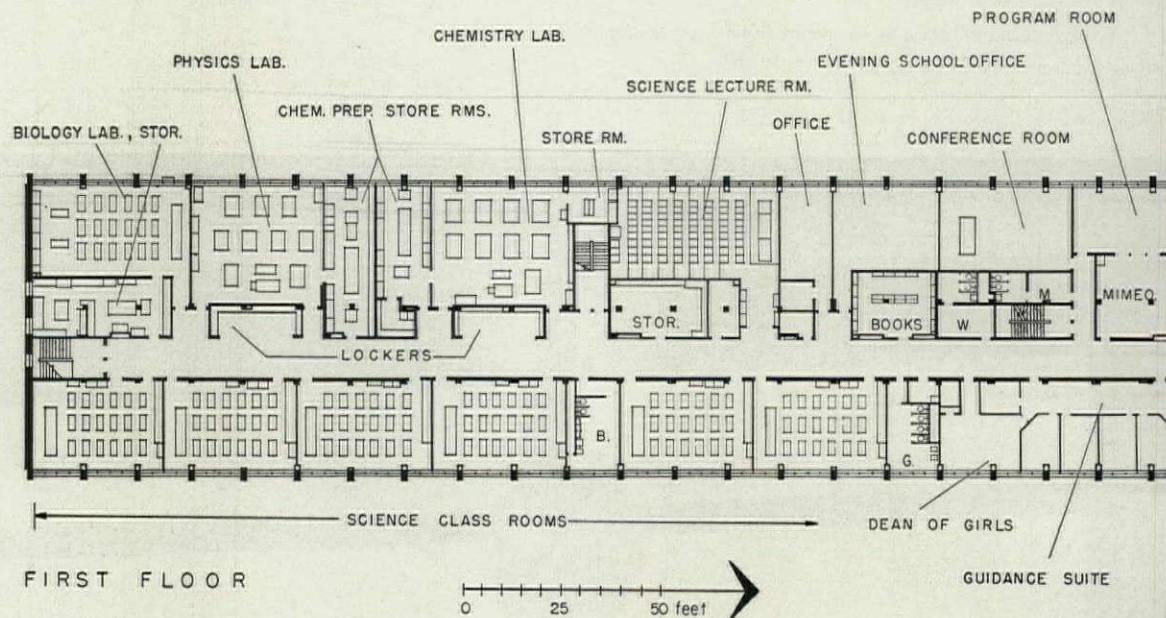
(Lloyd Fleischman, associate-in-charge

Albert Loecher, chief designer)

KREY & HUNT, mechanical engineers

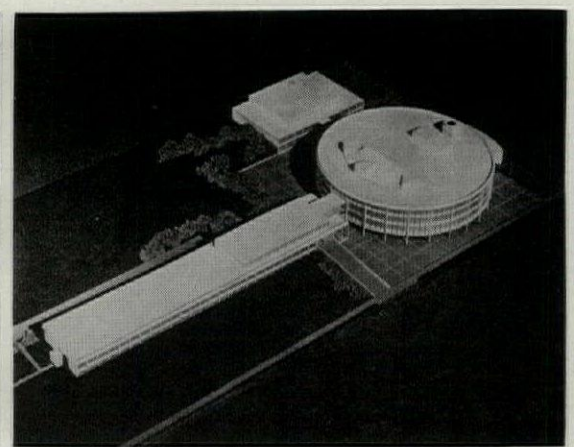
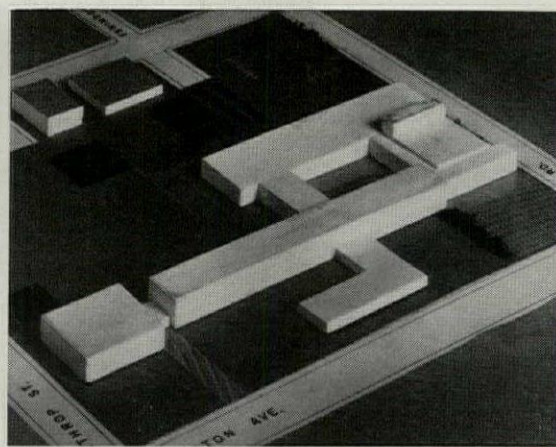
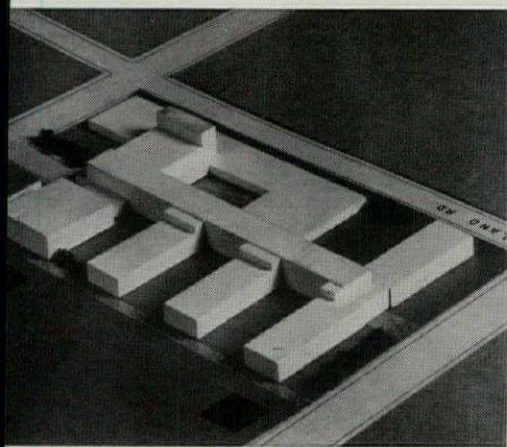
FARKAS & BARRON, structural engineers

H. V. MUNCHAUSEN, acoustics consultant

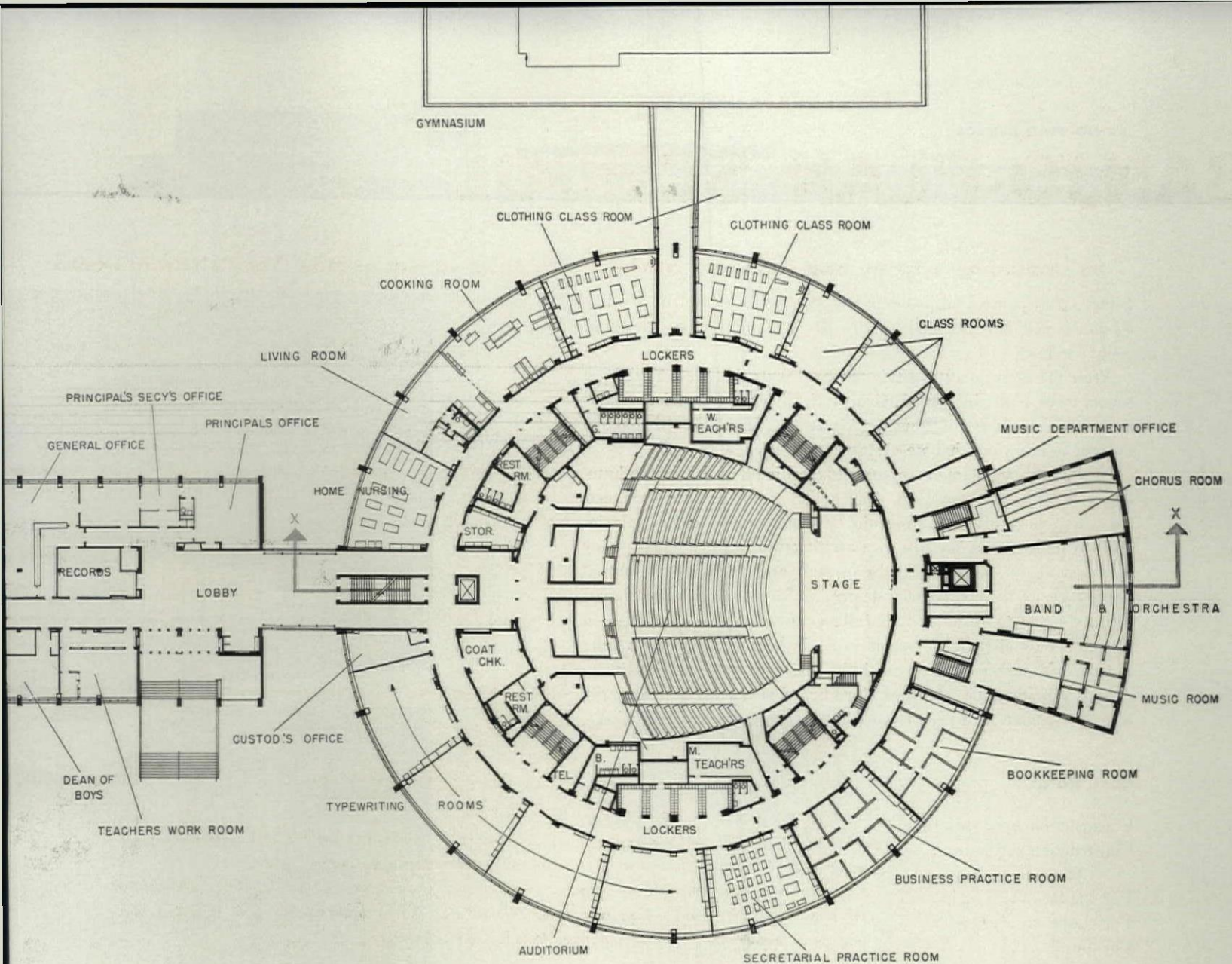


Economy of circular building results from compactness of mechanical systems and elimination of exterior walls for auditorium and most of cafeteria. Scheme wastes no interior space.

Travelers in circular corridor are oriented by five major entrance points, each numbered and painted differently, and by changing aspects of inner corridor wall. Circle's second-floor plan is almost identical with first. Plans of ground and top floors are shown overleaf.



Architects submitted three preliminary studies. Finger plan was rejected for long corridors, difficulty of protecting courts from vandals, cost. Scheme 2 was rejected because of courts and bottlenecks. Accepted banjo scheme overcame these objections, was also cheapest. All model photos are taken from same point, looking toward northwest.



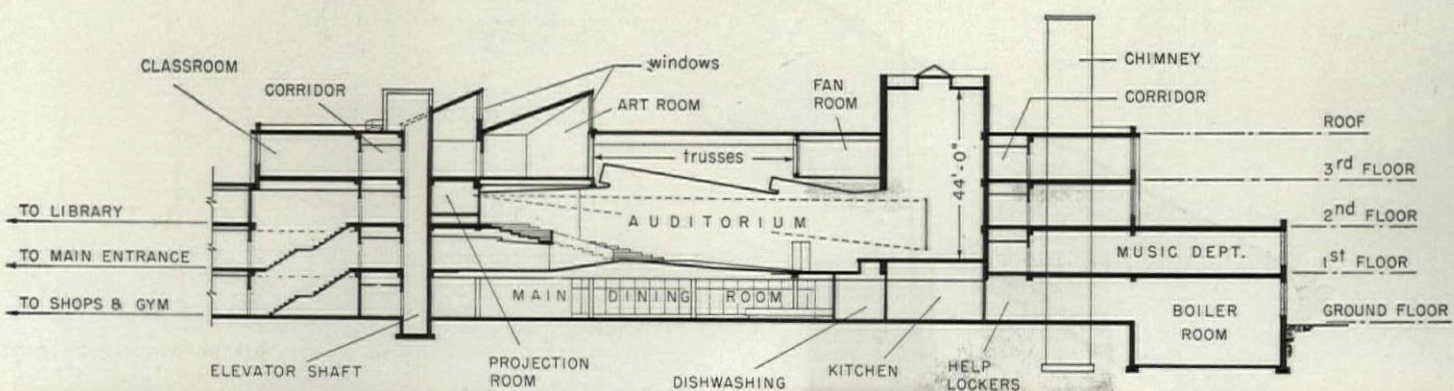
Discovery that a full-time math teacher was used just to direct traffic in regimented herds, in one of New York's huge high schools, surprised Architect Barney Gruzen and his chief designer, Albert Loecher. They worked out this 3,200-pupil "banjo-plan" as a way of letting student circulation handle itself. And, interestingly, it was adopted enthusiastically by New York's heretofore conservative school system for its 1953 construction program.

Roundness of Gruzen's main building unit cuts out right-angle intersections, permits traffic to circle easily in both directions. Since the load justified a stair no farther than two doors from any classroom, children could now steer themselves up, down and around without jams. The circle also put the cafeteria and auditorium—foci of the largest mass movements—at the shortest possible distance from classrooms, lets pupils converge on them from five directions instead of one or two.

Some of the features the board of education liked, besides the neat solution of the traffic and distance problems:

- ▶ No hard-to-supervise courts or cul-de-sacs;
- ▶ Economy of the compact central mass;
- ▶ Almost square shape of classrooms;
- ▶ Good light and a pleasant, open view for every classroom;
- ▶ Location of library, gymnasium and music rooms—isolated, yet close to classrooms;
- ▶ Convenience of auditorium and gymnasium for community use.

Round-the-compass orientation did not faze the board. Sunshine in the city is almost a luxury, and because of class changes no student will get too much of a good thing nor will any miss it alto-



BANJO PLAN SCHOOL

gether. Sun control (a problem only one third of the time in this climate) will be managed simply by top and bottom blinds at each window.

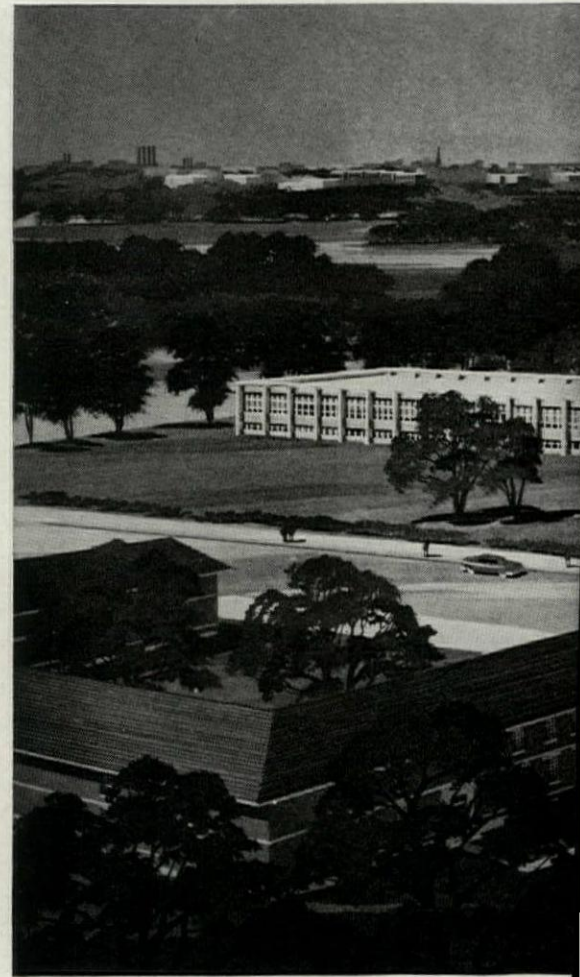
After the board accepted this scheme for its first New York high school to be built since 1941, George F. Pigott Jr., associate superintendent in charge of housing, declared: "This should make it evident to everyone that we are open to good new ideas."

New York's schoolmen—notoriously addicted in the past to humdrum stock plans—only last year began using private architects for a big share of a big program,* forced largely by low salaries and vacancies in the board's own architectural staff. Present policy is to divide the work, use jobs of staff and outsiders as mutual yardsticks, let the comparison determine future policy. Best chance for architects to show up the fallacy of stock-plan thinking—in New York or elsewhere—seems to lie in bold solutions like Kelly & Gruzen's rather than in a timid, bring-them-along-slowly approach. Incidentally, the New York board is already getting eager inquiries about its banjo from school superintendents elsewhere.

Cost data:

Construction appropriation	\$6,000,000
Construction estimate	5,350,000
(Excluding playground, architects' fee, etc.)	
Per sq. ft.	19
Per classroom (gross)	66,875
Per pupil	1,672

* Close to 130 schools built, building or in bid stage since 1946. Private firms' share: 14 schools built from 10 designs commissioned as part of "depression backlog" at war's end; 27 designs commissioned in 1951-52.



GYMNASIUM

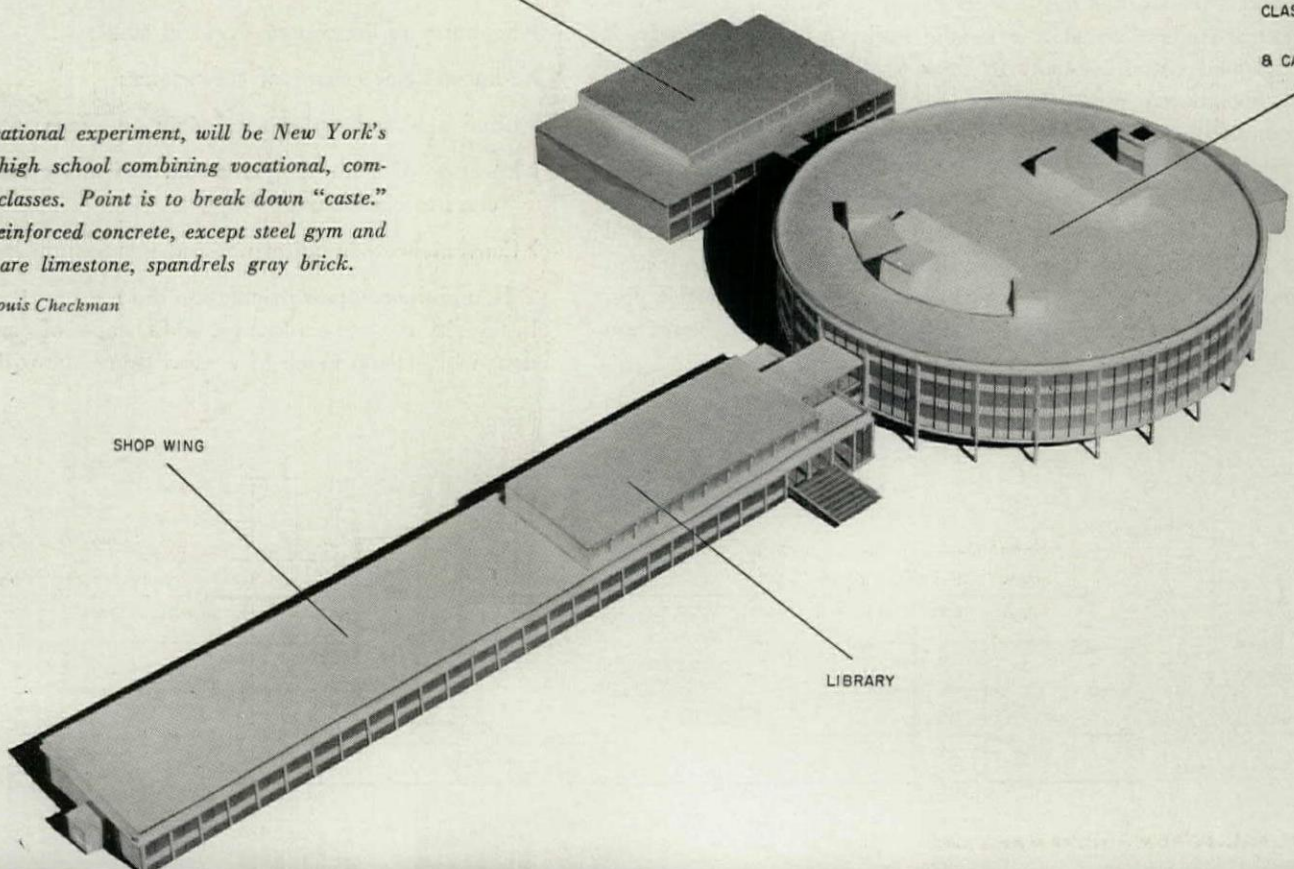
CLASSROOMS
AUDITORIUM
& CAFETERIA

School is also an educational experiment, will be New York's first "comprehensive" high school combining vocational, commercial and academic classes. Point is to break down "caste." Building structure is reinforced concrete, except steel gym and auditorium. Columns are limestone, spandrels gray brick.

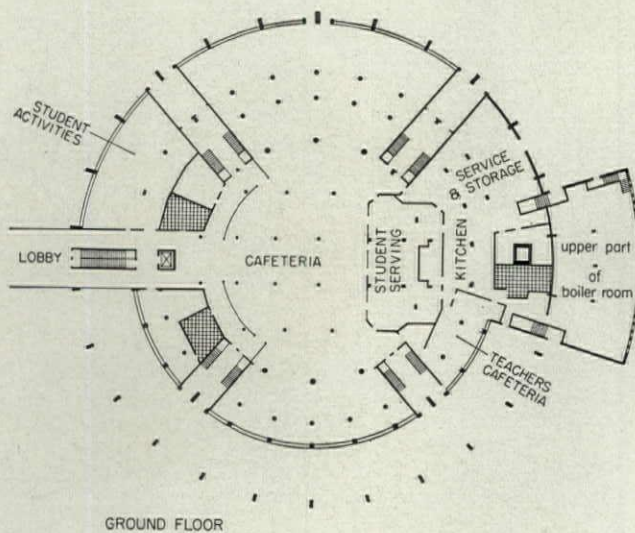
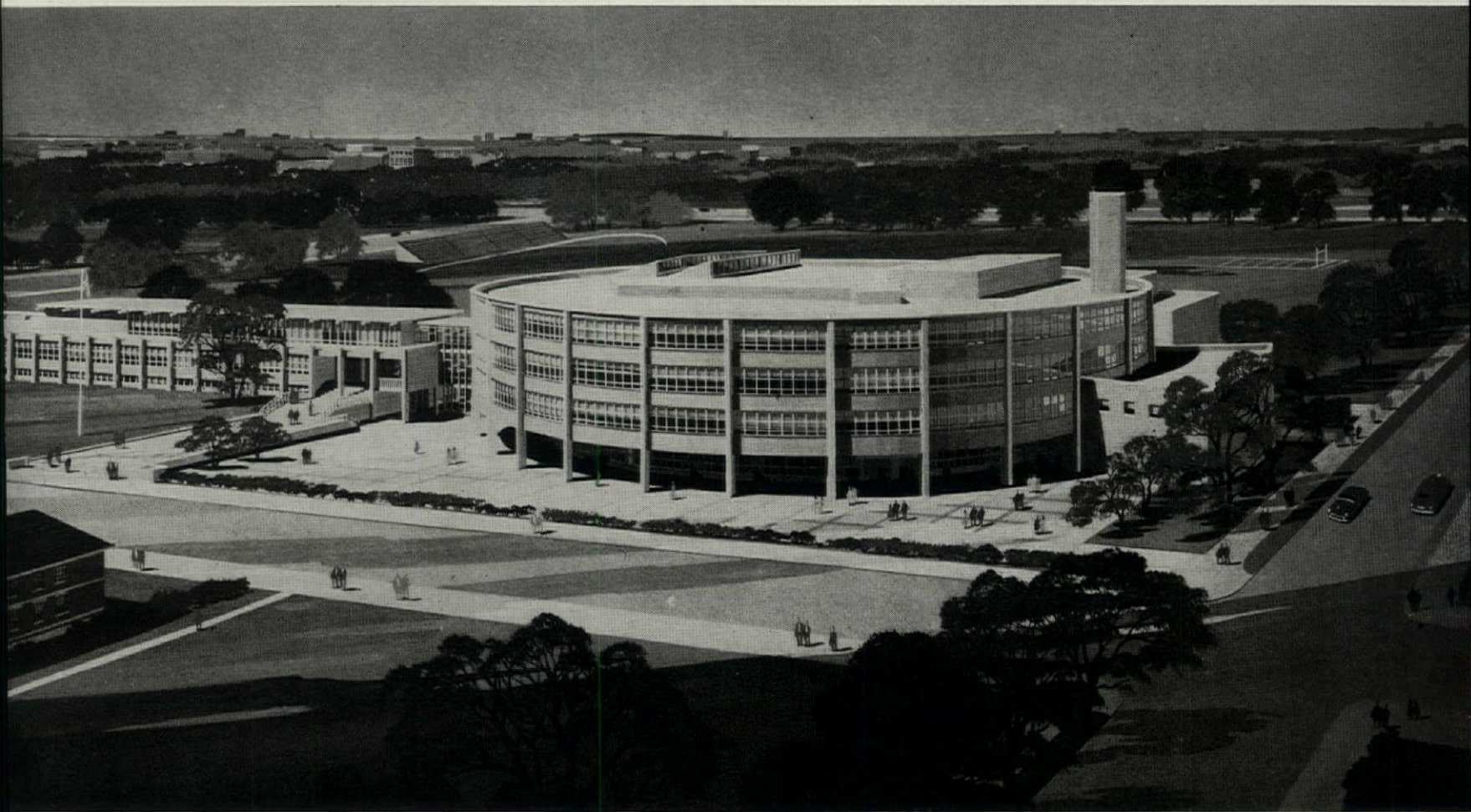
Photos: (top and below) Louis Checkman

SHOP WING

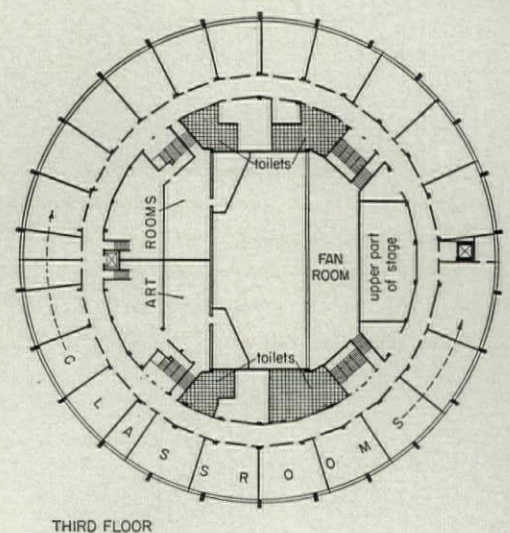
LIBRARY



The 3,200 students enter school at six points; wardrobes are in home rooms. Recessed area provides sheltered meeting place. School board and parks department will jointly develop half of 11-acre site as playground.



One-thousand-student cafeteria can be easily emptied and filled again in five minutes. Straight banjo "neck" on this floor contains shops.



Art rooms on top floor are skylighted. Like all special sections of school, art department will have corridor exhibit space.



BOTTOM-LIGHTED OFFICE

Look what we have here. Upside-down windows. It seems that cotton-mill owner Col. Elliott White Springs, a devotee of the controlled environment, wanted perfect air conditioning in his office building with no interference from light and heat and no distractions from the outer world for his workers. (The colonel is an uninhibited soul who dresses to match his plaid upholstery, favors furniture made from old loom parts, sells his sheets with ribald ads, delights in parquet tables that sink into parquet floors, and commissions stripper Gypsy Rose Lee to unveil his new buildings.)

Convinced by his architects that a windowless building would be psychologically intolerable, Col. Springs settled for the under-slanted windows he remembered on the German dirigible *Hindenburg*.

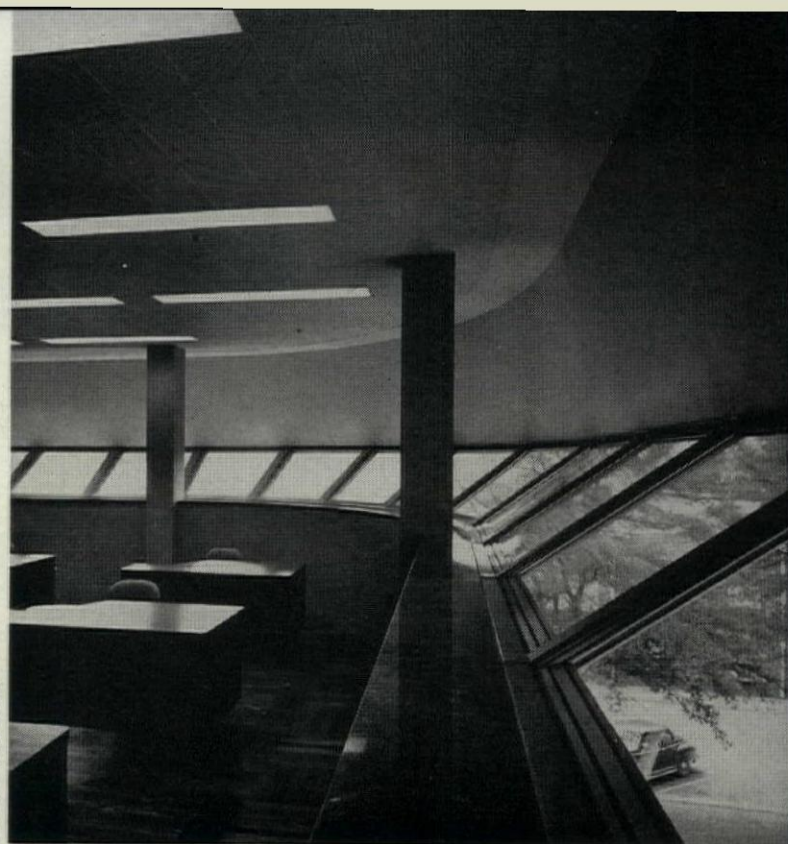
The weird windows have worked out very well, the architects report. The glass is so angled as to receive no interior reflections, even at night, and thus gives an illusion of open space "so a person unconsciously expects to feel the outside air blowing through." The angled wall above the windows acts as a light reflector, makes rooms seem higher than their 9'-10". The ceiling appears weightless, almost "floating."

Angled windows would normally be difficult to clean—particularly on the outside. But, these are not normal windows. They pivot on their mullions, flip over for easy inside washing. Weather seals around the sash are expanded into the frames or retracted by cranking. In conjunction with this tight seal, perfect shading of the windows and the relatively small area of glass save more than 10% in air-conditioning costs compared with conventionally glazed office space, permit temperature control of $\pm 1^\circ$, humidity control of $\pm 2\%$.

The massive load-supporting cantilevers of reinforced concrete required some tricky engineering (see section). Only appreciable additional cost over that of a conventional scheme was expense of scaffolding for the forms, which of course could not rest on the floor below. The architects think angled columns would have been more logical but acceded to the owner's preference.

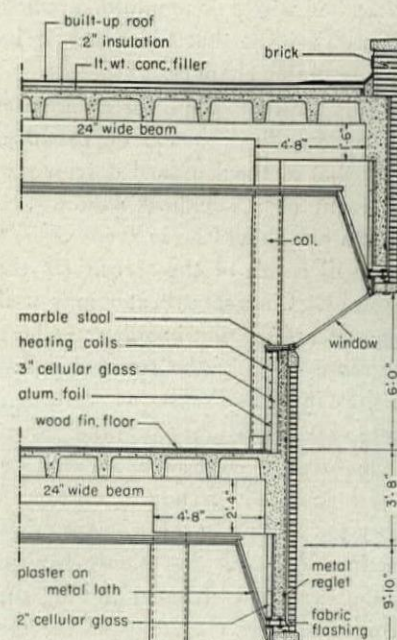
Window design permits climate-control advantages of windowless building

Photos: Gabriel Benaur



Windows at nonreflecting angle give illusion of no glazing

LOCATION: Fort Mill, S. C.
SPRINGS COTTON MILLS,
owner
ROBERT & COMPANY
ASSOCIATES, architect
GEORGE A. FULLER CO.,
general contractor



CINERAMA

**Its enthusiastic reception
may require modification of theater design
to accommodate its outsize screen and
triple projection equipment**

With so much talk among architects about Cinerama, Hollywood's first "smash" answer to TV, FORUM visited the show. What might it do to theater shapes? To theater installations?

The technique involves projecting three synchronized films side by side on a huge curved screen that spans an arc of 146° —more than thrice that of a standard movie. Films are made simultaneously by a special camera whose three wide-angle lenses are set at 48° angles for a grand sweep with minimal overlap. Screened by three widely separated projectors the pictures combine in a spectacularly realistic panorama covering almost the full field of vision of the human eye. Eight loudspeakers (five spaced behind the screen and three beyond it in the auditorium) reproduce the stereophonic sound effects picked up by the widely spaced microphones used during filming. The noise of a boat, for instance, gives the effect of a sound traveling across and beyond the screen.

Architect William Lescaze and exhibitor Skouras, for this first showing, had wisely done minimal remodeling to an existing theater; but it was evident that Cinerama, if its present success continues, will bring major changes.

What is the best shape for a Cinerama theater? Not that of the wide, shallow "live" theater on Broadway where it is being shown, and not that of the standard narrow movie house, whose seats must be in front of a standard narrow screen. For the best view of Cinerama one should be in front of it, not much farther back than the over-all width of the screen (in the Broadway Theater, 50'); thus the best Cinerama theater may well be square in plan.

Cinerama projection booths must be perpendicular to the screen, at the same level. In the remodeled Broadway theater they are set amid the "orchestra" seats where they block the view of some 300 of these seats. In a new Cinerama theater the booths could be built into the forward edge of a suitably curved balcony or set at the rear of a squarish "orchestra" section.

Vibration and noise must be kept down to an absolute minimum. Projection booths in this pioneering installation have poured concrete floors, are steel framed and are supported directly on bedrock to avoid annoying vibrations in the theater's concrete floor. Walls are solid 4" gypsum block, plastered on both sides and finished inside with acoustical tile. They have an over-all fire rating of $1\frac{1}{2}$ hrs. Projection booths are independently air conditioned.

The curved screen (23' x 64') has a radius of 25' and is mounted on a portable aluminum scaffold. To overcome light reflecting between opposite wings of the screen, they are made of $\frac{7}{8}$ " wide vertical strips of tape angled like louvers of a Venetian blind.

Remodeling of the Broadway theater was completed in six weeks at a total cost of \$45,000. Architect Lescaze is now designing three portable projection booths to cost under \$10,000.

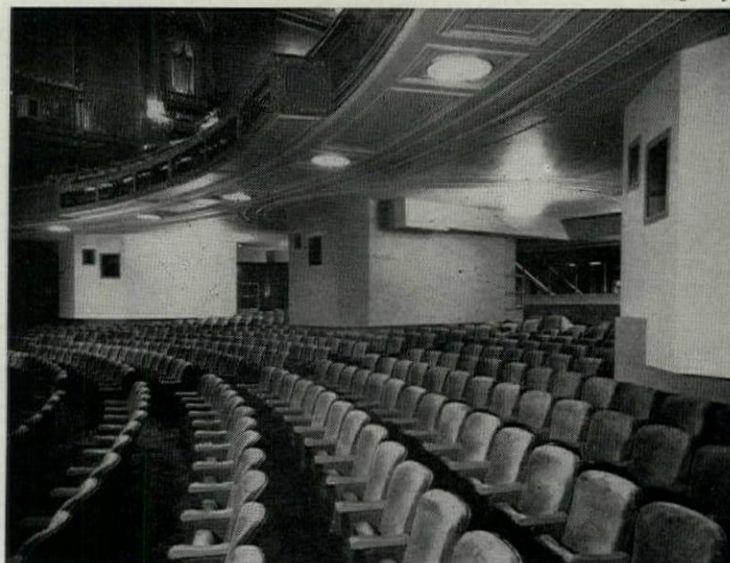
In its world *première* Cinerama is at its best in beautifully reproduced scenes from first-class Italian opera and ballet—wide, sweeping spectacles too vast to be captured by the ordinary camera. Architecture and townscape, too, are well presented. This shows at once the advantage and limitations of the new medium: wonderful for spectacles and travelogues; wasted on intimate theater where the action takes place in a single room. Thus, in its present state of development, Cinerama is a promising addition to, not a replacement of, the conventional movie.

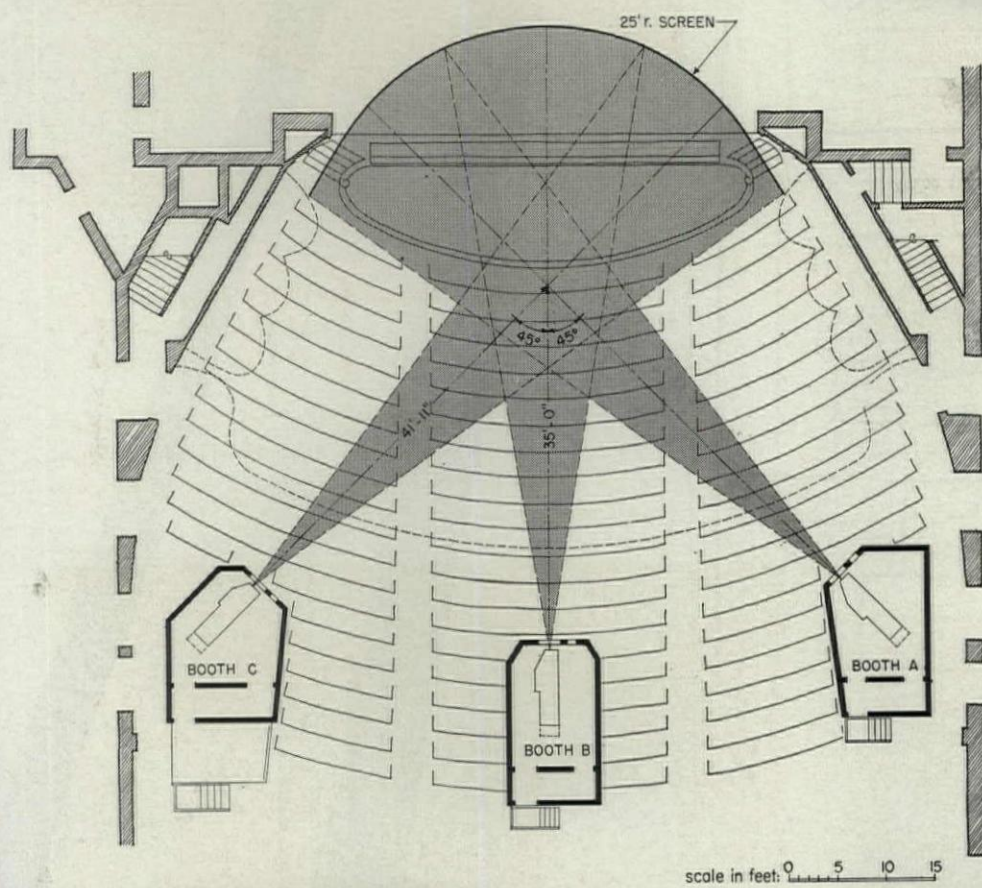
Life: Ralph Morse

Aerial Cinerama at Niagara Falls. A three-camera 146° x 55° panorama made thoroughly realistic by portrayal with three projectors on a curved screen that envelopes the audience.

Separately air-conditioned projection booths are insulated against heat, sound and vibration. Plate glass windows in front of projectors are set in felt. Booths are steel framed with supports carried down to bedrock.

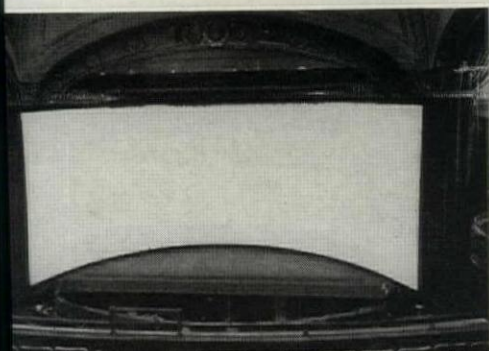
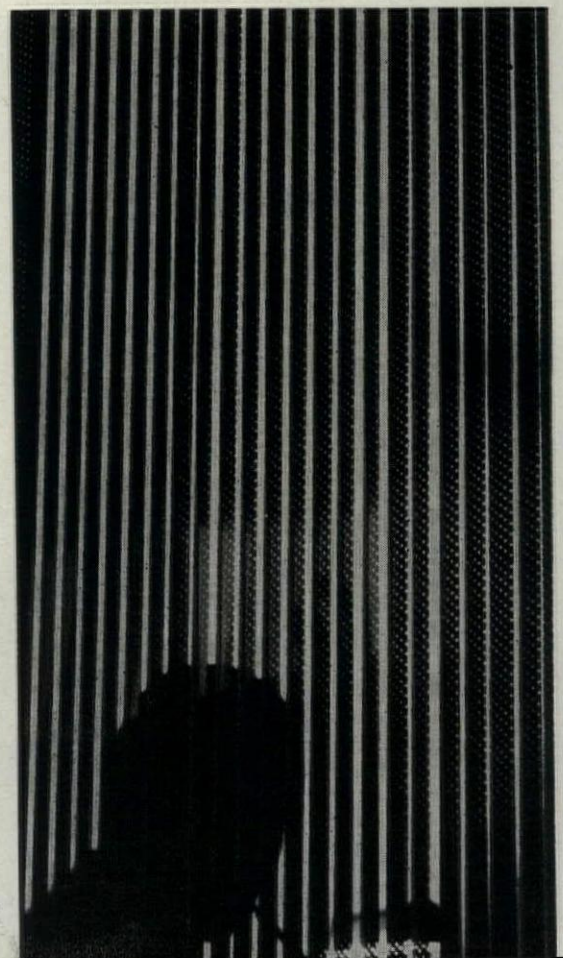
Hugelmeyer





WILLIAM LESCAZE, architect

Life: Howard Modavis



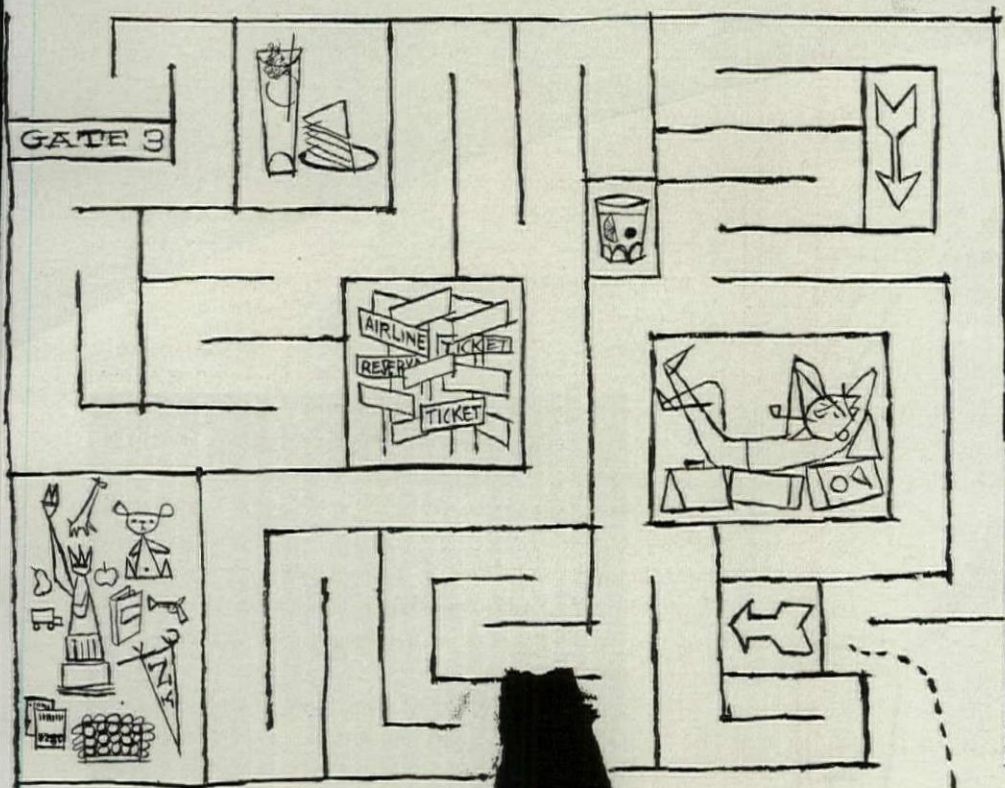
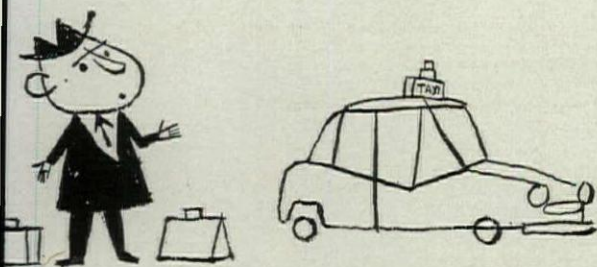
Set on radius of 25', the 64' x 23' screen (left) consists of a flat center portion with wings made of 1,100 vertical strips of tape $\frac{7}{8}$ " wide (right) set facing projector to eliminate interference from reflected light.

"The greatest problem for any airport designer is to remember that a terminal is nothing but a transit shed and that the main object is to get passengers out of the plane and on their way, or vice versa, with as little architectural obstruction as possible.

"Of course everyone who has anything to do with the buildings agrees with that—but they want to except themselves. The airlines want their service counters blocking the way so they can confirm the passenger's return ticket and thus keep other airlines away. The building owner wants the passenger to go through a maze of concessions so that percentage rents go up. The restaurant man can see no reason why the bar cannot be the focus of the entire plan.

"The designer is so blocked from all sides by everyone that in spite of himself he loses sight of the objective, and if he doesn't lose sight of the objective, someone forces him to ignore it before he is finished."

—George J. Wimberly, AIA



NEW THINKING ON AIRPORT TERMINALS

which usually turn out to be civic monuments when they should be pipelines for passengers

Air-terminal design is difficult, trying and oftentimes frustrating. The monstrous airports that dot the country bear convincing testimony that rarely does an architect successfully bring together all ingredients of a terminal building—and make them work architecturally.

► Part of his trouble stems from the fluidity of the airline business itself. The civilian airport-building program, held up during World War II, faced a greatly expanded interest in air travel in the postwar period. Traffic-growth estimates have nearly always been conservative. Result: the program has been—and still is—trying to catch up with demand.

► Part of his trouble stems from the rapid change in airline service. Feeder lines have expanded from 425,695 passengers in 1948 to over 1.5 million last year. Air-coach business has boomed, now accounts for nearly 10% of all schedule traffic; air-cargo service has risen nearly 300% since 1946. With all these changes, heavier and faster planes are overloading yesterday's terminal. And today's terminal must provide for helicopters which now are ready for exploitation as short-haul carriers and air taxis as well as for jet and turbo-jet planes expected by 1960.

► Part of his trouble stems from the fact that public money usually pays for an airport and that the public and most well-intentioned officials usually become ill-qualified architectural critics overnight.

► Part of his trouble stems from pressures exerted by groups involved directly in the terminal building: the airlines, the owner or manager, the concessionaires.

► But unless all these troubles are overcome, the terminal will be what so many of them are today: dull monuments to a misplaced civic pride—instead of handsome buildings designed for the efficient handling of planes, people and baggage.

A successful terminal must answer "yes" to six fundamental questions:

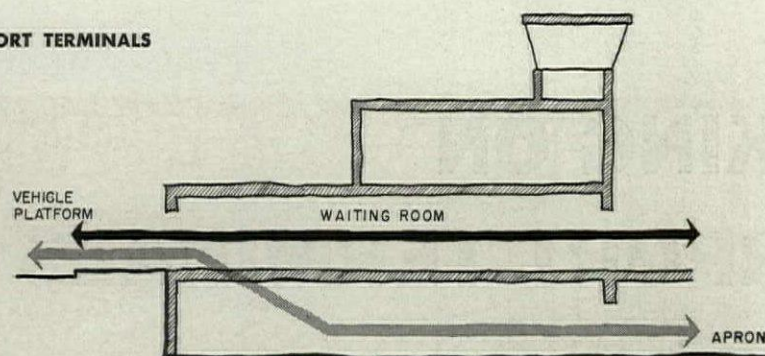
1. Can passengers and baggage move easily from taxi to plane and vice versa?
2. Is it the correct size for the traffic it will generate?
3. Can it be expanded economically?
4. Meanwhile, is interior space flexible enough to meet program changes without costly alterations?
5. Will the number, size and location of concessions produce maximum profit?
6. Is its architecture simple and expressive of the building's function?

Circulation is the toughest problem, particularly in the designing of a large airport. Unless it is solved, the terminal will be an unqualified failure. Here are the requirements of successful circulation: 1) En-planing passengers must be relieved of their baggage as soon as possible after leaving bus or limousine. 2) The route to planes must be obvious and well marked. 3) The flow of baggage must never cross the passenger route to the plane. 4) De-planing passengers must get as close as possible to the limousine platform before they have to pick up baggage. Cleveland's new terminal (p. 136) is an excellent example of such circulation.

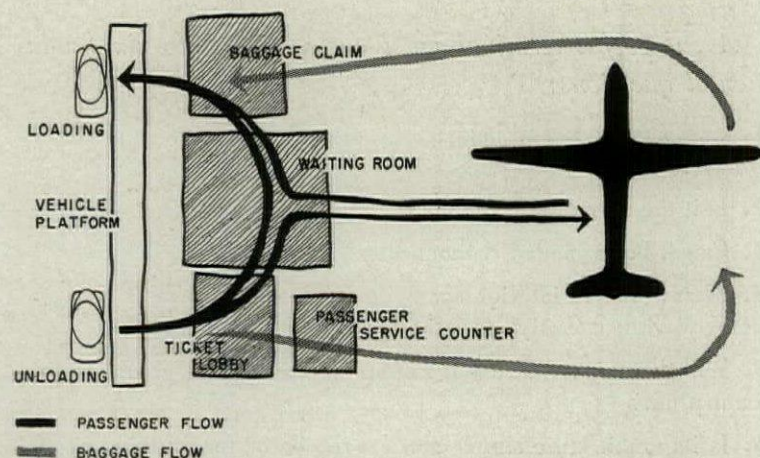
A good circulation pattern such as Cleveland's depends as much on basic decisions made by the airlines that plan to lease space in the building as it does on other members of the planning group (architect, prospective manager, CAA authorities, engineers, and city or county aviation officials). Reason: The way airlines arrange their ticket counters and offices in the building with relation to loading positions of the planes outside determines the "operational system" of the building.

There are three fundamental kinds of operational systems: unit, centralized and consolidated. In large terminals the selection of the operational system to be used has great bearing on the success—or failure—of the circulation pattern.

1. *The unit system* is clumsiest of all. It gives every airline a complete little separate terminal of its own, duplicating the ticket service, information service, waiting room, baggage service, plane gates and transportation facilities of every other little separate terminal. The effect is that passengers have difficulty learning of rival schedules that might serve them better. The building becomes a tremendous corridor. Inter-change passengers (those transferring from



Vertical separation of baggage and passengers in multilevel building



One-level terminal can separate baggage and passenger routes horizontally

one airline to another) have to walk considerable distances carrying their own baggage. There is no central source of flight information for all lines. Concessions, strung the full length of the long corridor, lose income potential. Many passengers waiting for imminent flights dare not leave the ticket-counter area for fear of missing their plane. Opposing currents of traffic are set up in the corridor as enplaning, deplaning, and inter-change passengers confuse the circulation pattern. The unit system duplicates construction and equipment, causes plane stations of one line to remain idle in slack periods that might be rush periods for some other line.

Yet some airlines swear by the unit system. Their plane's loading positions are comfortably close to dispatching offices, baggage-haul distance is reduced and closer control can be kept over flight and ground operations to increase over-all efficiency of each airline. In addition, each line retains its identity—which is considered by all airlines as vastly important in the competitive atmosphere of today's flying business.

2. *The centralized system* has evolved from the unit system and a majority of large new terminals like St. Louis (p. 134) and Cleveland (p. 136) use it. It consists of grouping ticket counters in one area—sometimes around the perimeter of the waiting room—and is adaptable to any size airport. Among its features are a single baggage claim counter and a centrally operated public-address system that alerts passengers wherever they may be in the building to all arrivals and departures. It serves passengers better, permits better location and exploitation of concessions, helps solve the circulation problem and conserves space and money.

3. *The consolidated system* offers the most obvious conveniences to passengers. It is, however, an ideal yet to be reached since no large terminal has successfully worked out its problems—which are largely invisible ones. In its purest state, a consolidated system has one large ticket counter serving all lines and offering flight information on all lines. A central public-address system would be used; one timetable board would show arrival and departures for all lines operating from the field. A single baggage checking and hauling system would be used.

However, the administrative headaches involved in getting all information together, correlated and broadcast in time to be useful make true consolidation nearly prohibitive. Moreover, competing airlines would lose their identities. Ticket personnel would be controlled by a middleman—the terminal authority—and under such conditions they might not be on their toes to give service to customers. Baggage handling on so vast a scale tends to introduce errors—and delays of flights. Experiments in consolidation in Chicago, Willow Run and Cincinnati have disclosed these faults and, today, no airline favors consolidation unreservedly.

Whichever operational system is decided upon, it must answer the requirements of good circulation. These requirements can be met in either a single or multilevel building. In one-level operation, routes taken by visitors, passengers and baggage can be separated horizontally. In multilevel operation baggage can be routed to the lower level, passengers and visitors directed to upper-level waiting room and concession areas (see sketches left).

Estimating a terminal's size is the most critical step in its planning. Oversized, it wastes money; undersized it is either rapidly outgrown and abandoned or has to be enlarged frequently at considerable cost. CAA recommends only two stages in building a terminal: 1) Initial building capable of handling increased traffic demands for 10 years; 2) final building to handle traffic to the saturation point of the runway system, hangars and other services.

Determining the correct terminal size requires current traffic studies coordinated with forecast increases in air travel for which CAA has developed some helpful formulae.* Obviously the building must accommodate peak-hour crowds of both travelers and visitors. In a community with no existing airport, correct size can be determined through CAA methods that consider the economic character of the community, population, distance from communities to be served, intervening communities, nearness to a metropolitan center plus local factors such as accessibility, parking space, available restaurants, bars, shops and other services.

However, since there is no foolproof method for determining size, all terminal buildings must be expansible.

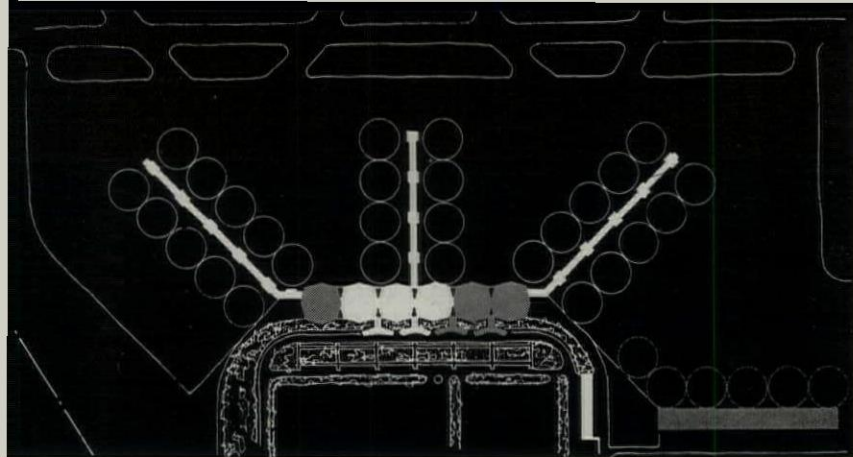
This is doubly important because national forecasts of the increase in air travel have always proved low. In 1945 CAA predicted 20 million passengers for 1955. By 1951 the total was already 23 million—15% more than the 1955 estimate. Now CAA is talking about 40 million by 1960. But, the effects of national income and the development of airplanes and facilities are unpredictable and, in a particular community, equally unpredictable local conditions are apt to knock all estimates haywire.

Since the distance from the airplane loading apron to vehicular driveway is usually fixed by the initial buildings—and costly to change—expansion will normally take place either vertically or longitudinally. Thus a terminal should not be designed with bearing walls at its ends. Stairways, toilet facilities, kitchens and other

* See CAA bulletins: *Effective Community Air Traffic Potential*, *Community Airport Requirements*, *Economic Character of Communities*.

Baltimore's oversized Friendship Airport is only now getting the traffic that was anticipated two years ago.





St. Louis' new airport is planned for easy expansion. Three vaults can be added to double operational space; passenger loading positions can be increased while air cargo and air freight move to other areas.

mechanical installations should be located so they will not have to be moved. And heating and air-conditioning systems should be designed to serve the expansion wherever possible.

Meanwhile, "built-in" flexibility will spare alterations.

Until expansion is necessary (about ten years hence if everything goes according to plan) normal growth of travel will probably require rearrangement of interior spaces. This will be simple if the structure is framed to permit use of as many nonbearing partitions as possible and if space is planned for adaptability to other uses. Airline space, concession areas, rest rooms should be planned so moderate enlargement will not impinge on or disrupt adjacent activities. The element of flexibility should be considered throughout the design—from framing system to electrical outlets.

Profitable concessions help make a successful terminal.

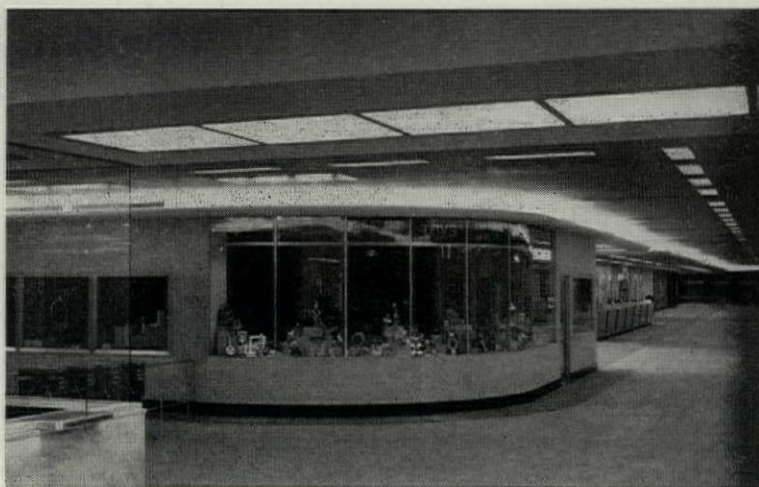
They can help pay for the building's maintenance and operation and minimize the need for public funds. However, the tendency in planning space for concessions is to *overestimate* the number and amount of space needed. CAA warns that "... few airports have at present the traffic volume to support more than one eating establishment and, at most, a newsstand and novelty counter."

Many small airports interpret "eating establishment" to mean a fully staffed and equipped dining room. Actually a survey of one of the nation's largest terminals—Washington National where dining room, coffee shop and snack bar are available—showed only 17% of customers went to the dining room with the remaining 83% split almost evenly between the snack bar and coffee shop. This indicates a snack bar or counter-type coffee shop will prove most profitable. If the airport is small a newsstand operated in conjunction with the eating establishment will normally be the only concessions warranted. Of course, pay phones, vending machines and taxi service will prove profitable, but the space needed for them is small.

Naturally, as the size of an airport increases, the number and extent of concessions increases. But it is significant that of 34 air terminals surveyed—including the nation's largest—the CAA found bars in only five, florist shops in only three, bookstores in only two. Airports serving fewer than 200 passengers a day rarely have more than an eating establishment and newsstand, gift and novelty shops. In larger terminals (1,000 or more passengers a day) a barber shop may be added. CAA's figures are based on conditions in today's badly planned buildings, might be raised materially by better planning.

Basing concession space and rents on low traffic estimates can also be costly. In South Bend, Ind., for example, 5-year leases for airline and CAA space were based on a lower traffic estimate than actually resulted. In addition, the per cent of the gross business done in the restaurant was set too low. Now, unless those agreements can be renegotiated, the terminal building will continue to suffer financially.

Jack Holmes



Novelty shop is in Pittsburgh's new seven-story, \$9.5 million terminal which also boasts 62-room hotel, movie. Question: will so many concessions pay off?

Architecture of most terminals merits searching criticism.

For here, in this relatively new building form completely free from tradition, most US architects have missed a great opportunity. Instead of responding with buildings at once functional and expressive of the exciting movement and drama of air travel, most of them have transferred clichés to the broad, exciting sweep of the airfield. Instead of interpreting the dynamics of flying and a flying age they have resorted to monumentality. In many cases, architects have failed to meet even the modest challenge offered by the CAA, which says: "A goal to achieve is a simple, nonmonumental structure that can be maintained inexpensively. . . ."

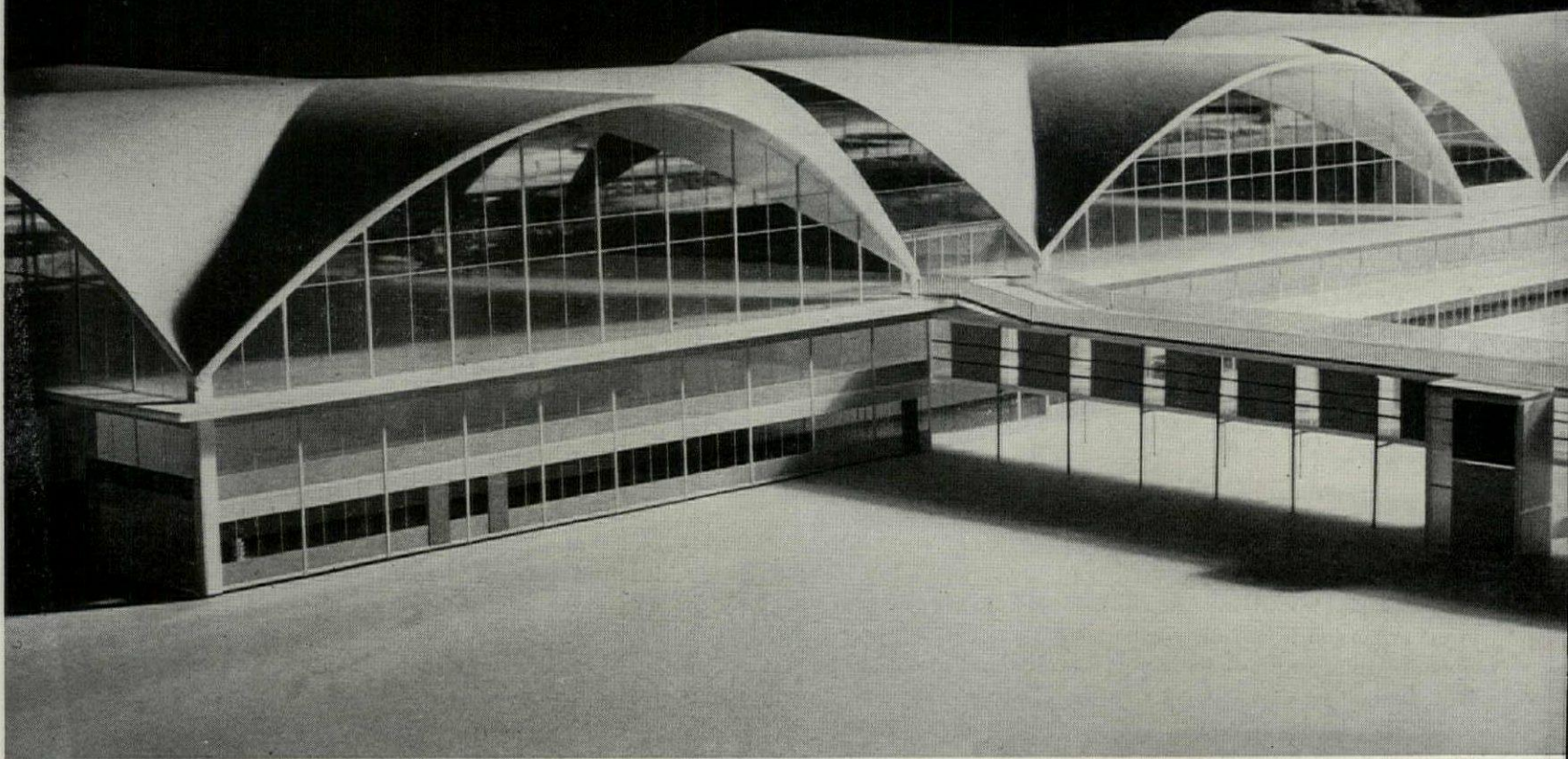
Some extenuating circumstances mitigate the blame. As architect Wimberly has pointed out, opposing pressures on the airport designer are often overwhelming. When community funds are involved, community pride shouts for expression. Unhappy results usually follow and the terminal becomes a monument. Often the airline's terminal operating systems, the demands of prospective concessionaires, concern for income on the part of the owner or operator conspire to confuse and adulterate the design.

Happily these pressures do not always prevail. There are signs that some planning teams are permitting the architect to work more freely and creatively in designing the terminal. His task is great for he must keep in mind all the problems of circulation, expansibility and flexibility, the choice of materials for easy maintenance, economy and revenue-producing aspects of the program—and at the same time produce a good building. Probably the outstanding example of successful terminal architecture in the US is the St. Louis project now fully approved and soon to be built (see next page).

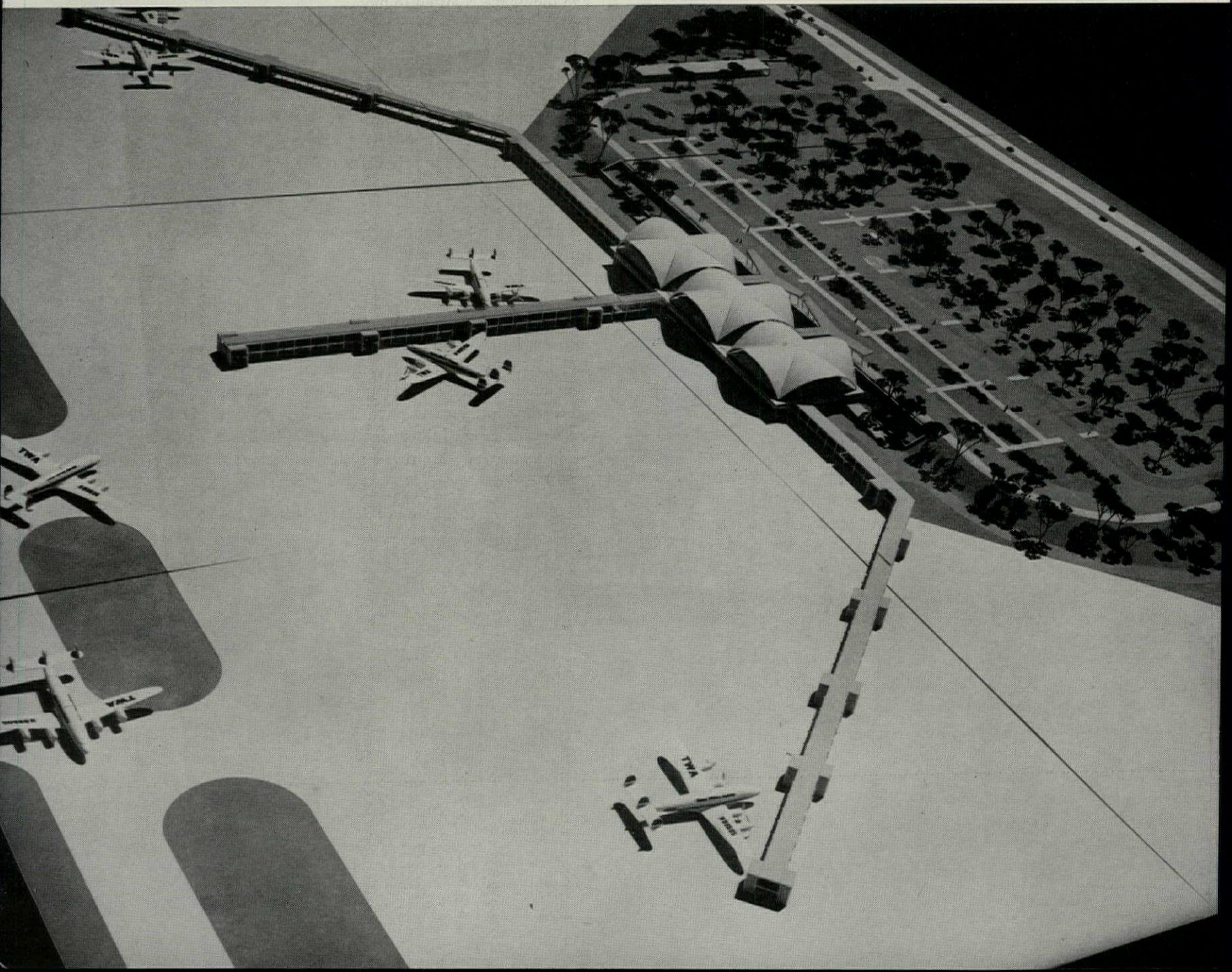
Small airport architecture gets a boost from Monterey's terminal

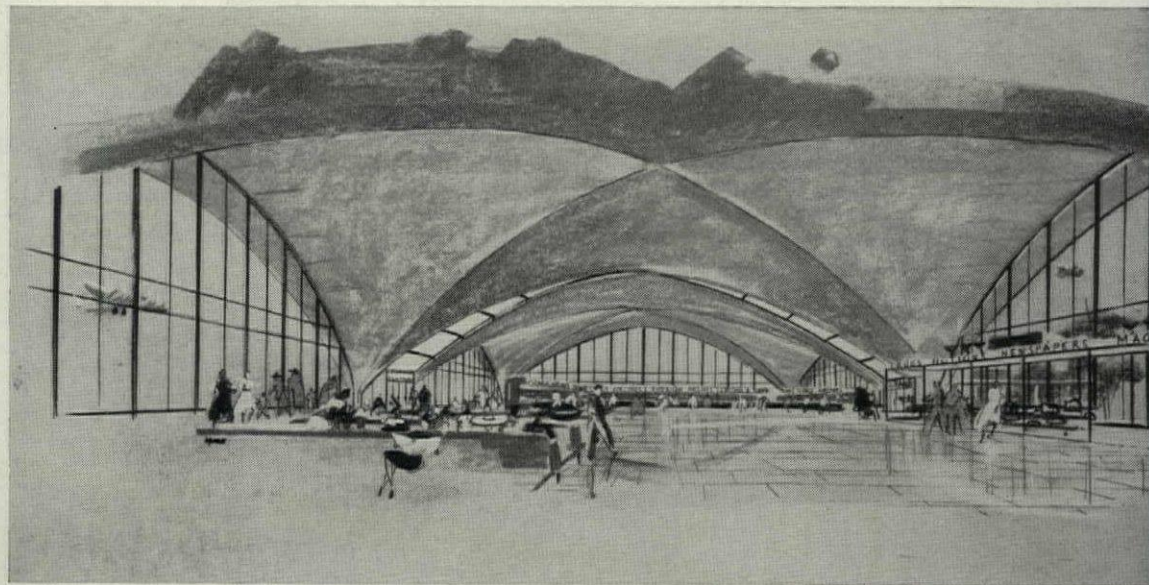


Mortley Baer



Below: Lens-Art Photo; above: Gottscho Schleisner





Interior of St. Louis' new terminal will be a magnificently spacious unobstructed area about 120' wide, 360' long. Each vault rises 32' above passenger-level floor while glazed ends and sides flood terminal with light.

HELLMUTH, YAMASAKI
& LEINWEBER, architects

WILLIAM C. E. BECKER,
structural engineer

EDGARDO CONTINI,
consulting structural engineer

LANDRUM & BROWN,
airport consultants

ST. LOUIS: the great room

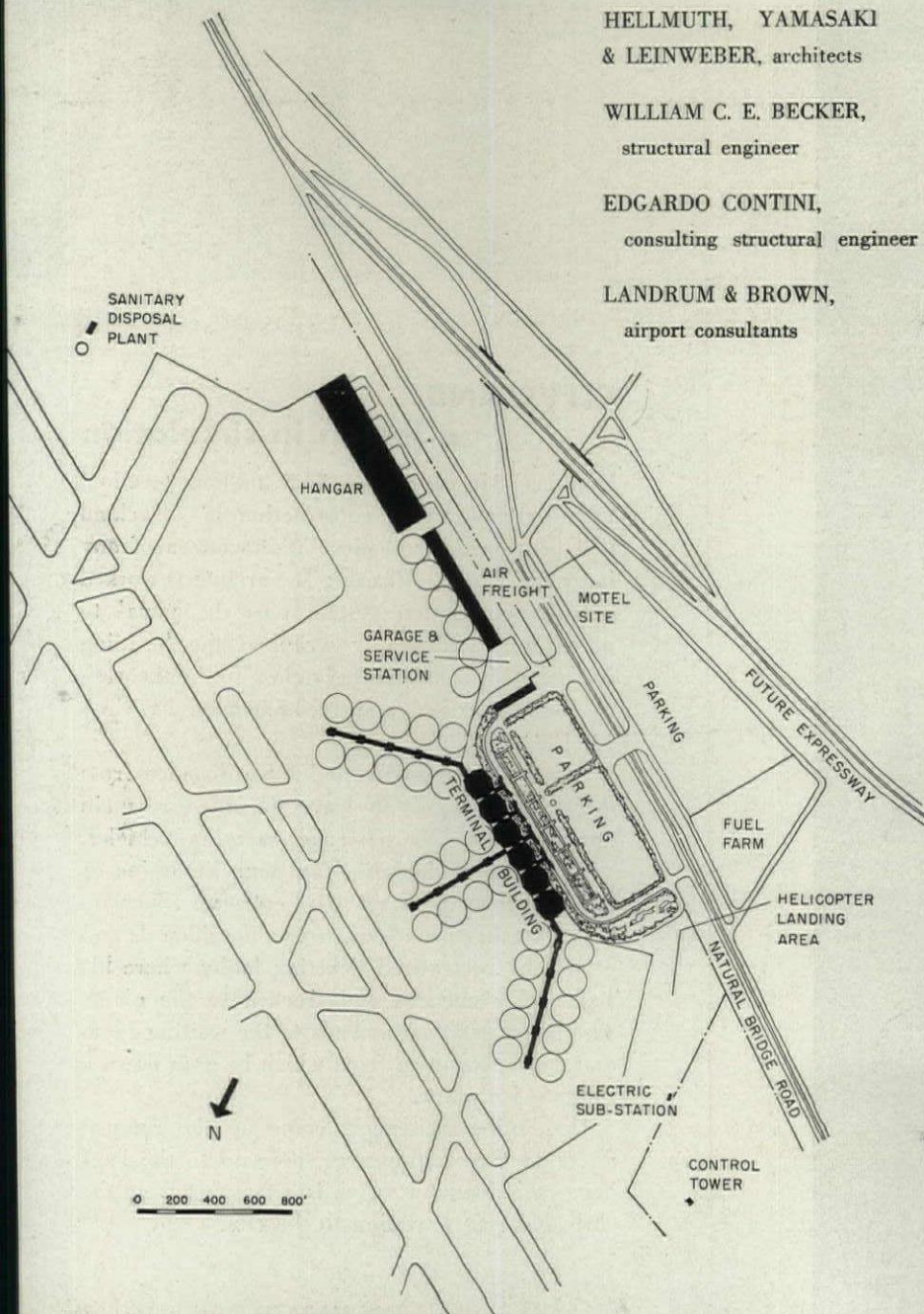
The "great room" concept makes this a confident, original airport—the nearest thing yet to a Grand Central Station of the air. Soon to be erected in St. Louis, architect Yamasaki's design may start a new airport era.

Three lofty shell concrete vaults encompass the great space. They house, in turn, the dining area, waiting and concession area, ticket and insurance area. Daylight will pour through glazed areas between the vaulted forms and through their ends and sides. At night indirect lighting on the ceilings will emphasize the 32' heights.

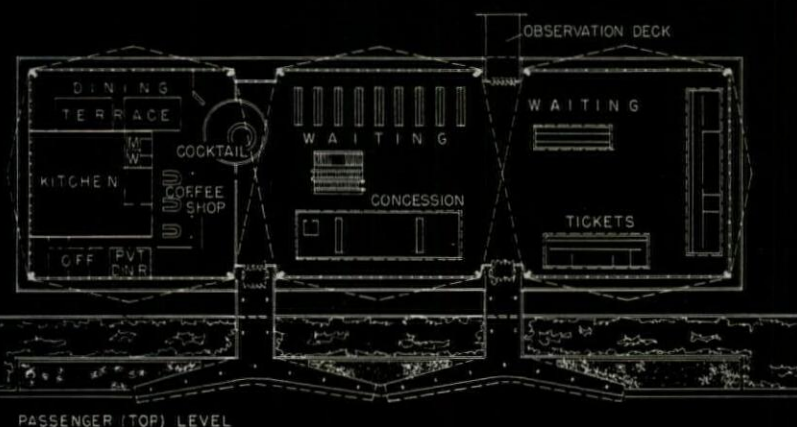
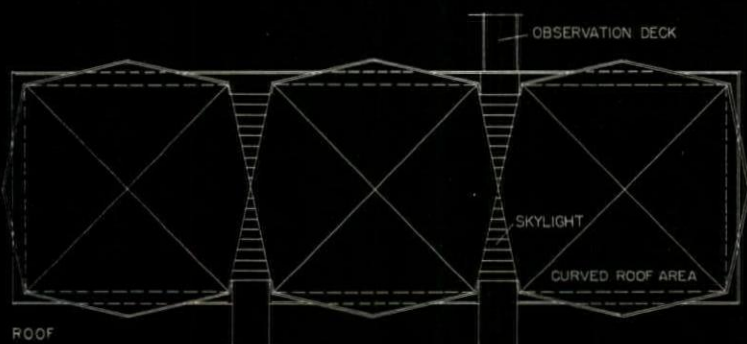
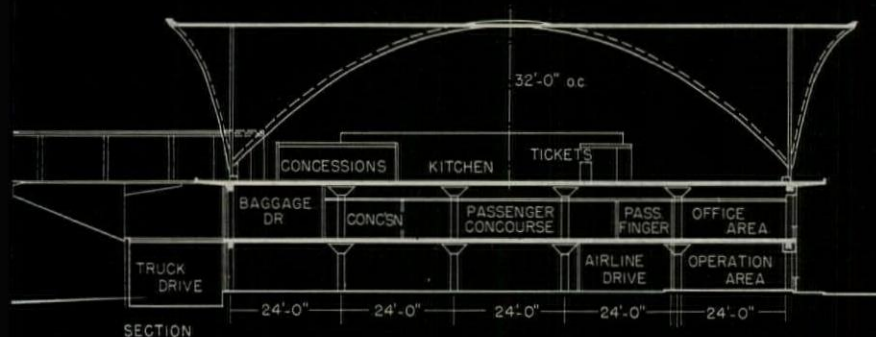
The design meets the problem of circulation with a three-level building. Service and airline trucks go to kitchen, mechanical and airline areas along ramps and tunnels on the two lower levels leaving the main entrance drive free for passenger and visitor traffic. Centralized ticket counters are close to the driveway and baggage is chuted to a lower level and trucked to the planes. En-planing and de-planing passenger routes are separate. All de-planing passengers pick up baggage at one point.

Flexibility is achieved in the great space—completely free of columns and bearing partitions. The requirement of *expansibility* is met with plans for three additional vaults into which the three initial areas can expand, thus doubling presently planned space. (When that space is filled the capacity of the field runway system will have been reached and the field matured.) Additional plane positions can be put on the extended finger system.

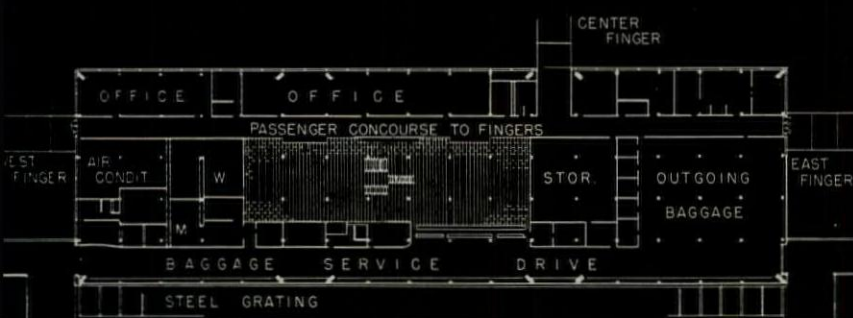
The \$3.9 million building will be air conditioned and heat-absorbing glass will be used throughout. The possibility of glare through east and west ends of the concrete vaults will be reduced by planting of evergreens. Finishing materials used will be predominantly marble, metal and glass to reduce maintenance costs.



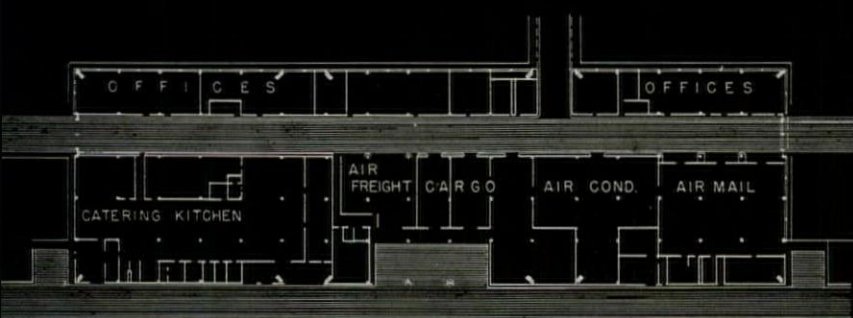
St. Louis cont'd



PASSENGER (TOP) LEVEL



FINGER (MIDDLE) LEVEL



APRON (BOTTOM) LEVEL



CLEVELAND:

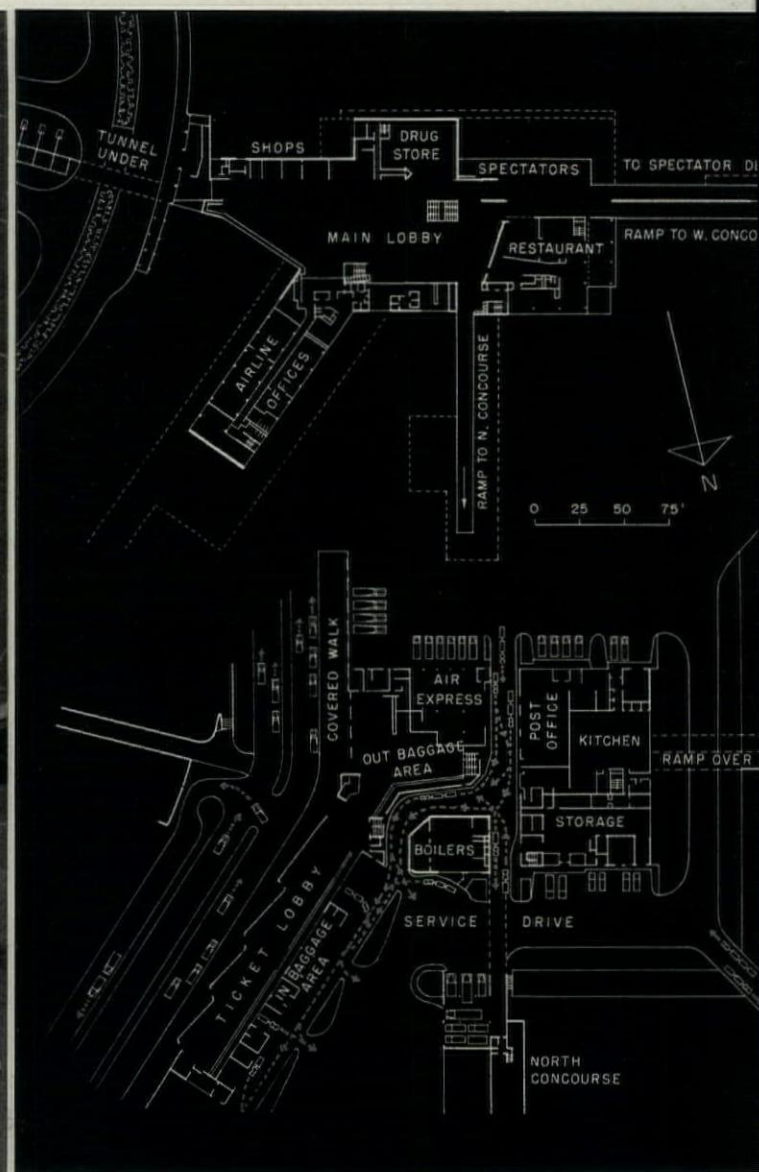
a lesson in circulation

Hopkins Airport's new \$4.3 million terminal building now under construction in Cleveland will provide the best circulation pattern of any large US airport. Reason: The architects worked out the circulation system most beneficial to passengers and simply wrapped the building around it. It is surprisingly close to the theoretical best described and recommended by CAA (p. 132).

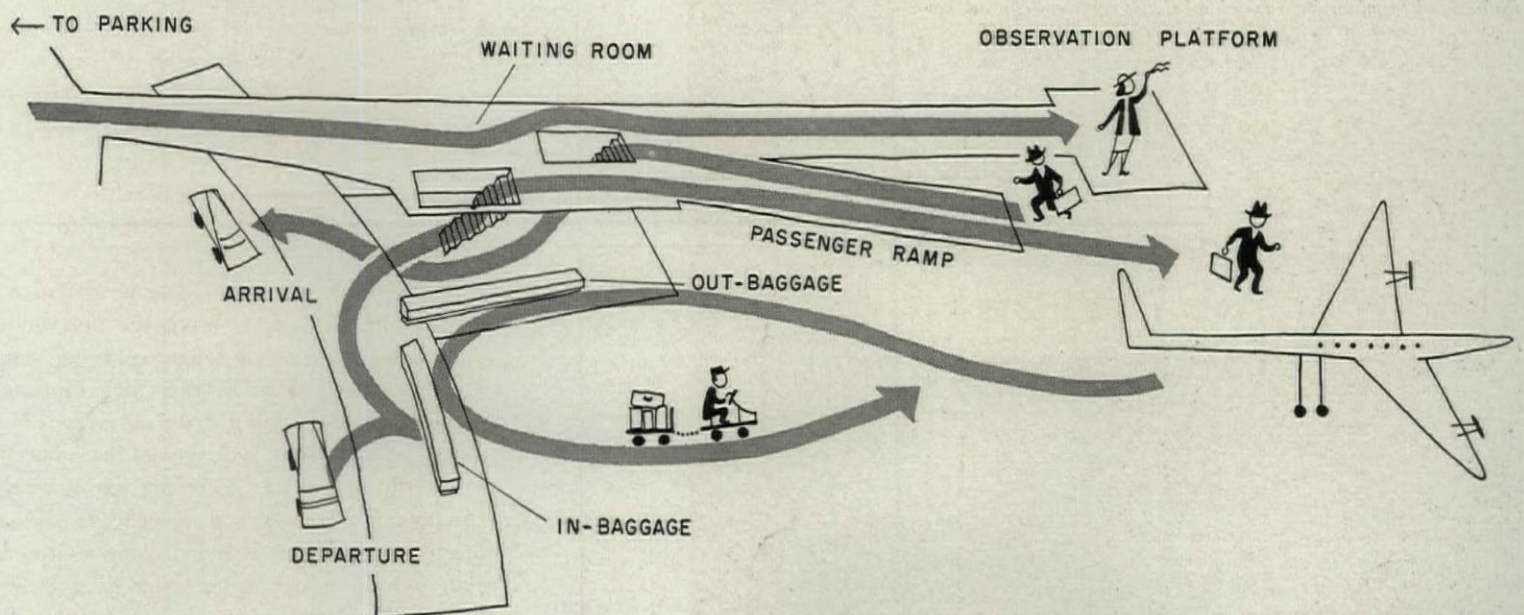
Service traffic is diverted some distance from the building so as to leave the one-way main approach free for passenger-carrying vehicles.

A passenger debarks from taxi, limousine or private car at the main drive entrance (diagram right) on the apron level, crosses the sidewalk and enters the centralized ticketing lobby where his baggage is checked and trucked to the plane. The passenger then ascends to the waiting room and concession area from which he goes down a ramp to his plane.

De-planing passengers come up the ramped finger to the waiting area, descend to the baggage claim counter which is a few feet from the curb and transportation to the city.



Cleveland's new terminal departs from sometimes monotonous bilateral symmetry, becomes an envelope for the best circulation pattern in US.

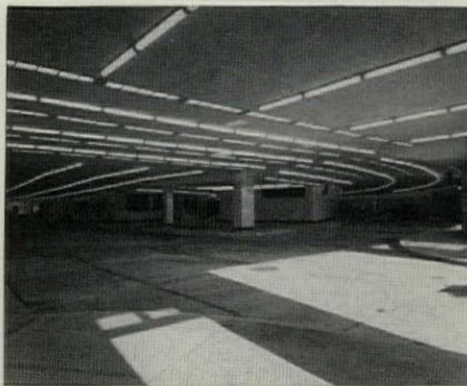


OUTCALT, GUENTHER
& ASSOCIATES, architects

Circulation diagram shows Cleveland pattern most nearly meets CAA-suggested diagram (p. 132). Note quick separation of passenger from baggage, practically at curbside; also position of baggage claim counter only a few feet from limousine service.

JOSEPH HOOVER, architect
LELAND W. COOK, structural engineer
CONTRACTORS:
Dick Construction Co.
Navarro Corp.
Domenico Rea

*Bus and service-truck concourses
honeycomb field level of terminal.*



PITTSBURGH: self-contained community

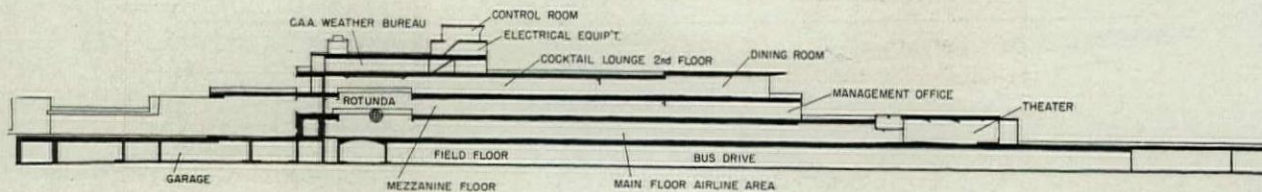
No air-terminal development in the country matches the greater Pittsburgh Airport in profit-yielding facilities for passenger comfort. Located 15 mi. (20 min.) from the center of Pittsburgh and serving industrial towns over a wide area, the new terminal building is, in fact, a self-contained community.

Here's what it offers a passenger faced with a long delay due to schedule changes or to weather-caused flight cancellations: A 62-room hotel; dining room, dining terrace, coffee shop and drug store; movie theater; post office; bank; garage; observation lounges; haberdasher, toy, florist and other shops; recreational center.

Built at a cost of \$9.5 million, the bulky terminal building, architecturally officious, is the largest in the US. Rentals from the leased space to airlines and concessionaires are expected to retire the \$19 million county bond issue (which covers other field developments as well as the terminal building) in 30 years.

Originally designed for 16 loading positions around the central finger, the building can be expanded to take 30 positions by adding two lateral fingers. When it reaches this final stage, the three loading docks alone will have waiting rooms and observation decks for 10,000 people.

Rotunda of terminal from which all ticket counters can be seen

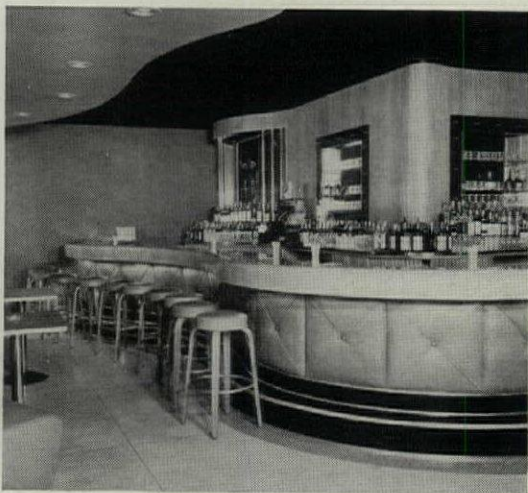


Photos: Jack Holmes





Terminal barber shop



Cocktail lounge

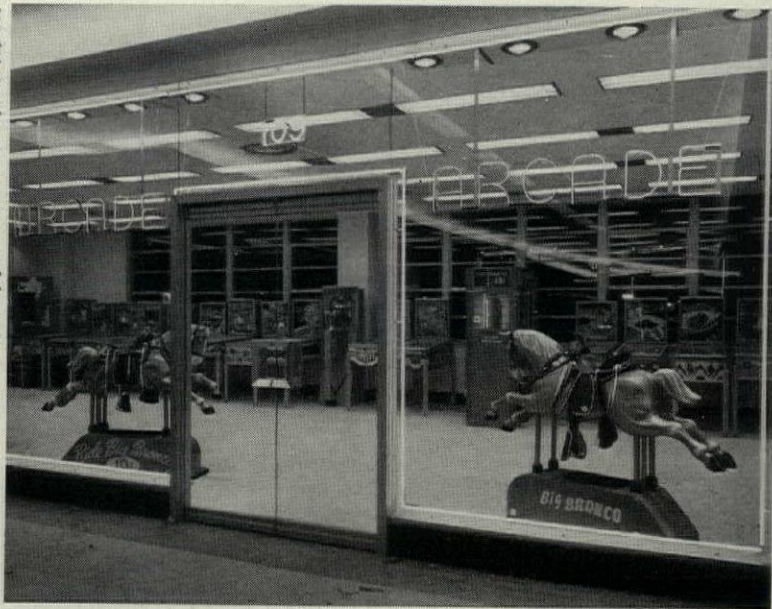
Night-club-type dining room seats 550



Pittsburgh terminal, largest in US, has seven levels, cost \$9.5 million



Two top photos: Jack Holmes; rest: Jay Bee



Recreation room has pinball machines, mechanical broncos for children



Gift shop tempts passengers waiting for flights

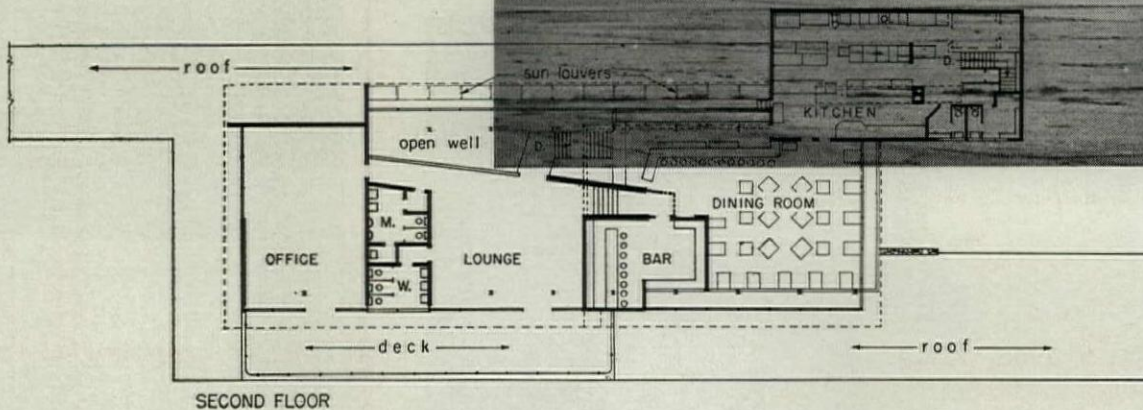


One of 62 rooms in the terminal hotel

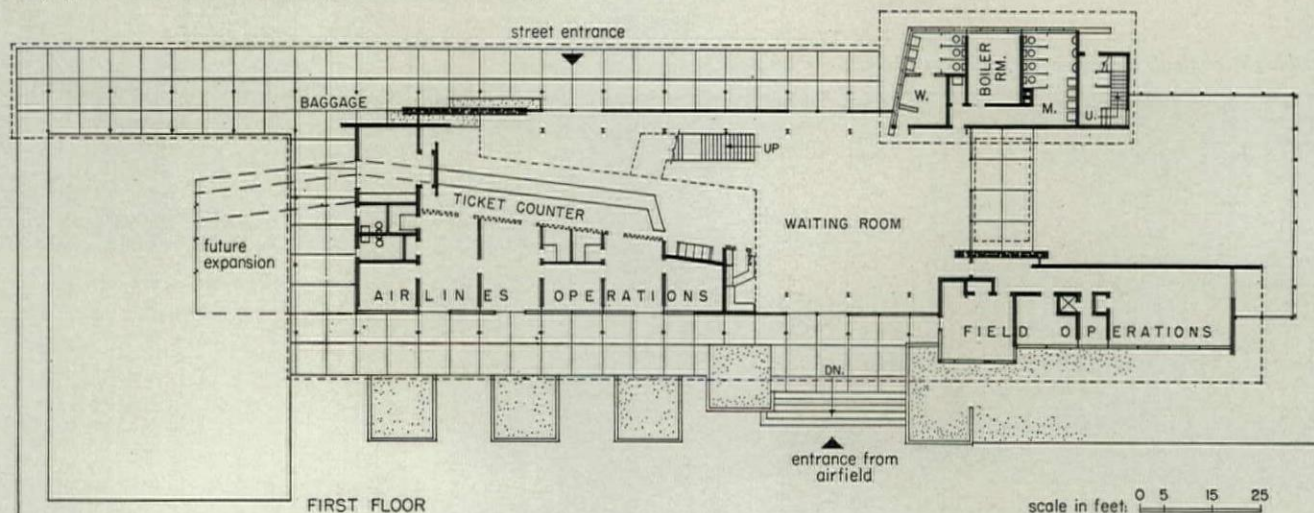
Photos: Morley Buer



Monterey terminal's country-club appearance comes from use of native materials and lavish amounts of glass that give view of field and countryside from second floor dining room and lounge.



Ground floor of the two-level building (below) has waiting room, ticket counters and operational areas. Second floor (above) has lounge, dining room and bar. No tower was necessary, as navy-operated tower across the field directs all air traffic.





Small terminal handles only 50 passengers a day, parks planes parallel to building

ROBERT R. JONES, architect
FREMONT CONSTRUCTION CO., contractor

MONTEREY: country-club airport

The wonder is that an airport serving only 50 passenger departures a day could be built with such a nice country-club character. The reason is twofold:

1. Unlike most communities Monterey issued no interest-demanding bonds, paid its half of the \$190,000 cost (at \$12.50 per sq. ft.) in cash set aside from taxes. The other half, as usual, was paid by the federal government.

2. By a lucky break the airport was able to attract one of the town's best restaurants and add its rental to income from airlines, limousine and car-rental service.

Planning was unimpeded by any complexities of circulation or expansion. Two ticket counters in the lobby face the entrance doors and adjoin the waiting room from which passengers go directly to their planes. On the second floor a lounge, dining room and bar give waiting passengers and diners from the town a high, unobstructed view of activities on the field.



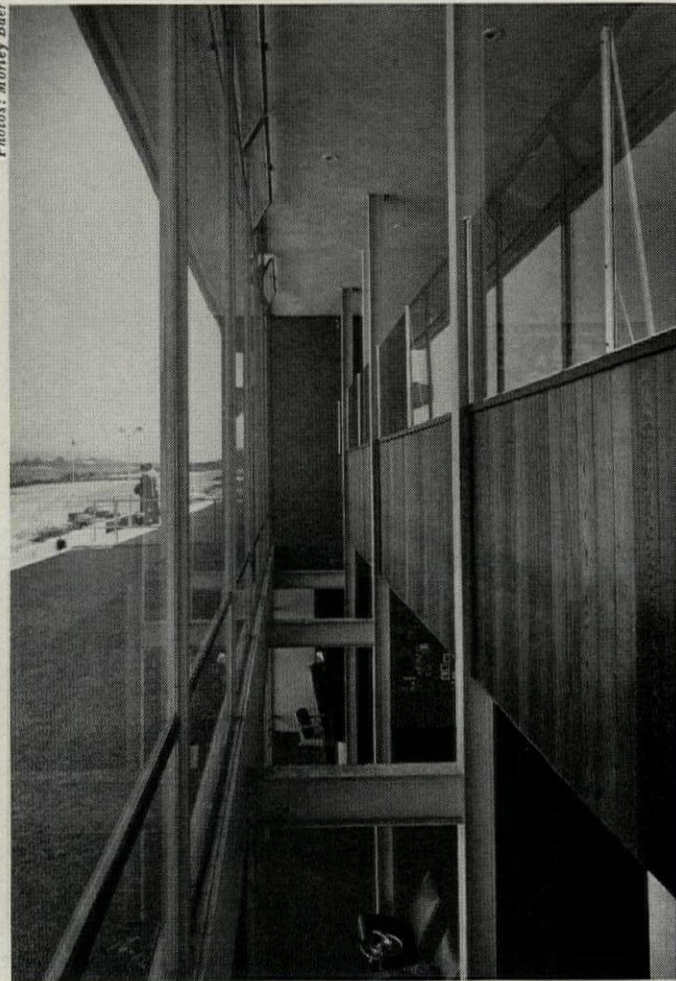


Screen wall of vertical louvers behind counters permits agents to spot approaching passengers through operations offices behind wall.

Around the uncomplicated plan the architects wrapped an uncomplicated building. Large glass areas, Western style, open up the interior to the out-of-doors, and open planning throws part of the upstairs space in with the lobby, as a mezzanine. An eggcrate sunshade outside the upper part of the mezzanine's south glass wall cuts glare in both the downstairs lobby and the upper-level lounge. In contrast, the stucco kitchen wall of the upper west end is nearly windowless. Surfaces throughout are redwood, stucco, fieldstone, pleasantly juxtaposed. The steel columns and wood beams that make up the building frame are brightly painted and economically exposed in the mezzanine (photo, right).

Extended canopies, eggcrate louvers on south side of terminal shield interior from southern sun

Photos: Morley Baer



Part of second floor is turned into a mezzanine. Steel columns and beams are exposed and painted.

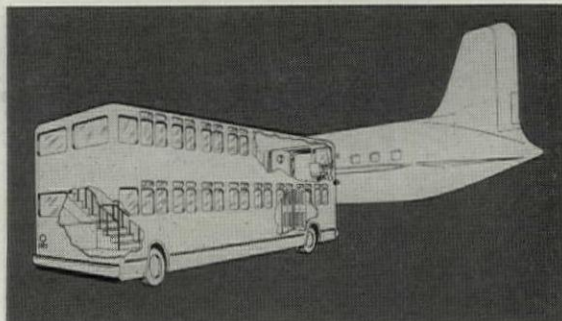


BIG TERMINALS: liabilities or assets?

Do we need big terminal buildings on airfields after all? Must travelers pass through a downtown terminal, get on a bus, get off at the field, find their way through a huge building complex, walk hundreds of feet to the plane and climb aboard? Might every terminal soon be obsolete?

Swiss Architect K. K. Perlsee seriously challenges the big field terminal. His unique proposal (right) raises the question of whether the passenger would not be better served by a system of subterminals in the cities where all ticketing and baggage checking could be done, the passengers loaded on special busses and taken directly to the planes on the field. A covered loading ramp built into the end of the bus would permit passengers to board the plane without the tedious procedure of debarking-walking-embarking, now standard. He also proposes field-operated transfer buses for inter-change passengers and a minimum terminal installation at the field. With a system developed along Perlsee's idea, ramping problems for planes, demands for terminal-supporting revenue and frustrations of passengers could all be reduced.

American Airlines has experimented with a project that curiously parallels Perlsee's. Anticipating that future jet planes must be started at a safe distance from the building on taxi strip on runway, American Airlines has developed a "Mobile Gatehouse" to pick up passengers at the field terminal and transport them to the plane.



American Airlines' "Mobile Gatehouse" would carry passengers from terminal to jet planes parked on runways.

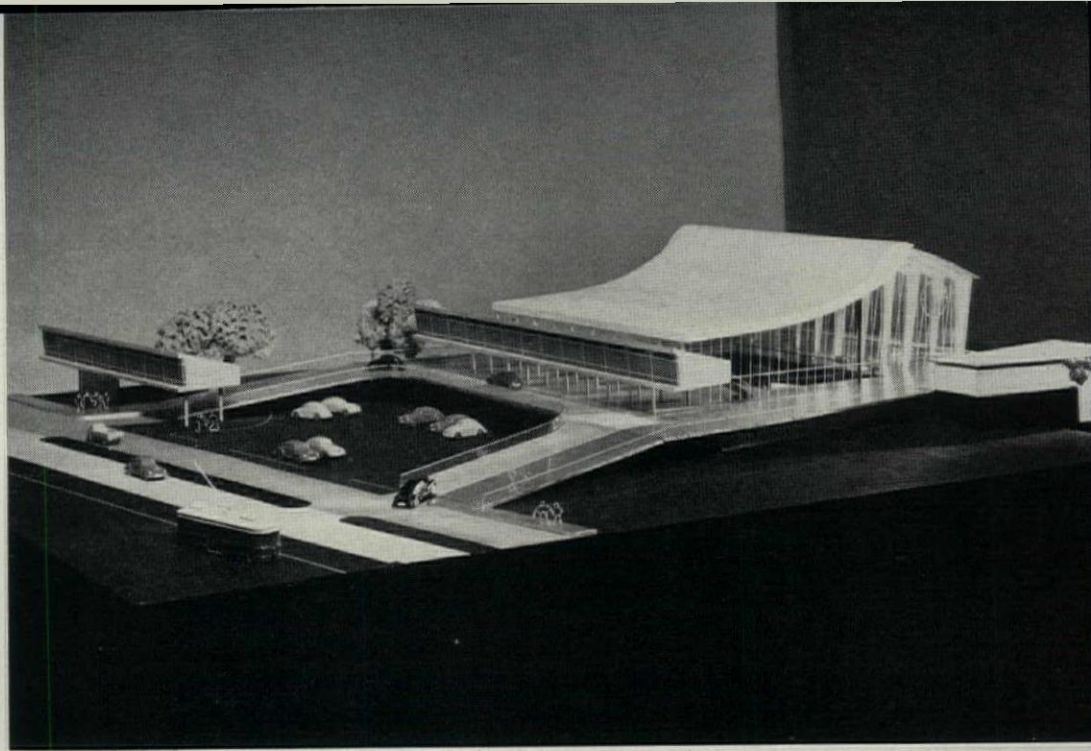
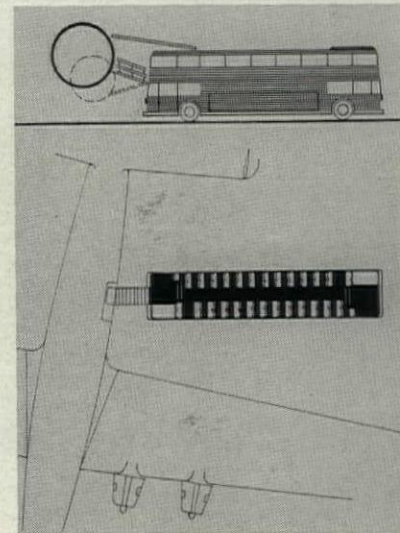


Photo-Hofmann

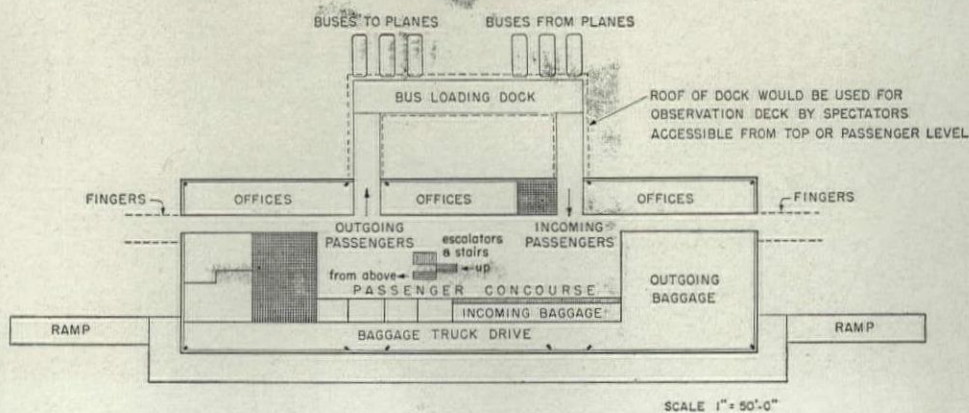


Perlsee's proposed subterminal in cities would check tickets and baggage for passengers, load them on special busses for transportation to field.

At field, busses would drive directly to plane, load passengers through covered ramp attached to bus.



St. Louis terminal (p. 134) could be adapted to "Mobile Gatehouse" should jets require such a device.





FLEXIBLE FACTORY

Its modular design permits changing fenestration to suit needs

This handsome new factory teaches curtain-wall experimenters new tricks. Key to advances here is the strong vertical pattern created by deep (4") mullions used all around the building.

► Mullions permit shifting of windows and composition wall panels (fiber-board asbestos cement sandwich panel) to achieve any fenestration called for by interior requirements. Yet the structural rhythm set up by the mullions keeps any window-wall pattern in key, prevents even the most asymmetrical arrangements from seeming awkward.

► Mullions emphasize the 4' module used throughout the building. And here is a case where freedom, gained through modular design, is unmistakably evident. Sash widths and wall-panel widths are fixed by the module which makes all wall units interchangeable.

► Mullions also break up the monotonous horizontality that is the trademark of one- or two-story modern factories, create a pleasant screenlike harmony.

In addition, the building boasts an economical—if primitively simple—method of radiant cooling for the nonair-conditioned factory area. Chilled water (at 56°) used to air condition the office section floods the factory roof. This apparent extravagance is made possible by the limitless water supply below grade on Long Island.

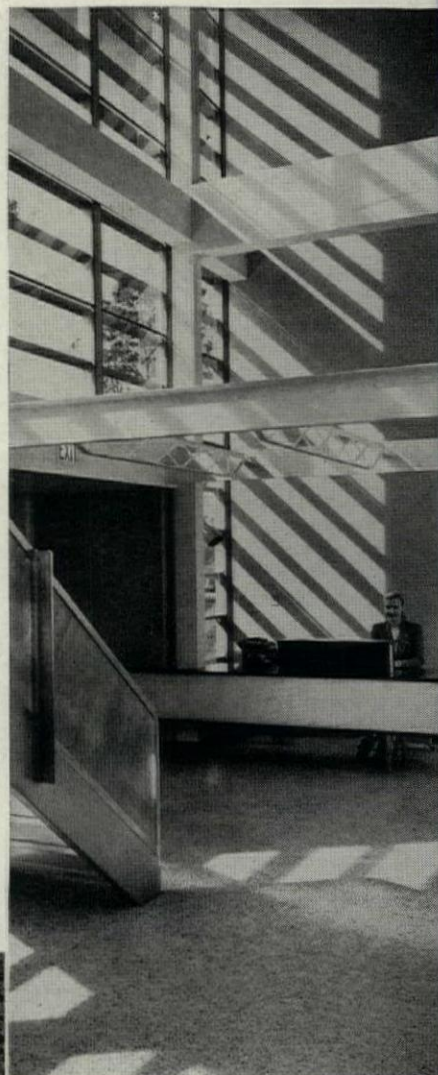
Looking more like a well-designed school than a production plant, Stratos Division's (Fairchild) new factory has an eggcrate of metal mullions and muntins, heat-resistant glass to ward off sun on south side.

Photos: Gottscho-Schleisner

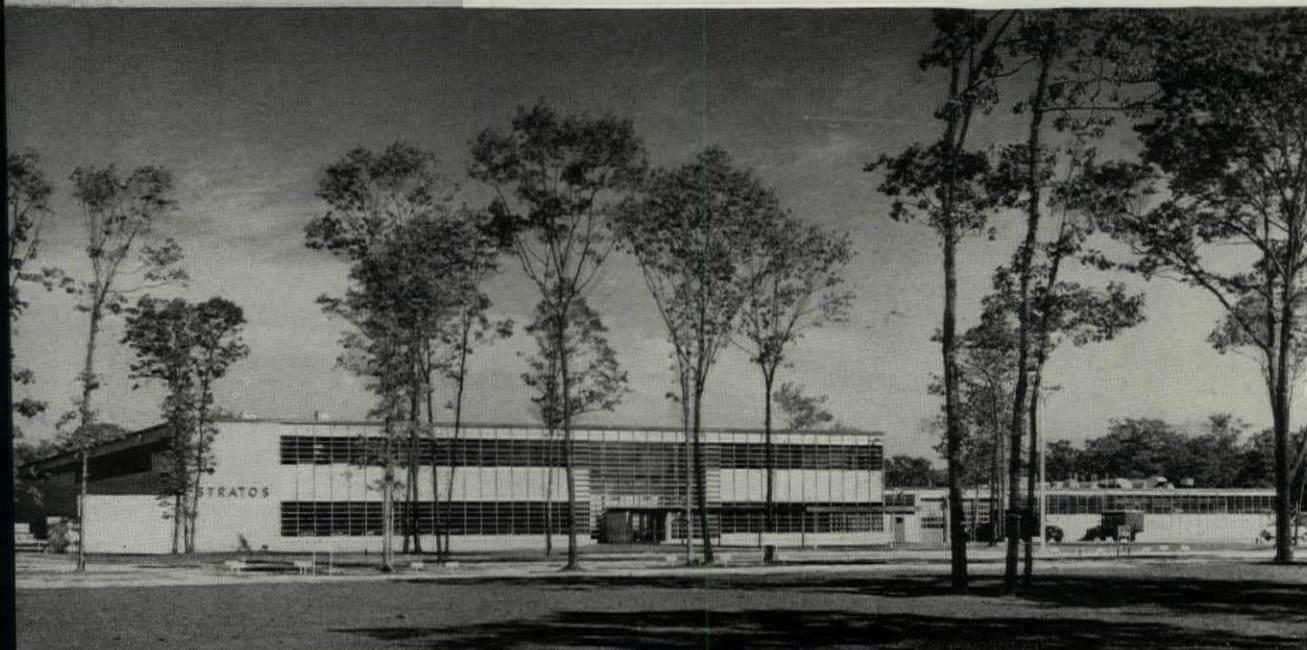
FAIRCHILD ENGINE & AIRPLANE CORP., owner

LOCATION: Bay Shore, L. I., N. Y.
FORDYCE, HAMBY, STROBEL & PANERO, architects and engineers
RAYMOND LOEWY CORP., design consultant

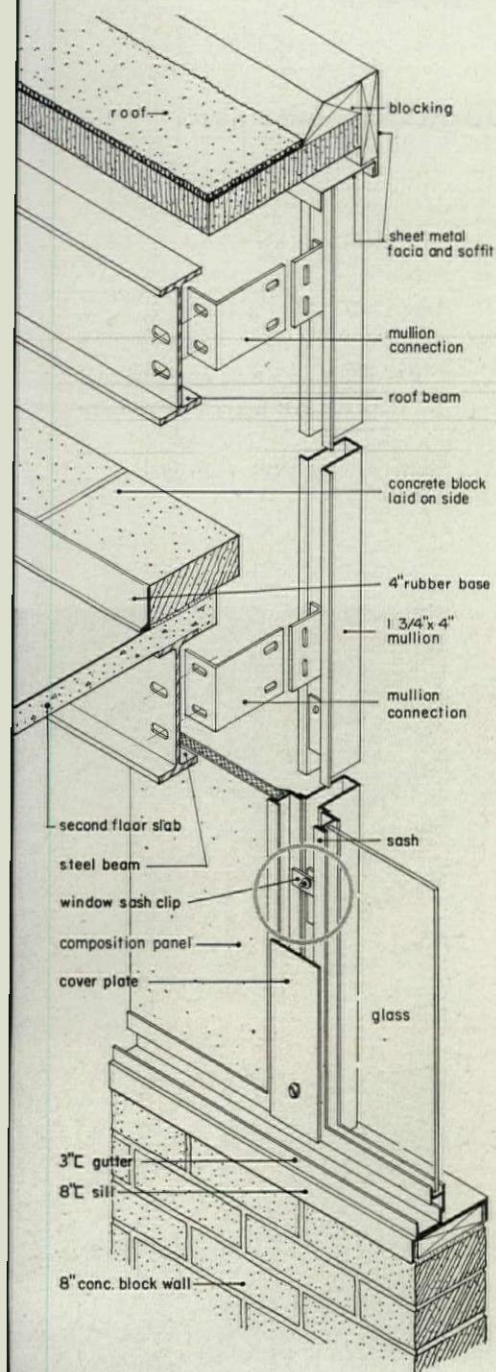
JOHN W. HARRIS, contractor



Mezzanine lobby bespeaks economic, tasteful design. Structural steel columns and beams are exposed and painted. Black and white rubber tile floor covering, simple furniture for receptionist and waiting visitors complete lobby decoration. Stairs lead to administrative and executive offices on second floor.



FLEXIBLE FACTORY



Plant manager's office is one of few areas with finished ceiling. Note exposed steel column by window

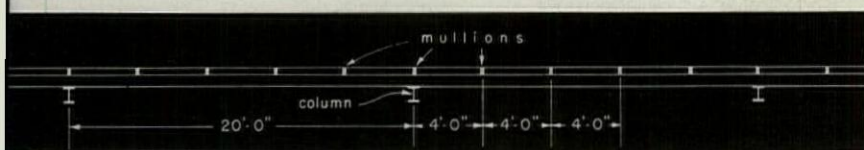
Sandwich-plan building

Looked at in elevation, the Stratos Division (Fairchild) factory is a sandwich. Utilities and service areas are below grade in a basement under the test area. Administrative offices are on the second floor while the ground level is given over to the main plant functions: production and testing of pressurizing and refrigerating units. Engineering offices adjoin these areas on the ground level.

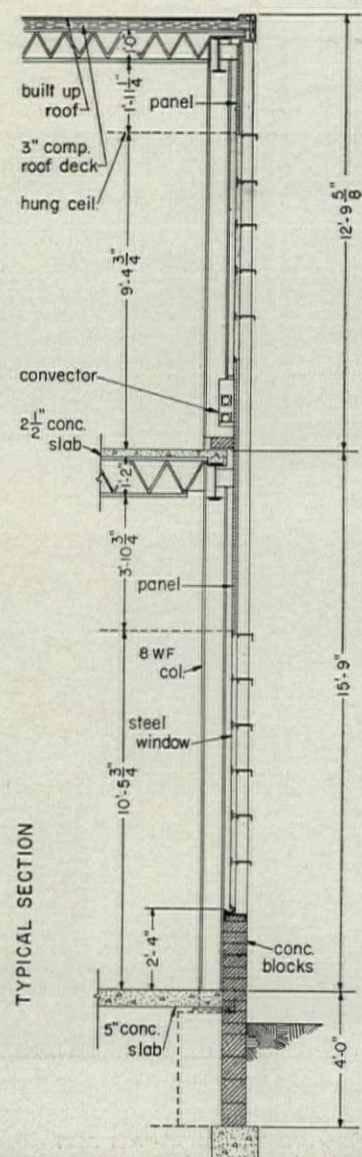
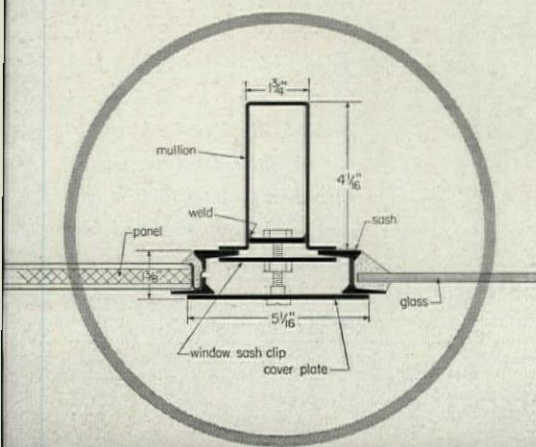
Looked at in plan, the production space occupies the center of the stage with the testing department along one side. Peripheral departments such as accounting and personnel get a peripheral position, are wrapped around two sides of the production area.

To stay within the Spartan budget and achieve a cost of \$13.95 per sq. ft., rigid economies had to be made in the structure. Interior surfaces of the wall panels are left exposed in many areas. Office parti-

tions are light wood panels, the roof (exposed except in executive offices) is of premoulded fiber planks on joists and topped with the usual bonded roof. Mullions (and 4" sun-shading muntins on the south wall of the office block) are galvanized steel.

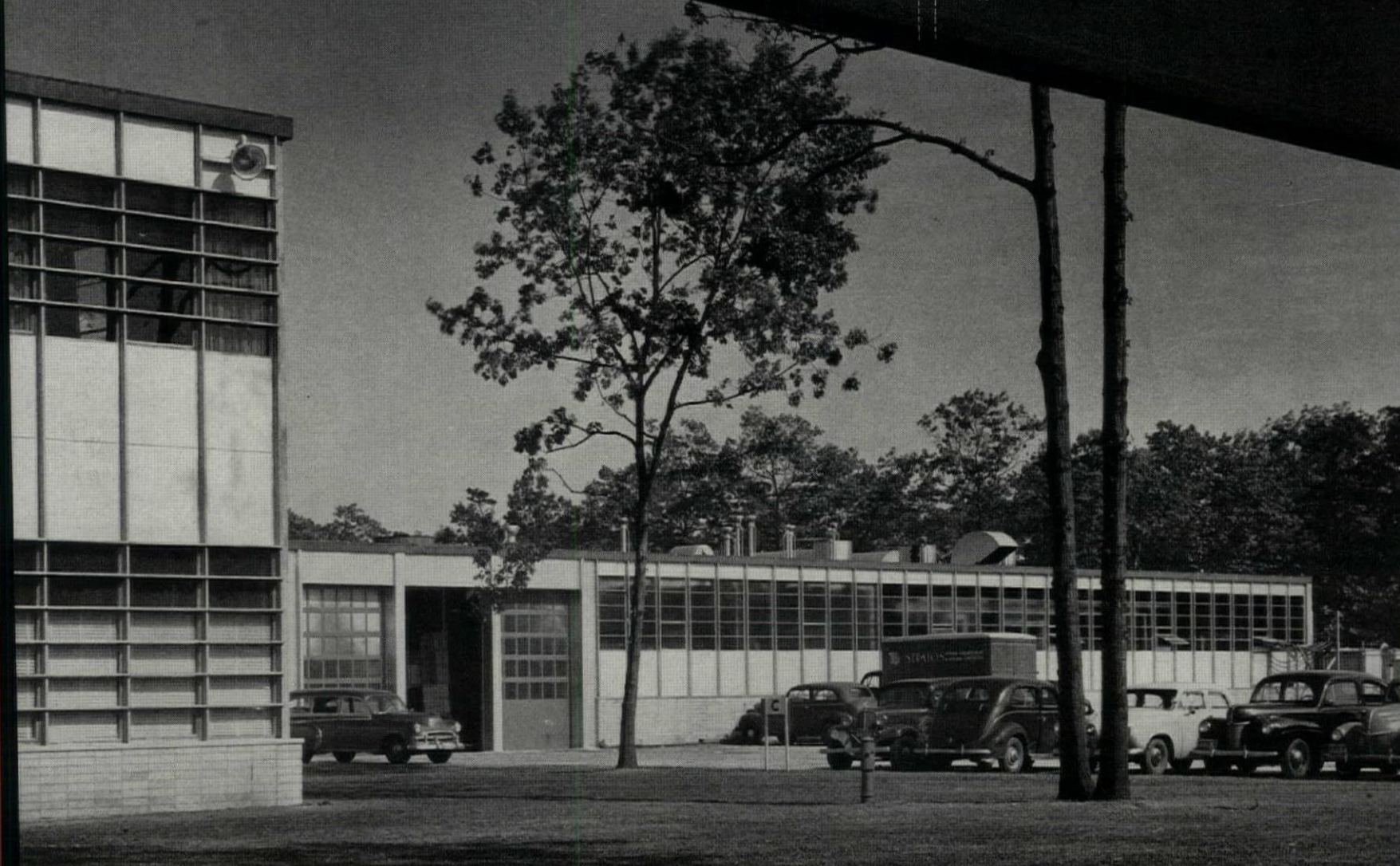
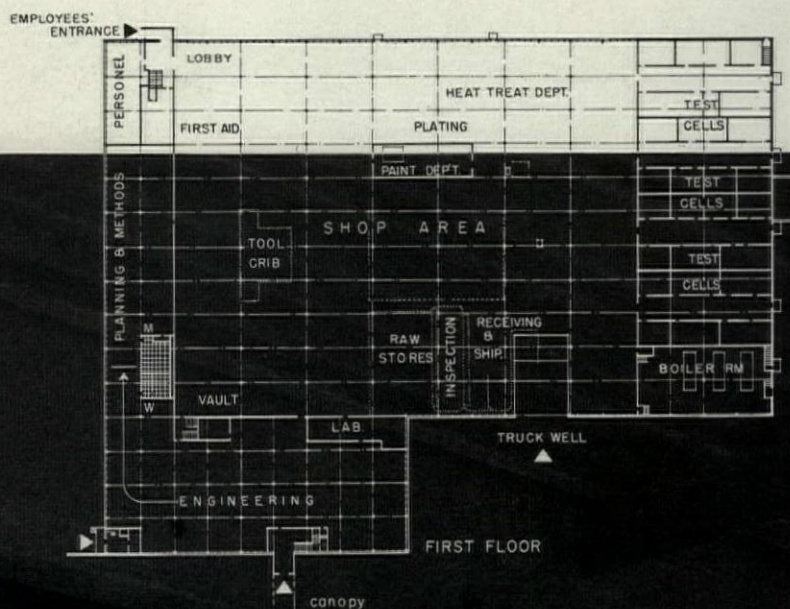
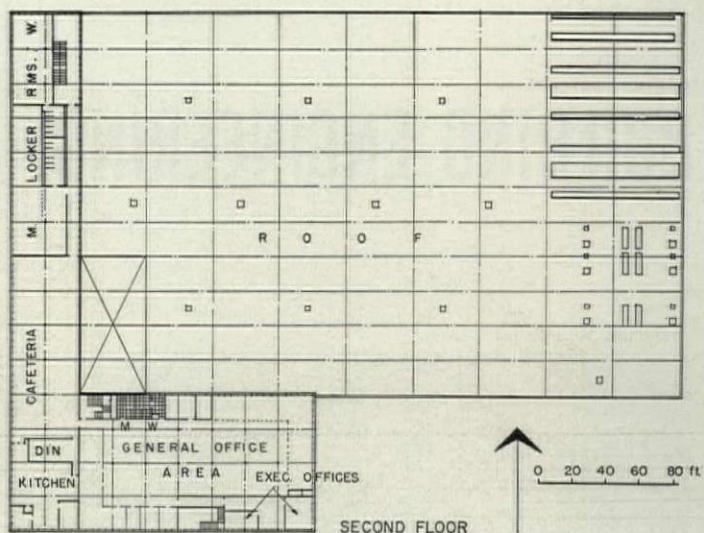


Modular window wall (above) is based on simple mullion detail (below).





Upper hall forms balcony overlooking lobby and waiting area



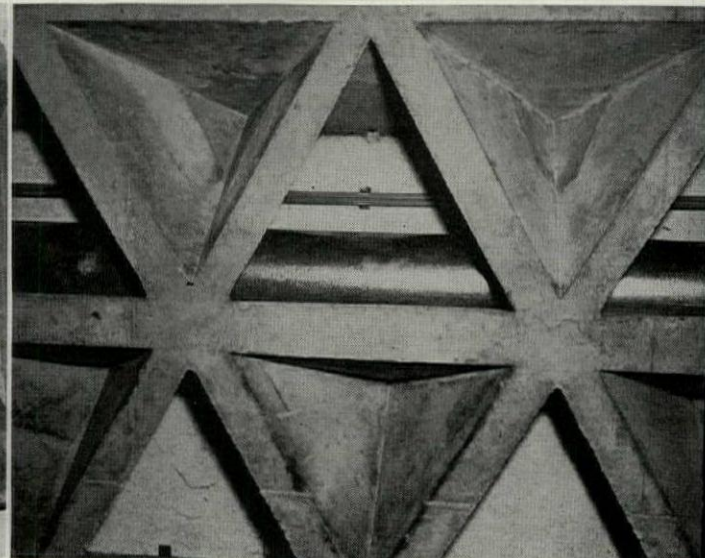
BUILDING ENGINEERING

1. A new floor structure for Yale's design lab
2. Space-frame truss for lighter, stronger construction
3. Sliding forms for quicker, cheaper concrete walls
4. Porcelain panels for prototype curtain wall

Yale Univ. News Bureau-Alburtus

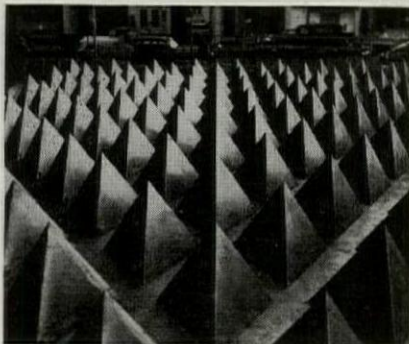


Sloping hollow pyramids of underside of ceiling conceal ducts and lighting gear . . .

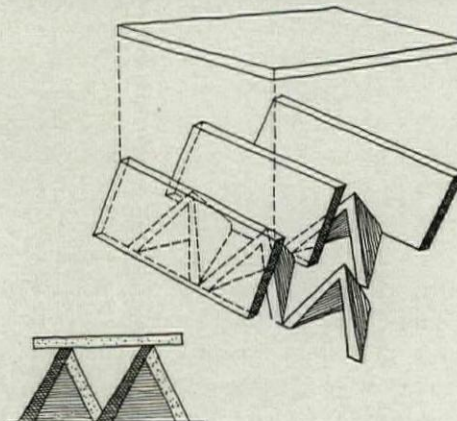


. . . which can be seen by looking directly upward

1. TETRAHEDRAL FLOOR SYSTEM

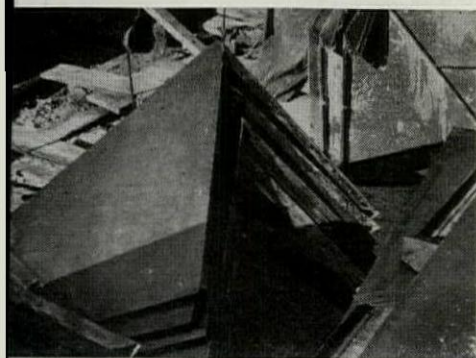


Sheet metal forms shape underside of tetrahedrons

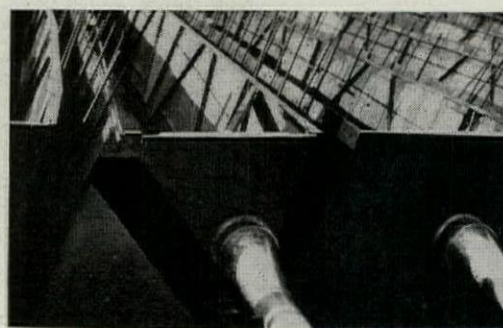


Tetrahedral concrete floor structure is composed of 5" thick sloping joists; two sides of 3½" thick bracing tetrahedrons; and 4" thick top slab.

Flat panel is form for topside of sloping joists. Ducts lead through 3' wide concrete edge girder to ducts laid above tetrahedrons and between sloping joists.



Similar forms mold topside of tetrahedrons



Yale's new design laboratory conceals lighting and ductwork within a 31" deep floor structure

The architects and the engineer working on Yale's fascinating new architectural design laboratory are experimenting with a fascinating new concrete floor system based on tetrahedral shapes. Already beyond the testing stage, this new and unusually sturdy structural system is now being used for all four floors and roof.

Although it is about 60% heavier than equivalent 40' spans in ordinary beam and joist construction, the tetrahedral concrete structure of modified "space-frame" design can still be justified on four of five major elements of good design:

1. *Esthetics*—it is architecturally stimulating. A cursory glance at the ceiling shows an intriguing triangulated pattern, while closer examination reveals exactly how the structure works. As such it will be an instructive challenge to the budding architects studying beneath it.

2. *Lighting*—its pyramid-shaped apertures permit great flexibility of exhibition spotlighting, essential since the laboratory is to double as a display gallery. Except to people looking directly upward, lighting equipment is concealed yet accessible.

3. *Acoustics*—Although noise control does not demand such elaborate measures, the ceiling structure itself should help deaden sound. Reverberations will be trapped between the sloping apertures and, if neces-

DOUGLAS ORR and LOUIS I. KAHN,
associated architects
H. A. PFISTERER, structural engineer
GEORGE B. H. MACOMBER CO., builders

sary, may be further deadened by addition of an acoustic board immediately beneath the top slab.

4. *Structure*—It is comparatively heavy (155 psf vs. 95 psf in beam and joist construction) and its complicated form increases construction time and cost. However, the structure was deliberately thickened beyond theoretical requirements to satisfy local fireproofing regulations.

5. *Heating and air conditioning*—tempered air is distributed through ductwork in the hollow channels immediately beneath the top slab. Although more ductwork is required than in conventional air conditioning and has to be placed before the top slab is poured, it is comprised of inexpensive stove pipe which, like the lighting fixtures, is concealed by perspective. Moreover, it is designed to produce a "breathing ceiling", the efficiency of which should be unaffected by the location of partitions beneath it.

Conventional trusses are two dimensional, being supported between two columns and merely braced in the third dimension. In contrast a space-frame is supported by a minimum of three columns, and so framed that it could be picked up at any point without its falling apart. Buckminster Fuller's "Oc-tet" (right) demonstrates a true space-frame. It proportions local stresses between all supporting columns, not merely between two as in conventional two-dimensional design.

Yale's new addition to its art museum is designed by Associated Architects Douglas Orr and Louis I. Kahn. Its floor design was motivated by Fuller's theories which convinced Kahn of the efficiency of the tetrahedron as a basic structural frame. While Fuller concentrates upon pure structure, striving to carry the greatest load with the least material, Kahn saw the possibility of adapting Fuller's three-dimensional metal space-frame to a fireproof concrete structure.

In Kahn's original design the structural unit was to be a hollow concrete tetrahedron—a 2' high pyramid having three identical $3\frac{1}{2}$ " thick sides but no base so that you could look up into the hollow center. Adjacent pyramids were connected at their vertices so that reinforcing rods along the sides of each base triangle would run con-

tinuously along the floor in three directions, intersecting with one another at angles of 60° . These rods were to take tension stresses on the lower horizontal plane. A 4" concrete floor slab was to be rigidly framed into the top of each pyramid.

Unfortunately, to permit removal of the interior formwork the top slab must be poured separately from the rest of the structure, necessitating a construction joint with unavoidable loss of strength at the critical connection between the top of each pyramid and the slab. Inability of concrete to transfer horizontal shear at joints required a modification of the original scheme. One face of each pyramid was made part of a 5" thick sloping joist running continuously across the entire floor. This was a radical change in design. Instead of being a space-frame acting in three directions, it became a joist construction, with 5" thick sloping joists 30" on center spanning 40' between 3' wide edge girders. (Space-frame enthusiasts claim such edge girders might be omitted in the original design.) The sloping joists coincide with and replace one face of each pyramid and are braced with the triangular ribs that are the other two faces of each pyramid.

To satisfy New Haven building officials that the unusual construction was sound, a 40' x 10' test panel of 3,000 psi concrete was erected upon four 14" x 36" columns adequate to provide end restraint comparable to that in the actual building. Loaded with 219 psf of crushed stone (based on twice the design load) the maximum deflection at midspan was only 0.183". (Maximum deflection established by New Haven code was to be no greater than 0.7" or 1/700 of span; actual deflection span ratio was 1/2600.) It was plain that the structure was sound and contained adequate reserve strength. Yale's Professor H. H. Pfisterer, who directed the structural engineering of the new floor design, believes that thinner sections could theoretically be used—main joists might have been only 4" thick and ribs only $2\frac{1}{2}$ " thick, with a saving of 30 psf.

Now under construction, Yale's pioneering lab, when complete, will contribute further new design and engineering ideas which will be reported in a subsequent issue of FORUM.



Buckminster Fuller's 4' x 10' tubular steel truss supports 11 husky students.

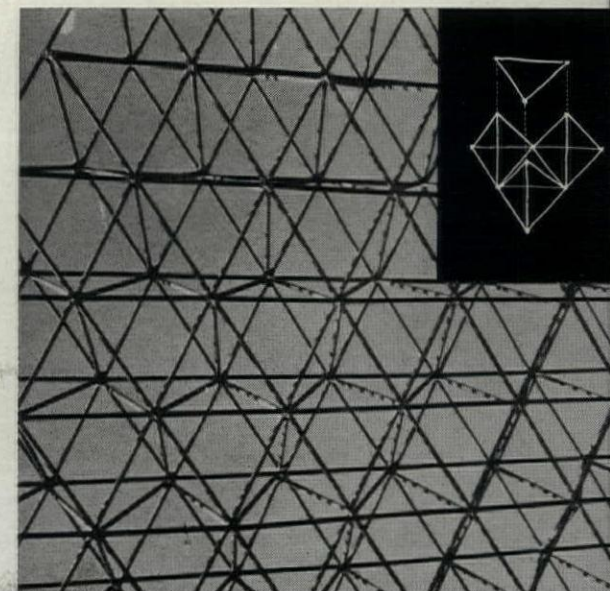
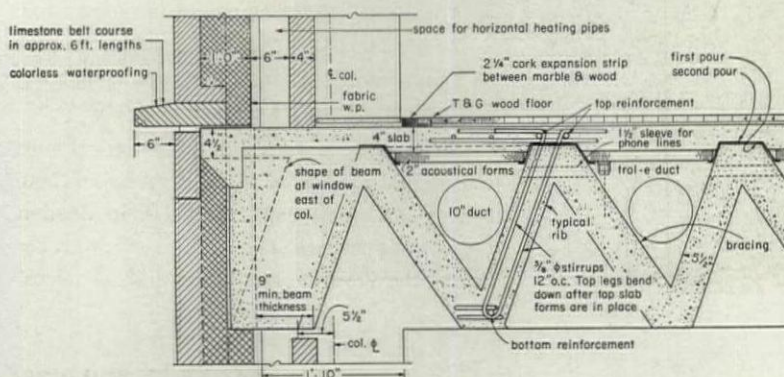
2. THRU-WAY FLOOR TRUSS

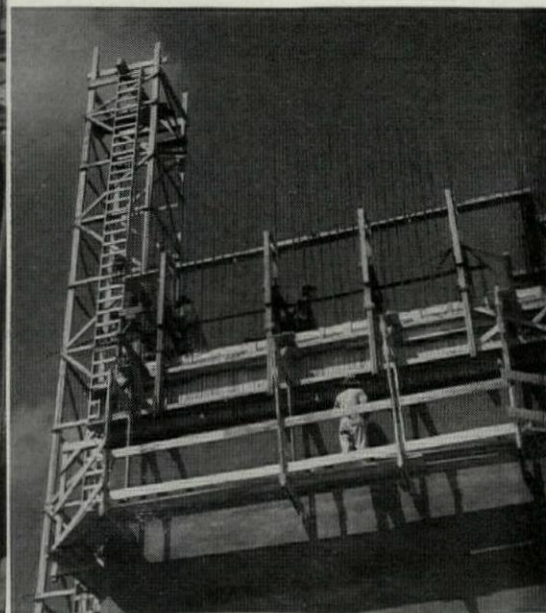
Tetrahedral space-frame of tubular steel less than 6" deep supports 42 times own weight

Most promising application of Buckminster Fuller's ingenious structures is his so-called "Oc-tet" truss. It is a $5\frac{3}{4}$ " deep floor truss built by welding $\frac{1}{4}$ " diameter steel rods into a tetrahedral space-frame—a frame that acts three ways to transmit loads to more than the usual two columns. Built under the direction of Professor James Fitzgibbons at North Carolina State College, this truss proves Fuller's contention that in a space-frame the strength of the whole is greater than that of its parts since the entire frame acts to relieve high local stresses. This 4' x 10' pilot structure, simply supported on a 9' span and loaded with 100 psf of bricks, was deflected only 0.223" at the center (a deflection-span ratio of 1/400). Its unloaded weight is only 86.7 lbs. or 2.6 psf.

Basic structural unit is composed of three $5\frac{3}{4}$ " high tetrahedrons (three-sided pyramids), joined at the apexes to enclose an eight-sided figure—an octohedron, from which Fuller's "Oc-tet" truss gets its name.

Struts frame three tetrahedrons (three-sided pyramids) with apexes joined to form an octohedron in the center. This constitutes a space frame that can be extended in any direction.





Sliding formwork is jacked up inch by inch while concrete is poured continuously day and night on one of 27 radio and TV relay towers in eastern US. These range up to 190' high, contain several

floors, windows stairwell. Scaffolding is hung from moving forms and rises with them (above). Screw jacks (left) spaced about 8' o.c. raise formwork at up to 11" an hr.

3. SLIDING FORMWORK

Multistory concrete walls rise 20' a day between continuously moving forms

Economy in concrete construction is achieved by using carefully engineered formwork as many times as possible. In usual practice forms are fixed; they have to be dismantled and reassembled for each lift. In slip-form construction, belts of forms generally 3' to 4' deep are assembled on the ground and jacked upward an inch or so every 5 or 10 min. until the top of the structure is reached. Door and window openings and even beams are made by blocking out the slip-forms and fitting beam soffits as necessary. Floors are cast during or after completion of the shell.

First used over 30 years ago for storage-bin construction, this technique has now proved economical for many tall reinforced concrete structures having a fairly consistent plan on every floor. Some outstanding recent examples:

▶ A 233½' high General Foods processing plant built at Evansville, Ind. in 14½ days by Macdonald Engineering Co.

▶ A total of 27 radio and TV relay stations for American Telephone & Telegraph Co. in Pennsylvania by Rust Engineering Co. and Macdonald Engineering Co. These towers range from 80' to 127' high, contain a stairwell and four to six floors, and each were completed within seven days.

▶ A 31,000 sq. ft., three-story and basement apartment building at Enid, Okla. slip-formed by Engineers Chalmers & Borton for a structural cost of \$5.80 per sq. ft. of floor area.

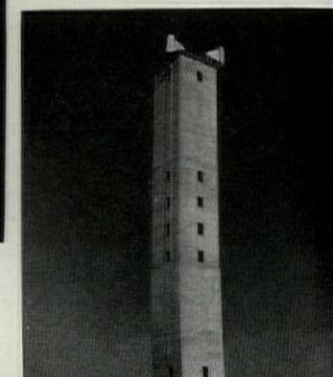
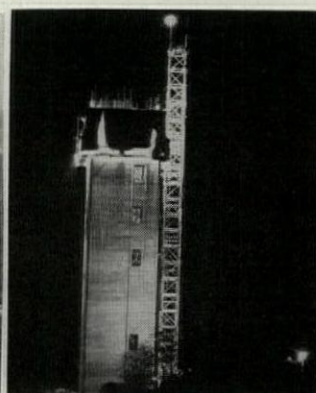
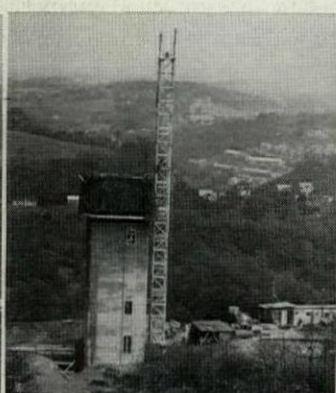
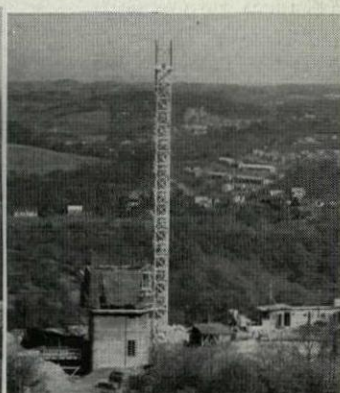
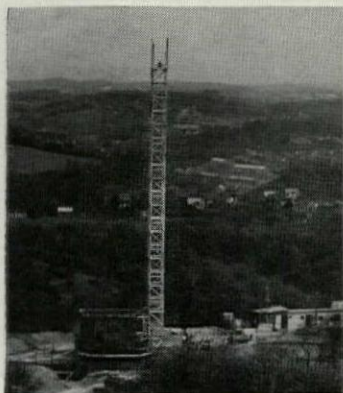
▶ A nine-story processing plant, including a stairwell and passenger elevator shaft, for the National Biscuit Co. at Toledo by Macdonald Engineering. The same engineers

have also completed a group of 127' high stone storage bins at Maple Grove, Ohio for Basic Refractories Inc.

Most impressive examples, however, are in Scandinavia, where a host of storage bins, water towers, mine headframes, apartment and office buildings have been slip-formed. The tallest are 12- and 16-story apartment blocks at Copenhagen and Stockholm.

Slip-forming requires skilled form assembly and supervision and the work must proceed day and night, with only the shortest breaks for meals. This entails expensive overtime shifts. Thus, the labor force may be difficult to round up and is likely to cost two and a half times that required for fixed-form construction. For these reasons the structure must be over 50' high (four stories) before saving in formwork and

Radio-TV relay tower 120' high was slip-formed in seven days, working day and night



Photos: Associated Photographers



Sixteen-story apartments in Copenhagen were built by moving form construction. Outer walls consist of lightweight insulating blocks placed as the forms move up and backed by reinforcing and cast-in-place concrete.

jacking operations, when it will be necessary to slow down or stop the moving forms. At the Winlen apartment project keyways were left in the walls to support 8" precast joists. These supported formwork for 2½" floors poured after the building shell had been completed.

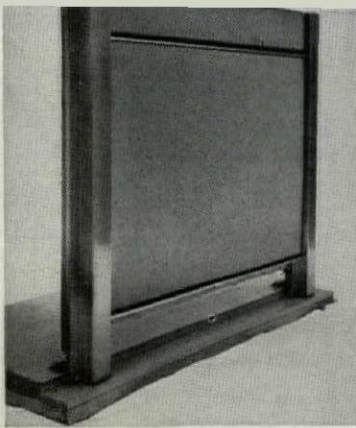
Anchorage can be embedded in walls to help support floors. Projections of such bars are bent down against the face of the wall while the forms are jacked past them. For greatest strength these rods are welded to members in the floor slab.

Jan F. Reymert, one of Norway's top engineers in slip-form construction, reports that various methods of floor construction for multistory buildings have been tried in Scandinavia. At first the shell was completed and floors were poured afterward. Then floors were poured from top to bottom using the working platform to cast each floor, the platform being successively lowered from top to bottom. Under the presently popular system each floor is cast on fixed forms when the upward-moving wall forms are about 4½' above the floor level.

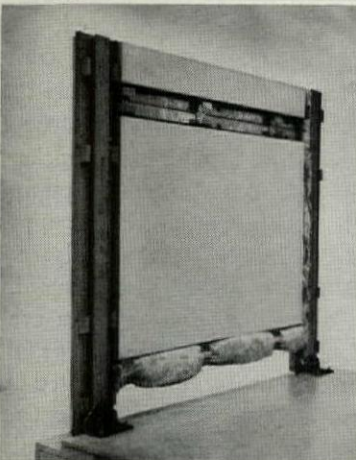
Slip-form construction requires exceptionally sound organization and supervision. A steady flow of material supplies must be assured or adequate reserves must be on hand. Every lift of the forms must be accurately surveyed; any distortion is liable to cause damage to the jacking gear. Vertical alignment must also be rigorously controlled to keep it well within ½" in 50'.

Despite these requirements, slip-form construction achieves exceptional economies in multistory building, particularly where the structure is designed to take fullest advantages of the new technique.

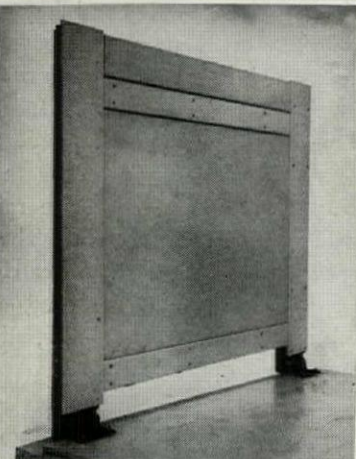
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2



3



Photos: (above) J. Alex Langley

Exterior view of new porcelain enamel steel curtain wall (1) shows 3' x 4' panel supported between 3" I-columns enclosed with stainless steel cover plates. Horizontal joints are sealed with ½" vinyl gaskets with stainless steel drip pans. Interior view (2) shows glass-fiber insulation which is covered by porcelain enamel cover plate. (3) Sections through horizontal and vertical joints are shown below.

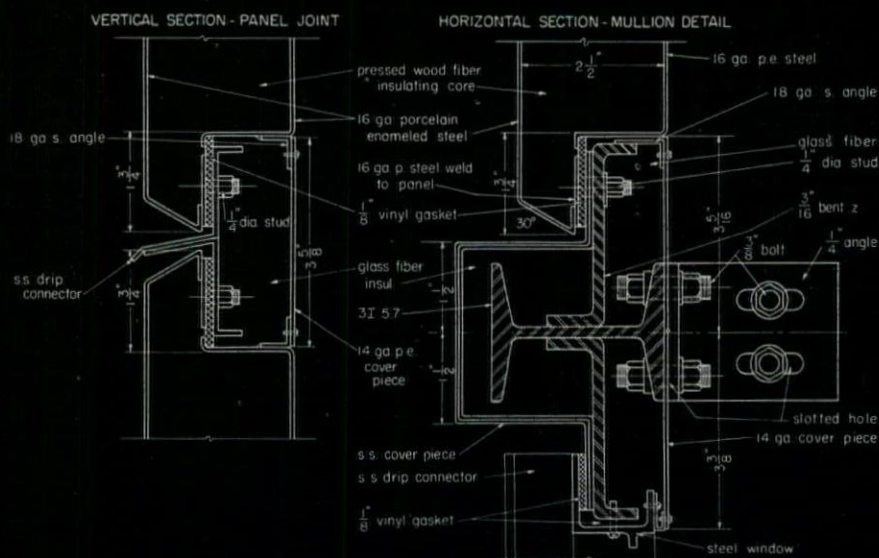
4. SANDWICH WALL PANEL

Porcelain enamel curtain wall aims at cost of \$5 per sq. ft. in place

With the construction of a 3' x 4' prototype curtain-wall panel, Architect William Lescaze has completed the first half of his research program for the Porcelain Enamel Institute (AF, May '47). Next step is to test the panel for strength, insulation and fire resistance and to make manufacture and erection studies to determine how much it will cost in place. To meet requirements the panel should pass a 2 hr. fire test, be self-supporting, prefabricated in as large a size as practicable, be warm in touch and appearance with a permanent finish inside and out, able to withstand a 30 psf wind loading and be erected by one trade from within the building without the need for caulking. With all this it should cost under \$5 psf, erected.

Certainly, the prototype panel looks promising. It is shown in position between two supporting columns with a section of another panel above it to illustrate the joint. Main insulation is provided by 2½" of pressed wood fiberboard ("K" factor 0.51) sandwiched between two sheets of 18 ga. porcelain enamel steel, which are not in contact to reduce heat loss. Panels are bolted at both sides to Z-shaped steel connectors welded to 3" I-columns. Columns and connectors are wrapped in glass-fiber insulation and sheathed in 18 ga. stainless steel. "U" value of complete panel is 0.21.

This panel is designed to be watertight and is sealed against condensation by continuous ½" thick vinyl gaskets. At horizontal joints panels are bolted to a stainless steel drip connector with glass-fiber backing, enclosed by a 14 ga. porcelain enamel cover piece. The drip connector juts outward at an angle of 20° to protect the vinyl gaskets at the bolts from driving rains. Weight of the panel plus joint is 130 lbs. (12 psf).



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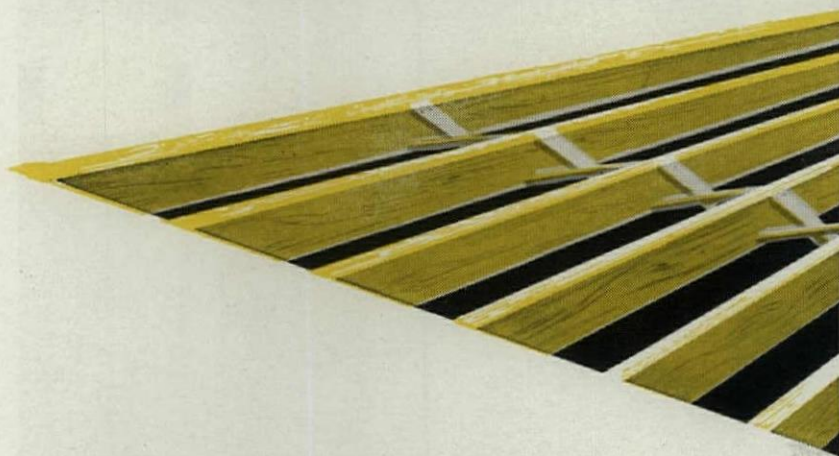
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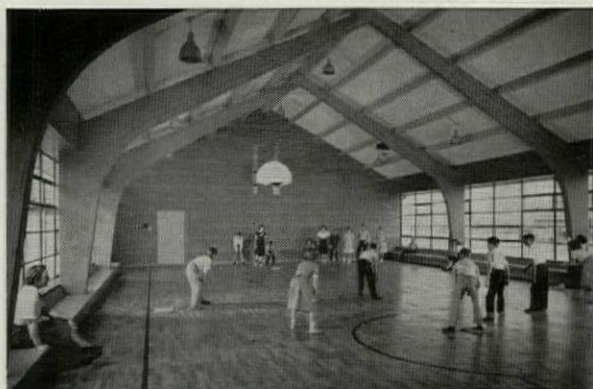
(This is an excerpt from the wood treating specifications of a plant operating in the Gulf Coast Area.)

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For more data write Dept. PE-41A for one of the following:

- Plant Wood Treating Specifications
- Valuable Booklet, "Pointers on Penta"



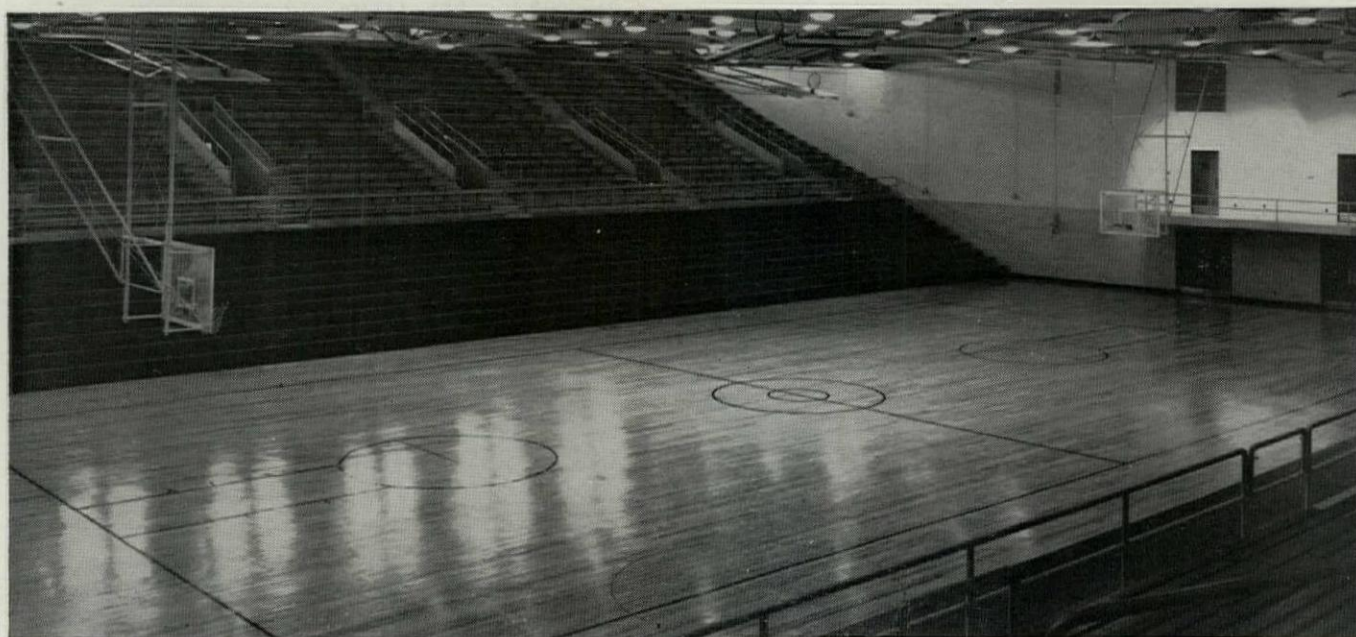


Blythe Park School, Riverside, Ill. Floor in black-patterned Northern Hard Maple. Perkins & Will, Chicago, Architects-Engineers.

NORTHERN HARD MAPLE



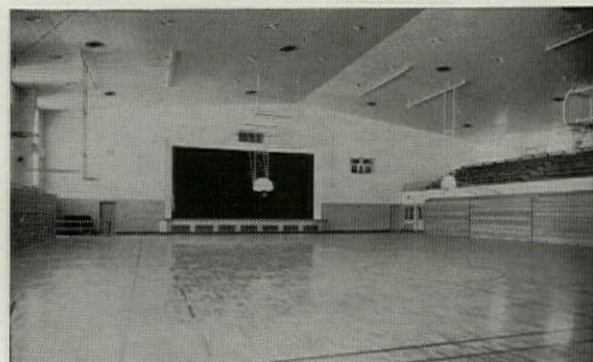
...every one!



University of Florida, Gainesville, Florida. Floor of Northern Hard Maple. Mr. Guy. C. Fulton, Architect to Florida State Board of Control, Gainesville, Florida



Philip Sheridan School, Township of Tonawanda, Kenmore, N.Y. Architects: F. J. and W. A. Kidd, Buffalo.



Pius XI High School, Milwaukee, Wis. Architects: Mark F. Pfaller Associates, Wauwatosa, Wis.

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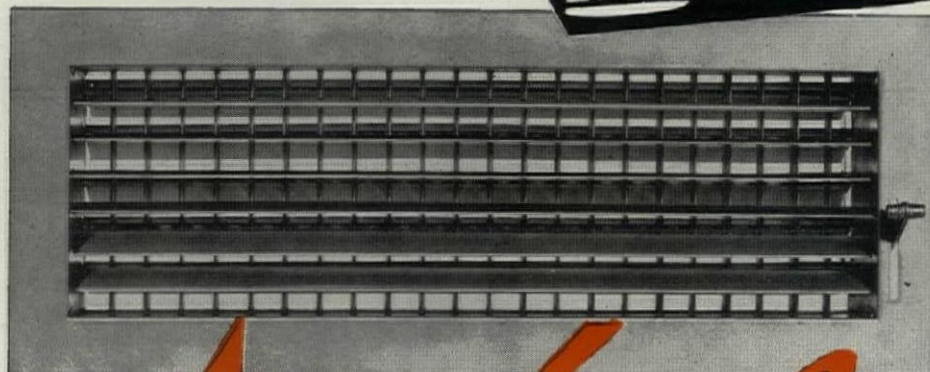
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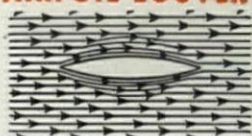
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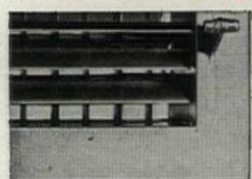
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SOLID-SECTION AIRFOIL LOUVER



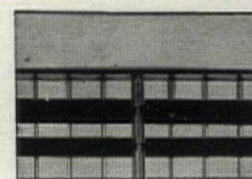
● Louver knives air in wind tunnel tests. Turbulence has been almost eliminated giving noiseless control of air.

LEVER CONTROL



● Inconspicuous lever in face of frame controls dampers for complete shut-off.

EXTRA-STRENGTH FRAME.....



● New, exclusive Titus concealed support eliminates unsightly mullions and butted construction.

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The two front sets of louvers are individually adjustable with blades on 3/4 inch centers.

Dampers are controlled from face of grille by inconspicuous lever. Removable lever furnished at no extra cost.

EXTRA STRENGTH—LONGER LIFE
Sound, inspired know-how engineering gives the #276 superb simplicity of design with no unnecessary parts—no clumsy bulk. A special patented, *concealed support* eliminates unsightly mullions and butted construction permitting superior strength with no added weight.

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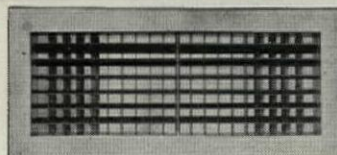
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AIRFOIL grilles are priced down to give you more value—more performance—more efficiency—at less cost.

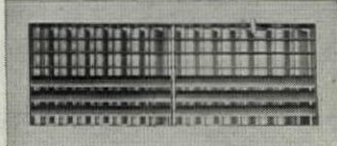
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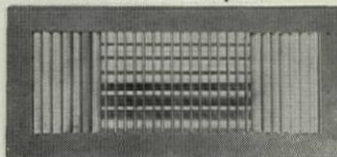
LOOK TO AIRFOIL FOR THE FINEST



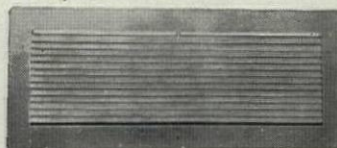
L-270 4-way directional grille for complete control of air stream.



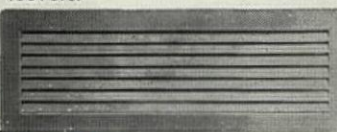
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Social Security Building in Mexico City has two walls of glass 30" apart on north facade. In foreground is 700-seat auditorium covered with yellow glazed tile. Architect: Carlos Obregon Santacilia.



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BOOK REVIEWS

MEXICO'S MODERN ARCHITECTURE. By I. E. Myers. Architectural Book Publishing Co., Inc., 112 West 46th St., New York, N. Y. 264 pp. 8½" x 10½". Illus. \$12

Says Richard Neutra in his introduction, "Mexico is the most vital native country in the Americas, where the most modern innovations in architecture and the arts are wedded to indigenous traits of an indigenous people." And he points out that Mexico City in the 16th and 17th centuries actually reduced the European Spanish capitals of Madrid and Vienna to "stagnant villages" by comparison with the energy that produced the cathedral square or "Zocalo"—"which was the grandest plaza in Christendom."

Mexican architecture continues energetic, foolhardy, earthy, grand and unfailingly dramatic. The Mexicans by turns plant 20-story leaning towers of Pisa on the impossible lake bed of their capital and magnificent pyramid forms on the lava bed of their University; they create extravaganzas such as the Normal School or the Conservatory that melt in five years, but they build elsewhere for the thousands of years. Their painters have a gift that Rio's smart boys can't touch—the gift of tragedy—and in a manner unparalleled in modern times they move with their people.

To convey all this would require the grand vision and the story-telling gifts of an architectural Prescott. Unhappily young Myers has not yet developed such a gift—which Esther Born had in a degree that made her earlier volume on Mexico an exciting exploration. *Mexico's Modern Architecture* is written like a fairly competent graduate theme. The efforts of minor talents are given the same importance visually as the important works. The conscientious report on people, place, and history is useful but not startling.

PARKING—HOW IT IS FINANCED. Prepared by the "Automotive Safety Foundation," 700 Hill St., Washington 6, D. C. 48 pp. 8½" x 11". Illus. 75¢

Here are 31 case studies of typical parking problems and solution in US cities. Prepared under the auspices of the Store Management Group of the National Retail Dry Goods Association this report is valuable both in demonstrating the various ways in which off-street parking may be financed and in bringing attention to the wide variation in the cost per car space of each solution presented.

Off-street parking is financed in three ways: 1) By private interests either as a purely business proposition, to provide park-

continued on page 162

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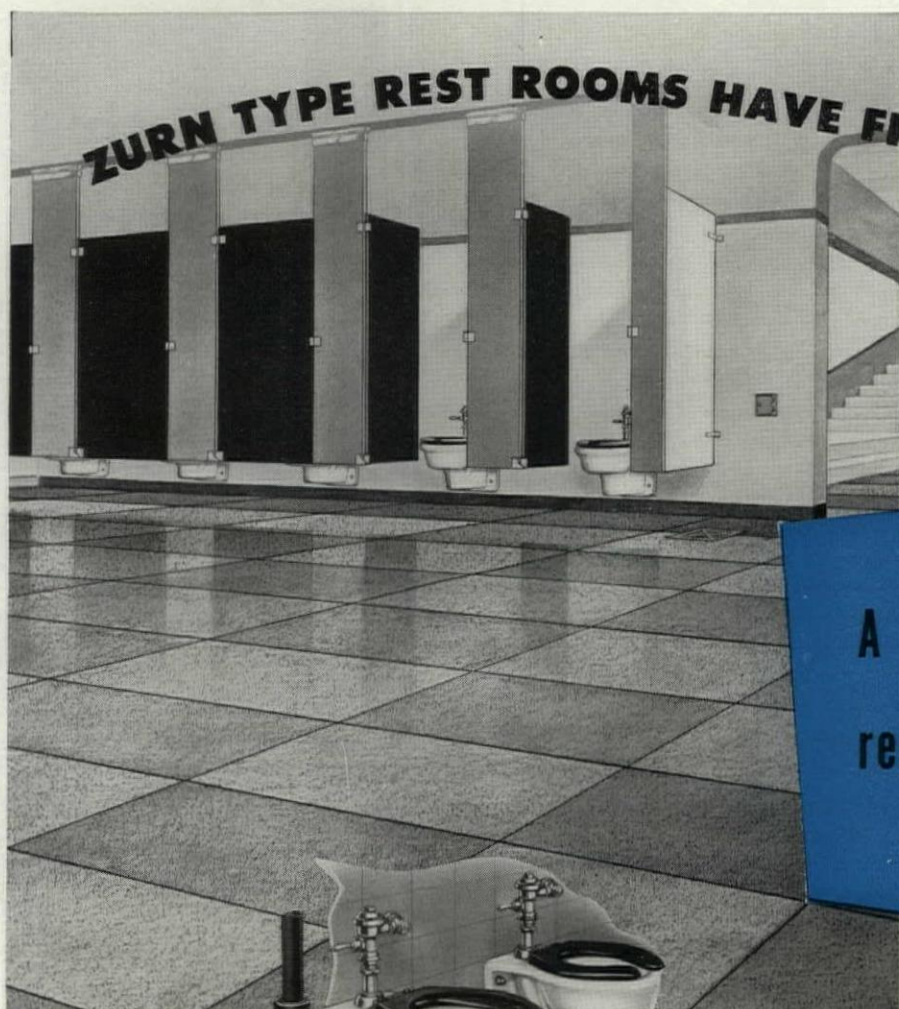
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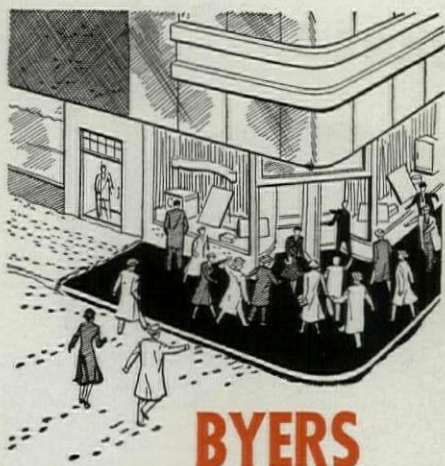
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BOOK REVIEWS *continued*

ing for employees and visitors or to provide parking for shoppers. 2) By joint action between local businessmen and the municipality using such instruments as, for example, the cheap money (85% of garage cost for 30 years at 3%) supplied by Baltimore to encourage private operators to build and run parking garages. In contrast, the Chamber of Commerce of New Brunswick, N. J. provided interest-free loans to enable the city to acquire land for off-street parking. 3) By municipal action where the city finances off-street parking, recouping expenditures by assessments upon local business, by revenue bonds financed by parking meters, or by a combination of both. Whichever method of financing is employed, a municipal parking authority is useful in bringing attention to the parking problem and in carrying out the basic studies of needs and sites available without which the problem cannot be solved.

Development costs of parking lots (mainly by land costs) vary from \$456 to \$1,595 (in Kansas City) per car space, average \$736 per car. Construction of ramp garages averages \$1,800 per car space, varies from \$960 (in Indianapolis) to \$3,200 (in Richmond, Va.), excluding land costs. Only four automatic garages are presented; they average \$1,415 per car, and vary from \$300 (for a 4-story, 142 car traveling lift installation at Spokane, Wash.) to \$2,780 (for the 16-story installation at Washington, D. C.).

WINDOWLESS STRUCTURES—A STUDY IN BLAST-RESISTANT DESIGN.

Technical manual prepared under the direction of the Federal Civil Defense Administration. Obtainable from the Superintendent of Documents, US Government Printing Office, Washington 25, D. C. 164 pp. 8" x 10 1/4". Illus. \$1

Building in an atomic age calls for the incorporation of a windowless reinforced concrete core as a shelter area in any important new building designed for a potential target area. This technical manual shows how such a core can be made blast-resistant by making full use of plastic deformation in design.

In Part I of *Windowless Structures* will be found 38 pages of applied theory, plus a 36-page appendix of sample calculations demonstrating the application of elastic design procedures to a typical windowless reinforced concrete structure, considering its resistance to dynamic loading, to overturning and to the possibility of its sliding across its foundations. The blast from an atomic explosion lasts only a fraction of a second. Analysis of the behavior of a windowless structure shows the response to be sluggish

continued on page 166

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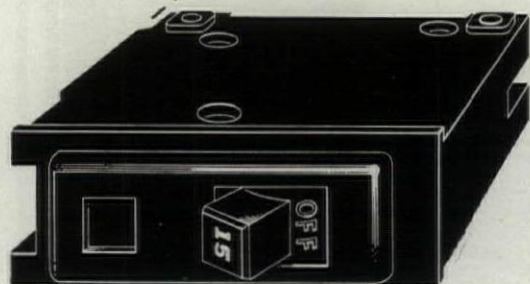
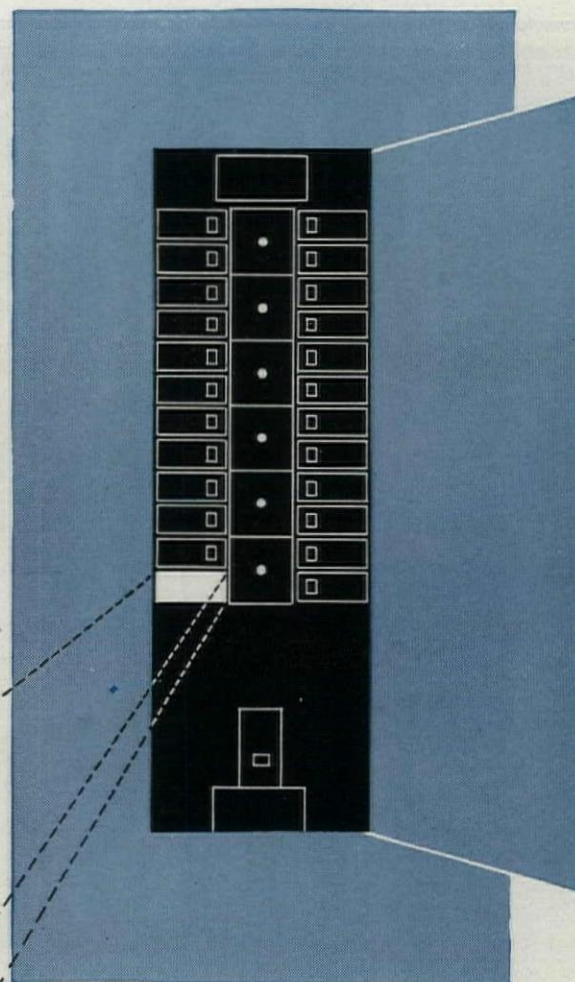
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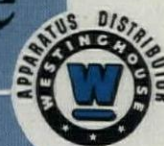
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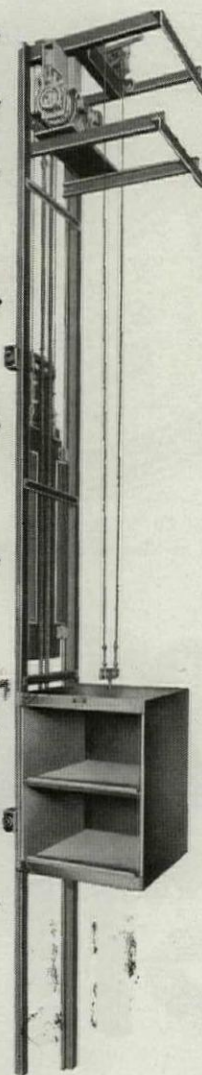
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BOOK REVIEWS *continued*

so that the peak of the blast is likely to pass before failure of the structure. Plastic yielding absorbs the impact blow, leaving the structure deformed but intact, still able to protect people sheltered inside. These theories have been checked on small scale models in a shock-tube at Princeton University and also against the damage found in bombed Japanese buildings. The studies show that a 52' x 52' four-story building with one-story below ground having a 12" thick reinforced concrete wall and roof and located half a mile from an atomic blast will be deformed as much as 4", but will not be demolished.

Structural plans and details show the reinforcing required in a typical blast-resistant windowless structure. All concrete members are under-reinforced to take advantage of the large plastic deformations and the energy absorption which occurs due to plastic elongation of the reinforcing steel after it reaches yield point values. To effect this, the proportion of steel in the structure is kept to less than 2% of the gross area of concrete. Pressure-time curves show the assumed loading data on various parts of the test structure.

Part II contains a complete analysis of the blast loading from an atomic burst with more pressure-time curves showing the size, duration and the distribution of loads to be expected on various parts of the structure.

The design methods detailed can also be used to estimate the strength of existing shelter areas. Cost of a structure is between 35 and 50% of the complete building. The frame itself will cost about 15% of the building. While no figures are given for the cost of a fully blast-resistant structure, FCDA engineers believe that blast-resistant design will cost only 10% more than conventional design. Other advantages, however, are obtained in that a blast-resistant building is likely to be safer, more fire-resistant, more durable and that maintenance will be considerably less. Thus, over a life of 50 years a blast-resistant building is likely to be no more expensive than a conventional building.

This manual is based on reports by engineers Amman & Whitney with the collaboration of the structural engineering departments of the University of Illinois, MIT and the Southwest Research Institute plus many outstanding engineers and architects including Fred N. Severud and Robert I. Ballinger. *Windowless Structures* advances the general information given in *Effects of Atomic Weapons* by the Atomic Energy Commission, *Damage from Atomic Explosions and Design of Protective Structures* by the National Security Resources Board, and *Interim Guide for the Design of Buildings Exposed to Atomic Blast* by the Federal Civil Defense Administration (see AF, Apr. '52, p. 148).

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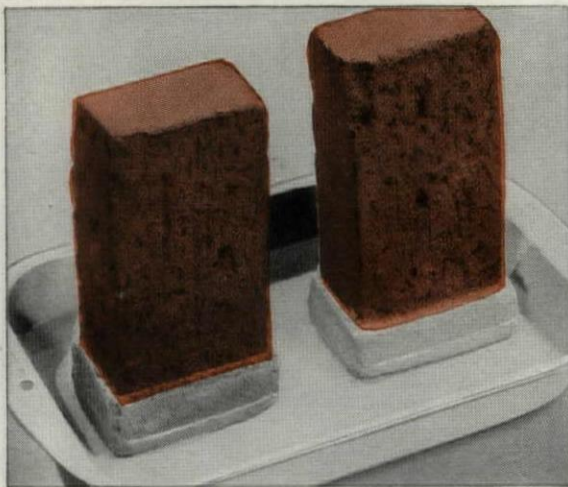
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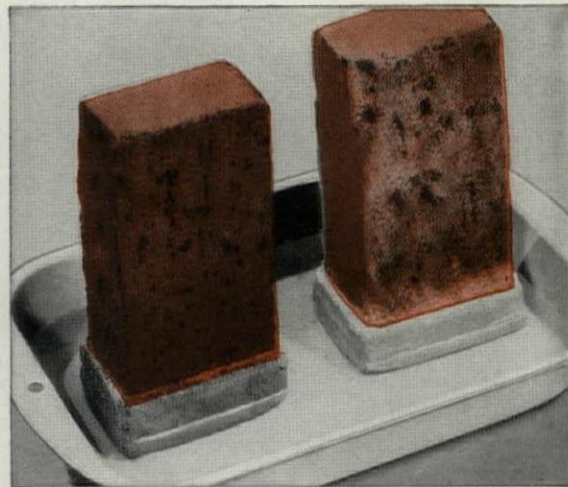
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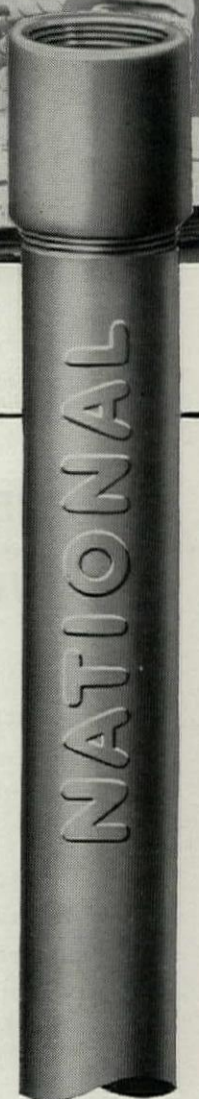
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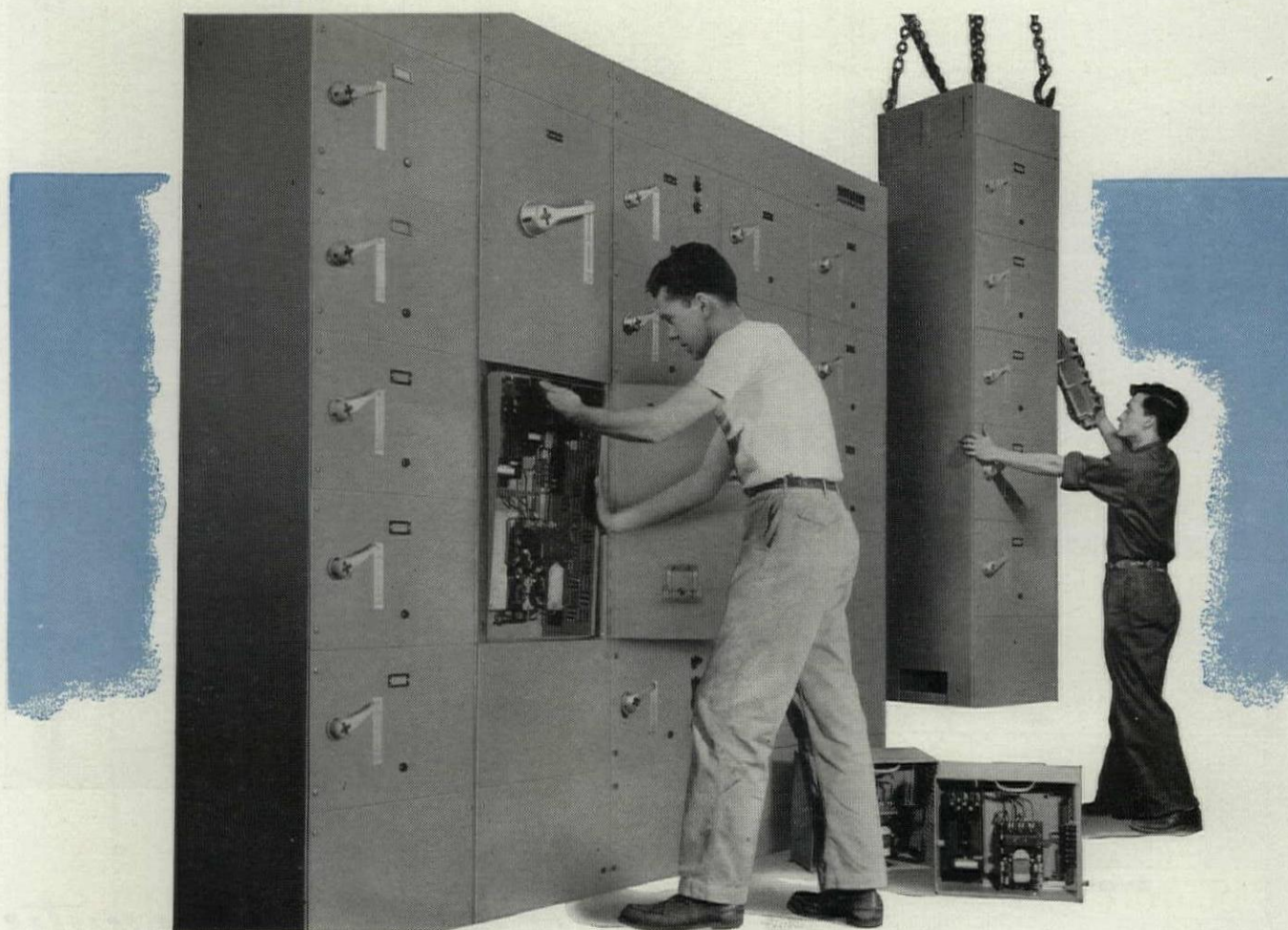


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No matter what type and size of motor control you need, you can house it in a Westinghouse Control Center. That's not so unusual in itself. But, the important thing is the ease with which these control units are initially installed and then interchanged as circuit requirements change.

The secret is in the standardization of cubicle dimensions. The height of these units are 14" or multiples of 14". Thus, all units are completely interchangeable. One 28" unit can replace two 14" units—three 14" units can replace one 42" unit—etc.

Standardization of vertical structures also aids flexibility. You can arrange, rearrange, add or subtract

vertical structures to meet any requirement. Each structure dovetails perfectly with its neighbors.

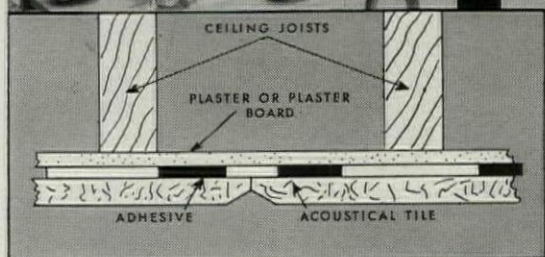
Need help? Westinghouse offers you the services of an application engineer to work with you on your control center planning. Call your local Westinghouse office today. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-27023

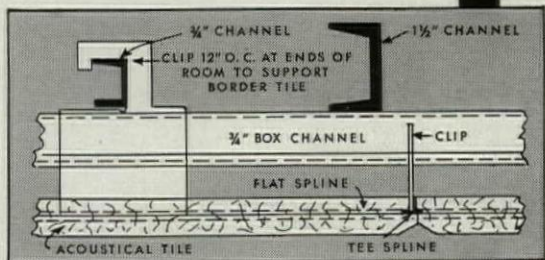
YOU CAN BE SURE...IF IT'S
Westinghouse

CONTROL CENTERS

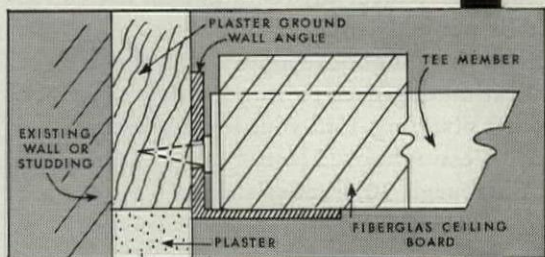




ADHESIVE APPLICATION



MECHANICAL APPLICATION
(TILE)



MECHANICAL APPLICATION
(CEILING BOARD)

Quiet, Fire safe Beauty

that's easy to install...

Whether you plan an acoustical ceiling for a new building, or include it as part of a remodeling scheme, Fiberglas* Sound Control Products are easily installed. They offer the advantage of being light in weight, with resultant savings in suspension system materials and installation time.

Easy-to-handle Fiberglas Textured, Perforated and Sonofaced* Tiles—or Fiberglas Ceiling Board for large-area, low-cost suspended ceilings—offer a wide selection of practical acoustical materials and bring distinctive beauty to your plan, too. Fire safety is an important factor and many Fiberglas Sound Control Products are available with the Underwriters' Laboratories Label.

So for complete data, including installation methods, call your Fiberglas Acoustical Contractor listed in the yellow pages of the telephone book, or write: Owens-Corning Fiberglas Corporation, Dept. 67-K3, Toledo 1, Ohio.

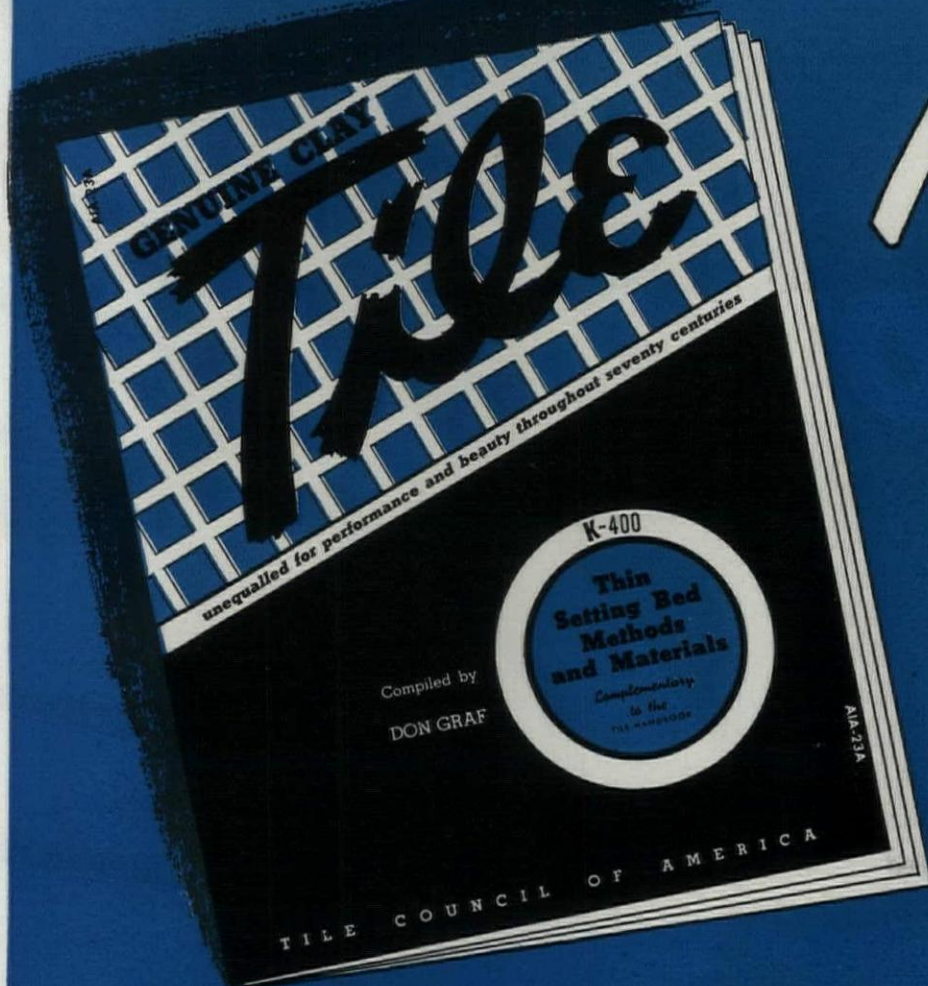
OWENS-CORNING
FIBERGLAS

SOUND CONTROL PRODUCTS

*Fiberglas (Reg. U.S. Pat. Off.) and Sonofaced and Noise-Stop are trade-marks of Owens-Corning Fiberglas Corporation for a variety of products made of or with fibers of glass.

Textured, Perforated and Sonofaced* Acoustical
Tile • Ceiling Board (Painted and Sonofaced)
• Noise-Stop* Baffles

IMPORTANT CLAY TILE NEWS!



Tile Council of America announces the publication of Thin Setting Bed Methods and Materials, K-400

The THIN SETTING method of installing clay tile has been widely used throughout the United States. To provide an impartial summary of the experience of representative and responsible members of the building industry, the Tile Council of America engaged Don Graf to make a national survey. His study covered hundreds of building professionals in 49 cities in every section of the U.S.

As a result, the Tile Council announces publication of K-400 compiled by Don Graf. This summarizes the present status of the thin setting bed technique, and provides specifications for three basic types of thin-setting installations. (This complements the "Tile Handbook" which gives specifications for conventional mortar installations.)

We wish to call attention to the fact that the U.S. Department of Commerce has just announced minimum performance requirements for water resistant organic adhesives for clay tile installation. (Commercial Standard CS-181-52).



WHAT "THIN-SETTING" OFFERS YOU:

- Important savings in time, weight and materials, under favorable conditions.
- Opportunities for wider, more flexible use of clay tile. Greater scope for Tilework on more varied surfaces and in additional areas.

Distribution of "K-400" is being made to the architectural profession. For additional copies, please send requests on your company letterhead to:
10 East 40th Street, New York 16, N.Y.

TILE COUNCIL of AMERICA

10 EAST 40th STREET, NEW YORK 16, N.Y.
or ROOM 433, 727 WEST SEVENTH STREET, LOS ANGELES, CALIF.

(Representing manufacturers of more than 85%
of the nation's clay floor and wall tile.)

THE MODERN STYLE IS CLAY TILE

PARTICIPATING COMPANIES: American Encaustic Tiling Co. Architectural Tiling Co., Inc. • Atlantic Tile Mfg. Co. • B. Mifflin Hood Co. • Cambridge Tile Mfg. Co. • Carlyle Tile Co. General Tile Corp. • Gladding, McBean & Co. • Mosaic Tile Co. • Murray Tile Co., Inc. • National Tile & Mfg. Co. • Olean Tile Co. • Pacific Tile and Porcelain Co. • Pomona Tile Mfg. Co. • Robertson Mfg. Co. • Summitville Tiles, Inc. • United States Quarry Tile Co. • Winburn Tile Mfg. Co.

now it's

Nepconol

the new trade name

for National Electric's

Thermoplastic insulated

wires and cables





Nepconol Building Wires

FOR DRY LOCATIONS (Type T)—Used only in non-metallic sheathed cable. For operating temperatures up to 60° C. Permits smaller over-all diameter of cable.

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NEW—FOR "HOT-SPOT" WIRING—Wherever operating temperatures are extremely high, use Type 80° C. Provides higher voltage breakdown than ordinary primary insulation. Overall fibrous coverings are unnecessary. For even higher operating temperatures, National Electric has developed the new Types 90° and 105° C. wires.

Nepconol Fixture Wires

Types TF (solid or stranded) and TFF (flexible) for 600 volt service up to 60° C.

Formerly NE'on, *Nepconol* is the new trade name for National Electric's superior building wires and cables for general use in wet or dry locations. Nepconol thermoplastic insulation *resists* moisture . . . flame . . . acids . . . alkalies . . . oil . . . abrasion. Available in a wide choice of bright, permanent colors for easy identification.

All Nepconol Building Wires are clearly marked with size, type and voltage every two feet for ease of identification.

Nepconol Wires and Cables greatly exceed Underwriters' Laboratories, Inc. requirements.

Sold through leading electrical wholesalers.

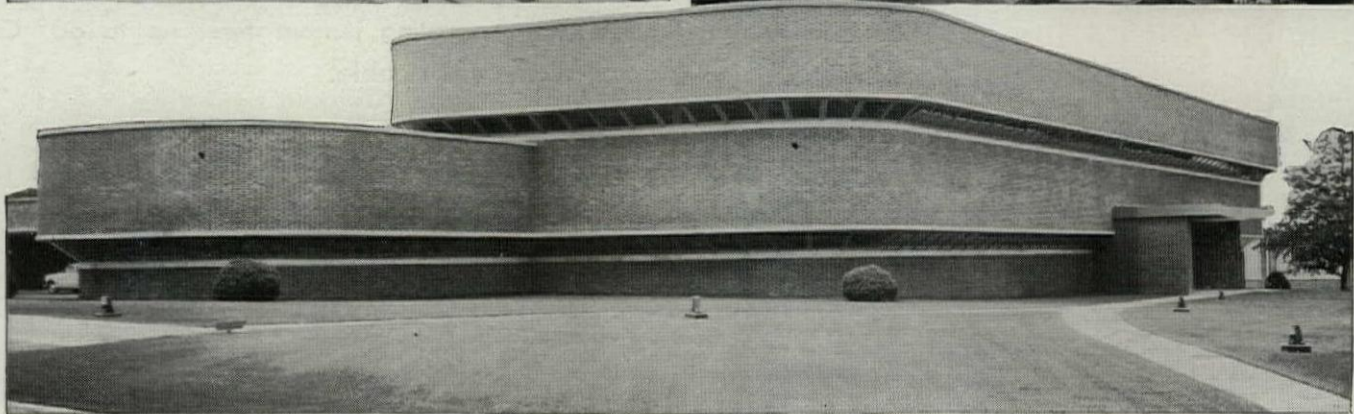
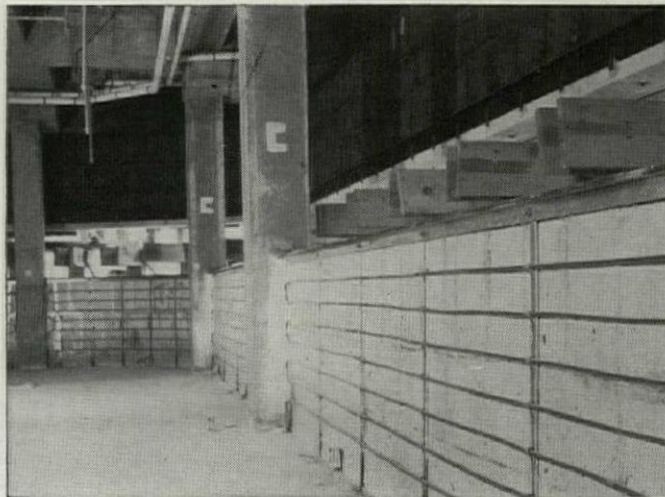
EVERYTHING IN WIRING POINTS TO

National Electric Products
PITTSBURGH, PA.



3 PLANTS • 7 WAREHOUSES • 33 SALES OFFICES

Name: The Springs Cotton Mills, Fort Mill, S. C. Design Engineers: Robert & Company, Inc., Atlanta, Ga.
General Contractors: George A. Fuller Company, New York City.



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Exterior walls are insulated with easy-to-lay blocks of all-glass FOAMGLAS; and as shown above, heating and cooling pipes are placed right in the walls over the FOAMGLAS. Here, FOAMGLAS does two jobs: 1) it makes the heating-cooling system more efficient, and 2) it serves as a practically indestructible insulation.

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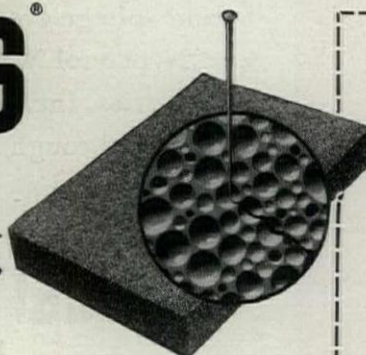
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The best glass insulation is cellular glass. The only cellular glass insulation is FOAMGLAS. This unique material is composed of still air, sealed in minute glass cells. It is light weight, incombustible, verminproof. It has unusually high resistance to moisture, chemicals and many other elements that cause insulation to deteriorate.



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Please send me, without obligation, a sample of FOAMGLAS and your FREE booklets on the use of FOAMGLAS for Normal Temperature Commercial, Industrial and Public Buildings ☐ Piping and Process Equipment ☐ Refrigerated Structures ☐

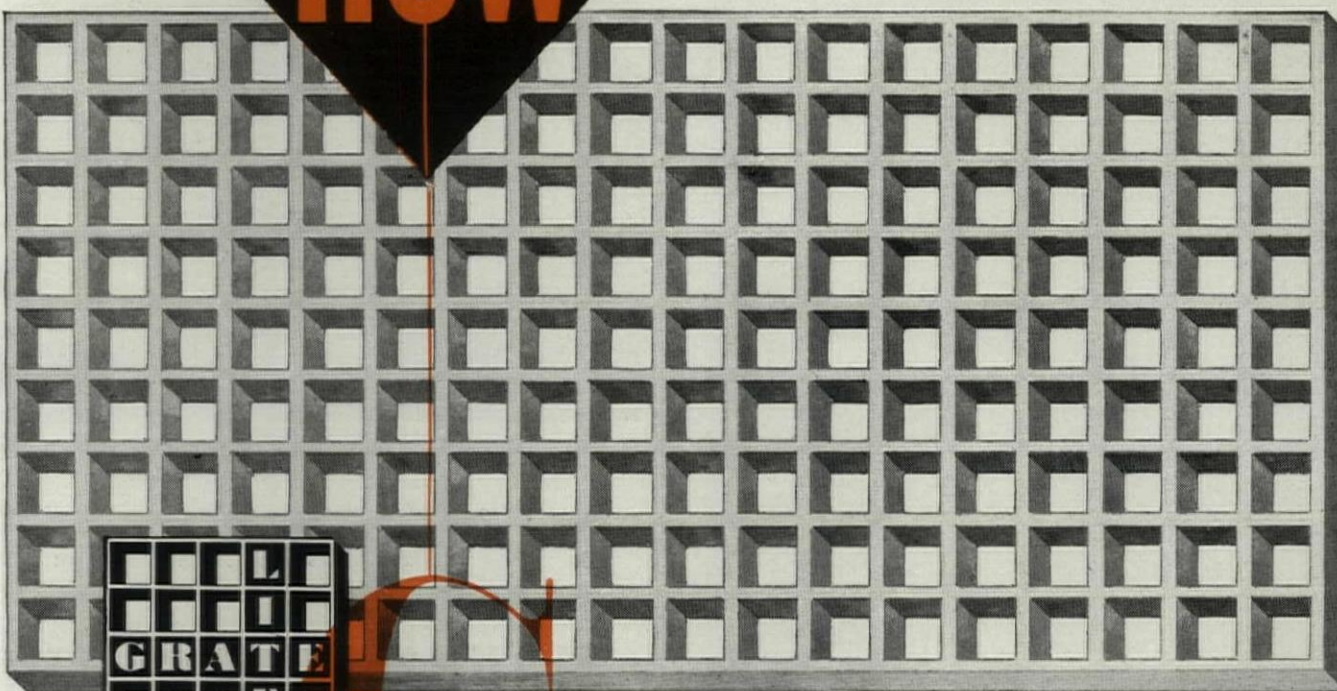
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new

**OPEN LIKE A LATTICE
DIFFUSING LIKE GLASS**



Guth GrateLite* Louvre

the latest idea in lighting

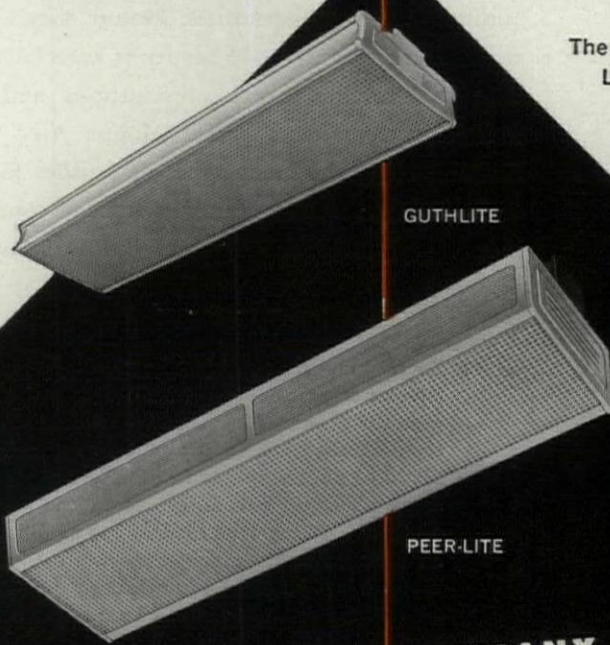
A SYMPHONY OF DIFFUSED LIGHT

* U. S. & Can. Pats. Pend.

The first integral plastic louvre for fluorescent lighting, molded of LUSTREX polystyrene. It reveals a new conception of architectural beauty and efficient lighting: Its diffusion results from the $\frac{3}{8}$ " cubical lattice that cuts off direct light at a 45° angle.

But words alone cannot describe beauty. See for yourself and ask to be shown a sample. It will give you a new outlook on lighting.

GrateLite is tough, quickly cleaned and de-staticized. It is furnished in one piece with Guth Fluorescent Fixtures.



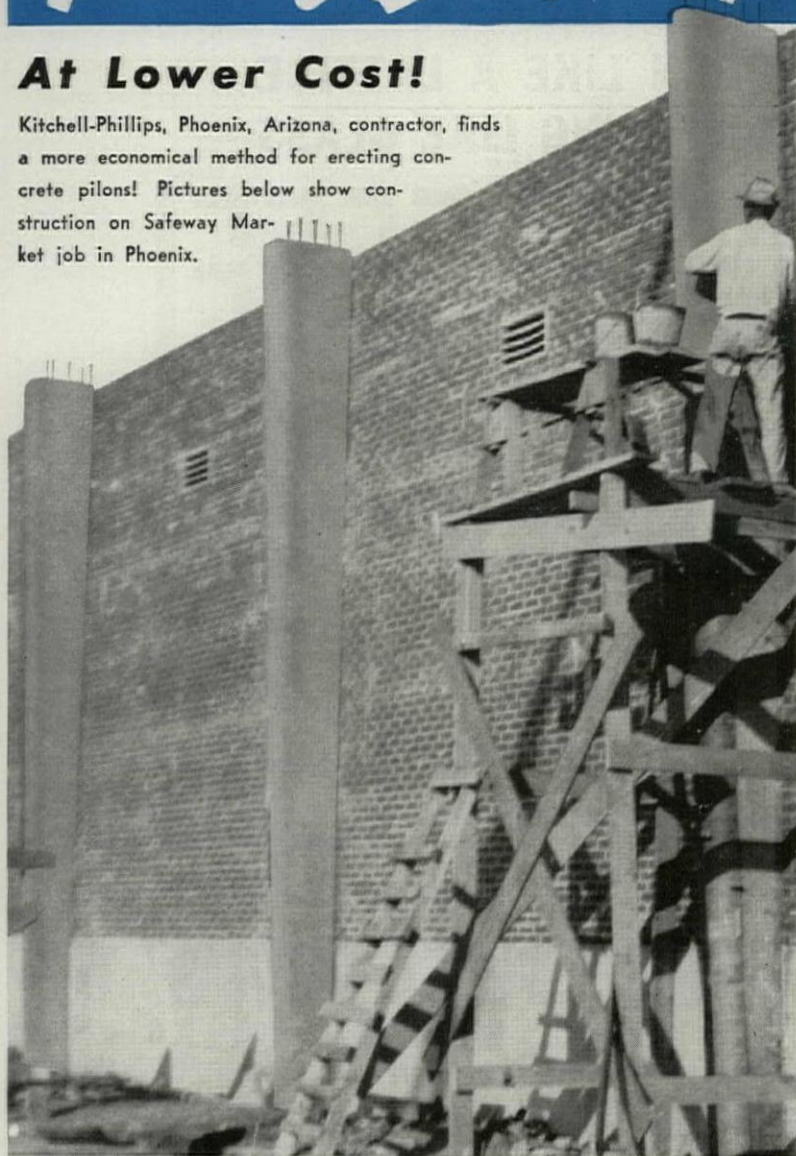
THE EDWIN F. GUTH COMPANY • ST. LOUIS 3, MO.



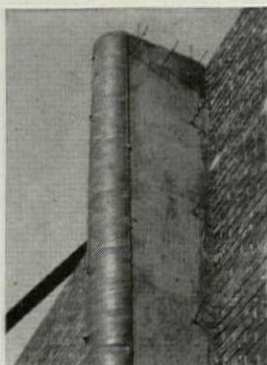
Pilon Beauty

At Lower Cost!

Kitchell-Phillips, Phoenix, Arizona, contractor, finds a more economical method for erecting concrete pilons! Pictures below show construction on Safeway Market job in Phoenix.



FORMED WITH



With modern architects, engineers and contractors using more and more round columns and pilons of concrete, SONOTUBES can save you plenty of time, money and labor in construction. Contractor Kitchell-Phillips uses SONOTUBE fibre forms, split in half, to form the half round pilon edge. SONOTUBES are also widely used in forming concrete columns, piers, piles, underpinning, etc. They are light weight, easy to handle, low in cost. Can be sawed like wood on the job. 19 sizes, 3" to 24" I.D., up to 24' long. Technical data available.

Write for Complete Information and Prices

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CLIENTS' CHOICE . . . ARCHITECTS' PREFERENCE

When appearance, durability and long range economy count—check the advantages of Mount Airy Granite first! Here's a beautiful stone impervious to weather changes that's ideal for base courses or the entire facade. Its distinctive light grey (almost white) uniform coloring lends itself to unlimited design opportunities. Mount Airy Granite's monumental dignity and beauty is especially adaptable to churches, hotels, institutions and public buildings. Architects prefer Mount Airy Granite for durability, the many types of finishes including high polished surfaces, and its neutral tone which blends and compliments other building materials.

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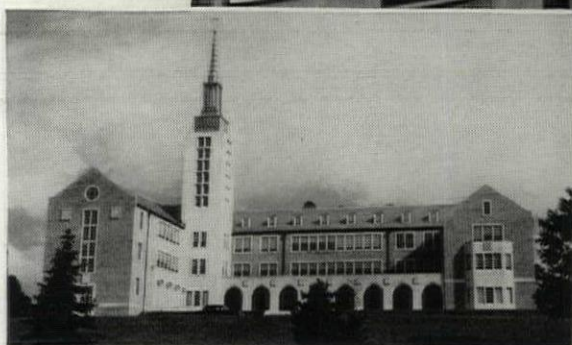
NORTH CAROLINA GRANITE CORPORATION

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LOCATION:
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ARCHITECT:
Maginnis & Walsh,
Boston, Mass.

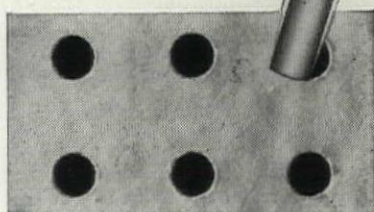
ACOUSTICAL
CONTRACTOR:
Davis-Fetch
& Co., Inc.,
Rochester



We're keeping this

QUIET

HOLLOKORE DRILLED PERFORATIONS



The Hollokore Drill (cross section sketch shown above) developed by Simpson Research and Engineering, is responsible for the clean round perforations of Simpson Acoustical Tile. In the enlarged unretouched photograph reproduced above, notice the clean-cut holes... no fuzzy edges... no loose fibers to encourage unsightly bridging when repainting.

To sound-condition St. Johns Fisher College, Rochester, New York, the architects specified Simpson Acoustical Tile throughout. Each new installation is evidence of the growing conviction among value-conscious architects that Simpson Acoustical Tile offers more-than-average for the building dollar. This tile is providing noise-control and smart interior finish in buildings of every description throughout the country.

If you are not completely familiar with the advantages of Simpson Acoustical Tile, call your nearest Simpson Acoustical Contractor—listed at right. He is qualified to offer expert help on any of your sound-control problems. See our catalog in Sweet's Architectural File—11aSI.

SIMPSON LOGGING COMPANY

Acoustical Division, 1065 Stuart Bldg.

Seattle 1, Wash.

Simpson
QUALITY SINCE 1895

ACOUSTICAL PRODUCTS
For Better Sound Conditioning

WASHABLE FINISH

Easily cleaned with a damp soapy cloth, then wiped with a damp cloth. New whiteness and high light reflection is quickly restored!

FINISHED BEVELS

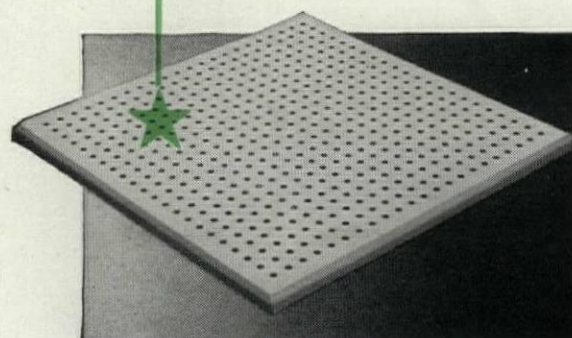
Bevels are painted with the same washable paint, which adds so much to the smart, crisp beauty of Simpson Acoustical Tile.

HIGH SOUND ABSORPTION

Independent tests, now backed by the experience of thousands of users, show that the sound absorption of Simpson Acoustical Tile is unexcelled when compared thickness for thickness with other perforated fiber materials.

THERMAL INSULATION

Millions of tiny air pockets within the wood fibers as well as between them, act as an efficient barrier against passage of heat. Simpson Acoustical Tile makes rooms more comfortable.



To keep things

QUIET

Simpson Acoustical Contractors Offer a Complete Service. Call nearest one:

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Coast Insulating Products, Los Angeles
- Hal E. Niehoff & Associates, San Diego
- Cramer Company, San Francisco and Fresno
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Construction Specialties Co., Denver
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W. T. Roberts Construction Co., Hartford
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Kelley Asbestos Products Co., Sioux City and Des Moines
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Kelley Asbestos Products Co., Wichita
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Atlas Plaster & Supply Co., Inc., Louisville
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- NEBRASKA
Kelley Asbestos Products Co., Omaha
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Kane Acoustical Co., Fairview
- NEW MEXICO
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- Kane Acoustical Co., New York
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Bost Building Equipment Co., Charlotte
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Harold C. Parker & Co., Inc., Oklahoma City
- Kelley Asbestos Products Co., Tulsa
- OHIO
The Mid-West Acoustical & Supply Co., Cleveland, Akron, Columbus, Dayton, Springfield and Toledo
- OREGON
Acoustics Northwest, Portland
- R. L. Elfstrom Co., Salem
- PENNSYLVANIA
Jones Sound Conditioning, Inc., Ardmore
- TENNESSEE
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Blue Diamond Company, Dallas
- Otis Massey Co., Ltd., Houston
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precision-made
"Stilemaker"
 parts
 speed deliveries

Since all functional parts of "Stilemaker" locks are precision-made, they are interchangeable. Consequently locks and latches in stock at the factory can be changed easily and quickly from one function to another by shifting parts. The specific parts required may be in stock or quickly manufactured. The most important advantage of precision-made parts, however, is reflected in the performance of the locks. "Stilemaker" locks and latches operate smoothly and easily for years. Parts offer no slack motion to cause premature wear. Ask your Russwin Distributor for complete details. The American Hardware Corp., Russell & Erwin Division, New Britain, Conn.

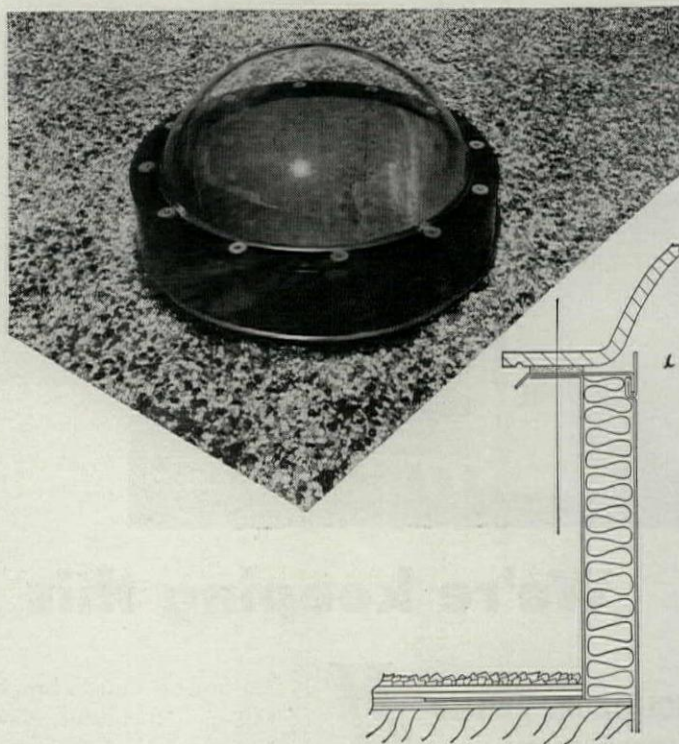
Engineered to
 Architects' Specifications
 Available in
 all popular functions
 Knob styles . . .
 in wrought or
 cast brass,
 bronze or aluminum

RUSSWIN
"Stilemaker"

PRODUCT NEWS

PLASTIC SKYLIGHTS marketed by three fabricators

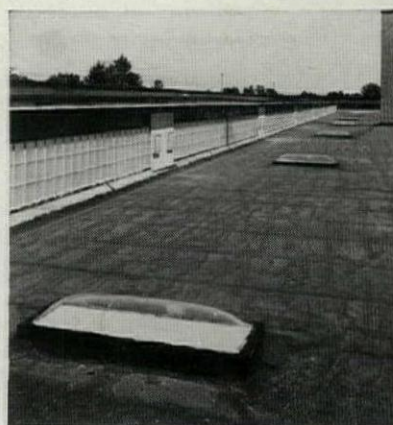
One big inroad plastics have made in the construction field has been in factory-formed skylights. First manufacturer to turn out a complete packaged unit was Wasco (AF, Dec. '50). Recently E. Van Noorden Co. came up with preassembled skylight units; and now Klise Mfg. is making the plastic parts with cork and neoprene gaskets in stock sizes and flashing fittings to order. All three firms provide bubbles clear

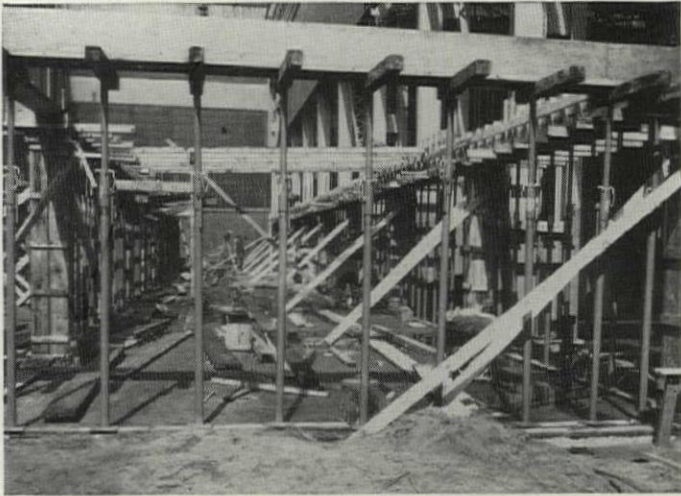


and frosted, round and square, sun resistant and sun receptive. The Klise units pictured on this page are supplied in ten standard rectangular sizes and five circular; prices range from \$9 for a clear plastic 18" square to about \$200 for a white translucent dome 42" in diameter.

Manufacturers: Wasco Flashing Co., 87 Fawcett St., Cambridge, Mass.; E. Van Noorden Co., Cambridge, Mass.; Klise Mfg. Co., Grand Rapids 2, Mich.

continued on page 180





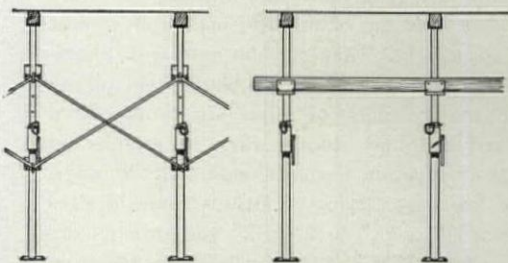
TELESCOPING STEEL SHORE is handled easily by one man

No separate jack is needed to operate the completely self-contained *Safway* shore. Easy to carry and position, the telescoping brace can be manipulated by one man and may be set at any precise height within a 5' range. It is made of high carbon structural steel and comes in 6', 8', and 10'-6" sizes, which extend respectively to 11', 13' and 15'-6". A chest-level handle on each shore is cranked to raise it to the approximate height. Then a chain-attached pin is inserted through one of the holes spaced at 6" intervals along the pole to keep it there until final adjustment for the exact height can be made by rotating a strong, threaded sleeve nut.

Having safe working-load capacities up to 9,910 lbs., *Safways* are said to permit wide spacing and, consequently, savings in time and equipment. The device's stability is assured by a 7" square base-plate; set at heights up to 12' it requires no other support under most conditions. The *Safway* also has an 8" long U-shaped head which seats 4" (or 2" lapped) timber, and when situated vertically, needs no nailing. (Staggered holes are stamped in the head, however, for securing the shore in positions other than upright.) U-heads 14" long also are available for fitting beam formwork.

Where structures higher than the shores' maximum dimensions are to be supported, the bracing units may be slipped into the tubular legs of the manufacturer's frame-type scaffolding and their base plates bolted to adapter plates. *Safway* scaffolding comes in 7 heights from 3' to 7'. All parts are treated with a rust preventative coating and finished in baked enamel. Prices for the three shores are \$14.50, \$16.05, and \$17.50 f.o.b., factory.

Manufacturer: Safway Steel Products, Inc., W. State St. & 63rd St., Milwaukee 13, Wis.

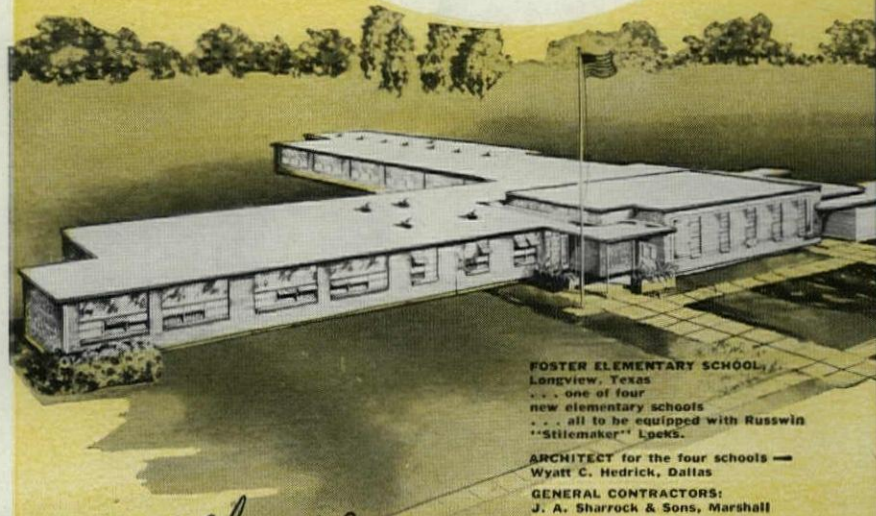


Closeup of the shore mechanism (right) shows the rough adjustment pin and holes (spaced every 6" along the upper member). When the shores are extended above 12', diagonal supports or lumber braces may be used (above).

continued on page 180

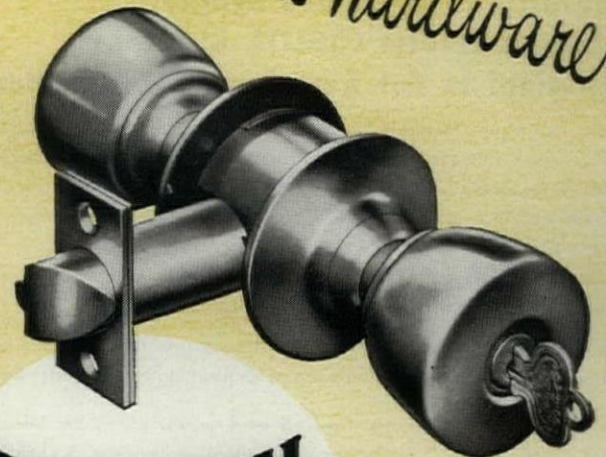


the new "look" in Longview, Texas



FOSTER ELEMENTARY SCHOOL
Longview, Texas
... one of four
new elementary schools
... all to be equipped with Russwin
"Stilemaker" Locks.
ARCHITECT for the four schools —
Wyatt C. Hedrick, Dallas
GENERAL CONTRACTORS:
J. A. Sharrock & Sons, Marshall

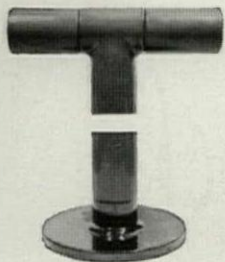
...gets the new lock in
builders' hardware



RUSSWIN
"Stilemaker"

HEAVY-DUTY CYLINDRICAL LOCK

Russell & Erwin Division
The American Hardware Corporation
New Britain, Conn.



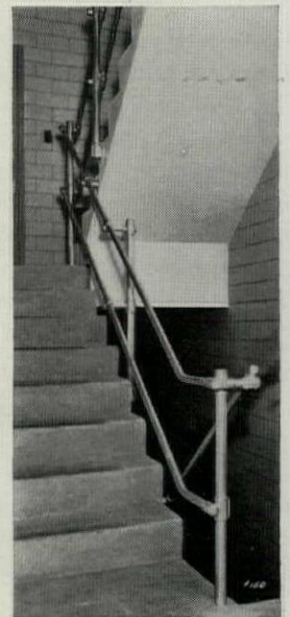
FLUSH HANDRAIL. Bolts on inside; no bumps on outside

Concealed internal fastenings on these porcelain enameled steel sections make for safer, sleeker handrail design. Whatever size, span, or shape is specified, the railing will have no tuberos connections to catch grime and flying coattails. Besides their smooth line and finish, the prefabricated parts boast easy installation—little time, few tools, no welding. The sections have a baked porcelain coating (any color ordered) and so need no painting. Cost of stanchions and verticals like those in the tunnel (photo above left) run about \$3 per lin. ft., f.o.b., factory.

Manufacturer: Seaportel Metals, Inc., Long Island City 1, N. Y.

SLIP-ON FITTINGS speed pipe frame assembly

Instead of conventional welded or threaded joints, *Nu Rail* fittings are simple but strong friction-type pipe connections. These sleeves and flanges slip over standard-size pipe and use steel set screws for a firm grip. In many tubular framing designs, the piping can cross



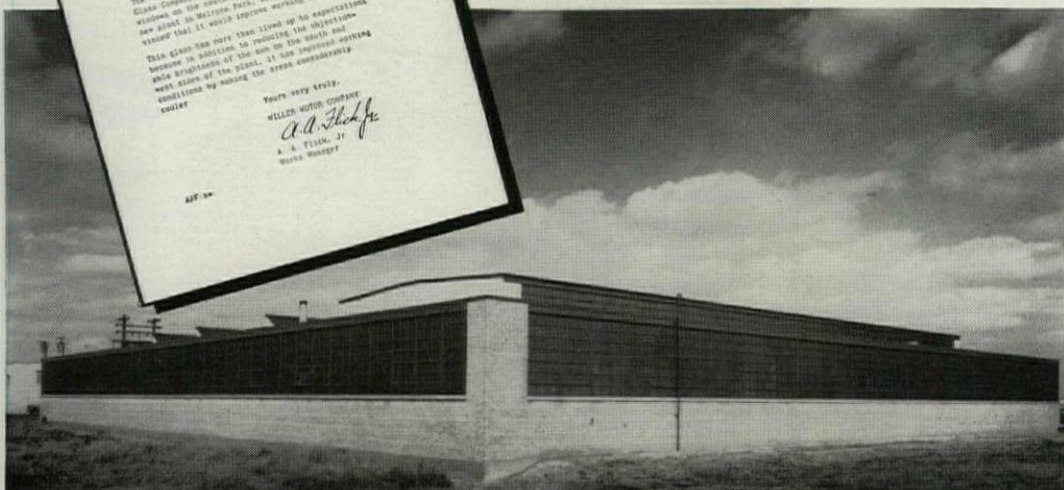
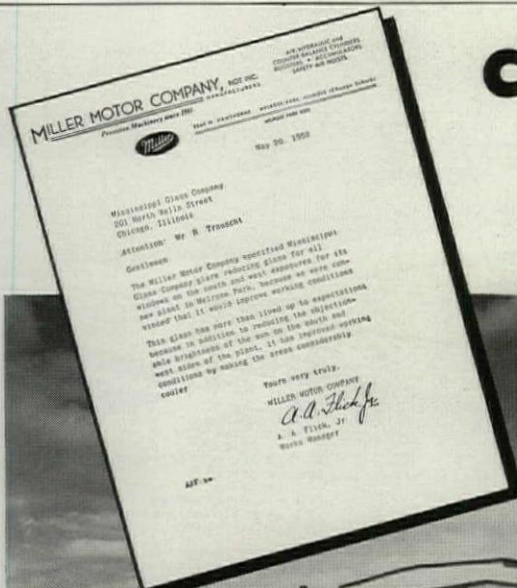
and continue right through the fitting, thereby eliminating numerous cutting operations. Made of a corrosion-resistant alloy of aluminum and magnesium, *Nu Rail* connectors are said to have the strength of malleable iron at 1/3 its weight. They may be used with aluminum, brass, galvanized or black steel tubing for many kinds of pipe structures—from guard rail and storage rack to grandstand and observation tower. Combinable 25 ways, the five basic styles of fittings come in sizes from 3/4" x 3/4" to 2" x 2" and in reducing sizes from 1" x 3/4" to 2" x 1 1/2". Application is claimed to take 1/5 as much time as standard joining methods, with a resultant over-all cost saving of about 25%.

Manufacturer: The Hollander Mfg. Co., 3841 Spring Grove Ave., Cincinnati 23, Ohio.

continued on page 184

COOLITE GLASS

"...has improved working conditions"



Miller Motor Company, Melrose Park, Illinois. John S. Cromelin, Architect, Hamilton Glass Company, Glazier.

Manufacturer of Air and Hydraulic Equipment Selects COOLITE GLASS by Mississippi to Cut Raw Sun Glare and Heat

Modern management knows that workers who see better, produce better... and this testimonial from a user of Coolite, Heat Absorbing, Glare Reducing Glass by Mississippi highlights the importance of "visioneering" in a modern plant. Coolite traps and absorbs much of the sun's heat—helps keep interiors comfortably cool. Coolite also filters out annoying glare, floods work areas with pleasantly tinted, softened, filtered light that cuts costly eye fatigue.

Conditioned, natural illumination helps reduce operating costs—and Coolite is easy to maintain, eliminates need for painting or makeshift blinds.

Translucent, light diffusing, figured and wired glass by Mississippi is "visioneered" for better daylight illumination. Available in a wide variety of patterns and surface finishes, all scientifically designed to distribute light to best advantage.

MISSISSIPPI *Glass* **COMPANY**

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NEW YORK • CHICAGO • FULLERTON, CALIF.

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

SEE HOW COOLITE CAN SAVE MONEY FOR YOUR CLIENTS

In your plans for new industrial buildings or the modernization of existing ones, it will pay you to find out how Coolite can provide increased efficiency and economy. The cool, blue-green color of Coolite adds a modern note to any exterior. Coolite's filtered light boosts employee morale, reduces rejects. See your nearby Mississippi Glass distributor today.

Send for free Coolite Catalog, "Coolite Heat Absorbing and Glare Reducing Glass." Samples on request.



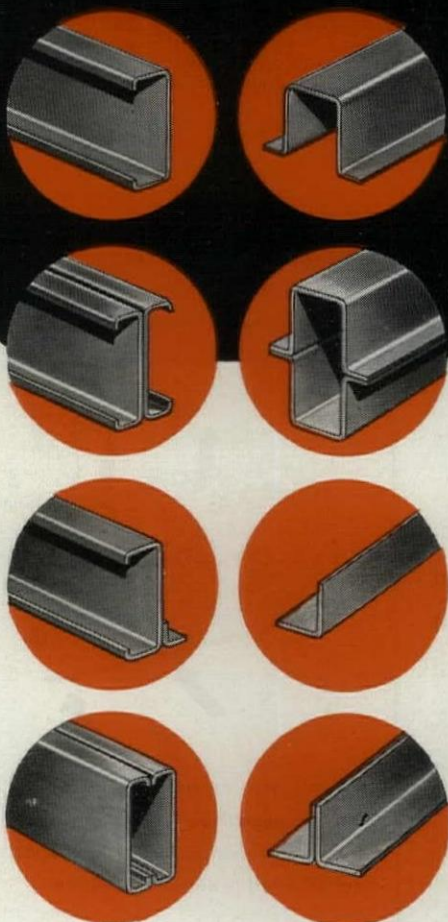


The structural framing of the Great Southern Life Insurance Company's two-story office building at Houston, Texas, utilizes Stran-Steel "C" Sections to effect appreciable savings in time, weight and labor costs. The architect was Alfred C. Finn, FAIA; Stran-Steel dealer and erector, Buie Building Material Co.; and the contractor, Manhattan Construction Co., all of Houston.

Here's new economy for buildings framed with steel

Stran-Steel®

COLD FORMED STRUCTURAL SECTIONS



Stran-Steel Cold-Formed Structural Sections bring a new dimension of economy within the reach of designers and engineers. Manufactured from strip steel, in a variety of shapes, sizes and gages, they may be used in different combinations for almost any building design. Because of their high strength-to-weight ratio, Stran-Steel Structural Sections bring worthwhile savings in the cost of completed structures.

All Stran-Steel Structural Sections meet the specifications of the American Iron and Steel Institute for the design of light-gage steel structural members. Your local Stran-Steel Framing dealer can furnish costs F.O.B. job site or quote on the material completely erected. Call him today.

WRITE FOR THIS NEW BOOKLET. It gives complete engineering data on Stran-Steel Cold-Formed Structural Sections, plus a typical example of the economy possible with this modern building material.



STRAN-STEEL STRUCTURAL SECTIONS are made in three different shapes and in a wide range of gages. They may be used in practically any combination for maximum economy. When used in conjunction with nailable Stran-Steel Framing, the result is a complete steel frame.



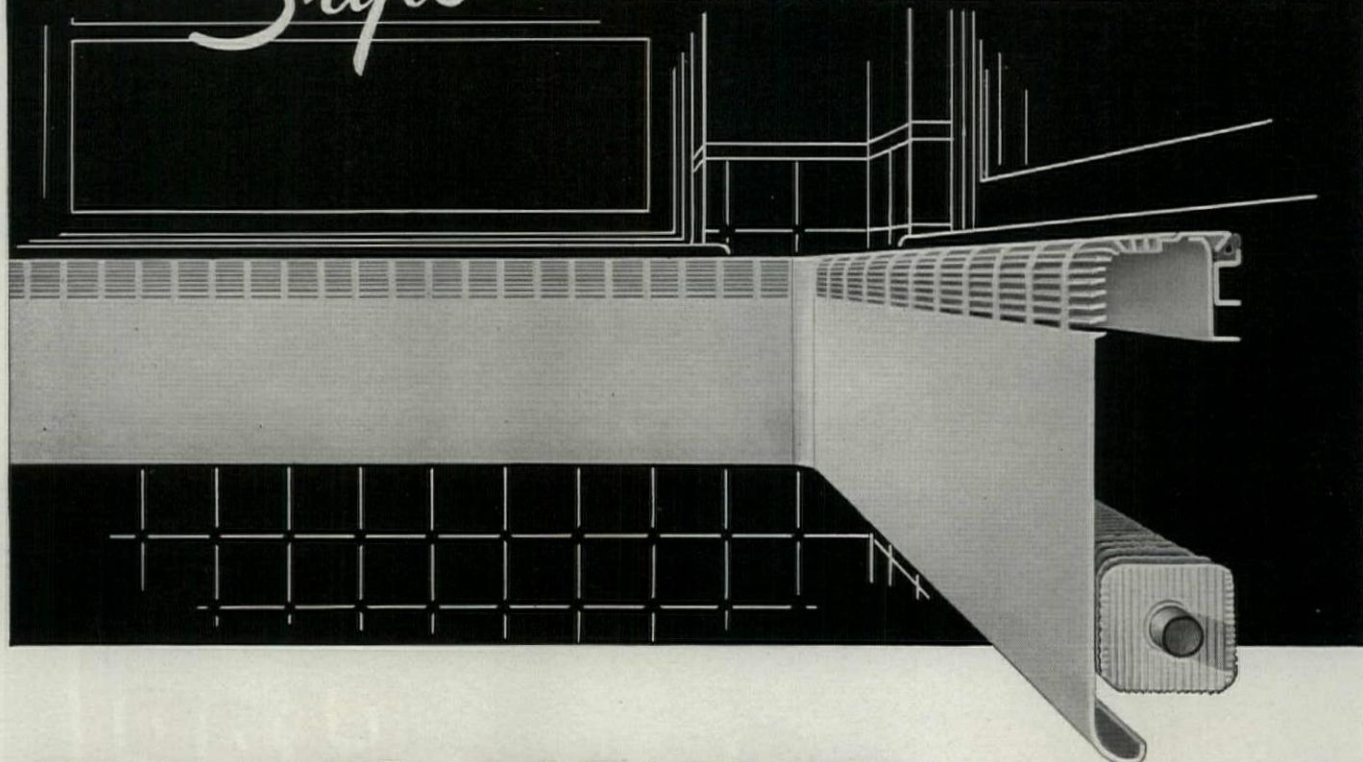
GREAT LAKES STEEL CORPORATION

Stran-Steel Division Ecorse, Detroit 29, Mich.

NATIONAL STEEL CORPORATION



NEW *Style* IN PRACTICAL HEATING



SILL-LINE RADIATION

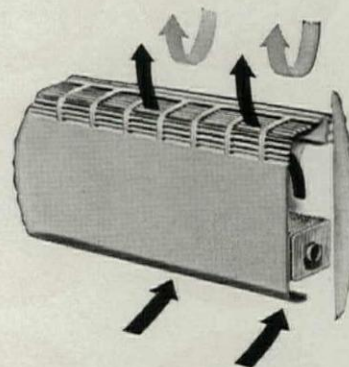
...now combines every comfort of high-capacity heating with the beauty of enclosure styling

For the first time, under-the-window wall-fin radiation is offered in an attractive rigid enclosure expressly designed for use where appearance is important. Flowing lines harmonize with modern surroundings, permit full usability of the space heated.

The new *stylized* Sill-line Radiation retains all the practical advantages of quick, uniform, perimeter heating; economy of operation; ease of installation; and flexibility. But it does more. It blends beauty with utility in full compliance with present architectural trends for hospitals, schools, apartments, office buildings, showrooms.

Go modern with Nesbitt Sill-line. Available in three enclosure sizes in nine modular lengths; two fin sizes for single row or double tierings; wide range of capacities. Investigate today.

Convected air currents enter at the casing bottom, are warmed by the heating element, and leave through the top grille. This activates warmed-air circulation from floor to ceiling and overcomes cold window downdrafts.



The warmed enclosure provides a radiant heating effect to further insure the comfort of occupants in the vicinity of the exposed walls and windows.

MADE BY JOHN J. NESBITT INCORPORATED, PHILADELPHIA 36, PENNSYLVANIA

Send for Nesbitt Sill-line Publication 271



You can compress it...



...shake it...



...wet it...



...bump it...



...bend it...



...expose it to fire...



...here's the INSULATION

THAT CAN TAKE IT!

ULTRALITE

DUCT INSULATION AND DUCT LINER

No other insulation can take so many kinds of punishment—and still retain its original thermal and acoustical properties—as ULTRALITE, the long glass fiber insulation. And architects and engineers everywhere are discovering that this rugged-yet-resilient insulation means better thermal and acoustical treatment for ducts, at lower applied costs.

ULTRALITE'S unique r-e-s-i-l-i-e-n-c-e is the architect's assurance that it will stand up under the vibration of ducts indefinitely. Today, ULTRALITE Duct Insulation and Duct Liner are on the job in scores of

hospitals, churches, schools, factories, institutional buildings, as well as in such outstanding buildings as the Statler Center, the Mellon Building, Lever House and the Alcoa Building.

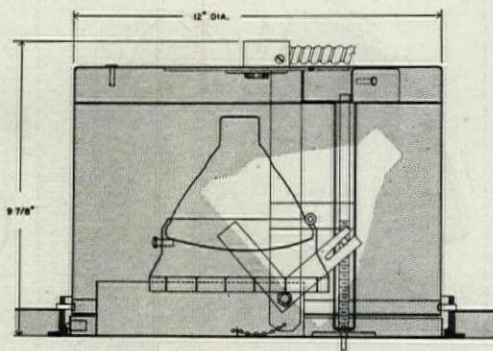
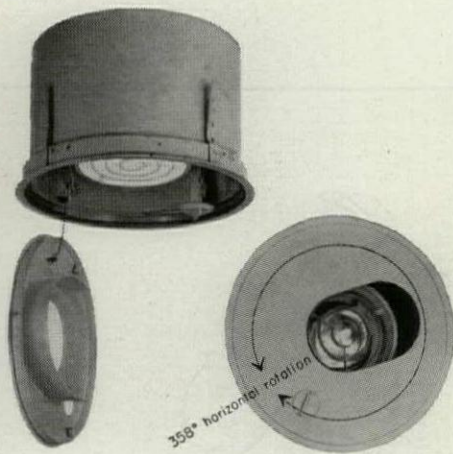
Complete details on this superior thermal and acoustical insulation are in Sweet's File (Architectural) Section 10, and 71 distributors of ULTRALITE in major cities carry local stocks for prompt delivery. Call your local ULTRALITE distributor (listed in the Yellow Pages) for information, or write for samples and complete details.

GUSTIN-BACON MANUFACTURING CO.

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Keeping pace with the Nation's industrial requirements through research and development—since 1898.

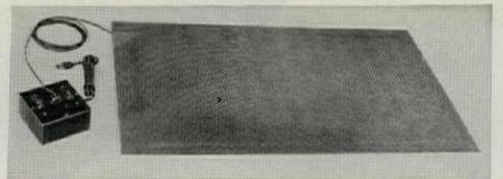


RECESSED LIGHT. Finger-touch knob directs beam over wide area

Sometimes equipment is so well engineered for its purpose as to be beautiful. The *Monopoint Control Accentlite* enjoys this rare by-product of industrial design. A simple knob on this versatile lighting fixture's ceiling plate controls both the beam direction and the lamp angle. Moving the knob around the faceplate, either by hand or pole, sends the lamp and its aperture anywhere within a 358° arc. (The straight sides of the elliptical opening serve as visual guidelines for accurate focusing.) Twisting the knob screw-fashion brings the lamp from a vertical axis to a 45° tilt. The lamp frame has a concentric louver designed to trap annoying spill light and to nest a heat-resistant filter.

Suitable for short and long throw lighting with either flood or spot lamps, the *Monopoint* may be used for altar and pulpit lighting in churches and stage lighting in theaters as well as for display illumination in show windows and lobbies. Fitted with a 200 w. spot, it can produce 50,000 candle power—an intensity desirable for high-ceilinged areas and for general use with color filters (which absorb a good portion of the light). The fixture is 9 7/8" deep and measures 1' across the ceiling plate. Finished in matte white enamel, the face is installed flush with the ceiling surface, and is said to be almost unnoticeable in a smooth plaster ceiling and quite unobtrusive in an acoustical ceiling. List price of the *Monopoint* No. 579 is \$58.

Manufacturer: Gotham Lighting Corp., 37-01 31st St., Long Island City 1, N. Y.



ELECTRIC FLOOR MAT. Footstep opens doors; turns on machinery

Switchmats look like ordinary floor mats but are actually extended area electrical switches. These safe and convenient actuators respond to almost any pressure—from tiptoe to truck wheel—and can be used to open and close doors, regulate signals for interplant traffic, act as automatic cutoffs for machinery and sound burglar alarms. Placed in front of a show window, a *Switchmat* can light up the display or set it in motion as a passer-by approaches. The mats are 3/16" thick and come in two standard sizes: 14" x 23" and 18" x 30" selling for \$19 and \$27. They also may be custom ordered in any dimensions from 2" x 2" up to 19' x 30" for \$5 to \$6 per sq. ft. Encased in vinyl, rubber or neoprene sheeting, the floor switches are hermetically sealed against moisture. They can handle up to 1

continued on page 183

Humphrey HEAT

Helps Keep the Groceries Moving



Humphrey Automatic Gas Unit Heater with exclusive Tilting Front, Free-Flow Heat Exchanger, Dual-Flame Burner, etc. Rotor and Propellor fan types, from 65,000 to 200,000 B.T.U.

More and more retailers are learning from experience that it pays off in better sales and lower costs, to greet customers with *warmth by Humphrey*.

You need a flexible heating system in a store — one that heats quick when the temperature drops, and shuts off quick when it's warm enough. Humphrey Gas Unit Heaters provide that quick starting and stopping essential to good temperature regulation.

You need dependable heating, too, and Humphrey is famous for year-after-year dependability in intermittent service.

Economical heating is important in keeping down overhead costs. Humphrey unit heaters, because they require little maintenance and deliver maximum heat from the fuel consumed, have proven the most economical of all.

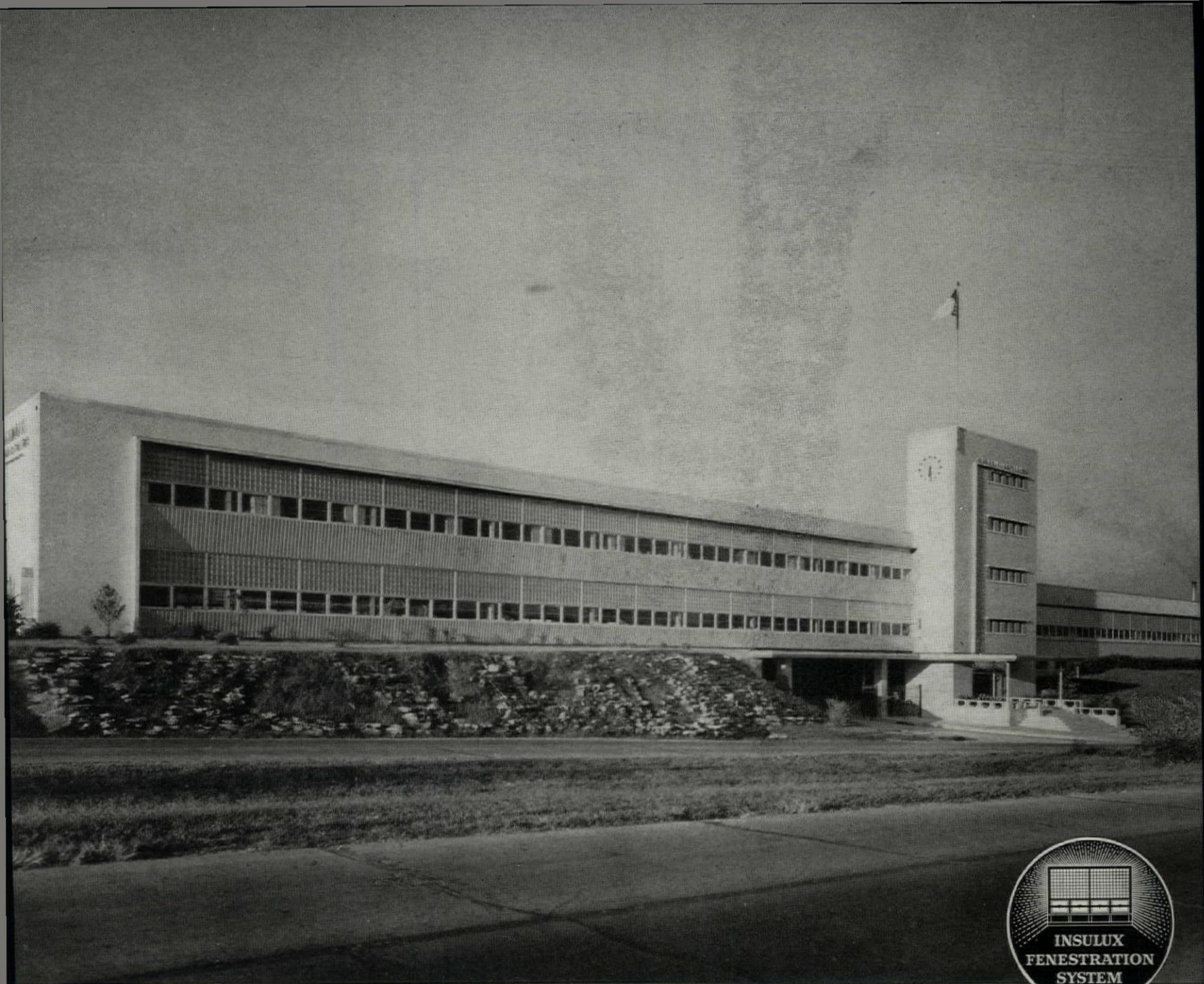
Find out about the exclusive Humphrey improvements that result in better heating at lower cost. Write for literature today.

GENERAL GAS LIGHT COMPANY • KALAMAZOO, MICHIGAN

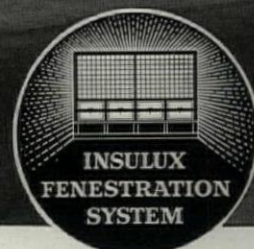
23 Warren Street,
New York City

2nd Unit Santa Fe Building,
Dallas

225 Eleventh Street,
San Francisco

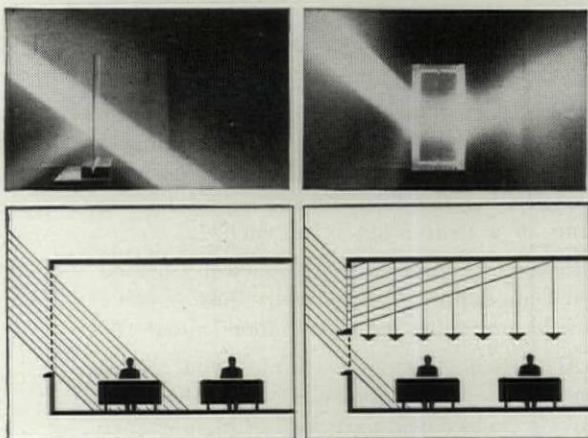


Aladdin Industries, Nashville, Tenn.
Architect: Spencer J. Warwick



Daylight Engineering **MASTERS**

PROBLEMS OF DAYLIGHT CONTROL



Photograph and illustration to the left, above, show what happens when light beams strike an ordinary window. Notice how workers near windows suffer from high contrast while others have inadequate light. To the right, notice how the built-in prisms in Insulux Light Directing Glass Block throw light up, and direct down to task. Result is even, diffused light over all parts of the room.

IN MODERN ENGINEERING, plant lighting—particularly daylighting—is often considered to be almost as important as machinery and methods. Daylight Engineers have found that correct daylighting not only increases employee efficiency and cuts accidents, but helps to reduce over-all lighting costs.

One of the widely used ways to make maximum use of daylight is with an Insulux Fenestration System with Insulux Light-Directing Glass Block. The ribs in this block pick up light from angles formerly considered unusable. During the day, the

prisms within the block direct daylight up to ceilings from where it is directed down to working surfaces. Light is uniform, evenly distributed over the entire room.

Insulux Glass Block® panels assure better daylight for occupants and reduced operating costs for owners. Block and installation accessories are noncritical materials.

A Daylight Engineer is ready to bring these benefits to your buildings . . . ready to help you plan an Insulux Fenestration System to meet your requirements. Write Insulux Glass Block Division, Kimble Glass Company, Dept. MB11, Box 1035, Toledo 1, Ohio.

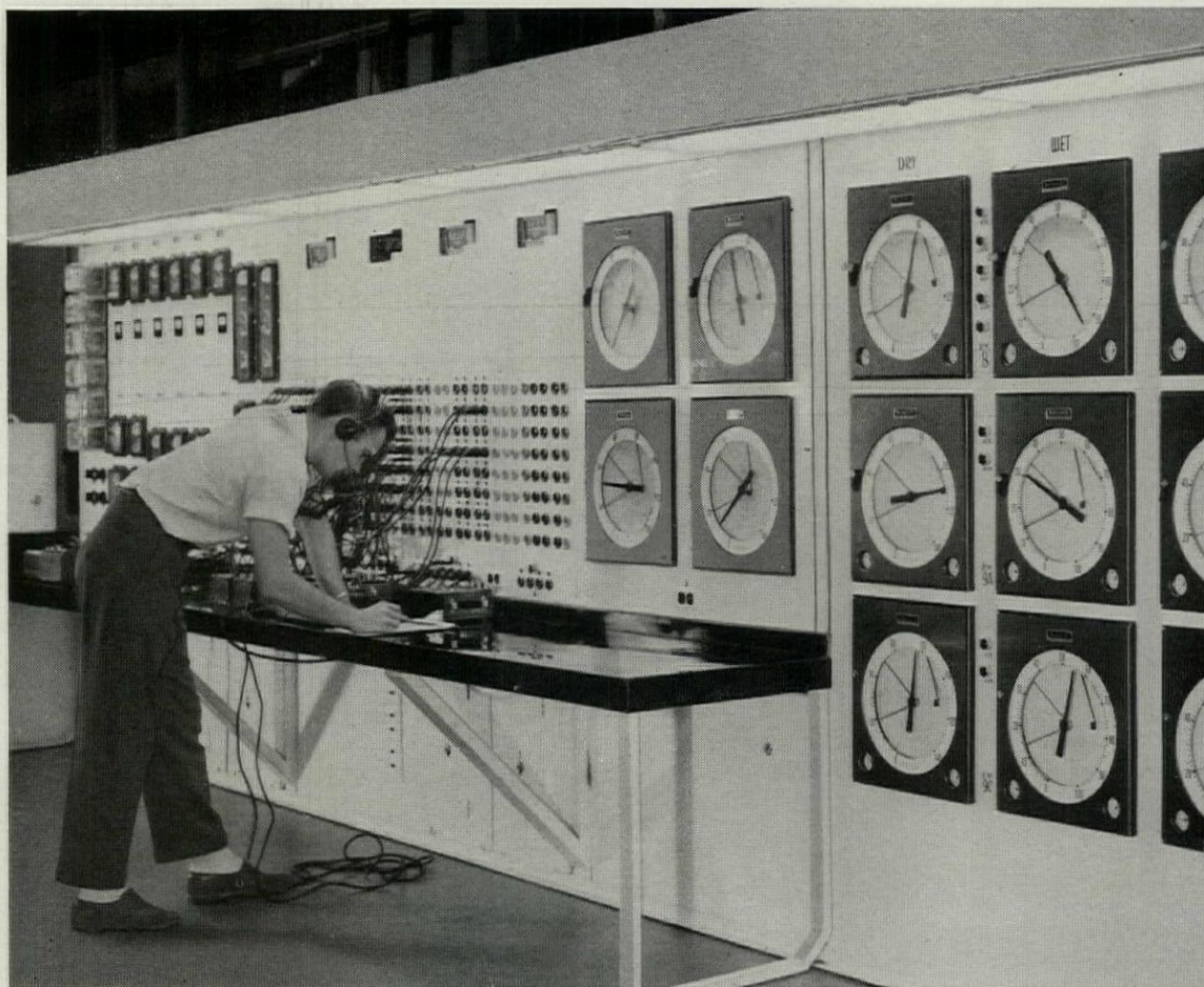
Subsidiary of Owens-Illinois Glass Company

KIMBLE GLASS COMPANY

Toledo 1, Ohio



Indiana. Photo at right shows Honeywell Brown Instruments used for precision control in Harvester's six-room refrigeration experimental lab in the Evansville works. The group of four instruments at left measures water temperature differential. Instruments labeled "dry" control air conditioning temperature operations within plus or minus one-half degree Fahrenheit. Instruments labeled "wet" control humidity within plus or minus two per cent.



Why International Harvester Uses Honeywell Customized Temperature Control on a Nationwide Basis

Systems provide precision industrial control, help insure comfort and efficiency



If you were to take a handful of drawing pins and locate on a map all the U. S. plants and offices of International Harvester, you'd soon see how the company's facilities spread from the home office in Chicago (photo at left) to cover the entire country.

And anywhere you located a Harvester operation, chances are good that you'd pinpoint a Honeywell installation.

Because Harvester uses Honeywell Customized Temperature Control on a nationwide basis—for industrial control, and for comfort control. And with good reason.

Honeywell Customized Temperature Control

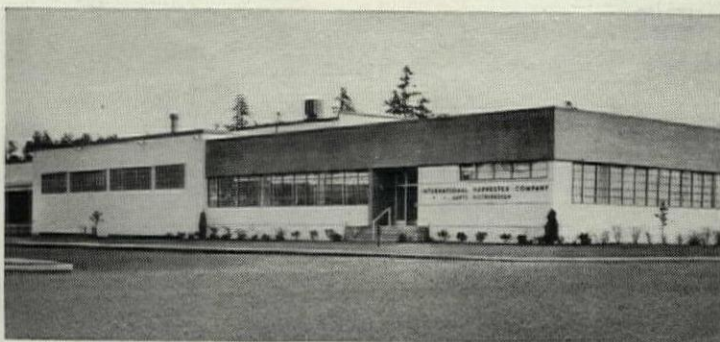
is *flexible*. That means it can meet almost any industrial control problem you might name—from controlling humidity within two per cent to regulating the thickness of an oil film in terms of a thousandth of an inch.

In *comfort* applications, Honeywell Customized Temperature Control helps insure efficiency by providing superior indoor "climate."

And when it comes to *service*, you always can find a "local Honeywell office" nearby to provide replacement parts, skilled maintenance men and control engineers to help with your planning. Because Honeywell maintains 96 offices in key cities across the nation.



Maryland. Throughout the Harvester organization, the contribution proper indoor "climate" makes to employee efficiency is well understood. Thus, in general office areas like the one above—in the company's Baltimore parts depot—you'll find Honeywell Customized Temperature Control in charge of comfort. For large areas such as this, several thermostats are usually required to compensate for occupancy, use and exposure factors.



Oregon. Office areas in Harvester's Portland parts depot are scientifically zoned for comfort—according to occupancy, use and exposure. A sensitive Honeywell thermostat guards the comfort level in each zone. And in the warehouse area, separate controls for every unit heater are provided by the Honeywell Customized Temperature Control installation.



Iowa. Heating of warehouse areas in Harvester's Des Moines general sales and motor truck sales district office is economically controlled for maximum large-area comfort by Honeywell Customized Temperature Control. Location of unit heaters and their individual temperature controls was carefully planned to meet occupancy, use and exposure factors. Office areas in the Des Moines operation are zoned for ideal heating comfort.

*For Comfortable, Even Temperature in New or Existing
Buildings—of Any Size—Specify Honeywell Customized Temperature Control*

Whether it's a factory, hospital, apartment, office, store, school, garage—or any size building—new or existing, Honeywell Customized Temperature Control can help meet your clients' heating, ventilating and air conditioning problems.

Once equipped with Honeywell Customized Temperature Control, they'll have an ideal indoor "climate"—and save fuel besides.

And with a complete line of pneumatic, electric and electronic controls to choose from, Honeywell Customized Temperature Control offers you the greatest flexibility in design. This means you can design a system that gives the performance required—at the most economical cost.

Then, too, when it comes to performance, Honeywell-built controls assure years of trouble-free operation. And they're backed by the finest service organization in the controls industry.

For full facts on Honeywell Customized Temperature Control, call your local Honeywell office. There are 96 across the nation. Or mail the coupon today.

MINNEAPOLIS
Honeywell



First in Controls

MINNEAPOLIS-HONEYWELL REGULATOR CO.

Dept. MB-11-230

Minneapolis 8, Minnesota

Gentlemen:

I'm interested in learning more about Honeywell Customized Temperature Control.

Name _____

Firm Name _____

Address _____

City _____ Zone _____ State _____

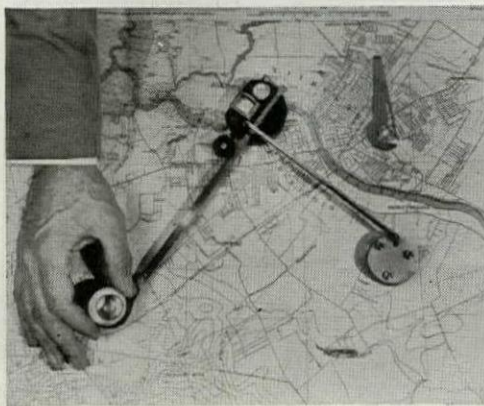
PRODUCT NEWS *continued*

amp. at 110 V. and special relay boxes are made for use with high current equipment.
Manufacturer: The Recora Co., 7419 S. Western Ave., Chicago 36, Ill.

MEASURING INSTRUMENT makes it easy to calculate map areas

For architects, surveyors, and engineers concerned with translating map boundaries into usable area figures, the *Optical Planimeter*

should be an invaluable piece of equipment. Instead of the usual needle-point tracer found in similar devices, this new precision instrument has a magnifying lens that permits the user to follow the boundary line without

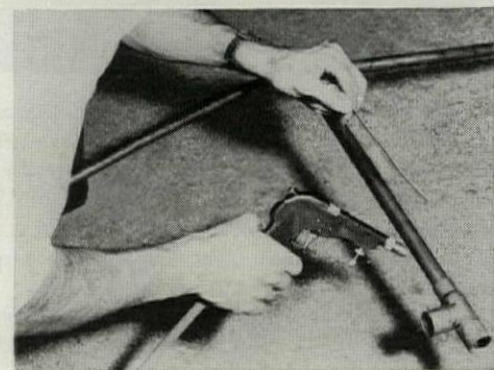


squinting. Area measurements are easily computed from readings on the tracer and checking gauge. The model pictured sells for \$65, f.o.b. New York.

Manufacturer: Trans-Global Co., 1480 Broadway, New York 18, N. Y.

ACETYLENE TORCH designed for comfortable, one-hand manipulation

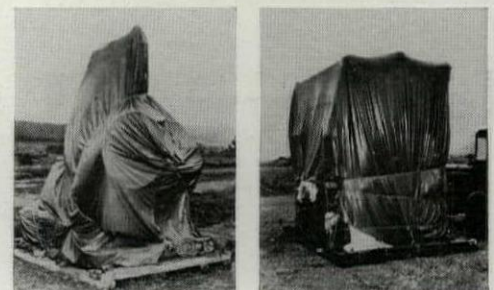
Pistol-shaped and weighing less than a pound, the *Torch-o-Matic* acetylene-air gas torch lights when its trigger is squeezed and shuts off when released. There is no pumping, priming or warm-up, and where a continuous flame is required, the trigger can be locked in its open position. Construction and maintenance uses for this neat tool include soldering on roofing jobs, heating asphalt tile, removing linoleum, and waxing marble. A complete outfit—including gun, combustion tube and nozzle, pressure regulator and two gauges, an 8' hose, and 40 flints—costs \$35.50.
Manufacturer: Velocity Power Tool Co., 7505 Thomas Blvd., Pittsburgh 8, Pa.



VINYL TARPS. Rugged protection for construction equipment

Although half the weight and half the price of canvas tarpaulins, these plastic covers for machinery are considerably tougher than their cloth counterparts. Completely waterproof and resistant to abrasion, motor oils and most chemicals, the tarps are made of 10-gauge vinyl film with a tensile strength of 200 lbs. As further protection, the flexible film will not burn; nor will it warp or shrink after prolonged exposure to sun or sleet. The new tarpaulins are colored an opaque dark blue and come in eight sizes ranging from 8' x 9' to 22'-6" by 22'-6". Prices are \$5 to \$31.50.
Manufacturer: American Agency, 799 Broadway, New York 3, N. Y.

Technical Publications: page 194



as the roof goes UP...
 the cost comes



Mail Handling Facilities Building
 Terminal Railroad Assn., St. Louis, Missouri
 Contractor: H. B. Deal & Co., Inc.

LACLEDE STEEL JOIST PURLINS

When high-strength—yet lightweight construction is needed—consider the advantages and ultimate lower cost of Laclede Steel Joists. They provide the maximum strength per pound of steel used. They place and erect quickly—are adaptable for use with all types of roofing.

Specify these Laclede Products for your construction needs:

- Multi-Rib Reinforcing Bars • Steel Pipe • Welded Wire Fabric • Form and Tie Wire • Spirals • Conduit
- Corrugated Steel Centering • Electrical Weld and Gas Tubing.



LACLEDE STEEL COMPANY

Producers of Steel
 for Industry and Construction

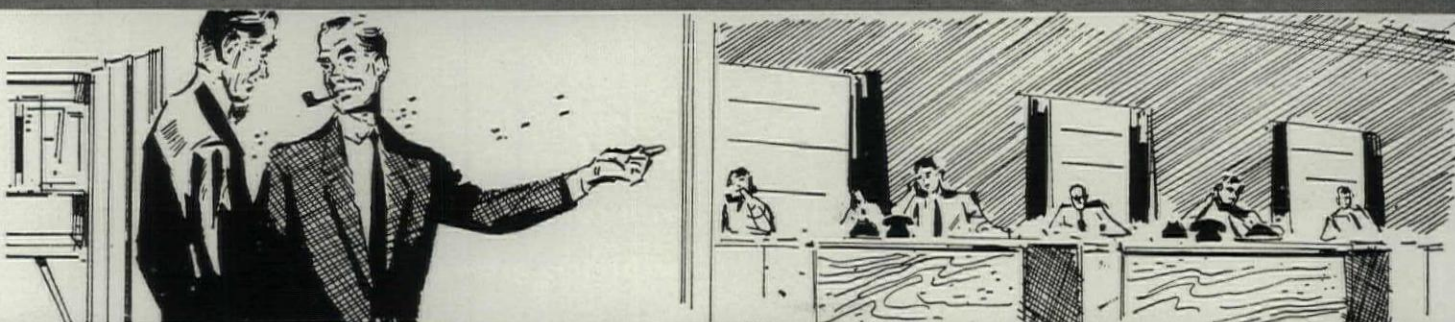
St. Louis, Mo.



YOUR CLIENTS SHOULD KNOW HOW



USER-OWNED TELEPHONE SYSTEMS



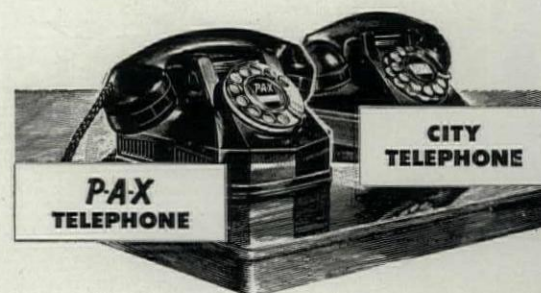
BRING ADDED PRODUCTIVITY TO BUSINESS

**Make any building more efficient
with P-A-X—the Business Telephone System**

You design business and industrial buildings to *work* for your clients. Today, you can plan *inside* two-way talking facilities right into these buildings, and increase the productivity of all who work in them! Thousands of organizations now own and use P-A-X Business Telephone Systems and find they step up work flow, management control and customer service.

P-A-X gives fast, sure, automatic talking convenience, 24 hours a day. The direct economy of the user-owned P-A-X often pays for the system in 3 to 5 years! *Your clients will appreciate these facts. Consult your Sweet's File or write:*

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PAX is a system of "inside" telephones, separate from the city telephones, and owned by the user.

PAX is completely automatic and establishes all "inside" calls, at any time, within seconds!

PAX saves on city telephones and switchboard—permits marked economies in rented equipment.

PAX is manufactured by the originator of the automatic telephone.

PAX telephones and switchboards are identical in quality with your city equipment.



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Redwood

For Dependability!

As Redwood's popularity with contemporary architects grows, so does their insistence on the use of grade-marked, trade-marked **CRA Redwood**. For experience has shown that **CRA Redwood** gives uniformly fine performance on the job — every time.

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A. QUINCY JONES, AIA, ARCHITECT

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A man with a hate



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This personal sense of responsibility is inherent with C-O-TWO Fire Protection Engineers... a definite plus in your behalf. Whether its 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 you at all times.

With C-O-TWO Fire Protection Equipment, simplicity, practicability, longevity and minimum maintenance are built-in features that guarantee fast, positive action the instant fire strikes. Furthermore, extensive manufacturing and field installation skills, together with approvals such as the Underwriters' Laboratories, Inc., Factory Mutual Laboratories, Armed Forces and Government Bureaus assure you of the finest in modern fire protection equipment.

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Don't take chances with your investment. Secure the benefits of highly efficient fire protection engineering today... our extensive experience over the years is at your disposal without obligation. Get the facts now!



MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT
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Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide
Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

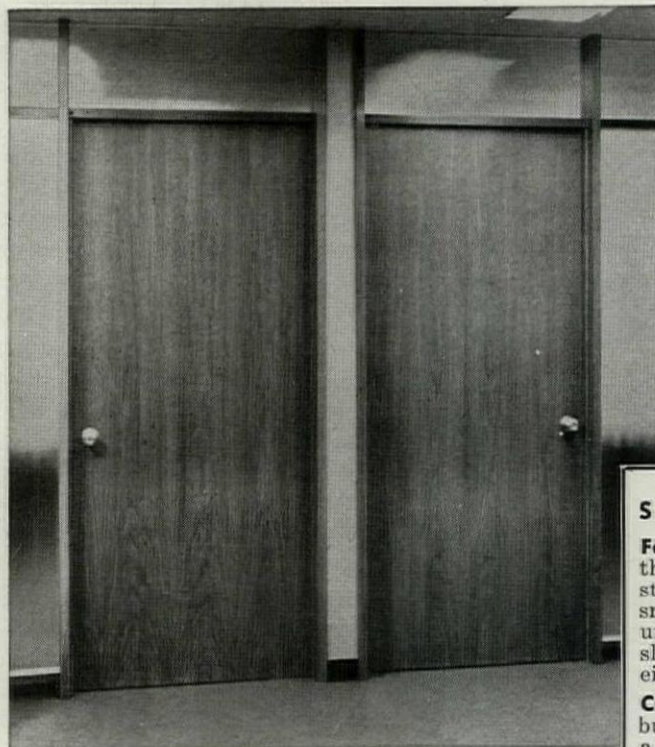
C-O-TWO FIRE EQUIPMENT COMPANY NEWARK 1 • NEW JERSEY

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Sales and Service in the Principal Cities of United States and Canada

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Walnut Weldwood Fire Doors, executive offices of J. P. Stevens & Co., Inc., 41st Street at Broadway, New York City. Beeston-Stott-Patterson are the designers.



Good Looking!

you can SAY THAT AGAIN

Say it about the handsome walnut Weldwood® Fire Door at the left. And repeat your words of praise for its twin on the right.

Say it over and over for the 120 Weldwood Fire Doors in the sixteen floor Stevens Building, 41st Street at Broadway, New York City. Every one of those doors combines the beauty of natural wood surfaces with recognized fire retardance.

Weldwood Fire Doors are approved for Class "B" and "C" openings by Underwriters' Laboratories, Inc. and by the Building Officials Conference of America.

They are also approved by leading architects, designers and their clients for handsome appearance. And for good looks that are never marred by binding, twisting or warping. Light in weight, simple to install, Weldwood Fire Doors are currently being specified for leading institutions and monumental buildings in all parts of the U. S.

They are used, for example, in the United Nations Building, U. N., N. Y. May we send you full details about Weldwood Fire Doors?

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Don't overlook Weldwood Partition Panels
These beautiful wood-faced partition panels are made with the same incombustible mineral core used in the famous Weldwood Fire Door. Available with a variety of wood faces and readily adapted to low-railing, 7-foot and full ceiling height partitions . . . either permanent or movable. Specify them for offices, schools, hospitals and other institutions.

SPECIFICATIONS

Face Veneers — Face veneers are thoroughly kiln-dried hardwood of standard thickness — 1/28" — and smoothly belt-sanded. Rotary-cut unselected birch is standard; other sliced or rotary-cut domestic or foreign woods are available.

Core — The core is made of incombustible mineral composition, having a normal density of 20 pounds per cubic foot. The core sections are joined together with tongue-and-groove joints, as approved by the Underwriters' Laboratories. The core is smoothly sanded prior to application of crossbands and face veneers.

Banding — The banding is of birch, treated with Class "A" fireproofing agent. The top banding is 1/2" in thickness; the side banding 3/4"; and the bottom banding is 1 1/2" in thickness, made by laminating two 3/4" pieces.

Crossbands — Crossbands are thoroughly kiln-dried hardwood, 1/16" thick, extending the full width of the door.

Adhesives — The Core and edge banding are bonded together with a waterproof resin glue. The entire core is sized on two sides to insure perfect glue bond between core and crossband. The core, crossband and face veneer are bonded with waterproof Tego film phenolic glue by the hot plate process.

Sizes — The thickness of all fire doors is 1 3/4". Available in range of standard sizes up to and including 4' x 7'.

Vision Panel — If required, a vision panel frame for a 10" x 10" or 8" x 12" light shall be provided carton-packed and complete with screws. A baked finish of light brown metal paint is provided on all surfaces. Glazing with 1/4" wire glass shall be done by others.



WELDWOOD® FLUSH DOORS

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UNITED STATES PLYWOOD CORPORATION

World's Largest Plywood Organization

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Aluminum windows, too, are the taxpayer's friend. They help reduce school operating budgets—save important maintenance dollars year after year. They always operate without trouble. They cannot rust or rot—never need painting or costly repairs. They remain beautiful for the life of the building.

"Quality-Approved" aluminum windows are available through many manufacturers in sizes and styles (double-hung, casement, projected and awning) to fit any design treatment. Only those that carry the "Quality-Approved" Seal have been tested by the Pittsburgh Testing Laboratory and approved for quality of materials, construction, strength of sections and minimum air infiltration.

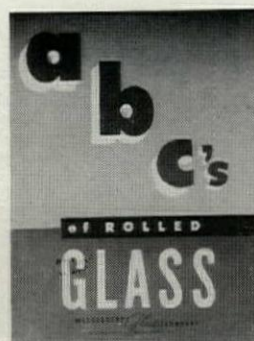
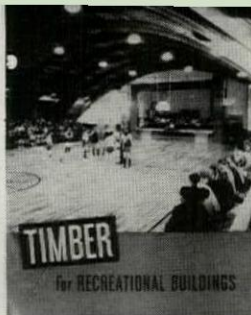
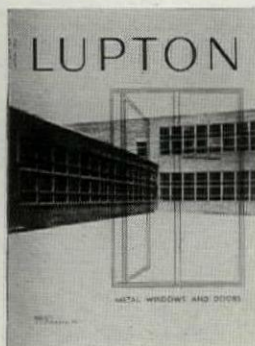
For copy of window specifications book and names of approved manufacturers, see Sweet's (17a/ALU) or write today. Address Dept. AF-11.

Pictured above:
Samuel Gompers School
Philadelphia, Pa.
Architects: Davis, Dunlap & Carver
Contractor: McCloskey & Co.

Aluminum Window Manufacturers Association

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

FOR YOUR PROTECTION INSIST ON QUALITY-APPROVED ALUMINUM WINDOWS



TECHNICAL PUBLICATIONS

METAL WINDOWS. Lupton Metal Window Catalogue, Michael Flynn Mfg. Co., 700 E. Godfrey Ave., Philadelphia 24, Pa. 37 pp. 8½" x 11"

A catalogue of commercial, institutional and residential windows, featuring a projected-type window designed for schools, hospitals and offices.

TIMBER CONSTRUCTION. Timber for Recreational Buildings. Timber Engineering Co., 1319 18th St. N.W., Washington 6, D. C. 24 pp. 8½" x 11"

Pictures showing design variety in *Teco* connector, glued laminated, and *Lamella* construction systems.

PRESTRESSED CONCRETE. Stressteel Manual. Stressteel Corp., 207 E. 37th St., New York 16, N. Y. 60 pp. 5½" x 8"

Handbook covering English-made tensioning bars for prestressing concrete, available in the US in diameters of ½" to 1½" and in lengths up to 80'.

GLASS. ABC's of Rolled Glass. Mississippi Glass Co., Architectural Promotion Div., St. Louis, Mo. 20 pp. 8½" x 11"

The diffusion characteristics, decorative aspects and insulation value of patterned glass.

MACHINERY. Ways to Make Your Excavator Work Harder, Live Longer. Bucyrus-Erie Co., South Milwaukee, Wis. 32 pp. 5" x 7"

Excavator and crane operation, including adjustments, lubrication and maintenance.

PIPING. Durant Pre-sealed Insulated Pipe. Durant International Corp., Williamstown, N. J. 4 pp. 8½" x 11"

Underground piping for conveying of hot or cold liquids or gases at pressures up to 1,000 psi.

WATER CONDITIONING. Zeolite Water Softeners Bulletin No. 2386. The Permutit Co., 330 W. 42d St., New York 36, N. Y. 16 pp. 8½" x 11"

How three types of ion-exchange equipment can eliminate costly hard-water problems in industry.

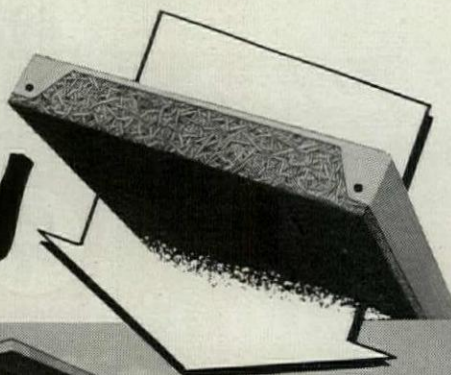
INSULATION. Laykold for Cold Insulation Construction. American Bitumuls & Asphalt Co., 200 Bush St., San Francisco 4, Calif. 8 pp. 8½" x 11"

How and where to use asphalt emulsion adhesives in building refrigerated structures.

HARDWARE. Russwin Builders' Hardware for Modern Hospital Service. The American Hardware Corp., New Britain, Conn. 4 pp. 8½" x 11"

Descriptions of heavy-duty cylindrical locks, door closers and holders, and fire-exit bolts.

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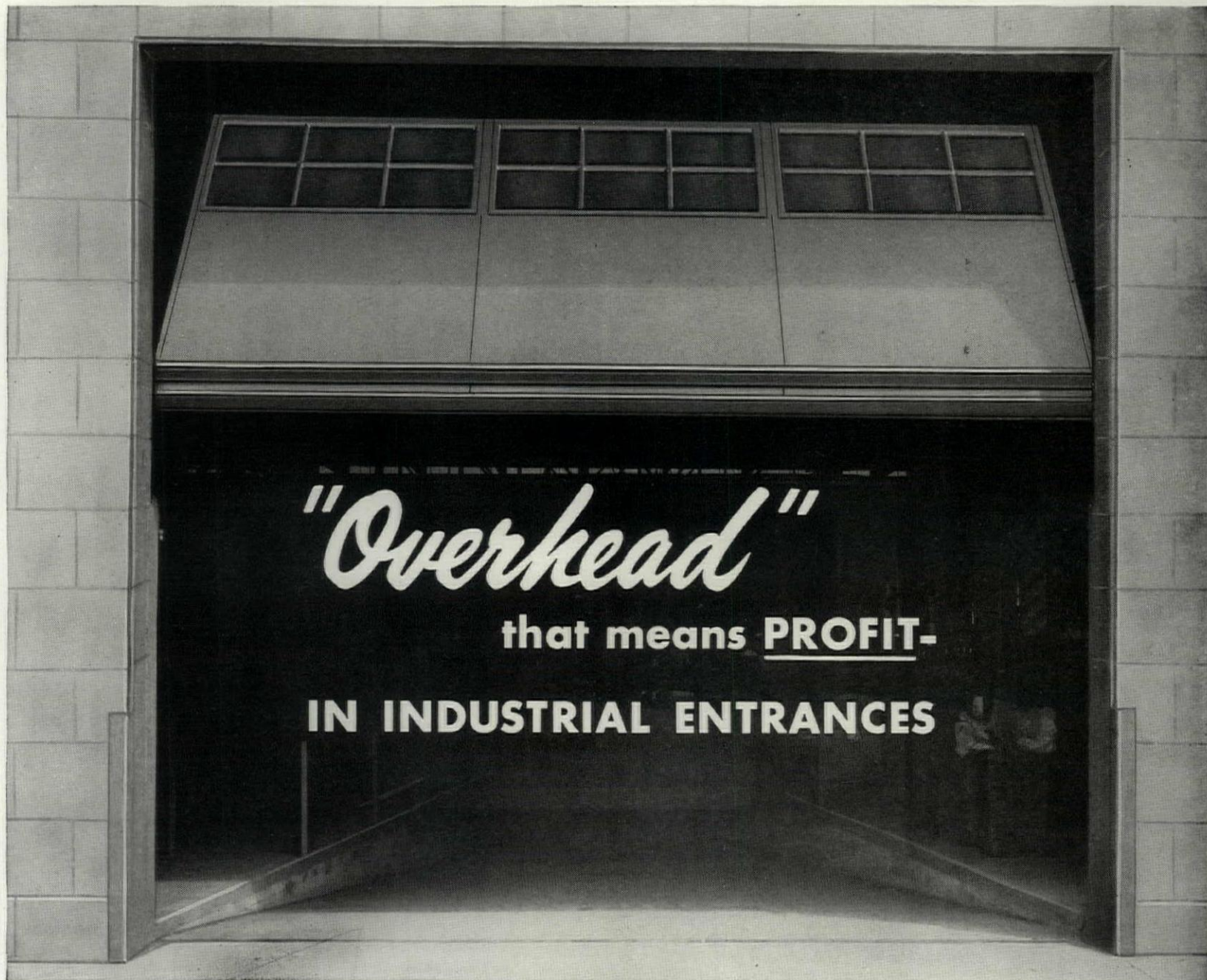
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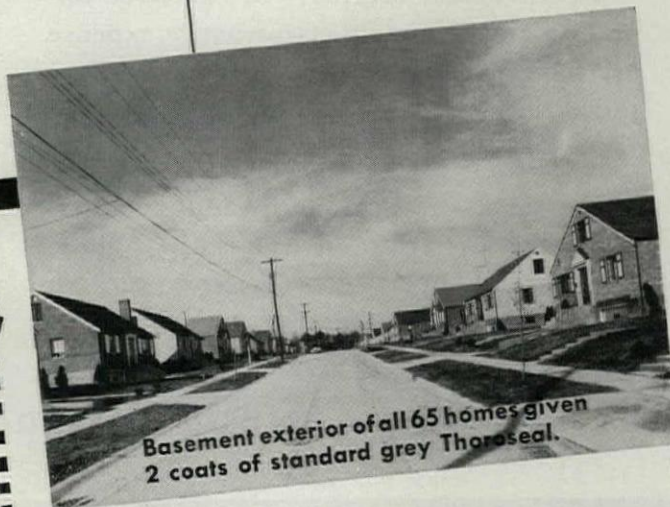
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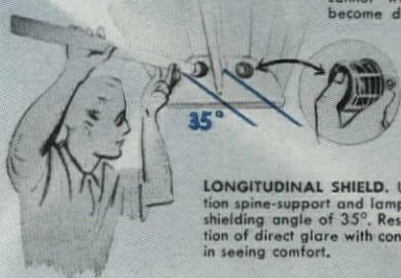
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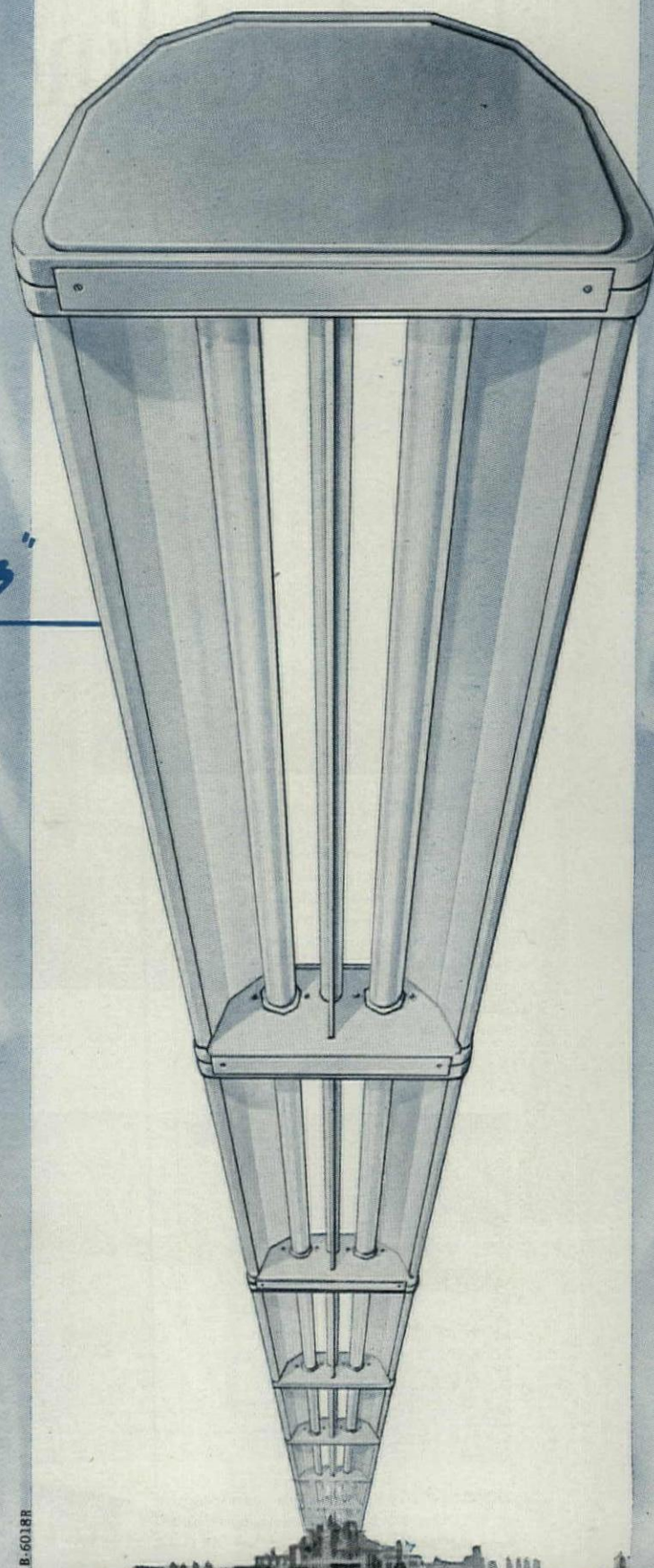


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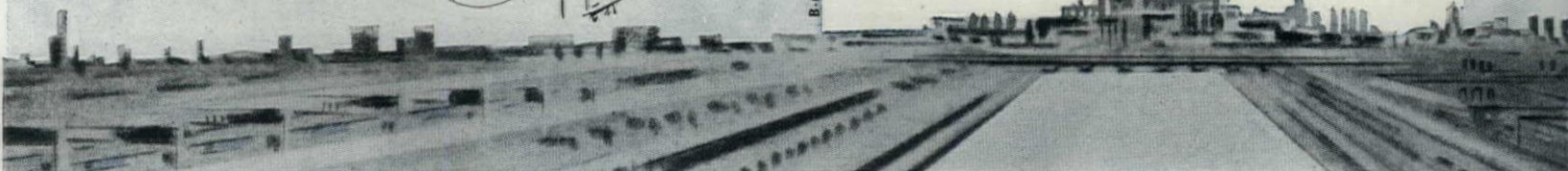
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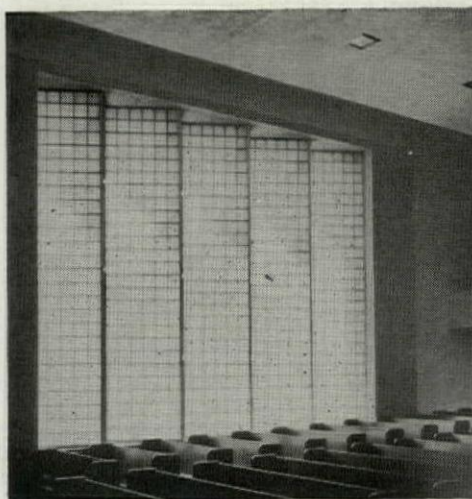
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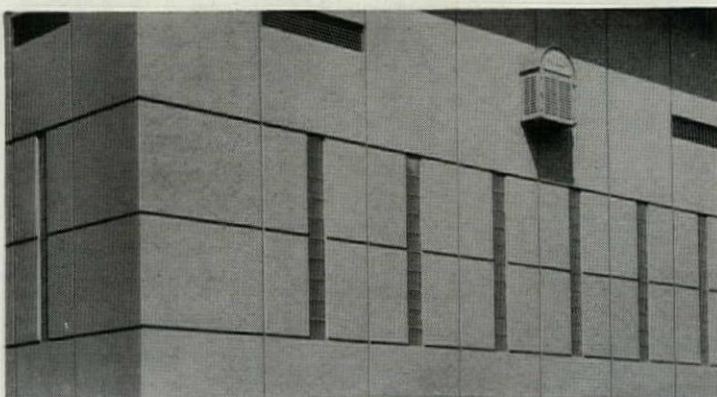
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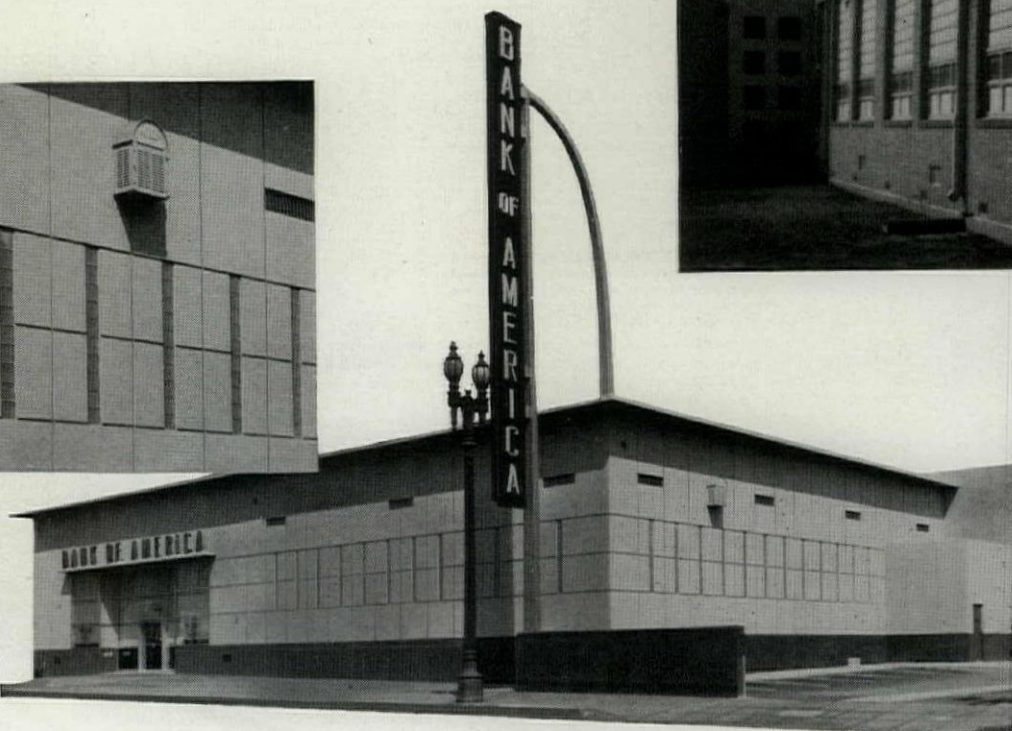
"The PC Vision-Lighting Plan is a construction for daylight openings consisting of orientation-keyed areas of PC Functional Glass Blocks (selected for sun or non-sun exposure) used with vision-ventilation areas as required."



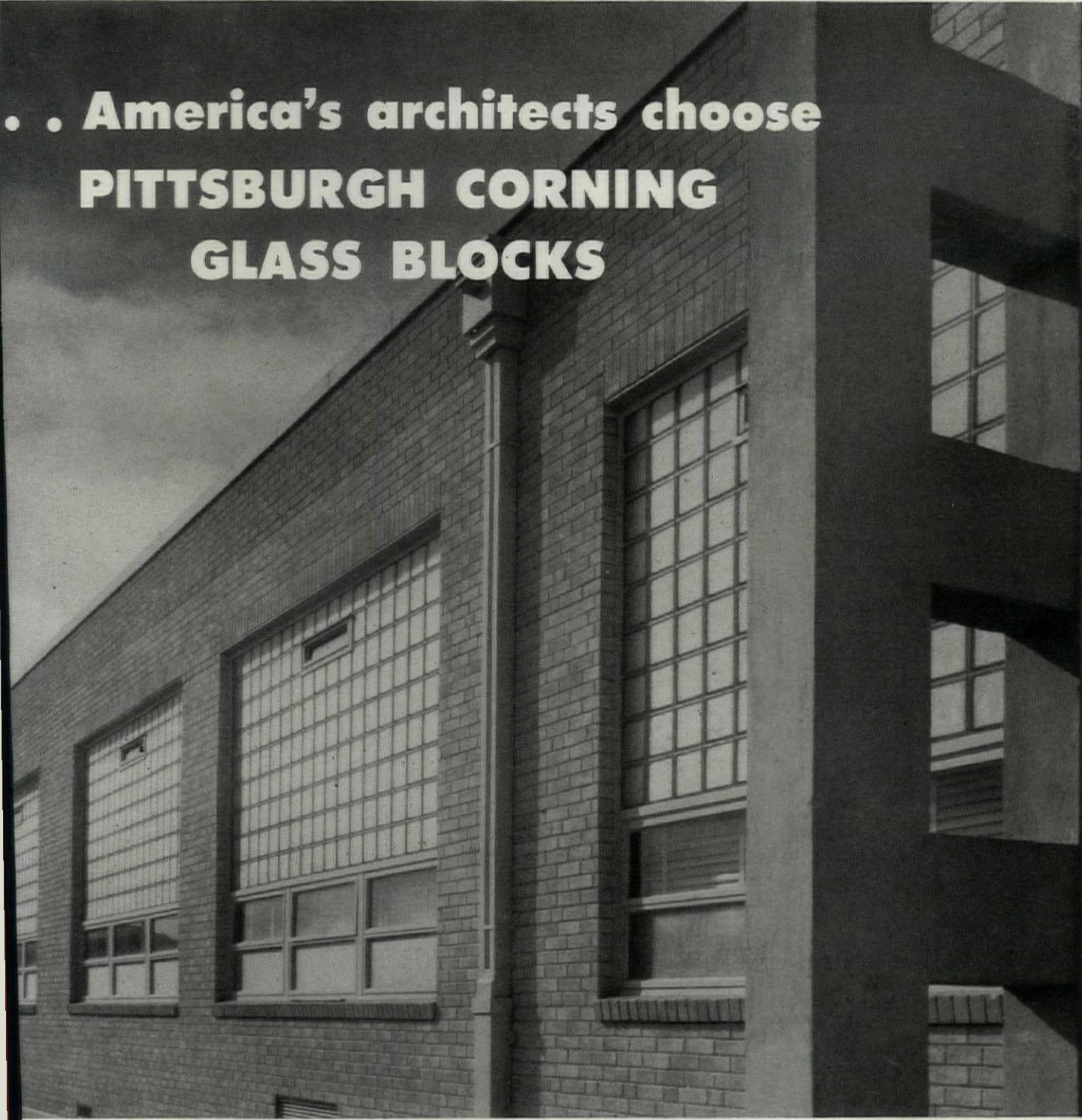
THIS beautiful edifice is the Rearganized Church of Jesus Christ of Latter Day Saints at Lamoni, Iowa. The exterior and interior illustrations here show how PC Glass Blocks were utilized decoratively in the campanile and to provide softly diffused daylighting for the congregation. Architects: Robert B. Bloomgarten and D. Kent Frower, Kansas City, Missouri.



THESE two views indicate an interesting use of PC Glass Blocks in a modern bank building—the Bank of America in Los Angeles, California. The series of PC Functional Glass Block panels in the walls is an effective design detail. Each panel is ten blocks high and one block wide, providing adequate daylighting and maximum security for the vault areas inside. Architect: Raymond R. Shaw, Los Angeles, California.



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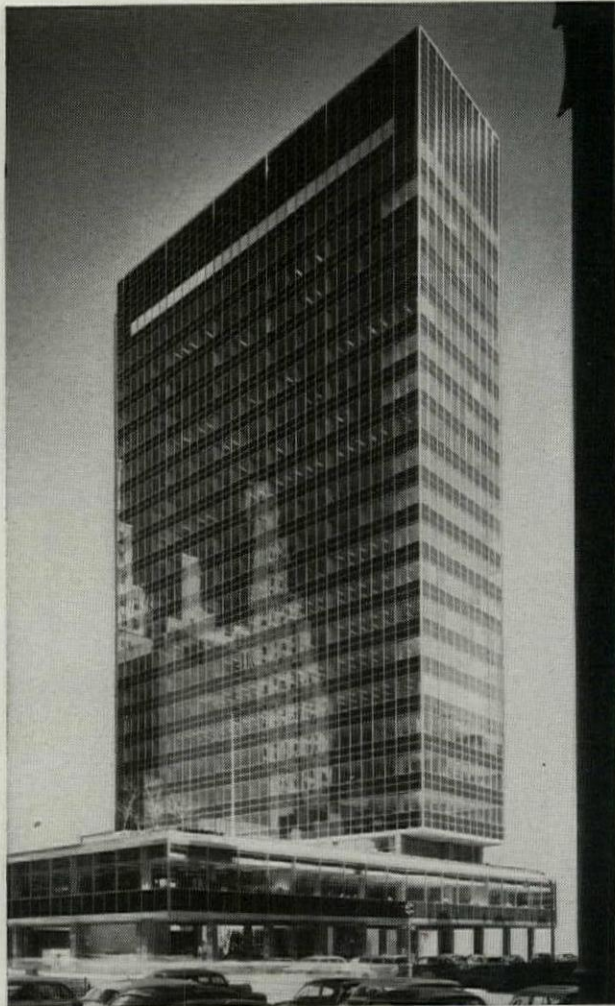
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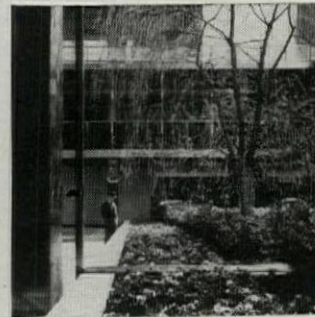
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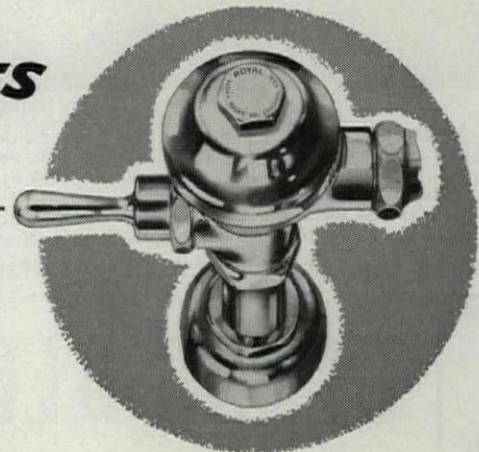
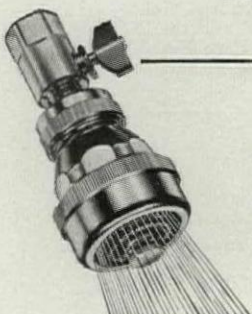
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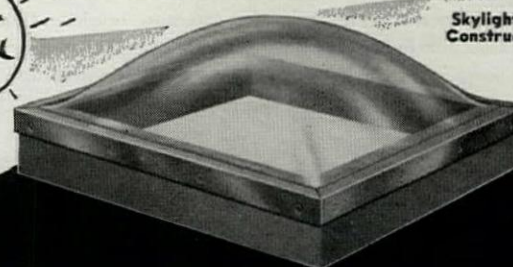
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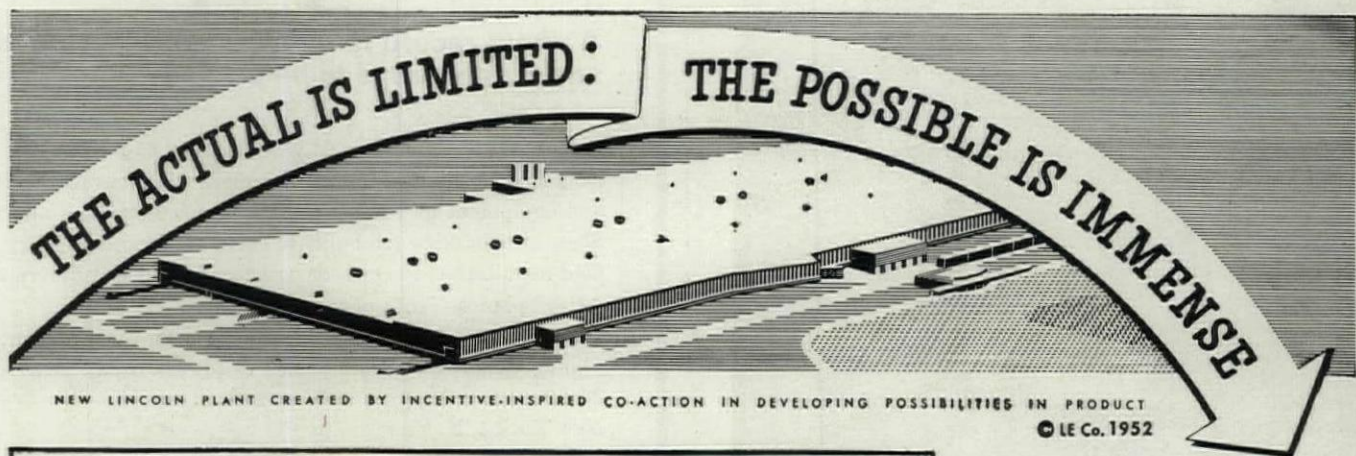


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By **A. M. Strauss**, Architect
Fort Wayne, Indiana

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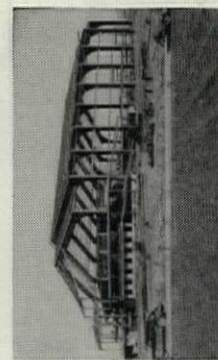


Fig. 3—Allen County War Memorial Coliseum, Fort Wayne, Indiana. Fabricators: The Fort Wayne Structural Steel Company; General Contractor: Hagerman Construction Company; Erectors: Martin Erecting Company and The Machinery Company.

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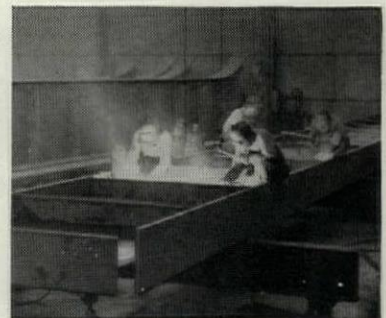


Fig. 1—Cuts Fabricating Costs—Plate sections for columns and rafters are flame cut, drawn up by sledging and wedging, then tack welded with Lincoln "Fleetweld 5" electrodes, using "Shield-Arc" motor-driven arc welders.



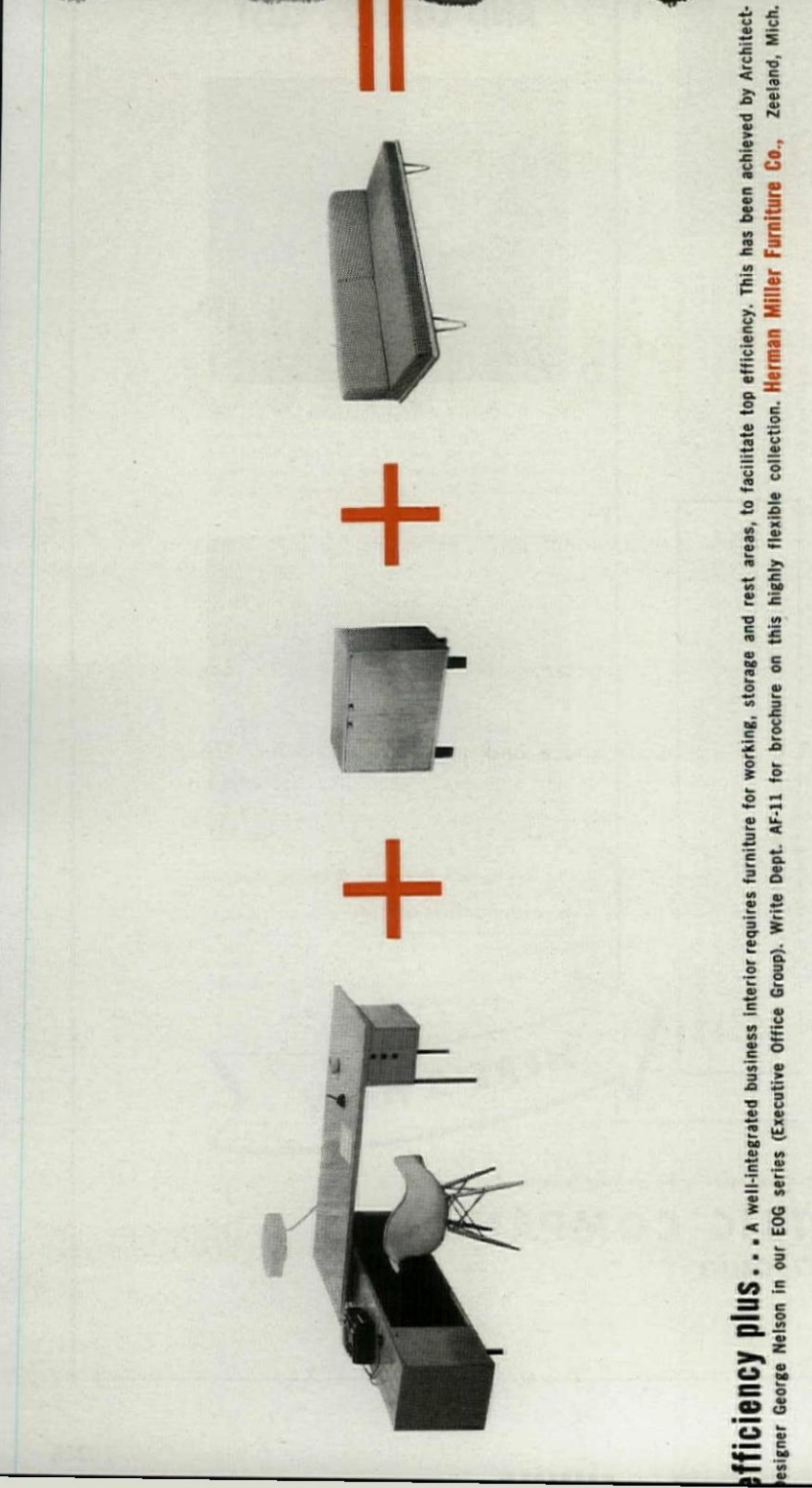
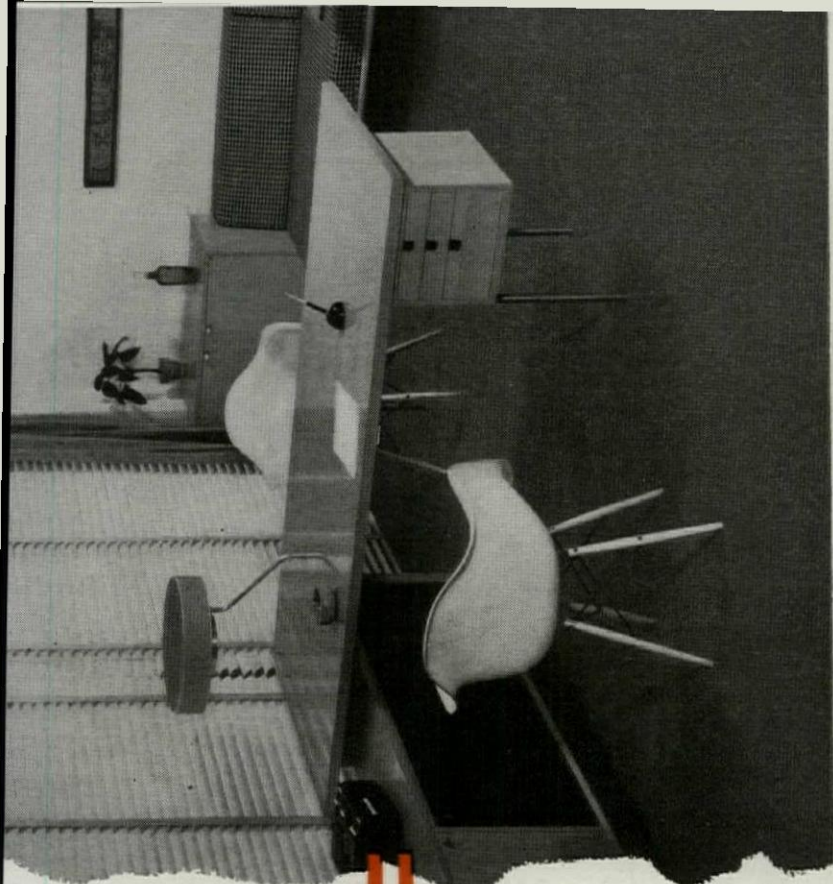
Fig. 2—Speeds Welding—Webs and flanges are fillet welded with "Manual Lincolnweld" at speeds of 26 to 30 inches per minute. Average time to fillet weld one side of 71 foot rafter is 90 minutes.

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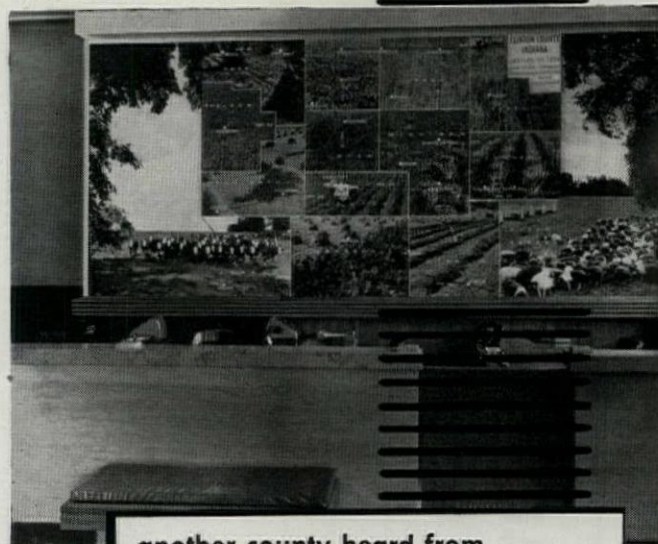


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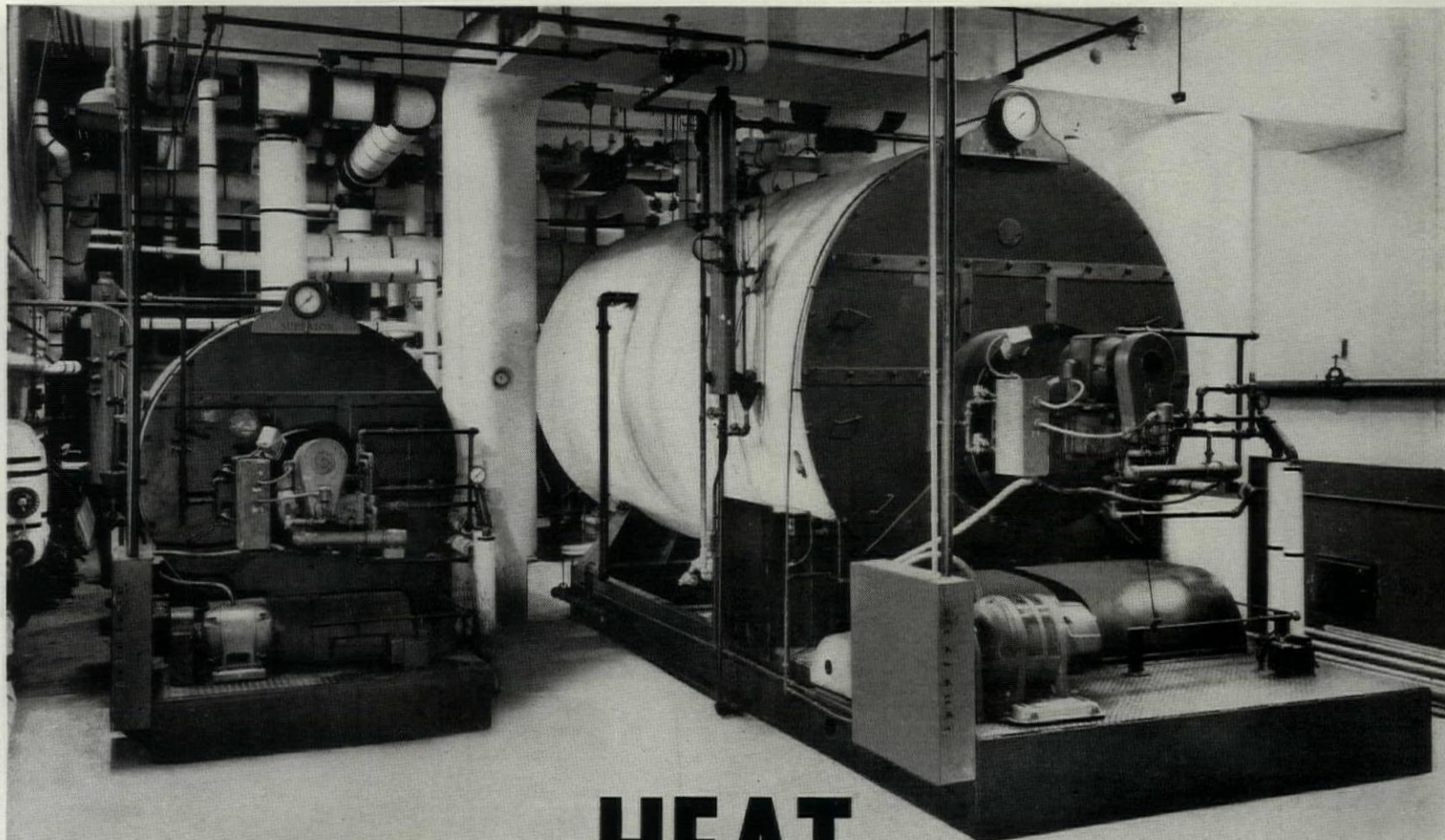
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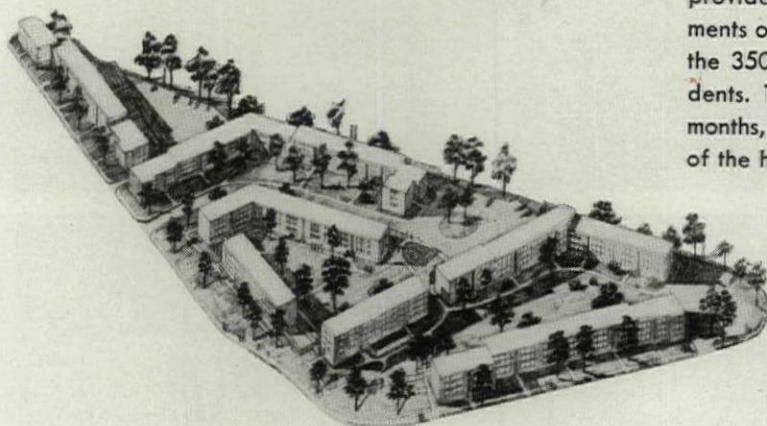
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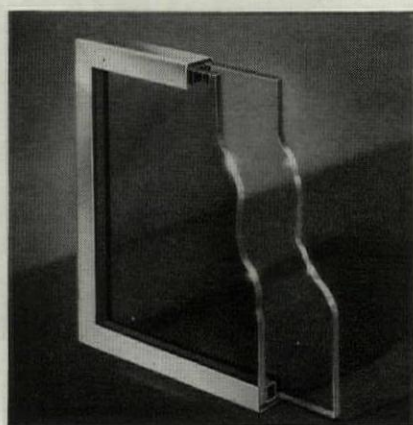


THE NEW RESEARCH LABORATORY of the Union Oil Company of California at Brea, California, is a splendid example of how glass is integrated with forceful design to produce outstanding structures. Among the Pittsburgh products effectively combined here are green tint Solex Heat-Absorbing Glass, Polished Plate Glass, Pittsburgh Doorways, Mirrors, $\frac{3}{4}$ " Plate Glass in the lobby display fixture, shown in inset. Architects: Austin, Field and Fry, Los Angeles, California.



How Pittsburgh Glass

serves contemporary architecture



FOR THE VETERANS MEMORIAL BUILDING, Detroit, Michigan, Pittsburgh products were selected as a part of the basic design scheme. Included in these products are 6,589 square feet of Polished Plate Glass, 326 square feet of Mirrors, twenty-four Herculite Doors, Pittco De Luxe Metal. Illustrated here is the commodious and comfortable lounge, with its large expanse of Plate Glass giving a commanding view of the outside surroundings. Architects: Harley, Ellington and Day, Inc., Detroit, Michigan.

SOLEX-TWINDOW gives all the advantages of Pittsburgh's Twindow—"the window with built-in insulation"—plus the heat-absorbing, glare-reducing properties of Solex—"the best glass under the sun!" This cutaway shows the construction of such a unit. The outer pane is Solex—the inner light is clear Plate Glass. Between them is a sealed-in air space. A stainless steel frame protects the seal and glass edges; makes handling safe and easy.

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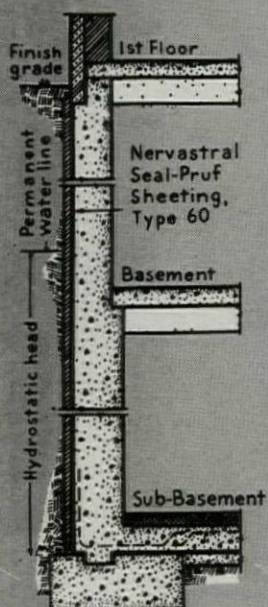
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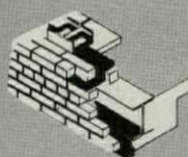
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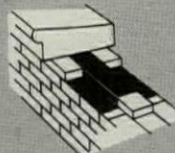
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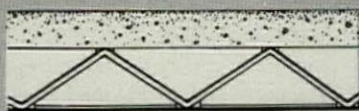
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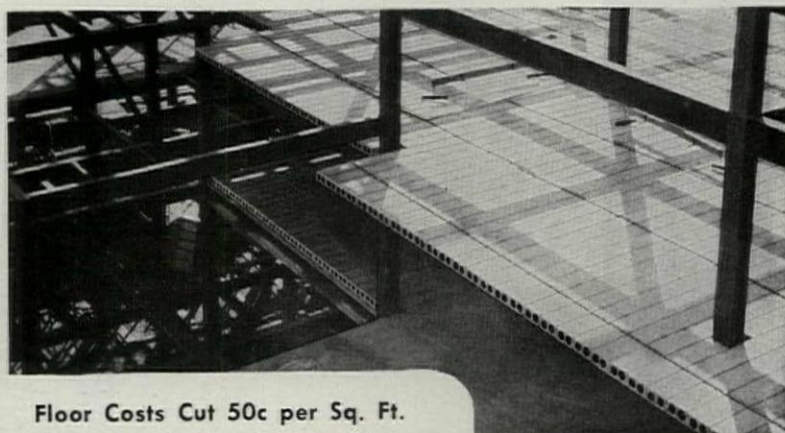
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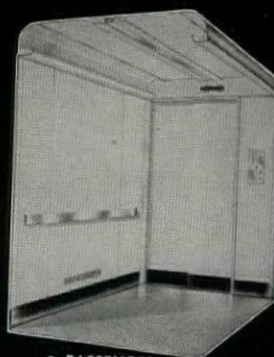
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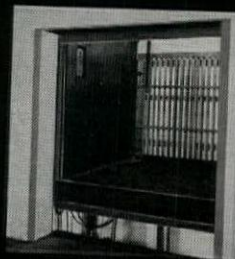
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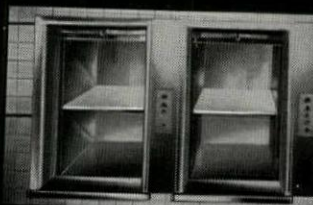
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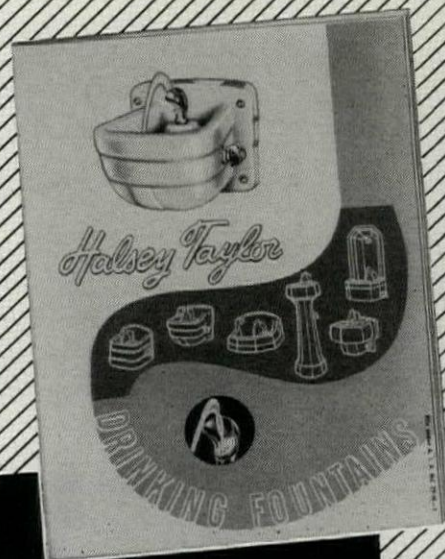
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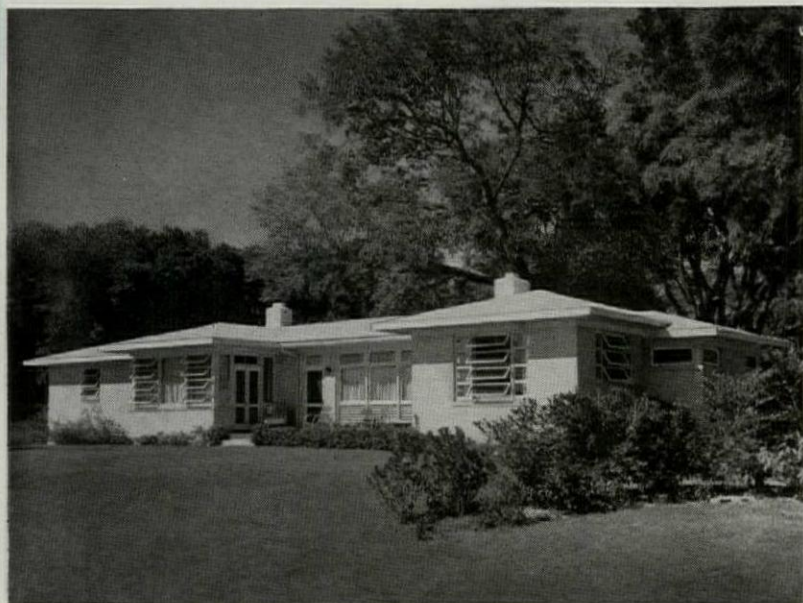
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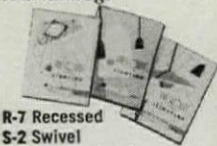
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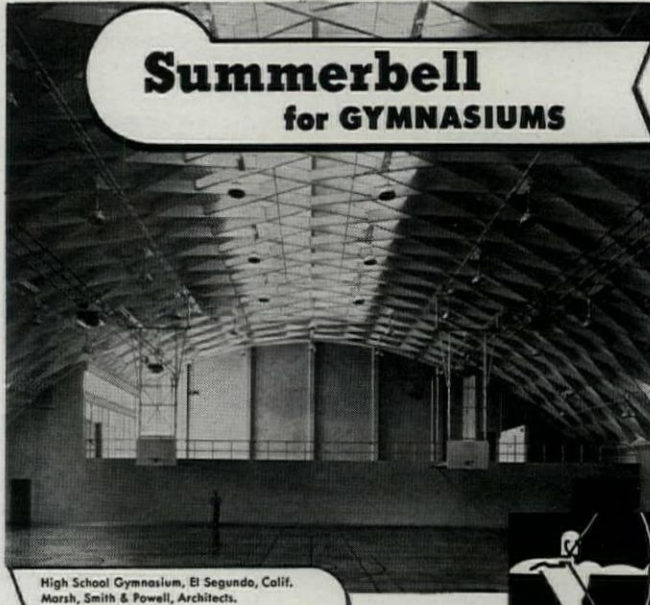


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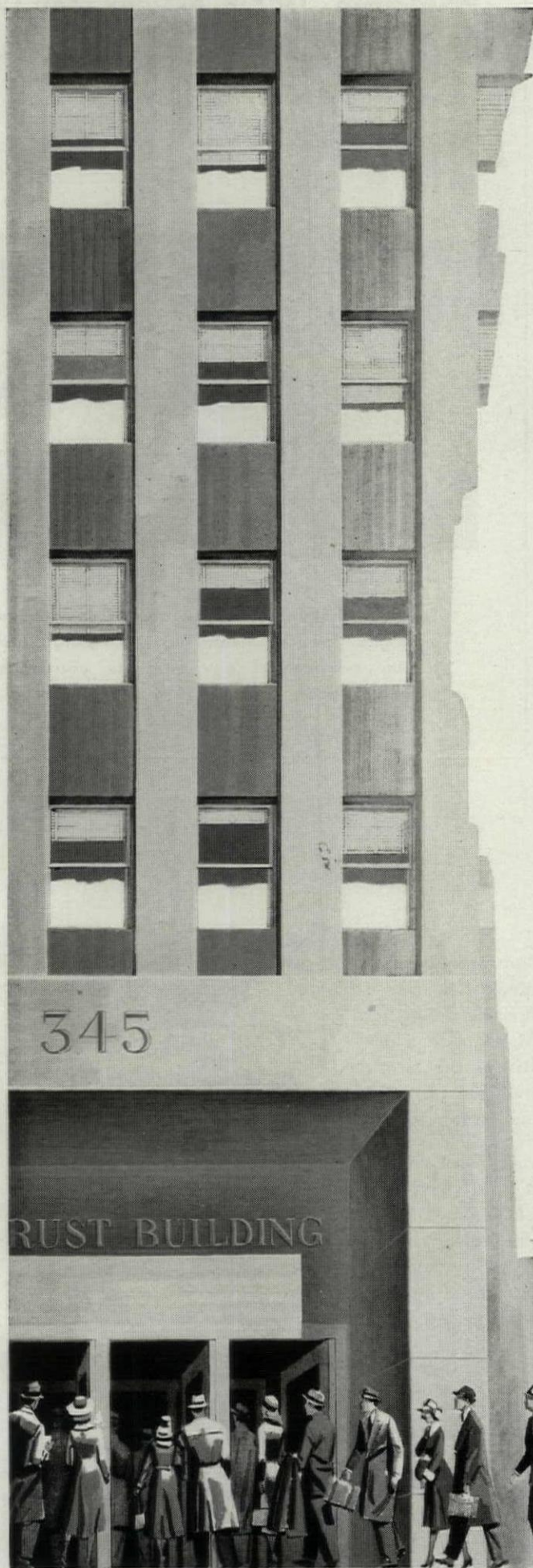
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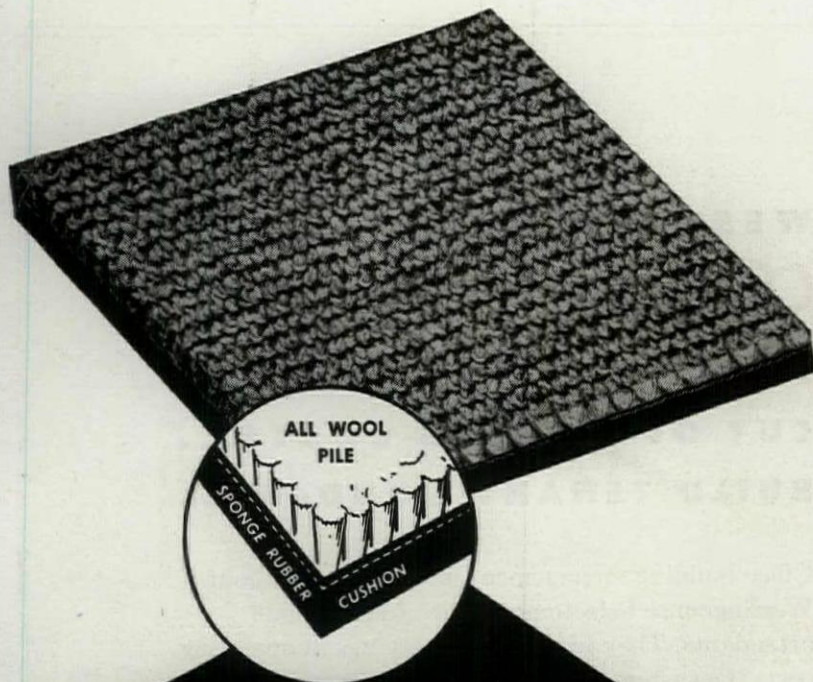
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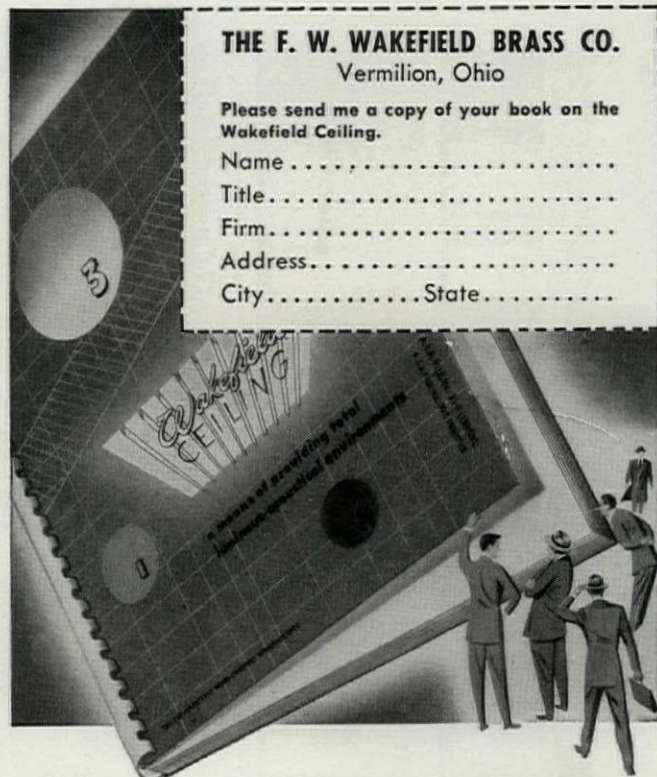
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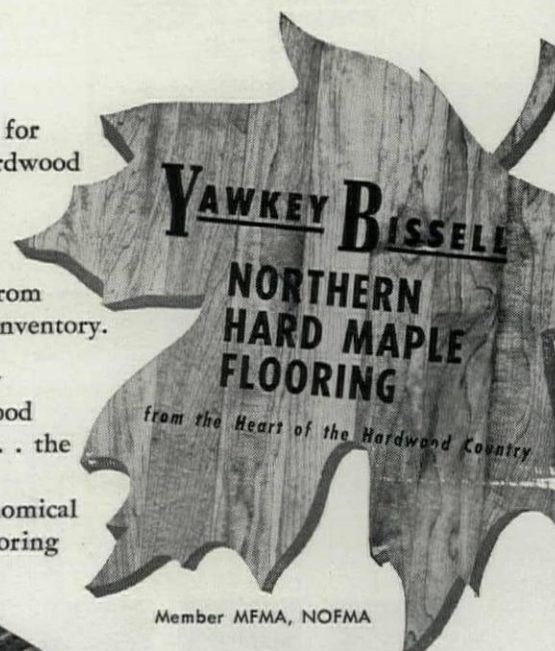
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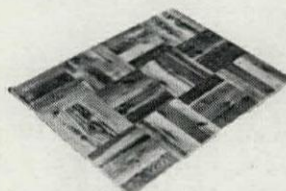
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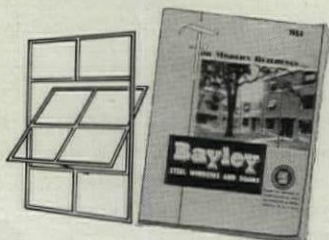


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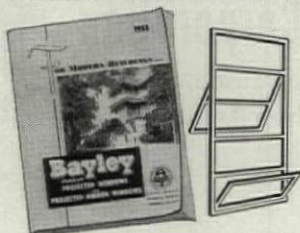
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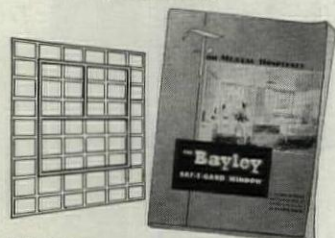
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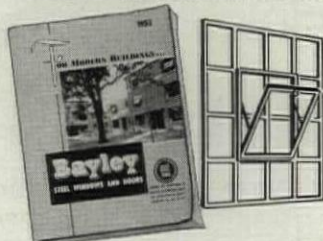
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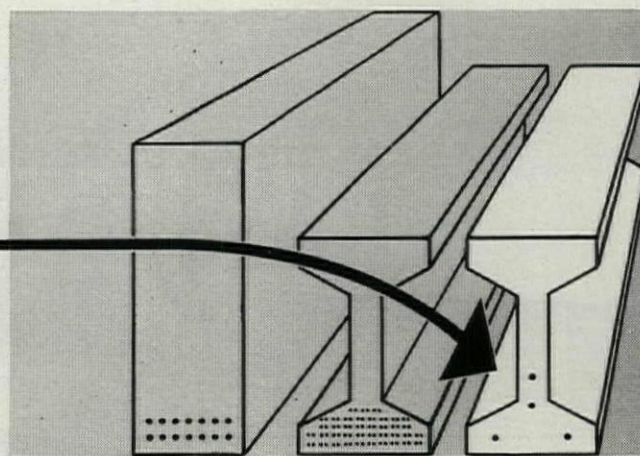
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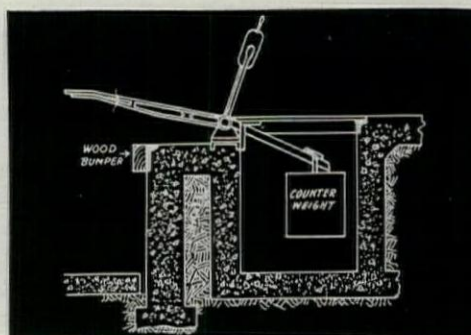
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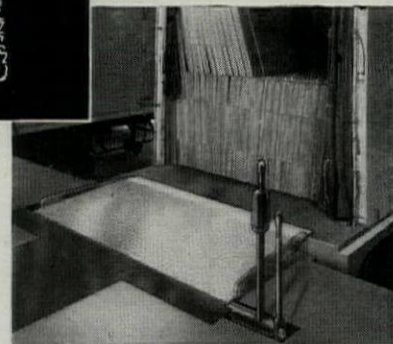
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Heat... **CLEAN, COMFORTABLE, CONSTANT, LOW COST**

Radiant Heat with **AVON** *Radiantweld* **STEEL TUBING**



YOUR HOME LIKE A BREATH OF SPRING

Enter a radiant heated home for the first time... you're amazed at the delightful, spring-like, clean 'feel'... the fresh, sparkling, welcoming warmth and comfort in every room. No hot and cold spots—no drafty discomfort—no dry, harsh atmosphere where only a cactus could live. Radiant heat is always like a breath of spring—in winter's coldest months.



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Ever wonder why walls, curtains, woodwork and ceilings were spotted and dirty near radiators or registers? The rapid flow of air induced by heat (convective air currents) draws dust and dirt from every portion of a room and bombards adjacent surfaces with these dust particles to cause unsightly heat streaks. Radiant heat creates no extreme air flow—hence eliminates the need for constant cleaning—costly redecorating.

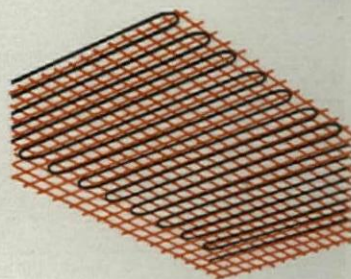
CONSTANT, COMFORTABLE, NATURAL WARMTH

Just as the earth radiates heat from the sun, so the steel tubing panels in floors, walls or ceilings provide a constant, unvarying, temperate heat with larger zones of comfort to serve every occupant of the home. No scorched or baked air—no dust and dirt—no chilly drafts. Radiant heating offers a natural, equitable, constant source of economical temperature control.



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Radiant Heat units usually cost less to install than other accepted methods of home heating. A smaller hot water heater coupled with present day advances in installing the completely enclosed system of serpentine steel tubing coils provides many cost cutting advantages. Definite fuel savings result with a greater factor of efficiency to reduce heating bills.



Radiantweld **STEEL TUBING BETTER SERVES THE OWNER, THE ARCHITECT, BUILDER AND CONTRACTOR**

1 NOW AVAILABLE IN EXTRA LONG COILS

Avon, recognizing the need for a specially designed solid wall steel tubing for home and small industrial plant installations developed Radiantweld. Among the prime requisites was a perfectly processed tubing in lengths sufficiently long (225 ft. in $\frac{1}{2}$ " dia., 160 ft. in $\frac{3}{8}$ " dia.) to insure economical handling, elimination of multiple joining, reduction of soldering, the hazards of leaking joints.

2 SPECIALLY ANNEALED FOR DUCTILITY

Solid wall steel tubing for radiant heat installations must have extreme softness or ductility to take all types of bends without cracking, checking or tearing. Avon has accomplished this by installing a new type of equipment to specially process and anneal its fusionweld steel tubing which can be quickly and efficiently formed by one man hand bending from continuous coils.

3 HIGHER TENSILE STRENGTH

Avon Radiantweld has the physical properties to stand up to the roughest handling and abuse without distortion. Its toughness or tensile strength is very high, while the uniform grain structure of the fusionweld and surrounding wall area insures consistent uniformity of wall strength to withstand abnormal shock and forming.

4 PRESSURE-PROOFED FEATURES

Radiantweld combines ductility to insure easy bending qualities with extreme tensile strength to eliminate any possibility of distortion, tearing, checking or cracking. Its uniform grain structure throughout the entire tubing wall also assures essential leak-proof advantages. Every foot of Radiantweld is pressure tested (2500 p. s. i.) to insure permanence, performance and life-time operation.

5 LIFE-TIME PERFORMANCE ADVANTAGES

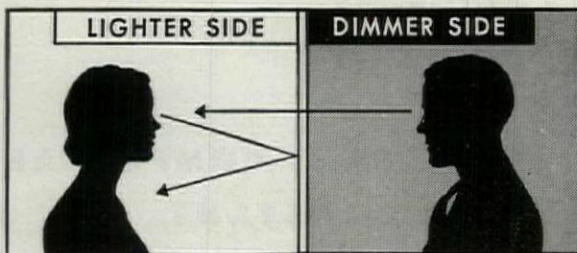
The superiority of Avon Radiantweld is attested by many comparative tests resulting in its adoption and use by America's largest builders of mass produced homes. Millions of feet of Avon Radiantweld are now being specified for these and similar installations in homes, small plants and modern offices.

6 FORMED BY THE FAMOUS FUSIONWELD PROCESS

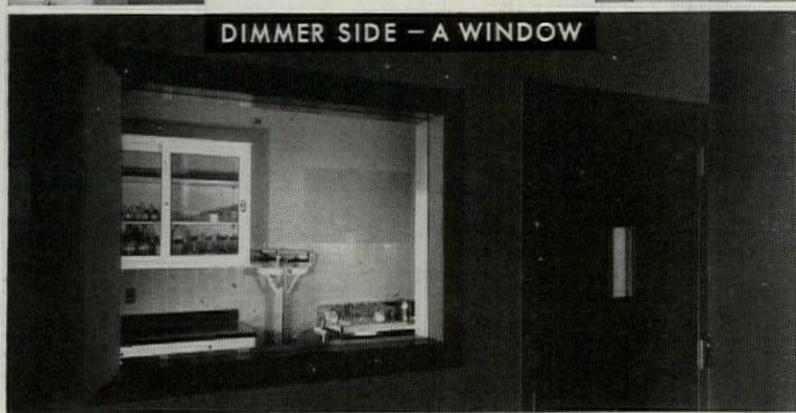
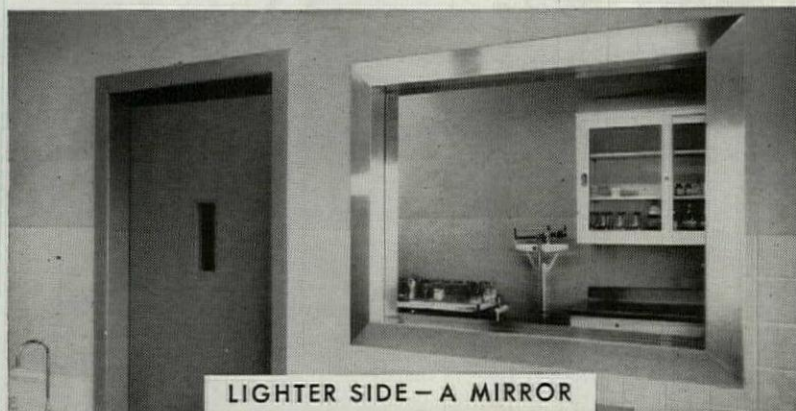
Avon pioneered in the development of special fusion welding equipment to form, weld and anneal its now famous Fusionweld solid wall steel tubing. This tubing is used in the automotive, electric refrigeration, radio, hydraulic machinery industries and for many other rigidly controlled applications. Using this exclusive Fusionweld process, Avon has gone a step further—developing new equipment for additional annealing operations to better serve the specialized needs of Radiant Heat installations exclusively.

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ROCHESTER, MICHIGAN



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the doctor sees the patient**



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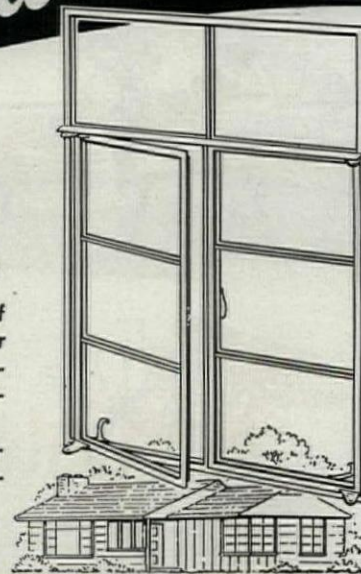
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County of New York } ss:

(Signed) Robert W. Chastaney, Jr.,
General Manager,

Sworn to and subscribed before me this 26th day of September, 1952.

(Signed) Veronica C. Biehl.

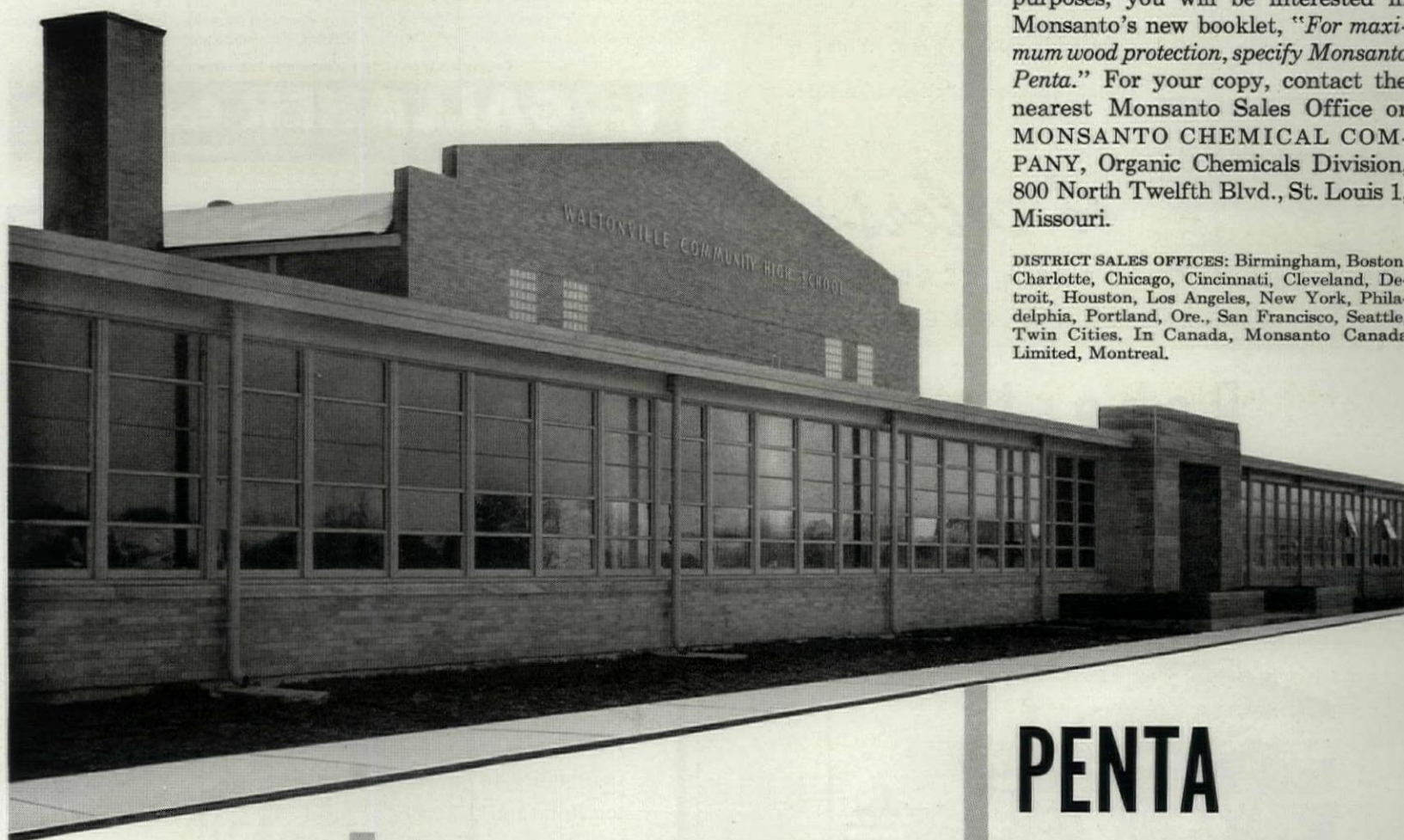
(My Commission expires March 30, 1953)

[SEAL.]

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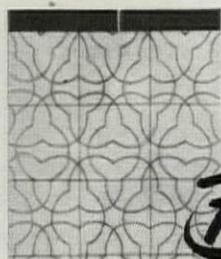
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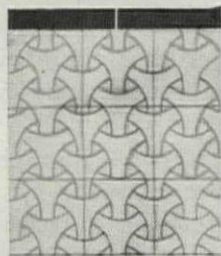
Architect:	D. Clarence Wilson, A. I. A., Mt. Vernon, Illinois
Contractor:	Hunt Construction Company, Mt. Vernon, Illinois
Wood Supplier:	Allen Lumber Company, Sesser, Illinois
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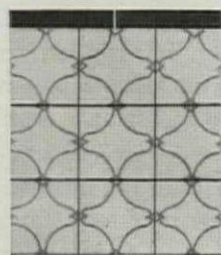




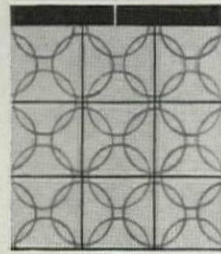
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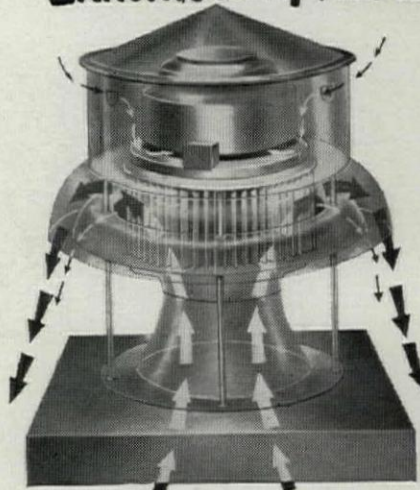
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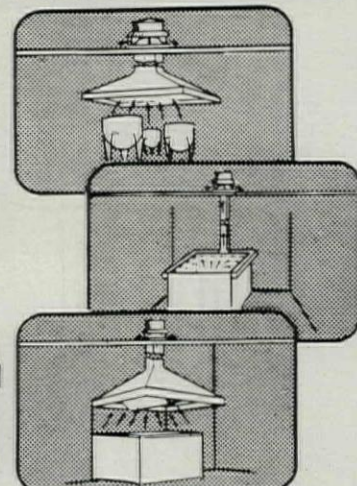
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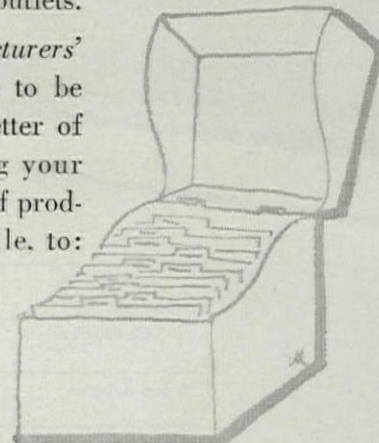
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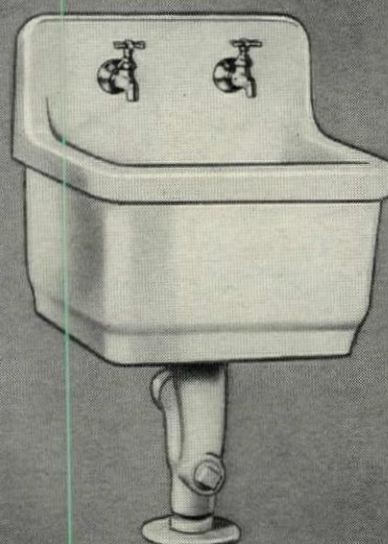
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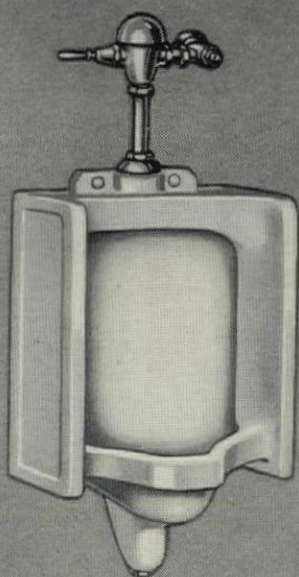
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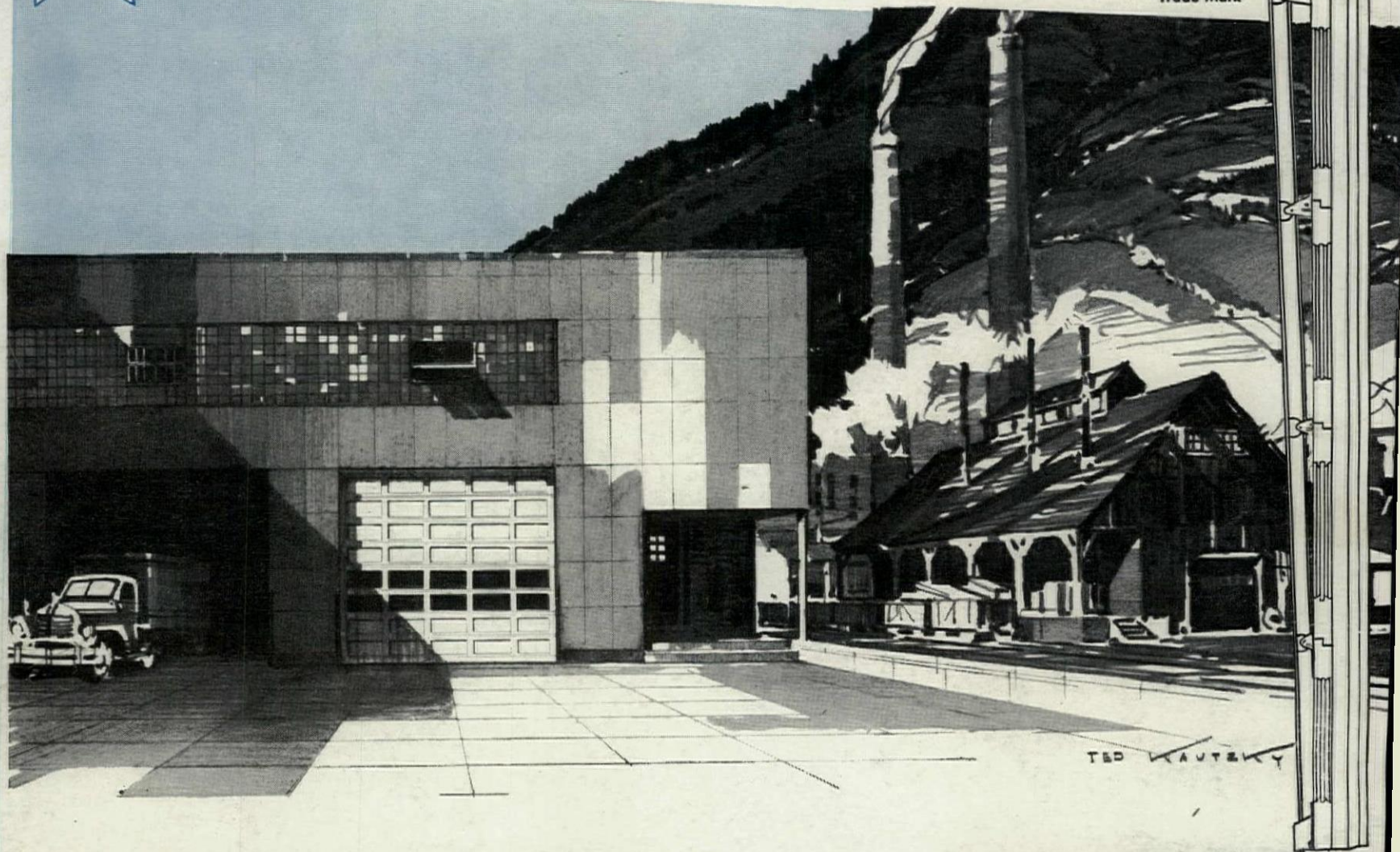
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