

architectural **forum**

December 1953

Churches

Ten top examples of new US ecclesiastical architecture, plus six of Europe's best (p. 85 and below)

Forum design standards

Graphic details for church and chancel planning (p. 144)

Office buildings

Controversial design of Pittsburgh's Gateway Center half conceals its important contribution to better building (p. 112)

Small buildings

Two classroom additions for typical schools. . . .

Two hilltop stations for radio and TV broadcasts. . . . Office building for multitenant use. . . .

A modern showroom for classic automobiles (p. 118)

Building engineering

Heat-pump operating costs. . . . Flexible forms and a new kind of concrete reinforcing. . . .

Structural aluminum for an air-conditioning penthouse (p. 136)

Rural hospital

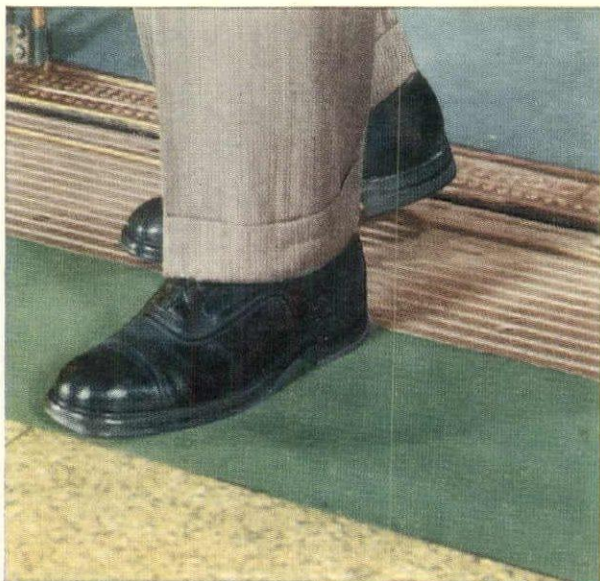
Handsome, efficient, cheerful building wraps up all health services (p. 130)





KenFlex colors shown: Bikini Blue, Desert Sand with Star theme tile.

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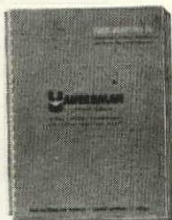
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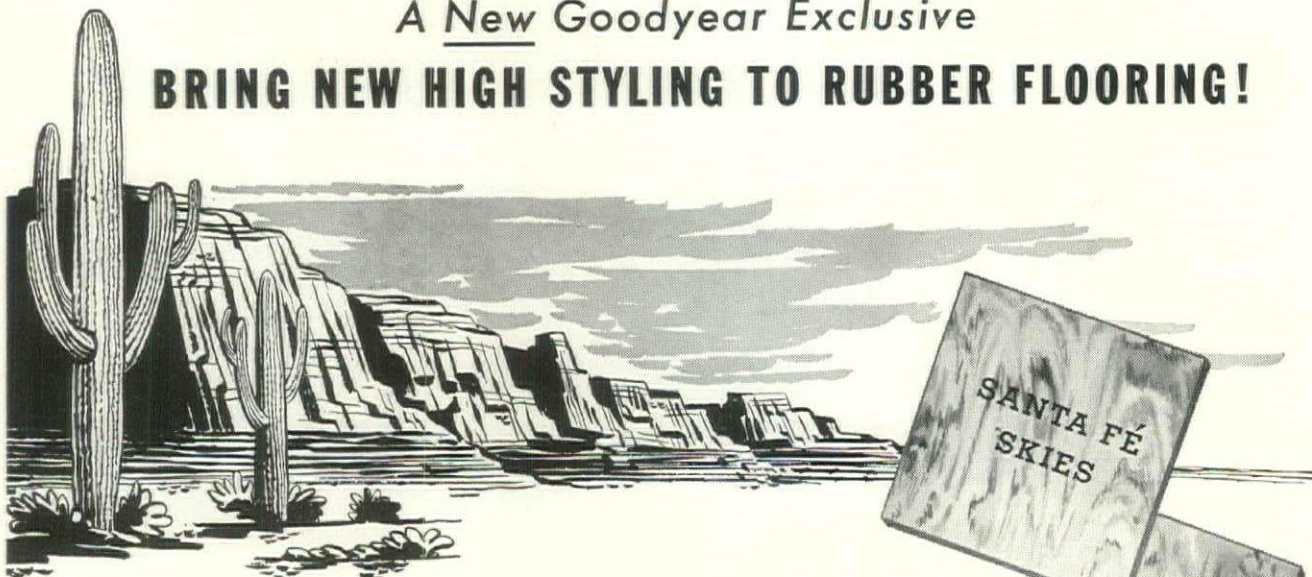


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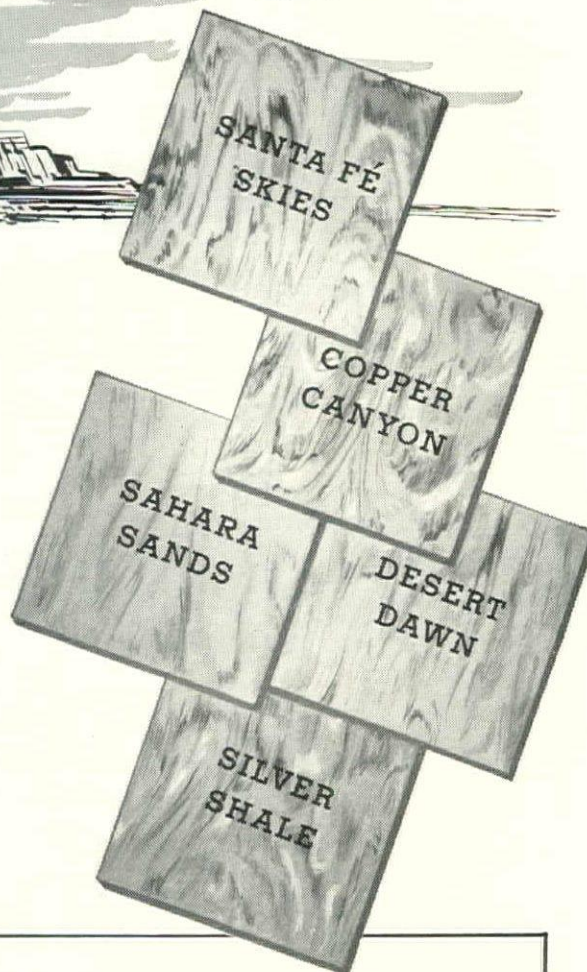
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REVIEWS

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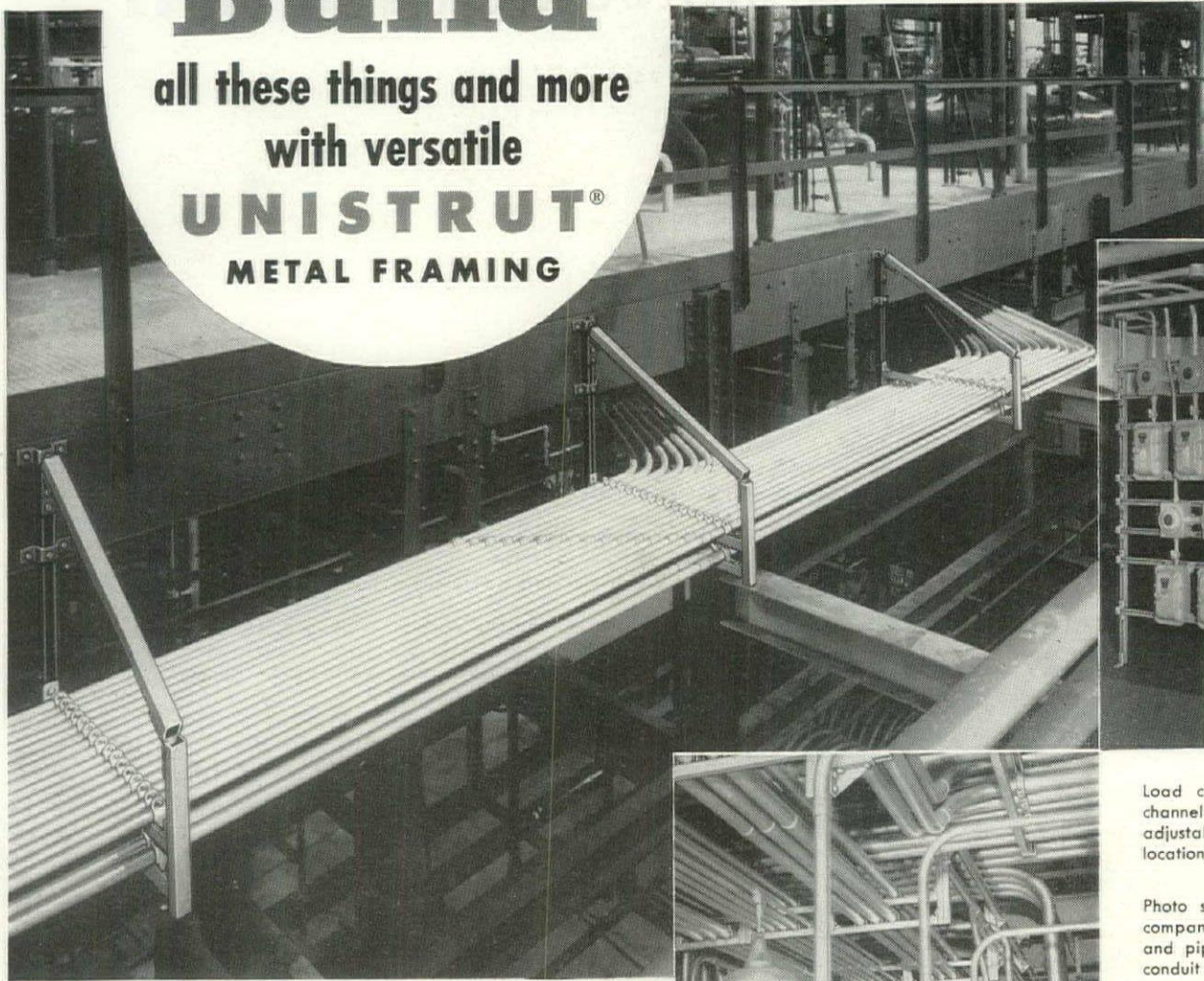
TECHNICAL PUBLICATIONS



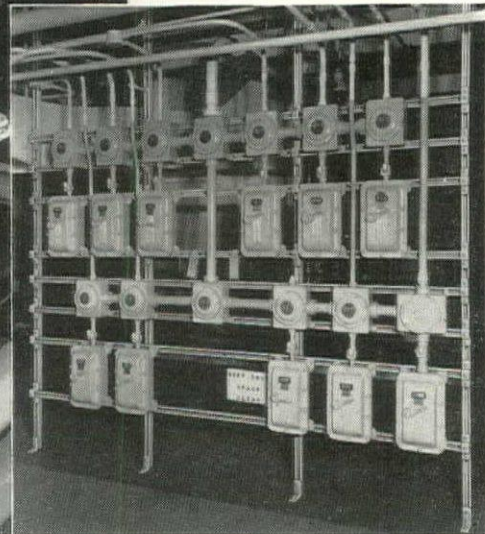
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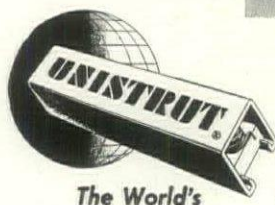
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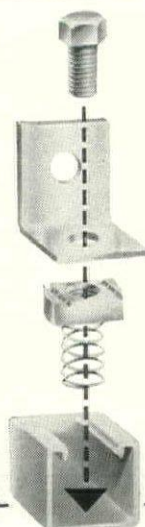
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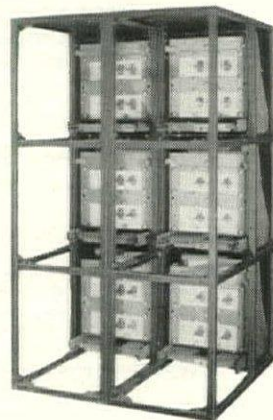
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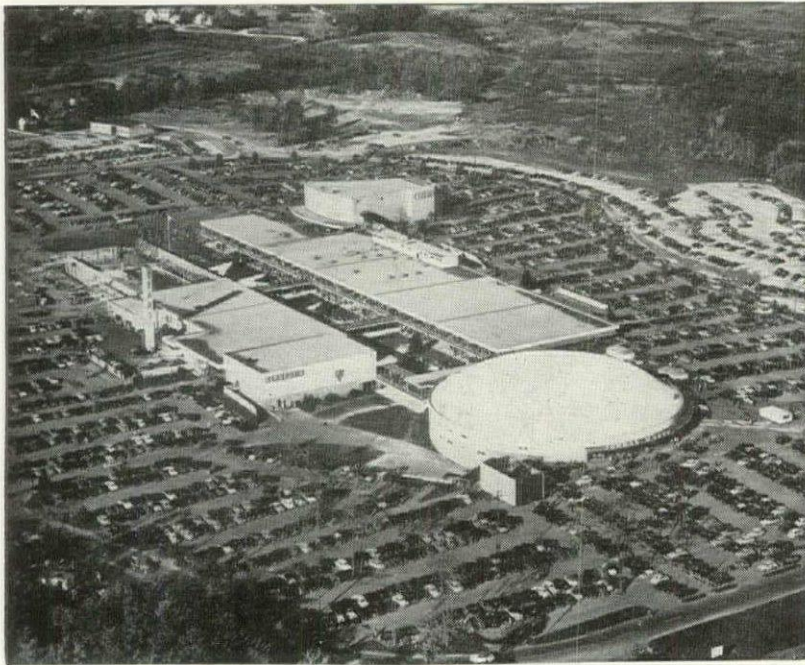
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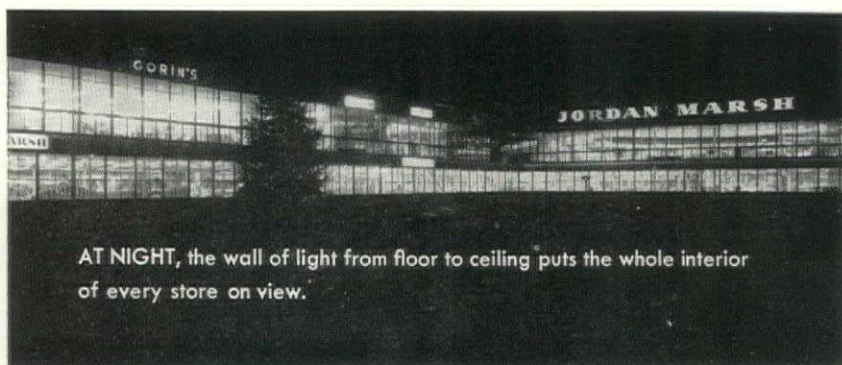
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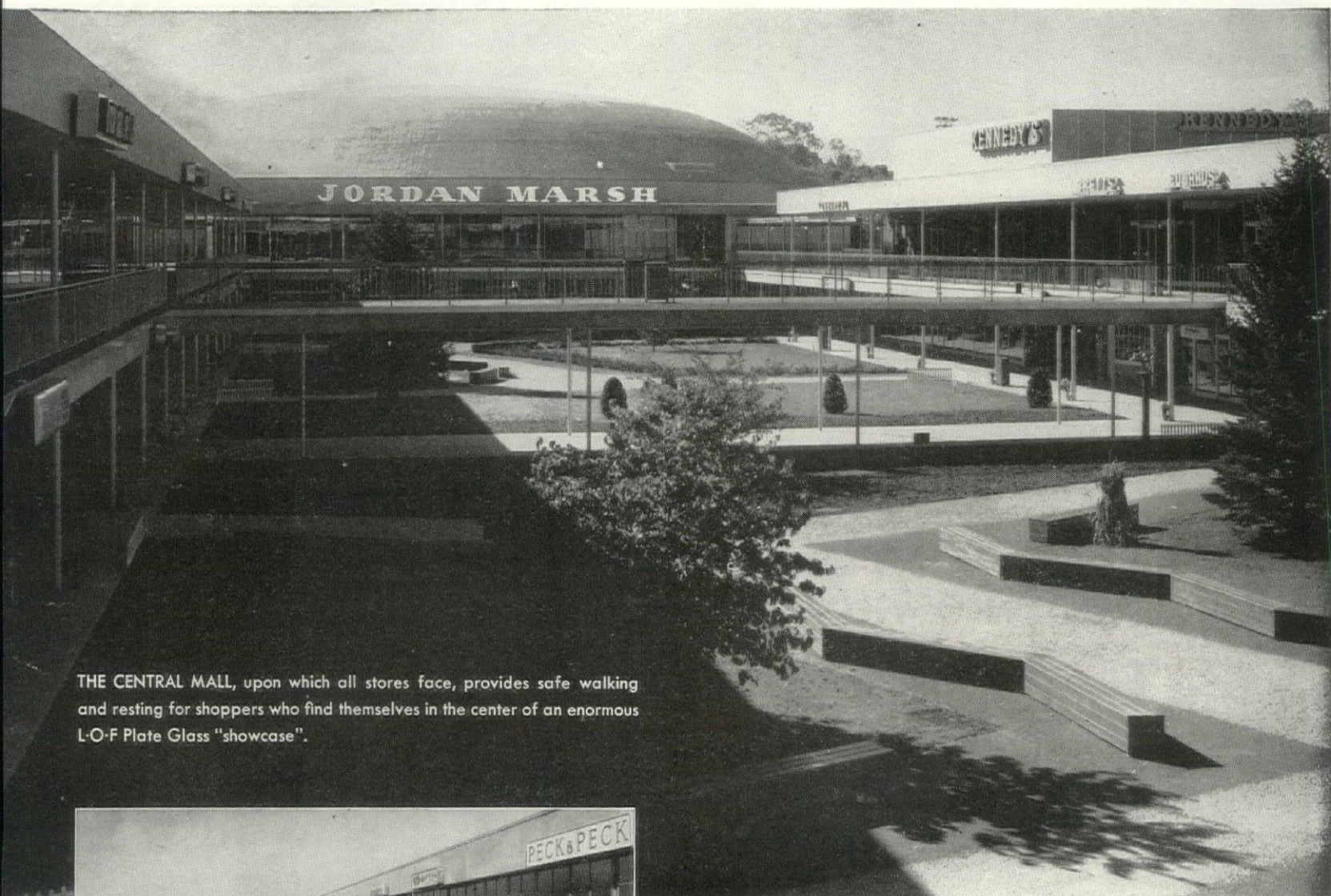
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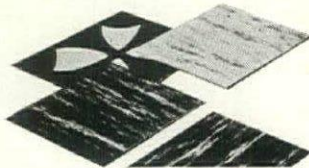
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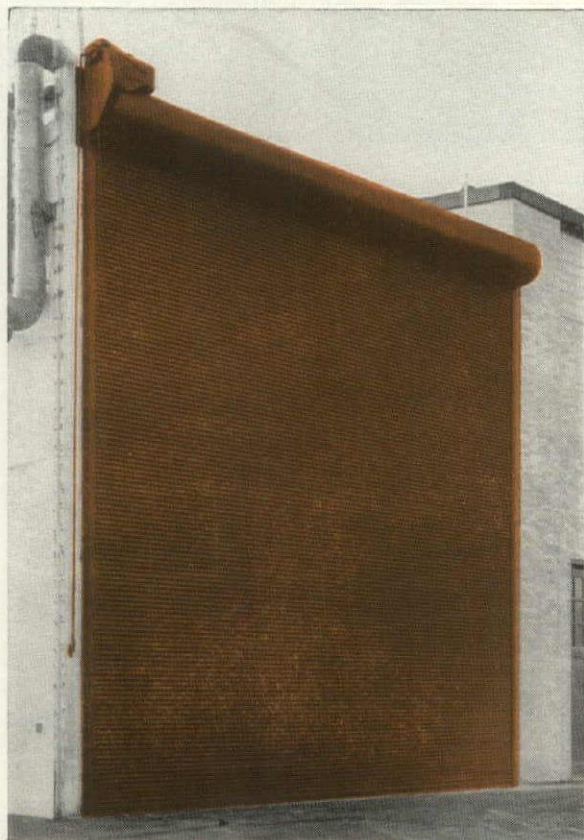


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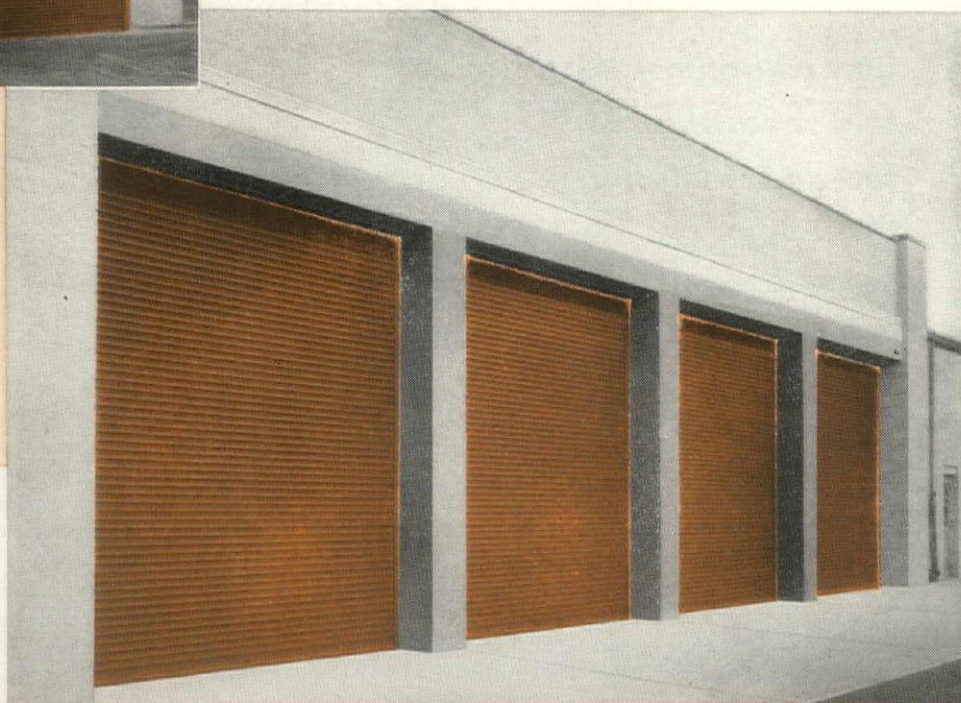
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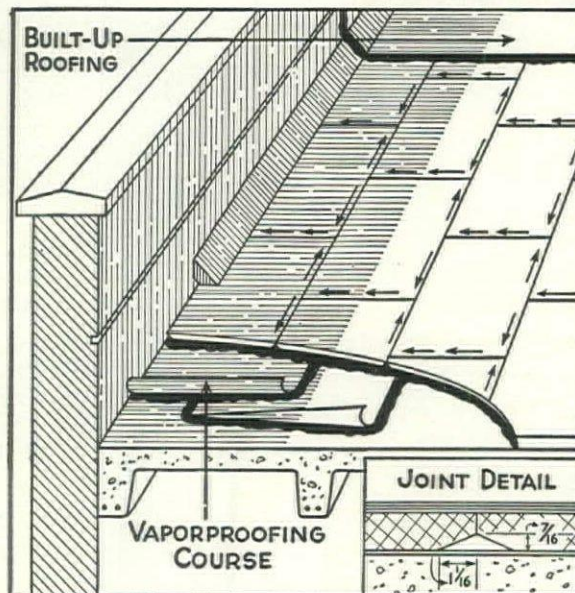
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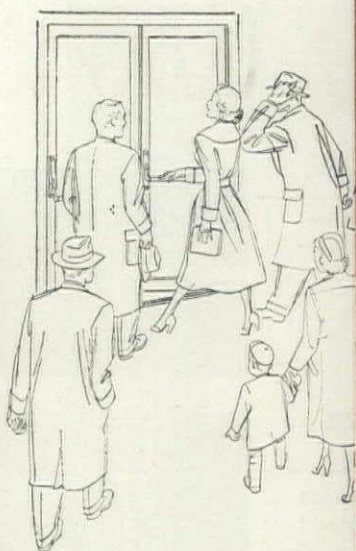
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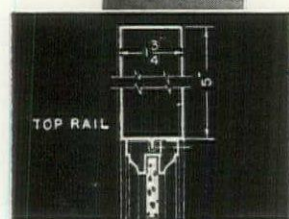
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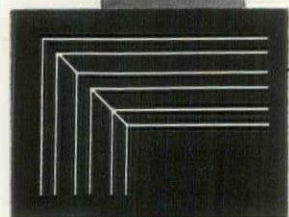
HEAVY DUTY CONSTRUCTION

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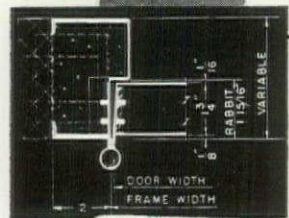
MOLDED DESIGN

A Richmond "first"; neat 20 gauge hollow metal molding around all glass and solid panels



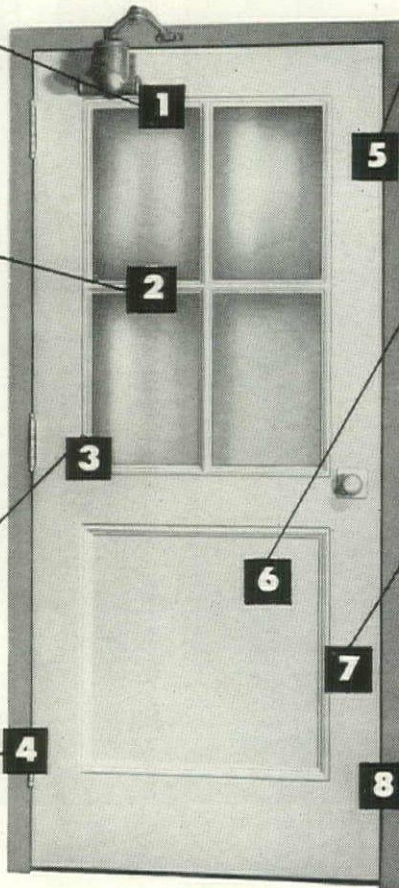
MITRED AND BRAZED CORNERS

Continuous sash ready for glazing; no open mitres



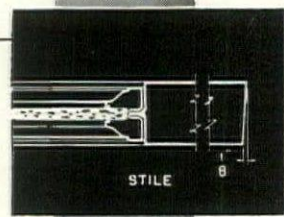
HINGE RECESSES

provided for neat fit; no cutting on job



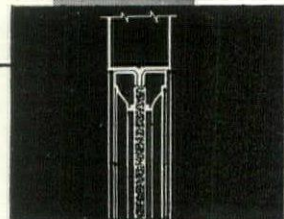
BEVELED EDGES

for snug fit in frame, and non-binding operation



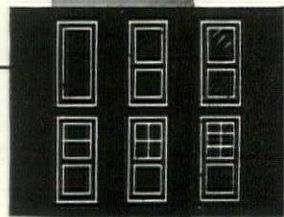
METAL COVERED PANELS

1/4" sheet rock (asbestos for labeled doors) glued between 20 gauge steel sheets



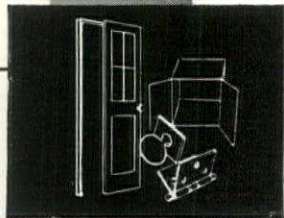
MANY SIZES AND STYLES AVAILABLE

Single and double swing in almost any size up to 4' 0" x 8' 0"



COMPLETE "PACKAGE"

Furnished complete with frame and standard hardware for savings on job



These 8 features ...

... MAKE RICHMOND MD INDUSTRIAL TUBULAR STEEL DOORS THE LOGICAL CHOICE FOR MANY TYPES OF BUILDINGS



PEELLE - RICHMOND

THE PEELLE COMPANY

47 STEWART AVENUE, BROOKLYN 37, N. Y.

THE RICHMOND FIREPROOF DOOR CO.

RICHMOND, INDIANA

OFFICES IN PRINCIPAL CITIES

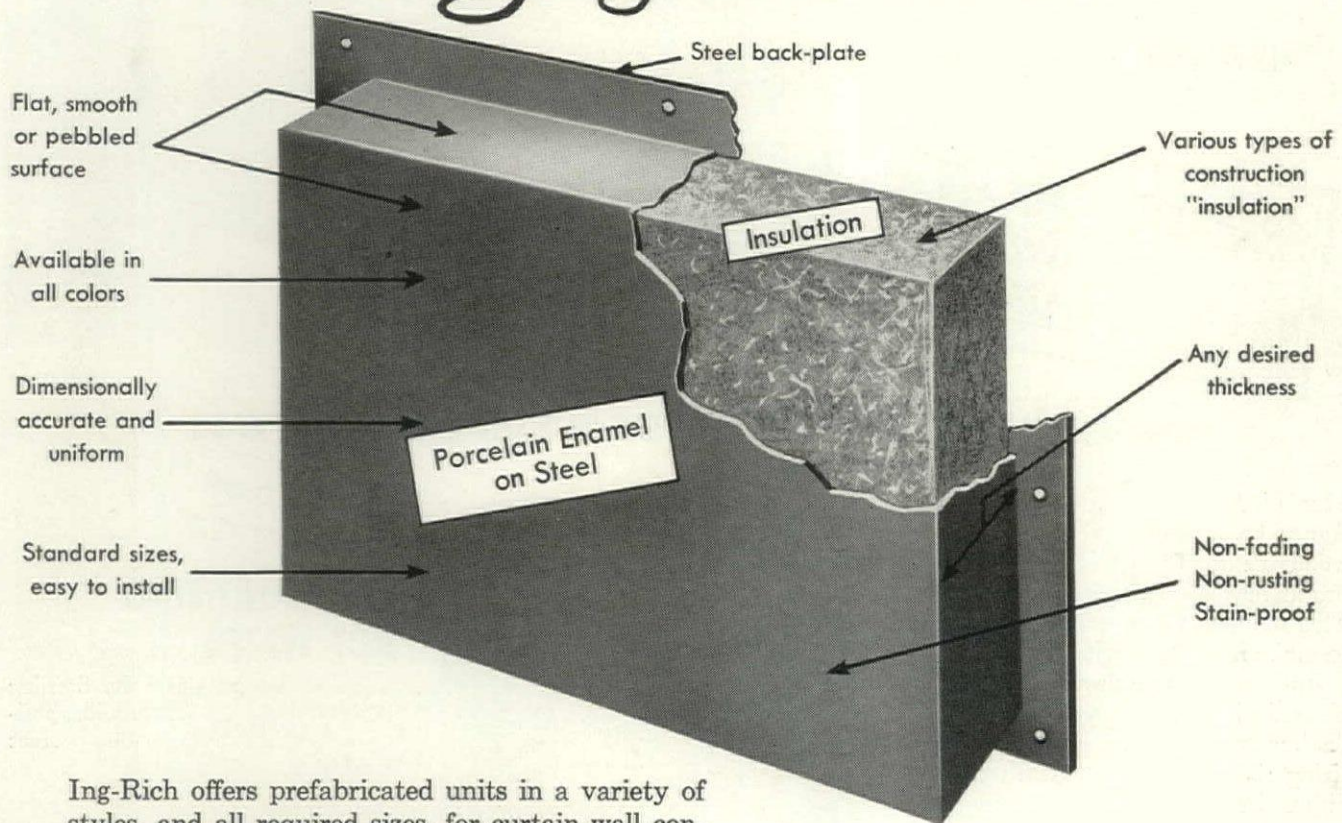


AUTOMATIC FIRE DOORS
KALAMEIN DOORS
INDUSTRIAL STEEL DOORS
UNIT STEEL FRAMES

For Curtain Walls and Exterior Facing

ING-RICH PORCEL PANELS

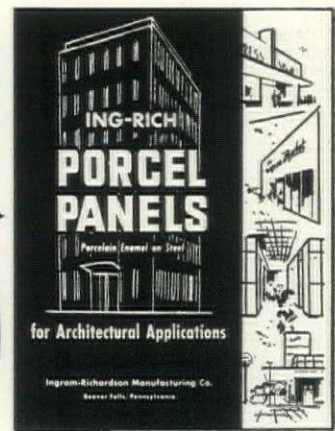
Strong·Light·Durable



Ing-Rich offers prefabricated units in a variety of styles, and all required sizes, for curtain wall construction. Faced with durable, lifetime porcelain enamel on steel, Ing-Rich Porcel Panels provide standardized insulated wall sections that require no painting or finishing and are readily erected. Size, type of insulating core, color, surface texture and thickness are according to your specifications. Panels are factory-made to specification, delivered to the job and erected by experienced crews.

Write for Ing-Rich Bulletin 1053, (also listed in Sweets Catalogue) describing Ing-Rich Porcel Panels for curtain wall and other exterior and interior facing. Included are typical elevation and section drawings, showing methods of attachment and other useful details.

SEND
for this
informative
booklet



**INGRAM-RICHARDSON MANUFACTURING
COMPANY**

Beaver Falls, Pennsylvania • Established 1901

INGRAM-RICHARDSON MFG. COMPANY
Beaver Falls, Pennsylvania

Please send copy of your bulletin 1053 to:

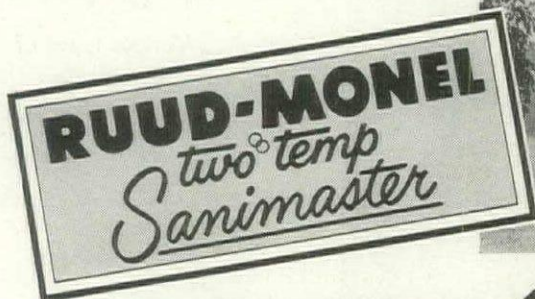
NAME _____

FIRM _____

ADDRESS _____

NEW WATER HEATING SYSTEM

Simplifies WYNNWOOD SCHOOL'S Dining Room OPERATION



AUTOMATIC GAS WATER HEATER

Mrs. H. K. Wallace, dietitian at the Agnes Irwin Upper School, Wynnewood, Pennsylvania, is proud of her brand new kitchen. And rightly so. This modern kitchen has everything to make it really efficient.

And two of the things she's most pleased with are the twin Ruud-Monel Sanimasters. It takes plenty of sanitizing 180° hot water to wash all the dishes for the 700 meals served here every day. And there's a constant need, too, for regular 140° hot water for sinks and general use.

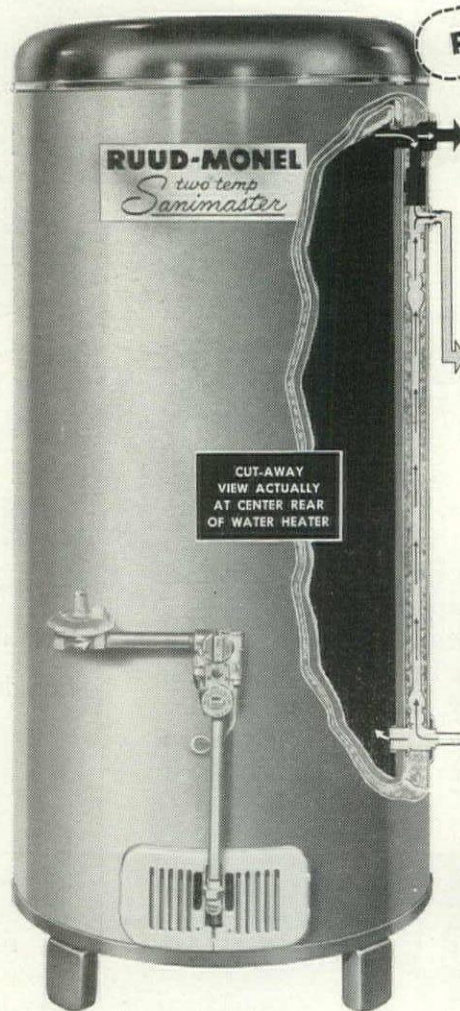
Yet Sanimaster delivers both these temperatures from the same tank at the same time! The Ruud-Monel Sanimaster is the *only* self-contained water heater on the market that will supply both regular-hot and extra-hot water from one tank at one time.

MONEL—NATURE'S WONDER METAL

SANIMASTER's tank is made of solid MONEL—the only metal that safely holds water at such high temperatures as 180°. And it will never rust! Ruud-Monel two° temp Sanimaster, with its exclusive long-life Monel tank, will give you sparkling clean hot water for years and years.

In addition to the Ruud-Monel two° temp Sanimaster, Ruud offers a complete line of water heaters for domestic, commercial and industrial applications.

For specifications, data and literature, write Dept. T-3.



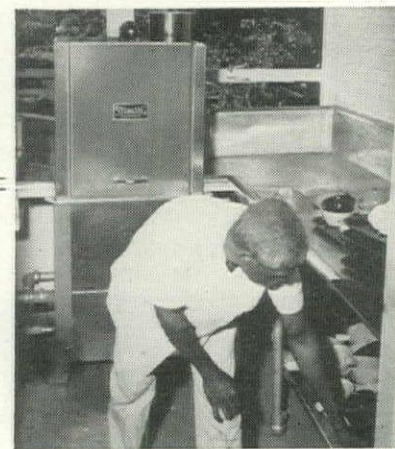
RUST PROOF

180° SANITIZING HOT WATER

is piped directly into the Sterling DS 50-G dishwasher. It provides positive bacteria destruction, perfect sanitation.

140° GENERAL USE HOT WATER

is available continuously at the 4 showers, 6 lavatories, plus all the kitchen sinks and chemistry lab sinks.

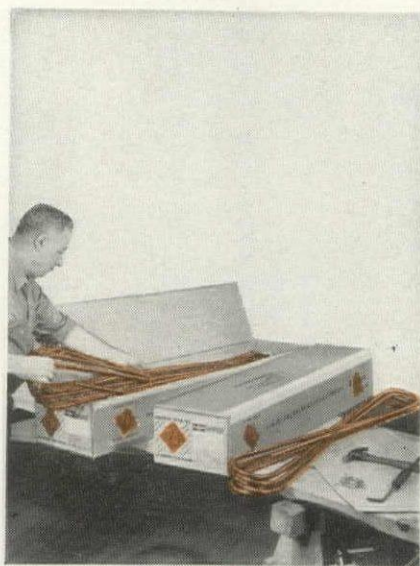


RUUD MANUFACTURING COMPANY

Pittsburgh 1, Pa. • General Offices • Toronto 14, Ontario

What every architect should know about PG's

(Anaconda's **PRE-FORMED** Panel **G**rids)



PG's — "Panel Grids"

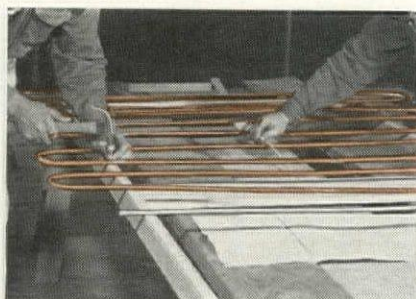
They are accurately pre-formed, compactly packaged radiant heating coils ready to be installed. PG's* are supplied in one standard size and contain 50 linear feet of $\frac{3}{8}$ in. Type L Anaconda Copper Tube. PG's weigh about 10 pounds and are packed 4 to a carton for easy handling or storing.

PG's save installation time

They do away with the time-consuming operations of forming coils on the job or in the shop. There's no more awkward "stringing-up" of coiled tubing or the extra care required in maintaining the design spacing and avoiding sags.

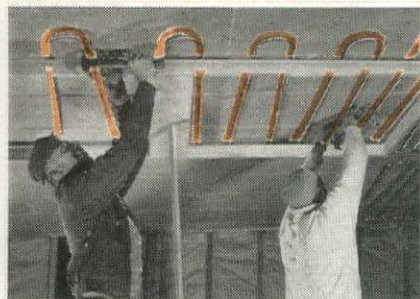
PG's make estimating and layouts easier

Because each PG has a rated Btu output at various spacings— $4\frac{1}{2}$ in., 6 in., $7\frac{1}{2}$ in., 9 in. and 12 in., it is a simple matter, following the heat loss calculations, to determine the number of grids needed and to space and position them according to the heating requirements of each room or area.



PG's are easy to install

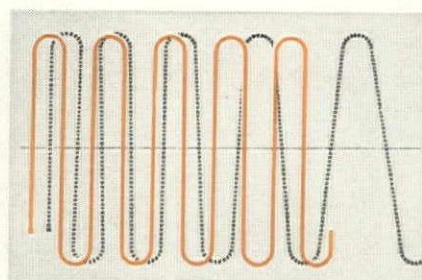
When a single PG is to be installed at various spacings it may be laid out on a simple wooden frame or cradle at convenient working height. Small wire nails tacked alongside the tube maintain the spacing as measured.



The frame and PG are lifted to position and held by a single prop while the straight and trim grid is quickly and securely fastened to the ceiling construction.



The grids, with one tube-end expanded, are easily soldered or brazed in series without fittings. When only part of a PG is required the remaining loops can easily be hand-straightened and used as runouts to the supply or return risers or as connecting lines to other grids.



You can adapt PG's to any room size or plan arrangement

PG's can be easily contracted or extended *by hand* so that the tube spacing will meet all design requirements. The spacing may be varied from $4\frac{1}{2}$ in. c-c to 12 in. c-c. Thus a single PG may serve ceiling areas ranging from $22\frac{1}{2}$ to 60 square feet to obtain uniformity of heat distribution.

Want more information about PG's?



Nationwide distribution isn't complete as yet. We are increasing production and getting PG's to Anaconda Distributors just as fast as possible. You will want to know more about this new product; so send for Publication C-6, which shows why it is easier to design and faster to install a panel system with PG's. Write today to: *The American Brass Company, Waterbury 20, Connecticut.* 5371A

*Patent Applied For

®

ANACONDA

**Copper Tube
PRE-FORMED
Panel Grids**



For Radiant Panel Heating

A distinguished new St. Louis office building



Another Day-Brite lighted architectural achievement

This is the new home of the Brown Shoe Company.

It stands in Clayton, Missouri, a suburb of St. Louis. The Brown Shoe Company is one of the pioneers in the movement toward decentralization of manufacturing headquarters in the St. Louis area. Company officials feel there are invaluable advantages in a less distracting, more comfortable environment for their executive, sales and office people. A \$3 million investment in the building and grounds speaks for the courage of their convictions.

The building design is contemporary but in keeping with the trend of architecture in the community, there is a skillful blend of Colonial.

From the dominant entrance rotunda throughout the office space inside, there is everywhere evidence of far-sighted planning and sound specifying.

Extreme flexibility of interior design permits easy and quick rearrangement of offices, if and when needed. The whole building is air-filtered and air-conditioned. More than a mile of glass enclosed Day-Brite troffers provide one of the finest office lighting installations you've ever seen.

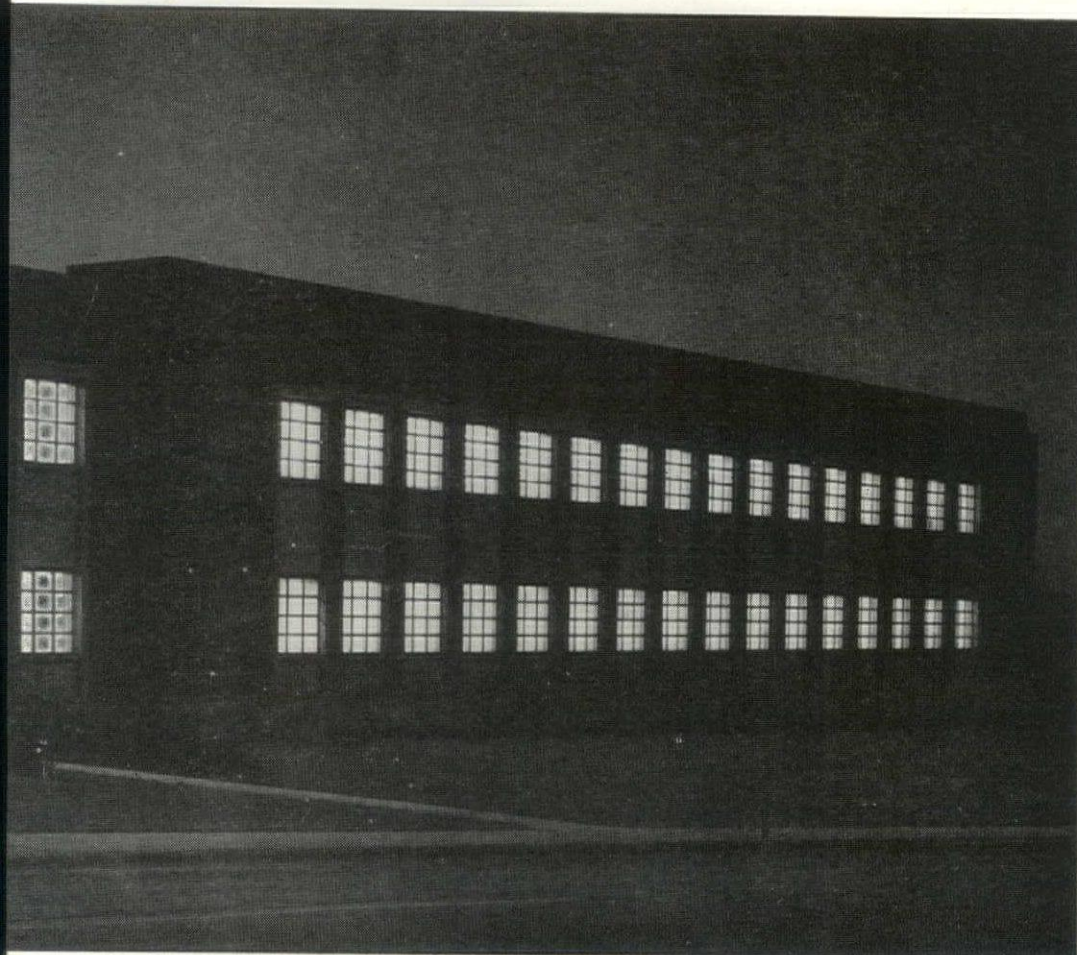
Ten years from now . . . yes, twenty years from now . . . the Brown Shoe Company headquarters will still rank with the best lighted office buildings in the nation. That's one of the reasons for Day-Brite's selection. There's a premium of *extra years of trouble-free service* that comes with Day-Brite.

Day-Brite offers that same benefit to every architect or engineer who is sincerely concerned with giving his client the very most for every lighting dollar spent.

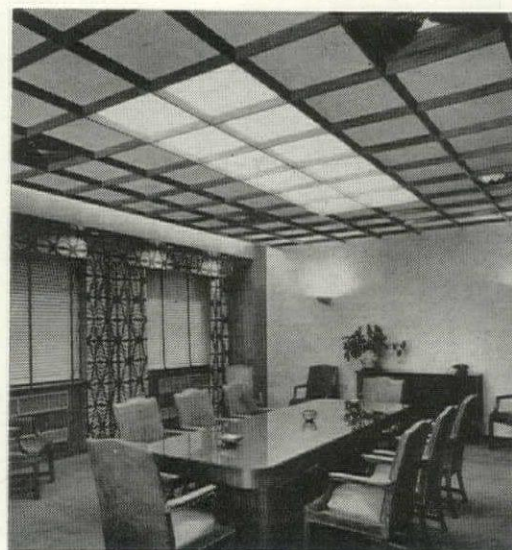
We invite *your* request for more complete Day-Brite information.



Architects:
Russell Mullgardt Schwarz Van Hoefen
Consulting Engineers:
Ferris & Hamig



The handsomely appointed Board Room is featured by an interesting lighting layout, as are all executive offices. Here, an area of recessed panels is fitted into the beamed ceiling for general illumination. Cove lighting adds luxurious richness.



In the large office areas, Day-Brite glass enclosed troffers produce excellent visual comfort for the Brown staff as well as plenty of light for close work (40 footcandles maintained). Notice the flexibility of the lighting layout, too. Bays may be partitioned from floor to ceiling without rearrangement of the fixtures.



DAY-BRITE TROFFER DATA: Troffer line available in Slimline and Rapid-Start 40-W Fluorescent, flange or snap-in type. Die-formed steel construction. HOT-BONDED SUPER-WHITE enamel finish, rust inhibited. Interchangeable series of shielding units includes BOXCO (®) louvered, egg-crate louvered, glass enclosed, low-brightness No. 9015-DB Controlens*, and curved 11" Controlens*. Safety fused and UL approved.

For further information, write DAY-BRITE LIGHTING, INC., 5471 Bulwer Ave., St. Louis 7, Mo. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ontario.

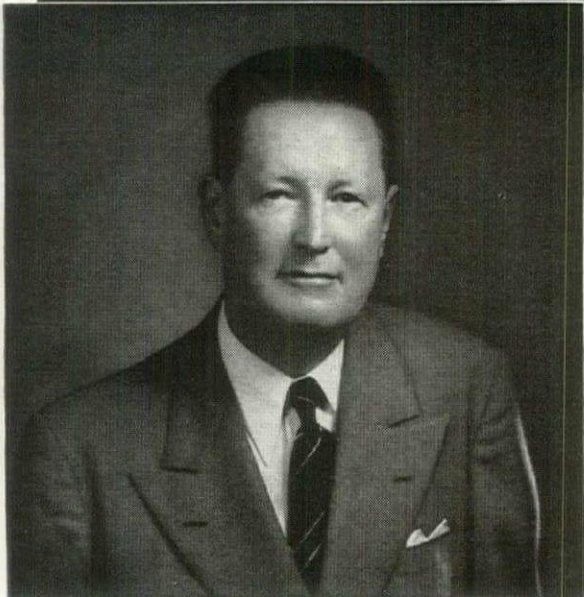
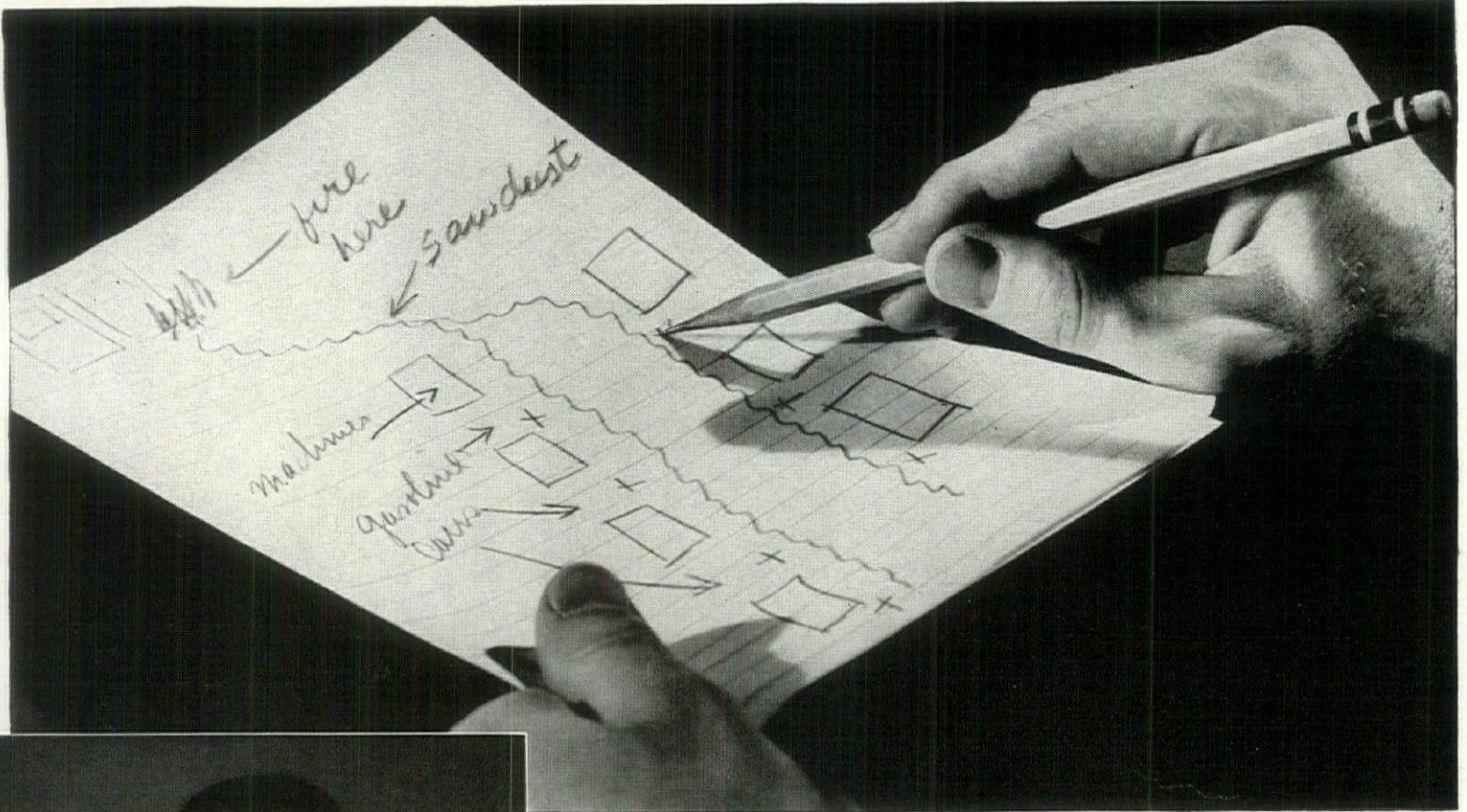
315



Sample show rooms merchandise the Brown shoe line through good display and good lighting. A combination of troffer illumination and incandescent spots is used. This sample room features "Buster Brown," one of Brown Shoe's nationally famous lines.

*©Holophane Co.

"DECIDEDLY BETTER"
DAY-BRITE
Lighting Fixtures



FREDERICK L. MORROW, President
North & Judd Mfg. Co., New Britain, Conn.

It was the “*perfect fire*” except for one thing

“This fire didn’t *happen* . . . it was planned! Planned so shrewdly and thoroughly that the North & Judd plant might have burned to the ground that night”, said Mr. Frederick L. Morrow, President, North & Judd Mfg. Co., world’s largest manufacturer of buckles and fastening devices, in New Britain, Connecticut.

“It was back in the 1930’s. At that time, we had leased floor space in several of our buildings adjoining the main plant.

“One evening as our night watchman was making his rounds, he opened a door on one of these floors. Suddenly, flames raced across the room toward the machines. They never made it. In seconds, heat from the blaze set off a sprinkler head which checked the flames, preventing a disastrous fire.

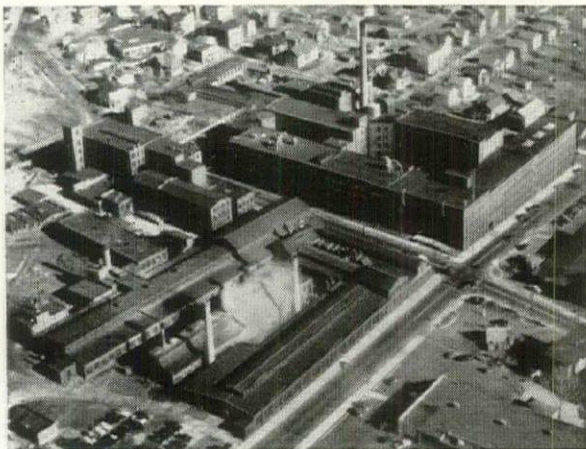
“Gasoline cans, we discovered, had been planted near each machine. A path of sawdust, gasoline-saturated, wound from the cans to the doorway. The door frame had been thoroughly soaked with gasoline. And two exposed wires were cleverly twisted around one of the hinges on the door so as to

cause a spark the moment the door opened.

“Here was the ‘*perfect crime*’. A building destroyed so completely by fire that no one would ever know how it happened. The scheme mis-fired *only* because one important detail had been overlooked — our automatic sprinkler system.”

Most fires, of course, start accidentally. But no matter *how* they start, Grinnell Sprinklers stop fire at its source, wherever and whenever it strikes, night or day, *automatically*. 75 years experience proves this.

The time to act on Grinnell Protection is *now* . . . before fire burns you out, or cripples your business. Remember — a Grinnell Sprinkler System often pays for itself in a few years through reductions in insurance premiums. So if you have fire insurance, you’re probably paying for Grinnell Protection anyway . . . *why not have it!* Write for booklet on Grinnell Automatic Spray Sprinklers — new in method, spectacular in performance. Grinnell Company, Inc., 250 West Exchange Street, Providence, Rhode Island.



Air view of North & Judd manufacturing plant.



GRINNELL
FIRE PROTECTION SYSTEMS



Grinnell Company • Manufacturing, Engineering and Installation of Automatic Sprinklers since 1878

air conditioning

**helps build a skyline
in the Lone Star State**



**air conditioning
refrigeration
industrial heating**

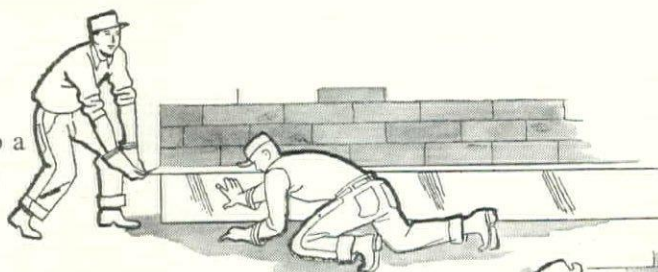
The eyes of Texas are on the skyline these days. Latest of the gleaming giants to rise above the plains is the new Gibraltar Life Insurance Building in Dallas. This imposing structure, air conditioned by the Carrier Conduit Weathermaster* System, is eleven stories high. Eleven additional air conditioned stories can be added as Texans' demands for space go up. ■ Notice the vertical fins on the building exterior. These are not merely ornamental, but an innovation in architectural design that combines beauty and utility. Within the vertical fins run the primary air supply conduits and water lines for the Conduit Weathermaster System. This space-utilizing design and application technique make more usable

space available. ■ All air supplied to the Weathermaster units, located beneath the window stools, is outside air—filtered, humidified or dehumidified, heated or cooled in the central primary equipment. Merely by turning a dial, occupants control room temperature as they like it. ■ Wherever new skylines are sprouting, or old buildings are being modernized, you'll find Carrier. In Dallas alone, 80% of all the multi-story buildings that are completely air conditioned, are air conditioned by Carrier. ■ Let us send you further information about the Carrier Conduit Weathermaster System. Write direct to: Carrier Corporation, Syracuse, New York.

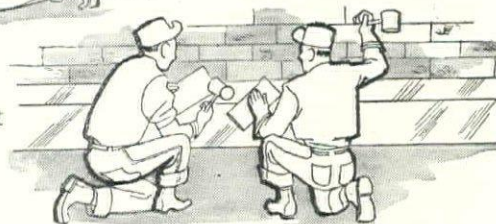
Consulting Engineers—Landauer, Guerrero & Shafer
Architect—Thomas, Jameson & Merrill
Mechanical Contractor—Farwell Company, Inc.

* Reg. U. S. Pat. Off.

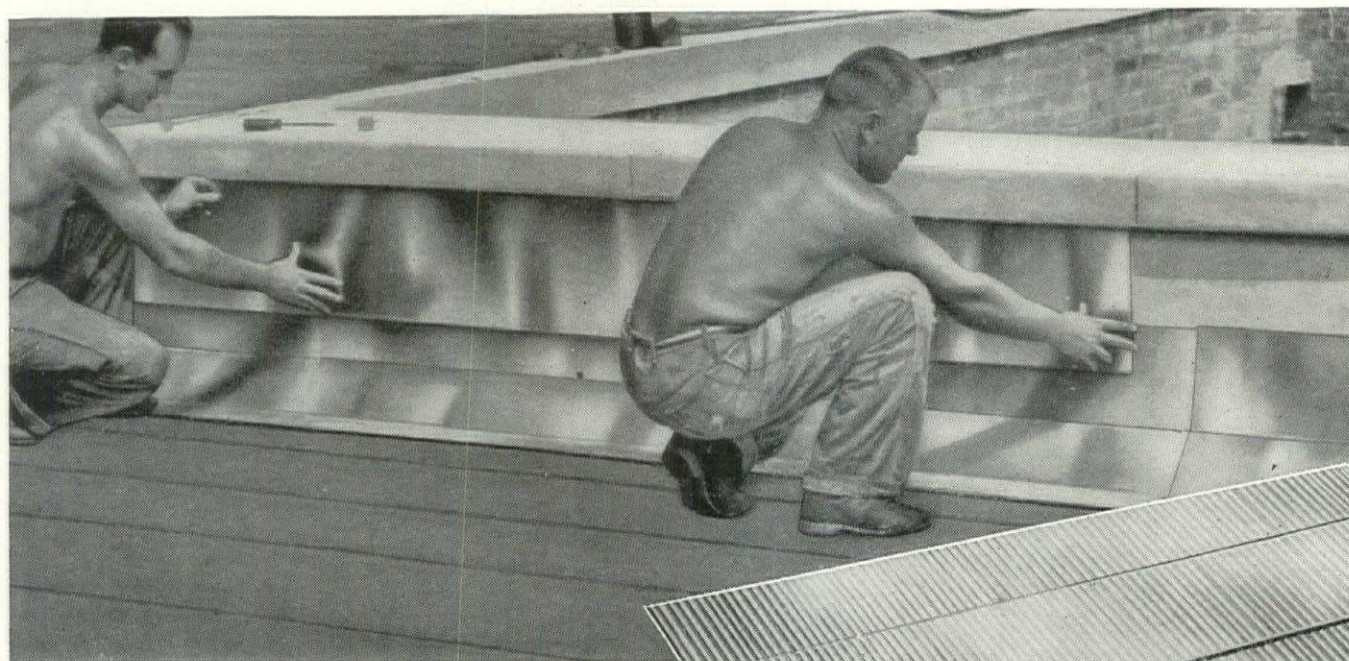
If you've ever yanked up a built-in cap flashing to get at the base flashing...



And then tried to make it lie flat without cracking at the bend...

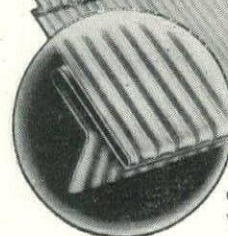


Then you know why it's better to use the new
CHASE® one-piece thru-wall FLASHING and CAP FLASHING RECEIVER!



Because you can use cold rolled copper for cap flashing. You can insert it easily *after* the base flashing is in...without the use of plugs, fillers, or wedges! The receiver stays open, even under the weight of the finished wall.

Send today for specifications and details.



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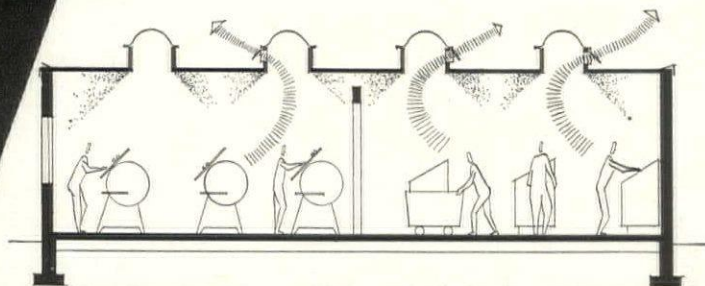
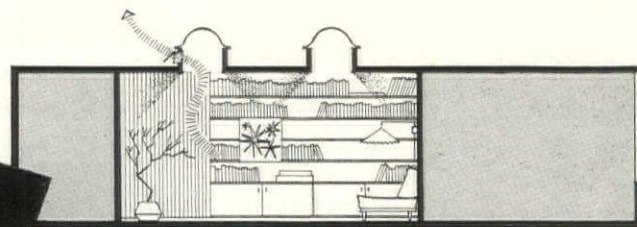
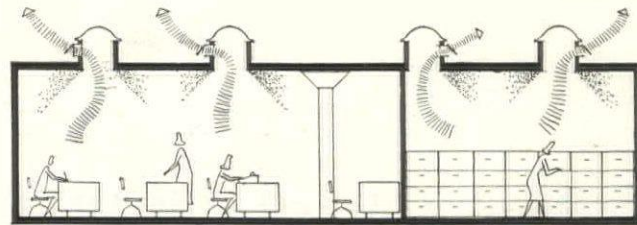
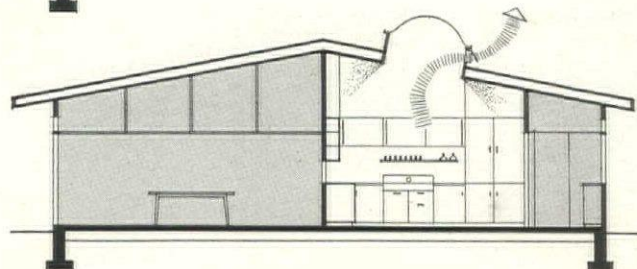
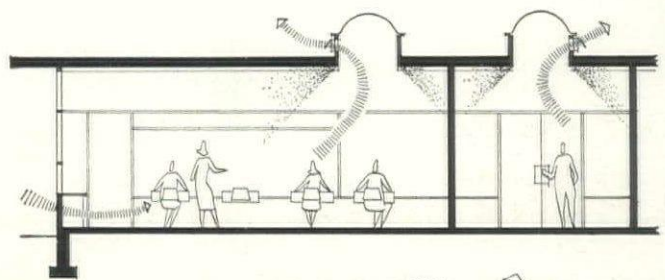
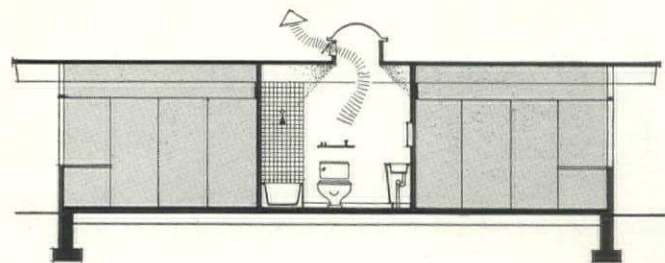
Chase Brass & Copper Co., Dept. AF1253
 Waterbury 20, Conn.

Please send me your free folder on the new Chase One-Piece Thru-Wall Copper Flashing and Cap Flashing Receiver.

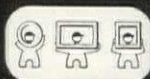
Name _____
 Position _____
 Firm _____
 Street _____
 City _____ State _____

TOPS IN TOPLIGHTING

Now, you can create entirely new layouts...
for buildings of every type... by specifying
WASCOLITE VENTDOMES to toplight and
ventilate through one roof opening.



wascolite



skydomes

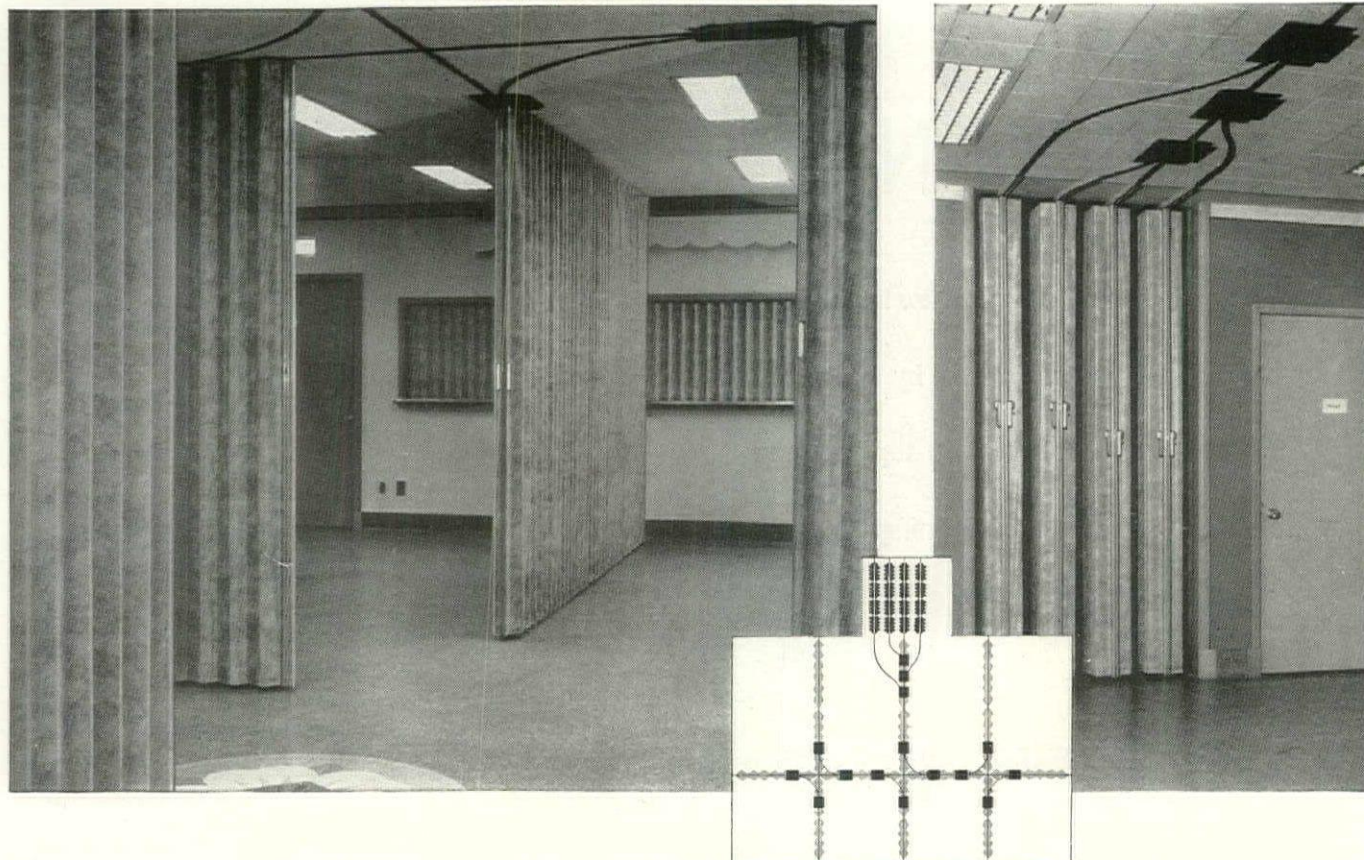
See Sweet's Catalog, or write for new Wascolite Ventdome folder.

WASCO FLASHING COMPANY
89 Fawcett Street • Cambridge 38, Mass.

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.

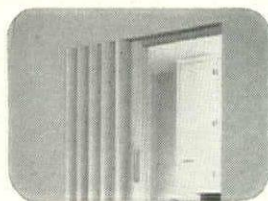
And because this line is *complete*, you're sure to save time and get exactly what you want when you specify better looking, easier operating, longer lasting "Modernfold" doors.

Sold and Serviced Nationally

NEW CASTLE PRODUCTS, NEW CASTLE, INDIANA

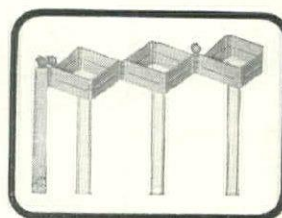
In Canada:

Modernfold Doors, 1315 Greene Avenue, Montreal



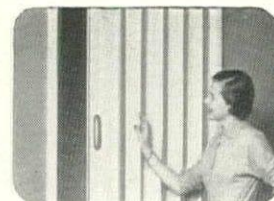
Better Looking

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



Longer Lasting

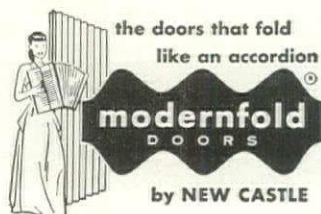
Balanced hinge construction both top and bottom. Trolleys attached at hinge intersections. No sidewise twist or pull possible.



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. 545
New Castle, Indiana
Please send full details on "Modernfold" doors.

Name.....

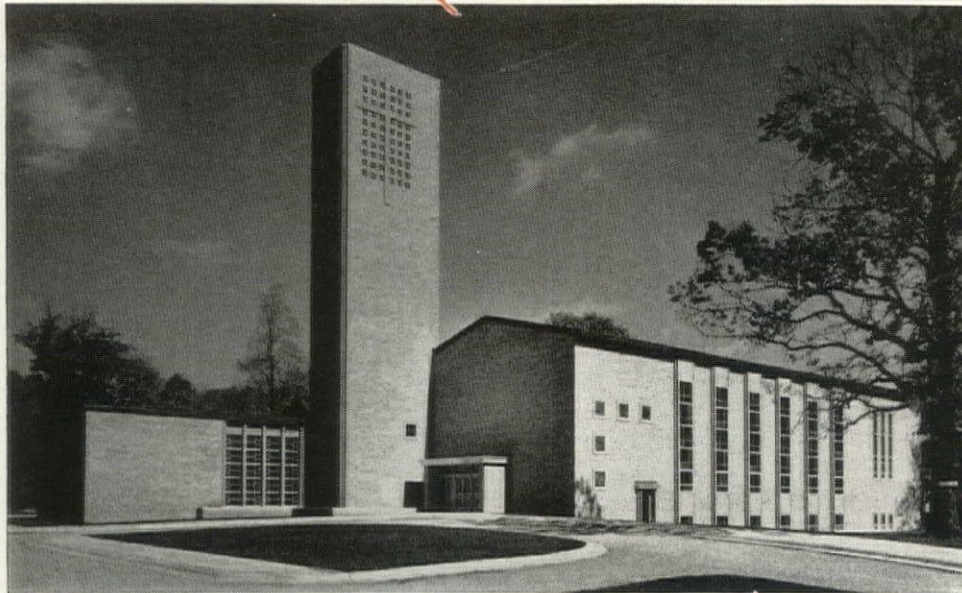
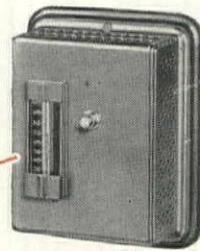
Address.....

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

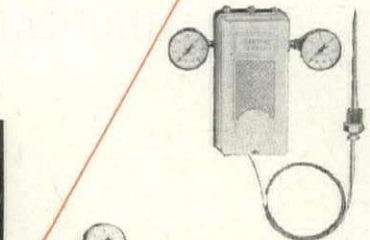
HEATING ONLY THOSE ROOMS WHICH ARE IN USE

JOHNSON
DUAL Temperature
CONTROL
AUTOMATICALLY

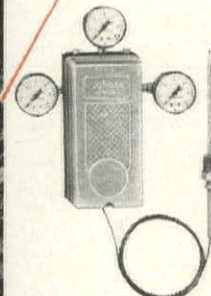
SAVES FUEL DOLLARS IN CHURCHES!



First Baptist Church, Flint, Michigan. Swanson and Associates, architects
Bloomfield Hills, Michigan; Hyde & Bobbio, mechanical engineers
Detroit; Goyette Heating Co., heating contractors, Flint.



T-900 Master
Thermostat



T-901 Submaster
Thermostat



V-108 Three-Way
Mixing Valve

Today's modern religious buildings often serve as centers for the activities of church clubs, and social and community organizations. Frequent use by these groups on days and at hours other than those used for religious services creates a serious heating problem, since heating the entire building when it is only partly occupied is an obvious waste of fuel.

Thrifty church planners have found the answer to this heating problem in the Johnson *Dual* System of Automatic Temperature Control. Johnson *Dual* Control makes it possible to maintain reduced economy temperatures in unoccupied rooms or areas, yet provides normal occupancy temperatures in any room or rooms which are in use. This distinctive advantage of Johnson *Dual* Control quickly results in fuel savings that more than pay for the cost of the system.

Assured comfort at the lowest possible fuel cost is one of the many outstanding features of the new First

Baptist Church in Flint, Michigan. With Johnson *Dual* Control in command of the heating system, all thermostats in the building may be reset, from a central point, to maintain reduced economy temperatures throughout the entire church when it is not in general use. Yet, if one or more rooms are occupied, merely pushing a button on any of the Johnson *Dual* Thermostats restores the temperature of that particular room to the normal comfort level. The reduced economy temperatures prevail in all of the unoccupied rooms.

Any building, large or small, old or new, can enjoy the comfort and economy of Johnson *Dual* Control. Ask a Johnson engineer from a nearby Branch Office to give you the full story of how this modern, waste-free system of automatic temperature control can be applied to your buildings. There is no obligation. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

JOHNSON *Automatic Temperature and*
Air Conditioning **CONTROL**
MANUFACTURING • PLANNING • INSTALLING • SINCE 1885

SEAPORCLAD

INSULATING STRUCTURAL BUILDING PANELS
FOR ARCHITECTURAL BEAUTY

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Welton Becket, F.A.I.A.
and Associates, Los Angeles
General Contractor:
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Where Wilshire Boulevard begins—in downtown Los Angeles—stands the new, nine-story home of *Standard Federal Savings and Loan Association*.

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The **SEAPORCLAD** panels lend architectural harmony to the whole, giving the building a functional appearance with a pleasing simplicity of design.



There are a few areas in which Seaporcel Metals, Inc., is not represented. Inquiries from interested agents are invited.

SEAPORCLAD* Insulated porcelain panels (flat-as-glass) are of sandwich construction combining the use of various cores laminated under high pressure to skins of diversified metals. It is available in the widest range of textures and colors to harmonize with practically every type of structural material and architectural mood. **SEAPORCLAD** is permanent and of lasting, indestructible beauty.

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Cofar units provide main reinforcement, while the T-wires provide composite temperature reinforcement, mechanical anchorage and shear transfer from the concrete to Cofar. Thus, with Cofar serving as both permanent form and reinforcing, reinforced concrete floors may be constructed without using costly and combustible wood forms.

Completely eliminates wood forms

Imagine cutting months from the construction time of new buildings...gaining additional space for occupation or rental, months ahead of schedule! That's exactly what architects and engineers are doing by specifying Cofar concrete construction.

By combining form and reinforcement in one manufactured product, Cofar completely eliminates the need for wood forms. Cofar floors are quickly placed, secured by welding, used as a working floor by trades and then covered with concrete. Result: A safe, high-strength floor.

Cofar provides all the positive steel needed in the structural concrete slab, saves weeks in building time. Moreover, Cofar design requires no special training or procedure. It can be done by any Architect-Engineer using conventional concrete formulae. Investigate the advantages of evolutionary new Cofar concrete construction today.

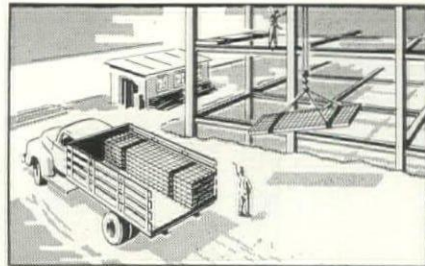
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engineering assistance
or cost estimates,
contact COFAR,
Dept. AF-3,
Granco Steel
Products Company,
Granite City, Ill.

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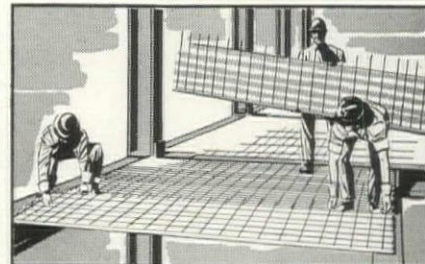
or write for copy

COFAR
GRANCO STEEL PRODUCTS COMPANY
Subsidiary of Granite City Steel Company
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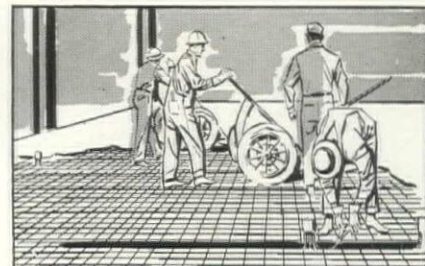
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Cofar "tough-temper" steel units arrive at the job site cut to fit the building frame. They are conveniently bundled for individual bays which eliminates on-the-job sorting.



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Weighing only 2 lbs. per sq. ft., units are easily handled. Cofar placing follows directly behind structural steel erection. Units are welded in place, providing additional lateral strength to the building frame.



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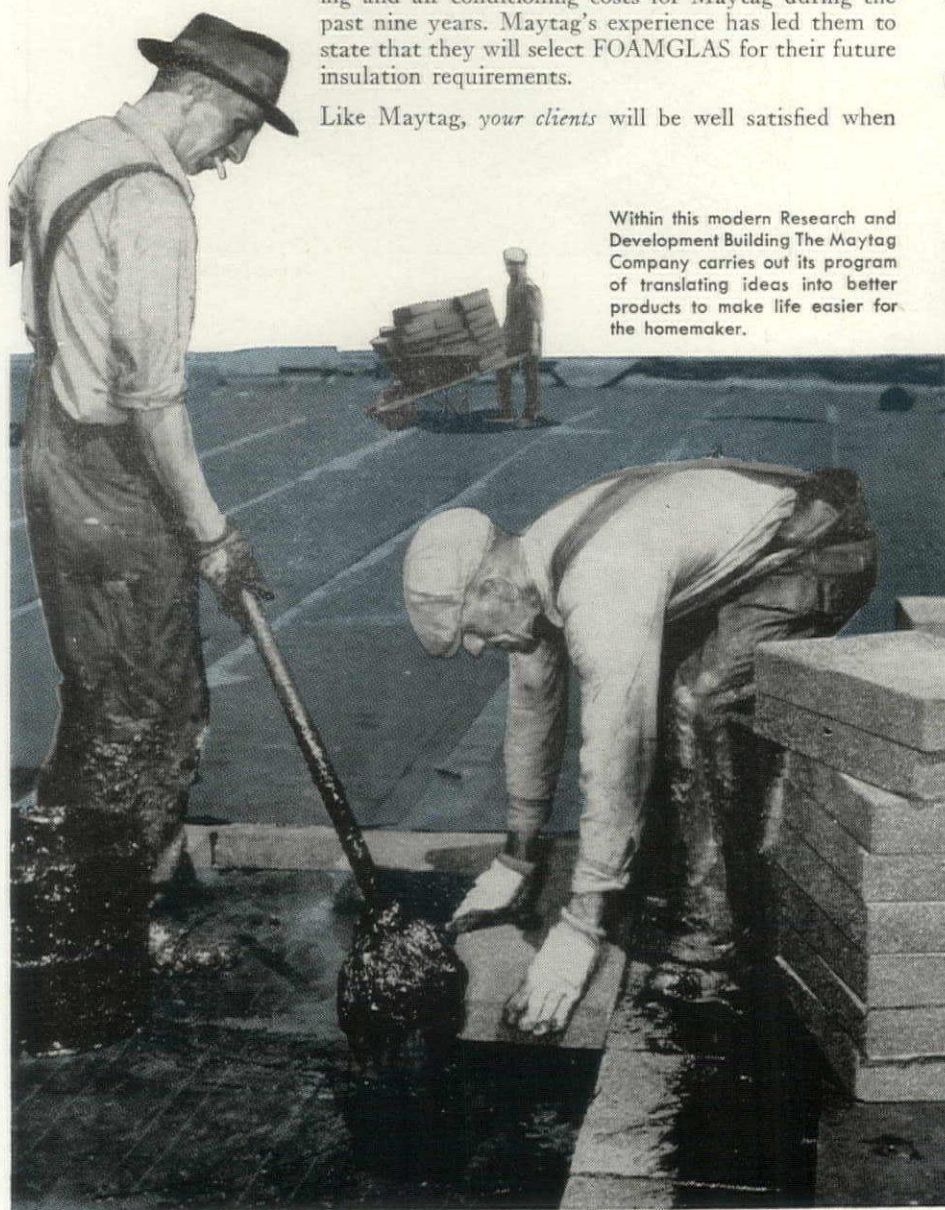
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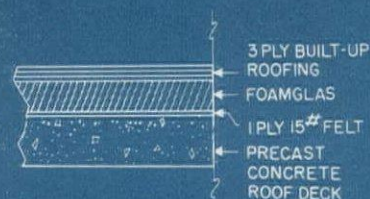
you specify FOAMGLAS for the roofs, walls, floors and ceilings of their buildings. The moisture-proof sealed glass cells of FOAMGLAS assure long, constant insulating efficiency . . . its rigidity and high compressive strength provide excellent structural and load bearing characteristics . . . and FOAMGLAS is fire-proof and rot-proof. To learn how you can best use FOAMGLAS, send for our brand new booklets covering its use for normal temperature buildings, refrigerated structures, piping and equipment. Write now, indicating your specific interest, to Department D-123 . . .

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TYPICAL ROOF SECTION

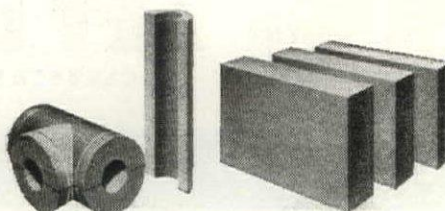


Architect (Supervising):
Praudfool, Rawson, Brooks and Borg, Des Moines
Engineer:
The Austin Company, Cleveland
General Contractor:
A. H. Neumann & Bros. Company, Des Moines
Roofers:
Drake Roofing Company, Des Moines

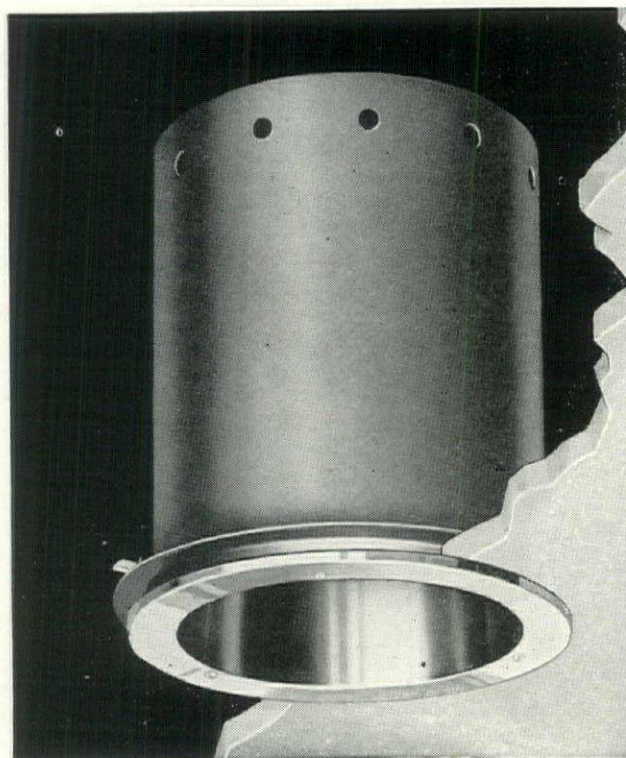
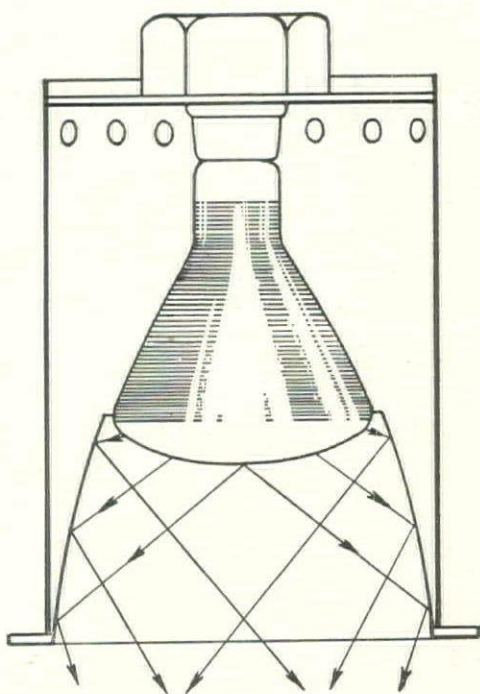
Workmen find that the lightweight, easily handled blocks of FOAMGLAS are installed surprisingly fast. They are even able to move loaded wheelbarrows across the surface of the FOAMGLAS without damage to this strong rigid insulation.

FOAMGLAS[®]

the cellular glass insulation . . . it stays dry!



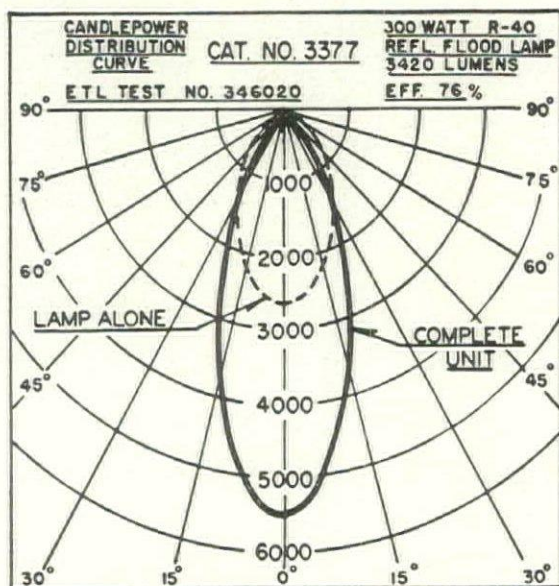
Pittsburgh Corning
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Patent Pending

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So complete is the shielding that, in normal viewing positions, a dramatic unawareness of the light source results.

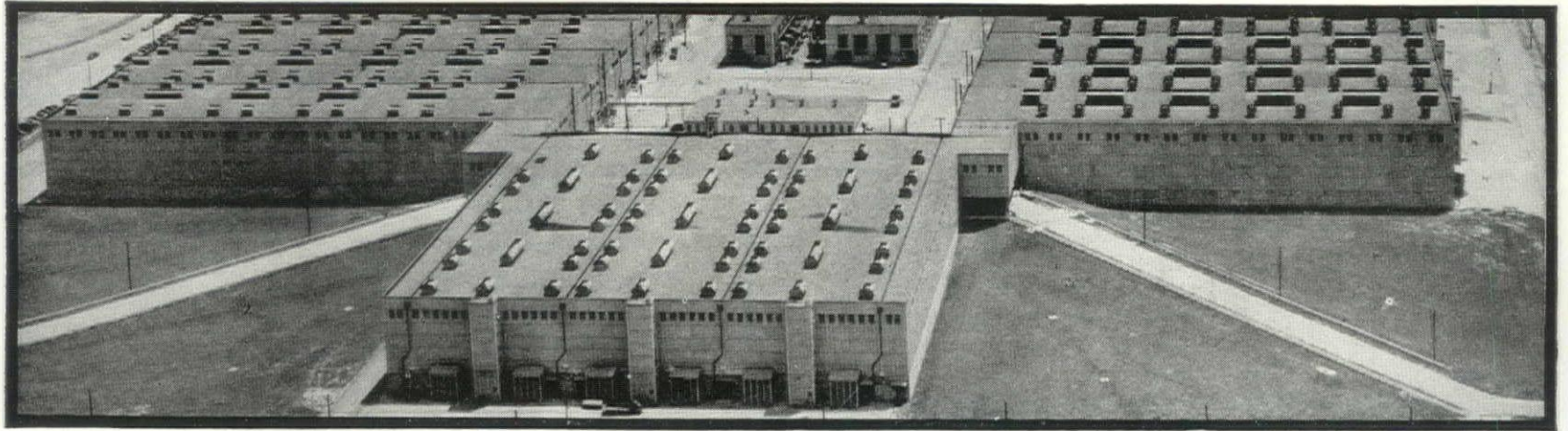
The inverted reflecting surface is self-cleaning. Relamping is through bottom opening by hand or with lamp changer.

Full data on the unit is on page 25 of the ART METAL catalog. Write for a copy.

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

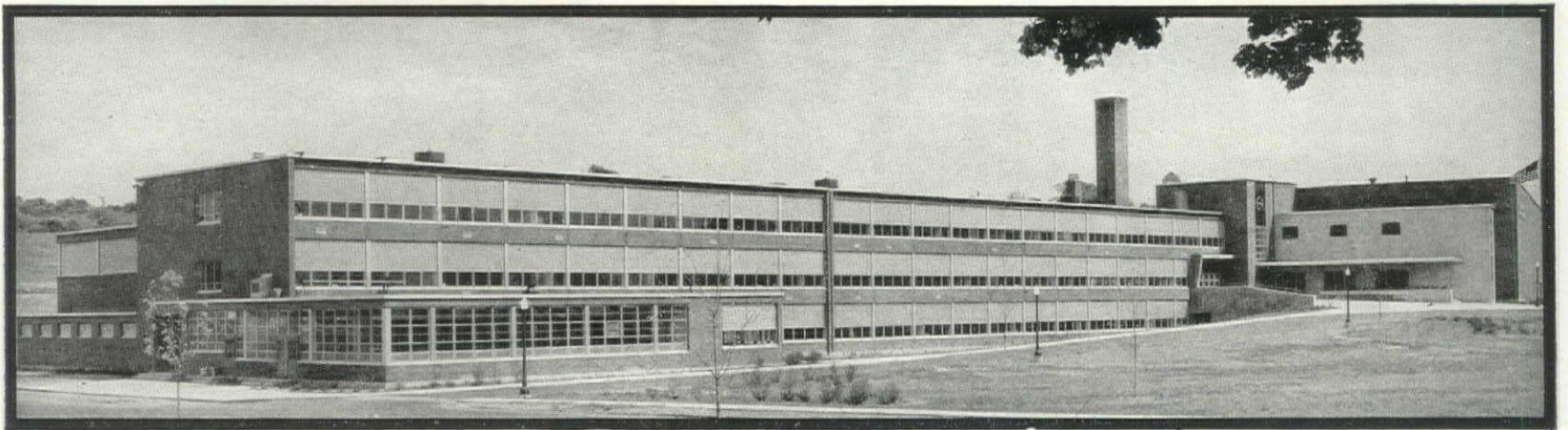


Manufacturers of Engineered Incandescent Lighting



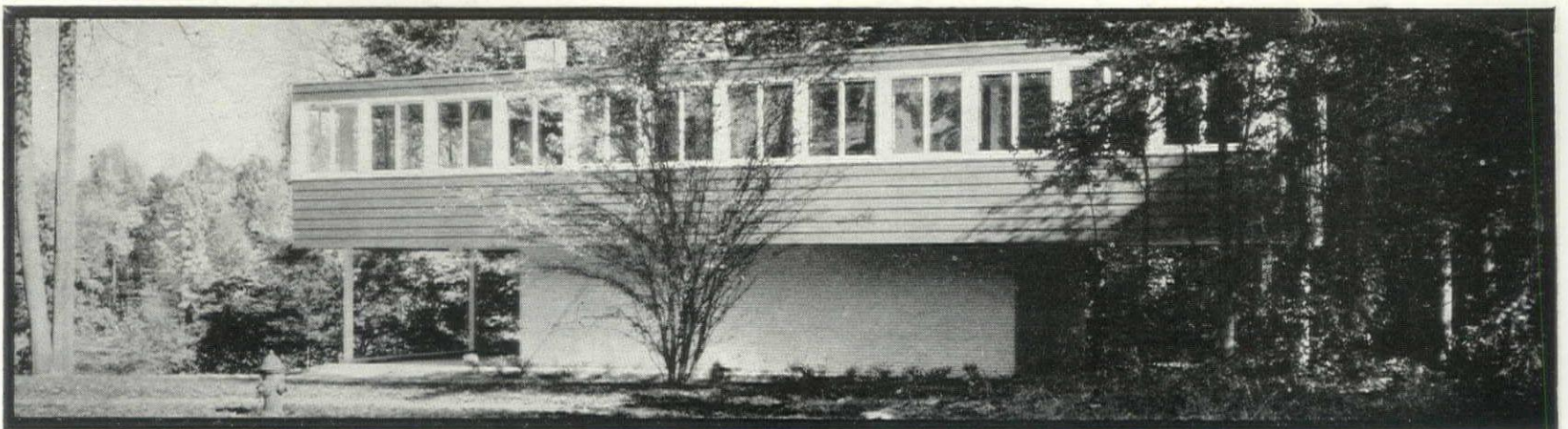
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(Locking Button and Pull-cord Types)

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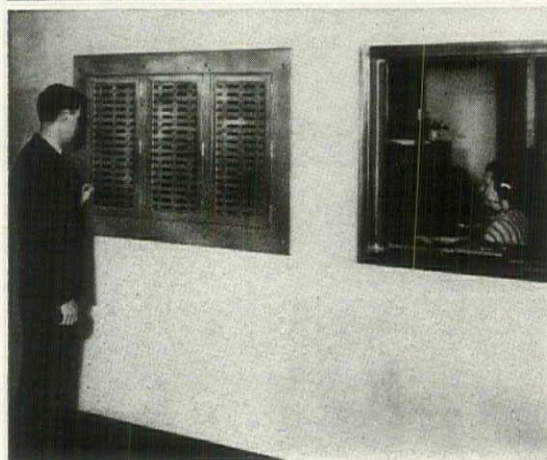
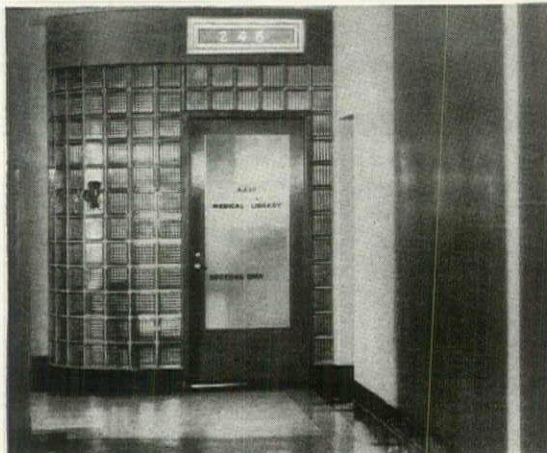
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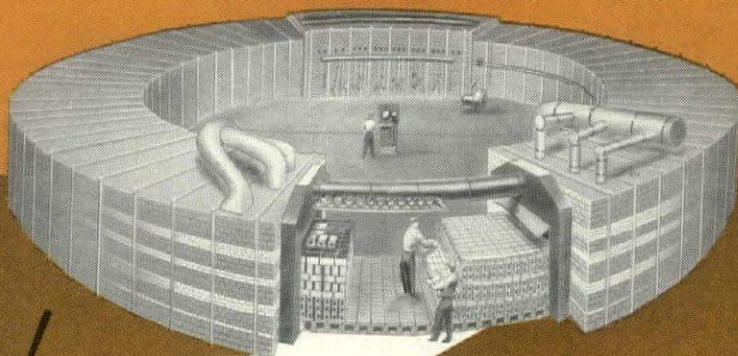
Auth's thorough and long experience in this field is available to you, without obligation, if you desire technical advice or guidance in preparing specifications. Literature, too, is available — please write to the Auth Electric Company, Inc., 34-20 Forty-fifth Street, Long Island City 1, New York and mention the systems or equipment that interest you.



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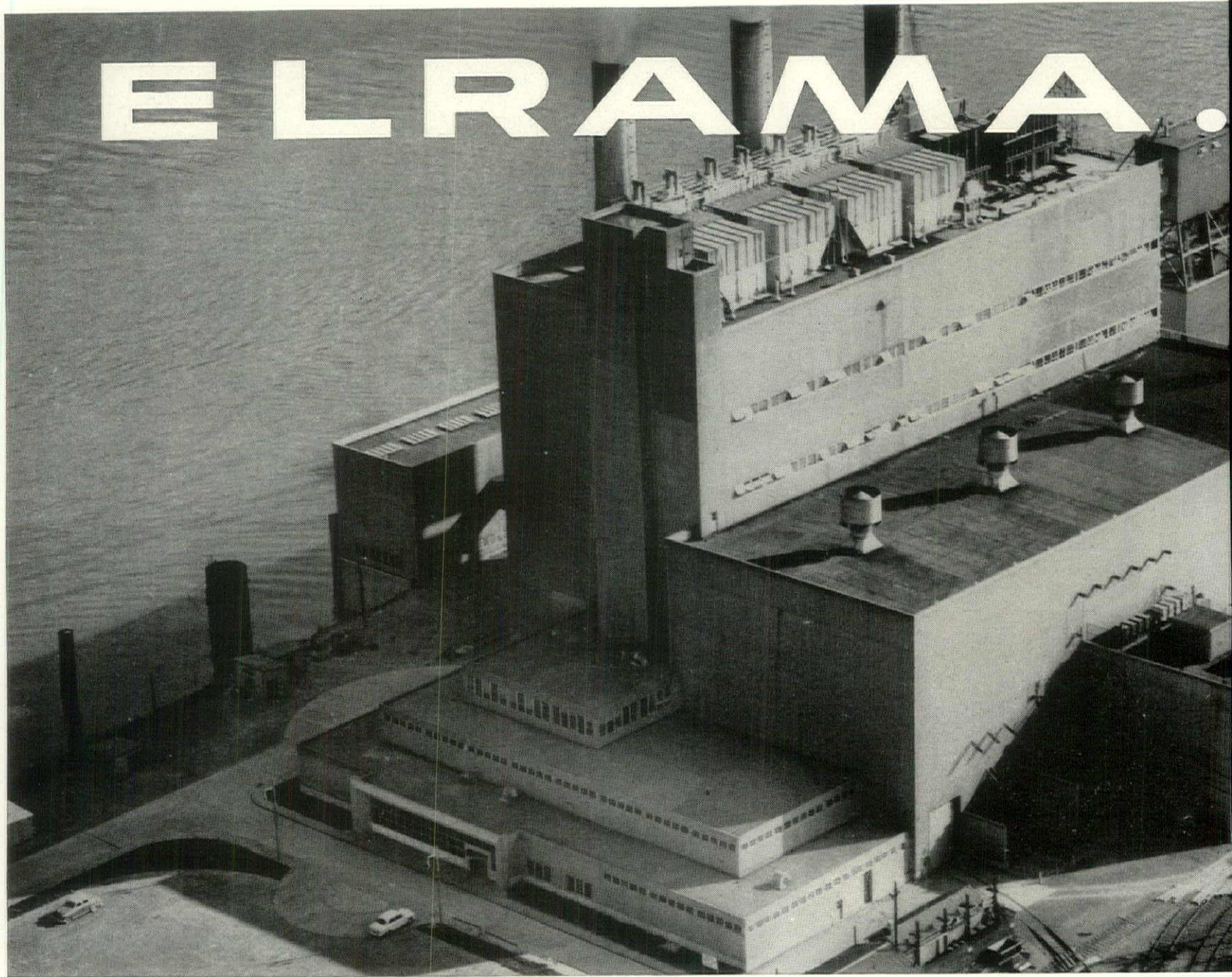
- ▶ Completely modern plant facilities, which include eleven circular continuous kilns.
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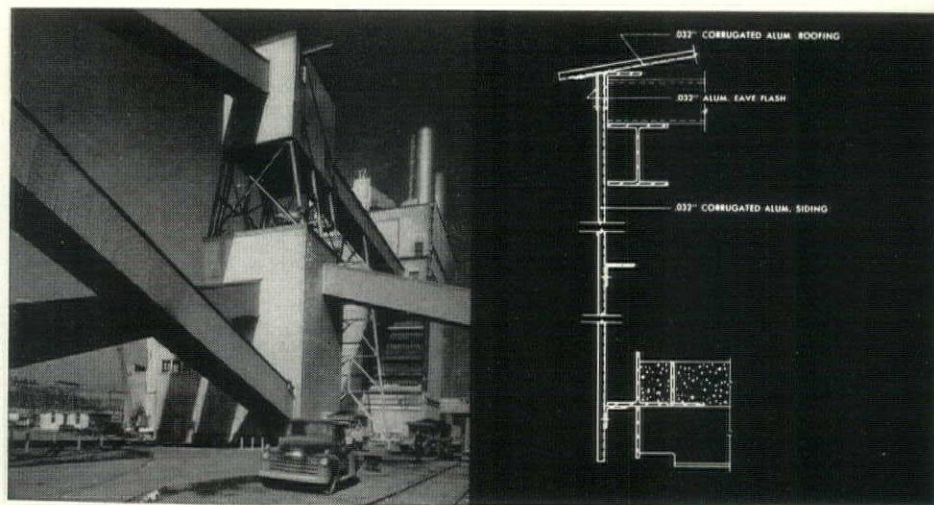
ELRAMA.



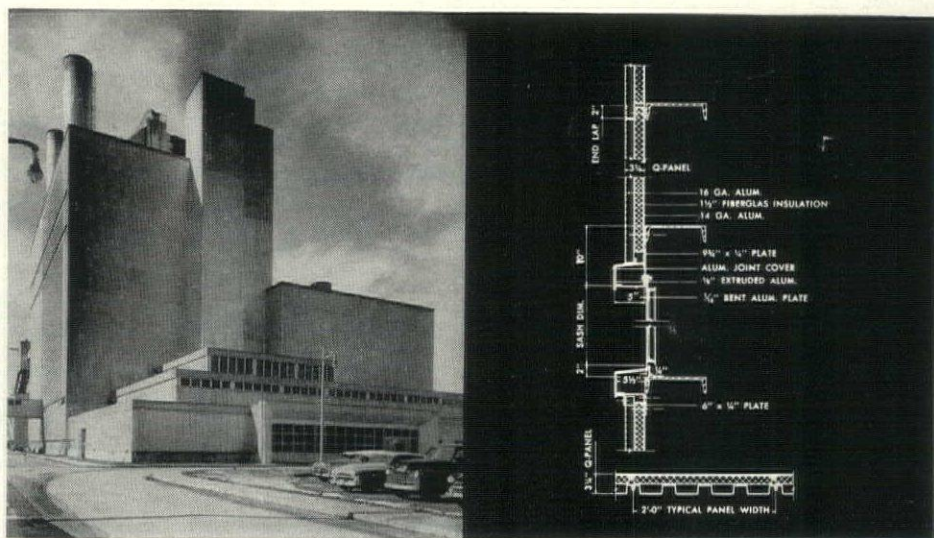
a study in three types of industrial wall construction with Alcoa Aluminum

Concerned with the increasing cost of masonry construction, Duquesne Light Company, serving the greater Pittsburgh area, made studies of possible alternates. The walls of Elrama—the company's newest power station—are the result of the findings. An artful adaptation of readily available prefabricated aluminum panels to three different wall problems, they more than meet the specifications: a smart, modern appearance, low construction cost, long life with minimum maintenance.

Alcoa has worked with many architects, designers and engineers to develop aluminum applications for commercial and industrial buildings. The results of this work can be applied profitably to your next project whether it be new construction or modernization. For complete information call your local Alcoa sales office. You'll find the number listed under "Aluminum" in your classified directory. Aluminum Company of America, 1887-M Alcoa Building, Pittsburgh 19, Pennsylvania.

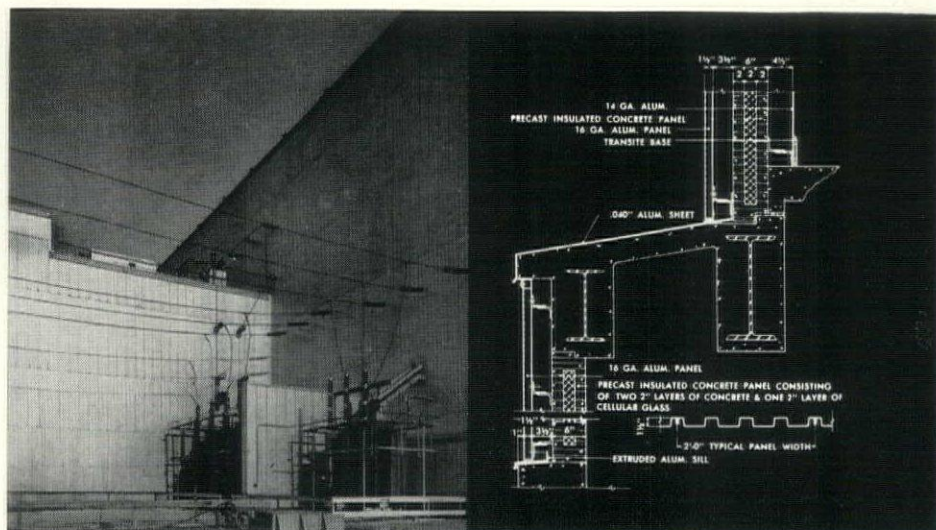


COAL HANDLING STRUCTURES include crusher building, containing machines which crush coal before transfer to bunkers, and transfer building. Both are sheathed with readily available Alcoa® Industrial Roofing and Siding because of its resistance to the corrosive action of coal dust and water.



BOILER ROOM WALLS are Robertson Q-panels, two feet wide, 3¼ inches thick, sixteen feet long. Glass fiber cord provides insulating value equivalent to that of 12-inch brick and hollow tile masonry wall. Panel exteriors are fluted Alcoa aluminum sheet, interiors are faced with flat Alcoa aluminum sheet.

CONTROL HOUSE and west wall of turbine room required walls that would pass four-hour fire test. Insulated precast concrete panels were used as core. Sandwich-type construction features two layers of concrete with two inches of cellular glass between. Weather facing is Alcoa aluminum sheet matching other walls in appearance.

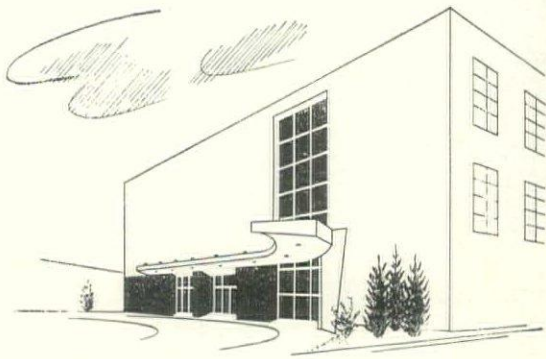


Elrama Power Station,
Duquesne Light Company
Designed by—
Duquesne Light Company
General Contractor—
Dravo Construction Company

Alcoa 
Aluminum

ALUMINUM COMPANY OF AMERICA

STATE TIMES AND MORNING ADVOCATE BUILDING, Baton Rouge, Louisiana

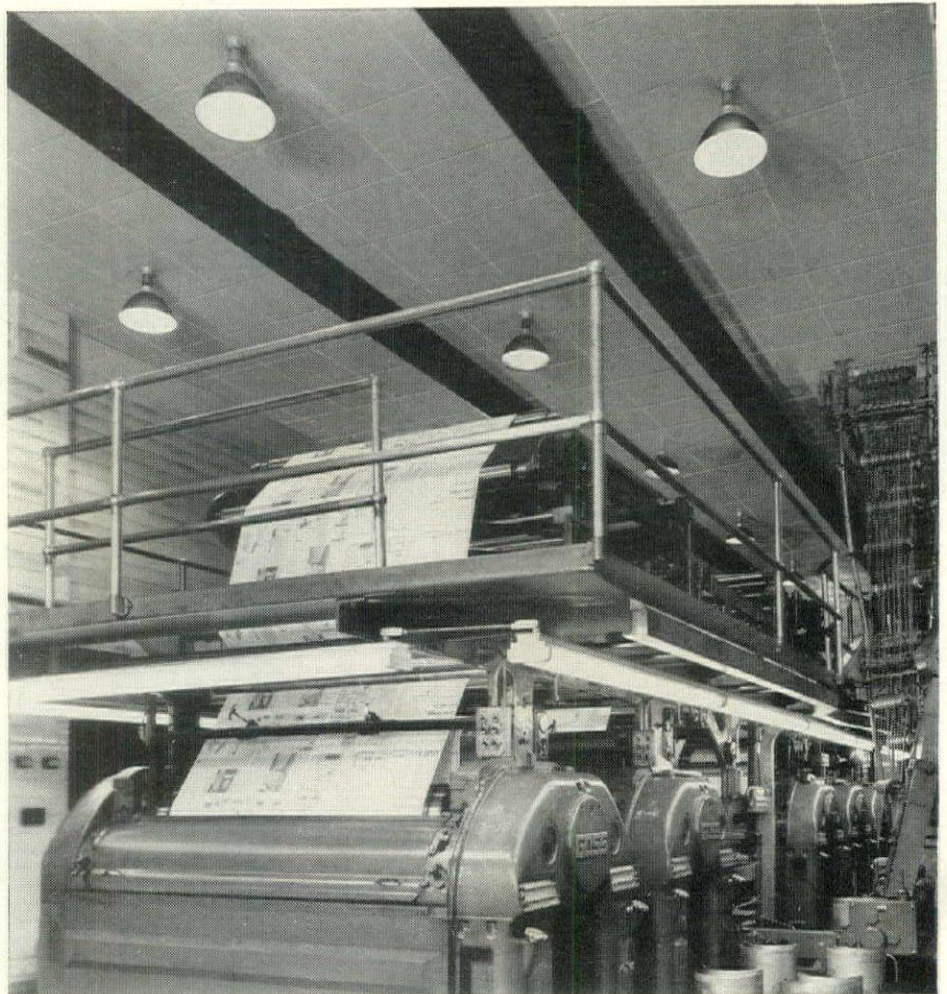


Architect: Bodman, Murrell & Smith, Baton Rouge, La.
Acoustical Contractor:
 Clifford A. King, New Orleans, La.
General Contractor:
 Pitman Construction Co., New Orleans, La.

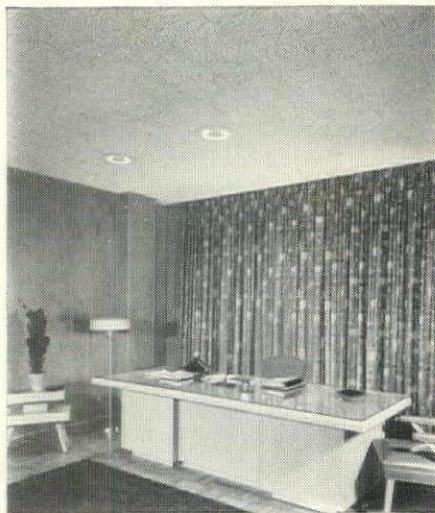
Even at press-time, there's comfortable quiet in the offices and work areas of Baton Rouge's State Times and Morning Advocate Building. The roar of presses, the rattling of Linotypes, and the clatter of teletypes are greatly subdued. In selecting the proper material for each area of the building, three of Armstrong's acoustical materials were chosen.

In the newspaper's composing room, a ceiling of low-cost Cushiontone soaks up as much as 75% of the noise. Armstrong's Perforated Asbestos Board backed up by a glass-wool blanket was used in the press-room. In the lobby, private office, and corridors where appearance is especially important—a fissured mineral wool ceiling of Armstrong's Travertone complements the ultra-modern décor.

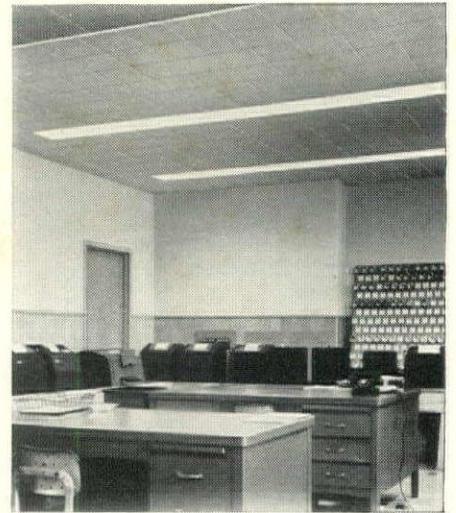
As this building demonstrates, no single material can solve every sound-conditioning problem. That's why Armstrong offers you a variety of acoustical materials, each with its own special features. For full details, call your local Armstrong Acoustical Contractor. And for the free booklet, "How to Select an Acoustical Material," write direct to Armstrong Cork Company, 4212 Rooney St., Lancaster, Pennsylvania.



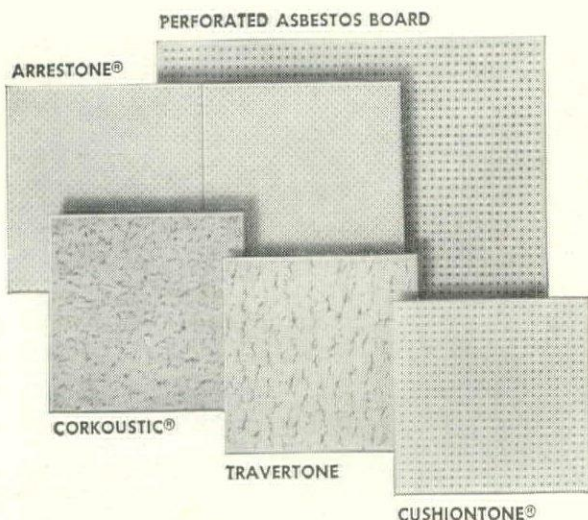
Grease and ink spray present no cleaning problem in this press-room. The fire-safe acoustical ceiling of Perforated Asbestos Board can be readily washed or repainted whenever necessary.



A ceiling of Armstrong's Travertone adds distinctive beauty and comfortable quiet to this private office. A fissured mineral-wool tile, Travertone is completely incombustible.



13 teletype machines operate continuously in this alcove adjoining the newspaper's city room. The Cushiontone ceiling over both areas, however, prevents the build-up of disturbing noise levels.



ARMSTRONG'S ACOUSTICAL MATERIALS

Leon Trice



PILOT REHABILITATION project in New Orleans was shown to Presidential Assistant Sherman Adams (l) by Mayor deLesseps Morrison (r). The mayor, an ardent booster of repairing blighted housing by law enforcement, was given a plaque by NAHB during the AMA sessions congratulating him for thus helping "show the way for all our people to build a new face for America."

Public housing's future

- ▶ **President's housing advisors would continue program but link it with rehabilitation, build less projects**
- ▶ **American Municipal Assn. hears public housing branded paternalistic but continues to endorse it**

With issuance of the President's housing policy commission report, the stage was set this month for what seemed sure to be the building industry's major debate of 1954: what to do about public housing.

The 23-man commission headed by HHF-Administrator Albert Cole left untouched the hottest potato, how many units should be started next fiscal year. The advisors left that up to Congress, which will have to make the final decision anyway. Even anti-public housers agreed that the government could not back out of building the 35,000 units in various stages of planning.* So a good guess on fiscal 1954-55 starts was anything from this year's level—20,000 starts—to the 25,000 to 35,000 starts that PHA had asked the Budget Bureau to approve.

New directions. The housing advisors recognized that the federal government would have to stay in the welfare business of subsidizing the cost of shelter for low-income families. But they suggested some major shifts in emphasis for public housing. As PHA Commissioner Charles Slusser has been

* PHA tardily admitted this month—after the news was spilled in Chicago—that on Nov. 19 it had quietly lifted its July 24 ban on preliminary work on the 35,000 unit backlog. Such furtive administration was apparently intended as a sop to the anti-public housing bloc in Congress. Most observers thought it would boomerang.

urging lately, they suggested that less public housing be put up in vast institutional projects, that more of it should be single-family or duplex units that fit into residential neighborhoods and—more important—lend themselves to ultimate sale to their inhabitants. They recommended that payments to local communities in lieu of taxes be made mandatory by law for public housing.

Most significantly, they urged that public housing be permanently tied to rehabilitation and other local efforts to repair slums. The method: before any city could qualify for an allocation of public housing units, the proposed Urban Renewal Administration (beefed-up successor to HHFA's urban redevelopment division) would have to certify that the city was making a sincere effort on its own behalf to rehabilitate slums and prevent new slums from forming. The housing committee did not propose to let the Public Housing Administration have the power to decide whether cities met the qualifications. The clear implication: it did not trust PHA staffers to make such decisions impartially.

At the American Municipal Assn. conference in New Orleans, rehabilitation received

a pat on the head from the highest federal official yet to remark on the NAHB-NAREB plan to outlaw slum conditions. Presidential Assistant Sherman Adams, after visiting the pilot rehabilitation block in a rundown Negro section of the city, told the nation's mayors it was "a wonderful project." Said Adams: "I have been impressed, as have so many others, with the ingenious and effective approach which you in New Orleans have made in experimenting with your own problem. I was interested enough in it to go out and see it this morning. Here is a laboratory for many a community in America which is confronted with like conditions. I know that with private initiative and public cooperation, there are possibly thousands of such programs which can be both sound and successful with much the same approach."

Public housing defended. Adam's views contrasted strikingly with those of PHA Commissioner Charles Slusser, another speaker at the conference. Slusser, hewing to the standard line of public housing advocates, declared: "It [public housing] is the best tool we have for rehabilitating the slums of America and the people that live there. . . . I think the federal government is the only body, with certain notable exceptions, that is in any position to establish sufficient credit to enable us to provide public housing."

The angriest words over public housing came from Mayor Joseph S. Clark Jr. of Philadelphia and Mayor Norris Poulson of Los Angeles as they debated whether AMA should continue to endorse the program. Said Clark: "I have no desire to belittle the value of rehabilitation. We must make a major effort to renew existing dwellings before they become totally obsolete. Adequate zoning and health codes are also a vital part of urban renewal. But these things are not in themselves enough.† They do nothing to increase the supply of modern housing. . . ." Clark charged that Los Angeles' housing program was "atavistic and irresponsible." He insisted: "The heart of the problem is to be found in the Housing Act of 1949. We need large federal subsidies."

Poulson retorted that public housers favor "paternalistic government." He warned: "If the AMA takes sides in this issue, it's the death knell of AMA. It all resolves down to what is your philosophy of government. Do you believe in the sanctity of man, or do you believe that the government is supreme? We give lip service to free enterprise. Why can't we accomplish the same thing within the framework of private enterprise? . . . Did public housing take care of the poor? It took care of the people in the \$50, \$60 and \$70 rent brackets."

After hearing the two mayors, Slusser, and NAHB's rehabilitation director, Yates Cook, who told what rehabilitation can do, but did not decry public housing, the AMA voted to maintain its support for public housing.

† Smartest advocates of rehabilitation do not argue that fixup drives alone are enough. But they think these should come first.

BUILDING STATISTICS:

Los Angeles construction outlays top New York's by 18%

Where did the most building take place during the all-time record construction year ending this month?

Based on Bureau of Labor Statistics reports for the first nine months, Los Angeles had the greatest volume of any city. Outlays there reached \$331 million through September, a handsome 18% lead over second-place New York's \$281 million. A year earlier, the mushrooming West Coast metropolis was also in the lead, but only by the slender margin of \$258 to \$252 million. Through Sept. '52, New York led Los Angeles, \$99 to \$91 million, in the value of nonresidential building. But this year it was trailing the Angelenos in that classification, too, \$101 to \$60 million. This year Chicago was running third in total dollar volume, and Detroit third in nonresidential expenditures.

BLS urban area data in the accompanying table were based on activity within incorporated places of 2,500 or more population in 1940. Thus it fell short of comparing metropolitan areas. BLS agreed its figures—hampered as ever by lack of funds—omitted some large projects "in populous suburban areas that might be an integral part of a city's economic and social life."

The top ten states in construction in urban places through the first nine months of this year ranked this way (in millions of dollars):

TOTAL CONSTRUCTION		NONRESIDENTIAL	
1. California	\$1,094	1. California	\$328
2. New York	552	2. Texas	192
3. Texas	529	3. New York	183
4. Ohio	503	4. Michigan	173
5. Illinois	497	5. Ohio	167
6. Michigan	426	6. Illinois	146
7. Pennsylvania	376	7. Pennsylvania	118
8. Florida	283	8. Indiana	86
9. New Jersey	257	9. Massachusetts	78
10. Massachusetts	239	10. Florida	77

NEW CONSTRUCTION ACTIVITY

(expenditures in millions of dollars)

Type	November			1st eleven months		
	'52	'53	% change	'52	'53	% change
PRIVATE						
Residential (nonfarm)	1,024	1,020	—0.4	10,158	10,866	+7.0
New dwelling units	915	900	—1.6	9,020	9,595	+6.4
Additions & alterations	91	95	+4.4	971	1,026	+5.7
Nonhousekeeping	18	25	+38.9	167	245	+46.7
Industrial	194	178	—8.2	2,127	2,067	—2.8
Commercial	113	190	+68.1	1,025	1,604	+56.5
Other nonresidential	136	154	+13.2	1,429	1,509	+5.6
Religious	38	46	+21.1	362	429	+18.5
Educational	33	41	+24.2	318	385	+21.1
Hospital	30	26	—13.3	366	288	—21.3
Public utilities	347	396	+14.1	3,689	4,085	+10.7
*TOTAL	1,934	2,047	+5.8	20,017	21,629	+8.1
PUBLIC						
Residential	49	41	—16.3	605	512	—15.4
Industrial	154	140	—9.1	1,525	1,639	+7.5
Educational	136	158	+16.2	1,485	1,587	+6.9
Hospital	38	22	—42.1	437	323	—26.1
Military	121	105	—13.2	1,277	1,249	—2.2
*TOTAL	924	951	+2.9	10,071	10,497	+4.2
GRAND TOTAL	2,858	2,998	+4.9	30,088	32,126	+6.8

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

Construction expenditures declined less than seasonally in November, and were almost 5% greater than during Nov. '52. Commercial construction outlays soared to an all-time monthly high of \$190 million. For the first 11 months of the year, \$32.1 billion had gone into new construction alone. That was almost 7% more than for the same period in 1952 in dollars, about 3% more in physical volume.

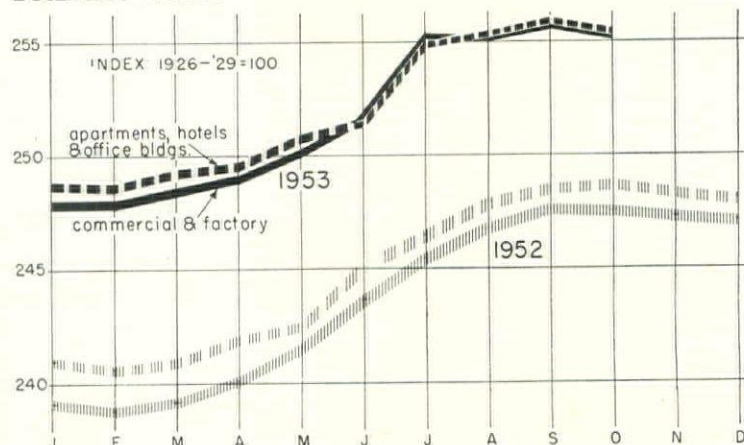
BUILDING EXPENDITURES IN URBAN AREAS

(expenditures in millions of dollars)

	All building, including repairs and alterations		Excluding new residential building	
	1952	1953	1952	1953
Atlanta	\$29,755	\$61,586	\$7,053	\$27,363
Baltimore	44,195	67,693	8,412	20,313
Chicago	150,918	160,740	39,893	53,574
Cleveland	43,544	69,857	14,352	37,478
Dallas	81,979	84,651	32,595	31,195
Denver	53,692	54,839	16,749	28,644
Detroit	97,205	134,632	42,729	68,632
Houston	85,273	97,471	22,309	33,170
Los Angeles	258,560	331,128	60,917	101,855
Milwaukee	54,150	62,413	16,349	23,335
New Orleans	66,072	82,494	29,087	27,600
New York City	252,663	281,225	99,224	91,151
Philadelphia	87,657	93,689	20,723	27,705
Portland	40,649	41,964	17,144	14,808
San Diego	70,619	71,924	13,457	15,461
San Francisco	40,991	36,896	18,348	15,040
Seattle	47,830	42,635	22,520	16,460
Washington, D.C.	45,475	59,750	12,766	19,705

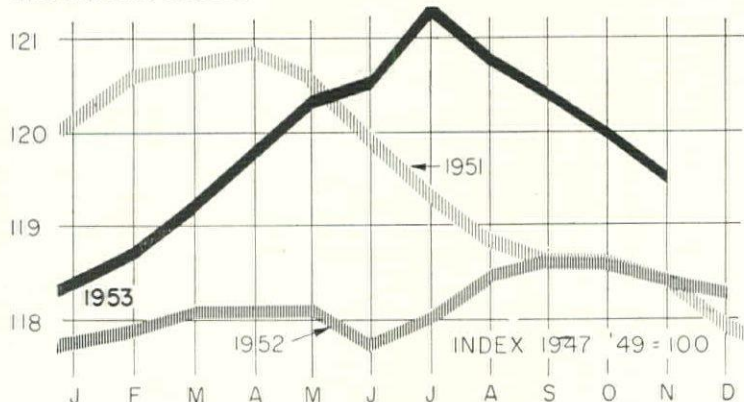
Source: Bureau of Labor Statistics data, based on permits issued and federal contracts awarded. New York data are based on initial inspection after start of construction, and subject to understatement by amount of work started but not yet inspected.

BUILDING COSTS



Building costs for commercial and factory structures and apartment hotel and office buildings, as compiled by E. H. Boeckh & Associates, dipped a fraction from September to October. The commercial and factory index for October was 255.2, compared with 255.3 in August and 255.6 in September. The apartment-office-hotel index was 255.4, compared with 255.5 in August and 255.9 in September. Smith, Hinchman & Grylls's building cost index for November was unchanged at 268.

MATERIALS PRICES



Materials prices charted by the Bureau of Labor Statistics fell for the fourth successive month. The November index was 119.5, compared with 120 in October (and the 1947-49 average as 100). The drop from the July peak of 121.3 was substantial: almost 1.5%. Last month's decline was caused mainly by lower prices for Douglas fir and southern pine lumber, hardwood flooring, copper wire. Early this month Armstrong Cork Co. increased hard-surfaced floor covering prices 2 to 5%. Other producers were expected to follow suit.

Half-merger, a new recipe for problems of city and suburbs, gets trial in Toronto

On Jan. 1, 12 suburbs will cease to be part of York County and join Toronto, Canada in a semi-merger that is being watched keenly by US city planners as a pacesetting solution to the woes of cities strangled by their suburbs.

The new political creation is called The Municipality of Metropolitan Toronto. It compromises with suburban jealousy of local autonomy by letting the 12 suburbs keep their identity, their local government and most of their civic jobholders. But it gives the metropolitan government enough tax and fiscal power to cope with area-wide problems that defied solution by voluntary cooperation.

Left to the old municipalities are police and fire departments, garbage disposal, sidewalks, public health and sanitation, distribution and sale of electricity, public libraries, financial aid to hospitals, licensing and local regulations, and the direct levy and collection of taxes.

But a new metropolitan council will take over water supply, sewage disposal, planning and construction of arterial highways, education, transit, tax assessments, metropolitan parks and green belts, and all capital outlays (through control of debentures). Subject to the authority of the metropolitan council, the 12 suburbs and Toronto proper will continue in charge of retail distribution and sale of water, local sewage connections, local streets, street cleaning, lighting and traffic control, elementary and secondary school standards, public relief and some other welfare services, local jails, magistrates' and juvenile courts, local recreational facilities, public housing and redevelopment schemes, local planning, zoning and sub-division control.

Typical test ground. Toronto strikes experts as a good testing ground for the experiment. It is already the center of Canada's most heavily populated region.* And the problems spawned by its collar of political satellites bear close resemblance to the problems of many a US city.

For 82 years after its incorporation in 1830, Toronto grew logically, reaching out from time to time to annex built-up areas which logically belonged in the metropolitan limits. But landowners complained that downtown commerce and industry were being overtaxed to provide schools and other services for the underassessed fringes. In 1912, Toronto called a halt to expansion.

While city boundaries remained static, overflow population swelled the suburbs, especially after World War II. Between 1941 and 1951, Toronto grew less than 1%. The metropolitan area gained a healthy 22%. The result, as explained recently by Frederick G. Gardiner, chairman of the new metropolitan council: "The separate municipalities were not very much concerned about what was happening to themselves or interested in the general and proper development of the whole area. Half a dozen of these local govern-

ments, in the absence of substantial industrial development, were unable, with a reasonable tax rate, to provide essentials such as water, sewage disposal and schools. Some even stopped issuing building permits."

This naturally aggravated the postwar housing shortage. Only Etobicoke, North York and Scarborough (see map) still had space left for big housing developments. But all three had a low industrial to residential assessment ratio, which made it so hard to finance new services that all three were forced to restrict homebuilding. In North York, for instance, industry and commerce accounted for only 19% of assessed valuations, leaving home owners to foot 81% of the tax bill. Says Gardiner: "Unless your industrial assessment is at least 50%, you're going to go broke slowly, or . . . fast."

Volunteer unity fails. There were several attempts to free Toronto from its shackles. The Toronto and York Planning Board was set up in 1947 as a metropolitan area planning body, but without power to expropriate land or spend money. So its plan to build area-wide arterial highways ran into a wall of diverse municipal interests. After a 1949 study, the board recommended an annexation plan by which Toronto would immediately absorb eight of the surrounding municipalities and take in the others over four years. But this scheme was quickly pigeonholed in the face of opposition from every municipality except Toronto and tiny Mimico. Said one baffled planner: "You've got 13 councils, 13 reeves (mayors), 13 deputy reeves, 13 clerks,

13 treasurers and 13,000 guys afraid of losing their jobs." Says Gardiner, who was once reeve of Forest Hill: "For five years, that planning board sat there and tried to solve problems on a cooperative basis. It didn't work."

Then Toronto asked the province of Ontario for permission to annex the suburbs. The province turned the city down. But it came up with the outlines of the plan for the metropolitan council and halfway unification instead. With modifications, it was voted into effect last spring by the provincial legislature.

Something for all. So that all 12 suburbs could be represented, the metropolitan council became a 25-man body—an unwieldy number, but the best politically possible solution. Its composition: the mayor of Toronto, the two (of four) Toronto controllers with the top vote in the last election, the alderman with the top vote in each of Toronto's nine wards, plus the Reeves of the 12 satellite townships, towns and villages. Thus city and suburbs are equally represented. The first \$15,000-a-year chairman, Gardiner, the 25th member, was appointed by the provincial government. After Jan. 1, '55, the council will elect its own boss.

The most urgent job since the council began organizing in mid-April has been reassessment. Each of the 13 municipalities has had its own system, some based on half the actual value of property (converted to 1940 values), others at one-third or one-quarter. By March, the metropolitan council is due to draw up its first budget (probably some \$40 to \$50 million dollars for one year). And it will assess levies against each municipality—assessments the local governments will be compelled to meet on the basis of uniform property valuations. Local governments can collect additional taxes to finance their local activities (or provide higher standards of service than the metropolitan level). So the tax rate may vary in each of the 13.

How much will it cost? No one knows for sure yet whether taxes will rise, or if so, how much. Fear of higher taxes was a



* With addition of its 12 suburbs, Toronto will jump from 34.88 to 250 square miles. Its population will almost double, from 676,000 to 1,118,000, making the new metropolitan municipality the 15th largest metropolitan area in North America.

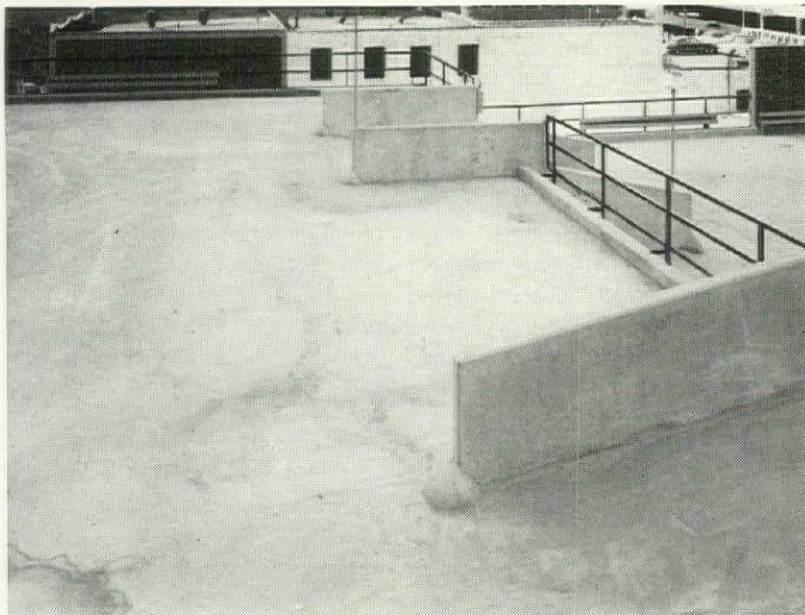
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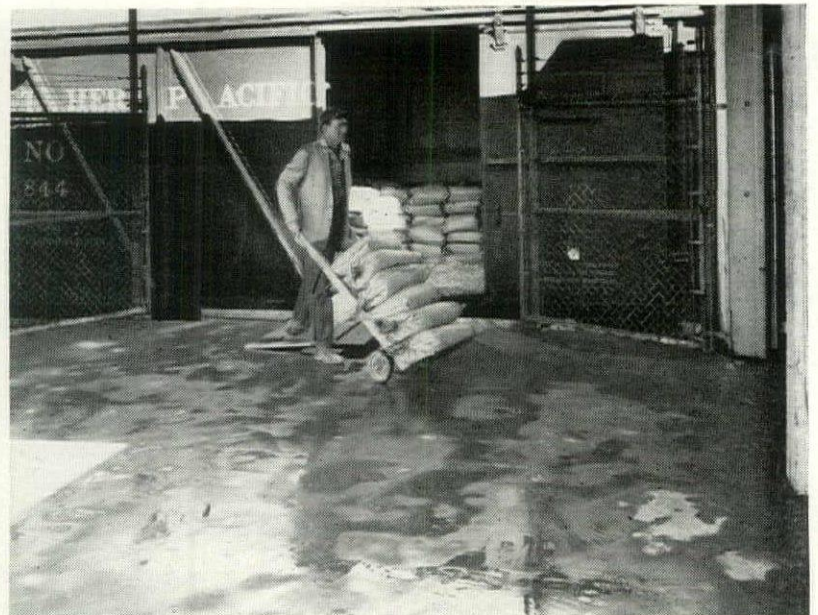
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focus of opposition to creation of the metropolitan council. Chairman Gardiner has promised that there will be "no undue tax increases" from the metropolitan council. But some individuals and companies seem sure to face higher levies. One forecast is that the new assessment will be about \$1 billion higher than the 1953 total for the area, \$1.76 billion. Some experts think education costs will be the main cause if taxes go up. Taxpayers in all 13 communities will share the cost of a three-year, \$15 million school construction program, although most of the schools will be built in outlying areas.*

Ahead: annexation? Will the new metropolitan setup lead eventually to complete amalgamation of Toronto with its satellites? Gardiner thinks if the council succeeds it may end the need for more unification. But more people seem to feel it is an icebreaker leading toward a single metropolitan government for Greater Toronto.

Says David Brown, reeve of Leaside: "We are jealous of losing our community spirit. We know that if we do, it will lead to total amalgamation, and that's what we're most afraid of." At the moment, Brown concedes, "there's not much active resentment." But he adds: "We're waiting to see the taxes."

Says Fred Gardiner: "For 40 years this area has been shackled by 13 local municipalities, all geared to local prejudices, practically all of them standing in their own way, in the way of their neighbors. . . . These johnnies aren't going to sit in council as a government and an opposition, or with the Toronto members on one side and the suburban members on the other. They're going to sit all together, see the job that has to be done, and they'll soon forget the year of the big wind that has taken place. We're going to have . . . the best-run municipality in North America."

* A metropolitan board of education, composed of representatives of the local boards of education, will set over-all policies, guarantee a minimum level of outlays for education and control school construction, assume all existing school debentures.

General predicts good work conditions for Spain bases

US contractors who get in on the big Spanish naval and air-base construction program will find working conditions "as favorable as you have been led to believe." Maj. Gen. Lee Washbourne, Air Force director of installations, gave the New York Building Congress that prediction last month as he outlined the timetable for the big job. Washbourne said a prime contractor will probably be picked by the first of the year. By late summer, "substantial actual work" should be under way, he said, "although the program will take about three years to complete in 'orderly fashion.'" Two months ago, Pentagon spokesmen advertised the cost as \$200 million. This month, Congressional sources put a price tag of \$1 billion plus on the deal.

SIDELIGHTS

No blame in Scarsdale collapse

A grand jury decided that the collapse of a partly completed, four-story concrete building in Scarsdale, N.Y. last summer (AF, Aug. '53, News) was not caused by "culpable criminal negligence." The July 10 accident killed three workmen and injured ten. The jury found that at the time of the accident the building contained "certain defects in design, material and construction which may have caused or contributed to the collapse." It made two stern recommendations: building codes throughout Westchester County, many "totally inadequate," should be modernized or replaced with the New York State building code; local codes should be amended so that responsibility for supervision can be fixed, preferably on an architect-engineer supervising the construction.

Lily ponds and built-in bars

Herbert A. Leggett, vice president of the Valley National Bank in Phoenix and editor of its monthly bulletin, expressed himself on the metamorphosis of executives' offices wrought by modern decorators. These offices, once regarded primarily as places in which to work, said Leggett, are today "designed along the lines of a botanical garden or the boudoir of Madame du Barry. Basic equipment includes a chaise longue, a built-in bar, a putting green and a lily pond. . . . A flashlight comes in handy, too, because the indirect lighting is so indirect that it is difficult to distinguish the executive from the bronze Buddha."

New architect groups

At AIA's Des Moines regional meeting, a newly formed National Assn. of Registered Architects was presented with its charter of incorporation—from the State of Missouri. The group's chief aim: standardization of architectural licensing laws to make it easier for young architects to work. Explained President Harold A. Casey of Springfield, Mo. (who is an AIA member): "We're first-degree Masons; AIA is the shrine." AIA's directors chartered three new chapters: Monterey Bay in California, and southeast and west Texas, raising AIA's chapter roll to 111.

Heat pump cuts fuel bill

A reverse-cycle heating system (heat pump) in Pietro Belluschi's 12-story, aluminum-clad Equitable Savings & Loan building in Portland, Ore. (AF, Sept. '48) is saving the organization several thousand dollars a year. J. Donald Kroeker, consulting engineer, said it costs only \$773.63 a year to operate the pump, compared to \$4,930 for a steam system or \$3,430 for oil. (For details, see p. 136).

Needed: a new text

Is there no nontechnical textbook on architecture in print that is suited for undergraduate survey courses? Professors at Boston

University Junior College raised that question after examining several likely volumes and finding them all wanting. So the college thought it might fill the gap by preparing such a book itself. Asked for advice, AIA hemmed and hawed, admitted its education committee had pointed out a need for such a text but that plans to do something about it had been shelved. AIA felt "much concerned" as to who would undertake the project for Boston University, thought quite definitely it should be a person "trained in the architectural profession."

British take to giddy heights

London got its first batch of skyscraper (12-story) apartment buildings last month. In view of the fact that few buildings in the city are more than seven stories high (because of formerly strict height restrictions) the new 112' structures, containing a total of 180 apartments, were described as "revolutionary." It was feared at first, in fact—according to one dour official at opening ceremonies—that families scheduled to live on the upper floors might refuse to live "at such great heights."

Trustbusters clear the air

The course of antitrust suits against various segments of the construction business under GOP rule took on a clearer pattern. The Supreme Court agreed this month to review a lower court decision in Illinois dismissing the government's monopoly charge against two AFL plasterers' and lathers' unions and two employer associations in Chicago.

The government had charged that Chicago plaster contractors barred out-of-state firms from the metropolitan market through a complex system of agreements with lathers. It also contended that both unions would approve only their own members as contractors, thus driving building costs artificially high as the number of lathing contractors in Chicago shrank from 100 to 36. The judge did not rule on the issues. He held interstate commerce was not involved. But he virtually invited appeal by observing: "The Supreme Court might see this matter otherwise . . . it certainly is a matter for the Supreme Court to interpret." Review proceedings, brought through an appeal by the Justice Dept., will be in the works for awhile; the decision will be worth the wait.

In September, 89 cement companies were let off the hook as an eight-year-old case against them was dropped. Antitrust Chief Stanley Barnes felt called upon to point out that the basic purposes of the suit had long since been achieved: dissolution of the Cement Institute, an end to basing-point pricing and no more identical bids on government contracts.

In Cleveland, a consent decree was negotiated in a case against 14 building-materials supply companies. They agreed not to fix prices or use any uniform pricing system, but denied the government's case was valid.

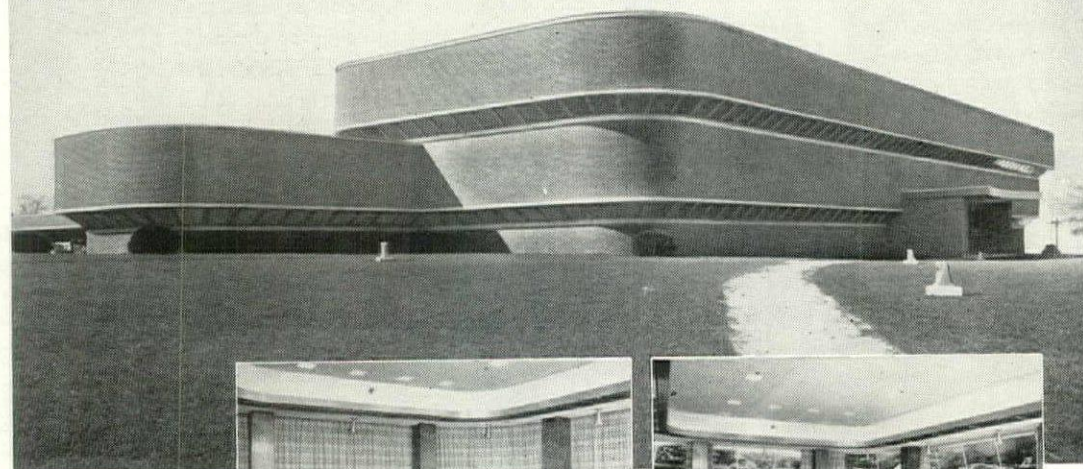
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• For more than 20 years surprise has followed surprise in the operations of The Springs Cotton Mills, and the designing and furnishing of its new office building was no exception. Following are some of the surprises which 15,000 people saw during opening days. The walls are suspended from the roof instead of supporting it. Each floor extends beyond the one below it. Windows are almost invisible, being set at a 45 degree angle to permit maximum light and minimum sunray heat. A con-

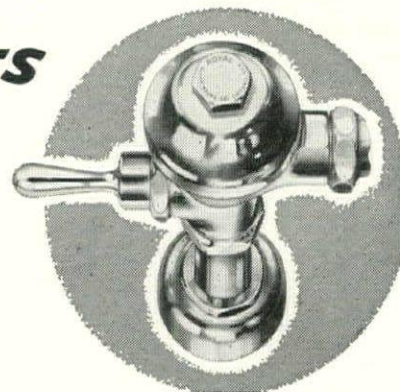
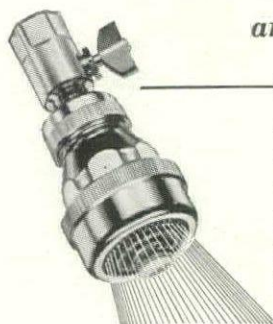
ference table, topped by a section of the parquet floor, rises and joins the president's desk when a push button is pressed. Much of the office furniture was partially made of discarded parts of mill equipment. Coupled with the innovations at Springmaid Headquarters are building products of recognized superiority, such as SLOAN Flush VALVES, famous for efficiency, durability and economy. Their selection is added evidence of preference that explains why . . .

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Chicago redevelopment sets fast pace for other cities

▶ Lake Meadows project begins an in-town shopping center

▶ Mies designs plan for world's largest convention hall

Denver's George R. Morrison, a past president of NAREB's Institute of Real Estate Management, came away impressed from a recent visit to Chicago. Said he: Every other big city I have visited is merely talking or dabbling at rebuilding itself. Chicago really seems to be getting something done."

Chicago indeed was getting something done—more than a lot of people realized. This month, its impressive list of large downtown renewal projects grew even longer.

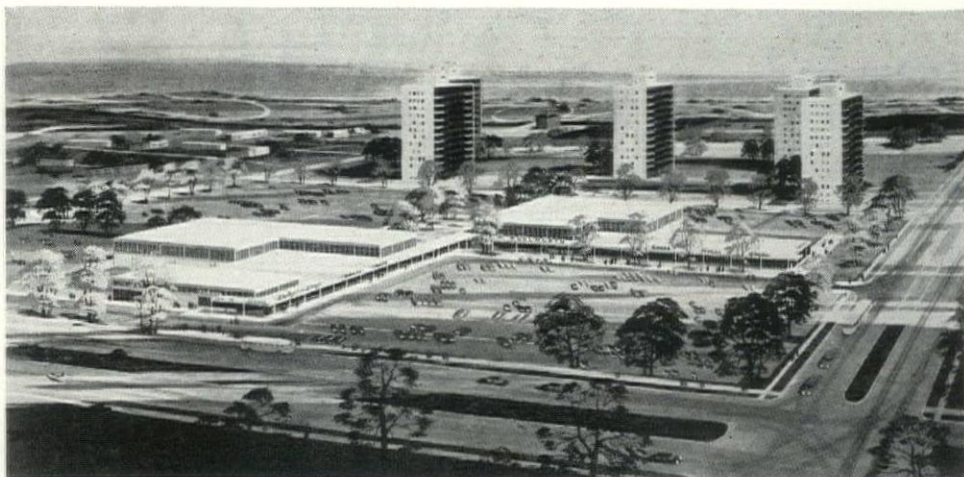
Its city garage program was off to an auspicious start (p. 128). As New York Life's huge Lake Meadows project progressed, work began on its large in-town shopping center (see cut). Soon officials would need to make definite decisions about two more large public projects: the city's long-deferred civic center, and a gigantic convention and exhibition hall.

Air rights. For some years, the city has procrastinated over a civic center. In 1949 the Chicago Plan Commission recommended a site, an area a little west of the Loop and extending across the Chicago River over two blocks of train sheds just north of Union Station (AF, May '49). In October, however, air rights over these two blocks (marked A on the cut at the right) were leased with a third block, south of the station, to Simon Bros., the New York builders. They expect to announce architects and engineers next month, and hope to start a \$75 million group of office and machinery exposition buildings before summer.

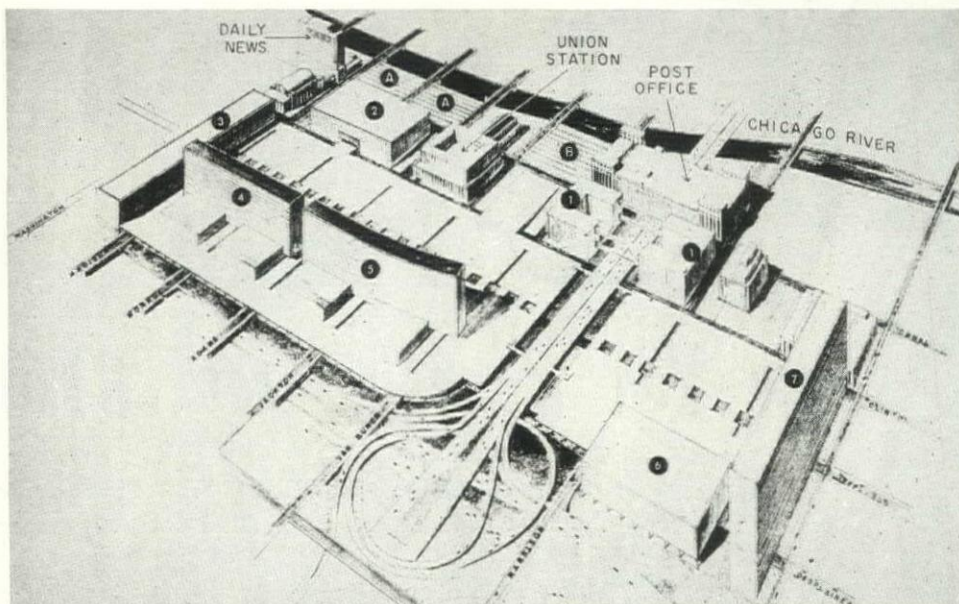
A week after this project was announced, the West Central Assn., a private trade organization, urged the city council to put the civic center on the west side of the river, as illustrated, and to authorize an \$8 million municipal office building as its first structure. The council, without much opposition, ordered a special study of this proposal.

State funds for hall. The biggest hurdle to a civic convention and exhibition hall was cleared when the legislature voted earlier this year to give Chicago \$5.7 million of state parimutuel taxes for it. The problem will be where to put it and what it should look like. Last month the South Side Planning Board got the jump on competing districts with a plan for the largest auditorium and convention hall in the world designed by Architect Ludwig Mies van der Rohe (see cuts at right and on p. 45).

This proposed hall was a perfect example of Mies's devotion to structural materials used without embellishment and his concept that an architect's job is to build a shell



AGAINST THE TREND of locating new stores in the suburbs, this 17-acre shopping center was started this month in Chicago's populous south side as part of New York Life Insurance Co.'s Lake Meadows redevelopment project. The center was designed by Skidmore, Owings & Merrill, will have 100,000 sq. ft. of floor area for more than 30 stores, parking space for 1,200 cars.



LATEST CIVIC CENTER PLAN proposed in Chicago would adjoin Union Station and Post Office. On sketch prepared by Architects Friedman, Alschuler & Sincere: A and B are area over railroad tracks recently leased for private exhibition and office buildings development to cost \$75 million; No. 1 would be an \$8 million 10-story city building (astride Congress St. expressway), and Nos. 2 to 7 would be additional public buildings for various courts and city, state and federal agencies.



WORLD'S LARGEST CONVENTION HALL, designed by Mies van der Rohe for Chicago's South Side Planning Board, would be 700' square, seat 50,000 people. Other groups are pushing other proposals to use \$5.7 million of state parimutuel taxes allotted for city convention-exhibition facilities.

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which can house a variety of interiors. It called for no interior columns. Parts of his vast 490,000 sq. ft. hall could be sectioned off through the use of movable freestanding walls. By providing "universal space" he would make sure the building would not readily become obsolete.

Other redevelopment news:

► In allocating \$4 million in Title I loan funds and an \$858,000 capital grant to rebuild a 12-block smudge of shacks and small commercial enterprises in Birmingham, Ala., HHFA noted that the formal contract would not be signed until there was assurance the redevelopment would "benefit all segments of [the] community and that there be no discrimination against any group because of race, creed or color." Last summer, NAACP protested that new housing included in original plans would exclude Negroes. The site now is home to 523 Negro families, 92 white ones. Result: planners eliminated all housing. The de-slummed 60 acres will be used to expand the adjoining University of Alabama Medical Center (where Negro doctors are not admitted). Because of reports that housing that barred Negroes might be restored to the plans after the federal grant was made, HHFA formally reminded the city's redevelopment agency that: all leases or conveyances of Title I redevelopment land must contain permanent covenants against racial or religious discrimination; such land can be reused only for purposes specified in the redevelopment plan; while HHFA would consider approving changes in plan, it would not approve any revision to include housing again "unless appropriate provision were made for equitable and fair provision for the housing needs of Negro families." No new policy was involved, explained Title I Boss James W. Follin. HHFA cannot legally require mixed racial use; it can only prohibit discrimination. Some Birminghamers, however, thought HHFA was using the letter of the law to wink at its spirit.

► Virginia became the 13th state in which the highest court has upheld the right of redevelopment agencies to condemn private property that was to be resold later for restricted private use. The State Supreme Court ruled

condemnation of land "beyond the reasonable necessities of slum clearance and prevention" would be invalid, but not the taking of parcels within a "whole area" required for a project, even though all portions

PEOPLE: Dutch Architect Dudok criticizes American design scene; Harold Hauf gets AIA public relations post

Three knowledgeable critics—two of them from abroad—delivered a few sharp words on architecture last month. Here for a two-month tour under auspices of the State Department, **Dr. Gillo Dorfles**, Italian art critic and architectural writer, stopped long enough in Phoenix to state that the US West is setting the pace for the US East in both painting and architecture. Dorfles was much impressed with Phoenix' unconventional churches, found it regrettable that American cities showed little evidence of city planning and/or influences of individualistic local tradition.

In Chicago, Dutch Architect **Willem Dudok**, on tour as a guest of AIA, echoed Dorfles' feeling about lack of city planning.



DUDOK

"It is high time for us town planners to think not only of the expansion of towns but also of their restriction," he advised. Without referring to the theories of the man who had just introduced him, **Ludwig Mies van der Rohe**, Dudok went on: "Why only visible construction should be considered as honest work has never become clear to me. Along the heath, behind my house, runs an electric railway with excellent and honestly constructed portal frames of reinforced concrete. And how ugly it is! How it disfigures the landscape!" Dudok added: "I maintain that building becomes art only when it is sublimated by beautiful and harmonious space proportions, which ingeniously express the purpose and especially the cultural significance of the building." He thereupon hastened out of town to spend the Thanksgiving holidays with **Frank Lloyd Wright** in Arizona.

Wright made his own verbal headlines at a

dinner in his honor given by the Northern California Chapter of AIA at the Mark Hopkins in San Francisco. "I am ashamed of my profession," he told 600 dinner-jacketed guests. "There are no architects any more. There are only employees. Nowadays the prizes for buildings go to corporations, not to men. The successor to Sir Christopher Wren is Lever Brothers." Wright criticized "mediocrity in high places," the domination of the machine and the crippling effects of "what is called education"—among other matters—and then announced he was 84 and getting tired. "I'm an old one," he said. "I've built 640 buildings in my life. I've written too many books and talked too much. But I know that unless we make of this democracy of ours what it is meant to be, unless we preserve the independence and individuality which is the key of democracy—we're sunk." The room was silent. "Well," said Wright, "make of that what you will," and sat down. The audience made enough of it to stand as one architect and applaud.

Harold D. Hauf of New Haven, former professor of architectural engineering at Yale University and onetime (1949-'51) editor of *Architectural Record*, was appointed director of public and professional relations for AIA.



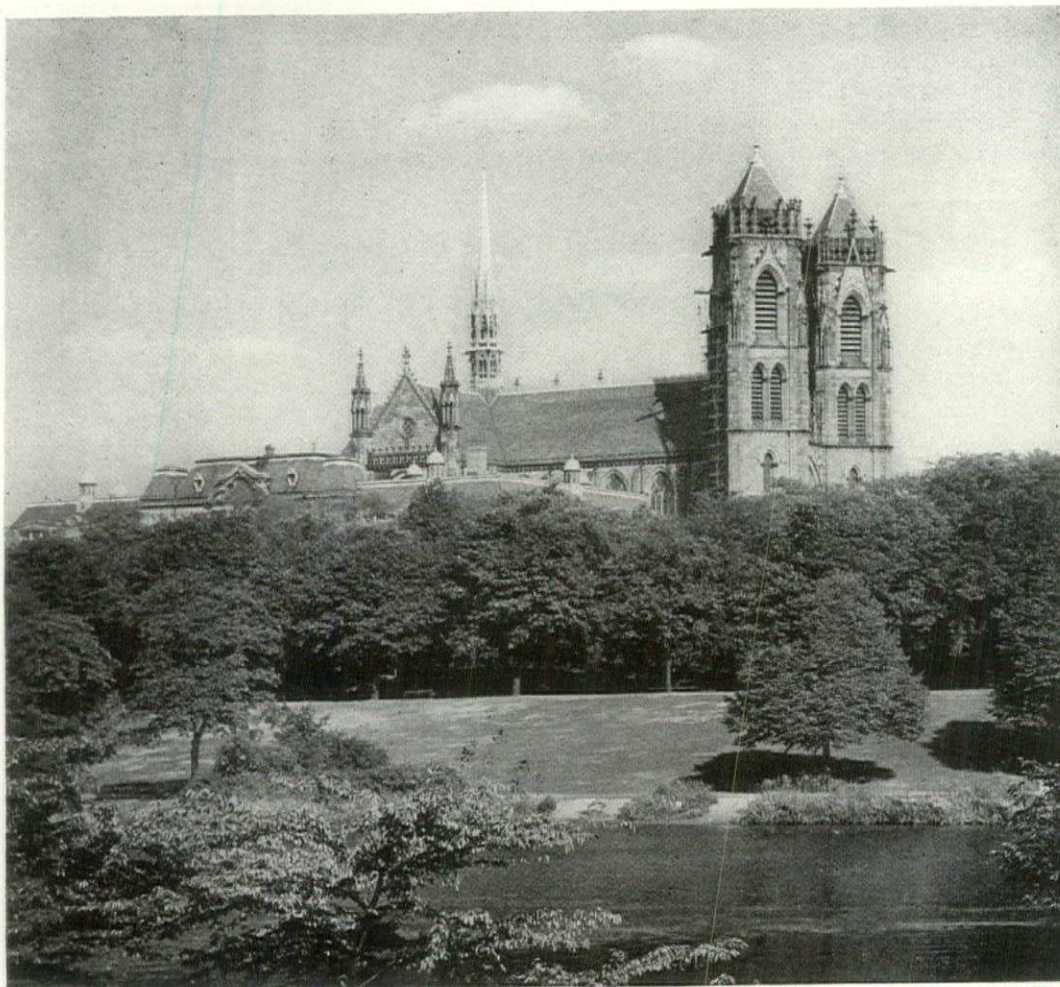
HAUF

Hauf, 48, received a BS degree in architecture at the University of Michigan in 1927 and his MS from Yale in 1932. He has been on the Yale faculty for 24 years (he is now a research associate), taking leaves of absence for two terms of Navy service, in World War II and during the Korean action, for a five-month stint in 1946 as director of the technical branch of the old National Housing Agency and for his time on the *Record*. He is a past-president of the Connecticut chapter of AIA and author of *Design of Steel Buildings*.

CONGRATULATIONS: To Beaux-Arts-schooled Architect **Arthur Brown Jr.**, 79, of San Francisco, for being elected one of the 50 members of the American Academy of Arts and Letters. He takes the lifetime chair formerly occupied by Sculptor Adolph Alexander Weinman, in recognition of work which includes San Francisco's City Hall, Opera House, War Memorial and Coit Tower and the Department of Labor and Interstate Commerce Buildings in Washington, D.C.; to



CONVENTION HALL in Chicago designed by Mies van der Rohe has transparent walls only on its model. The building itself would have an opaque cover, possibly marble. Twenty-eight columns around the walls spaced 100' apart would support the entire structure. The steel truss system to carry the roof would be 30' deep, would clear the ground by 70', the depressed center floor section by a still greater height. Estimated cost: \$10 million.



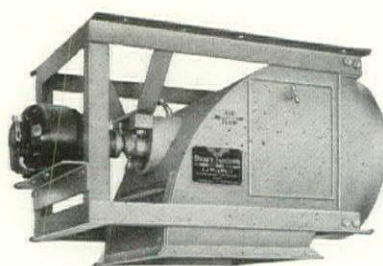
Paul C. Reilly, Architect Sears & Kopf, Consult. Engrs. Frank A. McBride Co., Heating Contractors

Newark's Cathedral of the Sacred Heart One of the World's Great Cathedrals is equipped with WING DRAFT INDUCERS

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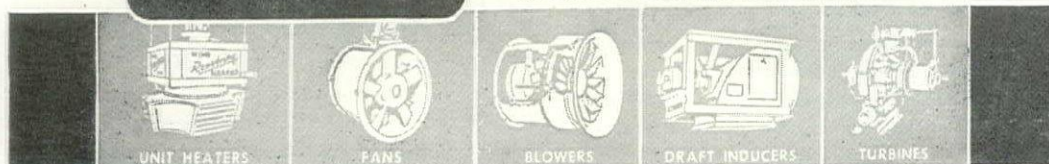


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TURBINES

Paint Dealer **Harold C. McClellan** of Los Angeles, elected president of the National Assn. of Manufacturers at its 58th Congress in New York.

Shortly after celebrating its 35th birthday, Cleveland's H. K. Ferguson Co., an almost wholly owned subsidiary of the Morrison-Knudsen Co., announced that its president, **John B. Bonny**, was moving up to chairman of the board. Bonny, who is vice president



BONNY



SIEDER

and general manager of M & K, was succeeded by Ferguson's executive vice president and general manager, **Otto F. Sieder**.

Familiar faces also appeared in new jobs at New York's George A. Fuller Co. **Neil Horgan**, vice president since 1948, was elected executive vice president in charge of building construction in the New York office. **William R. Crowell**, Fuller's chief estimator since 1936, was elected vice president. **T. S. Paulsen**, vice president in charge of the company's Boston office since 1949, was named a director.

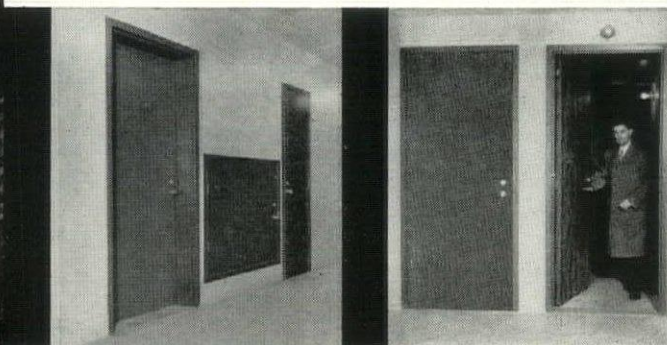
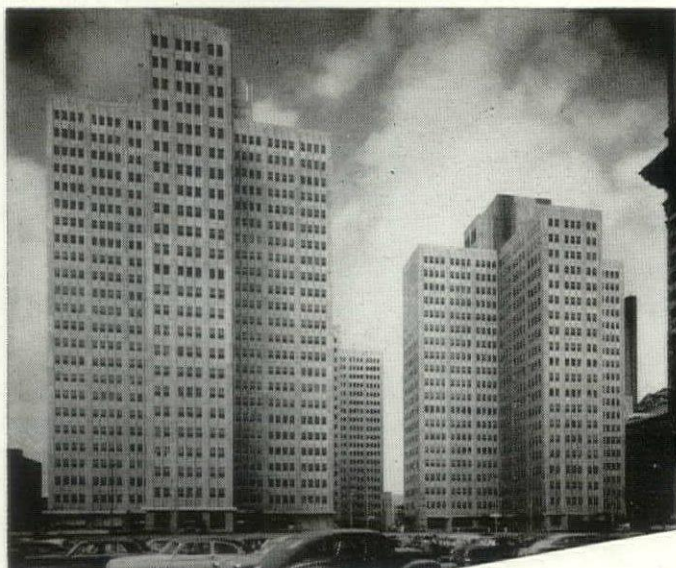
Russel G. Eshenaur, president of Glen-Gery Shale Brick Corp., Reading, Pa., was elected president of the



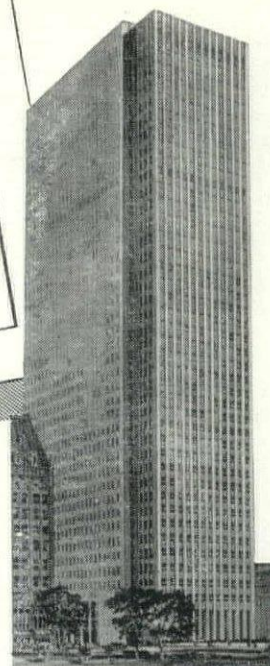
ESHENAUR

Structural Clay Products Institute. He has been head of his firm since 1939 and vice president of the Institute since 1952. He succeeded **L. S. Meyer** of St. Louis. New vice president: **John H. Stewart** of Canton, O.

NAMED: **Andrew Parker**, president of the Woodward & Lothrop department store in Washington, D.C., to fill the unexpired five-year term of the late **Mark Lansburgh** as chairman of the District Development Land Agency; **Harold W. Sweatt**, 62, president of Minneapolis-Honeywell Regulator Co. since 1934, as chairman of the board, succeeding **Mark C. Honeywell**, who was named honorary chairman; **Paul B. Wishart**, 55, vice president and general manager, succeeded Sweatt as president; **Jul Z. Hollman**, manager of the insulation department of the Flintkote Co., as president of the Insulation Board Institute, succeeding **Marland S. Wolf**; **Milton Ferris**, 37, Mill Valley news and adman, as executive director of the California Council of Architects, which will move



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 and
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its office from Los Angeles to San Francisco.

DIED: **Frank T. Mitchell**, 70, cofounder in 1906 of the Washington, D.C. engineering firm of Allen, Mitchell & Co. and director of the Liberty Building Assn., Nov. 26 in Washington; **Russell Rogers**, 61, author of the Wilmington, Del. building code and past president of the Delaware chapter of Associated Engineers, Nov. 30 in Miami; **John Clark Udall**, 79, New York construction engineer and former vice chairman of Thompson Starrett Co., Dec. 10 in New York City.

Investment bankers blast US college housing loans

If anything makes a banker see red, it is socialized lending. Last month, the Investment Bankers Assn. of America saw red at HHFA's loans for college dormitories. Convening in Hollywood, Fla., the association declared, in effect, that the way the \$300 million program works, it is an effort to repeal the law of supply and demand. The result, said the bankers, is an "unnecessary and costly operation [imposed] on the taxpayers."

Specific complaints:

▶ "In many instances" government loans for college housing have been made through HHFA "at rates less than that which the Treasury can borrow through the sales of bonds with a life anywhere nearly commensurate" with that of the 40-year college loans.

▶ "It is evident from . . . advertisements made for public bids on such issues that knowledge of what the agency [HHFA] is authorized to do and has done regularly in the way of rates leads the educational institutions to place conditions in their public offerings which of themselves not only discourage, but practically prohibit, any dealer or investor from bidding for the issue"—thus establishing their eligibility for government financing.

▶ "As a practical matter, the results of [the college housing loan law] are in effect a directive that the federal agency does the underwriting of these loans . . . and private business is eliminated."

As originally authorized in the Housing Act of 1950, schools could get dormitory loans from the US at interest $\frac{1}{4}\%$ above the rate on the most recent government issue with a maturity of ten years or longer, provided private financing was not available on terms comparable to the government's.

Last June, Congress changed the interest formula. For each half year, the rate is now reset to equal at least the average return on all federal bonds maturing in 15 years or more, as indicated by open market trading in each May and November, plus overhead which is added by HHFA. Currently the rate is 3.5% (0.375% of it added by HHFA). Next month it will probably drop, reflecting the rise in bond prices from May to November. Extra free ride: excluding overhead charges (which are less than FHA mortgage insurance premiums), when the government makes a 40-year loan, it charges the borrowing school only the

Seeing:

Best SEEING conditions, essential to good schooling, are provided by Miller LEXINGTON at low overall cost. High levels of comfortable illumination. Extremely low brightness. Long-life finishes. Quickly installed. Rigid 1-piece steel louver chain-drop assembly simplifies lamping and maintenance. A sound investment. Write for details.

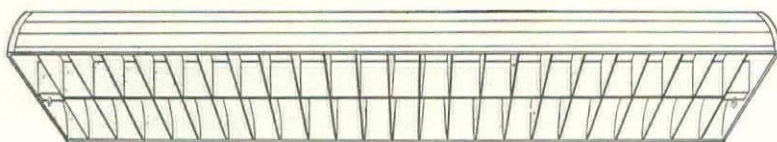


DESIGN: *Functional—clean, simple lines.*

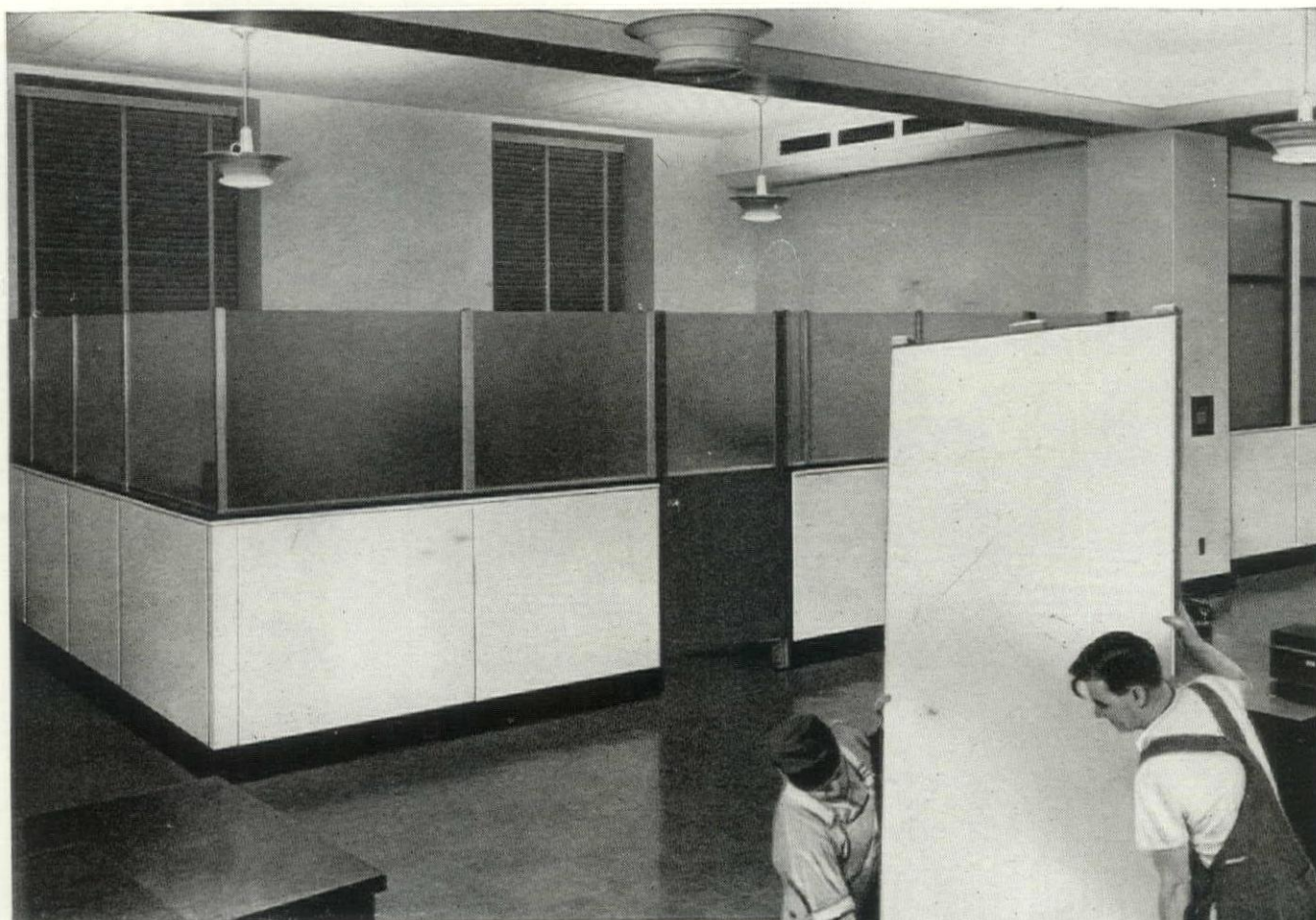


EASY 2-way lamping—1 ladder position.

STRENGTH: *Rigid 1-piece steel louver.*



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For details about Johns-Manville Asbestos Movable Walls, consult your Sweet's Architectural File, or write Johns-Manville, Box 158, Dept. AF, New York 16, New York. In Canada, write 199 Bay Street, Toronto 1, Ontario.

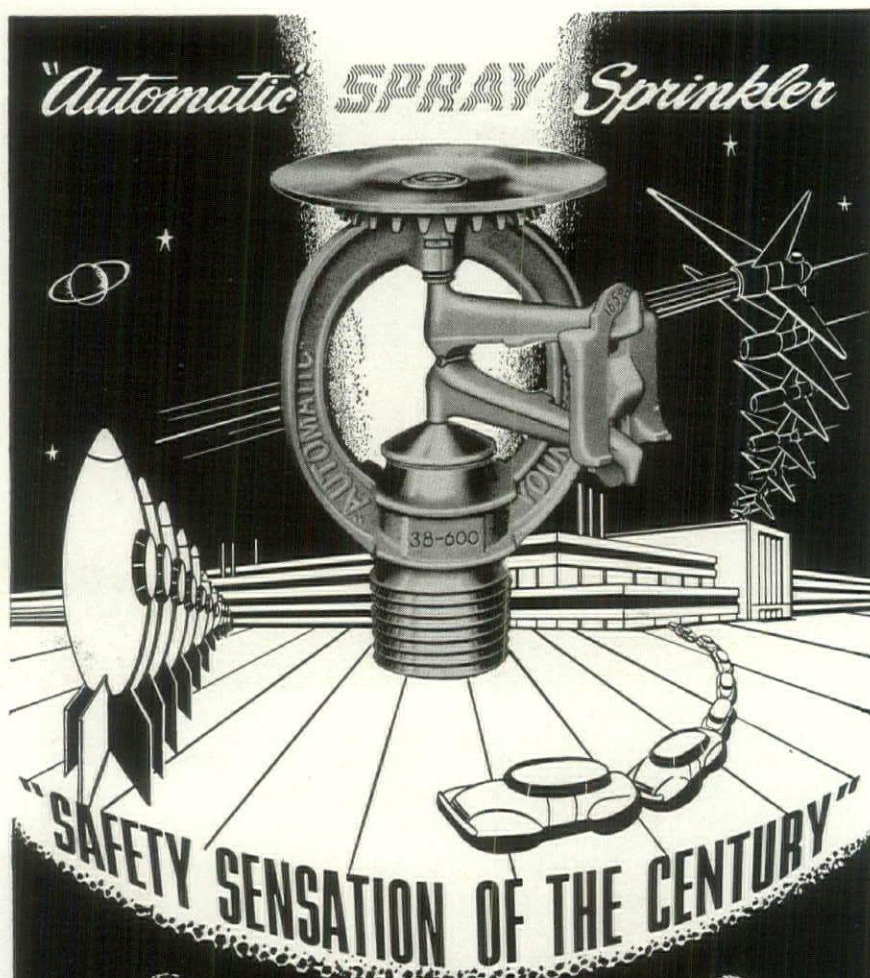


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average cost of 15- to 30-year money, because it has no bond issues running over 30 years, and only one issue for that long.

IBA did not urge the government loan program be ended. It recommended two key chances: eligibility should be based only on inability of the school to obtain financing at prevailing fair rates for other loans of the same type from private sources; interest and repayment terms, up to a 40-year period, should be set by HHFA.

Congress authorized \$300 million in college loans. For the last three fiscal years, it has limited actual outlays to \$40 million, \$60 million and \$50 million. Up to Nov. 30, HHFA had shoveled out \$91.4 million in US money for 101 college housing projects.

New rules for measuring office space adopted in NY

For years tenants, owners, building managers, appraisers and mortgage lenders have been plagued by confusion for lack of a universal system of measuring floor areas in office buildings. Some measurements included every bit of area within the exterior walls. Others excluded corridors, lavatories, service closets. At the conservative extreme, some measurements omitted subareas too small for desk and chair.

Compounding the problem after World War II was construction of block-type structures that have air conditioning and high-intensity lighting, and, when rented to entire-floor tenants, dispense with space-consuming central corridors typical of prewar buildings. In some, toilets and service areas serving only one tenant were classified as rentable area; in others this space was not measured as rentable.

Standard sought. In 1949, the Real Estate Board of New York recognized that brokers, managers and architects alike suffered from the public confusion over the multiplicity of yardsticks. It appointed a subcommittee headed by Realtor Hanford M. Twitchell to draft rules that would command universal acceptance. The American Standards Assn. also took an interest in the problem, and in 1951 asked the New York Realtors and the National Assn. of Building Owners & Managers to help it set a national standard. The ASA in fact named four subcommittees of its committee on building areas to draft standards for measuring office, industrial, school and government buildings. On the office subcommittee were Twitchell, Henry Lear of Philadelphia, chairman of a NABOM committee working on the problem, and, as chairman, the late N. Stanley Bortner of Baltimore. Now Bortner has been succeeded as chairman by ex-NABOM President James F. Cook.

Last month, the efforts of the New York Real Estate Board's subcommittee bore fruit. The board began wide distribution of revised rules, planned a new policy to help make them effective. Formerly the board tried to encourage members to note in

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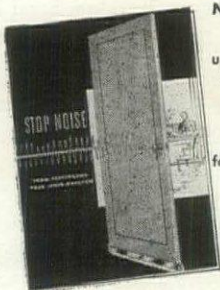
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all advertising, listings, letters, plans and brochures, etc., that the space being described was measured in conformity with the board's standards. In the future it hoped to make the absence of such a statement tantamount to the lack of a seal of approval. The main rule that was revised, covering single-occupant floors:

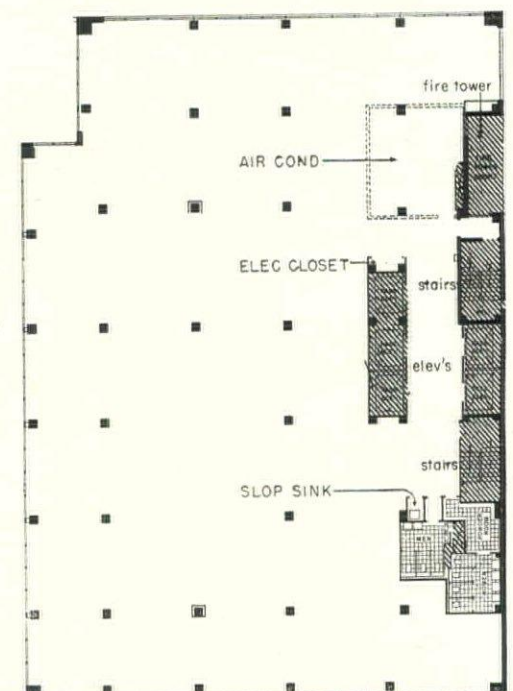
"The rentable area of a single-tenancy floor shall be computed by measuring from the inside surface of the outer building wall to the inside surface of the opposite outer building wall. Rentable area of a single-tenancy floor shall include all area within the outside walls, less building stairs, fire towers, elevator shafts, flues, vents, stacks, pipe shafts and vertical ducts, with their enclosing walls, serving more than one floor.

"Private stairs, private elevators, toilets, air-conditioning rooms, fan rooms, air ducts, janitors' closets, slop sinks, electrical closets, telephone closets, with their enclosing walls, within and exclusively serving only that floor, shall be included in rentable area.

"No deductions shall be made for columns and projections necessary to the building. The area of air-conditioning and fan rooms on a rentable floor, serving more than the floor on which located, shall be apportioned and included as rentable area of the floors they serve."

Close to unanimous. This was almost identical with a revision in NABOM standards issued late last year. Only essential difference: NABOM issued no clarifying clause on shared air-conditioning and fan rooms. Biggest change from former New York rules: toilet or utility space for the exclusive use of the tenant was now classified as rentable area, instead of excluded (as still applies on a multiple-tenancy floor).

The ASA office building subcommittee tentatively approved the revised New York rule before the last paragraph was written. Ultimately, ASA seemed likely to adopt the entire rule, in principle if not in exact wording. With such unanimity in prospect, the problem of measuring office space appeared well on the way to solution.



DIAGONAL LINES cover only area excluded as rentable under new single-tenancy rule. Air conditioning room is pro-rated (see story).

EXTERIOR

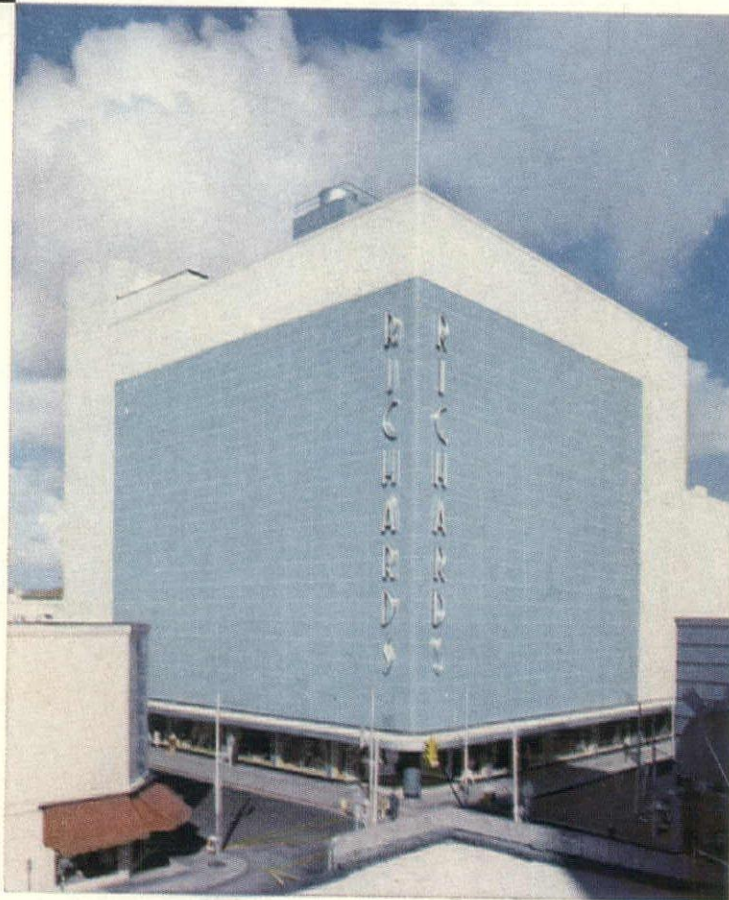
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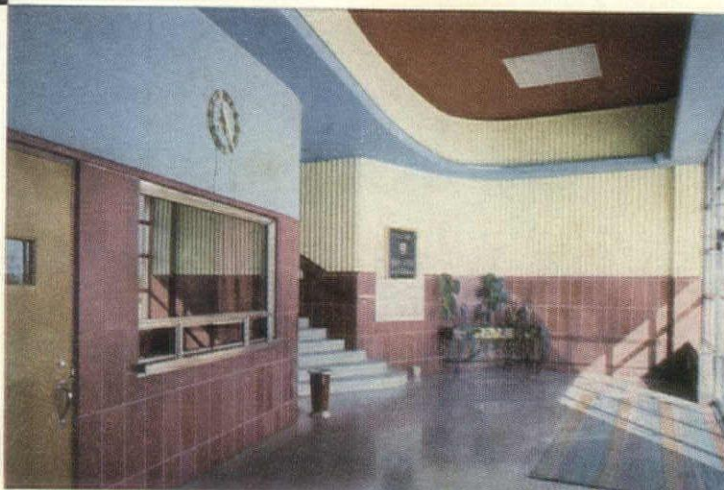
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INTERIOR

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Collet Frères, Ltd.—*Contractors*
The Austin Co.—*Designers & Engrs.*

Wainscot for main lobby, stairway and second floor lobby is Enduro-Ashlar Architectural Terra Cotta. Color is light burgundy. Units are 8" x 20".



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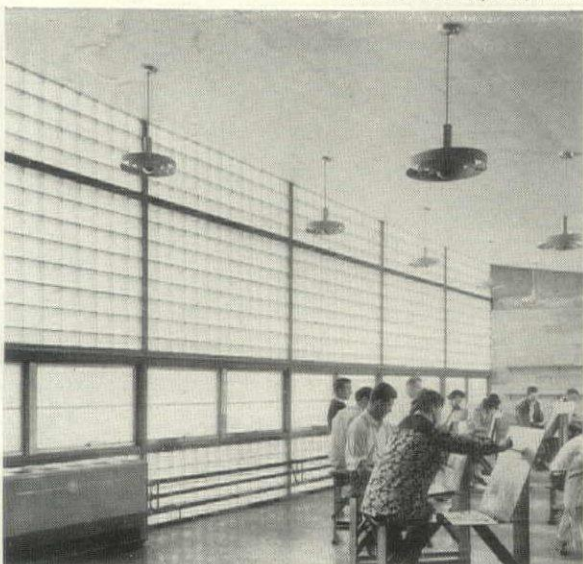
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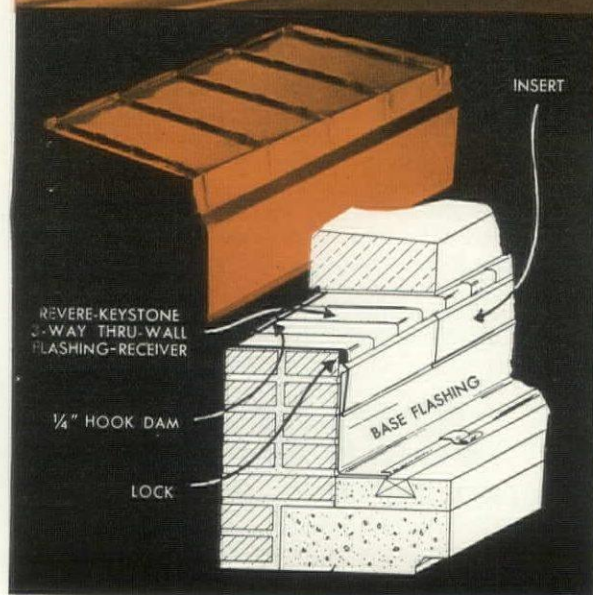
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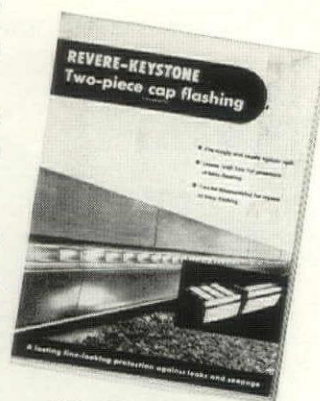


Top photo shows a typical installation of the new, Revere-Keystone 2-Piece Cap Flashing of all-copper construction. Note the snug fit and neat appearance.

Insert is furnished in 51" lengths, for recommended overlap of 3" minimum. Width is 4" on exposed face, to allow for a minimum 3" overlap of the base flashing.

Receiver is furnished in 49" lengths (48" layup), with 1" overlap in a locking tongue dam which assures proper alignment. REVERE-KEYSTONE 2-PIECE CAP FLASHING IS AVAILABLE IN TWO IN-THE-WALL FORMS.

- Standard 4" flat copper receiver; with 1/4" hook dam.
- Combination receiver and thru-wall flashing (shown in isometric above).



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- Leaves wall free for placement of base flashing
- Can be disassembled for repairs to base flashing

THIS REVERE-KEYSTONE 2-PIECE CAP FLASHING* is your answer to an enduring, fine-looking protection against leaks and seepage. That flashing with sheet copper is the most durable and practical method of weather-proofing masonry structures has been proved for centuries. However the usual 1-piece cap flashing presents certain difficulties. The new Revere-Keystone 2-Piece Cap Flashing, developed from years of experience and service to the building field, overcomes these difficulties. Here are a few of the outstanding features of this new flashing!

FREE WALL—It provides the roofer with an unobstructed wall face for the placement of the base flashing. Receiver is laid in during construction of wall, while the insert is snapped in only after all roof and base flashing work is finished.

STRAIGHT CLEAN LINE, PERMANENT GOOD LOOKS—Factory-bent to precise dimensions. This, with the one-inch locking tongue, assures alignment of receiver slots, uniform appearance.

PERFECT WEATHER-SEAL—Factory-formed angles on the receiver and insert cause latter to hug the base flashing, weather-seal effectively. Water cannot blow up behind flashing.

VERTICAL RECEIVER SLOT ON WALL FACE—Position of vertical receiver slot on face of wall eliminates possibility of the receiver slot being crushed shut by weight of masonry.

CAN BE DISASSEMBLED—Insert can be removed with a simple tool and used again, with no loss of neatness or snugness, when the built-up base flashing or roofing have to be repaired.

*Pat. Pend.

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Founded by Paul Revere in 1801

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

SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS

Another Case of **Copper** Where it Counts

UTICA STATE HOSPITAL

(Medical and Surgical Bldg.)

Utica, N. Y.

New York State Dept. of Mental Hygiene—Newton J. Bigelow, M.D., Commissioner

There's copper, copper, everywhere on this new hospital building. Note particularly, that copper covers the spots where trouble-free performance counts most. For copper is the metal that has proven its worth down through the centuries. As a result, when architects design structures such as this they turn to the metal they know they can trust... copper. There is not another single metal or alloy, old or new, that has all of the desirable construction characteristics of copper. There is not another metal or alloy that has been in use so long or has become so universally accepted.

Other valid reasons why copper is preferred for flashing and roofing are: Copper is easy to bend and form into any desired shape and thus lends itself to every type of design. Its soldering properties are unmatched. It is non-rusting. It costs less per year of service. It grows old gracefully, taking on an attractive patina with use.

Next time you write specs. remember: there is no "OR EQUAL" for copper for flashing, roofs, gutters, downspouts, valleys, etc. A Revere Distributor near you stocks Revere Sheet, Strip and Roll Copper. Particularly ask him about the money-saving advantages of Revere-Keystone Thru-Wall Flashing* and the new Revere-Keystone 2-Piece Cap Flashing.** If you have technical problems, your Revere Distributor will put you in touch with Revere's Technical Advisory Service.

*Patented **Pat. Pend.

REVERE

COPPER AND BRASS INCORPORATED

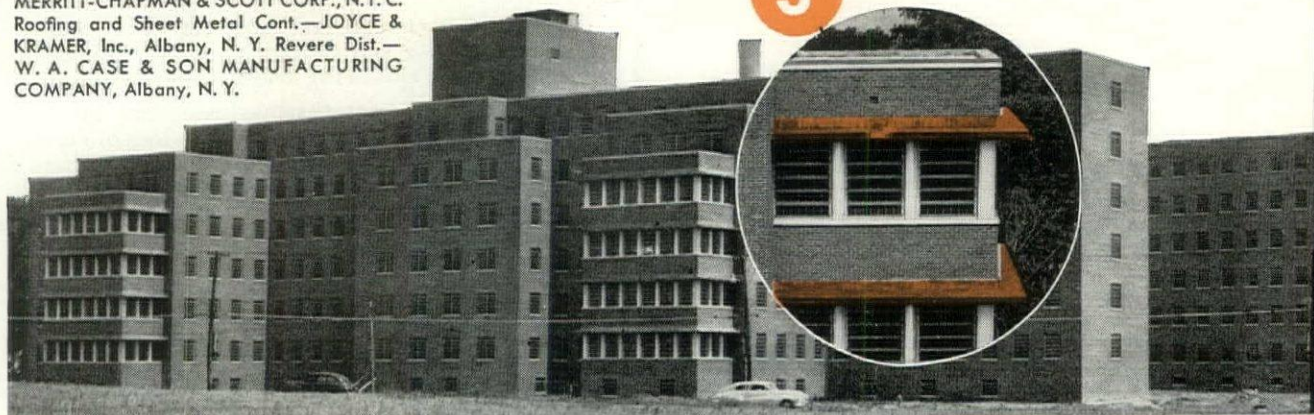
Founded by Paul Revere in 1801

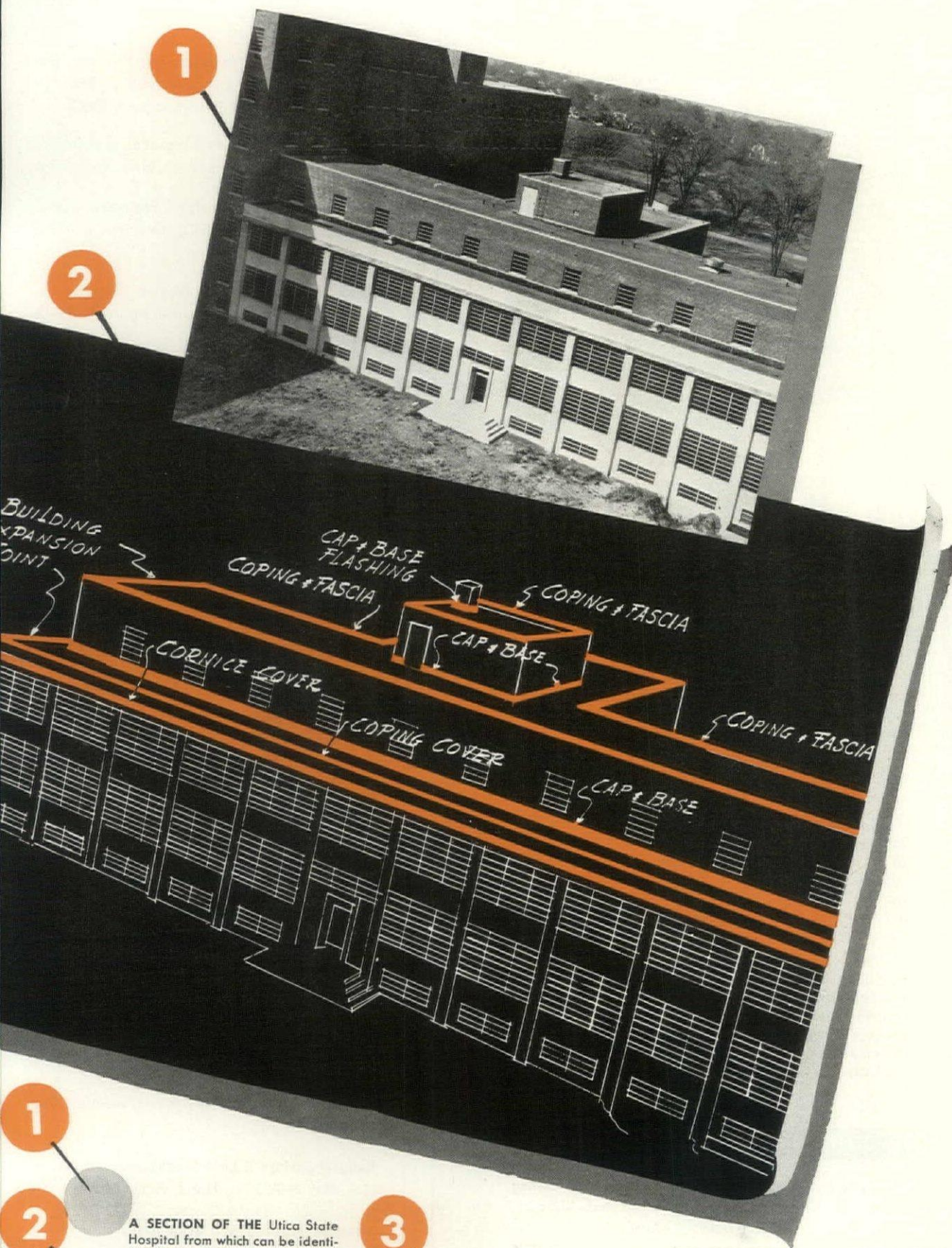
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SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS

THIS 718-BED HOSPITAL was designed by State Architect, CORNELIUS J. WHITE of Albany and Associate Architect, WILLIAM GEHRON of N. Y. C. General Contractor—MERRITT-CHAPMAN & SCOTT CORP., N.Y.C. Roofing and Sheet Metal Cont.—JOYCE & KRAMER, Inc., Albany, N. Y. Revere Dist.—W. A. CASE & SON MANUFACTURING COMPANY, Albany, N. Y.

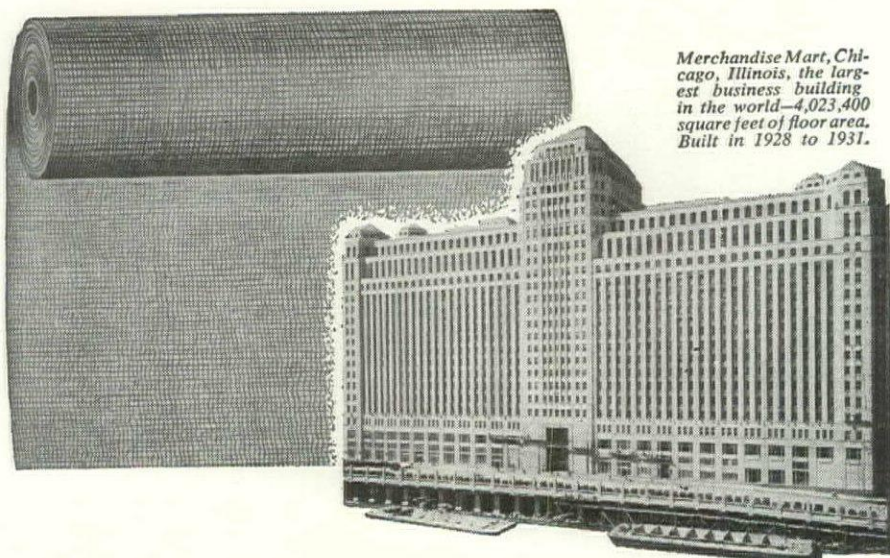




1
2
A SECTION OF THE Utica State Hospital from which can be identified in drawing below, the many vital spots where Revere Copper is used.

60,000 LBS. of 16 oz., Revere Lead Coated Copper and 16, 20 and 32 oz. Soft and Cold Rolled Revere Plain Copper were used on this Medical and Surgical Building.

3
THE FLAT SEAM ROOFS over the canopies are also of non-rusting, enduring Revere Copper.

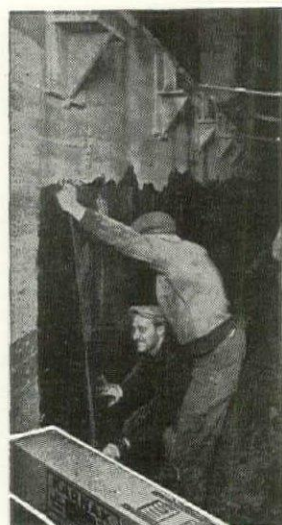


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Why was Karnak chosen? Because it is the membrane system of waterproofing that holds tight against any water condition.

Karnak is an open mesh long-fibre cotton cloth that has been heavily impregnated with highly refined asphalt so as to leave the mesh open. It is layered, on the job, with alternate moppings of asphalt to provide a tough, resilient, waterproof membrane. The non-sticking fabric unrolls easily... to the very end. It "works" faster and with no waste... saves labor costs.

The Karnak Membrane System is best for roof patching, skylight flashing, window and door flashing, through-wall and cornice flashing, as well as waterproofing against a hydrostatic head in dams, swimming pools, viaducts and tunnels. Send coupon for complete information. Manufactured by Lewis Asphalt Engineering Corp., 30 Church Street, New York 7, N. Y.



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Asphalt Roof Coatings
and Cements
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LEWIS ASPHALT ENGINEERING CORP.

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Please send me **FREE** information about KARNAK Membrane System of Waterproofing

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Other items I'd like to know about _____

EVENTS

University of Houston lectures—Mies van der Rohe, Jan. 7; Buckminster Fuller, Feb. 11; Alfred Roth, Apr. 1; Eero Saarinen, May 6.

National Constructors Assn., annual convention, Jan. 12-14, Hotel Commodore, New York City.

American Institute of Electrical Engineers, winter general meeting, Jan. 18-22, Hotel Statler, New York City.

Mason Contractors Association of America, annual convention and exposition, Jan. 24-27, Sherman Hotel, Chicago.

American Society of Heating and Ventilating Engineers, annual meeting, Jan. 25-27, Rice Hotel, Houston.

Society of Plastics Engineers, annual technical conference, Jan. 27-29, Royal York Hotel, Toronto.

Prestressed concrete conference, Jan. 28-29, University of Toronto. For details address Prof. C. F. Morrison, Civil Engineering Dept.

Society of Architectural Historians, annual meeting, Jan. 28-31, Bellevue-Stratford Hotel, Philadelphia.

Associated General Contractors, annual convention, March 1-4, Statler Hotel, Los Angeles.

Boston Institute of Contemporary Art, an architecture and design exhibition of the works of Gio Ponti and Gyorgy Kepes, March 4-Apr. 4 in Boston; will be available also for general circulation.

The Peale Museum, Baltimore, "Blueprint for Tomorrow" exhibition of accepted designs for buildings soon to be erected in the Baltimore metropolitan area, including Annapolis and the area east of Silver Spring, March 7-May 2. For details regarding preliminary submissions address the Peale Museum, 225 N. Holliday St., Baltimore 2.

Air Pollution Control Assn., annual meeting, May 3-5, Chattanooga.

National Savings & Loan League, annual convention, May 9-14, Jung Hotel, New Orleans.

American Planning and Civic Assn., conference, May 18-21, Columbus.

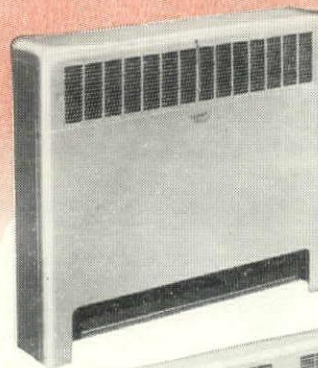
British Architects' Conference, May 26-29, Torquay, England. Program can be obtained from Mr. C. D. Spragg, secretary, Royal Institute of British Architects, 66 Portland Pl., London W. 1, England.

New Jersey Chapter, American Institute of Architects, convention, June 10-12, Asbury Park.

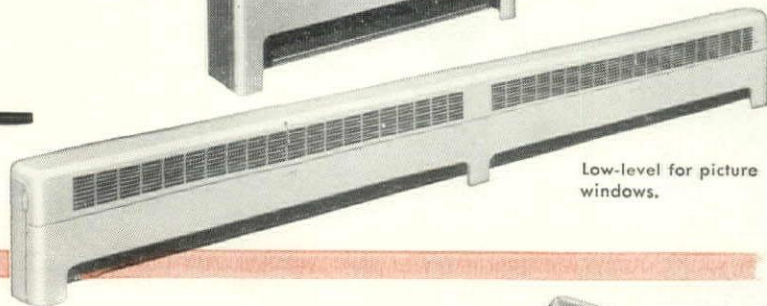
American Institute of Architects, 86th annual convention, June 15-19, Statler Hotel, Boston.



CONVECTORS

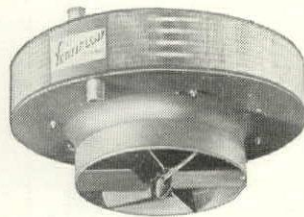


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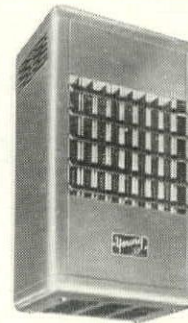


Low-level for picture windows.

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For Use With Steam or Hot Water



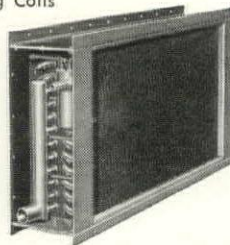
Gas-Fired

COILS



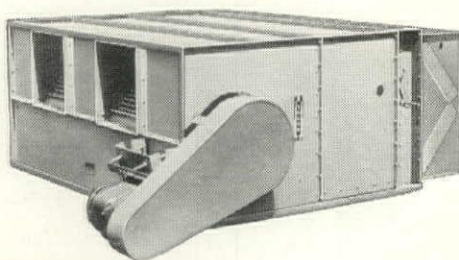
Heating Coils

Cooling Coils

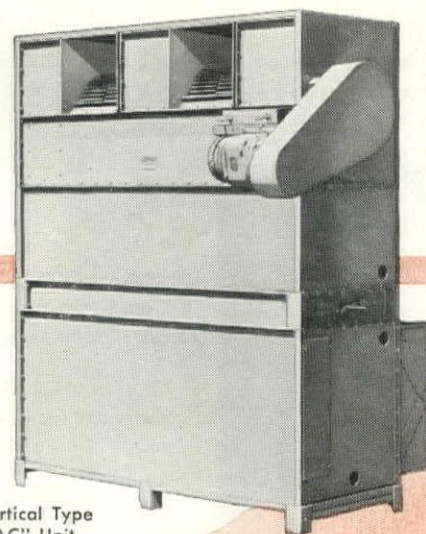


AIR CONDITIONING UNITS

Horizontal Type
"YAC" Unit



Vertical Type
"YAC" Unit



YOUNG
YOUNG RADIATOR COMPANY

DEPT. 604-A, RACINE, WISCONSIN

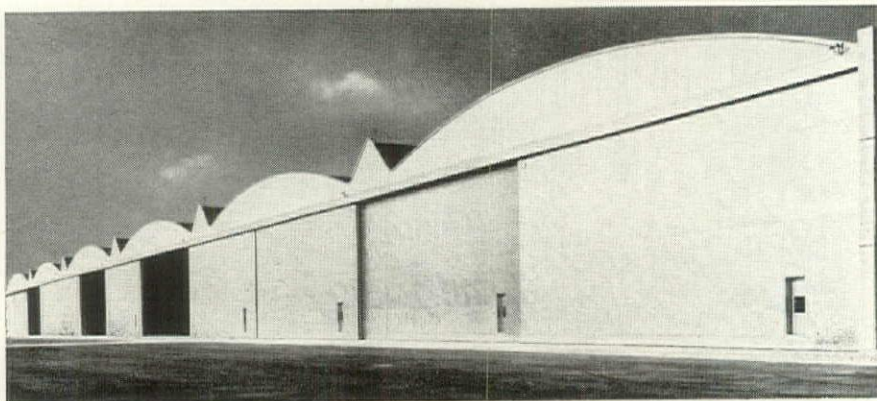
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26,880 Square Feet

of Door Opening in 12 Leaves



... Another Byrne "First" in Hangar Door Construction

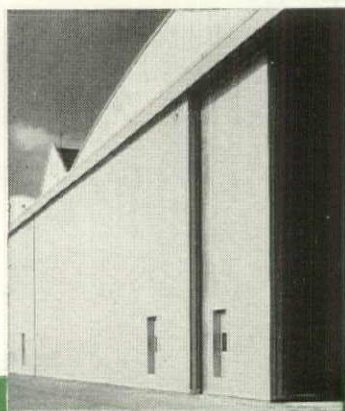
Over $\frac{2}{3}$ of an acre in hangar door opening. That's what the Port of New York Authority ordered for a recently completed aircraft hangar space at New York International Airport. Here was a new problem—to build extremely wide, sliding and individually motorized hangar doors!

The solution can be noted in the picture above. Twelve steel leaves 70 feet wide and 32 feet high. Each leaf individually motorized and providing each hangar with a 140 foot opening. Finished leaves weigh over 20 tons, yet each opens at a rate of 60 feet per minute.

All hangar door openings present problems involving specialized technical skill. To assure a door that is structurally sound . . . easy and economical in operation . . . fast acting . . . dependable and weather tight . . . a competent and experienced manufacturer is the first requisite. Byrne engineers are qualified by 25 years of progressive development with doors of all kinds.

For your unusual closure problems in industrial and hangar doors of all types—turnover doors, vertical lift doors, crane entrance doors, canopy doors, sliding doors—Byrne offers unequalled solutions.

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101 Park Ave., New York 17, N.Y.

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LETTERS

DESIGN STANDARDS

Forum:

Congratulations on "Design Standards and Data," which started in the October FORUM.

What a pleasure it is to see a monthly effort start out on such a professional and serious basis!

JOSEPH A. MCGINNISS
Architectural Specifications
New York, N.Y.

Forum:

The new department on design standards and data inaugurated in the October issue of FORUM looks very promising. . . .

The idea of supplementing *Architectural Graphic Standards* with such specialized items can be very useful, and we particularly like the thought that although standard accepted practices will comprise the majority of the exhibits, there will also be some innovations of detail among them, flagged as such. Good experiments in solution of details not as yet thoroughly tested over a period of time could be very useful in the further development of progressive practice.

GORDON BUNSHAFT
Skidmore, Owings & Merrill
Architects and engineers
New York, N.Y.

Forum:

The new department "Design Standards and Data," by Harold R. Sleeper, FAIA, is an informative and useful addition to the editorial material which is so well done in FORUM. As in the past this presentation has all of the good qualities that have been inherent in Mr. Sleeper's work. No better man could have been chosen to run this department. . . .

RALPH E. MYERS
Kivett & Myers, architects and engineers
Kansas City, Mo.

Forum:

We like the diagrammatic approach with accompanying comment and illustrations.

Knowing the author after working with him the last three years on one of the National AIA committees, I feel very confident of his broad experience and project integrity.

KARL KAMRATH
MacKie & Kamrath, architects
Houston, Tex.

• For this month's Standards see p. 144—Ed.

SCHOOLS

Forum:

Your October issue on schools is appreciated by the architects, devoured by school boards, argued about by administrators and, in general, is one of those wonderful issues which will become a permanent reference tool.

You and your staff are to be congratulated!

J. STANLEY SHARP, *architect*
Ketchum, Gina & Sharp
New York, N.Y.

Forum:

... Congratulations! It is an essential contribution to the architect's contemporary design problems. I have devoted a whole week end to studying and analyzing it.

WALTER GROPIUS, *architect*
The Architects Collaborative
Cambridge, Mass.

Forum:

... A masterpiece. I have studied it carefully from cover to cover, and it is a veritable handbook on school building architecture for the school administrator. ...

J. FRANK FAUST, *superintendent*
Chambersburg Public Schools
Chambersburg, Pa.

Forum:

... A noteworthy contribution to the tremendous problem of school construction facing our country. Congratulations!

EDWARD M. TUTTLE, *executive secretary*
National School Boards Assn., Inc.
Chicago, Ill.

Forum:

READ IT FROM COVER TO COVER. IT'S EVEN BETTER THAN THE OCTOBER 1949 ISSUE.

WALLY E. SCOTT
Caudill, Rowlett, Scott & Associates
Architects
Bryan, Tex.

Forum:

Your October issue has been extremely well received. ...

IRA McK. KOGER, *president*
O. P. Woodstock Co., general contractors
Jacksonville, Fla.

Forum:

Heartiest congratulations! ... You did a superlative job of bringing order out of chaos and winnowing the wheat from the chaff. ...

WALTER D. COCKING, *editor*
The School Executive
New York, N.Y.

Forum:

... A fine job ... It is very timely, for we are planning on a school clinic for the immediate tristate area. ...

ROBERT THOMAS MARTIN, *architect*
Memphis, Tenn.

Forum:

... The best job on schools that has been done in many a year. I am not speaking only of the forum report, but the ideas and case histories throughout the whole issue are stimulating and thought-provoking.

Keep up the good work!

JOHN W. McLEOD, *architect*
McLeod & Ferrara
Washington, D.C.

Forum:

The coverage was thorough and to the point. ... The readers of your publications are many and varied, and it seems to me you have something to say for almost anyone.

continued on p. 64

FIAT

toilet compartments

THERE'S A RIGHT COMPARTMENT FOR EVERY NEED!

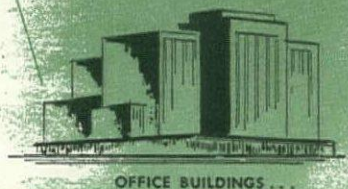
Choose FIAT for beauty, durability, adaptability and ease of maintenance. Quality construction in a choice of four FIAT designs gives you the perfect toilet compartment for any building ... whether new or old.



Architect James E. Garland specified FIAT Duro Flush Type Toilet Compartments (above) for North Hialeah Elementary School, Hialeah, Florida. Thompson-Polizzi Construction Co., Inc., contractors.

• Attractive smooth design of FIAT compartments creates easy-to-clean surfaces ... so important in sanitary maintenance. Panels, pilasters and doors are made of two sheets of No. 20 gauge stretcher leveled steel, with fiber board sound deadener core cemented uniformly to the metal. There are four thicknesses of steel at the edges of all pilasters, giving added strength where needed. Theft-proof screws and concealed fastenings on chrome-plated hardware parts are exclusive FIAT features. Compartments are available in white, and a choice of eight colors in durable baked-on enamel finishes.

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See Sweet's 21b FI Architectural



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FIAT METAL MANUFACTURING COMPANY
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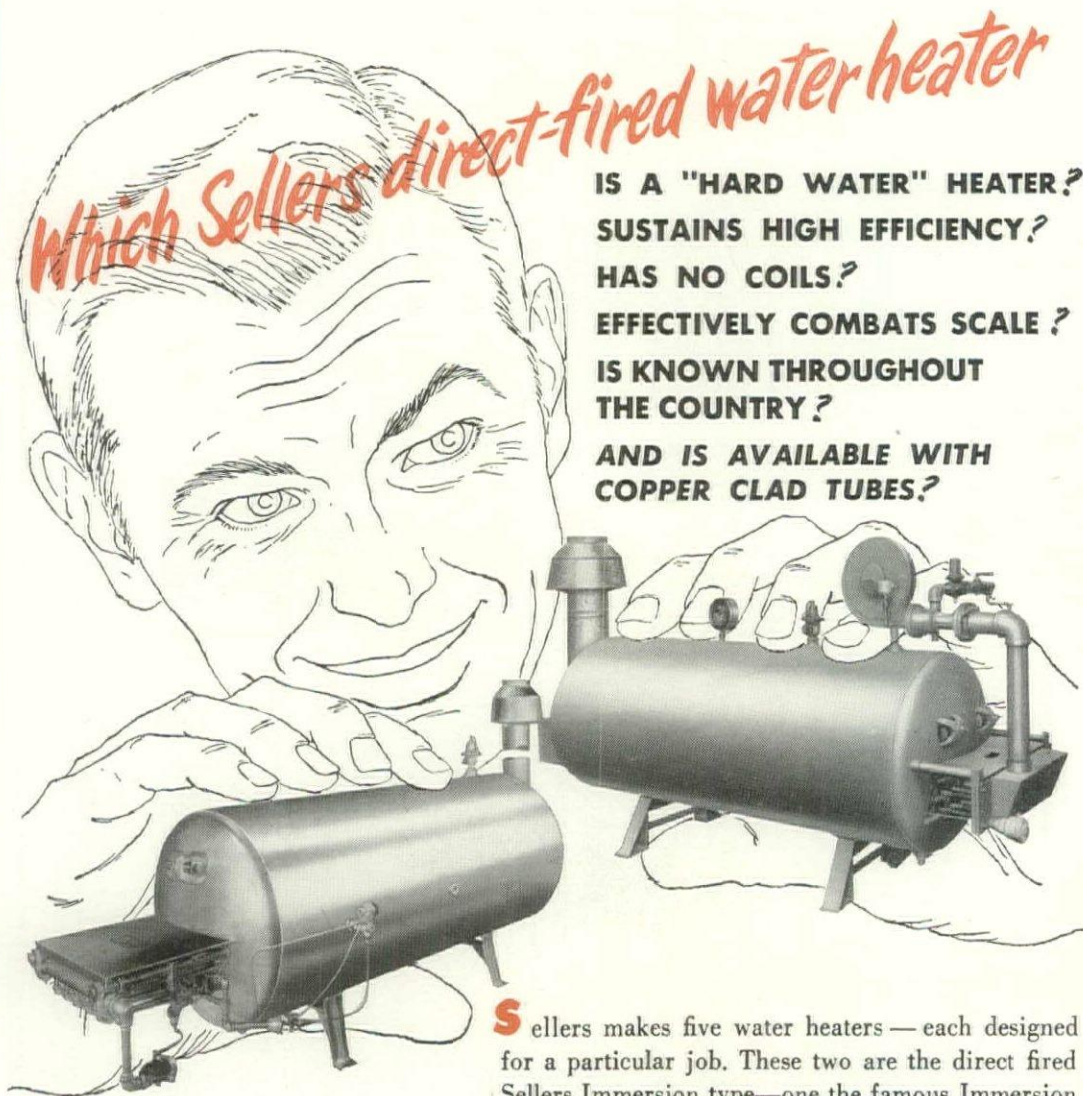


Long Island City 1
New York

Franklin Park, Ill.
(Chicago Suburb)

Los Angeles 63
California

In Canada: Porcelain and Metal Products, Ltd., Orillia, Ontario



BOTH, of course!

**IS A "HARD WATER" HEATER?
SUSTAINS HIGH EFFICIENCY?
HAS NO COILS?
EFFECTIVELY COMBATS SCALE?
IS KNOWN THROUGHOUT
THE COUNTRY?
AND IS AVAILABLE WITH
COPPER CLAD TUBES?**

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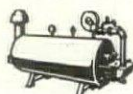
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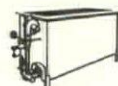
Immersion
Steam Boilers



Combustion Units
Industrial Gas Burners



Blast
Heaters



Immersion
Tank Heaters



Immersion Automatic
Water Heaters



Vertical
Steam Boilers

LETTERS *continued*

A suggestion for a future issue: it would be interesting to interview the client or user with a view to exploring the future of education in our nation. From this changing use would come a revised concept of program, and out of this program the new school of tomorrow. Having taught for nearly a quarter of a century, I am always impressed with the fact that we architects constantly are educating ourselves but not our public. Our professional panels over the nation are superb, and yet when I look around the room I rarely find the public or the clients represented. It seems to me we have now arrived at that point of maturity where a very major emphasis should be placed on this client relationship.

You are doing an excellent job in research extension, study and reporting.

WALTER T. ROLFE
*Golemon & Rolfe, architects
Houston, Tex.*

Forum:

. . . A splendid documentation of the movement toward better school plants in the US.

It continues the school number of 1949 and, along with it, gives an understanding of what caused school building in the US to forge ahead to a leading position in the world.

WALTER F. BOGNER, *architect
Cambridge, Mass.*

Forum:

I have read the October issue with tremendous interest. Boards of education will welcome this fine issue because it gives them very practical information.

DR. GEORGE L. WHITE, *manager
Research Service Dept.
Silver Burdett Co.,
New York, N.Y.*

Forum:

You have done a necessary and splendid job in your school issue. . . .

Your editorial introduction and clarification of what is involved in this sector of planning are especially grand. The young in their stage of plasticity are precious, and the architect is given a great chance and important responsibilities.

As to the ten points covered by your forum of schoolhouse experts:

1. Duplication of facilities is a weakness of our well-to-do country, which suddenly and ever so often is "scared" by shortages of funds.

2. The community significance of schools should help match and marry a general planning department of the region (with the dowry of a fine budget and a competent staff) to the board of education. Land developers will be influenced by this happy matrimony.

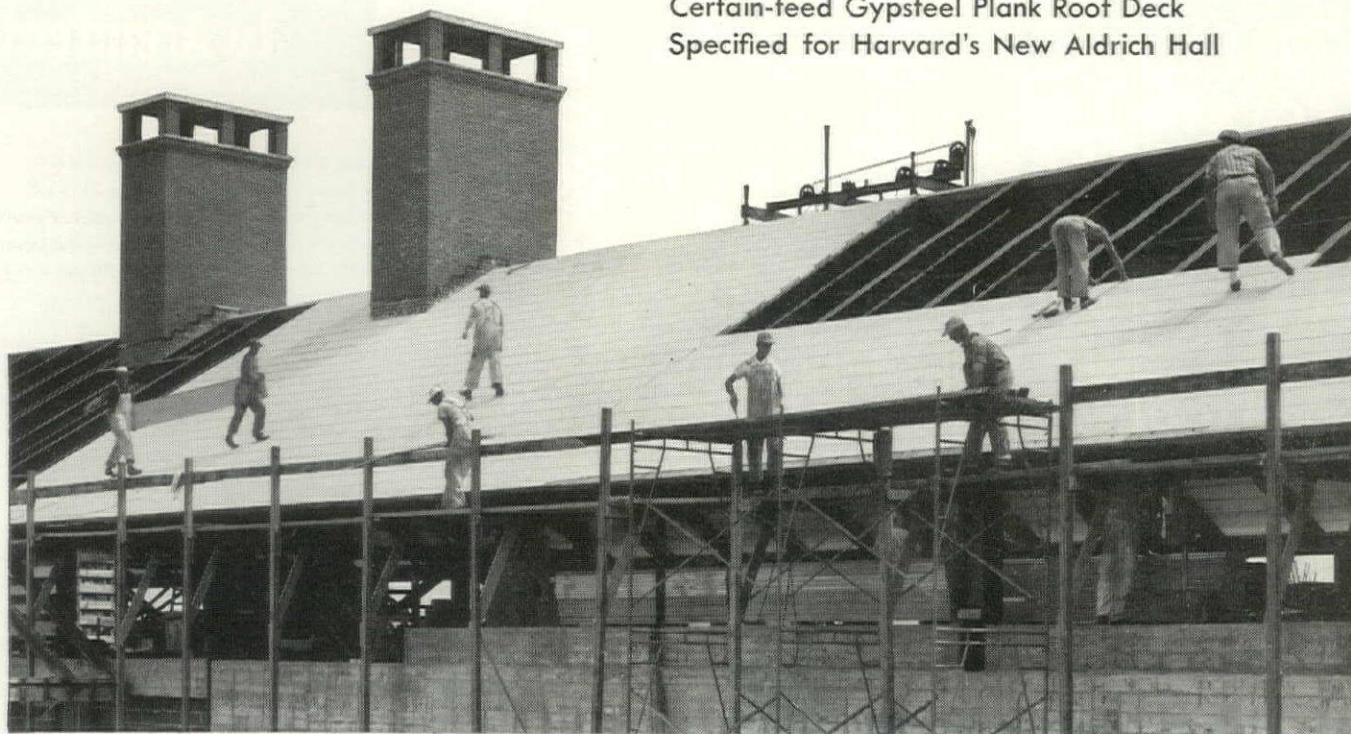
3. I have always suggested that flexible preparedness for the unforeseen—which is really quite foreseeable in an educational evolution which has not yet jelled—seems preferable to dogmatic area assignments, however well we might study these with all current experts.

continued on p. 66

Certain-teed ROOF DECK ERECTED AT HARVARD

REG. U.S. PAT. OFF.

Certain-teed Gypsteel Plank Roof Deck
Specified for Harvard's New Aldrich Hall

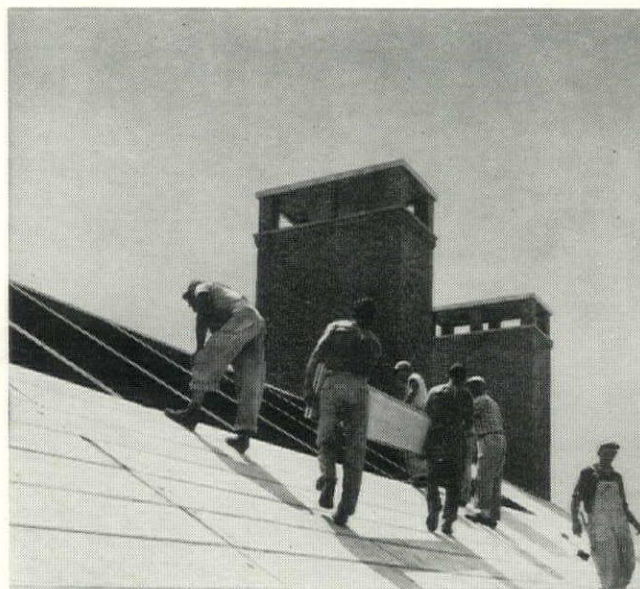


ALDRICH HALL
GRADUATE SCHOOL OF BUSINESS ADMINISTRATION
HARVARD UNIVERSITY
ARCHITECT:
PERRY SHAW & HEPBURN KEHOE & DEAN, BOSTON, MASS.
CONSULTING ARCHITECTS:
McKIM, MEADE & WHITE, NEW YORK
STRUCTURAL ENGINEER:
MAURICE A. REIDY, BOSTON, MASS.
GENERAL CONTRACTOR:
TURNER CONSTRUCTION CO., BOSTON, MASS.

Certain-teed Gypsteel Plank was specified in this major new building at Harvard for reasons that are important to you.

Gypsteel Plank is a gypsum roof deck reinforced with steel. It is light, strong, highly flexible in application. Tongued and grooved, it assembles easily and cleanly. And because of the speed with which it can be placed, it is highly economical to use.

All important reasons for your specifying Gypsteel Plank wherever a light, strong fireproof roof deck is indicated. Write for complete technical information today.



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FACTORIES



STORES



HOMES

LETTERS *continued*

4. Not all education has taken place under a roof—but some, most successfully, under a mango tree. Certainly, Greece, India, Guam, Puerto Rico, California are, as to training, not restricted to tight enclosure. But France, Germany, Switzerland are not either. Architecture is "thawed open" after a glacial millennium of a Nordic pattern of building.

5. The "aula" of the Scandinavian schools, in Denmark and Sweden especially, fully anticipates the use of circulation space as indoor assembly in unfavorable weather.

6. Any way to make mechanical equipment easily accessible for replacement, long before the building itself has to go, would add wonderful safety to the total investment.

7. In the essays which Oxford University Press has just printed under the title *Survival through Design*, I have talked about codes and school buildings, too much perhaps to keep all necessary official friendship with the authorities. Law, as codified custom, must be checked for manifold psychological encumbrances.

8. The standardized prefab for schools had been my "first" idea in the "Ring Plan School" of which the Museum of Modern Art sent a model around the country in 1930. It was just as you say—"the not-too-good first notion of how to achieve economy," and "not the latest and best idea" which I have held in general or without qualification.

9. Professional know-how and personality of expression clash a little less in other countries than they seem to in ours. We must study this closely.

10. Having weighty state corporations stand back of bonds is a wonderful arrow to financing public schools. Local authorities should counsel with the expert staffs of these corporations—staffs which they are not able to keep on their own payrolls.

RICHARD J. NEUTRA, *architect*
Los Angeles, Calif.

Forum:

Your periodic school issues are becoming documentary records of the notable advances in school design and technique.

EDWARD H. DE WOLF
Mayo, Johnson & de Wolf, *architects*
Stockton, Calif.

Forum:

Your October school issue certainly showed that your staff devoted a great deal of hard work to the preparation of this excellent document. It is a splendid issue and will go a long way to help the betterment of our school plant.

All of us here were particularly impressed with your presentation of the school building forum. Without a doubt it is the most valuable material on school building cost that has ever been written. It is very encouraging to see that architects, educators and the interested laity can get together and bring such a sharp

continued on p. 70

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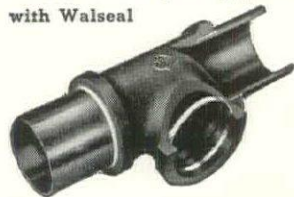
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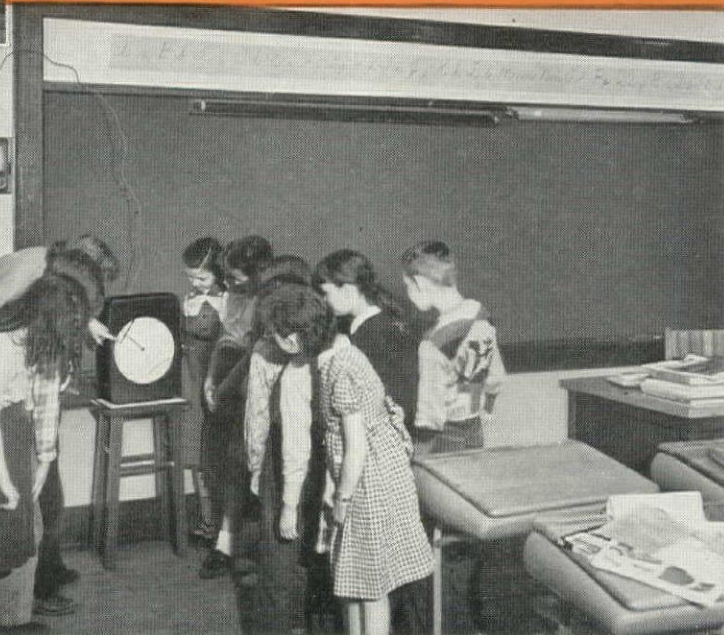
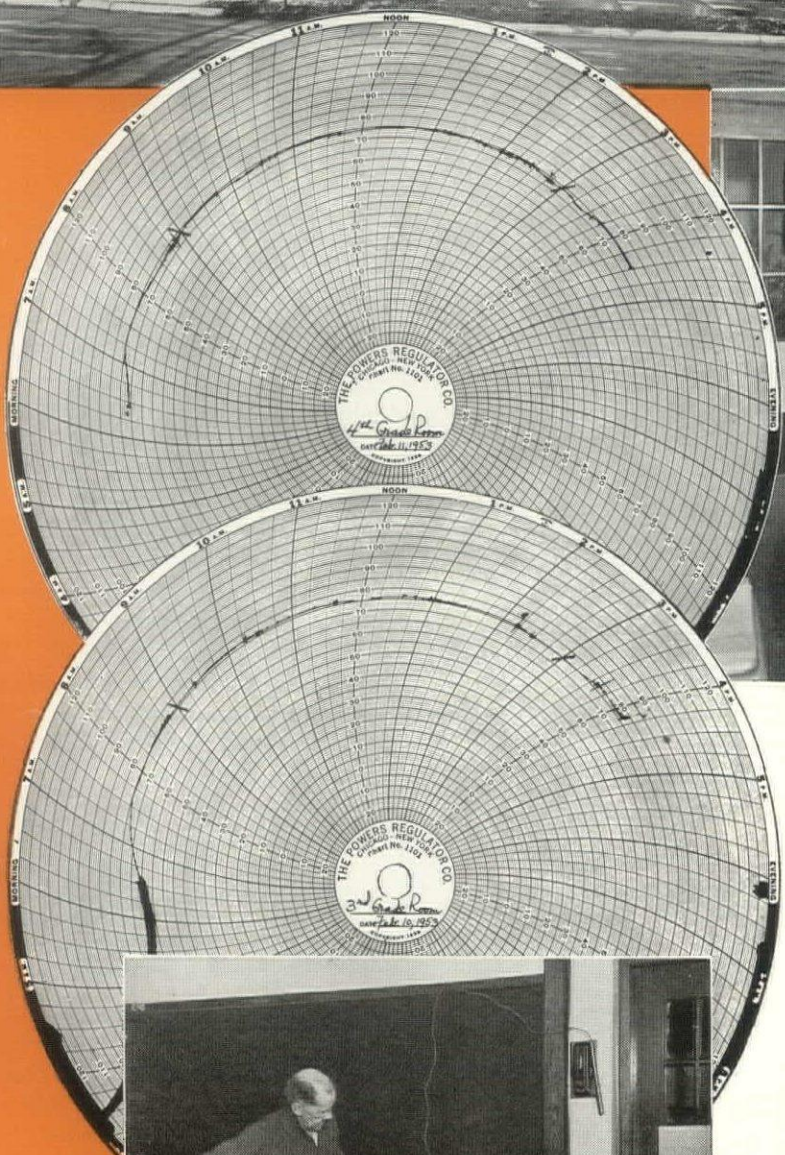


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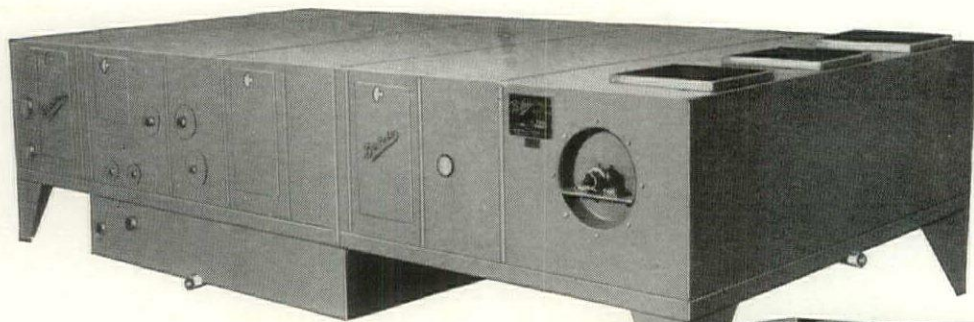
Chief Engineer Mr. Joseph Kutscheid setting up a Recording Thermometer in one of the rooms in the Banta School, Valparaiso, Ind. Thermostats were set for 75° F.

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LETTERS *continued*

focus on the problems of economy.

The best thing of all about your school issue is the succinct manner of presentation. I bet you are going to find out that kind of presentation, which school board members, educators as well as architects, can understand, is going to pay off in better school buildings.

You have rendered a wonderful service not only to the profession, but to the citizenry, by putting out such a splendid issue.

WILLIAM W. CAUDILL, *architect*
Caudill, Rowlett, Scott & Associates
Bryan, Tex.

Forum:

The caption under the photograph of the junior high school at Seattle (AF, Oct. '53, p. 176) has me listed as an engineer, and my initials are incorrect. I am a registered architect, not an engineer. However, on this particular job I did the structural engineering.

Insurance costs for this mill-frame structure were cut by adding two concrete fire walls and class "A" fire-door openings, not by putting in two concrete fire doors, as your article says.

FORUM has maintained a good grade of articles and information, and has been a very useful tool for me in my profession. Please continue your publication on the same high plane as in the past and I will continue to read the magazine from cover to cover, and enjoy it as I do now.

HARRY E. BOTESCH, *architect*
Everett, Wash.

PLANNING IN RUSSIA

Forum:

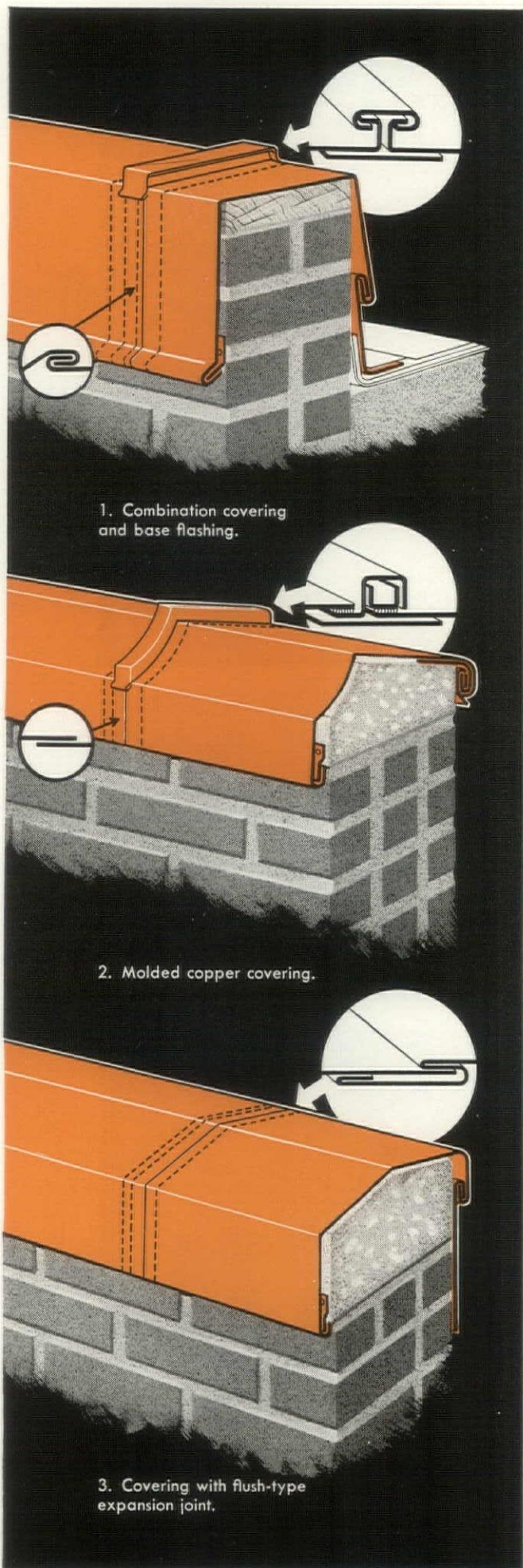
I appreciate the review of my book, *City Planning in Soviet Russia*, which appeared in the September issue of FORUM.

There are several errors in the review which I would like to correct. I would hate to see my favorite architectural magazine contain even slight errors; besides, my reputation may be at stake.

First, the statement "... his book does not include details or pictures of postwar developments," may be misleading. While the book is not voluminously illustrated (too expensive for the university publishing house), it does contain numerous descriptions and references to *details* of Soviet postwar developments. Besides, diagrams of postwar development of such cities as Istra, Stalingrad are also included. [The book includes 19 plans and diagrams, no photographs.—Ed.]

Second, at the start of World War I, Russia's urban population was *not* 3½ million and by 1951 it was *not* 27 million. The changes that occurred at the end of the nineteenth and beginning of the twentieth centuries in the political and economic life of

continued on p. 74



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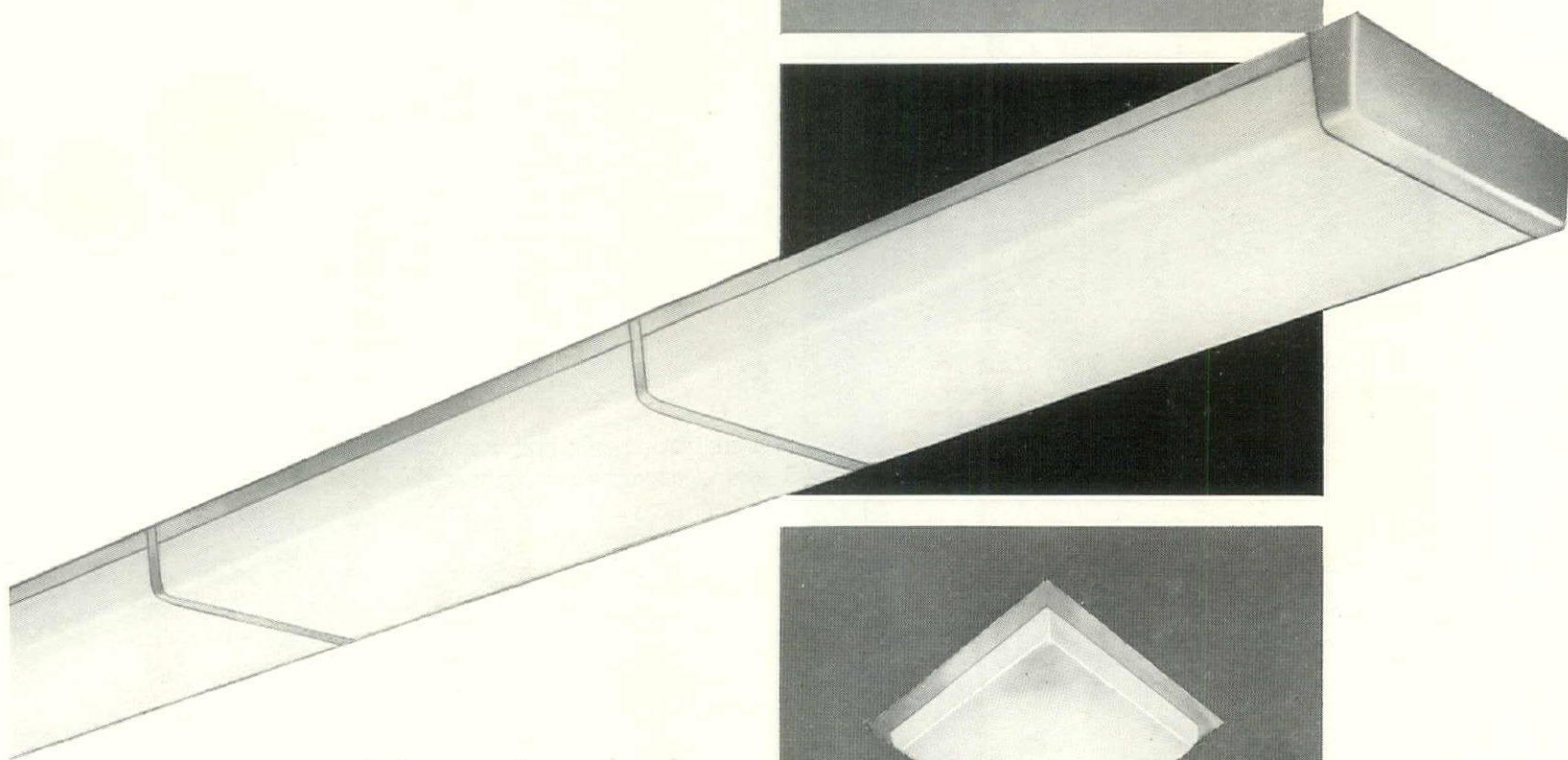
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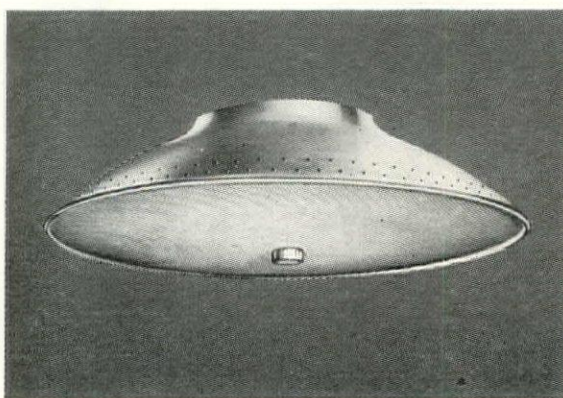
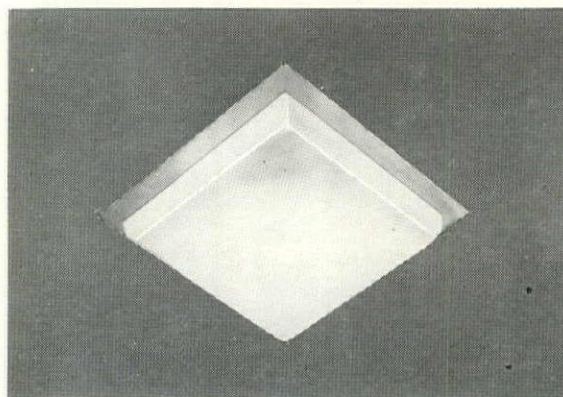
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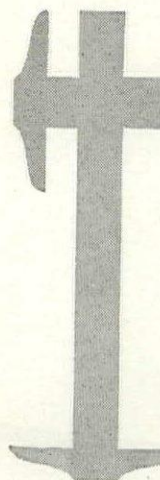
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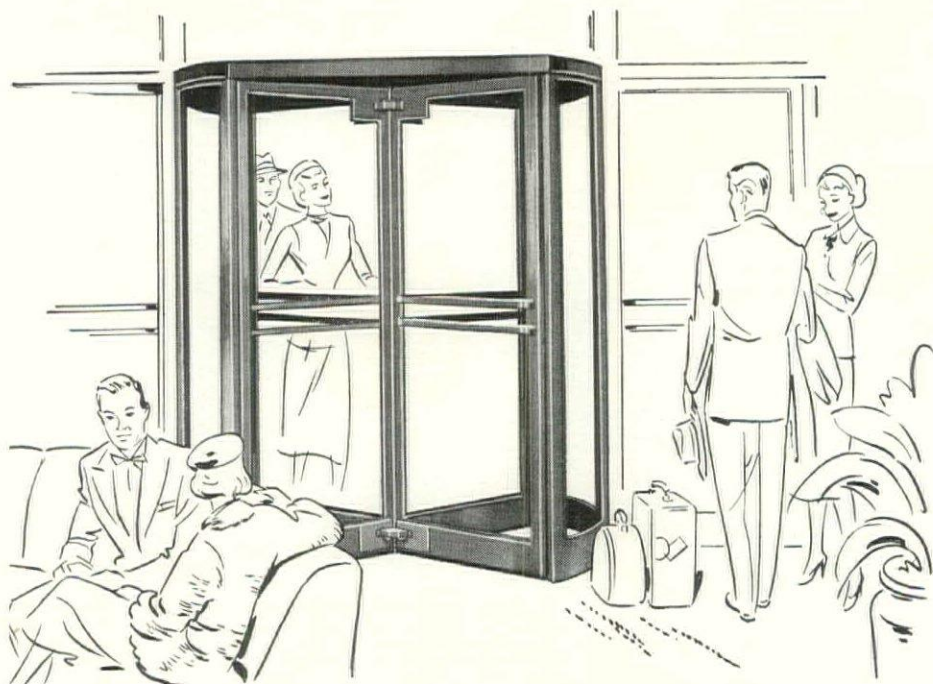
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LETTERS *continued*

Russia are strongly reflected in the growth of the urban population. The number of urban dwellers grew from about 3.5 million in 1851 to 15.8 million in 1897 (first Russian census), to 26.8 million in 1914. The urbanization process under the Soviet regime has progressed very rapidly; it was concomitant with the industrialization of the Soviet economy. During the intercensal period of 1926 to 1939, the urban population increased from 26.3 to 55.9 million. During and since World War II, the urban population continued to increase still further. No official statistics are available, but it may be assumed the urban population in 1950 may well have reached over 40% of the total estimated USSR population of 210 million, as against 32.8% of the total of 170 million in 1939.

Third, according to the best knowledge available, the linear-type city in the Soviet Union was *not* proposed by Corbusier. The principle of "La Ciudad Lineal" may be traced to its origin, the Spanish writer, D. Arturo Soria y Mata, who suggested as early as 1882 that cities be built along their main arteries of communication. A Soviet city planner, N. A. Miliutin, also arrived at the lineal system for cities and developed this idea further than Soria y Mata. Several of his schemes were proposed for Stalingrad, a factory town near Molotov, and one such city was built near Novosibirsk.

Fourth, the present population of Moscow is not "about 4 million." The USSR 1939 All-Union Census lists 4,137,000. In 1950 Moscow's population was already over 5 million.

Although these corrections appear minor, I would appreciate your printing them so as not to leave any stigma on the high reputation of your publication and remove any false impression on the mind of the reader as to the factual data in my work.

MAURICE FRANK PARKINS
Research associate
Institute for Research in Social Science
University of North Carolina
Chapel Hill, N.C.

PRIZE DRAWING

Forum:

. . . Tuck & Eipel Consultants and the John D. Dillon organization collaborated on the drawing on p. 126 of your September issue to illustrate the air conditioning of Architect Philip Johnson's administration building in suburban Connecticut. This drawing was submitted to the Architectural League competition in New York City under joint firm names and received second in the competition. Eipel Engineering Consultants are successors to Tuck & Eipel. We were the mechanical engineers on the heating, ventilating and air-conditioning system which you stress in your article.

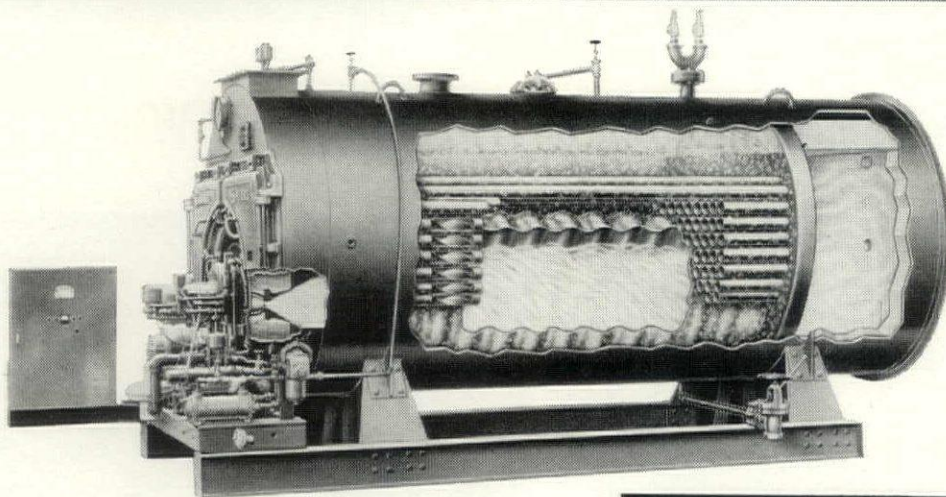
JOHN D. DILLON, consulting engineer
New York, N.Y.

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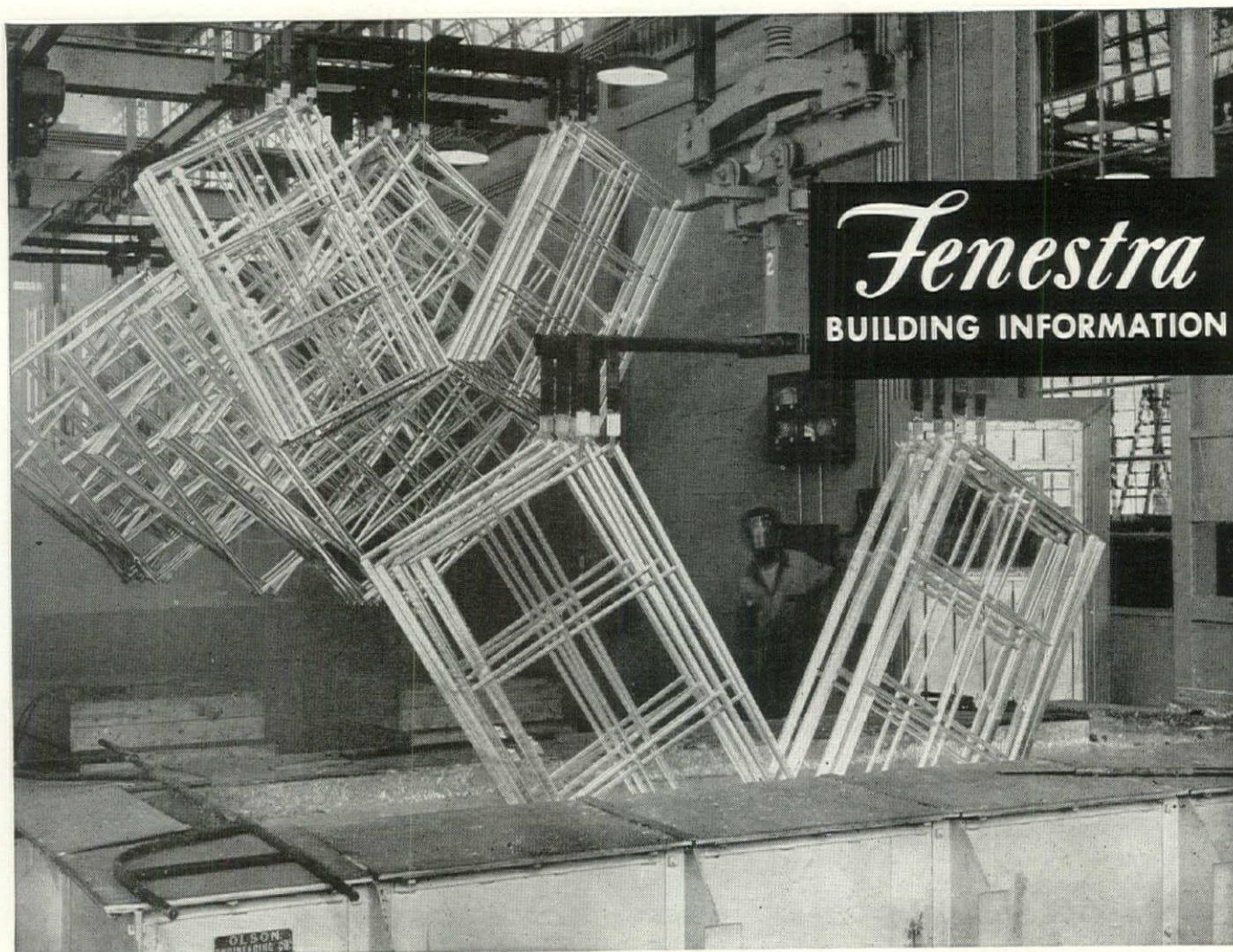
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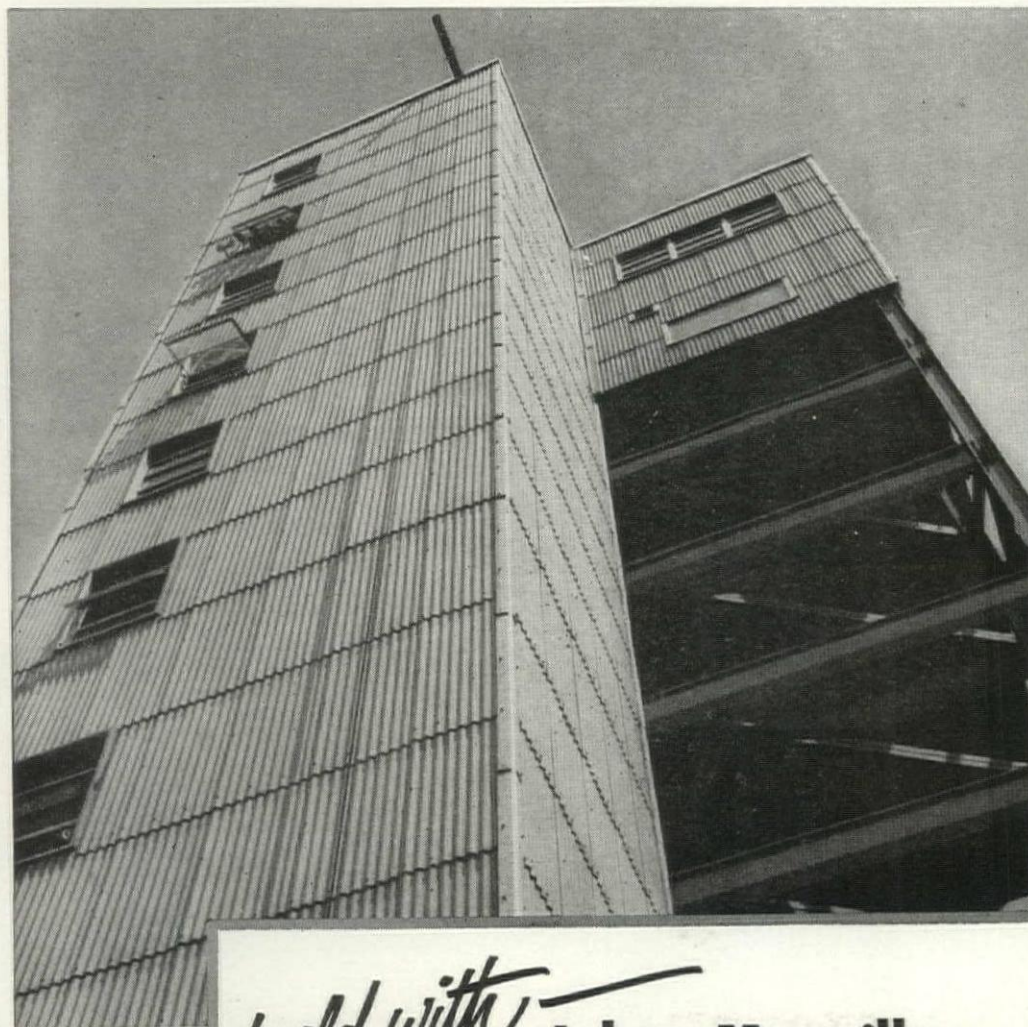
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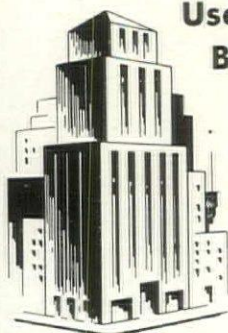
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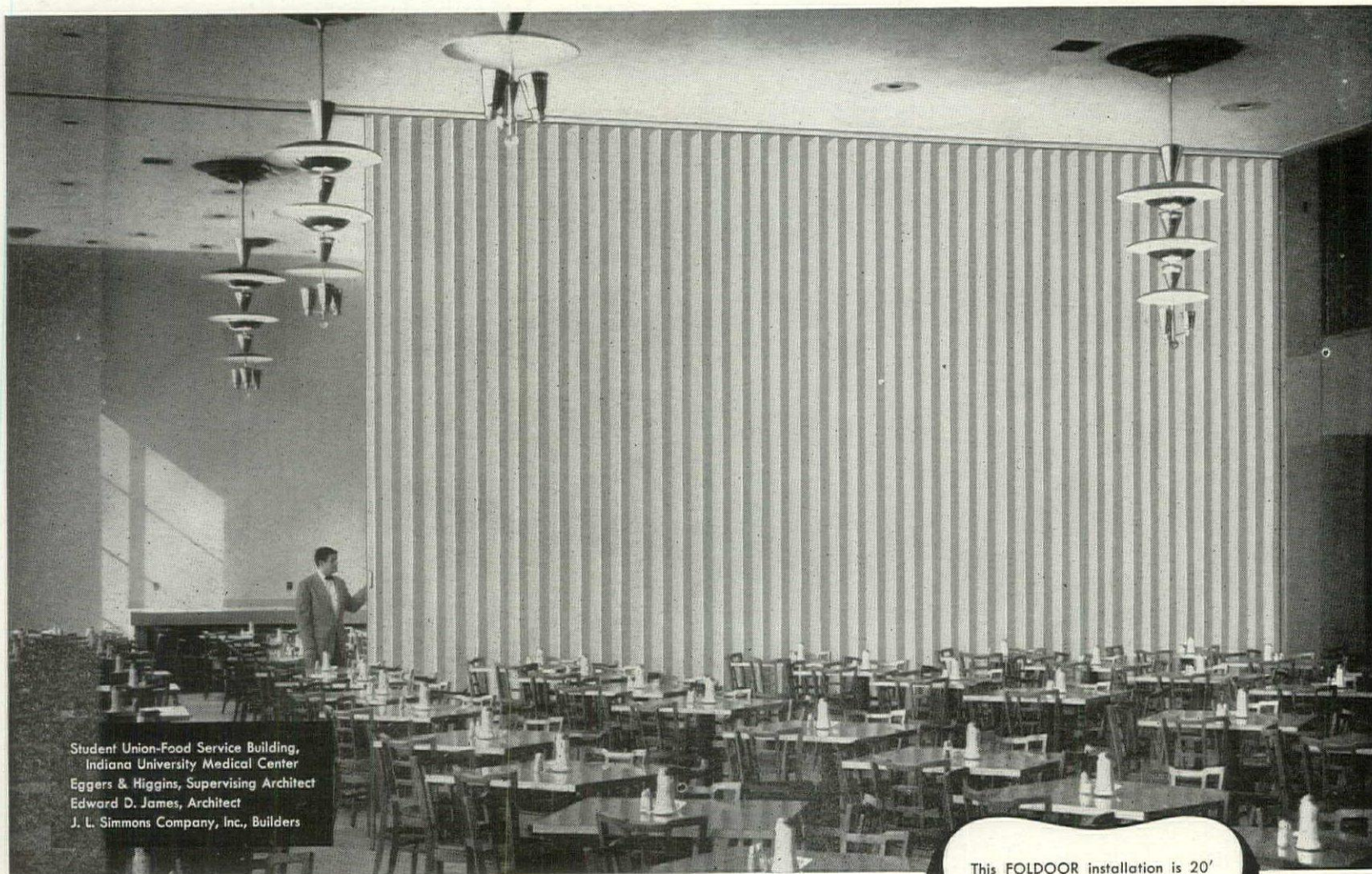


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Eggers & Higgins, Supervising Architect
Edward D. James, Architect
J. L. Simmons Company, Inc., Builders

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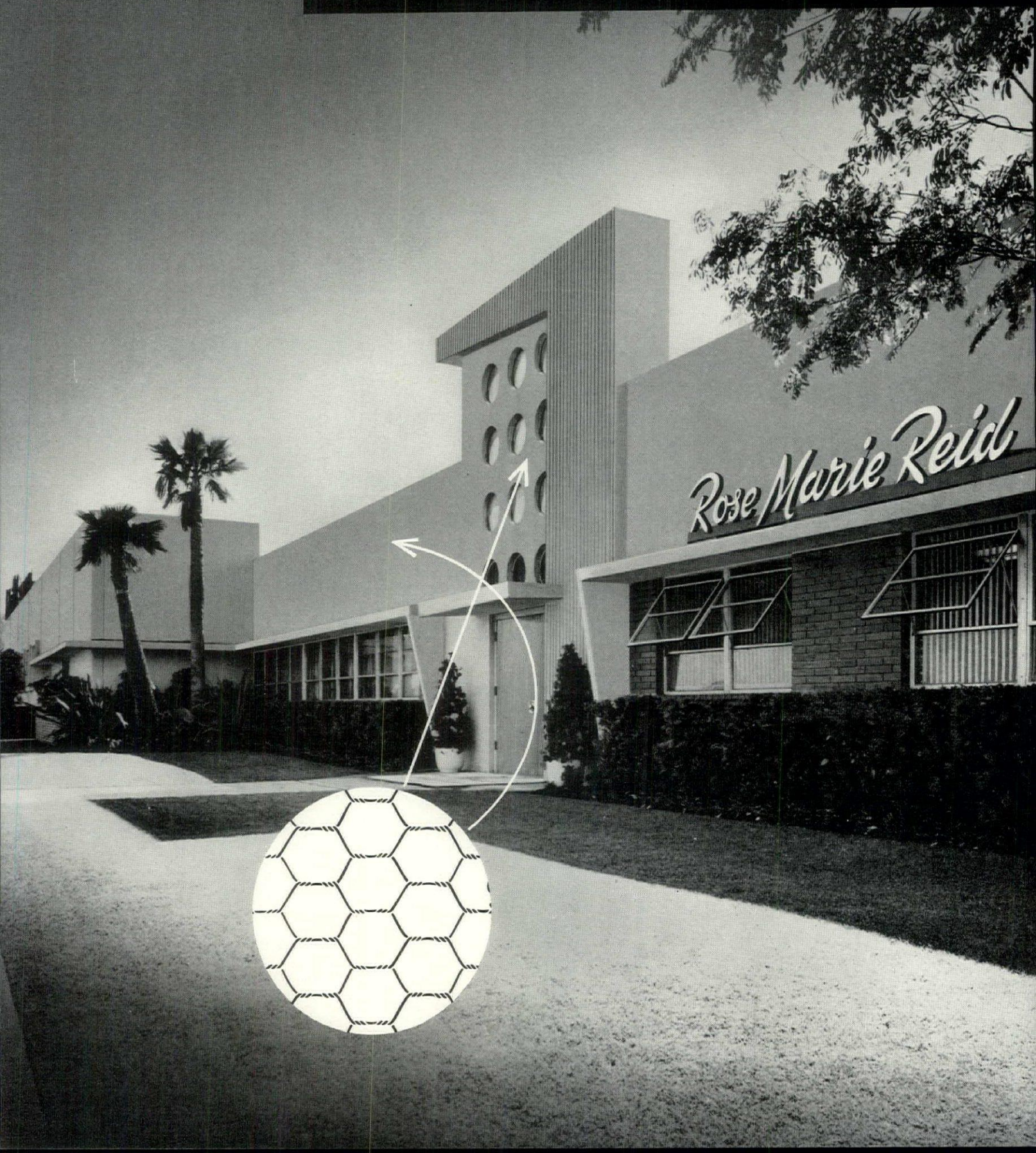
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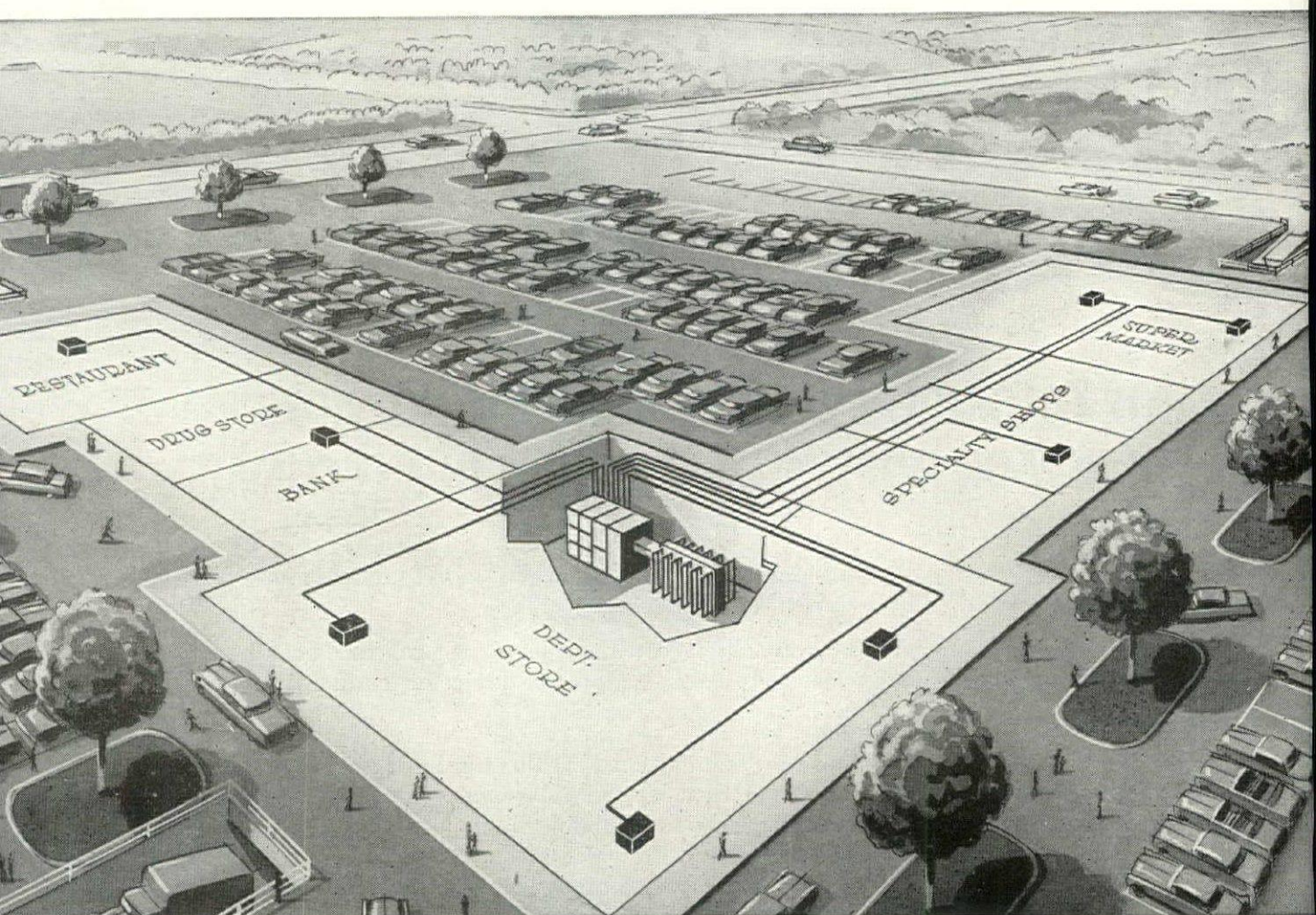
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Joe Monroe

ELEVEN U.S. CHURCHES. Until very recently the creed of modern architecture has received only lip service in most U.S. church design. There has been substantial reason for this, the usual one, the clients. The congregation are the Medici of this age, and most of them have been very undecided about architecture; they are likely to hide on Sunday morning behind sentimental images from the past.

But today it is possible to see the beginnings of an encouraging strength in U.S. church design. There is a new affirmation and confidence in recent designs. As in the serenely welcoming facade of the Ohio church above (and on the next two pages) there is a poised expression of a real faith for our times.

SIX EUROPEAN CHURCHES, as seen by a U.S. architectural critic, are presented on p. 104.

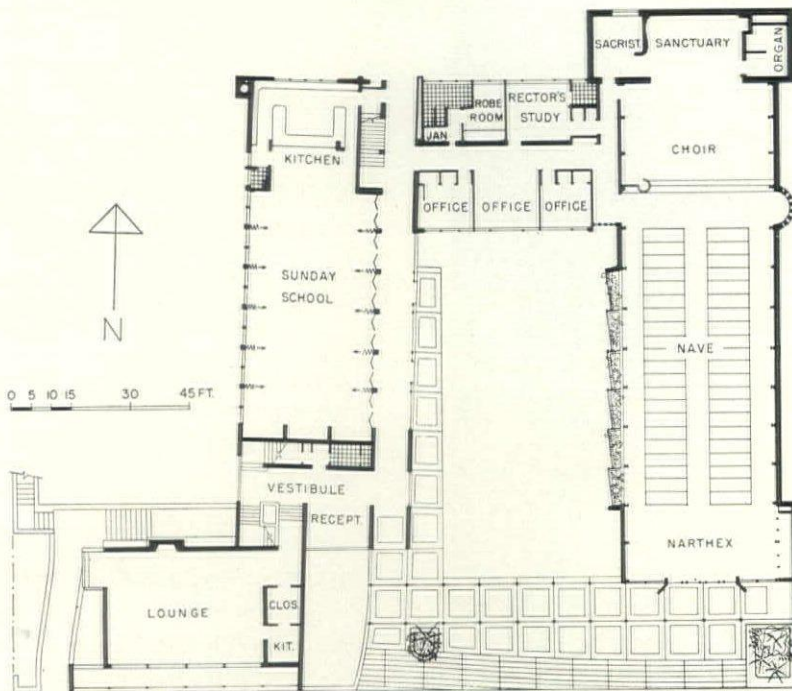


Wide-open narthex enhances the intim

ST. STEPHENS EPISCOPAL CHURCH,
Columbus, Ohio
BROOKS & CODDINGTON, architects
E. ELFORD & SON, general contractors
RALPH & CURL, mechanical engineers
BOLT, BERANEK & NEWMAN,
acoustical engineers
CHARLES R. SUTTON, landscape architect

This church is sited invitingly close to the street; from the sidewalk there is no barrier but the framing of the clear glass. Then, down the length of the church to the seclusion of the altar, space is measured in even rhythm by the welded steel frame.

The effect is calm and reasonable, but there is a contemporary splendor, too, in the high tent of space captured within the tall, peaked roof. The key to the design lies in two facts: 1) Economy was necessary, so clear glass was used instead of stained glass. 2) This visibility was also extended into the rest of the construction. Expensive finishes were not added; the high-grade construction stands revealed.



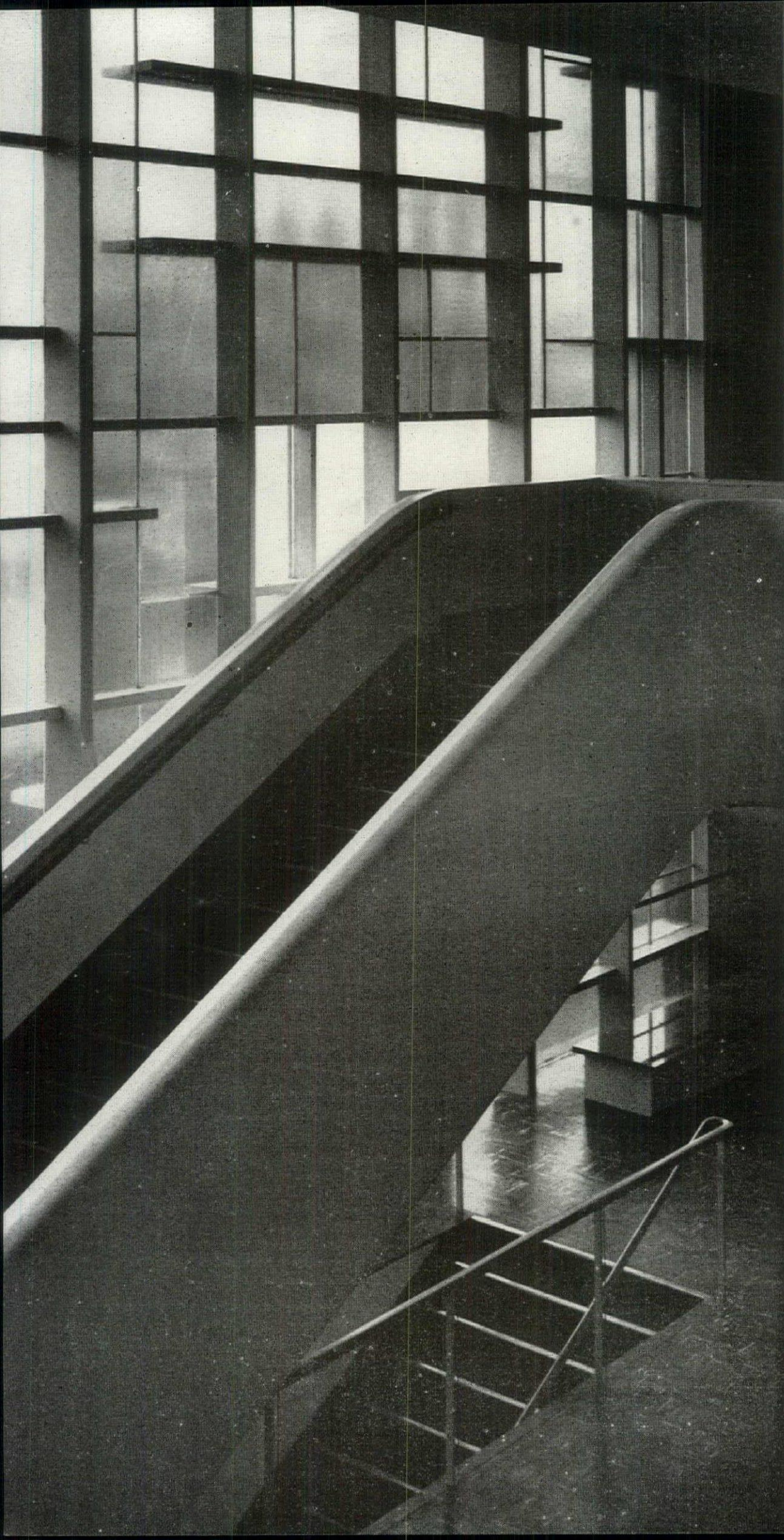
Steel-framed portico connects church and student center wing. Photo (above) is up steps from side walk. Note glass block wall in tower over choir; it bathes sanctuary in daylight. Church is a slab-on-ground design, is heated half by radiant floor panel system, half by unit ventilators; air-conditioning compressor and coils will be added.

Photos: (p. 86 & below) Joe Monroe

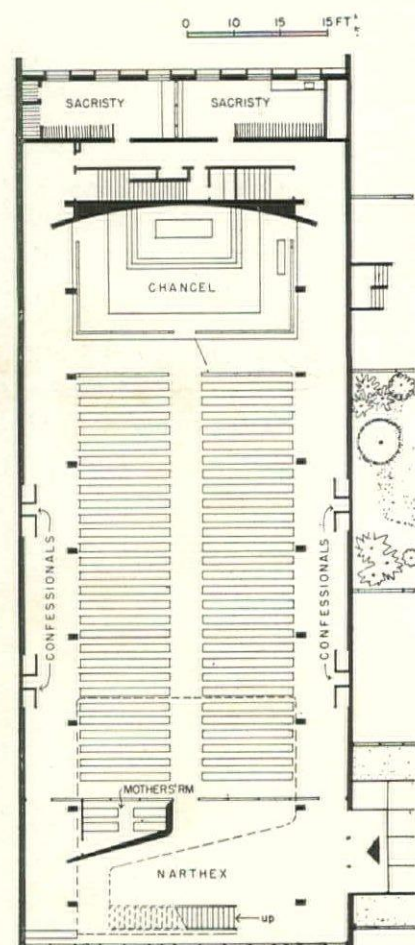
Materials are as important to the church as its lucid shape. Simple but good brick walls, pierced in some places, and 3" x 6" fir plank ceilings extend the frank character of the building, and are also good in softening reverberation. Outdoors the 70'-high cross (see p. 85) is made boldly of steel sections welded together; inside, the cross behind the altar was executed by Sculptress Laura Ziegler in steel tubing, rods and plastic inserts.

of the sanctuary

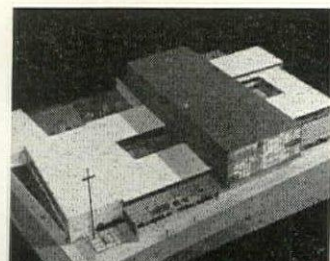


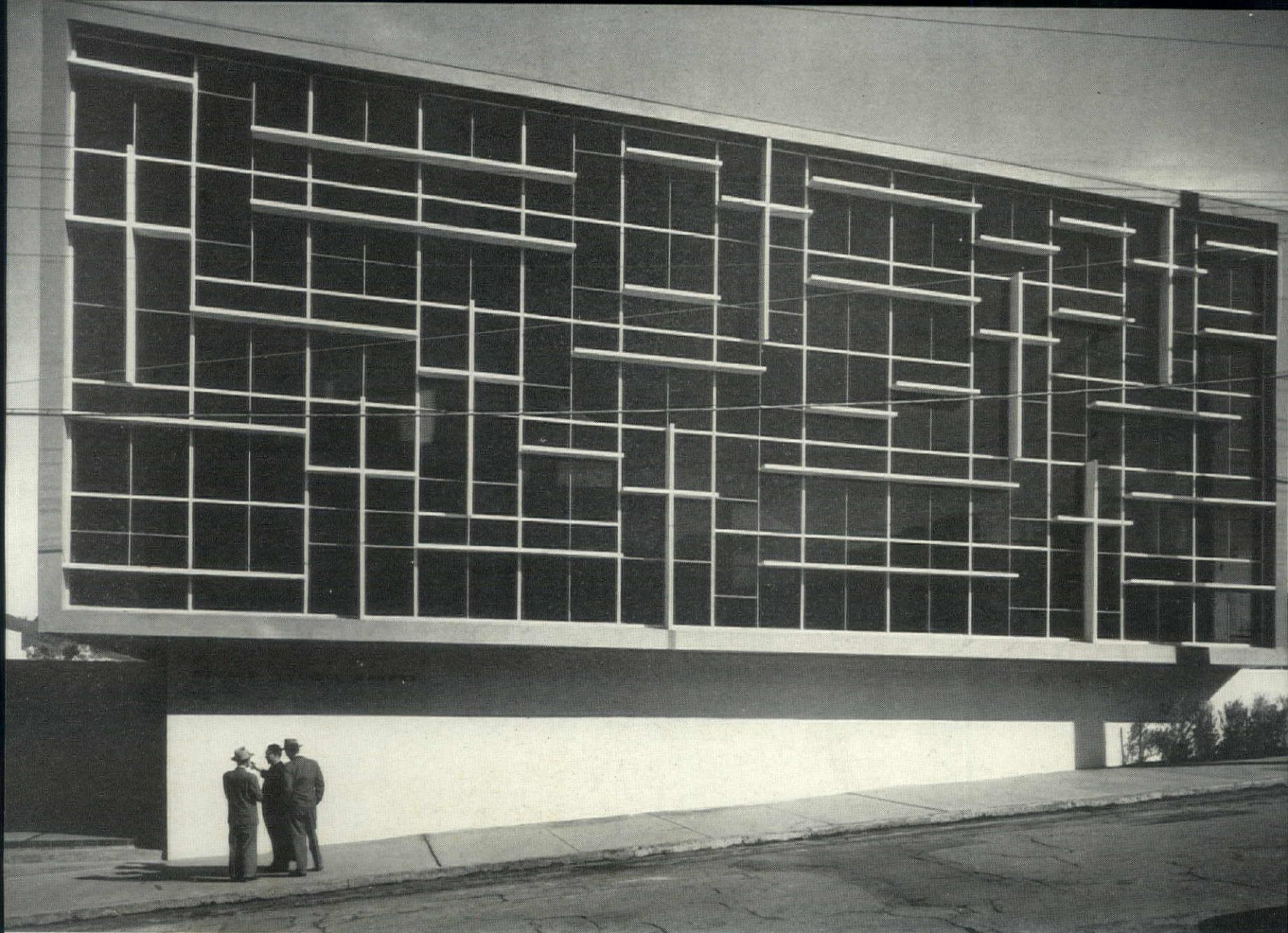


CORPUS CHRISTI ROMAN
CATHOLIC CHURCH
AND CONVENT
San Francisco, Calif.
MARIO J. CIAMPI, architect
JACKS & IRVINE,
general contractors
ELLISON & KING,
structural engineers
MARION THOMAS,
mechanical engineer
CHARLES VON BERGEN,
electrical engineer
ELIO BENVENUTO, sculptor
LAWRENCE HALPRIN,
landscape architect



Floor plan shows clear glass screen between nave and narthex to help keep nave quiet from street noises. Mezzanine and stair (left) also calm the influence of the big glass south wall. Below, model of church complete with convent and future rectory.

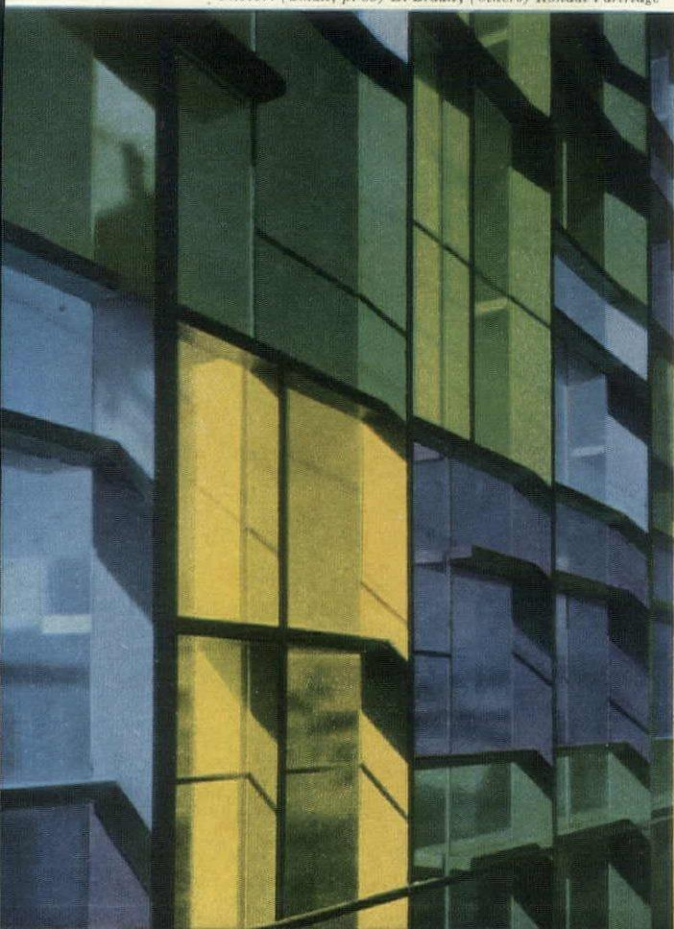




Glass wall cantilevers south over sidewalk

Religion's old art, stained glass, newly set

Photos: (Small, p. 88) E. Braun; (others) Rondal Partridge



The miraculous secret of stained glass for churches may not have been lost, but today it has grown terribly expensive. This is especially true for a modern church, which, like a modern house, likes to wear its glass in whole walls, not in windows poked into the walls. So something new had to be evolved to include the rich, emotionally appropriate glazing of the ancient ritual of worship into today's expressions. In this church the answer is rectangular panes of flat-hued glass in lively colors, of Piet Mondrian character, set in machine-made tracery, framed in terra-cotta colored concrete.

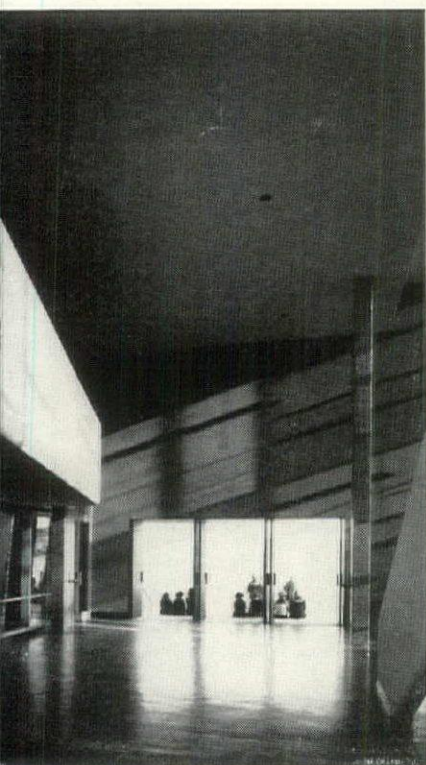
The entire end wall of this church beside one of the Bay City's hilly streets is an abstraction of religion, an instantly recognizable symbol of a spiritual home consistent with contemporary structure. This is not the altar end, but the narthex (in photo above, entrance is around right corner). The great glass wall is to your left as you enter. Then you turn right to go toward the altar, or left to ascend the steps (photo opposite) to the mezzanine baptistry and choir loft. But from the street, before you go in, you have been struck by the vibrant strength of the wall.

For what happens next, turn the page

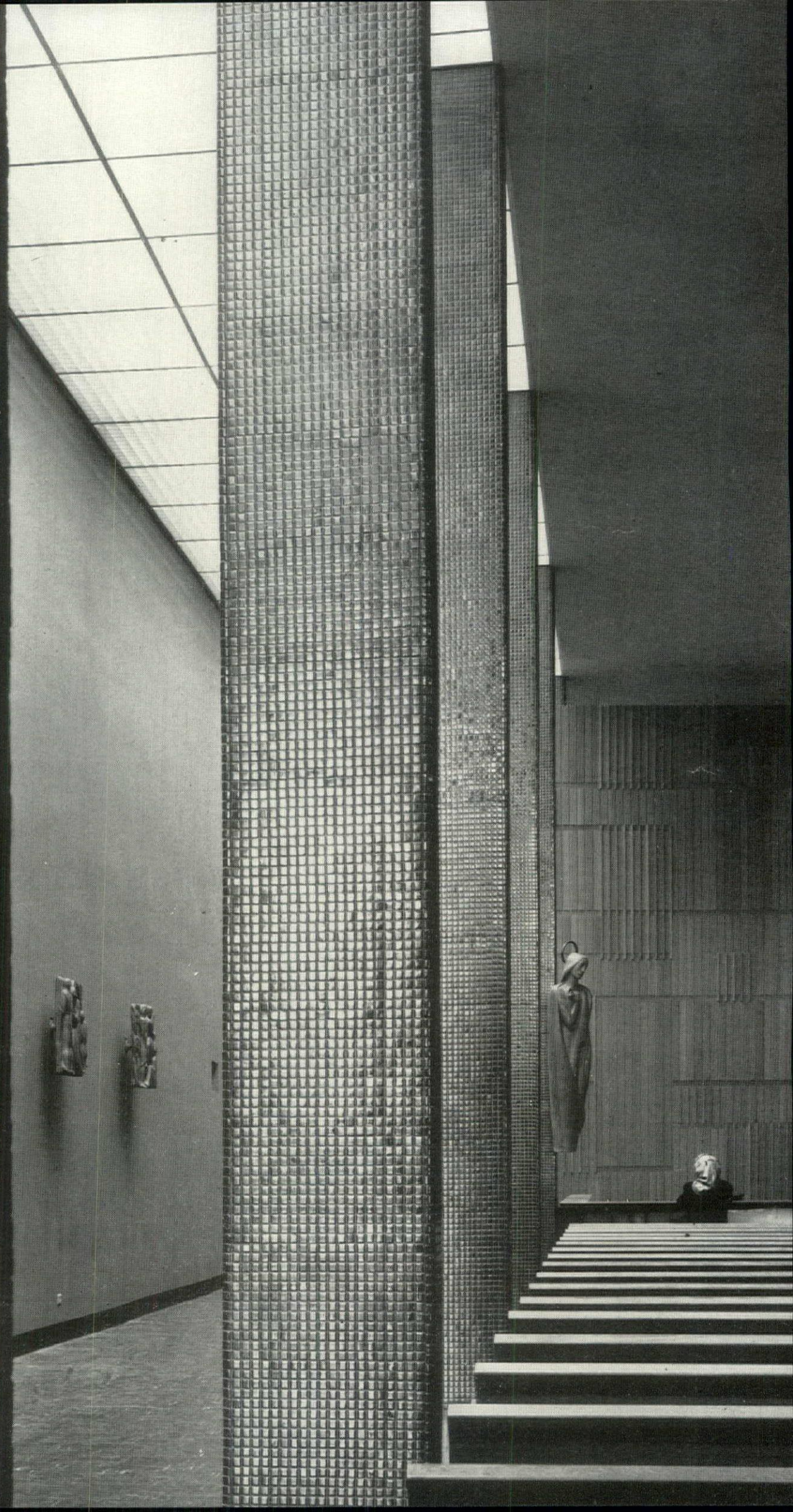
Inside geometrical stained glass wall

On the way in,

in the narthex, you are splashed by the fluidly cast patches of light through the colored glass.



Entrance to narthex (above) is separated from nave by a glass screen to the left. Photo (right) looks down near side aisle past mosaic-encrusted column toward sanctuary.





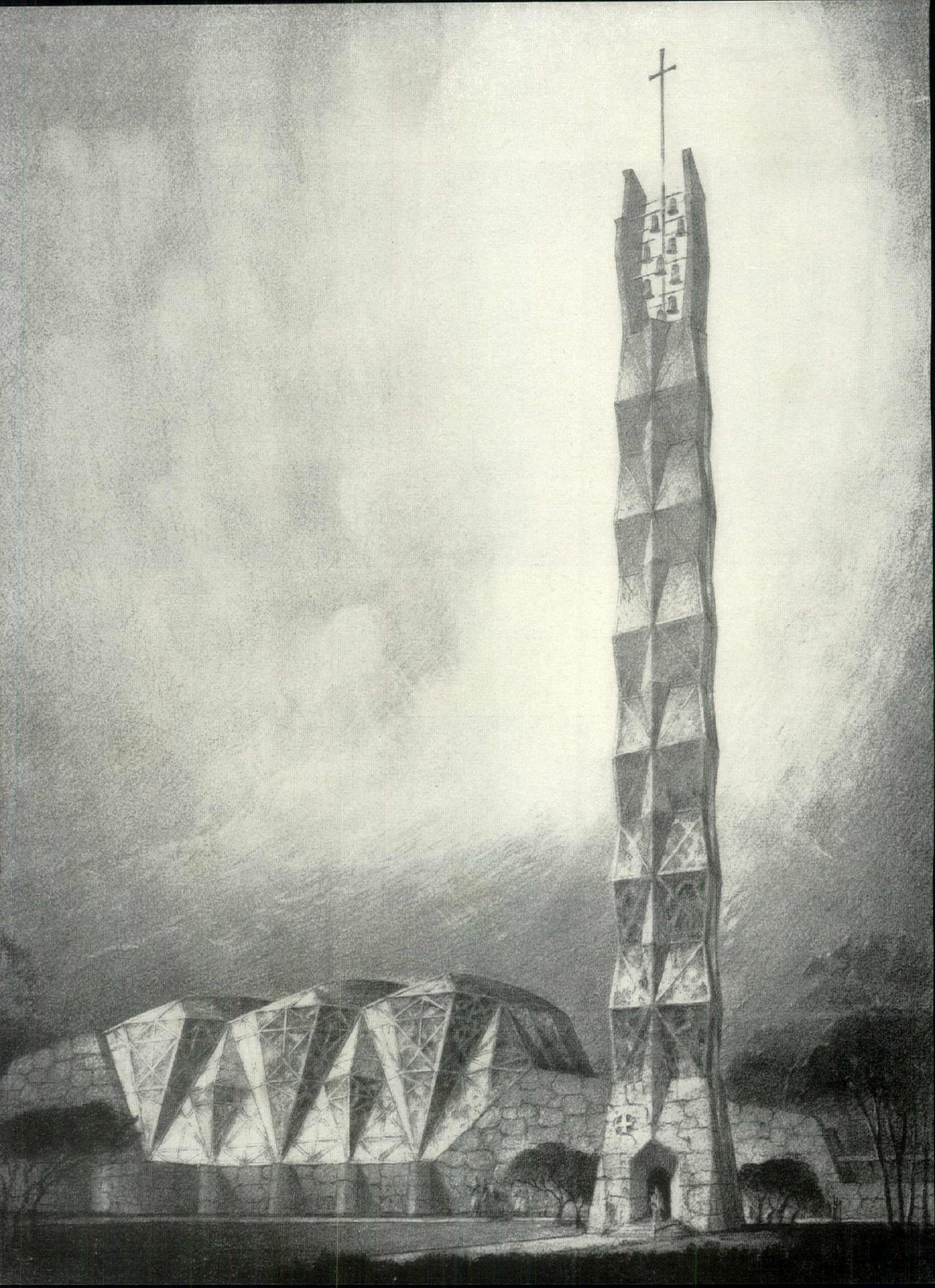
On the inside, away from the great glass wall, you come into a **serene space** whose color is plentiful, but is applied almost austere. The excitement relaxes somewhat; worship begins.

Photos: Rondal Partridge



The church is lit from panels of egg crate over the side aisles, into which the columns disappear lightly, seeming to support the central span of acoustically treated ceiling by touch alone. Light through the crate can be daylight or electricity, depending on the hour and weather. The floating feeling of this big simple interior was created deliberately for a combination of physical repose and religious tension.

Beyond altar is curved wood reredos, with abstract pattern by A. R. Flieschmann. It contrasts with smooth Belgian black marble altar, dull red walls of nave, gray acoustical plaster ceiling, and black-green asphalt tile floor. Cost of the church: \$436,000 or about \$18.50 per sq. ft. Cost of glass, \$9,000; of marble and tile, \$12,000.



FIRST PRESBYTERIAN CHURCH,
Stamford, Conn.
HARRISON & ABRAMOVITZ
SHERWOOD, MILLS & SMITH,
associated architects



A Piranesi for today

Bell tower will rise beside unique, slumbering form of church itself. Church complex will include Sunday school wings arranged around a spacious open court, and a sizable community auditorium. Rendering at left and on p. 94 by Hugh Ferriss.

Wallace K. Harrison again reveals his defiant determination to break through the flat-faced confines of today's formulated architectural design in this preliminary for a church in Stamford, Conn.

This church was designed for a conservative Presbyterian congregation; in their daily lives they honor a great many homogenizing influences toward staid propriety at home, at business, at the country club.

But in their church they have taken an opportunity for expression which seldom is accepted by today's proper churchgoers, an opportunity to symbolize their faith not in narrow ecclesiastical cliché inherited from the past, or in equally narrow tentative attempts to make a church look as if it had been made in a factory. Stamford's religion is not factory made, nor will their church be. It will be a force.

It will use the magic of today's structural techniques. At prayer the congregation will be surrounded by an enormous, many-faceted stained-glass wall supporting a masonry vaulted roof reminiscent of the gothic groined vault. Obviously this is intended to seem to float above a wall of jewels. As enthusiastically as Harrison has embraced structural science,

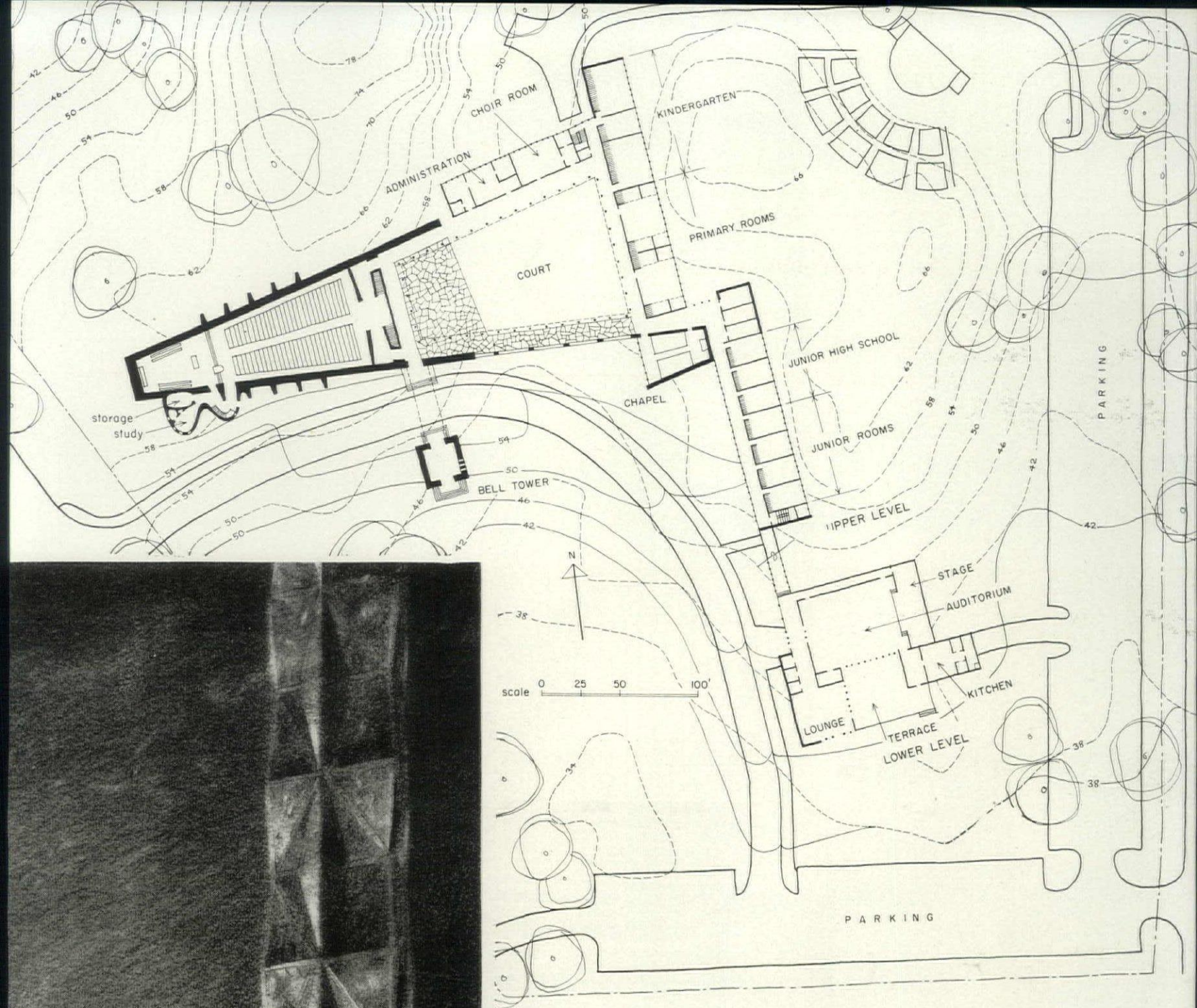
however, he has been equally determined to express the antiquity of the church's past, and its future solidity. This he does by using stone massively throughout the opaque walls of the huge shape. With the glint of today's techniques, the church will also wear a mordant expression going back to the Druids' stone piles.

This church will be a diamond as big as the Ritz

The effect of the 2"-thick vari-colored glass wall is fantastic even to imagine. A large part of this effect will be dynamic. Since the wall is faceted like a jewel, the movement of the sun will bring it to life, glinting and sparkling from one surface to the next through the course of the religious service. The faceting has another hard basis in practical reality; it will cut down reverberation from the thousands of square feet of glass.

At night the jewel will be reversed, gleaming from the inside out. Even one spot of illumination inside one lamp will be caught, repeated, colored and magnified by the intricate wall of glass. Night or day, the church will grasp the intense attention of the community.





Axis is east and west. Note that plan above changes level at end of wing toward parking space. Site is ten acres.

Tower will probably be steel and glass with a stone base on a steel and reinforced concrete frame, the same type of construction as church. Glass in tower, however, may not be stained. Tower will be about 140' high, 25' square at base.

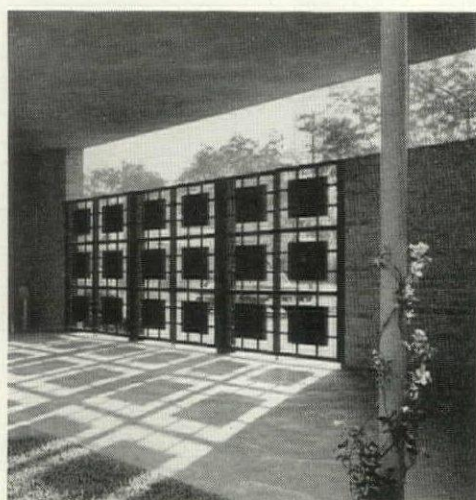
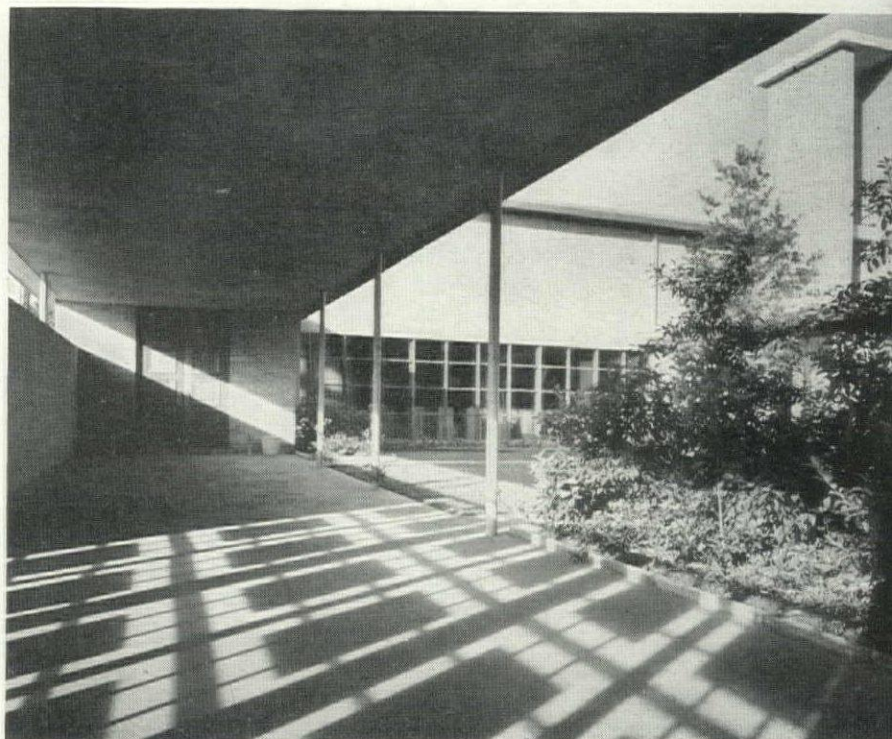


Brick and redwood express the calm, logical

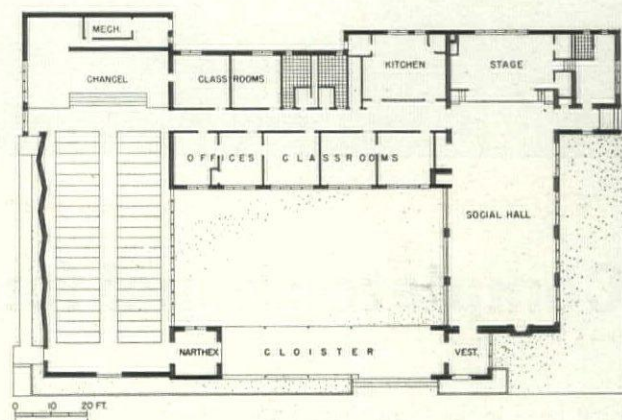
The Unitarian attitude is as firmly intellectual as it is emotional, yet around this inviting and protective hollow square of Houston real estate, the attitude has built a church so carefully of handmade brick that it has a hallowed air.

Ralph Waldo Emerson said (in a speech to divinity students in 1838): "Let me admonish you, first of all, to go alone; to refuse the good models, even those which are sacred in the imagination of men. . . ." It was good advice for architects too. Architect Greacen followed it by including such uninhibited devices as a wall of overhead doors between the social hall and the central patio, so the whole space can be opened up, and the modest proportions of the principal room (above). This he complicated and enriched both acoustically and visually by staggered planes in ceiling and walls. Cost of church, \$188,950, or about \$16.60 per sq. ft.

FIRST UNITARIAN CHURCH OF HOUSTON
Houston, Tex.
THOMAS E. GREACEN II, architect
TELLEPSSEN CONSTRUCTION CO., general contractors
WARD BUTTERWICK, structural engineer
DALE S. COOPER & ASSOCIATES, mechanical engineers
RUTH LONDON, landscape architect
DR. C. P. BONER, acoustical consultant



Shadows of the gate, thrown inward into patio (above), are as much a part of its design as its substance—bronze panels set in plated steel tubing (left). This is the front door for the whole group. The patio is a foyer affording a transitional change of scene, a decompression chamber from Houston's busy streets, preparing the churchgoer for a mood of quiet worship.



In plan the greater part of the site is walled from the heavily traveled mid-town area outside. Presence of several monumental traditional churches in neighborhood led architect toward functionalism for his avowedly liberal denomination.

nature of Unitarianism

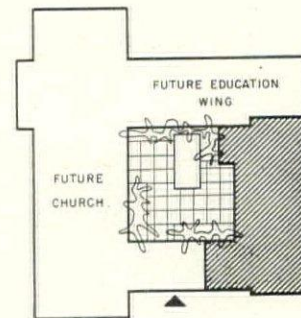
Photos: F. W. Seiders



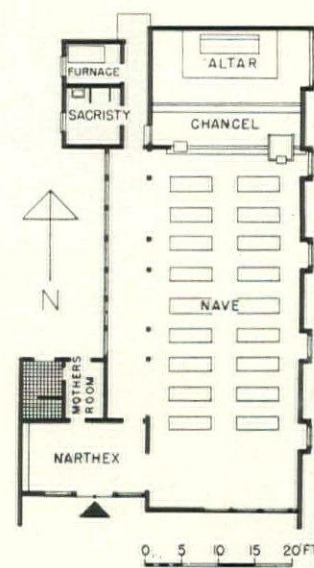


Julius Shulman

CHRIST LUTHERAN CHURCH
Wichita, Kansas
RAMEY & HIMES, architects
WRIGHT & LEE, general contractors



← Chapel viewed from pulpit (left) is used as temporary nave. When group is complete this building will be used as assembly room for Sunday school and other church activities.



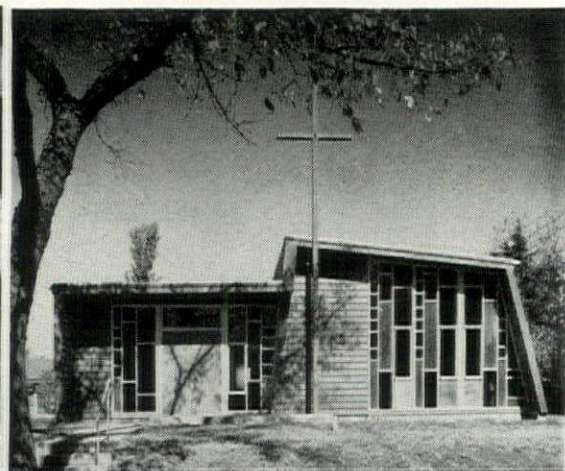
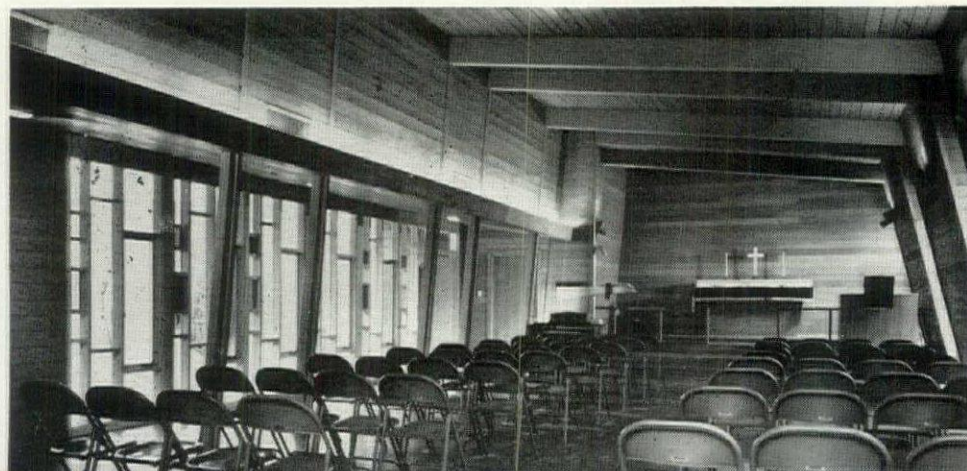
Complete chapel for \$23,700

First need in the formation of a new Lutheran congregation in Wichita was a chapel. Not a big one, but a building which none the less would be a pleasantly inspiring symbolic home to rally around.

Lumber was the obvious material. Over lap sided walls, opened by panels of glass in simple colored patterns, the architect designed a structural system of wood frame bents which could be job-fabricated and tilted up into place. The outline of the bent became the shape of the building. Its span is 18'; its spacing down the chapel 4', then 8', then 4', etc.; the biggest member is 2" x 14". Interior finish is 1" x 6" fir.

Cost: general construction, \$20,321; plumbing, \$934, heating, \$1,455; electrical, \$987; total, \$23,697, or \$10 per sq. ft.

Street facade is simple wood and stained glass. Unostentatious warmth of design is praised by pastor: "... the all-wood interior ... gives a homelike atmosphere and permits the worshippers to be at ease."





Auditorium uses rough-sawn cedar stained inexpensively with light gray creosote. Radiant-heated concrete floor is stained gray-green throughout.

CHURCH OF CHRIST, SCIENTIST, Seattle, Wash.
CHAPIN, JOHNSON & RIDLEY, architects and engineers
GUY E. McFARLAND SR., general contractor

Ernst Kassowitz



Louvers on side wall direct daylight into church without glare.

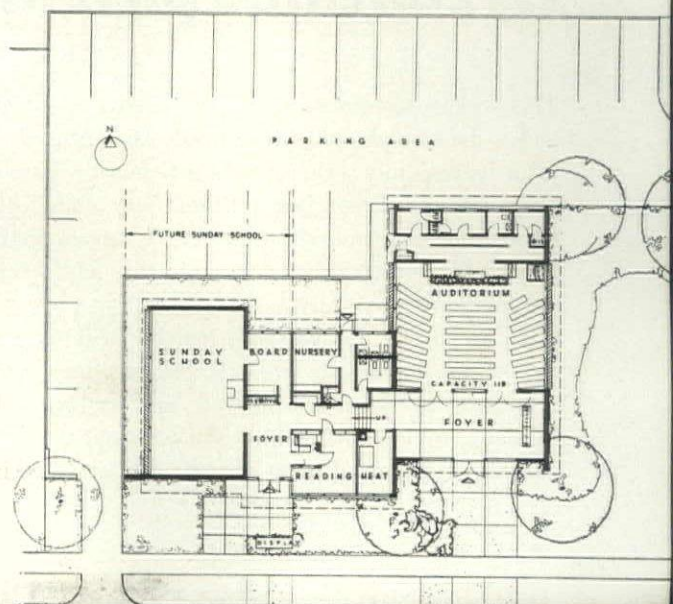


Screen walls resembling stage-wing panels add segregated space behind speaker's platform.

Church on a house budget

This pleasant home for a Christian Scientist congregation is another achievement in religious economy; the contract cost was only a few dollars over \$40,000, or about \$12.20 per sq. ft. Says the architect: "As the church is free of ritual and tradition, direct design is possible and right."

One of the principal aims in the design was to achieve a sense of space despite the necessarily small area. This was done by ending the church with a glass gable wall penetrated by the longitudinal glued laminated beams. Separation between auditorium and foyer is by a double-glazed wall with two sets of double doors. When the doors are open the foyer can be used for overflow, and when closed complete privacy is attained with the help of a translucent curtain over the central lower panel of glass.





Photos: Myles de Russy

ST. JAMES MAJOR CHURCH
New Orleans, La.
W. R. BURK & ASSOCIATES
Architects
J. R. LAMANTIA, designer
LIONEL R. FAVRET CO. INC.
General contractors
EMIL FREI, windows
DA PRATO STUDIOS
Altars and fittings
LIN EMORY, sculptures

Frame is clearly expressed in handsome bell tower; structure and screen wall are also clearly divorced in both exterior and interior. Cost: \$387,873 or \$23.45 per sq. ft.

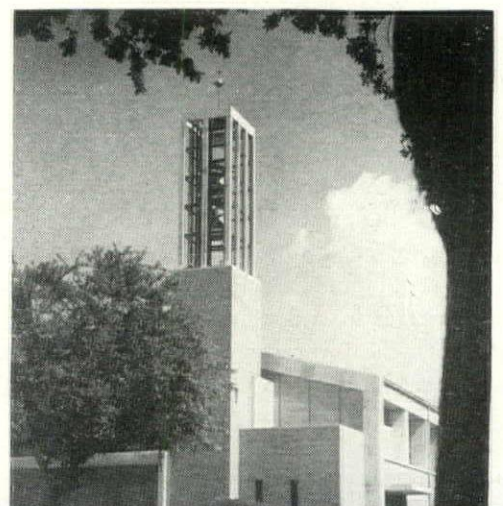
Byzantine spirit in today's techniques

This wide-span structural design (clearly spanned 80' across by rigid steel frames) had to be brought into scale inside and infused with a religious spirit in a city that takes its antiquity seriously—New Orleans. These are the methods by which the great, low, well-lighted room was adjusted into today's human focus:

► By using rich materials like *verde scouro* marble and Italian travertine, stained glass, white oak, unglazed ceramic tile, and terrazzo with marble inserts—to define the enclosure forcefully.

► But by putting the materials together without a slavish eye on old Byzantium. Typical of the handsome result is the sanctuary (photo above) with its stained glass expressing the loadless end wall, and its textured surfaces in regular patterns.

► Finally, by using almost no stock liturgical items, ordered from a catalogue. Pews, stations, sculpture, all were scrupulously executed in a unifying spirit.



BLESSED SACRAMENT CHURCH

Holyoke, Mass.

CHESTER F. WRIGHT, architect

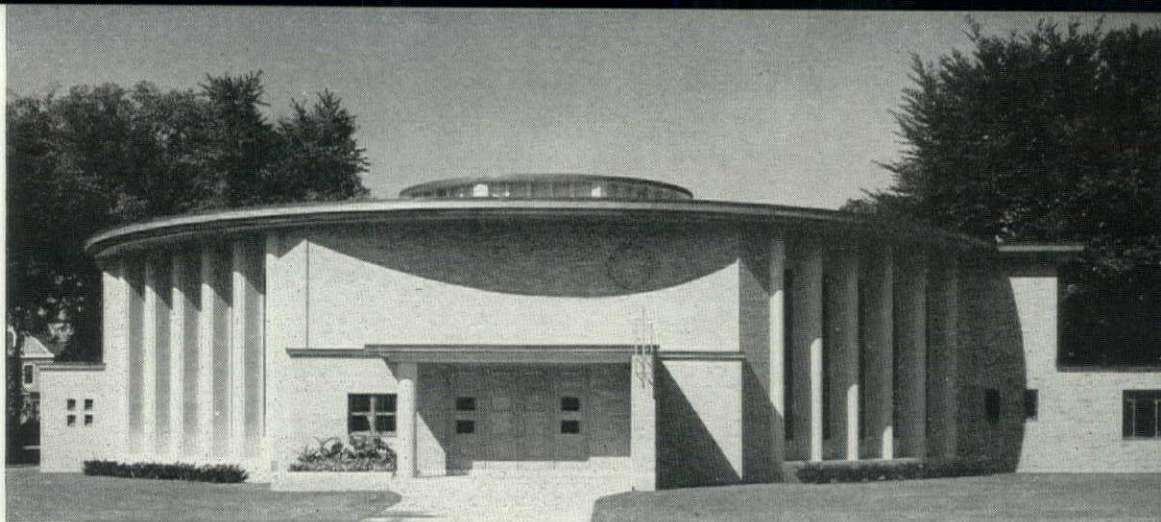
FRANK H. WHELAN, structural engineer

DANIEL MCCARTHY ASSOCIATES

Mechanical engineers

DANIEL O'CONNELL'S SONS, INC.

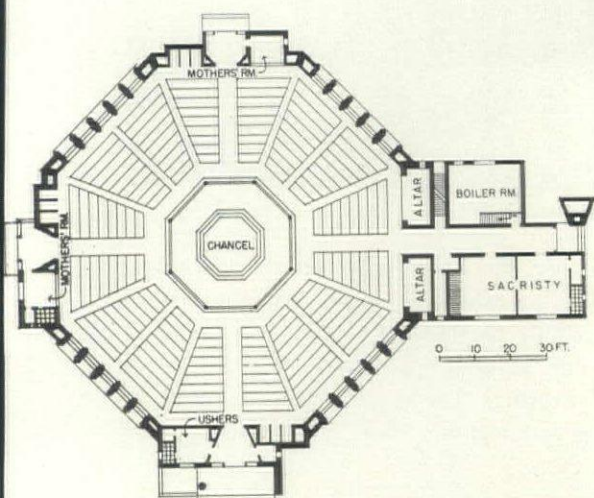
General contractors



Church in the round

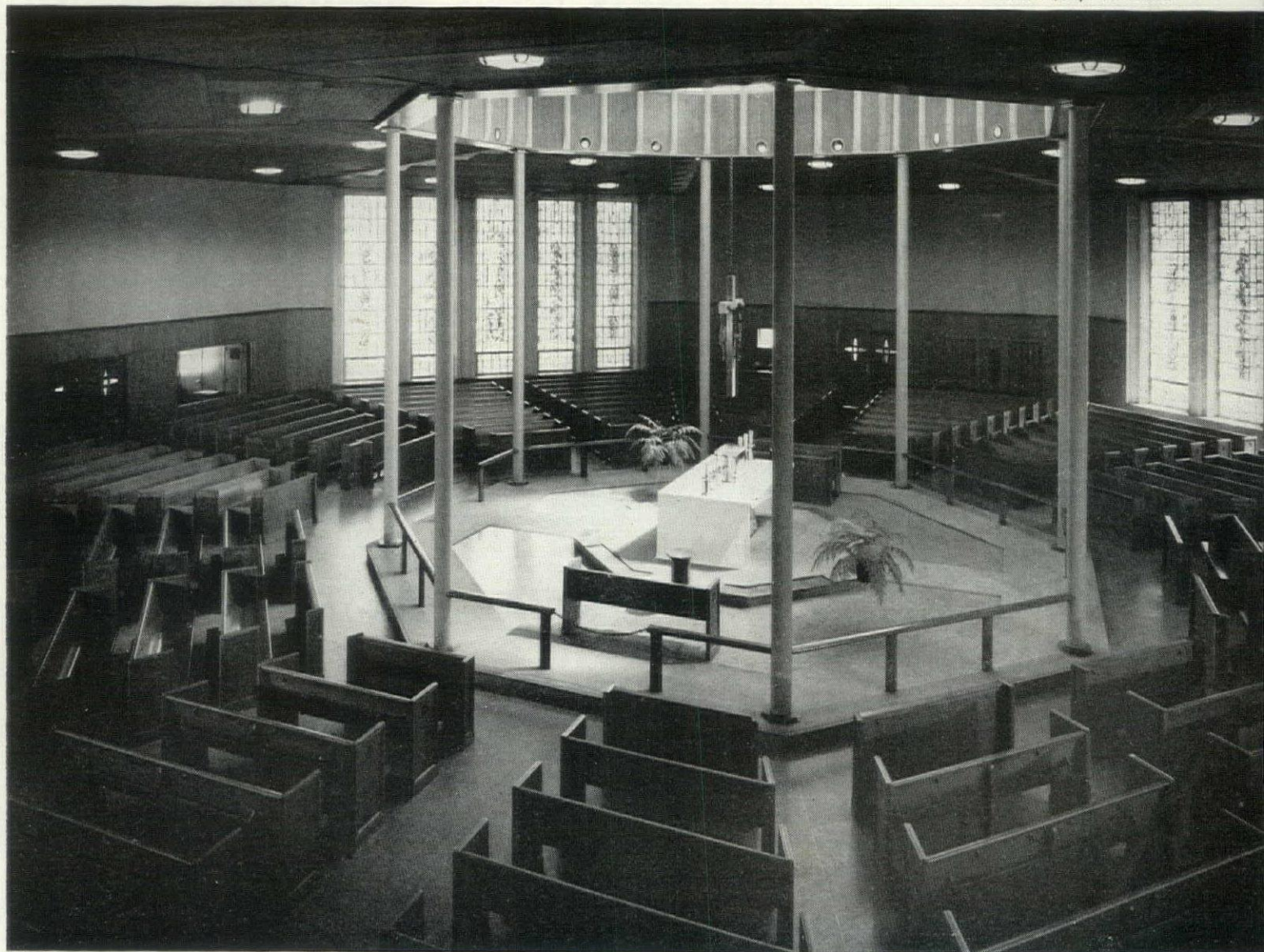
This New England church reaches a clean hand back to the past, as does the Southern church on the facing page. But this looks back for its shape more than its finish. Like San Vitale in Ravenna and San Stefano in Rome it is a "round" church. The monolithic Norwegian rose-marble altar, with a wood cross suspended over it, sits centrally, holy with light from a circular clerestory above, surrounded by the congregation. Its flanking tower, however, is a pylon, not an Italian bell tower, and its shape and character are also all its own. On the exterior are simple, honest, utilitarian lines; inside is the splendor available with 360° of natural daylighting.

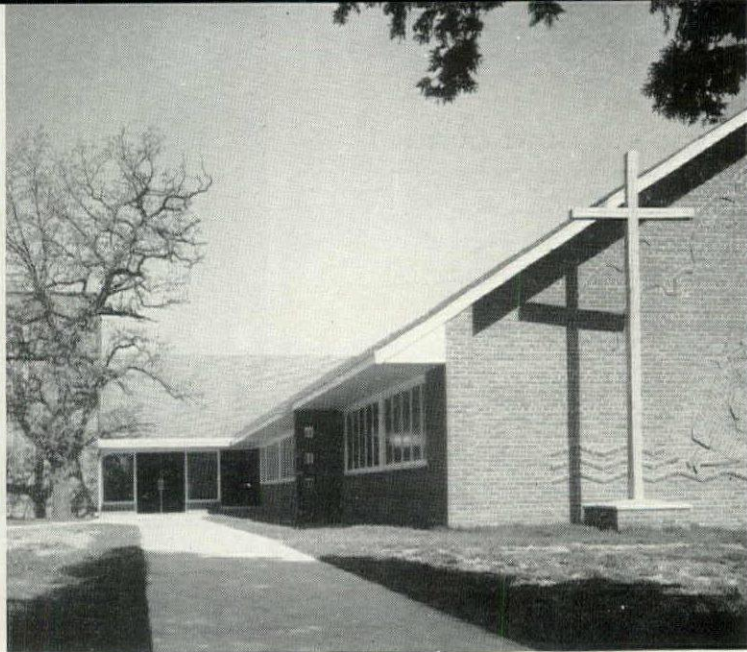
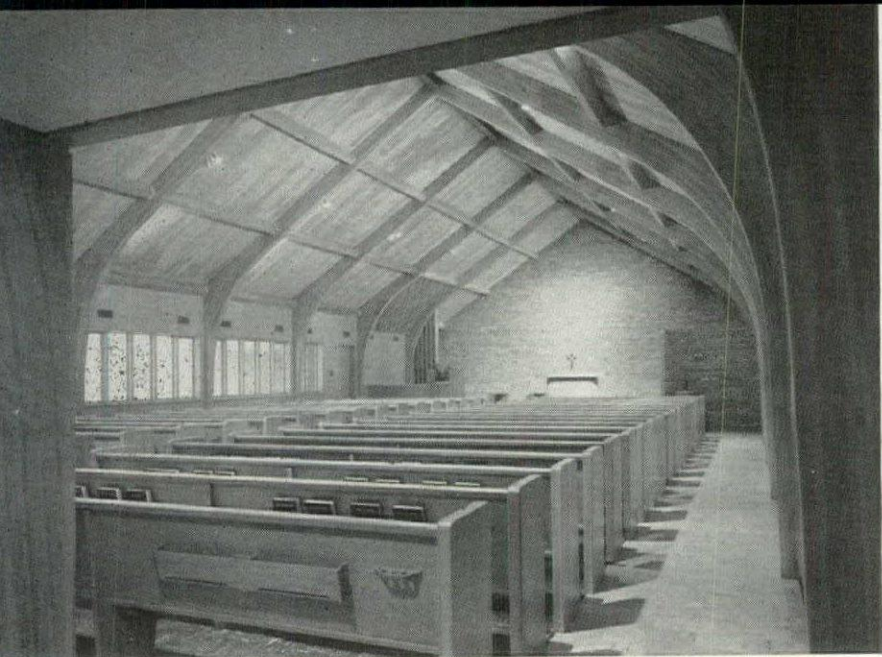
This was a budget church, at \$250,000. Slab-on-ground, it has a utility trench around the periphery.



Octagonal plan has four major means of access. Original layout required only seven rows of pews to seat 800; but adding one more row seated 200 more.

Photos: Joseph W. Molitor





OAK GROVE PRESBYTERIAN CHURCH
Bloomington, Minn.

HILLS, GILBERTSON & HAYES, architects
DEAN L. WITCHER, general contractor

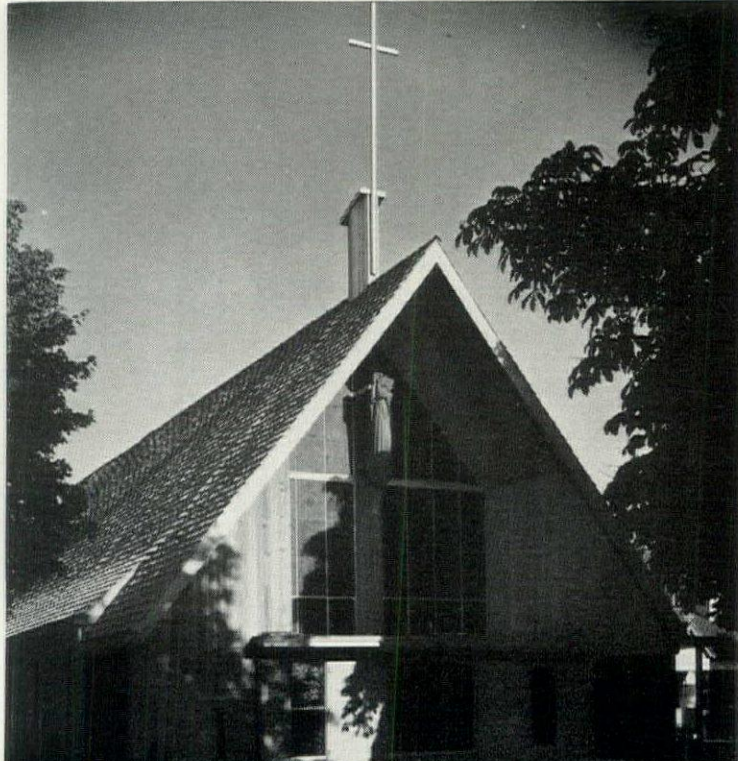
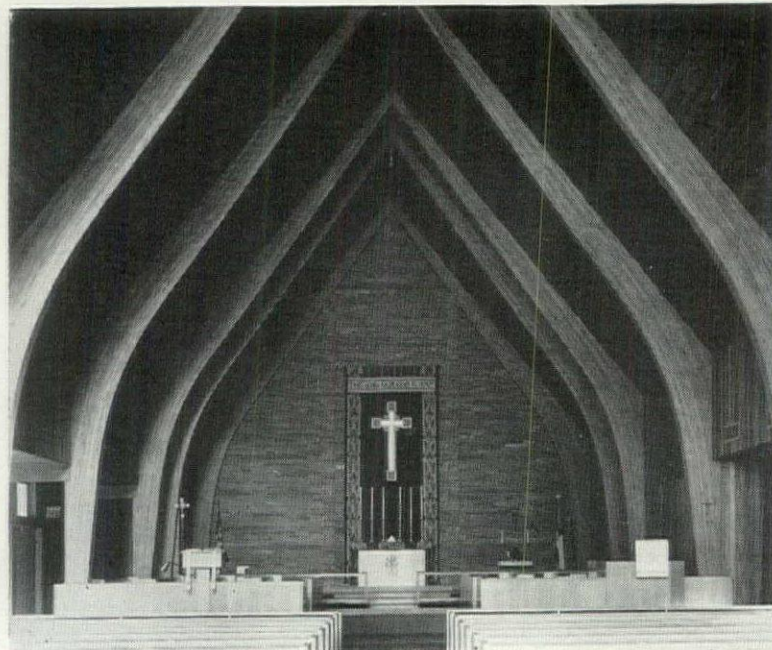
Behind a rugged cross made of tamarack timber, this brick-walled church (including a brick relief "mural" in the end wall near the cross) is simple, straight-forward and strong. Its strength is wood, epitomized by the layered timber "boomerangs" which lean against each other at the peak line, holding up the roof. The brick side walls are veneer, the end walls solid and bearing. The cross was made from an original timber in the first chapel of this congregation, built 100 years ago by Protestant missionaries Samuel and Gideon Pond.

Two churches framed with laminated arches

ST. STEPHENS CHURCH
Longview, Wash.

LANCE EDWARD GOWEN, Architect
HAROLD M. HILL, General Contractor
EVERETT DU PEN, Sculptor

Longview is a lumber city, and its new church expresses that fact thoroughly. Except for wood's natural complement, brick, which appears in some end walls and floors, nearly all of the structure wears the grain of western red cedar or Douglas fir. There is no attempt to overcapitalize on the folksy qualities of the material, however; the high tepee shape is almost the exact required engineering section for the arches. These are laminated timber, of course; and so is the sculpted figure of St. Stephen in the photo (below).



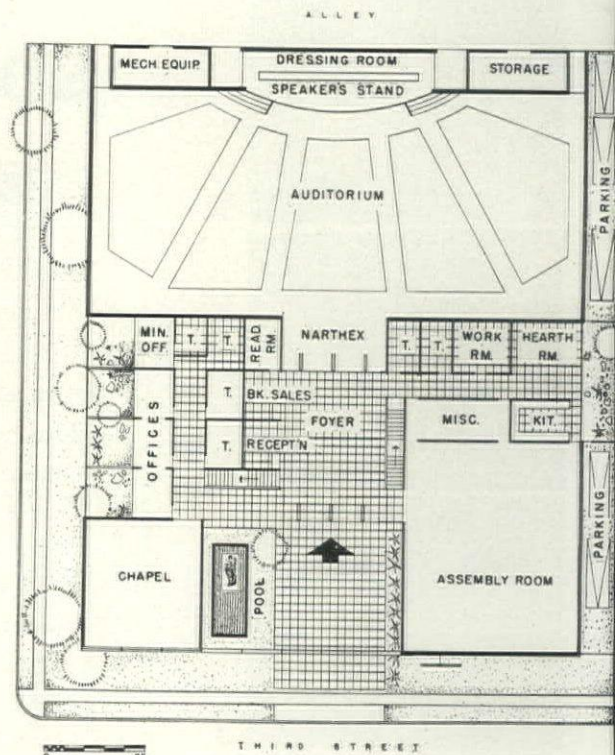
Photos: (top) Photography Inc.; (below) Logan Studios

Lucid congregation, lucid design

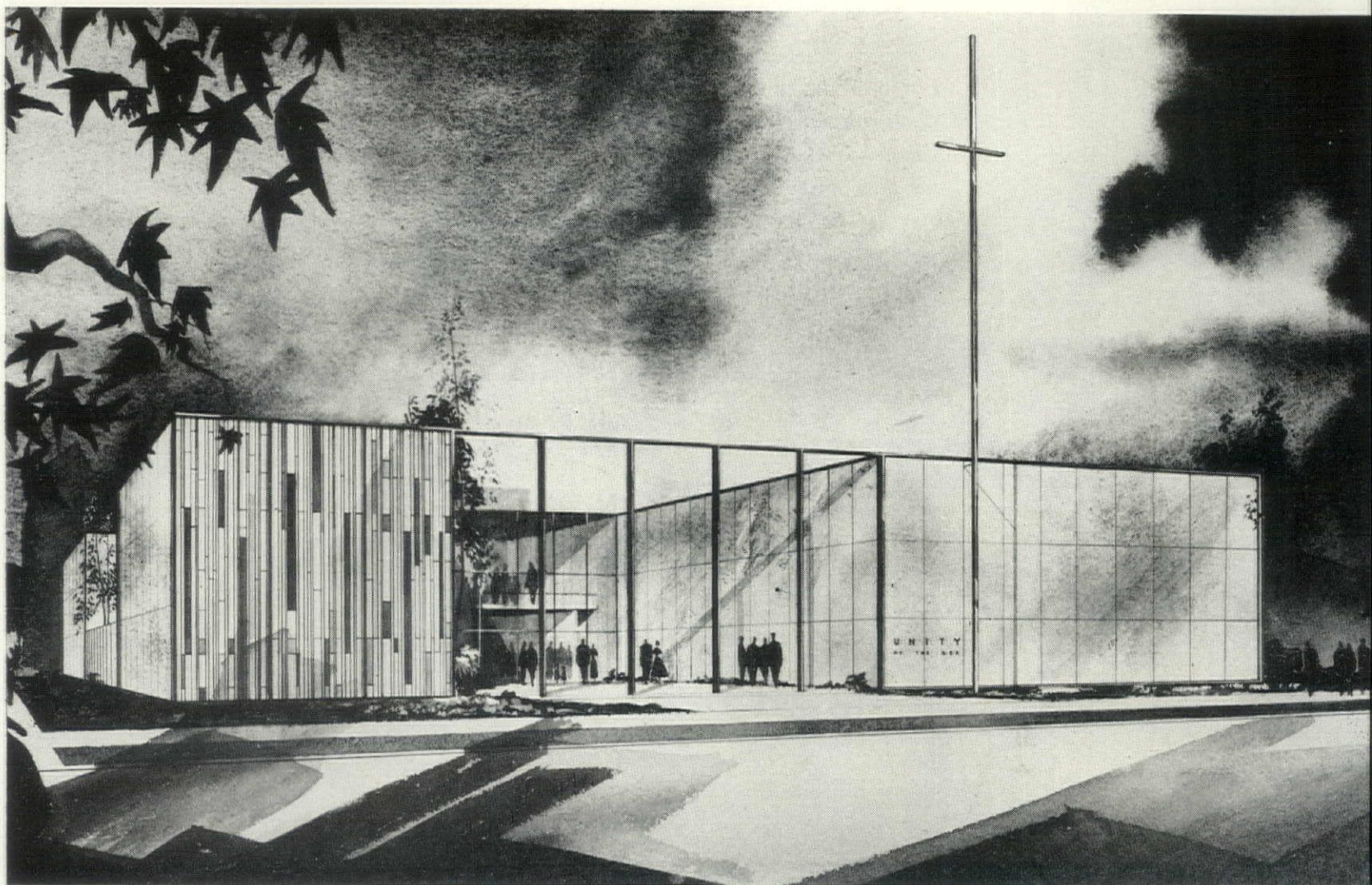
"It is always right that a man should be able to render a reason for the faith that is within him."

This quote begins a pamphlet of instruction in the religious philosophy of this congregation. Projecting it, Architect Ellwood can unabashedly offer his design for their church as architecture with the same clear intellectual approach.

The direct modular plan, natural-colored materials (probably tilt-up concrete walls), flat roof and simplicity of decoration will be in keeping, as will the 60'-high stainless-steel cross in front. But also in the design are such wise appeals to emotion as a stained-glass mural in the auditorium behind the speaker's stand (red, yellow and blue glass set in black steel extrusions, electrically lighted from behind), and the entrance patio for social life after the services.



Auditorium seating is planned in elliptical arrangement, major axis paralleling long dimension of room, minimizing distance to extreme row of seats. Cost estimate is \$10 per sq. ft.

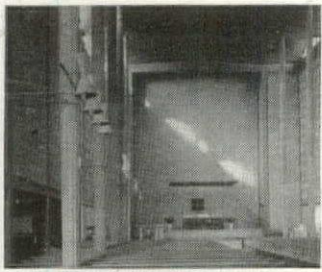


Framing continues across patio entrance

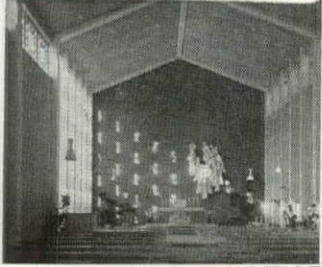
UNITY-BY-THE-SEA
Santa Monica, Calif.
CRAIG ELLWOOD, designer

SIX NEW EUROPEAN CHURCHES

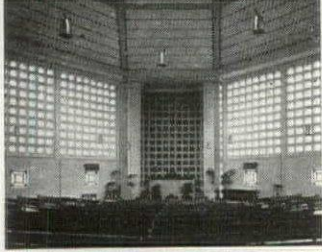
BY G. E. KIDDER SMITH, AIA *



1.



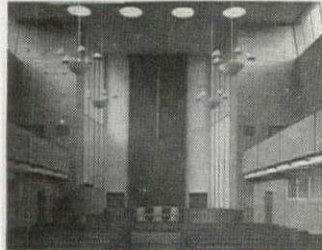
2.



3.



4.



5.



6.

These churches represent the efforts of architects of four European countries toward a solution of one of the most difficult design problems facing modern architects.

The twentieth century has readily produced the shapes and shelters demanded by most of the facets of our civilization, but when it comes to religion we have stumbled along uncertain paths. Architects have felt uneasy before the requirements of the contemporary church, and the architectural expression of its evolving role in today's life. This is particularly true in the US.

There are, it is true, some outstanding new US churches (several of which are shown on the preceding pages) but there are probably more fine churches around Basel, Switzerland, than in the entire US. Indeed, over much of Europe there has been 30 years a continual inquiring and sympathetic search for appropriate church architecture, a search that puts to shame the warmed-over gothic which we still accept so readily.

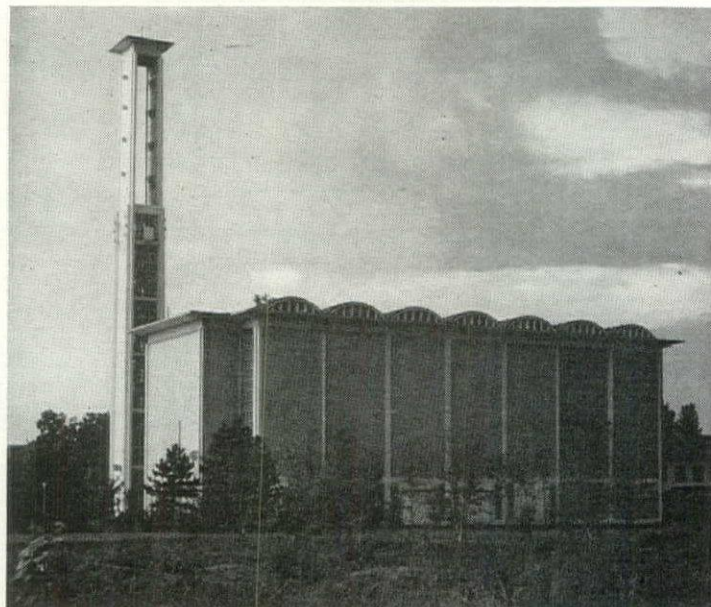
This "revolution" in European church design began in 1922 when the Perret brothers built their famous church at Le Raincy, just east of Paris. This concrete and glass masterpiece, which so signally inaugurated a new era of church design, has never been equalled. France at that time and largely with this church sparked an interest in church building that had lain dormant since Balthazar Neumann and the Asam brothers of 200 years ago.

The lead in European church revitalization passed first to Germany, who threw herself wholeheartedly into modern architecture in all fields after World War I and produced under Domenikus Böhm and Rudolf Schwarz a number of the Continent's most distinguished churches in the 1920s and early 1930s. The Netherlands, Switzerland, Czechoslovakia and Scandinavia followed suit. (Italy, a leader in modern architecture, has not built a significant church since Guarini's Sindone Chapel of 1694 in Turin.)

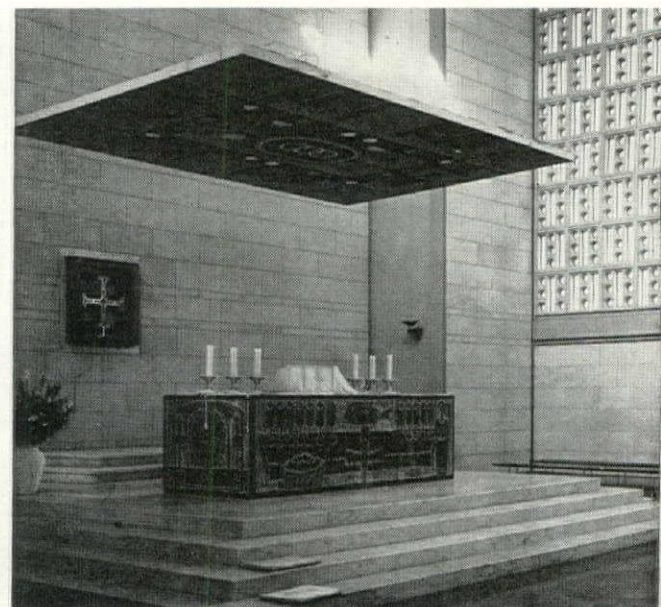
The new church thinking which thus began a generation ago is now bearing prolific fruit. It is hoped that the following examples, heretofore unpublished in this country, will inspire American architects to think more freshly and profoundly, reason more clearly and construct more fittingly the many new churches needed in the US.

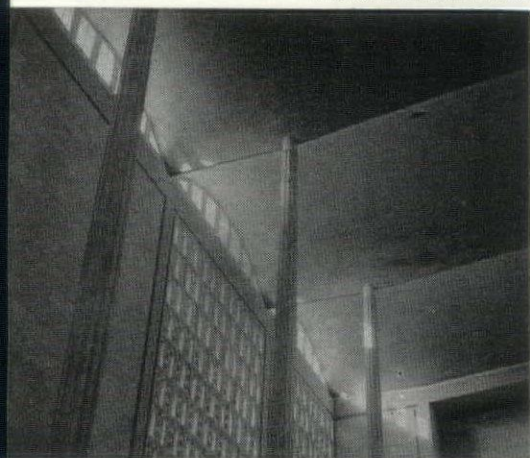
* Architect, former critic at Yale, architectural lecturer, author of several books on the modern architecture of foreign countries (Sweden Builds, Switzerland Builds and the forthcoming Italy Builds) and member of Commission on Architecture of the National Council of the Churches of Christ in USA. This article is completely the work of the author—photography, research, layout and writing.

Straight, slim tower is played against ripples of vaulted roof

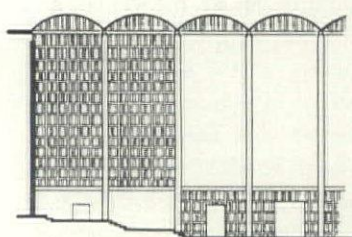


Ciborium is hung over altar on invisible wires

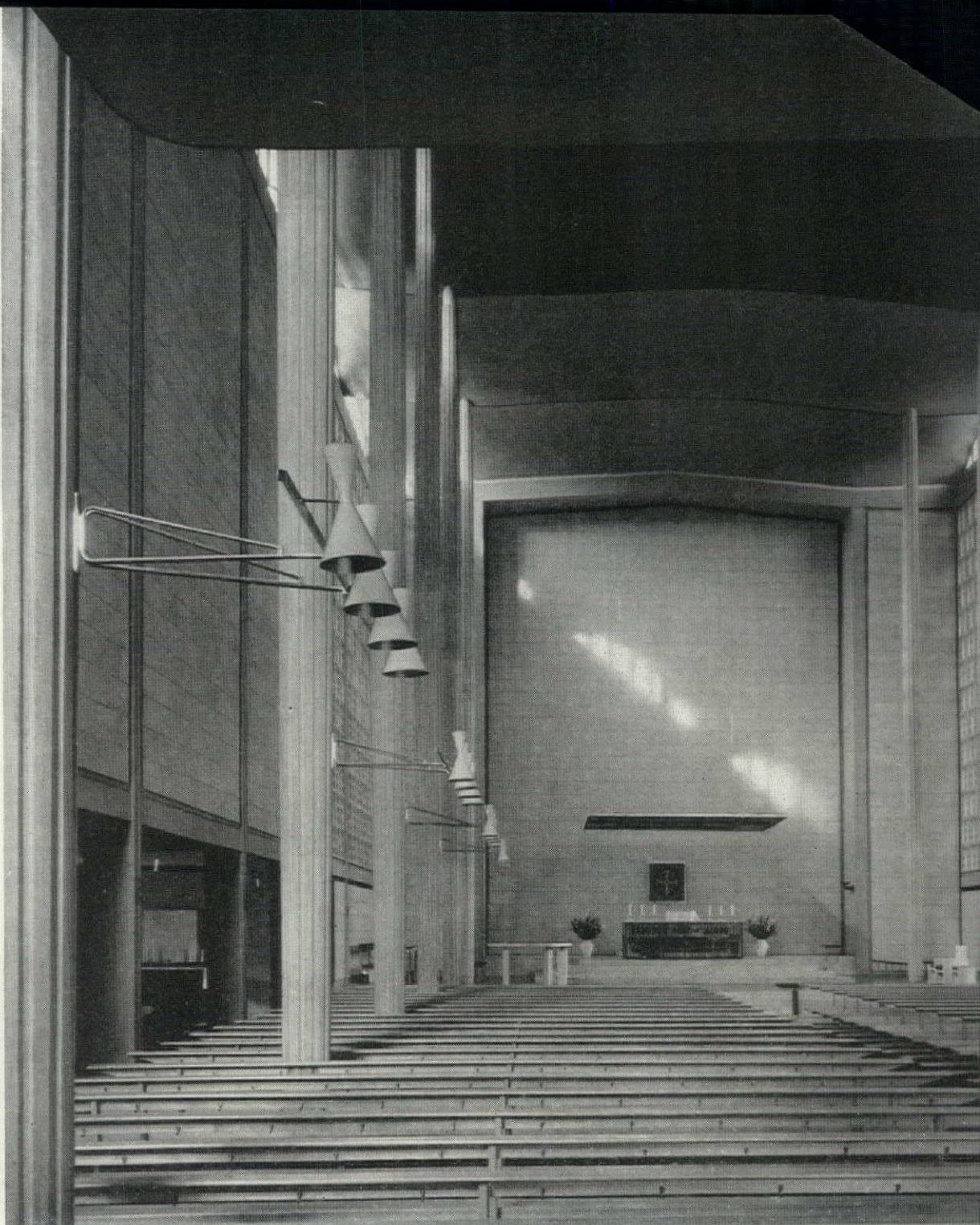
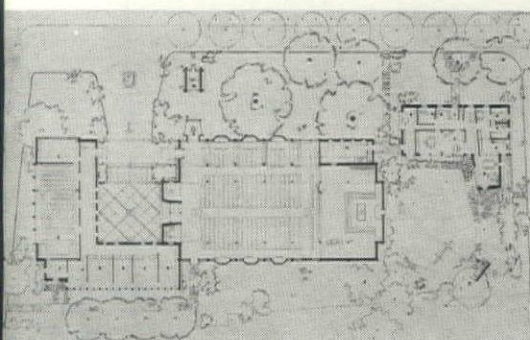




Clerestories at open ends of cross-vaulting provide major natural lighting for entire church. These are supple-



mented by pierced concrete grilles from floor to ceiling at chancel and entrance.



Slender concrete columns which carry vaulted roof give a weightlessness to interior

1. All Saints Church

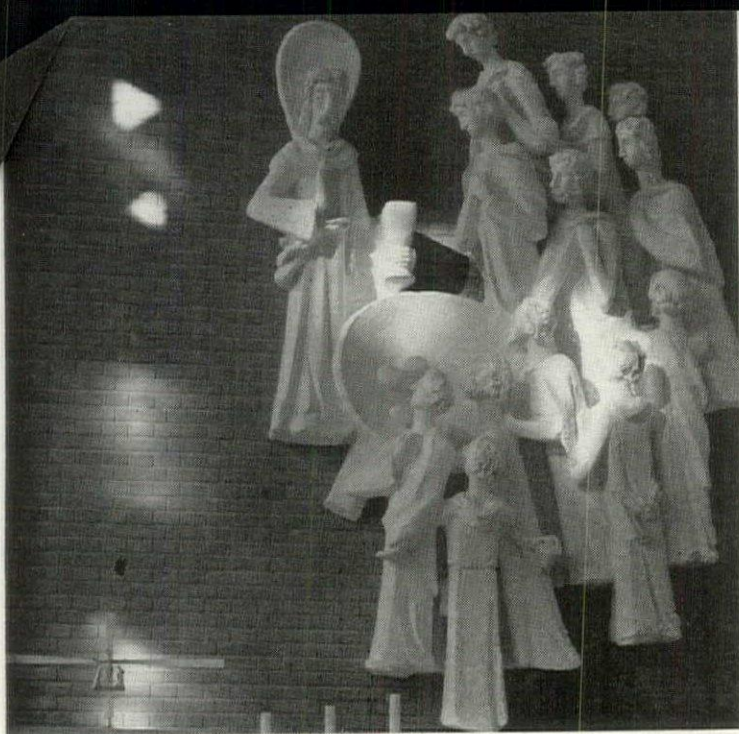
BASEL; HERMANN BAUR, ARCHITECT

The Swiss, although they initially followed behind the French and Germans in the development of the modern church, have since forged ahead of all others. The real workshop and laboratory of new religious building, both Protestant and Catholic, is today centered in this tiny country. The Swiss have not called on the collaborating artist as much as the French; they have not been so daring as, say, Niemeyer and his Belo Horizonte church in Brazil; and they have not achieved the elegant simplicity of Bryggman's ingratiating chapel in Abo in west Finland; but they have built an impressive body of sincere and provocative churches with roots and reasoning unexcelled by any. Both Protestants and Catholics have been extremely active—and mutually sparking—in promoting modern architecture for their faiths.

One of the newest churches is All Saints in Basel by Hermann Baur, an architect who has designed many fine Catholic churches in this part of the country. The structure of the building, with its transverse barrel vaulting which appears to rest so lightly on attenuated concrete columns, is clean and elegant and gives a

weightlessness to the entire interior. The clerestories effected by the open ends of the cross-vaulting give an over-all general illumination which is strongly accented at the chancel by pierced concrete grilles that extend to the ceiling. The altar has strong and well-designed reliefs around its sides and is shielded overhead by a ciborium which is delicately hung from the ceiling with almost invisible wires.

The exterior, of gray brick set in white concrete frame (typical Swiss construction), is boldly stated, but a wide, flat cornice unfortunately masks the full effect of the barrel vaulting, an effect that could have been emphasized with striking results. The handsome undulations of this thin shell roof, which play such an important role in the interior, could likewise have keyed the whole exterior. Instead, they are largely hidden by this cornice and seem to rest on the sides which are actually mere curtain walls. If the functions and forms of this vaulting were more adequately expressed by the exterior instead of being so timidly girdled and concealed, All Saints would be as striking on the outside as it is within.



White sculpture of Christ and disciples by Josef Rickenbacher is accented by red brick chancel wall.

2. Village Church

THAYNGEN, SWITZERLAND; JOSEPH SCHUTZ, ARCHITECT

This new Catholic church for a tiny village near the German border is an excellent example of the way the Swiss, even in a small, traditional-minded farming community, seek clean new forms for their churches. This is not a great church by any means, but considering its rural community and parishioners, and looking into its bright, sunny and religious interior, it is an achievement of which we in the US would be definitely proud. The Swiss should be too.

The exterior, fitting into the slope of a hill, takes on a rather boxlike shape of white concrete frame and gray stucco. The windows and campanile are detailed with the pierced concrete grillwork (adapted from ancient Swiss barns) found in so many Swiss churches. The bell tower, however, is certainly not among the country's finest.

The prime rewards of the Thayngen Church are found on the inside with its really delightful interior of "one-room" intimacy. In addition to showing a skillful juxtaposition of materials—from warm brick chancel wall to white concrete framing and lightwood paneling—the interior also demonstrates the complete teamwork and interrelation of architect and artist, of building and sculpture.

The beautifully arranged and (except for the figure of Christ) well-carved Last Supper shows what even one group of strategically placed figures can do toward knitting together and bringing into focus a whole interior. There was no question here of calling in the artist to add a few embellishments after the architect had finished: architect and artist worked hand in hand from the beginning.

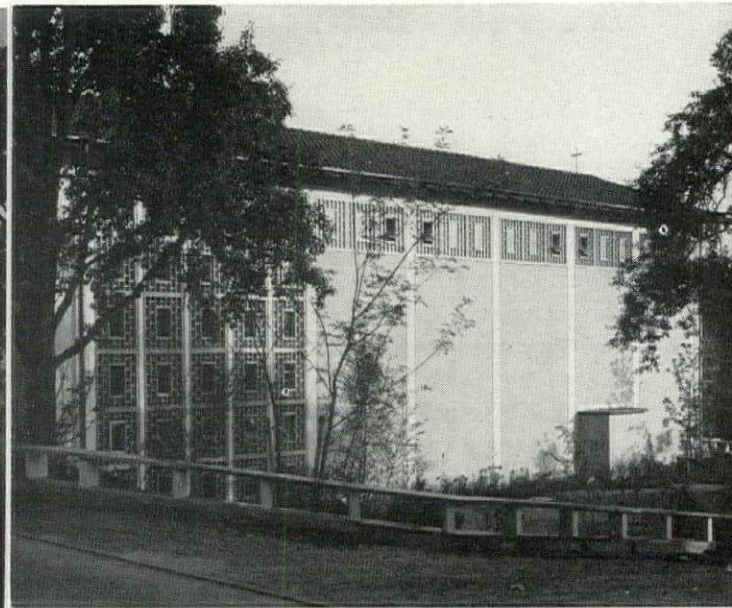
The floor-to-ceiling stained-glass window at the sanctuary end was skillfully contrived to throw a pattern of sun and shadow on the brick wall. It might well be argued that this part of the church should be reoriented and the large window placed on the opposite side, and the sculpture reversed so that the pleasant effect of light, sun and shadow would be enjoyed in the midmorning hours of the usual church service instead of the late afternoon, when this photograph was taken.

It is unfortunate that the deep vertical mullions which divide the window are so thick that they appear structural, particularly because they pierce the wood ceiling and vanish who knows where instead of being lopped off at the window head. These mullions are, in addition, uselessly repeated on the wall opposite.

Nonetheless, the impression of this interior—especially of an afternoon—is delightful. Besides the points already mentioned, the use of plants, the direct-indirect lamps (identical with those in All Saints, p. 105, except suspended from the ceiling instead of from brackets) and the airy pews are worth noting.



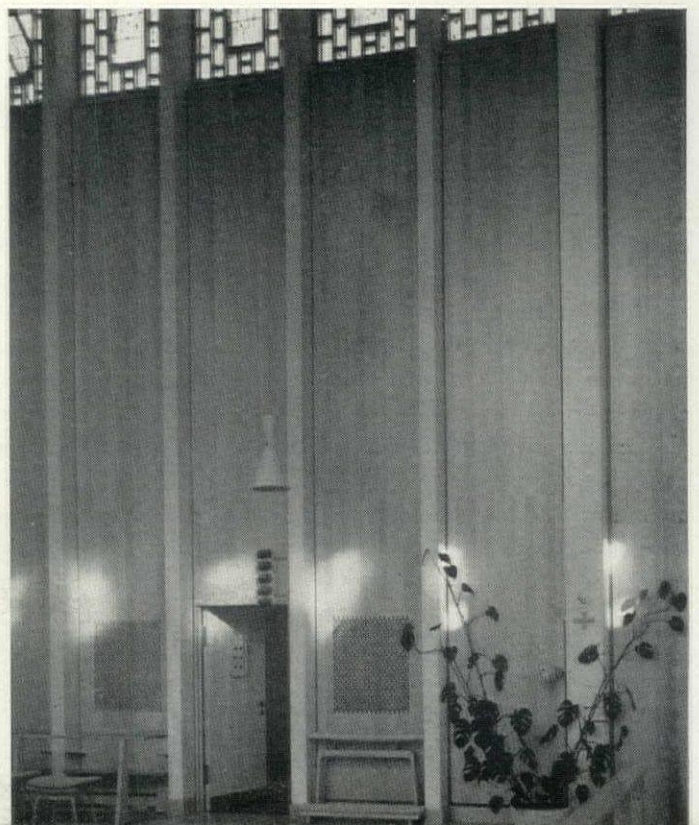
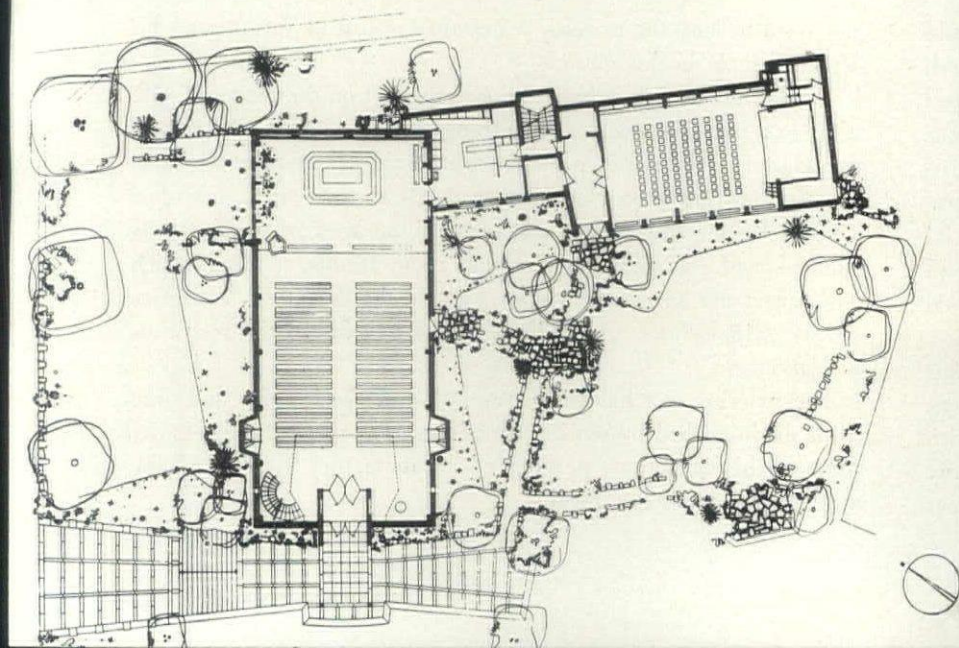
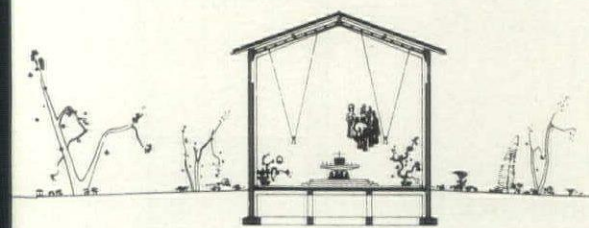
Raised terrace at entry helps fit boxlike building into slope of hill. Tower and church have similar roof lines and grillwork.

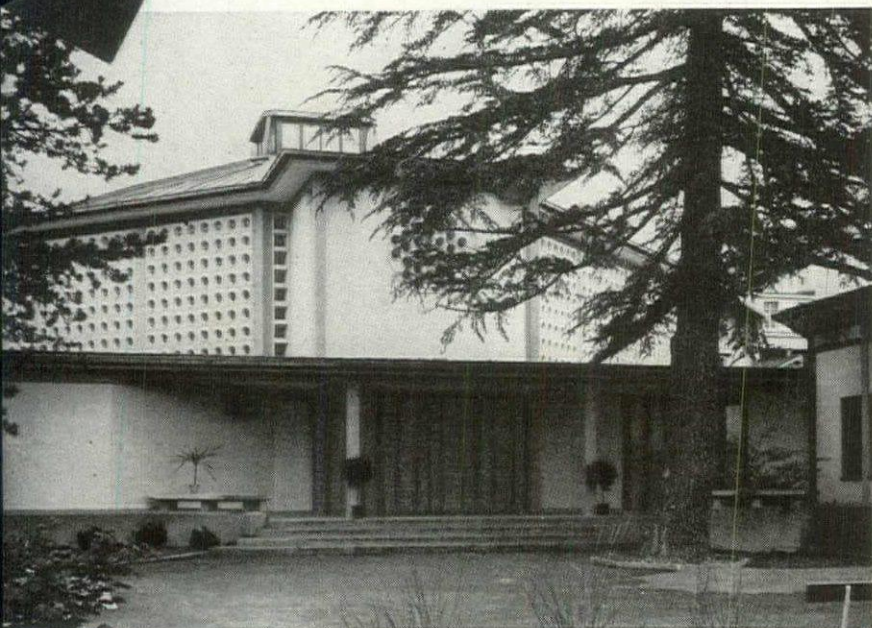


Concrete grillwork in huge stained-glass window at west side of sanctuary is repeated strip windows high up under eave.

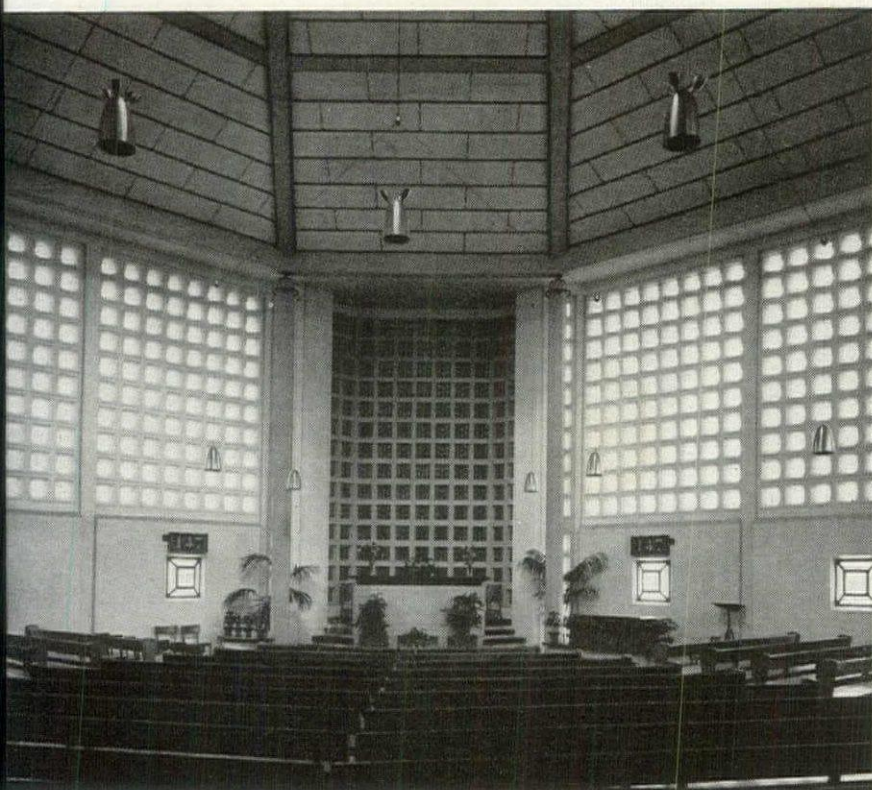


Pattern of afternoon light adds vibrant decoration to sanctuary's brick wall. Walls and ceiling within concrete framework are paneled in wood. Lighting fixtures are airily suspended.

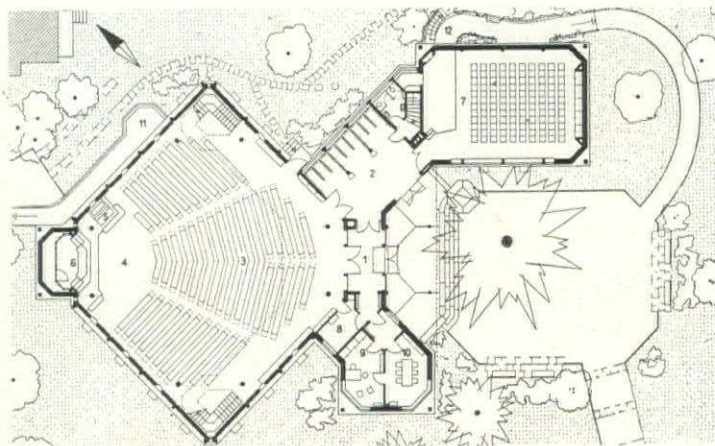




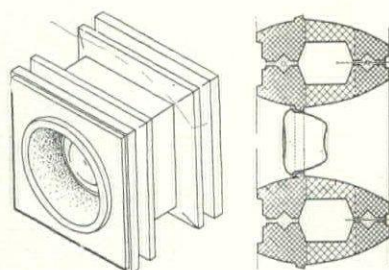
Sheltered entry is at corner of square plan



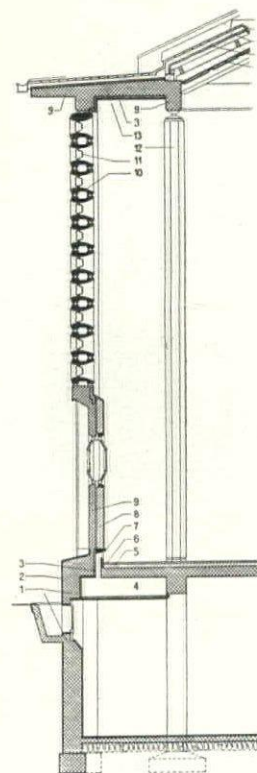
Diagonal seating and angle of side walls focus on sanctuary



Centrally pitched roof is topped with clerestory lantern



Special concrete block in upper walls has deep reveal to prevent glare. Small round opening on exterior (above) expands to a larger square within (left). Glass is set in between.



3. Neo-Apostolic Church

GENEVA; HAEFELI, MOSER & STEIGER, ARCHITECTS

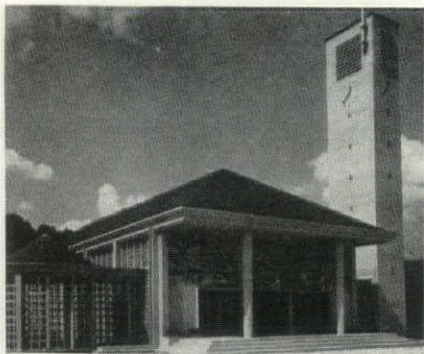
There is a distinct movement on the part of some architects and clergy in Switzerland away from the longitudinal, or axial, church plan, toward a central expression with the congregation grouped more around the chancel. It is based on two arguments: 1) that the old basilica pattern with its long formal aisle for processions is no longer valid—particularly for some sects which have few processions or none at all in their liturgy; 2) that an attenuated axial plan cannot give the majority of the congregation the feeling of participating in the service that a shallow depth of pews grouped around or facing the sanctuary produces.

Among the more outstanding examples of this movement is this Neo-Apostolic Church in Geneva by one of Europe's finest firms of architects. Werner Moser, the member most concerned with churches, studied in this country with Frank Lloyd Wright many years ago (he also recently wrote a book on Wright), and one does

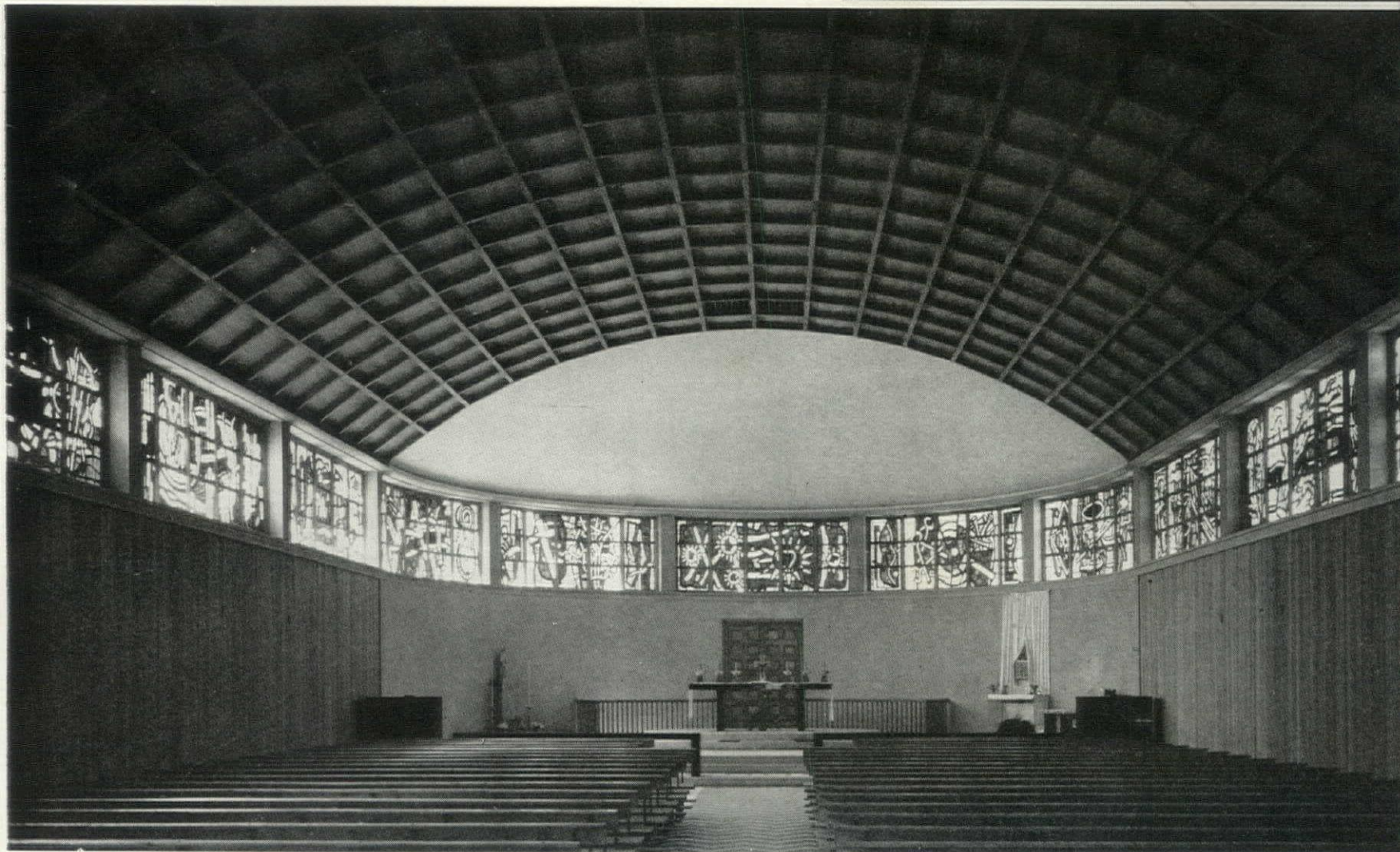
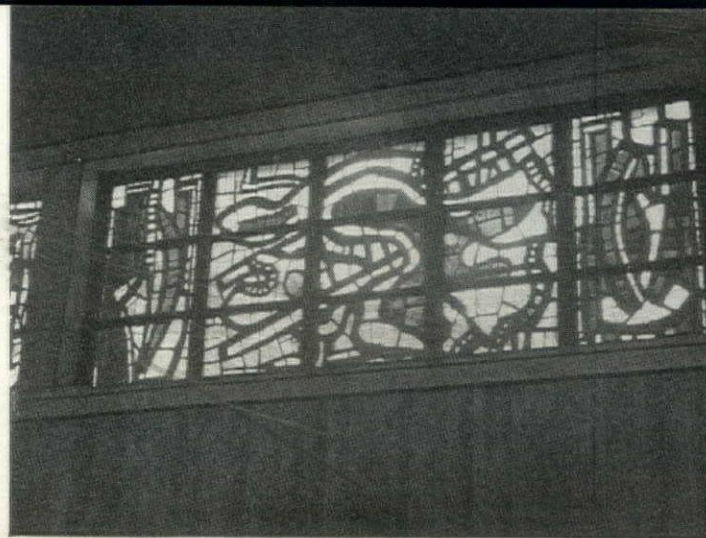
not need to look far to sense a certain kinship to Wright and his Unity Temple in this church.

In plan the church is basically a square set on the diagonal with altar and pulpit at one point, entrance at opposite. All four walls are glazed in the upper portion with a grid of carefully designed glare-preventing glass blocks (note detail above), with additional natural light coming from a lantern at the apex of the centrally pitched roof. A calm, unemotional room results, a room which will not excite anyone, but does provide the dignified "collective family" atmosphere sought by a sect that holds to the restraints of Calvinism.

The exterior is a handsome revelation of the interior and, like it, is distinguished by sensitive detailing. The meticulously studied parts of this church are perhaps more satisfactory than the whole, at least as regards the interior.



Stylized exterior of church is much less interesting than interior. Right, close-up of one of Leger's 17 windows.



Band of Leger windows in rich primary colors is set against backdrop of utter simplicity

4. Church of the Sacred Heart

AUDINCOURT, FRANCE; MAURICE NOVARINA, ARCHITECT

France, which in the early 1920s revitalized church building in Europe, soon lapsed into that curious and unfortunate mediocrity that has characterized French architecture almost ever since (with the exception, of course, of the work of the Swiss-born Corbusier). Today, however, she is at least leading the way in the integration of artist and architect in church designing, an integration that reached its ultimate in this same country in the gothic cathedrals of 700 years ago. There have been built in France since the war several highly significant churches which have employed the finest, most "progressive" artists in the country, such as Matisse, Leger, Lurçat, Rouault, Lipschitz and Braque. This new movement has realized that in religious buildings the architect, tied as he is by the very earthiness of his materials, cannot alone create the spiritual background necessary to a church, but must integrate his work with that of the painter, the sculptor, and the glass designer.

This church for a parish of laborers in a small village near Belfort and Mulhouse exemplifies both the good and bad qualities of these new French churches. For the virtues and faults of this church, with its great sparkling band of 17 windows by Leger, are the virtues and faults of the church at Assy, which employed so many of France's greatest artists, and the virtues and faults of the Matisse chapel at Vence: the artists are magnificent, the architects are not.

To be sure the interior of this church provides the simplest kind of background for the band of windows, but it is dubious to begin with whether such a constant-width strip provides the most sympathetic natural light for a church. And while the interior is thus characterized by what might be termed a lack of direction and emphasis, the exterior is patently conspicuous for its stylized mediocrity.



Businesslike dignity, rather than inspiration, keynotes this reformed church

5. Trinity Church

POPLAR (LONDON): HANDISYDE & STARK, ARCHITECTS

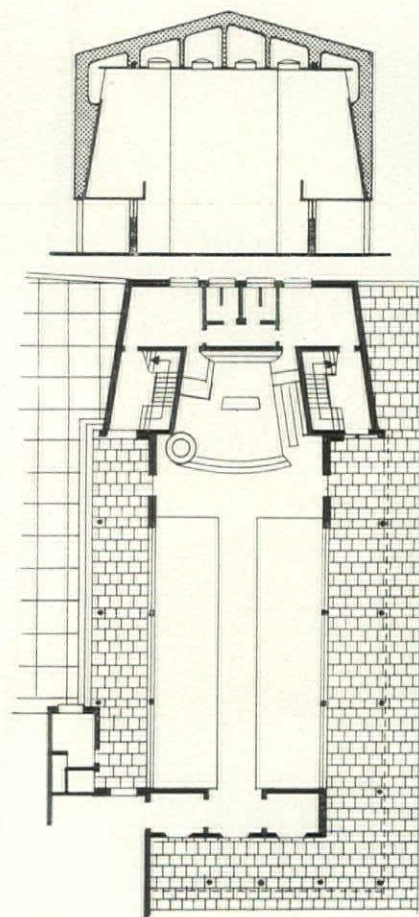
The English have attacked their overwhelming job of reconstruction with considerable energy and success, and although this Congregational church in the poor and bomb-devastated East End of London is not outstanding among the other new churches in this presentation, it represents an important step in Great Britain.

The exterior of the group shows capable handling of masses, with parish house, campanile and church well disposed. The educational-social wing (right), with its thin and finely drawn roof line, is the most satisfactory unit; the bell tower, with its hesitant and meaningless aluminum cupola, the least. The design of the church itself is based on an unusual and potentially striking exposed concrete frame—a kind of twentieth-century flying buttress—from which the roof is suspended. But besides appearing rather too heavy, especially in relation to the columns which support it, this framing unfortunately is largely hidden in Pisan Romanesque fashion by nubby screen walls at each end.

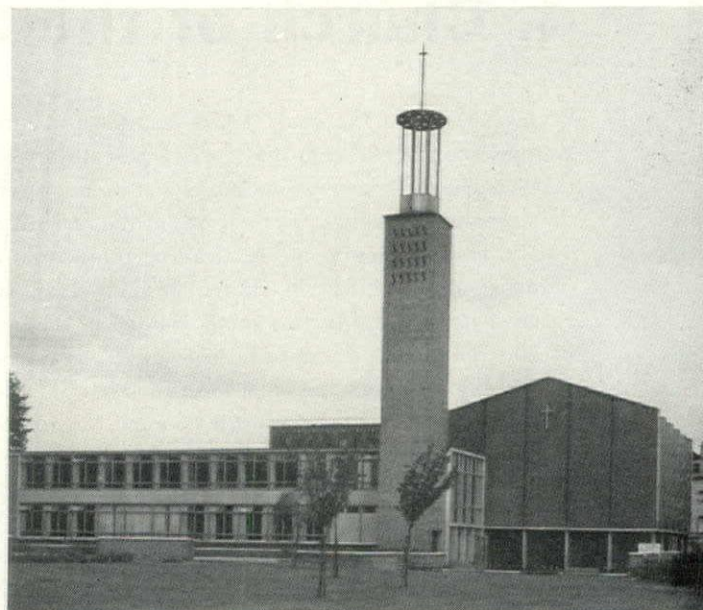
The interior is dry and formalistic with more the atmosphere of a tribunal than a House of God. Unfortunately no call was made here on the stimulating painters and sculptors who are doing so much for English art. The successes of Henry Moore's "Madonna and Child," and Graham Sutherland's "Crucifixion" at the old church of Northampton, should make collaboration of architects and artists a *sine qua non* for all new churches in Britain.

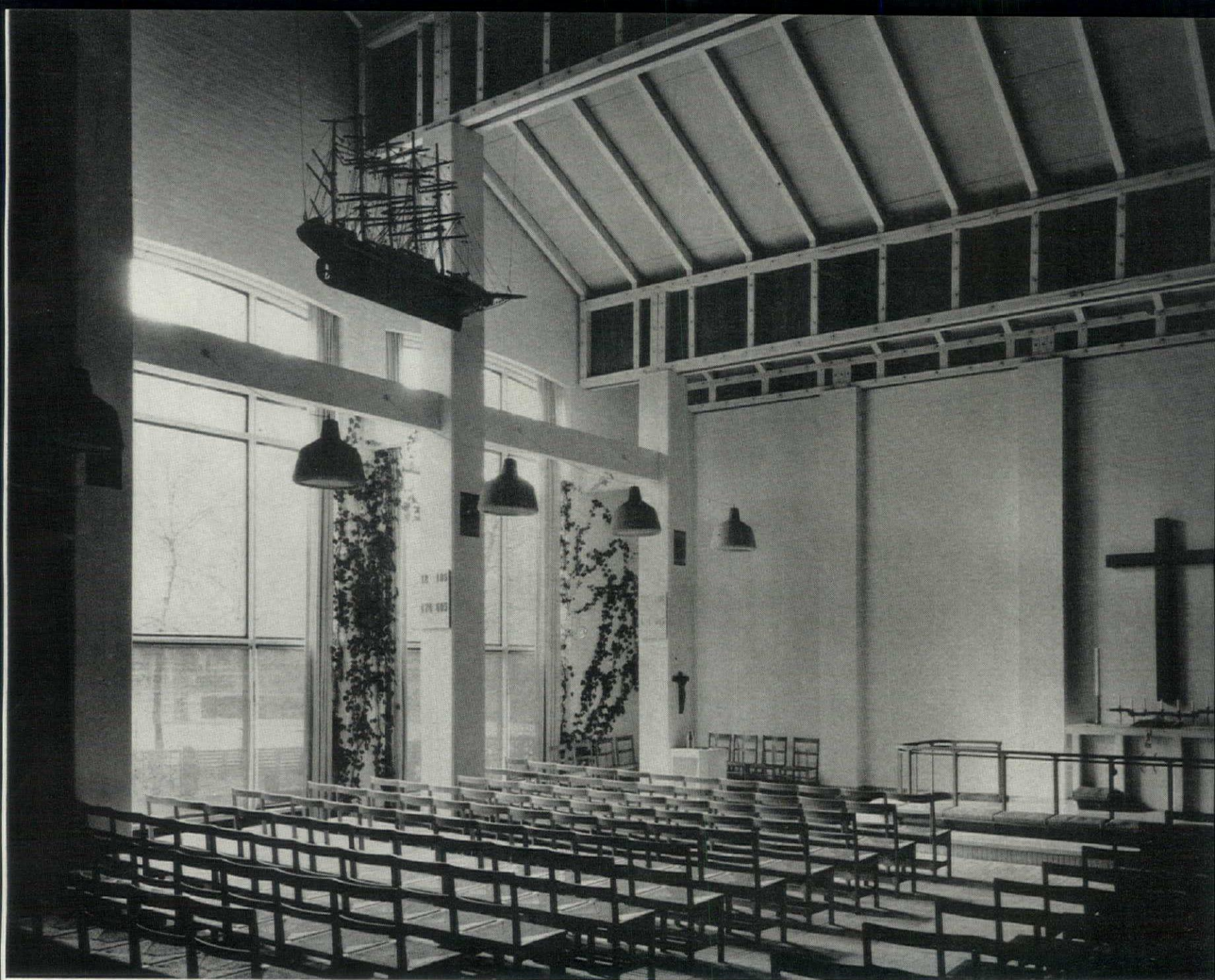


Exposed concrete frames of refreshing boldness in a religious building span nave and carry enclosure (section below). It is unfortunate that these are somewhat hidden on exterior by curious screen walls at either end of church, while from within they are not visible at all.



Educational-social wing in concrete and glass is more successful from design viewpoint than brick-faced auditorium.





Nave and chancel form one square room which expands easily into parish hall

6. Church of the Advent

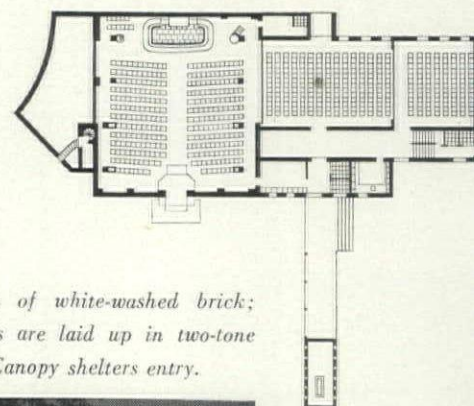
COPENHAGEN; ERIK MOELLER, ARCHITECT

The new architecture of Denmark, which in some respects is the finest and most imaginative in Scandinavia, has a friendliness and ingratiating scale well displayed by this new Lutheran church, a building as informal as the English one opposite is austere.

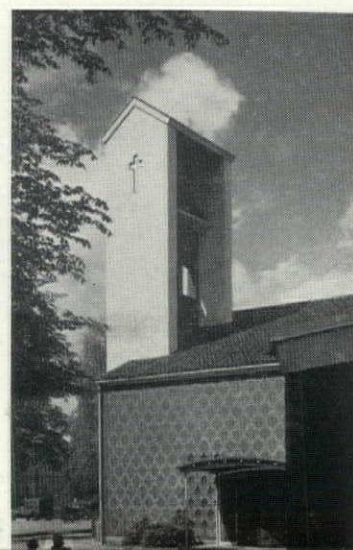
The church in plan is virtually a square, with a simple altar and pulpit against a whitewashed brick wall whose blankness is relieved only by brick piers. The bold roof structure—built-up wood plate girders—is parallel to this back wall, creating with the lines of the pews a horizontal quality which tends to bring the rear of the church optically forward, knitting together the chancel and congregation. The ingenious structure supporting the roof has been used to the utmost to give interest and character to the interior. Another unusual feature is a large and handsome ship model, a pertinent reminder for all to remember in their prayers the number of Danes so often facing the perils of the sea.

The interior lighting is questionable in that a flood of sunshine comes from large windows in one wall only—windows which it might be said symbolically tie outside life and religion together. Being unilateral, this source naturally produces a tiring glare.

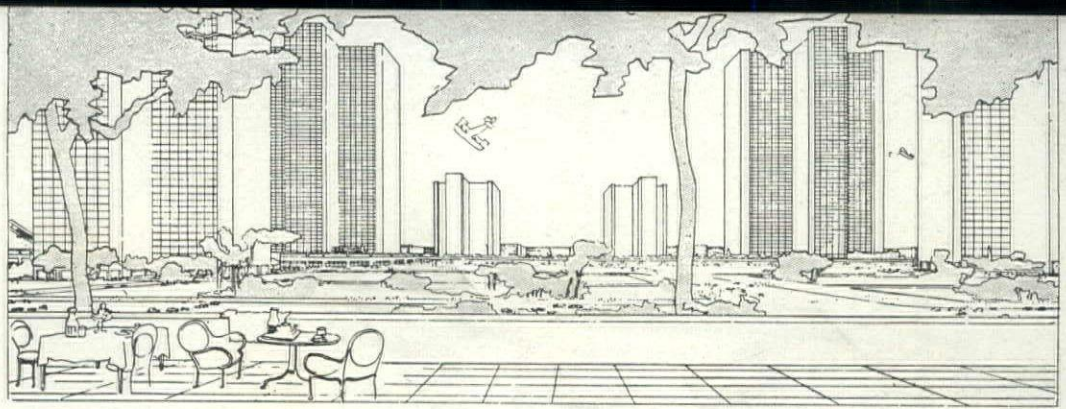
The exterior walls are of handsome red brick, laid up with typical Danish skill in a diamond pattern. The well-pitched roof is red tile, with a color accent provided by the semidetached white-painted belfry.



Belfry is of white-washed brick; side walls are laid up in two-tone pattern. Canopy shelters entry.







Le Corbusier made this prophetic sketch in 1922

now, at last . . . **OFFICE TOWERS IN A PARK**

This is Gateway Center, the Eken-Dowling-Equitale Life slum clearance redevelopment at the point of Pittsburgh's Golden Triangle.

Some may see in Gateway not much more than three rather undistinguished buildings. To others it is primarily a demonstration of how to build 1 million sq. ft. of high-quality office space cheaply enough to rent for under \$5 a sq. ft.; or a striking example of prefabricated steel curtain walls, of inexpensive, reversible windows, of large, yet well-lit office floors.

To planners, however, Gateway is surely something more important: for here, for the first time in US city planning, the concept of office towers in a park has made good sense in economic terms. It has made sense to men who may have never heard of Le Corbusier's "Ville Radieuse." And having once made sense to these eminently practical men the concept can no longer be shrugged off as the dream of some unrealistic visionary.

That fact—the reality of these three towers in a park—overshadows almost everything else about Gateway. When that fact sinks in, then Gateway may prove to have been worth some of the disappointments, too. There are signs that the fact is sinking in, at least in some influential minds, and that some of the disappointing lessons will eventually be learned.

Gateway's disappointing buildings half conceal the four important ideas they contribute to planning and building:



1. Site planning—the major accomplishment mentioned above, plus a fine scheme of traffic separation and of parking.

2. Office planning. A bold affirmation in favor of building only prime office space within 24' of a window, at a time when most buildings are taking advantage of air conditioning and artificial lighting to put a high price on bulk space. The decision to build only prime space explains the much-debated cruciform plan (p. 115).

3. Prefabrication and metal facing. Really two techniques carried out at large scale: 1) prefabrication of the complete exterior wall (and not just the skin); and 2) the use of stainless-steel facing for the first time in major US construction.

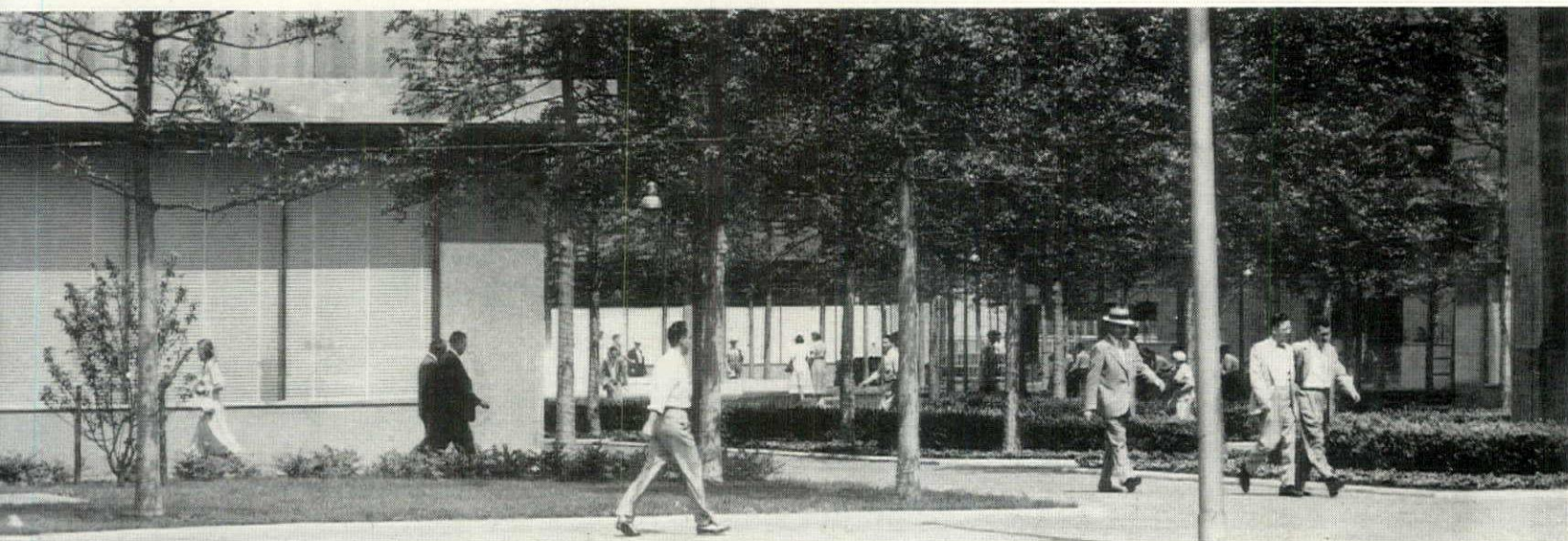
4. Windows. The development of a big, handsome, completely reversible, single-pane window that will cut cleaning costs—and was cheaper to start with than a conventional double-hung unit.

The story on these pages describes in detail each of these four major ideas. And, on p. 117, FORUM's editorial chairman frankly discusses some of the controversial issues raised by Gateway and by the manner in which it was designed.

←
Photo: Lionel Freedman



SITE: auto traffic stays outside the Center . . .



. . . so pedestrians can walk in the park



Photos: Swoger Studio; H. Coraini and Lionel Freedman

What they did about the site: the three towers (two of them 20 stories high, the third, 24) were planned to cover only 1/5 of the six-acre site, with no parallel walls closer than 150' and no points closer than 80'. This openness is one big reason why the buildings are already 85% rented, and some expansion is expected by present tenants.

Other advantages: since lower floors have sunlight and wide, unblocked views, they do not suffer the usual stigma, bring \$5 rents just like the tower floors.

Parking: besides the peripheral parking lot seen above, the Center has underground parking for 248 cars, plus an existing four-story commercial garage nearby. Peripheral roads are closely in-

tegrated with Pittsburgh's new highways.

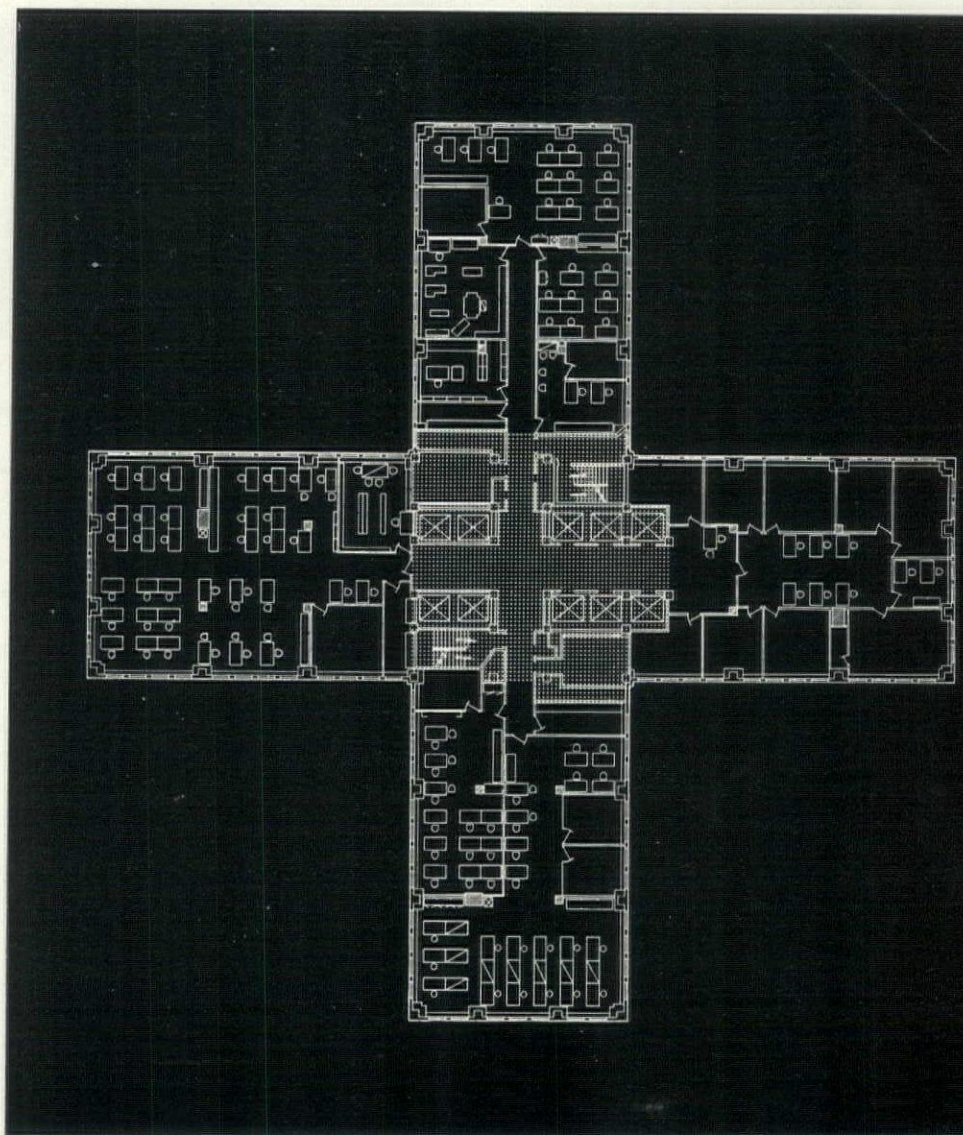
How it worked out: says Economist Miles Colean, in his recent "Renewing our Cities": "The open parked spaces between buildings, the extensive garage facilities and the ready access to through ways [at Gateway Center] represent a conscious effort to adapt business facilities to city structure on a thoroughly functional basis." Other verdicts: landscaping—well done but stiffly traditional; relationship of buildings—a little too near-symmetrical. Project will greatly improve when almost 300 planted pin oaks and sweet gum trees shoot up to full height.

Future plans: no immediate construction is in sight, but clearing of the slum site continues.

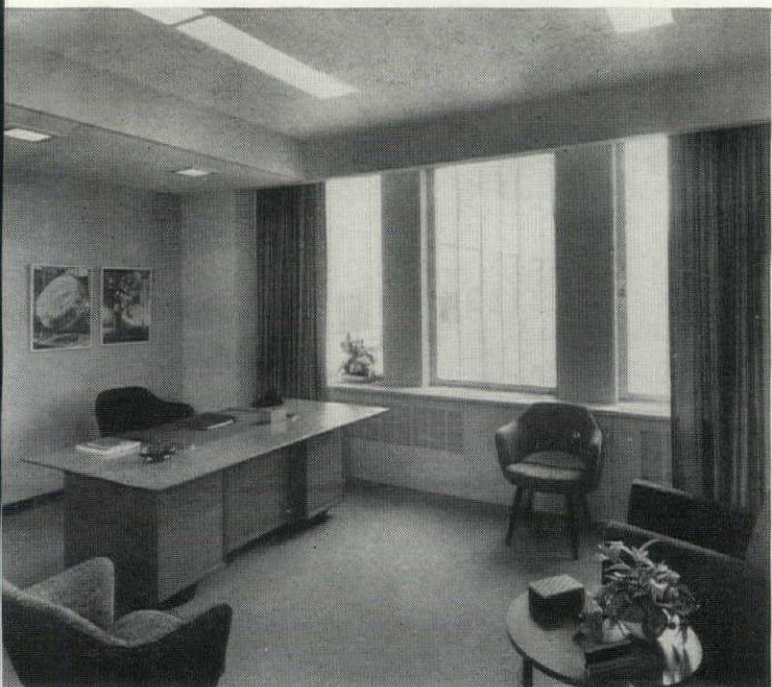
OFFICES:

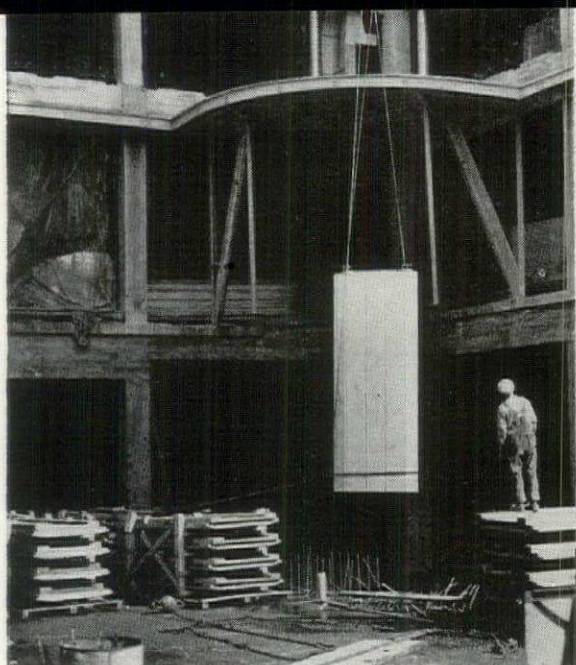
What determined the office plan: no desks are farther than 24' from a window—yet there are 13,500 net sq. ft. on each Gateway floor. Equitable determined the floor shape and size, made each wing of the cruciform just under 50' wide, 74' long. Bays are about 14' x 24' along the outside of each floor, 18' x 24' on the inside (AF, Nov. '49).

Why the cruciform plan? Architects have called it "the mark of the amateur" and generally prefer slab plans. But beautiful slabs like Lever House have only 6,000 sq. ft. per floor whereas Equitable averages 13,500. Granted Gateway's basic premise of only prime office space within 24' of the window, the cross keeps circulation distance from being impossibly long. Some comparisons: cross has 800' perimeter, slabs (with similar close-to-window space) might easily have more; cross makes longest corridor distance approximately 160', slab could make it 250'; cross has eight corner offices and eight blocked corners per floor, slab would have four corner offices and four blocked corners; cross has disadvantage of slightly less open views at re-entrant angles, slab would have disadvantage of awkward elevator planning in so narrow a building width (still assuming only 24' office depth).



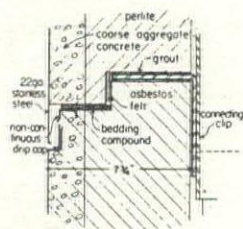
every floor has 13,500 sq. ft. (net) . . . yet every desk is near a window





WALL:

steel panels backed with perlite were bolted together to form complete outside walls for tall buildings

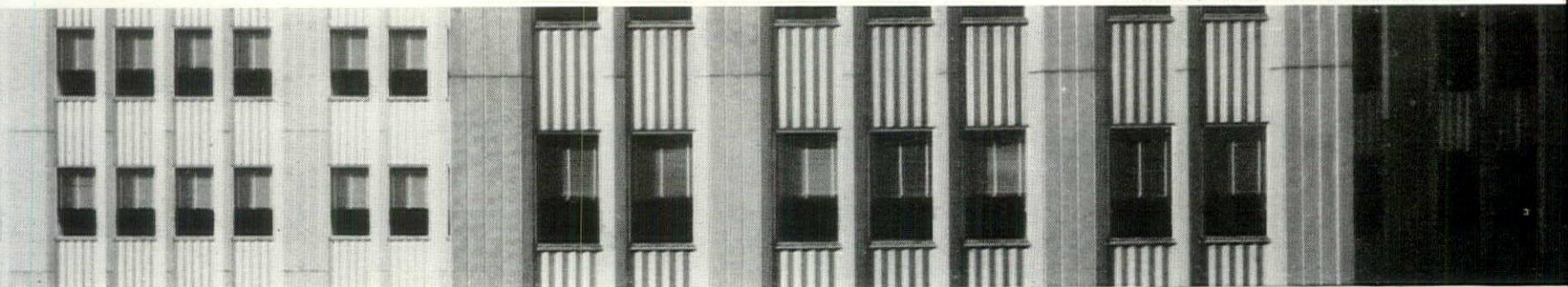


Two major contributions to curtain-wall construction: 1) the entire exterior wall (inside and out) was shop-prefabricated in panels, then hoisted up and bolted together in place. 2) The prefab panels were faced with chromium steel skin. Thus Gateway's exterior was no skin-deep job (as in case of ALCOA), but was a pioneering effort to achieve complete prefabrication—first big job of its kind.

How the walls were prefabricated: six different, standard panels of precast concrete faced with 11% chromium steel (nickel stainless was unavailable because of Korea). Wall panels vary from 4 1/2" to 7 3/4" in thickness. Concrete backup is very porous immediately behind steel skin (to permit condensation to drain off), then perlite. Panels weighed up to 6,000 lb. each.

How steel wall worked out: here are some things that Eken might do differently today: 1) use fewer flat surfaces in stainless skin (reason: Gateway's skin has "tin-canned" evenly in all flat areas, apparently because of heat expansion); 2) do not use latex-and-paper protective coating during construction—find something that comes off more easily (Gateway had lots of trouble removing manufacturer's protective coat because latex left dirt-catching film on steel even after it had been stripped off); 3) watch your horizontal joint details (Gateway's joints have no drips; any condensation running down through porous backup behind steel might cause stains under joints). But Eken feels that the chromium steel performed just as well as the nickel stainless on the Mellon-US Steel building uptown. He would use chromium steel again any day.

Photos: (top, L.) Jay Bee; other, Lionel Freedman



WINDOWS: cheaper than conventional double-hungs, Gateway's reversible windows are handsome, slim-edged and big

Facts about the reversible windows: they are 6'-2" tall, 3'-10" wide—a single sheet of plate glass set into a 1 3/4"-thin aluminum frame. They unlock, then pivot 180° about a top and bottom center point. (AF, Nov. '49.)

How they worked out: windows are best designed single item at Gateway—very good looking, well proportioned. They cost only \$62 apiece—as compared with \$82 for conventional double-hungs! No cleaning economies as yet

(because union rates are still based on "human-fly" technique)—but future economies are likely to be great. Tenants like big size of windows.

What imitators might do differently: Builder Eken prefers 4 1/2'-high windows, but a majority of the tenants wanted tall windows—in spite of fact that blinds are always down at half-mast. (Gateway's maintenance men line up blinds every morning!) But Equitable insists that "tall windows sell space."

EGGERS, & HIGGINS, AND IRWIN CLAVAN, architects
CLARKE & RAPUANO, landscape architects
BRITON H. RICHARDSON, engineer
DI STASIO & VAN BUREN, consulting engineers
STARRETT BROTHERS & EKEN, general contractors

Architecture: stepchild or fashioner of cities?

The sad thing about Gateway is that its architecture is not up to the genuine poetry of its ideas; and this at the precise moment when architecture as an art is ready as it has not been for 50 years to deal with just such a problem as making the civic center the crown and focus of urban life.

Gateway had everything that could have been combined into a great romance, such as the merchants of Florence or Venice made of their cities. It had an unequalled site at the confluence of two great rivers; the wonderful idea of office towers in a park; an unusual cross-shape for view-commanding office interiors; the notion that this prow of Pittsburgh should proclaim the Steel City through its own metallic glitter, and a deep desire to do something great for the town.

Yet architecture was treated strictly as a stepchild, not allowed in the house until all decisions had been made, and then let in only through the back door.

The result is that the city-building project which could have been a crowning piece of poetry for our century has been reduced to second-rate prose. The arrangement of the towers in their park is purely mechanical; the landscaping between them makes no fresh statement about our grand new world, but is simply a weak Versailles; and the steel-clad structures are an equally weak modernism, lacking in proportion, texture and dignity, let alone mystery or power that would differentiate them from "up-ended diners."

Why should the building industry lag so far behind all others in recognizing that the appeal of any object lies deeper than its utility and engineering? Romance, says Architect Frank Lloyd Wright, is at the very core of life; surely American business enterprise deprived of its romance would die; our big industries parallel their engineering with styling. Yet here at Pittsburgh we had the strange though typical paradox that leading investors in the building industry, men engaged actually in a high romance, declined architecture as a tool and thought of it only as something that could be painted on.

To blame this all on Pittsburgh's pioneers as individuals would be grave injustice. History helps account for the event, and the profession of architecture shares the blame.

Fifty years ago a great generation of architects, such as Sullivan, Burnham, McKim, together with a great generation of businessmen such as J. P. Morgan and Alexander Cassatt, mutually understood the power and appeal of a "City Beautiful," even though their title was schmalz and their architecture (except for Sullivan's) a stock theatrical repertory from Rome and Paris.

Since then America has grown up—the hard way. The full impact of the Industrial Revolution gave men of affairs a world depression and two wars to handle, and it put architects through a revolution of style.

Now that men of affairs are returning to the rebuilding of cities and architectural associations debate "the city core," the old City Beautiful grandiloquence will no longer do, but neither will painted-on architecture do.

No, architecture today may have to work in a much tighter economic framework, yet it still has to be in at the beginning of the project, because the romance of our city-crown projects is in them, not on them; and the architect must be free to arrange the facts in an expressive form.

Let us hope this revelation comes to building investors quickly, for much of the poetry of the fine ideas Mr. Dowling accepted in Philadelphia's Penn Center is already being frittered out by third-rate architecture commissioned by well-meaning but unobserving tenants of the project. And although Roger L. Stevens in Boston has used great wisdom in putting architecture in at the start, so his Back Bay Center has some form, power and mystery and could stand as a symbol of modern Boston, yet he will need support if his rental agents start yielding piece by piece, telling tenants, "Oh sure, we can change the architects' plans to make it exactly as you want it" and "pay no attention to the Board of Design—it's window-dressing."

No great achievement can be had for free, nor are beauty and use synonymous though they overlap. To men of affairs we are not saying they can have architecture without some patience and mutual accommodation. We say only that without the vision of the arts the people perish, and no painted-on gewgaws can feed their spiritual starvation.

DH.

Photos: Corsini; Harvey and Studley



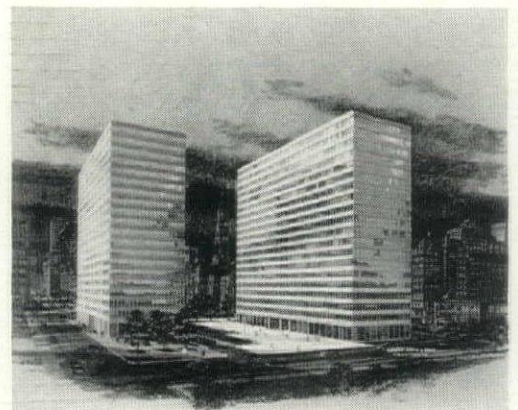
This purely commercial plaza in Venice has brought fame to the city for over 400 years, being the Plaza of St. Mark's. Venice merchants knew the attractive power of fine architecture and planning.

American businessmen of top rank are in danger of adopting hill-billy standards of architectural design for the most prominent central city redevelopments, done by private enterprise.

In Pittsburgh, fine ideas, ugly buildings.

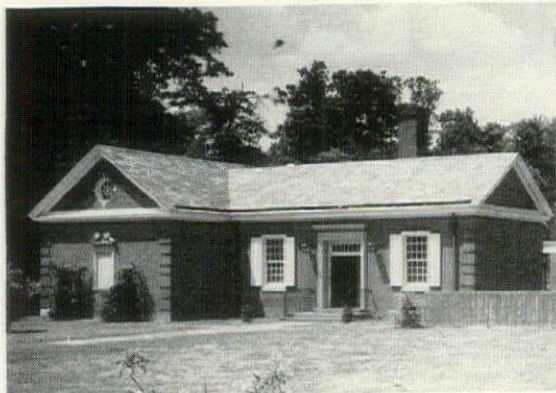


In Philadelphia, an idea being vulgarized.

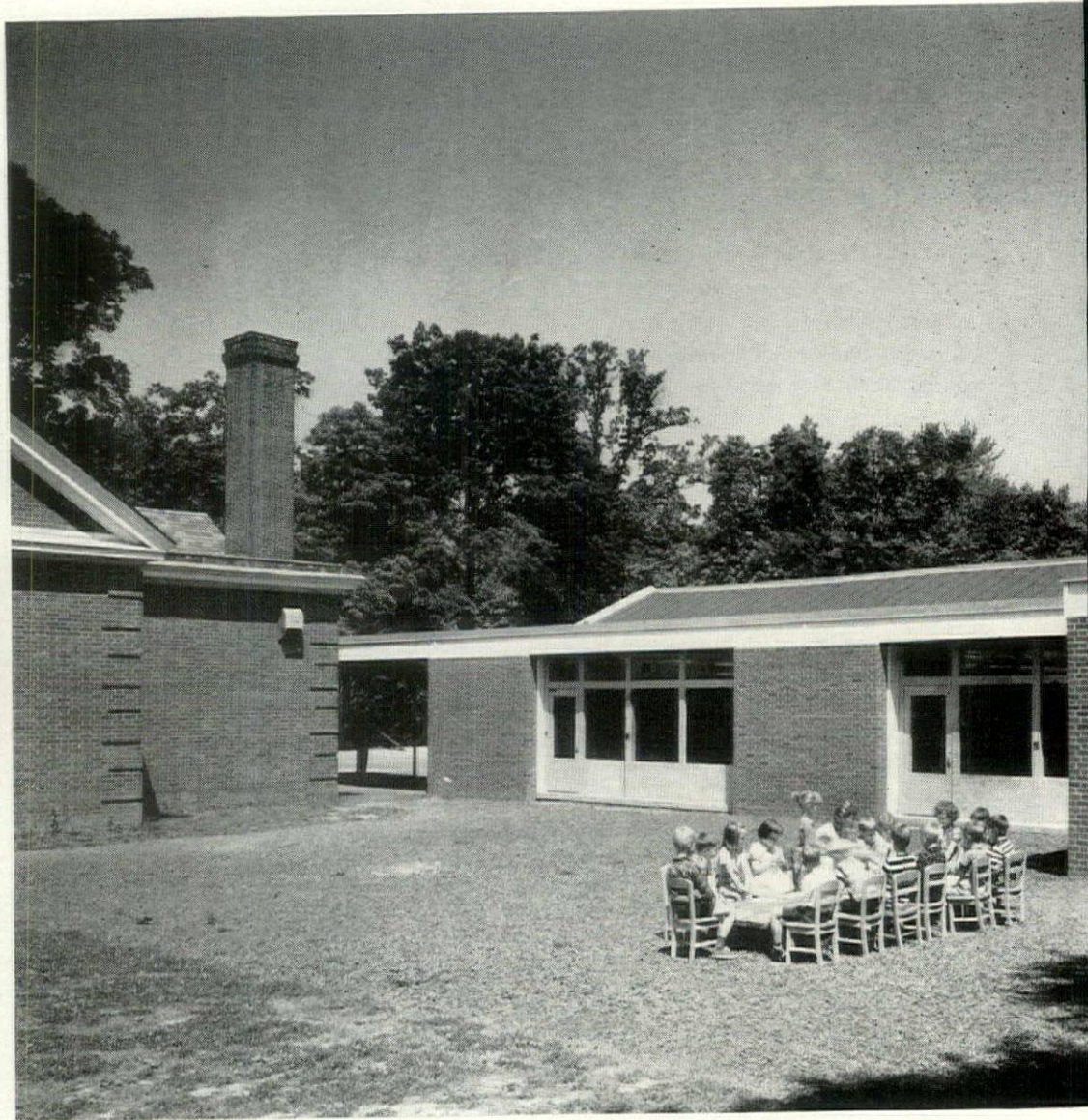


In Boston alone, good architecture—so far.





Existing school sits squarely in middle of site's narrow frontage. New addition pays its respects by recall of materials and relationship of roof lines but makes no design compromise. It aroused no protests from conservative community.



1. Raw material: 1936 "Georgian" awkwardly sited

Products: modern wing with tact to harmonize

ELEMENTARY SCHOOL

Palisades, N.Y. ▲ Three-classroom addition. ▲ 90 students.

FEATURES

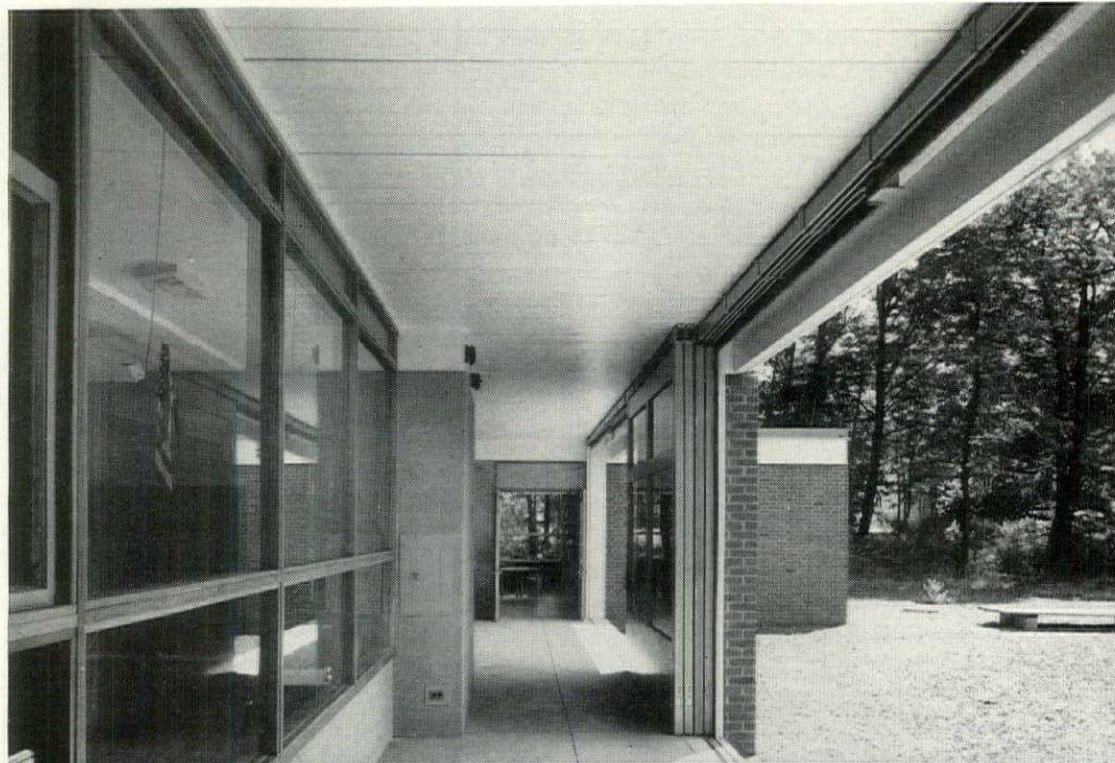
Indoor-outdoor corridor with sliding glass walls forming south overhang. ▲ Direct sunlight in kindergarten. ▲ Master plan eventually turning old building to nonclassroom use. ▲ Zoned play yards. ▲ North top lighting.

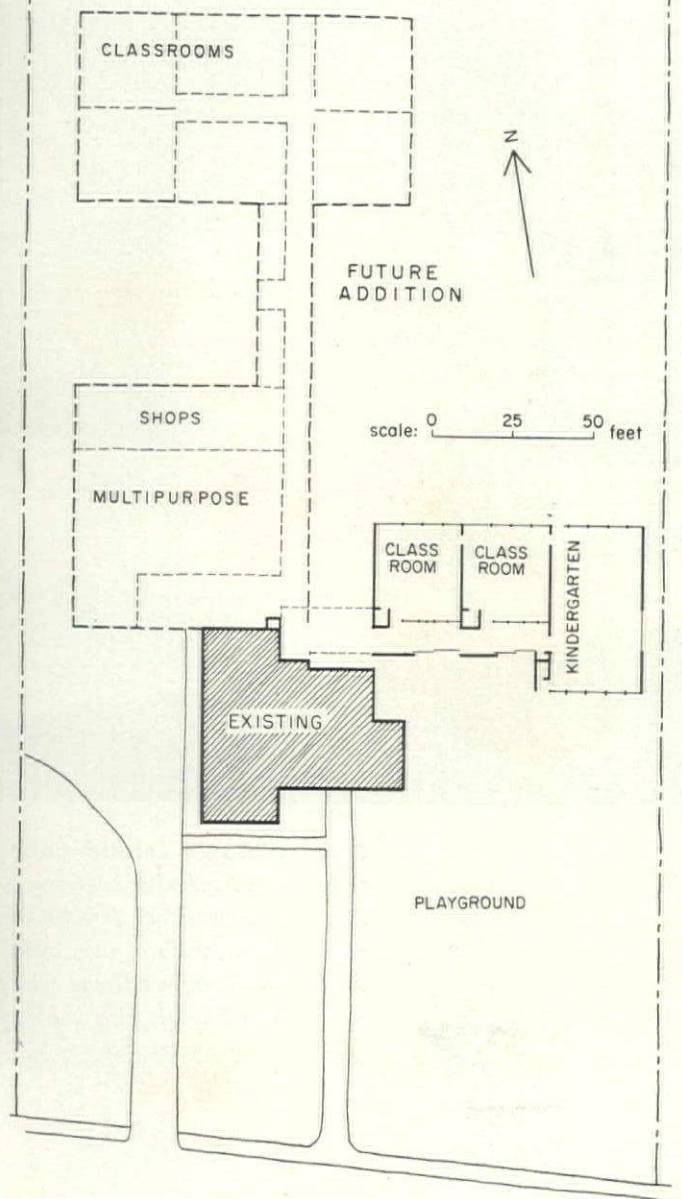
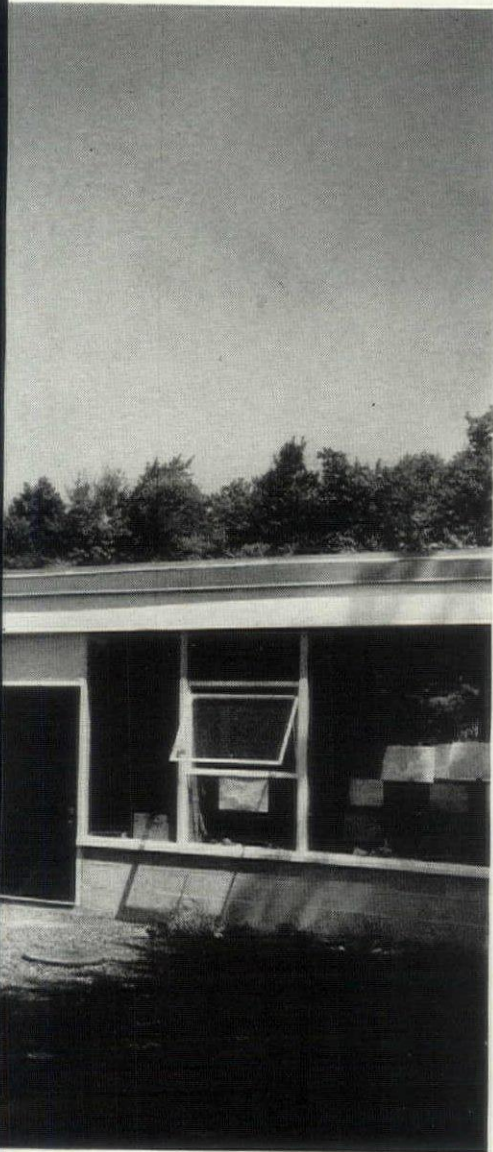
CONSTRUCTION

Slab on fill. ▲ Exterior walls brick on cinder block; sheet cork over plasterboard. ▲ Cinder-block partitions. ▲ Laminated wood girders. ▲ T&G planking, built-up roof. ▲ Radiant hot water in slab and forced air.

COST

\$76,657 (excluding fees). ▲ \$20 per sq. ft. ▲ \$25,532 per classroom. ▲ \$852 per pupil.





CHARLES H. WARNER JR. & WALKER FIELD
Architects

GENERAL ENGINEERING ASSOCIATES
Consulting engineers

ANTHONY LINGUANTI & CO.
General contractor

Master plan puts classrooms on east-west axis for sun control. When school reaches full size, old buildings will be used only for offices and special rooms. Present addition is permanently marked for youngest children, gives them separate playground.

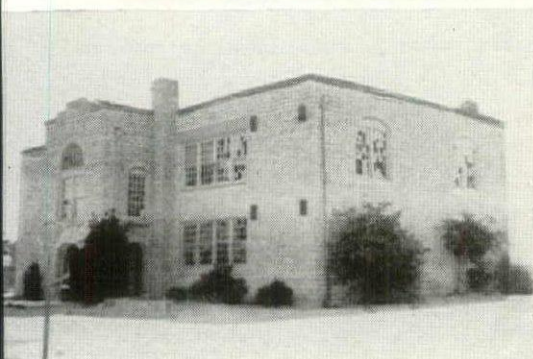
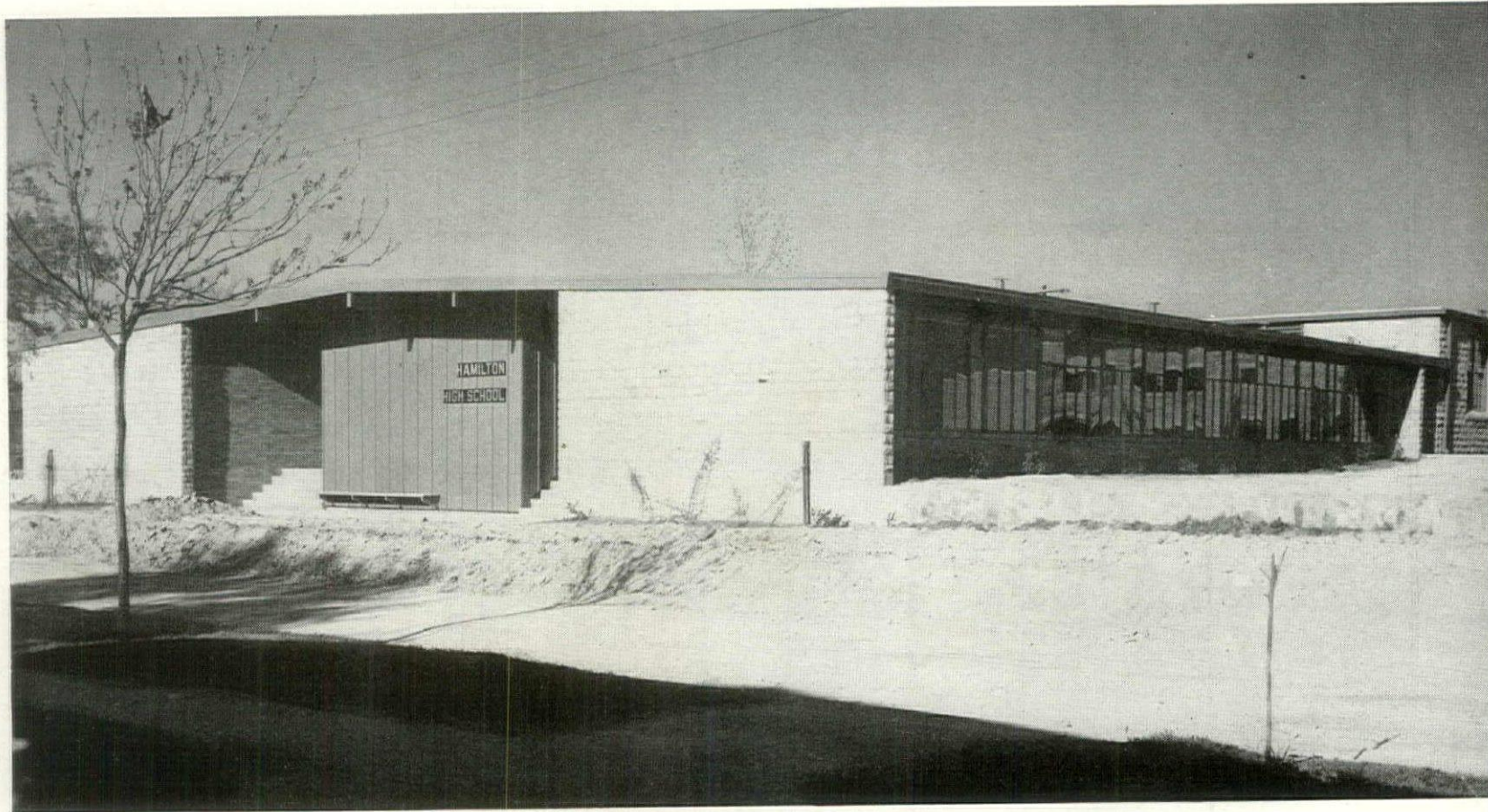
and excellently zoned master plan for future

Corridor's sliding doors stack behind center brick column. Cost was \$1,100 against \$900 for conventional glazed wall. In winter closed corridor traps south-sun heat but shades classrooms. In mild weather it is used with adjoining lawn as outdoor class space. Architects will consider overhead doors if they use similar scheme again.

Classrooms have bilateral and sky lighting. Architects chose wood framing for looks and fear of steel delays, settled on laminated wood for strength. These members are usually used at great heights; architects were dismayed at defects visible with low ceiling but found that good paint job rendered irregularities almost unnoticeable.

Photos: Ben Schnall





Old building's second floor was torn off and the first floor was retained and remodeled. (Corner is visible at far right in photograph above.) Lumber from demolished second floor was reused for framing and partition studs of new addition; old stone without interior finish was reused in end walls and thus appears in interiors of four new classrooms. New brick is also unplastered but old interior was replastered.

2. Raw materials: condemned two-story eyesore and wit to salvage it

Product: **charm, good school plan and community**

HIGH SCHOOL

Hamilton, Tex. ▲ Ten classrooms (eight added, two remodeled). ▲ 267 students.

FEATURES

Selective salvage of building condemned as unsafe and considered total loss. ▲ Outdoor corridors doubling as overhangs, eliminating blinds or curtains. ▲ Patio designed for outdoor parties and meetings. ▲ School library serving also as public library for general community use. ▲ Minimum classrooms for economy; no classroom night lighting for economy.

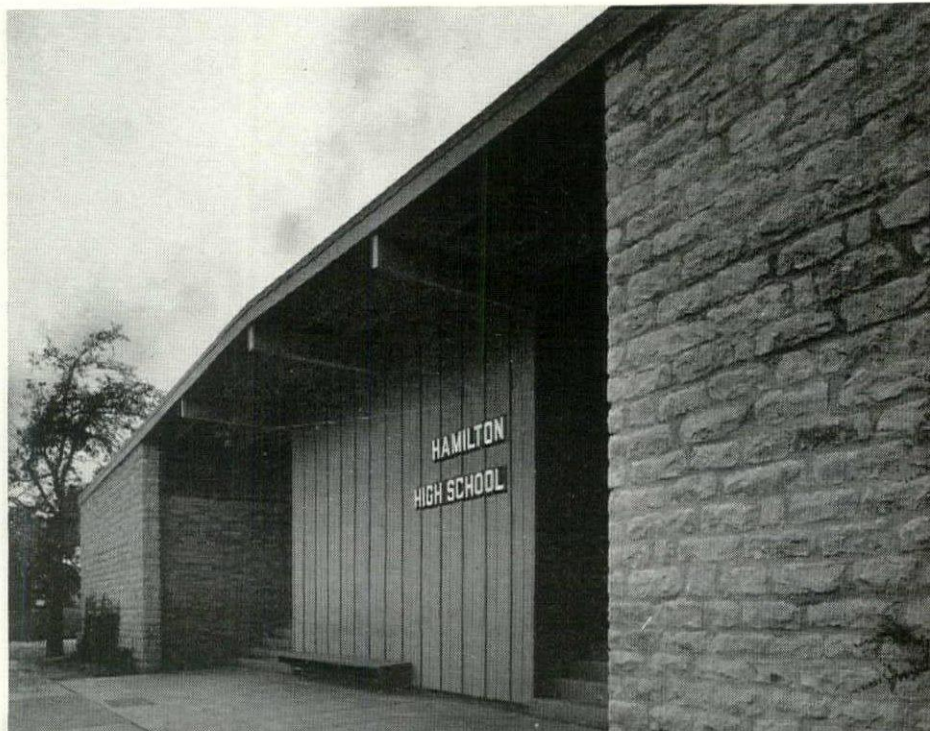
CONSTRUCTION

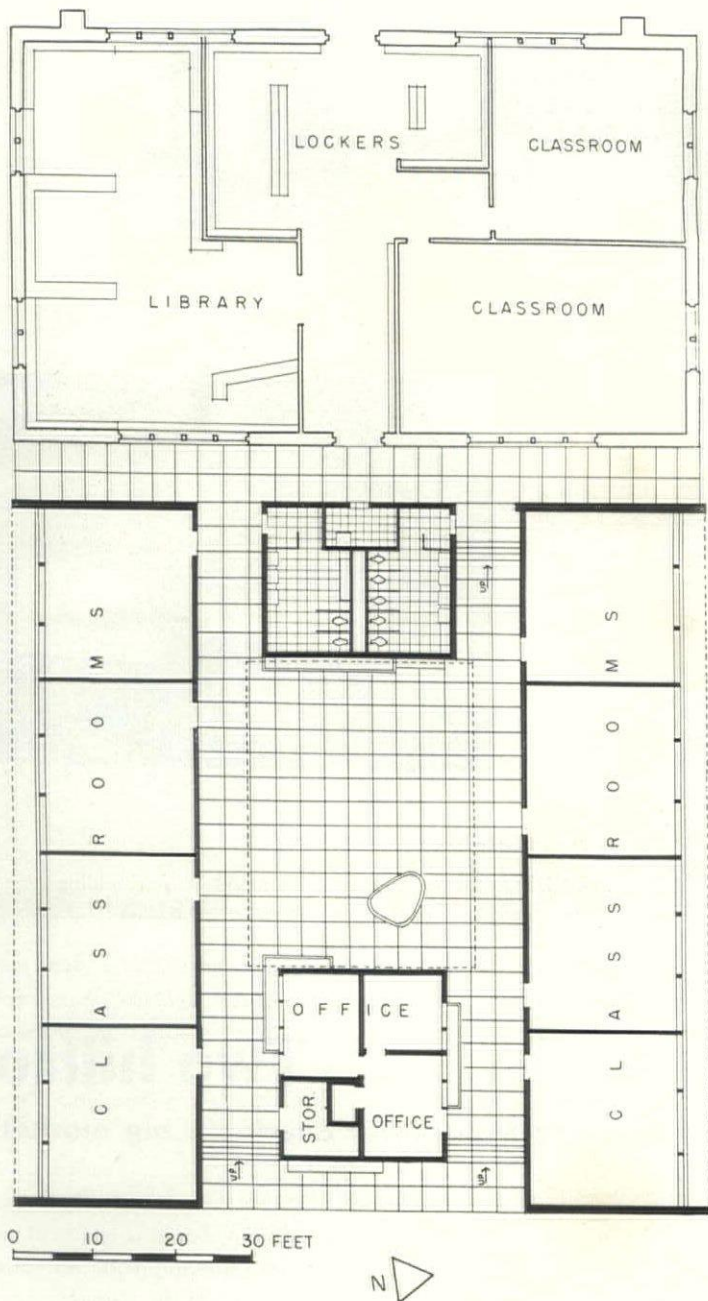
Slab on fill. ▲ Exterior walls, 9" brick cavity or 12" solid stone.

▲ Stud and plywood partitions with sound insulation. ▲ 2" x 12" wood girders with 2" x 6" members spiked on for overhangs and corridors; shiplap decking, built-up roof; acoustic tile ceilings. ▲ Gas-fired unit heaters thermostatically controlled.

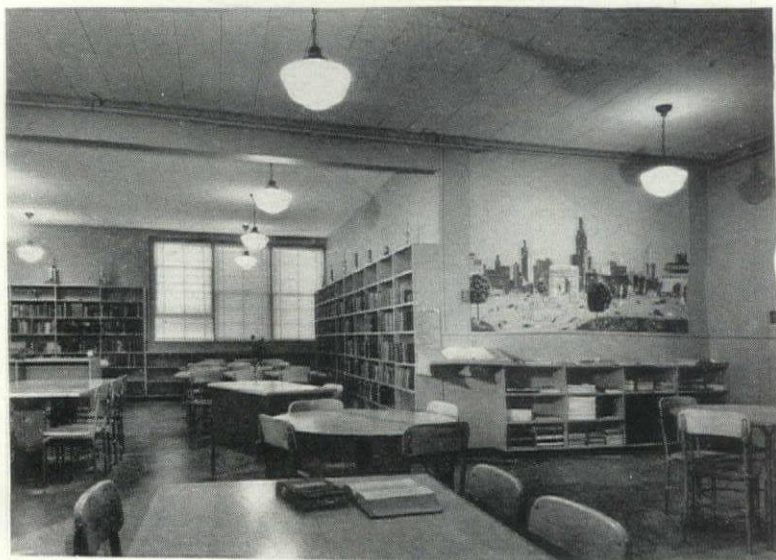
COSTS

\$62,535 (including fee). ▲ \$6.45 per sq. ft. ▲ \$6,253 per classroom. ▲ \$234 per pupil. ▲ Breakdown: remodeled area, \$23,500, \$5.47 per sq. ft. ▲ New area, \$39,035, \$7.22 per sq. ft. (Architect credits reuse of salvage material, job size within realm of local, small-town contractors, simplicity of details, and minimum of crafts involved.)





PAGE, SOUTHERLAND & PAGE, architects
K. A. SPARKS, mechanical engineering and general contractor



Library occupies large share of remodeled building. It is unusually generous because it is also public library. This does not represent saving on school itself, but does mean an appreciable saving to community as whole and is noteworthy as good example of joint-facilities planning advocated by FORUM's panel of school experts (AF, Oct. '53). Everything that could be reused (note lights) was saved.

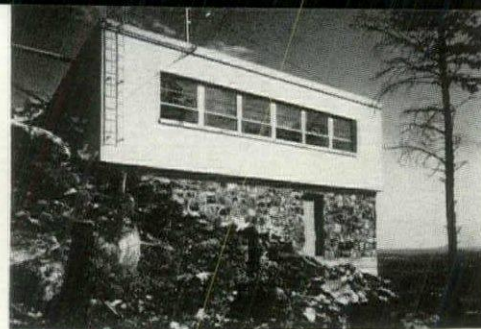
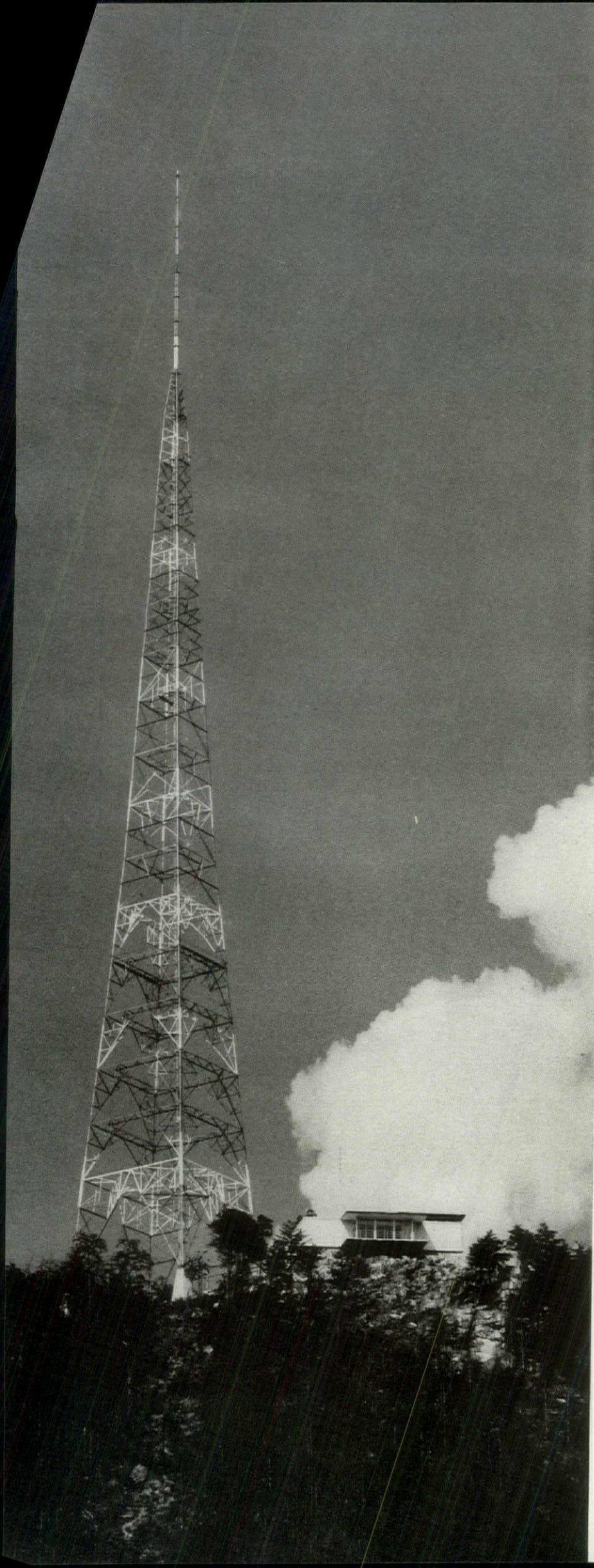
center at \$6.45 per sq. ft.

← **Salvaged stone** frames unpretentious and very pleasant wood entrance panel. Minimum classroom size (18'-9" x 20'-6") was first studied carefully at large scale for use by 30 pupils; superintendent reports he and teachers are very happy with way small classrooms work.

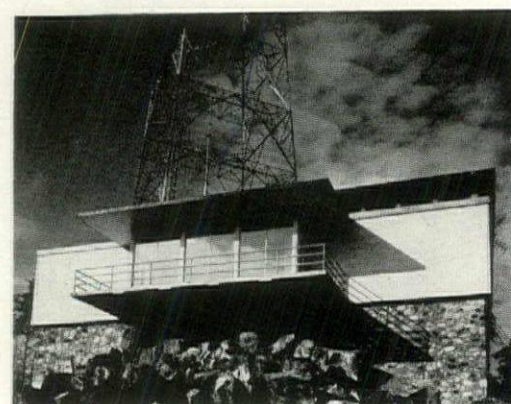
→ **Courtyard** is regularly used for club meetings, parties, community affairs. Building is at southeast corner of its block; other buildings on the property are auditorium with shops and gymnasium which will continue to be used as is. There is also room for further expansion.

Photos: Dewey G. Mears





Facades spring out of rock base in stone walls, then turn into double thickness of glass. Cantilevered terrace is off lobby.



WBTV, Charlotte, N.C.

A. G. ODELL, JR. & ASSOCIATES, architects for building
SOUTHEASTERN CONSTRUCTION CO., general contractor

Two hilltop

1. TV transmitter overlooks big market

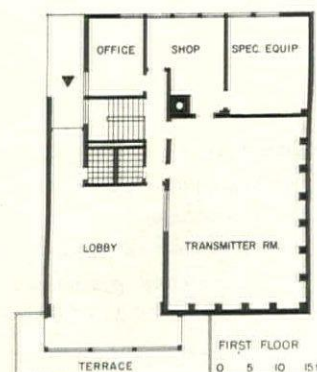
A straight line is the best distance between a TV transmitter and your set. Because the TV beam is not bent as is that of conventional radio transmission, your antenna should be able to look unblocked toward the signal tower.

That is why this transmitting station for WBTV of Charlotte is set 16 miles out of town up on the craggy prominence of Spencer Mountain, surmounting the countryside. But there are other reasons for perching WBTV up there, both commercial and technical, combined by Architect Odell into a handsome architectural expression of lonely efficiency:

- ▶ When a sponsor comes to the station, the managers can show him his market in the valley through the wide window. There it is, at his feet.
- ▶ There is no interference from other electrical sources.
- ▶ The tower is away from commercial aviation routes.
- ▶ If the 562' tower had been erected in Charlotte it would have had to be 1,200' high to obtain its present clear beam, adding a half million dollars to its cost.

Wild site holds only transmitting station, which is connected by cable to studios in Charlotte.

Photos: Jos. W. Molitor



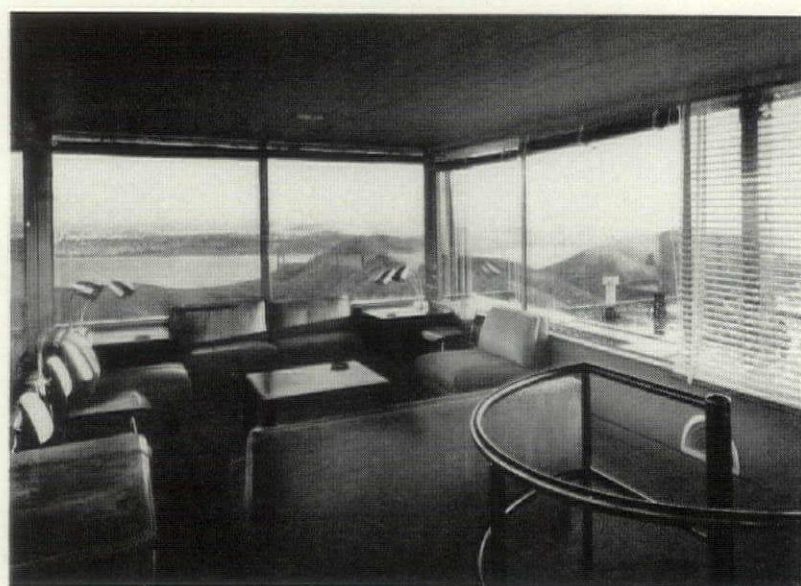


Entrance elevation: beyond foyer window is circular staircase leading up to observatory lounge

broadcasting stations

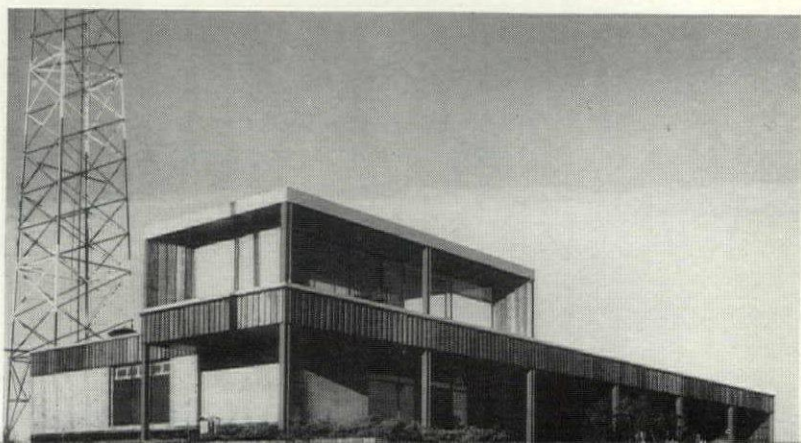
2. FM studio and transmitter are topped by glass-walled lounge

KDFC, Sausalito, Calif.
 MARIO CORBETT, architect
 HYMAN ROSENTHAL, structural engineer
 CLYDE E. BENTLEY, mechanical engineer
 ARTHUR W. BAUM, general contractor



Glazed lounge overlooks San Francisco Bay and Sacramento Valley

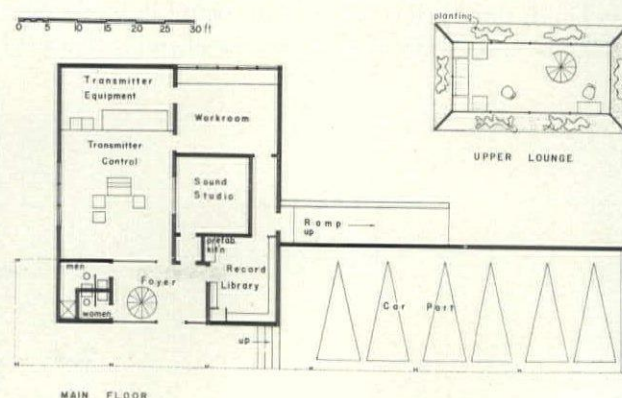
Steel frame, a strong feature of design, anchors building against high winds

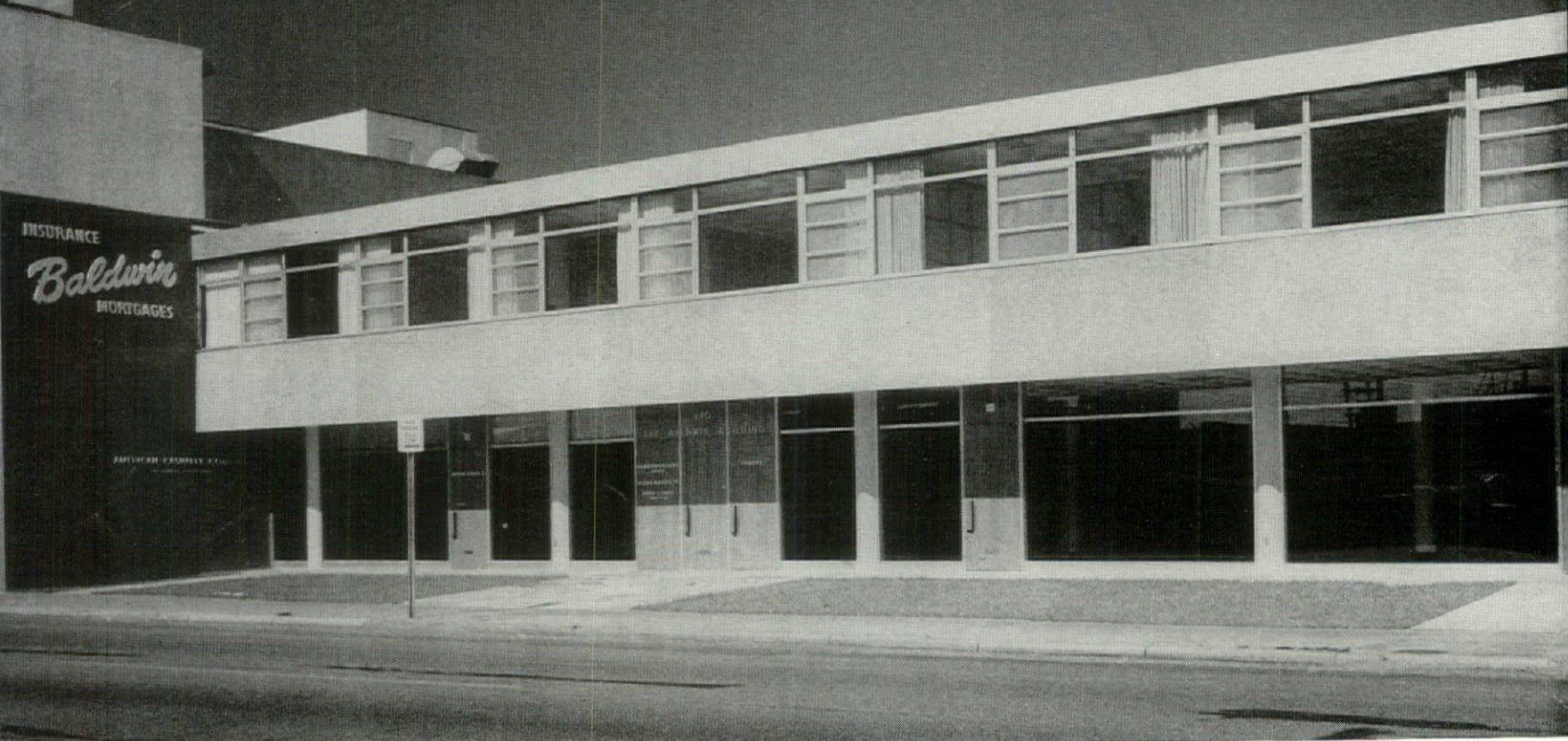


FM radio, like TV, sends its signal in a direct line, so it too needs to be on high. Mario Corbett's slim steel frame, redwood, concrete block and glass headquarters for California's KDFC is on a level strip of land, but the land is atop Marin County's Mt. Beacon with a 360° sweep of view and radio audience. The building looks jaunty and innocent on its hilltop but is designed to withstand 100 mph winds, which are not uncommon.

The principal architectural problem inside was circulation. The studio is the heart of the operation, dependent on library and research rooms, engineers' workroom, transmitter and control rooms. Setting it inside the other spaces allowed circulation all around. The covered ramp (see plan), which approaches from behind the long garage, is used for delivery of records.

Up a circular stair from the lobby is a wonderful, general-purpose room with four window walls, like the control tower of an airport. Cost: \$33,000, or \$9.60 per sq. ft., excluding tower.





“This office building has improved our business”

“It has also greatly increased the efficiency of our organization,” says insurance company President Charles F. Baldwin. Reason: Baldwin agreed with his architect, Alfred Parker, that they ought to put up “something more than just another taxpayer,” that first-rate modern design, good construction and generous site planning would pay off in dollars and cents.

And they did pay off—handsomely: first-floor stores and second-floor offices (for Baldwin’s company and other tenants) were rented within three months after the building was up. In fact, it now turns out that the client might have been smart to build a projected third story right away (the structure was designed to support another floor in the future). Says Architect Parker: “The additional space could have been rented twice over in the first 90 days!”

So this is a success story in four parts: first is the story of a handsome building—the pictures tell that story convincingly; second is the story of efficient precasting of exterior walls and of a simple concrete frame that looks well and was economical to build; third is the story of sun control in a subtropical climate; and last is the story of generous site planning that paid off.

LOCATION: Miami, Fla.

ALFRED BROWNING PARKER, architect

NORMAN DIGNUM, structural engineer

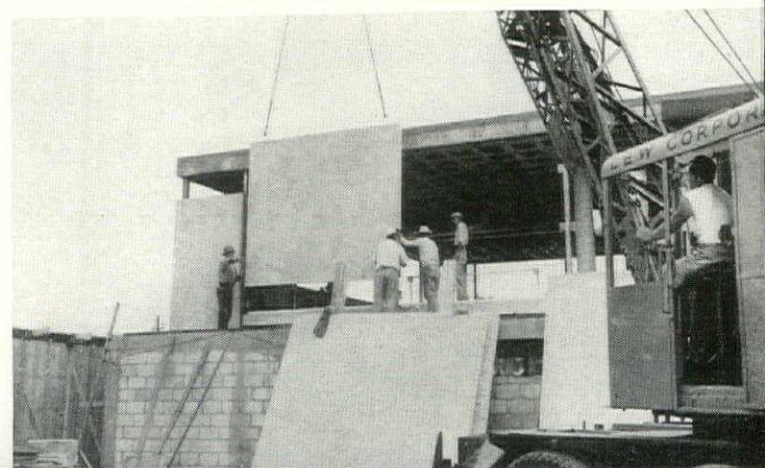
WITTERS CONSTRUCTION CO., general contractor

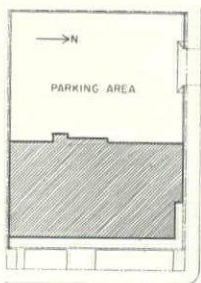
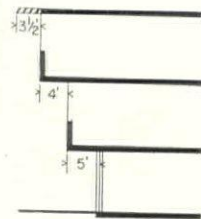
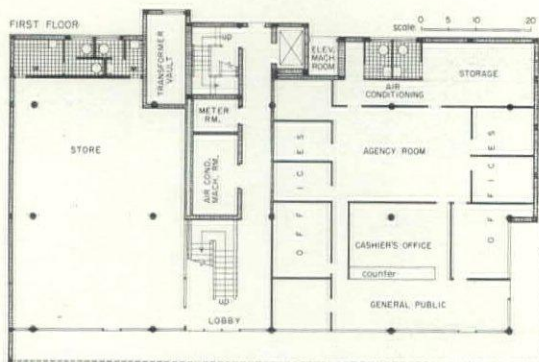
Precast wall panels and coffered floor slabs

It took just 7½ hours for a crew operating one crane to erect the precast concrete panels that make up some 1,500 sq. ft. of exterior wall around the second floor. To put it more dramatically: it took only 18 seconds to get 1 sq. ft. of exterior wall into place!

The precast panels were made up in half a dozen different (but closely related) sizes—some of them as big as 9' x 11', all 6" thick. They are made of pumice concrete faced with Chattahoochee gravel, wire-brushed and cleaned after hardening. A system of light steel frames stiffens and connects adjoining panels.

Cost of panels, in place, was only \$3,500, or \$2.33 per sq. ft.—not a very large item in a \$110,000 building, but still a fine





save time and weight

demonstration of the economies and efficiencies of precasting.

To reduce the weight of the floor and roof slabs, Parker worked out a two-way rib system that produced a good-looking ceiling pattern of 18 sq. ft. coffer, 8" deep. The actual slab on top of the ribs is only 2½" thick and the ribs are 6" wide. Total floor thickness: 10½" over a 20' x 22' bay. Coffer pans were made of 8" lumber and paperboard. Round tied columns are set back from the edge of the floors to take advantage of the reduction in positive moment due to the cantilevered overhangs. These overhangs act as sunshades for the stores, will help throw any future variation in store-front treatment in shade, thus preserve design unity.

Each floor shades the one below

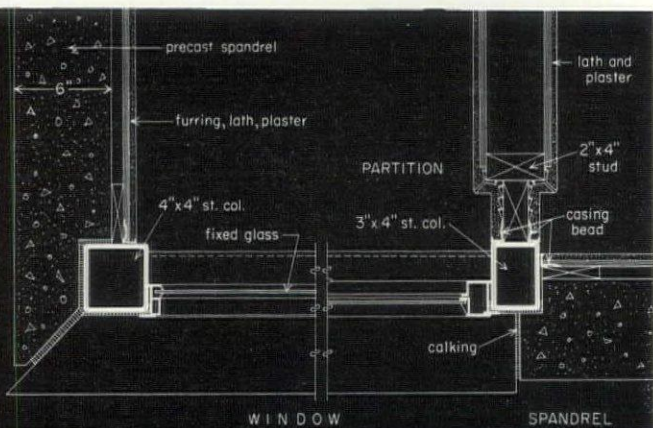
One of Architect Parker's most interesting ideas in designing this building will not become apparent until the third-floor expansion has been completed: for the third floor will project 3½' to 4' beyond the second—which, in turn, now projects 5' beyond the glass storefronts of the first (see sketch). The third floor will be shaded by aluminum louvers that will form 3½'-deep eyebrows above window areas.

The Baldwin Building is completely air conditioned, of course, but these projections of floor beyond floor will substantially reduce cooling loads by shading the walls below. They will also recoup some of the floor space lost when Architect Parker decided to set back his building from the street.

Site plan sacrifices 1,700 sq. ft. for effect

One reason for the success of this little structure is its location on one of America's busiest thoroughfares: Biscayne Blvd. in Miami. Another reason is Architect Parker's unconventional handling of that kind of site: where others would (and do) jam their competing facades right up against the building line, Parker set his store fronts back—a full 17', or 1,700 sq. ft. of land—and created a quiet, friendly and dignified lawn near the corner bus stop. The setback not only attracts attention, it attracts shoppers as well, who want to get off the busy sidewalks and out of the rush. Yet, despite the generous setback, Parker was able to obtain adequate parking facilities behind the building (site plan, left).

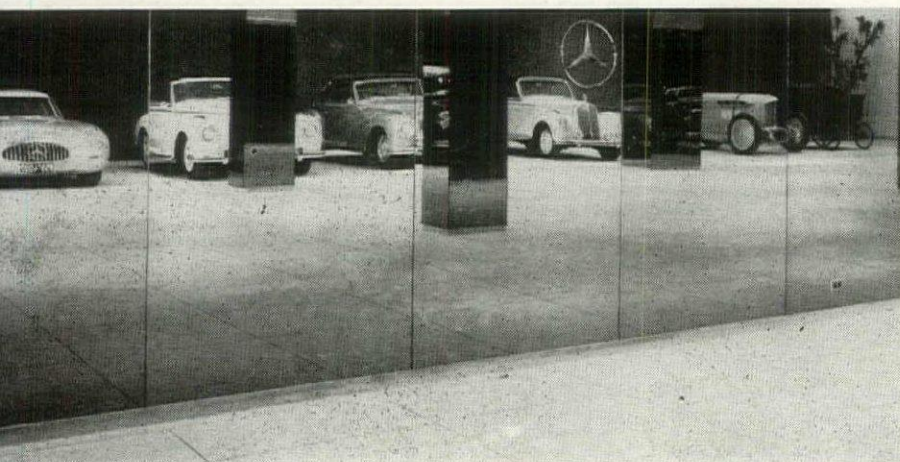
Photos: (top & below) © Ezra Stoller



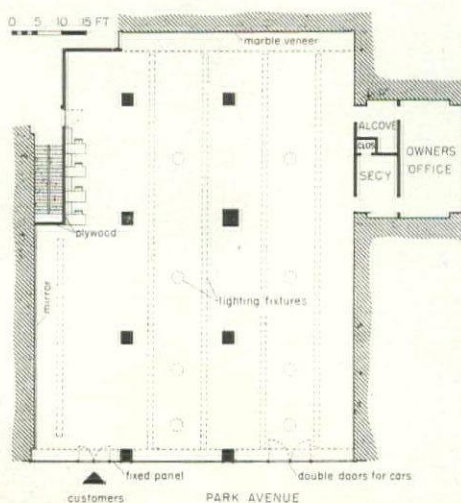


Desk area along side wall has 1'-8" lower ceiling to conceal jog in structure and to create more intimate atmosphere.

Sandwich of light: four fluorescent strips, 72' long, carry eye into showroom, "bounce" 50 foot-candles of light off white terrazzo floor. Rear wall is finished in Alabama marble; columns are clad in gun-metal gray mirrors, which tend to make them disappear. Left-hand wall is similarly mirrored (below); right-hand wall is painted gray.



LOCATION: New York City
EDWARD L. BARNES,
architect-designer
CENTURY LIGHTING CO.
lighting engineering



Modern setting for

Mercedes-Benz, Park Ave., builds an

For 50 years automobile dealers have held that the battle was half won if you could only "bring them in off the sidewalks." Yet, in 50 years there have been few exceptions to the stock formula for "designing" the showroom as a magnet: paint it (maybe); then get a couple of desks, a couple of rubber plants, a couple of inspirational-type posters (*Come to Banff! Visit Mexico!*).

Well, here is the latest, most elegant exception of all—



classic cars

elegant showroom with bright light and white floor

a young architect's version of an auto showroom worthy of the auto. And is it bringing them in off the sidewalks? "Yes," says M. E. Hoffman, president of Mercedes-Benz Distributors. "I *know* it's attracting people in. I know it's helping *tremendously* to sell the cars. We're very satisfied with it. Very."

In essence, the attraction is created with bright light, a white floor and walls of mirror and marble.

Photos: Ben Schnall

Chief tool was that handy little gadget, the lightmeter. From the outset, Architect Barnes saw this remodeling job as fundamentally a problem in lighting, realized that the designer would have to work closely with the lighting engineer.

Not that there were not other problems, these stemming from the existing, unalterable structure of the
continued on p. 148



At night showroom glows with over-all luminosity



Garages vs. parking woes

► The most energetic efforts to ease downtown traffic with more garages are publicly financed

► In Baltimore, public financing strikes a snag as nine persons and six firms are indicted on fraud charges

IN THIS MONTH'S NEWS

(see pp. 37 through 52)

Presidential housing advisors suggest tying public housing to rehabilitation but steer clear of how many units for next year

Toronto tries half-merger with its suburbs—an experiment being watched by US cities struggling with the same problems

Mies van der Rohe designs a coliseum for Chicago with a roof spanning 500,000 sq. ft. of clear floor

Real Estate Board of New York adopts new standard for measuring square footage of rental office space

Investment bankers complain US college dormitory loans are rigged to freeze out private lending institutions

Over most of the nation the symptoms were the same:

► In Dallas, 20 stores clubbed together to urge holiday shoppers to come downtown on buses or streetcars, not in their automobiles. The stores offered return carfare to anyone who spent a dollar.

► In Wilmington, two reporters from the *Sunday Star* ran a latter-day hare-and-tortoise race—one on foot, the other in an automobile—to prove that a pedestrian could do a ten-block stretch of downtown Market St. faster than a motorist. (They proved it.)

► In Hartford, it was estimated that there were 12,000 parking spaces available for an average 40,000 autos grinding into town during business hours and that 1,000 of these "available" spaces were illegal.

The basic cause of all the horn-honking and municipal consternation was not hard to pin down. There are 53 million vehicles in use in the US, more than 2½ times what there were 30 years ago. Automobile traffic has spread vastly on the ground. The cities have built upward. Result: not enough square footage in downtown metropolitan areas (sometimes not enough in any section of the city) to park (AF's Urban Traffic Forum, Feb. '53).

Clear the streets. The primary aim of any public or private body now fighting the traffic-parking problem was to get automobiles off the streets. This aim took precedence over the alternative project of keeping them out of town. The latter scheme—to get the commuter or shopper to park his or her car on the fringe of the business district and take public transportation downtown—was one of the best-sounding ideas ever put on paper. In operation, its contribution toward relieving municipal congestion has been minor. Several attempts to encourage perimeter parking in Pittsburgh have been branded as "nearly futile"; it worked in Baltimore for awhile, until National City Lines moved into the transit picture and raised the rates in the parking lot; it has not worked in San Francisco, largely because the city is so highly developed that it has few fringe areas suitable for parking.

Street no stable yard. Legally, efforts to restrict parking on public thoroughfares go back to 1812, when a British court held: "No one can make a stable yard of the King's highway." That was the first decision that a stagecoach parked an unreasonable length

of time—45 minutes—constituted a nuisance. Now, the legal effort sometimes goes as far as a complete ban on downtown parking. So far, the evidence is inconclusive whether such discipline can really ease traffic jams. Dallas' attempts to ban parking on the city's three main streets during daylight hours was supposed to last a test period of 90 days. Protests from merchants on the three streets were so vociferous, however, that the city council knuckled under after four weeks and rescinded the whole plan. Observers' opinion: the ban did not get a fair trial.

In Philadelphia a similar edict covering a 56-square-block midtown section has been working for a year. It is credited with having cut running time of buses and trolleys in mid-city by more than 10%; it accounted for an 11% decline in accidents and speeded traffic by 40%. Long view: merchants are complaining and the traffic situation as a whole has been tabbed "gloomy indeed."

Is building the way out? To a lot of people struggling to solve the traffic mess, the best available answer is more downtown garages. It was a tempting way to take a crack at the problem. Garages were going up (or down under the ground) all over the nation. During the first nine months of this year some 1,500 garages were authorized. They will cost over \$28 million.

Three cities making the most energetic efforts to build garages were erecting primarily public-sponsored facilities. They were:

► **Chicago**, with an enormous \$50 million program for ten new projects, including what will be the world's largest (2,359-car) underground garage, now being dug out under Michigan Blvd. (Present largest: Los Angeles' Pershing Sq. garage, with a capacity of 2,000.) The underground garage will be operated by the city's Park District; the nine others (financed through revenue bond issues) will be operated directly by the city or leased to private operators. The leasing scheme was perhaps one reason that private operators in Chicago were not more vigorous in opposing the program. Another reason: general recognition that property values in the Loop will stand or fall upon a good system of transportation which, since autos were here to stay, included parking.

► **Pittsburgh**, with two Public Parking Authority garages under its belt as of a year ago (both now operating in the black) plans two more, possibly three. Construction of the

new ones, however, hinged on litigation to determine whether such city-sponsored structures are tax-free. Not affected by the tax question is the 890-car Mellon Sq. underground garage, made possible by a \$4 million grant from three Mellon foundations, to be completed in about a year. (The cost of building underground garages has so far kept private construction from the field unless some sort of aid—in land, financing or tax exemption—was forthcoming from the city.)

► **Baltimore**, where citizens approved municipal participation in parking-facility construction five years ago by voting the Off-street Parking Commission \$5 million in public funds. Since then, Baltimore has acquired 17 new garages at a cost of \$5.7 million. Two more were under construction. Net gain from all 19 will be 3,012 parking spaces. The city's procedure has been to aid private off-street construction with low-interest loans. The policy apparently will continue to operate in Baltimore, in spite of a grand jury indictment last month of nine individuals (including two city officials), and six corporations involved in the operation. The defendants are accused of having defrauded the city of \$180,000. Other city governments (Milwaukee and Atlanta among them) which had toyed with the idea of setting up a parking arrangement similar to Baltimore's, did not believe the current ruckus meant a collapse of the plan. (Not so the National Parking Assn., elated at eruptions in the Baltimore Plan, which it had long fought. Said Association President John Hendon of Birmingham: "The principle of government intervention in the field of parking is morally wrong and frequently leads to inefficiency, graft and corruption.")

Other developments:

► **San Francisco** will complete its second underground garage, in St. Mary's Sq. next March. On city land, the \$2.1 million project (to house 1,025 cars) will revert to the city in 33 years. The 11-year-old Union Sq. garage—the nation's first to dig underground—had barely dented the downtown parking problem. It has proved so popular that it will be paid off and turned over to the city at least 30 years sooner than had been expected.

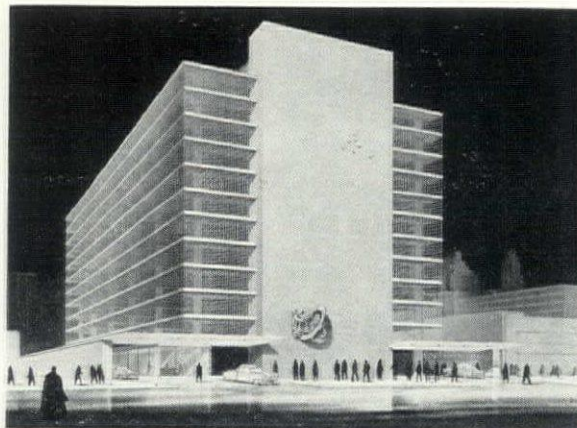
► **Milwaukee** has taken in \$2 million from parking meter revenue and sale of all-night parking permits—cards for which motorists pay \$4 a month and place in their windshields. The city's proposals to use this kitty to buy land and lease it for garages were being held up by a taxpayer's suit questioning the city's parking policies.

► **In Hartford**, Mrs. Beatrice Auerbach, president of G. Fox & Co., engineered a smart deal for a 600-car garage. She proposed that the city lease her a section of an old municipal school site. She would pay the city \$6,000 a year and at the end of 20 years let the garage revert to municipal ownership. The plan was proposed in Oct. '52; ground was broken the following February; the garage opened last November.

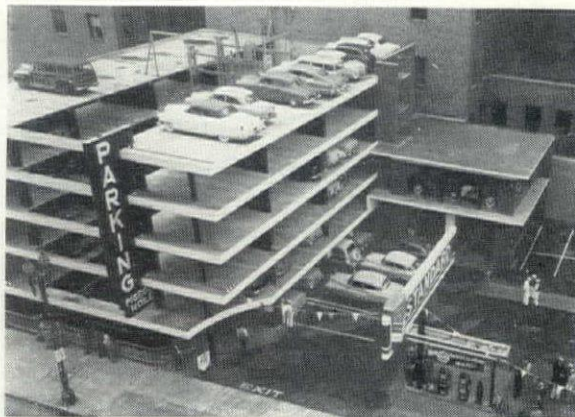
► **In New York**, Promoter William Zecken-

dorf, always a man to take the high ground, was planning a jumbo-sized vertical garage on Park Ave. Zeckendorf and his firm had spent \$500,000 looking into the mechanized parking problem. Proposed cost of the garage might be \$1 million. Zeckendorf's theory: "It doesn't matter whether the land is assessed at \$2,000 a front foot, \$10,000 a front foot or \$15,000 a front foot, because the very fact of the existence of those kind of values indicates also the existence of that kind of demand for parking. . . ."

There are more ways than one to grapple with the parking problem, but it was equally evident that no *one* of them was going to do the job. It seems logical that as more space is provided for parking, so more autos will be on their way downtown to squeeze into it. The job of the coordinators, mayors, planning and traffic officials, merchants and citizens' groups is to keep this ratio of number of automobiles to number of parking spaces in a workable proportion. It is, from all indications, a full time job.



WINGLIKE SHELVES for autos flank a central shaft of color-glazed brick in this 715-car garage scheduled for Chicago. Vertical lines are 1" stainless-steel cables. Architects: Shaw, Metz & Dolio.

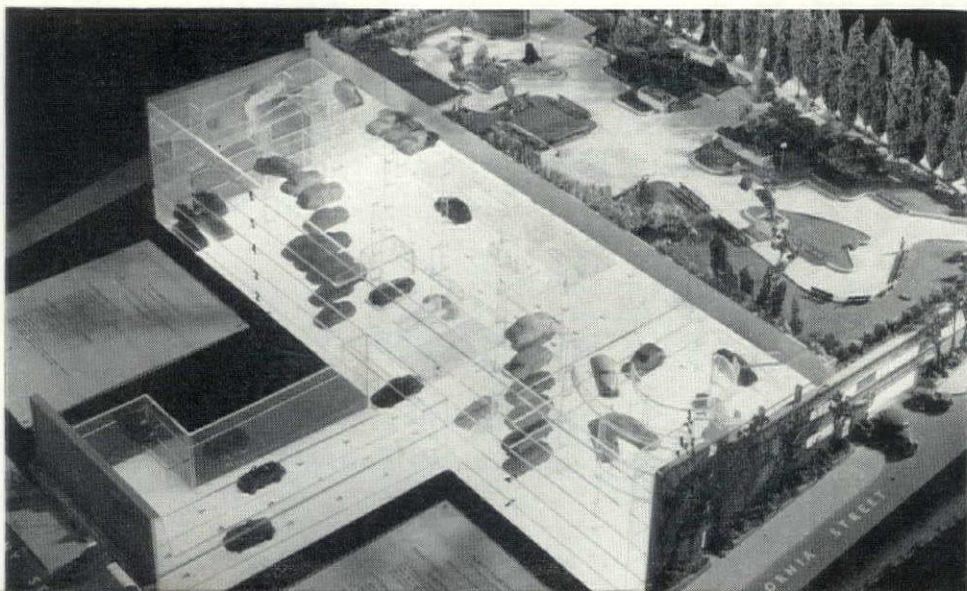


AUTOMATIC Pigeon Hole unit recently opened in Los Angeles is fifth in nation. One man can push-button 116 cars into the five-level structure at average rate of one minute a car. Cost, including station: \$150,000.



EXIT RAMPS of biggest underground parking facility in the world—a 2,359-car space being dug under Michigan Blvd. by the Chicago Park District. Garage has been engineered to handle a capacity intake of 750 cars an hour, an exit rate of 800.

SAN FRANCISCO'S SECOND subterranean garage is going under city-owned land in St. Mary's Sq. The 1,025-car space is expected to draw all-day business parkers rather than shoppers, ease only partially the need for more parking space downtown.





Canopied L leads to the nursing wing at left, to auditorium and other community facilities at right

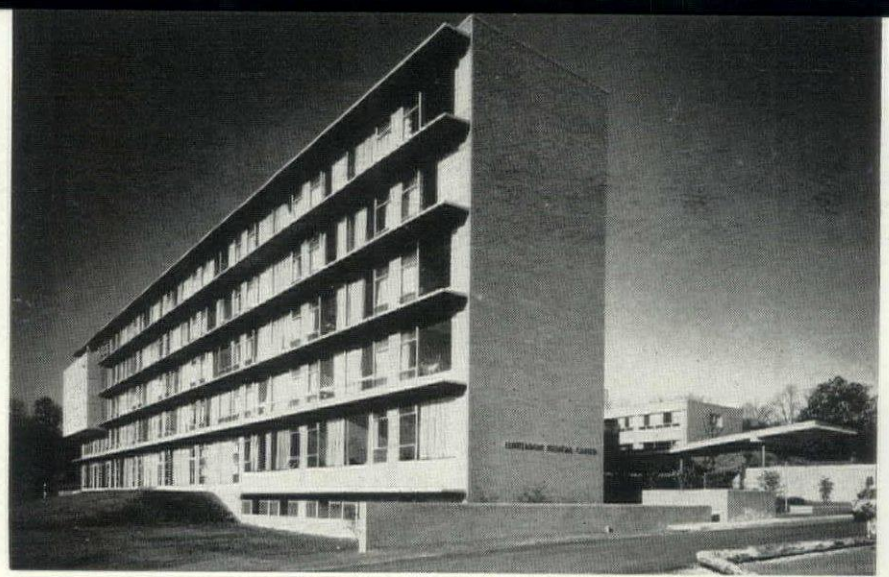
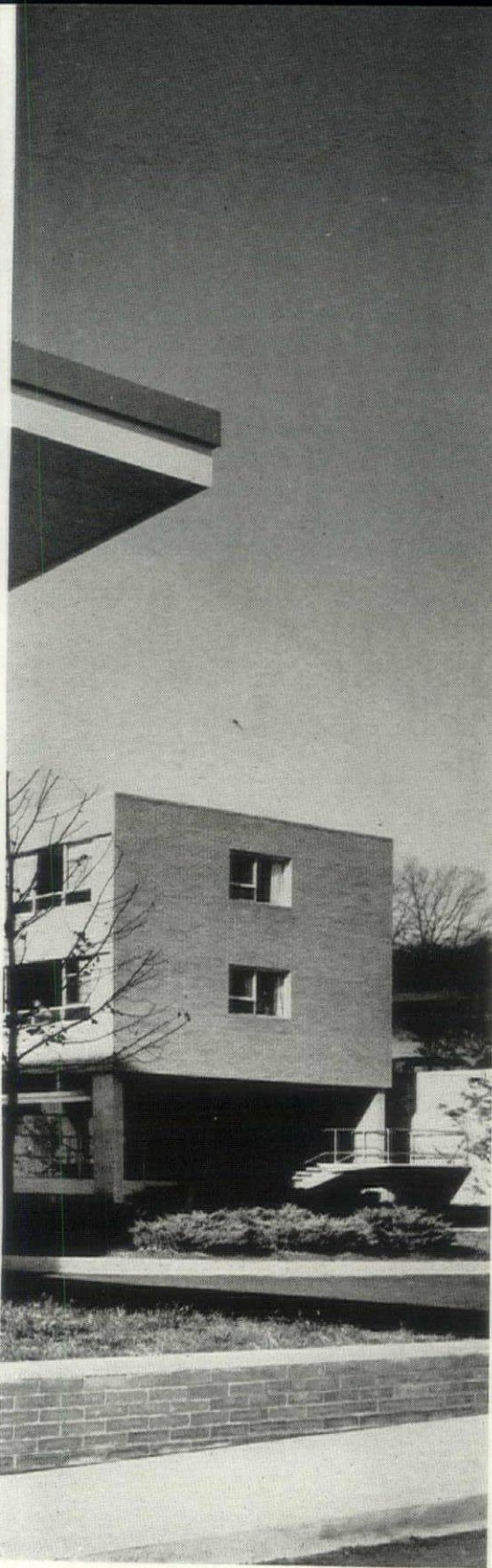
This is a new kind of community medical center

It concentrates on preventive medicine, including mental health.

It brings community practice into university medical teaching and teaching-hospital quality into a rural community.

It sets a new pattern of hospital staffing, a new specialist—general practitioner relationship.

It not only cares for the sick; it is full of creative innovations for community groups and well people.



This 106-bed hospital—with a medical core any hospital thrice its size could be proud of—would be worth study simply as a fine community hospital.

But it is more than that; it is a forecast.

Nearly everybody in the US who is concerned with rural health problems and with the fate of the family doctor is excited about this hospital as a pattern for the future. NYU-Bellevue Medical School has chosen it for a new community extension of medical education. The Commonwealth and Kress funds have chosen it for studies in rural health and preventive medicine.

But the most heartening fact (and the reason the big institutions are so interested) is that this is no hothouse plant. The initiative to start it and the determination to see it through and make it work as a *new kind of community medical center* came straight from the people of Hunterdon County—a county of dairy and chicken farms and country-trading towns, a county at the fringe of the commuting orbit of New York.

"I doubt we could have raised even \$250,000 for an ordinary hospital, badly as we needed one," says Lloyd B. Wescott, Guernsey breeder who headed the fund campaign. "We raised the incredible sum—for a county like this—of \$1,600,000 because everybody understood the idea was special, something so good it would be a tragedy if we couldn't make it."

Photos: Ben Schnall

HUNTERDON MEDICAL CENTER

LOCATION: Flemington, N.J.

VINCENT G. KLING, architect

WILLIAM W. ESHBACH, associate architect

A. ERNEST D'AMBLY, mechanical engineer

SEVERUD, ELSTAD & KRUEGER, structural engineers

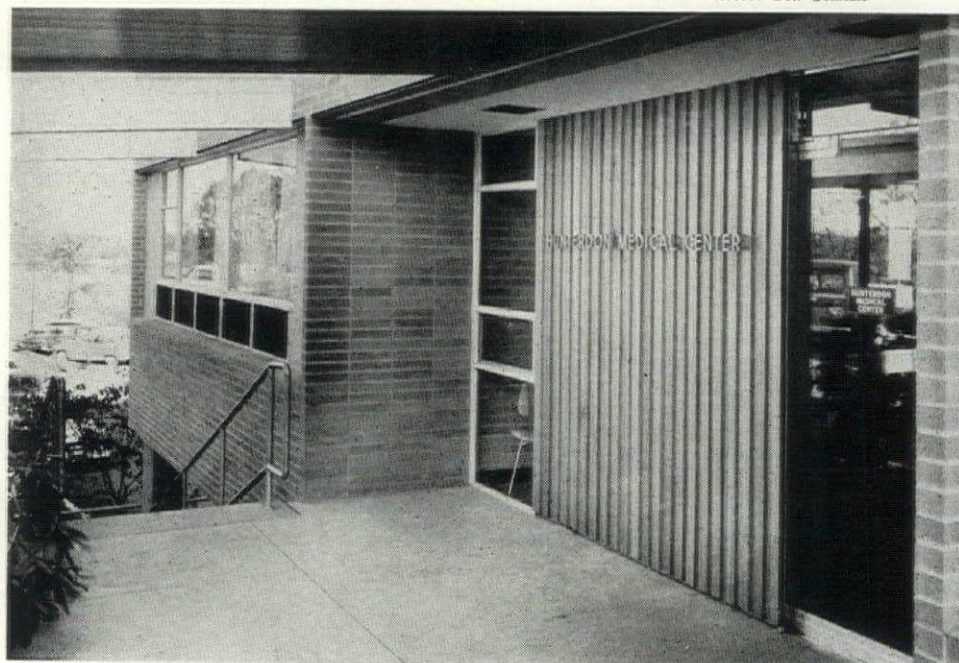
NASON & CULLEN, general contractors

DONALD C. SMELZER, hospital consultant

RAY E. TRUSSELL, M.D., director

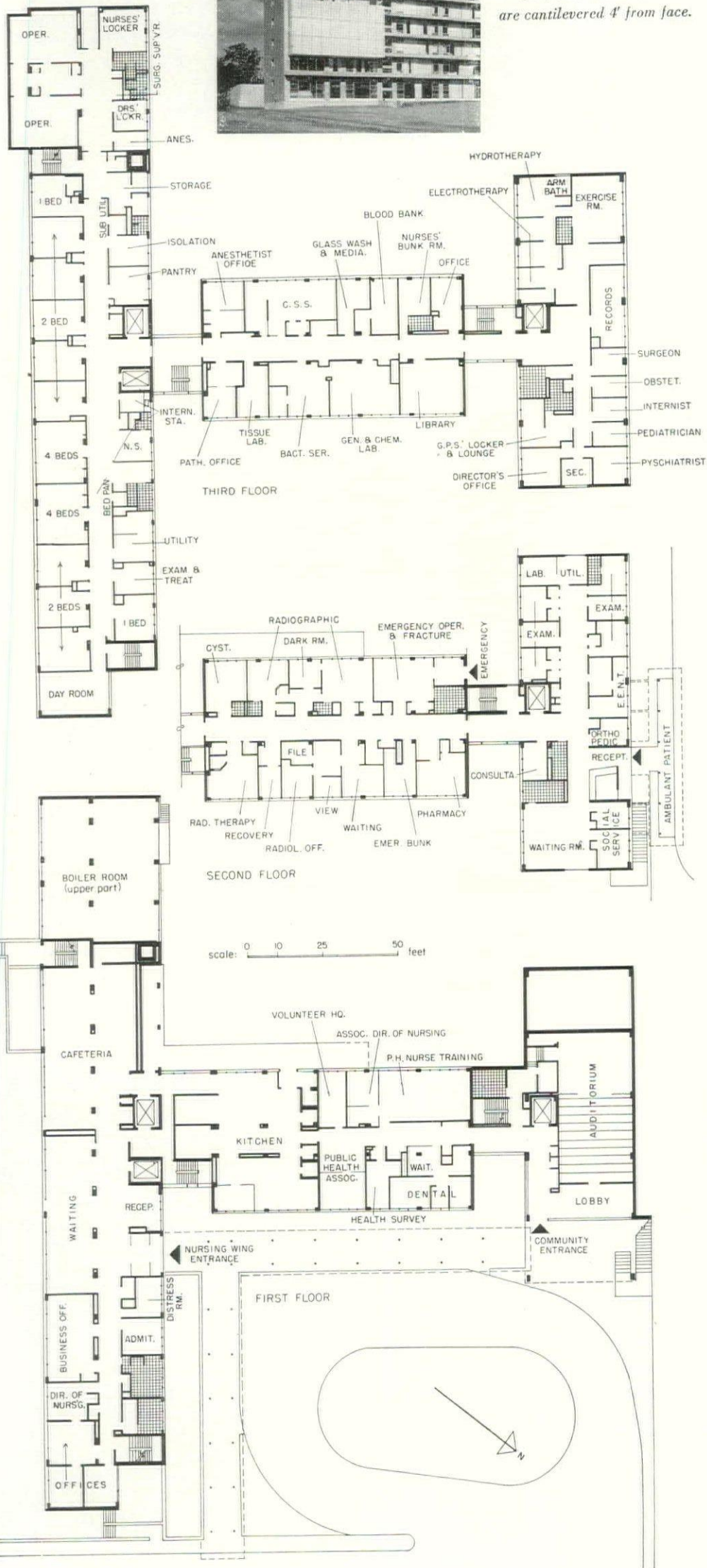
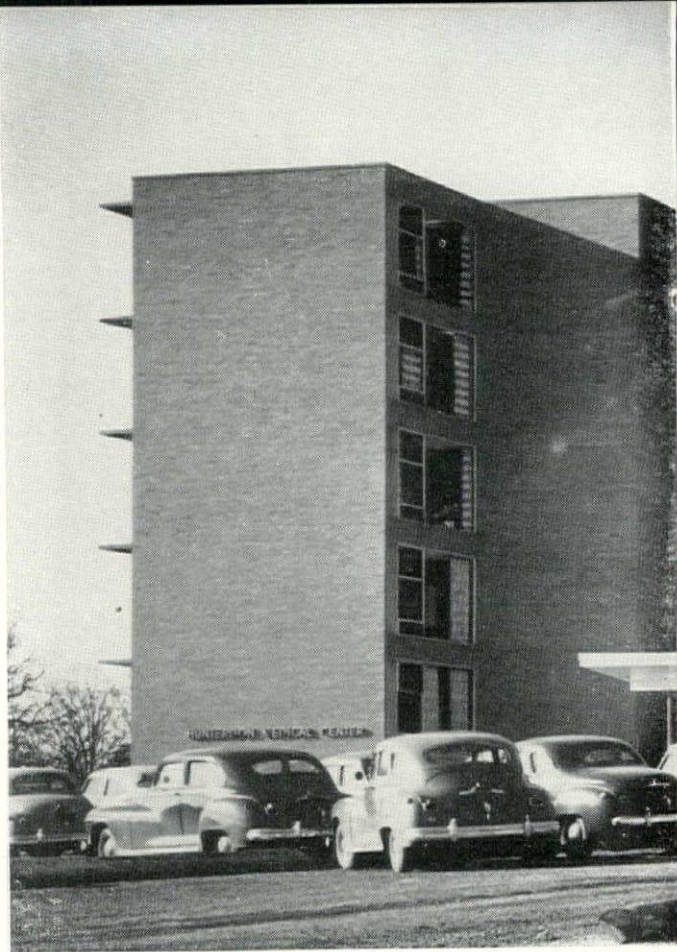
L. B. WESCOTT, president

Ambulatory medical wing entry is at second-floor level. Stair down leads to community floor, can be glimpsed at far right of large photograph.

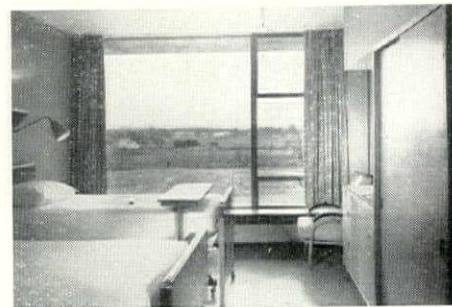




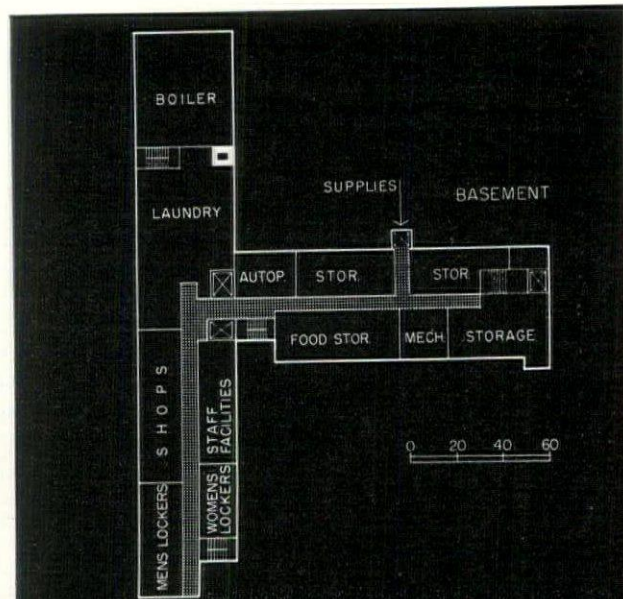
Surgery and delivery are cantilevered 4' from face.

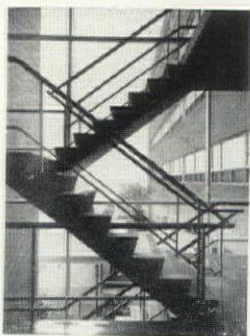


1. Nursing wing



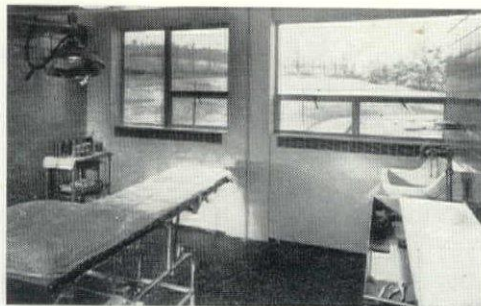
Medical center has three major



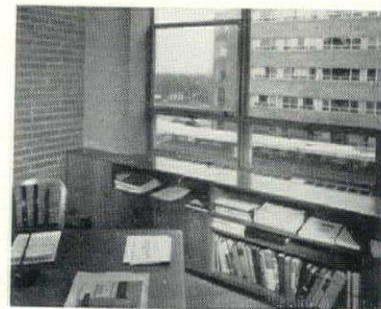


Link

2. Medical services core



3. Ambulatory medicine



functional divisions, is really three buildings linked with glass

And the best way to understand what goes on in these buildings is to "walk through" the plans.

Entering the ambulant wing (see second-floor plan), we come to a U of examining and auxiliary rooms. These are used both by the hospital's specialists and by the general practitioners of the county when they wish to see their walking patients at the hospital ("We purposely want the specialists and general practitioners to be falling over each other"). At night the U is for mass screenings (right now 8,000 residents are getting half-hour multiphasic tests, 1,000 are getting two-hour checkups as the last two stages of a chronic disease survey). The county's 26 municipalities are responsible in turn for keeping the U busy on weekly bloodbank nights.

Most of the specialists have their offices on the floor above. The nine specialists (including radiologist, anesthesiologist and pathologist whose offices are in their departments) are appointed by the hospital. They serve as consultants to the local general practitioners; patients' fees to them go into a separate pooled professional fund that pays their salaries. These men and every local qualified general practitioner who wishes (32 thus far) are on the hospital staff. The medical board includes doctors from both

groups. Thus Hunterdon overcomes the two medical traps into which so many rural hospitals fall: either they are medically mediocre because they lack specialists; or, if there is a specialist corps, it runs things at the expense of the voice, stature and potentialities of the family doctor.

Hunterdon's specialists are faculty members of NYU-Bellevue; they go into New York once or twice a week to teach. At any one time two interns, two residents and four medical students are being taught at Hunterdon, with general practitioners doing a good share of the teaching. Students, at present from three different medical schools, make community rounds with the general practitioners, too.

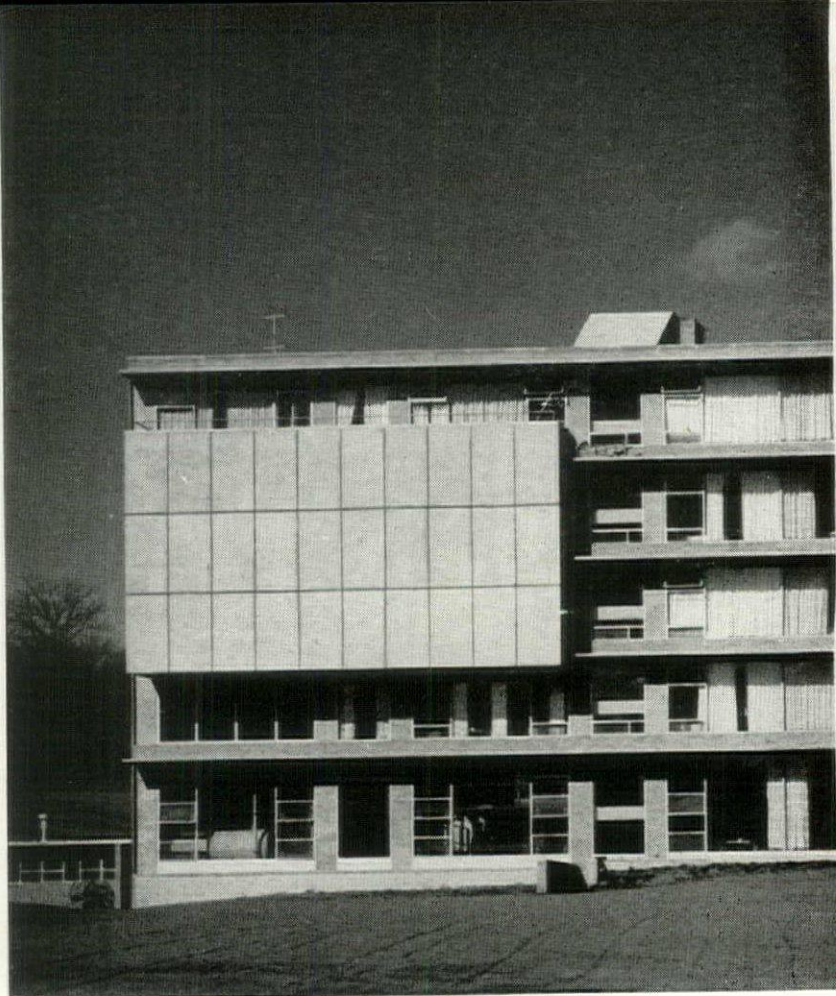
The central medical core serves both the doctors' and the nursing wings. Note as you "walk through" how nicely the buildings are linked horizontally. For instance, blood bank, pathology, sterile supply, surgery and surgical beds are all within 100'.

Everyone "knew" the big medical core was built with an eye to the future. But four months after the opening there is already a problem of short space. Facilities are getting more use from ambulant than from bed patients, which means that more people

in Hunterdon are being kept well or diagnosed early in their disease.

The auditorium near the community entrance is used for everything from staff lectures to a League of Women Voters rally on health legislation. When all-day seminars are held (for instance, the high school teachers' session on adolescent emotional problems), the big lecture group is broken into classes in the medical library, staff room, convalescent lounge (on the nursing wing second floor, not shown), the cafeteria and the stage end of the auditorium—calculated from the beginning as five auxiliary classrooms. The center has now begun inviting all local organizations to hold one yearly meeting at the center (eat in the cafeteria, meet in the auditorium, wind up at the screening U) as one more way of emphasizing that this medical center is interested in well people and in keeping them well.

Hunterdon has gone all out to integrate health and hospital activities. The Public Health Assn. (TB, cancer and crippled children's work) is quartered in the medical core portion of the community floor. There is already a dental program for children, supported by county, state and parent-teacher funds, in the center's dental clinic. The public health and school nurses have seminars and case conferences across the hall. If and when Hunterdon gets a county health department (at present it has 26 lay boards of health), this area can become official headquarters with no structural changes.



Never underestimate the power of a building to symbolize a purpose

The first two specialists appointed to the center—a year before its completion last summer—were the psychiatrist and pediatrician. They moved into uninspiring temporary offices on Flemington's main street and got to work on a mental health program (now probably this nation's No. 1 medical problem).

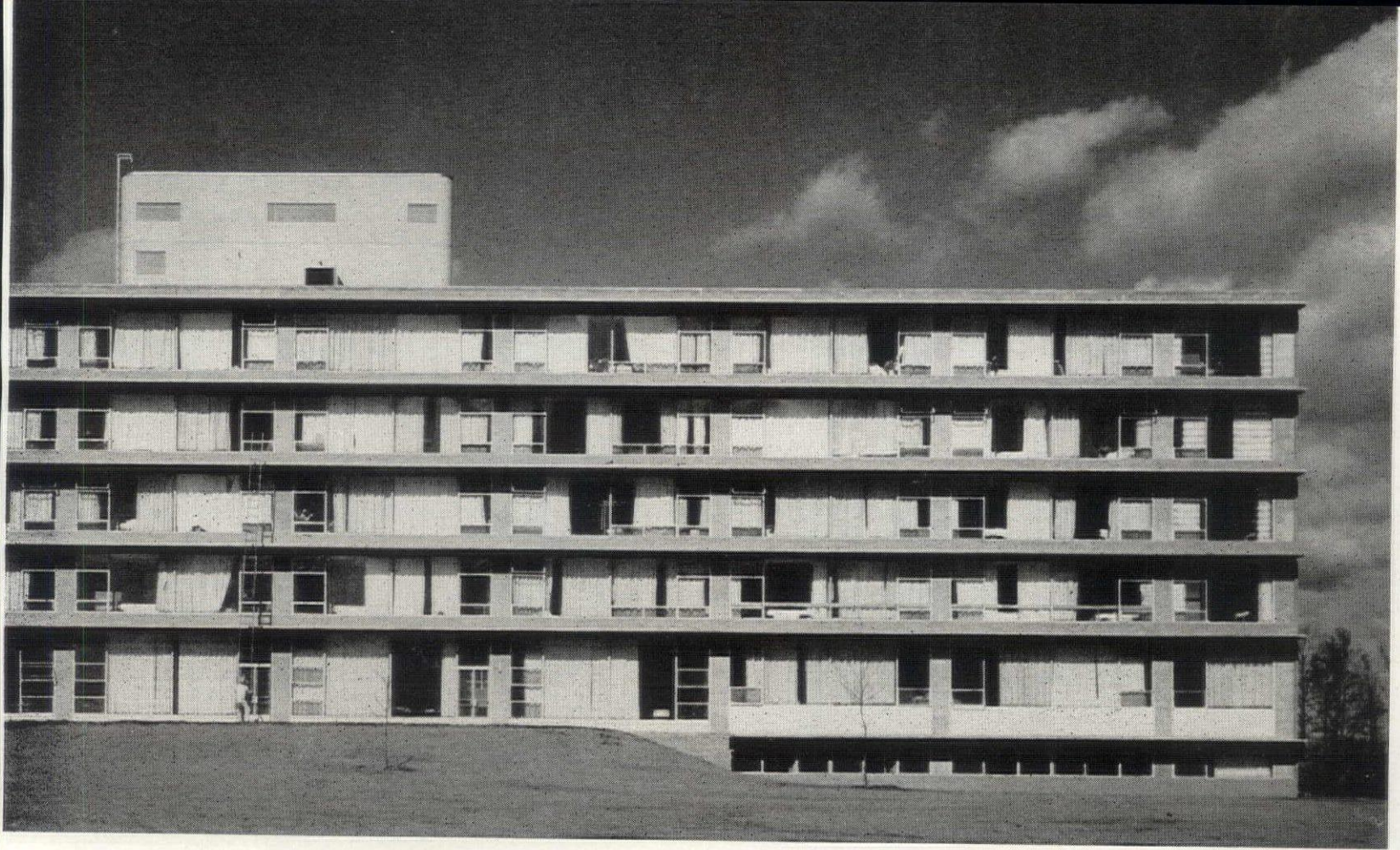
It was hard sledding. Community understanding and cooperation were slow, as they likely would be anywhere.

But as soon as the two men moved into the new hospital, their work became easier. Seminars for school teachers, for ministers, for parent groups suddenly flourished. More patients in early stages of trouble began to be referred to the center. Hunterdon now has under way one of the most complete community mental-health programs in the US.

Everyone concerned credits the building itself with helping to win the cooperation and enthusiasm vital to such a program. This building, it seems, has become a tremendously powerful symbol of community achievement and pride.

And no wonder. Money and backing for a first study came from the democratic County Board of Agriculture, widest local representative body. Building money (raised without benefit of professionals) was given by every group from garden clubs to the Anti-Horse Thief Society and by more than 9,000 of the county's 11,000-odd families. Many with no savings pledged payroll or milk-money deductions for three years; it was a commonplace to forego a new car or house repairs ("with four small children we know a medical center is more important"). There were 1,000 volunteer fund solicitors. Every soul in Hunterdon was in on the campaign strategy—and on the planning ideas and the philosophy behind them—from beginning to end. The moral of all this seems to be: the higher the sights, the more people care.





Nursing wing's cantilevered surgery-delivery block also provides a balcony for interns' rooms above. Markings on block are grooves painted dark gray. Framing is reinforced concrete with flat plate slabs; walls are warm yellow brick backed with 4" block.



Lobby of nursing wing, as viewed from snack bar. Lobby, cafeteria, dayrooms and 90% of nursing beds share southern view across open country.

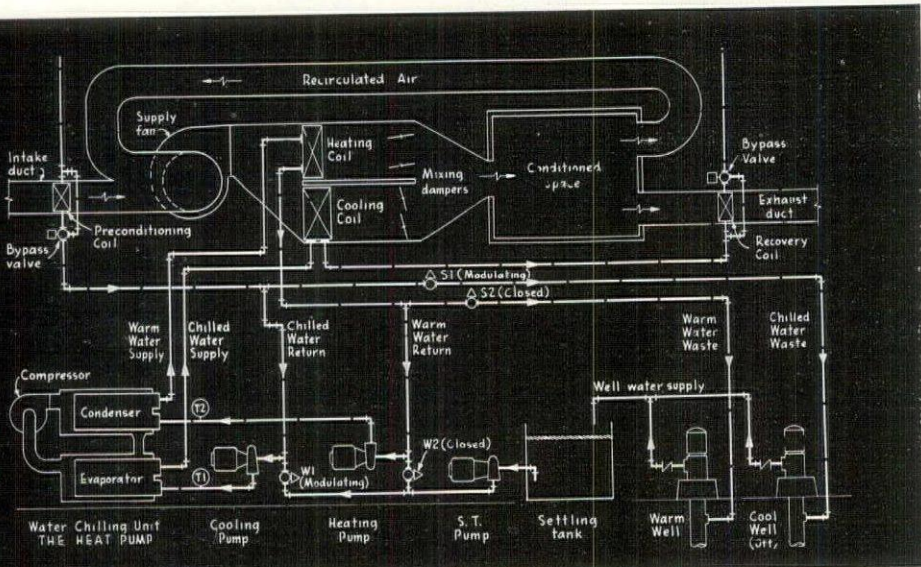


Murals in pediatrics rooms were done by local artists. Pediatrics and convalescent units are on second floor of nursing wing.

Construction cost: \$2,220,333 including fees and Group I equipment (\$727,000 Hill-Burton contribution). Because nonnursing facilities are so highly developed, per-bed cost of \$20,951 is meaningless as cost-comparison figure. Economical \$19.50 per sq. ft. is truer measure.

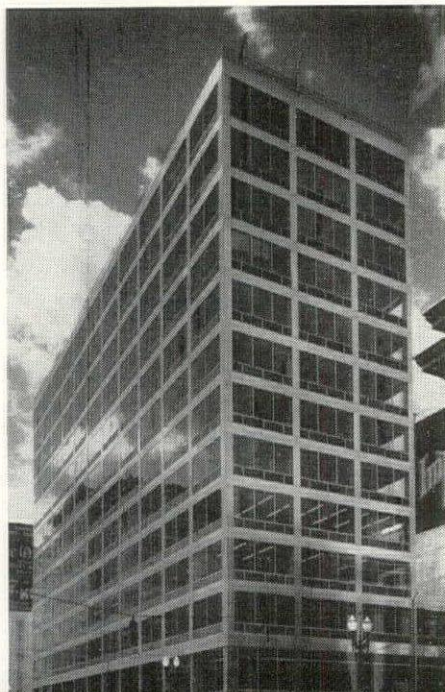
BUILDING ENGINEERING

1. Heat pump operating costs
2. New concreting techniques
3. Structural aluminum for air conditioning penthouse
4. Three wide-span framing methods
5. Brief notes on four other engineering developments

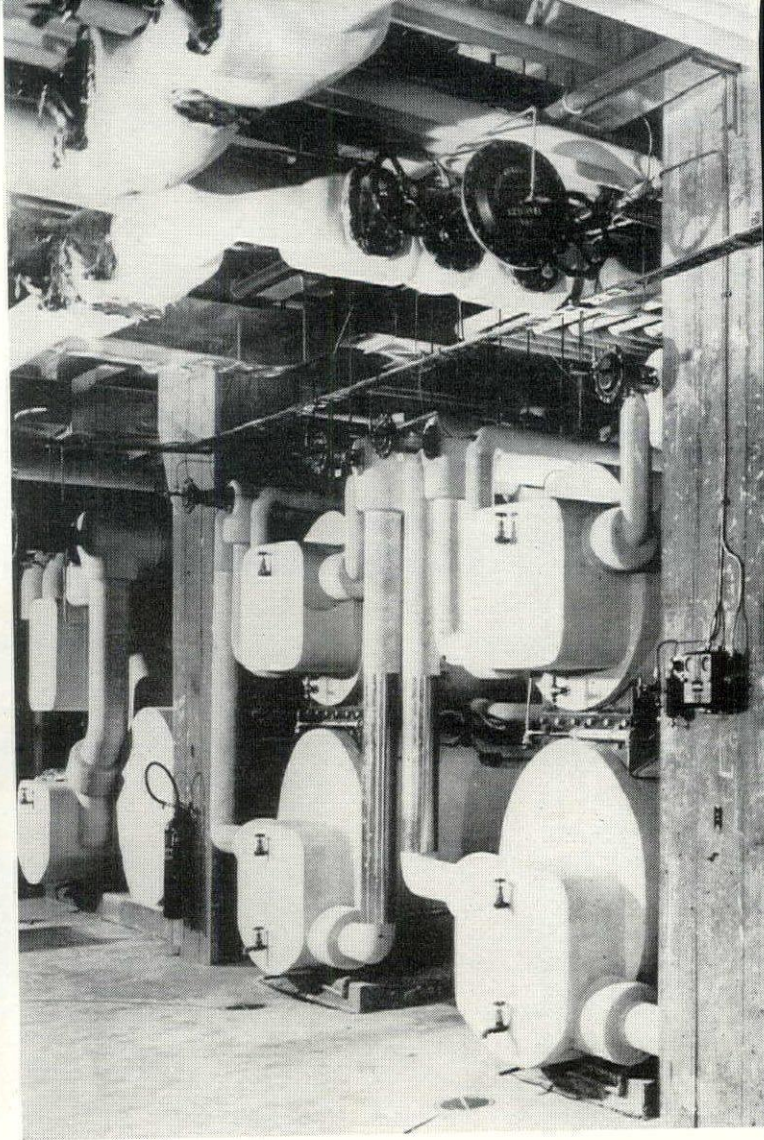


Simplified flow diagram shows automatic valves set for winter operation. Heat from warm well for water is extracted at evaporator, transferred to separate warm-water supply via condenser, then delivered to heating coils. Simultaneously, chilled water from evaporator handles interior zone cooling. Then, with heat absorbed at cooling coil and heat salvaged from exhaust air, this water preheats outside air at intake duct—60% of heating load for free!

Equitable tower, designed by Architect Pietro Belluschi, boasts reinforced concrete skeleton, curtain walls, 36,700 sq. ft. of heat-absorbing double glazing, 212,000 sq. ft. gross area, 148,700 sq. ft. net rentable, and pioneering heat pump. (AF, Sept. '48.)



Roger Sturtevant



1. HEAT PUMP CUTS COST OF RUNNING FAMED BUILDING

After five years' experience, engineers of Portland's Equitable Building report heat pump operating costs: 11.3¢ per sq. ft., or about half the annual cost of conventional heating and cooling

Here is the first detailed operating report on the big five-year-old heat pump in the Equitable Savings & Loan Building in Portland, Ore. Based on a typical year of operation (1952-53), annual running costs break down this way:

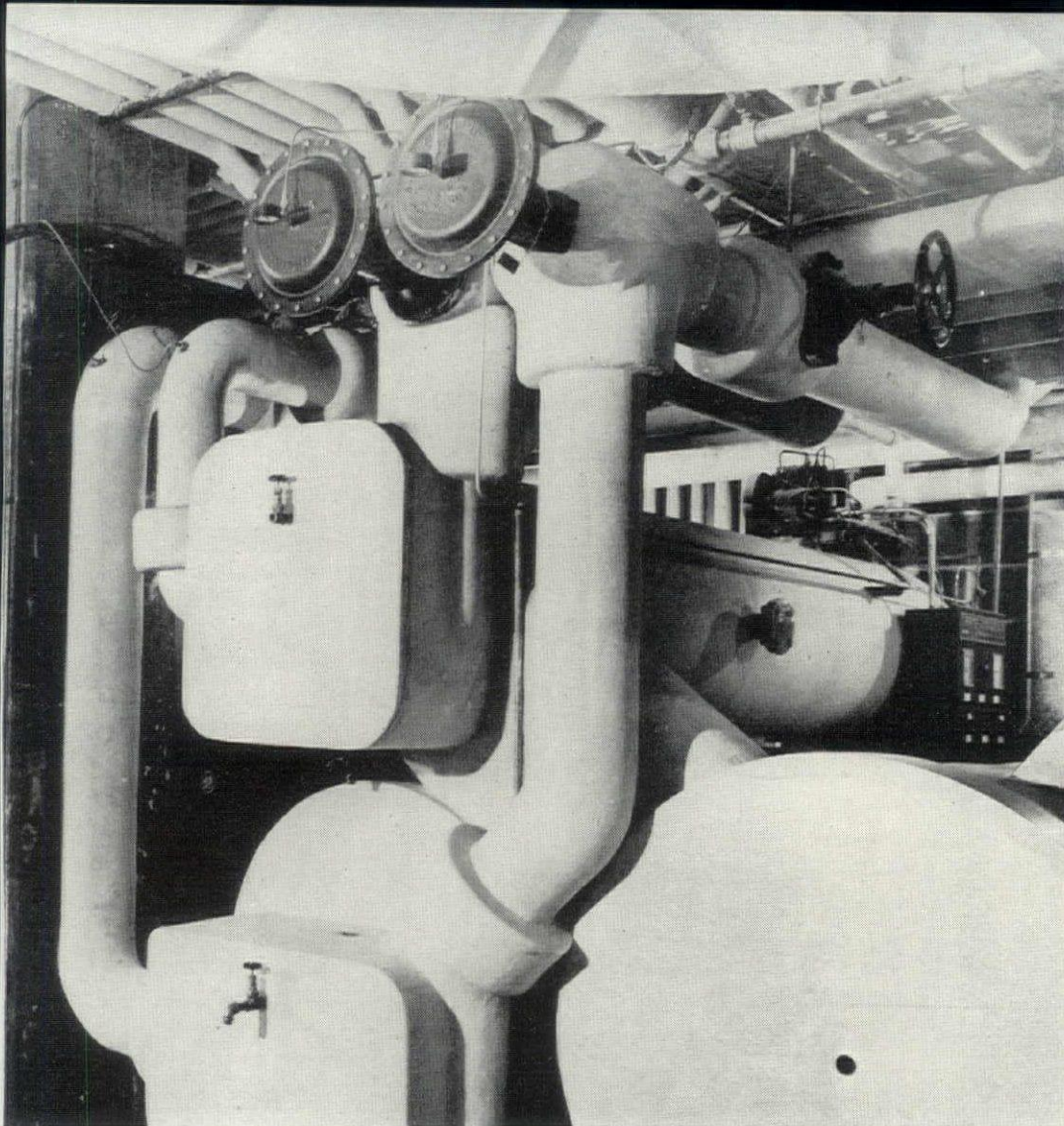
- ▶ Heating costs are a slim 2.1¢ per sq. ft. of net rentable area—less than one-third the average cost of 7.74¢ per sq. ft. for conventional heating in five representative Portland buildings. (These figures include labor and maintenance charges, but exclude annual depreciation.)
- ▶ Cooling costs are only 9.2¢ a sq. ft. vs. a US average for air-conditioned office space of 16.9¢. (Portland has no comparable air-conditioned buildings.)
- ▶ Heating and cooling costs combined (11.3¢ per sq. ft.) are less than half the 27.3¢ average for all air-conditioned US office buildings. Yet, this building has much more glass and much thinner walls than most.
- ▶ Total electrical cost for heating is a

mere \$774 per year. By comparison, oil heat in this 12-story glass-sheathed structure would have meant an estimated fuel bill of \$3,430; district steam would have cost \$4,930—more than six times as much as the heat pump!

Source of these striking cost figures is a new report* by Consulting Engineer J. Donald Kroeker and his associate, Ray C. Chewning, which concludes that a year-round heat pump "can save thousands of dollars a year compared with a conventional heating-cooling system in a building as big as Equitable's."

Kroeker engineered Equitable's heat-pump system in 1948 when it was installed at a total first cost of \$722,000. This was \$22,000 under the lowest estimate for conventional year-round air conditioning. Details of the system, which relies on well water at two different temperatures for its heating and cooling cycles, are diagrammed above.

* To be presented next month at the annual meeting of the American Society of Heating & Ventilating Engineers.



The Trane Co.

Electrical power drives these four centrifugal compressors which provide both heating and cooling. No boilers, chimney or auxiliary heat are needed. Compressors, totaling 540 tons of refrigeration capacity, extract heat from well water for heating, reject heat to well water for cooling.

Monthly electric costs

	Heating	Cooling	Total
May '52	\$ 6	\$ 522	\$ 528
June .....	..	533	533
July .....	..	769	769
Aug. ....	..	739	739
Sept. ....	..	697	693
Oct.	2	571	573
Nov.	93	318	411
Dec.	195	224	418
Jan. '53	148	217	365
Feb.	185	268	453
Mar.	92	374	466
Apr.	53	470	523
Total	\$774	\$5,702	\$6,476
Per sq. ft. of rentable area	\$0.52	\$3.85	\$4.37

Power bills are based on rate of 0.33¢ per kw-hr, Portland's lowest block, plus monthly "demand" charge of \$1.10 (total equipment kilowatts in use at peak half-hour of each month). Of \$6,476 total above, only \$2,968 (46%) is for actual electricity used; \$3,508 is demand charge for year. Thus heat-pump use depends as much on local demand rates as on electricity used.

Total annual operating costs

	Heating	Cooling	Total
Heating electricity	\$ 774	....	\$ 774 (4.6%)
Cooling "	....	\$ 5,702	5,702 (33.9%)
Fan "	162	1,962	2,123 (12.6%)
Operators	1,790	5,370	7,160 (42.5%)
Maintenance	135	544	680 (4.0%)
Water treatment	400	....	400 (2.4%)
Total	\$3,261	\$13,578	\$16,839 (100%)
Per sq. ft. of rentable area	\$0.021	\$0.092	\$0.113

Biggest operating cost is salaries (42.5%). Half of annual pay for Equitable's chief engineer and two assistants is charged to heat-pump operation. Table excludes amortization of first cost.

Heat pump vs. steam and oil

	Heating	Cooling	Total
Heat pump	\$774 (100%)	\$5,702	\$6,476
District steam ...	4,930 (638%)	5,702	10,632
No. 5 fuel oil ...	3,430 (444%)	5,702	9,132
Estimated 1952-53 operating costs compare heat pump with steam and oil used for heating only. In summer, heat pump is like conventional air conditioning so cooling costs are considered the same regardless of heating method. Costs are based on cheap Portland steam at 85¢ per 1,000 lb., oil at \$2.71 per bbl. (6½¢ per gal.).			

Free heat. Chief reason for the heat pump's operating economy is the fact that the inside zone of an office building needs cooling right through the winter. Even when Portland's temperature drops to 10°, the Equitable Building's big heat load from people and lights demands about 120 tons of refrigeration—almost 20% of the top summer load. Significantly, this cooling requirement coincides with the need for heat in the exterior zone of each floor.

Unlike the usual air-conditioning system, the heat pump uses one refrigeration plant to supply both heating and cooling. Heat extracted from an inside zone is not wasted; it is used to handle much of the heating load in an outside zone. (Balance of the heat is generated by electricity through the heat pump's reverse cycle.)

Engineer Kroeker has so fully exploited this "free" heat that last winter it contributed about 60% of the entire winter load. In other words, Equitable's owners pay for only 40% of the heat they get. The heat pump supplies the rest free.

Well water. Another reason for the high efficiency of Equitable's heat pump is that the system takes advantage of ground water of different temperatures from different wells. From one it gets 63°-65° water, which is relatively warm for heating, and from another it gets 57° water, which is relatively cold for cooling. (This

57° water is about 15% more efficient than cooling-tower water.) The wells also do double duty as sinks; after "warm" water from the heating well gives up its heat (i.e., is cooled), it drains down into the cooling well and vice versa.

Aside from the use of well water, the heat pump in its summer cycle is no different from most big air-conditioning systems; it uses the same standard compressors and other equipment. Summer operation of the heat pump is therefore nothing new; it is the winter operation that puts the heat pump to the test.

Cost comparison. Despite the fact that Equitable's operating figures are favored by cheap Northwest power, Kroeker believes similar systems will pay off elsewhere. For example, he has calculated Equitable's heat-pump operating record on the basis of costs in five other cities taken at random (Chicago, Minneapolis, St. Louis, Seattle and San Francisco), and he found that while their electrical rates are higher, their prices for district steam vs. cheap Portland steam are even higher. Thus in these cities, the heat pump widens its lead over district steam—a good comparison because neither the heat pump nor a district steam system requires a chimney and boiler room.

Compared with an oil-fired steam system, the heat pump comes off equally

well. As shown in the table (p. 137), if Equitable had used oil last year, it would have cost \$3,430. If the electricity used by the heat pump for heating had been based on Minneapolis' power rate, highest of the five other cities, the power bill would have been only \$1,963—about half the cost of oil.* Engineers Kroeker and Chewing therefore conclude "use of a similar heat pump would appear more favorable in these cities than in Portland."

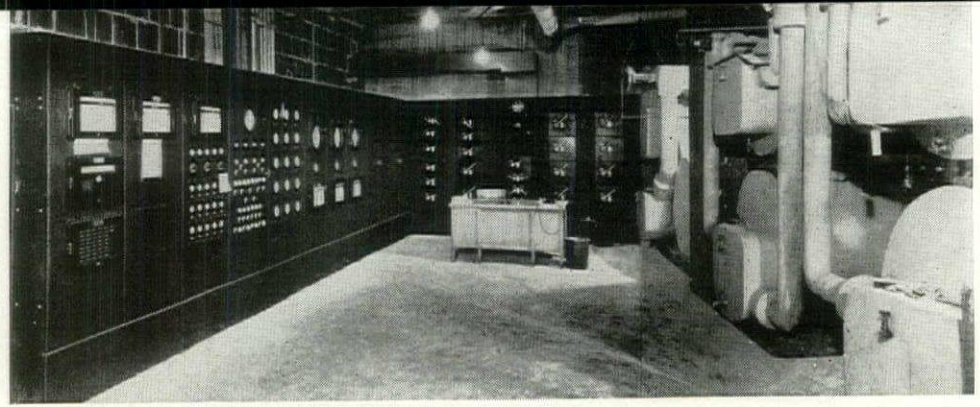
Energy vs. "demand." Less than half—46%—of the heat pump's annual power bill goes for actual electrical energy used; 54% is the "demand" charge—a cost item based on the top amount of electricity used by all electrical devices in a building at the busiest time of the month. It helps pay the utility company for the stand-by generators needed to handle these power peaks. Although electrical energy is cheap in Portland, the demand charge is a flat \$1.10 per kw—roughly competitive with rates in other cities. This condition has forced the heat-pump operating engineer to avoid adding further to the peaks.

The peaks and valleys of electrical energy consumption in an office building and, in turn, the operating costs of a heat pump, are influenced sharply by the habits of building tenants. In the Equitable Building electrical demand, exclusive of the heat pump, peaks each day at about 11 A.M., 1 P.M. and 4 P.M. The first and third peaks are due to heavy elevator traffic generated by people going out for coffee. The 1 P.M. peak is also caused by elevator traffic to and from lunch. The highest of these peaks sets the scale for the over-all monthly power bill for the entire building. To keep the heat pump from forcing these peaks (and costs) higher, its operation is avoided at such times.

Overnight operation. In winter Equitable's operating engineer lets the heat pump run overnight to keep the chill off the building. There is therefore no start-up "shock" between 9 and 11 A.M., which would pull peak power simultaneously with the rest of the building. Similarly, in summer the compressors are often run at night so that the building will store up cooling to help it over air-conditioning peaks the next day.

Engineer Kroeker recommends that recording demand meters be installed as part of any big heat-pump installation. These pay for themselves in the Equitable Building by helping the operating engineers stagger use of the heat pump between the peak electrical requirements of the rest of the building equipment.

*Minneapolis, however, does have cheap natural gas for heating and absorption-type cooling.

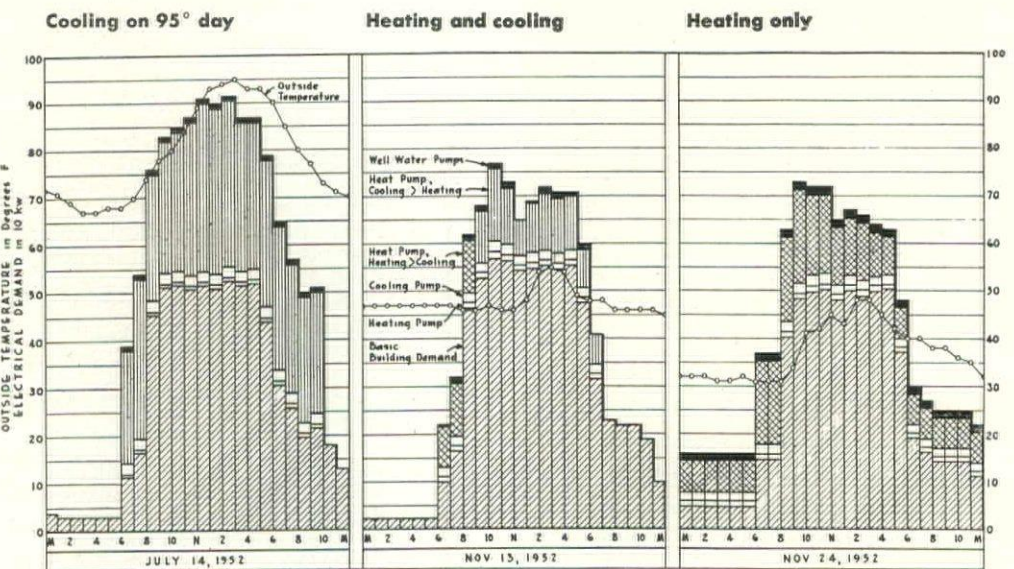
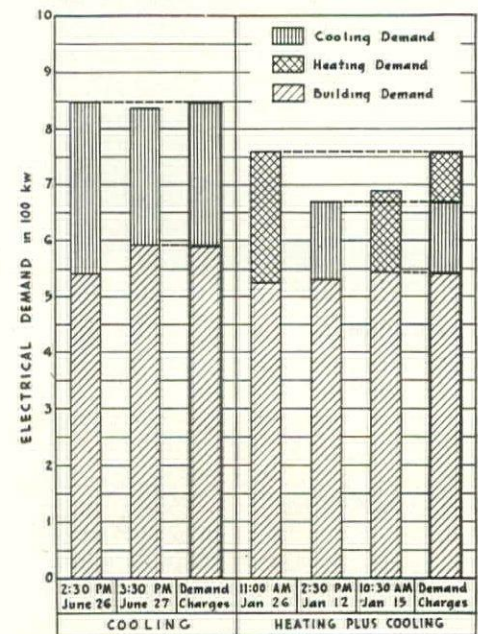


The Trane Co.

Electrical "demand" charge is the key to heat-pump operating costs

Peak electricity used during two months.

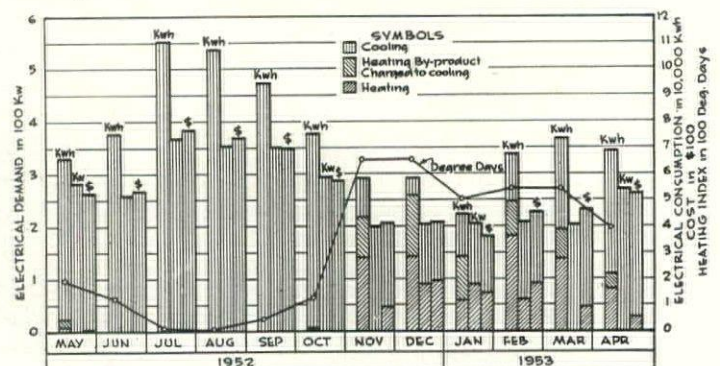
First bar shows when top power load was pulled by entire building in June—32% of it for cooling. Second bar: cooling aside, when peak power was drawn by other building equipment. Thus top of third bar is monthly demand chargeable to cooling. Similarly, second chart shows when peak January electricity was used for heating, cooling and other building equipment. Last bar shows that monthly demand chargeable to heating is difference between first and second bars—only a 14% greater electrical demand than in a comparable air-conditioned building not using a heat pump!



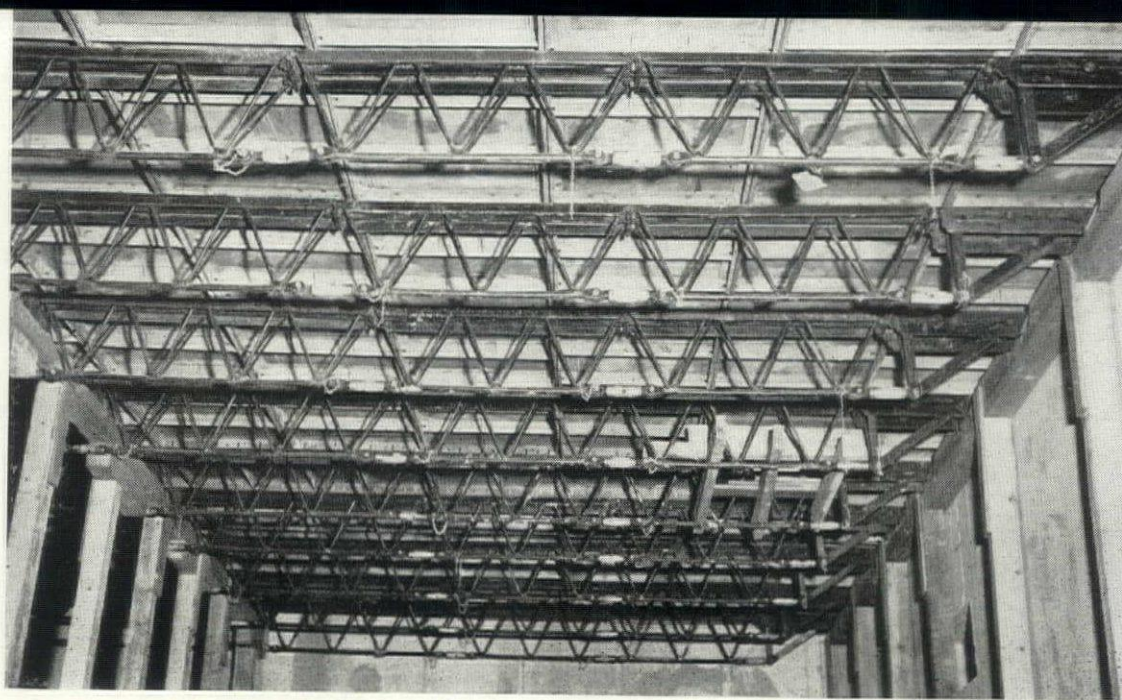
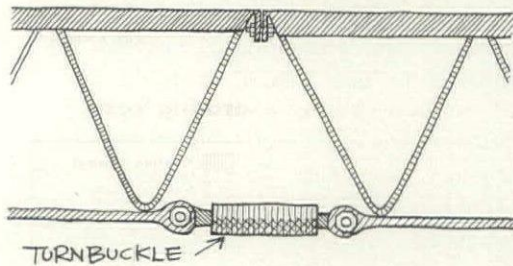
Electrical demand three selected days. Demand for cooling is shown for July when outside temperature climbed to 95° F. At 2 P.M. cooling took 43% of all power. Nov. 13, second chart, was overcast in morning, partly sunny afternoon; chart shows the switch from heating to cooling. Peak cooling demand for whole month was at 10 to 11 A.M. Last chart covers an overcast day when all heat-pump electricity is used for heating.

Monthly electrical costs.

Annual summary shows how heat-pump operating cost follows kilowatt demand peaks more closely than it follows actual power used. Note amount of cooling required through winter months, not unusual in office buildings.



Light temporary joists spanning 12' between supports carry 12" concrete ceiling slab during casting to eliminate dozens of props. Prefabricated joists are assembled on ground and given upward camber by tightening turnbuckles.



Snyder

2. NEW CONCRETING TECHNIQUES

Flexible formwork and high-bond reinforcing steel promise economies

The ballistics laboratory at the Aberdeen Proving Ground, Md. demonstrates two new developments in concrete construction: 1) a way to halve shoring costs with prefabricated steel joists that are light, durable and flexible enough to fit beneath any kind of cast-in-place concrete; 2) a way to save up to 30% reinforcing steel with ribbed bars that are cold-worked to 60,000 psi yield strength and twisted in a "dumbbell" section to improve mechanical bond.

Lightweight, lattice steel joists of triangular cross-section support 15,000 sq. ft. of concrete slab ceilings during casting. Conventional timber shoring would have cost 36¢ per sq. ft. (assuming no salvage); these quickly erected, adjustable joists cost only 17½¢ per sq. ft. (based on only ten reuses although over 100 reuses are regularly achieved in Germany, where this system originated).

Weighing only 12 lb. per ft. run, these erector-set joists, spaced 30" o.c., will carry 175 psf on a 12' span, or 25 psf on a 24' span. They consist of 2', 3' and 4' sections plus end sections that permit from 20" to 33" of fine adjustment, thus allowing the

joists to be adapted to any span. Before placing, the lower chord of each joist is tightened by turnbuckles, giving an upward camber (in effect a prestress) of up to 2".

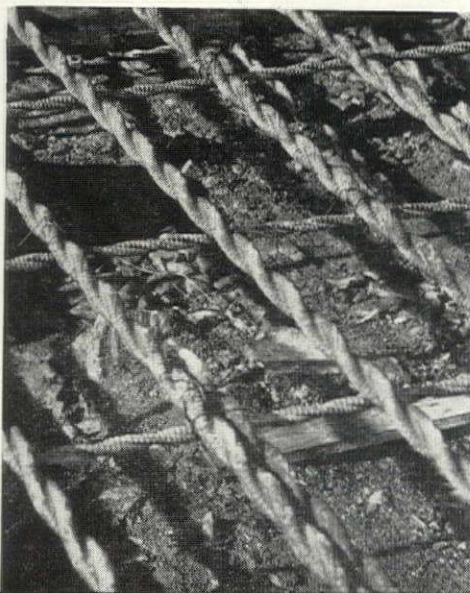
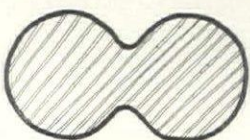
At the ballistics laboratory, these joists support 24' ceiling slabs with the aid of only a single line of props at midspan. The 12" ceiling, extra solid against possible explosion hazards, is cast on plywood forms laid on the joists' 6"-wide top flanges.

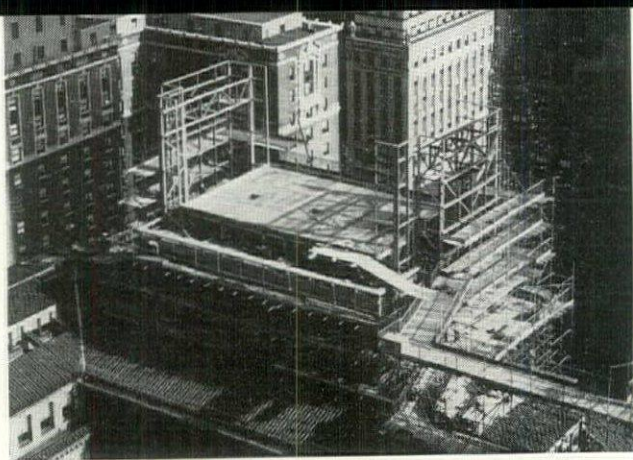
Two men and a crane operator put up 4,600 sq. ft. of this formwork in eight hours for an erection cost of only 2¢ per sq. ft. Stripping took somewhat longer, cost 3¢ per sq. ft. The system is highly flexible and has been successfully used to cast arches and tunnels by roughly fitting joist segments to the required outline and adding timber fillers to round out the curve.

Double-twisted reinforcing steel is used in all beams and slabs of the laboratory, saving an estimated 30% steel over conventional reinforcing. This high-bond steel is made by rolling a homogeneous ribbed bar in a dumbbell section, then twisting it by a cold-working process that increases the minimum yield strength of the steel to 60,000 psi. Less reinforcing steel is required in the structure because 1) the double-twisted shape gives twice the bearing area between steel and concrete, and 2) the high strength of the cold-worked metal permits it to be used at working stresses of 30,000 psi in tension and 20,000 psi in compression (though not yet permitted by all building codes).

Detailed figures are not available on the ballistics building, but these twisted bars saved 30% in reinforcing steel at a sewage treatment plant at McGuire Air Force Base, N.J., where Whitman Requardt & Associates report that they used only 208,536 lb. of twisted bars but would have required 296,536 lb. of conventional reinforcing steel, a saving of 29½%. Since the double-twisted bars average 8¢ per lb. vs. 6½¢ per lb. for conventional reinforcing, the dollar saving is \$2,590, or 13½%.

High-strength reinforcing steel is shaped in fabricator's shop (above) for placing in main beams of ballistics laboratory. Typical floor slab under construction is shown at right. Steel is rolled in a dumbbell section (below) then twisted while held in clamps to resist shortening. This cold-working process raises yield strength of steel. Laboratory was designed by Architect Ralph M. Parsons; Webril Steel Co. engineered both prefabricated joists and double-twisted steel.





Three-story aluminum frame goes up atop Manhattan's Continental Can Building

3. ALUMINUM STRUCTURE FOR NEW AIR-CONDITIONING SYSTEM

All-aluminum penthouse atop skyscraper carries equipment for unique reheat air-conditioning system designed to use 100% outside air

Subway tracks beneath Manhattan's old 27-story Continental Can Building forced all the new air-conditioning equipment to go on the roof. Weight reduction was therefore very important. The two-way solution:

1. three-story all-aluminum cooling tower whose bolted structure weighs only 22 tons vs. 61 tons for an equivalent steel frame;
2. lightweight 600-ton lithium bromide steam-absorption unit whose 50-ton weight is 40% less than a regular compression or centrifugal unit and takes up 10% less space (the equipment covers 1,000 sq. ft. on the top floor plus 400 to 500 sq. ft. fan rooms on each floor).

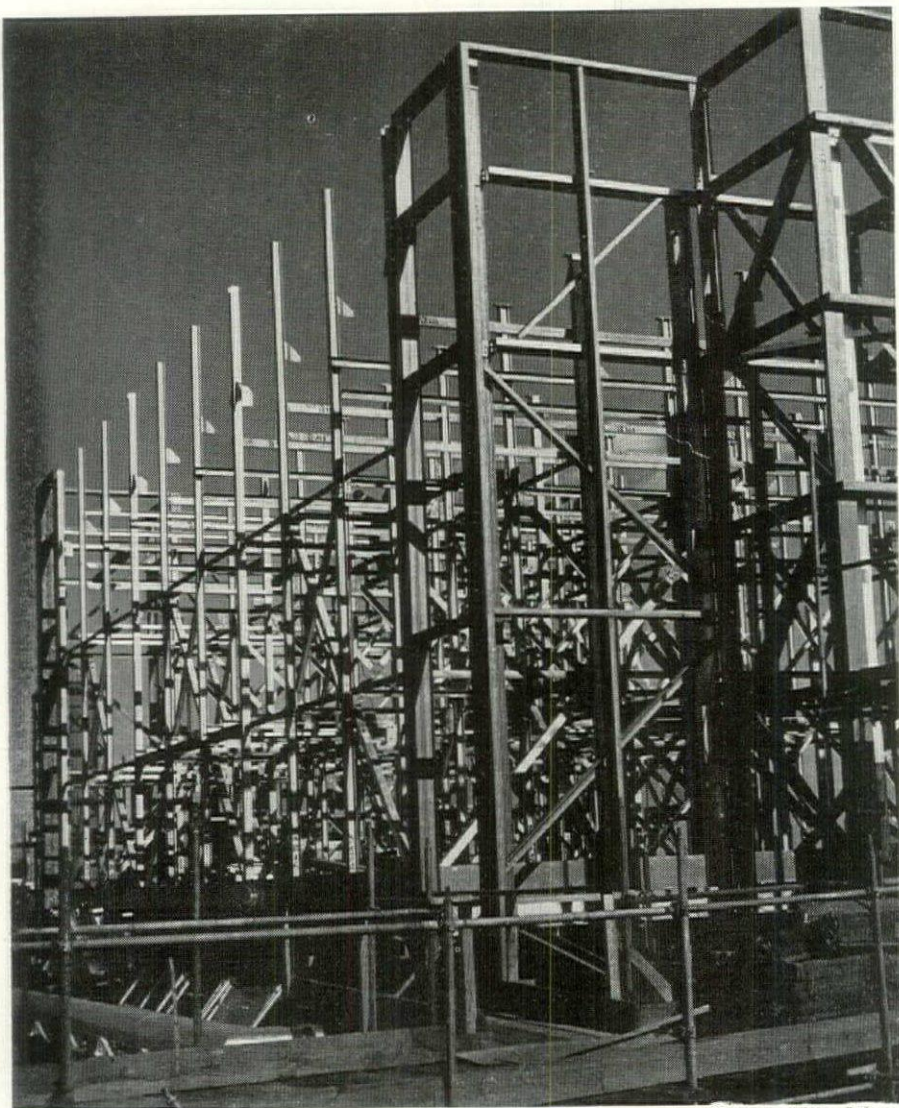
Lightweight cooling tower

The aluminum cooling tower rises above the 27th floor, where the air-conditioning equipment and the aluminum structure of the tower are mounted on the existing steel of the building. All tower walls, including those of the rebuilt 27th floor, are 18-ga. aluminum panels bolted to the aluminum frame. Framing members made of 61-T6 aluminum alloy (working stress 15,000 psi) are connected with aluminum gusset plates, bolts and nuts. To eliminate galvanic corrosion, connections between aluminum and steel are made with nonconductive gaskets. Aluminum walls and framing in the cooling towers themselves are given a coal-tar coating to avoid corrosion of the aluminum by the alkali solutions passing continually through the redwood fill in the tower. Per pound of metal erected, the aluminum frame was four times the cost of an equivalent steel frame (\$1.98 vs. 48¢ per lb.); however, the steel would have been three times heavier (61 vs. 22 tons), more than the building could support.

Economical reheat air conditioning

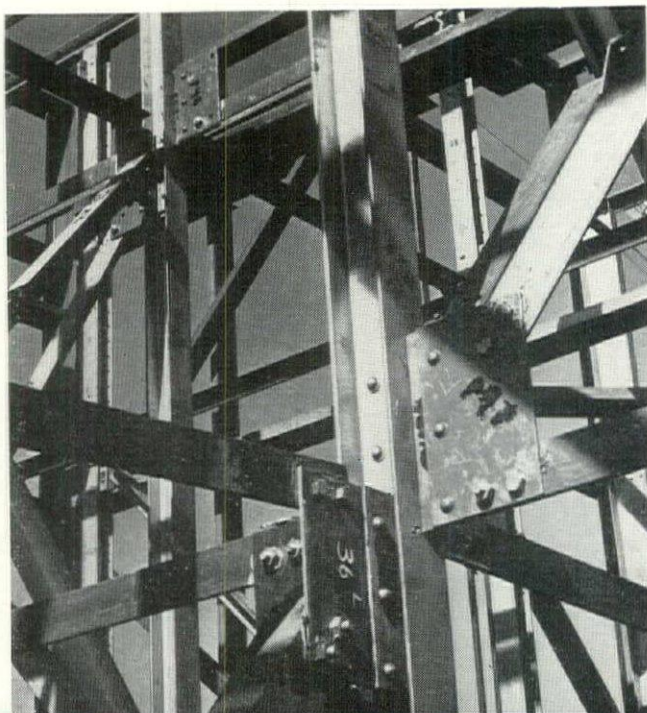
As well as using the first aluminum-framed structure in New York, Continental Can's air-conditioning system is the first major installation of a new type of reheat system designed to give optimum year-round temperature and humidity control with maximum use of outside air—up to 100% when the outside temperature is low enough to cool and ventilate the building without use of the cooling plant.

Each floor has a separate air-cooling



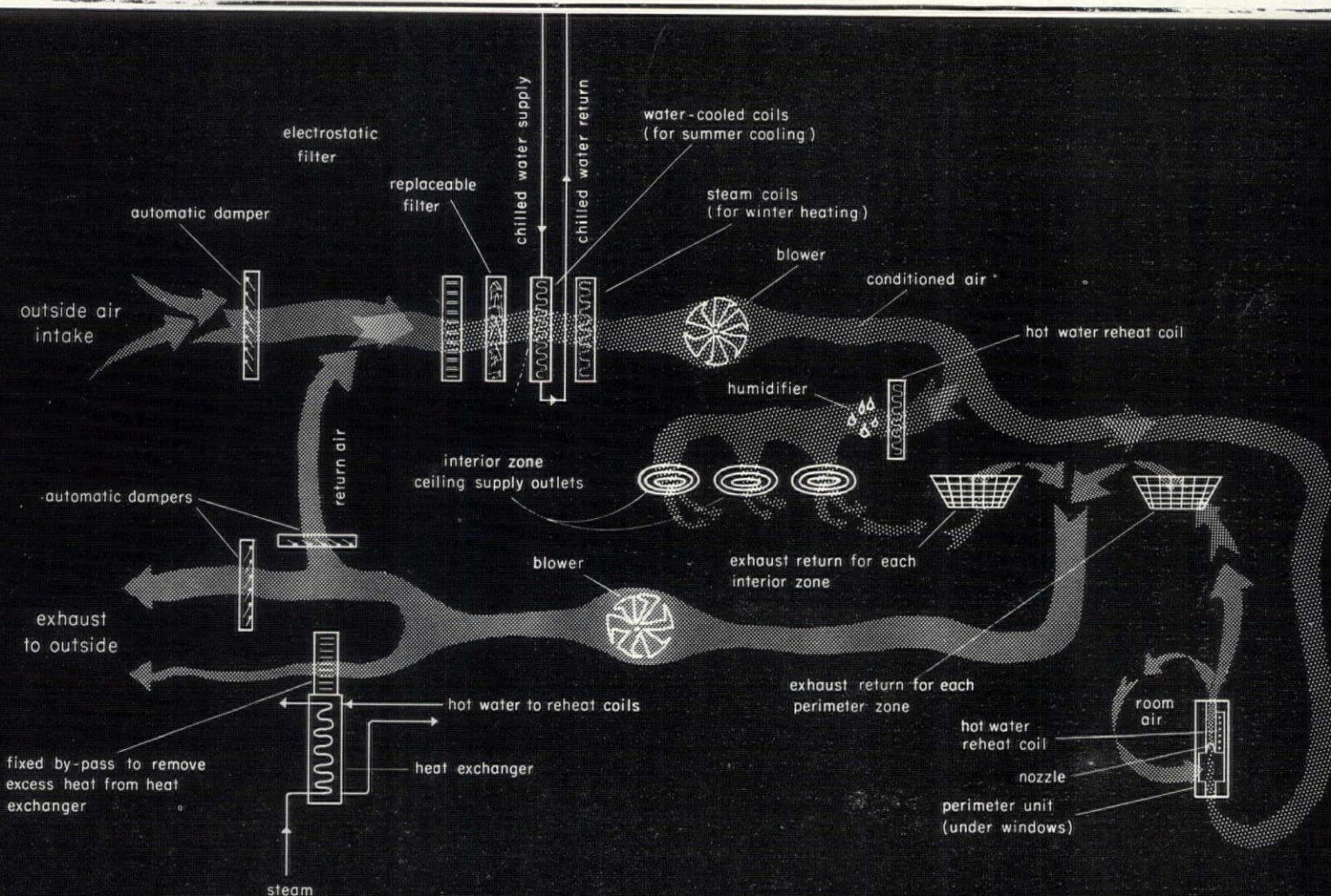
Photos: Jackson Pokress

Lightweight tower structure, above, weighs only 22 tons, is mounted on the old top floor steel of the 27-story building. Connections are made with high-strength aluminum bolts.





Space for three 600-ton cells is contained in this aluminum-clad tower. Only one cell is built so far since only nine stories (18th through 27th) are presently air-conditioned. Below, air circulation on typical floor.



system, drawing its chilled water from the penthouse plant and its heat from a new high-pressure steam line from the basement, which takes care of the absorption unit and generates hot water for the heating coils on each floor (see flow diagram). Outside air (plus an automatically controlled proportion of recirculated air) is drawn into a fan room on each floor, where it is cleaned (by electrostatic and dust-stop filters), cooled by chilled water coils to 55° F. saturated (summer cooling) or passed through steam coils (winter heating).

Positive humidity control

Conditioned air flows into two duct systems, one supplying the wall units of the perimeter offices, the other supplying the

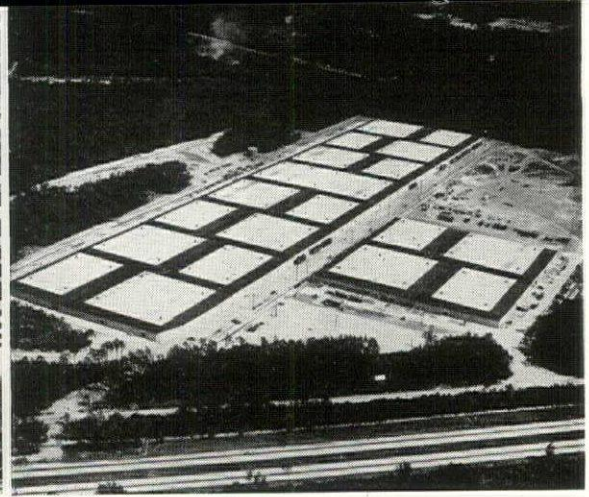
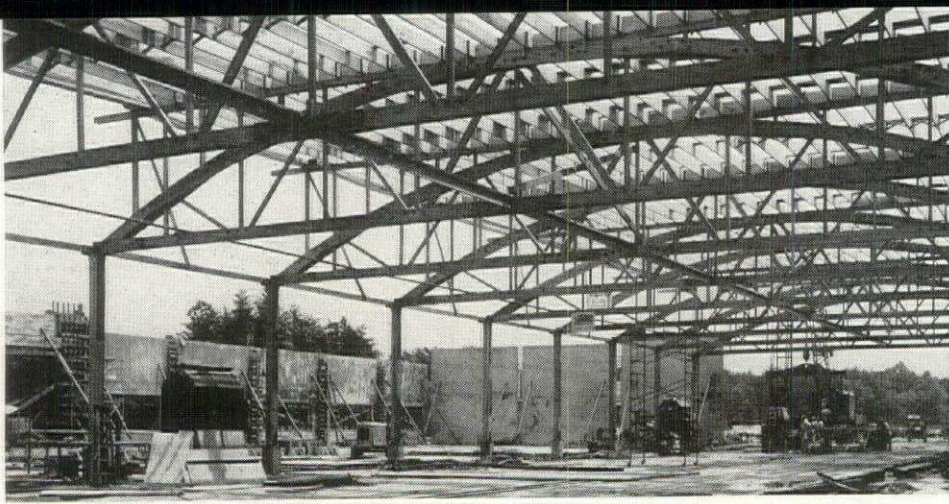
ceiling outlets of the interior zone. Each perimeter office contains under-window conditioning units where the saturated 55° air is reheated by hot-water coils as required, thus lowering relative humidity. A thermostat in each unit controls the flow of hot water to maintain offices at about 78° dry bulb and 40% relative humidity. For the interior duct system a hot-water reheat coil, with thermostat controls and a humidifier, is set in the fan room.

Both perimeter and interior zones are connected to a forced exhaust system with outlets and ducts in the hung ceiling. Automatic dampers at main-floor outlets control the proportion of air exhausted or returned to the fan room; this can vary from 25 to 100%, depending on outside air tempera-

ture, to relieve the load on the cooling plant.

Air conditioning was carried out one floor at a time. Occupants of this floor were removed to a vacant floor during the weeks required to install ducts and equipment. Installation cost of this year-round air-conditioning system was approximately \$6.50 per sq. ft. (exclusive of cooling tower and machine-room structure).

The system was conceived and designed by A. Urban Zimmerman, consulting engineer, working in close cooperation with Rogers Associates, office planners and designers. Architects York & Sawyer designed the aluminum penthouse; and the Water Cooling Equipment Co., the aluminum cooling tower.



4. WIDE-SPAN WAREHOUSE FRAMING

Prefabricated timber – 71' span bowstring trusses carry 28 acres of flat roof

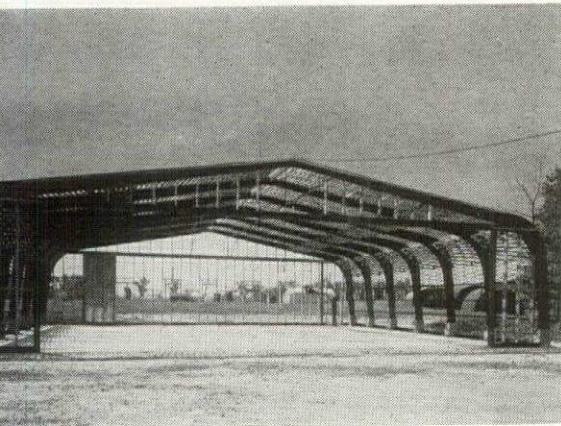
Tilt-up concrete walls and bolted trusses permitted speedy and low-cost erection of this huge Parr-Franconia warehouse near Washington, D.C. The first 500' x 500' unit went up in three months and the second 500' x 2,000' unit in eight months. Though cost figures are not available for this particular job, the same architects have built large warehouses of similar construction on the West Coast for \$3 per sq. ft.

Built for lease to the General Services Administration, the two buildings cover nearly 11¼ million sq. ft., contain 545 solid timber columns (20 supports to the acre) and 773 bowstring trusses (span 71'-3", 20' o.c.). These 2-ton trusses were prefabricated in Oregon, shipped knocked down to Virginia, where they were assembled with split-ring connectors and erected by an eight-man crew in only 30 minutes

per truss. Bowstring trusses are spanned with 2" x 12" joists raised atop short columns to give a flat roof (see photos).

The warehouse also uses 14,500 lin. ft. of tilt-up concrete walls, including 7,500 lin. ft. of fire walls that divide the warehouse into 19 storerooms. Wall panels are 6" thick, 20' wide, 26' high and weigh 20 tons. Architects: Ward & Bolles; roof construction by Timber Engineering Co.

Lamella trusses – stapled slats eliminate purlins, cut 62'-span cost to \$4.15 per sq. ft.



Lightweight lamella-framed roof sections, prefabricated in three-ply laminations of 1/16" oak, join 62' three-hinged timber arches in this Louisville, Ky. warehouse. The 3"-deep roof structure weighs under 1 psf, yet will support an ultimate load of 85 psf (AF, July '53). Framing costs of this 62' x 50' warehouse came to only \$2.12 per sq. ft.; total construction cost, including 6" concrete foundation slab and roofing, was only \$4.15 per sq. ft.

Each 8' x 8' roof section is made from 8' slabs, 3" wide, stapled together at alternate quarter points. Fully expanded and used instead of purlins between frames 8' o.c., the panel forms a 6" x 2' diamond pat-

tern in which each slat derives lateral support from its neighbors. Thus the entire panel has the rigidity of a two-way slab, yet unfolds from an 8' x 9" package for easy transportation. Erection is simple, too. Steel keys at the end of each pair of slats fit steel slots fastened to the framing bents, developing the full rigidity of the panel.

For comparison, two finishing techniques are used: 1) corrugated sheet aluminum nailed to lamella panels cost 66¢ per sq. ft.; 2) vinyl plastic (cocoon) sprayed over 1" wire mesh, cost 74¢ per sq. ft. In both cases the warehouse is lit by translucent glass-fiber skylights. It is engineered and fabricated by Gamble Bros.

Welded steel – 50 bays framed with lightweight joists, insulated for quick food freezing

A 1,300,000 cu. ft. refrigerator with a working temperature of minus 20° is the core of a third noteworthy warehouse. It is an interesting demonstration of highly insulated construction in a building used to quick-freeze 500 tons of foodstuffs every 24 hours for the Mid-South Refrigerator Warehouse Co. in Memphis, Tenn. Construction costs: \$10.40 per sq. ft., including 5,000 sq. ft. of air-conditioned offices.

The structure is framed with continuous cantilevered steel beams (welded atop col-

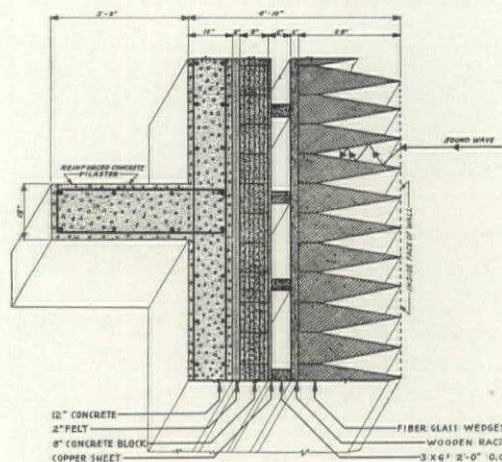
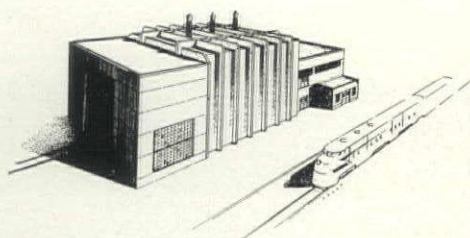
umns providing 50' x 50' bays) and long bar joists 8' o.c. To minimize heat loss each column frames down into a 4'-square steel grillage carried by a mat of dense cork mounted on conventional spread footings. Walls are of tilt-up concrete, 6" thick; roof deck, of 8' x 2' precast slabs.

The huge freezer is insulated with several thicknesses of glass-fiber insulation board, erected in 2' x 4' sections 2" thick. Roof insulation is 10" thick, is topped with built-up roofing and with white mar-

ble chips to deflect sun load. Wall insulation is 8" thick with a vapor barrier on the warm side of the insulation. The interior wall surface is finished with perforated hardboard panels mounted on treated timber studs. Floor insulation is also 8" thick, with 8" hollow tile set 8' o.c. in the gravel beneath the floor slab. The danger of frost heave is reduced by blowing hot air through these tiles as necessary.

The warehouse is designed by A. Epstein & Sons, Inc., architects and engineers.

5. ENGINEERING NOTES



"Soundproofing" for testing laboratory

Problem: to construct a sound-insulated workroom for the testing of General Electric transformers.

Solution: a 56' x 66', 49'-high concrete framed structure with $4\frac{1}{2}$ '-thick double walls guaranteed to smother even the noisiest noises. Wall construction layers (from outside in): 12" concrete, 2" felt, 8" concrete block, copper sheet (to keep out radio waves), an air space between 3" x 6" studs and a wooden rack carrying 28" deep fibrous glass wedges. The estimated sound-insulation value of this wall is better than 65 db. Floor and ceiling are of similar construction, except that in place of the 12" solid concrete section, there are two 6" layers of concrete separated by $\frac{1}{2}$ " compressed fibrous glass. A working floor is provided above the wedges by interlaced cables held in place by 400-lb. compression springs attached to the walls; thus movement of operating personnel will not affect the equipment under test, which is mounted upon rail tracks set in concrete.

The building is being erected for General Electric Co. at Pittsfield, Mass., at an estimated cost of \$71 per sq. ft. fully equipped, including adjacent control rooms, vestibule and power generators.

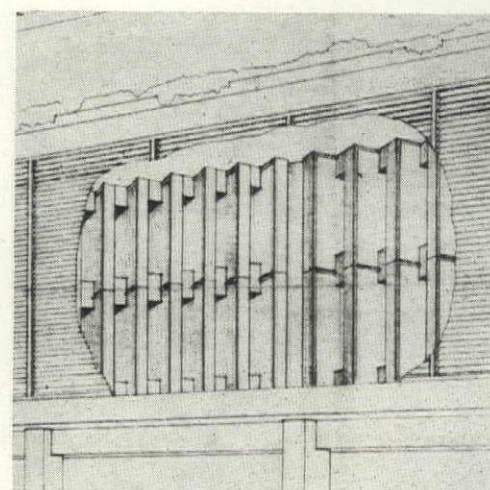
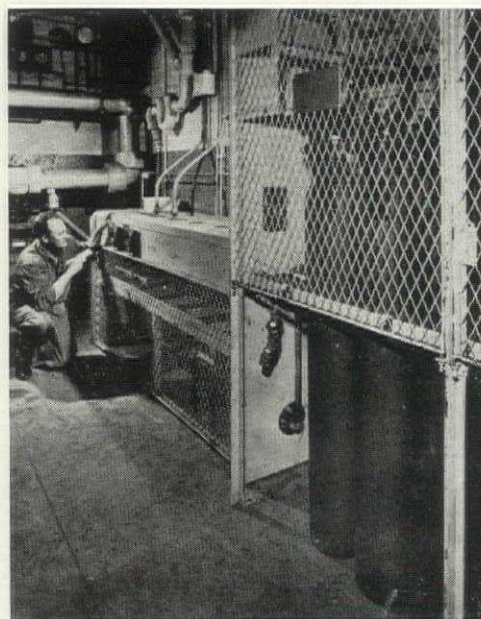
Architects and engineers: Chas. T. Main, Inc. Acoustical consultants: Bolt, Beranek & Newman.

Fire protection for electrical hazard

Problem: to fireproof the storage basement of an office building directly over the electrified railroad tracks near Grand Central Terminal in New York City. Water sprinklers cannot be used because the water would seep down to the electrified system and disrupt rail service.

Solution: carbon dioxide stored under pressure in an enclosed bank of 14 75-lb. cylinders connected to the 10,985 sq. ft. storage areas by 2" pipes. Incipient fires cause temperature detectors in the basement ceiling to release the carbon dioxide gas which smothers the fire. A 45-second time delay, complete with warning howler, is built into the system so that anyone in the basement has time to get out before discharge of the gas.

Photo, below, shows the carbon dioxide cylinders and control boxes, with pipes above them leading to the storage areas. Installed cost of the fire-protection system came to \$7,000; it was engineered by Walter Kidde & Co., Inc.



Noise reduction for air-intake louvers

Problem: to control the noise generated in supplying the vast quantity of air required by modern air conditioning. At the 24-story Lever House building in New York City seven giant blowers drive 200,000 cfm of air through 70' x 15' louvers on the second story facing 54th St. This generates considerable noise: 100 db. in the plenum chamber and an uncomfortable 75 db. at the apartments across the street.

Solution: this noise is reduced by a combination of acoustic panels and Helmholtz resonators installed in 4'-wide units in the plenum chamber. The acoustic panels consist of 8"-thick steel and glass-fiber sandwiches, with the steel facing perforated on one side to absorb up to 90% of the sound from the middle-frequency range on up. Low-frequency noise is controlled by the resonators, consisting of sheet-metal volumetric chambers in which noise vibrations of narrow frequency bands are neutralized by the mass reactance of a short column of enclosed air. These devices have successfully cut air-intake noises so that they can no longer be detected in the apartments. Costing \$12,740, the installation is designed by Industrial Acoustics Co.

CHURCH AISLE WIDTHS AND PEW SPACING

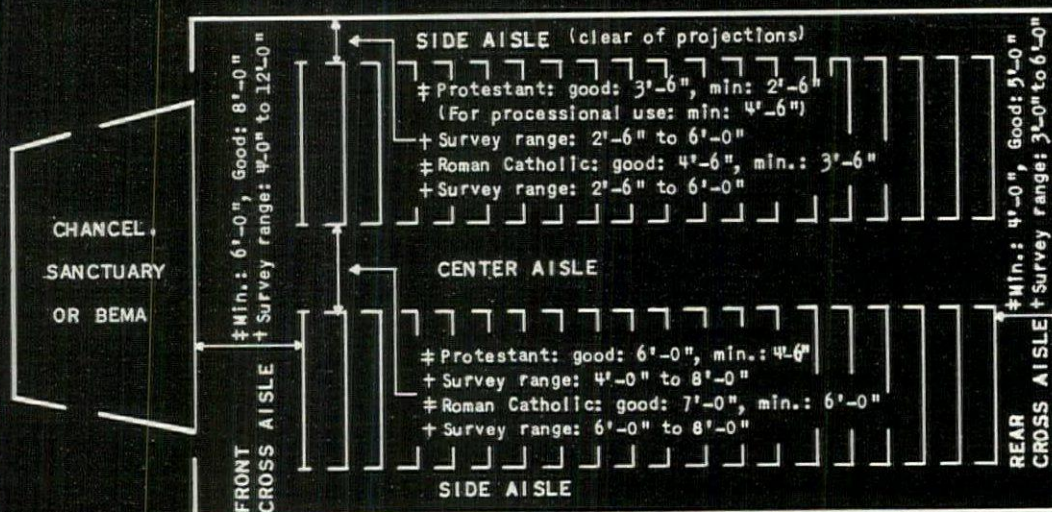
The following information is based on the results of an extensive survey conducted of church consultants, church architects and church building officials.

NOTE: See local codes for minimum aisle widths.
(N.Y. code: 3'-0" min. + 1/4" each 5'-0" in length).

Rear cross aisle may be omitted if Narthex (vestibule) is ample.

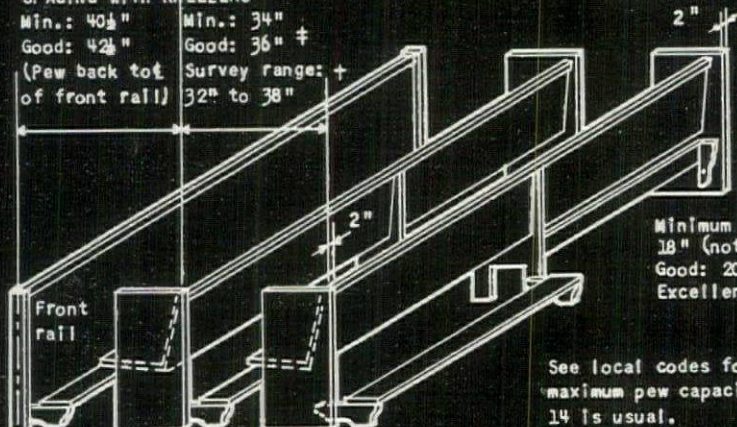
AISLE WIDTHS

(For medium size church:
500 to 750 seats)



SPACING WITH KNEELERS

Min.: 40 1/2" Min.: 34" +
Good: 42 1/2" Good: 36" +
(Pew back to front rail) Survey range: +
32" to 38"

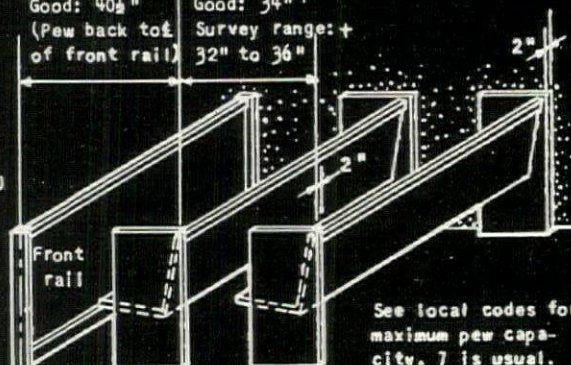


*LENGTH OF PEWS - DOUBLE ACCESS

PEW CAPACITY	18" SEAT WIDTH	20" SEAT WIDTH	22" SEAT WIDTH
8 Persons per pew	12'-4"	13'-8"	15'-0"
10 Persons per pew	15'-4"	17'-0"	18'-8"
12 Persons per pew	18'-4"	20'-4"	22'-4"
14 Persons per pew	21'-4"	23'-8"	26'-0"

SPACING WITHOUT KNEELERS

Min.: 38 1/2" Min.: 32" +
Good: 40 1/2" Good: 34" +
(Pew back to front rail) Survey range: +
32" to 36"

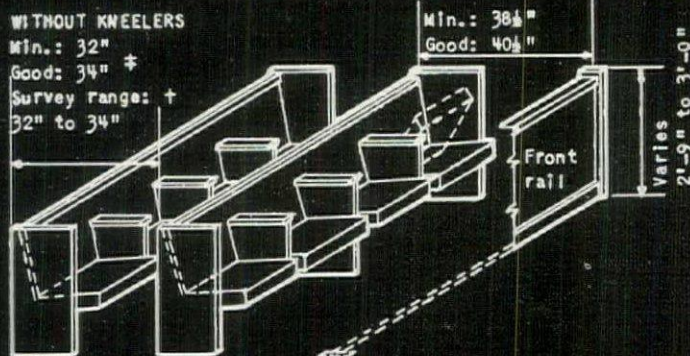


*LENGTH OF PEWS - SINGLE ACCESS

PEW CAPACITY	18" SEAT WIDTH	20" SEAT WIDTH	22" SEAT WIDTH
4 Persons per pew	6'-4"	7'-0"	7'-8"
5 Persons per pew	7'-10"	8'-8"	9'-6"
6 Persons per pew	9'-4"	10'-4"	11'-4"
7 Persons per pew	10'-10"	12'-0"	13'-2"

WITHOUT KNEELERS

Min.: 32" Min.: 34" +
Good: 34" +
Survey range: +
32" to 34"

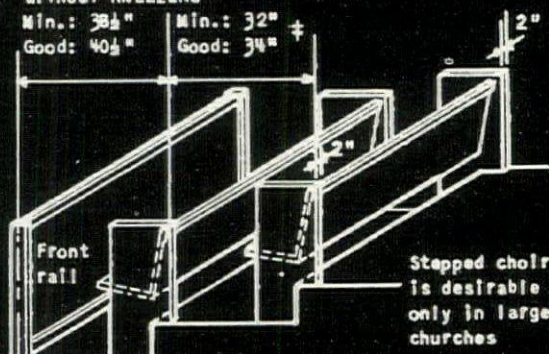


*LENGTH OF PEWS - COMBINATION SEATING

PEW CAPACITY	19" SEAT WIDTH	20" SEAT WIDTH	21" SEAT WIDTH
8 Persons per pew	13'-0"	13'-8"	14'-4"
10 Persons per pew	16'-2"	17'-0"	17'-10"
12 Persons per pew	19'-4"	20'-4"	21'-4"
14 Persons per pew	22'-6"	23'-8"	24'-10"

WITHOUT KNEELERS

Min.: 38 1/2" Min.: 32" +
Good: 40 1/2" Good: 34" +



*LENGTH OF CHOIR STALLS

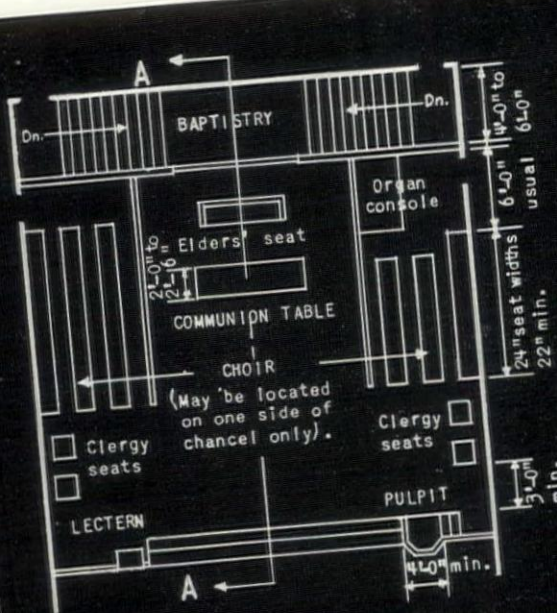
STALL CAPACITY	22" SEAT WIDTH	24" SEAT WIDTH
4 Persons	7'-8"	8'-4"
6 Persons	11'-4"	12'-4"
8 Persons	15'-0"	16'-4"
10 Persons	18'-8"	20'-4"

* Including two 2" pew ends.

+ Minimum to maximum dimensions of survey answers

± Dimensions most generally recommended in survey answers

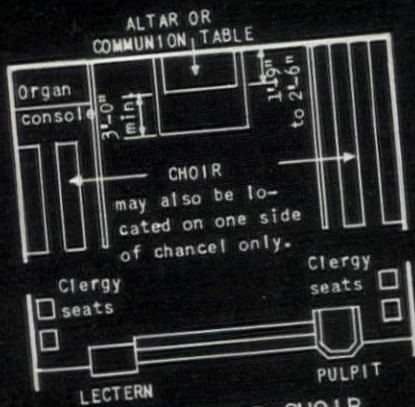
WORSHIP CENTERS 1



NOTE: Tank floor should be high enough for baptism to be viewed over communion table.

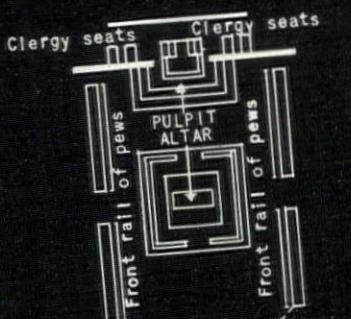
SECTION A-A

CHANCEL WITH BAPTISTRY
BAPTIST, DISCIPLES OF CHRIST,
CHURCH OF THE BRETHREN



WITH DIVIDED CHOIR

PRESBYTERIAN OR CONGREGATIONAL CHANCLES

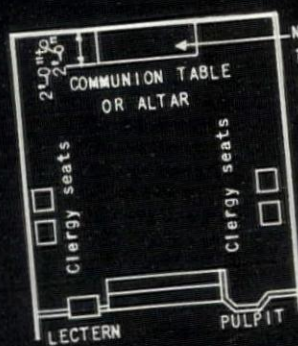


EPISCOPAL CHANCEL
WITH CENTRAL ALTAR

(A means of emphasizing altar as center of interest and minimizing distance to farthest pew)



NOTE: Episcopal altar is often set out from wall to allow rector to face congregation



WITHOUT CHOIR

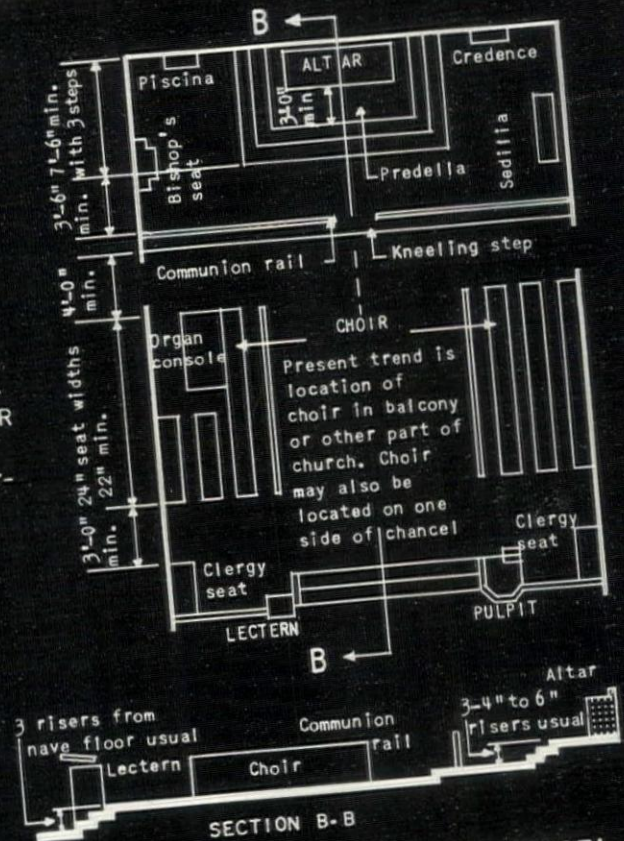
PRESBYTERIAN OR CONGREGATIONAL CHANCLES

GENERAL NOTE: Chancels, sanctuaries and bemas are shown on this and the following page as a guide to the location of their components, fittings and furniture as determined by a particular denomination or faith's customary ritual. There are very few mandatory requirements and design latitude is wide.

Information and guidance was obtained from church consultants, church architects and church building officials. Many were consulted personally. Others contacted by letter and questionnaire.

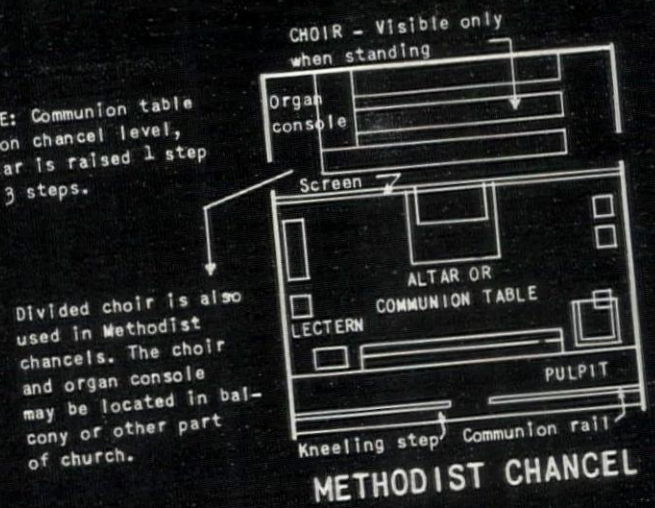
Chancels have been indicated as symmetrical; other arrangements are usual. The chancel - as the focus of worship and the center of visual interest - cannot be planned by rule.

Present practice seeks unity in the chancel (or sanctuary or bema) by emphasizing the altar, ark, communion table or pulpit (depending on the denomination or faith) as the focus of worship.

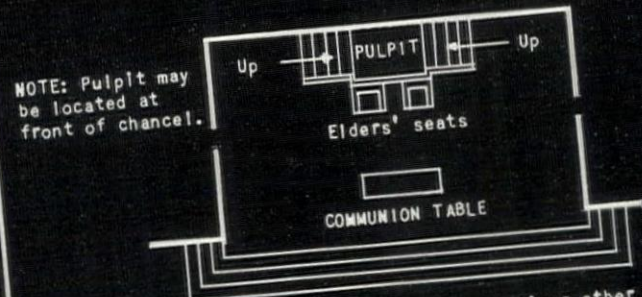


SECTION B-B

EPISCOPAL OR LUTHERAN CHANCEL



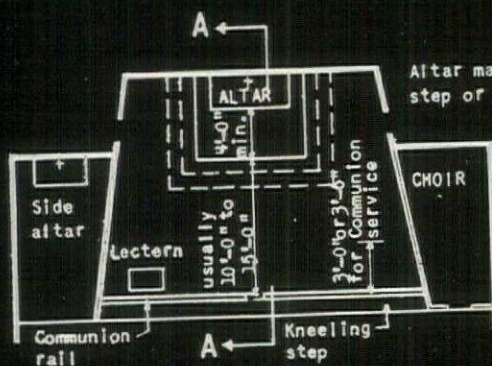
METHODIST CHANCEL



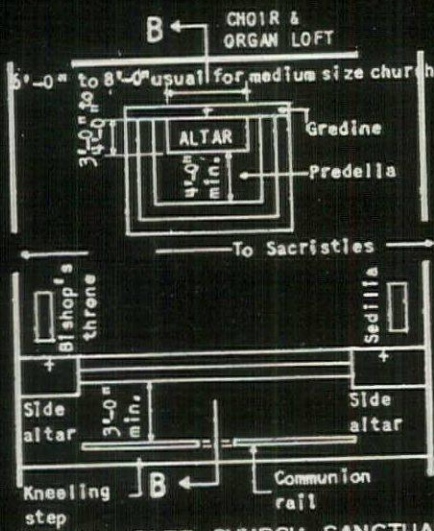
NOTE: Pulpit may be located at front of chancel.

UNITARIAN CHANCEL

WORSHIP CENTERS 2



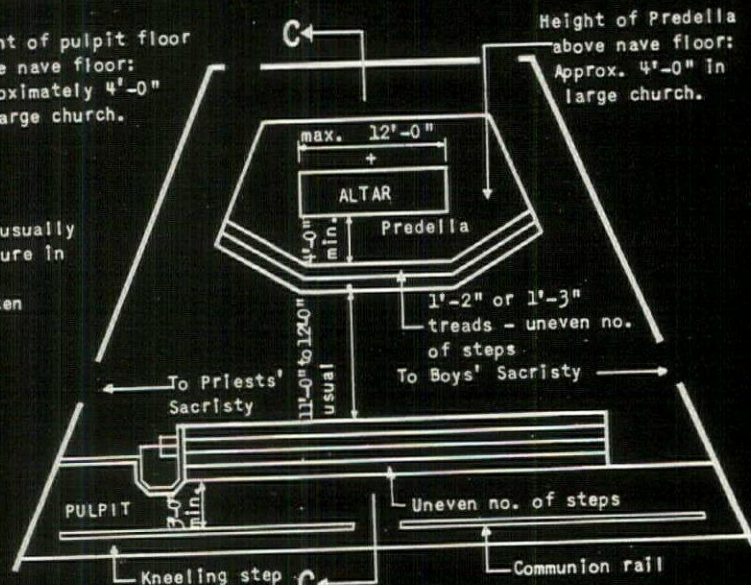
SMALL CHURCH SANCTUARY
(250 TO 350 SEATS)



MEDIUM SIZE CHURCH SANCTUARY
(500 TO 600 SEATS)

Height of pulpit floor
above nave floor:
Approximately 4'-0"
in large church.

NOTE: Pulpit is usually
a permanent fixture in
large churches.
Lecterns are often
used in smaller
churches.



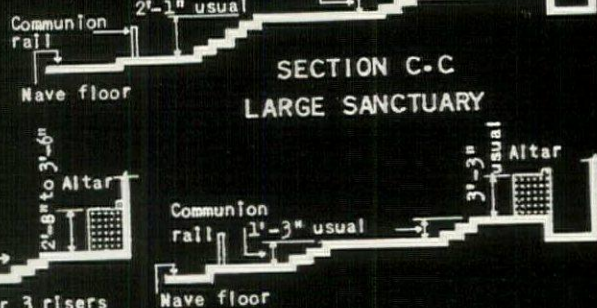
LARGE CHURCH SANCTUARY (800 TO 1000 SEATS)



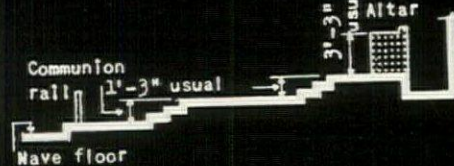
COMMUNION RAIL
DETAIL



SECTION A-A
SMALL SANCTUARY



SECTION C-C
LARGE SANCTUARY



SECTION B-B
MEDIUM SIZE SANCTUARY

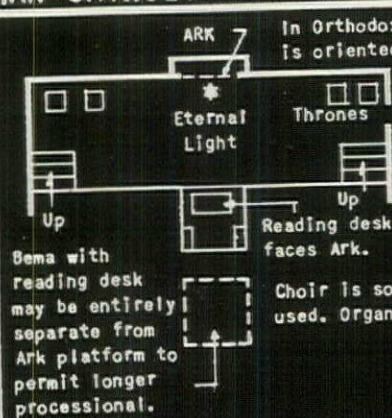
ROMAN CATHOLIC SANCTUARIES

NOTE: In Christian Science churches there
is no choir.
It is most desirable that the organ console
pit be at the left end of the Readers' plat-
form (as viewed by the congregation). The
soloist stands at the left end of the plat-
form and the organist will then have a view
of the soloist.

Dimensions shown are minimum.



READERS' PLATFORM
CHRISTIAN SCIENCE CHURCH



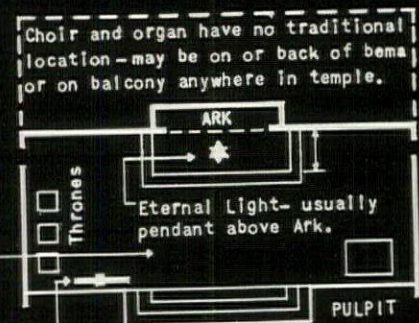
COMPONENTS OF BEMA FOR
ORTHODOX SYNOGOGUE

Space should be provided on bema
for special rituals—seating of
children and building of temporary
festival booth.

In Orthodox synogogue, rear of Ark
is oriented toward Jerusalem.

Size of Ark, aside from its being the
visual focus, is dependent on number and
size of scrolls possessed by the con-
gregation.

In Reform temple, there is no mandatory
orientation of Ark.



USUAL COMPONENTS OF
BEMA FOR TEMPLE

BEMA OF SYNOGOGUE AND TEMPLE

FOLLOW-THROUGH

that's good for you!



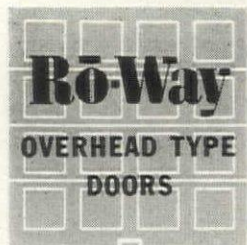
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Call it "follow-through" or "thoroughness" or "pride in a job well done." It's all these things and it's mighty important to you. It means you can save time by depending on your RO-WAY Distributor to help select the proper size and type of RO-WAY door for the appearance and service requirements of each installation. It means you always know your RO-WAY Distributor shares your own interest in seeing that every job is done *right*!

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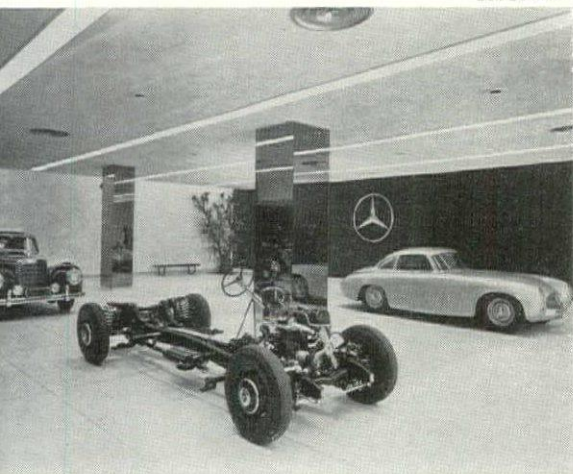
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RO-WAY Distributor First
—On Any Job!**

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MERCEDES-BENZ *continued from p. 127*

former restaurant space M-B had rented in the Universal Pictures Building. Ideally, an auto showroom ought to have a very high ceiling, no interior columns. Here the ceiling was but 12'-6" high (and it would have to be dropped 1'-8" to allow for recessed lighting). There were six interior columns of various widths, variously spaced, variously adorned by pipes or conduits; there was also an awkward 6' wall jog at the left rear corner. But taking it all

in all, Barnes kept coming back to where he had started: how to put them (quite literally) in the best possible light—these swank, superb, \$3,285 to \$12,500 cars?

The best answer: a white floor. If a surface this size (61' x 76') could only be white—and if it could be kept clear of everything but cars, customers and salesmen—it would act as a giant light reflector rather than an insatiable light absorber. Shoot your light straight down from overhead. An enormous amount would "bounce" off such a floor; you could cut the usual dark-floor fluorescent-fixture requirements by 50%, kill all glare with louvers and baffles, and still leave a "bounce" of 50 foot-candles all over the floor—as much or more light as generally comes down from an office ceiling. What is more, the "bounced" light would keep on bouncing, floor to ceiling, ceiling to floor. One consequence: a full, soft, flattering glow washing up from underneath, down from above—a "sandwich" of light.

Only hitch in the whole thing: *there had never before been an automobile showroom with a white floor.*

Architect forthwith put it to client that 1) M-B wanted something more like an art gallery than a glorified gas station and that here was the solution; 2) in addition to solving the lighting problem, a white floor would permit dark walls, dark columns, backgrounds for once not at war with the cars; 3) M-B customers were not apt to be trackers of mud, stompers-out of butts; 4) traffic here would surely be less than at the average showroom; 5) clean tires do not leave tracks;* 6) savings on lighting fixtures would more than offset floor maintenance costs for a long time to come.

Yes, said the client, put in the white floor. Barnes used 11½" of white terrazzo. This and the white acoustic-tiled ceiling were the "neutral" areas; for the rest, he limited himself to four "real" materials: 1) Alabama marble on the back wall; 2) plywood of koa from the South Pacific; 3) gun-metal gray paint and mirrors.

Total cost (about \$200,000) includes vast expenses (met in part by the landlord) for stripping out the restaurant and for removing and sealing over a central stairway. This was not an inexpensive project, but M-B's Hoffman, for one, is convinced of the wisdom of the investment. After all, says he, M-B now has the best automobile in the best automobile showroom.

* Though it was later discovered they leave a yellowish grease stain if a car sits in one spot for any great length of time. Preventive: a small plastic patch under each wheel.

CORPUS CHRISTI CHURCH
san francisco

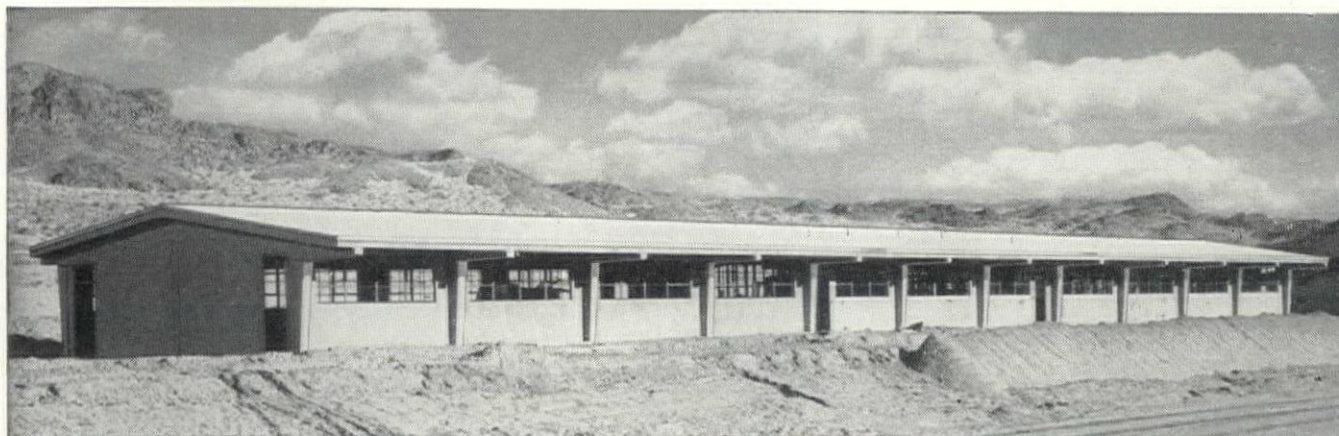
O'KEEFE SKYLIGHTS and
LOUVERED ALUMINUM CEILINGS
contribute to the fine daylighting
in this church
by Architect Mario Ciampi, A.I.A.

write
for literature

SKYLIGHTS SMOKE VENTS
ENTRANCES WINDOWS SUN LOUVERS
DOORS BATTEN
ROOFING

O'KEEFE'S, INC.
O'KEEFE'S INC.—225 SHAW RD., SOUTH SAN FRANCISCO, CAL.

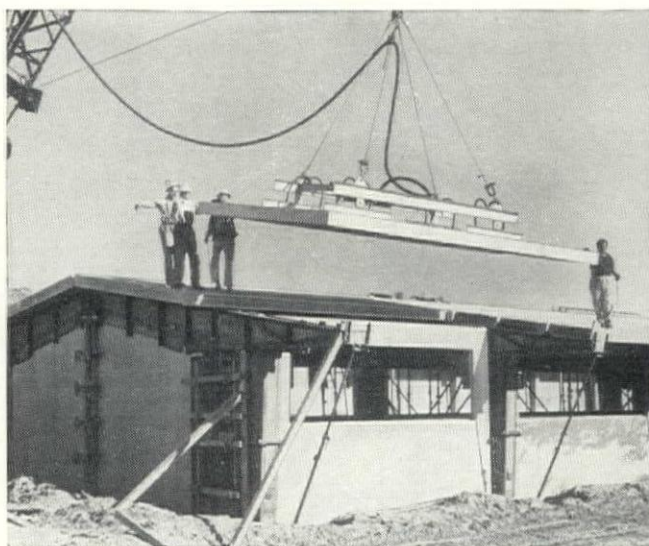
O'KEEFE
ALUMINUM
BUILDING
PRODUCTS



General view of one of the completed barracks buildings.



Construction view showing wall panels tilted up and braced.



Precast concrete roof slab being lowered into place.

Speed and Economy of *TILT-UP CONSTRUCTION* Demonstrated in Huge Marine Corps Project

Precast, tilt-up concrete construction is giving taxpayers more permanent structures at no extra cost in the Marine Corps Artillery Training Center, Twentynine Palms, Calif. With more than 1½ million sq. ft. of floor area, this is one of the biggest precast concrete construction jobs ever undertaken.

For economy the original appropriation contemplated a type of construction often used for temporary structures. However, cost studies disclosed that durable, sturdy, precast concrete buildings could be constructed for the same appropriation.

Precast, tilt-up concrete construction provided extra values for the same money because it lends itself to simplification of detail, many reuses of a few basic elements and employment of production line methods for fabrication and erection. It offers such

additional advantages as firesafety, low maintenance cost, savings in construction time, use of economic materials and fabrication and construction methods equally adaptable to metropolitan centers or to relatively inaccessible areas.

These pluses apply not only to military projects but also to schools, hospitals, commercial and industrial buildings. Fast, economical, precast tilt-up concrete construction is equally adaptable to one story or multistory buildings.

For more information write for free, illustrated literature, distributed only in the U. S. and Canada.

Neptune & Gregory, Pasadena, Calif. were architects and engineers for the Twentynine Palms Marine Corps Artillery Training Center. A joint-venture firm, Twaits—Morrison-Knudsen—Macco, was contractor.

PORTLAND CEMENT ASSOCIATION

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A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



BRAB Director William H. Scheick (center) briefs final panel of speakers at the recent two-day conference in Washington on porcelain enamel in the building industry. Shown left to right are Architect James J. Souder, York & Sawyer, Kiff, Colean, Voss & Souder; Milton Male, U.S. Steel Corp.; Mr. Scheick; Paul R. Fritsch, Goodyear Tire & Rubber Co.; and W. W. Lobdell, Lobdell Realty & Construction Co.

BRAB PORCELAIN ENAMEL CONFERENCE

Architects and manufacturers stress value of durable, colorful, curtain-wall panels, applaud new combination of vitreous enamel on aluminum

In cooperation with the Porcelain Enamel Institute, the Building Research Advisory Board last month held a new kind of industry-wide conference with over 225 architects, engineers, scientists, manufacturers and contractors from all parts of the building industry. While previous BRAB meetings had concentrated upon building techniques (condensation control, building in hot climates, etc.), this two-day conference turned the research spotlight on a single building material, porcelain enamel.*

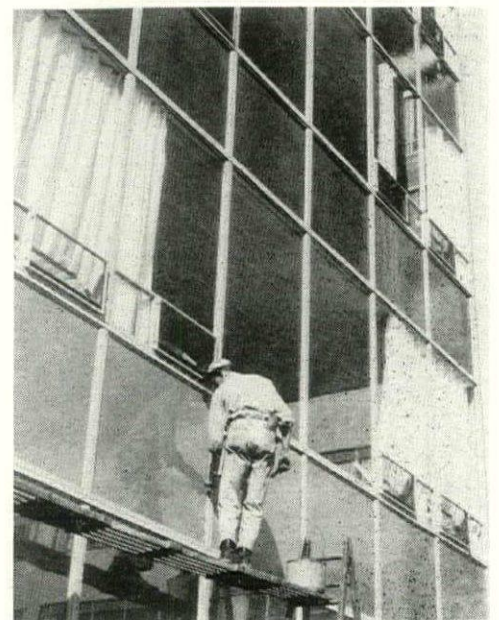
The conference's four half-day sessions covered the fundamental properties of porcelain enamel, its use in building design, its value as an engineering material and the results of practical experience with the material in building. Main conclusions:

► High initial cost of porcelain enamel (compared to masonry) is recovered in six to nine years thanks to its extreme durability and ease of cleaning.

► Porcelain-enamel wall panels should be designed as full wall systems, complete with vertical and horizontal joints, backing and

continued on p. 152

* This is the first of a new series of BRAB conferences aimed at bridging the gap between manufacturers of specific products and the architects and engineers who use them. The object, says BRAB director, Architect William H. Scheick, is to summarize existing knowledge, discuss current trends and outline future research problems.

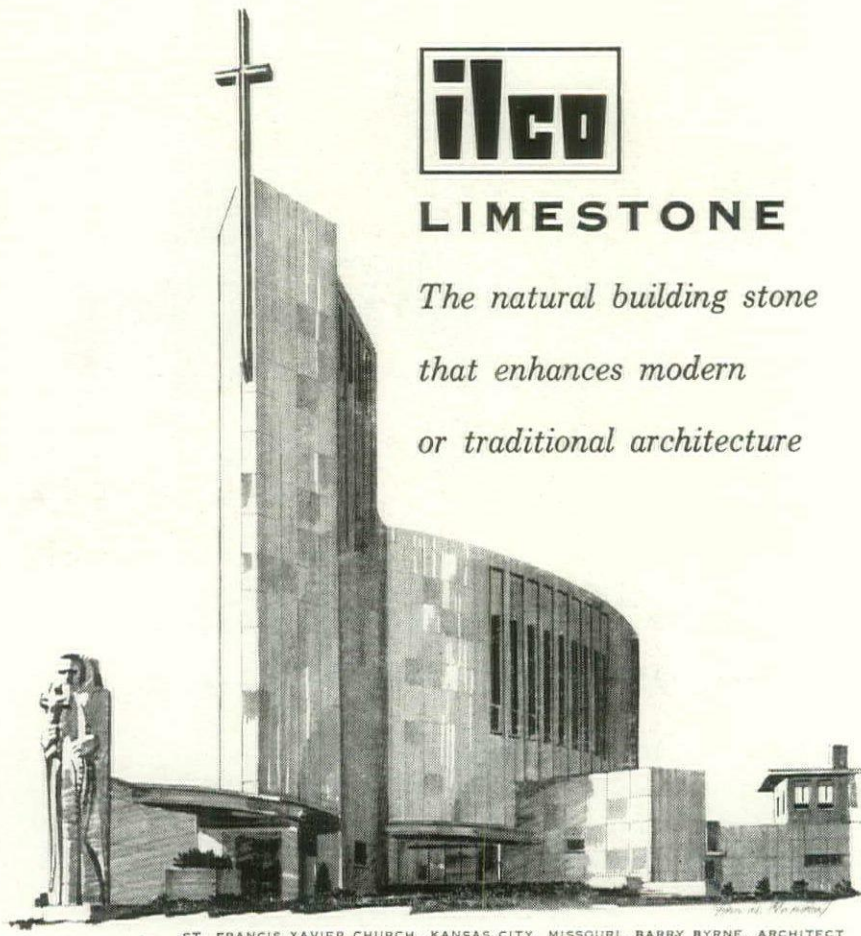


Porcelain laminated to honeycomb aluminum forms the 1/2"-thick, deep blue curtain wall on the Standard Federal Savings & Loan Assn. building, Los Angeles, by Architect Welton Becket & Associates. Lightweight honeycomb aluminum core is faced with 18-ga. enameled sheet iron, backed with a similar skin painted. Panels cost \$2.75 per sq. ft. (excluding erection), are guaranteed ten years.



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lasts—stays "new" looking with a minimum of maintenance. And its satin smooth surface, providing no firm foothold for dirt or grime, is so-o-o easy to clean.

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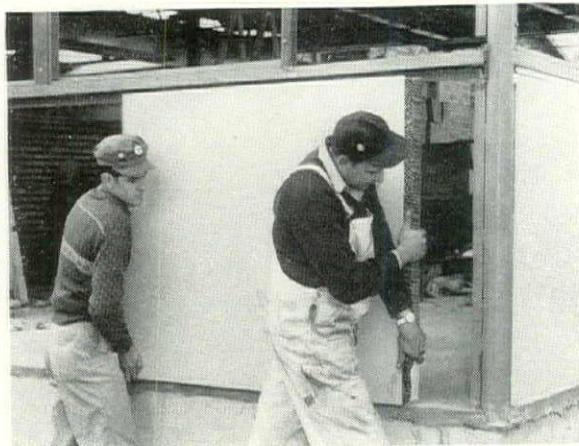
Republic

ENDURO STAINLESS STEEL



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Porcelain laminated to honeycomb paper is the curtain wall at Bettinger Co.'s office building at Waltham, Mass. This 2 1/4" wall, laminated paper core faced on both sides with enameled, 18 ga. steel, weighs 6 psf, has a "U" coefficient of 0.15, a sound-insulation value of over 40 db. and has successfully passed a four-hour fire test. Cost of the wall is given as \$3 per sq. ft., with another 85¢ per sq. ft. for erection.



PORCELAIN ENAMEL *continued*

windows, and with the material's wide range of permanent colors used as integral decoration.

► The combination of porcelain enamel and aluminum is highly promising; the enamel adds rigidity and color while the nonrusting property of aluminum helps reduce spalling around freshly cut edges.

Properties of porcelain enamel

Porcelain, or vitreous, enamel is a composite material made of glass fused to metal. It is durable, hard (having good resistance to abrasion), inorganic (impervious to all but the strongest hot acids and salts), reflects light and thermal radiations, can be colored without fading and adds strength and rigidity to the base metal. Furthermore, recent tests at Oak Ridge reported at the conference show that porcelain enamel also has outstanding resistance to radioactive contamination, second only to plate glass.

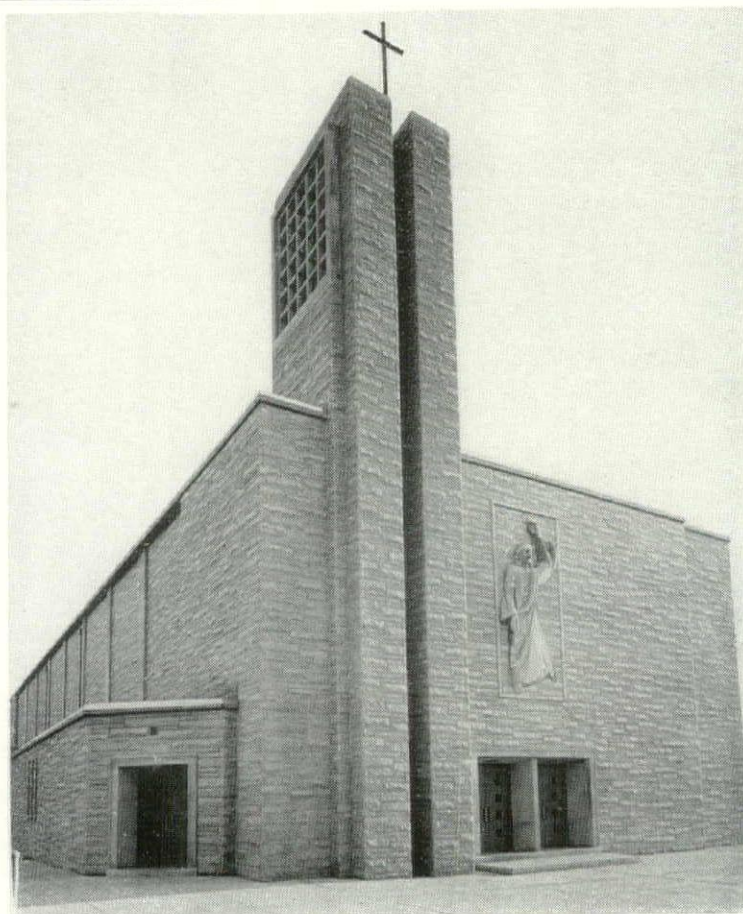
The growing demand for color in building was emphasized again and again. In contrast to the gaudy colors of the diner and filling-station era, vitreous enamels can now be of any specified shade or hue (even with mottled effects where desired) and are used by leading contemporary architects. A large multi-colored mural of porcelain enamel on steel by Ceramic Artist Doris Hall won the Architectural League's Silver Medal Award for 1953.

The conference's session on porcelain enamel and building design concentrated on the economy of metal-walled buildings. It was pointed out that in order to cut weight, save space and speed erection, architects are striving for thin, lightweight building components that are large enough to be hoisted into position with a minimum of critical erection joints. Some of these curtain walls are only 1 3/8" thick, weigh as little as 3 psf and, when properly designed, cost little more than conventional construction. Moreover, by reducing dead load, lightweight walls can save on structural steel framing (light aluminum panels saved 4 lb. of structural steel per sq. ft. of wall area on the Alcoa Building in Pittsburgh) and its speedy erection brings a bonus to the owner through earlier rental income.

Many new curtain walls

Several speakers stressed the need for a complete wall system comprising wall panels, windows, sunshades, with all necessary connections to permit rapid erection from inside the building. Thin, nonload-bearing sandwich panels with an exterior and interior skin of porcelain enamel and a core with insulating and vapor-barrier properties have been made with a variety of materials—with honeycomb paper (an astonishingly strong, highly insu-

continued on p. 156



ST. BARNABAS CHURCH, PHILADELPHIA, PA.
B. W. Roney, Architect; F. Cantono & Son, Stone Mason;
J. R. Farrell, Inc., General Contractor.
Faced with Mount Airy Sawed Bed Ashlar.

When Appearance and Durability are important — use

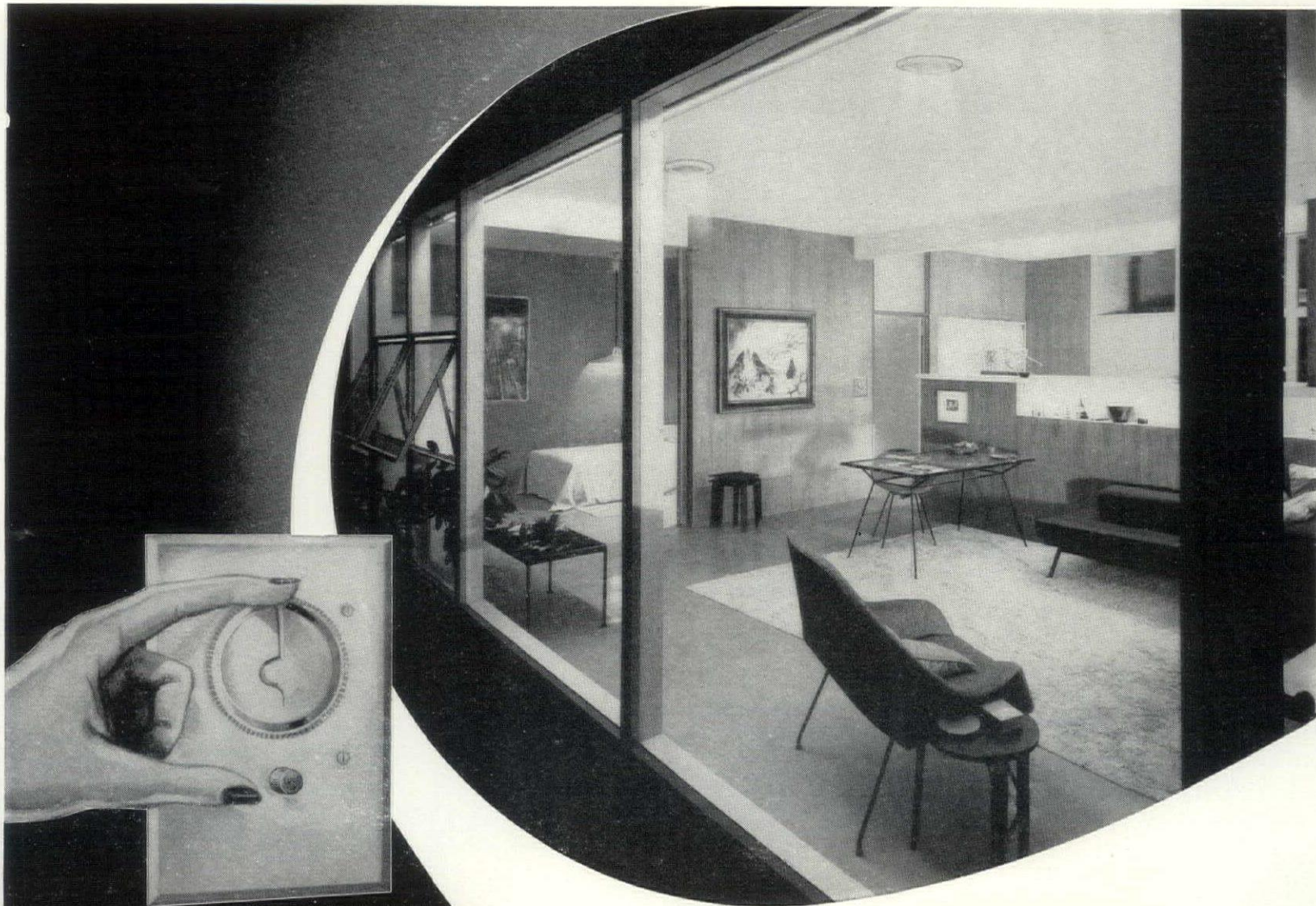
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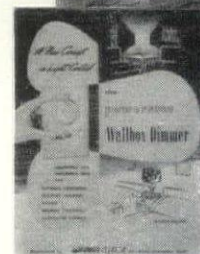
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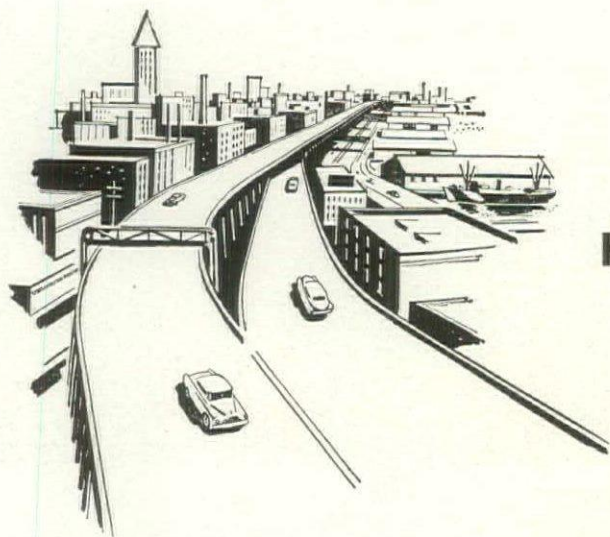
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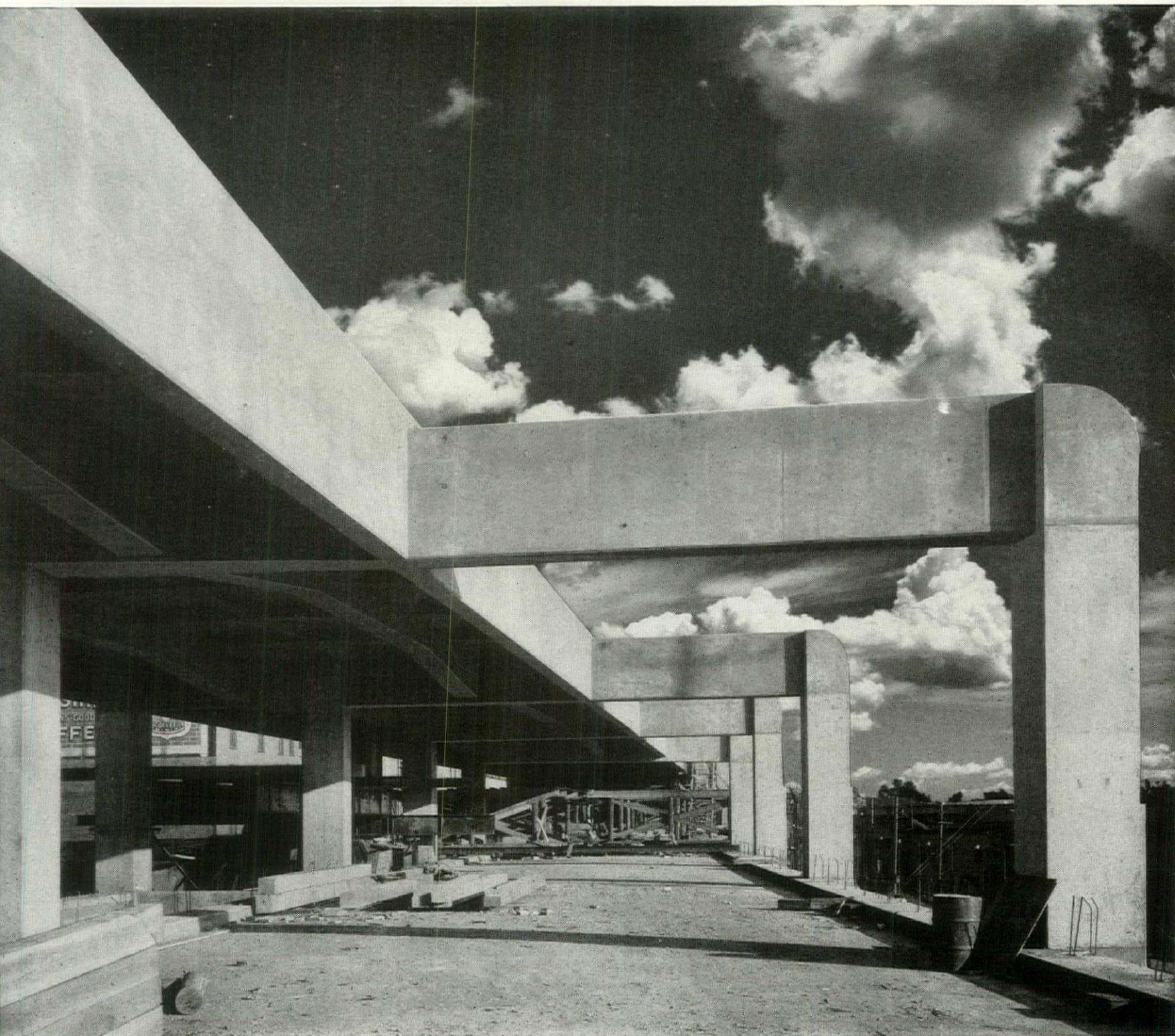
CO. ADDRESS _____

CITY _____ ZONE _____ STATE _____





Highway viaduct demonstrates **THREE**



Fir plywood solved complex form problem on Alaskan Way Viaduct. Double-decked structure .77 miles long required only 400,000 square feet of plywood.

KEY ADVANTAGES OF FIR PLYWOOD CONCRETE FORMS

1. TIME AND LABOR SAVINGS

On this six-lane highway viaduct along the Seattle, Washington, waterfront, standardized re-usable plywood form sections helped complete the job months ahead of schedule. Exterior-type fir plywood was used to fabricate the form panels for beams, girders and roadway.

2. ECONOMY THROUGH RE-USE

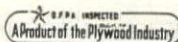
About 400,000 square feet of $\frac{5}{8}$ " fir plywood was required for the .77 mile structure. Contractors reported an average of four re-uses. About 25% of the plywood forms gave seven to eight re-uses. In some cases forms withstood 10 uses. Other forms gave additional uses after re-facing with $\frac{1}{4}$ " fir plywood.

3. SMOOTH, FIN-FREE CONCRETE

The smooth surfaces obtained with the plywood forms cut finishing to a minimum, the contractor reports. The only finishing work required was filling of tie-holes and beads, which were ground and sacked. Job Superintendent John Rumsey, Jr. says: "Fir plywood solved a complex form problem for us and speeded work all along the line."

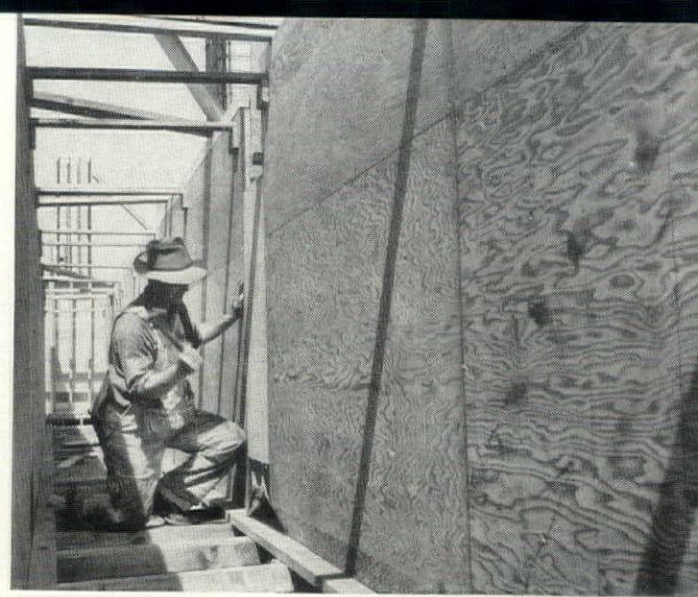
SPECIFY DFPA INSPECTED FIR PLYWOOD

These registered industry trademarks are your guide, guard and assurance of DFPA quality-tested fir plywood manufactured especially for concrete form work. **INTERIOR PLYFORM** (highly moisture resistant glue) gives multiple re-use; up to 12-15 are not unusual. For maximum re-use, specify **EXTERIOR PLYFORM** (100% waterproof glue). For special architectural concrete use fir plywood with "A" face veneer or one of the new overlay-faced or hardboard faced fir plywoods identified by this star and link industry hall mark of quality.



For further information write Douglas Fir Plywood Association, Tacoma 2, Washington.

ALASKAN WAY VIADUCT
LOCATION: Seattle, Washington
CONTRACTORS: Morrison-Knudsen Co., Inc.
Rumsey and Company



Beam and girder bottom forms were built up inside standard vertical form panels in what contractor called "floating beam bottoms." System simplified handling of variable beam and girder depths.



Pattern of plywood forms for girders and cross beams is shown here. Standard panels for shallow cross beams and shallow center beams were not as high as those for girders. Contractor built forms for 660 feet of viaduct at a time.

**EXTERIOR
PLYFORM** →

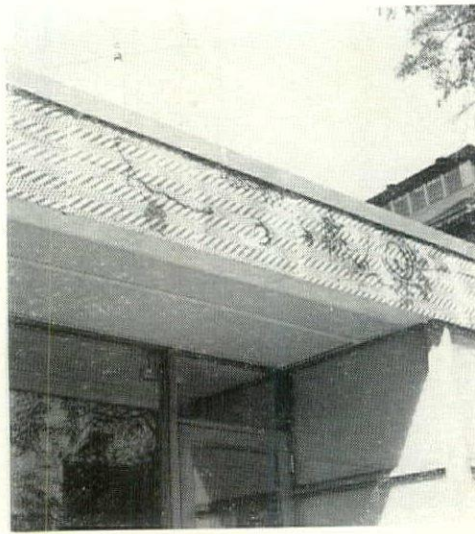


**INTERIOR
PLYFORM** →



PORCELAIN ENAMEL *continued*

Multicolored porcelain enamel is used architecturally on the Fitchburg Youth Center (AF, July '51), Mass., by Architect Carl Koch and Artists Gyorgy and Julian Kepes. This building won the 1953 Gold Medal award of the Architectural League.



lating construction that has long been successfully employed in aircraft); with glass, cane or pressed-wood fibers; with asbestos board or plywood; or with only an exterior skin of porcelain enamel and a lightweight concrete backup.

Since these panels are not in regular production, cost figures are not firm. Best estimates to date: \$2 to \$3 per sq. ft. for the panels plus \$2 to \$3 for erection. The Hartford Statler, for example, is being built with a 1 3/8" glass-fiber sandwich wall having porcelain-enameled steel on the outside and asbestos board on the inside for an estimated wall cost of \$5.10 per sq. ft. in place (AF, Apr. '53). And Architect James J. Souder described a 1 1/2"-thick porcelain-enamel wall being used for a chain of hospitals in West Virginia and Kentucky (AF, Aug. '53 et seq.) that is costing under \$4 per sq. ft. erected complete with glazing. Each 5' x 3' panel has a porcelain-enamel outer pan (with an air space and weep holes behind it for condensation), glass-fiber insulation, extruded vinyl gaskets at joints and an inner pan of galvanized, bonderized, painted steel. Panels are removable for inspection and replacement.

Vitreous aluminum is light and strong

Highlight of the session on porcelain enamel as an engineering material was the development of porcelainized aluminum. Although the enamels are usually fused at 1,500° F. or higher upon iron and steel, new vitreous enamels that fuse at little over 950° are used to porcelainize aluminum (melting range 935° to 1,215°). This combines the durable properties of glass with the light weight and workability of aluminum.

Main advantage is improved workability. If the porcelainized aluminum is drilled or cut, there is little corrosion of the exposed metal and the enamel does not spall back from the cut edge. The enamel adds color to aluminum, increases resistance of the metal against alkalis and gives it some insulation against fire. Strength and rigidity of the aluminum improve too. B. C. Bricker of the Du Pont de Nemours Co. reports that a 3-mil vitreous coating on 0.051" sheet aluminum makes the metal only 6% thicker, less than 10% heavier, yet gives it 60% greater flexural strength and resistance to surface denting. Cost of porcelainized aluminum is \$2.50 per sq. ft. and up depending on the degree of fabrication required (using structural-grade 61-S aluminum alloy), compared with \$1.40 per sq. ft. and up for regular porcelain enamel upon steel.

The 17 papers on porcelain enamel in building delivered at this conference will be published shortly by BRAB. Further information will also be available from a manual now under preparation by the Porcelain Enamel Institute on "Architectural Porcelain in the Building Industry."

How You Can get Heat Insulation plus Sound Control at minimum cost!



Gordon C. Swift Junior High School, Watertown, Conn.
58,800 sq. ft. of 3 3/4" POREX PLANK.
Architects: Warren H. Ashley, Carl J. Malmfeldt
Gen. Contractor: Massacoe Builders, Inc.

Installing 8-foot POREX Roof Plank



COMPOSITE POREX ROOF DECKS PROVIDE

- ★ **HEAT INSULATION**
(U=0.15 Btu)
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(Noise Red. Coef. .70)
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(only 15 lbs. per sq. ft.)
- ★ **LONG SPANS** (8 ft. max.)
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For Auditoriums, Gymnasiums, Schools, Armories, and Many Other Uses



Precast lightweight concrete products since 1920

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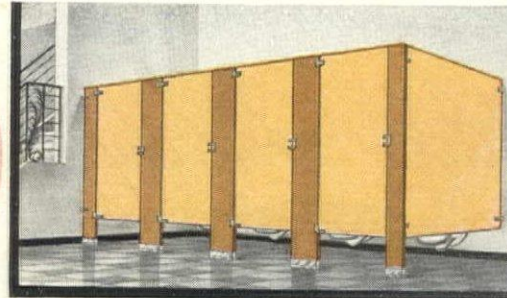
Please send me your bulletin #78A describing POREX PRODUCTS.

NAME _____

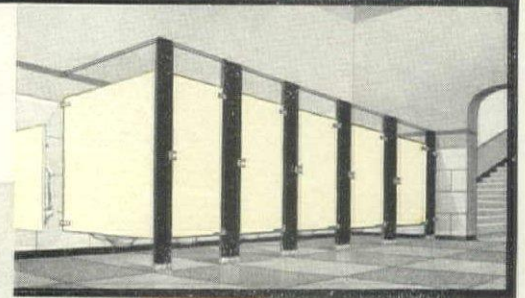
ORGANIZATION _____

ADDRESS _____

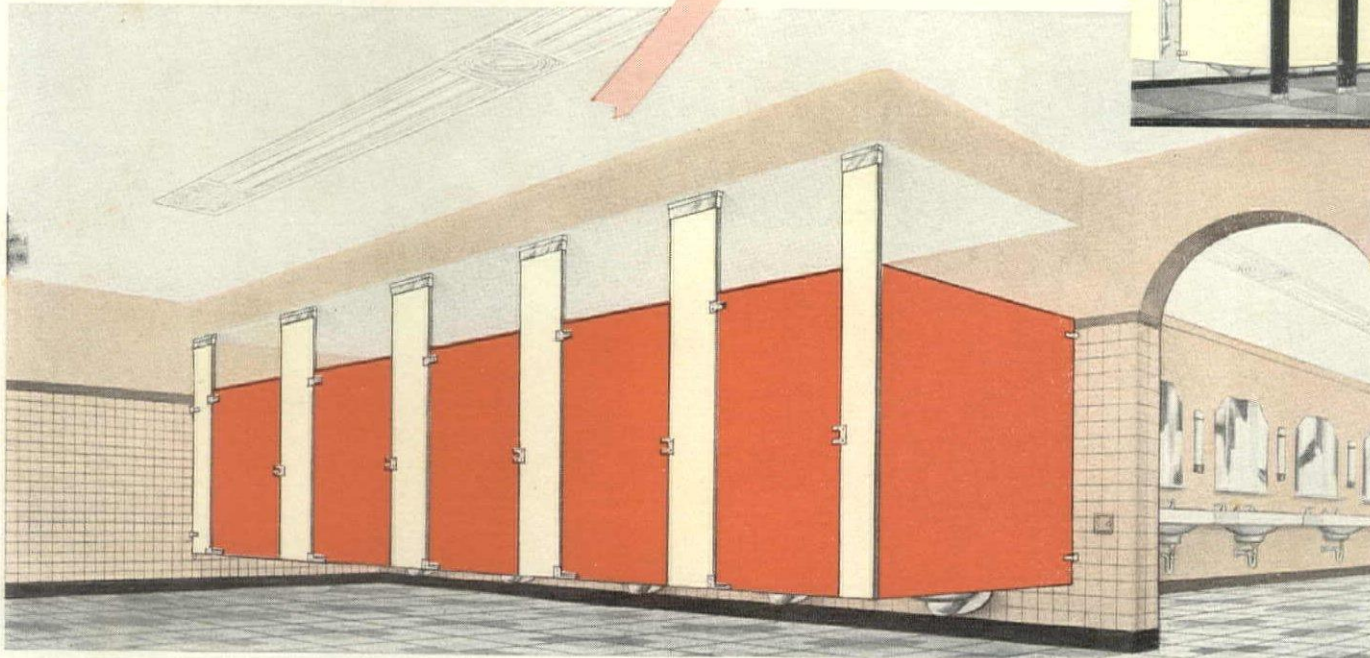
the mere
functional type of rest room
is **INCOMPLETE!**



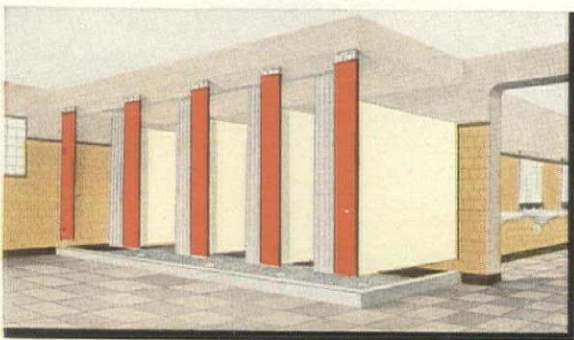
Sanymetal NORM-ANDIE Type Toilet Compartments endow a rest room environment with dignity and good taste.



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



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



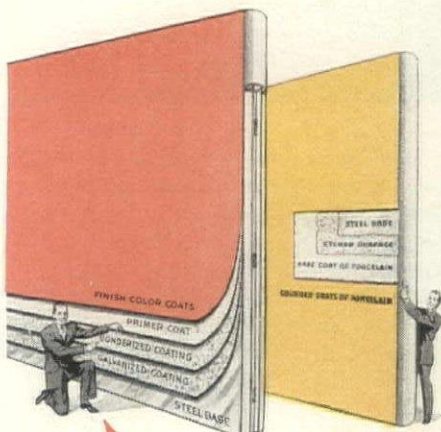
Sanymetal CENTURY Type (Ceiling Hung) Shower Stalls of Sanymetal "Porcena" (Vitreous Porcelain on Steel) Partitions and Pilasters, as arranged for a typical club installation. Also available in Sanymetal "Tenac" (synthetic enamel baked-on over Galvanized, Bonderized* Steel).

This is Sanymetal "PORCENA"

(Vitreous Porcelain on Steel)
A metal base material that is impervious to moisture, odors, cleaning and uric acids, oils and grease. It is rust proof. Available in 21 glistening colors.

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 gleaming colors.



It is obsolete before it is completed according to today's standards. To insure against *untimely obsolescence* consider wall-type plumbing fixtures installed with Sanymetal ceiling-hung toilet compartments.

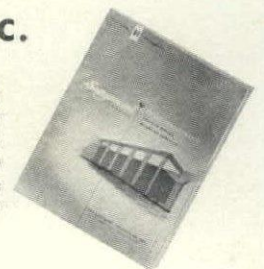
Sanymetal offers several different types of toilet compartments. Sanymetal also offers and recommends Two Full Purpose Metal Base Materials which combine colorful attractiveness with long years of service life and effect important day-after-day savings in cleaning and maintenance costs. These Two Full Purpose Metal Base Materials—Sanymetal "Tenac" (Galvanized, Bonderized** Steel), and Sanymetal "Porcena" (Vitreous Porcelain on Steel), the ageless and fadeless, rustproof material—are described herein. Sanymetal Toilet Compartments are also available in cold rolled steel.

Sanymetal Toilet Compartments and Shower Stalls embody the results of over 39 years of specialized skill and experience in making over 500,000 toilet compartment and shower stall installations. Ask the Sanymetal representative in your vicinity to demonstrate the worthiness of Sanymetal Toilet Compartments as protection against *untimely obsolescence*.

THE SANYMETAL PRODUCTS CO., INC.

1687 Urbana Road • Cleveland 12, Ohio

Sanymetal Toilet Compartments embody the results of specialized skill and experience in fabricating over 500,000 toilet compartments in all types of buildings. Ask the Sanymetal representative in your vicinity for information about planning suitable rest room environments that will always stay new. Refer to Sanymetal Catalog ^{21b}/_{5a} in Sweet's Architectural File for 1953 and Catalog ^{13a}/_{5a} in Sweet's Industrial File for 1953.



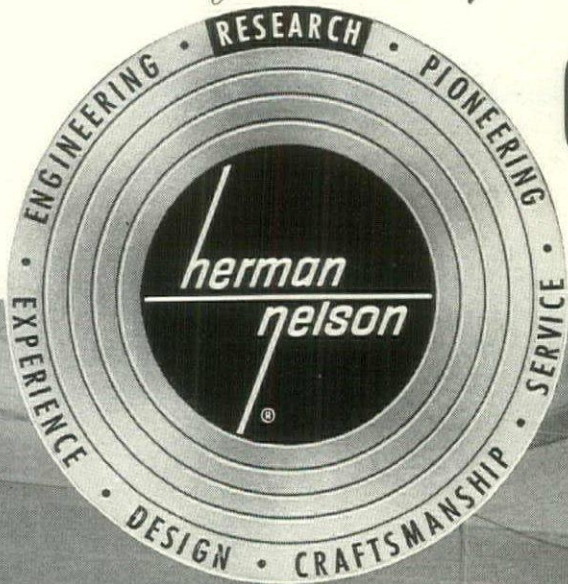
Sanymetal*

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

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

**TOILET COMPARTMENTS
SHOWER STALLS AND
DRESSING ROOMS**

Mark of Leadership



Our Research Engineers



How We Got The Facts: Herman Nelson engineers went after the most precise information in these tests. Some of the instruments used were so new they had never been employed in any similar capacity before. The scientific instrumentation, including the use of the Directional Thermopile, uncovered hitherto unknown factors in scientific heating, ventilating and cooling. If you would like documentation of this research we invite you to call your nearest Herman Nelson office . . . or write direct to Dept. AF-12, Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.

Go Back to Grade School!

Two winters ago, as part of our leadership in research, The George Washington Grade School, Moline, Illinois, became a Herman Nelson "laboratory school" for a searching investigation into classroom heating and ventilation. Herman Nelson engineers chose this school because it was not only representative of the design of most schools now being built, but also because its classrooms faced to the four points of the compass. Here, then, in one single building, were four widely varying heating and ventilating problems.

Tests were conducted to determine what happens to temperatures under normal occupancy conditions. Every day Herman Nelson engineers took thousands of temperature readings (up to 10,000 a day) using the most advanced and sensitive instruments.

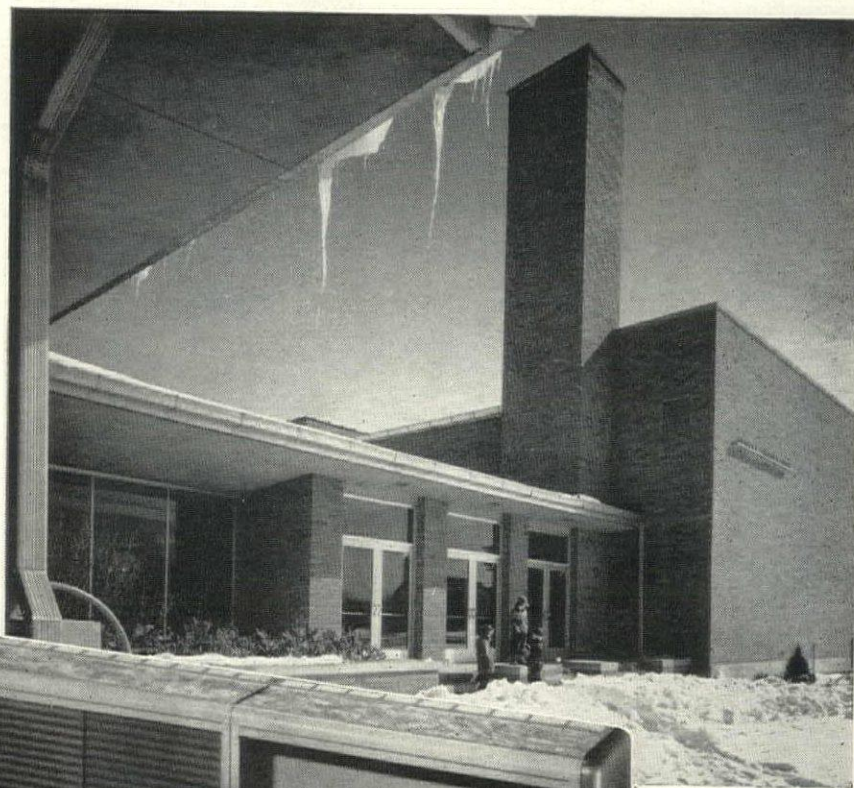
Temperature records showed conclusively that school-rooms need COOLING most of the day far more than they need heating—even in the coldest outside weather. Variations in the number of students per room, the movements of the sun and the velocity of the wind dictate individual heating and ventilation controls for each separate room. It was also confirmed that room air striking cold window glass is the cause of drafts which sweep across the floor creating a serious comfort problem.

Conclusions from these and earlier studies are translated into the modern design of the Herman Nelson DRAFT|STOP system which cools, heats and ventilates

each room according to its needs, as well as traps cold air downdrafts which are created as a result of large window areas.

If you're looking for classroom health and comfort for your children, be sure to investigate Herman Nelson DRAFT|STOP. Write Dept. AF-12, Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.

George Washington School; Moline, Illinois, utilizes unusual treatment of clerestory lighting through means of corrugated glass for its classrooms. DRAFT|STOP Unit Ventilators were selected by Superintendent of Schools, Alex Jardine; Architect, M. R. Beckstrom.

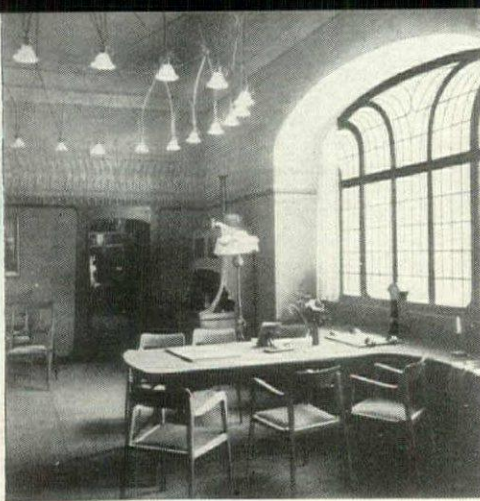


DRAFT|STOP

TRADE MARK

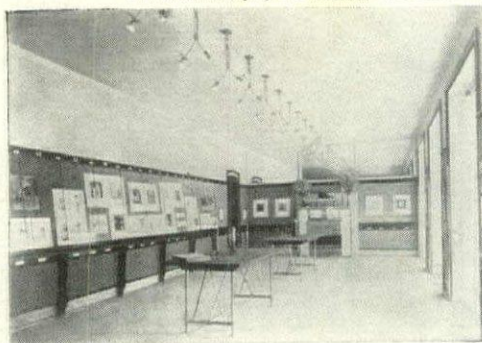
HERMAN NELSON

SYSTEM OF CLASSROOM
HEATING AND VENTILATING



Study in an exhibition at Dresden, 1899, by Richard Riemerschmid. These chairs have been revived in the US recently.

Photos: courtesy of The Museum of Modern Art



Reception room for a Vienna newspaper, 1902, by Otto Wagner. Wagner was the official architect of imperial Austria.

BOOK REVIEWS

WHAT IS MODERN INTERIOR DESIGN? By Edgar Kaufmann Jr. Published by The Museum of Modern Art; distributed by Simon & Schuster. 32 pp. 7" x 10". Illus. \$1.25

Behind its retina-wrecking cover, an awesome red and pink checkerboard, this book calmly presents Edgar Kaufmann Jr.'s ideas on the evolution of room design. It has been an evolution led largely by architects, but Kaufmann does not labor that point, or any other.

He is unpedantic, undogmatic and uninsistent. Where most writing about interior design is fey (the kind of word witchery found in the ladies' fashion magazines), Kaufmann's language is marvelously clear and persuasive, his theories strong and in order.

His essay (the book is only 32 pp. long) discusses four main traits of modern rooms: comfort, lightness, quality and harmony; then comments on the influence of the Industrial Revolution and of nature. About "the machine" he writes prophetic history:

"Modern design was born of the turmoil called the Industrial Revolution. After many thousand years of manual drudgery, machines took over man's work. . . . The values men lived by, their dreams, their understanding of the natural world around them, all changed. A new cosmos was outlined by Isaac Newton; his universe was the Great Machine. As men once had deified the beasts they hunted, or the stars that guided them to green pastures, or the earth they plowed and reaped, now they came to have faith in the power of the machine, to believe in its effective logic.

"By the dawn of the twentieth century the first results were beginning to show, hints of new design suited to a power-plant world. The full flowering of this new expression was retarded by the First World War; then the 1920s and '30s saw a burst of vigorous design which may well be called the Machine Style. This culminated in the first victorious campaign to give modern man a background eloquent of his skills and aims, suited to his needs.

"It is ironic that the machine should have found a triumphant expression just as it had to abdicate a great position in men's minds. In the very decades of the Machine Style the end of the machine was ensured by the beginning of man's control over radiant energy, a power vastly more gripping and effective. . . ."

The slim volume, which is rounded out somewhat by a discussion of US interiors in various locales, should interest anyone, professional or not, who has ever been aware of the character of a room, or has felt sympathy for one or another kind of modern interior design. Some of the author's examples of the early seeds of much of today's interior idiom are amazing (see photos).

continued on p. 162

**designed
with**

SCHOOL CLASSROOM IN MIND!

HAWS Sink-Type Drinking Faucet Receptor

School classrooms may differ widely in their requirements. Realizing this, the new HAWS Sink-Type VANDAL PROOF Drinking Faucet Receptor was designed to accept practically any combination of HAWS Pantry Faucets—or Fill Glass Faucets—and HAWS bubbler-type Drinking Fountains.



● **The HAWS Receptor** is cast iron—beautifully finished in acid resisting white enamel. Stainless steel mounting rim prevents water running onto table or cabinet top and affords a water tight bond between sink and top surface.

Write today for brochure illustrating combinations of HAWS fixtures that may be utilized with Receptor. You'll find a combination to fit the school job you have on the board or are now planning!

HAWS

DRINKING FAUCET CO.

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Wherever floor beauty must be combined with extra durability to overcome the problem of concentrated traffic, Armstrong's Linotile® is the outstanding resilient flooring choice. Now available in the distinctive new De Luxe grain-ing, Linotile is especially durable, the most economical to maintain of all the Armstrong Floors.

Trans World Airlines Inc. Ticket Office
San Francisco, California
Ward and Bolles, Architects

ARMSTRONG'S LINOTILE
ARMSTRONG CORK COMPANY • LANCASTER, PENNSYLVANIA

MATERIALS FOR PRODUCT DEVELOPMENT, 1953.

Clapp & Poliak, Inc., 341 Madison Ave., New York, N. Y. 265 pp. 6" x 9". \$7.50

This is more than a little gold mine of current information on new materials for designers and manufacturers who select and convert raw goods—metals, plastics, ceramics—into useful consumer and industrial items. It is also an eye opener for the construction industry. Although it has no specific instruc-

tions to the building engineer, it will alert him to potentials of some new aluminum alloys, high-strength steels and plastic laminates. Its general concern with high-strength-low-weight materials also should help stimulate a waste-less attitude toward structure.

Heat-treated steel

The text consists of the papers presented and discussions that took place at the Basic

Materials Conference held in New York City last June. Of the 18 papers included in the book, perhaps those of most direct interest to architects and engineers will be the ones on sandwich construction, high-strength steels, molded and extruded plastics and aluminum. One thought brought out in a discussion on steel is that, although generally not considered a light alloy, when heat-treated to provide tensile properties of 260,000 to 280,000 psi, steel has a strength-to-weight ratio comparable to the strongest aluminum or titanium alloys. While the demand for high-strength steels is not widespread in the construction industry, the publication points out that one manufacturer of steel buildings finds that high-strength steel costs less than carbon steel per pound of live load carried for roof purlins and side-wall girts.

Reinforced plastics

An intelligent lay-level discussion of the broadly applied phrase "reinforced plastics" clears up some confusion in about three paragraphs. Actually, the term means any mixture of plastic resins and fibrous materials—the fibers (glass, cotton, rayon, asbestos, paper or cloth) providing strength, and the resins moldability. Main advantages noted for the glass-reinforced plastics lie in their high strength-to-weight ratio (greater than most structural materials), corrosion resistance, weatherability, excellent insulation characteristics, dimensional stability over a wide range of temperature, shock resistance, inexpensive moldability and adaptability to complex shapes. A word of warning is offered however: "Despite their many favorable characteristics, reinforced plastics should not be considered as a universal substitute for metals. Their wide applicability indicates that these new plastics will find their own uses."

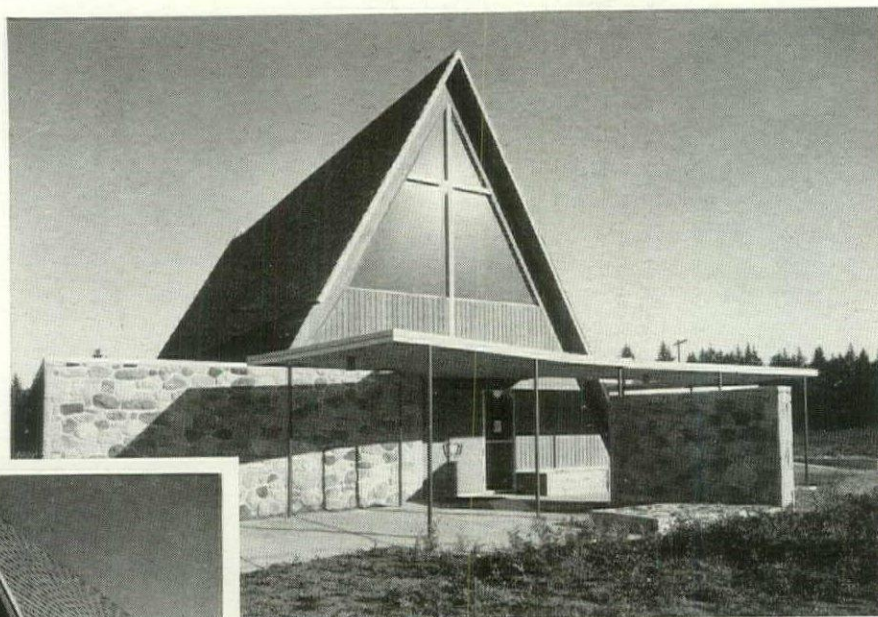
Many brief but welcome charts graphically sum up the nature of the various materials.

MOTELS, HOTELS, RESTAURANTS, AND BARS.

Published by Architectural Record, 119 W. 40th St., New York 18, N.Y. 216 pp. 9" x 11 1/2". Illus. \$6.95

A collection of reprinted articles from *Architectural Record*, this book concentrates primarily on a field, motels, which in its second blossoming is becoming a major sociological phenomenon in the US. In one article Architect Frederic Arden Pawley includes a good description of this building type: "Someone has said that the motor court was sired by the tourist cabin and dammed by the hotel."

After motels, the volume goes on to include reprints of material the *Record* has published on hotels, restaurants and bars. The book's introduction is by James S. Hornbeck.



Architects: Semmens & Simpson Vancouver, B.C.

Cabot's Modern Finishes For Modern Design

When Semmens & Simpson, recipients of the Gold Medallists Massey Committee Architectural Award, designed this interesting church—St. Anselm's, Vancouver, B.C., Canada, they specified Cabot products throughout the building.

Exterior Shakes:

Cabot's #241 Bleaching Oil

Interior Roofing:

Cabot's #0-3 Glacier Blue Stain Wax and #0-15 Long Island Gray

Laminated Members:

Exterior—Cabot's #325 Redwood Stain
Interior—#0-6 Redwood Stain Wax

Mahogany:

Exterior—Cabot's #247 and #344 Creosote Stain
Interior—#0-15 Long Island Gray Stain Wax

Cross:

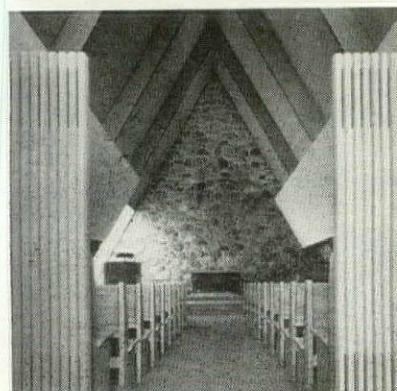
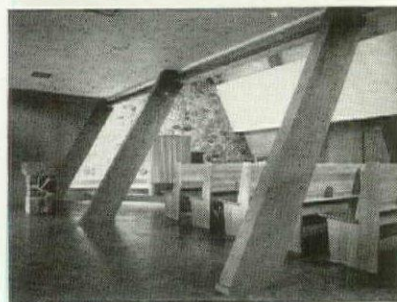
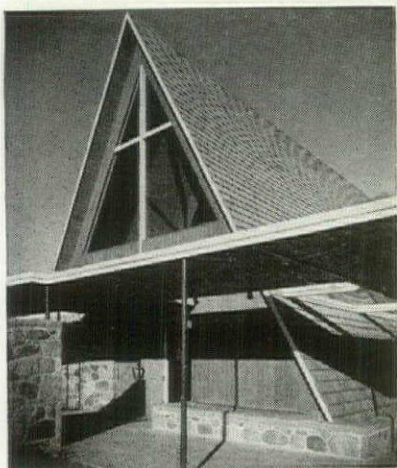
Cabot's Double White

Stonework behind altar treated with Cabot's Clear Cement Waterproofing.

We will be glad to send you Color Cards and Literature on the above products.

Samuel Cabot Inc.

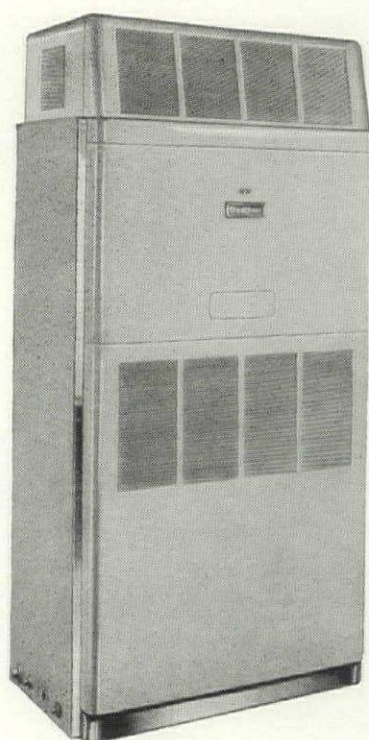
1231 Oliver Bldg., Boston 9, Mass.



SHOPPING CENTERS . . . build store traffic and profits with Frigidaire Conditioners



Dayton Town & Country — like other modern shopping centers in all parts of the country — uses many Frigidaire Conditioners, Water Coolers and Refrigeration Products.



Self-contained units in 3, 5, 7½-ton capacities are ample for many stores or small businesses. May be installed in multiple to cool larger areas. For additional information refer to Frigidaire Catalog in Sweet's File.

LOCATION: Dayton, Ohio
C. MELVIN FRANK: Architect
CASTO DEVELOPERS: Builders

Cashing in on the latest retail trend toward one-stop shopping, Casto Developers, father and son team of Columbus, Ohio, has become one of the leaders in the broad new field of mammoth marketing areas. The Dayton Town & Country, one of Casto's recent projects, is 1000 ft. long, covers 20 acres, has 35 operating stores and represents a total investment of around \$6,000,000 including buildings, land, fixtures and equipment.

As it does in the Dayton Town & Country, Frigidaire equipment helps build store traffic in similar shopping centers throughout the country while answering tenants' air conditioning and refrigeration needs. A prime example

of this is the Frigidaire Conditioner — ideally suited to this type of operation. It requires only simple connections to water supply, drain and electricity . . . thus making installation and relocation easy. Four-way cool air distribution from fully adjustable grilles, plus quiet, vibration-free operation make these compact Frigidaire units perfect for use directly in the area to be conditioned, thus eliminating the need for ductwork. Operating cost is low (as little as 2c per hour, per ton of cooling) as a result of the efficient XD Meter-Miser Compressor and Multipath Cooling Unit.

For full specifications on Frigidaire Conditioners, call the Frigidaire Dealer, Distributor or Factory Branch that serves your area. Look for the name in the Yellow Pages of your phone book. Or write Frigidaire, Dayton 1, Ohio. In Canada, Toronto 13, Ontario.

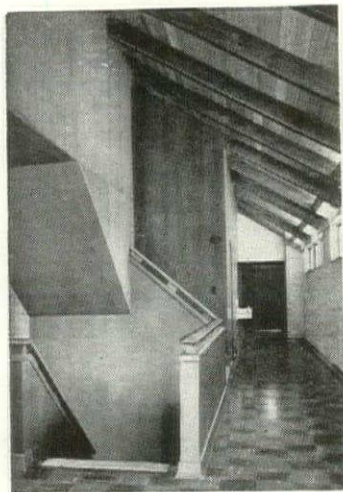
FRIGIDAIRE

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BUILT AND BACKED BY GENERAL MOTORS



Complete line of Air Conditioners • Reach-In Refrigerators • Compressors
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How Honeywell Customized Temperature Control can help solve the heating problems of the nation's churches

Specially designed Honeywell system provides superior comfort, saves fuel in Denver's new Messiah Lutheran Church.

For a good many years, churchmen have been faced with several of the most difficult of all heating control problems.

How do you regulate the heat of a church so that its main areas are not uncomfortably hot on worship days when the gathering is large? How do you make sure it won't be too cold when bad weather keeps attendance down? And during the week, how do you maintain comfort in offices and auxiliary rooms without burning a lot of costly fuel to heat the whole building?

The way these problems have been met—by Honeywell Customized Temperature Control—in the Messiah Lutheran Church in Denver may well serve as a model for the rest of the nation.

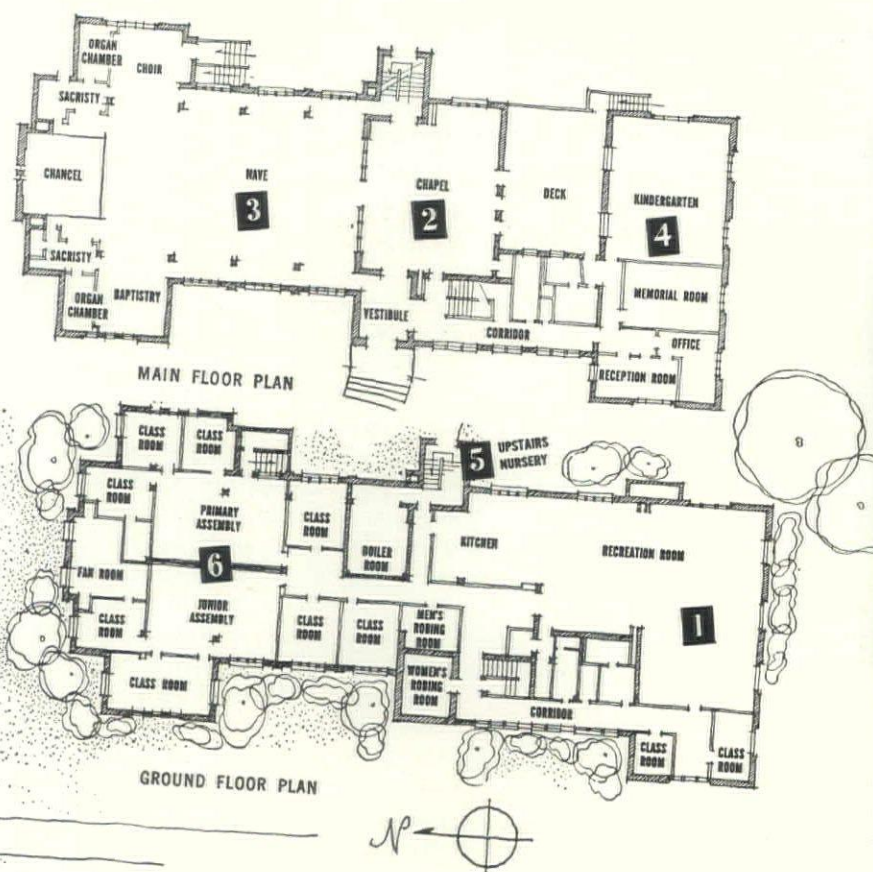
For today, with ten adjustable Honeywell thermostats controlling seven temperature control zones, (the seventh, a perimeter zone, is not shown on the floor plan), all areas of the Messiah Lutheran Church are comfortable all the time. And fuel consumption is held at an economical level.

Six thermostats control comfort in two zones of nave

The area embracing the altar, choir section, and front portion of the nave proper is included in one zone. Here one thermostat controls the radiant floor panel while two others, on either side of the altar, control the heating and ventilating system discharging at the grilles shown in the ceiling. The rear part of the nave and the chapel are controlled as a separate zone. Also in this area, two special electric thermostats regulate the temperature of the organ pipes in each organ chamber to guarantee proper tuning.

Architect: Raymond Harry Ervin, Denver
Mechanical Engineers: Marshall & Johnson, Denver





This photo of the exterior of the Messiah Lutheran Church gives a good idea of the clean architectural lines of the building, which was designed by Denver architect Raymond Harry Ervin. Also, it shows the wide variety of weather exposures of the structure. But Honeywell Customized Temperature Control as easily compensates for strong northern winds as it does for sunshine on a bright winter day.

For comfortable, even temperature in new or existing buildings—of any size—specify Honeywell Customized Temperature Control

Whether it's a church, school, office, factory, hospital, apartment, store, garage—or any size building—new or existing, Honeywell Customized Temperature Control can help meet your clients' heating, ventilating, air conditioning and industrial control 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. 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 information on Honeywell Customized Temperature Control, call your local Honeywell office. There are 104 across the nation. Or mail the coupon today.

MINNEAPOLIS
Honeywell



First in Controls



And this view of the upstairs nursery shows how well the younger set fares at the Messiah Lutheran Church. A separate Honeywell thermostat here can be adjusted to compensate for weather conditions and the number of children in attendance. Temperatures are usually kept warmer here—a turn of the dial on the thermostat takes care of that—so youngsters won't be exposed to drafts on the floor. Whenever this room is not in use, the thermostat is set back to help save fuel.

MINNEAPOLIS-HONEYWELL REGULATOR CO.

Dept. MB-12-45, Minneapolis 8, Minnesota

Gentlemen:

I'm interested in learning more about Honeywell Customized Temperature Control.

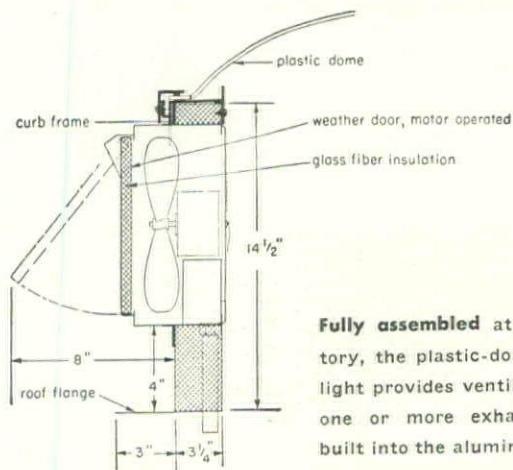
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Firm Name _____

Address _____

City _____ Zone _____ State _____

NEW PRODUCTS



Fully assembled at the factory, the plastic-domed skylight provides ventilation via one or more exhaust fans built into the aluminum curb.

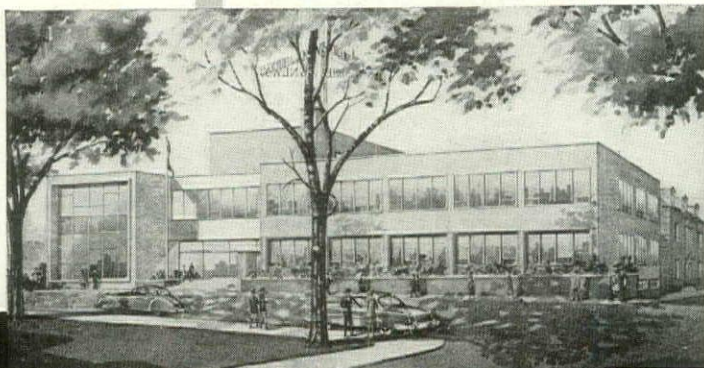


PACKAGED SKYLIGHT fitted with fan furnishes light and ventilation for windowless rooms

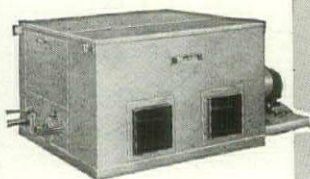
Before *Ventdome's* advent, the choice an architect had to make in laying out school or plant washrooms and other areas requiring daylight and ventilation was either to use valuable perimeter space or resort to complicated and costly skylights and separate air exhaust devices. Wasco's new package offers a third course: to specify low-cost prefab skylights with built-in exhaust fans for inside rooms. The *Ventdome*, like its *Skydome* cousins, consists of a molded acrylic plastic bubble atop a leakproof frame of extruded aluminum with this addition: between frame and flashing is a glass-fiber insulated aluminum collar 14½" high containing a preassembled ventilating unit. The carpenter merely sets the complete unit over a prepared opening in the roof and applies mastic and felt strips over the 3" flange (after nailing it to the roof deck). A motor-operated weather door, also insulated, shields the 8" exhaust fan and grille. Rigid conduit inside the curb provides access to the motor, which can be hooked up to an ordinary wall switch. Price for the smallest *Ventdome*, a 20" x 20" unit, is \$70; for the 64" x 96", \$400. Standard models each have one air exhaust with a capacity of 425 cfm. Where more air exhausts are needed, an additional \$34 is charged per fan. The skylight itself may be ordered in either clear or translucent plastic.

Manufacturer: Wasco Flashing Co., 87 Fawcett St., Cambridge 38, Mass.

Architect: Lewis J. Sarvis, Battle Creek
Engineer: Harold C. Hewitt, Dearborn
General Contractor: Phelps-Wagner, Battle Creek
Mechanical Contractor: Hunter-Prell Co., Battle Creek
Electrical Contractor: Union Electric Co., Battle Creek



MODERN NEWSPAPER PLANT INSTALLS *Marlo* COMFORT EQUIPMENT



Marlo Ceiling and Floor Type Air Conditioning Units offer complete summer and winter functions . . . heating, cooling, filtering, ventilating.

The new home of the "Enquirer and News" in Battle Creek, Mich., is the last word in beauty and efficiency. Geared to today's high-speed methods of news gathering and reporting, it is one of the best-equipped plants of its size in the nation.

The selection of four Marlo Ceiling Type Air Conditioning Units for winter comfort was in keeping with the policies of planned efficiency and economy at the "Enquirer and News." For Marlo is gaining ever-widening recognition as the effective, low-cost solution to air conditioning problems.

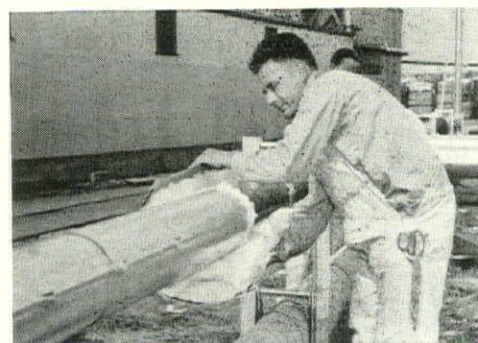
For detailed information on the complete line of Marlo equipment, write to Marlo today.

See our bulletin in SWEET'S CATALOG

 COIL COMPANY	Manufacturers of COOLING TOWERS • EVAPORATIVE CONDENSERS • INDUSTRIAL COOLERS • AIR CONDITIONING UNITS • MULTI-ZONE UNITS • BLAST HEATING & COOLING COILS
	Saint Louis 10, Missouri

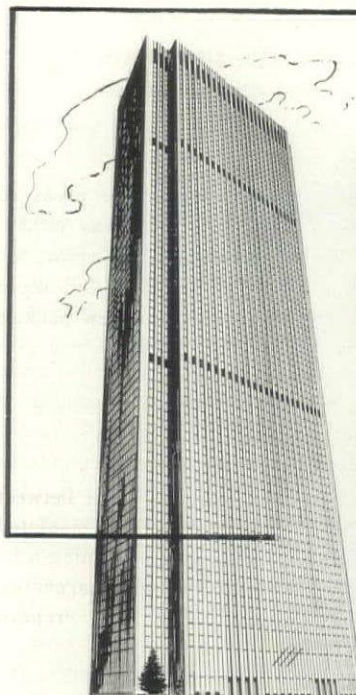
GLASS-FIBER INSULATION has weatherproof aluminum sheath

Now outdoor pipe lines can be made virtually impervious to weather with *Met-L-Glass* pipe insulation, a glass-fiber wool core encased in a .016" aluminum sheet jacket. It is applied at a density of 6 lb. per cu. ft. at thicknesses equal to standard pipe insulation. The aluminum sheath is available separately for recovering existing lines. Both the jacket and the

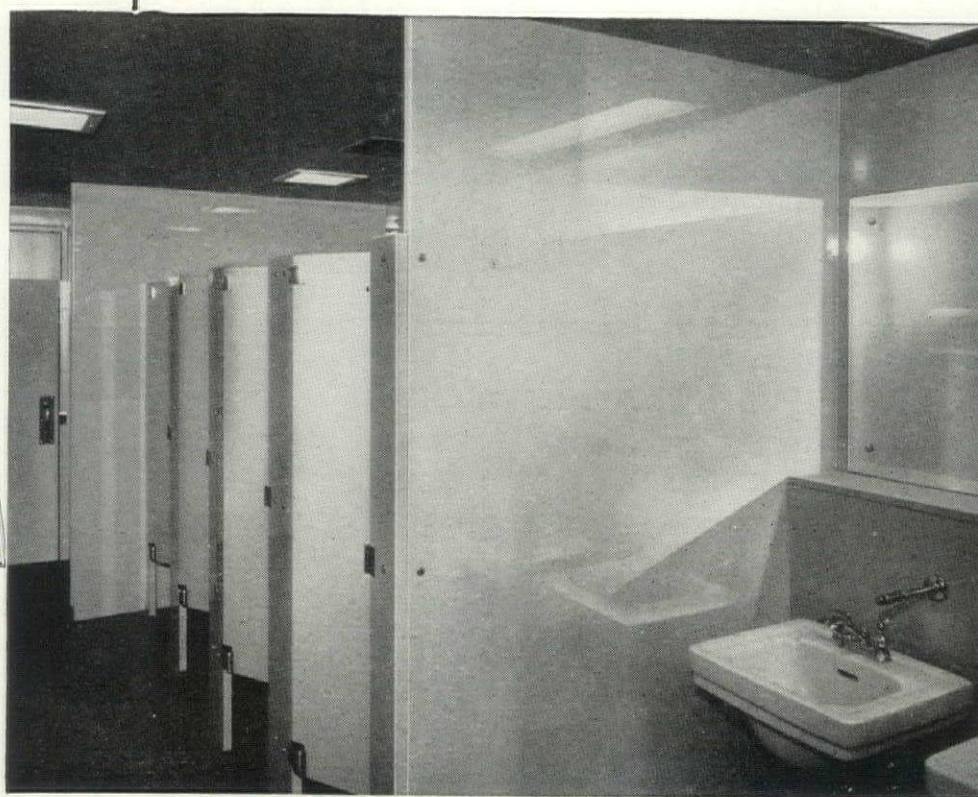


combination package have self-sealing watertight clips, are easily removed and replaced. Prices for the aluminum jacket range from 22¢ to \$1.85 per lin. ft.; for the blanket and jacket package from 45¢ to \$6.60 per lin. ft. Manufacturer: Met-L-Glass Corp., 2210 25th Ave., Seattle 44, Wash.

continued on p. 168



Mellon-U.S. Steel Building
This truly modern office building in Pittsburgh, Pennsylvania, was designed by W. K. Harrison, M. Abramovitz, New York, N. Y., and W. Cocken, Pittsburgh, Pennsylvania.



Washrooms of another notable building finished in Carrara Glass

● Beautiful and durable Carrara Structural Glass has long been the first choice of leading architects for walls, stiles and partitions in restrooms in the country's outstanding buildings.

They like Carrara's smooth, gleaming surface that is mechanically ground and polished to an unusually high degree of lustre. They appreciate its imperviousness, its ability to retain this beauty, even after many

years of exposure to steam, water, acids, soaps and cleaning compounds.

These foremost architects know that when they specify Carrara Structural Glass, they are giving their clients a wall material that is sanitary and easy to keep clean. Because Carrara is installed in large sections, there are fewer joints and crevices to catch dust and dirt. Architects also appreciate Carrara's versatility and its ten glowing colors which make it adaptable to any number of design possibilities.

Additional material on Carrara is available from Pittsburgh Plate Glass Company, Dept. 3398, 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

Carrara

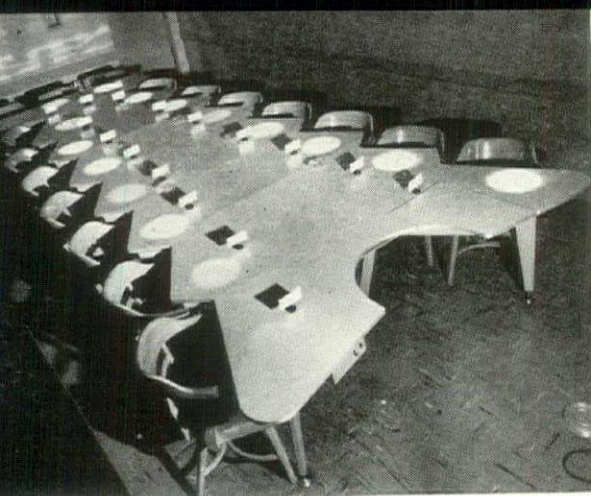
... the quality structural glass



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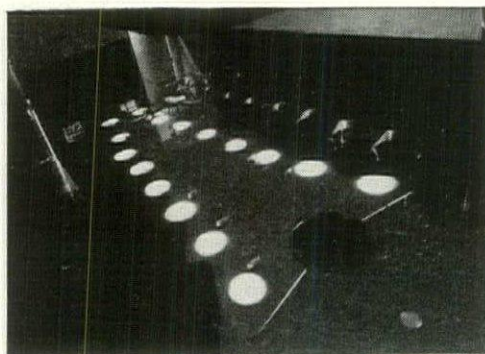
PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED



Notched to give everyone around it a comfortable vantage point, the plastic-topped table should be a boon in a crowded conference room.

NEW PRODUCTS *continued*



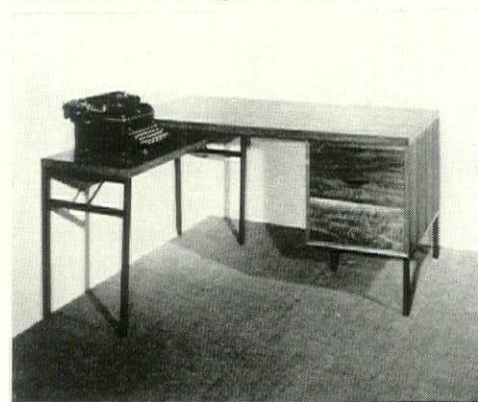
SAW-TOOTHED CONFERENCE TABLE gives all hands clear view forward

The problem of designing a workable conference room is largely solved with Eugene Korda's amusing but utilitarian table No. 502. The 18'-3" mammoth above is 8' wide in front, tapers to 6' at the opposite end and comfortably seats 18. Everybody—except the one at the end of the table—gets a good look down front without goosenecking over shoulders or through elbow bends. Korda, who designed the succinct L-desk and partition system of *Kordarooms* (AF, Aug. '50), is cognizant of current conference-room presentations, many of which are made in the dark. For the custom installation pictured he provided spotlights above each 22½"-wide desk notch for note taking during film presentations. An X-pedestal arrangement below the table top provides ample knee room. Cost of the unit above is \$1,600. Other models are \$1,000 to \$1,800.

Manufacturer: Korda Industries, 20 W. 46 St., New York 36, N.Y.

OFFICE FURNITURE: modular parts tailored of beautiful but tough materials

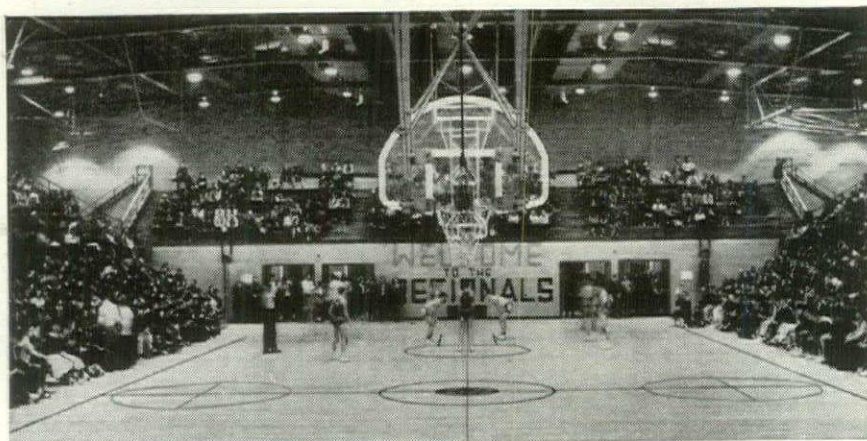
Elegant without having drawing-room pretensions, practical without looking clinical, the Lehigh modular furniture group should be a gracious complement to many a contemporary office layout. So svelte are the assembled components designed by G. Luss that they belie their functional engineering and stock-parts origin. Richly grained yet rugged *Realwood Formica* (plastic-impregnated hard-



wood veneer) is used to surface desk tops and pedestals. Hardware and the square, tubular-steel legs have three baked-on coats of dull

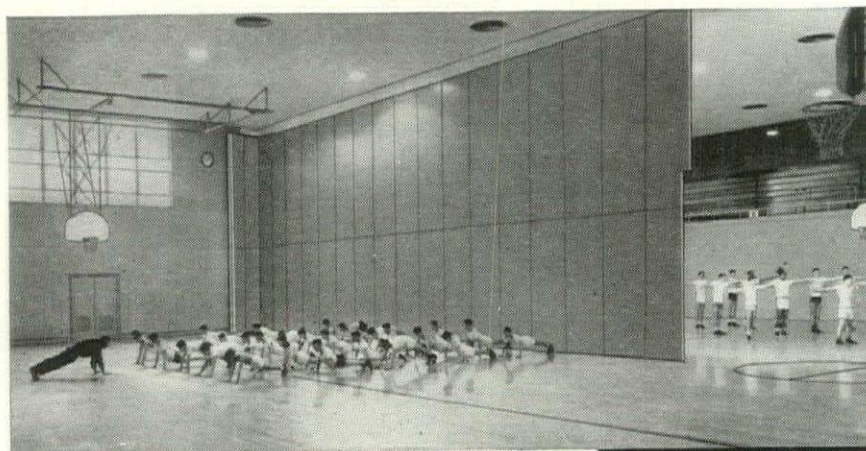
continued on p. 176

HORN GYMS WORK **NIGHT AND DAY**



NIGHT brings exhibition games, the paying crowd... Horn Folding Gym Seats extend, partitions fold back, to make ample room for the crowd and the

game. Full chair height of seats, generous leg room, assures spectators greater comfort, enjoyment. *Safe*—each row automatically locks as it opens.

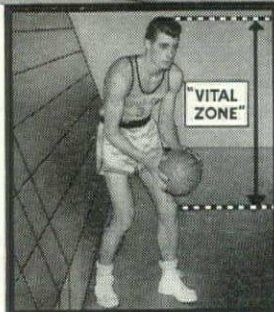


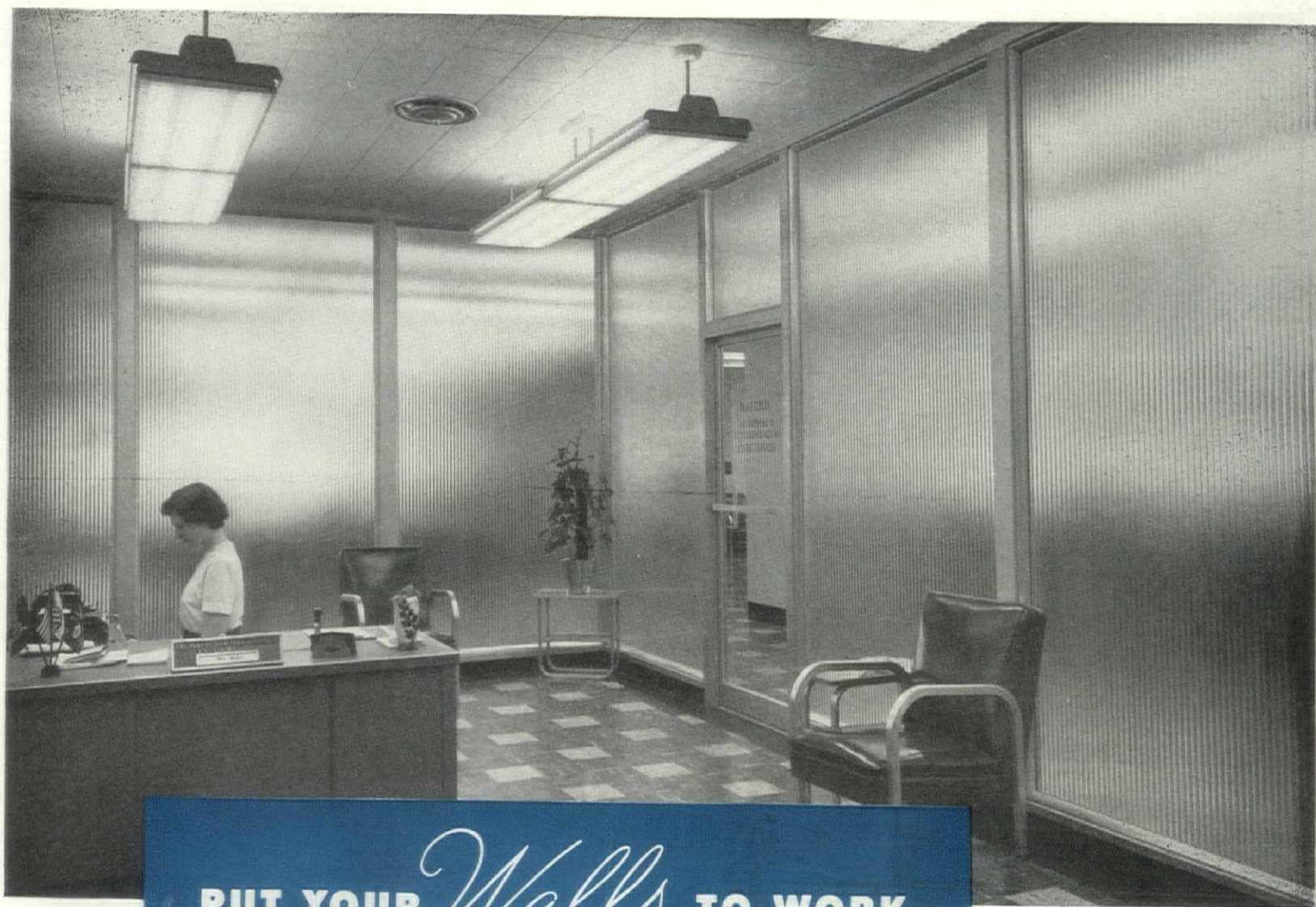
DAY brings practice, classes... Horn electrically operated partitions easily extend to divide floor space for multiple gym use. Horn seats fold against the wall to provide a smooth sloping surface, real protection for player's *vital zone*!

Horn

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PUT YOUR *Walls* TO WORK

Lustrous 7/32" Broadlite glass glazed in reception room, Purchasing & Administration Service, The Port of New York Authority Building, New York City.

There is utility as well as beauty in these gleaming walls of Mississippi Broadlite glass installed in The Port of New York Authority Building. This reception room glows a friendly welcome to visitors as the translucent glass partitions flood the interior with "borrowed light" from adjacent areas. The glass makes the interior appear larger, friendlier, too, yet assures complete privacy, and the high levels of illumination add to eye comfort and efficiency. In addition these modern glass walls save work. Glass never grows old or dingy...never requires redecorating...wipes shining clean with a damp cloth. Glass will not rot or sag and it is a non-combustible.

In your designs for new office interiors and in remodeling projects, consider the use of translucent, light diffusing glass—the modern material. Put your client's walls to work. Let them enjoy all the benefits that only figured glass can provide. Specify glass by Mississippi. Available in a wide variety of patterns and surface finishes wherever quality glass is sold.



MISSISSIPPI *Glass* **COMPANY**
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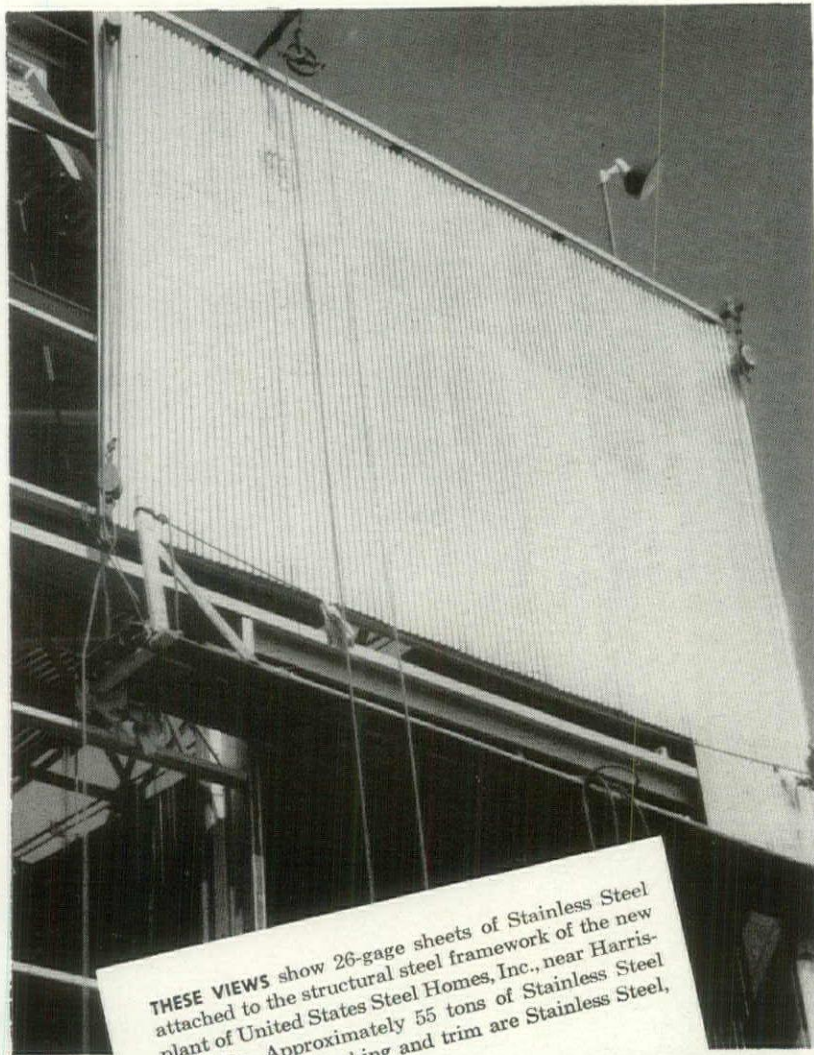


Write today for free booklet, "Figured Glass By Mississippi." Actual photographs illustrating hundreds of uses for this versatile medium.

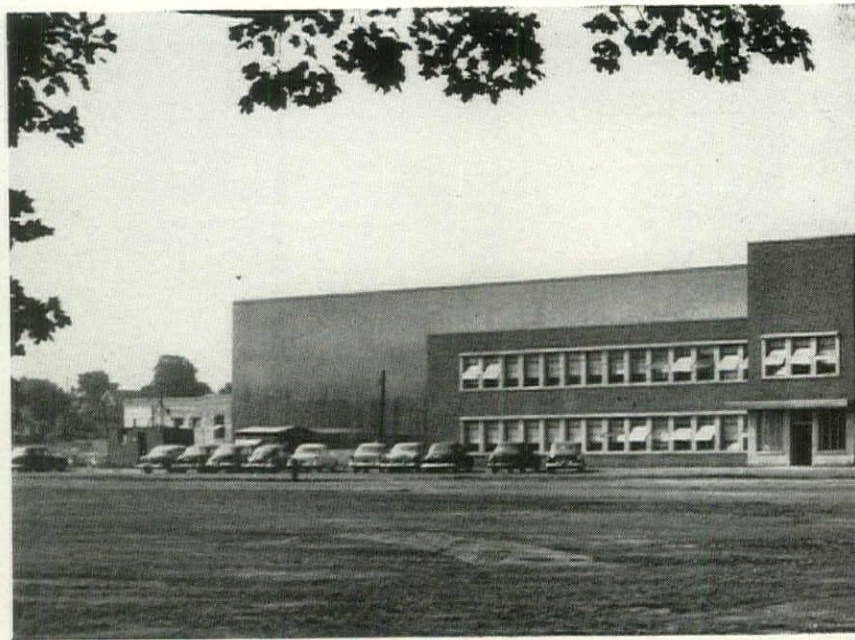
Free samples on request.

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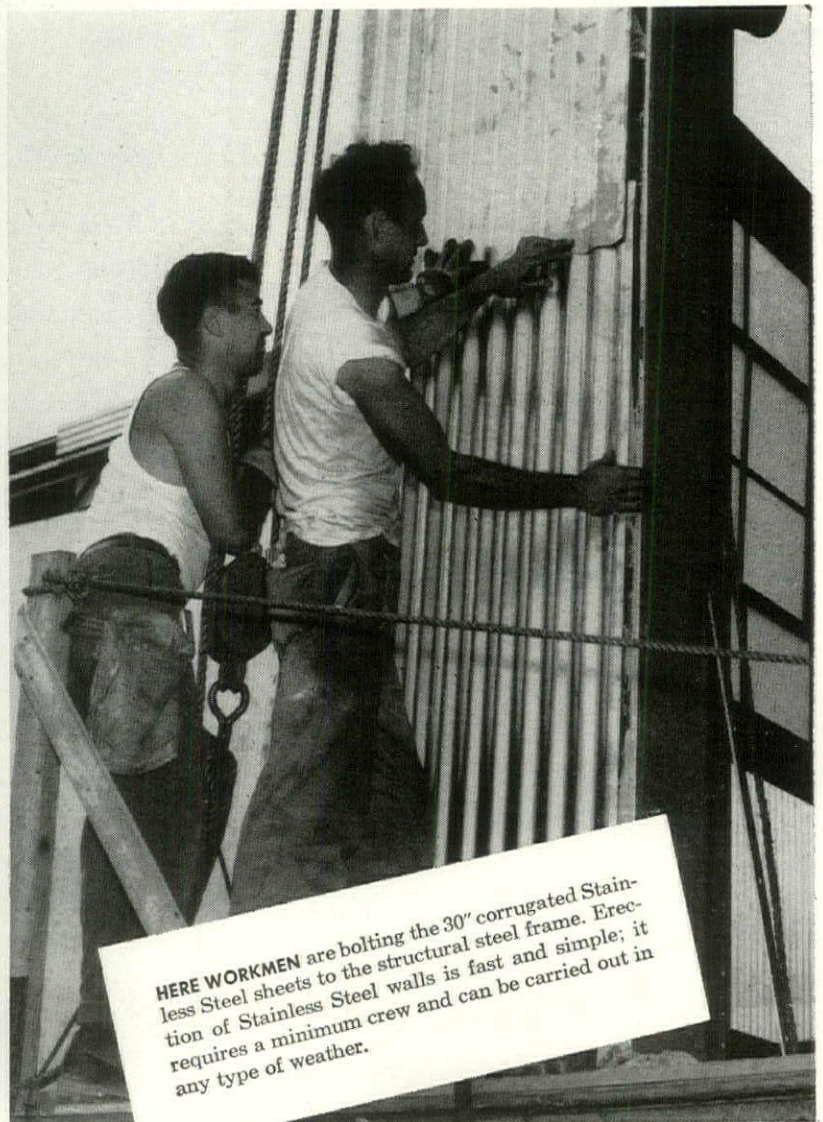
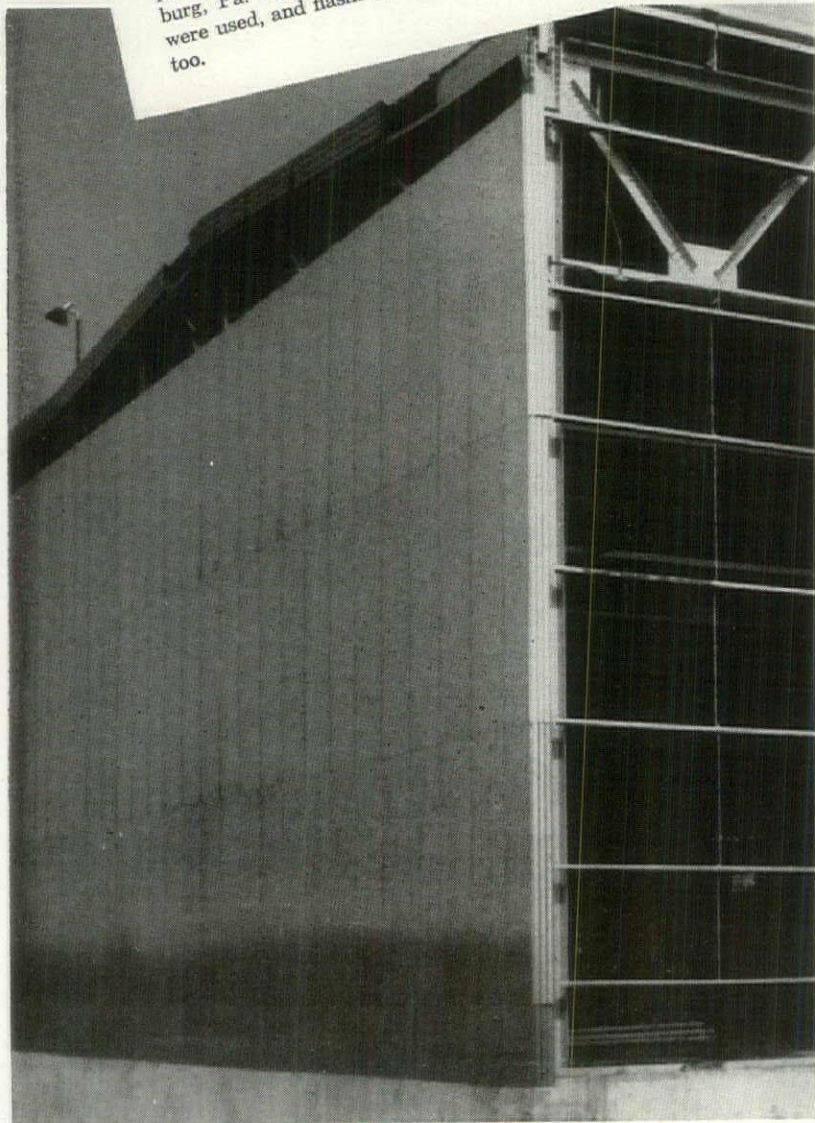
WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS



THESE VIEWS show 26-gage sheets of Stainless Steel attached to the structural steel framework of the new plant of United States Steel Homes, Inc., near Harrisburg, Pa. Approximately 55 tons of Stainless Steel were used, and flashing and trim are Stainless Steel, too.



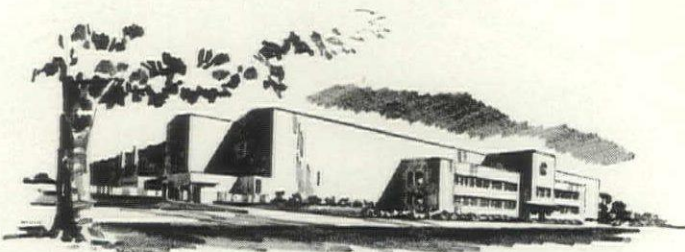
Walls of Stainless in this new plant



HERE WORKMEN are bolting the 30" corrugated Stainless Steel sheets to the structural steel frame. Erection of Stainless Steel walls is fast and simple; it requires a minimum crew and can be carried out in any type of weather.

SHEETS OF STAINLESS STEEL enclose the 34 to 36 foot walls of the new plant of United States Steel Homes, Inc. Stainless Sheets were fabricated and erected by American Bridge Division of United States Steel Corporation, and the general contractor was Ritter Brothers, Harrisburg.

Steel will keep maintenance costs low of United States Steel Homes, Inc.



HERE is one of the largest industrial structures to emerge from the growing trend toward the use of Stainless Steel for exterior walls. It's the new plant of United States Steel Homes, Inc.—formerly Gunnison Homes, Inc.—located near Harrisburg, Pa.

The plant is an "L"-shaped structure with approximately 310,000 square feet of floor space. The entire exterior is covered with sheets of 26-gage corrugated Stainless Steel, used in 30" widths. Approximately 55 tons of Stainless Steel were used.

Reduction of maintenance costs was the primary reason for selection of Stainless Steel sheets. The walls will not require painting and a long, trouble-free life is anticipated. And, in addition, Stainless Steel gives the plant an attractive over-all appearance.

Stainless Steel sheets and panels offer so many advantages both in construction and through the life of the

building that the cost-per-year is lower than almost any other material. They are considered outstanding developments in architectural circles today.

Panels are available uninsulated or with filler-type insulation between the exterior Stainless sheet and the interior sheet of carbon steel. This makes them suitable for the widest range of building types—plants, warehouses, power plants, office buildings and many others.

If you would like more information on Stainless Steel sheet and panel construction, mail the coupon below.

United States Steel Corporation
525 William Penn Place, Room 2820-B
Pittsburgh 30, Pa.

- ☐ Please send me your new booklet on U-S-S 17 Stainless Steel for industrial buildings.
- ☐ Please arrange to have fabricators of Stainless Steel wall panels send me literature on their particular type of construction.

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

Address.....

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

United States Steel produces only the Stainless Steel sheet and strip from which panels of this type are made; the panels themselves are fabricated by a number of our customers.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
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SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS

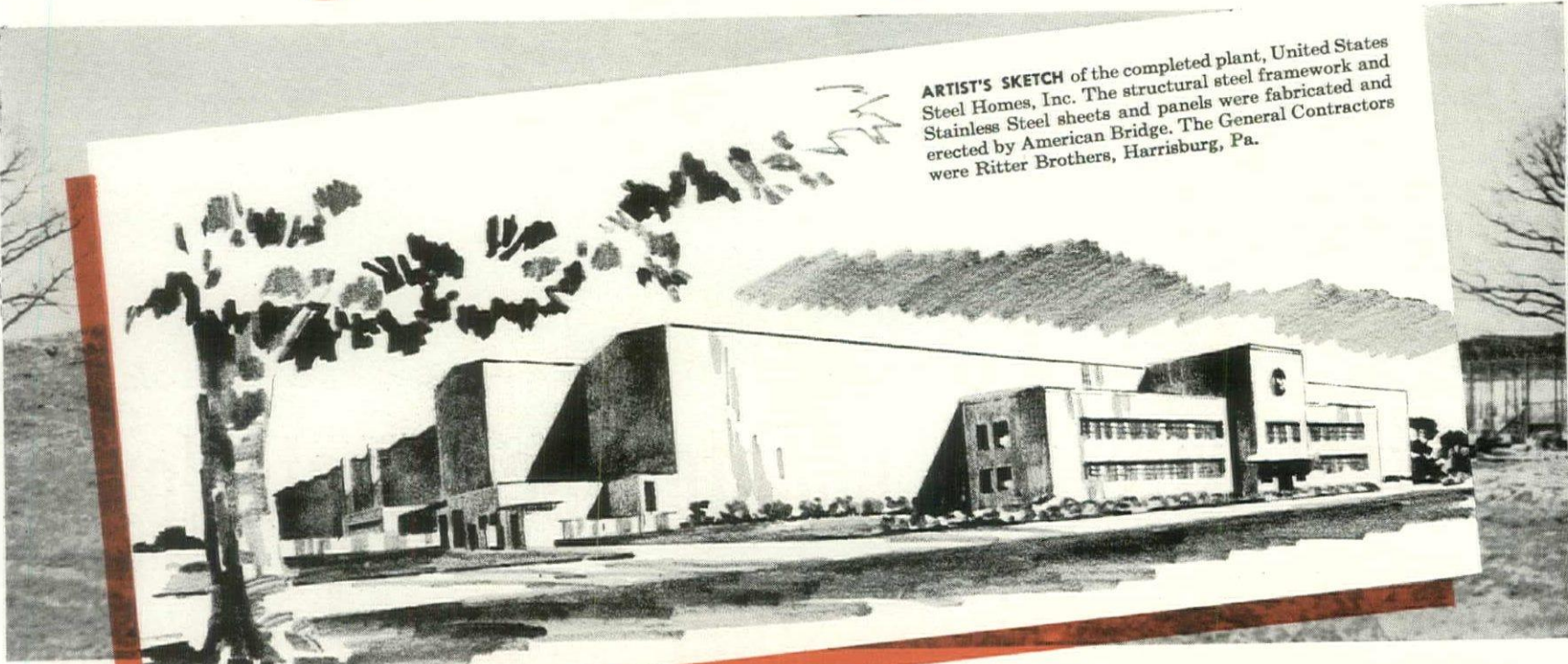
UNITED STATES STEEL



3-2083

Design for lasting economy—

ARTIST'S SKETCH of the completed plant, United States Steel Homes, Inc. The structural steel framework and Stainless Steel sheets and panels were fabricated and erected by American Bridge. The General Contractors were Ritter Brothers, Harrisburg, Pa.



A SECTION OF the 1900-ton U-S-S Structural Steel framework showing the wide spacing of the steel columns. The framework, consisting primarily of columns and trusses, now supports 55 tons of 26-gauge corrugated Stainless Steel sheets.

with lasting strength!



U·S·S Structural Steel

THE UNITED STATES STEEL HOMES plant during construction. The vast, "L"-shaped building covers a floor area of 310,000 square feet, the longest side being 780 feet. The walls vary from 34 to 36 feet in height.

THE structural steel framework of the new plant of United States Steel Homes, Incorporated—formerly Gunnison Homes, Inc.—near Harrisburg, Pennsylvania, is an excellent example of planned economy in permanent construction.

To provide as much unobstructed floor space as possible for the installation of plant machinery, the steel supporting columns were placed at unusually wide intervals—75 feet in one direction, 65 feet in the other. The application of U·S·S Structural Steel—the most economical of load-carrying materials—in such a cost-cutting method of construction, heaped economy upon economy, yet produced in the end an extremely strong, durable building.

And for good reason. Structural steel is tough. It will withstand more abuse than other structural

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

For complete information on construction with steel, write today to the United States Steel Corporation, 525 William Penn Place, Room 2820-A, Pittsburgh 30, Pa.

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COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
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U·S·S STRUCTURAL STEEL



UNITED STATES STEEL

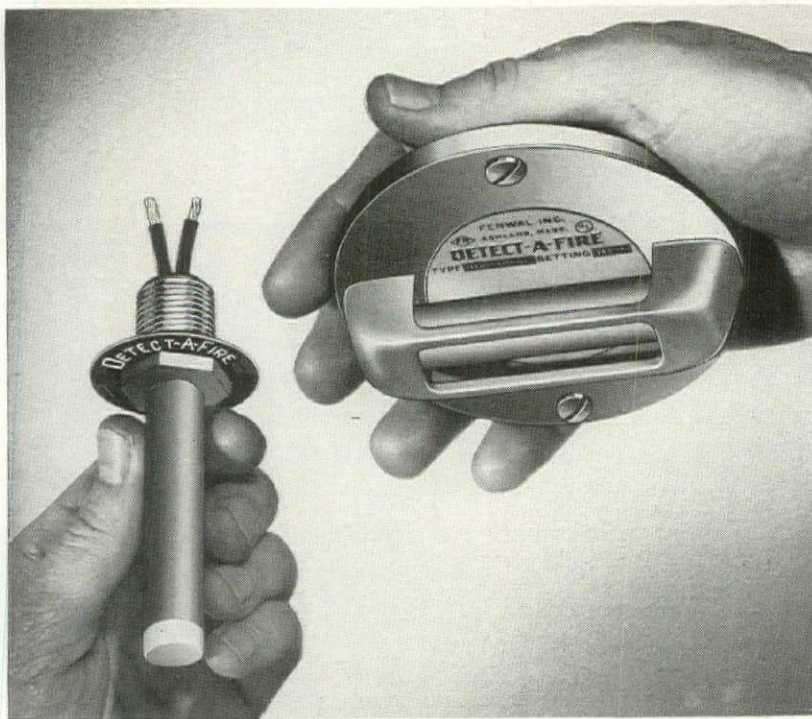
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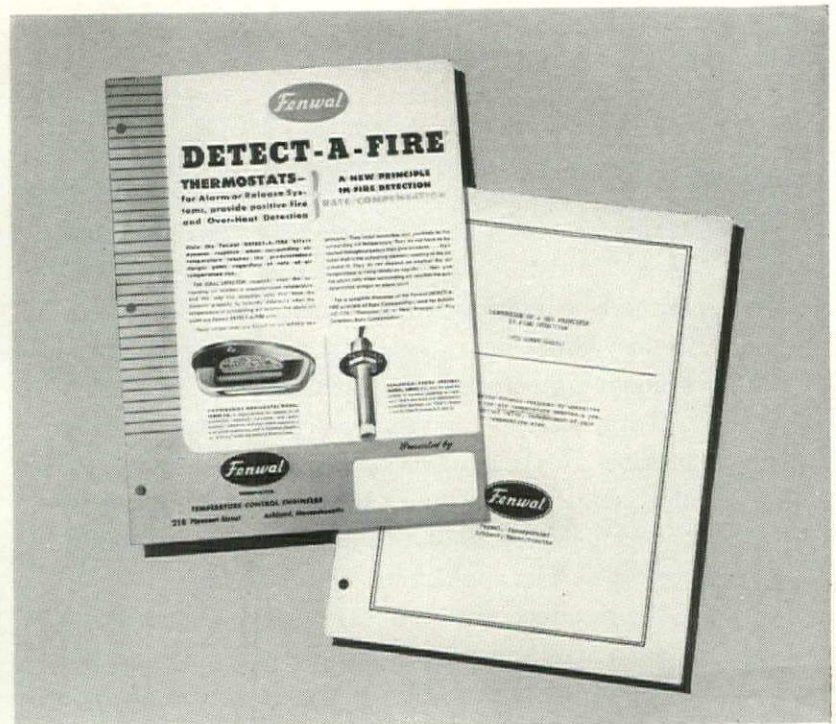
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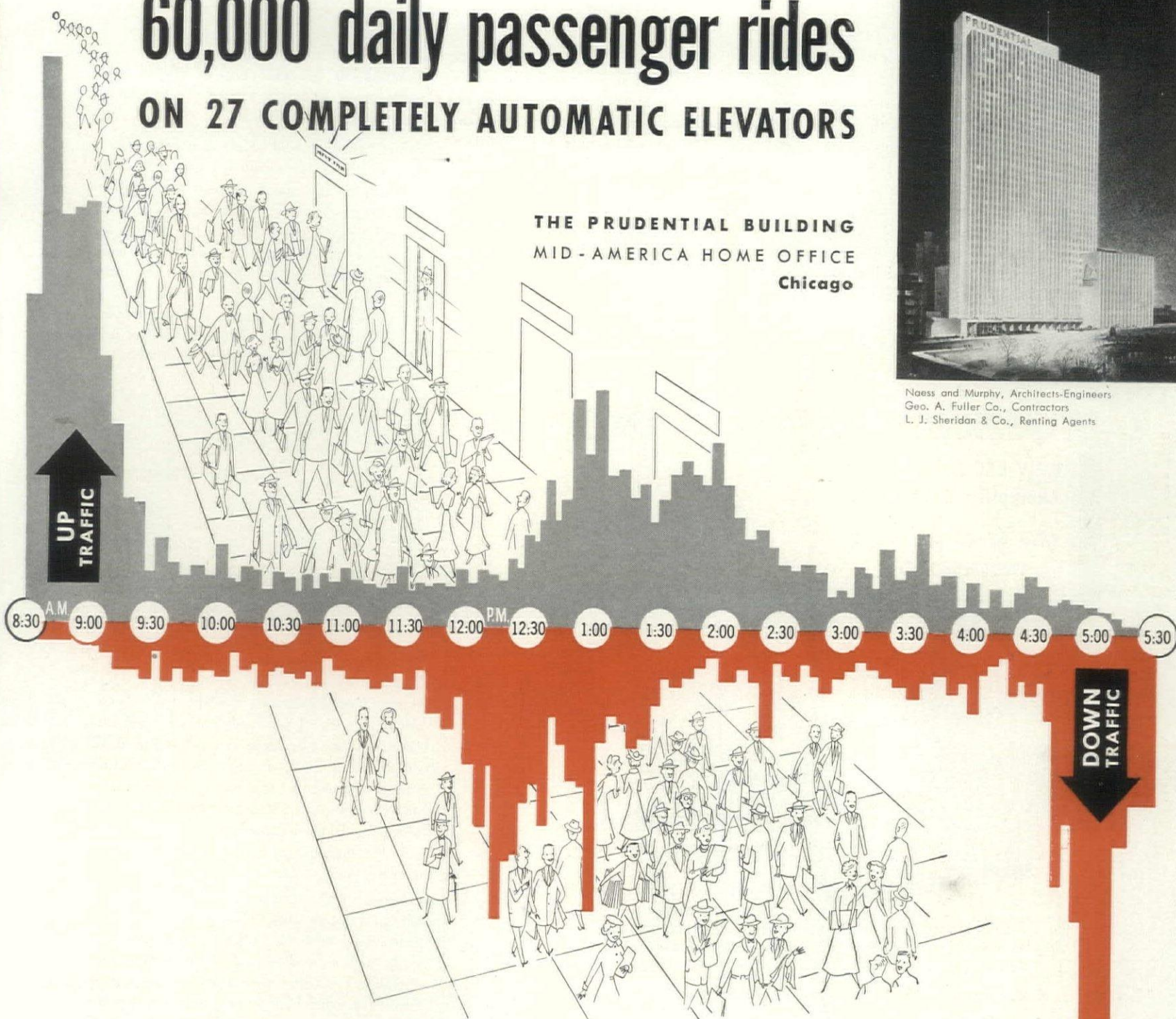
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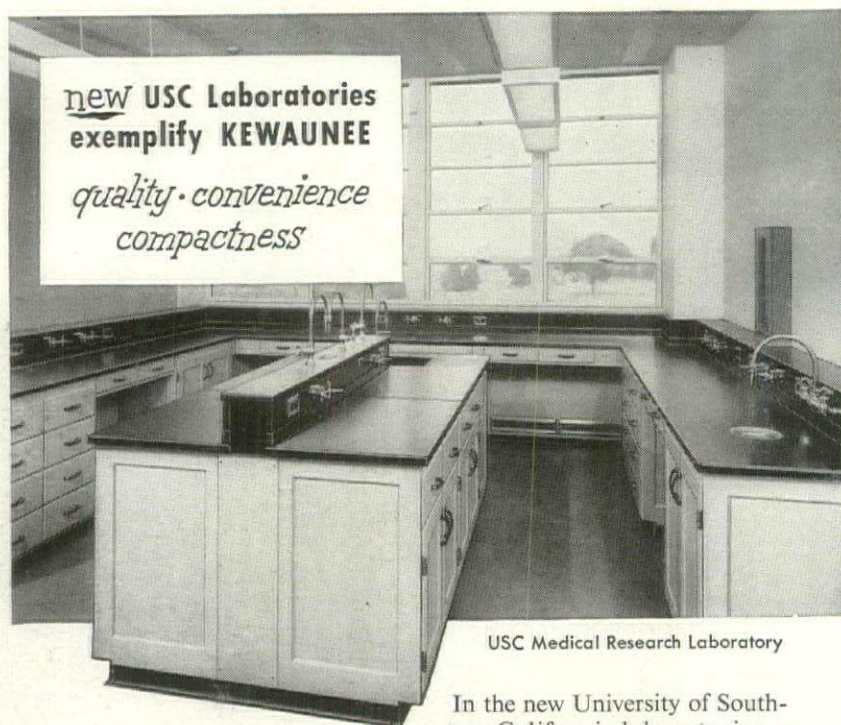
black lacquer. By mixing and matching desk tops and legged pedestals (one-, two- and three-drawer bases are available as well as file and typewriter units), each member of an office staff—steno, receptionist, salesman, executive—can be outfitted with a working arrangement that best suits his job and position. Prices are moderate. Table tops range from \$78.75 for the 4' x 30" up to \$198.75 for the 8' x 3'. Pedestals with attached legs are

\$176.25 to \$201.25; and separate leg brackets are \$23.75. Base cabinets cost from \$163.65 to \$272.50 and wall units from \$123.75 to \$217.50. (Generous discounts are accorded the trade.) A well-planned array of special equipment, such as knee-hole drawer, writing ledge, mounting angles and plates, are also obtainable.

Manufacturer: Lehigh Furniture Corp., 16 E. 53 St., New York, N.Y.

PLAYGROUND COATINGS provide cushion under jungle gyms, skidproof surface for treacherous areas indoors and outdoors

School architects will be glad to hear of *Parafall*, an antiskid, cushioned surface which will absorb the shock of falls from jungle bars, swings, slides, seesaws and other playground equipment. Firm enough to walk on yet pliant enough to minimize dangerous body and head injuries, *Parafall* comprises three different types of material, and application is similar to that for black-top. *Shock-O-Mat*, the bottom layer, is an alive and resilient pad of loose rubber particles which are poured



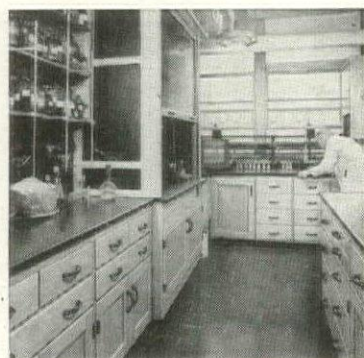
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Kewaunee Laboratory Equipment catalogs are yours for the asking. Kewaunee Planning Engineers are available for personal consultation without cost or obligation.

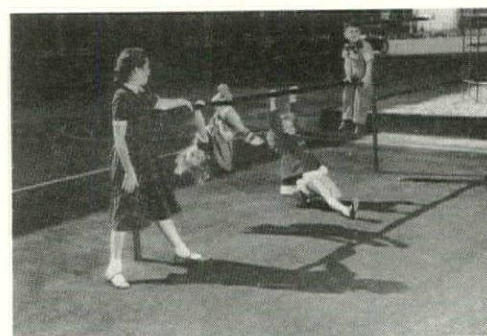
Kewaunee Mfg. Co.
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MANUFACTURERS OF WOOD AND METAL LABORATORY EQUIPMENT



directly on the existing surface, dirt, concrete or asphalt. (The springy particles are chemically processed to prevent packing.) Over this is laid *Shockbrane*, a resilient membrane which absorbs heavy shock loads and distributes them over large areas. Topping it all off is *Parascuff-T*, a tough rubbery coating which is applied with a spray gun preferably, or with a trowel. *Parascuff* also may be used alone on slippery areas inside as well as outside the building as an antiskid or noncorrosive protective coat.

Easily and permanently installed under all play apparatus, *Parafall* is gradually feathered from a thick shock-absorbent cushion down to the level of the surrounding surface. Tests have shown little or no loss of resiliency after long wear, while repairs are easily made by troweling additional *Parascuff* over the surface. Average price for *Parafall*



protection ranges from 79¢ per sq. ft. for an installation of 1" depth to \$1.35 per sq. ft. for 3"; for *Parascuff* alone, 8 to 15¢.

Manufacturer: Southern Chemicals, Inc. General of America Building, 5225 Wilshire Blvd., Los Angeles 36, Calif.

continued on p. 180

LOOK

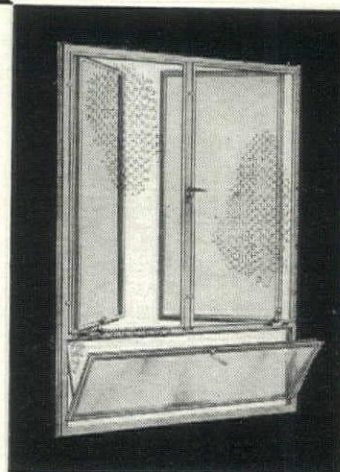
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■ If you are the kind of architect who knows the triumph of starting the trend of things to come . . . who enjoys testing the limits of imagination in creating the new, then you confidently specify "Ceco or equal."

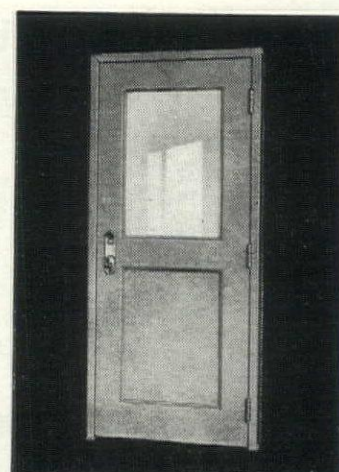
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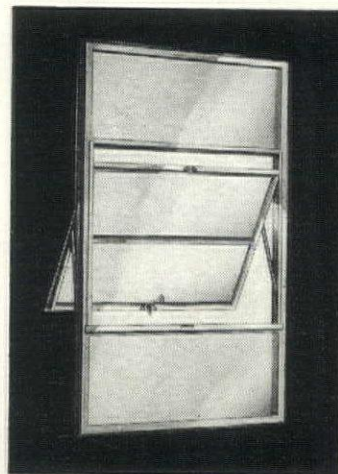
Here are 4 new
improved Ceco Trend Tested
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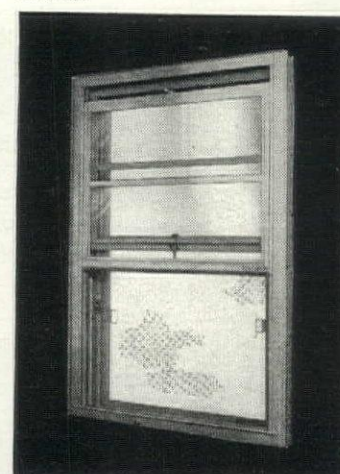
Ceco Intermediate Windows. Exactness in design, assuring the just-right window is the "Trend Feature" here. Only Ceco offers both 1 1/4" and 1 1/2" Intermediate Windows that can be adapted to any building problem.



Ceco Standardized Hollow Metal Doors. Pin-Point Precision in matching hardware to doors is the "Trend Feature" here in the broadest line ever offered with doors and hardware made for each other and supplied by one source.



Ceco Sterling Aluminum Projected Windows. Functional simplicity is the "Trend Feature" in this newest Ceco product. Framing members have simple lines that blend with modern motifs . . . hardware is in keeping with functional thinking.

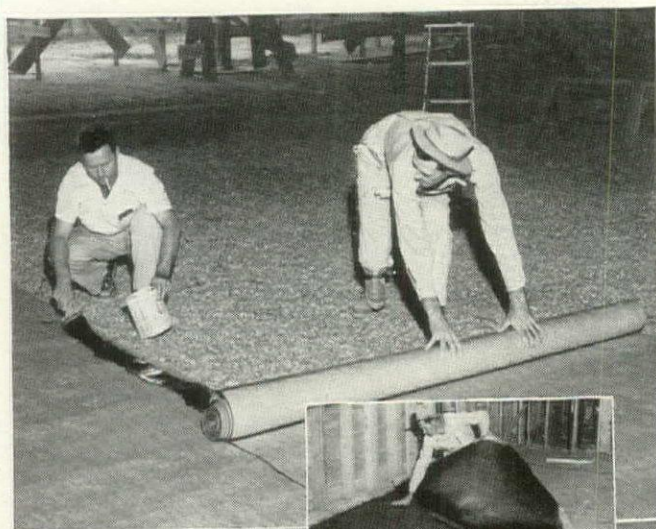


Ceco Sterling 3-in-1 Aluminum Window. Prime window, storm window and screen combine for versatility as a "Trend Feature" of this Ceco creation. Self-storing screens and storm windows take the work out of seasonal changing.

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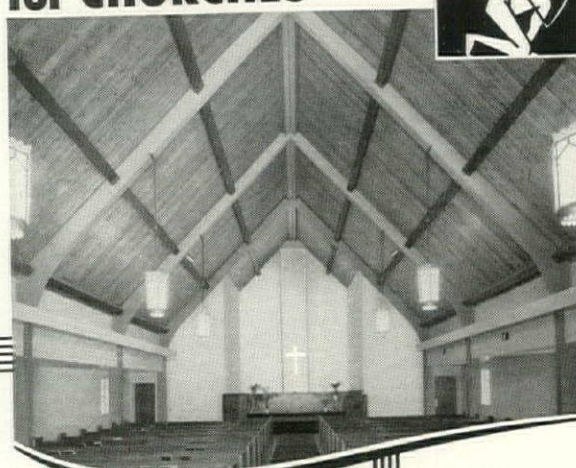
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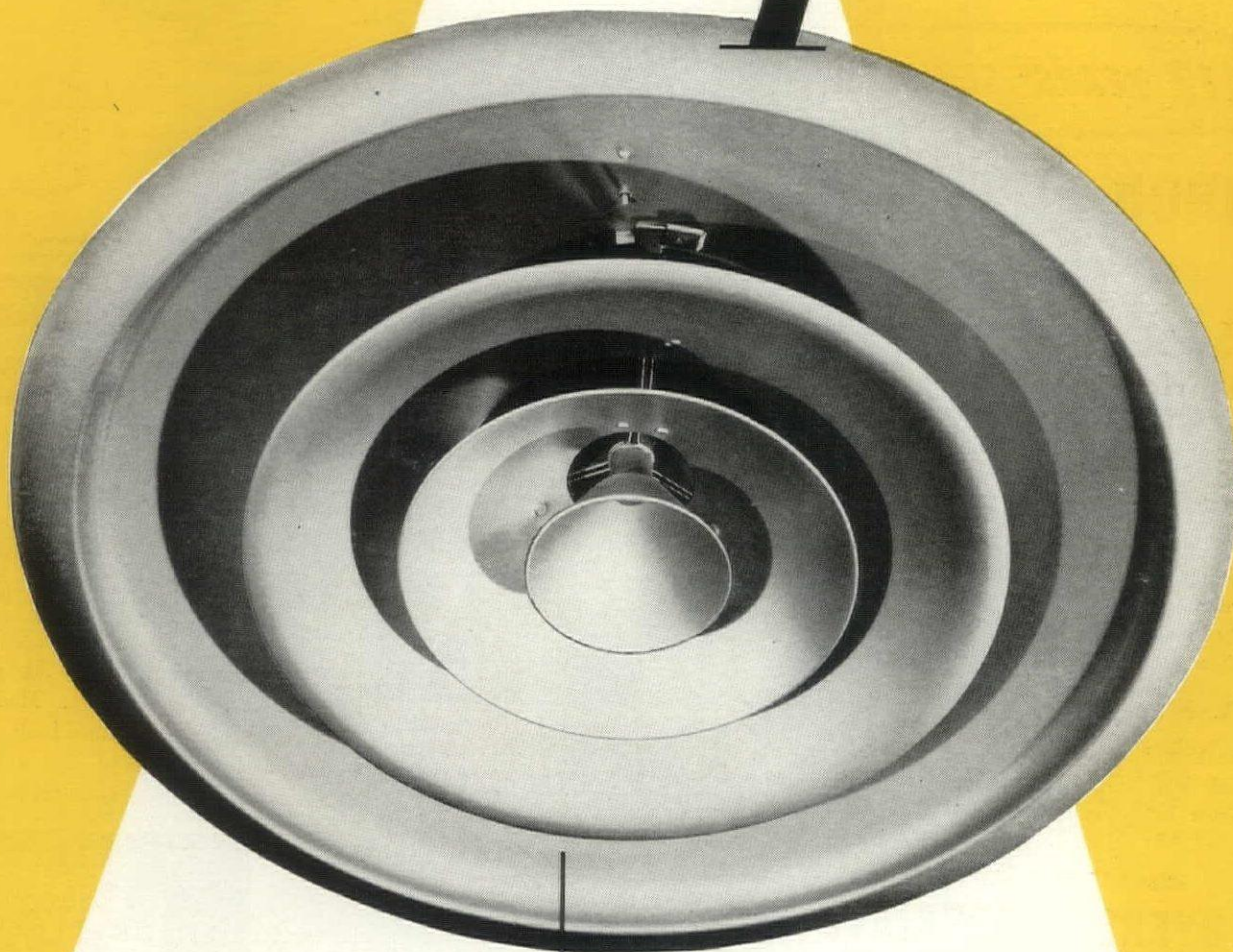
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REINFORCED PLASTIC has deep V corrugations to match metal siding designed for wide span

Resolite continues to find new forms for molding its polyester resins and glass fibers. In addition to the conventional curved and flat sheeting, the company makes 5-V crimped panels (AF, Dec. '52) and now V-beam. The new structural plastic is deeply corrugated to correspond to the 5.3"-pitch metal siding designed for wide purlin and girt span. Provid-

ing an economical means of top- or sidelighting a warehouse, plant or large commercial structure, the translucent sheets nest with their metal neighbors and require no special flashing, calking or framing. Installed on low-pitch roofs, the deep (1 $\frac{3}{4}$ ") dips provide good gutters for rain runoff. Standard colors for V-beam are those found most satisfactory for daylighting: pale green, ice blue and semiclear. However, seven other colors may be obtained on order. V-beam panels are 29" wide (coverage 26 $\frac{1}{2}$ ") and come in precut lengths up to 12'. Unaffected by weather, water and most chemical fumes and selling

AFTER 117 YEARS' SERVICE

CAST IRON PIPE HOUSE SEWER LINE IS STILL IN PERFECT CONDITION

In the OLDEST house in Chicago, Illinois, the original 4-inch Cast Iron Soil pipe stack and the original 4-inch Cast Iron Soil pipe house sewer are still in perfect condition.

The house was built in 1836. While being renovated and restored recently by Chicago Historical Society for dedication as a public memorial, plumbers discovered that its Cast Iron Soil pipe stack and sewer lines were good as new after 117 years of service.

Cast Iron Pipe is the only material approved by ALL national, state and city building codes for drainage inside and outside of buildings.

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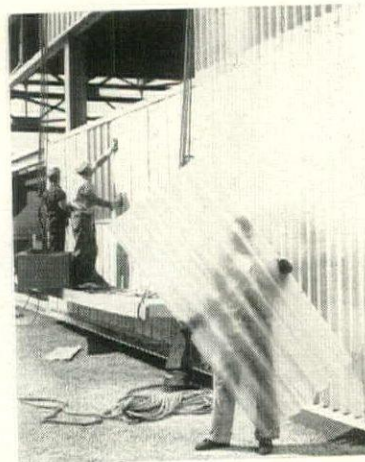
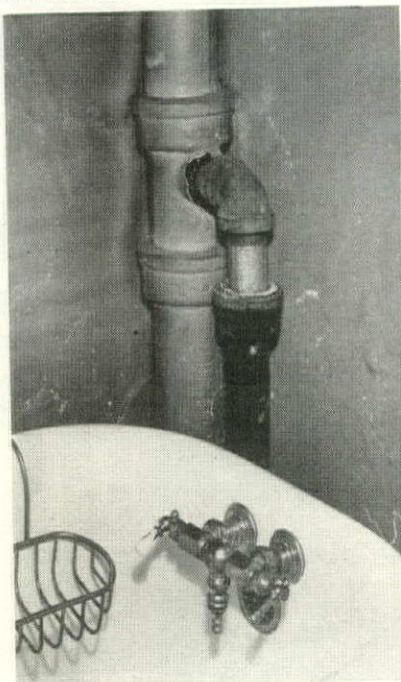
Woodward Iron Company does not manufacture pipe, but we supply leading Cast Iron Pipe foundries with high grade foundry pig iron from which pipe is made.

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Above: Center of photo shows 117-year-old 4" Cast Iron sewer stack and new 2" Cast Iron sink stack. Left foreground is new 4" Cast Iron sewer stack. All connect to original Cast Iron house sewer laid in 1836.

Below: 117-year-old Cast Iron sewer stack connected to new 2" Cast Iron stack. Present bathtub on legs replaced old copper tub with wood rim.



for about \$1 per sq. ft. in quantity, the shatter-proof plastic is both an attractive and practical construction material.

Manufacturer: Resolite Corp., Zelienople, Pa.

TRANSLUCENT PLASTIC PANEL is fire resistant, self-extinguishing

Direct flame cannot burn Alsynite's new No. 200-FR plastic sheeting. Made of recently developed resins that are both self-extinguishing and color-stable, as well as weather resistant, the new structural panel is intended

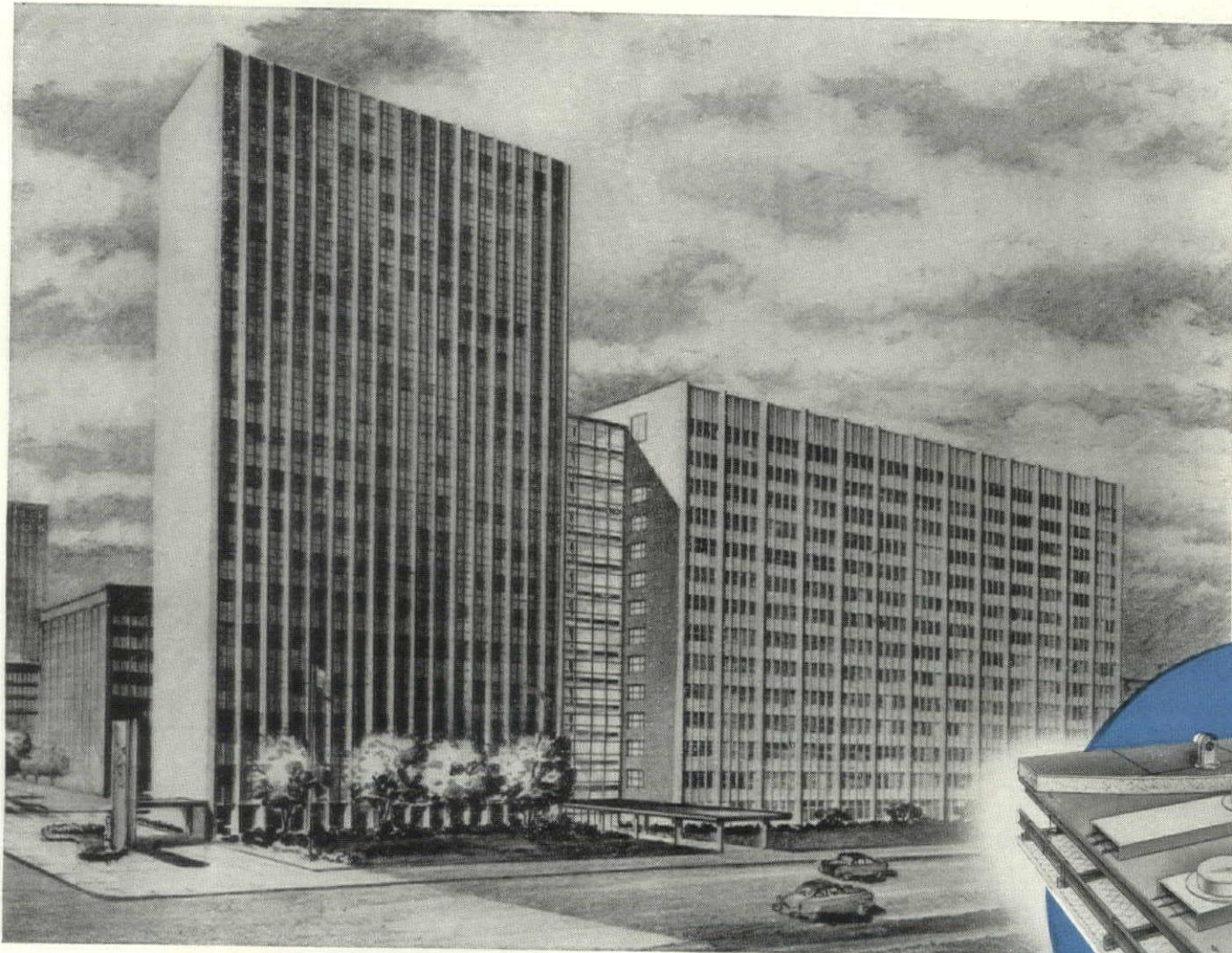


for such special installations as siding partitions and skylighting in critical fire areas. It is available in standard corrugations and flat sheets in soft yellow, light green and opal at a slightly higher price than the panels made with regular polyester resins.

Manufacturer: Alsynite Corp. of America, 4654 DeSoto St., San Diego, Calif.

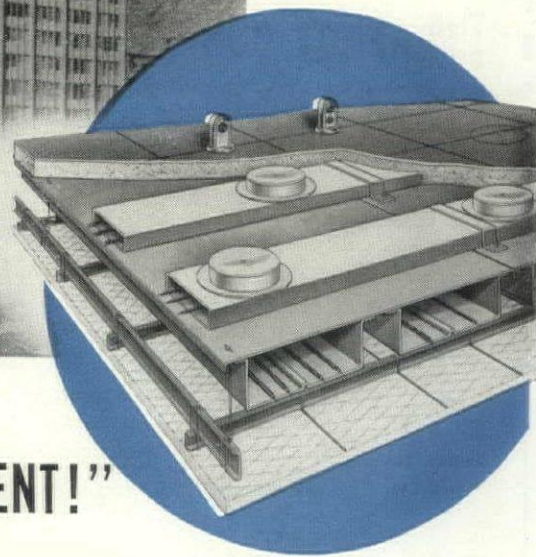
Technical Publications, p. 184

Fenestra nepco Electrifyfloor



New \$26,000,000 City County Building, Detroit, Michigan. Harley, Ellington & Day, Inc., Architects and Engineers; Bryant & Detwiler Co., General Contractors.

Nepco header ducts connected to top surfaces of Fenestra structural steel panel subfloor enable all of the large-area cells to be used as electrical raceways.



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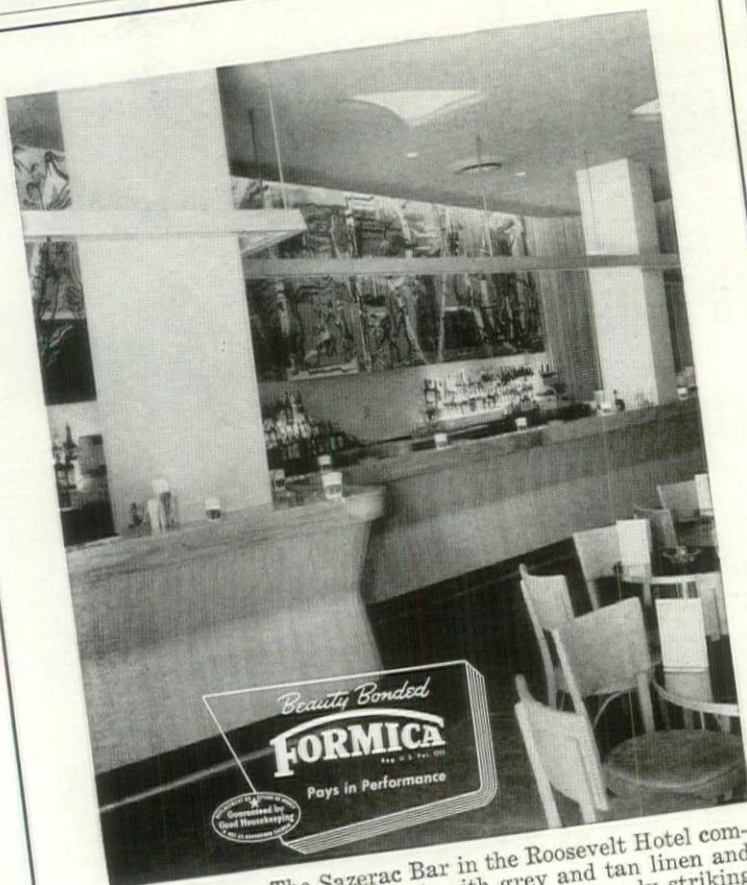
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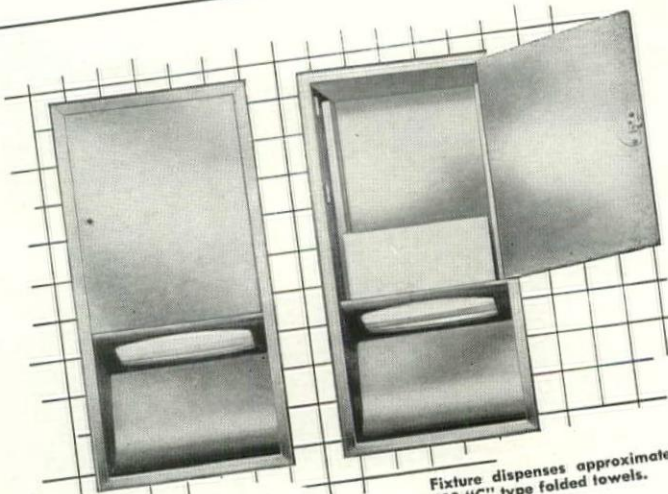
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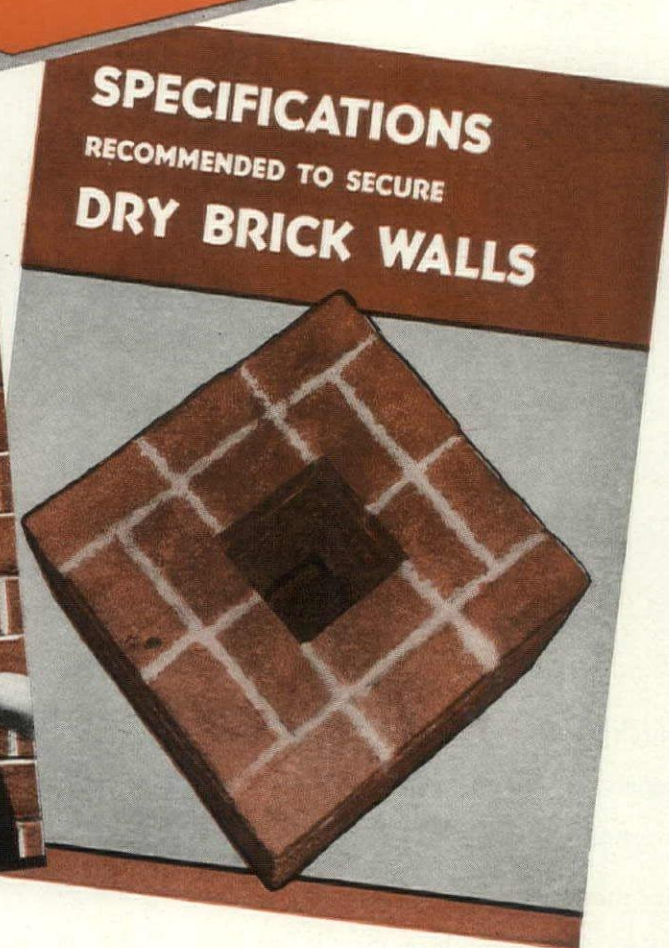
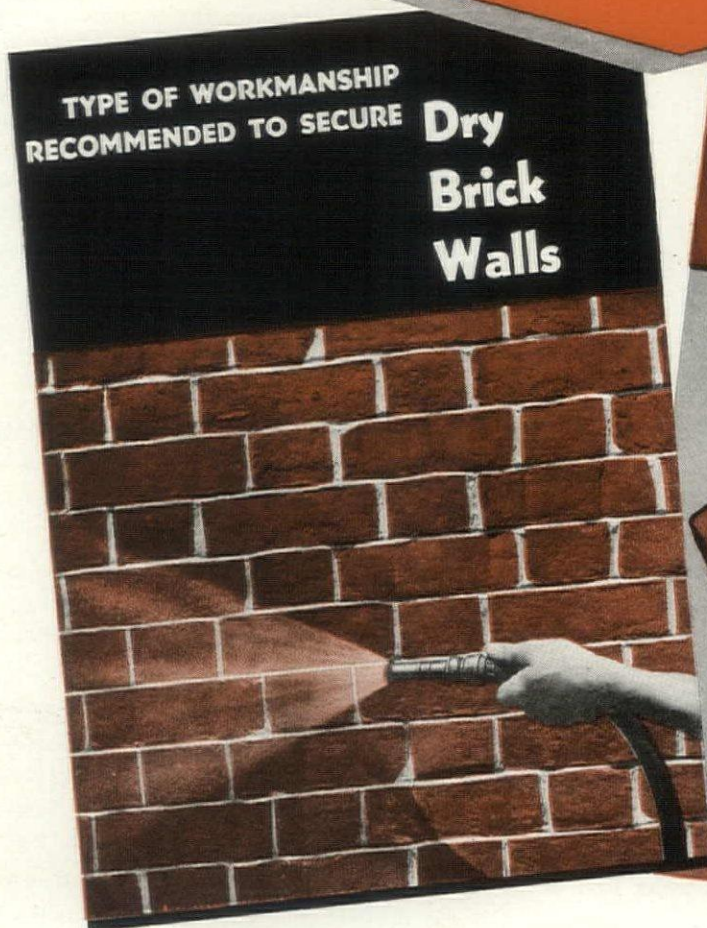
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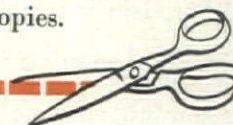


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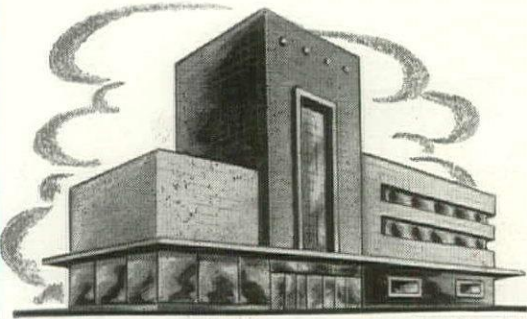
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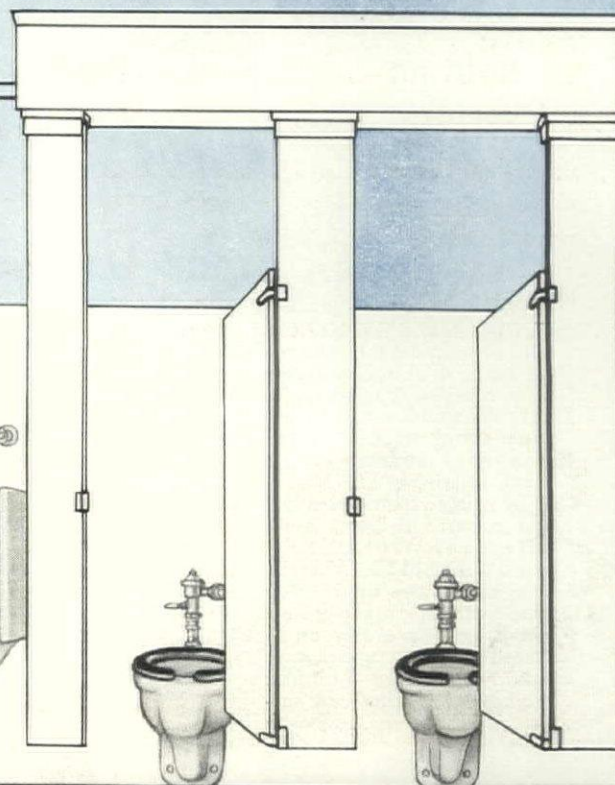
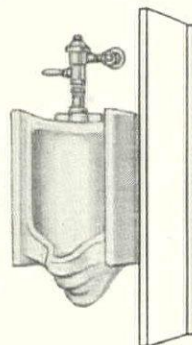
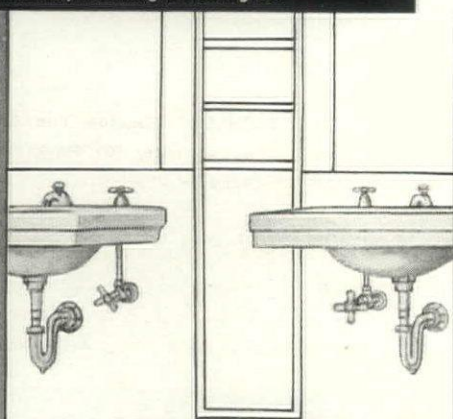
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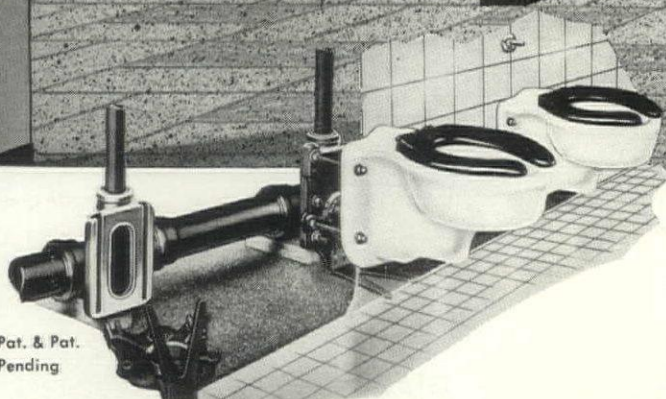
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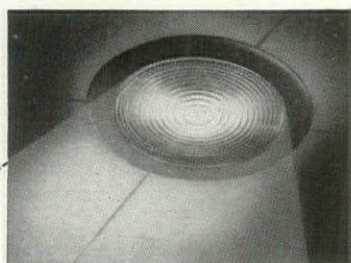
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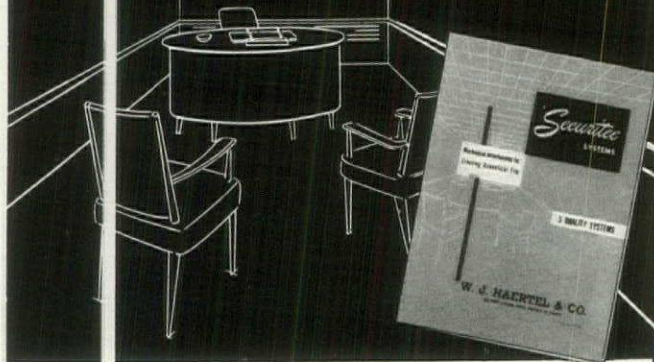
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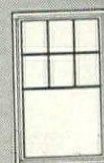
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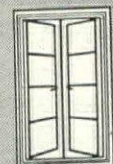
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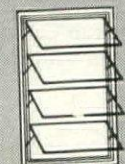
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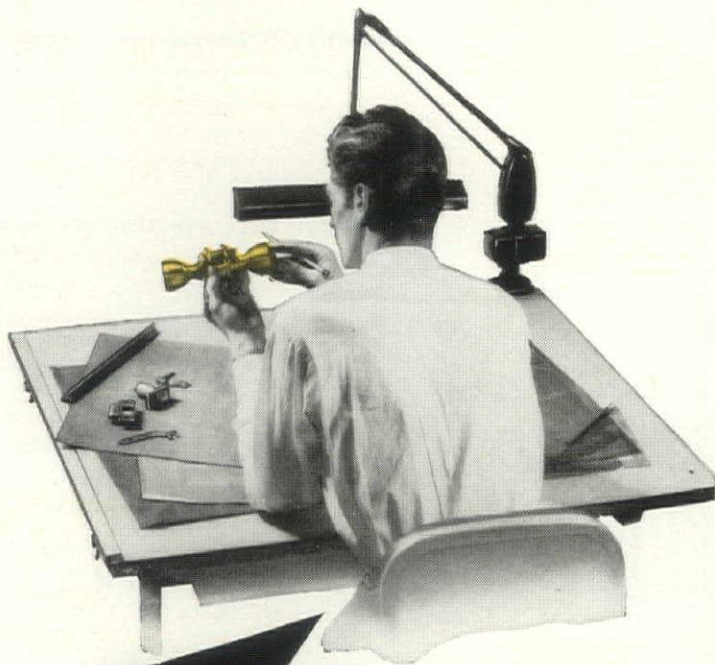
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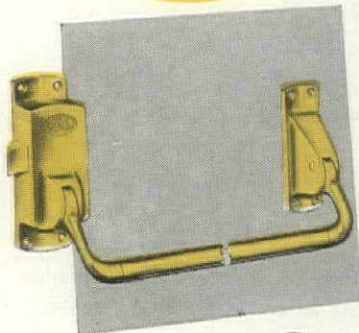
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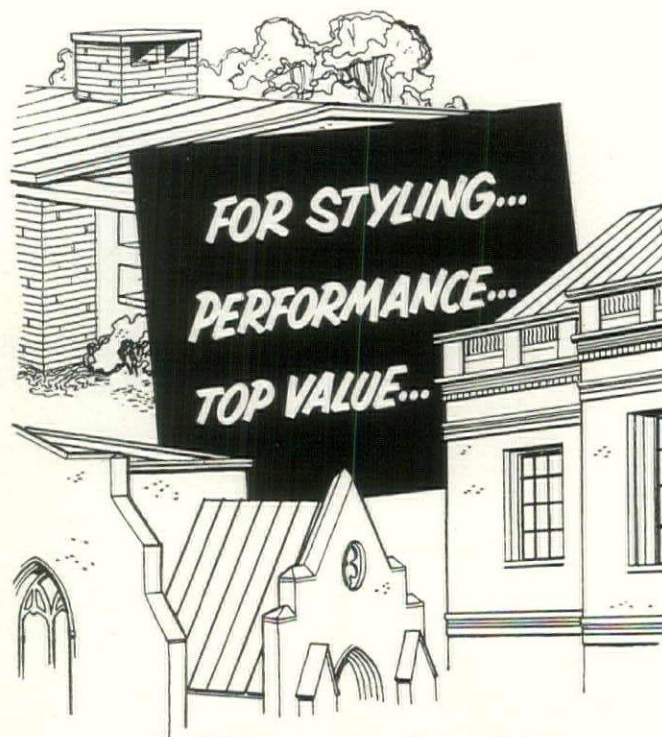
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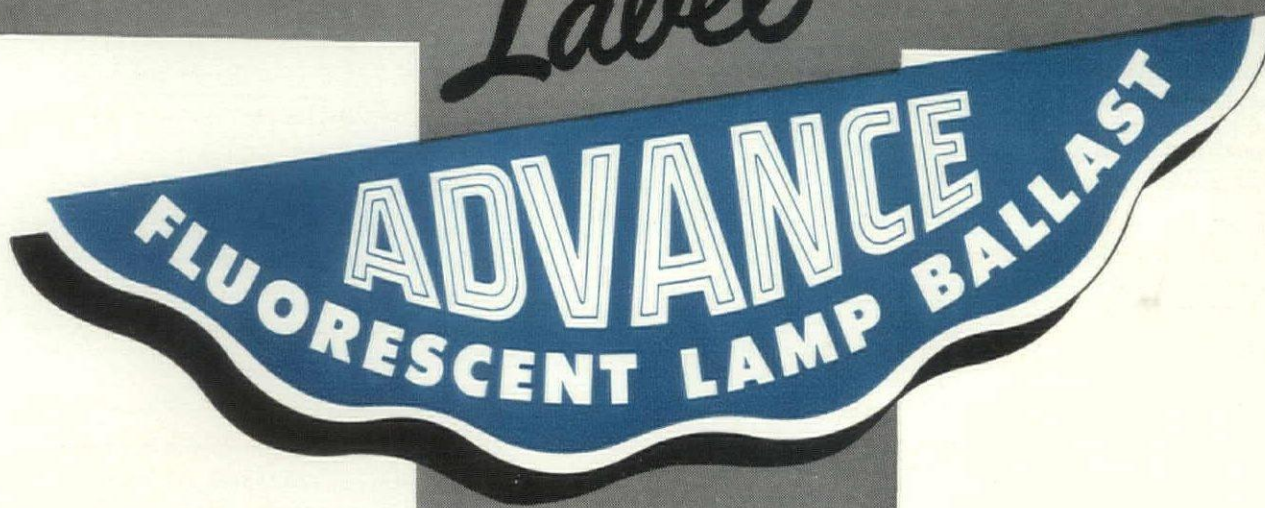


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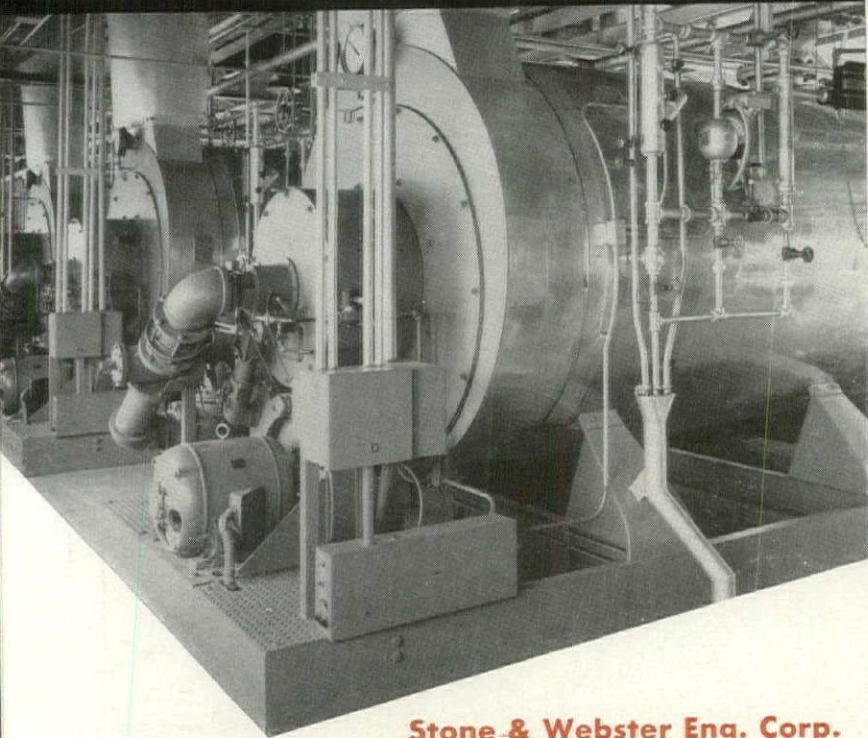
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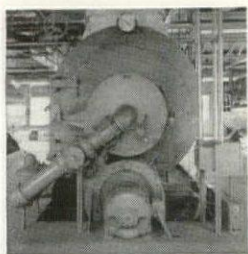
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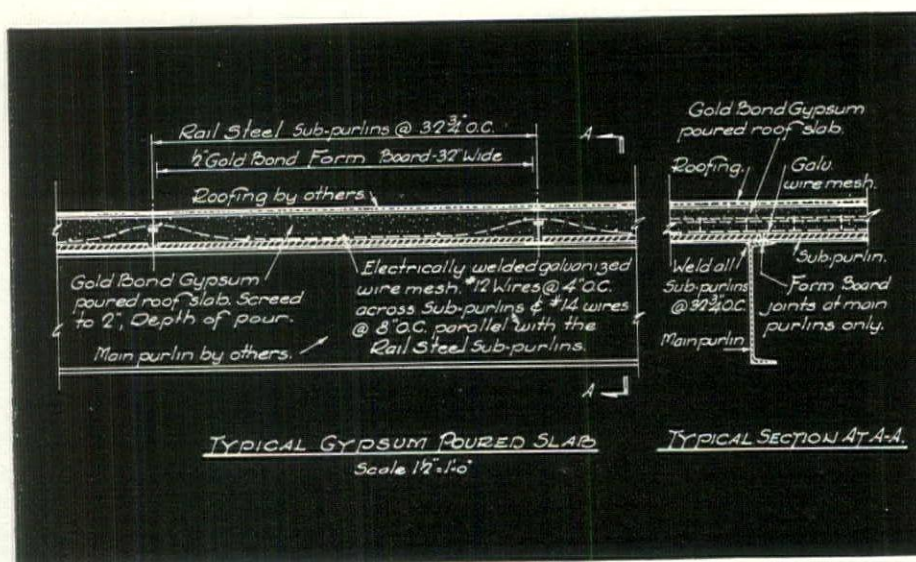
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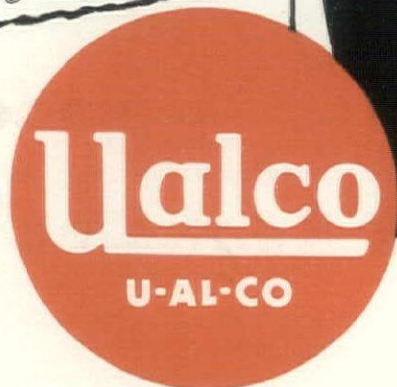
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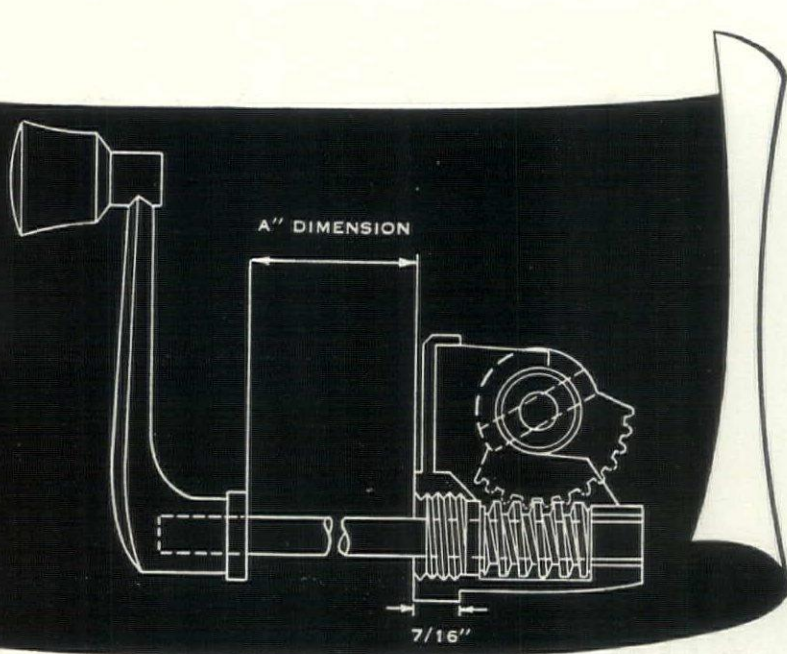
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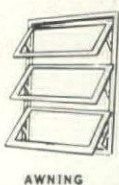
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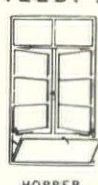
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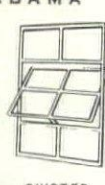
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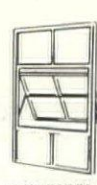
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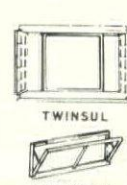
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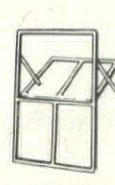
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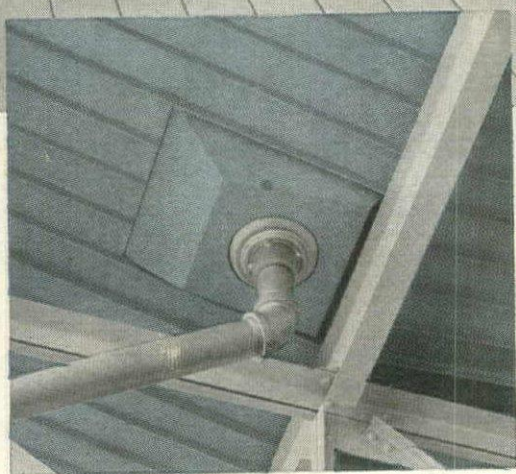
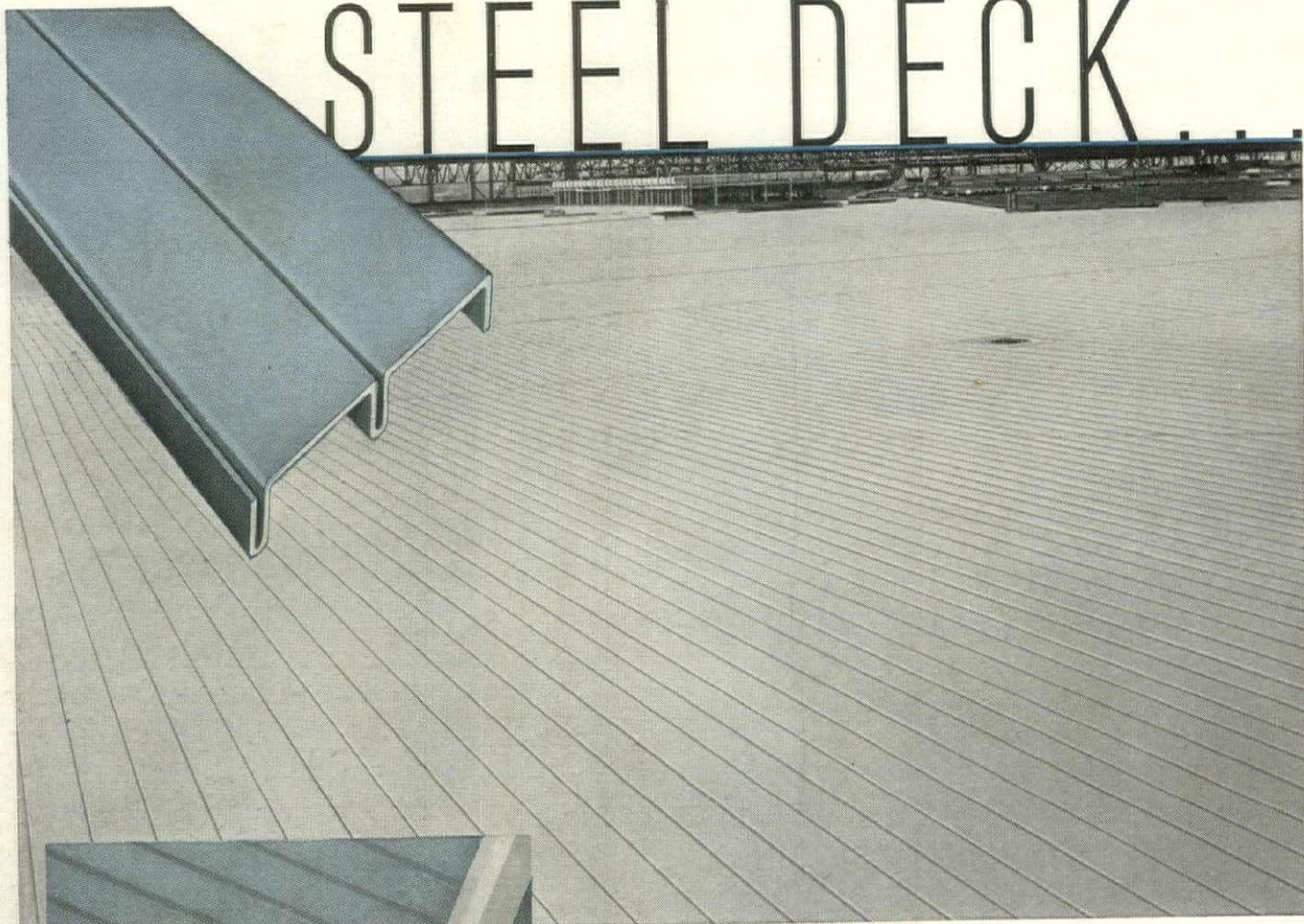


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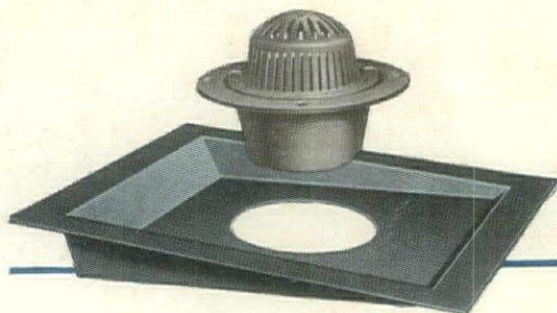
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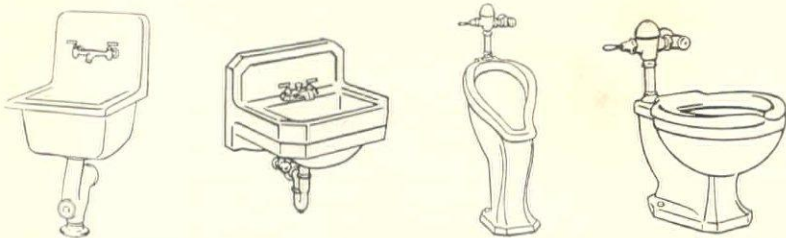


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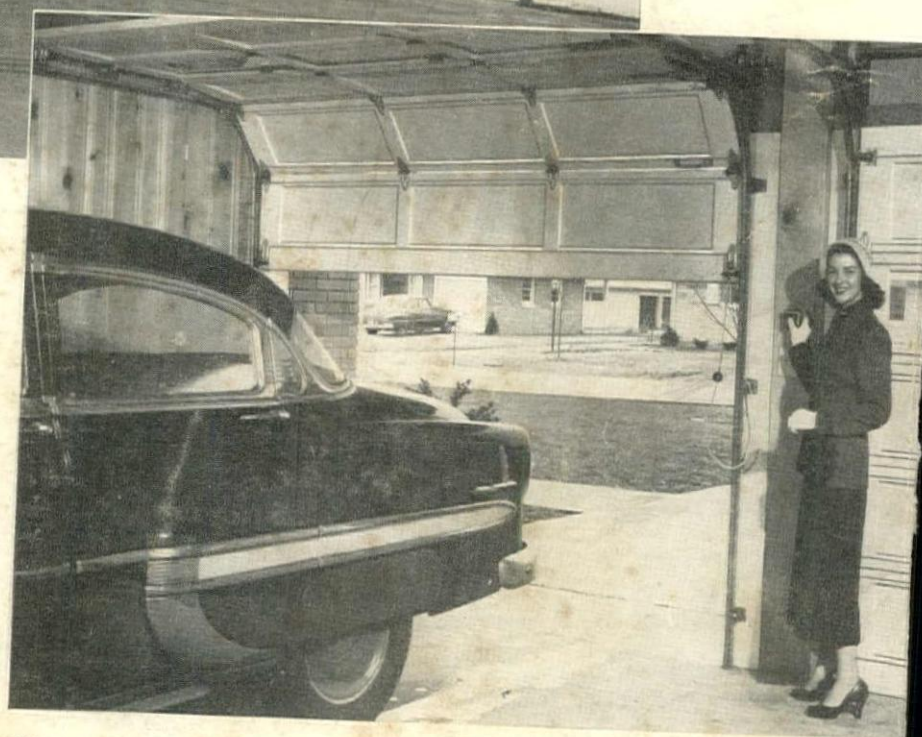
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