architectural **forum**

May 1954 MODERNIZATION ISSUE

Economics and esthetics There is more to modernization than the tangibles measured by rent —lessons from Johns Hopkins, Metropolitan Life and the Rome Railroad Station (p. 119)

Spotlight on Denver Architects and building managers debate the impact of the current building spree on the city's old buildings (p. 152)

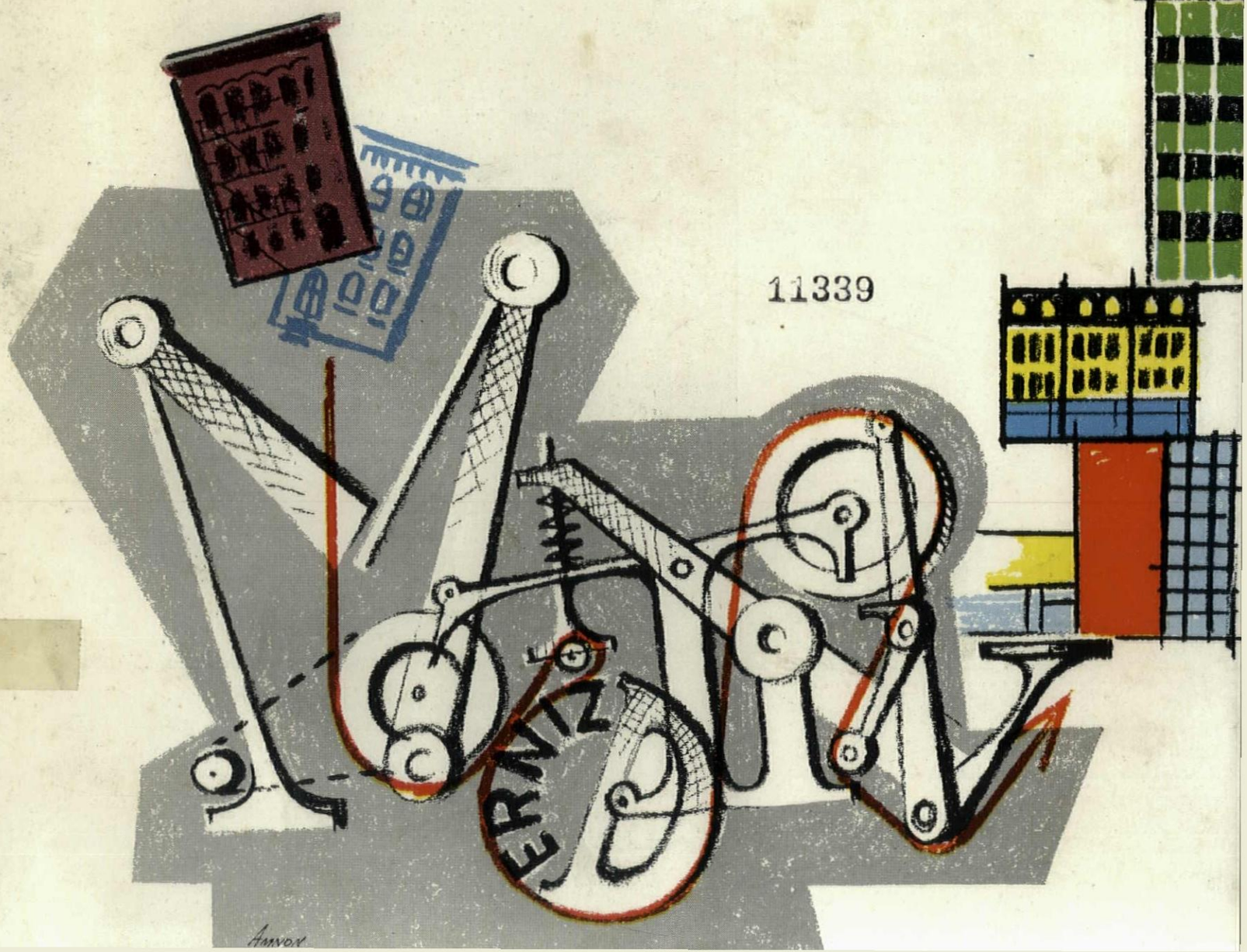
Exterior resurfacing How to give a completely new look to a building and save money to boot (p. 170)

12 case studies Office buildings, bank, restaurant, ticket offices, religious hall, clinic, hospital, factories (p. 137)

Techniques A catalogue of the mechanical means of putting buildings back in competition (p. 169)

Air conditioning Building owners can spend $2 to $7 per sq. ft. on this biggest single improvement—an analysis of what they get for their money (p. 180)

Complete table of contents (p. 117)



Borrow color and light

through

a closed door

Designer—Richard B. Pollman, Detroit
Architects—Palmquist & Wright, Detroit

See how this attractive translucent glass door picks up light and colors in the designer's office beyond—how it lets them through in a lovely blend. Yet it obscures the view for privacy.

The Blue Ridge *Securit** Interior Glass Door has a soft, shimmering pattern on both sides. And the glass is tempered—toughened to take hard usage.

Here is new decorative appeal for offices or homes, for stores or institutions. This lovely neutral glass blends with all colors, combines in harmony with other building materials.

The *Securit* Door is easy to hang. It needs no cutting, no mortising. Distinctive, easily applied hardware arrives at the job with the door.

The cost of this door compares favorably with high-quality doors of ordinary materials—and you save on installation and maintenance costs.

Ask your L·O·F Glass Distributor or Dealer about the *Securit* Door. Look for his name in the phone book yellow pages. Or write Libbey·Owens·Ford Glass Company, Patterned & Wire Glass Sales, B-2054, Nicholas Building, Toledo 3, Ohio.

*®

BRIEF DATA

Glass—⅜″ thick. Muralex patterned on both surfaces.

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

Reversible—can be used right or left hand.

Standard Sizes—

2′6″ x 6′8″	2′5 1⁄16″ x 6′7 1⁄16″
2′8″ x 6′8″	2′7 1⁄16″ x 6′7 1⁄16″
3′0″ x 6′8″	2′11 1⁄16″ x 6′7 1⁄16″
3′0″ x 7′0″	2′11 1⁄16″ x 6′11 1⁄16″

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

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

securit® L·O·F GLASS

INTERIOR GLASS DOORS

Libbey·Owens·Ford Glass Company
Patterned & Wire Glass Sales
B-2054 Nicholas Building, Toledo 3, Ohio

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

NAME (PLEASE PRINT) _____

ADDRESS _____

CITY _____ STATE _____

JOHN HANCOCK

Saves $99,632 in Four Years

WITH HAUSERMAN MOVABLE WALLS

Four years ago, John Hancock Mutual Life Insurance Company installed Hauserman *Movable* Walls in their new skyscraper offices in Boston.

Already, 7,624 lineal feet of movable steel partitions have been taken down and re-erected to meet changing space requirements. Savings! The same operations with ordinary wall construction would have cost John Hancock $66,368 *more!* And practically no valuable time was lost through interruption of business efficiency while these moves were in progress.

More savings! Because Hauserman *Movable* Walls have a lifetime finish, ordinary washing has eliminated need for redecorating. Painting of ordinary walls would have cost $33,264 *more!*

These savings are for only a four-year period. As time goes on, there will be *more* changes—and still *more* savings! Whether you are planning a new building or remodeling an old one, doesn't this suggest an idea to you?

WRITE FOR FREE DATA MANUAL 53!

This 96-page comprehensive guide for architects contains complete technical details as well as stock sizes, general instructions and specifications on *all* types of Hauserman *Movable* Interiors. Write to The E. F. Hauserman Company, 7144 Grant Avenue, Cleveland 5, Ohio.

HAUSERMAN®

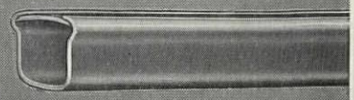
Movable Interiors

OFFICES • SCHOOLS • LABORATORIES • HOSPITALS • INDUSTRIAL PLANTS

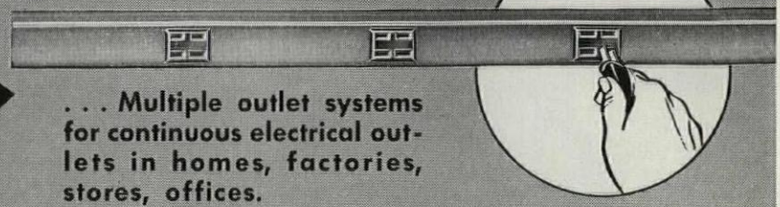
SPECIFY Wiremold's big 4 for better homes and buildings!

WIREMOLD One-Piece Surface Raceways

. . . safest, surest way to carry electrical power anywhere—right on the surface!



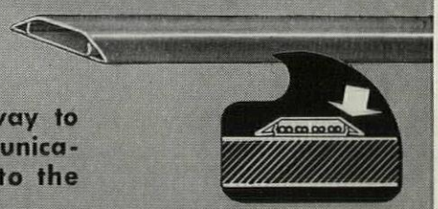
PLUGMOLD



. . . Multiple outlet systems for continuous electrical outlets in homes, factories, stores, offices.

Four sizes with capacities up to 10 No. 6 conductors.

PANCAKE Overfloor Raceways



. . . safest, easiest way to carry power or communication lines overfloor to the point of use.

WIREMOLD Fluorescent Units

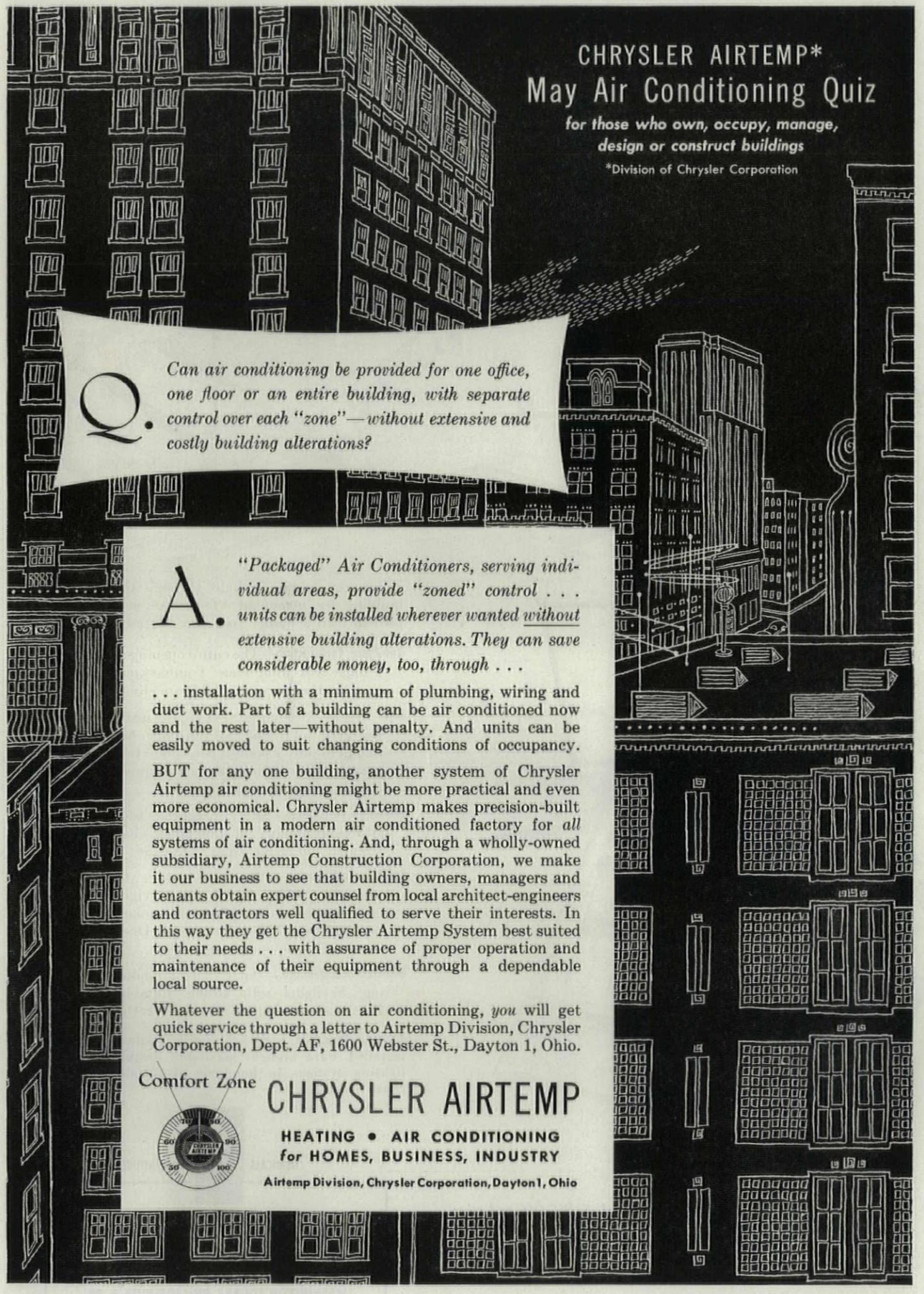
. . . for cove, cornice, or valance lighting; for all types of supplementary lighting, such as display cases, shelves, etc.

All over the country, progressive architects and builders are specifying ***Wiremold's BIG 4*** *— because the* ***BIG 4*** *offer the best way to wire most buildings and the only way to wire many buildings. Write today for full information — see how* ***Wiremold's BIG 4*** *put extra sales appeal into all your homes and buildings!*

The WIREMOLD Company

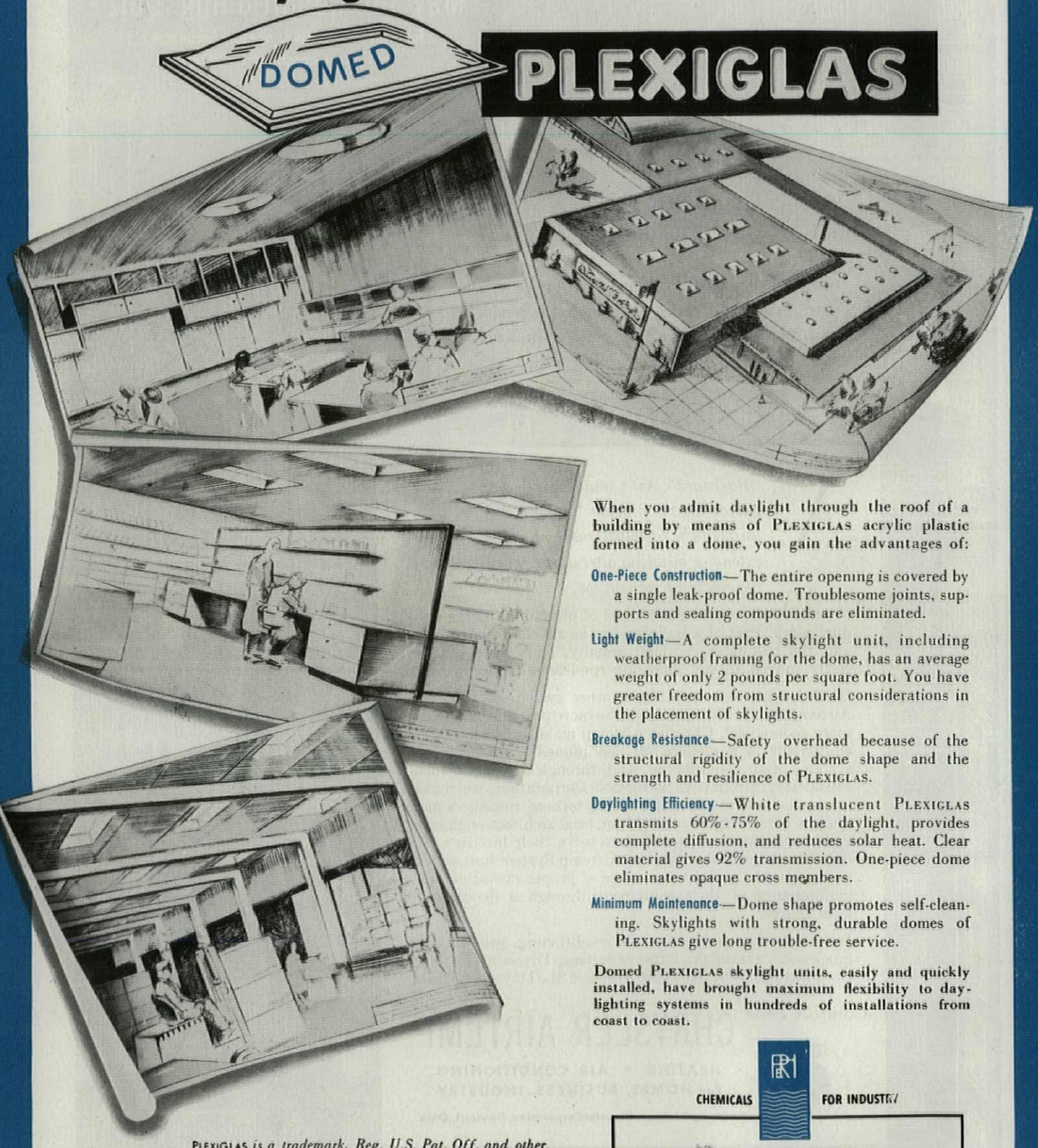
HARTFORD 10, CONNECTICUT

ARCHITECTURAL FORUM, May 1954. Volume 100, Number 5. Published monthly by TIME Inc., 9 Rockefeller Plaza, New York 20, N. Y. Re-entered as second-class matter at New York, N. Y. Professional Subscription price $5.50 a year, non-professional $7.00 a year.


CHRYSLER AIRTEMP*
May Air Conditioning Quiz
for those who own, occupy, manage, design or construct buildings
*Division of Chrysler Corporation
Q. Can air conditioning be provided for one office, one floor or an entire building, with separate control over each "zone"—without extensive and costly building alterations?
A. "Packaged" Air Conditioners, serving individual areas, provide "zoned" control . . . units can be installed wherever wanted without extensive building alterations. They can save considerable money, too, through . . .
. . . installation with a minimum of plumbing, wiring and duct work. Part of a building can be air conditioned now and the rest later—without penalty. And units can be easily moved to suit changing conditions of occupancy.
BUT for any one building, another system of Chrysler Airtemp air conditioning might be more practical and even more economical. Chrysler Airtemp makes precision-built equipment in a modern air conditioned factory for all systems of air conditioning. And, through a wholly-owned subsidiary, Airtemp Construction Corporation, we make it our business to see that building owners, managers and tenants obtain expert counsel from local architect-engineers and contractors well qualified to serve their interests. In this way they get the Chrysler Airtemp System best suited to their needs . . . with assurance of proper operation and maintenance of their equipment through a dependable local source.
Whatever the question on air conditioning, you will get quick service through a letter to Airtemp Division, Chrysler Corporation, Dept. AF, 1600 Webster St., Dayton 1, Ohio.
Comfort Zone
CHRYSLER AIRTEMP
HEATING • AIR CONDITIONING
for HOMES, BUSINESS, INDUSTRY
Airtemp Division, Chrysler Corporation, Dayton 1, Ohio

For Skylights at their BEST...

DOMED **PLEXIGLAS**



When you admit daylight through the roof of a building by means of PLEXIGLAS acrylic plastic formed into a dome, you gain the advantages of:

One-Piece Construction—The entire opening is covered by a single leak-proof dome. Troublesome joints, supports and sealing compounds are eliminated.

Light Weight—A complete skylight unit, including weatherproof framing for the dome, has an average weight of only 2 pounds per square foot. You have greater freedom from structural considerations in the placement of skylights.

Breakage Resistance—Safety overhead because of the structural rigidity of the dome shape and the strength and resilience of PLEXIGLAS.

Daylighting Efficiency—White translucent PLEXIGLAS transmits 60%-75% of the daylight, provides complete diffusion, and reduces solar heat. Clear material gives 92% transmission. One-piece dome eliminates opaque cross members.

Minimum Maintenance—Dome shape promotes self-cleaning. Skylights with strong, durable domes of PLEXIGLAS give long trouble-free service.

Domed PLEXIGLAS skylight units, easily and quickly installed, have brought maximum flexibility to daylighting systems in hundreds of installations from coast to coast.

CHEMICALS FOR INDUSTRY

ROHM & HAAS COMPANY

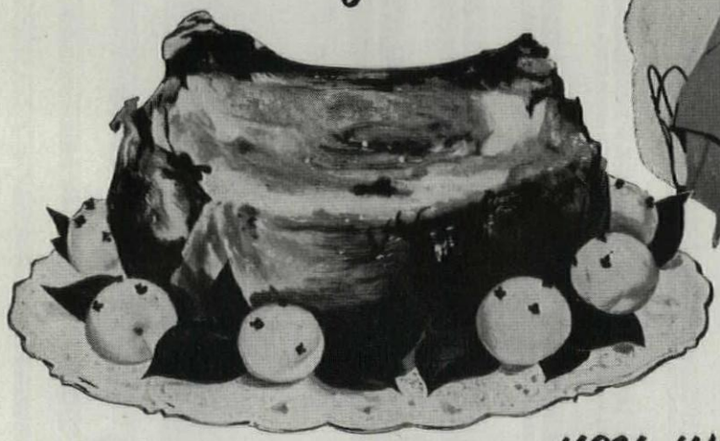
WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

PLEXIGLAS *is a trademark, Reg. U.S. Pat. Off. and other principal countries in the Western Hemisphere.*

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

Sure BEEF STEW is good ...



But sometimes you want ROAST BEEF

IT'S THE SAME WITH STAINLESS STEEL

During the years that chromium-nickel grades of Allegheny Metal were restricted to essential uses under priorities, we made great strides in the development of alternate stainless grades.

These alternate grades are *good,* mind you! In most cases, you'd never know the difference in looks or performance; and in many cases there's little or no difference in fabricating methods, and a possible advantage in cost. Without doubt, they'll continue to be used in hundreds of applications.

But there are other hundreds of uses where only a chromium-nickel grade of Allegheny Metal will do the job *best* . . . because of unusual strength requirements, perhaps—or the need for exceptional corrosion resistance or for non-magnetic properties, special fabricating qualities, etc.

Now that all alloy materials have been freed from controls, we can produce *any* grade of stainless steel you may require; and as always, in any shape or form. ● Give yourself a competitive edge with Allegheny Metal . . . and let us help you determine the grade that exactly fills the bill. *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

W&D 4920B

You can make it **BETTER** with

Allegheny Metal®

Warehouse stocks carried by all Ryerson plants

AL
TIME-TESTED STAINLESS STEEL

Gibraltar Life Insurance Building, Dallas

REYNOLDS

Architects: Thomas, Jameson & Merrill, Dallas

General Contractor: J. W. Bateson & Co., Inc., Dallas

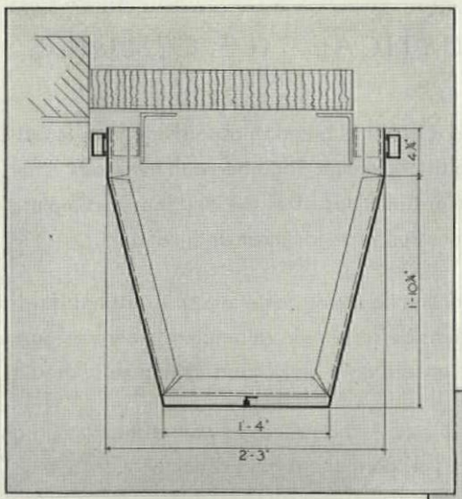
Architectural Aluminum Fabricator: Usona Manufacturing Company, St. Louis;
Erector: R. M. Sedwick Company, Dallas

Aluminum Applications in This Building:

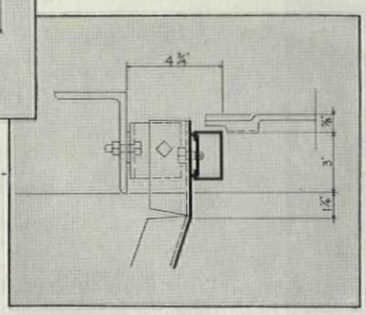
Column Covers,	At the
Doors,	
Fins,	Main Entrance:
Windows,	Lettering,
Spandrels,	Tubing,
Mullions,	Flagpoles,
Sills,	Fascia,
Louvers,	Soffit,
Light Coves	Other trim

REYNOLDS ALUMINUM SERVICE TO ARCHITECTS

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



HORIZONTAL CROSS SECTION OF FIN



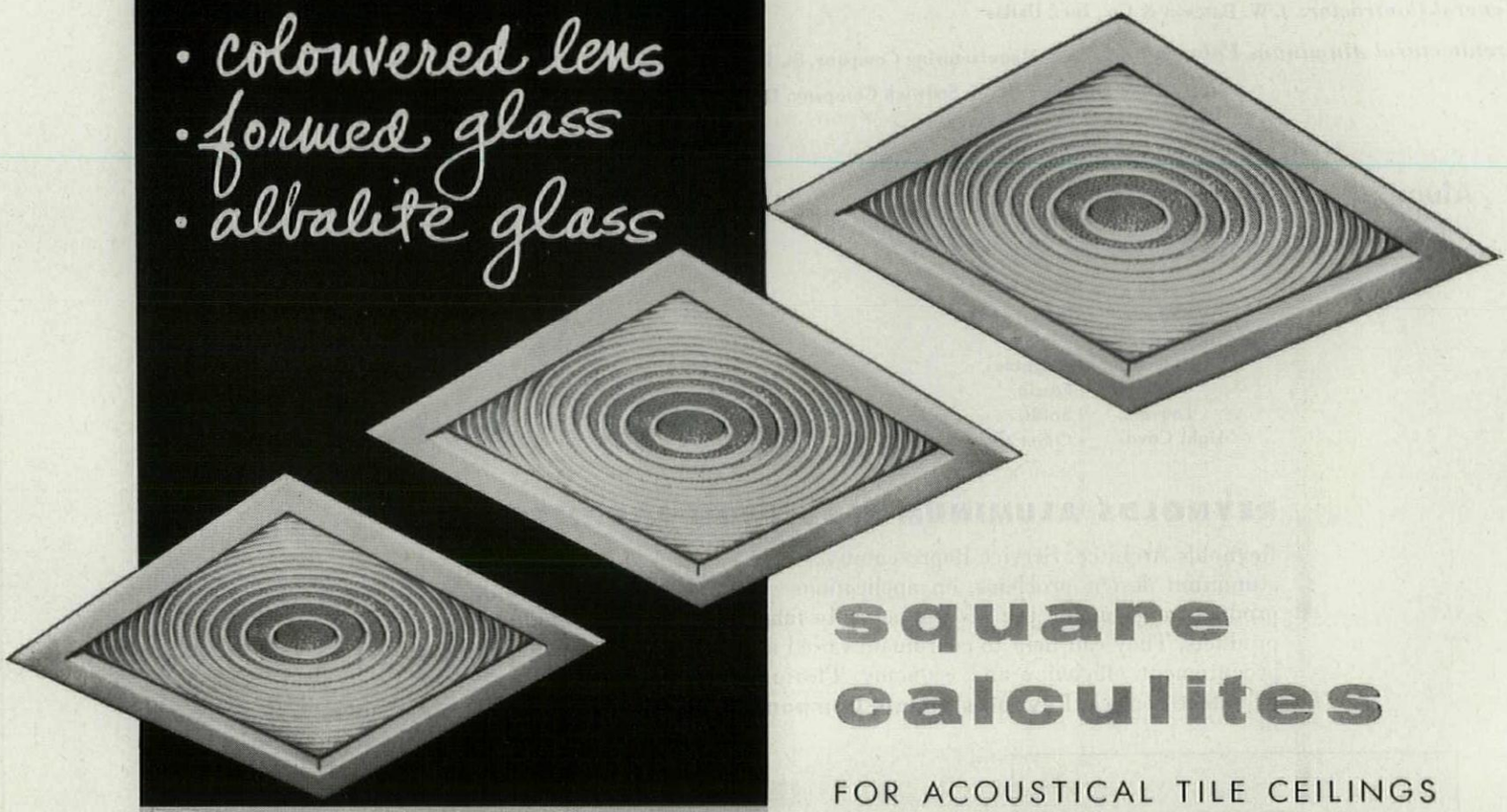
CONSTRUCTION DETAIL OF FIN AT SPANDREL

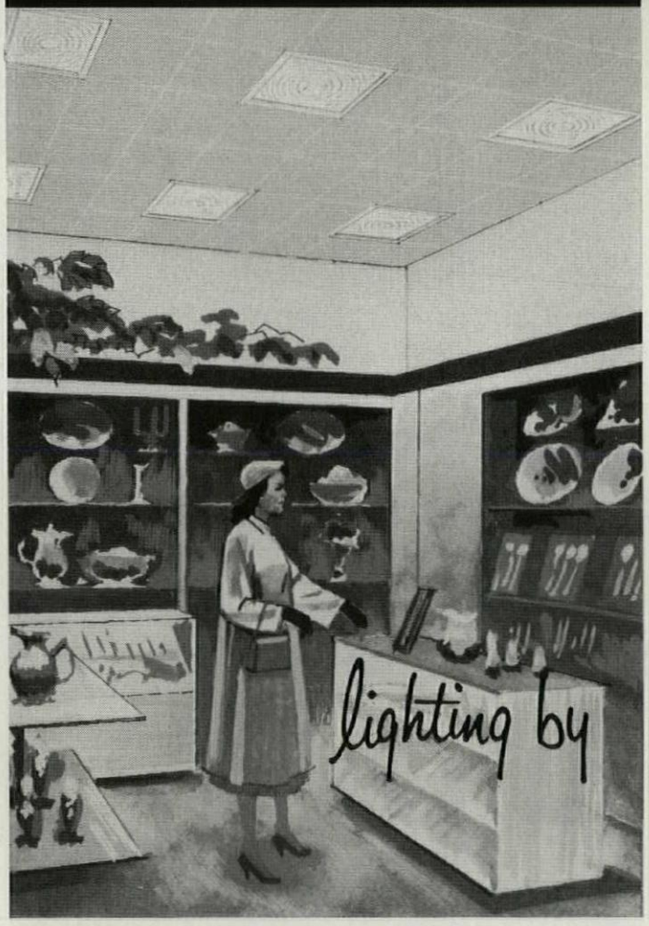
SEE "MR. PEEPERS," STARRING WALLY COX, NBC-TV.

ALUMINUM

recessed lighting

- colouvered lens
- formed glass
- albalite glass

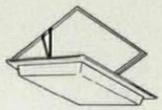




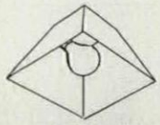
square calculites

FOR ACOUSTICAL TILE CEILINGS

Our new 12" x 12" Calculites blend unobtrusively into acoustical tiles or standard plaster ceilings. Together with the many other sizes and styles available, Calculites offer the designer a complete selection of fine recessed units for most applications.



Torsiontite spring fasteners snap frames down from any side for simple relamping. Fiberglas gaskets eliminate light leaks, and ceiling dust streaks.



Full size Alzak reflectors assure maximum light output, permanent high reflectivity.

Colouvered lenses have ceramic coated risers and are regressed from ceiling line to remove glare, maintain high light output.

Write today to Dept. AF 54 for your free copy of the new Lightolier architectural lighting portfolio.

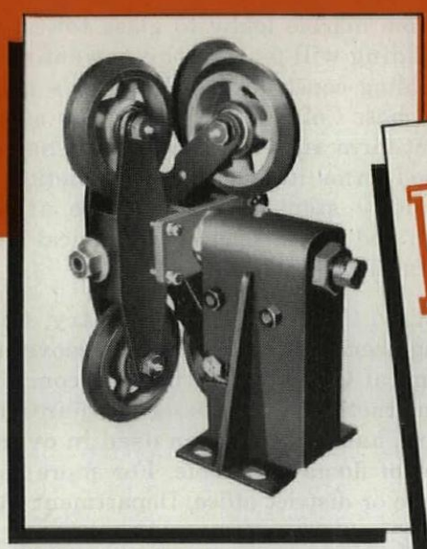
LIGHTOLIER

Jersey City 5, N. J.

Preferred by Architects, Interior Designers and Illuminating Engineers for Fifty Years.

ELIMINATE The Greatest Fire Hazard In Your Building

and save up to $500 per elevator each year



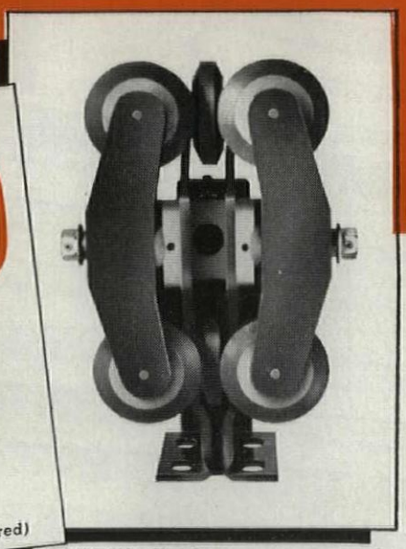
MODEL A—*for elevators*

USE

ELSCO

SAFETY ELEVATOR ROLLER GUIDES

(Patented and Trade Mark Registered)



MODEL C—*for counterweight and low rise, low speed elevators*

1 Eliminate inflammable oil, grease and fuzz by operating elevators in completely dry shaftways and on dry rails. This will prevent for all time, flash and general fires starting or drawn into the elevator shaft. Fires in elevator shafts constitute the greatest menace to life and property in buildings.

2 Since ELSCO GUIDES roll and do not slide, they are an anti-friction device, and save between 25% and 40% in electricity. All of our tests have proven this savings beyond peradventure of doubt. Many customers made their own tests and all reported similar results.

3 The large labor cost of frequent hatchway cleaning is completely eliminated. Those customers formerly in doubt now report that on rare occasion they use vacuum cleaners to remove dust, although not essential.

4 ELSCO GUIDES take up all badly aligned rail and unbalanced conditions, because they operate on the principle of traction, oscillation and knee action. They contain stabilizing springs and actually glide and float in the hatchway. They contain adjustments so that they may be adapted to all conditions. They eliminate the knock and jiggling of cars and permit better leveling. They are readily adaptable for conversion from present sliding guides.

5 Dry rails create the perfect condition for the holding of safety jaws in the event of accident.

6 ELSCO SAFETY ROLLER GUIDES may be installed on all passenger and freight elevators, space permitting. They have been employed on the highest rise and speed passenger elevators and heaviest duty freight elevators. They are adjustable, take standard rails and jumbo rails up to 1¼" in width.

7 Model C units may also be used on passenger elevators up to 200 F.P.M.—5000 lbs. capacity.

8 The rubber compound used on the wheel assemblies, specially developed by us during the last few years, stand up indefinitely.

9 There are two special rouge polished ball bearings in each wheel assembly. They come seal packed. We have nevertheless installed a zerk fitting in each wheel assembly should lubrication be required at a later date.

10 Once installed and adjusted ELSCO GUIDES require no maintenance, with the exception of the recommended annual lubrication of bearings.

11 ELSCO GUIDES have been unanimously approved by the Board of Standards and Appeals of the City of New York up to 1200 F.P.M.

12 ELSCO GUIDES are now installed in every part of the United States and also in Europe, Canada and Mexico. There are more than 200 agents throughout the country ready to serve.

FOR FURTHER INFORMATION INQUIRE OF YOUR MAINTENANCE COMPANY

OR

ELEVATOR SAFETY CORPORATION

165 BROADWAY • NEW YORK 6, N. Y.

Engineers choose "fast, economical Cofar" for new 23-story Denver Club Building

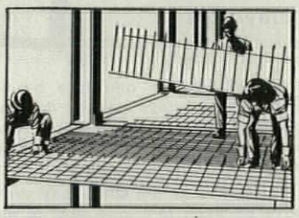
Denver Club Building
Architect: *Raymond Harry Ervin and Robert Berne*
Engineers: *Technic Engineering Company, Dallas, Texas*

HERE'S WHY

. . . says J. A. Crowley of Technic Engineering Co., Dallas, Texas, (structural engineers for the Denver Club Building)

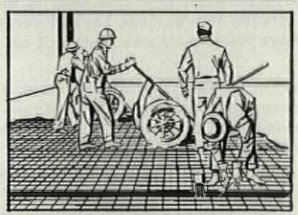
"From marble lobby to glass tower, the Denver Club Building will feature the newest and finest in office building construction...but that's not the only reason we chose Cofar! Cofar steel units serve as *both* permanent form and reinforcement. They eliminate costly wood forms in concrete construction...provide all the positive steel needed in the structural concrete slab and are extremely economical and easy to install. Cofar fills our bill perfectly!"

Today, throughout the country, firms like Technic Engineering Company are discovering the fast, economical Cofar way to modern concrete floor and roof construction. Cofar design requires no special procedure, has already been used in over 3,000,000 square feet of floors and roofs. For more information, write home or district office, Department AF-C.



Placing steel and form in one operation

Cofar steel units (with transverse temperature wires welded across corrugations) arrive at the job site cut to length to fit the building frame. When welded in place, they give frame added lateral strength.

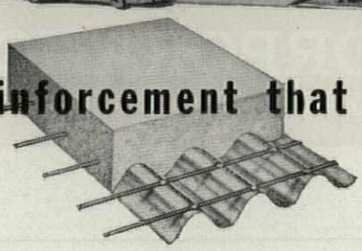


An immediate working platform

Tough, high-strength steel permits Cofar to absorb construction abuse. Corrugated sheets serve as tight form for wet concrete. After concrete sets, Cofar provides complete positive reinforcement at bottom of slab.

Safe, strong concrete floors

Fast Cofar construction speeds occupancy, is suited to steel or concrete frame construction. Cofar monolithic floors provide complete plate action for concentrated loads, horizontal forces. Cofar is fire safe!



the reinforcement that forms

COFAR

GRANCO STEEL PRODUCTS COMPANY

Also manufacturers of Corruform, Tufcor and Roof Deck

Subsidiary of GRANITE CITY STEEL COMPANY

Main Office: Granite City, Illinois • District Offices: Dallas • St. Louis
Kansas City • Chicago • Minneapolis • Tulsa • Memphis • Houston

A squeeze of the trigger and 2″ x 8″ form shoring is anchored to concrete roadbed!

REMINGTON STUD DRIVER speeds fastening job on West Coast Highway

TEMPORARY ANCHORING OF FORMS TO CONCRETE can be time-consuming and costly—but it wasn't that way on the new San Francisco Freeway. Here, the Remington Stud Driver did the job in record time by setting up to 5 fastening studs per minute!

The forms were used for pouring the Freeway's railings and curbings after the concrete roadbed had set. A workman simply moved down the base strip with the Stud Driver, and it was securely fastened! When the curbing was in, the forms were removed and the studs broken off below the concrete surface. The small craters that remained were smoothed over with grout.

SAVINGS UP TO 80% IN FASTENING COSTS ARE NOT UNCOMMON with the Remington Stud Driver. Its speed, light weight (6 lbs.), and freedom from wires and hose make it ideal for all kinds of construction fastening. Find out how *you* can save with this powder-actuated tool by mailing the coupon below.

"If It's Remington—It's Right!"

Remington DUPONT

Listed & Approved by Underwriters' Laboratories, Inc.

QUESTIONS YOU ARE ASKING

QUESTION: What caliber cartridge powers the Stud Driver?

ANSWER: 32 caliber power loads are available in six grades, each designed for your specific fastening requirements.

MAIL THIS COUPON TODAY

Industrial Sales Division, Dept. A.F.-5
Remington Arms Company, Inc.
Bridgeport 2, Connecticut

Please send me a *free* copy of the new booklet showing how I can cut my fastening costs.

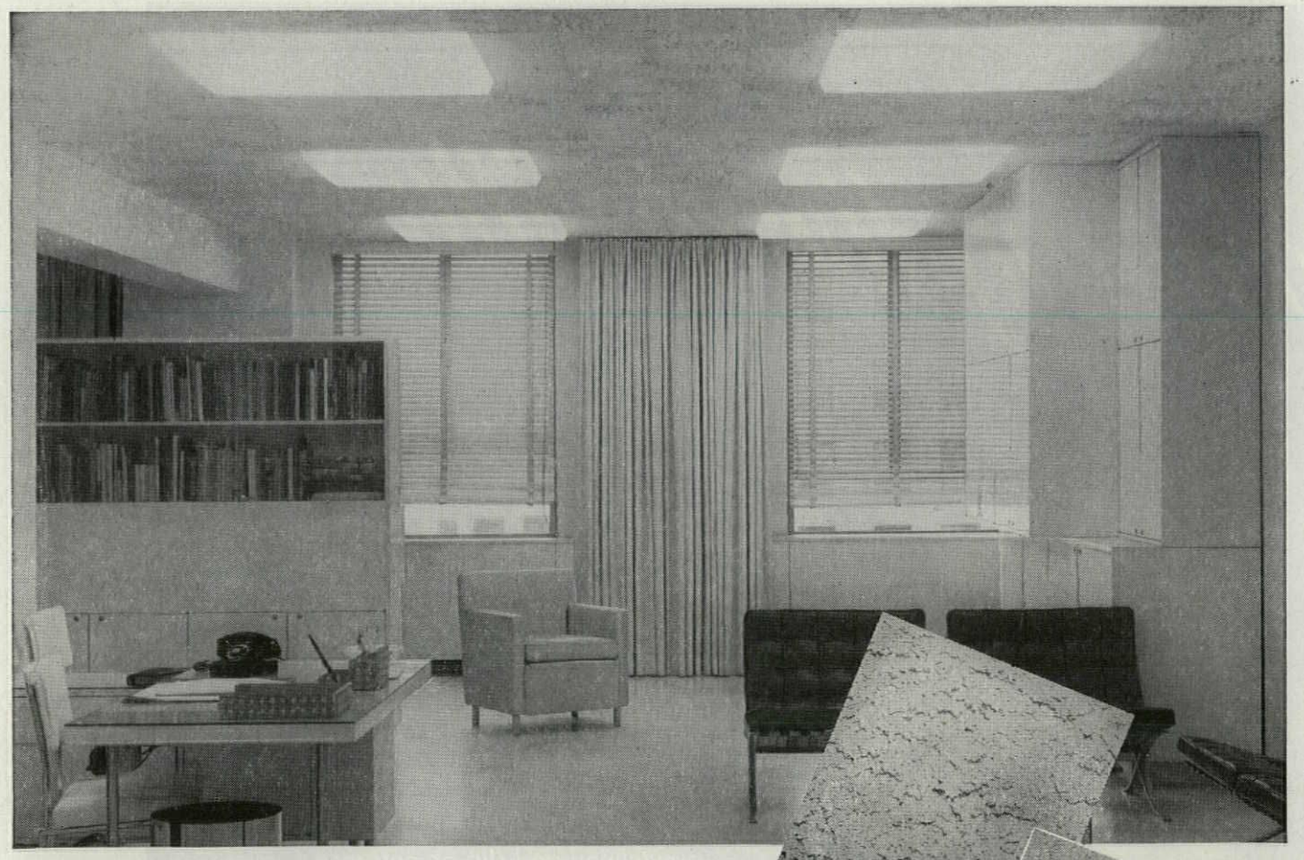
*Name*_____

*Position*_____

*Firm*_____

*Address*_____

*City*_____ *State*_____



a Beautiful Solution to Noise-Control Problems...

Johns-Manville *Permacoustic*

Fissured (top)

Textured (below)

Specify J-M Permacoustic® tile for ceilings that provide unusual architectural beauty with maximum acoustical efficiency and fire safety.

Johns-Manville Permacoustic is exceptionally sound-absorbent, attractive and noncombustible. Its two random-textured surface finishes—textured and fissured—increase its noise-reduction qualities . . . provide design and decorative interest.

Made of baked rock wool fibres, Permacoustic is fireproof—*meets all building code fire-safety requirements.* Johns-Manville Permacoustic is easy to install on existing ceilings or slabs, or by suspension using a spline system of erection.

Send for your free copy of the new brochure about Permacoustic tile. Write Johns-Manville, Box 158, New York 16, New York. In Canada, write 199 Bay St., Toronto 1, Ontario.

INFORMATIONAL DATA ON PERMACOUSTIC

Sizes 12" x 12" 12" x 24" | Thickness 3/4"* | Color: white

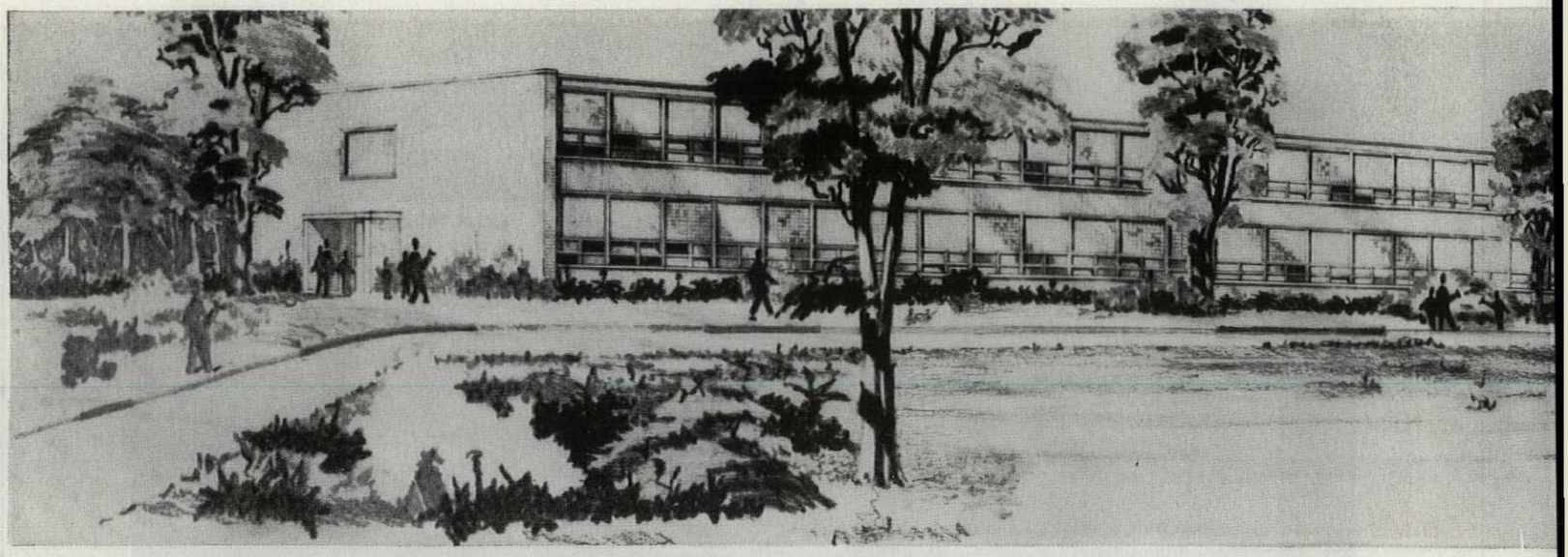
	ACOUSTICAL EFFICIENCY	
	Test No. A51-98	Test No. A51-99
cycles per second	cemented to plaster board (mounting No. 1)	mechanically mounted on special metal supports (mounting No. 7)
125	.04	.56
250	.21	.53
500	.75	.60
1000	.88	.73
2000	.85	.88
4000	.78	.88
noise reduction coefficient	.65	.70
weight per sq. ft.	1.3	1.3

*Also available in 7/8" thickness

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville

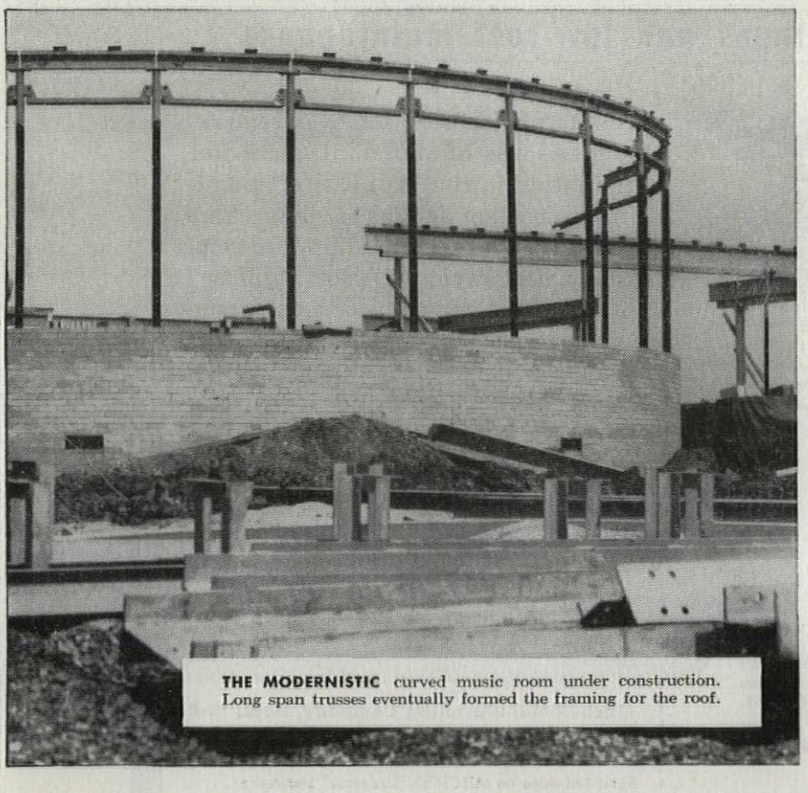
40 years of leadership in acoustical materials



IN THIS ULTRA-MODERN HIGH SCHOOL

USS Structural Steel

TOPS THE HONOR ROLL FOR STRENGTH, SAFETY AND ECONOMY



THE MODERNISTIC curved music room under construction. Long span trusses eventually formed the framing for the roof.

▼ Public school construction today requires careful selection of structural materials—for the safety of the children and for the strength and permanence of the building. Yet, since public funds are limited, the architect's eye must always be kept cocked in the direction of economy. That's where USS Structural Steel wins top honors.

The structural steel framework of the new Edison Junior High School, West Mifflin Township, Pennsylvania, is an excellent example of how strength and permanence can be combined with economy—economy in the cost of materials *plus* economy in erection cost.

This efficiently-designed two-story school building is completely supported by a framework of USS Structural Steel—channels, beams, and angles, a bow-string truss over the gymnasium and a long span truss over the auditorium. In such applications, Structural Steel offers many well-recognized advantages.

For instance, Structural Steel is the most economical of load carrying materials. Yet, it is the strongest. It will withstand more abuse than other structural materials—effectively resisting tension, torsion, compression 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 further information on construction with steel, write to the United States Steel Corporation, 525 William Penn Place, Room 4332, Pittsburgh 30, Pa.

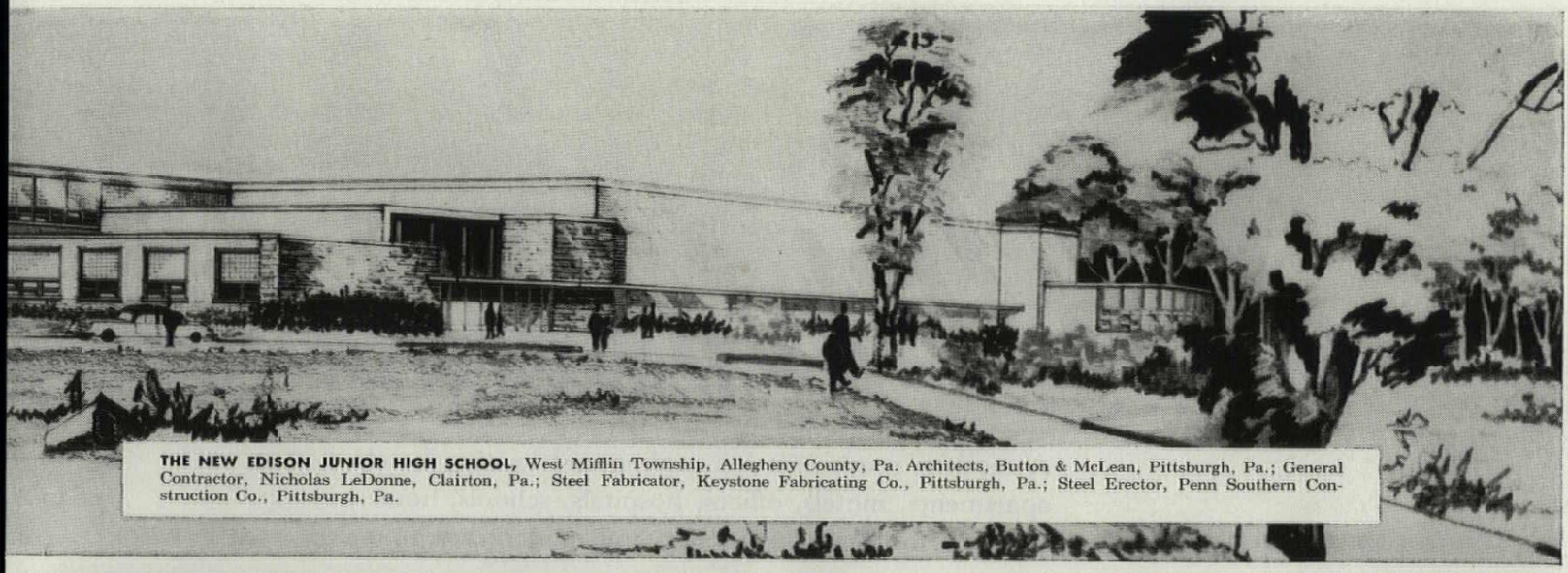
UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STRUCTURAL STEEL

USS TRADE MARK

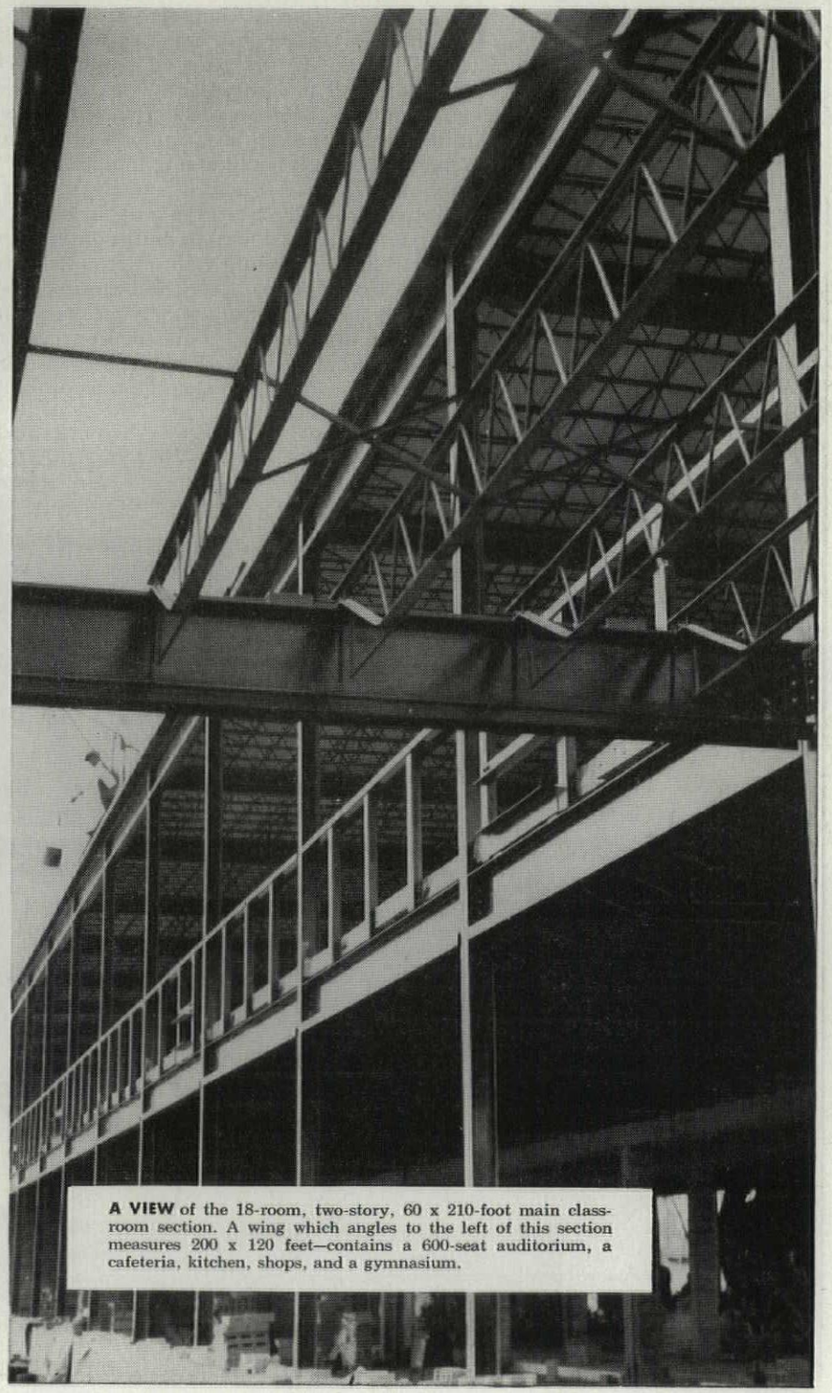
4-855

UNITED STATES STEEL



THE NEW EDISON JUNIOR HIGH SCHOOL, West Mifflin Township, Allegheny County, Pa. Architects, Button & McLean, Pittsburgh, Pa.; General Contractor, Nicholas LeDonne, Clairton, Pa.; Steel Fabricator, Keystone Fabricating Co., Pittsburgh, Pa.; Steel Erector, Penn Southern Construction Co., Pittsburgh, Pa.

SECTION OF the structural bow string truss roof over the 70 x 90-foot gymnasium.



A VIEW of the 18-room, two-story, 60 x 210-foot main classroom section. A wing which angles to the left of this section measures 200 x 120 feet—contains a 600-seat auditorium, a cafeteria, kitchen, shops, and a gymnasium.

NOW! the new Modine

A modern room unit for cooling and heating hotels, apartments, motels, offices, hospitals, schools, homes. Ideal for new construction and modernization.

THE new Modine AIRditioner* provides cooling with chilled water, heating with hot water . . . filters, dehumidifies, circulates and introduces fresh outside air. All functions are subject to individual room control. Here is healthful summer-winter comfort for multi-room installations within reach of the most modest air conditioning budget.

Modine AIRditioner design assures excellent performance on cooling or heating plus unusually quiet operation. Four-speed motor control provides maximum flexibility in meeting comfort requirements.

Choose from four types: The beautiful Console (illustrated) for exposed or partially recessed installation . . . the Concealed . . . and the Overhead types with and without casings. Each type is available in three sizes rated at 2/3, 1-1/2 and 2 tons of refrigeration (220, 440 and 640 cfm respectively).

Distinctive appearance and versatility are combined in the Console type styled by Jean Otis Reinecke, nationally known designer. This unit may be installed against a wall—or recessed to a depth of 5 inches, leaving less than 6 inches exposed in the room. Use of square edges at junctions of top and sides eliminates need for cutting rounded contours in wall recess . . . or preparing specially formed trim strips. Square edges blend gracefully into rounded corners in forward part of top.

Modine AIRditioners are Parker-Bonderized and finished in a semi-gloss Marine Green primer selected for high resistance to humidity. The factory finish is so attractive that further decorative treatment will frequently be unnecessary.

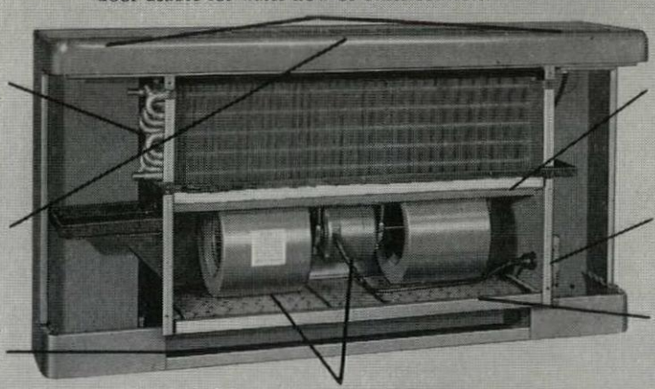
*Trademark

Access doors are provided on both ends of unit to allow reversal of motor control location. Alternate door usable for water-flow or other controls.

High-capacity coil has brass tubes, electro-plated for protection against electrolysis with aluminum fins. All tube-joints are brazed. Coils are reversible for right or left-hand piping connections.

Outlet grill is integral part of 18-gauge cabinet top. Adjustable louvre grill optional at extra cost.

Manually adjusted fresh air damper for regulation of fresh and recirculated air mixture.



Quiet operation is assured by ample use of glass fiber insulation plus sound-deadening mastic throughout. In addition, fans and motor are resiliently suspended.

All electrical connections within cabinet reversible.

Air filter readily removed for cleaning or replacement. Access to filter by manually removable front panel. No tools needed.

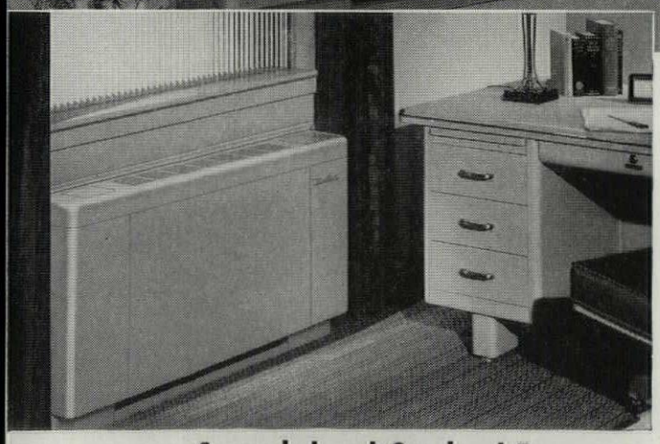
Motor and fan assembly easily removed as unit by taking out four bolts and disconnecting electrical plug.

CONSOLE TYPE WITH FRONT AND END PANELS REMOVED

Modine Airditioners

AIRditioner

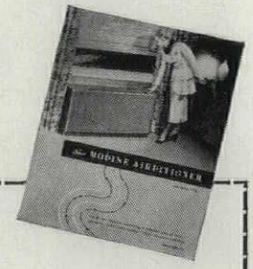
(Above) Console type is installed against finished wall. A ⅜-in. thick sponge rubber strip around perimeter of back serves as wall seal and as plenum for fresh air inlet. All piping and wiring are concealed in enclosure.



(Left) Because all rear corners are square, AIRditioner can be recessed faster, at lower cost. With over-all depth less than 11 in. and up to 5 in. of recessing permissible, AIRditioner takes far less floor space.

Concealed and Overhead Types

Other AIRditioners available include: Concealed type for built-in installation behind a finished wall. Overhead type with casing for exposed ceiling installation. Overhead type without casing for use with ducts above a false ceiling or in a closet.



MODINE MANUFACTURING COMPANY
1507 DeKoven Ave., Racine, Wis.

Please send me a free copy of bulletin describing the new Modine AIRditioner.

Name .....

Position .....

Firm .....

Address .....

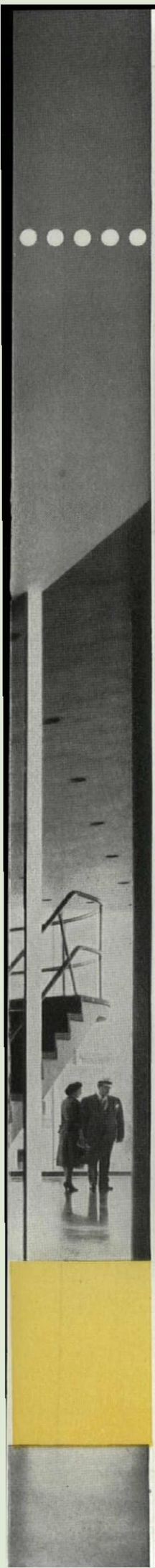
City .....Zn .....State .....

A-1223

Design unlimited...

Only plaster's monolithic, free-flowing surface could permit this interesting ceiling and column integration for the American Stove Company in their new office. Acoustical plaster provides the essential sound absorption. Developed in model form by sculptor Isamo Noguchi, under the direction of architect Harris Armstrong, it was executed with gypsum plaster over metal lath.

CAMPBELL LATHING & PLASTERING CO., Plastering Contractor
HEDRICH-BLESSING PHOTO



.....with LATH and plaster

Now Plastering is Better than Ever

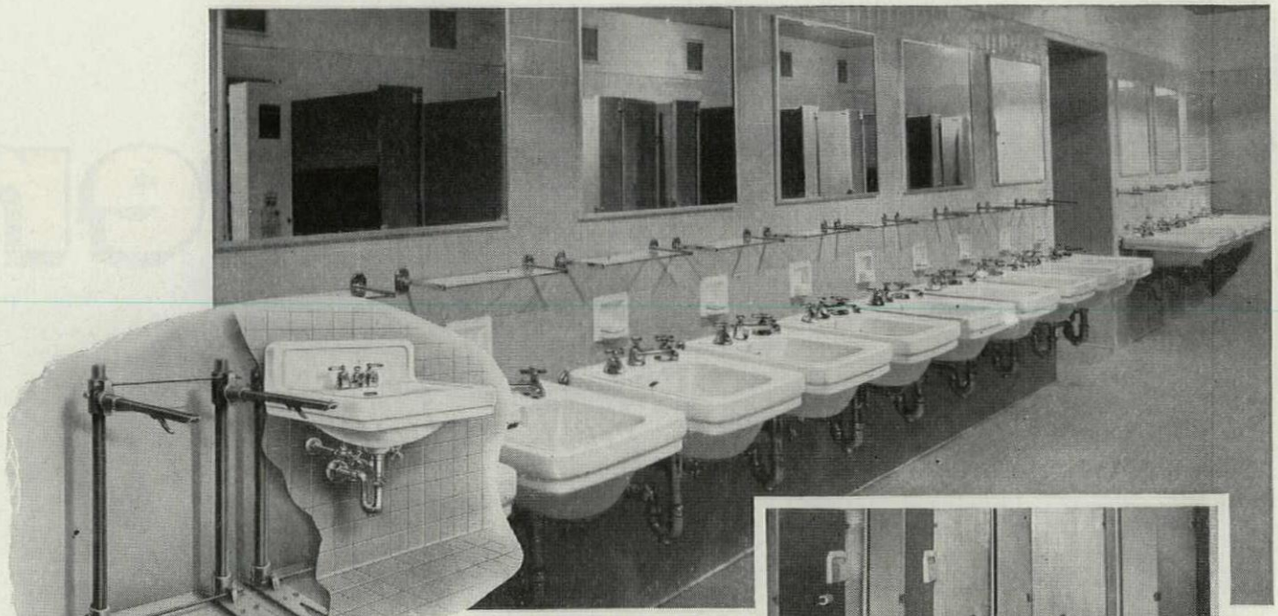
This Emblem of Certified Craftsmanship symbolizes higher standards of job performance and responsibility. It has been developed by the National Bureau for Lathing and Plastering, an organization of lathing and plastering contractors and craftsmen.

Certified Craftsmanship means that job performance and responsibility will comply with the Code of Standard Practices for Lathing and Plastering, prepared by the National Bureau and subscribed to by scores of local chapters throughout the country.

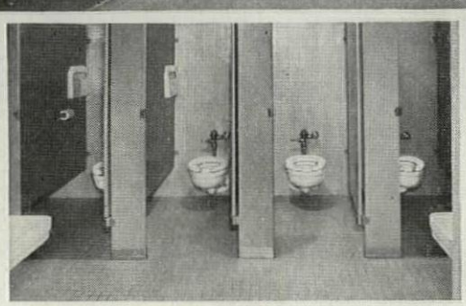
This Pledge of Performance is your written and signed assurance that the lathing and plastering on specific jobs will be in compliance with this newly adopted Code. It is a written commitment to work schedules, job cooperation, work of craftsmanship calibre and nationally recognized standards of quality. It is yours for the asking from lathing and plastering contractors adhering to the Code of Standard Practices for Lathing and Plastering.

We suggest a thorough reading of the Code of Standard Practices which appears on the back of every pledge. Ask your lathing and plastering contractor for a copy.

Associated Manufacturers of Lathing and Plastering Materials
520 N. Michigan Avenue, Chicago 11, Illinois



SHOWN AT LEFT is American-Standard Lucerne vitreous china lavatory with the Zurn System fitting for this particular wall-type fixture.



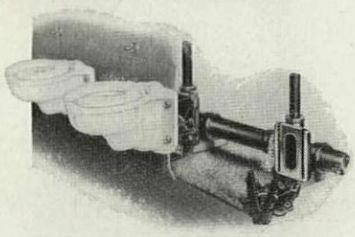
This Combination

simplifies rest room planning ...insures against untimely obsolescence!

AMERICAN-Standard

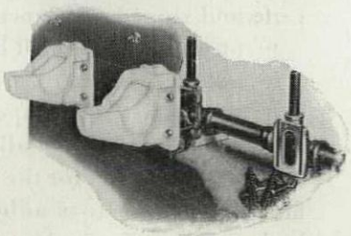
off-the-floor plumbing fixtures

INSTALLED WITH THE ZURN system*



ABOVE: American-Standard Glenco toilets installed with Zurn Systems relieve the wall of all the load.

BELOW: Wall-type model of the famous Sanistand fixture—the American-Standard urinal for women. It is installed with a Zurn System fitting especially designed for this fixture.



● Planning rest rooms around completely bare floors permits greater latitude of design. Enables you to lower ceilings. Gives you more usable floor space. And widens your choice of floor and wall construction.

But just as important to you and the builder is the fact that by specifying wall type fixtures for installation with Zurn systems, you make rest rooms look larger and more modern. And, because floors that are free of obstructions are easier to clean and maintain, your rest rooms *retain their newness years longer.*

*T. M. Reg. U. S. Pat. Off.

A good example of the pleasing effect of spaciousness achieved with American-Standard plumbing fixtures installed and supported by the Zurn System is shown in the large picture above. This is one of the modern rest rooms in the new Lever Brothers plant in Los Angeles, designed and constructed by the Bechtel Corporation.

American Radiator & Standard Sanitary Corp.
Pittsburgh, Pennsylvania

J. A. Zurn Mfg. Co.,
Plumbing Division, Erie, Pa.

SEND FOR THESE FREE BOOKLETS

Fill in and mail the coupon for these two helpful booklets. They contain up-to-date information for planning modern rest rooms *that stay modern.* They tell you how you can save your client money on construction material, time and labor.

American-Standard
Dept. AF-54, Pittsburgh 30, Pa.

Please send me the 2 booklets: "BETTER REST ROOM GUIDE" and "YOU CAN BUILD IT FOR LESS A NEW WAY."

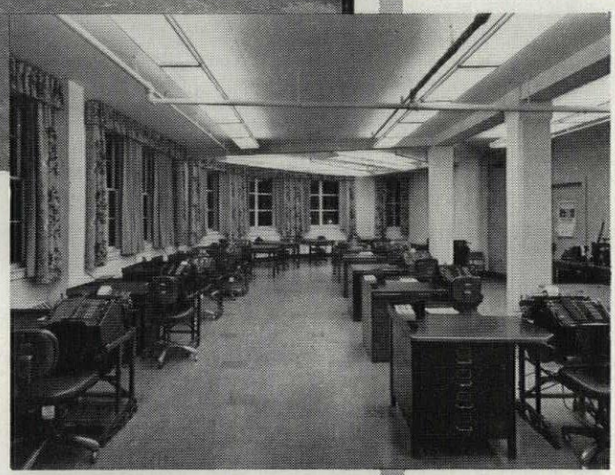
Name.....**Title**.....

Company.....

Street.....**City**.....**State**.....

1ST FLOOR

2ND FLOOR



New Look

FOR AN OLD BUILDING

...with Lighting by LITECONTROL

This superb remodeling job (in a forty-year-old building) needed custom lighting to show it at its best and provide plenty of balanced light for office work. One versatile fixture — LITECONTROL 4044 — does the job perfectly, lights it just the way everyone wants it.

It's well-illuminated (84 footcandles on the second floor), but even and glare-free. And it's economical on every count.

LITECONTROL 4044 is a louvered fixture that can be used in many ways. Here, it's surface mounted on the first floor, mounted on pendants on the second. It can be hung in rows or individually, as over the door. It goes up easily, is easy to clean and relamp. Louvers swing fully open from either side from spring catches.

LITECONTROL versatility means *custom lighting* with standard fixtures. That means *standard prices.* There are twenty-seven basic fixtures that can be combined or modified to light your job the way you want. For lighting or relighting, call your LITECONTROL representative.

INSTALLATION: Time Credit Office, Union Market National Bank, Watertown, Mass.

ARCHITECT: J. Williams Beal Sons, Boston, Mass.

ENGINEER: Lionel G. Gale, Boston, Mass.

DECORATOR: John H. Pray & Sons Co., Boston, Mass.

ELEC CONTRACTOR: Howes Electric Co., Watertown, Mass.

FIXTURES: No. 4044 4-lamp 40-watt Bipin-louvered, 35°-25° shielding. Surface mounted (1st Floor). On 4" stems (2nd Floor)

CEILING HEIGHT: 11'-0" (1st Floor) — 10'-2" (2nd Floor)

SPACING: 8'-0" on Centers

INTENSITY: 70 Footcandles average in service (1st Floor). 84 Footcandles average in service (2nd Floor)

LITECONTROL *Fixtures*

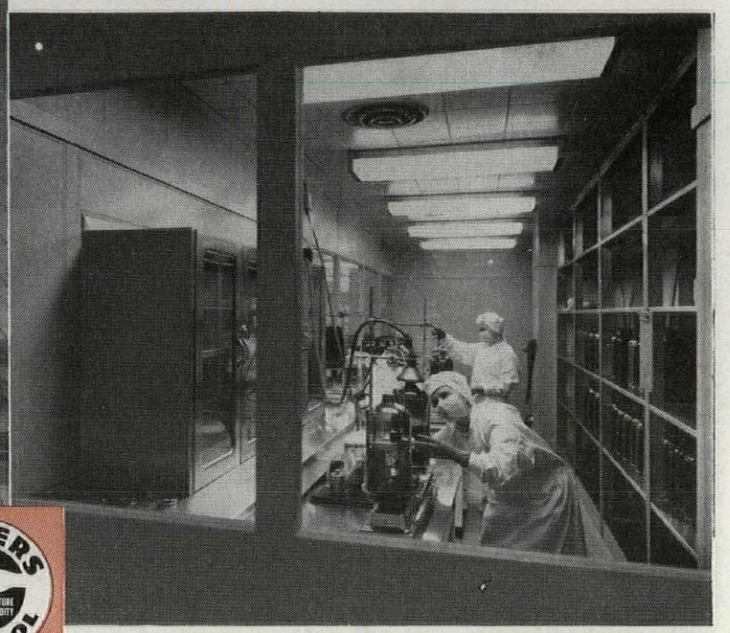
LITECONTROL CORPORATION

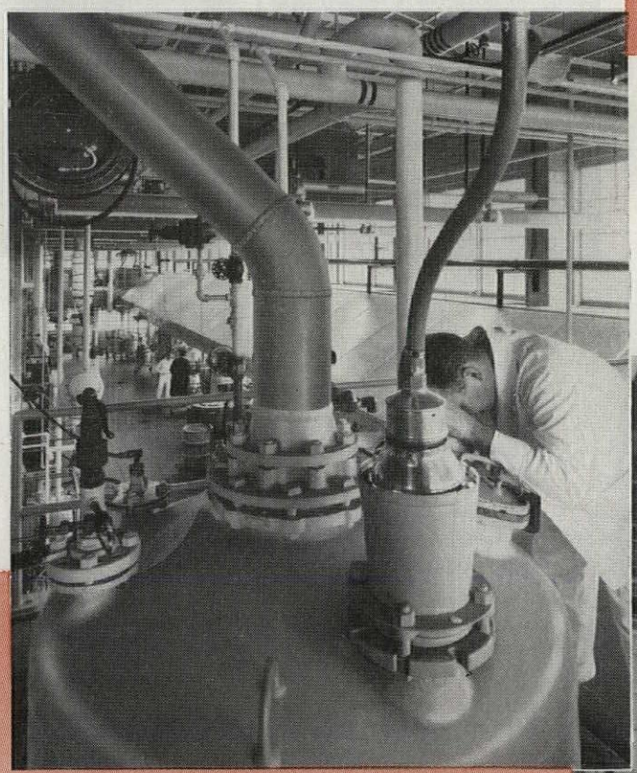
36 PLEASANT STREET, WATERTOWN 72, MASSACHUSETTS

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

ARMOUR'S NEW LABORATORIES *producing*

Left: **Parenteral Packaging Department.** One of the areas completely air conditioned.



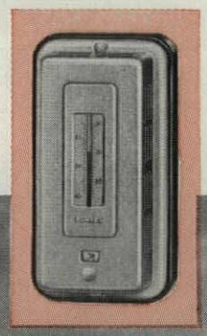


Above: **Hospital Gowned and Masked Technicians in Bulk Sterile Filling Area.** Here the air conditioning is treated in such a manner that aseptic operations could be undertaken with least possibility of bacterial contamination.

Below: **Low Temperature Human Blood Fractionation Plant** — *the largest in the U.S.A.* In this area there are processed 18,000 pints of human blood (or the equivalent of human plasma) weekly into Normal Serum Albumin and Poliomyelitis Immune Globulin. Processes are controlled by Powers V-Port FLOWRITE Valves. This entire room is accurately held at 23° F.

Above: **View in Parenteral Manufacturing Building No. 4** where ACTHAR, Insulin, and Intrinsic Factor (BIO-PAR) are processed. Processes here are also controlled by Powers V-Port FLOWRITE Valves.

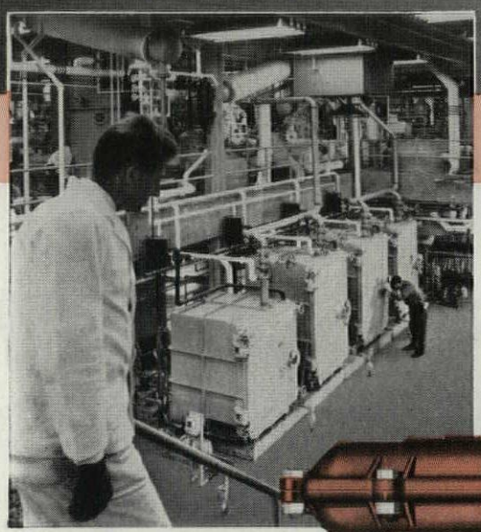
Gamma Globulin and other pharmaceuticals...



Use POWERS AIR CONDITIONING CONTROL AND FLOWRITE DIAPHRAGM VALVES

New ARMOUR PHARMACEUTICAL CENTER, Near Kankakee, Ill.

Architects & Engineers: HOLABIRD & ROOT & BURGEE
Piping Contractor: M. J. CORBOY CORP.



Above: **View in Solvent Extraction Building No. 5** where Insulin, Intrinsic Factor and Injectable Liver are produced. Processes are controlled by Powers V-Port FLOWRITE Valves.

Gamma Globulin for Combating Polio, Serum Albumin used by the Armed Forces for transfusion in shock and burn cases, Thyroid powder and tablets, Intrinsic Factor (BIOPAR), Insulin and ACTHAR for treatment of arthritis — production of these and many other Armour products requires accurate temperature control.

To insure the precision control of air conditioned areas in their modern $12 million plant Armour installed a Powers pneumatic control system.

To accurately control the flow of heating and cooling mediums and vacuum used for various processes, they installed Powers V-PORT FLOWRITE Valves.

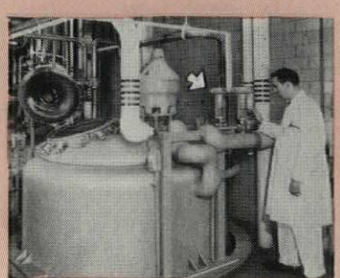
When you have a control problem requiring the dependable performance assured by Powers products — call our nearest office or write us direct.

THE POWERS REGULATOR CO.

SKOKIE, ILL. • Offices in Over 50 Cities in U.S.A., Canada and Mexico

Over 60 Years of Automatic Temperature and Humidity Control

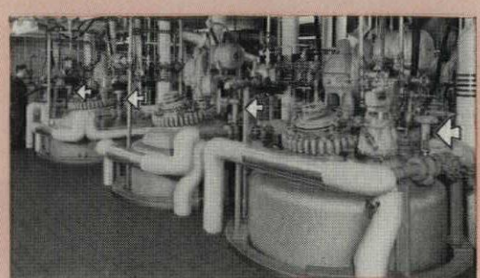
(b70)



Powers FLOWRITE Valve
Characterized V-PORT Type

Gives BETTER Control with Less Maintenance

Over 100 are Used in Armour Laboratories.



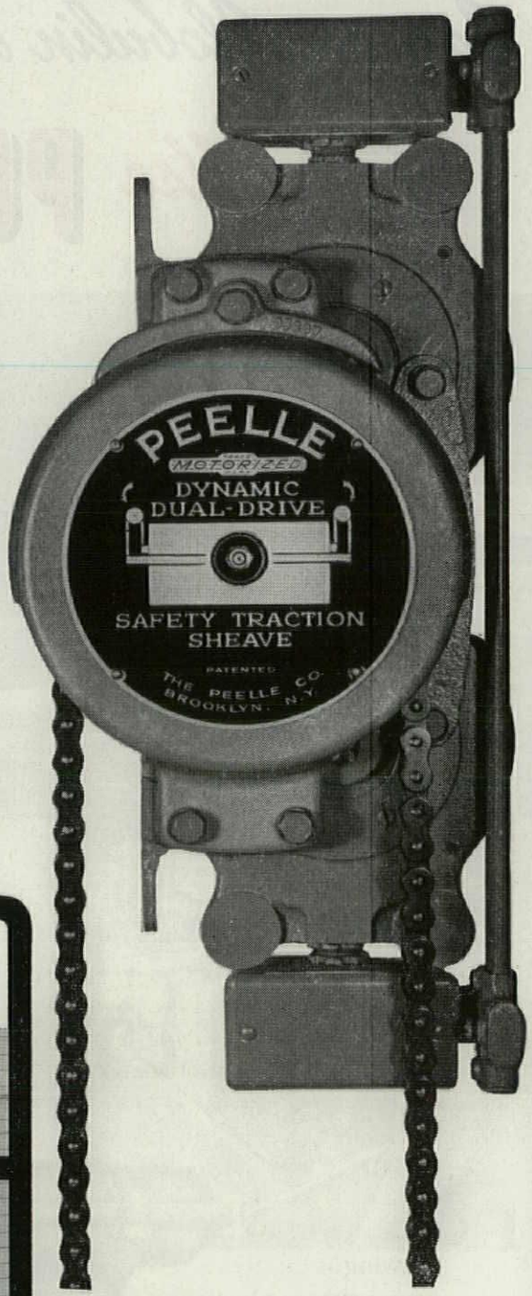
ACCURATELY CONTROLS STEAM, WATER, VACUUM AND PROPYLENE GLYCOL AT ARMOUR LABORATORIES

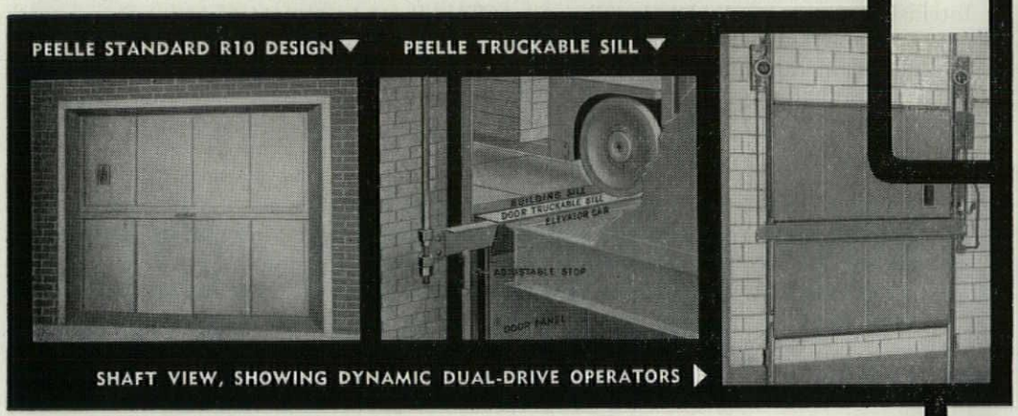
FURTHER EVIDENCE of Peelle's Continued 56-Year Leadership in the Freight Elevator Door Field—

Another new patent *— number 2,673,316 issued March 23, 1954. This patent covers the Dynamic Dual Motor-Drive Safety Traction Sheave.*

Constant development keeps Peelle Freight Elevator Doors the accepted standard throughout the world.

Architects *can assure their clients guaranteed dependability and long, maintenance-free service by specifying that the freight elevator doors shall be manufactured and installed by The Peelle Company, 47 Stewart Avenue, Brooklyn, N. Y. This prevents down-grading specifications by the use of so-called "Peelle-type" doors.*





ADVANTAGES
OF PEELLE DYNAMIC DUAL-DRIVE OPERATORS

1. All equipment entirely within shaft
2. No building work required
3. Each side of door equipped with Dynamic Dual-Drive Operator
   - Prevents canting
   - Eliminates adjustment of roping
   - Operating equipment cannot be damaged by electric trucks, etc., ramming door panels
4. Doors under positive electric control throughout travel
5. Simple inspection of motors possible through patented removal method

"it's **PEELLE** *engineered"*

THE PEELLE COMPANY

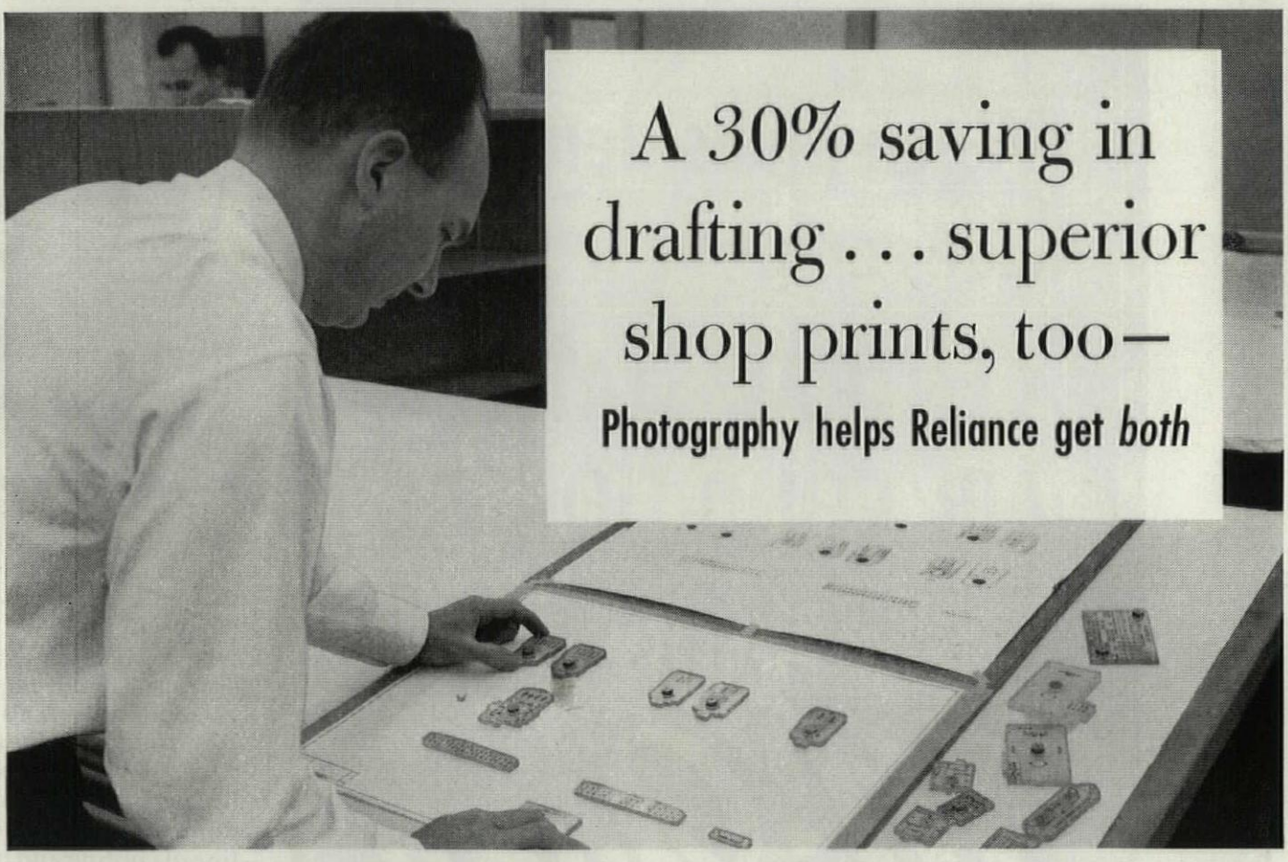
PEELLE MOTORSTAIRS • INDUSTRIAL DOORS • DUMBWAITER DOORS

47 STEWART AVENUE, BROOKLYN 37, N. Y.

OFFICES IN PRINCIPAL CITIES

see our catalog in SWEET'S ARCHITECTURAL FILE or write for copy

A detail and specification sheet for manual and motorized doors will be mailed upon request.



A 30% saving in drafting . . . superior shop prints, too—

Photography helps Reliance get *both*

At the Reliance Electric & Engineering Co., Cleveland, Ohio, the use of photographic templates and Kodagraph Autopositive Paper has helped to lower drafting-room costs by at least 30%, besides assuring highly legible shop prints day in and day out.

The templates—on clear plastic—represent the designs of standard components that appear again and again in Reliance's many wiring diagrams. A draftsman uses them, first, to make a preliminary drawing — positioning the templates he needs on whiteprint paper, making a print, then roughing in the hook-up lines.

After this drawing has been approved, he prints the templates on Kodagraph Autopositive Paper, using a printing frame. Simple photographic processing—under normal roomlight—produces a positive print of the layout directly. All he has to do now is add the hook-up lines, and another drawing is ready for Reliance's file of photo-lasting Autopositive "originals." *Another saving can be chalked up!*

Reliance has found these photo-drawings to be ideal printing intermediates. They're evenly translucent, durable; have crisp, dense black lines. And they produce top-quality shop prints at practical, uniform speeds in Reliance's direct-process machine.

Learn how thousands of companies are simplifying drafting and drawing reproduction routines, and protecting valuable originals with Kodagraph Autopositive Paper. See how you, or your local blueprinter, can process this sensational material quickly, at low cost. Mail coupon today.

Kodagraph Autopositive Paper

"THE BIG NEW PLUS" in architectural drawing reproduction

MAIL COUPON FOR FREE BOOKLET

206

EASTMAN KODAK COMPANY, Industrial Photographic Division, Rochester 4, N. Y.

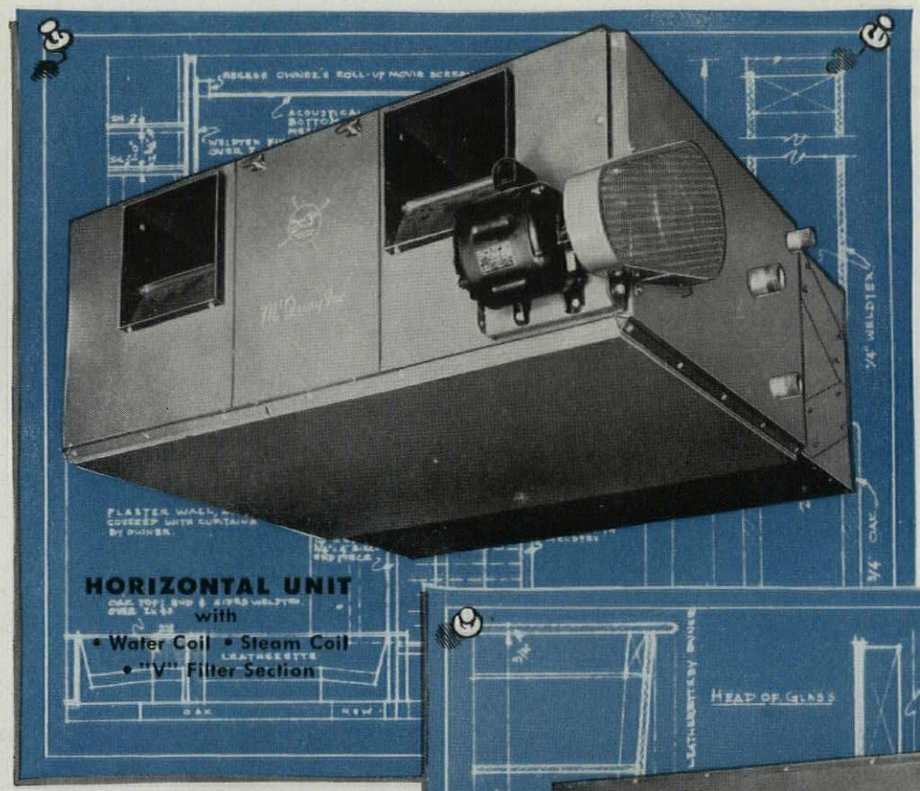
Gentlemen: Please send me a copy of "Modern Drawing and Document Reproduction," which gives all the facts on Kodagraph Autopositive Paper.

Name _____ Position _____

Company _____ Street _____

City _____ Zone _____ State _____

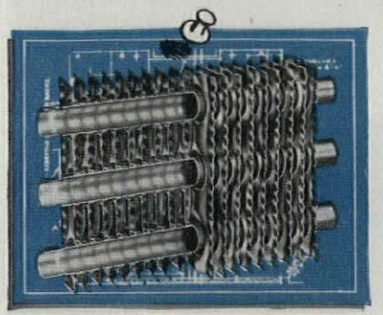
Kodak
TRADE-MARK



McQuay SEASONMASTERS

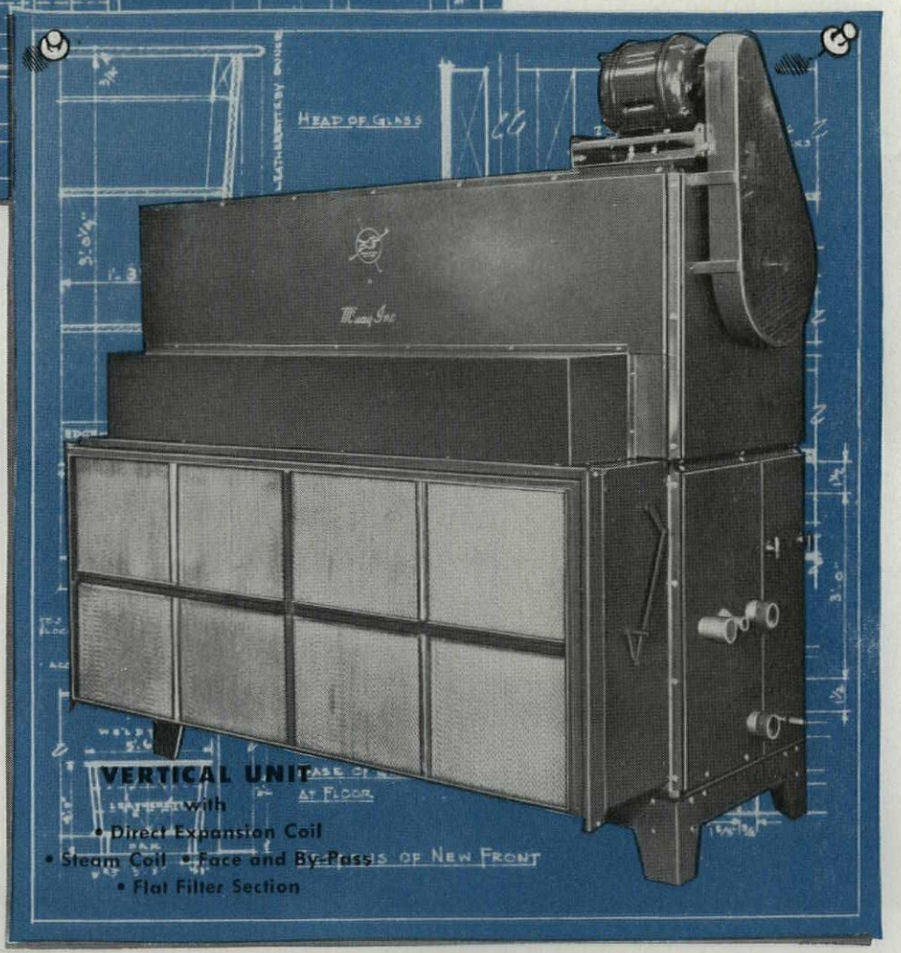
14 MODELS IN THE LINE

Seasonmasters are adaptable to all year 'round demands... cooling and dehumidification, heating and humidification, positive ventilation, and air filtering. All models are available in both horizontal and vertical types.



FAMOUS RIPPLE-FIN CONSTRUCTION

McQuay Ripple-Fin Coil construction is your assurance of unmatched heat transfer efficiency and economical long-life performance. Seamless copper tubes are expanded into wide, smooth collars of aluminum fins. Headers are heavy wall, seamless copper tubes.

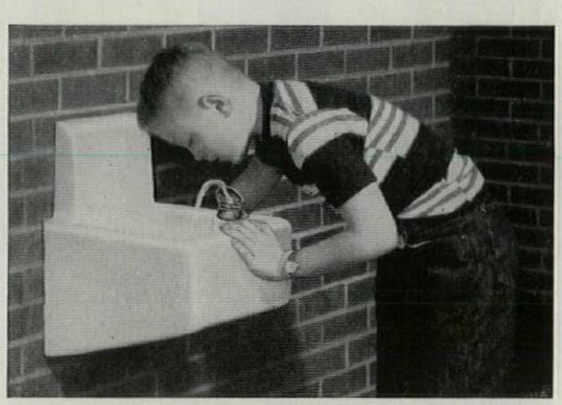


McQuay INC.

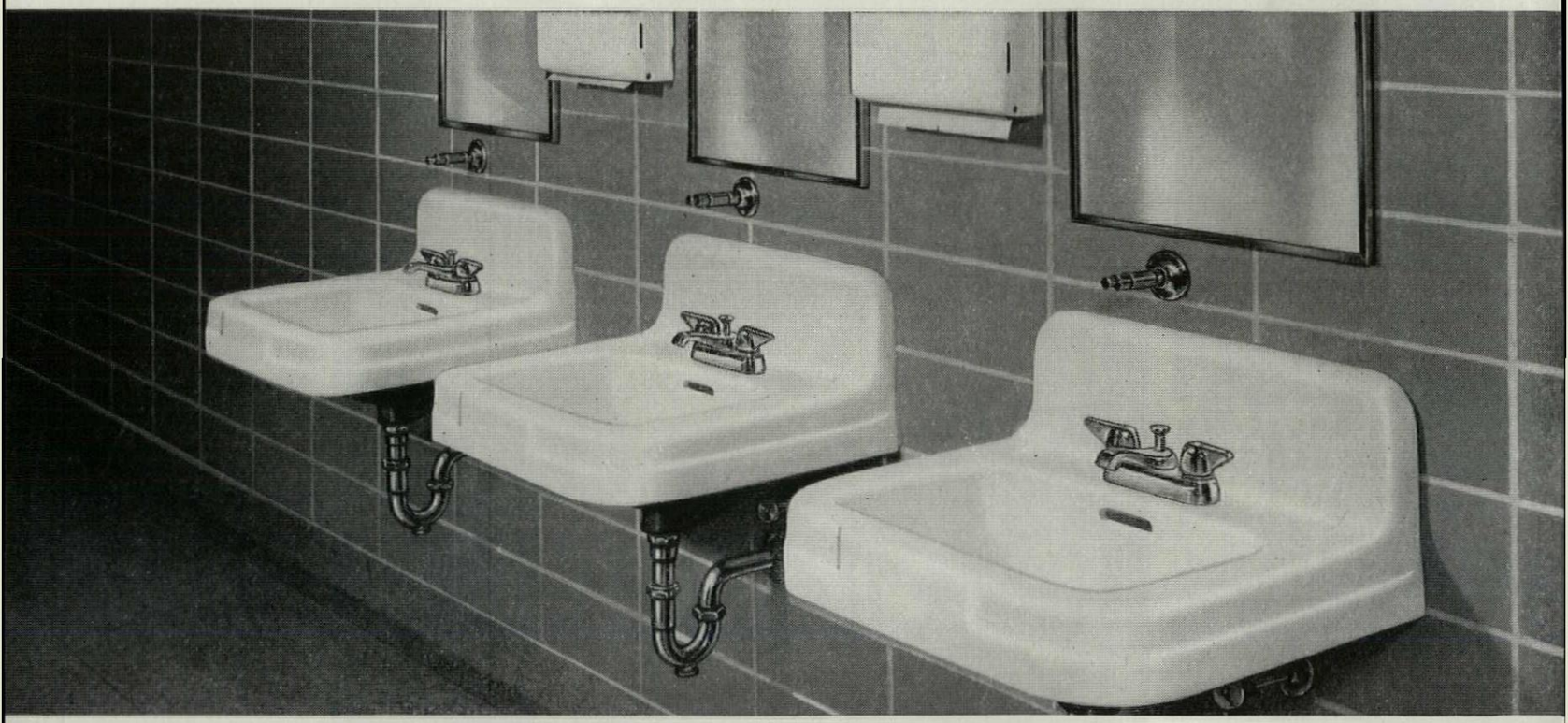
HEATING
AIR CONDITIONING
REFRIGERATION

How CRANE helps you in school planning

Crane specialized washroom and laboratory fixtures for schools match the smart efficiency of modern school buildings. In fact, Crane leads in specialized styles and sizes to fit elementary and high school plans. And, of course, the wide choice of Crane prices makes it easy to fit Crane equipment into any school budget as well as any school plan.



Crane school fountains are of the highest quality vitreous china. This Crane Waterfall, one of a wide choice of both wall and floor models, includes Crane's famous Purflo angle stream bubbler to prevent contamination. Individual or central water chilling units now available with Crane drinking fountains.



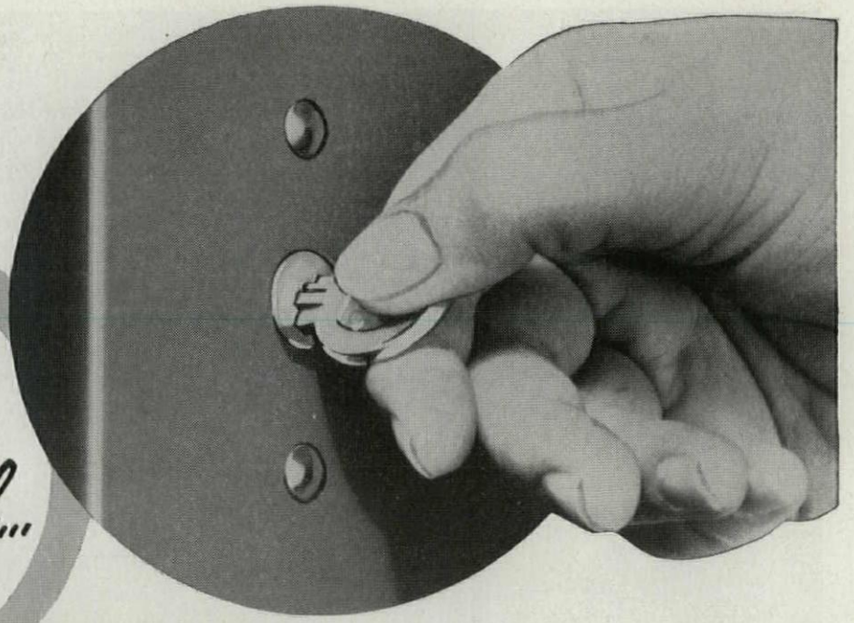
Typical of the wide choice of Crane school fixtures are these Rhodile lavatories of rugged cast iron and durable porcelain enamel finish. High splash back is particularly important aid to cleanliness in elementary schools.

Besides a comprehensive choice of specialized school fixtures, Crane offers you the advantage of its unmatched reputation for quality—which is well known to school administrators. When you specify Crane equipment, they know you have recommended the best.

For complete information on Crane specialized school fixtures, see your Crane Architects' Catalog . . . or call your nearby Crane Branch or Wholesaler.

CRANE CO.

GENERAL OFFICES: 836 SOUTH MICHIGAN AVE., CHICAGO 5
VALVES • FITTINGS • PIPE • PLUMBING AND HEATING



THIS IS
THE SECRET OF
Key-Control...

BERGER'S revolutionary new handle-free Steel Locker

The key is the handle! The key unlocks the door, and serves as a handle for opening it. The door *pre-locks* when key is removed, and locks *automatically* when shut. Students cannot "forget" to provide full-time locked protection for books, clothing, equipment, and personal effects. The school administrator retains a master key.

Berger's *exclusive* Key-Control locker system completely eliminates all need for handle maintenance. Locker fronts are flush and smooth, with no noise-inviting projections.

Berger offers school administrators and architects a complete planning and installation service, too. A service which supplies technical planning and engineering assistance, then assumes full responsibility for proper installation. Berger service is complete . . . right down to the tightening of the final bolt.

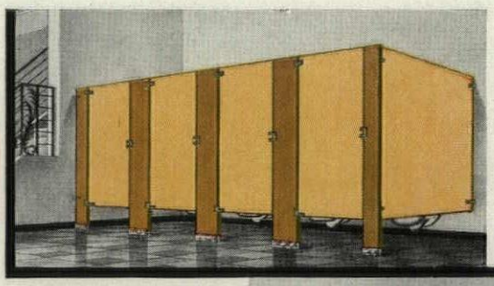
Look to Berger—world's leader in lockers—for (1) exclusive Key-Control; (2) the largest selection of standard steel lockers; (3) service which helps you provide the most efficient school storage system. Write:

REPUBLIC STEEL CORPORATION
Berger Manufacturing Division
1082 Belden Avenue, Canton 5, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Bldg., New York 17, N. Y.

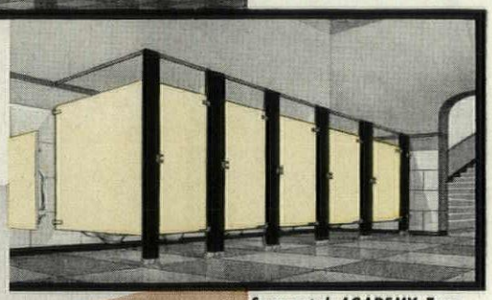
Berger
STEEL LOCKERS

REPUBLIC STEEL

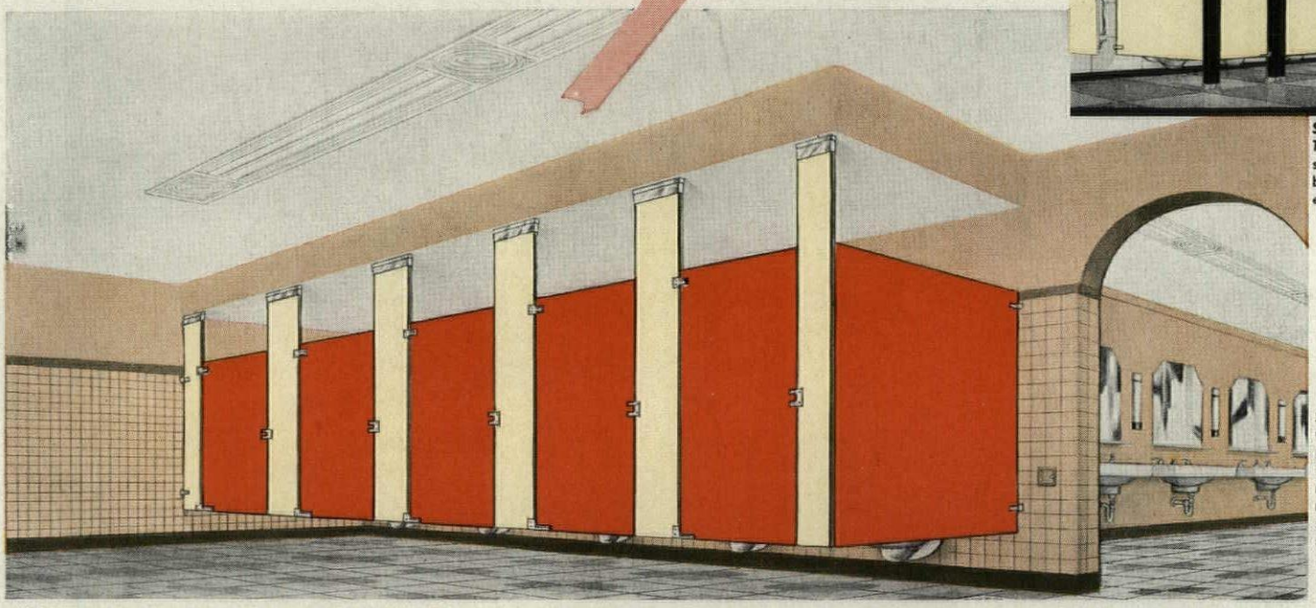
Untimely obsolescence of rest rooms usually occurs when and where it is invited . . .



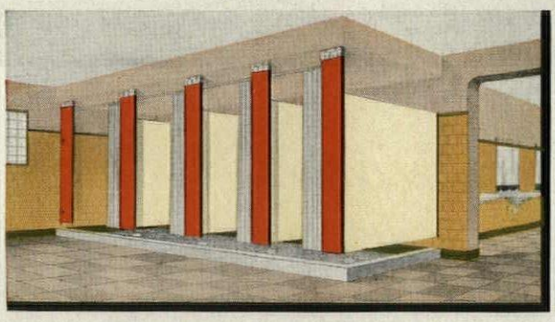
Sanymetal NORMANDIE Type Toilet Compartments endow a rest room environment with dignity and good taste.



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.

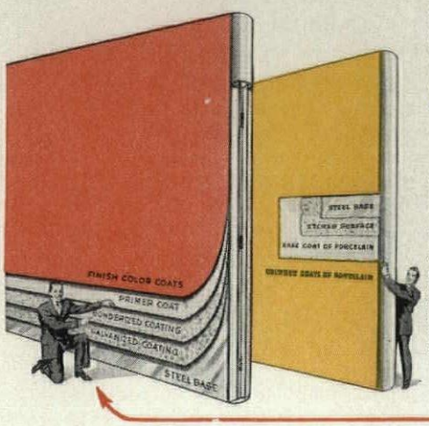


Sanymetal CENTURY Type (Ceiling Hung) Shower Stalls of Sanymetal "Porcena" (Vitreous Porcelain on Steel) Partitions and Pilasters, as arranged for a typical club installation. Also available in Sanymetal "Tenac" (synthetic enamel baked-on over Galvanized, Bonderized* Steel).

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.*

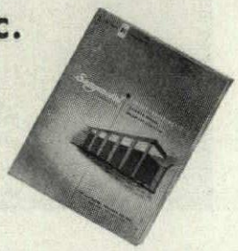


This is Sanymetal
"PORCENA"
(Vitreous Porcelain on Steel)
A metal base material that is impervious to moisture, odors, cleaning and uric acids, oils and grease. It is rust proof. Available in 21 glistening colors.

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.

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 $\frac{21b}{Sa}$ *in Sweet's Architectural File for 1954 and Catalog* $\frac{13a}{Sa}$ *in Sweet's Industrial File for 1954.*



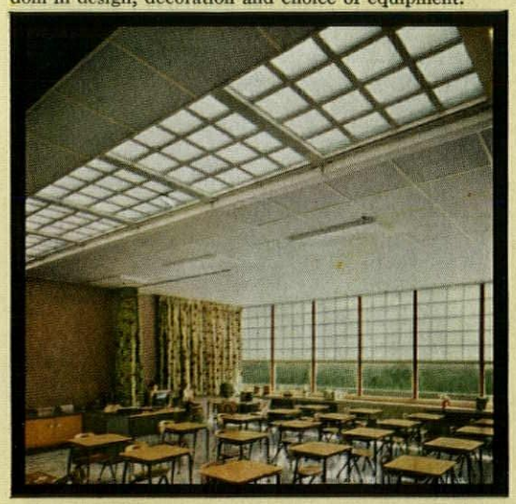
Sanymetal

*Trade Mark Reg. U. S. Pat. Off.
**Treated with "Bonderite", a product of Parker Rust Proof Company

TOILET COMPARTMENTS
SHOWER STALLS AND
DRESSING ROOMS

Seventy-five per cent of the nation's schoolrooms are operating today with less than the required minimum daylighting standards. Contrast many of those that you know with this bright colorful room.

Toplite and Light-Directing Glass Block provide complete flexibility necessary in modern schools; offer freedom in design, decoration and choice of equipment.



America's most advanced schoolroom

HERE is a classroom in which there will be less eyestrain, better work, less fatigue and better morale. This classroom gives educators their first glimpse at a long-sought goal—a more wholesome environment for learning.

Toplite Panels in the roof and Light-Directing Owens-Illinois Glass Block* in side walls make such a schoolroom possible. With this proved combination it is easy to get proper *quantities* of the right *quality* of daylight in all areas of the room. It is no longer necessary to confine close detail work to the area nearest the windows. With Light-Directing Glass Block, there is no glare and no shades are necessary. They harmonize with the finest interior decorations.

The ideas perfected in this "classroom of tomorrow" are available to you, *today*. Write for the details. Address: Classroom Research, Owens-Illinois, Department MB-5, Box 1035, Toledo 1, Ohio.

**Formerly known as INSULUX*

GLASS BLOCK AND TOPLITE PANELS
TWO (O) PRODUCTS

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

FHA's time of troubles

▸ White House suddenly ousts FHA Chief Hollyday over old-hat (but legal) shenanigans in Sec. 608, Title I repair gyps

▸ Scandal-probing Senators find the law they helped write, FHA's lack of investigating funds are chief culprits

The roof fell in on the Federal Housing Administration without public warning. At dusk of April 12, the administration announced it was moving against "serious irregularities and abuses" in two FHA programs, Sec. 608 (under which thousands of high-rise apartments were built during the postwar housing shortage), and Title I repair loans. FHA Commissioner Guy T. O. Hollyday, a widely respected title insurance man from Baltimore, was abruptly fired by White House Aide Sherman Adams over the long distance telephone (he was in Trenton speechmaking).

By the next day, two Congressional committee, the HHFA and the Justice Dept.'s internal revenue service were hot on the investigative trail of what quickly became a national sensation as the "FHA scandal." HHFA, the superagency over the government's stable of housing administrations, seized FHA's files at the direction of President Eisenhower and began masterminding a shake-up of top FHA staffers. This started with the installation of Norman Mason, a North Chelmsford, Mass. lumberman, as Hollyday's successor. Wholesale dismissal or resignation of top FHA men followed.

Reni

MASON

Richard Meek

HOLLYDAY

Charges & inquiries. Boiled down, the administration's case against its own FHA was this: 1) promoters of 251 Sec. 608 projects reaped windfall profits variously estimated at $75 to 500 million by mortgaging out on loans that ranged from 110 to 150% of construction costs, and 2) thousands of home owners had been cheated out of millions of dollars by roving bands of high-pressure salesmen who persuaded them to borrow money for repairs at inflated prices—and often delivered shoddy work besides.

Probably this was immoral. But in most cases, as Senate hearings gradually revealed over the next three weeks, it was not illegal. Whatever else it was, it was not news. The windfall profits in Sec. 608 were exposed by FORUM in Jan. '50 and led Congress to end the section that year. The Title I frauds were widely known to housers. Hollyday had tried to get Congress to give him more money to police it and when that failed he wrote new regulations last fall requiring lenders to clamp down on abuses under threat of losing the government loan insurance (H&H, Nov. '53, News). As it turned out, Hollyday had been congratulated on this by HHFA's Cole only last January. It was the judgment of Eisenhower's housing advisers that the new rules would end repair loan abuses, that no more tightening down was needed.

Background for scandal. Behind the sudden smearing of the housing industry lay events which indicated, sadly, how dangerous a little knowledge of housing can be:

Last year, the San Francisco *Call-Bulletin*, a sensational Hearst afternoon daily, ran a series of stories detailing how racketeers were swindling sucker home owners. Under the Title I law enacted by Congress in 1934, the government accords home owners no protection against gyps, relies on bank screening to weed out bad loans and crooked contractors. The government guarantees 10% of each lender's portfolio of Title I loans. But since actual losses run less than 1%, this amounts to a 100% guarantee. So lenders have been careless about who and why they lend under Title I (at 9.6% interest). Moreover, when a loan goes into default, the full weight of the government, through FHA, is thrown into collecting it.

The newspaper turned its findings—with victims' names—over to the Justice Dept. Unbeknownst to FHA, Justice had the FBI investigate in 48 states, Alaska and Puerto Rico. Result: every city in the nation appeared tainted by Title I fraud. Justice Dept. officials became suspicious FHA was sweeping its dirt under the rug, took their fears to the White House. Meanwhile Hollyday, looking for a way to ease out Asst. Commissioner Clyde L. Powell, in charge of the 608 program from its birth in 1942 to its death in 1950, forwarded to the FBI a dossier on him containing unproved charges he was a gambler who once dropped $5,700 (nearly half his annual salary) in one night's gaming. At last, early in April, Powell resigned—by request. But Hollyday accepted this with what to him seemed the customary laudatory letter (and press release).

When all this was laid before the President April 12, what HHFAdministrator Albert M. Cole was planning as a quiet resignation turned into an explosion. As the dust settled, Congress went to work devising ways to tighten up repair loan laws despite advice from HHFA's Cole and the ousted Hollyday that the law was all right as it stood. Legislators, apparently, would try to insist that the government accept a responsibility it did not legally have before: to protect home owners against swindlers. Of Sec. 608, Internal Revenue Commissioner T. Coleman Andrews testified there was "nothing illegal," at least, in the $4 million windfall profit New York Builders Gross-Morton took out of a $24 million mortgage to build Long Island's Glen Oaks Village. This is the government's test case in a tax court suit to collect regular income taxes instead of capital gains taxes on the profit.

Upshot: 1) the housing industry suffered a black eye that many thought undeserved; 2) the administration's housing bill—a major part of GOP legislative aims—suffered a delay (and probably would emerge minus the proposed 40-year, $200 down FHA Sec. 221 loan) and 3) the White House, by its rough treatment of Hollyday, made its task of bringing able businessmen into government that much harder.

Construction still boosting the economy as government starts talking public works

"The ponderous momentum of building activity," as Economist Miles L. Colean referred to it last month in a talk to the Mortgage Bankers Assn., had already carried the economy through an eight-months business decline. By all indications it would continue to do so. This is all to the good, since, except for burgeoning construction contracts, the economy was at best breaking even this spring, not declining much more, but showing small chance of much rise before autumn.

Unemployment rose by 54,000 in March. It was the smallest increase in six months and was partially offset by an increase of 45,000 in the total labor force since the preceding month. On the long view, factory employment was 1.2 million less than it was a year ago. The Federal Reserve Board's index of industrial output dropped a point in March, was 10% down from the peak last July. Personal income was running higher than it was a year ago—Treasury Secretary Humphrey pointed to the fact as an encouraging one—but according to various surveys the populace was bearish about spending it. Humphrey was himself carrying the ball for the "no depression" school last month. He explained to the Senate banking committee that the government was

boosting the economy through such devices as tax cuts, FRB purchase of short-term governments and reduction of member banks reserve requirements. Colean summed it up this way: "The 'mild recession' that I referred to has become somewhat less mild but certainly no worse than was foreseen. In a number of respects, the present decline has not been as severe as the not very severe dip in 1949, and there are now signs of at least a leveling off. In the words of one old hand at the forecasting business, it is still a 'depression de luxe.' "

Expansion to come. Expenditures for new construction of all types set a new record the first three months of '54, at a total $7.3 billion. Private residential building, accounting for about half total private expenditures, was no higher than it had been the first quarter of '53. The big rise had come in commercial building. With seasonal adjustment, the experts were predicting full year expenditures of $36.1 billion.

Predictions of increased expenditures for new plants and equipment by manufacturers were also widespread. Businessmen who last fall were sufficiently influenced by the pessimists to go on record as seeing a leaner year ahead (about 8% leaner, as far as capital expenditures go) now say they will equal or exceed last year's record $12.2 billion.

It is notable that manufacturers expect to put a higher percentage of outlays into plant modernization this year, rather than into expansion. They are aware of increasing competition, figure that new tools will raise productivity and lower labor costs. The modernization-expansion spending ratio was about 50-50 last year and the year before. This year, the manufacturers plan 57% for modernization, may push it up to 60% in the next few years. Capital expenditures by industry as a whole for 1954 have been estimated at $21.5 billion—about a 4% drop from last year's record total.

Public works picture. For the first time since the war there was a simultaneous decline in spending by government, business and the consumer. The most important curtailment was the government's. Last month Washington seemed more anxious than it had been to spend money. One outlet: public works. Government economists who had tabulated the need for new public works some months ago had ceased specifying such a program as an antirecession measure, now plumped for it as plain good business for the nation. The goal has been put at a 50% increase over what has been accomplished in recent years—an annual $11 billion, with state and local governments contributing more than half. There was no sure date for opening the planned-for barrage, but it was evident that the government's purpose would be primarily to encourage public works expenditures by the states and local governments. The economists say they believe that buildings are the most effective type of project, as far as spreading the work goes, but so far such projects are getting second billing to plans for highways, flood-control facilities and the like.

Los Angeles firm loses suit for tilt-up royalties

Test case efforts of National Panelcrete, Inc. of Los Angeles to collect tilt-up construction royalties suffered a setback. Federal District Judge Harry Westover overruled patent infringement claims Panelcrete field in Dec. '52 against Builder O. K. Earl Jr. of Pasadena. The judge ruled that the Panelcrete patent lacked invention and, moreover, was invalid because of prior use.

Earl said he builds about $1 million of industrial and commercial buildings yearly. He estimated Panelcrete's suit for treble damages might have cost him approximately $50,000, based on royalties of 2¢ to 4¢ psf of uptilted wall. Based on current tilt-up volume, he calculated Panelcrete might be able to enforce royalty claims of about $5 million a year in the Pacific Coast states alone, if its patent was sustained.

Expenses for his defense, said Earl, were shared by the Structural Concrete Assn., which was organized about a year ago as a direct outgrowth of the suit. The association is composed of firms engaged in prestressed and precast concreteing, he said.

SIDELIGHTS

Tax aid for smog wars?

Congress is taking its first serious look at the possibilities of extending federal aid to cities fighting smoke and smog. Senators Thomas Kuchel (R, Calif.) and Homer Capehart (R, Ind.) have introduced an amendment to the 1954 housing bill which would: 1) let industries that buy smoke abatement equipment write off the cost in five years on their income tax; 2) provide HHFA-insured, 20-year loans at 1% above long-term federal bond rates for factories willing to install smoke control equipment but unable to get loans from private sources (the same loan would be available to home owners who want to get rid of smoky coal furnaces); 3) establish a stepped-up research program to learn the causes of polluted air and how to fight it.

Because Capehart is chairman of the Senate banking committee which has charge of the housing bill, the smog amendment seems sure to be included in the Senate version of the bill. The House, which adopted the housing bill in early April, did not consider smog.

US Bureau of Mines officials told Capehart's committee that surveys have put the annual nationwide cost of smoke damage at more than $1.5 billion. Another witness said: "The air above our cities has become a vast public dump" indifferent to state and municipal boundaries and zoning laws. Capehart commented that President Eisenhower's slum clearance proposals are "well and good," but unless air pollution is controlled, "we can expect the newly constructed homes of today to become the slums of tomorrow."

Hotel with drive-in bedrooms

In Baton Rouge, La. the Pick hotel chain is planning to put up a 12-story downtown hotel with facilities for guests to park their autos on each floor. Tom Ryan, managing director for Pick at Baton Rouge (they lease three hostelries), estimated the 350-room project will cost $6 million. Guests will drive into the building at ground level, register while still seated at the wheel, drive onto an auto elevator and be carried to the floor where their room is. Ryan calls the plan definite, although it has not yet been blueprinted.

Record strike loss in building

The construction industry suffered a record number of work stoppages stemming from labor-management disputes last year. The total was 1,039, revised BLS figures showed last month. That was a rise of close to 25% over the previous peak of 794 in 1952. The stoppages in 1953 was less than in most post- lost, highest for any industry in the nation. For industry as a whole, idleness from work stoppages in 1953 was less than in most post-war years. The building trades, when it came to reducing industry efficiency, were still in a class by themselves.

Architect doings

The newly formed southwest Washington chapter — AIA's 115th — received its charter last month from National Secretary George Bain Cummings. . . . A current subject for debate among New York architects is whether architects should be required to take a loyalty oath when they renew their licenses . . . . In Coral Gables, Fla. the board of supervising architects (which must approve the architecture before a structure can be built) resigned under AIA criticism. AIA's Florida South chapter then recommended that if the city insists on retaining a design board, that the city's design ordinance be rewritten in detail, listing architectural features, designs and practices which will be banned.

Industrial sites demand rises

Both prices and sales volume of factory sites are rising, the Society of Industrial Realtors said after a survey of members. SIR President E. Sanford Gregory of Denver also noted "a growing scarcity of prime industrial land." Compared with Oct. 1 last year, SIR members last month gave this picture of the market for industrial sites:

	Improved property	Undeveloped land
Prices		
Higher	47%	42%
Same	52%	54%
Lower	1%	4%
Sales dollar volume		
Higher	37%	42%
Same	50%	46%
Lower	13%	12%

Threat to urban redevelopment

- **House adopts rider in appropriations bill barring federal aid to residential projects unless they are all housing**

- **HHFA warns this might imperil 85 slum-clearance projects. HHFA, New York row over Coliseum, cause of the trouble**

It was the executive officer of a redevelopment agency with one of the largest prospective building programs on the East Coast who said, early last month: "Redevelopment people all over the country have always feared New York's Coliseum project might backfire some day and hurt everybody."

Ten days later, ground was barely broken for the controversial $30 million Coliseum on Manhattan's Columbus Circle when the project began backfiring. At month's end, it was not clear whether other projects would be hurt by the backfire.

The threat was a rider to the independent offices appropriation bill by Rep. John Phillips (R, Calif.) which was adopted by the House before it sent the measure providing next fiscal year's funds for HHFA and 23 other government agencies on to the Senate. The rider stipulated that "no funds in this act shall be available for . . . grants . . . involving the development or redevelopment of a project for predominantly residential uses where incidental uses are not restricted to those normally essential for residential uses."

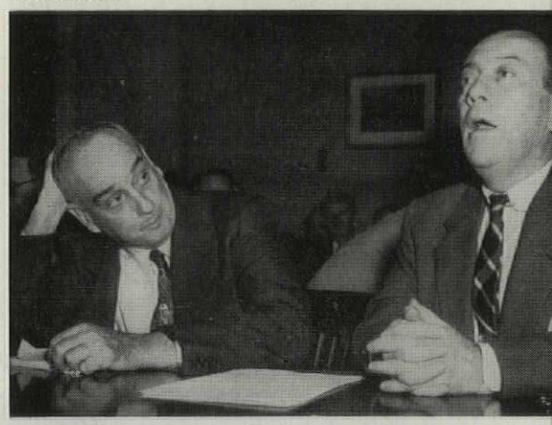
Fuzzy terms. Rep. Phillips, chairman of the House appropriations subcommittee in charge of HHFA funds, said his amendment was intended only to prevent abuses in future redevelopment projects that were required to be "predominantly residential" because they were mostly nonresidential before being redeveloped. But since the rider lacked explicit language to that effect, redevelopment agencies across the nation feared HHFA might feel compelled to interpret it to apply as well to residential redevelopments for areas that are originally predominantly residential. Under the existing law, such areas do not have to be redeveloped primarily into housing.

Redevelopment men also objected because the amendment seemed to set up new and strait-jacketing limits on redevelopments required to be "predominantly residential" (assuming it applied only to this category). Up to now, minority portions of these could be devoted to any type of nonresidential use; the Phillips rider would restrict incidental uses to those "normally essential" to housing. After a wave of protest arose from many quarters, a Senate appropriations subcommittee held a hearing on the rider April 21.

New York outcry. The loudest complaints against the rider came from New York, where large newspaper headlines asserted it "imperiled" and "jeopardized" the Coliseum, and editorials incorrectly described it as threat to "block" the project. Buried or overlooked in virtually all stories and editorials:
1) a statement in the House when the rider was adopted in which New York City's own Rep. Abraham J. Multer (D) pointed out that "in aiming at this one particular project they [the subcommittee] do not accomplish [this] purpose, because the contracts have been let, and the grants have been pledged," and 2) a statement at the same time by Amendment Author Phillips—"It has been said that this does not affect that particular project. On that I would agree. It has been said that therefore it is pointless. It is not pointless. If there is any other situation in the United States where this is in fact true [where garage space in a project was counted as residential area] it would and should apply to that."

In a plane chartered by the New York Convention and Visitors Bureau, New York Construction Coordinator Robert Moses led Mayor Robert Wagner and representatives of 27 indignant business and civic groups to the Senate hearing. Subcommittee Chairman Sen. Leverett Saltonstall (R, Mass.) asked them not to blow off steam about the Coliseum, but to concentrate instead on the broad principle of the rider.

Associated Press



AT SENATE HEARING Mayor Wagner and Moses (l) warned of harmful effects Phillips' rider would produce. Testified Moses: "I would say categorically Title I will end in New York. The city's slums are going to be cleared by this device, or by public housing—or not at all."

Many projects periled. On that score, Wagner and Coliseum-Builder Moses testified the amendment might force New York to abandon planned projects totaling $200 to $250 million. Although he was still at odds with Moses over the Coliseum (see below), HHFAdministrator Albert M. Cole backed the petitions of the New Yorkers and others for elimination of the Phillips rider. Cole estimated that it would affect 85 projects across the nation which have already been allocated $26.5 million in grants, and other pending applications totaling $100 million.

In keeping with the recommendation of President Eisenhower's housing advisers, the 1954 housing bill as passed by the House would eliminate the Title I requirement for "predominantly residential" redevelopment if the site was not "predominantly residential" before a project started. This makes good sense to most slum experts: housing is often not the most logical reuse for slum areas. But the House appropriations committee need not be governed by this; it might still attempt to exercise purse-string control over future projects the same way it has throttled down public housing starts the last four years

Walter Daran

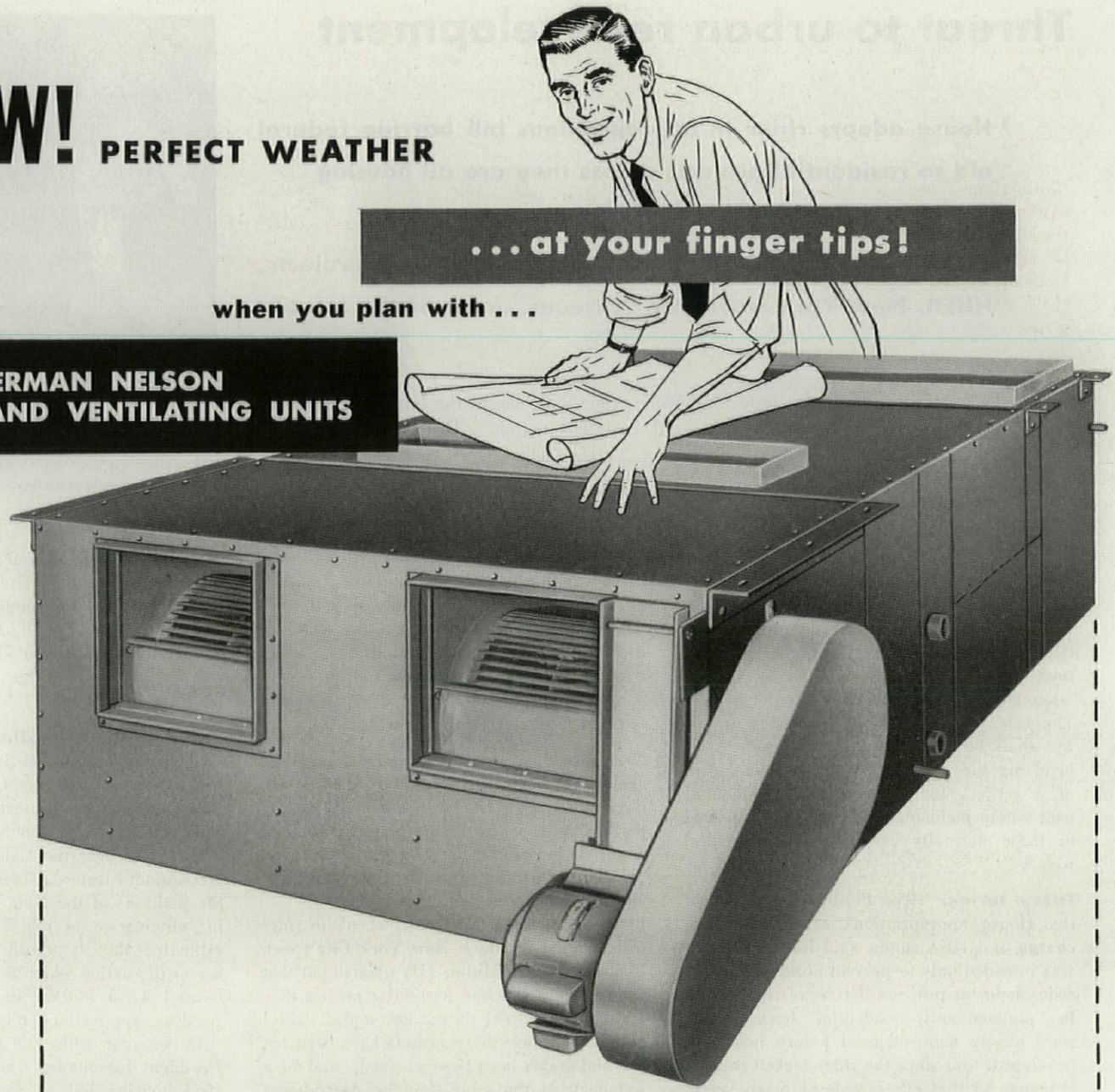
FIVE SHOVEL WIELDERS at Coliseum groundbreaking ceremonies April 12 were (l to r) Mayor Wagner, Manhattan Borough President Hulan E. Jack, Department Store Owner Bernard Gimbel, president of the N.Y. Convention and Visitors Bureau; Vice Chairman George V. McLaughlin of the Triborough Bridge & Tunnel Authority, official agency building the exposition hall, and Authority Chairman Robert Moses. (Voice of America recorded the proceedings to show foreigners how the face of a big American city constantly changes.) Excavations continued despite HHFA controversy, were essential in any case.

NOW! PERFECT WEATHER

. . . at your finger tips!

when you plan with . . .

HERMAN NELSON HEATING AND VENTILATING UNITS



Custom-Assembled from standard components

NEW!

Write for Catalog No. 775

Now. . . save yourself laborious planning, yet give your clients "perfect weather" with the system that you yourself *custom-fit* to your architectural plan. A Herman Nelson Heating and Ventilating Unit is completely sectional—designed with a wide range of components and accessories for assembling the units you need, for any location. Choose from seven different radiators—three distinct filter types—a wide range of motor sizes and fan combinations; further choices, too, in unit bases, wall intakes, damper sections, humidity control.

Proof again of Herman Nelson leadership in heating and ventilating! Select from this vast array of Herman Nelson equipment for specification in all types of commercial and institutional buildings. Our engineering staff will gladly assist you anytime in the application of this equipment to your needs. *Write for Bulletin 775!*

AAF herman nelson

American Air Filter COMPANY, INC. | 427 Central Avenue Louisville 8, Kentucky

despite an authorization for 135,000 units a year in the Housing Act of 1949 (the same bill that established Title I urban redevelopment grants).

Sen. Saltonstall reserved decision after the committee hearing, and at month's end it was still uncertain what would happen to the Phillips amendment. Phillips was to be one of the House conferees when the appropriations bill goes to conference. Thus he would be able to fight to retain his original rider from the House bill, or he might agree to a revised draft that did not alter basic requirements for projects to qualify for subsidies but still nailed down rules to prevent interpretations à la Coliseum.

Babel over tower. What really touched off a sulphurous New York City–HHFA row over the Coliseum was the addition of a $10-million, 20-story tower to provide 540,000 sq. ft. of office space that Moses first revealed in mid-March (AF, April '53).

Although he had already signed construction contracts for the revised project, it was not until April 7 that Moses formally applied to HHFA for the necessary permission to alter the redevelopment plan. Replied James W. Follin, chief of HHFA's slum clearance and redevelopment division:

▸ "The price paid . . . for the Coliseum site was predicated upon the redevelopment plan . . . as originally approved. With the change in plan. . . . it is our view that the value of the land . . . has increased substantially. Since the selling price of the project land . . . has a direct bearing upon the capital grant payable by the government, it would appear to us that some adjustment in the grant payment will have to be made to compensate for differences in value resulting from the change in the reuse of the project area.

▸ "Moreover, the addition of a 20-story office building constitutes such a major change that we have serious doubts whether the project is now eligible for financial assistance under Title I . . . . The determination that the reuse under the original plan was predominantly residential was a very close decision and has been severely criticized. From a preliminary examination . . . it seems highly unlikely such a determination could have been reached had the present plans been submitted. Accordingly it appears we have no alternative but to re-examine this whole matter."

Bombs away. Moses rejected Follin's request for a conference to talk over the situation and began bombarding Washington with angry letters and telegrams, at first suggesting he would no longer deal with anyone at HHFA except Administrator Cole himself. From the exchanges:

Moses to Cole, April 15—"We are sick and tired of negotiations with Follin. I suggest your agency keep its commitments, and refrain from further attempts to bedevil this program. . . . Follin insinuated [at a private breakfast early in April attended by Cole and Follin and Moses and two aides] that there will be a profit not originally anticipated due to the use of air rights [for the office tower] and [we] should pay more for the land . . . reduce the federal and city contributions. We said there was no profit and could be none. After hearing the entire discussion you agreed with us and overruled Follin."

Cole to Moses, April 19— "It is my judgment the addition of a 20-story office building constitutes a change of the basic elements of the plan. . . . Before we can proceed under the existing contract, full information . . . must be presented to Follin and his staff so they can determine what effect, if any, these changes may have on the [previous] agreements . . . . In contradiction of your statement, I have not on any occasion overruled Follin nor approved any course of action inconsistent with the federal contract. I fully support the position that the revised plan must be submitted to Mr. Follin, as director of the office responsible for this program, for review.

Moses to Cole, April 20— Moses accused Cole of having "a marvelous forgettery," and of having wanted to drop the Coliseum entirely and "simply do the housing back of it." He added: "You did overrule Follin and you did say you had no objection to our going ahead with the [groundbreaking] ceremony. What I said happened at breakfast did happen just as I recorded it."

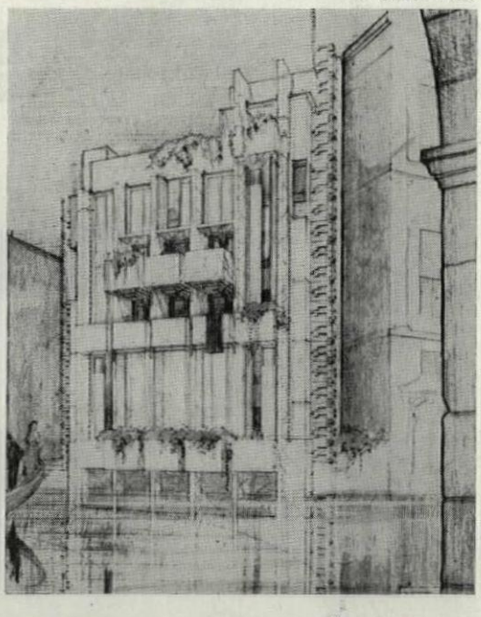
Some of the acrimony had cleared away by the time Cole and Moses appeared before the Senate subcommittee to oppose the Phillips rider. It was reported then that Mayor Wagner, in a peacemaker roll, was trying to get the federal and city representatives to work out whatever arrangements HHFA could sanction without any qualms. Despite the persuasive arguments of its New York sponsors, two big questions still confronted HHFA over the Coliseum:

1. If HHFA reaffirmed that the project was "predominantly residential" after reopening it to consider the addition of the $10-million office tower (unless the prospective change in the basic law in the current housing bill was enacted), how could the agency reject an application for a grant from any other city that used figures like New York's (see below) to claim "predominantly residential" classification?

2. If HHFA did not establish a reappraisal precedent on extra land values when projects were revised to provide for more intensive uses, how could it object in the future if other cities proposed only minor uses in original redevelopment plans, so as to obtain larger Title I land acquisition subsidies, but later unveiled plans for more intensive usages, public or private?

Space puzzle. HHFA faced another problem with the Coliseum. In one letter objecting to HHFA's re-examination of the project, Moses noted that use of the air rights for the addition of the 540,000 sq. ft. office tower "did not change by one iota the plan for the Coliseum and the housing." This contrasted with the city's position on 18,000 sq. ft. of garage space in the basement of the Coliseum that would be reserved for tenants in the housing portion of the redevelopment. It was only by having that garage space given residential classification that the project was originally certified in Truman days as "predominantly residential" (53.4%) although the Coliseum occupies 52.9% of the site.

United Press



Question: is Venice ready for an FLLW palazzo?

Art critics and laymen with various esthetic axes to grind split violently over whether this old brownstone residence (l) on Venice's venerable Grand Canal should be replaced by a dark-veined marble palazzo (r) designed by Frank Lloyd Wright. Wright was asked two years ago by wealthy Italian Contractor Paolo Masieri to do a building in memory of his son, Angelo, who had greatly admired Wright's work. The architect obliged. "Presumptuous . . ." wrote an Italian critic when the news broke. "Inexcusable vandalism . . ." wrote someone to the London "Times." Most of the outbursts came from persons who had not even seen the plans. (The Venice city council has yet to approve them.) The argument was whether such a touch of American "modern" would have an appalling effect on nearby landmarks on the Canal like the 15th-century Ca' Foscari and the 16th-century Palazzo Balbi. Wright had his champions, too (Britain's J. M. Richards, a senior editor of "The Architectural Review," was one of them), and he himself knew, as usual, exactly where he stood. "They're playing horse with it," he said recently, "when really it is a deep and serious question of invasion. . . . If the modern moves in, it should be beneficial to all cultures, not destructive. . . . I love Venice and in designing the palazzo I have tried to show this love for the culture that was Venice and not intrude on it."

Congress near adoption of lease-purchase bill promising $100 million a year of building

The lease-purchase bill, one of the administration's most important building measures, cleared the Senate last month and was sent to conference to be reconciled with a similar bill already adopted by the House. The legislation would let the government buy office buildings, post offices and warehouses on long-term lease-purchase arrangements. It was an "easy installment" method for acquiring about $2.3 billion of public buildings Congress has "authorized" at various sessions since before World War II, but for which it has not voted the appropriations needed to permit construction.

Before passage, the Senate wrote in an amendment which may prove a stumbling block. This would require approval from the Senate and House public works committees for any contracts under the bill involving payments of more than $20,000 a year, compared with a $50,000 screening figure in the House bill.

Constitutional doubts. Author of the amendment was Sen. Thomas H. Kuchel (R, Calif.) who was state controller before he was appointed to fill the vacancy caused by Sen. Richard M. Nixon's election as vice president. Kuchel disapproved some deals he scrutinized under a California public buildings lease-purchase law, and he insisted a Congressional check rein was needed to prevent abuses like those he objected to in California. His view prevailed, 60 to 8, on a showdown vote, despite opposition of Sen. Everett M. Dirksen (R, Ill.), who called the proviso a Congressional intrusion on executive responsibilities.

At month's end, the fate of the amendment at the hands of the House-Senate conferees was still uncertain. There was a possibility they might eliminate congressional screening entirely in view of reports that Justice Dept. officials were inclined to regard it as an unconstitutional legislative encroachment on executive authority.

New buildings favored. Provided all obstacles were finally cleared, the prospective law would allow the government to enter lease-purchase contracts for a minimum of ten years, a maximum of 25. At the end of the leases, title to the buildings would automatically go to the government. Congress would establish each year the maximum amount of rental payments that could be applied to such deals. For the first year the limit would be $5 million—$1 million for post-office contracts, $4 million for structures financed on contracts made by the Public Buildings Service of the General Services Administration.

Assuming that most deals would be based on 20-year leases, the lease purchase bill suggested initial construction at an annual rate of about $20 million for post offices, $80 million for other buildings.

Although the bill would allow lease-purchase of existing buildings, GSAdministrator Edmund F. Mansure indicated it would be used primarily to speed construction of new buildings designed to government specifications. He estimated it could be used to obtain private enterprise financing and construction for a federal public buildings program totaling nearly $3 billion, on the theory Congress will steadily add more buildings to the current $2.3 billion backlog. The situation with other building legislation:

Wunderlich. Congress passed and sent to the White House the Wunderlich bill, which will again permit judicial review of decisions of government contracting officers. There seemed little doubt President Eisenhower would sign it. Contractors have been fighting for the law since a Supreme Court decision in 1951 in the Wunderlich case gave agency heads the final word on contract disputes, except where fraud is alleged. The new bill is made retroactive to cover contractors' claims denied a court hearing since the Supreme Court ruling in 1951.

Bid-shopping bill. Less favorably regarded by Congress, and likely to end in the legislative wastepaper basket: the antibid-shopping bill (S. 848). It is strongly endorsed by subs, but heatedly opposed by AGC. The measure would require general contractors to list their subs, and the amounts of their bids, on all government work. It has been reported favorably by committees in both houses, but has not been able to budge from the calendar of pending bills in either. Each time it has been called up for floor action objections have blocked consideration.

$1.4 billion is sought for military construction

Congress received last month the administration's requests for Defense Dept. military construction appropriations. The total was almost $1.4 billion. It consisted of: $897 million for new authorizations for the three services; $309 million for reprogrammed Air Force work held up by the construction "freeze" President Eisenhower ordered early last year; another $200 million for continuing Air Force overseas airbase works authorized two years ago.

Counting $432 million of the requested new appropriations, the Air Force was slated to receive $941 million of the total $1.4 billion sought by the administration. The Army was in line for $257 million, the Navy $207 million. With $2.5 billion of previously appropriated but unexpended funds earmarked for specific projects, the total backlog of military construction that could proceed during fiscal year 1954, starting July 1, if Congress votes the new appropriations, would amount to almost $4 billion.

In a separate measure, Congress appropriated another $125 million for the site and construction of an Air Force Academy comparable to West Point and Annapolis. Air Force Secretary Harold E. Talbot hoped to announce before summer both its site and the selection of an architectural and engineering firm, "joint venture or otherwise, best qualified and capable of producing an outstanding design and supervising construction." Interested architects should submit their qualifications to Asst. Chief of Staff, Installations, Air Force Academy project office, USAF headquarters, Washington 25, D.C.

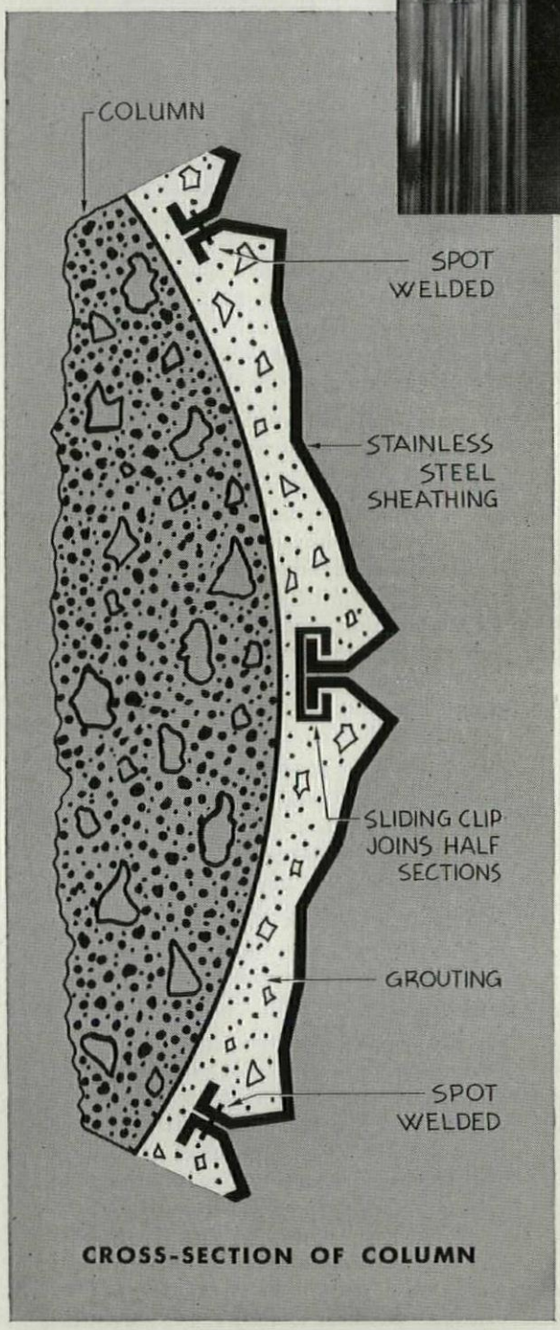
Building labor winning pay hikes from 5 to 21½¢ hour

Early returns from spring bargaining sessions did not indicate any pendulum swing toward leveling wage rates in building. There had been talk that contractors, faced with a dip in the national economy, would try to hold the line. Instances were few, although more frequent than a year ago. Bricklayers and plasterers in San Diego (about 170 of them) agreed last month to no wage hikes for a year. Occasionally, a contractor group had stated in tough terms that there could be no increases this year. New Jersey contractors, paying the highest average hourly wage rates in the nation (more than $3.25 in some counties), had massed for support of the status quo on wages, decided to discount anticipated sporadic strikes as a calculated risk.

In several areas construction unions had come to terms. Some recent contracts:

- Homebuilder and contractor groups in Oregon and southwestern Washington signed wage agreements covering 14,000 AFL building tradesmen, granting a 10¢ hourly increase retroactive to April 1. It included pile drivers for the first time, was believed to be the first uniform agreement covering such a large area in the US and was expected to end labor pirating and "aid the industry materially through voluntary stabilization."
- Approximately 18,500 construction workers in the St. Louis area were scheduled to receive wage increases of 5¢ to 12½¢ an hour after May 1. The biggest group—10,000 carpenters—were to be upped 10¢ to $3.05.
- Some 375 AFL truck drivers and warehousemen in Louisville gained a 21¢-an-hour increase in negotiations with ten building materials firms.
- About 2,500 masons won a pay rise of 7½¢ (to an hourly rate of $2.74½) from the northern and central chapters of AGC, effective August 1. Forty-eight hours after the move the Associated Home Builders of the Greater East Bay called upon Gov. Goodwin Knight to ascertain whether there was "collusion" in the case. The homebuilders asserted the contract was "unprecedented in that it was arrived at more than 30 days prior to expiration of the existing agreement and after only one negotiating meeting" and would cost taxpayers "millions of dollars additional for highway construction and public works." The AGC was at a loss to explain the opposition. Probable action, in California as well as the rest of the nation: more discussion.

H. Garcia Capurro, Engineer
Julio Benincasa,
Montevideo, Uruguay



CROSS-SECTION OF COLUMN

Massive Columns BEAUTIFIED

WITH STAINLESS STEEL

Armco Stainless Steel helped architects give massive columns a "new look" in this Montevideo moving picture theater. Nine concrete columns in the mammoth lobby were 36 inches in diameter and had only a 1 to 6 relationship to their height.

The problem of making the columns attractive and disguising their proportions was solved by surrounding them with stainless steel sheathing, extensively fluted. Each complete column-covering consisted of 3 sections of 20 vertical panels each. Individual panels were spot welded into half-round sections, then joined around the columns on the inside with sliding clips.

Concrete was poured into the space between the stainless sheathing and the columns after building wooden supports around the sheathing to prevent any possible deformation.

Variety of Uses

Stainless steel workability permits a wide variety of exterior and interior architectural treatments—limited only by the imagination. To name only a few standard applications, it is used in spandrels, pilasters, curtain walls, entrances, doorways and elevator doors. Stainless steel is permanently beautiful, costs little to maintain because it is so easy to clean and keep clean, and requires no painting.

For complete information on Armco Stainless Steels and their architectural uses, write us at the address below.

Armco Steel Corporation

3374 Curtis Street, Middletown, Ohio • Export: The Armco International Corporation

BUILDING STATISTICS:

Los Angeles, New York lead in '53 building; Cleveland jumps from 15th to 9th place

Data compiled by the Bureau of Labor Statistics showed no change in 1953 in the ranking of the seven cities where building expenditures are greatest (see table). In all cases total spending increased over 1952, although the percentage gains varied widely.

First place Los Angeles had a 14% increase; in new nonresidential building it showed a 35% gain. Second place New York gained only 1.3% in total building expenditures (which includes alterations and repairs) but dropped 6.8% in new nonresidential building. In total outlays, New Orleans moved up from 9th to 8th place last year. Cleveland, with a 52% increase, zoomed from 15th to 9th place. San Diego dropped from 8th to 10th place, and Milwaukee slipped from 10th to 12th position.

On a regional basis, BLS' data for specific building-type expenditures last year in urban places (incorporated places of at least 2,500 population) showed gains in all districts in new commercial building (see tables). Industrial construction gained in six of the nine areas; community building expenditures rose in seven and dropped in two. For public buildings, however, spending increased in only three districts, fell in six.

A spring puzzle to some construction people has been the wide disparity between three national estimates of construction volume. For the first quarter of the year, the government's Commerce and Labor Dept. estimate of dollar volume expenditures for all new construction was up 1.5% from the first quarter of 1953. But *Engineering News-Record* recorded a 34% dip and F. W. Dodge Corp. reported a 13% increase. The explanation: the estimates are different. The government figures current dollar outlays for work put in place, adjusted from permits and starts. ENR puts total project costs into its figures when contracts are awarded (even though the project may be years abuilding); moreover it only includes mass housing projects costing $300,000 or more, excluding much of the residential market. Dodge covers only the 37 eastern states, but, like the government, attempts to adjust for time lag between contract and expenditures.

BUILDING EXPENDITURES IN LEADING CITIES

(in thousands of dollars; within city limits)

	All building, including residential work and repairs and alterations			New nonresidential building (excluding repairs and alterations)		
	1952	1953	% Ch'ge	1952	1953	% Ch'ge
Los Angeles	$371,274	$423,619	+14.1	$94,693	$128,349	+ 35.5
New York	355,873	360,364	+ 1.3	138,195	128,743	— 6.8
Chicago	192,792	222,849	+15.5	54,022	79,768	+ 47.7
Detroit	136,790	166,460	+21.7	60,154	85,252	+ 41.7
Philadelphia	119,058	130,750	+ 9.8	34,382	47,171	+ 37.2
Houston	115,012	130,216	+13.2	31,434	46,269	+ 47.2
Dallas	102,408	107,281	+ 4.7	37,672	40,248	+ 6.8
New Orleans	82,734	92,796	+12.1	36,517	30,535	— 16.4
Cleveland	57,258	87,137	+52.2	20,214	47,955	+137.2
San Diego	97,197	84,512	—13.1	20,239	18,505	— 8.6
Baltimore	58,710	82,442	+40.4	10,947	28,692	+162.0
Milwaukee	68,739	80,544	+17.2	18,848	26,770	+ 42.0
Atlanta	41,188	79,500	+93.0	12,097	38,667	+ 22.0
Denver	66,884	69,553	+.4.0	19,717	36,025	+ 82.7
San Francisco	51,004	59,608	+16.9	22,532	27,393	+ 21.6
Cincinnati	47,223	58,605	+24.1	15,126	17,902	+ 18.3
Seattle	61,181	55,540	— 9.2	27,581	22,746	— 17.5
Portland (Ore.)	49,546	51,824	+ 4.6	19,411	18,343	— 5.5
St. Louis	58,381	51,441	—11.9	22,407	30,871	+ 37.8
San Antonio	47,964	50,244	+ 4.8	11,969	13,685	+ 14.3
Long Beach (Calif.)	42,907	48,872	+13.9	14,913	17,304	+ 16.0
Memphis	49,250	46,004	— 6.7	17,356	17,497	+ .8
Kansas City (Mo.)	42,542	45,971	+ 8.1	12,504	20,861	+ 66.8
Indianapolis	36,049	44,005	+22.1	14,208	24,715	+ 74.0
Columbus	38,261	43,939	+14.8	14,655	16,247	+ 10.9

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.*

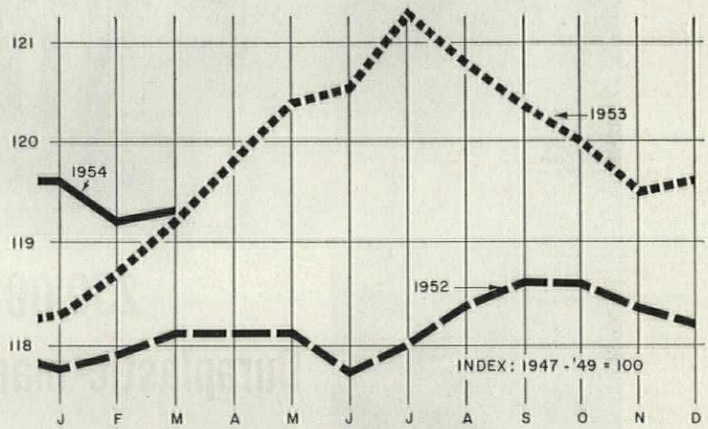
REGIONAL EXPENDITURES BY BUILDING TYPES

(in millions of dollars; within incorporated areas)

Area	1952	1953	% Change	1952	1953	% Change
	INDUSTRIAL BUILDING			COMMERCIAL BUILDINGS		
New England	$28.0	$25.2	—10.2	$28.7	$49.1	+71.0
Middle Atlantic	60.9	84.3	+38.4	121.1	181.3	+49.7
East North Central	111.8	138.5	—23.9	141.6	226.2	+59.7
West South Central	24.3	30.4	+25.3	56.0	84.2	+50.4
South Atlantic	25.2	41.6	+65.0	87.0	166.7	+91.5
East South Central	16.0	16.5	+2.7	26.0	33.0	+27.1
West South Central	17.1	14.4	—16.2	91.6	138.2	+50.9
Mountain	5.9	9.9	+67.0	30.3	54.1	+78.1
Pacific	61.8	68.5	+10.9	101.0	160.5	+58.9
All urban places	351.5	429.7	+22.2	683.7	1,093.6	+60.0
	COMMUNITY BUILDINGS			PUBLIC BUILDINGS		
New England	$75.9	$80.4	+5.9	$13.9	$6.7	—51.8
Middle Atlantic	193.5	188.0	—2.8	19.5	10.9	—43.6
East North Central	227.1	272.3	+19.9	18.1	39.2	+116.7
West South Central	102.1	115.3	+13.0	4.2	7.0	+66.1
South Atlantic	115.7	167.6	+44.8	16.5	13.1	—20.8
East South Central	56.8	46.6	—18.0	10.8	2.3	—78.5
West South Central	117.0	150.3	+28.4	7.3	9.4	+28.1
Mountain	34.3	56.1	+63.6	14.4	3.8	—73.4
Pacific	171.5	191.0	+11.4	50.0	26.7	—46.5
All urban places	1,094.2	1,268.0	+15.9	155.0	119.5	—22.9

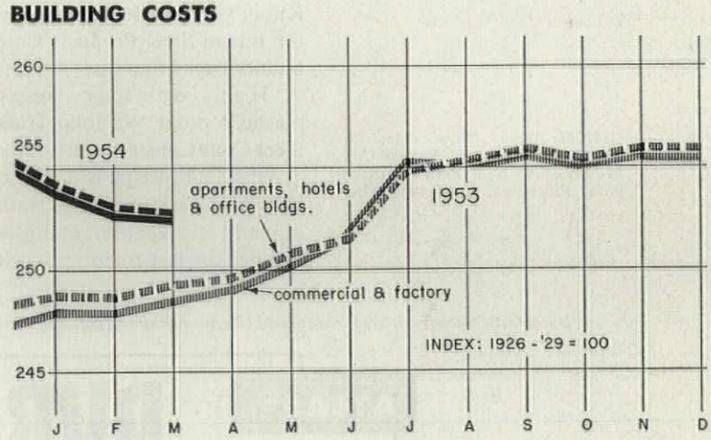
Source: *Bureau of Labor Statistics data, based on permits issued and federal contracts excluding work in smaller communities and unincorporated sections of metropolitan areas.*

MATERIALS PRICES



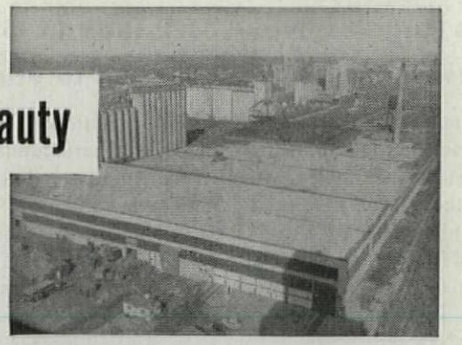
Average wholesale building materials prices, as calculated by BLS, rose from 119.2 in February to 119.3 in March. Principal cause of the increase: slight increases for Douglas fir and building wire.

BUILDING COSTS

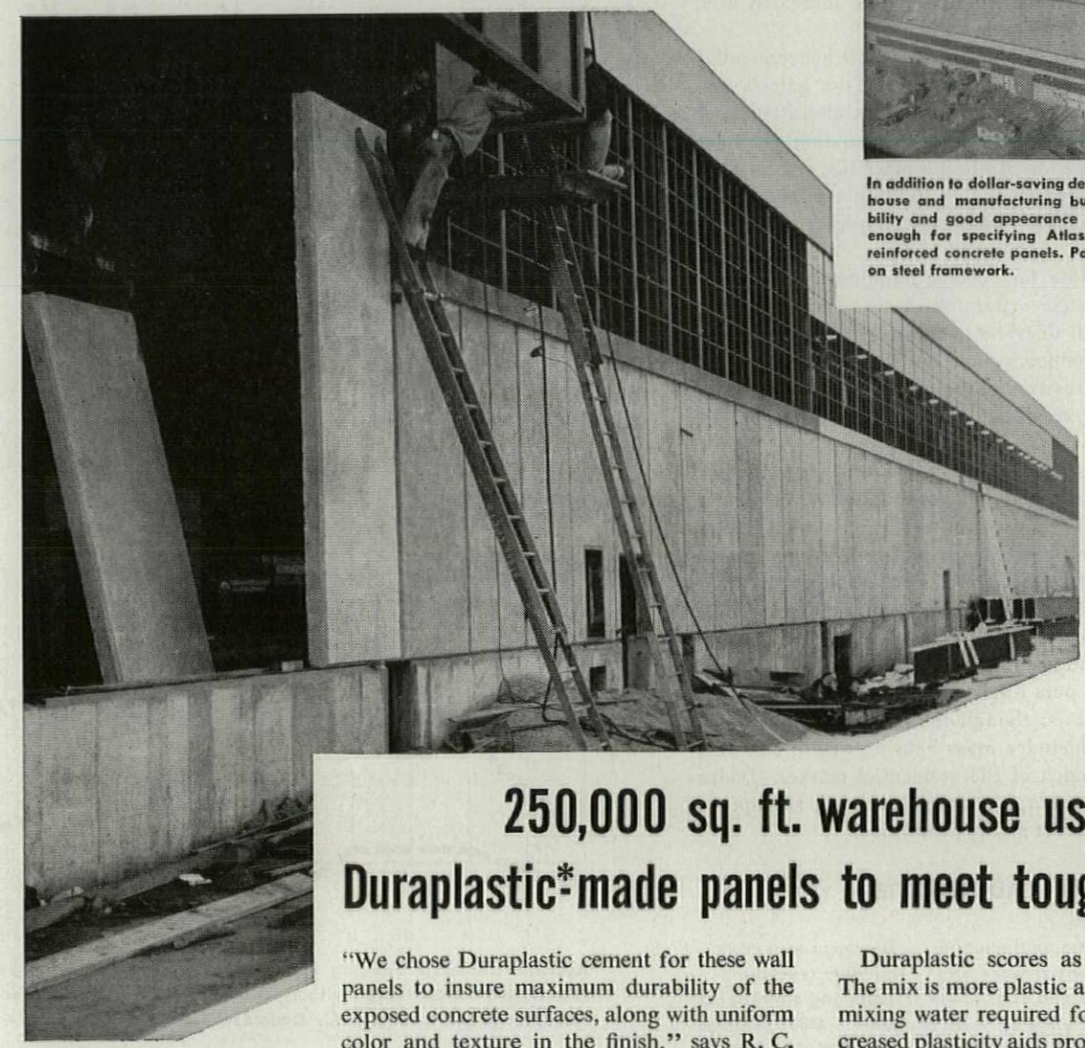


Construction costs drifted down a trifle again in March according to the indexes of E. H. Boeckh & Associates. Their index for apartments, hotels and office buildings declined to 252.8 from 253.0 in February. Their commercial and factory-building index slipped to 252.7 from 252.8 a month earlier. Other main indexes held steady, or moved slightly higher. The AGC figure for March was 420, the same as February; for January-March, The Austin Co.'s quarterly index for industrial building remained unchanged (189) for the third successive quarter; Smith, Hinchman & Grylls' April index was 269, up from 268.

SPECIFIED: Maximum utility, economy and beauty



In addition to dollar-saving design for this huge new warehouse and manufacturing building in Milwaukee, durability and good appearance were also required. Reason enough for specifying Atlas Duraplastic cement in the reinforced concrete panels. Panels were job-cast and hung on steel framework.



Designed by
V. K. Boynton,
Consulting Engineer
Milwaukee

250,000 sq. ft. warehouse uses Duraplastic*-made panels to meet tough "specs"

"We chose Duraplastic cement for these wall panels to insure maximum durability of the exposed concrete surfaces, along with uniform color and texture in the finish," says R. C. Knoll, vice president in charge of construction for Inland Steel Products Company. And the builder backs him up:

"Highly satisfactory results with Duraplastic," notes W. John Hufschmidt, of the Steel-Crete Construction Company, Milwaukee.

Atlas Duraplastic is a wise choice for durability because it minimizes water gain or bleeding and segregation... finished concrete is fortified against freezing-thawing weather.

Duraplastic scores as well in appearance. The mix is more plastic and cohesive, with less mixing water required for a given slump. Increased plasticity aids proper placement and results in generally improved surface appearance.

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

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

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

ATLAS®

AF-D-149

DURAPLASTIC

AIR-ENTRAINING PORTLAND CEMENT

Makes Better Concrete at No Extra Cost

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

PEOPLE: Ralph Rapson named head of University of Minnesota architecture school; Architect Harvey Corbett dies at 81

Ralph Rapson, 38, assistant professor of architecture at MIT, was appointed head of the University of Minnesota school of architecture. He succeeds **Roy C. Jones,** who retired a year ago. Rapson was born in Alma, Mich., attended the University of Michigan and Cranbrook Academy of Art, where he studied regional and civic planning under Eliel Saarinen. He later worked for Saarinen & Saarinen, for George Fred Keck, Paul Schweikher and Perkins & Will. He was head of the department of architecture at the Institute of Design in Chicago when Moholy-Nagy was director. He has won a number of architectural prizes, saw action in World War II (he was wounded) and from 1951 to 1953 was one of the chief designers in the State Dept.'s foreign buildings office in Paris.

RAPSON

AIA raised 21 architects to the rank of fellow. For public service: **Adolph Budina** of Richmond, Va., **Sanford Williams Goin** of Gainesville, Fla. (also for service to AIA), **Roger Allen** of Grand Rapids (also for service to AIA), **Juan F. Nakpil** of Manila, P.I., **Harry Irvin Schenck** of Dayton, **Louis P. Smithey** of Roanoke (also for service to AIA). For design: **J. Roy Carroll Jr.** of Philadelphia (also for education), **Samuel Homsey** of Wilmington, **Eugene F. Kennedy Jr.** of Boston, **Walter Gropius** of Cambridge (also for education), **Percival Goodman** of New York (also for education), **Donald Siegfried Nelson** of Dallas, **Herbert M. Tatum** of Dallas (also for service to AIA), **Ludwig Mies van der Rohe** of Chicago, **Royal Barry Wills** of Boston, **William Wilson Wurster** of San Francisco (also for education), **Marion Sims Wyeth** of Palm Beach. **George Holmes Perkins** of Philadelphia and **Stanley Smith** of Pullman, Wash. were advanced for education; **Irving G. Smith** of Portland, Ore. for service to AIA and **Harry Royden Dowswell** of New York for science of construction.

NAMED: **Frederick J. Mayo,** officer of F. H. McGraw & Co. since 1946 and general manager of the firm's $1-billion construction project for the AEC in Paducah, Ky. since 1951, as executive vice president in the company's home office in Hartford; **Irving T. Bennett** of General Cable Corp., as chairman of the board to succeed **D. R. G. Palmer,** who is retiring after 36 years service; **Christian R. Burmeister,** as treasurer of the George A. Fuller Co. in New York; **John D. Leland,** vice president of the big Long-Bell Lumber Co. (its largest plant is in Longview, Wash.) as president to succeed **J. M. White,** who remains on the board; **Edward S. Graybill** of Armstrong Cork Co., as president of the Acoustical Materials Assn., succeeding **George W. Handy** of National Gypsum Co.

Max C. Hanisch Jr. of Peshtigo, Wis. was elected president of the American Institute of Timber Construction and **Charles C. Calvert** of Los Angeles, vice president; **J. Ross Humphreys,** first chairman of Chicago's Near West Side Planning Board, was named chairman of the Chicago Land Clearance Commission.

CONGRATULATIONS: to Sculptor **Julian Hoke Harris** of Atlanta, winner of AIA's fine arts medal for 1954 and Mrs. **Maria Montoya Martinez** of San Ildefonso, N.M., who won AIA's craftsmanship medal; to Sculptor **Lee Lawrie** of Easton, Md., winner of the president's medal of the Architectural League of New York; to Architect **Harold W. Walsh** of New York, who received the League's Arnold W. Brunner grant of $1,000 and to **Joseph N. Smith** III of Miami, who received the $200 Birch Burdette Long Memorial Prize for the best architectural rendering.

Joseph B. Mason, who announced recently he would resign as executive editor of *Architectural Record* (AF, Feb. '54, News), will rejoin *American Builder* as eastern editor. He previously worked 16 years there.

Maj. Gen. **John S. Bragdon,** who retired from the Army Engineers in 1951 and recently became a vice president of Vermilya-Brown Co., New York contractors (AF, Jan. '54, News) has been named head of a new public works unit in the President's Council of Economic Advisers. Bragdon's title: coordinator of public works planning. He is to recruit a small staff ($35,000 is being sought from Congress to pay the freight) and bring the administration's preparations for a beefed-up public works program to a point where construction could be started in short order. With some indication now that the administration favors more public works, at least on a state and local level, no matter what the extent of the recession (see p. 36), Bragdon may be busier than anyone thought in fiscal '54.

BRAGDON

OPINIONS: These intellects shed the following light on matters of moment to building:

▸ "We used to have the boll weevil. Now it's the Williamsburg blight. The restoration fad which has enveloped Virginia may well be the greatest cultural disaster that has befallen us since the Civil War. Instead of accepting Colonial Williamsburg for what it is, a living museum, too many people have accepted it for what it isn't, a model for contemporary architecture and taste."—**Marshall W. Fishwick,** associate professor of American studies, Washington & Lee University, at the Virginia AIA chapter's annual meeting.

▸ "Few people realize that the bricklayers' union has rebuilt its ranks since World War II at a faster rate than any other construction trade. One out of every three brickmasons in the union today has been trained since the end of World War II."—**Harry C. Bates,** president of the AFL bricklayers, masons and plasterers union.

▸ "We're probably in the initial stages of realizing our scarcity of usable land, about where the British were two or more generations ago. We have unlimited land in the US, but not unlimited land within economic development distance of cities. As our density increases, we'll have to develop new and better patterns of land use. In the past we've achieved privacy by getting more land. Now I feel we'll have to achieve it by other means." —**Campbell E. Miller,** secretary of the Kentucky-Ohio chapter, American Society of Landscape Architects.

Architect **Harvey Wiley Corbett,** 81, who changed skylines of cities on both sides of the Atlantic, died unexpectedly of a heart attack April 21 in his New York apartment. Three weeks before, he had received the Medal of Honor of the New York chapter of AIA—its highest award—for a career of unusual distinction that spanned five decades.

CORBETT

So protracted was Corbett's career (it began in New York in 1900) that few people remember now for how long his Bush Terminal office building on Manhattan's 41st St., built in 1923, was the stock—and only— example in America's biggest city of a "modern" building. Corbett's forward look never flagged; up to nearly the end of his life he was taking on new causes, making fresh predictions. Before 1930 he had designed or helped design the Maryland Institute in Baltimore, the Brooklyn (N.Y.) Masonic Temple, Greenpoint Hospital, also in Brooklyn, No. 1 Fifth Ave. in New York, the $10-million Bush House in London and many others.

In 1931 his firm—then Corbett, Harrison & MacMurray, the Harrison being Wallace K.—was one of three to design Rockefeller Center, with Corbett as senior architect. Surviving the early storms wrought by this inspired group, he went on to act as chairman of the architectural commission for the Chicago Century of Progress Exposition of 1933, which established modern architecture as the new standard (and also, unfortunately, disgruntled Frank Lloyd Wright, who was not asked to participate). Three years later he was chairman of the advisory committee of architects which set the theme for the New York World's

Fair. He did the Brooklyn College buildings the same year (with Randolph Evans) and the massive Criminal Courts building in New York (with Charles B. Meyers) the following year.

Though politically a conservative Republican, Corbett had a mind open to unorthodox ideas. As early as 1926 he was urging cities to develop easy access to airports; by 1930 he was helping Archibald MacLeish formulate for the new FORTUNE magazine the idea of prefabrication of homes (he gave it 30 years in which to perfect itself); in 1944 he was chairman of an AIA committee which sought to send an exhibition of US architecture to Russia "to make Christians out of them over there" (it was sent, but never exhibited); in 1948 he told the US Conference of Mayors that public slum clearance and rehousing projects had "set a pattern of space and free air that private interests would have to follow." In the first year of the depression it was Corbett who acted as treasurer of an emergency committee set up in New York to find jobs for unemployed architects and draughtsmen.

On one architectural subject, Corbett twice changed his mind. In the twenties, when Lewis Mumford was leading opposition to the skyscraper idea, Corbett was the tall building's ardent and lyrical champion. The base of his Metropolitan Life addition in Manhattan (p. 130) was so designed that with its setbacks it could have been carried 2,000′ high. Later, in 1942-43, the bombing raids convinced him that five-story buildings would be safer; but by 1949 he was back again proclaiming the city of the future, with great blocks of skyscrapers and tiered streets and roadways— "a sort of modern Venice, in which the pedestrians could move with safety and comfort, looking down on the canals below, filled, not with water, but with freely moving motors."

Corbett enjoyed many honors, served in many capacities. He was graduated from the University of California and the *Ecóle des Beaux-Arts* in Paris, was simultaneously a fellow of AIA and of the Royal Institute of British Architects. He was a former president of the Architectural League of New York and of the National Arts Society. He held honorary degrees from the University of California, Liverpool University in England and Columbia University.

Corbett's long, lanky Western figure (he was born in San Francisco) was always welcome at architect's doings, as were his anecdotes. At the last annual convention of the New York Assn. of Architects, he characteristically unwound a yarn about a clubhouse he had designed whose treasurer, at the grand opening, said: "Mr. Corbett, I see the building was $50,000 over the estimate, but there are still $235 left in the treasury—how did you come to overlook them?" Corbett added: "You see, they never would have twitted me like that if they hadn't really and truly felt their life was enlarged by the building that I gave them. And that's the secret of putting across architecture."

Designed and specified by Thorshov and Cerny, Inc., A.I.A. Minneapolis, Minnesota

with The Kawneer Touch your designs become reality

Your design on the drawing board becomes a distinctive fact when it's executed with *The Kawneer Touch.*

This hotel in Moorhead, Minnesota, stands out because Kawneer products were detailed, specified and installed. The skillful installation of quality Kawneer architectural metals *as specified* makes designs as close as possible to the way they were conceived

Kawneer representatives are ready to assist with building front information, to furnish full-size details, etc., and to suggest reliable sources for prompt bids. Factory-trained Installing Dealers are listed under "Store Fronts" in telephone directories. Call the dealer located nearest you or write Kawneer, Niles, Michigan, for complete information.

Ask your Kawneer Installing Dealer for Kawneer Full-Size Details

NEWS

Auguste Perret, jaunting across Fifth Ave. with a FORUM editor in 1949, quipped "I shall live to 150"; but death took him in Paris late in February at a still youthful 80. He was not only the Grand Old Man of architecture in Europe (he won the Gold Medal of the Royal Institute of British Architects in 1948 and AIA's Gold Medal in 1952), but he was the "father of architects." He still thought of his apprentice and successor in fame, Le Corbusier, as simply "one of my boys."

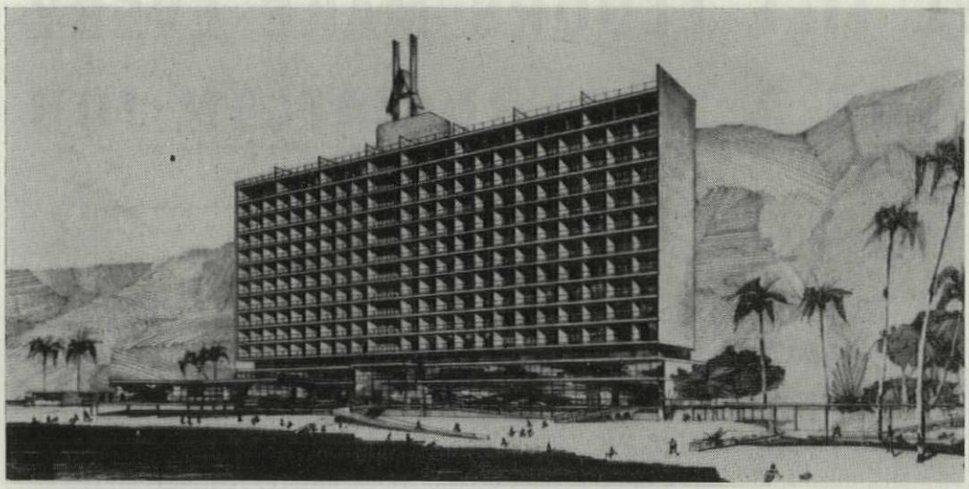
Perret's name became almost synonymous with the architecture of reinforced concrete; for he pioneered not only on its technics (he was the practical son of a contractor) but on a persuasive vocabulary of forms suited to it. His 1903 apartments on the Rue Franklin were a daring and logical expression of exposed concrete frame; his churches, such as Notre Dame at Raincy (1923) had some of the richness and logic of Gothic; but his usual effect was of a new kind of quiet classic. Said Perret: "A new building should look as if it had been there always." His Ecole Normale de Musique in Paris was so acoustically perfect musicians dubbed it a "Stradivarius"; his docks at Casablanca introduced thin concrete slab roof vaulting.

No other modern pioneer has been so accepted in his own country in his own generation. Educated at the Beaux Arts with his two brothers, Perret did more than any other man to rejuvenate its thinking.

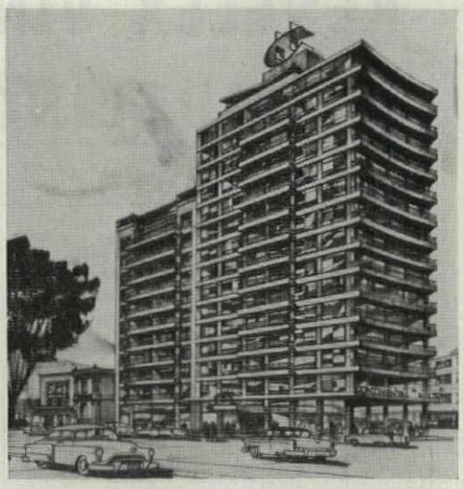
OTHER DEATHS: Architect **James L. Mullen,** 69, partner in Cannon & Mullen, Salt Lake City, responsible for designing a number of landmarks there in 40 years of practice, April 3 in Salt Lake City; **Louis F. Eppich,** 86, Denver realtor and appraiser, former chairman of the Denver Planning Commission and director of the American Civic & Planning Assn., April 13 in Denver; **William P. Brower** of Saddle River, N. J., architect who helped design the Port of New York bus terminal and several buildings for Anaconda Copper, April 21 in Saddle River; **Ward Wight,** 64, Atlanta realtor, a past regional vice president of NAREB and past president of the Institute of Real Estate Appraisers, March 23 in Cairo, Ga.

In a move to reorganize its construction authority, the Air Force upgraded Maj. Gen. **Lee B. Washbourne,** 48, director of installations, to the post of assistant chief of staff for installations. The new job puts Washbourne a notch nearer Chief of Staff **Nathan Twining,** saves one step in the long-drawn business of getting the jobs done. Washbourne will have only three directors reporting to him now instead of the former seven division chiefs. He faces a $7-billion construction program (p. 41) to take care of the 137 wings that the Air Force has called for by June, 1957.

WASHBOURNE



ACAPULCO HILTON HOTEL DESIGNED BY ARCHITECT FERNANDO PARRA



PARRA'S MEXICO CITY CONTINENTAL HILTON

NEW BUILDINGS

Hilton hotels in Mexico

HOTELMAN CONRAD HILTON signed ten-year leases for **Hilton Hotels International, Inc.** to operate two 16-story and 14-story hotels in Mexico City and Acapulco to be completed next year from plans by Mexican Architect Fernando Parra (see cuts). The Mexico City Continental Hilton will have 360 rooms and will adjoin and take over the present ten-story Continental. The 250-room Acapulco Hilton will be directly on the beachfront and adjoin a Mexican village and shopping center now under construction. Both new hotels will be fully air-conditioned and of earthquake proof reinforced concrete construction. Owner-builders are the **Construcciones Internacionales, S. A.** in Mexico City, and the **Cia Constructora La Joya de Aca, S.A.** in Acapulco.

Expanding banks

In 1940 business of the **Federal Reserve Bank** in Dallas ranked 11th among all 12 Federal Reserve Banks. Now it stands fifth. Result: last month the Dallas bank completed the purchase of adjoining property that gave it title to almost half a city block, and it commissioned Gill & Harrell to prepare preliminary plans for a new building to expand its offices. . . . In downtown Washington, D. C. the **Bank of Commerce & Savings** started a 13-story air-conditioned office building from plans by Architects Corning & Moore. The bank's headquarters will occupy about 20,000 of the building's 130,000 sq. ft. of floor area.

Office space projects

Final decision was reserved, but the **Merchants Exchange of St. Louis** announced it was considering construction of a new $10 million office building on its present site. Exchange President R. Hal Dean said it had received proposals for relocating in outlying areas of the city, but it hired Architect-Engineer Marcel Boulicault to perfect plans by September for a 23-story stainless-steel tower with 330,000 sq. ft. of floor area for which he previously did preliminary drawings. . . . To design its $15-million, 40-story home office building and associated Southland Center structures on a huge 100,000 sq. ft. block in downtown Dallas (AF, March, '54), **Southland Life Insurance Co.** picked Welton Becket & Associates, with Mark Lemmon of Dallas as consulting architects.

Showplace for aluminum

Reynolds Metals Co. last month asked zoning changes on a 40-acre tract just outside the western boundary of Richmond, Va. so it could proceed with plans for a 16-story multi-million dollar headquarters building and several research laboratories. President Richard S. Reynolds Jr. said architects had not been selected yet, but the structure would be designed as a "showplace illustrating what can be done with aluminum in modern building."

Church tower shows its bones

A bell tower with an exposed steel frame and walkway grating gave **St. Peter's Catholic Church** on Pittsburgh's south side an eye-stopping local motif. The tower honors the Jones & Laughlin Steel Corp., headquartered a block away, which contributed to the church construction fund and whose employes include many St. Peter's parishioners. The main church building, designed by Architect-Engineers Celli-Flynn of McKeesport, Pa. cost $234,000 and seats 750. Exterior is salmon brick, with blue ceramic tile piers between its tall and narrow stained-glass windows. Other spring church building activities:

In Hempstead, L. I., **Christ's First Presbyterian Church** planned to move to the opposite end of the village green, where it would build new facilities to cost about $500,000 including a school and a church designed by Bessell & Matz, architects . . . . Ground-breaking services started: a $250,000 structure in Chicago for the **North Shore Seventh Day Adventist Church;** the first section of a $300,000 group of buildings for **St. Mark's United Lutheran Church** in Coral Gables, Fla. designed by Earl V. Wolfe; a $110,000 auditorium that would be the first unit for a new **Shaare Tefila Congregation Synagogue** in Washington, D. C. designed by John Graham Associates.

Liquor and tobacco projects

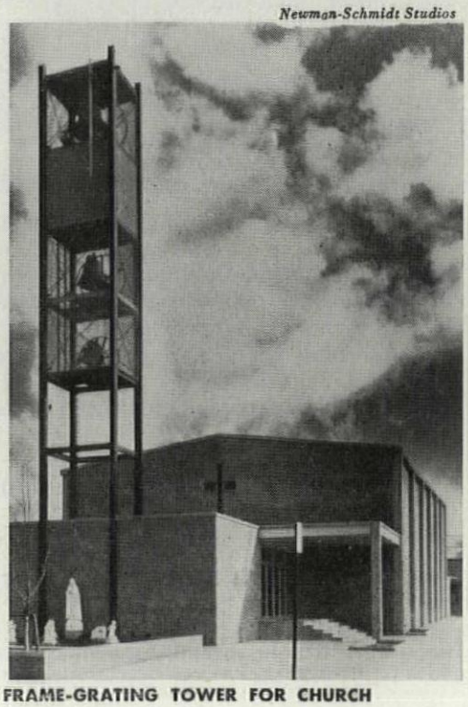
As the site for an office building to house its central division headquarters, **Joseph E. Seagram & Sons, Inc.** bought the entire North Michigan Ave. blockfront from Pearson to Chestnut Sts. in Chicago for $1 million. . . . . At Greensboro, N. C., **P. Lorillard Co.** planned to start a new $10-million cigarette plant this summer designed by Lockwood Greene Engineers, Inc. of New York, invest another $3 million in equipment for it.

Government offices

The question before the Senate was: would it get a new Senate Office building annex? Several years ago Sen. Allen J. Ellender (D, La.) blocked a proposed $20 million addition to the Senate office building as too lavish. But Sen. William A. Purtell (R. Conn.),

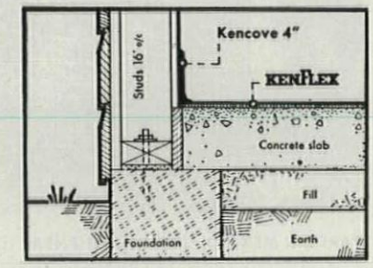
(continued on p. 54)

Newman-Schmidt Studios



FRAME-GRATING TOWER FOR CHURCH

KENFLEX VINYL TILE FLOORS MAKE EVERY REMODELING JOB A MODERNIZATION JOB



Above detail illustrates how KenFlex is installed directly over concrete: Prime coating of concrete unnecessary.

KENFLEX COLORS help give older buildings the look of airy spaciousness typical of today's best modern design. But, outstanding beauty is just one reason why more and more architects and builders prefer KenFlex for their remodeling assignments! KenFlex is one of the most durable floors known. Because it is non-porous, dirt, stain, grit and grime can't penetrate it or be ground in underfoot... spilled greases, oils, alkalis, alcohols and acids can't deteriorate its surface. KenFlex cleans quickly and easily with a minimum of scrubbing... doesn't need waxing except to add extra gloss to the light, bright colors.

A.I.A. 23-G

The brilliant colors of the KenFlex Floor shown here can't fade, dim or wear off...because they go clear through the tough, wear-resistant tiles. KenFlex Vinyl Tile defies grease, dirt and wear...is quick and easy to clean...continues to look new and fresh throughout an amazingly long life.

Samples and technical literature available on request from the nearest Kentile, Inc. office listed below. Or, contact the nearest Kentile Flooring Contractor. He's listed under FLOORS in the Classified Telephone Directory.

Specifications and Technical Data

Installation: Over any smooth, firm interior surface: wood, plywood, radiant heated concrete slab, concrete in contact with the earth—on or below grade.

Thicknesses: Laboratory and in-use tests have proven the wear-resistance and durability of vinyl flooring: Consequently, Standard Gauge (1/16") is recommended for normal residential and commercial uses. Where traffic will be very severe, 1/8" KenFlex is suggested.

Sizes: Standard tile size is 9" x 9"...also available are 9" x 9" decorative ThemeTile inserts, and 1" x 24" Feature Strip in four solid colors.

Approximate Installed Prices (per sq. ft.)

	Standard (1/16") Gauge	1/8" Gauge
KENFLEX all colors	40¢	65¢

KenFlex is available in 15 co-ordinated colors, all of which are marbleized. The costs shown above are based on a minimum area of 1,000 sq. ft. over concrete underfloor.

KENFLEX® VINYL TILE

KenFlex is the floor your clients know and want . . .

BACKED BY MORE FULL-COLOR CONSUMER ADVERTISING THAN ANY OTHER VINYL TILE FLOOR

KENTILE * SPECIAL KENTILE * KENCORK * KENRUBBER * KENFLEX * KENFLOR

*REG. U. S. PAT. OFF.

KENTILE, INC., 58 SECOND AVENUE, BROOKLYN 15, NEW YORK • 350 FIFTH AVENUE, NEW YORK 1, NEW YORK • 705 ARCHITECTS BUILDING, 17TH AND SANSOM STREETS, PHILADELPHIA 3, PENNSYLVANIA • 1211 NBC BUILDING, CLEVELAND 14, OHIO • 900 PEACHTREE STREET N. E., ATLANTA 5, GEORGIA 2020 WALNUT STREET, KANSAS CITY 8, MISSOURI • 4532 SO. KOLIN AVENUE, CHICAGO 32, ILLINOIS • 4501 SANTA FE AVENUE, LOS ANGELES 58, CAL.

Distinctive treatment of school exterior obtained with colorful

Architectural Porcelain

by DAVIDSON

Davidson Architectural Porcelain panels in blue and green identify specific functional areas. This illustrates how Architectural Porcelain may be appropriately used with other exterior materials.

Double Oaks Elementary School, Charlotte, North Carolina. A winner in THE SCHOOL EXECUTIVE *1953 competition for better school design. Architect: A. G. Odell, Jr., & Assoc.*

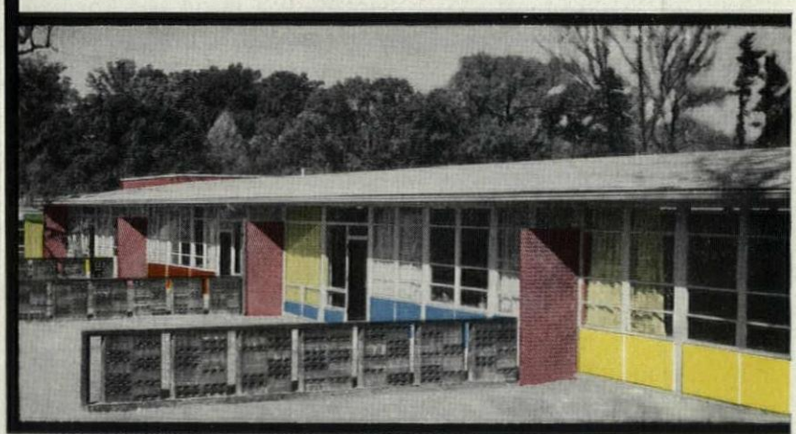
Double Oaks Elementary School, a winner in THE SCHOOL EXECUTIVE third annual competition for better school design, presents applications of Davidson colorful Architectural Porcelain for exterior spandrels and for exterior classroom wainscots. The structural characteristics of Architectural Porcelain combining the natural beauty of glass with the strength of steel are ageless and assure easy, low-cost maintenance. The brilliant colors are fadeless and harmonize perfectly with other structural materials.

Davidson Architectural Porcelain is available in two types of panels, one of which is a filled panel, which has no equal where insulating and sound-deadening qualities are required. The Davidson Koroseal* joint provides a water-tight seal in applying panels—a seal that will not deteriorate or lose its resilience due to weathering.

Davidson Architectural Porcelain is custom-designed, processed and enameled at the same time to insure trouble-free application and color uniformity. There are no standard prefabricated or stock panels. Davidson Architectural Porcelain comes in whatever shapes are needed for each exterior or interior application. It is being used on schools, hospitals, theatres, stores and various types of public buildings. A complete file on Davidson Architectural Porcelain for architects contains details for all types of panels and illustrations of basic and special shapes, also details showing application of each type of panel. This complete file is available on request. Davidson Architectural Porcelain is a life-time building material—not just a finish!

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

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



Application of Davidson Architectural Porcelain panels in blue, maroon, and yellow enable children to visually identify classrooms.

Davidson

ENAMEL PRODUCTS, INC.

1104 E. Kibby Street • Lima, Ohio

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

Sargent Announces the New "Quick" Exit Devices with Featherlight Touch

...Unique quick exit...positive easy closing!

Yes, now you can specify for your clients exit devices of greater beauty and safety than ever before!

Sargent has developed them for you! The new line of "Quick" Exit Devices.

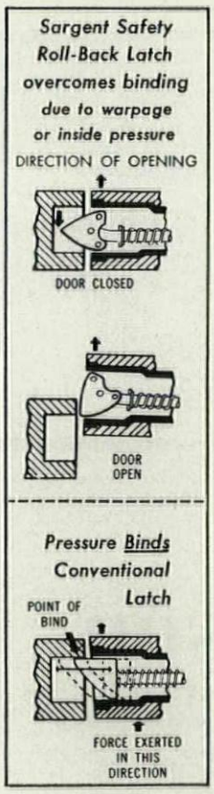
The Sargent SHELL MOLDING PROCESS gives new beauty! Design is massive, yet graceful. A variety of exterior trims go with any style of building.

Safety! "Quick" Exit Devices are equipped with lightning-fast Safety Roll-Back Latch that opens at the lightest touch and also closes as easily.

The lever arm is designed to prevent pinching of fingers. It's impossible to retard the unlocking movement by catching an arm or hand between bar and door.

"Quick" Exit Devices have stainless steel pivots and springs — the device will always open.

Call your Sargent Representative today. Or write us, Dept. 8 - E, for complete information about the new "Quick" Exit Devices and other builders hardware products in the Sargent Line.



The new Sargent "Quick" Exit Devices are available in a *family of bolts* . . . Rim Types, Vertical Rod Types and Mortise Types . . . with mullions and threshholds. All three types of bolts harmonize when used together in the same building.

Sargent & Company

New York • NEW HAVEN, CONN. • Chicago

Hardware of Character

GIVE EVERY JOB *The Quality Touch* OF CHASE COPPER

Copper adds extra value to any home!

Once a radiant heating system is installed, it's there to *stay*—buried in the ceiling or floor. Your reputation depends on how good a job it is.

That's why it's so important to specify Chase *quality-controlled* Copper Tube for every radiant heating job. With Chase Copper Tube, you needn't worry about leaks or corrosion—and Chase Copper Tube simply *cannot* clog with rust! You're sure of a system that will give even, uniform heat... a system that will add value to *any* home.

To be sure of quality, make sure it's Chase!

Chase

BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Denver†	Kansas City, Mo.	Newark	Pittsburgh	San Francisco
Atlanta	Cincinnati	Detroit	Los Angeles	New Orleans	Providence	Seattle
Baltimore	Cleveland	Houston	Milwaukee	New York	Rochester†	Waterbury
Boston	Dallas	Indianapolis	Minneapolis	Philadelphia	St. Louis	(†sales office only)

THREE STATE OFFICE BUILDINGS FOR BALTIMORE (AUDITORIUM STILL UNCERTAIN)

NEW BUILDINGS (continued)

new chairman of the **Senate Office Building Commission,** which has $20,000 for preliminary plans, has asked Capitol Architect David Lynn to explore the possibilities of something cheaper. Senator Purtell said he hoped "to get right at the project," which would occupy a half-block site already acquired for the purpose. . . . In Maryland, a $10 million appropriation was available to buy a 16-acre site near Mt. Royal Station and to erect a 15-story **State Office Building** and two four-story buildings for the **Health and Labor Dept.** and the **State Roads Commission** (see cut). Designs by Architects Fisher, Nes Campbell & Associates also included an auditorium, but that called for another $1 million appropriation. . . . On recommendation of a citizens' building advisory committee that invited seven architectural firms to outline their services, the **Flint, Mich.** city council engaged H. E. Beyster & Associates, Inc., Detroit architects and engineers, to design a $5 million city hall. A bond issue for the project was approved last November.

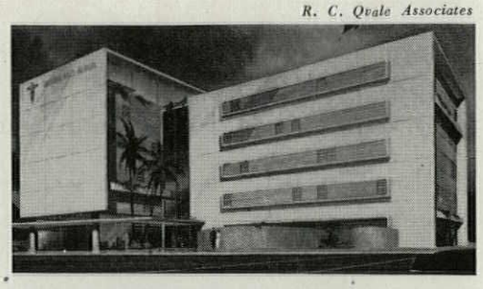
Stock-plan service stations

To test how design affects gasoline sales, **Continental Oil Company** put up four functionally engineered service stations designed by Walter Dorwin Teague. After studying reactions of motorists and dealers for possible modifications, the company expected to pick one plan for all 26 states it serves. Said Teague: "A service station is actually a vending machine. . . . It necessarily is a low building, but low buildings have poor visibility especially when approached at high speed." So nobody can miss them, the new Conoco stations will mount the company sign atop a 24'- or 30'-high steel lattice pylon.

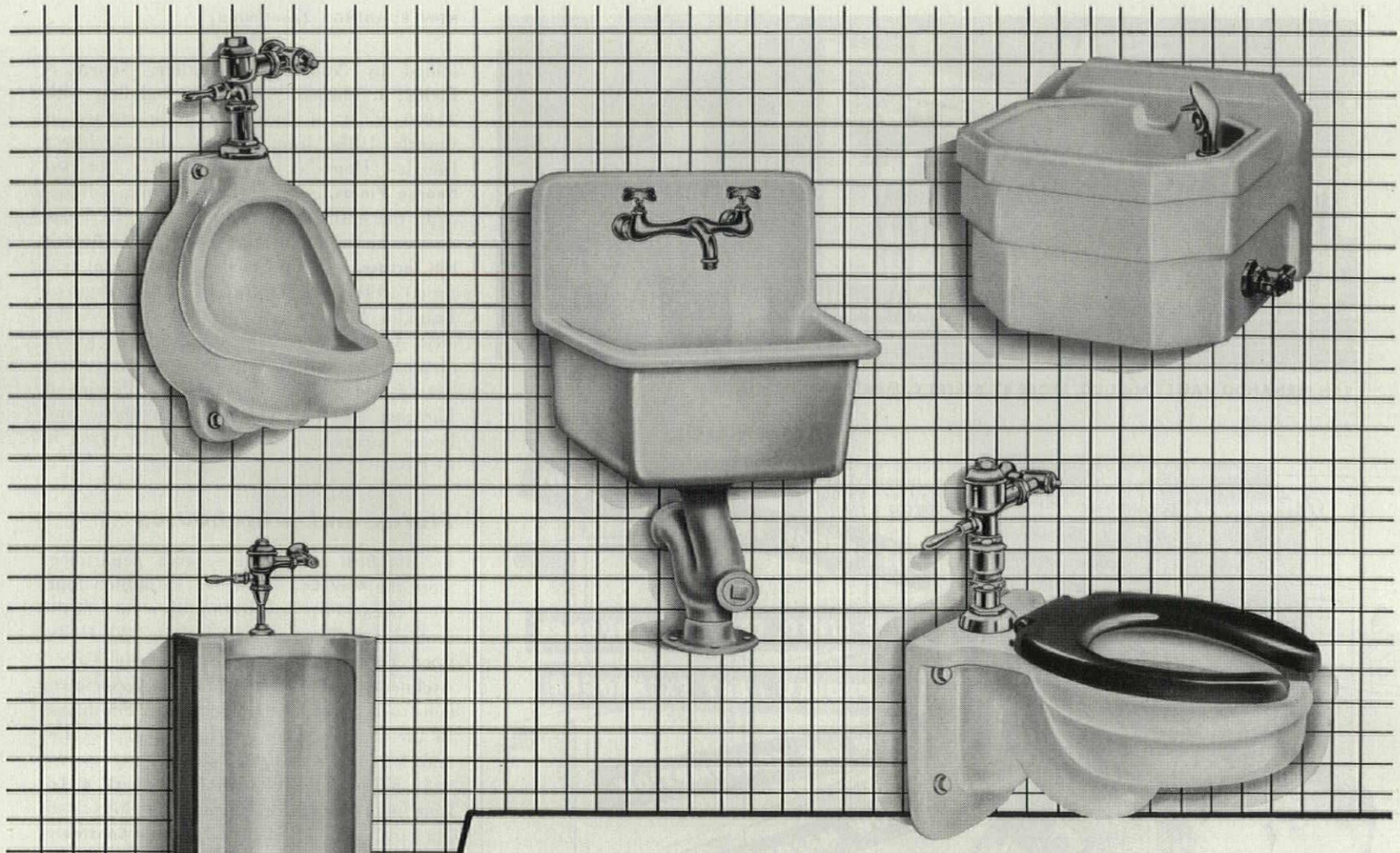
Rash of medical centers

Although southern California has been famous for years for its healthy climate, it could also claim a prize for its growing number of medical centers. Three of the latest being started in the Los Angeles area, all air conditioned and of contemporary design: the 40-suite, $750,000 Baldwin Hills Medical Building (see cut) designed for the **Crenshaw Professional Arts Corp.** by Architect William Allen to adjoin a nine-acre parking lot; a five-story, $750,000 center with 36,000 sq. ft. of floor area to be erected at 6360 Wilshire Blvd. from designs by Architect Maurice H. Fleishman for a **physicians' cooperative** repre-

R. C. Qvale Associates



BALDWIN HILLS MEDICAL BUILDING



WHY Richmond fixtures are

the logical choice for commercial, industrial and institutional installation

Where the traffic is heavy and usage is hard you have to pick your fixtures with extra care. That's why you'll find so many public restrooms are Richmond equipped.

Richmond's reputation for plumbing fixtures of maximum durability with minimum maintenance is the result of careful selection of raw materials and close control in manufacturing operations. Richmond vitreous china ware is fired in modern kilns at temperatures up to 2300°F. to produce a surface that is actually comparable in hardness and durability to the natural sapphire. In Richmond cast-iron ware the ceramic glaze is furnace-fused to the base for a permanent, impermeable bond and smooth glass-hard surface. Continuous quality control at all stages of manufacture assures the production of only top-grade fixtures.

Richmond fixtures are available in a wide range of modern stylings, in Richmond's famous "whiter-white" or six lovely decorator pastel colors.

For long life with minimum maintenance, specify Richmond.

RR RICHMOND
Affiliate of Reynolds Metals Company
PLUMBING HEATING

Richmond Radiator Co.
—Affiliate of Reynolds Metals Co.
Metuchen, N. J.

SAN FERNANDO VALLEY MAY CO. STORE BY ALBERT C. MARTIN & ASSOCIATES

NEW BUILDINGS (continued)

sented by Attorneys Buchalter, Nemer & Fields; a four-story $500,000 building with 20,000 sq. ft. of floor area to be erected in Beverly Hills from designs by Architect Douglas Honnold and John Rex for **Dr. George Piness,** whose allergy clinic will occupy the entire first floor. . . . In El Paso, doctors and dentists were moving into **Golden Hill Terrace,** a 75-unit medical and dental center on a 19½-acre site leveled off the summit of Franklin Mountain on the outskirts of the city. Architects for the $1.3 million group of one-story buildings (including pharmacy, beauty and barber shops) were Pereira & Luckman of Los Angeles, with Davis and Foster supervising and revising the plans in El Paso.

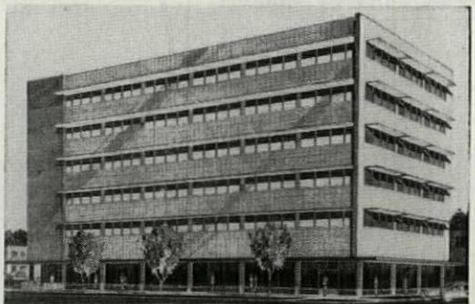
Stores and warehouses

For its fifth Los Angeles area department store the **May Co.** planned a $5 million four-story 362,000-sq. ft. building (see cut) in the center of a 27-acre plot adjoining the Hollywood Freeway in the San Fernando Valley. Architects were Albert C. Martin & Associates; construction engineers, Tichener & Smith. . . . In the Pomona area on the outskirts of Los Angeles, Jackson Bros., contractors, started a $2 million store for **Sears, Roebuck & Co.** from plans by Stiles Clements, architects-engineers. . . . In Trenton, N.J. **Arnold Constable,** the New York department store, started the largest store in the New Jersey capital, a three-story and penthouse air-conditioned building in a downtown block. As designed by Architect Gerhard E. Karplus the store will have indoor parking for 300 cars. . . . Through Industrial Realtor James H. Burns, **F. W. Woolworth** bought an 8½-acre tract in the Bronx, New York City, beside the New York, New Haven & Hartford Railroad, planned the immediate construction of a two-story 400,000-sq. ft. warehouse.

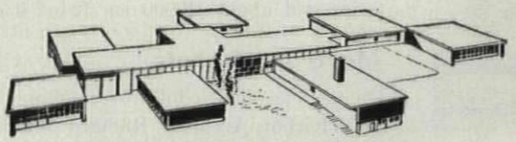
Insurance company quarters

In Houston, the **Old National Insurance Co.** broke ground last month for a $1.2 million home-office building designed by Architects Duryea & Elkins (see cut). The air-conditioned structure will have a foundation to allow four more floors to be added later. It will have operatorless elevators and a rainbow-effect lobby fountain. . . . Also to be erected in Houston by **William Kalker** of New York

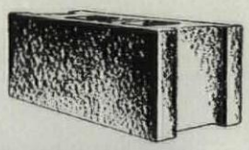
Harper Leiper Co.

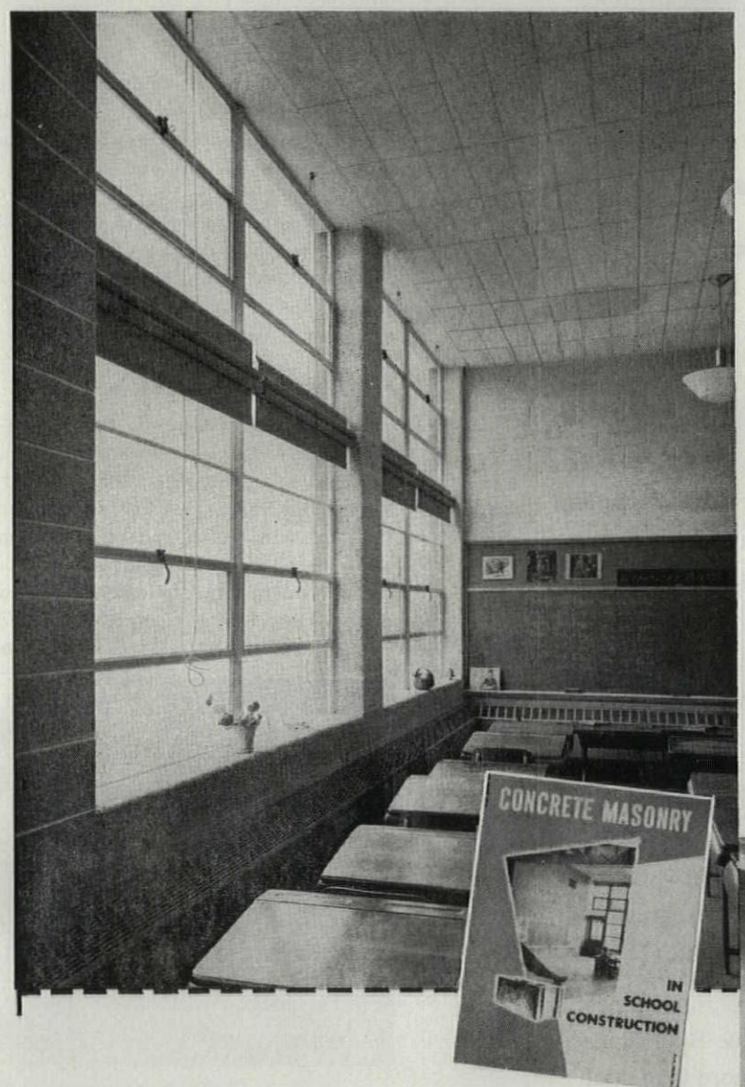


NEW HOME FOR OLD NATIONAL INSURANCE CO.



3 ways to s-t-r-e-t-c-h that school building dollar with CONCRETE MASONRY

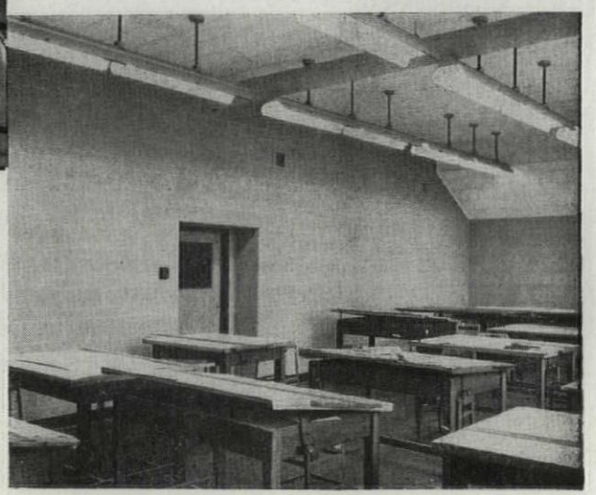




Whether you favor the cluster plan, the loft plan, or another of the new school design trends, you are certainly concerned with the problem of getting more and better classroom space at less cost. Many architects are finding in **concrete masonry** a perfect team-mate for these new cost-saving designs. Here are a few reasons why:

1. **Save on interior finishing** — A great part of the building dollar is usually spent on interior walls and finishes. Attractive exposed concrete block walls can save an average of 25c per square foot by elimination of plaster alone.
2. **Save on sound insulation** — Concrete masonry walls and partitions combine strength, durability, and fire-resistance with efficient noise reduction. Often exposed concrete block classroom or gymnasium walls need no additional acoustic treatment.
3. **Save on construction cost** — Concrete masonry usually costs less installed-in-the-wall than any other permanent building material. Modular-size units eliminate cut and trim, permit an attractive and cost-saving exposed interior structure. Maintenance costs on C/M walls are among the lowest.

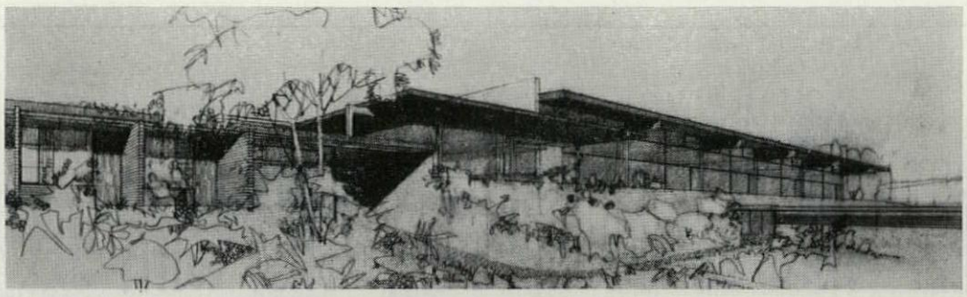
NATIONAL CONCRETE MASONRY ASSN.
38 South Dearborn Street, Chicago 3, Illinois



TOP LEFT: An attractive classroom in the Clara B. Ford School in Wayne County, Michigan. Architects: Eberle M. Smith Assoc., Inc.
ABOVE: Alternating courses of 8"x 16" and 8"x 4" face size units make an attractive pattern in this University of Michigan Engineering Building addition. Giffels and Vallet, Architects, Inc.

Ask any local NCMA member for your copy of the informative booklet "Concrete Masonry in School Construction." He can also furnish a new booklet on wall patterns, as well as other helpful information on concrete masonry products and their uses.

Design versatility • Economy • Durability
***with* CONCRETE MASONRY**



"COMMUNITY HOTEL" IN SAN PEDRO BY ARCHITECT RICHARD NEUTRA

NEW BUILDINGS (continued)

for lease to the American Fore Insurance Group: an air-conditioned, two-story, $300,000 building designed by Architects Lloyd & Morgan with a marble, aluminum and glass exterior and about 18,000 sq. ft. of floor area.

More US hotels

On the San Pedro hills overlooking Los Angeles harbor, Architect Richard Neutra joined local officials in the ground breaking for a $1 million, 80-room "community hotel" he designed for a local building syndicate headed by **Charles Soderstrom** (see cut). Every room, and a dining area for 150 persons, will have a sweeping harbor view. Extra features: swimming pool, nine-hole golf course. . . . For the top of one wing of its 21-story hostelry under construction in Dallas, the **Statler Hotel** planned a 48′ x 80′ helicopter landing area, subject to approval by the city's aviation director. . . . In Las Vegas, Nev. ground was broken for a $3.5 million, 200-room luxury hotel being built by Screen Star **Pat O'Brien** and **William J. O'Connor** of New York. . . . At Cucamonga, just east of Los Angeles, the **Sycamore Inn** planned a $500,000, 60-room "motel type de luxe hotel" designed by Architect George Vernon Russell.

High-rise high school

Chicago's Roman Catholic **Holy Name Cathedral** announced plans for a $2.5 million, 12-story school, gymnasium and convent to be started this year. Two floors of the high-rise building will accommodate 500 elementary school pupils, another eight floors 1,000 high-school students, and four floors will house 50 nuns. After this is completed the adjacent

(continued on p. 62)

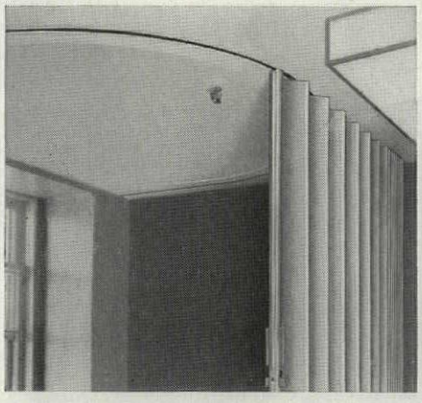
Architects join ceremonies for huge NY office building

New York's biggest building in a quarter century was started March 30, when ground was broken for the 42-story Socony-Vacuum Building. It will occupy a two-acre block at 42nd St. and Lexington Ave. (AF, Aug. '52, News). Shovel wielders at the ceremonies were Vice President Peter B. Ruffin (l) and President John W. Galbreath of the owning corporation, a former president of NAREB. Also on hand were the architects (l to r) Wallace Harrison and Max Abramovitz, and John B. Peterkin, associate. The $45-million tower will have 1.3 million sq. ft. of rentable area, will be two years abuilding by Turner Construction Co.

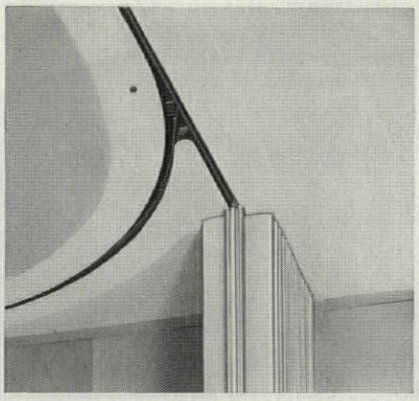
A SIZE FOR EVERY OPENING!

HOLCOMB & HOKE
FOLDOOR®
THE DOOR WITH THE CORNICE ON TOP

A TYPE FOR EVERY NEED!

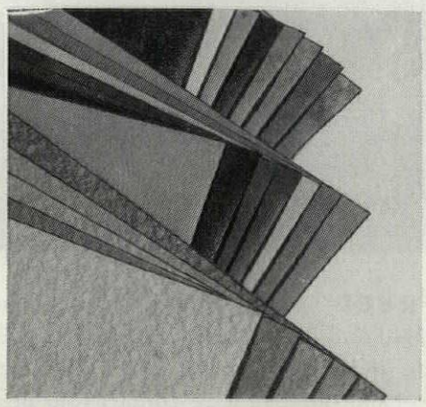


Curved FOLDOORS are often used to follow the architectural contours of a room. A smart installation, it folds neatly into a graceful curve and operates just as smoothly on a curved track as on a straight one.

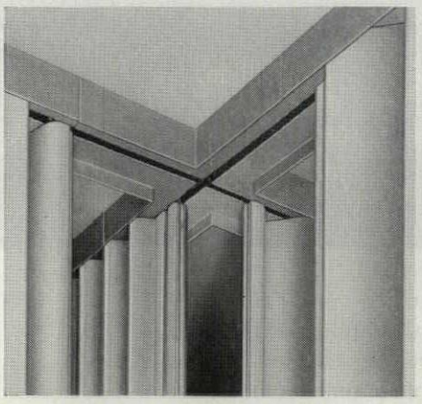


The FOLDOOR **Glide Switch** allows graceful and versatile use of the door as well as out-of-the-way storage. Designed exclusively for curved track and recessed-type construction. Safety bar stops door from slipping off.

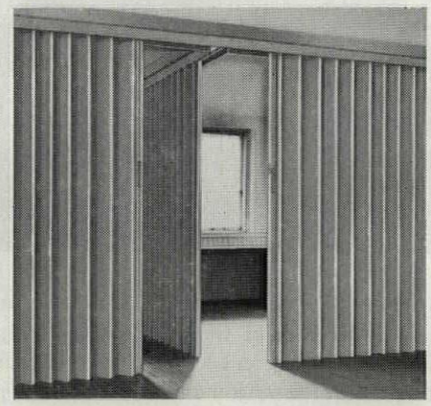
The FOLDOOR **Pivot Switch** permits door to be switched to a wall stacking position. Provides unusual flexibility of room arrangement and convenient storage of door. Safety features prevent door from leaving track.



Cloth-Textured vinyl-coated fabrics are a FOLDOOR exclusive! Developed to meet today's trend toward subdued colors, they combine the softness and hang of draperies with the washability and strength of plastic coverings.



FOLDOOR'S **Four-Way** arrangement divides a large room into four smaller ones. Use of floating post permits any combination of the four doors. A crossover switch enables space to be divided into two or three rooms rather than four.



A Three-Way FOLDOOR installation is primarily used to break a room into ½, ¼ and ¼. This application allows many different divisions of a room to accommodate groups that fluctuate in size. Ideal for church, school or funeral home.

THE NEW LEADER IN FOLDING DOOR QUALITY!

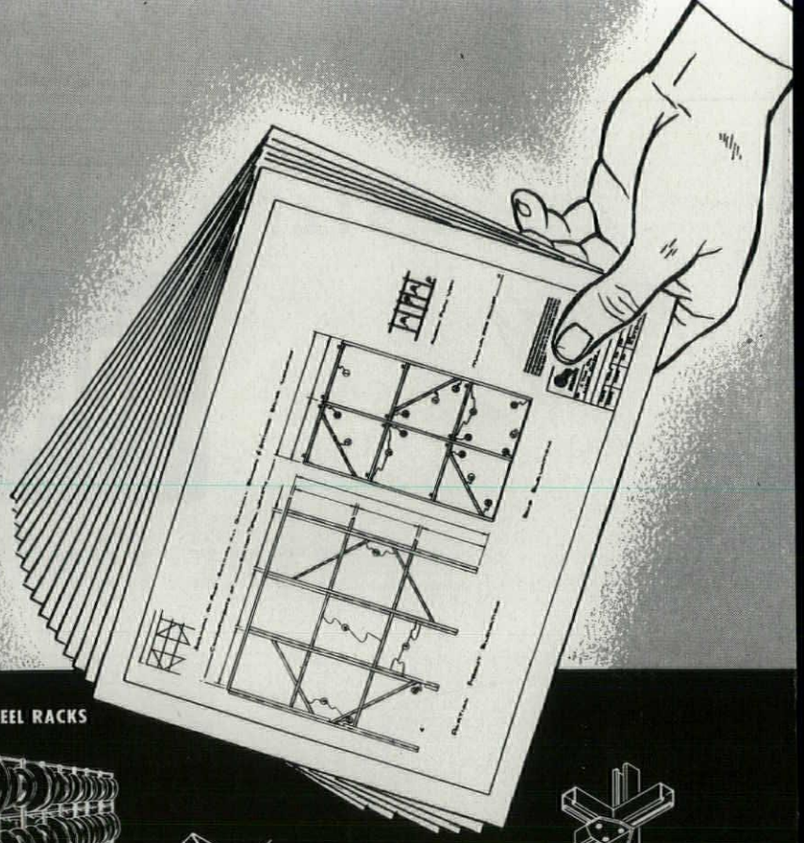
PRODUCERS COUNCIL

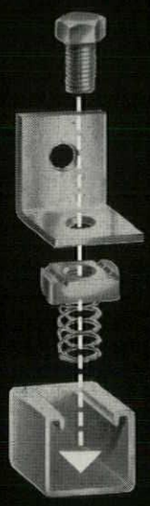
HOLCOMB & HOKE MFG. CO., INC.
1545 Van Buren Street • Indianapolis, Indiana
IN CANADA: FOLDOOR of Canada, Montreal 26

NOW! 15 BASIC UNISTRUT®

RACK DESIGNS TO MEET ALL STORAGE NEEDS

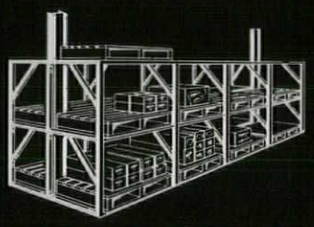
Easy-to-adapt standardized designs will save time, money—do the job better!



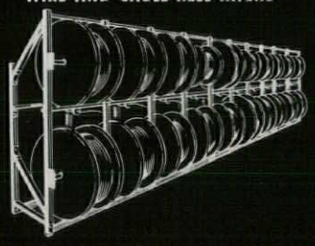


BASIC COMPONENTS OF THE UNISTRUT METAL FRAMING SYSTEM

PALLET AND SKID RACKS

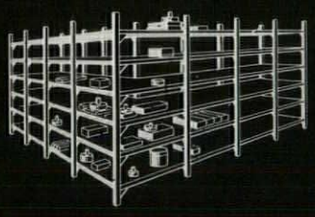


WIRE AND CABLE REEL RACKS

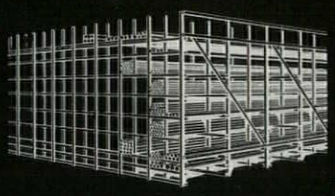


GENERAL STORAGE RACKS

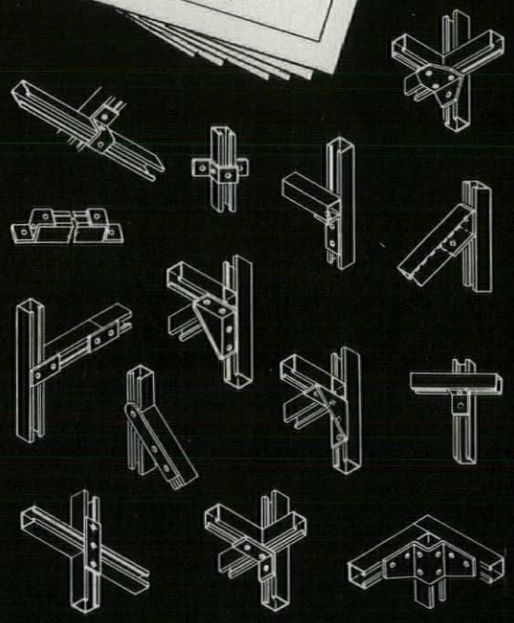
DIE RACKS



BAR STOCK RACKS



No Drilling, No Welding, 100% Adjustable and Re-usable



Typical Connections made from a Few Standard Fittings

Users of UNISTRUT framing well know its versatility—how easily it is assembled, without special tools or skilled help, without drilling or welding. They know its great load bearing capacity, that it is adjustable and re-usable, that it presents a neat and orderly appearance. They know, too, of its long range economy, its labor saving, time cutting features.

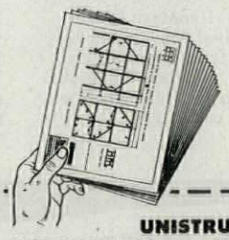
Now UNISTRUT offers new advantages in the form of design standardization for racks of all types, permitting easy adaptation of a variety of proved, field-tested designs to your own special needs. If you have a rack problem you will want to see how these designs can save you engineering detailing and erection time, cut your costs, do the job better! Phone or write your nearest UNISTRUT distributor or dealer—he will gladly help you without obligation.

Distributors and Warehouse Stocks in Principal Cities. Consult your Telephone Directories.

U. S. Patent Numbers 2327587 2329815 2345650 2363382 2380379 Other Patents Pending 2405631 2541908

The World's Most Flexible All-Purpose Metal Framing

FREE! 15 Standardized Rack Designs. Light and heavy duty, multiple tier, single and double entry pallet, bar stock, reel and storage racks—contact your nearest UNISTRUT representative, or mail coupon below.



UNISTRUT PRODUCTS COMPANY
1013 W. Washington Blvd., Chicago 7, Ill. Dept. F-4

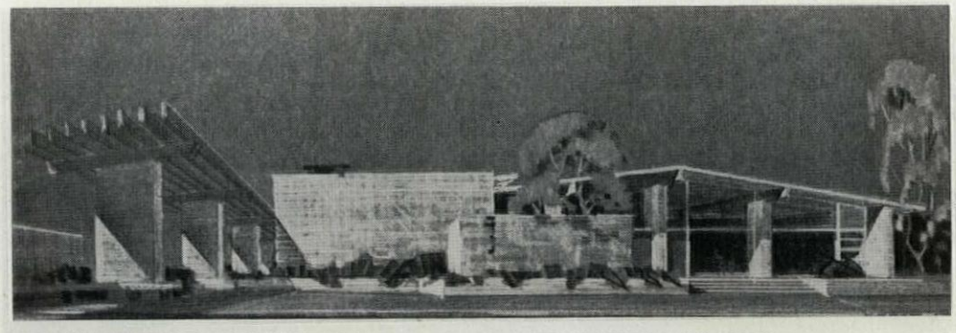
Please send me the Standardized Rack Designs, without obligation.

Name_____

Company_____

Address_____

City_____ Zone____ State____



MARINA BRANCH LIBRARY BY SAN FRANCISCO ARCHITECTS APPLETON & WOLFARD

NEW BUILDINGS (continued)

Mundelein Cathedral High School will be demolished to make way for a 1,000-seat gymnasium, and the present convent will be replaced with a 1,000-seat auditorium. . . . In nearby suburban Niles, the **Holy Cross Catholic Church** planned to start a $2 million high school next month from plans by Belli & Belli, architects. . . . In **Los Angeles,** ground was broken last month for the $4 million Reseda Senior High School—18 buildings spread over a 32-acre campus designed by Architects Allison & Rible. Features: a windowless air-conditioned 1,250-seat auditorium; separate boys' and girls' gyms.

Public and college libraries

San Francisco's graceful branch **public library** for the Marina area (see cut) was scheduled for completion next month. The design for the $154,000 structure in Funston Square by Architects Appleton & Wolfard included a large shade trellis (1) where mothers could read while watching their children in the adjoining playground in the square. . . . One anonymous donor gave **Carleton College,** Northfield, Minn. $500,000 in March, pushed total subscriptions for a $1.5 million library to the $1.2 million mark.

Carpenters build—in brick

Union prosperity was reflected in construction of union headquarters buildings, one of the most unusual being a $150,000 home for **AFL Carpenters Local 25** in Los Angeles (see cut). Saw and hammer work was at a minimum. The two-story reinforced concrete structure had reinforced brick walls and structural steel roof framing, sliding steel windows and vertical aluminum jalousies. Architect: Kenneth R. Swift of Beverly Hills. . . . In Chicago, **Local 710** of the **AFL Meat and Highway Drivers** planned an addition and modernization of its two-story headquarters that would cost $200,000, gave it 4,500 sq. ft. more floor area. Architect: Mark D. Kalischer. . . . Nearing completion in Washington, where the **AFL** and the **International Association of Machinists** were each planning $3 million headquarters buildings: a marble-faced four-story and penthouse headquarters for the **AFL Teamsters,** to cost about $3.5 million. The penthouse is for International President Dave Beck. Architects: Holabird & Root & Burgee; general contractor, Thompson Starrett Co.

Merge Studios

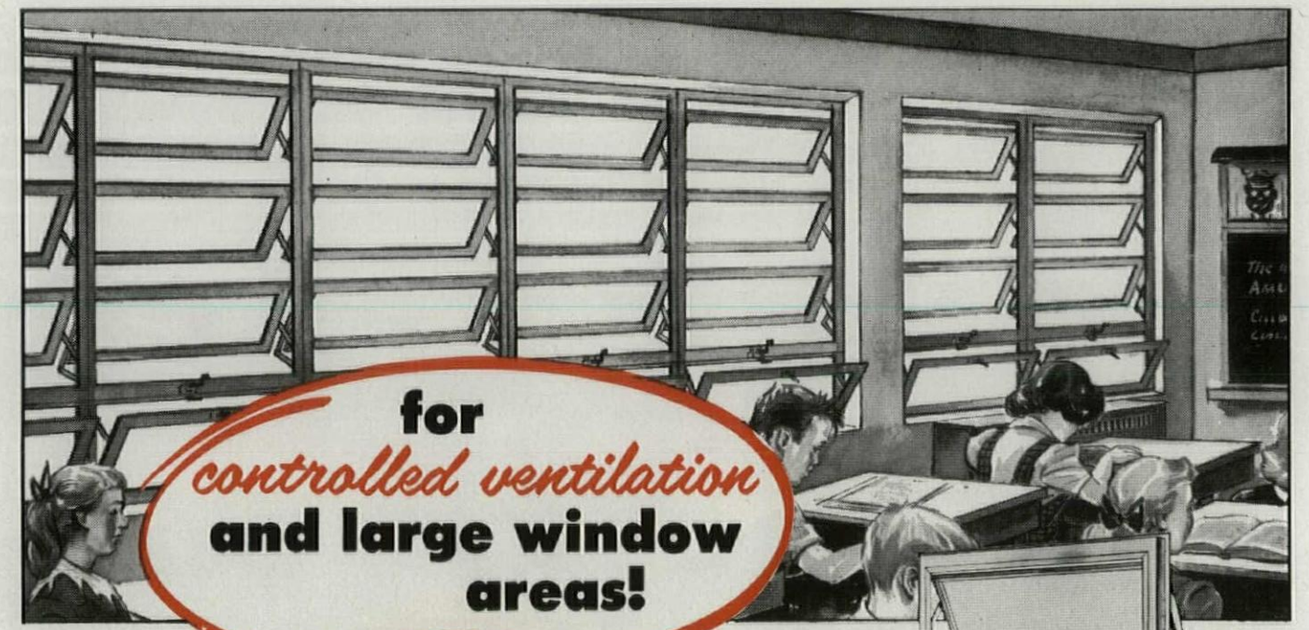
MASONRY HEADQUARTERS FOR CARPENTERS

The handsome textured graining of cork, now available in two shades of Armstrong's Cork Tile, helps create an atmosphere of quiet dignity in any interior. Through an exclusive dielectric manufacturing process, Armstrong's Cork Tile retains the full resilience and durability of cork in a floor of outstanding beauty.

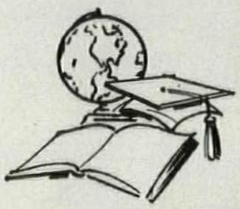
Price Gilbert Library
Georgia Institute of Technology
Bush-Brown, Gailey, and Heffernan, Architects

ARMSTRONG'S CORK TILE

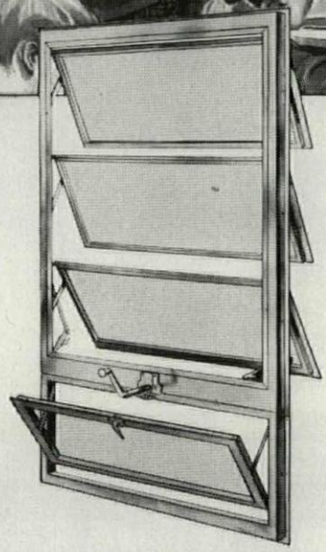
ARMSTRONG CORK COMPANY • LANCASTER, PENNSYLVANIA



for
controlled ventilation
and large window
areas!



Ualco®
U-AL-CO
ALUMINUM



AWNING HOPPER

You know the old school story . . . cold floors, drafty rooms, chilly areas around windows! A regular breeding place for annoying colds and a source of complaints from students, parents and teachers!

Because architects the country over are making draft-free ventilation a prime factor in modern school design, the Ualco Awning Hopper is often specified. The Awning Vents open up to 90 degrees for 100% ventilation, while the Hopper Vent provides healthy, draft-free ventilation during inclement weather.

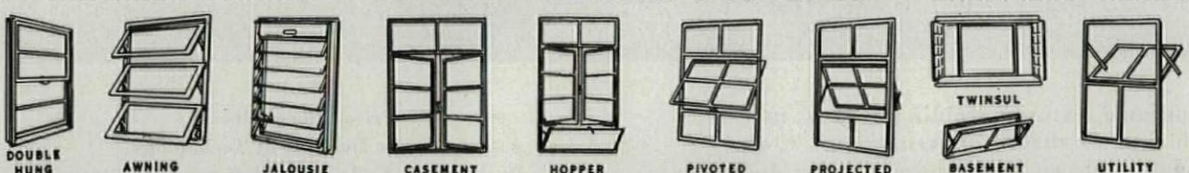
This, plus natural daylight and greater visibility afforded by the large window area, contributes to the all-round comfort and pleasing atmosphere which makes for better study and happier students!

School boards approve the long-term economy of the Ualco Awning Hopper, too! It won't rust, warp, rot! Never needs painting. Requires no upkeep—ever!

OTHER FEATURES: Integral Fin completely surrounds window. Takes brick fin and fin trim.—Jiffy Quick Sill Clips slide in channel from each side; locate as many as wanted, where wanted. — EXCLUSIVE strip-proof Awning Operator has no external locking gear. Makes one operation of unlocking, opening and locking in any position.—Hopper Vent operates and locks separately.—Completely weatherstripped both on jamb and bottom of all vents.

SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE 16A UN OR WRITE US FOR COMPLETE INFORMATION

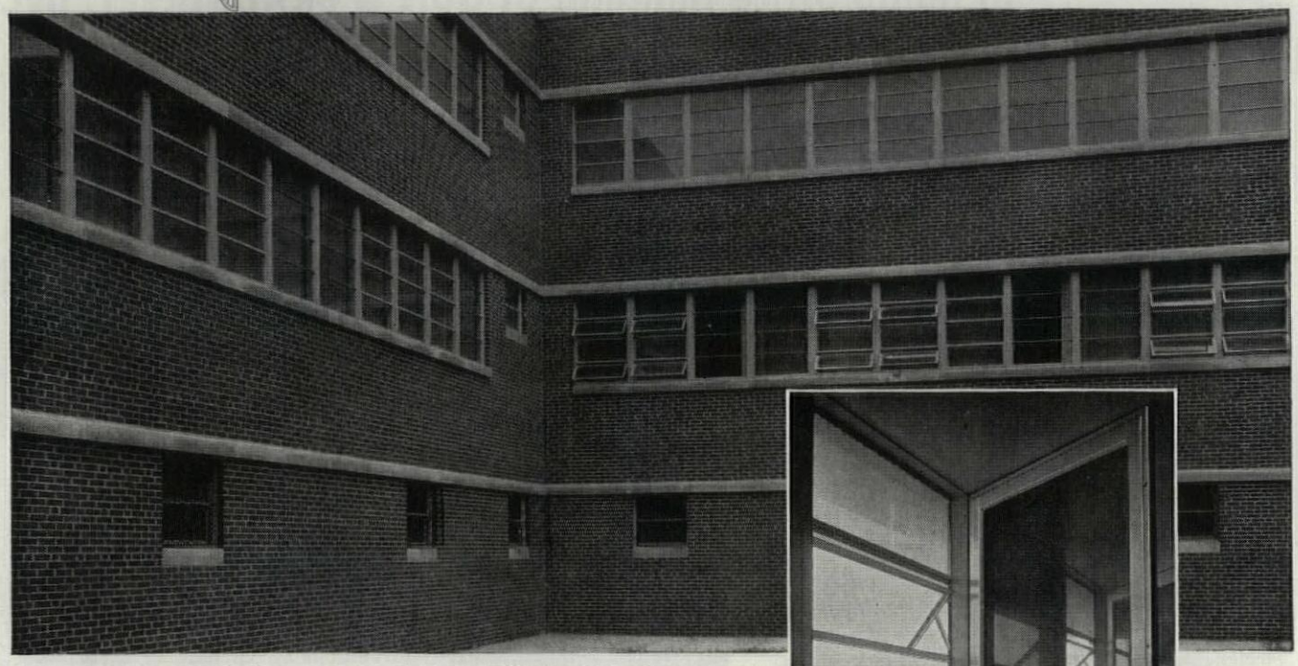
UNION ALUMINUM CO., INC. • SOUTHERN SASH SALES & SUPPLY CO. • SHEFFIELD, ALABAMA

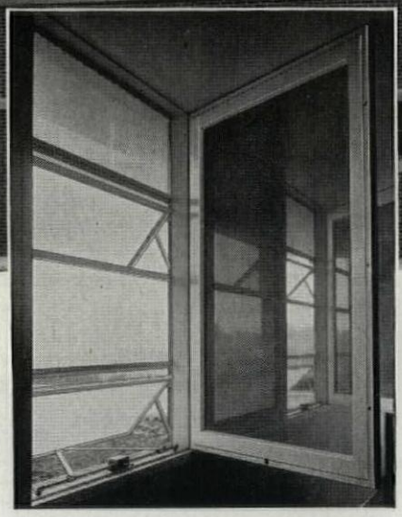


THE WORLD'S LARGEST MANUFACTURER OF ALUMINUM WINDOWS

Fenestra 50 YEARS OF BUILDING PRODUCT LEADERSHIP

"A salute to those who made it possible" *





No bars here with Fenestra Psychiatric Package Window Units. Maximum Security Building, Philadelphia State Hospital, Philadelphia, Pa. *Architect:* Howell Lewis Shay, Philadelphia. *Contractors:* Wark & Company, Philadelphia.

Who's behind bars?

. . . NOBODY!

Fenestra's new Psychiatric Package Windows in this Maximum Security Building of Philadelphia State Hospital look just like the beautiful Fenestra* Awning-Type Windows you've seen in modern schools, hospitals, office buildings and homes throughout America. This therapeutic benefit is gained without the slightest loss in safety.

The great security provided by Fenestra Psychiatric Package Windows is in their basic *design* and in their *screens.*

The Package Unit includes the graceful awning-type steel window with smooth-working operator and removable bronze adjuster handle . . . and your choice of three types of flush-mounted inside screens: Detention Screen for maximum restraint (tremendously strong mesh attached to shock absorbers concealed in the frame), Protection Screen for less disturbed patients, or Insect Screen for general hospital use.

And look at the safety features: No sills to climb on, no sharp corners. No way for patients to get at the glass. All-weather ventilation, operated without touching the screen. Glass washed inside and outside from inside the room.

To eliminate maintenance-painting, Fenestra Steel Windows are available (on special order) Super Hot-Dip Galvanized. For full information . . . call your Fenestra Representative, or write Detroit Steel Products Company, Department AF-5, 2296 East Grand Blvd., Detroit 11, Michigan. *®

* Your need for a more homelike, pleasant environment for patients encouraged us to develop a psychiatric window that didn't look like one—the Fenestra Psychiatric Package Window Unit...a great advancement in building products.

Fenestra | PSYCHIATRIC PACKAGE WINDOWS

STEEL WINDOW • STEEL CASING • SCREEN • OPERATOR • REMOVABLE BRONZE ADJUSTER HANDLE

BARBER COLMAN

"UNI-FLO" ENGINEERED

Air Distribution

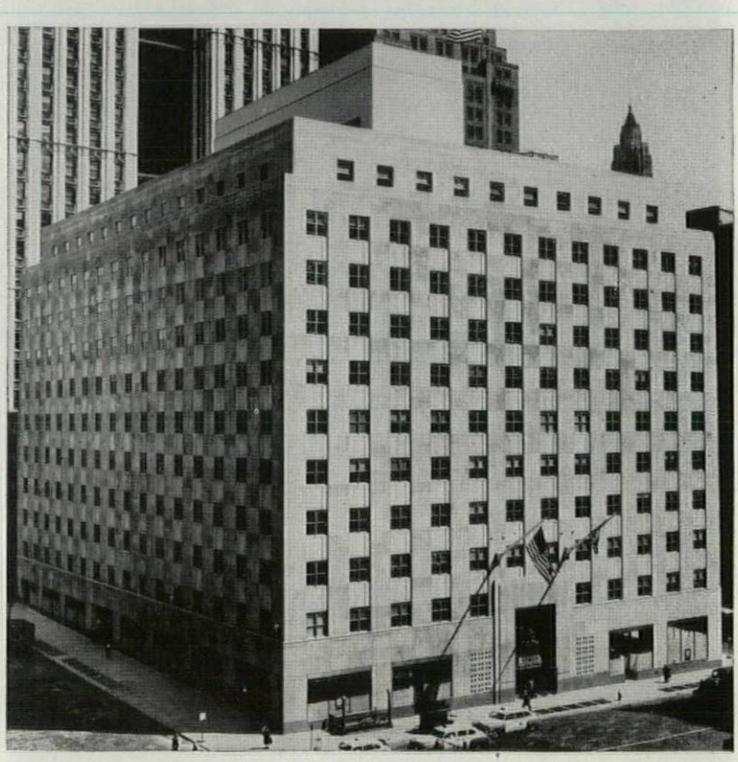
removable cores simplify installation of air diffusers in home office building of DUN & BRADSTREET, INC.

Noteworthy edifice in downtown New York City is this progressive, functional office building at 90 Church Street . . . home of Dun & Bradstreet, Inc. Several years in the planning stages, the resulting structure is complete with the most modern equipment for efficient operation.

Seven hundred and sixty-nine Uni-Flo Air Diffusers contribute to the comfort of occupants. Easily adjustable to set up air patterns conforming with the building design and needs of the workers, the Barber-Colman equipment brings fresh conditioned air to all offices with minimum noise and maximum efficiency.

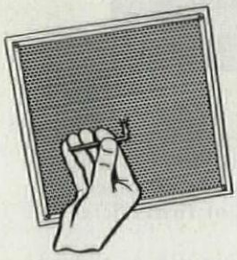
Removable cores in sidewall diffusers, plus simple mounting of ceiling diffusers, saved time and effort for the installing contractor. The usual plaster frames were omitted, yet there was no cracked plaster on the job to be patched and repainted.

As a protection for huge investments in air conditioning equipment, more and more owners, architects, engineers, and contractors are specifying the best in air distribution equipment to insure highest efficiency of the entire system. More and more are coming to Barber-Colman Company. Let us show you why.



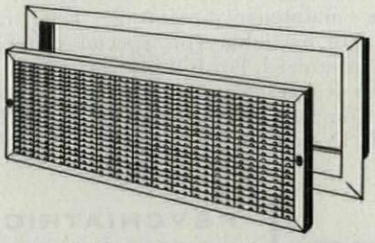
Home office building of Dun & Bradstreet, Inc., 90 Church Street, New York City. Uni-Flo air distribution equipment is installed in office areas from second through eleventh floors. *Architects:* Reinhard, Hofmeister and Walquist. *Consulting Engineers:* Syska & Hennessy, Inc. *Air Conditioning Contractor:* Kerby Saunders, Inc.

Square ceiling diffusers are *adjustable*



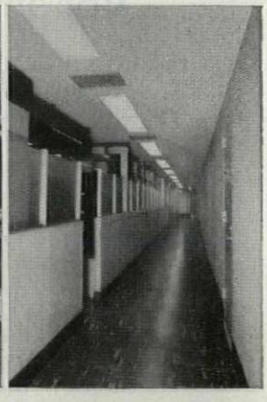
Unusually flexible to meet job conditions is this modern Uni-Flo Square Ceiling Diffuser which can be adjusted after installation to provide air deflection from vertical to horizontal and discharge air patterns in one to four directions. Attached to the standard T-bar construction of acoustical ceilings, it harmonizes perfectly with latest ceiling designs. Get Bulletin F-4728-1.

Removable cores also facilitate cleaning of ducts and grilles



Plaster and wall decorations are safe from damage when installing, adjusting, or cleaning Uni-Flo Sidewall Diffusers. Complete core slips in or out with ease—frame has continuous sponge rubber gasket to minimize leakage. 1" lap on frame covers opening irregularities. Get Bulletin F-1415-10.

Uni-Flo Sidewall Diffusers in soffit provide a draft-free, comfortable atmosphere for office workers. Soundly engineered system is easily balanced, quiet and efficient in operation.



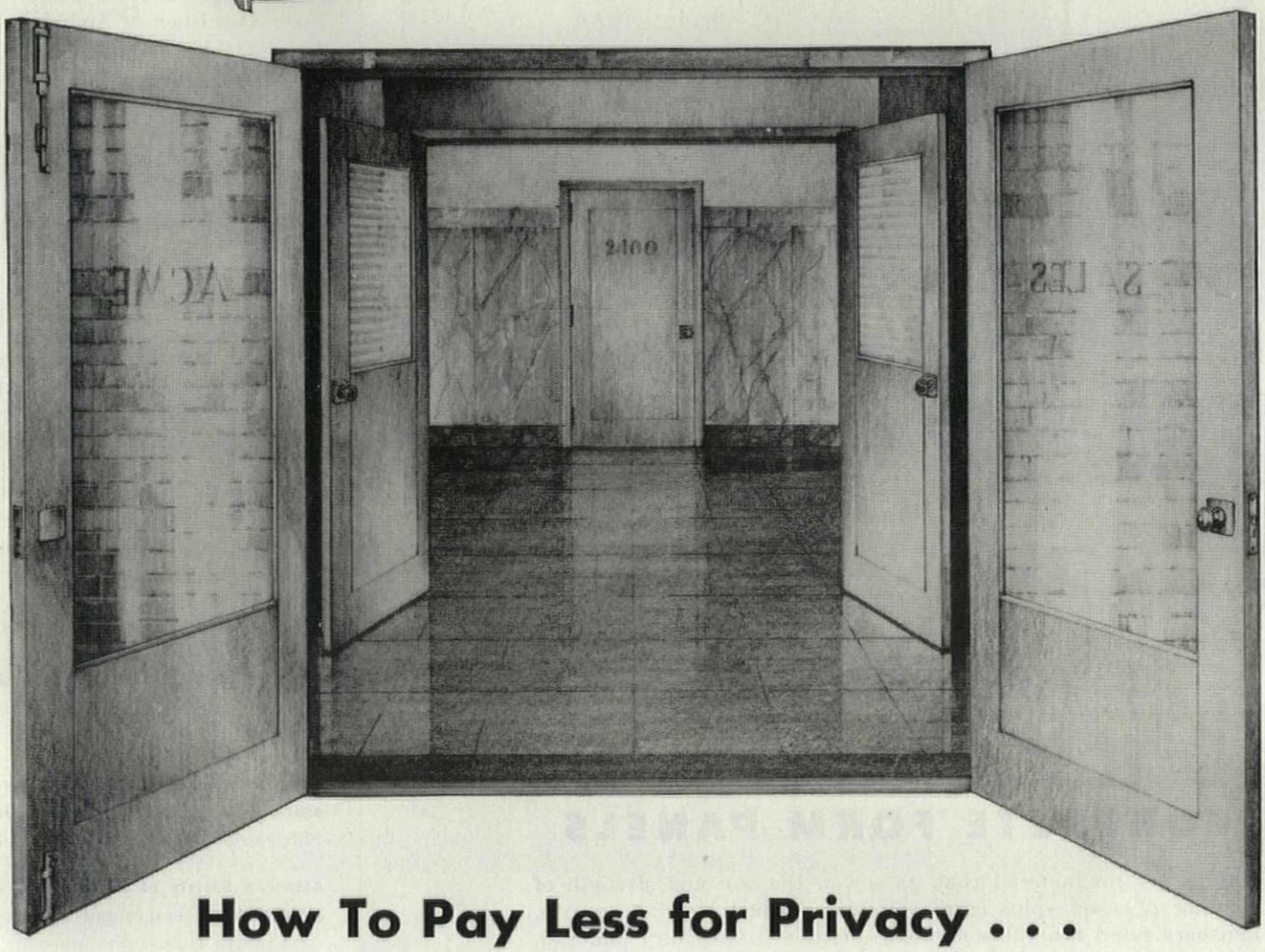
Uni-Flo Square Ceiling Return Grilles mounted in between fluorescent lights, blend gracefully with ceiling.

BARBER-COLMAN COMPANY, DEPT. E, 1135 ROCK ST., ROCKFORD, ILLINOIS

Air Distribution Products • Automatic Controls • Industrial Instruments
Aircraft Controls • Small Motors • OVERdoors and Operators • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery

Fenestra 50 YEARS OF BUILDING PRODUCT LEADERSHIP

"A salute to those who made it possible" *



How To Pay Less for Privacy . . .

Now you can save up to $100 per door! Just *compare* the cost of Fenestra® Hollow Metal Door-Frame-Hardware Units with the cost of some other brands of hollow metal doors.

Here's why you save so much:

1. *They cost less to buy* because they are mass produced on special jigs that eliminate expensive time and labor. You get production-line economy —*not* custom job costs.
2. *They come to the job complete*—pre-fitted frame, door and hardware are made for each other. No time lost in planning or trying to order separate elements that will fit each other.
3. *You save on installation cost* with these complete units. There's no cutting or fitting or mortising or tapping—the door is *in* and *in use* in minutes.

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

For strong, solid quality at unusually low cost, check on Fenestra Doors—there's a door for every purpose in the Fenestra line: Entrance Doors, Flush or Regular Interior Doors with glass or metal panels, Doors with the Underwriters' B Label. For pictures and details, write the Detroit Steel Products Company, Dept. AF-5, 2296 E. Grand Blvd., Detroit 11, Michigan.

* Your need for lower building costs encouraged us to develop a quality door unit that would save initial cost and installation cost—Fenestra Hollow Metal Door-Frame-Hardware Units . . . a great advancement in building products.

Fenestra | DOOR • FRAME HARDWARE UNITS

EVENTS

Royal Architectural Institute of Canada, 47th annual assembly, **May 11-14,** Mount Royal Hotel, Montreal.

"Public Relations Strategy for the Architect," workshop presentation sponsored by the N.Y. State Association of Architects and the N.Y. Chapter, AIA, **June 3rd,** at 7:00 P.M. at the Architectural League, 115 E. 40th St., N.Y.C. For details and reservations address the League.

New Jersey Chapter, American Institute of Architects, convention, **June 10-12,** Berkeley Carteret Hotel, Asbury Park, N.J.

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

Museum of Modern Art and the Merchandise Mart, fifth annual "Good Design" exhibition, opening **June 20** at the Mart in Chicago, later to be shown in New York.

Massachusetts Institute of Technology, three-day conference on Thin Concrete Shells, including sessions on architectural design, structural design and construction techniques, **June 21-23,** at MIT. For details address Summer Session Office, Room 7-103, MIT, Cambridge.

Aspen Design Conference, June 23-29, Aspen, Col. For details address Aspen Institute of Humanities Studies, Ann Arbor, Mich.

National Association of Building Owners and Managers, 47th annual convention, **June 27–July 1,** Shirley-Savoy Hotel, Denver, Col.

American Society of Heating and Ventilating Engineers, 60th semiannual meeting, **June 28-30,** New Ocean House, Swampscott, Mass.

New Developments in Industrial Design, conference sponsored by Virginia Polytechnic Institute, **August 4-6,** at the Institute. For details address Prof. D. H. Pletta, Applied Mechanics Dept., V.P.I., Blacksburg, Va.

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

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

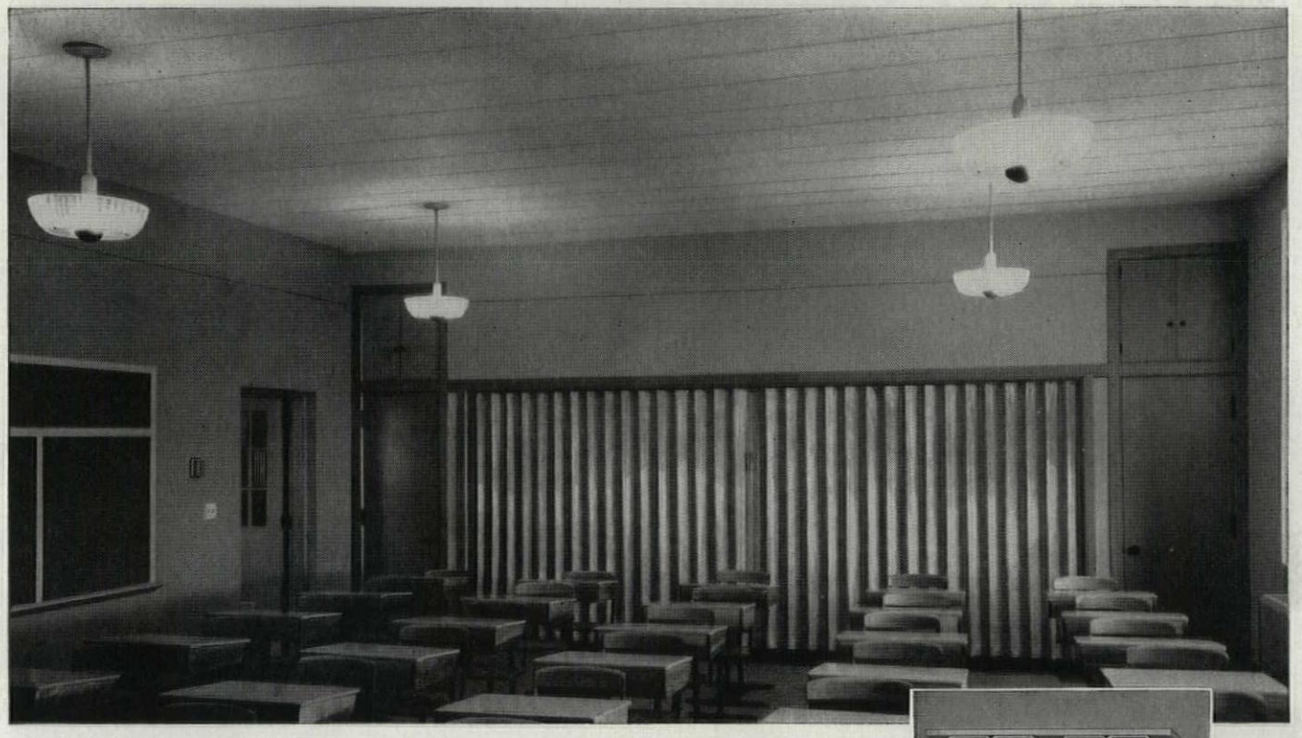
Midwest Conference of Building Officials and Inspectors, annual conference and business meeting, **Sept. 20-22,** Hotel Commodore Perry, Toledo.

Gulf States District, American Institute of Architects, regional conference, **Sept. 26-28,** Marion Hotel, Little Rock, Ark.

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

Fenestra 50 YEARS OF BUILDING PRODUCT LEADERSHIP

"A salute to those who made it possible" *



Here is a typical Fenestra Structural-Acoustical Ceiling in St. Mary's School, Port Washington, Wisconsin.
See the great Fenestra Exhibit at Booth 35 at the AIA Convention in June.

New Acoustical Structural "D" Panels. Width 24". Depth 1½" to 7½".

Unique Acoustical Product Saves $26,000 in New School!

Look at this paragraph from the *Magazine of Building* article entitled, "Structural Economy"!

> "Light-gauge, welded acoustic steel deck, a double-duty, factory-built material, saved 59c per sq. ft. ($26,000 in all). It was erected in only ten working days, replaced separate roof deck and framing and eliminated acoustical ceilings and plastering."

The structure was the Central High School in Kenosha, Wisconsin. The architect was Lawrence Monberg.

And the "factory-built material": Fenestra* Acoustical "AD" Panels! A Fenestra Structural-Acoustical "AD" Panel is a box beam with a flat surface top and bottom. The top surface of the panel is the subfloor or support for finished roofing. The perforated bottom surface forms the ceiling. Inside the box beam is glass fibre insulation.

Why not cut your own building costs with a Fenestra combination structural-acoustical ceiling. It goes up *fast*—the panels lock together simply and quickly, saving days of labor and a lot of money. It is practically indestructible. Bumps and knocks can't hurt it. The acoustical efficiency is not affected by washing or painting. And these panels are *noncombustible!*

For further information call your Fenestra Representative. Or write Detroit Steel Products Company, Dept. AF-5, 2296 E. Grand Boulevard, Detroit 11, Michigan.

*Trademark

* Your need for a maintenance-free, noncombustible, built-in acoustical treatment encouraged us to develop Fenestra Structural-Acoustical Building Panels—a great advancement in building products.

Fenestra | METAL BUILDING PANELS

LETTERS

RED SKYLINE

Forum:

Are you aware of your outrageous folly?

You have perpetrated left-wingism at its anathema!

Heads will fall, limbs will be dismembered, circulation will increase, when Cohn, Schine and McCarthy discover this greatest of subversion; your March issue and its Red Propaganda, "Moscow's New Skyline."

Tsck! (Ukranian for "you mad dogs, you.") Tsck!

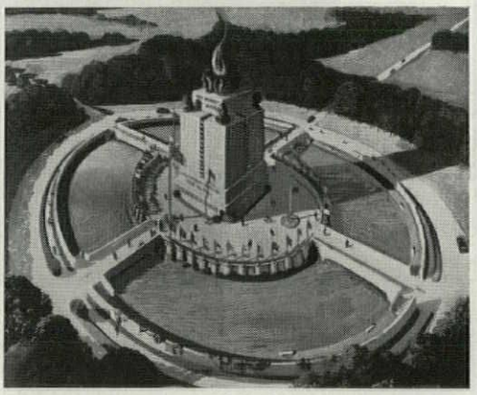
NOEL R. DALTON, *architect*
Staten Island, N. Y.

Forum:

We don't think the Moscow buildings were worth the paper and space they were printed on.

WILLIAM N. CATON, *architect*
Winfield, Kan.

FOR FREEDOM'S SAKE



• Caption under this picture in the *Philadelphia Bulletin* read: "Flame of freedom burns above a monument proposed at Washington, which will be dedicated to the dignity of man. A circular path surrounds the structure in an artist's sketch. General Omar N. Bradley is chairman of the Freedom Shrine National Citizens Committee which seeks a $3,500,000 building fund."—ED.

Forum:

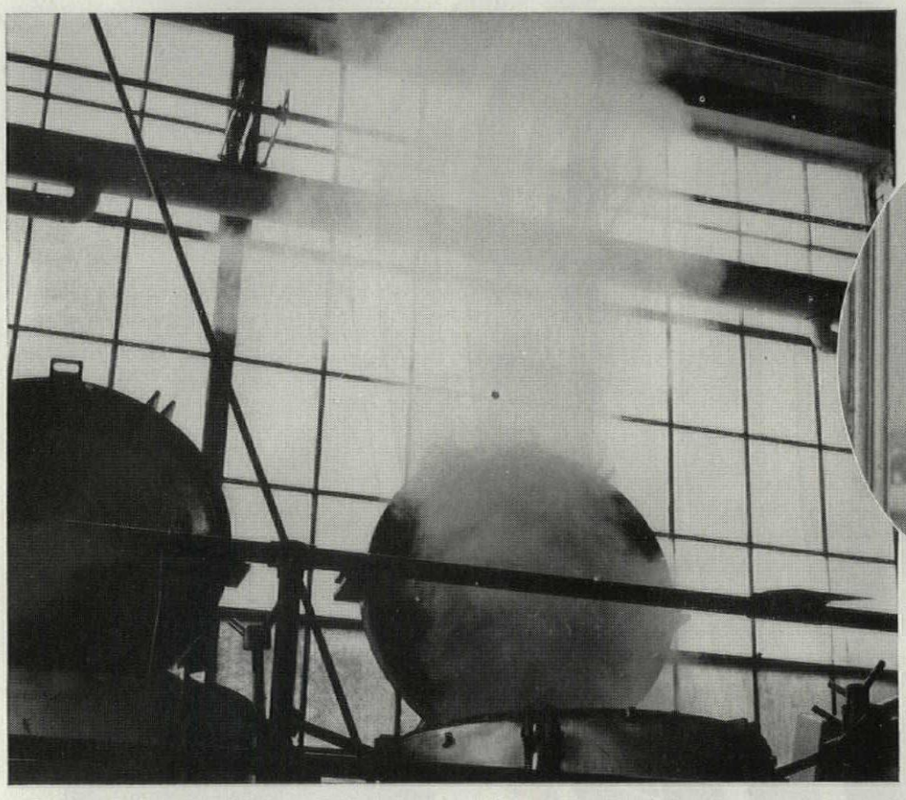
The idea of a Freedom Shrine is splendid. I am wholeheartedly in favor of it. However, as shown in the "artistic sketch" which was printed in the newspaper last week, it is outrageous, absolutely totalitarian. It does not express man's freedom and dignity, but overpowers by its inhuman forms and scale. It is reminiscent of the cold, brutal, official state architecture which Mussolini and Stalin sponsored. For God's sake, for Freedom's sake, for the sake of the Shrine's ultimate survival and for the sake of good taste, let us have a design that *expresses* man's freedom.

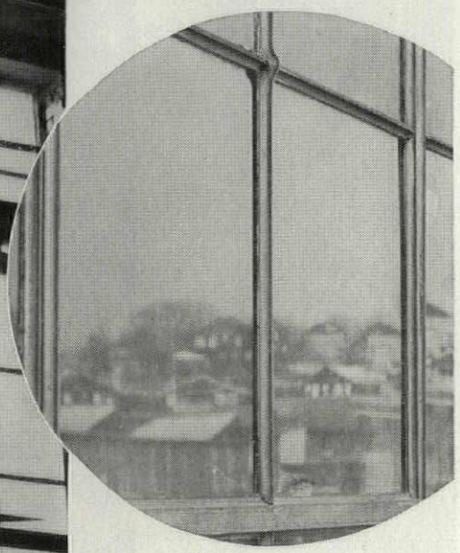
Why not have a national or international competition for the design of this important edifice. A better way to publicize and emphasize the idea of man's freedom here and

continued on p. 73

Fenestra 50 YEARS OF BUILDING PRODUCT LEADERSHIP

"A salute to those who made it possible" *





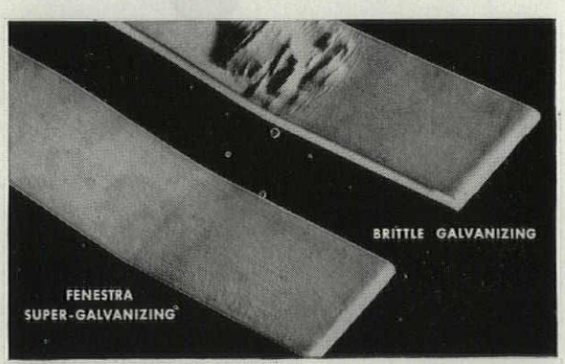
Fenestra Steel Windows have spent 23 years in this cooking room of Wm. Underwood Co., Watertown, Mass. Close-up is unretouched.

How to make a habit of saving $3,600

Despite 23 years of steam-dousing, the galvanized Fenestra* Steel Windows in this "cooking" room have never rusted.

Now Fenestra offers you *Super* Hot-Dip Galvanized Steel Windows *that cost no more than regular steel windows with two inside-outside field coats of paint!* And these windows *never need painting.* That's a saving of over $3,600 in paint and painting labor—every few years—for the life of your building . . . if yours is an average-sized plant.

Fenestra has the only plant and equipment in America especially designed for the tricky job of window galvanizing. For details on Fenestra Super Hot-Dip Galvanized Steel Windows, call your Fenestra Representative listed in the phone book yellow pages—or write Detroit Steel Products Company, Dept. AF-5, 2296 E. Grand Blvd., Detroit 11, Michigan. *®



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

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

Fenestra | SUPER HOT-DIP GALVANIZED STEEL WINDOWS

Listed by
Underwriters' Laboratories

AS NEW, MODERN, EFFICIENT AS IT LOOKS!

Today's architectural stress on long, unbroken wall areas... requires that essential equipment be *smartly designed,* as *well* as functional! With this in mind, the Edwards Fire Station has been *newly* styled to enhance and beautify *any* modern structure... Projecting only 1⅞" inches, its tear-drop design literally hugs the wall! Nothing extends to cause accidental actuation—or spoil its smart appearance. In overall measurement, it's the smallest coded station available today! Single-action operation is simple, dependable, foolproof. One pull of the handle places the call—*never* the chance of a non-alarm!

Why not equip *your* buildings with the alarm station styled and developed in consultation with fire protection authorities, architects and electrical engineers... for use in any popular fire alarm system and for municipal connections ... the Edwards Fire Alarm Station! Write for free illustrated bulletin. Dept AF-5, Edwards Co., Inc., Norwalk, Conn. In Canada: Edwards of Canada, Ltd.

EDWARDS®

World's most reliable time, communication and protection products

LETTERS *continued*

abroad could scarcely be devised than to open the competition to designers all over the world. The entries could be exhibited as a means of gaining publicity for the project, raising funds and, most important, publicizing the freedom concept.

GEORGE E. PATTON, *landscape architect*
Philadelphia, Pa.

UNHEALTHY INFLUENCE

Forum:

Your magazine is most influential. However, I believe that your influence is *not* healthy—I do not like your continual "pushing" of your particular "style" of architecture. I feel your magazine is published for chain store executives, etc., and those who are eager to be led. It is not a magazine for architects who think for themselves.

FREDERICK E. ALLARDT JR., *architect*
Quogue, N. Y.

HEALTHY INFLUENCE

Forum:

You are doing a great job to help the architect achieve that recognition and respect which many of us found lacking toward the profession 20 and 30 years ago. If you keep helping us, perhaps even the bankers, promoters and bureaucrats will use the profession intelligently—and perhaps the profession with your help will have the backbone to deserve such use.

WILLIAM F. R. BALLARD, *architect*
New York, N. Y.

GROPIUS' SOLID ARCHITECTURE

Forum:

I am intensely interested in Walter Gropius' thoughts expressed in his article in the February FORUM. I do not agree with some of them, but I heartily agree with others.

The article is a clear and complete argument for a certain "philosophy," put in such a way that it stimulates one to understand the full meaning of the author's position. It is a permanently useful statement, which can be thought about, digested, come back to—in fact *used* in the full sense of the word.

I am aware, of course, that some of it is probably in the nature of an answer to, or a counterattack on, some recently published notions of mine (AF, Sept. '53). And, as I love argument, I am sorely tempted to enter the lists. But I will refrain in this instance in order, I hope, to make the more important point. Mr. Gropius is to be thanked for thus intelligently showing his hand. FORUM is to be thanked for publishing his work.

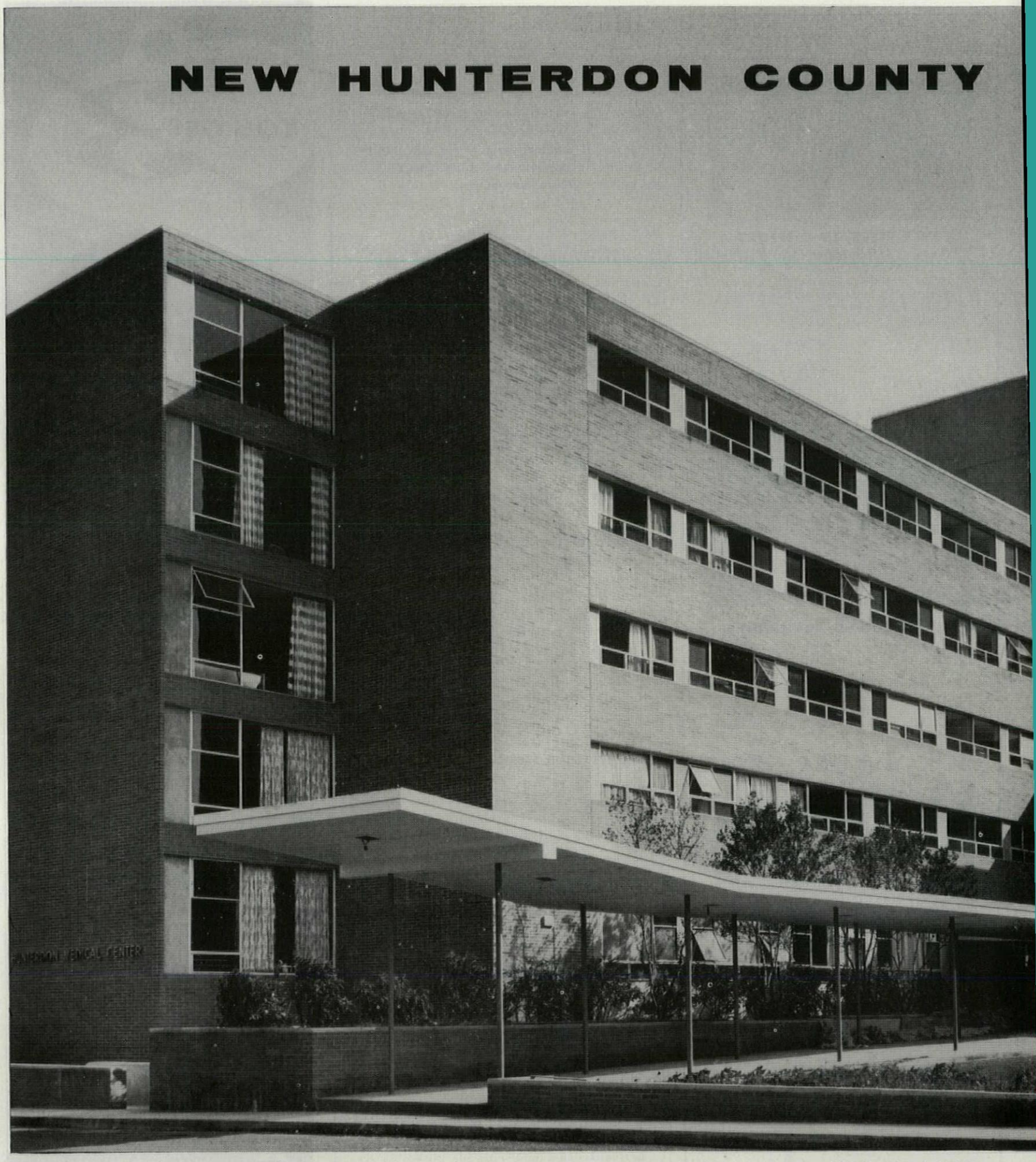
ROBERT WOODS KENNEDY, *architect*
Cambridge, Mass.

Forum:

With every blast from the "Romantic" Moderns, I find myself more solidly entrenched

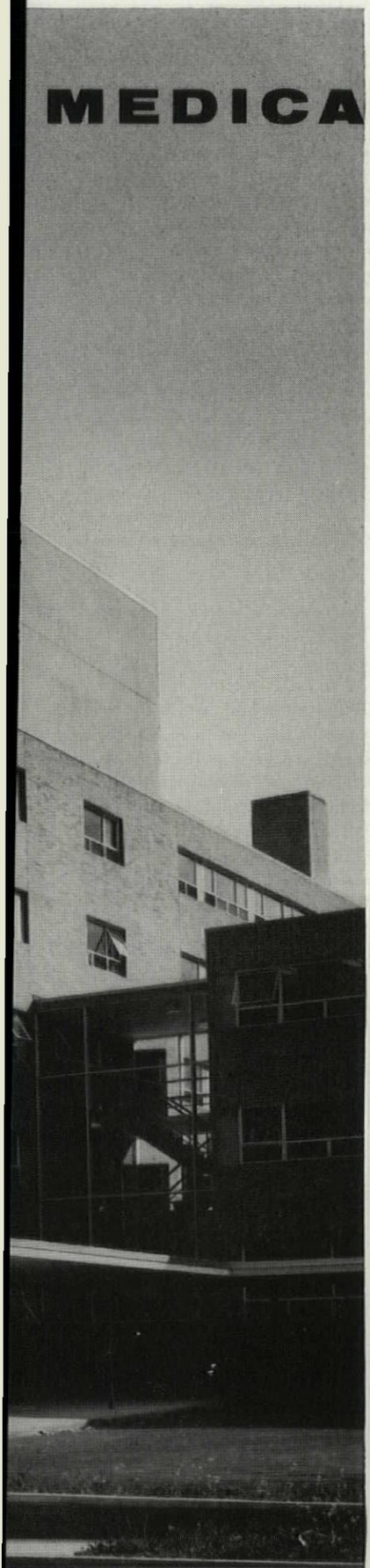
continued on p. 76

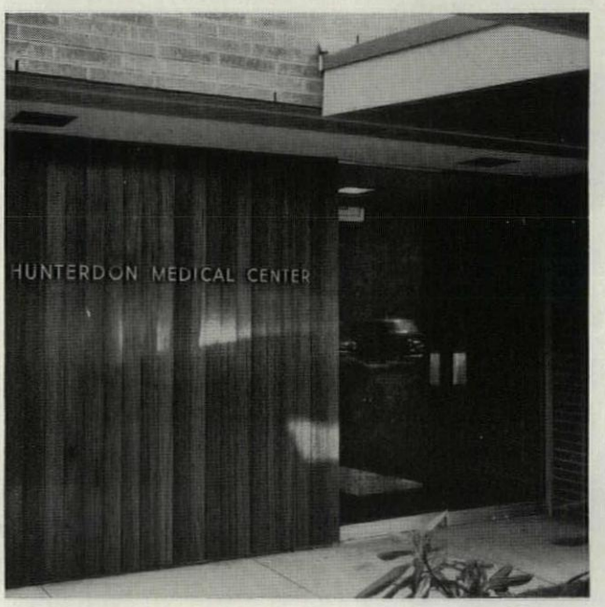
NEW HUNTERDON COUNTY



LOCATED IN A RURAL SECTION near the town of Flemington, New Jersey, the new Hunterdon County Medical Center is an outstanding accomplishment in community endeavor. Built in the form of a large "T," this hospital uses Pittsburgh Glass as a basic element of its design. The five-story nursing wing and all patients' rooms are glazed with large panes of Pittsburgh Polished Plate Glass which extend from 18" sills to the ceilings. Other Pittsburgh products include Herculite Doors, Twindow insulating units, copper backed mirrors and Pittco Metal. Architect: Vincent G. Kling, Philadelphia, Pa.

MEDICAL CENTER in New Jersey makes impressive use of Pittsburgh Glass





THIS VIEW is of the base of the "T," and is at the north end of the "Center." Like the main entrance, this entrance to the out patient department is served by Pittsburgh's Herculite Doors—the favorite of leading American architects because of their strength, durability and proven dependability.

THESE LARGE WINDOWS, glazed with Pittsburgh Polished Plate Glass, are at the rear of the building where the majority of patients are located. They give patients a clear view of the rolling countryside, help to relieve the monotony of hospital confinement.

Design it better with **Pittsburgh Glass**

Your Sweet's Catalog File contains detailed information on all Pittsburgh Plate Glass Company products...Sections 7a, 13e, 15b, 16b, 21.

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

LETTERS *continued*

in the Gropius-Mies-Corbu camp, and it is high time for a broadside from one of our generals. It is gratifying to see it in such a well-tempered appraisal of where we are and where we are going. No need to cry for alarm—architectural design hasn't found itself on such solid basis for progress in the history of the professional architect, and it is paying off in good buildings which are telling our story for us. No need for alarm at all—except from those who see less and less acceptance of their grotesquely homespun "organic" architecture — the "living architecture" of the doodad. Slowly but surely we are finding architectural idioms that humanize the machine without compromising its integrity, and even less-than-gifted designers who approach their task with sincerity are producing very satisfactory buildings — particularly in Texas.

ARNE G. ENGBERG, *architect*
Houston, Tex.

Forum:

It is stimulating indeed to read articles by Dr. Walter Gropius in your fine magazine. Much as I admire and respect Dr. Gropius, I nevertheless feel strongly that what we need more than "Steps toward Solid Architecture" are steps toward a *beautiful* architecture. Beauty is the humanizing element; today, surrounded by mechanical things, we forget that architecture is, above all, an art. . . . Beautiful buildings are loved and preserved long after their original function is forgotten. Beauty appeals to the emotions, and man had emotions long before he had a mind—as every advertising man knows. . . .

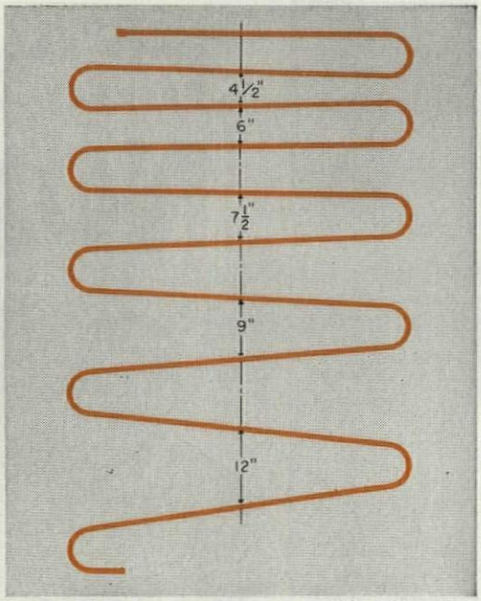
Beauty goes beyond common sense and ordinary intelligence; it requires rare sensitivity of feelings and power of imagination plus the urge to create. It cannot be found in books or tables. It is the timeless element in all art. It is proportion, balance, rhythm, mass and echo — all the large abstract qualities that have nothing to do with applied ornament. It is the dramatic quality found in all great architecture of every age. It is more than style; it is harmony with the universe.

But most beautiful things have style also. What is wrong with style? If style is simplification and exaggeration in order to express our likes and dislikes (by what we leave out and what we enlarge), then with style we have "something to say."

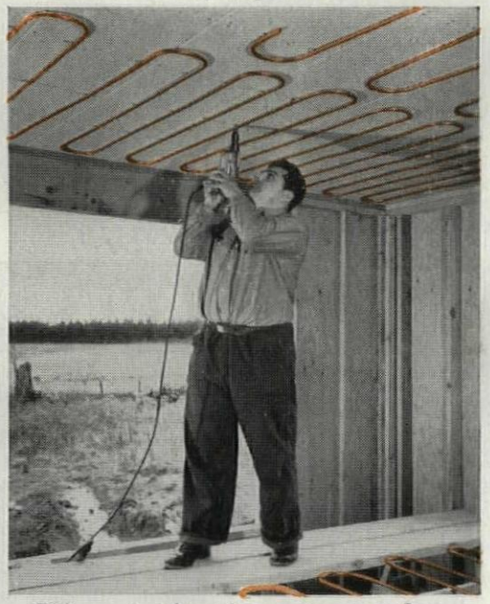
All historic periods of art show that designers pooled their knowledge and borrowed from each other. How else would we recognize a "school" or a period? This is inevitable today. The "unique," "unheard-of stunt" may light the way to something better. The "sports" who indulge in "flights of fancy" and make the dangerous leap into the flame are vitally needed today in this world of timid souls. Too many walk the well-worn path. In the end, a truly beautiful building will stand

continued on p. 78

PG's are lightweight and easy to handle. They come packed in cartons, ready to install.



Center-to-Center spacing is readily adjusted to design requirements.



PG's are straight and true—no sags or dips—make plastering easier.

For your next radiant heating job—specify PG's

Now radiant panel heating systems are more practical than ever... in rust-free copper tube. PG's®* (Panel Grids)—a new development by The American Brass Company—are the reason why.

PG's are the *only* standard-size radiant panel heating grids that are *factory formed*... ready to install. Shipped in a figure-8 bundle, they open readily to a flat sinuous coil pattern. They do away with slow, tiresome on-the-job bending and awkward "stringing up" of coiled tubing.

⅜" PG's contain 50 feet of ⅜" nominal (½" O.D. actual) Type L ANACONDA Copper Tube and come *preformed* to common 6" c-c spacing. You can contract or extend them easily by hand to meet all desired spacing requirements within a range of 4½" to 12" c-c.

½" PG's consist of 50 feet of ½" nominal (⅝" O.D. actual) Type L tube formed to a 9" c-c spacing and are also easily hand-adjustable to all c-c spacing from 6" to 18".

Try PG's on your next job! See for yourself how they make installation easier, faster—and better. For more information about this revolutionary new development in panel piping, write for Publication C-6. *The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.*

*Patent Applied For

5409A

ANACONDA®

Copper Tube PRE-FORMED Panel Grids for Radiant Panel Heating

and be preserved by later generations as a "monument" to the designing genius, whether *he* wills it or not.

If a "period piece" can gratify this craving for beauty, then we might as well face it, nothing *more beautiful* is being offered. To "diagnose the client's real needs and give him a consistent building"... is *not enough!* It must be beautiful too. Respect for integrity of materials, using wood as wood, not making it look like stone, is fine... but not enough! Too many contemporary designers stop too soon. The masters are distinguished because they give us beauty.

A master builder is above all an artist who can pick and choose his functional elements to suit esthetic requirements. There is more than one way to perform a function. Roofs shaped in peaks, flat, dome or butterfly, all shed water. Roof overhang does stop sky glare but in the UN and Lever buildings another way is found. Solutions and compromises are found in the best works which fit into esthetic demands. Beauty is what brings a building to life; beauty is the thrill it gives to us; beauty is what we all love; beauty sells.

I feel strongly that the way to win sympathetic public acceptance of contemporary architecture is to make it more beautiful.

TOM LOFTIN JOHNSON, *architect*
Bedford, N. Y.

Forum:

"Eight Steps toward a Solid Architecture," by Walter Gropius, is a commendable and eagerly received contribution to the broadening field of architectural criticism.

However, I doubt that the "irrepressible urge of critics" is so stifling as Dr. Gropius fears and I would hesitate to restrict the field of criticism exclusively to the past. Granted the modern critic may err, we are all too interested in contemporary work and activity to be silently engulfed in it.

Dr. Gropius declares his aversion to the "cult of the ego," but I propose that some ego is not only tolerable but desirable, providing points of focus and centers of stimulation to engage human interest. I doubt that egos have been so instrumental in delaying a "common form expression," the absence of which, I suspect, is due to much deeper forces of social and economic character. A common form may have to wait upon a prolonged stability in modern life.

I have another little bone to pick with Dr. Gropius: certainly a great many architects make a sincere effort toward becoming "highly competent" in design, construction and economy, and if this high degree of excellence is not universal, the fault may lie mainly in establishing goals beyond human capacity to achieve. The degree of complexity in the modern world of planning and construction has only naturally provoked specialization.

continued on p. 82

Comfort—Butler aluminum sheeting and fiber-glass insulation help assure year around comfort. Banks of windows in sidewalls flood offices with natural light.

Convenience—Shop equipment is positioned for convenience, efficiency in Butler clear-span interior. Steel-aluminum construction furnishes good fire protection.

Architectural planning with BUTLER buildings helps provide peak efficiency at Remington Rand

Architectural planning teamed with these three Butler buildings play a vital role in Remington Rand's expanding research program at Norwalk, Conn.

"Speed was important when we signed the contract for the first of our two 50′ x 200′ buildings in 1948," says S. E. Szemetko, plant engineer. "And having it ready for use in 10 weeks proved the value of Butler's fast delivery and quick erection!

"We also saw the ease and economy of using Butler buildings with other materials when our 4-story office building was built in 1952. By combining Butler pre-engineered steel buildings with masonry construction, we obtained the needed space—even though our site area was limited. A 40′ x 300′ Butler building on the fourth floor and two 20′ x 300′ Butler sections at each side on the third floor give us 24,000 sq. ft. of well-lighted, easy-to-heat office space.

"The architectural adaptability of Butler buildings helped us obtain three attractive buildings which provide the functional space we need for peak efficiency. We can arrange our equipment and offices in the clear interiors to fit our convenience . . . use movable partitions which furnish flexibility to match changing needs. In short, we are convinced the decision to build with Butler was sound!"

A.I.A. file 14i will tell you more about the advantages of teaming Butler buildings with creative architecture. Get a copy from your local Butler dealer right away. Write for his name and more facts by mail.

BUTLER STEEL PRODUCTS

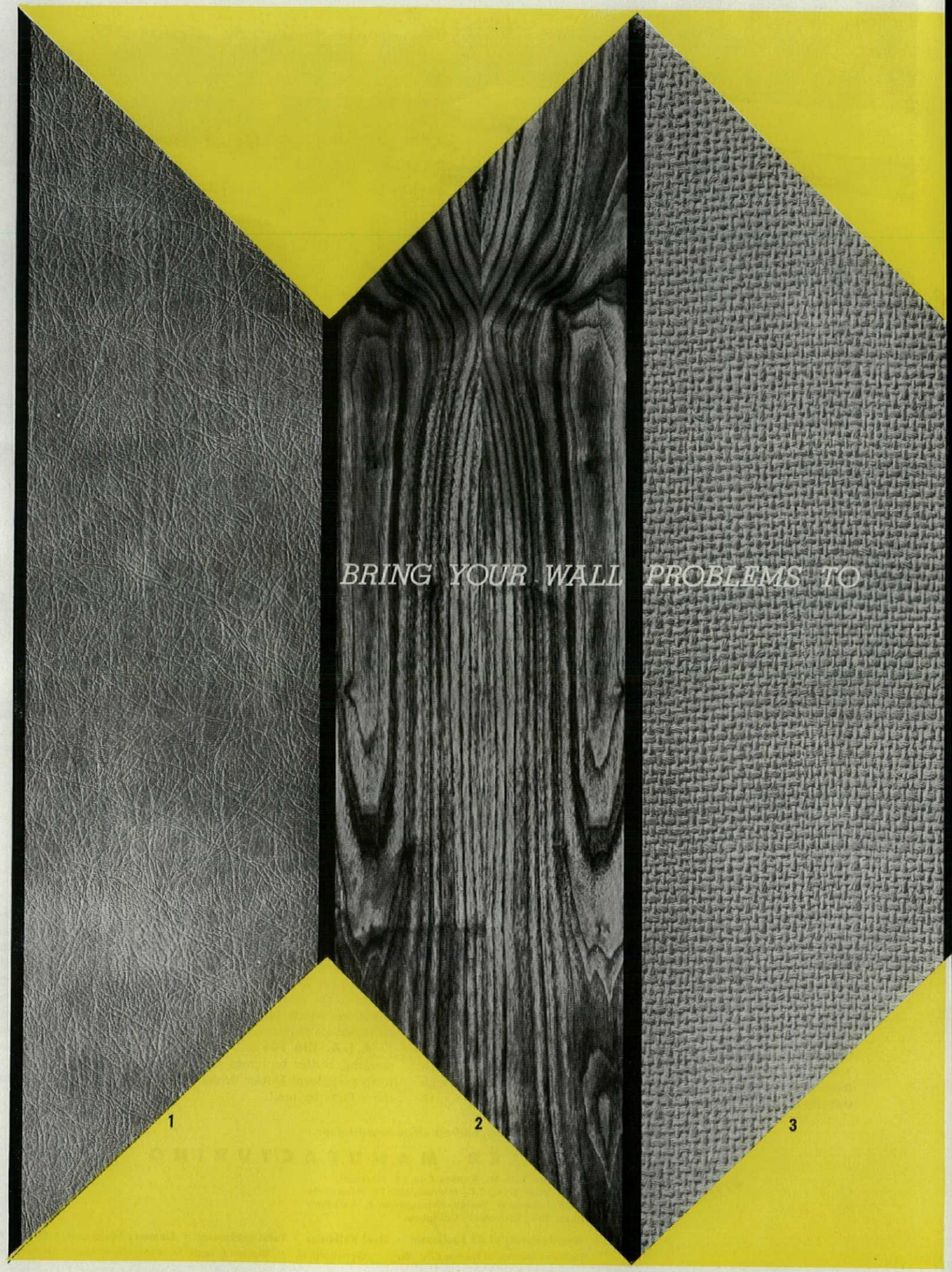
For prompt reply, address office nearest you:

BUTLER MANUFACTURING COMPANY

7336 East 13th St., Kansas City 26, Missouri
926A Sixth Ave., S.E., Minneapolis 14, Minnesota
1036 Avenue W, Ensley, Birmingham 8, Alabama
Dept. 36A, Richmond, California

Manufacturers of Oil Equipment • Steel Buildings • Farm Equipment • Cleaners Equipment • Special Products

Factories located at Kansas City, Mo • Galesburg, Ill. • Richmond, Calif. • Birmingham, Ala. • Minneapolis, Minn.


BRING YOUR WALL PROBLEMS TO
1
2
3

"WALL CENTER, U. S. A."

Where there's a wall . . . . there's a way to cover it at the wall covering division of United States Plywood Corporation. Here, at "Wall Center, U. S. A.," you will find the answers to your most challenging wall questions. As, for example:

How can I achieve the beauty and richness of genuine wood on curving walls and rounded pillars?

How, in hospital and hotel rooms, can I avoid frequent paint jobs and high maintenance costs?

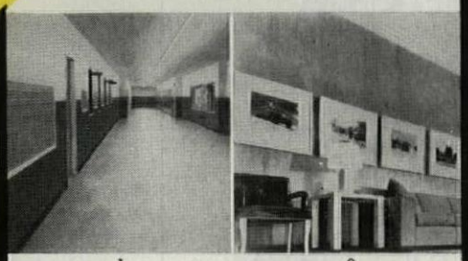
How can I cover a corridor wall that must stand up to scratches, scrapes, collisions?

How can I give a low-budget living room or office the distinction of wood panelling?

The answers, supplied by the products described here, are yours at "Wall Center, U. S. A." Read about them. Then send coupon below for additional information.

United States Plywood Corporation
World's Largest Plywood Organization
The Mengel Company

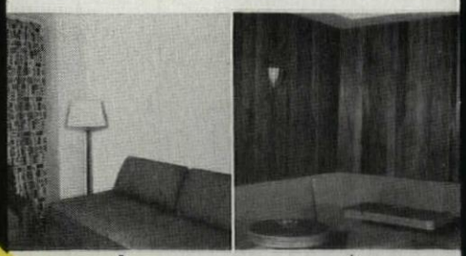
1. Kalistron A transparent vinyl "coat of armor" shields this rich wall covering . . . . its color is fused to the underside. Virtually impervious to scratches, scuffs, stains, roughhouse. A damp cloth cleans it. 33 colors. Marvelous Kalistron adhesive prevents open seams. Ideal wherever traffic is heavy. Also made in matching upholstery grades.



1 2

2. Flexwood Genuine wood panelling in flexible form. Hence, you can curve it, wrap it around posts, get stunning matched grain effects over wide areas. Meets fire code requirements. Over 1.7 million feet installed in 1953. Every installation guaranteed. Widely used in banks, offices, public rooms, etc., for new construction and alteration jobs.

3. Kalitex Gives more protection than any other wall covering at anything like the price. Made much like Kalistron, with the same vinyl-protected beauty. Low in cost, yet its luxurious rough textured pattern is distinctively different. Combines relatively low cost with great beauty and durability. Superb in hospitals, hotels, public buildings, etc.



3 4

4. Randomwood Similar to Flexwood except the shading of the wood varies, giving an interesting "random" effect. Use it where imagination is high but budget is low. May be hung by any good mechanic. Effective for a whole room or a dramatic single wall, in homes, small offices, anywhere. First cost is last cost for years.

UNITED STATES PLYWOOD CORPORATION
Dept. K-90, 55 West 44th St., New York 36, N. Y.
(In Canada: Paul Collet & Co., Ltd., Montreal)
Please send information on products checked:

☐ **Kalistron** ☐ **Flexwood**
☐ **Kalitex** ☐ **Randomwood**

Name_____

Address_____

City_____ State_____

LETTERS *continued*

Dr. Gropius' statement endorsing regionalism seems unnecessarily narrow in its dependence on climatic differences for its reasoning. Differences in local materials and building techniques carry equal weight with climate, and I doubt that the thoughtful retention of some visual or symbolic elements from the region's past is necessarily servile accession to popularity.

Practical experience of the student in the field is universally accredited but is not necessarily an antidote for an occasional fixation by the young mind on some cliché, a natural concomitant of collegiate study. And the much-maligned cliché may not be so dangerous as it is here, once again, made out to be.

Finally, Dr. Gropius argues for the architect's discernment of the public's "vital needs" as against its "will." It is surely the business of the architect to be discerning, but, like any other human, he is not infallible. I am certain Dr. Gropius is not condoning arbitrariness on the part of the architect, whose attitude toward the public, which may be less wayward at time than he imagines, must be based upon sympathy and respect.

These gentle criticisms are offered only in accompaniment with a strong general assent to the many valuable thoughts contained in Dr. Gropius' fine essay. I hope that the FORUM will continue to publish articles of this kind which have the advantage and satisfaction of making us all think a little more keenly of what we are doing and where we are going.

ROBERT C. GAEDE, *architect*
Shaker Heights, Ohio

HOW-TO-DO-IT ALLEN

Forum:

I do not see why all you people sit there looking out the window at that statue of Promiscuous in Rockefeller Plaza and let me do all the worrying about the upheaval in the publishing industry that Bodes Ill. And me just getting over pneumonia and so needled by doctors that I doubt if I am any longer waterproof. Or worse: Manhattan-proof.

The current rage is for how-to-do-it articles. You might as well be dead as bring out an issue not containing an article on How to Do Something or Other Yourself. Imagine what this is going to do to the various professions. After enough articles have been printed on How to Make Your Own Teeth, all the dentists will be out of business. And after enough magazines have told their readers How to Embalm Yourself, all the morticians will be on relief. Read a few pieces on How to Make Your Own Money and the next thing you know the parole officer will be acting as your literary agent. Next stop, Chaos.

Possibly you noticed that *Today's Woman* is not going to print any more fiction. Inasmuch as my barber—Charlie Piso, in the Pantlind Hotel—does not subscribe to this maga-

continued on p. 86

SPEEDS NORMAL DOOR CLOSING

PREVENTS DELAYS AT LANDINGS

Passengers like the "ELECTRONIC POLITENESS" *of the doors*

AUTOTRONIC® elevatoring closes elevator doors automatically with "electronic politeness." A zone of detection extends along, across, and a short distance in front of the leading edges of both car and hoistway doors. The presence of passengers within the zone is detected electronically. This three-dimensional zone extends only a few inches in advance of the doors. Doors are stopped and reversed only when there is the possibility of interfering with passengers as they enter or leave the car. Door closing is speeded. The closing action is so smooth, silent, and automatic that passengers are seldom aware of door movement.

If a talkative passenger delays door closing too long, the doors gently, but firmly, nudge him out of the doorway.

Otis AUTOTRONIC elevatoring saves up to $7,000 a car, each year.
It is suitable for office buildings, department stores, hotels, and hospitals.
Why not visit a new or modernized installation? Ask any of our 268 offices for details.
Otis Elevator Company, 260 11th Avenue, New York 1, N. Y.

Otis

COMPLETELY AUTOMATIC

AUTOTRONIC

ELEVATORING

Time, Inc. . . Montebello, Cal.
Architects: Orr, Strange & Inslee, Los Angeles, Cal.
Contractors: Maxey & Leftwich, Lubbock, Texas.
Windows: Lupton Master Aluminum Projected.

Timeless Windows for TIME, Inc.

Modern design, with its emphasis on purity of line and surface, demands materials that will keep their original appearance. The windows in this California motor freight office will . . . for they are Lupton Master Aluminum Projected Windows. Age will not dim their beauty, nor lower their efficiency. The walls beneath these windows will never show corrosion or rust stains, for aluminum is stainless.

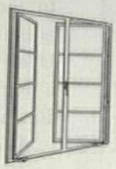
Your clients can say good-bye to paint brushes when they have Lupton Master Aluminum Projected Windows . . . they never need paint. Think of the down-through-the-years savings in maintenance costs. Think too, of ending the sticking window annoyance. These "Master" windows will always open easily, and close snug for, they will never get paint-clogged.

Why not add the long-range lower-cost of Lupton Master Aluminum Projected Windows to your next commission. Look in Sweet's for details . . . on the entire line of Lupton aluminum and steel windows. There's a style and size for every purpose. Write direct for complete catalog.

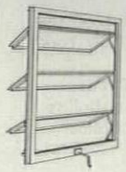
QUALITY APPROVED

Member of the Steel Window Institute and Aluminum Window Manufacturers Association

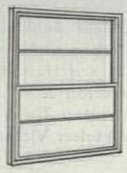
LUPTON MASTER ALUMINUM PROJECTED WINDOW



LUPTON CASEMENT ALUMINUM OR STEEL



LUPTON ALUMINUM AWNING WINDOW



LUPTON ALUMINUM DOUBLE HUNG WINDOW

MICHAEL FLYNN MANUFACTURING COMPANY
700 East Godfrey Avenue, Philadelphia 24, Pa.

LUPTON
METAL WINDOWS

LETTERS *continued*

zine, I do not know what kind of fiction they have been printing but if you try to argue that there is not going to be anything fictitious about today's woman, you are just a crazy, mixed-up kid.

Any minute now the magazines will burst out in a rash of How to Draw Up Your Own Blueprints and what will happen then? Nothing. Absolutely nothing. Every free-born (until he marries) American citizen has always felt that he knew how to design a building better than the architect who was doing it, just as firmly as he felt that he could write a newspaper column better than the columnist who was writing it. It will give you some idea of my urge to live dangerously that I got mixed up in both deals.

What, if anything, is the point, you inquire? And a fine, searching question, too. I cannot but admire the incisive way in which you hack your way through this jungle of rhetoric and ask me what I am getting at. You will go far. Here is some money for your ticket.

Well, the point is that you should, instead of lousing up all that paper with photographs of buildings not designed by me, or newsflashes to the effect that by using bubble gum with a high surface tension you can now roof a hayloft for 89¢ and a ruptured lung, unless you have a bicycle pump and you would be surprised how few people have a bicycle pump as I well know as my wife bought my grandsons a punching bag for Christmas and it came deflated and I spent most of Christmas Eve running all about the environs of Grand Rapids trying to borrow a bicycle pump and everybody I asked laughed Ho, Ho, Allen you are a card and insisted on giving me a drink and it is lucky I could find my way home even when not weighted down with a bicycle pump and we had to wait until a gas station opened next morning and get the thing blown up and by that time I was sick of the whole deal. As I was saying, what you should do instead of this is print some How-to articles of real interest to architects.

As for instance How to Poison the Most Obnoxious Member of a Building Committee without Getting Arrested. As I told one of your editors in St. Petersburg last November (he and I were down there ostensibly to talk to the Florida Association of Architects but actually to file a tentative application to the Over-75 Club), someday I am going to write a big long book about building committees. But not until I have my annuities paid up.

And an article on How to Tell a Seminar from a Cemetery might be helpful.

ROGER ALLEN, *architect*
Grand Rapids, Mich.

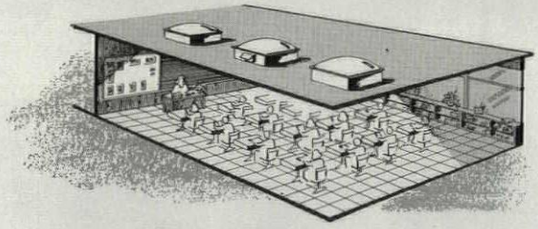
• FORUM is happy that lighthearted Reader Allen, after a long-dull silence, has found his lightweight pencil and again demonstrated how to write a letter.—ED.

continued on p. 92

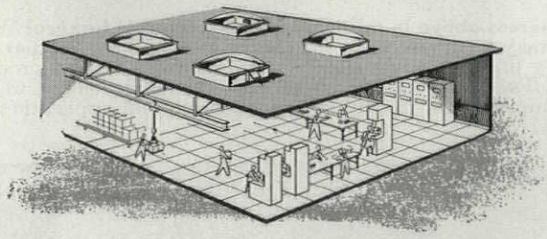
TOPS IN TOPLIGHTING

Prefabricated Wascolite Skydomes and Wascolite Ventdomes are used in combinations to achieve maximum, efficient daylighting and ventilation in buildings of every type. Skydome-Ventdome patterns reduce exterior wall perimeters, permit functional use of space — thus cut over-all building costs. Lightweight Wascolite Skydomes and Ventdomes require only simple roof construction — are easy to install, leakproof and economical in use.

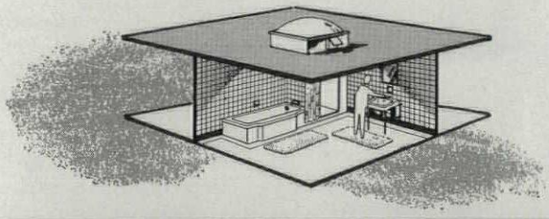
TYPICAL SKYDOME-VENTDOME INSTALLATIONS



Schools — For a classroom 30′ x 30′ x 9′6″, with 30 occupants, using 15 CFM of air per occupant and 5 air changes per hour for room requirements (and to provide adequate daylighting of approximately 30 ft. candles) — use 1 Wascolite Ventdome (Catalog No. HV3652) with 1 air exhaust (total 900 CFM) and 2 Wascolite Skydomes (Catalog No. R3652).



Industrial Buildings — For a building 75′ x 120′ x 15′, to provide 30 ft. candles of daylight and 8 air changes per hour — use 22 Wascolite Skydomes (Catalog No. S5252) and 20 Ventdomes (Catalog No. HV5252) with 1 air exhaust each (total — 18,000 CFM).



Homes — For a bathroom 5′ x 6′ x 8′, to provide 12 air changes per hour — use 1 Wascolite Ventdome (Catalog No. LV2020) with 1 air exhaust.

FREE WASCOLITE ENGINEERING SERVICE — Send floor plan and elevation of your project with lighting and ventilation requirements. Wasco Engineers will make recommendations without obligation.

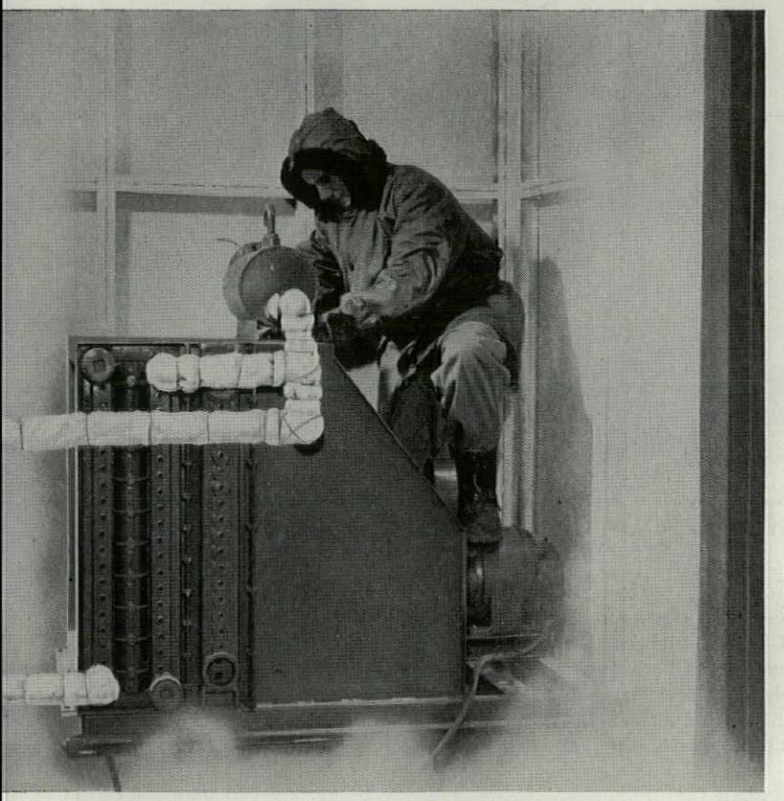
Patent No. 2610593 and Patent Pending.

wascolite skydomes®

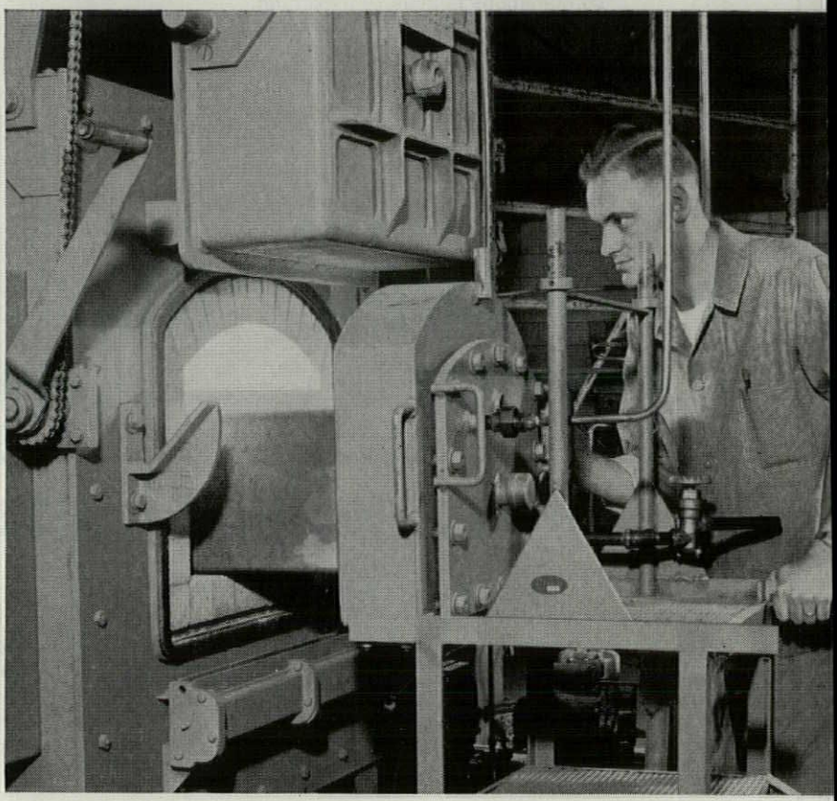
See Sweet's Catalog or write ..... **WASCO FLASHING COMPANY,** 89 Fawcett Street, Cambridge 38, Mass.

65° below to 2500° above today in

New Trane laboratory creates "terrible weather" . . . and . . . for industry, homes

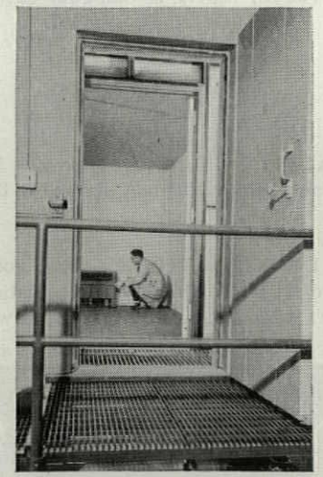


Cold as Siberia—or the stratosphere! This room, capable of creating 65-degrees-below-zero cold, is designed for testing the performance of TRANE equipment at low temperatures. Here, a radar tube cooler test set-up is being checked under conditions it might face in some bitterly cold Arctic plane-spotting station.

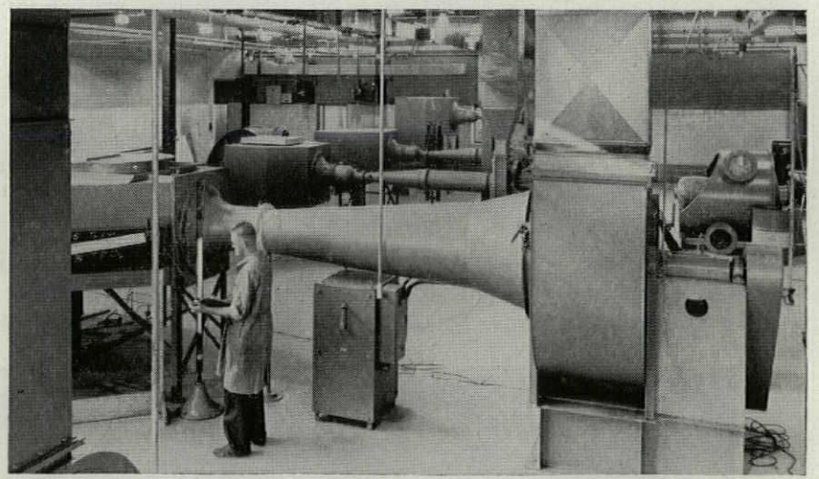


2,500 degrees above in this atmosphere-controlled furnace! Within this furnace may be developed new types of heat exchangers that will work efficiently under the ever-climbing temperatures of new processes . . . much as TRANE Brazed Aluminum Surface was developed to provide a more compact, light-weight exchanger for special applications.

Chamber of silence, where a whisper is a "shout." In this soundproofed room, technicians check quiet operation of TRANE products. Noise-free operation is important in TRANE design work.



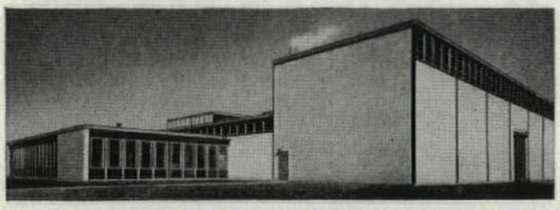
Room-within-a-room is for rating TRANE heating equipment. Refrigerated air is circulated within the double wall, simulating winter conditions. You get assurance of *full* rated capacity from *every* TRANE unit.



More than a dozen wind tunnels provide the wide range necessary to test all types of TRANE (and other) equipment. A continuous, long-term testing program provides the complete and authoritative performance data that has made TRANE sales engineers in 90 U. S. offices and throughout the world a dependable source of help and information . . . and helps make TRANE literature outstanding in the industry. Look to TRANE for the answers to your heating, cooling and ventilating problems.

La Crosse, Wis., and 60 m.p.h. gale!

new machines to overcome it and the nation's defense!



New TRANE Research and Testing Laboratory

WITHERING HEAT of a mile-deep African gold mine . . . the numbing cold of an Arctic military post . . . or super-temperatures encountered in new industrial processes—you may find them duplicated, any day, in the new "House of Weather Magic" at La Crosse, Wis.

It's the new TRANE Research and Testing Laboratory, an investment in time, talent and the tools of research for developing better equipment—new methods of heating, air conditioning, ventilating and heat transfer.

TRANE leadership in these fields stems from such research—research which has produced such outstanding new products as the TRANE *CenTraVac* (hermetic, centrifugal water chiller) . . . *UniTrane* multi-room air conditioning units . . . the TRANE *Unit Ventilator* for schools . . . *Delta-Flo* Heating and Cooling Coils, and many others.

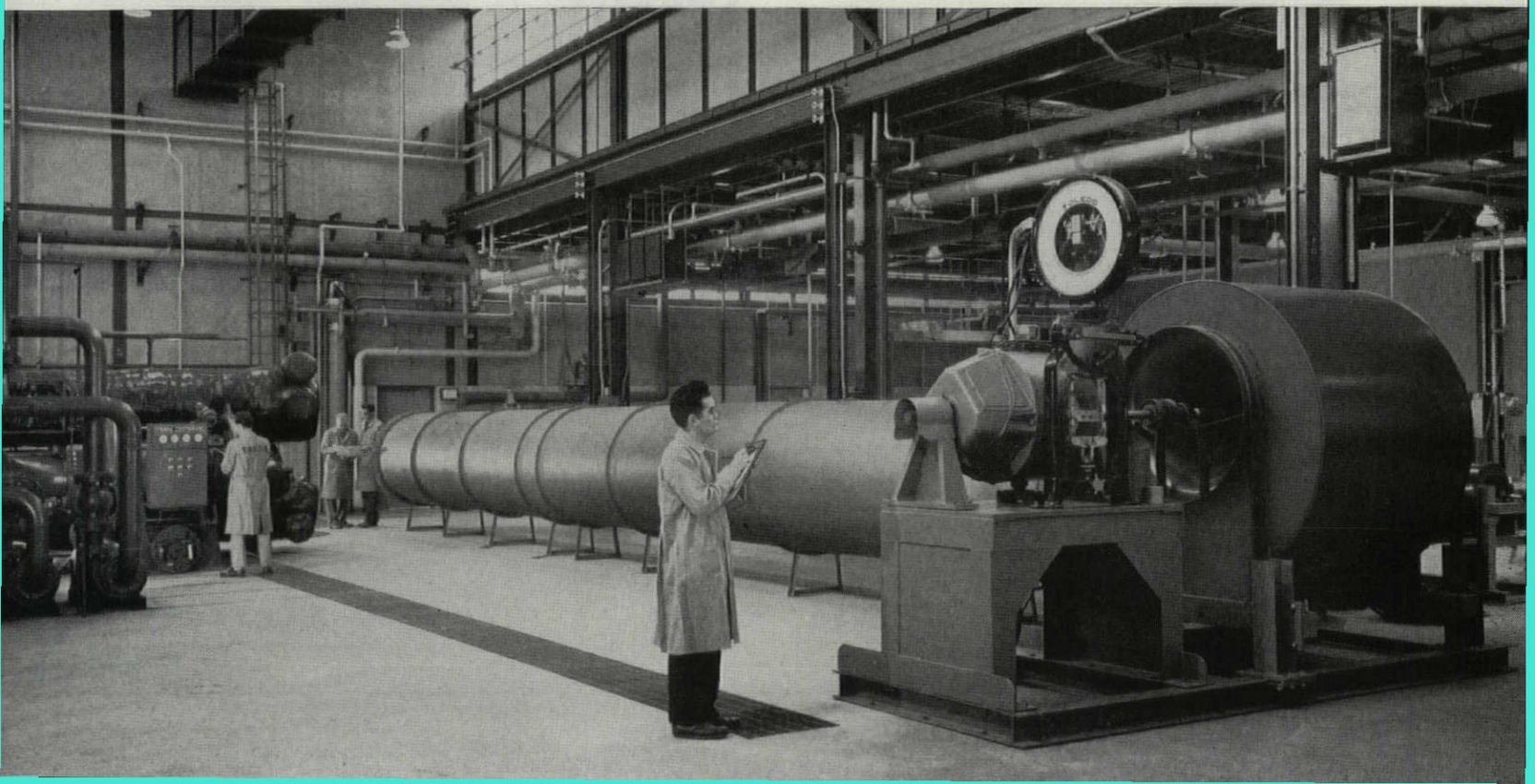
For complete information on the wide range of TRANE air conditioning and heating products, call your TRANE Sales Office, or write TRANE, La Crosse, Wis.

TRANE

manufacturing engineers of
AIR CONDITIONING, HEATING,
ventilating and heat transfer equipment

The Trane Company, La Crosse, Wis. • East. Mfg. Div., Scranton, Penn.
Trane Co. of Canada, Ltd., Toronto • 90 U.S. and 14 Canadian Offices

"Big Bertha" is the nickname given this duct used for testing large centrifugal fans. Test set-ups like this provide accurate ratings of mechanical efficiency and capacity of TRANE Fans, help engineers in their never-ending search for more efficient designs, lower horsepower requirements.



THE "OVERHEAD DOOR" TRADE MARK GOES TO SCHOOL

First consolidated school west of the Alleghenies 'way back in 1899!

USED IN HAMILTON TOWNSHIP SCHOOL SHOPS . . .

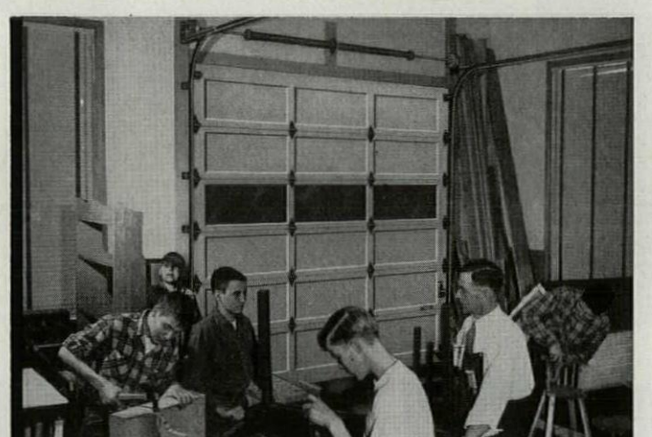
to give Wide Openings for Machines and Materials, plus Weathertight Closure

Architects and builders constantly discover new uses for The "OVERHEAD DOOR" — America's first and finest upward-acting door. The big rural consolidated school at Royerton, Indiana, has two large doors serving efficiently as workshop portals. Classes work in comfort because of the weathertight closure of The "OVERHEAD DOOR."

Principal C. C. French says:

"The 'OVERHEAD DOOR' has proved so satisfactory and so easy to open and close that it will be used wherever possible in our expansion program. The rapid growth in population in this area makes it necessary to construct new buildings in the near future."

Tractors pull farm machinery into the Vocational Agricultural Shop for student instruction. After hours, this area houses the school's dual-control driver training cars.



Lumber and large tools are easily admitted to the Industrial Arts Shop; large finished projects are easily removed. Weathertight closure maintains even temperatures in coldest weather.

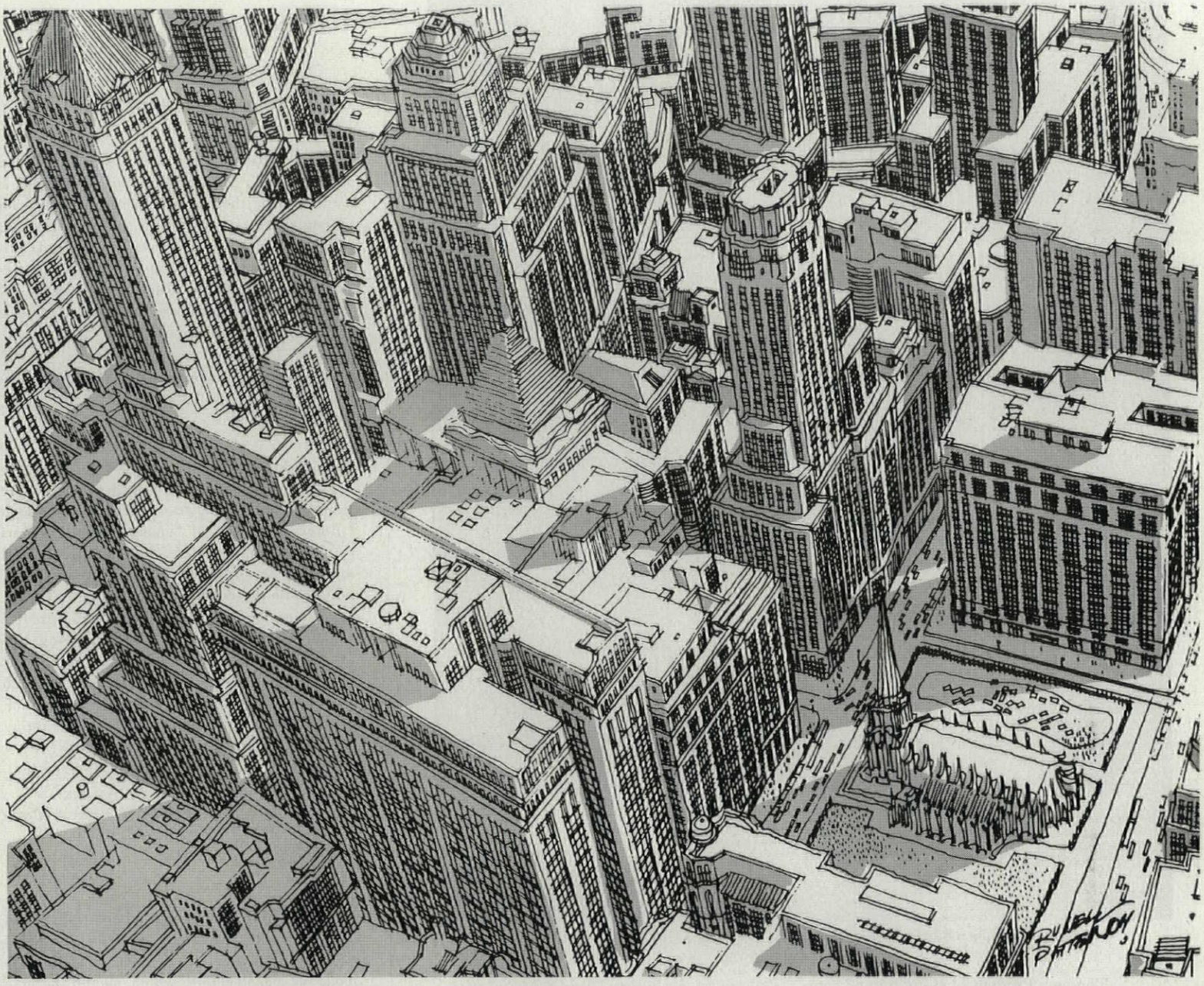
What's YOUR Requirement? Your local distributor of The "OVERHEAD DOOR" will cooperate in solving any special door problem, whether for school, hospital, warehouse, factory or residence. Doors are built in any size to fit the openings — with top-quality materials, perfect counterbalance and expert installation. Specify the best—The "OVERHEAD DOOR." Look for the trade mark in the yellow pages of your directory or write to:

OVERHEAD DOOR CORPORATION
HARTFORD CITY, INDIANA

MANUFACTURING DIVISIONS

Hillside, N.J. · Cortland, N.Y. · Dallas, Tex.
Nashua, N.H. · Lewistown, Pa. · Oklahoma City
Portland, Ore. · Glendale, Cal.

NATION-WIDE SALES • INSTALLATION • SERVICE



Bird's-eye view of a success story written by architects . . . produced by Barrett

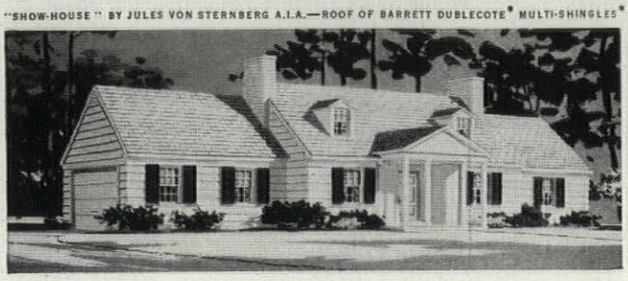
The success story of American industrial and commercial enterprise is eloquently written in the imposing skyline of the nation's business capital—New York City.

It is a success story to which Barrett has contributed an important and enduring chapter. For most of the buildings which form New York's proud parade of skyscrapers are Barrett-roofed. This outstanding preference for Barrett is shared by the country's leading architects.

The weather-tight superiority of Barrett Specification* Roofs is the result of a century's experience in the perfection of the finest roofing materials and methods. Architects can continue to select Barrett with the same confidence which the past performance of Barrett "SPECIFICATION" Roofs has inspired.

BARRETT DIVISION, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, New York, Chicago, Philadelphia, Birmingham. In Canada: Montreal.

"SHOW-HOUSE" BY JULES VON STERNBERG A.I.A.—ROOF OF BARRETT DUBLECOTE* MULTI-SHINGLES*



For 100 years—the greatest name in roofing—

1854 1954 CENTENNIAL Barrett 100 YEARS OF EXPERIENCE

BARRETT

*Reg. U. S. Pat. Off.

LETTERS *continued*

CONSTRUCTION OF THE FUTURE

Forum:

Your article on "Construction of the Future" (AF, Mar. '54) is quite timely. It is well to bring the space frame to the attention of engineers and architects again and again, because there are still many who think primarily in terms of a "plane frame" and therefore do not use the structural, architectural and economic advantages of the "space frame" to the extent possible.

O. H. AMMANN
Ammann & Whitney, consulting engineers
New York, N. Y.

Forum:

I am in agreement with most of your observations regarding the structures of the future. There is, however, one view in which I differ. The role of "space framing" seems to me overemphasized. Novel systems and ingenious arrangements of framing which are practicable to construct will unquestionably yield important gains. But still greater benefits may be derived by improving our present systems of framing. Most of the desired improvements can be secured through analytical effort, in the form of better concepts of structural behavior and by adapting our designs for a more advantageous use of new methods and techniques of construction.

ARSHAM AMIRIKIAN
Bureau of Yards & Docks
Department of the Navy
Washington, D. C.

Forum:

I found the article very stimulating. I am happy to note that your magazine continues to take an interest in the development of a mode of construction which should become more universally accepted in this country as time goes on.

E. F. MASUR, *associate professor*
Department of Civil Engineering
Illinois Institute of Technology
Chicago, Ill.

Forum:

I agree with your thesis that we need closer cooperation of architect, structural engineer and mechanical engineer in all building work. I also agree that there are great days ahead for modern architecture. However, I do not agree that we are on the eve of a great revolution. It seems to me that we have been in the thick of this revolution for about 50 years and I do not see that so-called space framing is such a great advance over what may be termed articulate framing.

There is also a lack of common sense in the emphasis which our magazines are constantly placing on lightness of construction. Lightness does not always mean economy—or quality; and if a building does not meet these two requirements it is not in my opinion

good modern architecture, no matter how "exciting" it may be from the viewpoint of "pure design."

WALTER T. STEILBERG, *consulting architect*
Berkeley, Calif.

Forum:

I see no reason why the future you paint is not possible, but the probability will be in direct proportion to our development of critiques of design to insure safety in many fantastic shapes. The point which you make about the need for coordinated teamwork of owner, architect, engineer, builder and materials men is very timely and will afford the means of accomplishment of your predictions much more speedily.

WALTER C. VOSS, *consultant*
Cambridge, Mass.

Forum:

My favorite example of collaboration between engineer and architect concerns a project being studied by my firm and Tom Moore, architect of Denver. We suggested a concrete shell roof in the form of a hyperbolic paraboloid—a tent-shaped structure. Our sketch was an orthodox square tent with columns at the four corners. Tom looked at this sketch and in a moment redrew it in an inverted position with columns at the sides of the tent, thus changing a rather drab structure to one with considerable *élan*. This structure was never built but the way it was conceived was a lesson to me in the necessity of collaboration and teamwork between architect and the engineer.

MILO S. KETCHUM
Ketchum & Konkel, consulting engineers
Denver, Col.

Forum:

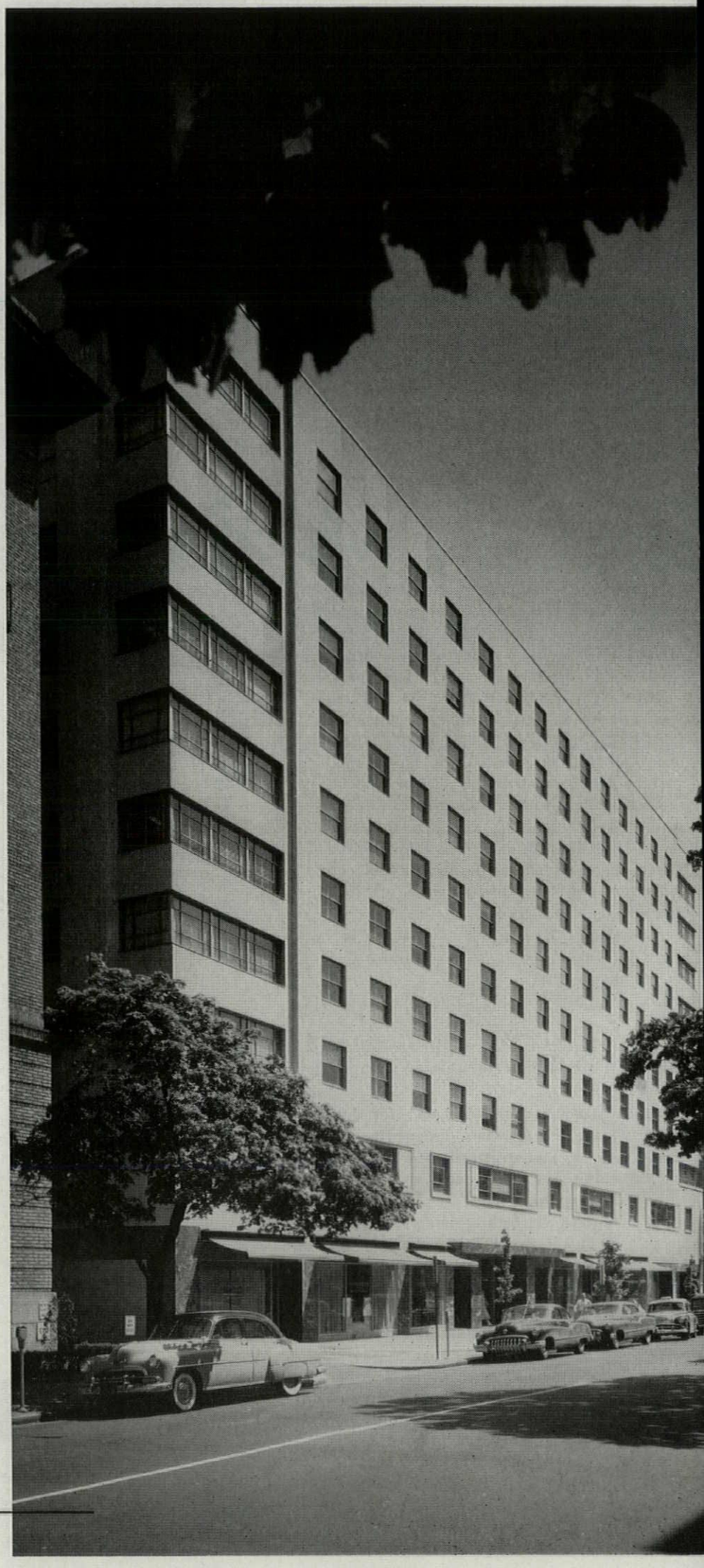
Predictions that only space designs will be used in the immediate future may be a bit optimistic.

Linear structures are designed for line loads. Planar structures are designed for biaxial loads. Space structures are designed for triaxial loads. In the first two classes there is a disregard of latent surplus strength of the respective structural units. There is no such surplus in the space structure. Hence more rigid analysis is necessary and more rigid adherence to every design detail in the construction operation must be guaranteed and the question is: Can such guarantee be obtained?

The basic structural economy arises from taking loads directly to the columns and any detour decreases the economy and often the stiffness as well. Not enough attention is given to the psychological requirements of use in the requirements of stiffness and freedom from unpleasant vibrations. From such basic approach, the box structure is not eco-

continued on p. 98

Parking in the sky... on floors made 40% lighter with Ceco-Meyer Steelform Construction...



Cafritz Building, Washington 1, D.C.
Cafritz Construction Company, builders
LeRoy L. Werner, architect
Beall & LeMay, structural engineers

Case history of CECO on-the-job performance

Planning makes entire building site income-producing. Ceco cuts dead load in floor system.

A tenant in the Cafritz Building, Washington, D.C., has no parking problems. He just drives to his floor—even if it's 10 stories up—parks, steps into the corridor—then into his office.

Morris Cafritz, building owner, has reason to be happy, too: his whole land plot produces income. When planning the building, the problem confronting him and architect LeRoy L. Werner was . . . how to eliminate areas of no income on the plot. Windowless space won't rent . . . court design means waste areas. The solution: a square building with a garage in the core, with a ramp spiraling 10 floors up. Thus layout design made all the land rent-producing. And structural design kept the floor system light and economical. This was accomplished with Ceco-Meyer Steelform Concrete Joist Construction. But let architect Werner tell the story:

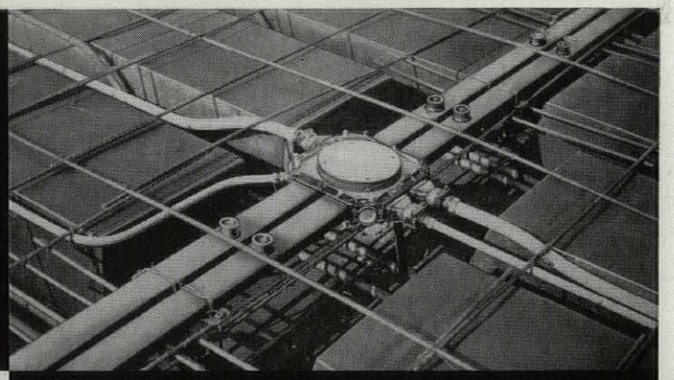
"I know of no other floor framing that would have been more suitable for this job," Mr. Werner said. "Structural engineers Beall & LeMay designed panels of the building for various types of concrete systems, including joists with tile filler, beam and slab construction, and flat plate construction. They found that reinforced concrete joist construction formed with Removable Steelforms offered savings in floor weight of 40% compared to flat plate construction."

When you plan your next project call Ceco product specialists. They will help you save through product engineering. Consult Sweet's File for address. CECO

Ceco-Meyer Steelform construction saves steel, concrete, lumber and labor

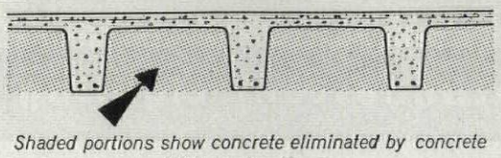
Steelforms are quickly installed on simple open wood centering. In most areas, Ceco's own erection crews are available for placing and removing the centering and forms. Cost is reduced because the same lumber and steelforms are re-used from floor to floor.

Fastest-to-erect and most economical electrified floor system



Ceco-Meyer Steelform Construction permits placement of underfloor ducts for electrical outlets spaced as needed for a modern office building. Note how the duct system is easily carried in the joist construction. Result: the most economical electrified floor.

Why Concrete Joist Construction Saves Material



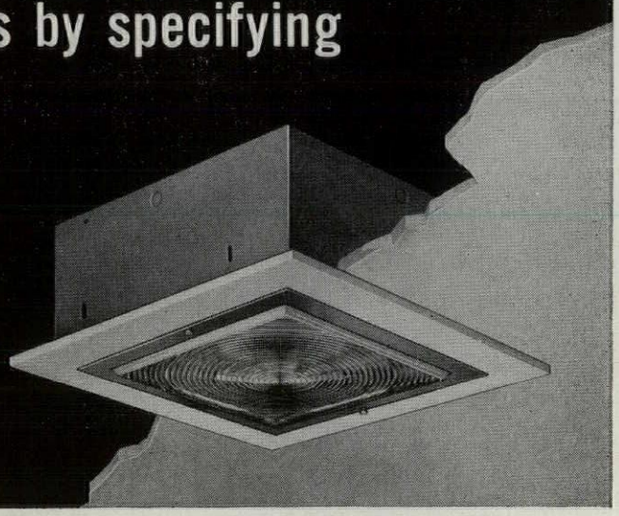
Shaded portions show concrete eliminated by concrete joist construction.

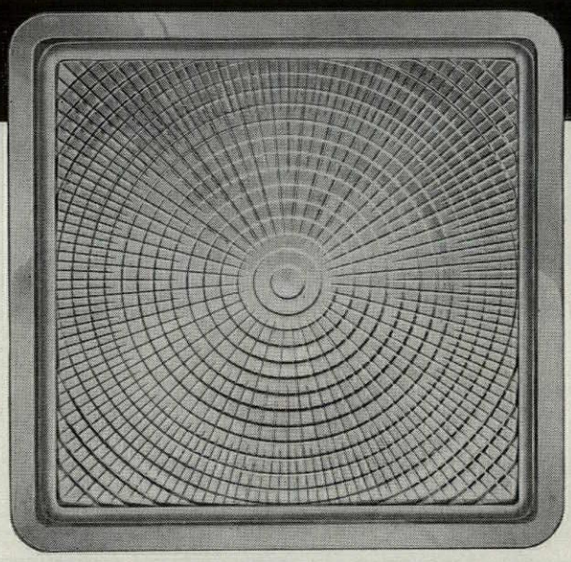
In construction products **CECO ENGINEERING** *makes the big difference*

CECO STEEL PRODUCTS CORPORATION
Offices, warehouses and fabricating plants in principal cities
General Offices: 5601 West 26th Street, Chicago 50, Illinois

Offer clients these benefits by specifying

ART METAL advanced ELIPTISQUARE

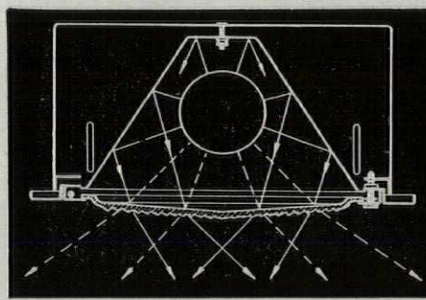




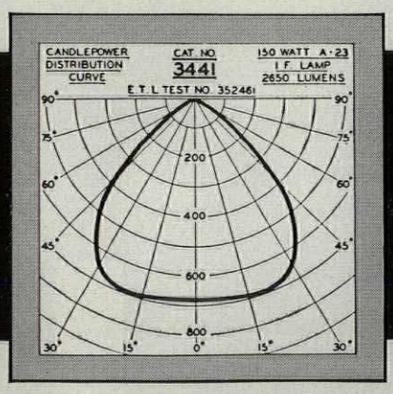
with clear, prismatic AMCOLENS

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

advanced ELIPTISQUARE
Multiplies Light Output



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



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

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

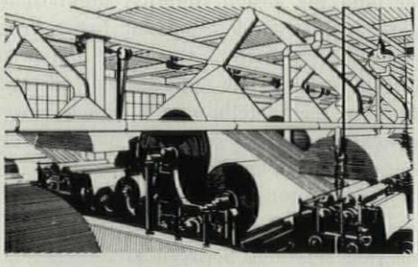
THE **ART METAL** COMPANY
CLEVELAND 3, OHIO

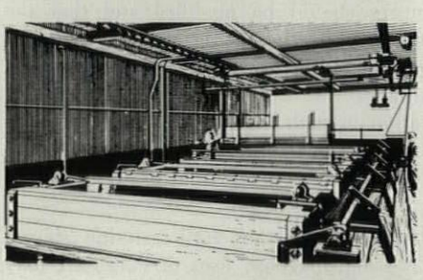
Manufacturers of Engineered Incandescent Lighting

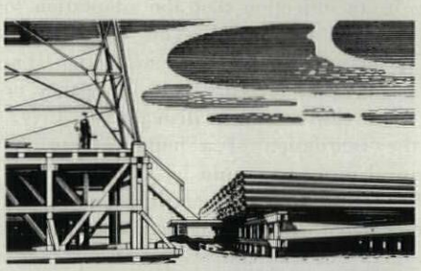
*Wolmanized LUMBER

stresses application versatility

... among these four outstanding benefits







1 Application versatility. Wolmanized clean pressure-treated lumber is an improvement on nature. Having all the versatility and user acceptance that is traditional of wood, Wolmanized lumber goes even farther. It is many times longer lasting than untreated lumber, while being deadly to rot and termites. Wolmanized lumber is the treated lumber that is "pedigreed" with actual documented Service Records. These records not only authenticate more than a quarter century of service but list literally hundreds of applications. Wherever you may have use for treated lumber, Wolmanized clean pressure-treated lumber will meet, and will probably exceed, your requirements. Application versatility of Wolmanized lumber is heightened by important added benefits, too. Besides being clean, it is also odorless, completely paintable, harmless to skin and clothing, and noncorrosive to metal fittings.

2 Available anywhere. There are many kinds of treated lumber, but 48% of *all* clean pressure-treated lumber is "Wolmanized" brand. This means that nearly as much of it is specified and used as is the combined total of all other kinds. Distribution as well as quality earns such acceptance. 24 qualified wood preserving plants in the United States and Canada provide coast-to-coast distribution, assure certain delivery.

3 Uniform treatment. Wherever you buy Wolmanized clean pressure-treated lumber you can be sure that uniform treatment is providing a product of undeviating high quality. The Wolman brand salts are produced under a single exact formula. High pressure treatment processes by which Wolman preservative, in solution, is driven deep into wood fibers must also meet rigid AL&T requirements.

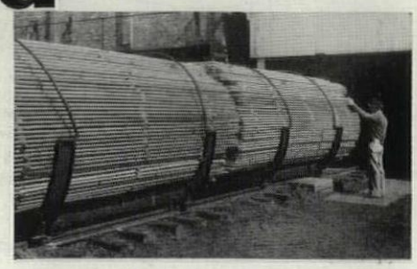
Only properly equipped, responsible wood preserving organizations can qualify for licenses to produce under the "Wolmanized" brand.

4 Proved dependability. The Service Records that demonstrate Wolmanized lumber's application versatility also prove its dependability. Actual case histories of how Wolmanized lumber has served others, and how it can fill your needs have been compiled into an informative brochure. For full information and your copy of Service Records write: American Lumber & Treating Company, McCormick Building, Chicago, Illinois.

*"Wolman" and "Wolmanized" are registered trade names of American Lumber & Treating Company

Pressure-Treated

Wolmanized LUMBER



nomical since it uses one-way slabs carrying the loads to long, thin columns and requiring expensive knee connections between slabs and walls for providing the necessary stiffness.

Correspondingly, the use of a pillow for roof structures may be spectacular but the volume, occupied by the roof construction, is too large a proportion of the covered usable volume, and the cost of internal subdivision to guard against sudden deflation brings further question as to the economy of the proposed roof system. The opposite idea as represented by the lamella roof is much more economical as long as one does not attempt to impose nonsymmetrical hanging loads or put skylights in the wrong places.

I am in hearty agreement with your suggestion that relations between architects and engineers should be modified and that the group work together in the development of a project rather than as discreet phases of design. However, it will require considerable education of both engineers and architects to permit such close coordination. There are very few of either profession who understand the problems of the other side.

The intimation that future design should indicate multipurpose uses of materials may bring in an objection that the adaptation to future use is eliminated. This is especially true in private investment construction. Future possibilities for change in occupancy or even ownership cannot be disregarded. Freezing the ventilation of a building into the structural members would be a mistake if in the future the type of ventilation system is to be changed or the requirements are modified. This example can be followed through with many other of the ideas combining structural members with mechanical and electrical requirements. If used, it must be definitely pointed out that flexibility is lost and any change means a complete reconstruction. I believe that such warning almost always results in the decision to use the "old-fashioned" methods.

JACOB FELD, *consulting engineer*
New York, N. Y.

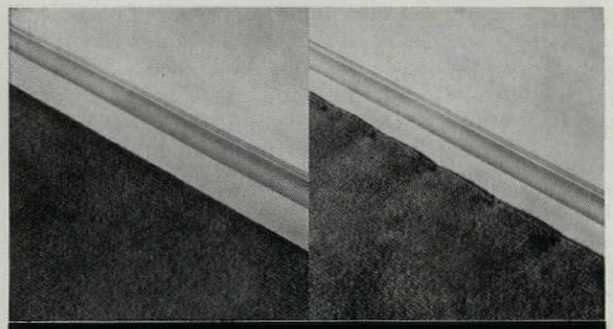
• Not necessarily. Architectural imagination has already preserved flexibility under such conditions, e.g., in the Yale art building mentioned in the article.—ED.

Forum:

If the application of engineering progress seems at times to lag, it may be found that part of the reason lies in the low fees sometimes paid. Research and development in structural engineering have been and are going on in the many places, with the results generally available to the profession in the various technical publications. For the consulting engineer to assimilate these data, readying them for application to specific projects, requires considerable effort on his

continued on p. 104

THERE'S MORE TO LAYING CARPET THAN MEETS THE EYE



Held from beneath with SMOOTHEDGE

Nailed from above with carpet tacks

NO TACK MARKS

all wall-to-wall carpet in UNITED NATIONS HEADQUARTERS

is installed with

Smoothedge®

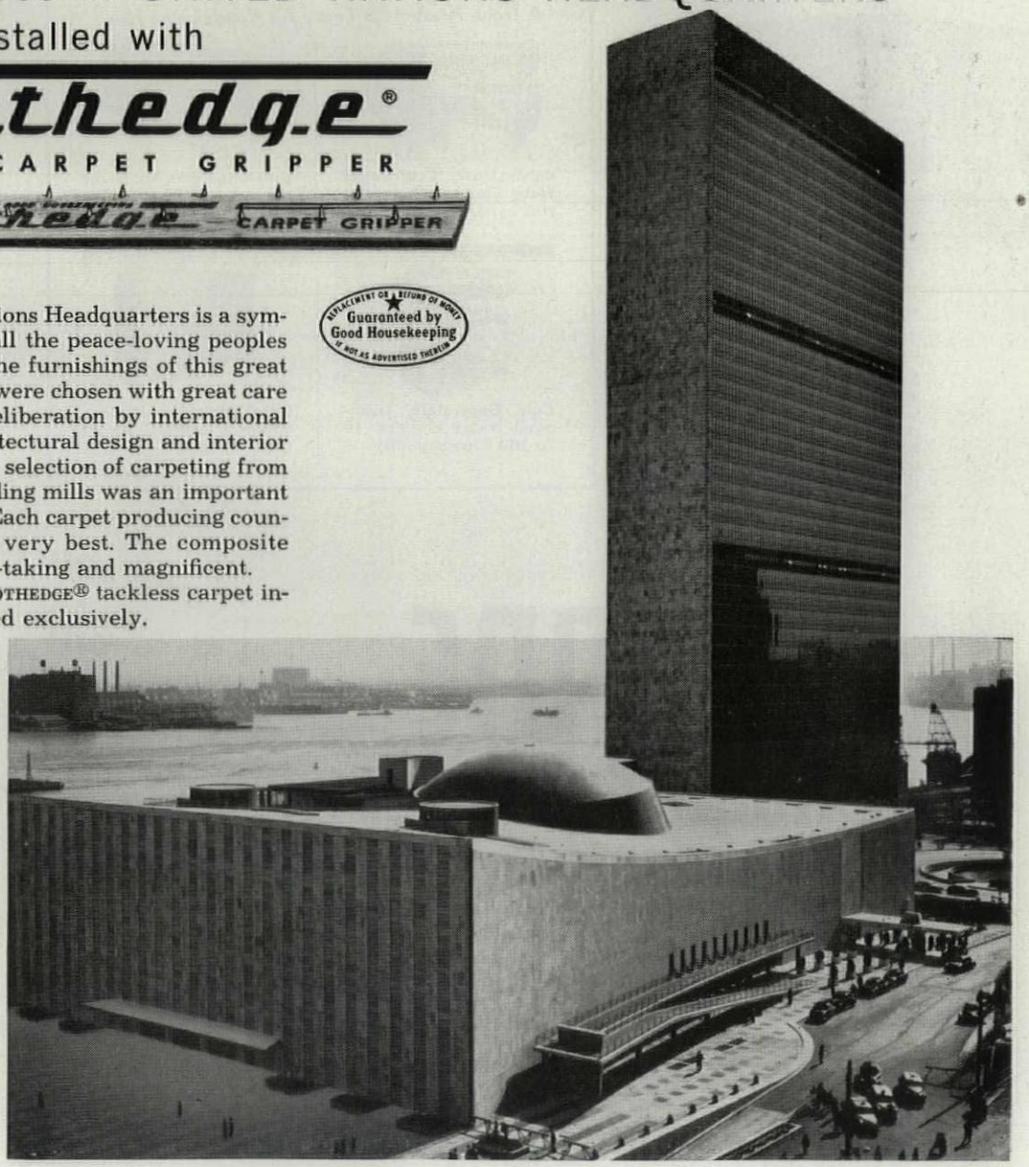
TACKLESS CARPET GRIPPER

ROBERTS Smoothedge CARPET GRIPPER

Guaranteed by Good Housekeeping

The United Nations Headquarters is a symbol of hope to all the peace-loving peoples of this globe. The furnishings of this great modern edifice were chosen with great care after studied deliberation by international leaders in architectural design and interior decoration. The selection of carpeting from the world's leading mills was an important consideration. Each carpet producing country offered its very best. The composite result is breath-taking and magnificent.

Modern SMOOTHEDGE® tackless carpet installation is used exclusively.



Throughout the meadow-sized rotundas, on ledge-like stair steps, and circling classic columns, SMOOTHEDGE gripper holds the world's finest carpets – invisibly, surely, smoothly. 54,441 feet of SMOOTHEDGE were used for the 29,906 yards of carpet in the U. N. buildings. SMOOTHEDGE was installed on concrete slab floors with waterproof cement and concrete nails. P. J. McMorrow Co., Inc., New York City, was the carpet installation contractor.

THE ROBERTS CO.

1536 No. Indiana Street • Los Angeles 54, Calif.

In Canada write Box 129, Weston, Ontario

See Sweets AIA File No. 19J

Dept. AF-45

Completely NEW Line of

Now! Wider range, exclusive new features

20 new Trane Climate Changers for any capacity, 600 to 29,000 cfm! Complete line of factory-built units for flexible application, easy installation!

Now, a brand new, more complete line of TRANE Climate Changers with an even wider range of capacities—20 new models for more flexible application.

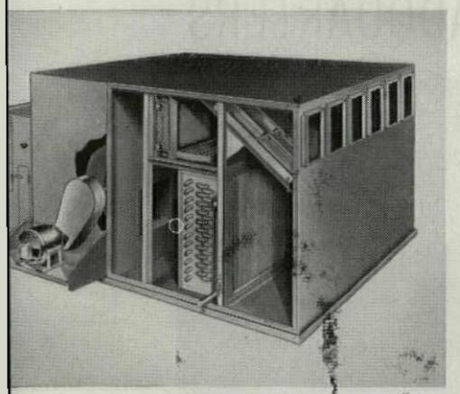
Designed for easier installation, full accessibility, less maintenance, *new* TRANE Climate Changers are the industry's most modern factory-built air handling units!

Wider capacity range simplifies selection. Ten sizes cover entire range of capacities from 600 to 29,000 cfm. You can select a unit with just the capacity you need for maximum system operating efficiency.

New fans are more efficient, quieter. Every fan designed especially for its unit for highest efficiency, quietest operation. Low outlet velocity — approximately 1,500 feet per minute. Climate Changers are rated by fan capacity *in the unit.*

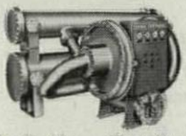
Increased design flexibility, more accessories. You get any or all of *24 practical combinations* of heating, cooling, humidification, dehumidification, ventilating and filtering. Three types of heating coils for steam or hot water—five types of cooling coils for chilled water, well water or Freon. Three types of humidifiers, three kinds of filters. Matched face-and-by-pass dampers and mixing boxes. *No other air handling unit offers such versatility!*

Installation simplified. Fan outlets, for example, are quickly reversible on job—three ways on vertical units, two ways on horizontal units. Motor mount adjustable four ways. All units will clear

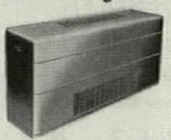


6 climates from one Climate Changer! TRANE Multi-Zone Climate Changers give individual temperature control in one to six zones. Units are quality constructed. Sectional construction if desired. 1,800 to 23,400 cfm.

A Trane Product for Every Air Conditioning Need



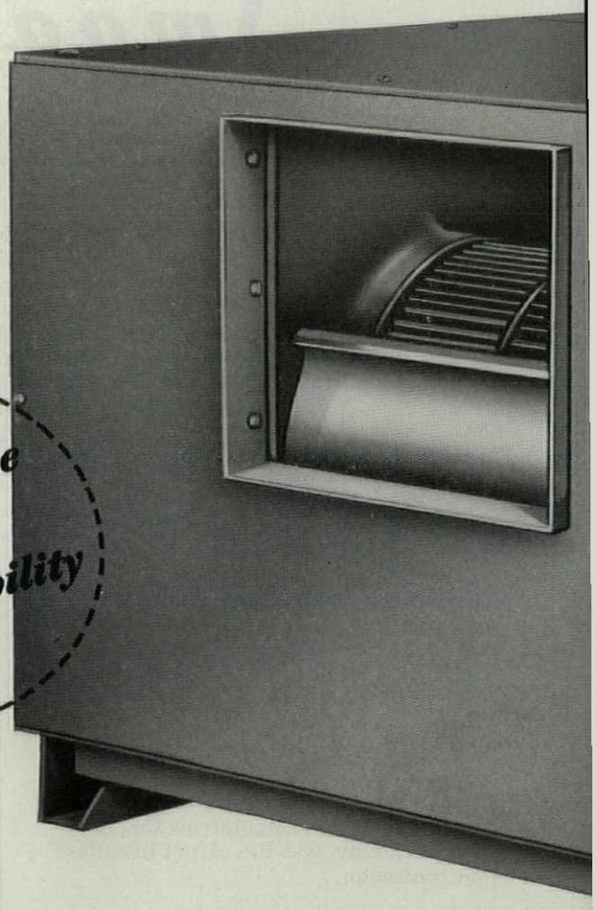
CenTraVacs, Centrifugal Water Chillers 45 to 400 ton capacity.



UniTrane Room Units for air conditioning multi-room buildings.

Cold Generators, packaged water chillers, 10 to 100 tons capacity.

Self-Contained Air Conditioners from 3 to 20 tons capacity.



one source • one responsibility

TRANE

Climate Changers

MANUFACTURING ENGINEERS OF AIR CONDITIONING, HEATING, VENTILATING AND HEAT TRANSFER EQUIPMENT

The Trane Company, La Crosse, Wis. • East. Mfg. Div., Scranton, Penn.
Trane Co. of Canada, Ltd., Toronto • 90 U.S. and 14 Canadian Offices.

Trane Climate Changers

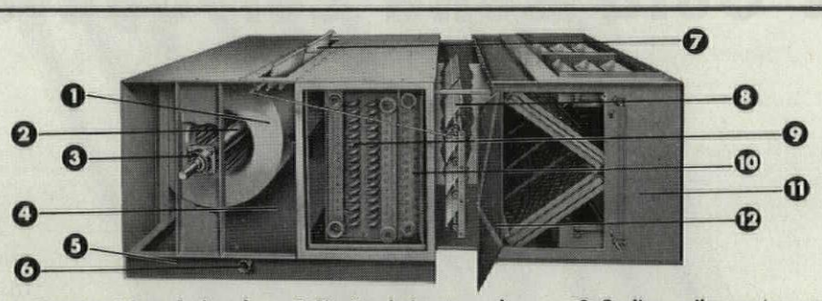
in industry's most modern air conditioner

36″ door except sections of largest unit which will clear 40″ door.

External bearings cut maintenance time and cost. Bearings can be serviced in minutes instead of hours. All bearings are self-aligning type.

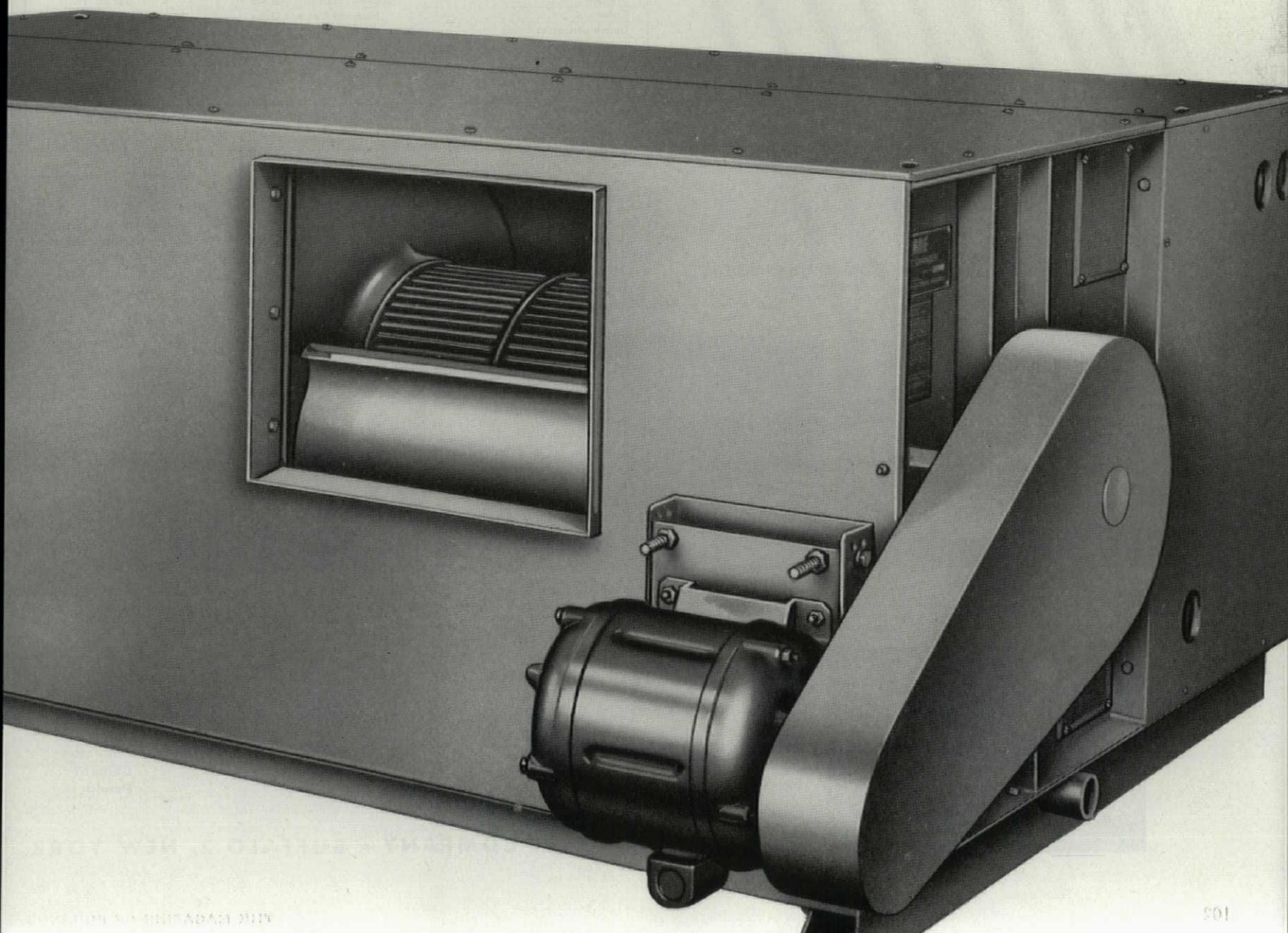
Sloping drain pan for positive drainage. Side drain connection for minimum head room. Pan under *entire* unit. From top to bottom, new TRANE Climate Changers are designed for efficiency, built for long service!

Specify TRANE Climate Changers. For complete details and roughing-in dimensions, call your TRANE Sales Office or write TRANE, La Crosse, Wis.



1. **Centrifugal fans** designed for unit.
2. **Fan shaft** — large diameter, solid steel.
3. **External bearings** for easier maintenance.
4. **Humidifiers**—available in three types.
5. **Sloping drain pan**—gives positive drainage.
6. **Side drain connection**—saves head room.
7. **By-pass dampers** for temperature control.
8. **Face dampers** interconnected with by-pass.
9. **Cooling coils**—water or D.E.; five types.
10. **Heating coils**—steam or hot water; three types.
11. **Mixing box** with dampers and filters.
12. **Full access** to interior of unit.

New TRANE Climate Changers with sectional construction are designed to meet close space requirements, a wide variety of capacity needs. Horizontal models (below) can be ceiling suspended or installed on platform. Vertical models are floor mounted. Units *deliver* the capacity you select—TRANE Climate Changers are rated by fan performance *in the unit*, from 600 to 29,000 cfm.



It's versatile...fireproof...beautiful!
It's Gold Bond Corrugated Asbestone!

GOLD BOND Corrugated is made of asbestos and cement, making it an especially valuable material in industrial construction. It's strong, fireproof and resistant to corrosive alkalis and acids.

And the *corrugations* make possible a wide variety of smart, distinctive designs...inside and out...for industrial, commercial and residential buildings.

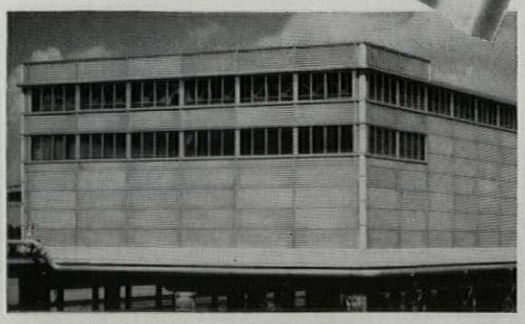
Specify Gold Bond Corrugated Asbestone "Standard 400" for application over steel framework. The lighter weight "Economy 250" goes over regular wood frame construction. Both materials are of the high quality of all Gold Bond Building products.

Write Asbestos Architect Service Department, National Gypsum Company, Buffalo 2, New York for complete information.

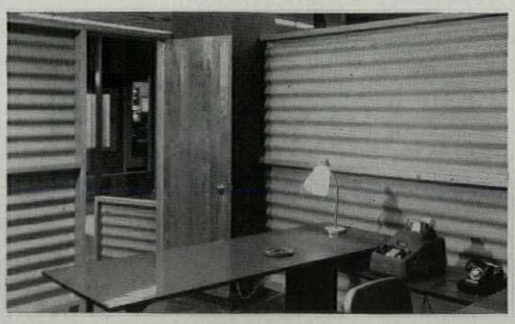
Weights and sizes:	ECONOMY 250	STANDARD 400
Width	42"	42"
Lengths	3' to 10' (in 1' increments)	1' to 12' (in 6" increments)
Thickness	¼" approx.	Approx. ⅜" at the crests and vales, 5/16" at flanks.
Pitch	4.2"	4.2"
Weight	Approx. 2.25 lbs. per sq. ft.	4 lbs. per sq. ft.
Color	Natural Cement Gray	Natural Cement Gray
Depth of Corrugation	1¼"	1½"
Applications Specifications:		
Minimum Roof Slope	3" rise in 12"	3" rise in 12"
Maximum purlin (roof) spacing	2' 6"	4'-6"
Maximum girt (side wall) spacing	3' 6"	5'-6"
Weight per net square, including side and end laps	Approx. 275 lbs.	Approx. 500 lbs.
Minimum side lap	1 corrugation (4.2")	1 corrugation (4.2")
Minimum end lap	6"	6"
	Refer to Sweets—AIA File 12-F-2	Refer to Sweets—AIA File 12-F

Engineering Services. Send us your plans. We'll make a quantity take-off and send a material estimate for the job. When order is placed, we'll furnish erection diagrams for your approval. Personal services of our sales engineers also available.

Erection Services. If you wish to have Gold Bond Corrugated Asbestone applied, we'll gladly send you names of Approved Asbestone Erectors in your area. These firms are highly skilled in all types of Asbestone applications.



Gold Bond Corrugated gives strength, clean design, weather resistance to this sugar refinery warehouse and wharf.

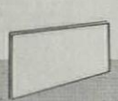


Gold Bond Corrugated sheets make simple, strong partitions. They can be painted for decorative effects.

More than just a "plain old fence." And there's no maintenance problem on this Gold Bond Corrugated fence!

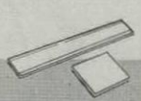
Get the undivided responsibility of National Gypsum

Specify Gold Bond® inside and out



Gypsum Board Products

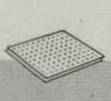
Plaster and Lime



Insulation Plank and Tile

Rock Wool

Paint Products



Acoustical Tile

Asbestos-Cement Products

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

LETTERS *continued*

part, particularly in time and money. Thus he cannot perform engineering services for his clients embodying the latest developments and advances, which are often somewhat experimental in nature, at the same design cost he provides the so-called "handbook" design.

Many of us would be quite willing to go to added expense in improving our designs if we feel we better serve the owner's needs, and if we can afford to do it. Generally, however, this will entail higher fees for our work if all conditions are to be met. For example, in tilt-up concrete wall construction, under certain local California codes, a far greater amount of engineering work is required than for other types of masonry construction. One engineering society suggests twice the regular fee be charged for such work. This is met with great reluctance and frequent refusal by most clients. As a result (with exceptions, of course) a large part of such type construction is handled by contractor-design firms where the design cost is not so apparent on the final bill.

An incentive fee has been occasionally suggested, whereby a basic fee is established for "standard" construction at an estimated cost. Then, for whatever is saved in construction cost by the design, the designer receives added compensation based on the saving, and vice versa. If the job goes over the estimate, he is penalized. While this sounds good, the practical difficulties are fairly obvious. I suppose the only practical solution, if it's a solution, will be that those who have established a reputation for advanced, economical design will demand and get higher fees.

JOHN J. DRISKELL
Consulting structural engineer
San Gabriel, Calif.

Forum:

One of the requirements for the new Sears, Roebuck & Co. store building in Miami was that the cost not exceed $12 per sq. ft. The low bid on this job was just over $10 per sq. ft. Considering that there were 143,000 sq. ft. in this building, you can imagine the elation of the owners and the mixed emotions of the architect and engineer team who were working on a percentage of the cost basis.

Certainly the present method of basing fees on a percentage of the contract price needs further study. Any system that penalizes the architect-engineer team up to six and eight cents for every dollar they save their client is not conducive to progressive construction.

NORMAN J. DIGNUM
Consulting engineer
Miami, Fla.

ERRATUM

• Forum regrets its failure to credit International Moulded Plastics Inc. for the photos on pp. 160-161 of the April issue.—ED.

Western Hills Grade School, Omaha, Nebraska
Noel S. Wallace, *Architect.* Shelton and Sons, *Contractor.*

Truscon Intermediate Classroom Windows—

Light, Bright, Weathertight in New Omaha School

Many generations of students at Western Hills Grade School in Omaha are going to enjoy superior light and ventilation. Architect Noel S. Wallace specified Truscon Intermediate Classroom Windows throughout the well-daylighted building.

All types of Truscon Intermediate Steel Windows are products of the highest quality materials and workmanship. Specially rolled solid steel sections, substantial in weight and original in design, provide advantageous weathering and attractive appearance. Truscon Classroom Windows are fabricated to these same exacting specifications, Bonderized and painted. You can use them with complete confidence in your choice.

Upper lights may be glazed with one of several types of light-diffusing, glare-reducing, or heat-absorbing glass. Provision may be made for double-insulating glass up to 1" thick.

Classroom Windows are but one of the many types of Truscon Steel Windows currently being specified for school construction. Others are: Double-Hung Steel Windows with or without sill vents; Intermediate Projected Windows; Intermediate Combination Windows; Maxim-Air® Steel Windows; Donovan Awning and Truaire® Windows; Architectural Projected Windows. Ask your Truscon representative or see Sweet's File for more information or ideas.

TRUSCON®

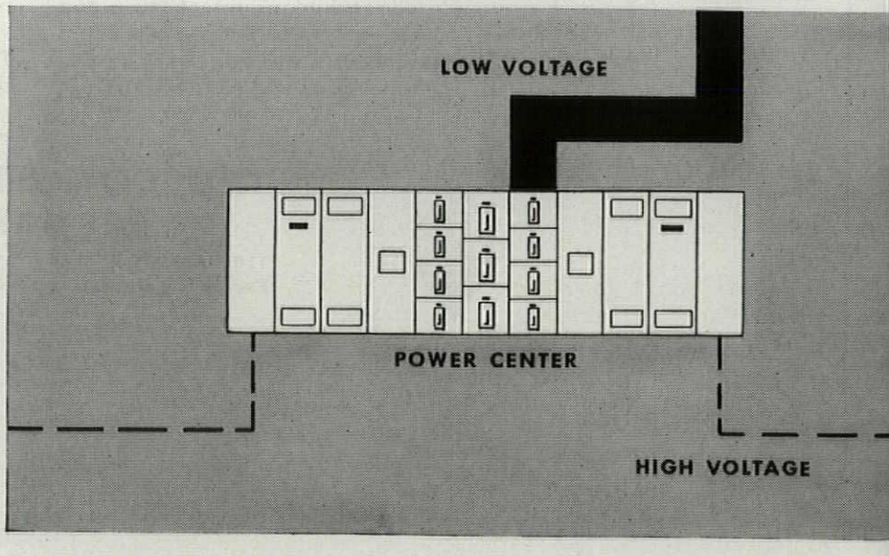
TRUSCON MARK OF MERIT PRODUCTS

a name you can **build** on

REPUBLIC STEEL

TRUSCON STEEL DIVISION
REPUBLIC STEEL

1102 ALBERT STREET • YOUNGSTOWN 1, OHIO
Export Department: Chrysler Building, New York 17, N.Y.


LOW VOLTAGE
POWER CENTER
HIGH VOLTAGE

A DESIGN STANDARD LIKE THIS DEMANDS USE OF MODERN POWER

The standards being set in today's office building design call for full utilization of modern electrical power. It's an important consideration—in view of such necessities as high-speed elevators and modern lighting, the heating, ventilating and air conditioning systems.

These devices, as you know, have placed greater demands on a building's electrical system. *More* power must be carried. And power *quality* has had to be improved to minimize outages, assure well-regulated voltage.

Thus, a modern, completely adequate electrical system is extremely vital if the service devices you design-in are to operate at peak efficiency. Literally, it's an integral part of the building's foundation. It should be considered in the study stage . . . keyed to the services that will operate from it . . . built with equally modern electrical power equipment.

By so doing, you'll be bringing the power facilities up to the standards you've set for design. And you'll be providing your client with a better building—economically sound and adequately equipped to handle the many functions it must perform.

For assistance on modern electrical system planning, call the construction application engineer in your nearest Westinghouse Office. Westinghouse Electric Corporation, Construction Dept., Building 12-L, East Pittsburgh, Pa.

DP-5002-A

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

WHAT IS A MODERN ELECTRICAL SYSTEM? It's an integral part of basic design—not superimposed or considered after the building is under construction.

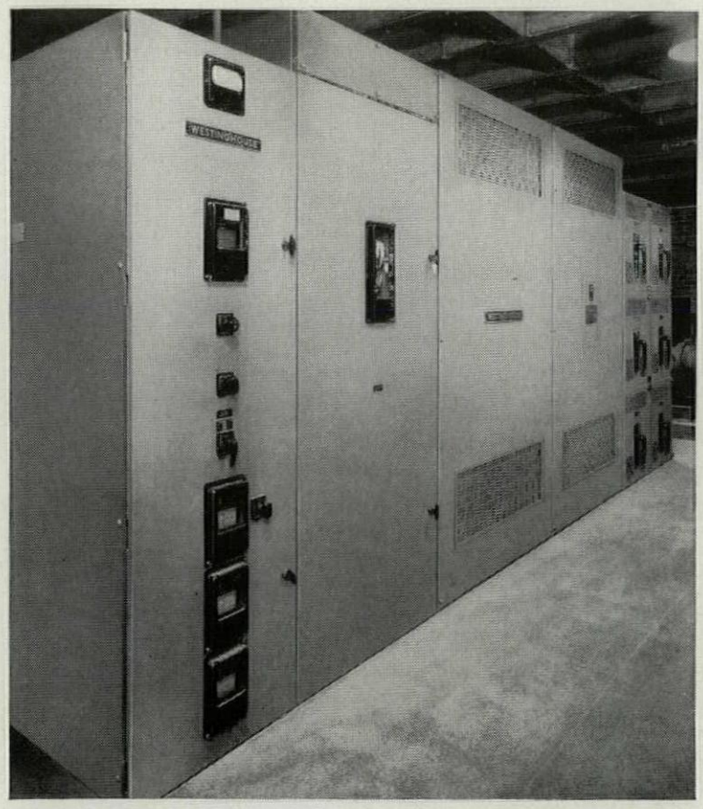
The modern system is planned around requirements for reliability, versatility and convenience. And it stresses electrical characteristics essential to building services. Therefore, system design will vary—based on the type of building involved.

The Spot Network System, left, is an example. It emphasizes "reliability"—an important requirement in large office buildings. Efficient, high-voltage power is brought close to building loads from two or more sources. An electrical fault at one source will not interrupt power to the loads being served.

FOR YOU . . . 24-page book, covering modern electrical systems and equipment for commercial buildings. Valuable adjunct to your design planning. Write at no obligation for *Cornerstone or Tombstone*, B-6151. Westinghouse Electric Corp., 3 Gateway Center, P. O. Box 868, Pittsburgh 30, Pa.

AIM:

MATCH PEAK TRAFFIC WITH PEAK POWER



High-speed elevator service—demanded when tenants must be moved quickly during heavy traffic hours—should begin at the electrical system planning stage.

The need for completely adequate power distribution makes this so. Not only do high-speed elevators require *more* power, but their drives are usually located in the penthouse—far removed from the power source. Thus, the electrical system must carry *heavier* loads *greater* distances. Yet, it has to hold voltage and power losses to a minimum.

A typical way: *High-voltage* distribution—carrying high voltage from power source in the basement close to the electrical center of load in the penthouse. This modern practice stabilizes voltage. It eliminates line losses that result from long runs of secondary lines. It assures adequate capacity for heavy electrical loads.

At the center of load, then, high voltage is stepped down to operating levels with a Westinghouse Dry-Type Power Center. It installs anywhere to feed the elevator equipment and other local loads. No need for a vault. And the dry-type transformers and air circuit breakers minimize maintenance.

DP-5002-B

WESTINGHOUSE DRY-TYPE POWER CENTER . . .
a compact substation that permits high voltage to be carried close to elevator and other remote loads. Comes ready to install.

AIM:

MATCH MODERN AIR CONDITIONING WITH MODERN CONTROL

Modern air conditioning is another tenant demand completely dependent on the electrical facilities behind it.

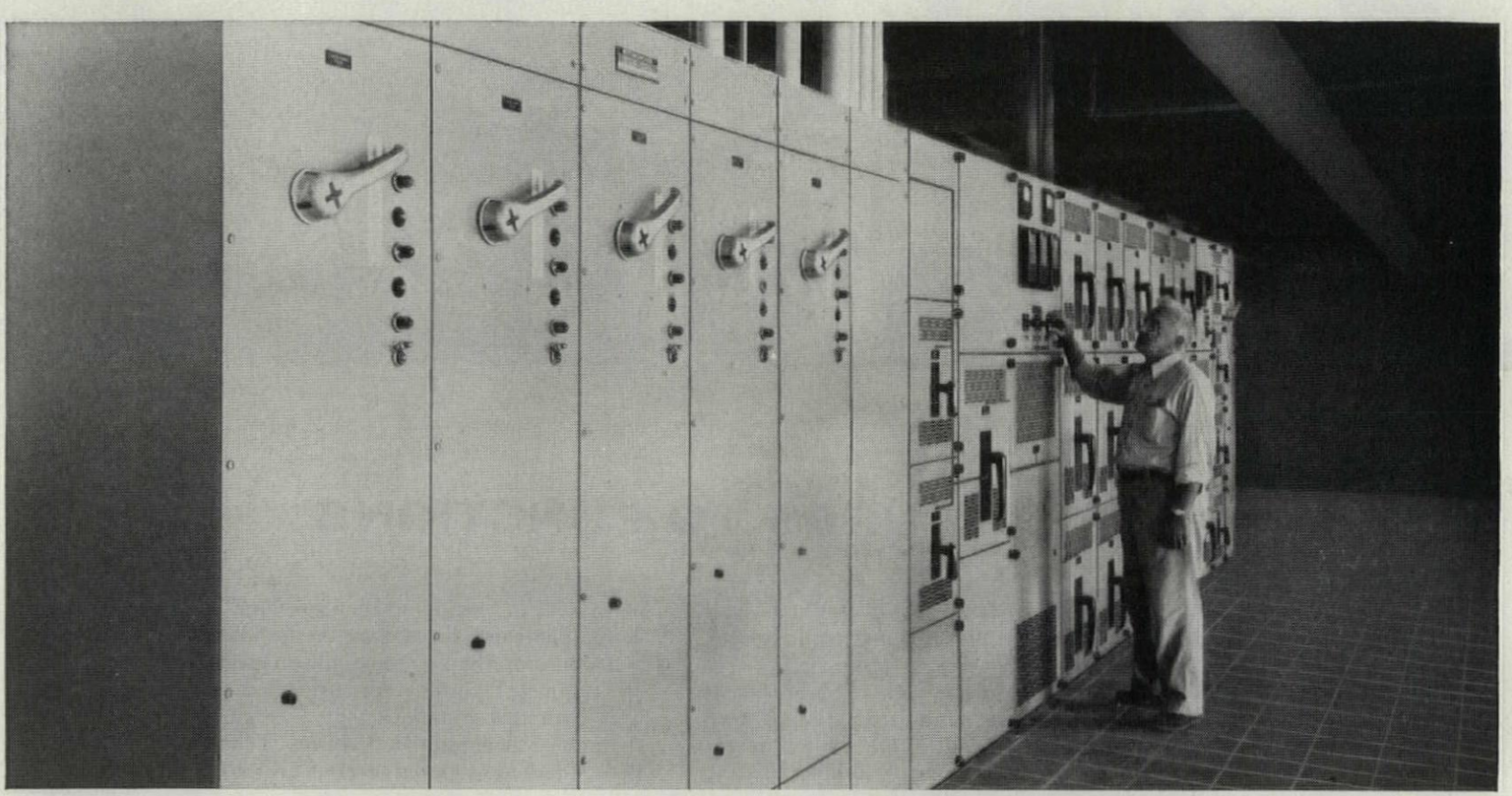
A number of motors and controls is involved in the modern air conditioning system. Thus, early steps should be taken electrically to assure continuous circulation of conditioned air—to the various building services.

In many modern buildings, all control equipment is located in one spot. This brings about easier operation and simplifies maintenance.

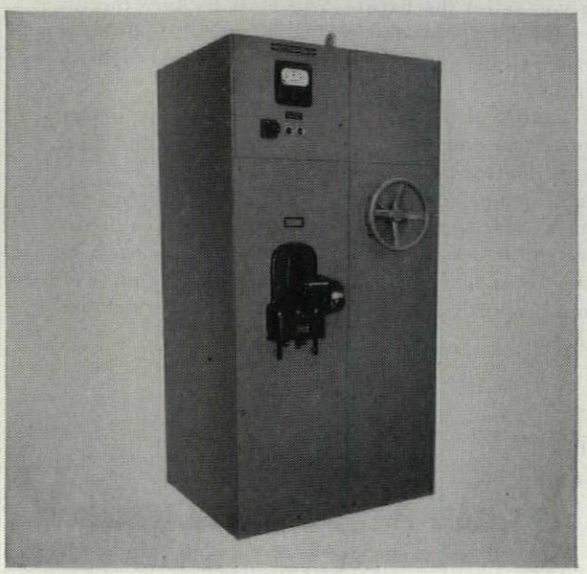
More complete integration of the controls is possible with a Westinghouse Control Center. It centralizes motor starting and protective devices in a compact enclosure that installs easily in any convenient location. Then, operating personnel can check operation of all motors at a glance.

In addition, Westinghouse Control Centers meet future requirements. This flexibility is due to standardized design and modular construction of the units.

DP-5002-C



WESTINGHOUSE CONTROL CENTER centralizes electrical control for building air conditioning systems in a single enclosure. At right: Secondary control for wound rotor motor drives . . . typical of the Westinghouse complete line of air conditioning compressor motor control.



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

AIM:

MATCH FIXTURES TO FUNCTIONS

Effective illumination demands this consideration: Lighting systems must be matched to functional requirements, yet blend harmoniously with building design.

This is particularly difficult in general office areas where sharp contrasts must be minimized. Thus, to keep contrast between fixture and ceiling down—to prevent specular reflection from shiny surfaces—indirect lighting is required.

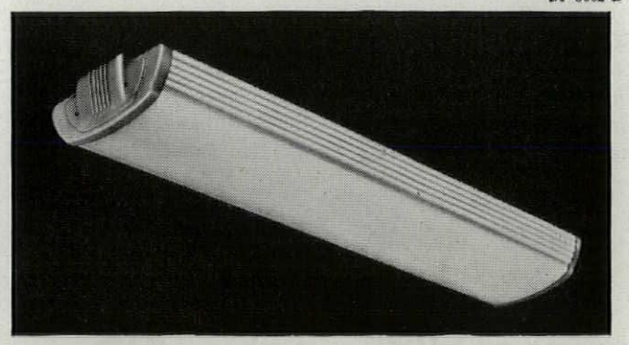
When you select the fixture, you must balance the desirability for comfort—obtained with indirect lighting—with the requirement for efficiency, realized through direct lighting.

Other factors also affect the selection. Fixture design and proportion and the ultimate lighting layout must blend with interior design.

Above is an outstanding example of how these considerations have been met. A Westinghouse CD-80 Luminaire was selected. It assures both comfort and efficiency by providing direct *and* indirect lumination. It blends well with room proportions . . . gives quality light for detailed office work . . . maintains the same high level of balanced design that exists throughout the building.

Architecturally, complete advantage was taken of the 10′ ceilings. Fixtures were suspended approximately 2′. This permitted installation of a comfortable system of continuous semi-indirect lighting. Today, it still maintains a desk-top lighting level of over 40 footcandles.

DP-5002-D



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

AIM:

PROVIDE MAXIMUM RENTAL SPACE

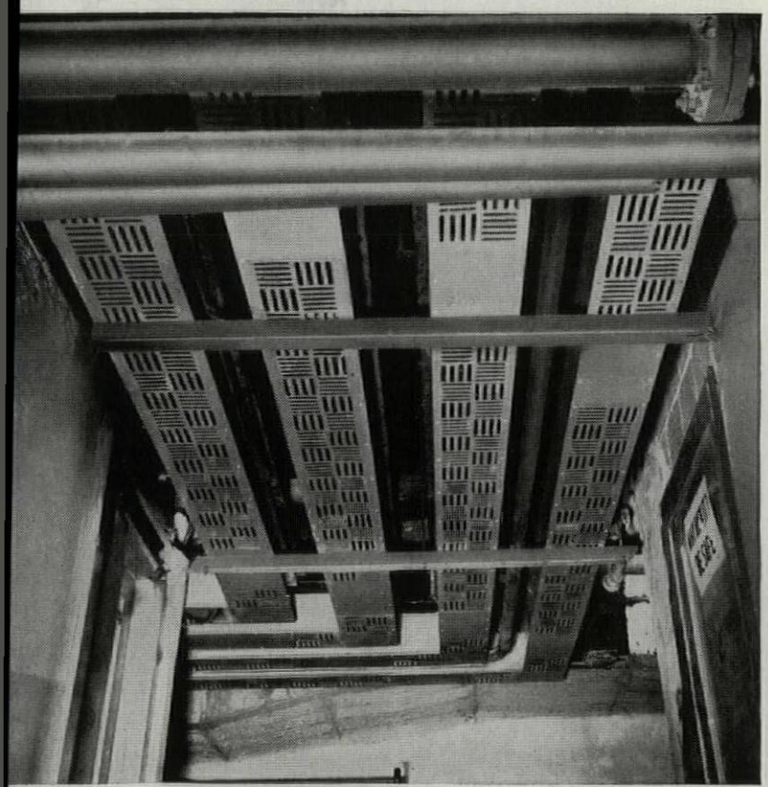
The heavier electrical loads elevator, air conditioning and lighting systems place on a building's power system make selection of its component parts a vital consideration. This equipment must have adequate capacity for increased loads. Yet, it should be compact to release maximum space to your client.

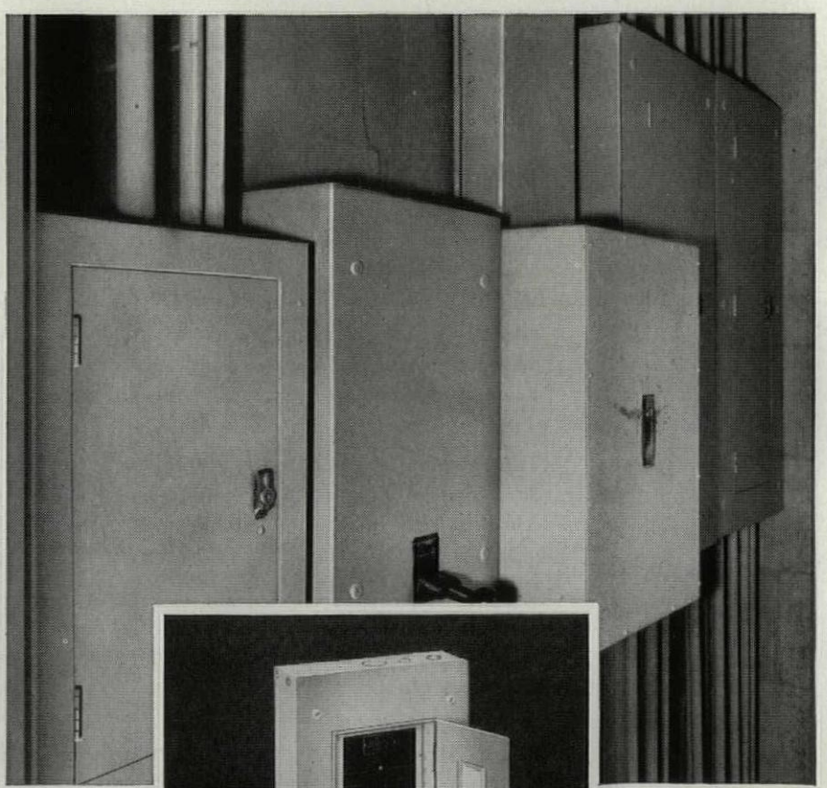
Modern distribution equipment answers these requirements. Example: Westinghouse Bus Duct—a highly efficient way to distribute low-voltage power. Up to 5000 amperes, in fact, it packs more power into less space than any other method of secondary electrical distribution.

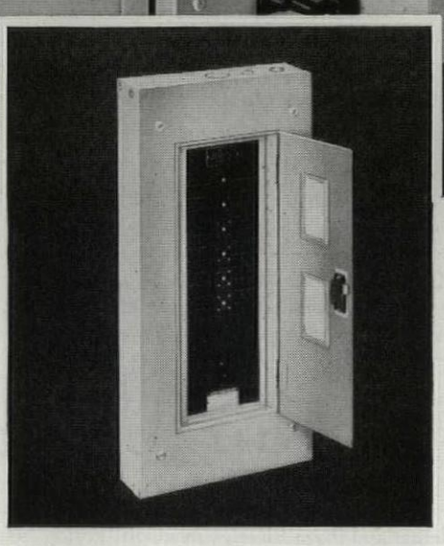
Westinghouse Bus Duct comes in standard, prefabricated sections that adapt perfectly with building plans. It can be installed in elevator shafts or wireways. When exposed, its neat appearance blends well with interior design.

The inherent flexibility of bus duct is another "plus". It provides adequate reserve capacity to handle future loads. Expensive rewiring is eliminated.

DP-5002-E



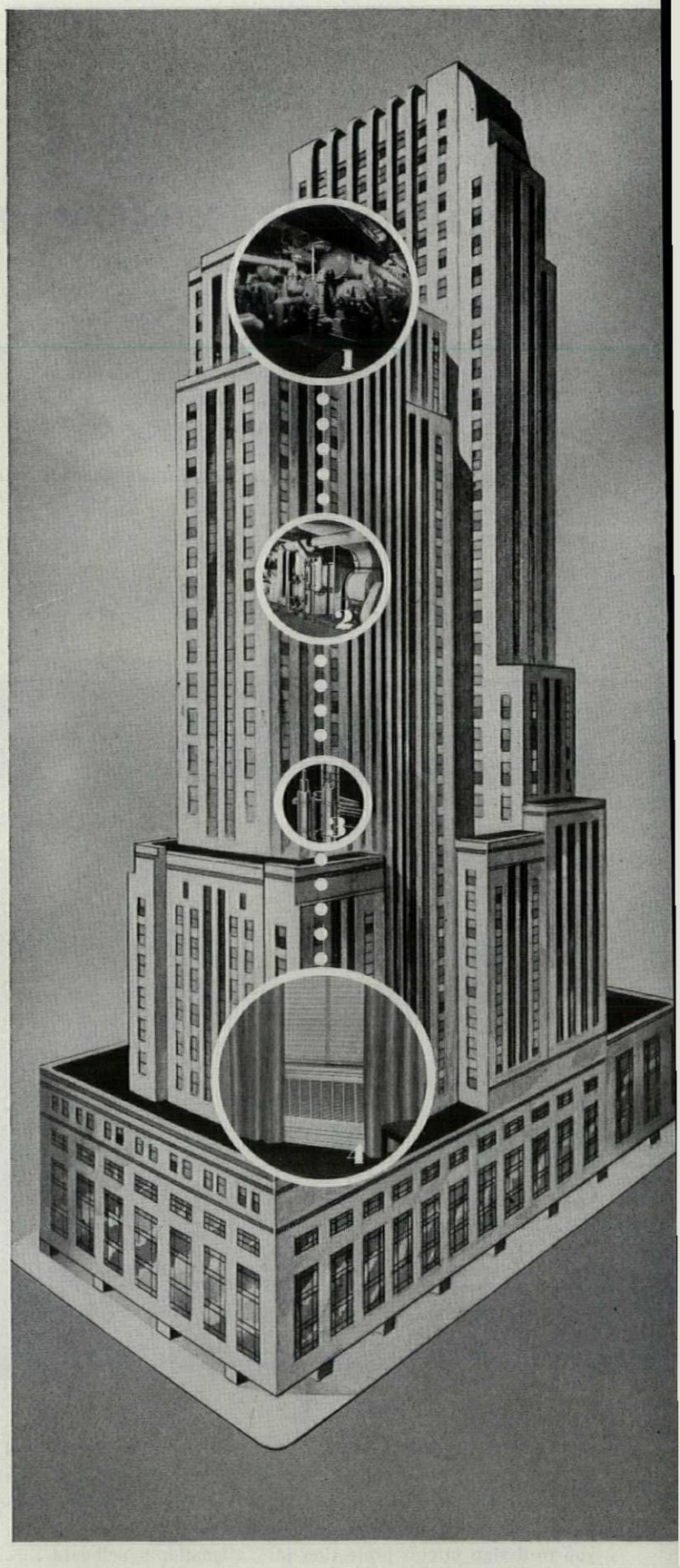




MATCH LIGHTING INSTALLATION WITH MODERN PANELBOARDS to give your clients both adequate protection and the convenience of circuit breakers. Westinghouse NPLAB-type lighting panelboard, here, features the compact Quicklag® P AB De-ion® circuit breaker. It enables you to design circuit protection into a smaller panelboard . . . and saves valuable closet space.

Here's why more and more of America's famed buildings are installing the Yorkaire system of air conditioning

The YORKAIRE SYSTEM brings new standards of comfort to the modern miracle of air conditioning, yet see how simple it is, how easy to understand!...



1 Source of comfort cooling is the famous and rugged York Turbo Water Cooling System which may be located on the roof of the building or in the basement.

2 Great volumes of air are brought into the building from outdoors at convenient points. This "raw" air is thoroughly filtered, washed, cooled or heated, and conditioned for the right amount of moisture. When it's "just right for comfort," it begins its swift, silent journey to you.

3 Through small, space-saving, tightly sealed tubes the conditioned air is sent under mild pressure, branching out at each floor to the individual rooms. At the same time, small pipes carry hot water in winter and cold water in summer to help you obtain the temperature that suits you best.

4 In handsome room units under the windows the air tube and water pipes converge. These units distribute the conditioned air in a gentle, quiet stream. A simple control allows you to refine the temperature to the exact conditions you want—with no mixture of air from other rooms.

YORKAIRE SYSTEMS
of Air Conditioning are being installed in building after building, old and new, across the country.

air conditioning by york

...Recent contracts include these famous buildings—Mile High Center, Denver; Netherland-Plaza Hotel, Cincinnati; Fulton National Bank, Atlanta; Equitable Life Assurance Society, San Francisco; Esso Standard Oil Company, Philadelphia.
If you are not now enjoying this healthful comfort, perhaps you will, sooner than you think.

YORK CORPORATION

York refrigeration air conditioning

HEADQUARTERS FOR MECHANICAL COOLING SINCE 18

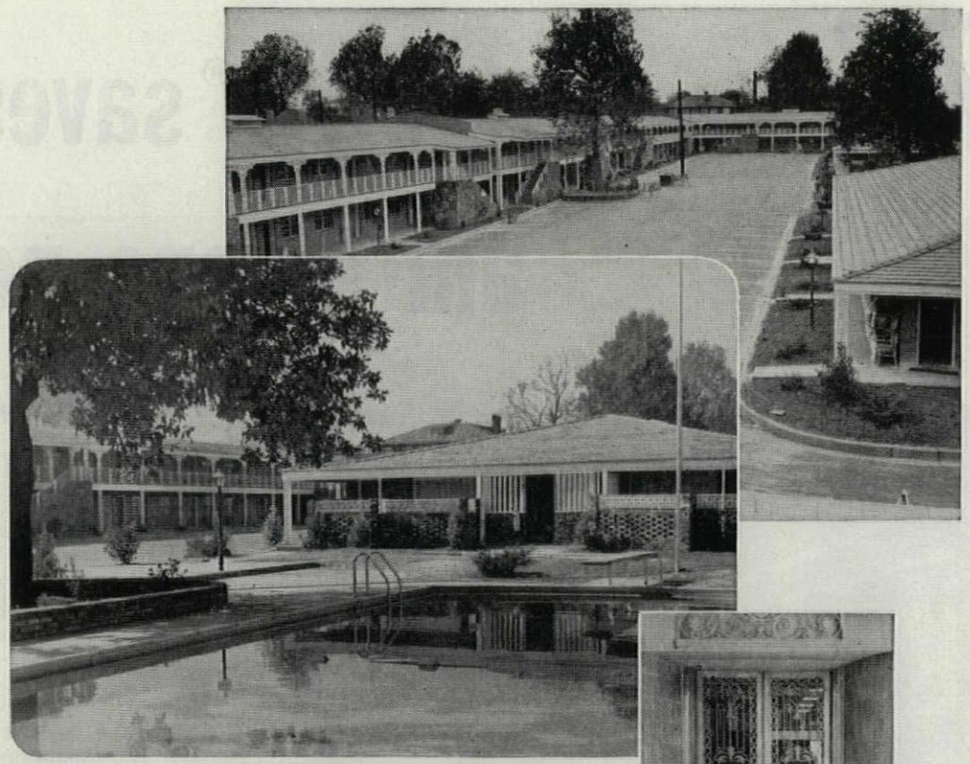
ROBERT T. MARTIN
architect

L. L. STROUD
mechanical engineer
construction supervisor

W. A. SOEFKER & SON
plumbing contractor

CENTRAL SUPPLY CO.
plumbing wholesaler

KOHLER CO.
plumbing fixtures

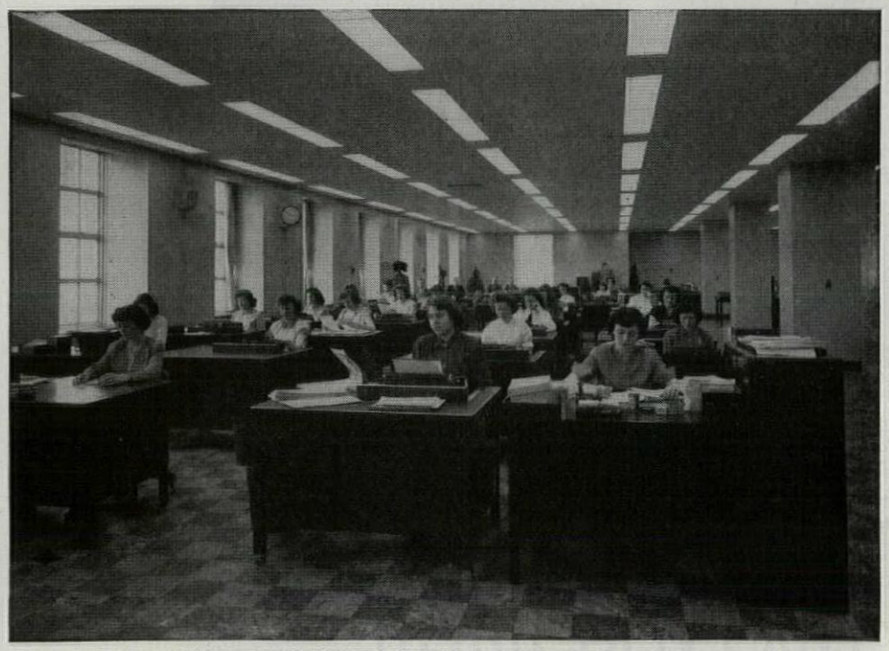


The architectural styling of this new court at the gateway to Memphis, Tenn., is New Orleans French Colonial, with old brick fronting and traditional ornamental iron for support of and railing on a continuous balcony. An alluring swimming pool, faced by patio suites, is set in a beautifully landscaped area. The two bronze doors opening into the commodious lobby were once the ornate entrance to the famous Sherry's Restaurant, New York.

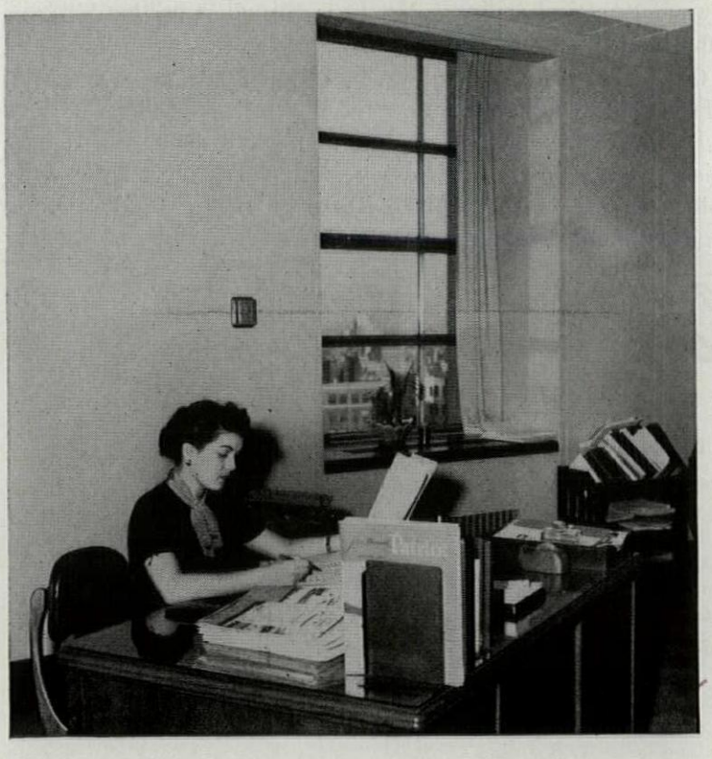
ONLY THE BEST FOR EVERY GUEST

TOWN PARK MOTOR HOTEL, MEMPHIS, situated at the convergence of five east-west U.S. highways and only a few minutes from downtown, is a million-dollar, 150-room luxury court that ranks among the finest in the nation. In the planning, construction and furnishing, two factors were dominant—comfort and enjoyment for guests. The entire structure is served by a most modern air conditioning system, controlled noiselessly. Noise, always disturbing to travelers, is practically non-existent here. Single rooms and suites are separated by thick masonry walls and have acoustical ceilings. Mr. L. L. Stroud, a partner, said: "I cannot over-emphasize the necessity of controlling the noise factor. We use SLOAN *Quiet-Flush* VALVES throughout our motor hotel." Because flush valves by Sloan build good will, create favorable comment and make important savings, doesn't the example of this excelling hotel suggest an idea to *you*, and explain why...

Thermopane® saves $6.04 per and keeps people more



MORE COMFORT WITH LESS HEAT. No complaints are heard about cold drafts near windows. Yet the thermostats are set several degrees lower in the new building, with *Thermopane* windows, than in the original John Hancock Building with single-glazed windows.



A 5-Year Performance Report on 1487 Thermopane windows in Boston's John Hancock Building

Five winters and four summers have passed since the John Hancock Mutual Life Insurance Company Building in Boston was first occupied. To find out what's been learned from this experience, the building management was asked:

> What do you and the 5,400 people who work in your building think of *Thermopane's* contribution to air-conditioned comfort?

ANSWER:

> Building management is well pleased with the *Thermopane* windows and feels they very definitely aid in the satisfactory operation and balance of the air-conditioning system. Occupants of the building never comment on the windows, probably aren't even aware they are *Thermopane*.

The fact that occupants never comment on the windows is perfect testimony for *Thermopane* insulating glass. That plainly means there is no discomfort from drafts near windows. With single-glazed windows in the company's original quarters, recently renovated, it is necessary to keep thermostats between 75° and 76° for comfort. However, a 73° thermostat average setting adequately cares for the needs of the new addition.

* Operating cost comparison between

Following is the complete cost study made in November, 1953 by an independent firm of air-conditioning engineers.

HEATING

Assume that the heat losses due to infiltration, crackage, etc., will be the same whether single glass or *Thermopane* is used. This will leave the direct transmission loss through the windows as the only variable.

From the latest issue of the ASHVE Guide, the rate of heat transfer through a single glass is 1.13 B.T.U. per hour per square foot per Fahrenheit degree difference in temperature between the air on the two sides of the glass, and the rate of heat transfer through *Thermopane* is 0.61 B.T.U. per hour per square foot per degree temperature differences.

The heating design conditions for Boston are zero degrees outside and 70 degrees inside, or a temperature difference of 70 degrees.

The windows measure 5′0″ x 7′0″, or 35 square feet each.

35 x 70 x 1.13 = 2,769 B.T.U. per hour loss per window for single glass.

2769 x 1487 windows = 4,116,760 B.T.U. per hour, total heat loss for single glass.

window per year*

comfortable, too

Building management's appreciation of *Thermopane* stems from three benefits. First, the air-conditioning system, of which they consider *Thermopane* an integral part, has operated most satisfactorily.

Second, *Thermopane* keeps the offices notably quiet in spite of heavy traffic on streets outside. Even on the lower floors, fire sirens are muted and ordinary traffic din is reduced. Absence of such distractions is invaluable.

Third, management can measure in dollars the savings on steam for heating and power for air conditioning that *Thermopane* yields—and will *continue* to yield for the life of the building. A highly reputable, independent firm of air-conditioning engineers and contractors has calculated that *Thermopane* saves John Hancock $8989 annually. That's $6.04 per window per year, nearly $45,000 saved in five short years. Details of the engineering firm's calculations are given below.

The two great benefits of *Thermopane*, comfort for occupants and lower operating costs for owners, are inseparable. Thoughtfully considered, these combined values make the higher cost of *Thermopane* a sound investment for any building that is heated in winter and cooled in summer. It's an investment that is certain to pay off.

Thermopane INSULATING GLASS

LIBBEY·OWENS·FORD GLASS COMPANY, 5154 NICHOLAS BLDG., TOLEDO 3, OHIO

BOSTON'S TALLEST building, home of John Hancock Mutual Life Insurance Company, is glazed from street to tower with *Thermopane* in 1487 windows.

single glass and *Thermopane*, John Hancock Mutual Life Insurance Company, Boston, Mass.

35 x 70 x 0.61 = 1,495 B.T.U. per hour loss per window for *Thermopane*.

1495 x 1487 windows = 2,222,320 B.T.U. per hour, total heat loss for *Thermopane*.

4,116,760 - 2,222,320 = 1,894,440 B.T.U. per hour, total saving from use of *Thermopane* at a 70° differential.

This figure of 1,894,440 B.T.U. per hour must be adjusted because the temperature differential is not constantly at 70 degrees.

The normal heating season for Boston is 273 days. The normal outside temperature for Boston is 42.9°, during the heating season.

One pound of steam = 960 B.T.U.

Pounds of steam saved per heating season

$$= \frac{24 \times 273 \times (70 - 42.9)}{960 \times (70 - 0)} \times 1894440$$

$$= \frac{24 \times 273 \times 27.1}{960 \times 70} \times 1894440$$

= 5,020,000

The average cost of district steam is $1.30 per 1000 pounds.

$$\frac{5{,}020{,}000}{1000} \times \$1.30 = \$6{,}530.00$$ - Approximate annual savings during the heating season from use of *Thermopane*.

COOLING

The owner's log of cooling compressor and pump operation shows that, for a typical year, one or more of the compressors and pumps is in operation for 935 hours between April and October. A total of 1,126,400 kilowatt hours of electrical energy were consumed during that period at an estimated cost of $.01680 per K.W.H.

Best available information shows that there is an approximate 11.5% saving in transmission of radiant energy from the use of *Thermopane* versus single glass.

If, S.G. = Amount of electrical energy using single glass
Therm. = Amount of electrical energy using *Thermopane*
S = per cent saving due to use of *Thermopane*

Then,
S.G. - (S.G. x S) = Therm.
S.G. - (S.G. x .115) = 1,126,400
.885 S.G. = 1,126,400
S.G. = 1,272,780 K.W.H. of electrical energy which would be consumed if single glass were used

1,272,780 - 1,126,400 = K.W.H. of electrical energy saved due to the use of *Thermopane*

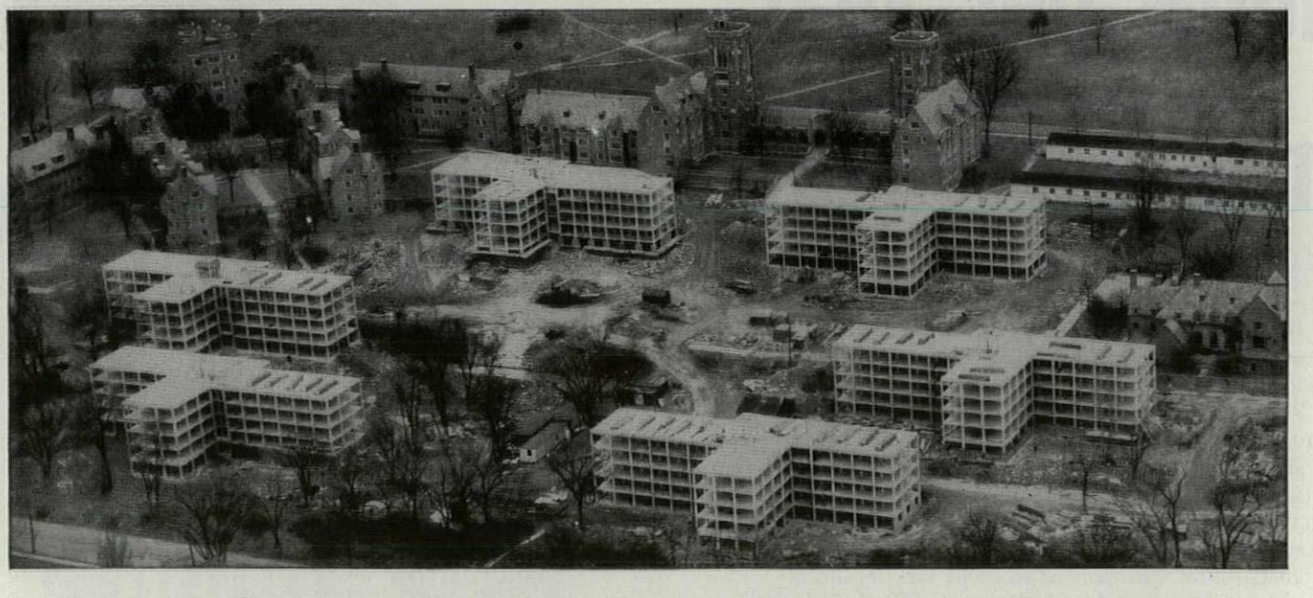
146,380 x $.01680 = $2,459.00—Approximate annual savings during the cooling season from use of *Thermopane*.

SUMMARY

The estimated annual savings in operating costs due to the use of *Thermopane* versus single glass is as follows:

Heating Season = $6,530.00
Cooling Season = 2,459.00
Total Annual Saving = $8,989.00

EXTRA *Quality*...EXTRA *Speed*



Six Firesafe Concrete Dormitories on Cornell's Beautiful Campus Erected with 'Incor' at Average Rate of a 5-story Frame every 11 Working Days

● Last Fall, six five-story dormitories—reinforced-concrete frames for utmost firesafety, speed, economy—were erected in record time on Cornell University campus: Foundations started August 13 . . . 1st floor concreted September 8 . . . last roof slab poured November 18, ahead of cold weather . . . 66 working days from first foundation to last roof slab (average, 11 days per building) . . . with foundations ranging from rock to caissons.

Good job planning and dependable 'Incor' high early strength assure extra speed at less cost. Extra quality, too: You see it in the easy-placing mixes . . . in smooth exposed concrete surfaces . . . in minimum drying shrinkage . . . and in the intangible but important difference that the crew, conscious of quality on an 'Incor' job, gets the most out of the concrete.

Over 25 years' performance, on job after job, clearly shows that 'Incor' produces more dependable results, at less cost, than by experimenting with "an extra bag of ordinary cement in the mix." One contractor summed it up by saying that he sleeps sounder at night with 'Incor'* on the job. *Reg. U.S. Pat. Off.

MEN'S DORMITORIES,
CORNELL UNIVERSITY
Ithaca, N. Y.

Architects & Engineers:
CHAPMAN, EVANS & DELEHANTY,
New York City

General Contractor:
C. E. YOUNGDAHL & CO., INC.,
Long Island City, N. Y.

Ready-mix 'Incor' Concrete:
RUMSEY-ITHACA COMPANY,
Ithaca, N. Y.

DRYING SHRINKAGE OF CONCRETE

Tests of 3x3x12-inch concrete beams, cured in air of 50% relative humidity at 70°F. after 1 day in mold. Results are average of 3 specimens for each cement from batches mixed on different days.

Mix bags/cu. yd.	Water gal./bag	Drying Shrinkage—inches per 100 ft. 3 d	7 d	28 d	3 mo.	1 yr.
Average 10 Lone Star Type I Cements (6-inch slump)						
3½	10.59	.156	.264	.516	.612	.648
4¼	8.27	.156	.24	.516	.624	.684
5	6.78	.18	.252	.528	.66	.696
6	5.62	.168	.228	.48	.636	.684
7½	4.65	.156	.228	.468	.636	.696
Average 10 'Incor' Type III Cements (6-inch slump)						
3½	10.48	.156	.252	.516	.648	.672
4¼	8.29	.156	.216	.48	.636	.672
5	6.9	.144	.216	.468	.636	.672
6	5.83	.156	.228	.444	.636	.684
7½	4.93	.156	.24	.48	.648	.708

Shrinkage of 'Incor' concrete is the same or less than concrete with Type I cements, through a wide range of equivalent mixes. 'Incor' develops greater strengths at early and later ages and is therefore better able to withstand shrinkage stresses. On the job, proper curing, starting at the earliest possible time, reduces shrinkage effects with all types of cement.

LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N. Y. • BETHLEHEM, PA. • BIRMINGHAM
BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS
KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK
PHILADELPHIA • RICHMOND • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 136,000,000 SACKS ANNUAL CAPACITY

THE MAGAZINE OF BUILDING

architectural **forum**

MAY 1954

Published by TIME Incorporated

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

THE MAGAZINE OF BUILDING
ARCHITECTURAL FORUM

EDITOR AND PUBLISHER
P. I. Prentice

EDITORIAL CHAIRMAN
Douglas Haskell, AIA

MANAGING EDITOR
Joseph C. Hazen Jr.

ART DIRECTOR
Paul Grotz

ASSOCIATES: Edward Birkner, Peter Blake, Gurney Breckenfeld, James P. Gallagher, Suzanne Gleaves, Marilyn Grayboff, Jane Jacobs, Barney Lefferts, Mary Jane Lightbown, Walter McQuade, Carl Norcross, Vernon Read, Richard Saunders (Washington), Ogden Tanner, Stephen G. Thompson, Arthur Watkins.

ASSISTANTS: Rosalind Klein Berlin, Gwen Hodges, Henry T. Martin, Eleanor Nadler, Alice O'Connor, Dorothy Stone O'Shea, Olive F. Taylor.

ART STAFF: Associates, Amnon Rubinstein, Ray Komai, Madelaine Thatcher, Nina Rittenberg. Assistants, Lilly H. Benedict, Martha Blake, Mary Villarejo, Charlotte Winter. (In military service, Jan V. White.)

MARKET RESEARCH DIRECTOR: Arthur S. Goldman
CONSULTANTS: Miles L. Colean, Ruth Goodhue.
PRODUCTION MANAGER: Lawrence W. Mester.

GENERAL MANAGER
Robert W. Chasteney Jr.

ADVERTISING DIRECTOR
Herbert C. Bippart

ARCHITECTURAL FORUM is published monthly by TIME Inc., Time & Life Building, 9 Rockefeller Plaza, New York 20, N.Y. Yearly subscription payable in advance. To individuals or firms (and their employes) engaged in building—design, construction, finance, realty; material distribution, production or manufacture; government agencies and supervisory employes; commercial and industrial organizations with a building program and their executives; teachers and students of architecture and engineering; libraries, professional clubs, society and trade associations connected with the building industry; advertisers and publishers; USA, Possessions, Canada, Pan American Union and the Philippines, $5.50; elsewhere, $12.00. To those not connected with the building industry; USA, Possession and Canada, $7.00; elsewhere, $17.50. Single copies, if available, $1. All copies mailed flat. Re-entered as second class matter Oct. 1, 1952 at the Post Office at New York, N.Y., under the act of March 3, 1879.

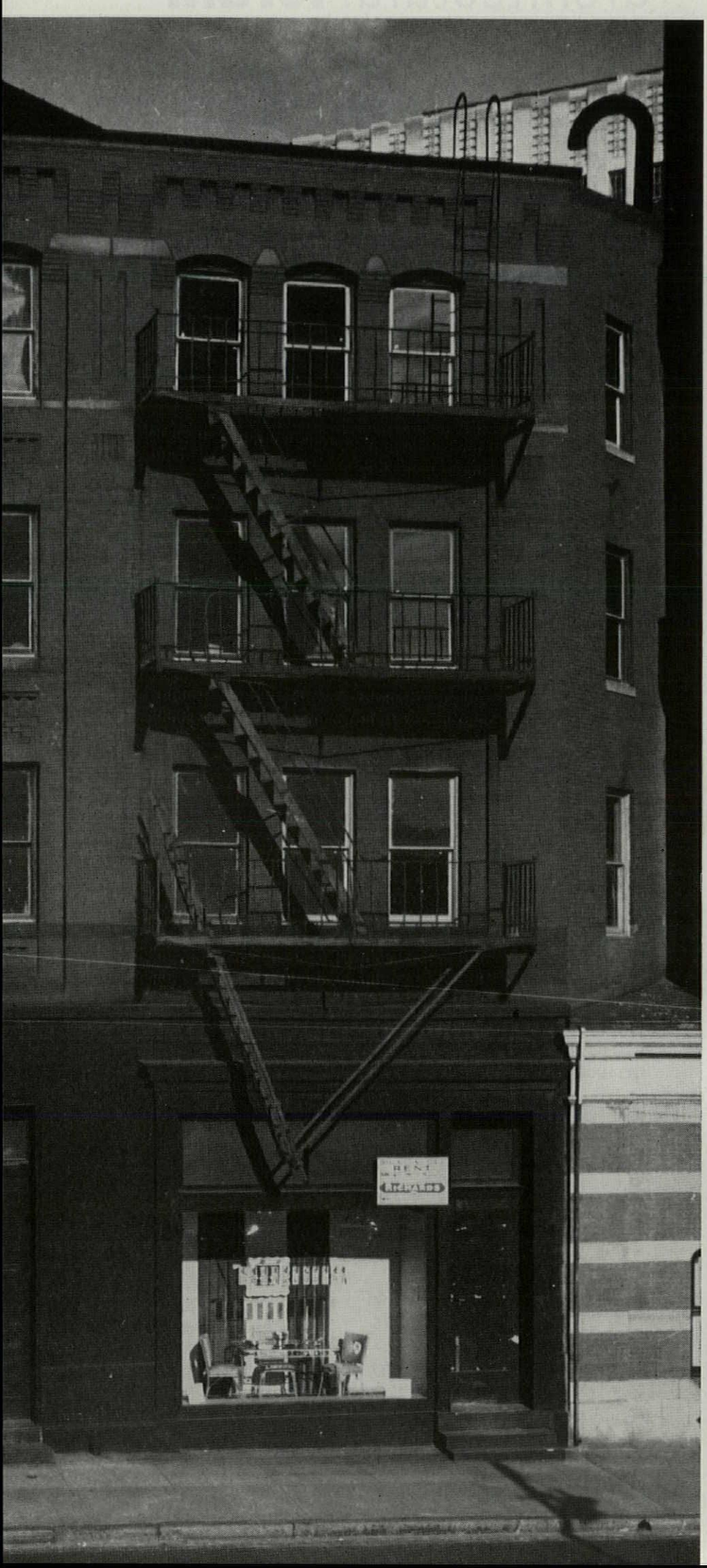
TIME Inc. also publishes TIME, LIFE, FORTUNE and HOUSE & HOME. Chairman, Maurice T. Moore; President, Roy E. Larsen; Executive Vice President for Publishing, Howard Black; Executive Vice President and Treasurer, Charles L. Stillman; Vice President and Secretary, D. W. Brumbaugh; Vice Presidents, Bernard Barnes, Allen Grover, Andrew Heiskell, J. Edward King, James A. Linen, Ralph D. Paine Jr., P. I. Prentice; Comptroller and Assistant Secretary, Arnold W. Carlson.

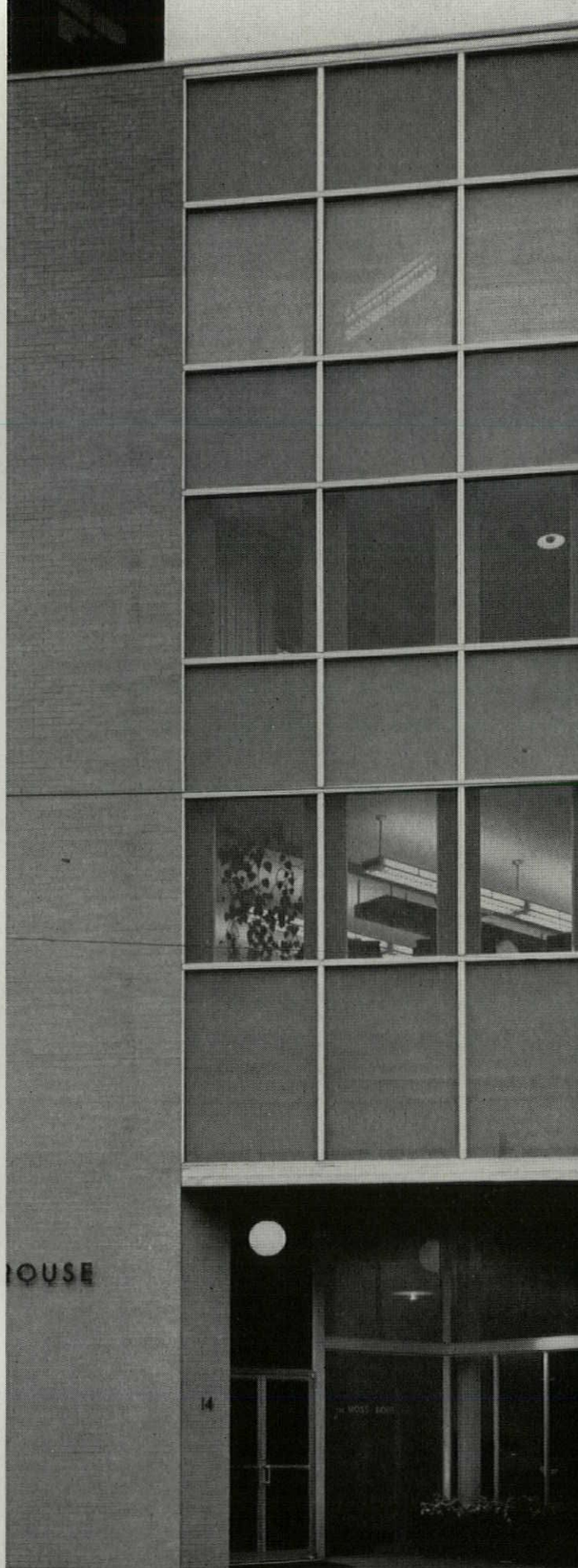
VOLUME 100, NUMBER 5

MODERNIZATION

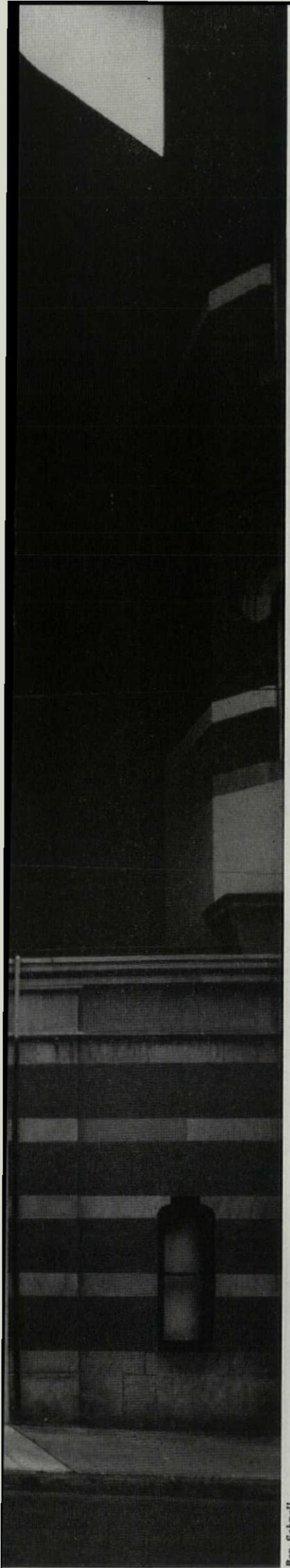
FREDERICK GUTHEIM, consulting editor for the issue and author of the first section

Cover: Amnon Rubinstein, artist





MOSS-ROUSE office building before and after (see p. 138)



Ben Schnall

MODERNIZATION'S MOUNTING MARKET

In 1953 modernization amounted to a whopping $12 billion, double the prewar rate and one third as big as the $35 billion spent on new construction. Within the next few years the modernization market will grow to be half as big as the new construction market. This robust prediction rests solidly on a huge backlog of deferred work, on several recent changes in the economics and techniques of building and on a fresh government attitude toward depreciation and urban renewal.

Main support for the growing boom in modernization is a better financial break for older buildings. Long-term credit is now available for modernization from insurance companies and other institutional lenders who formerly limited their investments to new buildings. Their search for prime first mortgages has led to the conclusion that many older buildings provide more stable values and less risk. Other elements favoring modernization are 1) the end of rent control, 2) the security afforded by long-term leases with high-grade tenants in older buildings, and 3) the debt-free character of many well-managed commercial and office properties. With increasing ease, older buildings can be given the air conditioning, lighting, automatic elevators, flexible layouts and other characteristics of new buildings—and thus compete successfully with them.

Among the major new public policies which favor modernization are the government's proposals to allow better depreciation rates and to promote urban conservation and renewal. Both have been the subject of Presidential messages; both have been given legislative form and are now under consideration by Congress with good prospects for enactment.* Presidential economic advisers have also pointed to modernization's capacity to stimulate business and provide work faster than public works can be undertaken. Short of major depression, no contracyclical public works program is proposed; but modernization is counted a milder, more immediate remedy.

Federal legislation will equalize the difference between new and old buildings of all kinds in their command of mortgage credit to give effect to these and other recommendations. The open-end mortgage, which allows alterations and improvements without the complications of refinancing, is a big step in this direction.

In many other fields modernization prospects are excellent. Office buildings are currently putting one dollar in modernization for every two in new building. School building programs increasingly embrace the modernization of older structures as well as the addition of new ones. In parts of the nation with more old school buildings and less spectacular demands for new ones, modernization frequently equals the cost of new work. Lighting, new toilets, redecorating and refurnishing lead such activity, but many additions to provide lunchrooms, libraries and other new services are included. Hospital modernization programs are also increasing as the more intense shortages are overcome and time can be given to equalizing older buildings.

The construction industry faces today a new activity of huge and growing dimensions, that may soon absorb one dollar of every three spent for construction.

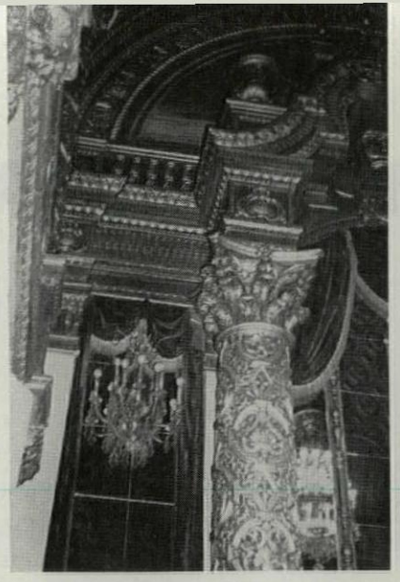
---

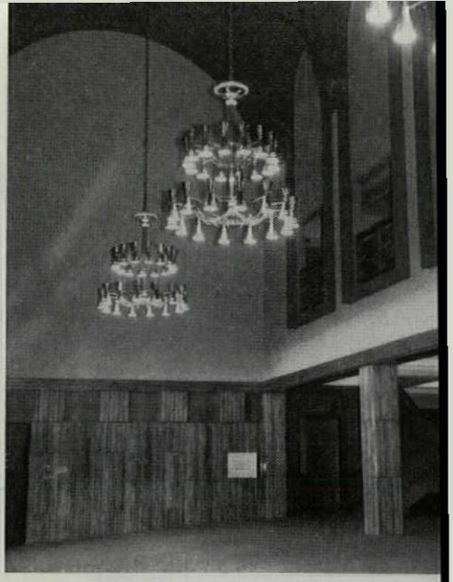
* President Eisenhower to the Congress, Jan. '54: "For the business that wants to expand or modernize its plant, we propose liberalized tax treatment of depreciation." The declining balance method of depreciation has now been given legislative form and a strong send-off by the powerful House Ways & Means Committee. Chances for enactment are excellent. Hotels, office buildings, commercial and industrial buildings should be stimulated to modernize. Net gain to building owners is about 21% of total value for tax purposes.

Broader emphasis on urban renewal, provided in the 1954 housing bill, will strongly support modernization of buildings in many central city locations.

A THEORY OF MODERNIZATION

Pay-as-you-go piecemeal remodeling may be most expensive and least productive, while a comprehensive and expertly planned project pays off in values other than rent





Ornamental crud of old theater lobby was scraped down and brilliant illumination was used to keep attention focussed at lower levels, allowing Architects Friedman, Altschuler & Sincere to use old theater for Anshe Emet Synagogue, Chicago.

To modernize or to replace? This business question is posed by the problem of obsolescence. It is answered by the conditions which surround the individual building, ranging from the character of the site and the neighborhood, through the conditions of structure and equipment, to the potentialities of the building as it might be remodeled for some new future use. All show that the modernization problem must be considered as fully as the problem of a new building. And one might conclude, to state the other side of the story, that the mistakes that have been made in modernization work have been the result of a too-narrow preoccupation with one aspect or another of the problem—heating, air conditioning, space reorganization. In a word, the trouble with modernization is that it has taken too much for granted.

"Why do they improve buildings they ought to wreck? Why do they tear down buildings that ought to be saved? Why this appalling waste in premature obsolescence?" The architect's lament shows the need for a theory of modernization. Such a theory might begin with a franker recognition that the modernization of buildings means progress, not decay. Like the replacement of cells in the body, the obsolescence and replacement or modernization of buildings are often signs of health.

Why remodel?

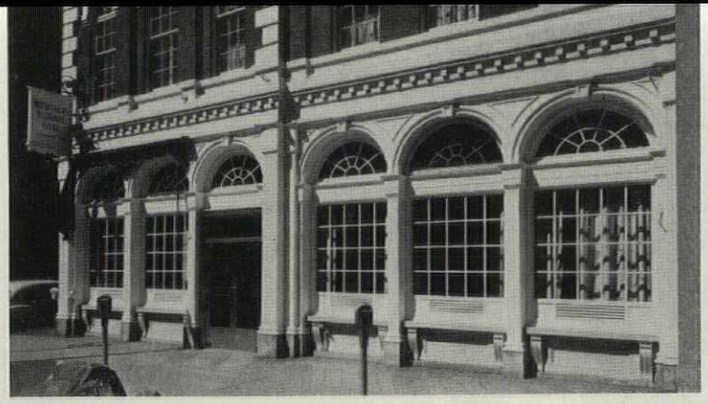
Competition between old and new buildings inspires much modernization. This is particularly true in office buildings and other building types where competition is clearly recognized, and where owners and managers constantly adjust their activities (and their rents) to the supply of space on the market and the demand for it. But competition is elusive. To be of much use to men facing building decisions, it has to be qualified in many ways. It may be qualified by location—the classic element in the calculations of the realtor. Where location values remain stable, and especially where a particular use of the building is assured, modernization can become more fundamental. It turns from superficial elements of painting and redecoration, the replacement of fixtures and elevators, the refreshing of lobbies and corridors, and embraces air conditioning, modern lighting, exterior finish, comprehensive reorganizations of space and the use of flexible partition systems. In the latter form, modernization may embrace filling courts and light wells with air-conditioning equipment, stripping the building to its bare bones and sheathing it with curtain walls, or rebuilding it to incorporate parking garages, loading bays and other concessions to the auto age.

One of the most common forms of modernization aims at more intensive use of space, and modern lighting and air conditioning are its prime agents. Squeezing the last nickel of rent from a remodeled building also may involve developing additional store space, recovering basement areas as rentable space, redesigning lobbies to exploit their commercial value.

How much to spend?

The economic scope of such modernization, now virtually without architectural or engineering limitation, remains to be defined. A theory of modernization ought to be able to show at what point the rising standard of living invalidates the substandard older buildings and obliges their replacement or modernization, and to point out which of the alternatives is the more desirable. It ought to show how modernization originates, whether from the demand for improvements to satisfy a higher standard of living or from the desire for greater efficiency and more intensive use. Building management has clear-cut theories of its own on the extent to which modernization is worth-while. These are expressed in terms of reductions in operating costs, increases in rent and net return on investment.

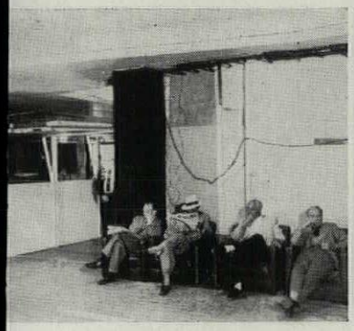
The most familiar argument is that if new buildings are priced at $25 per sq. ft. and old buildings erected in the late twenties at $15 per sq. ft., it should be possible to spend the $10 difference on modernizing the old buildings, providing the resulting earning capacities are equal. Actually an old building's book value has probably been written down from $15 to, say, $5. In this case, the owner has the choice between selling at $15 or remodeling to the tune of $20 and selling at $25; either way he stands to make a profit. Of course, the decision will be based on whether or not the specific remodeling done will actually bring the old building up to competitive status with new build-



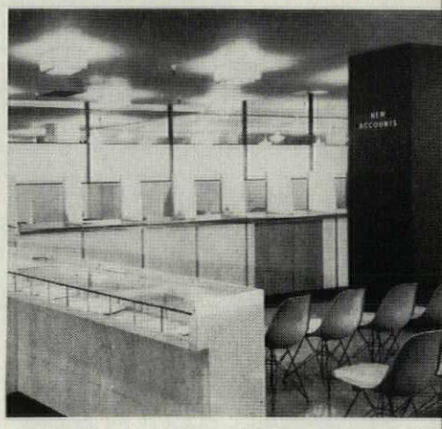
Decapitation of General Grant monument in Concord, N. H. by J. Alonzo Harriman salvaged lower two stories for banking use.

Photos: E. H. Lang; Joseph Molitor; Chicago Photography; A. Georges

Macy's remodeled credit department (below) makes gay use of light materials. Like all department-store work, installation may last several years or several months. Meyer Katzman, architect.



Hotel lobby: prime issue in alterations to Chicago's Hotel Sherman was to keep the building in use, maintain patronage and current income. Work on crash schedules, bit by bit, did the job. Holabird & Root & Burgee, architects.



ing and for a long enough period. Three kinds of remodeling go into the equation: 1) that which materially raises a building's standard of service above the competition of other old buildings—such as redoing the lobby, 2) that which raises the standard to meet the competition of new buildings—such as air conditioning, and 3) that which reduces the building's operating and maintenance costs—such as taking off a cornice or putting down a more durable floor.

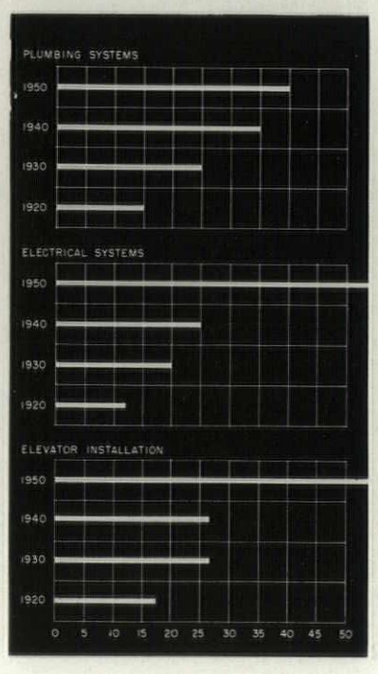
Other problems arise, however, when the building owner contemplates a drastic conversion of the building to a new use. And even on a more limited scale, predictions of added value are uncertain. Even the structure and equipment alone raise problems and uncertainties. A beginning at tackling these questions as they appear in older buildings was made last year by the Building Research Advisory Board. But its limited investigations of the problem have merely emphasized how much remains to be found out.

The nature of architectural space itself qualifies all important modernization decisions. It commences with practical questions: the case for large, clear areas demanded by modern production and business management, or the effect of air conditioning in reducing ceiling heights. It raises that prime architectural question: what's going on in here? When space is inherently unsuited for its purposes, no amount of piecemeal improvements will be worth-while. Where new activities can be found that are suited to the space, many improvements will be found unnecessary. Where space, tenant and improvements can be related, the maximum economy will be found in their harmonious relationship.

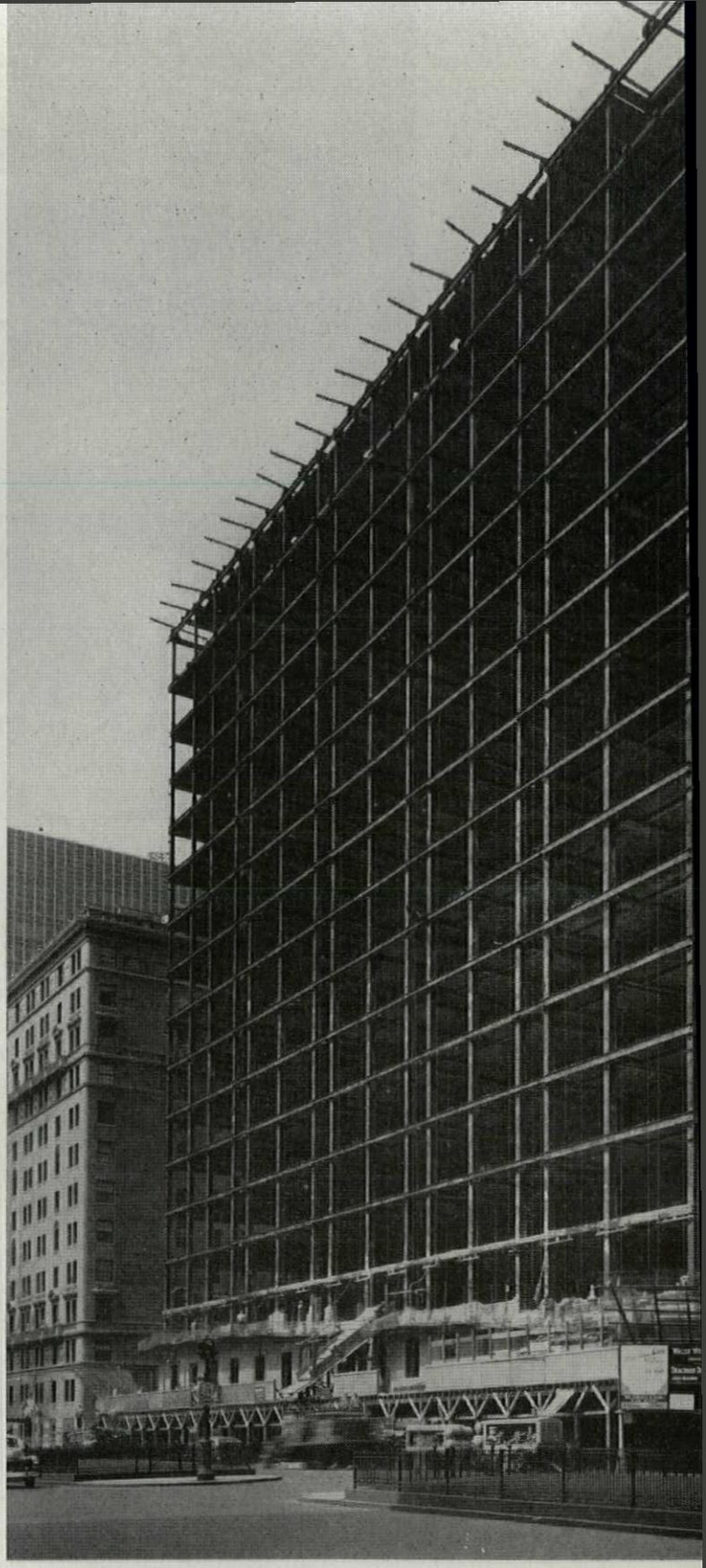
How much to pay for it?

Relatively simple calculations accompany individual improvements, like a new illuminating system. Building management is frequently most comfortable when thinking out its problems piecemeal at this level (although confidence may lead to dogmatism about advantages that can seldom be proved). The practice of paying for modernization out of current income encourages this step-by-step approach. But over a period of time the result is the antithesis of design: a series of compromises, of poorly conceived fittings together, of new work torn out to make way for still newer work. Wasteful in itself, it also falls short of accumulating value. The original building is destroyed in the process. Nothing is created to take its place. The balance of continuity and innovation, of particular importance if the building had some architectural merit to start with, is easily sacrificed to an expedient kind of modernization. Here the question of values must be posed.

At this point only the skillful architect can save what is worth saving, or give what creates value. His theory is more fundamental than the calculations of profit and loss. It reckons up livability and cultural values, historical perspective and the absolutes of esthetics, the characteristics of integrity and coherence, and the sense of social obligation. Some of these may pay off in rent, others in values of a different sort: the loyalty of tenants, a contribution to the dignity of a street or the character of a district, the capacity to become a historical monument, the distinguishing mark of a skyline, symbol of a whole town. These are not qualities to be lightly dismissed. Certainly they are often sought and seldom attained.



Charts by BRAB dramatize increased longevity of today's building materials and equipment, indicate modernization will not have to be so frequent in the future. Vertical scale represents installation dates; horizontal scale shows expected life in years.



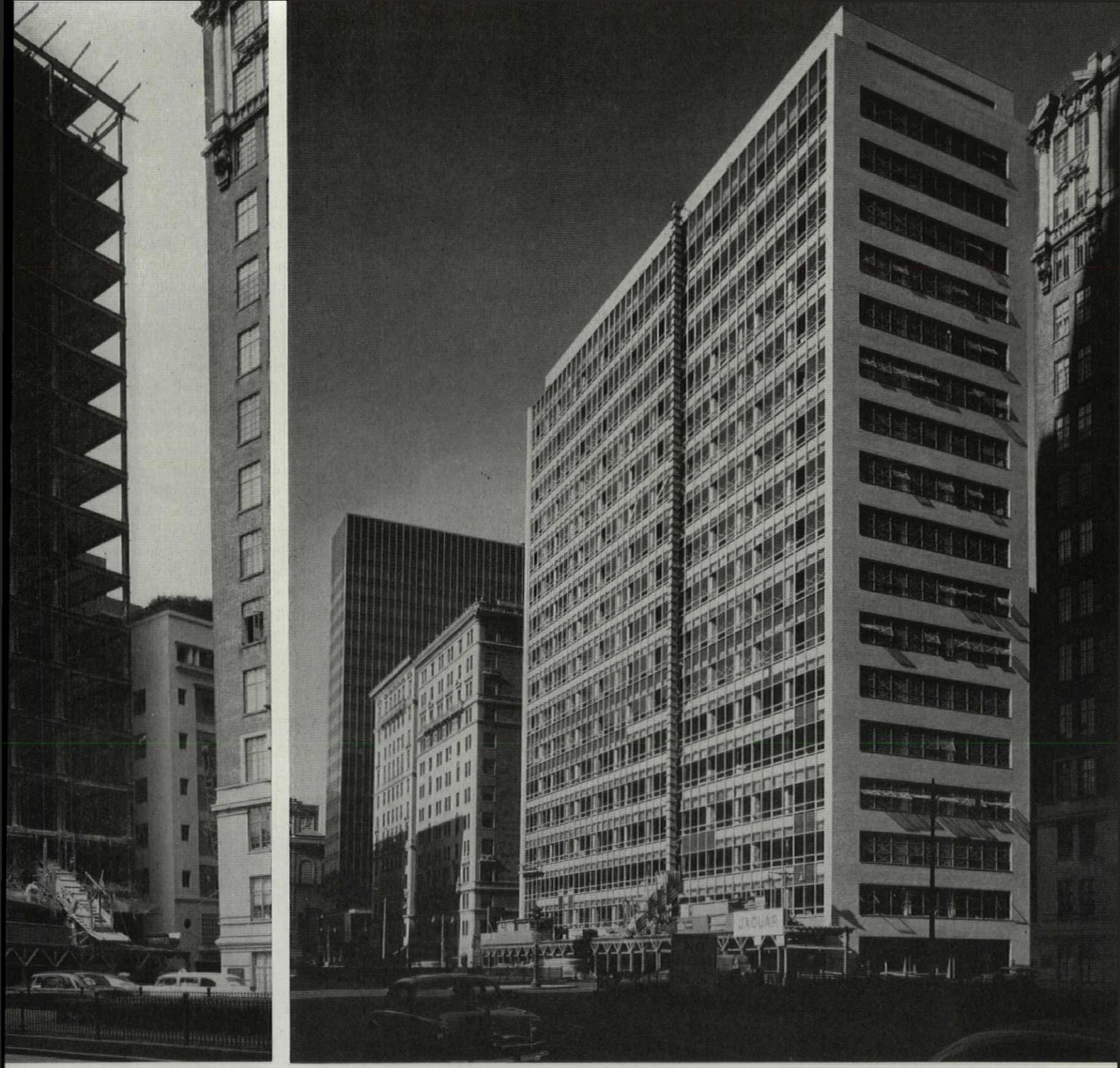
OLD APARTMENT BUILDING is undressed to FRAME AND

Extreme theory of modernization saves money and floor space, avoids cakemold appearance forced on new skyscrapers by Manhattan's zoning law

430 PARK AVE. CORP., owners and builders
EMERY ROTH & SONS, architects

This is New York's most modernized building—an old Park Ave. apartment (11- to 15-room suites) converted into a handsome new office tower which even famed Lever House (background) may justly welcome to its fashionable neighborhood. Although unfinished, it is 95% rented by such blue-ribbon tenants as Koppers, KLM and *Progressive Architecture.*

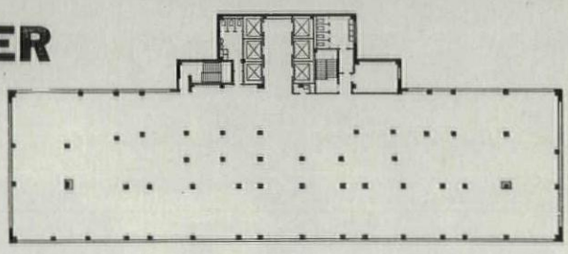
There is nothing new about residential buildings giving way to the uptown spread of Manhattan business, but usually the brownstone homes and apartments are demolished and replaced by completely new buildings. In this case, however, the frame and floors were preserved—not only for the $500,000 saving on



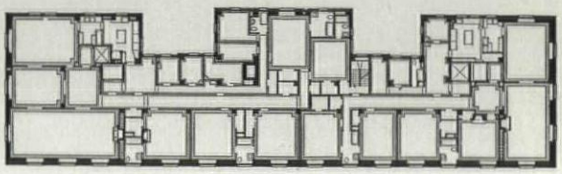
Photos: (left & center) Adolph Studly; (above) Ben Schnall

FLOORS and reclothed as NEW OFFICE TOWER

steel and concrete and the five-month saving of time—but for the saving in floor space. Under current zoning regulations (which on this site would require a setback of 1′ for every 2′-6″ of height above 125′), a new building could have only 12 full floors plus progressively smaller upper floors and a gross area of only 214,000 sq. ft., but by using the old building's skeleton, the reconstruction retains the original building's 18 floors and has 234,000 gross sq. ft. Whether this 20,000-sq. ft. saving is capitalized at $25 per sq. ft. (the average cost of new office space) or $5.50 per sq. ft. (the building's average rent), the success of this conversion is obvious.



Rectangular office floor (above) was made by filling in light wells and moving services to new projecting wing. Old plan (below) made room for two big apartments.



MASTER PLANNING FOR MODERNIZATION

It recognizes that family resemblance is an asset,

that face lifting alone

does not recreate the body beautiful and

that tomorrow's fashions are likely to be different

The most promising new development in modernization technique is master planning. It has brought many first-rate architects face to face with the problem of modernizing older buildings, and it has illuminated the problem of value. Stress laid on area problems has emphasized location.

Master planning has also obliged an understanding of the merits of continuity, and the relationship between older work and new.

The campus, the medical center, the air base, the industrial complex, the regional shopping center are some of the new building types that have forced the development of master planning. While attention has been drawn chiefly to new work, or the newer additions to older groups of building, in a more balanced view, it is the opportunity to reappraise and adapt the existing buildings that constitutes the larger part of the problem.

Master planning helps determine the proper use of an old building, to decide whether it should be altered or demolished. It helps the architect better understand the relationship of the building to its neighbors. A much-discussed problem in spatial organization, this relationship also poses the problem of maintaining some coherence and standard between the new work and the old. Architects see this chiefly as a scale problem. But management imposes such standards not only throughout the group of buildings it controls in a "campus," but frequently throughout chain stores, branch banks and other building systems.

Standardization takes many forms, especially in the standardization of equipment for operating and easy replacement, or construction details that affect cleaning and maintenance. Often (as in chain stores) a "family resemblance" must be obtained. Standardization of space on a qualitative basis has also become recog-

New Allegheny Center would exploit location close to downtown Pittsburgh, provide parking on roofs of shopping areas. Segregation of vehicles frees shopping level, allows it to function as pedestrial island. In this broad plan existing stores are to be remodeled and used, new ones built conforming to the plan. Architect-Planner Kenneth Welsh calls it a regional shopping center moved downtown.

nized by management as an important factor in employee relations and a sound reason for modernization. Work output records too often show that employees moved to "Little Siberia"—or whatever other pet name is attached to the substandard building—fall off in efficiency. Lack of air conditioning, adequate heat, thermal insulation, acoustical treatment, satisfactory illumination—all directly affect employee performance, of course. But equally important are prestige and other psychological factors associated with rejected, second-rate buildings. Employees assigned to such buildings easily get the idea that they are themselves second rate, unwanted or rejected; or that the activities housed in such buildings are of secondary importance to the organization.

The choice between moving to a new location and adapting present buildings to changed needs is at best a theoretical one for many institutions. Schools frequently find this the case. Established position in an area, a favorable long-term lease, or inherent locational factors often make it impossible to move. Lack of capital to undertake complete plant replacement is frequently a factor even in old and well-financed institutions.

Hospitals are prominent in this respect. Their established patterns of financial support often show large receipts over a period of years, but little in any single year. Piecemeal modernization is the usual result. Without master planning, it is frequently wasteful and disastrous. New buildings can be added, old ones modernized, only if there is some assurance that they contribute to the total needs of the institution. Bellevue, Massachusetts General, Johns Hopkins—these are hospitals now become great and complex medical centers which face the problems of modernization of their older buildings in the same spirit as they do the erection of new ones. The two problems are so interlocked, in fact, that in practice the same architect is obliged to do both.

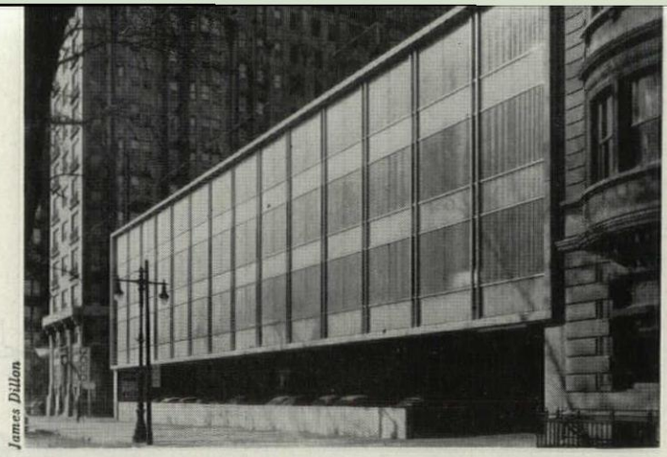
Master planning of airports, both military and civil, has provided a major opportunity to develop principles of continuous expansion. New buildings and old have been integrated in working groups, each complete at successive stages of growth. Phasing out planning to ensure balanced and complete operations at every stage is a characteristic developed in airport planning that applies to much other master-planning work.

Older master plans were concerned largely with a utilities layout and the reservation of future sites for contemplated buildings. A more critical approach has led to more comprehensive planning. Michael Reese Hospital's plans are one recognized instance. Relationship of the area to the city plan is now more carefully studied. Here are found the answers to such problems as parking, housing, commercial services, as well as difficulties of access and even circulation. Urban redevelopment has accelerated such planning. Urban renewal efforts may do more.

Master planning means modernization

As master planning acquires this more comprehensive character, it must inevitably be more concerned with modernization. In most cases modernization constitutes a major portion of the total work to be done. In nearly all it is an integral part of the entire operation which must be coordinated in order to allow new work to go forward. The result is the same in either case: bringing modernization under the control of long-range architectural plans.

Master planning has also become more "architectural." Its decisions are increasingly expressed in detailed drawings rather than in land-use maps and site plans, and volumetric or other generalized studies. This reflects a realization that architectural coordination must embrace the details of such planning, and a greater confidence in stating the recommended solution more fully at a relatively early stage. It is here, perhaps, that the elusive bridge between architecture and city planning can be built. A


James Dillon

Parking structure graces, not destroys, character of Philadelphia's celebrated Rittenhouse Square. Simon & Boulware, architects.

pioneer study of this sort by the San Francisco City Planning Commission estimates what can be done with the existing buildings as well as the land.

Such architectural solutions become prototypes for urban renewal and other district conservation and redevelopment proposals. Once undertaken by an institution which covers a substantial area, such plans may be extended. Similar plans will often apply to the similar problems of several institutions in the same area. What begins as a medical center plan for a single institution, may later be applied to a medical district involving several hospitals and related activities. In such fashion the district may identify its needs and specify how they ought to be met in the city plan.

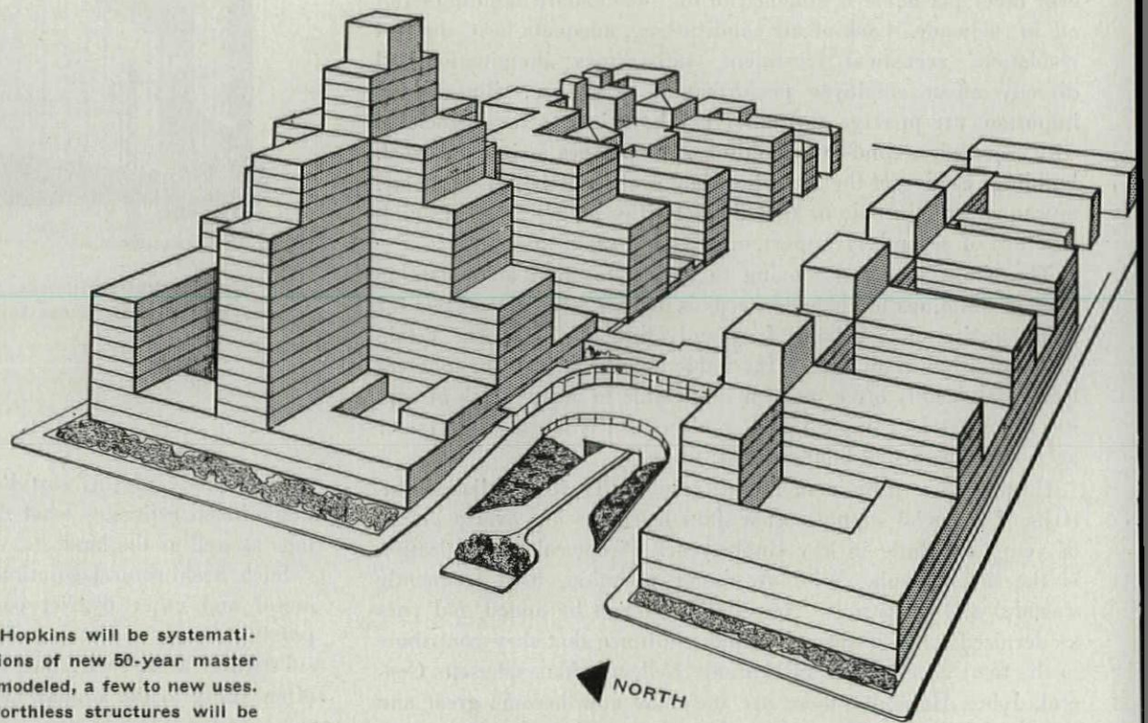
Basic need: a sense of direction

A bright future faces this broader form of master planning. It can frequently count on the force of enlightened self-interest once someone has shown the way. The conservation or rehabilitation of vital functional parts of the city depends on this. Wise and needed measures of local government policy also require it. If street widening, off-street loading, parking and other requirements commonly imposed upon new buildings are to become characteristics of older buildings as well, local ordinances will be needed. Perceptive and detailed planning of older quarters, the development of arcades, covered shopping thoroughfares, pedestrian "islands," and other proposals of progressive planning will need such understanding as a basis for their action. Area-wide conservation control may unlock financial resources now barred. Investors may back bold plans or projects that form part of such plans where they would balk at halfway measures or isolated projects.

Often what is needed more desperately than anything else in a declining area is some sense of direction, of definition. The design for a single building may provide it. With a better picture of what a district may become, the owners of individual pieces of property can get a clearer idea of what they can do. Confidence in what may happen, conviction about what will happen, are the keys that unlock investment in older buildings. A sound district plan, based on facts and probabilities, is the beginning. Whether it is made by a planning commission, a group of owners, some private body like the Fifth Avenue Assn., is less important than the facts it contains, and their acceptance by owners and investors.

Cities can give more specific encouragement to buildings which attempt to incorporate off-street parking, loading bays and other adaptations to the automobile, the truck, the bus.

MASTER PLANNING



Jungle of buildings inherited by Johns Hopkins will be systematically replaced in accordance with provisions of new 50-year master plan. Some existing buildings will be remodeled, a few to new uses. New buildings will be added. Many worthless structures will be demolished. Ultimately, patients will be concentrated for greater efficiency of service, the site will be greatly opened up and badly needed parking supplied. James R. Edmunds' plan gives volumetric expression to estimated $50 million of new work.

IN PRACTICE —*Johns Hopkins' real estate hodgepodge is based on ineffective formal plans; for tomorrow, a flexible open-end program which promises to work*

Johns Hopkins Hospital did not grow in legendary piecemeal fashion. At the beginning, and at three different periods in its history, well-defined plans were made. Some of them were effective, but the end result is nearly the same as no planning at all. The vagaries of hospital management, the whims of donors, the rise and fall of medical needs and fashions—and the prestige of the medical stars which have adorned its staff—all made it difficult to adhere to the rather formalistic plans that had been drawn. Today's master plan for "The Hopkins," prepared by the office of James R. Edmunds Jr. (architects to the hospital since the 1920s), is more soundly based on the buildings the hospital now uses, and its present and future needs. But it, like all master plans, remains to be tested by time and will succeed only to the degree it is supported by the day-to-day building decisions of the hospital.

Priding itself on its shabby character as evidence that hospital funds are better spent on medical staff and equipment; eager to preserve buildings which symbolize a long and honorable history of medical research and service; striving in its new buildings for an architectural understatement—The Hopkins has evolved an open-ended master plan of such simplicity that it should have a long and useful life. The various functions of this complex institution—teaching, postgraduate training, research and treatment—are clarified. Relationships among them and with adjacent schools of medicine and public health are resolved. Priority has been given only to the most urgent needs.

Keystone in today's policy at The Hopkins is educational service to the medical practitioner. The medical center is thought of as a service center to which the doctor can come for specialized information and refresher training. "You can't carry medicine in a little black bag any more," they say in Baltimore. This outgoing concept of the hospital presents new needs—for parking space, auditoriums, seminar rooms, library and other facilities that have been expressed in the master plan.

Chief need met by the plan was not more beds—The Hopkins has 1,000 beds and an outpatient load of a quarter-million visits annually—it was the enormous increase in doctors' space requirements. A greater volume of diagnostic and treatment equipment, and a better relationship of these to the patient, are needed today. This is reinforced by a Hopkins specialty: basic-research investigations of disease at the bedside, making it infeasible to separate many laboratories from hospital rooms. Carefully studied vertical and horizontal communications thus mark the framework of the master plan. Thirty elevators have been coordinated into a single system and an automatic pneumatic tube system has been installed.

For park and parking

For greater efficiency in servicing, the master plan concentrates patients in the northwest corner of the six-block site. The main entrance has been moved here. This makes the best use of the existing buildings that have good survival characteristics. Ultimately, this group will face south over a broad, virtually uninterrupted, landscaped open space, composed of the present mall and the area occupied by buildings scheduled for demolition. An ambitious proposal to use the space below this park for automobile parking is included in the master plan. In the still more distant future, new buildings will occupy the southern part of the site.

The master plan dovetails with the clearance and redevelopment of a nine-block slum area immediately west of the hospital, in which many related services and activities needed by the hospital community—dormitories, stores, apartments, a physicians' office building—will be provided. This area has now been cleared, and is a notable instance of special-purpose redevelopment.

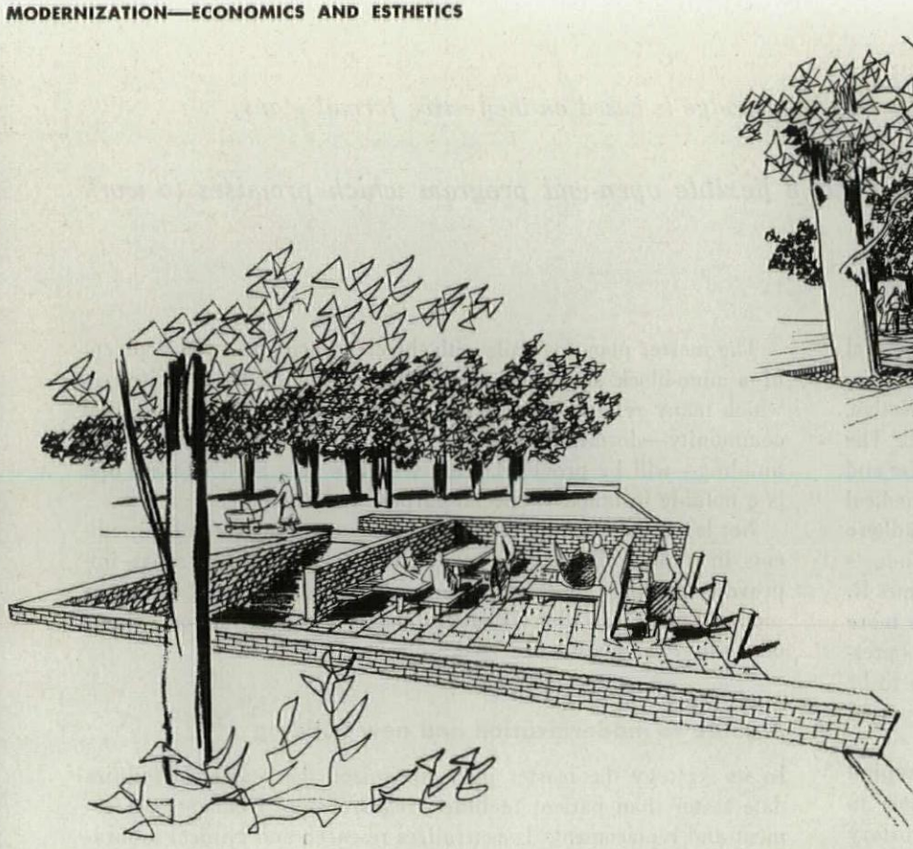
Not least, the master plan's provisions are fundamental ingredients in a $50-million fund-raising campaign for long-range improvements, insuring the best use of funds contributed both in the modernization of older structures and in the construction of new ones as parts of a well-conceived program.

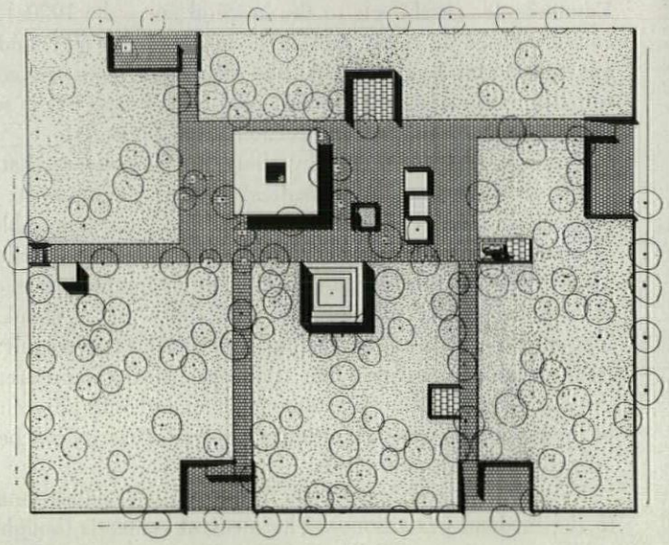
A guide to modernization and new building

In its strategy the master plan recognized that medical facilities date faster than patient facilities, require more frequent enlargement and replacement. It centralizes research and clinical laboratories, puts testing on an assembly-line basis. In its organization the hospital floor is the unit, but one that embraces patient facilities, services and research laboratories. The plan attempts to move to new buildings activities that free old structures for demolition, or which allow their modernization for new uses consistent with the plan. The evaluation of the hospital's older building, always a thorny matter, is simplified by the master plan. Without such a framework, modernization decisions would be made wholly on the basis of structural conditions. At The Hopkins, the women's clinic is now being extensively modernized because it fits the master plan. The Phipps clinic would hardly justify major expenditures for modernization because it occupies a site eventually scheduled for clearance.

The plan also allows better decisions on new construction. These are illustrated in the recently completed unit, embracing the reconstruction of the seventh and eighth floors of the dispensary building built in 1925 as the major operating suite of the hospital, and a new 14-story unit used for outpatients, surgery and research. All eight operating rooms are being completely rebuilt, and two new ones added. By flooring over former two-story operating rooms, additional space has been gained in the eighth floor for a central sterilizing and supply section. The old section on the seventh floor (immediately adjacent to operating rooms) has been converted into a handsomely designed new recovery room. In the remodeling the entire area was air conditioned, electrical current was changed from DC to AC, the reconstruction of the older building coordinated with the design of the new; and eight operating rooms were kept in service at all times during the work.

Experience in redesigning and adapting older buildings has impressed upon the architects the importance of flexibility in new construction. In general, this has been done through modular service layouts, especially to permit easy relocation of laboratories, and movable metal partitions. (It is calculated here that three moves in 25 years will justify the use of movable partitions.) One illustration of how flexibility in new work pays off is the new X-ray building, completed in 1949, housing all types of X-ray procedures. According to the master plan, diagnostic X-ray work will be moved to another new building in the future. At that time the entire 1949 building will be used for X-ray therapy and research and it has been designed accordingly.

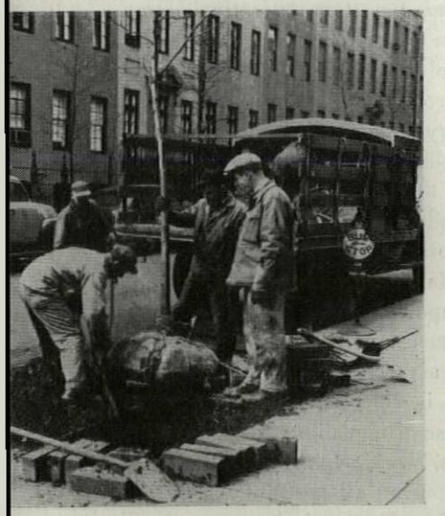




Park modernization: redeeming Fotteral Square is first step in Philadelphia program to redesign 20 city parks. Landscape Architect Robert Geddes separated the initial job into a series of well-defined specialized areas. A sitting area off the sidewalk (above); piazza and spray fountain (upper right).

AREAS NEED MODERNIZATION TOO

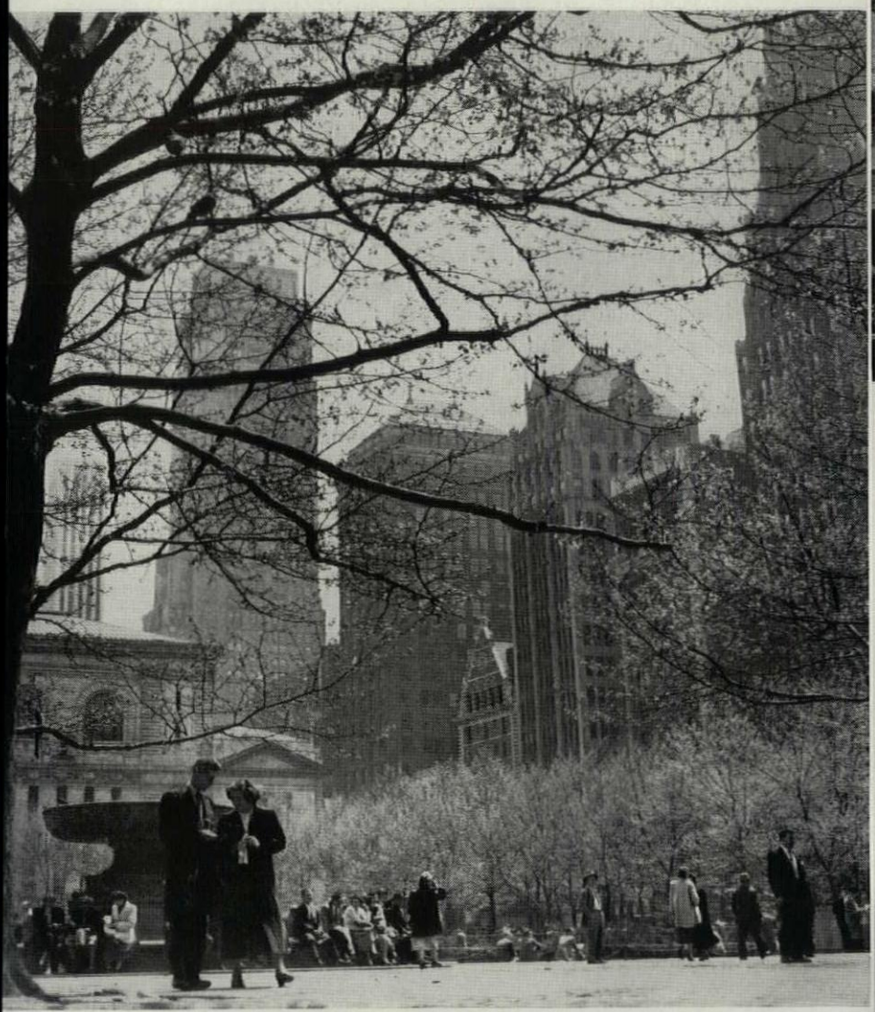
Park and street improvement programs team with private efforts to



Street trees by the thousand are planted yearly in New York, most by organizations of private property owners working to Park Dept. specifications.

Play streets in New York City supplement other recreation facilities. Closed to traffic during play hours, 50 such areas each serve about 250 children.

Floral displays in Rockefeller Center are outstanding illustration of facility serving millions of office workers, shoppers and city visitors from out of town.



Landscaped islands relieve monotonous sea of asphalt and add inviting note to huge parking lot for Bullock's Wilshire department store in Los Angeles. Welton Becket & Associates, architects. Gilmore D. Clarke, consulting landscape architect.

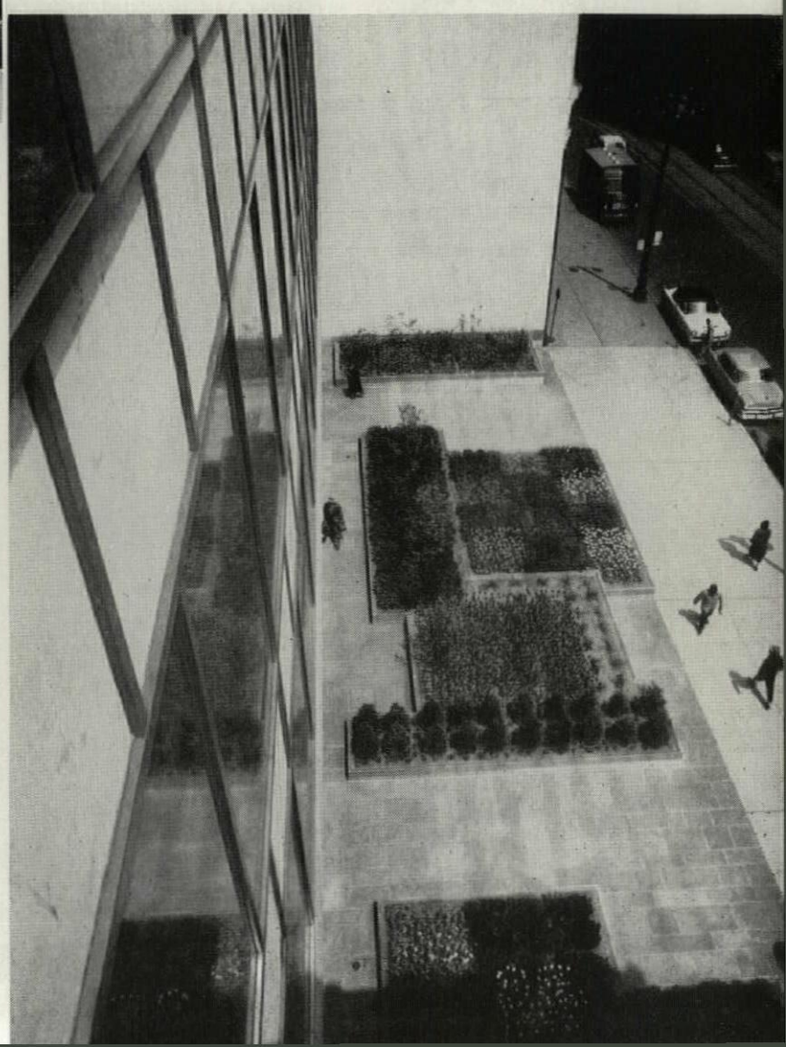
Shade trees and special activities add value and life to centrally located parks used by large numbers of people. Bryant park in New York (left) has outdoor book service from Public Library, noon concerts. Dan Kiley, landscape architect.

Generous site planning: set back from street, Detroit's Federal Reserve building furnishes outstanding example of private contribution toward street-brightening, neighborhood upgrading.

humanize older buildings and districts

Outdoor dining space may be provided in sheltered, sunny areas made available by building alteration. Restaurants often use land leased from city. This one is in Palm Springs.

Photos: Bob Towers; Wide World; Ralph Crane; D. M. Simmonds; © Ezra Stoller



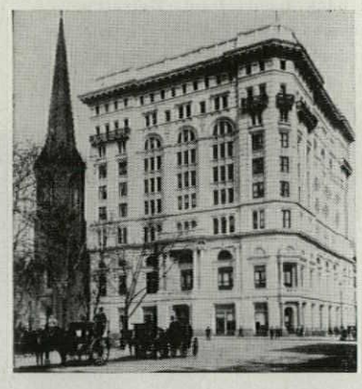
NEW BUILDING vs. MODERNIZATION

Remodeling does not always pay; Metropolitan Life decides it is more economical to replace a not-so-old office building than to modernize it completely

Decision of Metropolitan Life Insurance Co. to demolish its stately 50-year-old headquarters on Madison Square and replace it with a new building on the same site shows the dynamics of modernization in today's corporate organization. Before the decision had been made, dozens of experts in and out of the company had been consulted during the three-year study and contributed to the final decision.

Metropolitan's headquarters consists of the old south building, the first part of which was built to N. LeBrun's plans in 1893 and added to gradually down to 1909, and the north building, built in stages during the period 1930 to 1950. A total of 14,000 employees are divided between the two buildings. In the newer building there is air conditioning, modern illumination, acoustical treatment in noisy areas, large cafeterias and other modern improvements. In the old south building there is none of this. But there is architectural charm, distinction and a certain prestige associated with the older building. (Many of the employees who worked there thought its chopped-up space reflected greater individuality.)

When faced with the need to add still more employees to its growing operation, Metropolitan had to decide where to put them. An earlier study had determined that, with the exception of vital records which were dispersed to Kingston, N.Y., as a security



Fifty-year growth of Metropolitan Life's New York headquarters began in 1893 (left) and was expanded with 1909 tower (right). Between 1930 and 1950 a massive and unrelated annex was built to the north (below). Now the Met will demolish the original building, replace it with a new one of about the same proportions (far right), but will leave the tower to dominate the group.

It was designed in several steps by Dan Everett Waid, Harvey Wiley Corbett and Arthur O. Angilly.

F. J. Adamec

measure, it was not desirable to decentralize the operations of the company with its huge diversified labor force. It was decided that a ceiling on Metropolitan's employment in its headquarters office could be set at about 18,000. The office building problem could thus be stated as providing for an additional 4,000 employees.

Approaching the problem of modernizing the old south building with this objective in mind, a comprehensive study was made by a committee reporting to Metropolitan's President Frederic W. Ecker. The committee consisted of a construction engineer familiar with the company's recent construction, the officer in charge of the home office buildings, and a methods expert thoroughly conversant with the Metropolitan's requirements as to layout and facilities. Working with this group from the beginning were Starrett Bros. & Eken, builders, whose association with the Metropolitan is of long standing; Purdy & Henderson, structural engineers who have been associated with Metropolitan since its home office began to take shape in the 1880's; air-conditioning specialists, Meyer, Strong & Jones; and Architect Leonard Schultz (succeeded upon his death in 1951 by Lloyd Morgan and Eugene Meroni). It was a team of veterans, long accustomed to working together.

A hard look at the south building revealed its shortcomings in terms of high operating costs. The building records showed it cost substantially more to clean than the north building. Street dirt blew in through open windows, awkward spaces defied machine-cleaning methods. Circulation in the building with its various additions was poor, and there were too many elevators of the wrong sizes and in the wrong places. Lavatories were similarly scattered. The lighting was old-fashioned and wholly inadequate by modern standards. The load required by fluorescent lighting to Metropolitan's current standard of better than 35 foot-candles, plus the current needed by the increasing number of office machines—to say nothing of the shift from DC to AC—made it clear the entire building would have to be rewired.

Only a little more costly

Studies were made of the modernization possibilities of the old building. It was concluded that to allow the needed improvements it would be necessary to tear it down to the basic structure of its load-bearing walls, fill in existing courtyards. The estimated cost of these changes—without calculating unpredictable findings in the oldest part of the building fronting Madison Ave.—added up to the discovery that square-foot costs of modernizing the old building would be almost as much as building a new one.

As the study group tackled their problem they found themselves thinking in terms of the building characteristics that operating experience had shown are desirable. Some of them—conveyor systems, pneumatic communications, etc.—had a price tag. But only experience could have shown that the mechanization of insurance work with business machines would not result in savings in floor space. Other managerial rules of thumb were applied—e.g., experience had shown that toilet requirements could be satisfactorily met by providing 150% of code requirements. The area and equipment outline of a new building thus grew readily from known needs and the company's operating experience.

The 12-story building that grew on the committee's conference table as the alternative to modernization of the old south building reflected the thinking of division heads, company executives and consultants. So many people were involved in it that in the end the facts themselves shaped the decision to erect a new building. The most relevant fact was the comparative operating costs of the old building and the proposed new one. Comparison of the air-conditioning costs supported to a degree the case for a new building.

Raised eyebrows greeted Metropolitan's announcement that it had decided to tear down its historic nine-story building at No. 1 Madison Ave. to erect a new 12-story building. But frank incredulity was expressed when it was stated that the old building housed 3,000 employees and the new one would house 50% more than that number, and in addition provide off-street loading, cafeterias, a large auditorium, a fully equipped laundry and other improvements. Seldom has the issue between the old building and the new one been stated so forcibly.

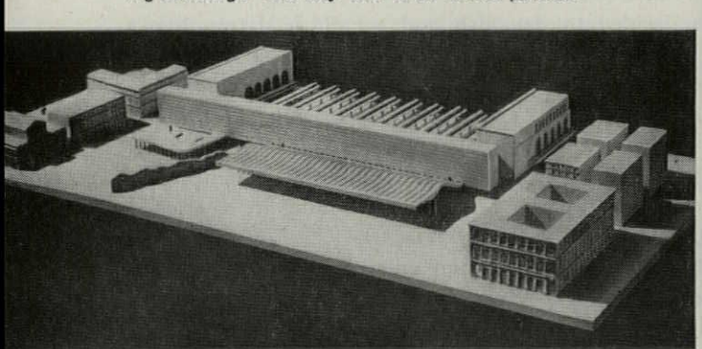
"We have decided to demolish and rebuild," Metropolitan's statement read, "because it would have cost very nearly as much to modernize and air-condition the present structure as it would to provide a similar amount of space in a new structure. In the new building we will gain a substantial amount of space through eliminating the seven courts which occupy large areas in the present building. Modern-day lighting and air-conditioning are so efficient that such courts are unnecessary."

Metropolitan's famous 700′ campanile, its trade-mark since 1909, will remain as the sole vestige of the old building. Next to it will stand the new structure, an architectural envelope for the ideas generated by the corporate decision to build.

Rome's new railroad station pays scant attention to sacrosanct ruin of city wall, despite theory (illustrated below) that unique form of concourse roof was determined by it. Once legal preservation requirements are met, new Italian architecture continues on its independent way. Nevertheless, two basements down are carefully preserved remains of old wall—a reminder that Rome was not built yesterday. To live and work within such an architectural framework is to be presented on every hand with the solid evidence of architectural continuity.

Photos: (top & right) G. E. Kidder Smith; (bot. left) Wide World

Model photo (below) shows new station framed by existing buildings. Old city wall is at left of portico.



MODERNIZATION AS THE ROMANS DO IT

They have learned that there is more to architecture than beauty and utility

In ROME AND A VILLA, *Eleanor Clark showed a lively appreciation of the architectural problems of continuity and change. She noted that the Renaissance hacked Rome to pieces for building materials. Ruins were given a mental purpose. In today's Rome, she found, a slick new apartment has an incision in it to frame a classical column. Three basements down in the new railroad station are preserved the remains of a third century wall. In the longer sweep of history, the broader framework of architectural values, she reminds us "There is a peculiar power in stones. . . ."*

—an appreciation of today's Rome, by the distinguished Novelist Eleanor Clark

From Rome we have learned that the greatest function of architecture is beyond utility or beauty, or rather calls for new definitions of both. A function shared with myth. Architecture, as we have known it there, is the tangible, visible equivalent of myth, casting off and taking on continually but still keeping all the human time of a place alive in one organism, and once we have experienced that wholeness of time we know that it is as necessary to health and happiness as leg room or enough food or the proximity of trees. Mere oldness or mere newness in a city will never quite satisfy us again. The most beautiful building in such a context—frozen in the past or with the sense of quick doom around it—becomes somehow unbeautiful; it makes us nervous. A city is not a painting. Life rubs off on it differently, and requires for it another concept of unity, backward and forward in time, not to offend the human sense too much.

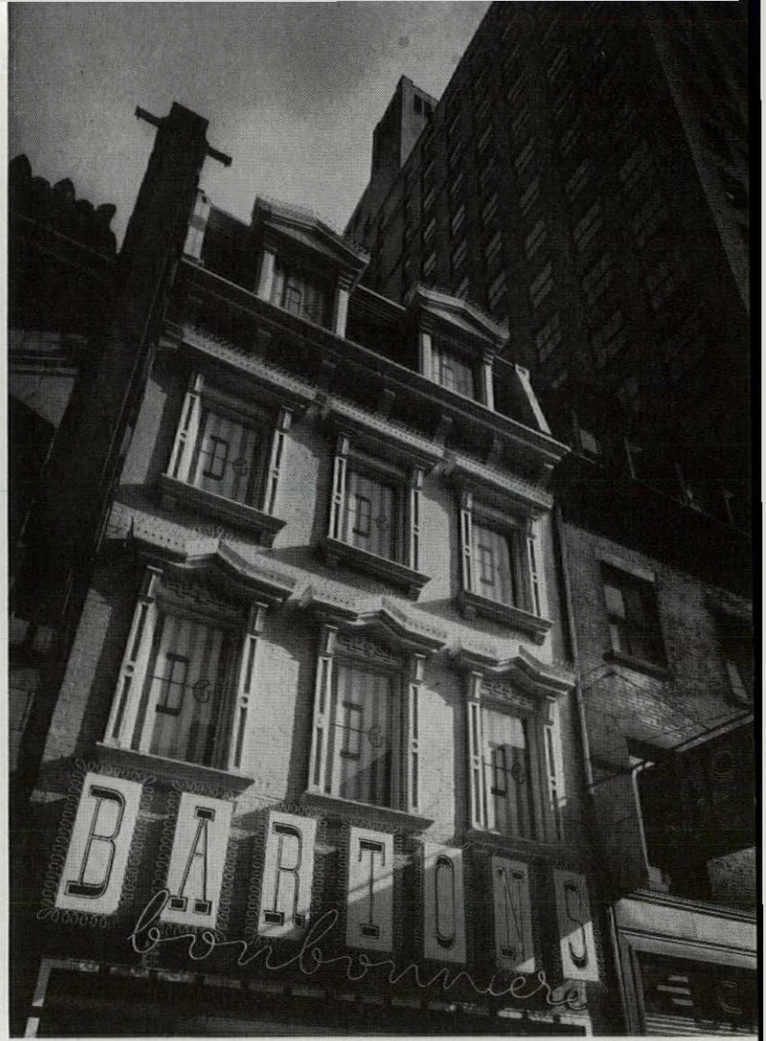
The big mistake about Rome is to speak of the sense of the past, or the "weight" of the past. The past weighs only where vitality has failed. It is the sense of the future that suffers when we see old buildings always being, or about to be, demolished regardless of their merit, and it is the sense of the continual presence of the future that is involved in the beauty of Rome. If you try to pin down the main sensation of the city architecturally you find yourself discarding notions of old and new, since they are all there together, and even, though they matter very much, questions of form and of genius; and what you come up with is strength, which implies action and therefore the future. Strength through incongruity: dreadful incongruity of style, materials, everything; bits of this and that sticking out of this and that, hundreds or more years apart in their origins; buildings with scarcely a principle of design in common making up a unity at some corner or piazza. From which you deduce, since you know the city's architecture to have some magical property that you call beautiful, an effect on the eye, in a certain relation to the needs of the whole human being—that whereas congruity is the soul of architecture in any given work, the soul of a city is in the lack of it—assuming, of course, enough periodic taste and talent for there to be buildings worth keeping. Yet even that is quixotic. Much of Rome's best is gone; as much has been built over until it was unrecognizable; much of what is there is rubble, sometimes with a grandeur of forms still to be seen as in the Baths of Caracalla, but often just chunks of wall standing or lying around to offend the tidy mind.

It would be dangerous to call even those chunks useless. The construction is in depth, the human depth of time, and the fallen eyesore pieces have their part in it, even if it were only to remind you how unsimple a matter it all was and will continue to be. As much ravage and accident as genius went into it always; no simple formula for preservation ever lasted long, and the story is full of villains. It seems that every sin along with all the virtues was an agent in the miracle, including undue or false or crazy respect for the past, or no respect at all. Still the miracle keeps occurring, that something of the building of all the city's time, all its presents and futures, is always there, a giant shabbiness if you like, but comfortable.

Not that any old jumble would do; there is a high proportion of great works in this one. But each of those buildings alone, the Theater of Marcellus or the Palazzo Farnese for instance, or each of their periods alone, could at best have achieved only magnificence. In the larger pattern of time that they create for one another they do something far more, making a place in which no nostalgia, no sentimentality over the past is possible since it was never altogether lost; and in which therefore the present can never be altogether disgraceful.

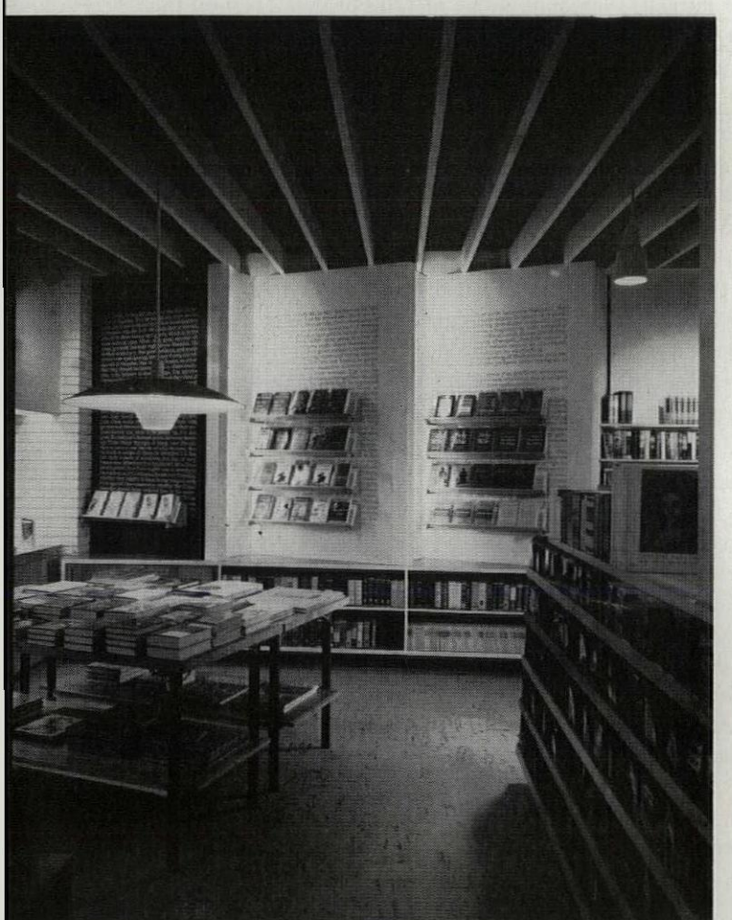
The worst of modern building is absorbed, however improbable that has often seemed, and the best, judged by the depth of one's response to it, is made better by its complex associations. Better in kind, since a so much greater share of our faculties is drawn on for its appreciation. But even on "pure" esthetic grounds, if there were such a thing, one could argue for those juxtapositions, taking for example the easy case of the recent railroad station, across the way from the church that Michelangelo built in the ruins of a Roman bath. In most cities the station would be cursed with shock value, which is never far from irritation; here it takes from its neighbors, and from the sense of the whole city about them, the blessing of a large propriety. The city has established its own esthetics, in time, whereby the old can never really look dilapidated as perpetual newness always does, and modernity is never out of place.

And so you come to hover over a certain proposition, among others, in thinking of the enormous comfort of Rome. It is that a city can be felt as beautiful only as it is livable, and given the human need not to feel one's lifetime as a floating particle, it is livable according to the scale in time of what it can make harmonious.



Paint alone can justify modernization, although this candy shop went much further. A happy coincidence of antiquarian charm and snappy, well-coordinated decorative touches (wirework, signs, fake awnings) produced a cheerful contrast to its unrestored neighboring buildings. Barton's Bonbonniere by Architect Victor Gruen.

Photos: (above) Damora; (below) Hedrich-Blessing; (opp. p.) Moulin Studio



Interior decoration of remodeled Kroch's Bookstore in Chicago keeps what is good, covers up what is not. The best covering material in this case is the merchandise itself. Dave Chapman, designer.

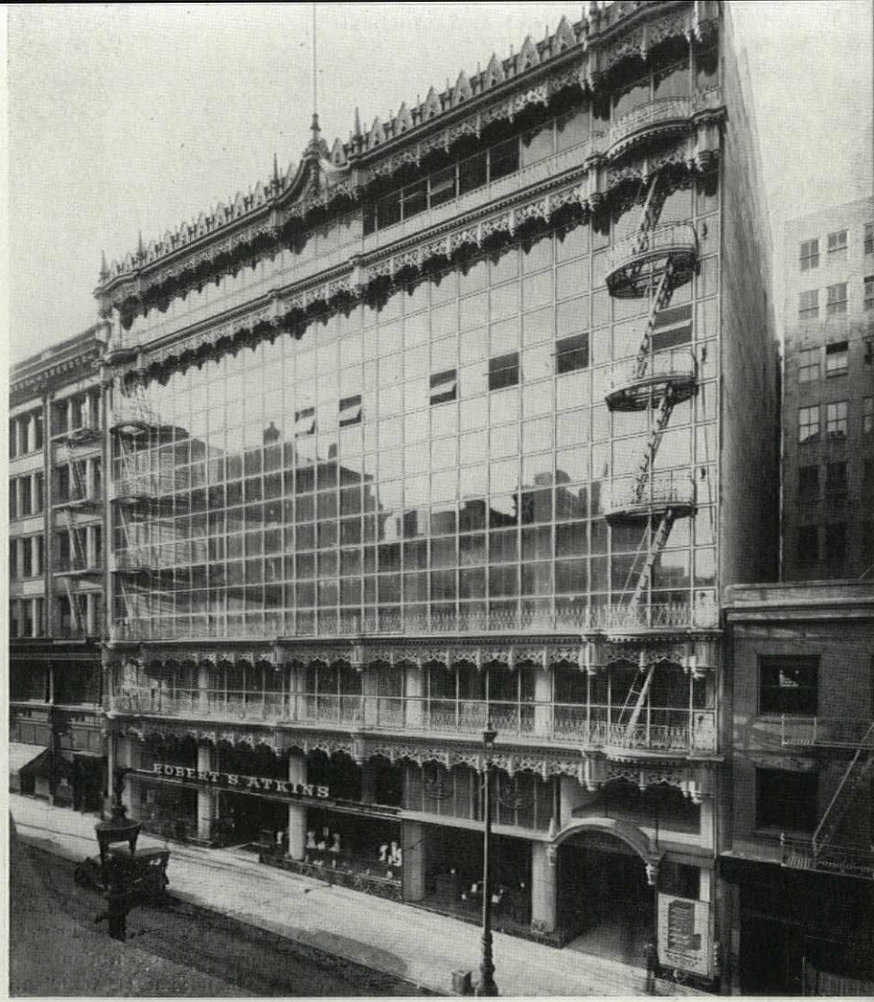
MODERNIZATION and

A new kind of contract and a new appreciation of the values the architect can add to old buildings may draw him back into this field of frustrations

Modernization is not a field that has normally attracted first-rate architects. Their attitude toward modernization as a field of practice is frequently snobbish. ("We don't do that kind of work.") Too many architects understandably look back with undisguised loathing at the last time they measured up a Chinese restaurant. ("I'm glad to be rid of those alteration jobs and hope I never do another.") If the architect's fee, as has been said, is a measure of his estimate of his value, then modernization fee schedules (from 40 to 100% higher than charged for new work) must be considered a measure of his heartaches and frustrations in modernization work.

> We asked David C. Baer, Houston, Tex., architect and chairman of the AIA Fees Committee, about modernization work. He does a lot of it himself and finds it a satisfactory form of practice. "As to fees for modernization," he writes, "it has been my experience that they are normally based on the actual amount of work which is required and in my opinion a multiple of personnel expense type of owner-architect agreement would be most advantageous and would be fairer to both owner and architect."

There is little to be said in favor of prevailing modes of practice in modernization work. Buildings are measured up, alterations are planned on paper, contracts are let—and then the work



Distinguished and prophetic Hallidie building in San Francisco by Willis Polk shows gesture of respect for its architectural past. Recently updated by Architects Burke, Koher & Nicolais, it retains metal gingerbread in bold contrast to glass-wall facade. Spectacular rental gains argue that, as in case of San Francisco's Palace Hotel, it pays to keep what is good.

he ARCHITECT

starts and everyone begins swearing at one another as a series of hidden structural conditions require extensive redrawings and contract change orders. The entire apparatus of drawings and specifications, firm bids and firm contracts is now seriously questioned as the right answer for modernization work. The paper curtain, however it works on new construction, here obstructs. As architects know, when the client has confidence and when the architect is working with a builder he knows and trusts, paperwork can be cut to the bone.

But the coordination of the mechanical elements of a building —frequently the larger part of a modernization project—requires more planning and control. The organization of such work, especially when phased out over a period of some time, is one of the most valuable contributions an architect can make to modernization. But ways must be found to render these services in more appropriate ways, to provide them at the right time and in ways the client will better understand, and to create a schedule of professional charges that more adequately reflects the work done.

The case for independent architects

The case for professional integration takes on a special meaning when modernization is to be done. Here, frequently the architect is "integrated" into the building process in a fashion to satisfy the most rigorous enthusiast for making the architect a master builder and captain of the building team. Whatever one thinks of such arrangements, their prevalence expresses dissatisfaction with the independent architect in this field. Many independent architects and designers have also been retained for limited services by building organizations. This is particularly the case where a higher standard of design is wanted than the boys on the home team can provide.

City and Suburban Homes Co. is a good example of an organization which is now successfully integrating sound staff architectural work with continuity of counseling and direction by such top-flight architects as Edward Larabee Barnes. For over half a century this organization has been a leader in the construction and management of low- and middle-income housing. It is now engaged in the program of modernizing and rehabilitating many of its own properties which were pioneering projects when constructed at the turn of the century, and others it has since acquired which now fall far short of contemporary standards of comfort and convenience and which have been fast approaching the slum category. City and suburban's management and rehabilitation operations have attracted the admiration of housing experts such as Professor Ernest M. Fisher, director of Columbia University's Graduate School of Urban Land Use and Housing Studies. The company has been hailed as the financially successful prototype of the enlightened business organization capable of obtaining the finest professional architectural and planning talent and which, therefore, has the best chance to make a dent in the

New life is given to 20-year-old elevator foyer of NBC Spot Sales office by panels of composition board framed in steel channels. Warren Nardin & Albert Radoczy, designers.

New interior of Central Penn Bank building in Philadelphia shines through new windows and entry —between the carefully preserved Corinthian columns and pilasters of the handsome old building. A friendly merger of old and new by Architects Thalheimer & Weitz.

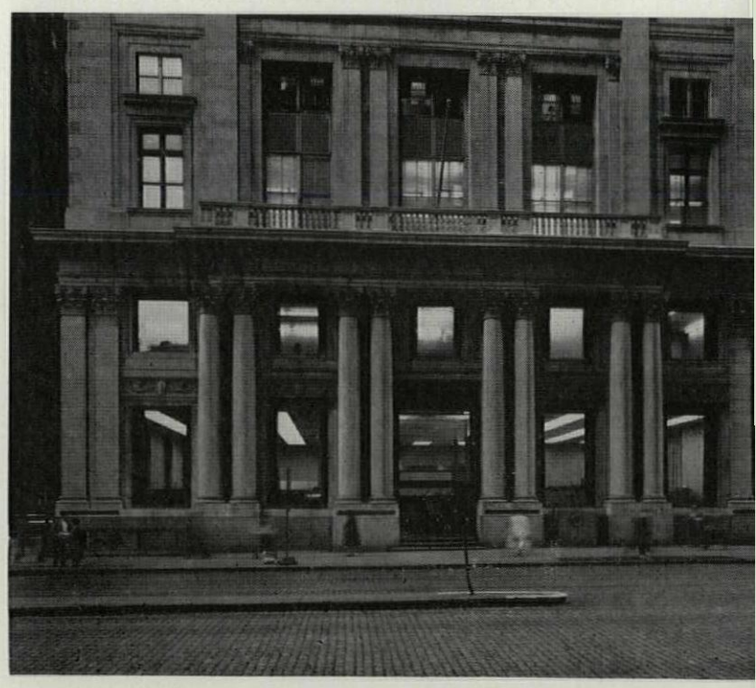
problem of rejuvenating that part of the housing inventory which ought to have a chance of survival.

What most commends the architect in modernization is his contribution to the reduction of risk. This is particularly needed if building money for modernization is to be obtained on the financial terms new building gets. Otherwise such terms are frankly a subsidy. Risk reduction is only in part a question of using the architect's services to control the work and to insure coordination. It commences with the determination of present and future values following modernization, based on a realistic estimate of rent or its equivalent. And it ought to be based on more accurate knowledge of construction costs.

The need for architectural services in modernization is as great as for new work—but the deceptive ease with which improvements can be bought piecemeal, over the counter, direct from the salesman, out of the catalogue, obscures the fact.

The greatest contribution the architect has to make to the owner facing modernization is a broader framework of values, a more objective attitude, a viewpoint that embraces long-range as well as immediate considerations. The value of a building as a whole (and it is precisely here that the "additive" approach of the salesmen of elevators, air conditioning, lighting and other individual elements fails) is affected not only by changes in its elements, but by what is happening to the building as a whole. The relationship to other buildings in the area, to competing structures often at some distance, to transportation routes and other civic elements, to tides of public taste, demands and standards—all these affect value in positive and often dramatic ways.

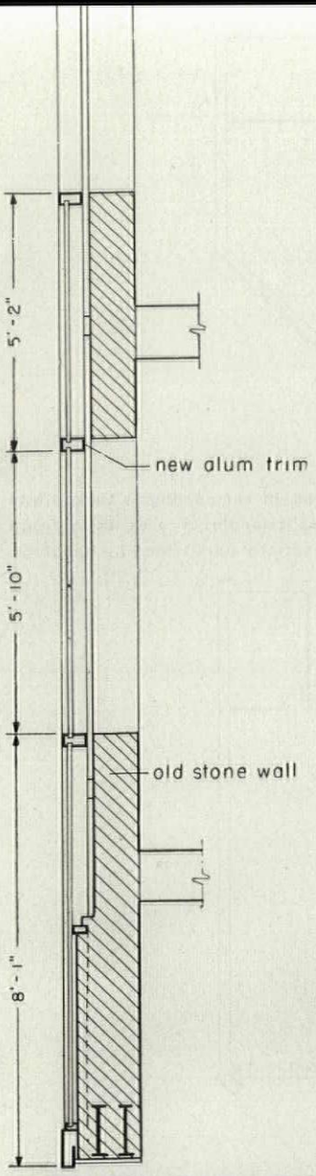
The architect's contribution as a coordinator is important; as a designer it is paramount; but as the one who understands and influences the value of the building, his position is unique.



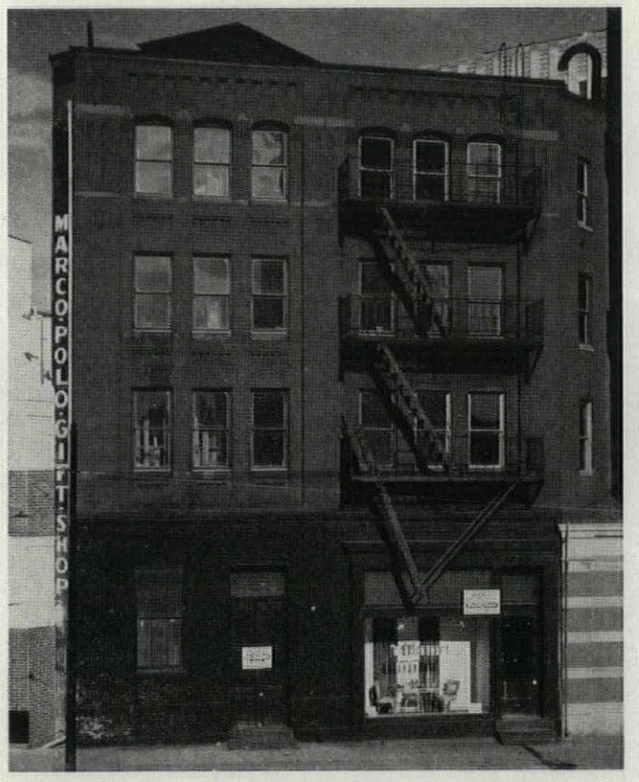
MODERNIZATION CASE STUDIES

Against the foregoing statement of the general economics and esthetics of modernization, FORUM editors have measured hundreds of modernization projects submitted for consideration in this special reference number. Twelve stood out from the rest for one good reason or another: one, a schoolhouse conversion, because it involved only $6,000; another, a $5 million museum rehabilitation, because it demonstrates how modern design can stretch space; yet another, a small office remodeling, because it was done by the tenant rather than the building owner. Similar reasons commend each one of these 12 case studies to every architect, engineer, contractor and building owner and manager who, from time to time, face the intriguing question of how to update a piece of real estate:

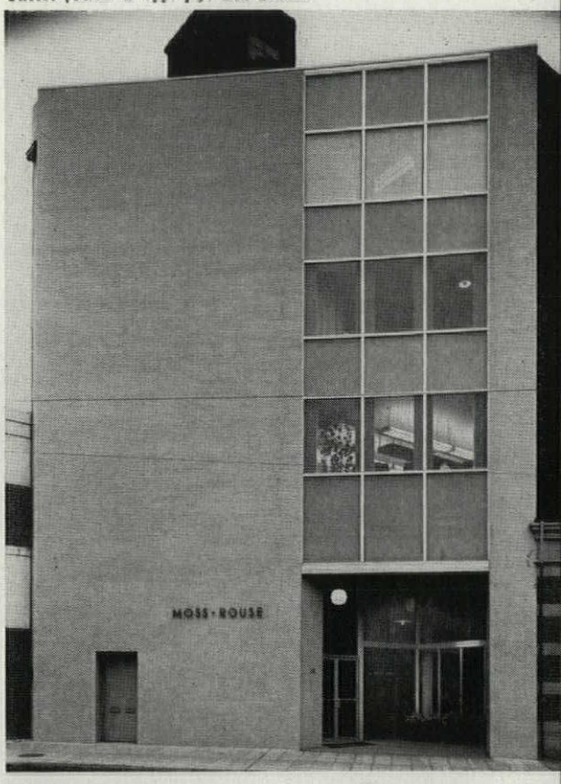

SS - ROUSE
14



Photos (below & opp. p.): Ben Schnall

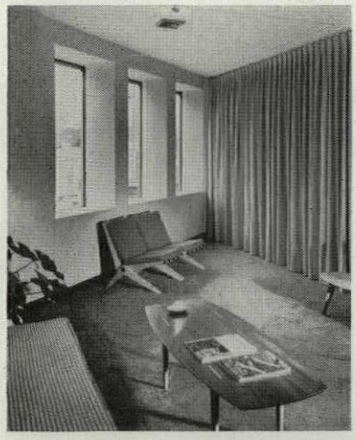


BEFORE



AFTER

This old building was remodeled by the tenant



Second floor front interior shows window openings and brick wall of original structure; glass spandrels merely were added outside.

ALEXANDER S. COCHRAN, architect
RICHARD SCHUBERT, job captain
CHARLES R. SCRIVNER CO.
general contractor

Consultants:

KENNETH WELCH, lighting
DAN KILEY, planting
EDWARD DANIELS of Gomprecht & Benesch Furniture Co., interiors

Architecturally this remodeling can stand up with any in the issue. A turgid old Baltimore brick pile, worn useless by generations of rough tenants and a recent fire, was converted economically by Architect Cochran into an entirely new environment.

But it is in its financial structure that this remodeling really is fascinating. It is the headquarters of the James W. Rouse Co. and the transaction which ended in occupancy gives ample evidence to why Jim Rouse runs one of Maryland's largest mortgage banking firms. Like most other bright building developments, remodeling is detonated by financing. This shows how.

Late in 1952 Rouse was looking for new office space for his mortgage company and one day heard that the owner of a run-down old structure in a wonderful location on Baltimore's Saratoga St. was thinking of renovating. But the building almost inevitably was going into second or third class walk-up office space and this was not the kind of space Rouse wanted.

Then Rouse made a quick calculation on the earning power of the building in third-class condition and, at $1 to $1.50 per sq. ft., it came to about $6,500 per year. He thought a moment, called the owner and made an advantageous deal; advantageous to everyone—the owner, Rouse, even to the worn old city of Baltimore.

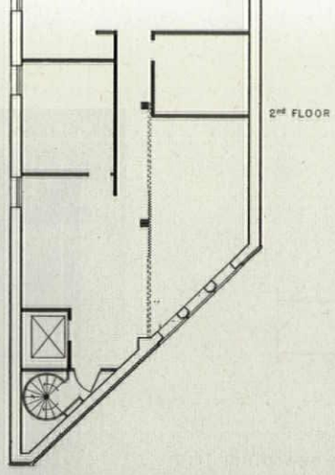
The deal was simple: Jim Rouse signed a lease on the structure as it stood, 20 years at $6,500 per year rent, with the provision that the owner would let the mortgage firm spend as much money as it wanted to recondition the structure and assume this mortgage, which Rouse would pay off in addition to the rent.

Then Rouse called in Architect Cochran. His work was thorough, including a new face and new lining for the building, new space divisions, some new structure (outcast iron columns, in steel), an elevator, and air conditioning. The principal design problem was vertical employee division on three floors with good intraoffice communications—solved neatly through use of a correspondence lift and a rear stair, with toilet rooms on the second floor.

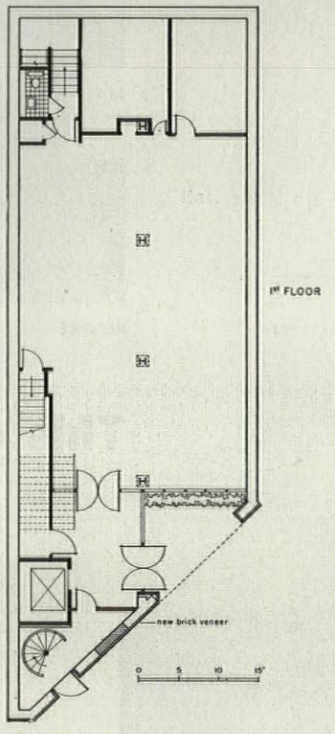
The bill was about $120,000 (excluding furnishings). After placing it in mortgage form with the Baltimore Life Insurance Co., at a cost of about $8,000 a year, Rouse ended up paying a total of $14,500 per year rent, only about $2.25 per sq. ft. for air-conditioned space. How much is he saving? An indication of the answer: he sublet the top floor of the building, unpartitioned, on a one-year lease to Builder Jack Meyerhoff for $3.50 per sq. ft.

Architect's fee: hourly basis plus three times drafting costs.

Receptionist's desk on main floor supervises elevator in public vestibule which serves sublet space on top floor.



Fire stair required in remodeling is tucked into relatively useless triangle of area near front. Second floor is partially partitioned by hangings.



Main floor is entered at angle through public vestibule. Ductwork is all left exposed, sometimes painted in patterns, saving $3,000 in furring. Right, main floor looking toward street.

Ground floor of tenant remodeling features ceiling of unmasked efficiency

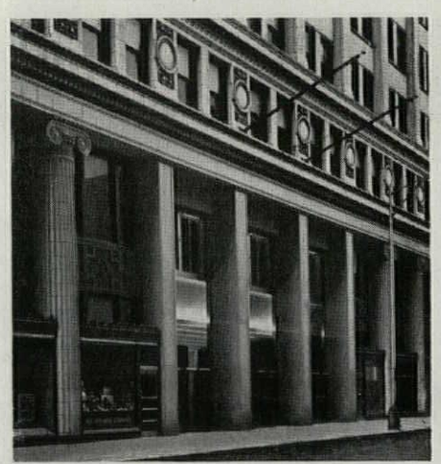
Photo (opp. p.): Ben Schnall

Islands of carpeting and furniture define areas without partitions in wide-open first-floor general office space. Luxurious-looking carpeting is new synthetic blend, under $9 per sq. yd. on contract cost.

Two ways to

Columns still remain in rhythm down facade, but in remodeled bays their ornamentation has been removed.

1. dramatically



Photos: (top) Chicago Arch. Photo. Co.; (bot.) Hedrich-Blessing

INSURANCE EXCHANGE BUILDING,
Chicago, Ill.

NAESS & MURPHY, architects-engineers

JOHN GRIFFITHS & SON,
general contractors

remodel lobbies:

Much the same problem confronted the architects for both these middle-aged office lobbies. They were dated, one in early twentieth-century columnar classic (a genuine Chicago composite), the other in early Rockefeller Center marble-with-metal trim. (Its building was the first of the Center structures, in Oct. '32.)

But if the problem was the same, and the materials used much the same—mainly marble—the solutions deliberately are contrasting. The nature of the contrast is one principally of lighting from the ceiling. Both show how fast lighting techniques have advanced in recent decades.

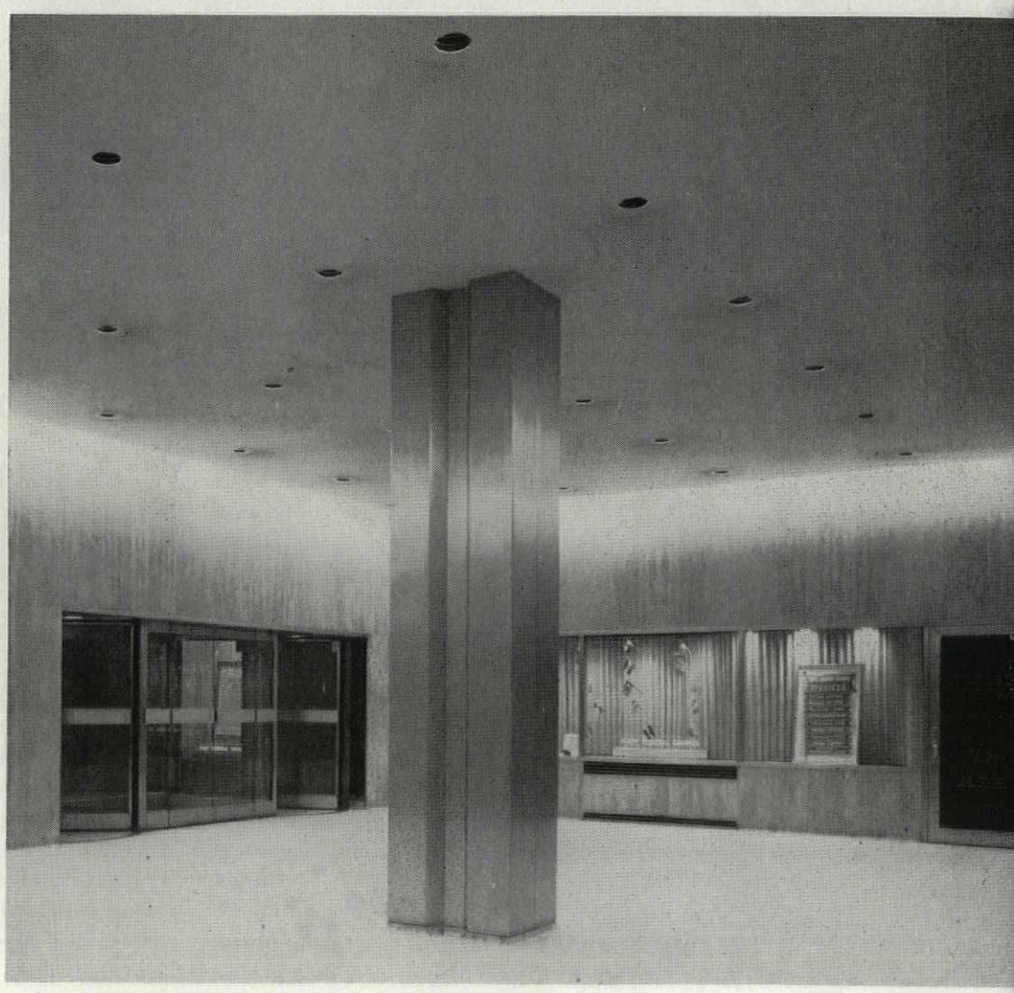
The Insurance Exchange's new lobby ceiling is a long shelving of slanted planes, with fluorescent tubes tucked into the fins. This gives indirect light, but deliberately emphasizes the light source, creating a strong series of shadow lines parallel to the street front of the building. The dramatic nature of this lighting is further emphasized by the dark marble used in column facings, and by the mottled floor. Cost of remodeling: $270,000.

The Rockefeller Center remodeling did not aim for drama, perhaps because this lobby was originally done in that spirit. Instead the new marble is mild, middle-colored travertine, lacking even accents in darker or brighter hues. The lighting is predominantly direct, in contrast to the other lobby shown: here is a real bath of light, poured from concealed ceiling sources. The recessed downlights spread wide pools, hide their light bulbs completely (unless you look almost straight up) and are complemented by the light-colored floor.

AMERICAS BUILDING
ROCKEFELLER CENTER, New York City
CARSON & LUNDIN, architects
E. S. McCANN & SON INC.,
general contractors

Photos: Edward Ratcliffe; Ben Schnall

2. blandly



Photos: Strotmeyer Photo Co.; Ernest Braun

Interior is strikingly cheerful: mezzanine's pressed metal panels are blue, stair is yellow, counter faces are contrasting oak strips stained natural and rich brown, walls are painted color of travertine; columns are black.

"Now we use our best space for customers"

The customers' portion of a bank used to be an alley left over from work space. But now that bankers think of themselves as competitive merchants of service, the routine workrooms have to go into space left over from big, cheerful, efficient customer areas.

The management of this branch bank determined to do right by the customers, though it would have to move routine work space up to the second floor, thereby losing rental income. The architects' suggestion of a glazed mezzanine solved that problem and incidentally provided a strategic location for the switchboard; the operator can see at a glance where anyone is on the banking floor.

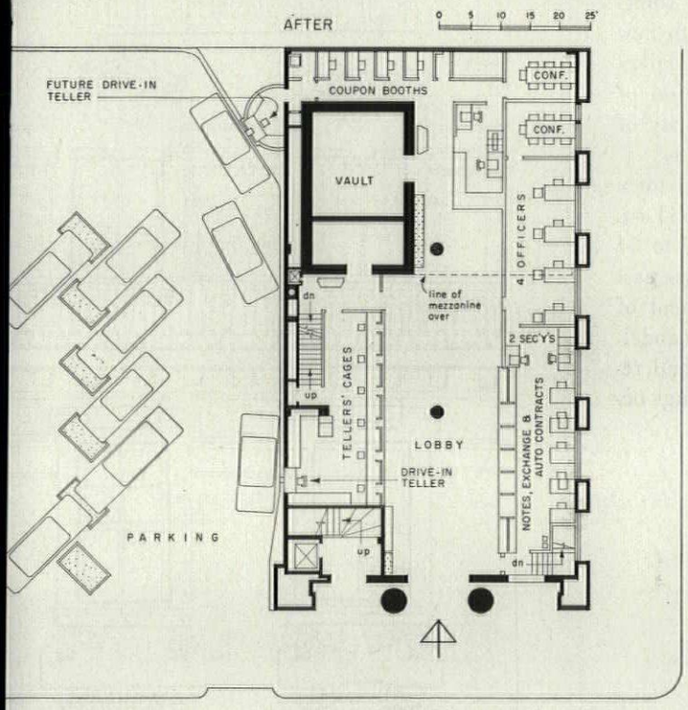
Officers were moved to the rear, both to give customers seeking loans more privacy and to give the officers themselves more peace.

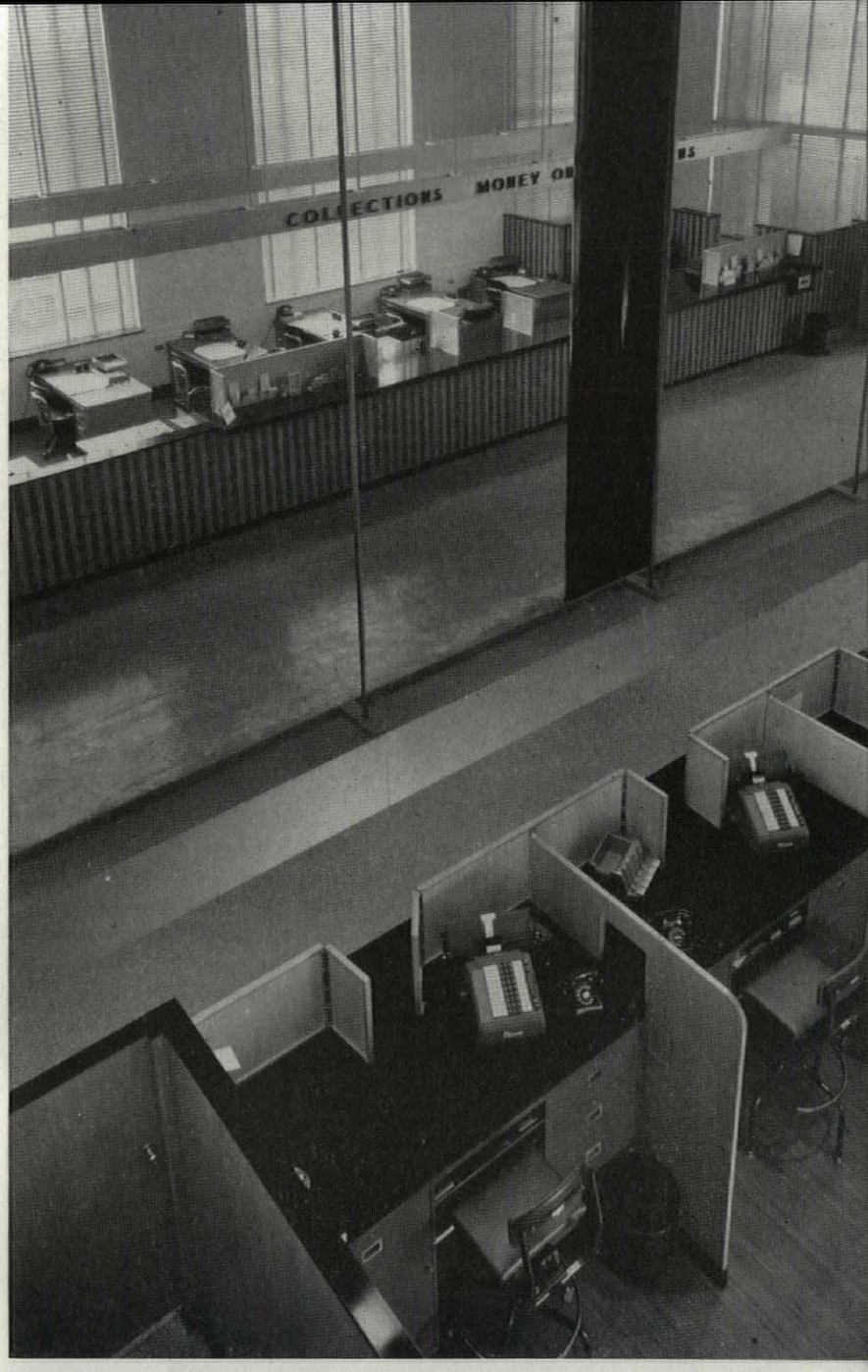
Because banks have to compete for workers too, the basement—formerly inefficient storage space—was remodeled to include recreation room, lounge, lockers and kitchen.

So pleased was the client with the architects' combination of good merchandising design with working efficiency, that they were also given the job of designing or selecting furnishings, right down to calendars, waste baskets.

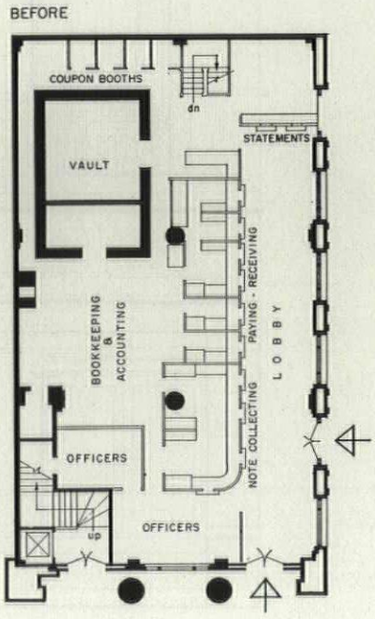
The job cost $167,794, including architects' fee of 10%; $10.24 per sq. ft.

BANK OF CALIFORNIA, Mission Branch
LOCATION: San Francisco
HERVEY PARKE CLARK and
JOHN F. BEUTTLER, architects
H. J. BRUNNIER, structural engineer
GARTHORNE, BUONACCORSI & MURRAY,
mechanical and electrical engineers
DINWIDDIE CONSTRUCTION CO.,
general contractor





Work areas on main floor are now only those involved with customer transactions. Architects designed new banking furniture, like tellers' cages (above).



How to combine four separate houses into one up-to-date office building

The colony of buildings which the Republic of Finland and several private Finnish companies maintain in New York City is a successful, going operation—and a growing one, too. Starting with a remodeling of two of New York's stately old stone-trimmed, brick-fronted, wood-framed town houses, vintage 1900, the Finnish consulate and trading company has now expanded sideways into the next two neighbors.

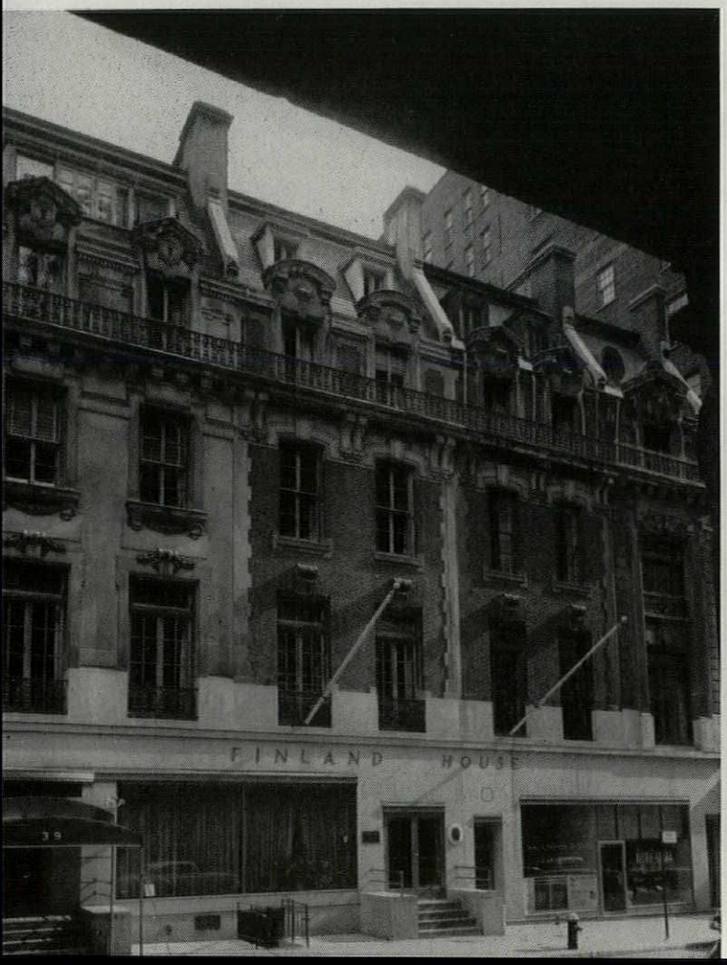
It was in this latest step sideways that the architects ran into two of the most familiar and knottiest commercial remodeling problems:

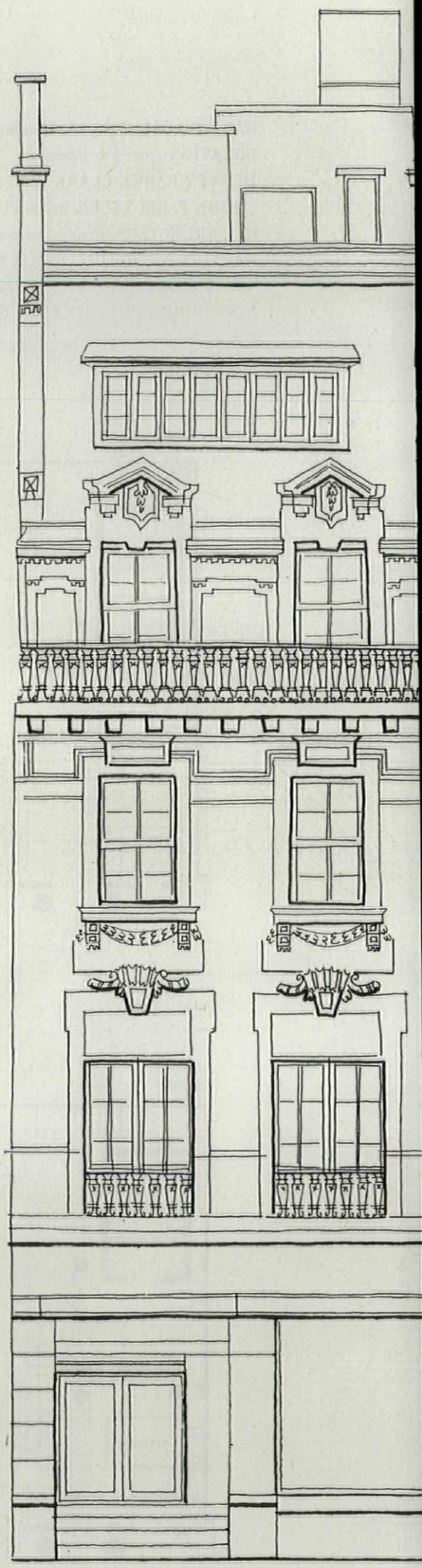
- The change in floor levels between adjacent buildings.
- The problem of squeezing an elevator into one building that originally was many, of adding horizontal circulation to what originally was several separate vertical circulations.

Answers (p. 148) were complicated by the fact that Finland is not the sole occupant of the four structures. The Finnish owners have 14 tenants, ranging from a model agency and a fabric showroom in penthouses, down to an Italianate haberdashery and a real estate office on the store floor. Except for their own offices and restaurant, the building owners did little to the space in the buildings beyond making it accessible, leaving the tenants to divide further their own areas on five-year leases. Proportions are unconventional — some very high ceilings, some very small rooms, formerly servants' bedrooms — but the space rented rapidly, illustrating another lesson for commercial remodelers: sometimes it is better not to compete with new builders in the big general renting market by reshaping old spaces in duplication of new, but appeal instead to the minority of the market with special requirements.

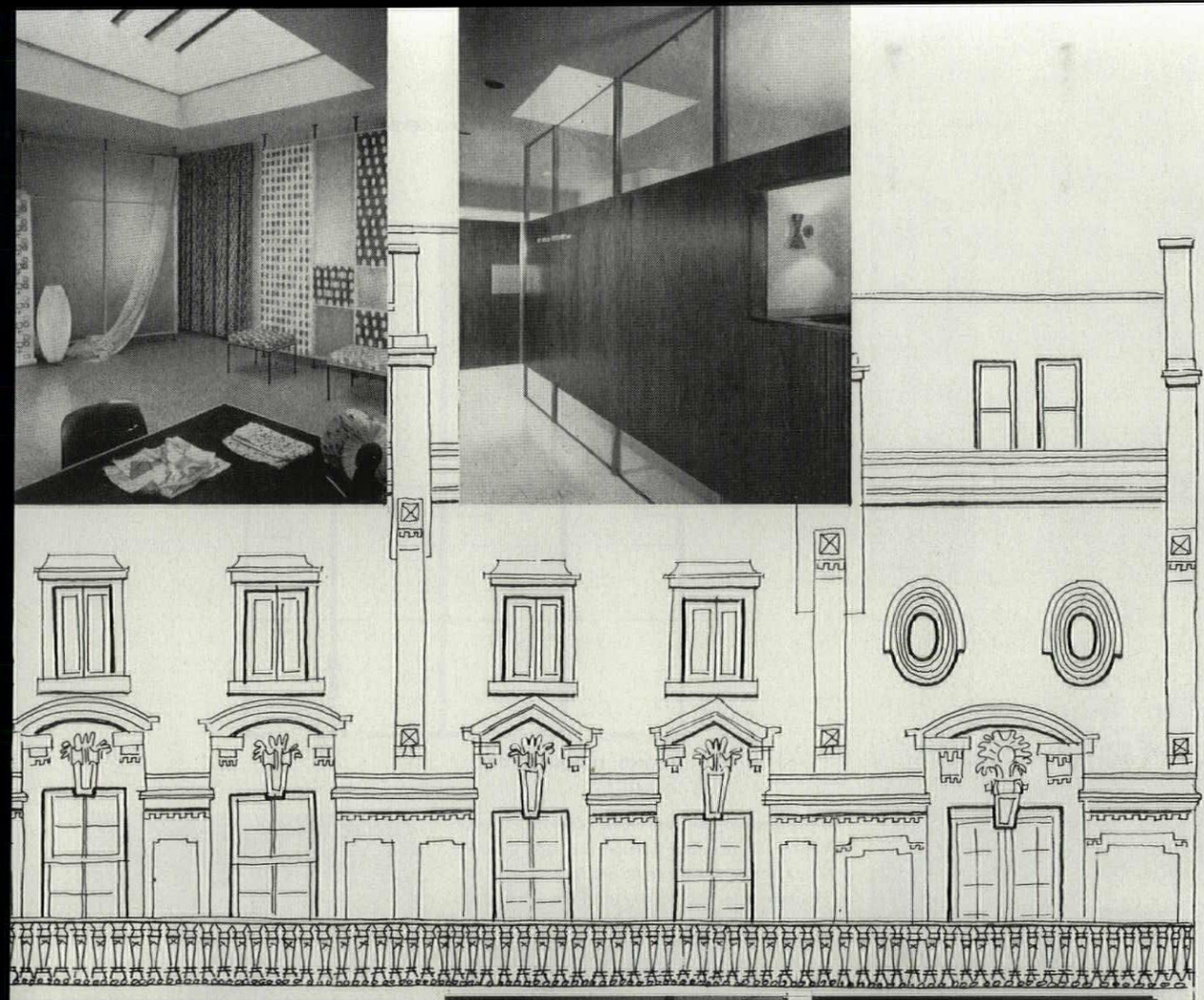
The multiple marriage of the old town houses gave birth to a total of 8,034 sq. ft. of office space, worth from $3.50 to $4 in this top location in the businesslike east fifties of New York. Total assessment of the four buildings is $700,000; remodeling cost: $150,000. This is the second remodeling for the original two buildings occupied by Finland.

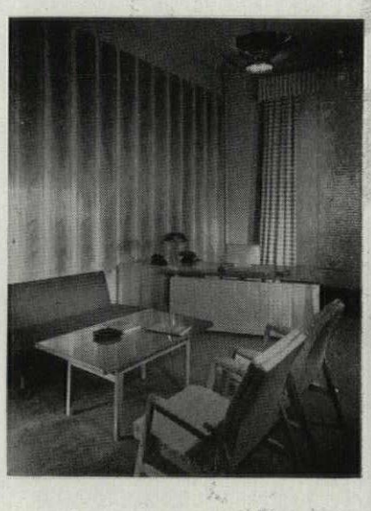
Architect's fee: 10%.

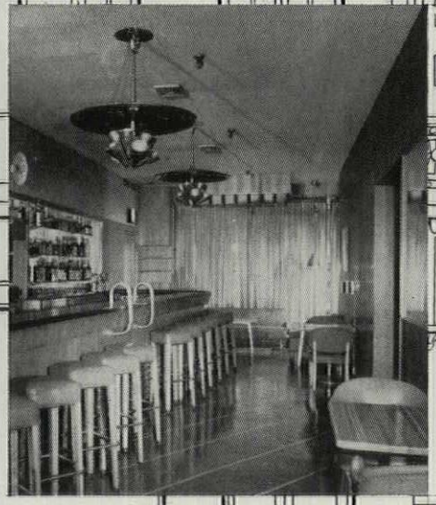


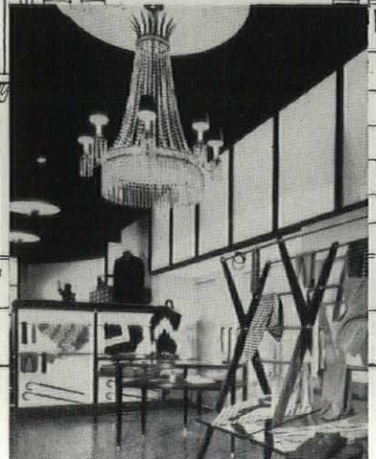


Facade remodeling was carried out only up 1½ stories, preserving the strong character of the four old houses.









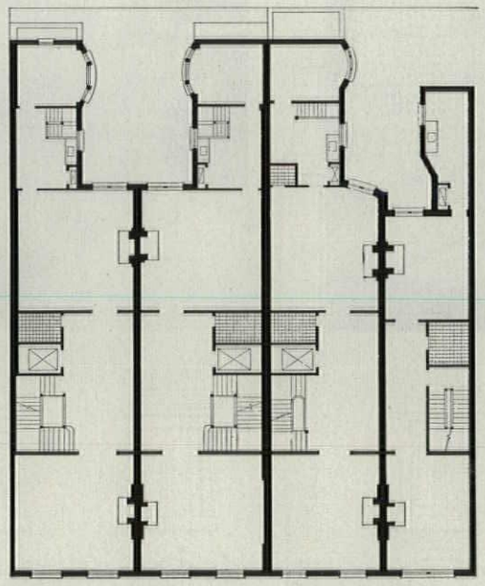
AARNE ERVI
REINO AARNIO
MAURICE SALO
architects

Interior of Ben Rose showroom by Helen Sterns of Ben Rose, architect; interior of Russell-Stewart Model Agency by John D. Caproni, architect.

Tenantry of four combined houses now has wide range. In penthouses are fabric showroom and model agency; middle floors include showrooms and board room of Finnish-American Trading Co. On street floor are Finnish restaurant and bar, real estate office and haberdashery. (Interior of Battaglia Men's Shop by Fred B. Shrallow.)

Photos: Alexandre Georges; others by Ben Schnall

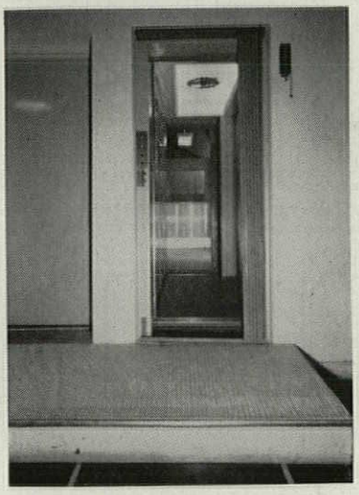
Four houses into one office building:

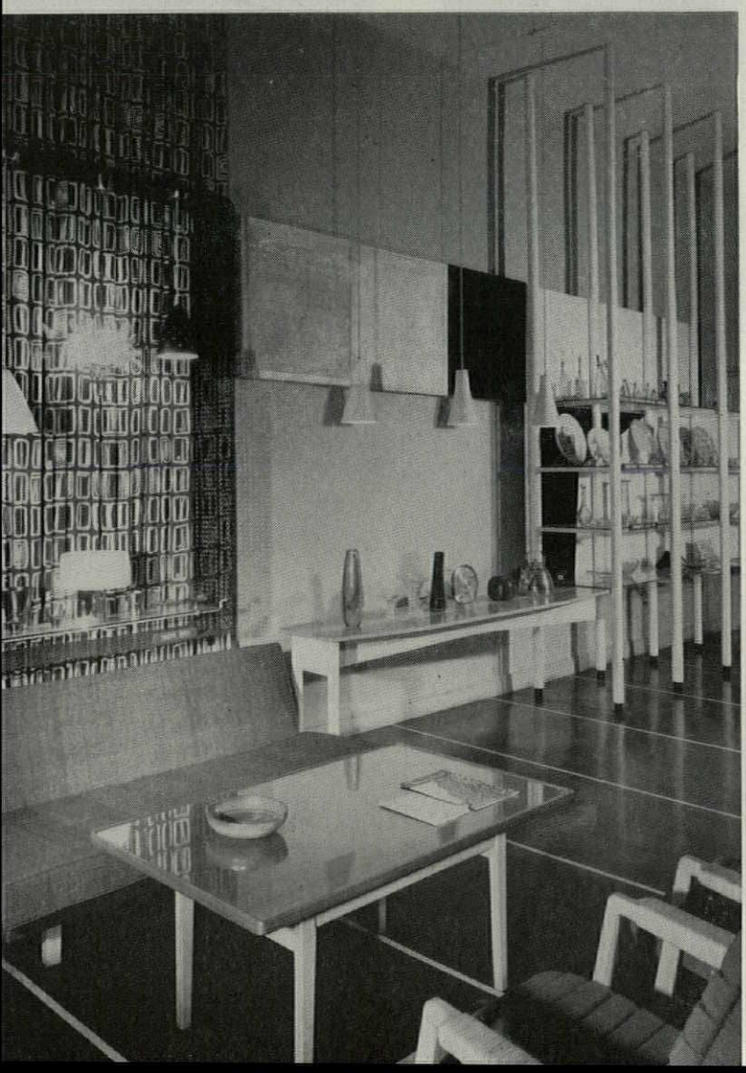


SECOND FLOOR BEFORE

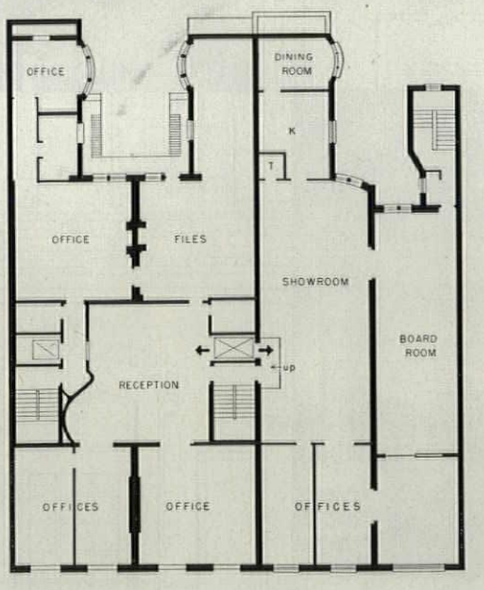
Photos: Ben Schnall

Double-doored automatic elevator near center of the four structures was used to solve the transportation problem. Although this arbitrarily divides each floor into two fairly large office units, one on each side of shaft, without hallways, some tenants share receptionists, and succeed in splitting the space up for smaller use. Different floor levels were not changed. Instead, platforms, steps and ramps economically follow levels up and down from building to building. Platform in front of elevator in picture (right) is one of these transitions. Framing of building still is wood, but was reinforced. Sprinkler system and added fire stair satisfy code requirements.





SECOND FLOOR AFTER



Design roots. Aarne Ervi, noted young Finnish architect, fathered the remodeling during a month's visit from Helsinki. The national flavor is nowhere more evident than in the consul's office (right). Left, top, is board room; bottom, display room.

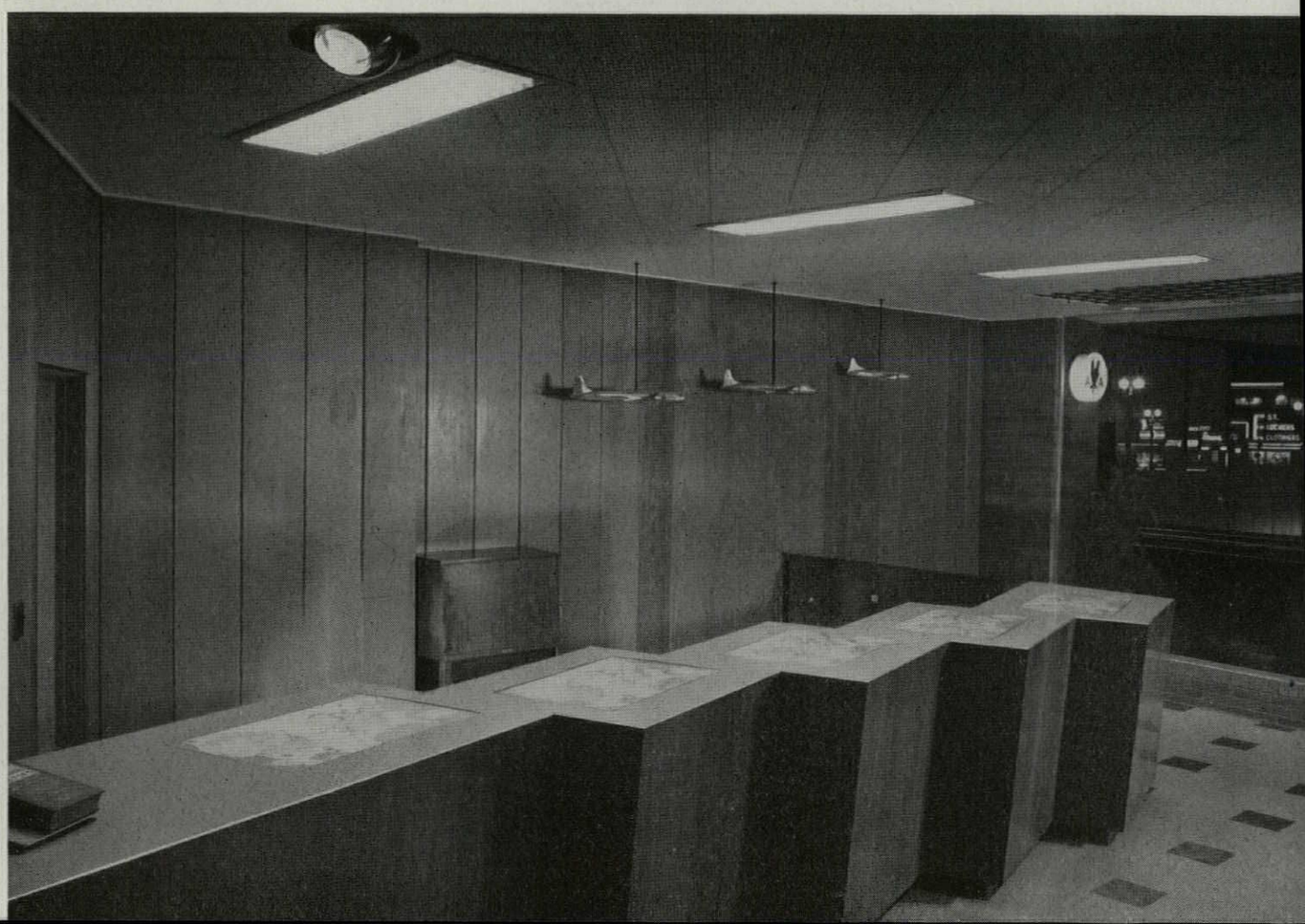
Finishes from Finland recover walls of second floor

San Antonio office runs through from street to hotel lobby. Air conditioner is in brick wall at end of counter. Luminous ceiling has acoustic baffles. Job, including furnishings, cost $15,100. All offices use prefabricated ticket inserts at rear of counter, requiring only telephone connection. Company's own architectural office designs these, all other standard features, also selects site, makes functional layout. Then local architect is hired on percentage fee and company architects take role of client.

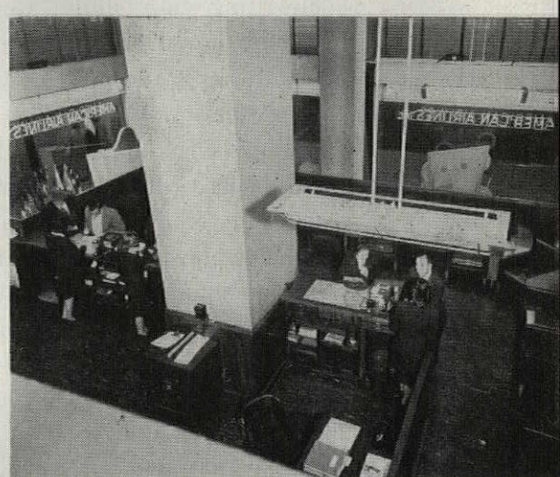
Photos: (above) Ulric Meisel; (below) Ed Sievers; (top & bot. opp. p.) Richard Shirks

San Diego office occupies space in hotel formerly used by another airline. Mezzanine was added for offices. Zigzag counter is space saver. Job cost $44,650.

Three airline ticket offices remodeled

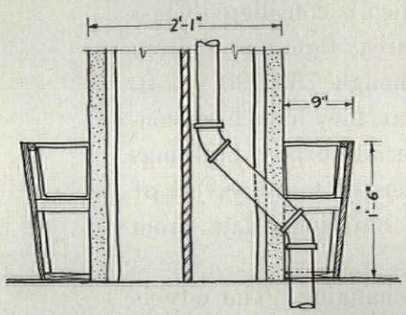


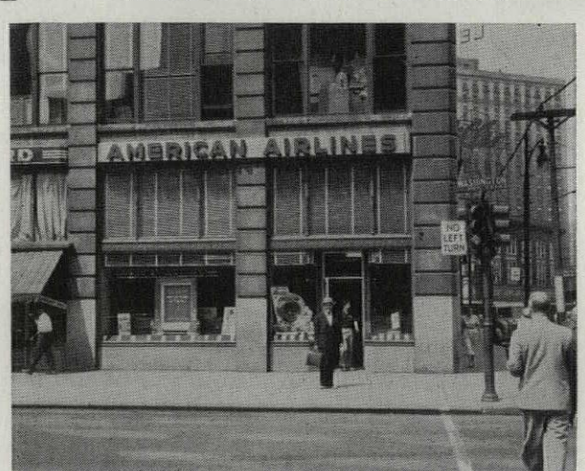
Detroit office occupies former bank quarters disfigured by enormous columns carrying many pipes no longer used. These were ripped out, tighter "packing" job was done with others. Hung ceiling gave room for bends; at floor, planting boxes hide mechanical maneuver.



American Airlines is an old hand at remodeling. Almost all its 50 downtown ticket offices were put into existing space; many have been redone or moved several times. Remodeling policy has gone through three phases: in the early days the company merely stuck up a sign and moved in a counter. Eventually, competition compelled attractive offices but first cost was held as low as possible. Experience proved this poor economy and now, in its third phase, the policy calls for relatively high-cost materials for long-run low costs.

The new jobs use—where possible—brick, wood paneling or vinyl sheets for wall finishes; vinyl tile for floors; hard melamine laminates for counter tops and faces. A $1 per sq. ft. wall finish, as against a 10¢ per sq. ft. paint job, pays for itself eventually, the company says, saves inconvenience and looks well continuously. Job cost differerences reflect differences in size and structural requirements, rather than treatment methods.





Detroit office has typical exterior. Facing stone was removed and corner column refaced with thin cast stone. Luminous ceiling has three lighting intensities—varied with daylight—plus spots. Cost of job was $65,000. Company has worked out nice gimmick with big advertising map-mural. Printed on ten wallpaper panels, complete murals cost only $12 each, are thus purchased and widely used in travel agencies too. Mural is designed so it can be cropped way down if necessary, is then used with shadow-box frame.

San Antonio
CERF ROSS ASSOCIATES, architect
(R. H. Brooks of American Airlines)
JOHN L. HERRON, general contractor

San Diego
EDGAR ULLRICH, architect
(Victor C. Neisch of American Airlines)
MILO BERENSON, general contractor

Detroit
CORNELIUS L. T. GABLER, architect
(Richard J. Winn of American Airlines)
WINKLER CONSTR. CO., general contractor

Denver's building owners and managers say

they will rely on low rents to beat competition

from 1 million sq. ft. of new office space,

but architects are betting on a boom in modernization

Mile High Center

What will Denver's NEW buildings do

When the nation's professional building owners and managers assemble in Denver on June 27 for their annual convention, modernization will be at the top of the agenda and Denver itself will be an unwilling case study. Convention delegates will wonder how Denver's older buildings are reacting to the city's recent revival of new office building construction.

Denver has about 2 million sq. ft. of downtown office space (only half of which is considered Class A), plus 750,000 sq. ft. in areas fanning out from the downtown district. Although 750,000 sq. ft. have been added since the war, they have been concentrated in modest semi-special-purpose buildings in the south and east sections of the city; all of Denver's major downtown buildings date from 1881 to 1937.

But Denver's skyline is changing. The city is now watching the construction of four major new buildings in the downtown area: 1) Mile High Center (AF, Sept. '53), promoted by William Zeckendorf, 2) Shell Oil building, 3) Farmers Union building, and 4) Murchison's Denver Club. This quartet will add 1 million sq. ft. or about 30% to Denver's inventory of office space (100% to its Class A space) and should be giving the owners and managers of the city's existing buildings reason for concern.

To preview the Denver case for BOMA convention delegates (and to enlighten readers in many other cities whose conditions may be similar to Denver's), FORUM asked its Denver correspondent to inquire of some of the city's leading building managers and architects. In brief, he found a somewhat smug "Denver-is-different" attitude among the managers who predict only a minimum of modernization with no air conditioning and a "just-you-wait" attitude among the architects, who, to the man, scoff at the conservative attitude of their potential clients.

The report in full: Denver office building managers and architects disagree widely in their estimate of the local outlook for office building modernization.

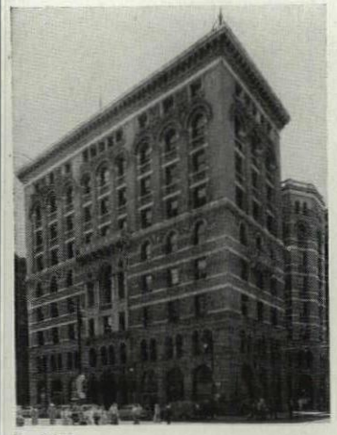
The managers insist that Denver's older buildings have either been kept up to date or are rapidly being brought up to Class A shape. On the other hand, the architects insist just as strongly that there is virtually no office remodeling going on, that Denver building owners and managers are sitting flat on their low-cost footage waiting to see how much they will have to do. Both are partially right.

Managers take comfort in low rents

The landlords have had it easy, for no great amount of rehabilitation has been necessary. Occupancy of Denver office space has been practically 100%, and there has been no new downtown office building competition.

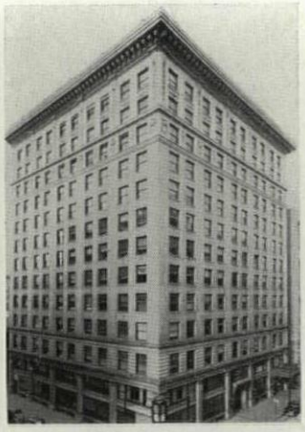
Denver's building managers have not, however, been sitting entirely still. There has been close to $5 million spent in rehabilitation and remodeling of older downtown office buildings since the war. Tom Knowles, building manager for Van Schaack, ticks off buildings managed by his own firm: $500,000 spent on the First National Bank building, $300,000 on the Equitable building, $250,000 on the Boston building, $100,000 on smaller buildings, like the Colorado, Johnson and Patterson. Says Knowles: "Owners and managers of Denver's older buildings have known since the war that their monopolistic control could not last and steps have been taken to keep these buildings Class A. This has taken the form of redesigned lobbies and entrances, better lighting and floor coverings, acoustical ceilings, improved or new elevators, and remodeling of old offices."

A survey bears Knowles out on most of this. Facts are that virtually all salvageable Denver office buildings have had a good going over in the past few years. However, virtually all the ownership money has been spent on "front": entrances, lobbies and corridors. Some work has been done in exterior face lifting; practically none

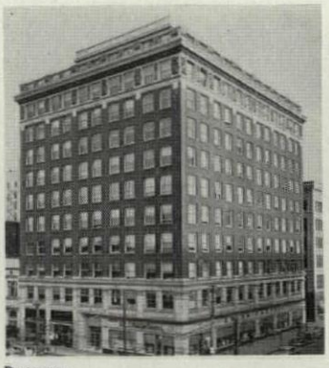


Equitable

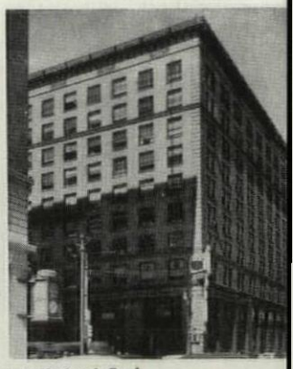
Denham



First National Bank



Patterson



US National Bank

to its OLD ones?

on office space, except for maintenance work, new paint and lighting. No redesign work has been done except for two floors in the Denver National building, leased to Ideal Cement, and one floor in the First National Bank building, rented to Argo Oil. In both cases the remodeling was tenant-, not management-inspired and was extended only to the companies involved, not building-wide.

At the Ross Investment Co., second only to Van Schaack in the number of office buildings handled, Allen Hackstaff, office building manager, says: "Slowly and surely all of our buildings (US National Bank, Railroad Exchange, Denham, Ross, Mercantile, Clintock and Ferguson buildings) are being redone. This is not a new policy dictated by the rising steel skeletons of new competitors, but a policy we have been following consistently for many years. We realized long ago that 100% tenancy of all buildings in Denver was inviting new competition and have been preparing to meet it. We started modernization of our buildings right after the war."

Hackstaff adds: "In general, we believe our footage rates are too low to enable us to do too much office modernization. We encourage and help tenants who want to redo their offices. Until now, if a tenant has wanted a really modern office, he did the work himself, but with new modern office space soon to be made available, we are re-examining our position. We realize we will have to do more modernization ourselves to keep our tenants happy." Meanwhile Ross Co. is busy trying its best to sign tenants upon five- and ten-year leases, obviously to meet the competition. Ross expects to lose some tenants to the new buildings initially, but predicts cockily: "In a couple of years we will be back up to 100%."

John Evans, vice president of Cheesman Realty Co., manager of Republic, Central Bank and Denver Theater buildings, says: "We have carried on a continuous modernization program since the end of the war. We have kept our buildings in Class A standing, tried to keep up with the trends in new lighting, decorating of lobbies, new entrances, and improvement of elevators."

Van Holt Garrett of Garrett-Bromfield, like the other Denver building managers, is unscared of the new buildings, but watchful. He figures that the differential in rents in the old buildings ($2.70) and the new ($4.85 and up) will enable the managers of older buildings to raise their rents and bear much of the cost of extensive office remodeling. He, however, plans no general remodeling, but will be more amenable to tenant requests.

According to Garrett, Denver is unique in some respects. In the East, most office-building managers actually are building operators who leave the leasing of space up to rent brokers. In Denver, a building manager does both jobs. This creates a much closer relationship between building managers and tenants in Denver and makes surveys of tenant needs unnecessary. "We never have any doubts about tenant desires," says Garrett. This also simplifies the rent formula in Denver: "I just sit on the curb across the street and figure how much I can get out of my tenants," he grins. "Meanwhile, they are sitting up in their offices figuring how low they can get me. It's a matter of what the market will pay."

Garrett thinks that competition has not been a very vital factor in the modernization that has been undertaken; "each owner or manager sees it simply as a matter of good business sense to keep the building up." He stresses that elevators have been a prime point of attack, noting that saturation of space by each tenant (i.e., growth in personnel) has put an increasing load on vertical transportation and necessitated renovation of elevators.

No one thinks that Denver's pattern of modernization will be anything like what has happened in Pittsburgh, Dallas or Houston, and most doubt that it will be comparable to what will happen in other cities where new building is going up. All feel that Denver is fairly unique.

Denver's architects are not so sure

Architect Alan Fisher of Fisher & Fisher: "Frankly, not much modernization has been done yet, but the movement to save the faces of these old buildings is going to have to start. With new Class A space equal in area to that in existence becoming available shortly, owners and building managers will not be able to rely on lower rents to save them. Our Ideal Cement remodeling job is the only major one I know of in the past two or three years." (Chris Dobbins, executive vice president of Ideal Cement, adds: "We have been approached by agents of the new office buildings, but they haven't had anything to offer that we don't already have. Our office will stack up with any I have seen in the East, although we are in an old building.")

Architect Thomas Moore: "There hasn't been much in the way of architectural and structural remodeling of office space in Denver. Most of the owners and managers figure that rental rates are in their favor and are waiting to see how much competition the new offices will give them. I have done some preliminary plans for remodeling offices in the older buildings, but such work as is being done is being done by building engineers—and looks like it!"

Architect William C. Muchow: "There just hasn't been much modernization, but it is going to have to take place. Building owners and managers are going to have to start thinking differently. It looks like a big field for modernization in Denver." Muchow thinks it will take the form of considerable interior work, little outer face

continued on p. 246

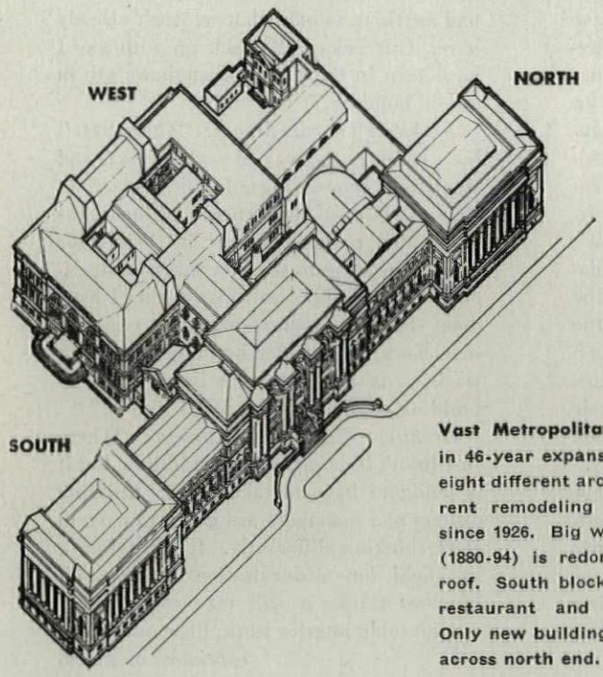
Photo top of p. 152
Lionel Freedman

Exterior remodeling of the Ross building includes new porcelain enamel skin for lower floors.

Courtesy of Metropolitan Museum of Art

Old galleries led eye down long vistas, had awkward proportions

New gallery: Tiepolo room magnificently illustrates how light, simple



Vast Metropolitan Museum was built in 46-year expansion spree as work of eight different architectural firms. Current remodeling is first major work since 1926. Big west block, oldest part (1880-94) is redone from basement to roof. South block got new mezzanine, restaurant and vertical circulation. Only new building is long, narrow link across north end.

Remodeling–a new version

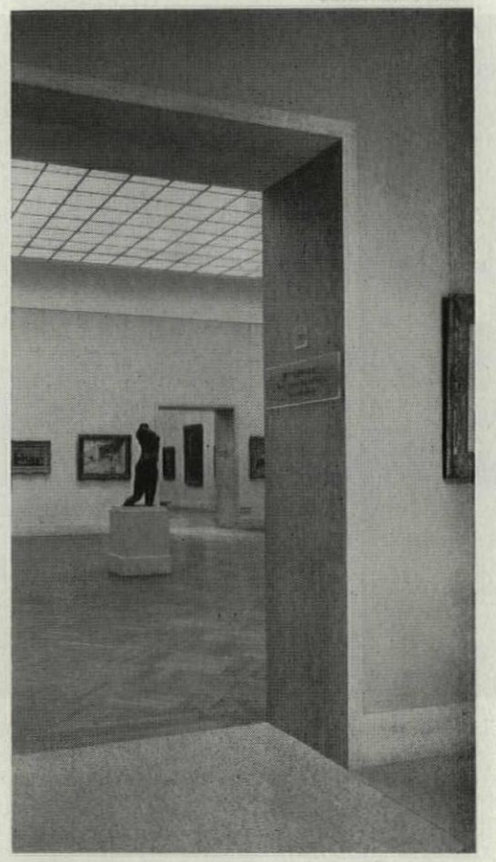
New York's Metropolitan Museum of Art has finished the first stage (three to come) of its mammoth reconstruction program. Completed so far: 101 galleries and period rooms, dozens of offices and service areas.

The results in general are very good. New lighting (AF, March '54), calm, understated detailing, concern for the persuasive rather than the intimidating vista, all help show off the museum's treasures as never before. The refinement of background parallels a refinement in display policy: exhibits in the new galleries are creatively "edited"; students' and scholars' rooms take the encyclopedic overflow.

But these refinements are only a part of the story. The remodeling also amounts to an enormous expansion which ranks—as far as gain of effective space is concerned—with the great McKim, Mead & White wing-proliferating days of 40 years ago. It gives the museum almost 30% more exhibition floor area in the wings affected, and an

detailing suits more flexible exhibit techniques

Photos: Ben Schnall



Offset doors and hung ceiling heights determined individually by proportions of each room give grace and subtly urge next room's exploration.

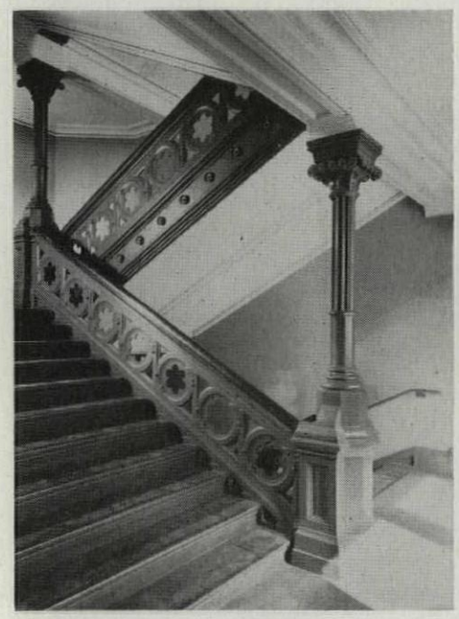
METROPOLITAN MUSEUM OF ART
R. B. O'CONNOR & AYMAR EMBURY II, associated architects
LAURENCE S. HARRISON, lighting engineer
TUCK & EIPEL, structural engineers
CAULDWELL-WINGATE CO., general contractor

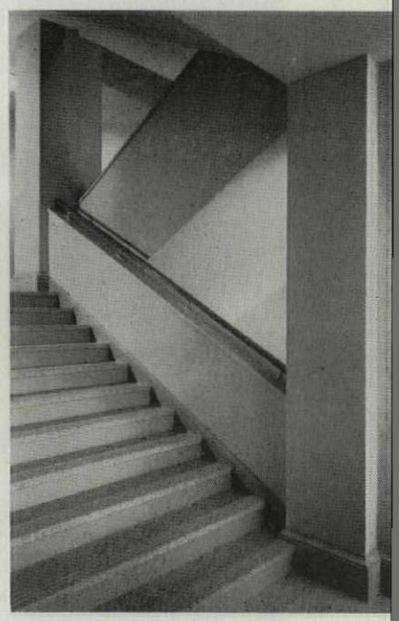
# of museum expansion

even greater gain in usable wall surface for exhibitions.

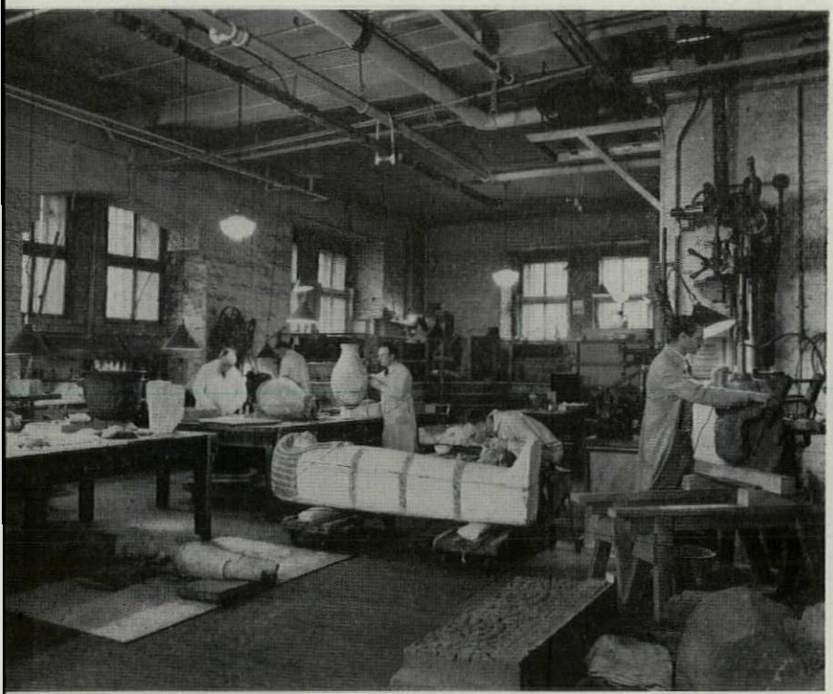
Architects O'Connor & Embury gained vertical space by roofing courts, by putting an office mezzanine beneath one of the grand 22′-6″ ceilings. They gained horizontal space by reorganizing and recapturing vast storage, maintenance and workshop wildernesses. "We are indeed fortunate," says Director Francis Henry Taylor, "that the sense of grandeur of the architects of the past endowed us with such monumental *salles d'espace perdu.*"

The structural problems were as monumental as the spaces. Cutting old buttresses demanded elaborate and expansive provisions for thrusts. To minimize wall cutting, courts were filled with freestanding structures, and where they had been partially filled in the past, new framing had to go around the old—boxes within boxes within boxes. The job was 12 solid years in planning and construction; construction cost was about $5¾ million. Architects' fee was an inadequate 4% for planning, 4% for inspection.

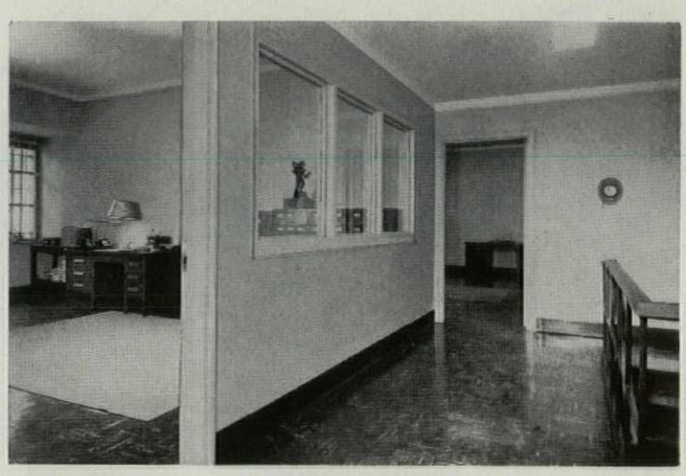




Old cast-iron stairway is encased in plaster. Result is undeniably cleaner but devitalized. Instead of bland erasure, why not keep some ancestral vagaries, perhaps accenting their ebullience with paintbrush?



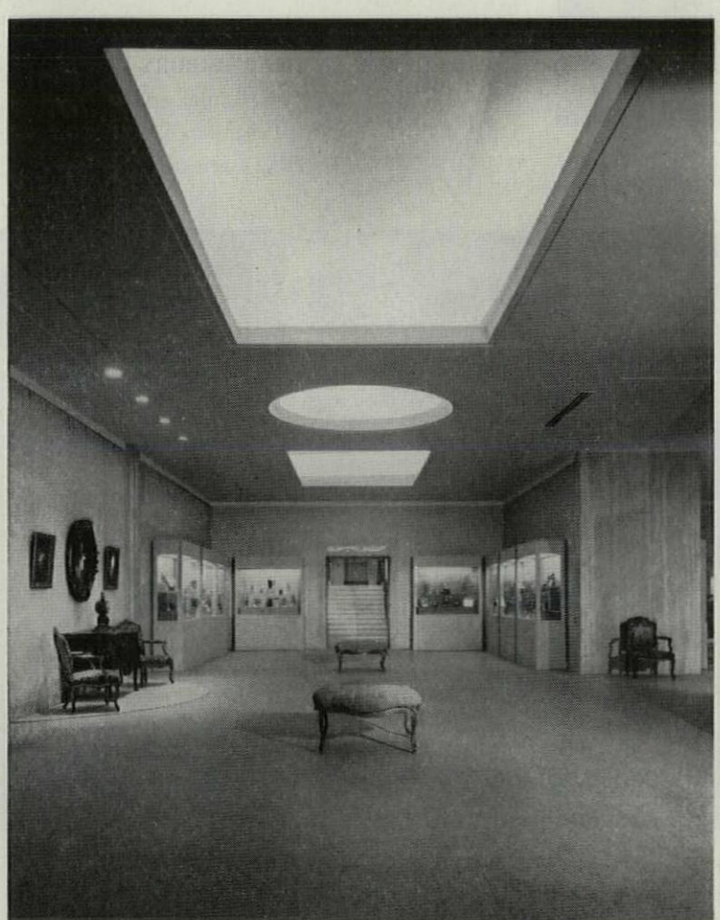
Old ground-floor space was largely a fascinating warren of makeshift workshops and depressing warren of inefficient storage. High-speed ventilation and humidity control allowed great inward "expansion."

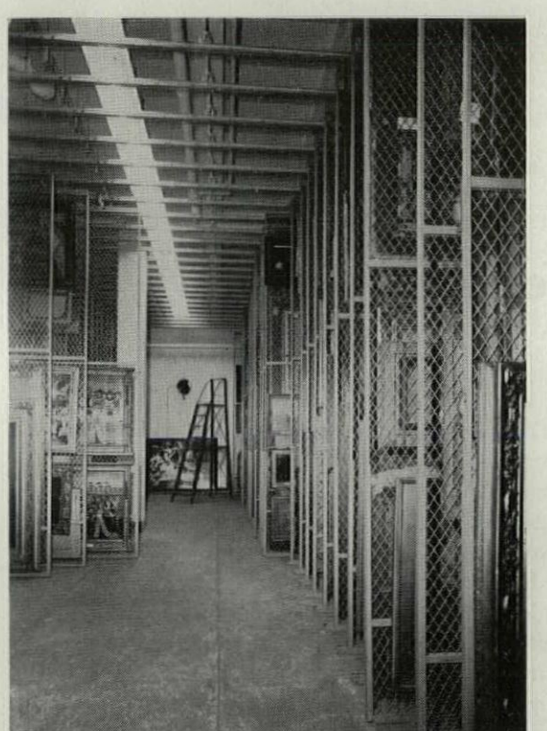


Ground-floor offices occupy former workroom corner (shown at left). Floor was raised 4', which brought window sills to 3' above floor, converting "dungeon" into acceptable curatorial department.

On the ground floor alone, a wasted acre-and-a-half reclaimed

Ground-floor gallery is typical of handsome space carved out of basement storage. Design of ceiling coves cuts apparent gallery length, gives formal axis to adjoining rooms. Eventually building will have a major entrance on this level which is at main sidewalk grade.

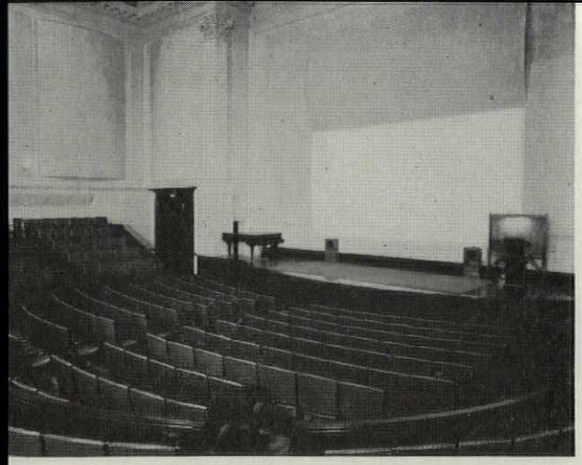




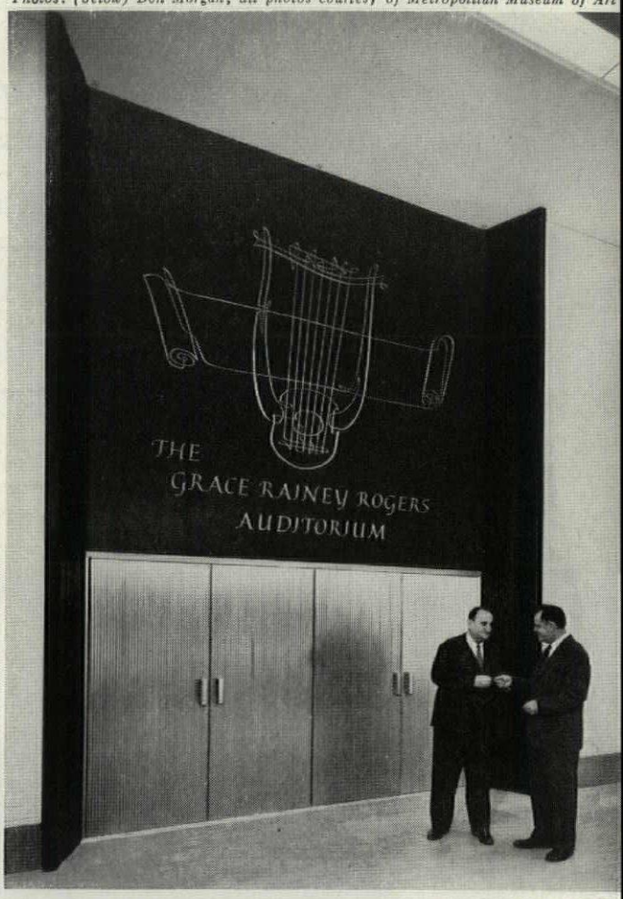
New storage for European paintings occupies top floor area created by filling court. Fragment of court remains as light shaft to work corner. Efficient storage takes only fraction of former area.

GRACE RAINEY ROGERS AUDITORIUM, Metropolitan Museum of Art
VOORHEES, FOLEY, WALKER & SMITH, architects and engineers
BOLT, BERANEK & NEWMAN, acoustics consultants
GEORGE A. FULLER CO., general contractor

Photos: (below) Don Morgan; all photos courtesy of Metropolitan Museum of Art



Old lecture hall faced in opposite direction



Entrance is set in oiled black slate

Auditorium is unique plywood concert shell

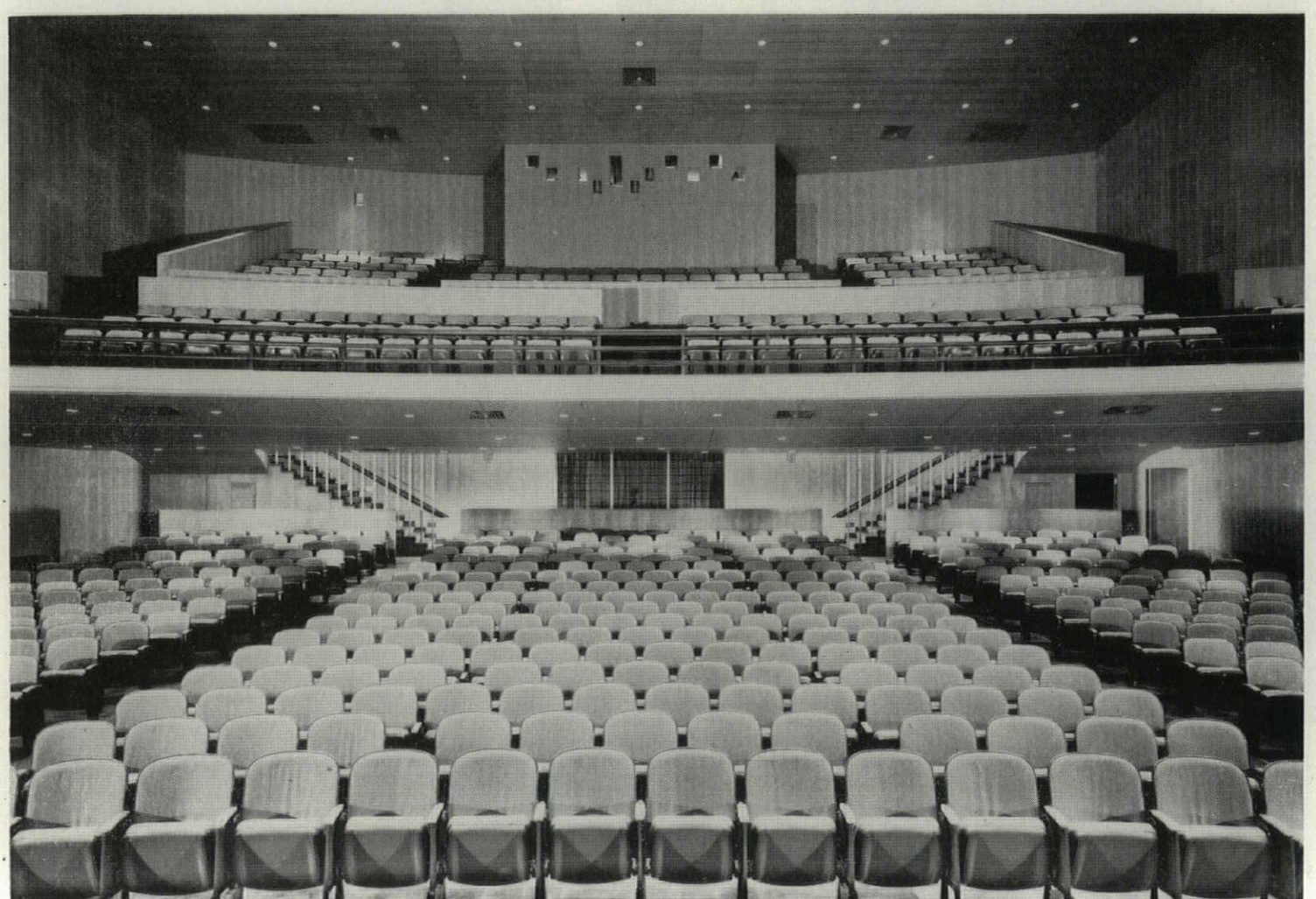
Acoustics in this auditorium are not simply good; they are exquisite. The most elusive tones of ancient musical instruments are carried with fidelity into every corner.

The interior shell—except the carpeted floor—is all ¼" plywood; on rear walls the wood is perforated and backed by an acoustic blanket. Concave plywood sound reflectors are suspended from the ceiling over the stage.

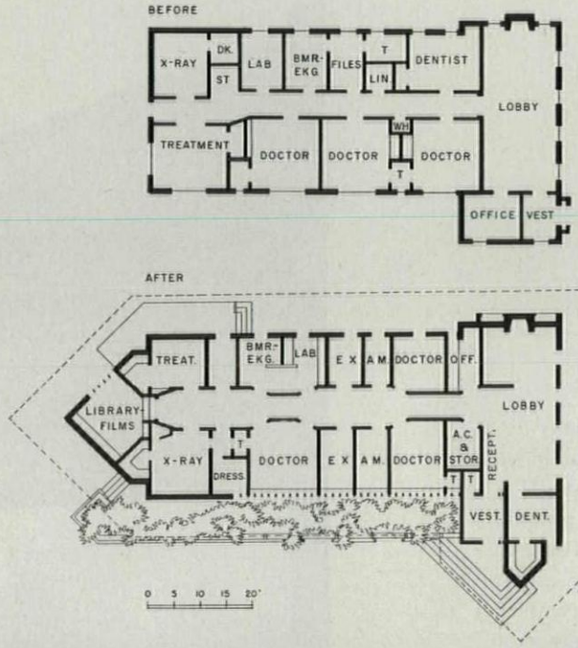
This concert-lecture-movie hall, which seats 708, replaces a 368-seat lecture hall that jutted into a courtyard. Among the old hall's many disconcerting features was its public entrances—at either side of the stage!

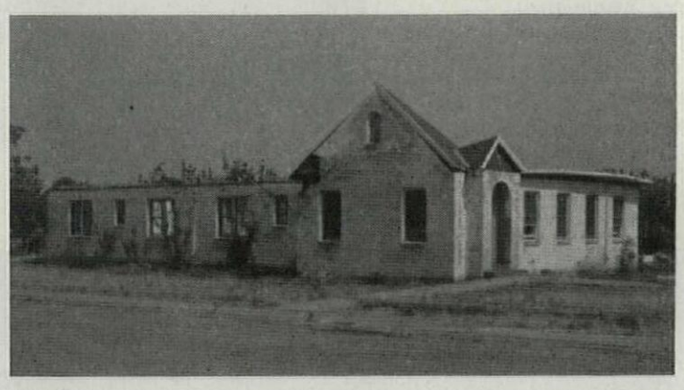
The architects, taking the premise that they had hall plus courtyard to work with, tore out everything except a portion of existing masonry walls and in effect built an entirely new three-story building deep inside the museum. Construction cost, which includes broadcasting studios, ground-floor entrance and cloakrooms with circulation to main-floor entrance, and auxiliary galleries, was $1 million.

New auditorium has gleaming, straw-colored wood shell, blue fabrics

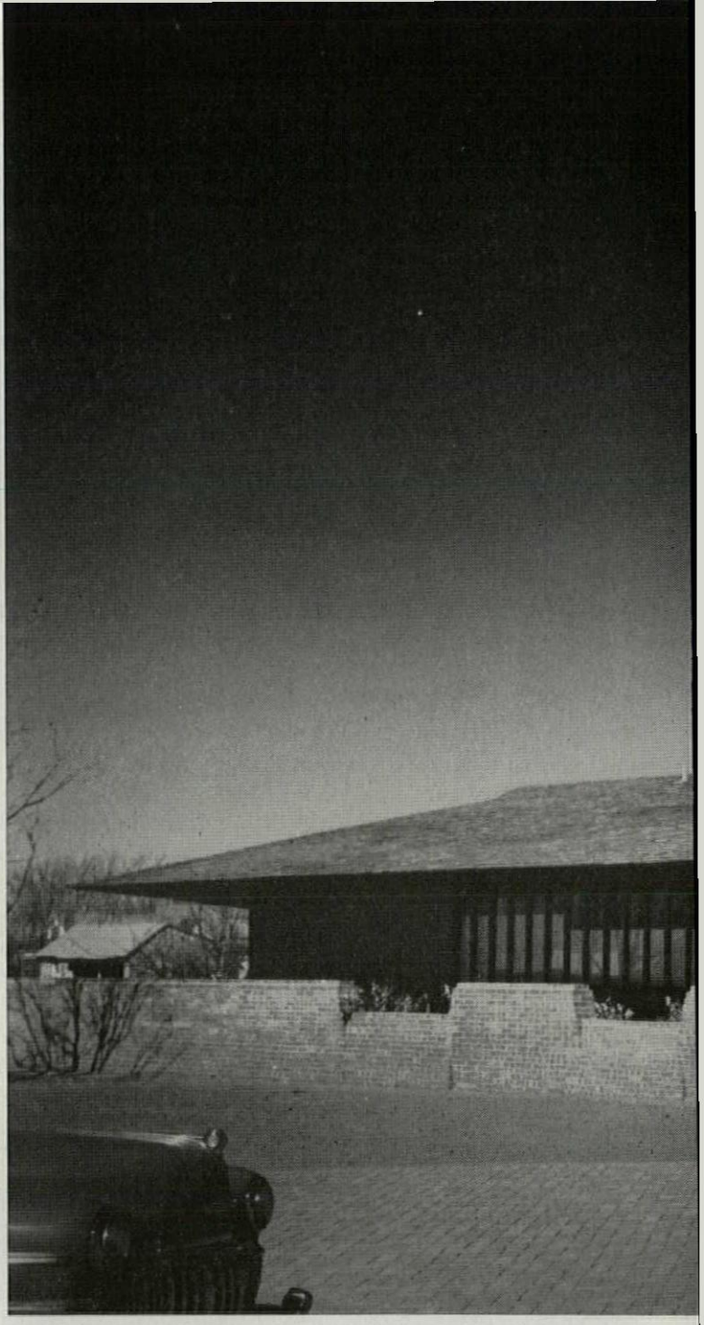


CLINIC, Knox City, Tex.
W. K. FRIZZELL, designer; G. H. BEATY, supervision
WOLF NURSERY, landscaping
WM. CAMERON CO., general contractor



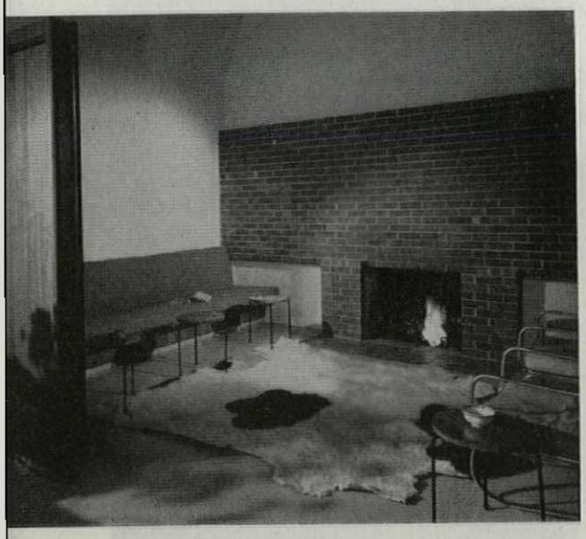


BEFORE



AFTER

Flattened by tornado, clinic's roof is raised in defiance



Lobby has living-room air. Physicians wanted tone "dignified yet inviting, sheltering but not confining, luxurious but simple."

This clinic for three general practitioners and a dentist is a fine example of medical building organization and intelligent general remodeling.

But since everybody is looking at the roof, first here is young (age 25) Designer Frizzell's explanation of that feature: "This roof was designed 1) to make the lobby more spacious; 2) to complement horizontal lines and avoid a monotonous 'ranch house' look; 3) to harmonize scale with a large Palladianesque hospital across the street; 4) to screen unsightly utility wires and provide a terminal to the composition; and 5) for the hell of it."

A 1953 tornado ripped off the old roof, leaving plate and ties intact except over the lobby, and damaged one wall.

The building's transformation consists of imaginative repair of this structural damage, plus two small space additions and reorganization of the interior, saving much existing partitioning.

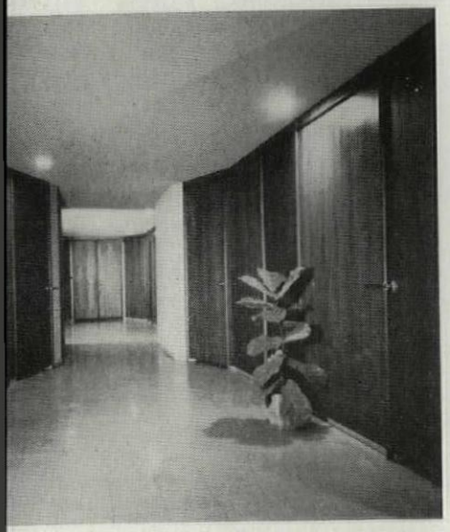
The efficient new plan is organized around a central corridor which suggests two-and-a-half elongated octagons. The first corridor bulge serves the public area. The second, opening into consulting and examining rooms, takes the bulk of traffic. The third marks the treatment and emergency entrance area.

In keeping with the physicians' family-doctor practice, the aspect is personal, warm; a chilly, scientific atmosphere was avoided—there was too much of that in the old building.

Cost, including fee, was $32,797, or $11.30 per sq. ft. Damage insurance paid $26,000. Fee was 10% of base bid.

Photos (except for left): Ulric Meisel

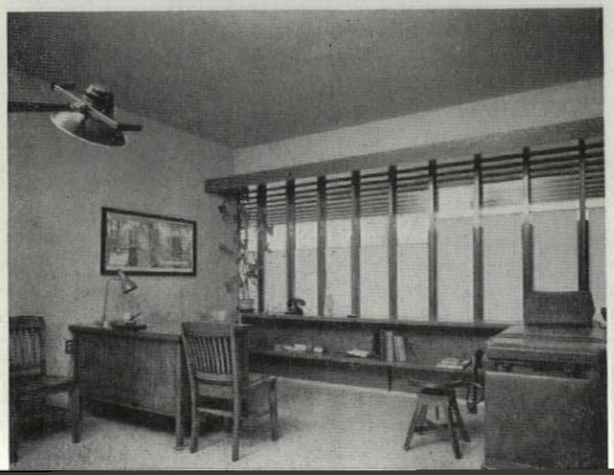
Stylish exterior makes the most of small, pointed addition and dramatic reroofing. Note visual importance of low wall which defines parking and keeps people from windows. Roof has little more "attic" than old building; appearance of great height is due to overhangs and pitch. Framing is 2″ x 6″ rafters; 2 x 4's connect overhang with walls and continue inside to form lighting cove. Overhang edge is beam planed to razor sharpness.

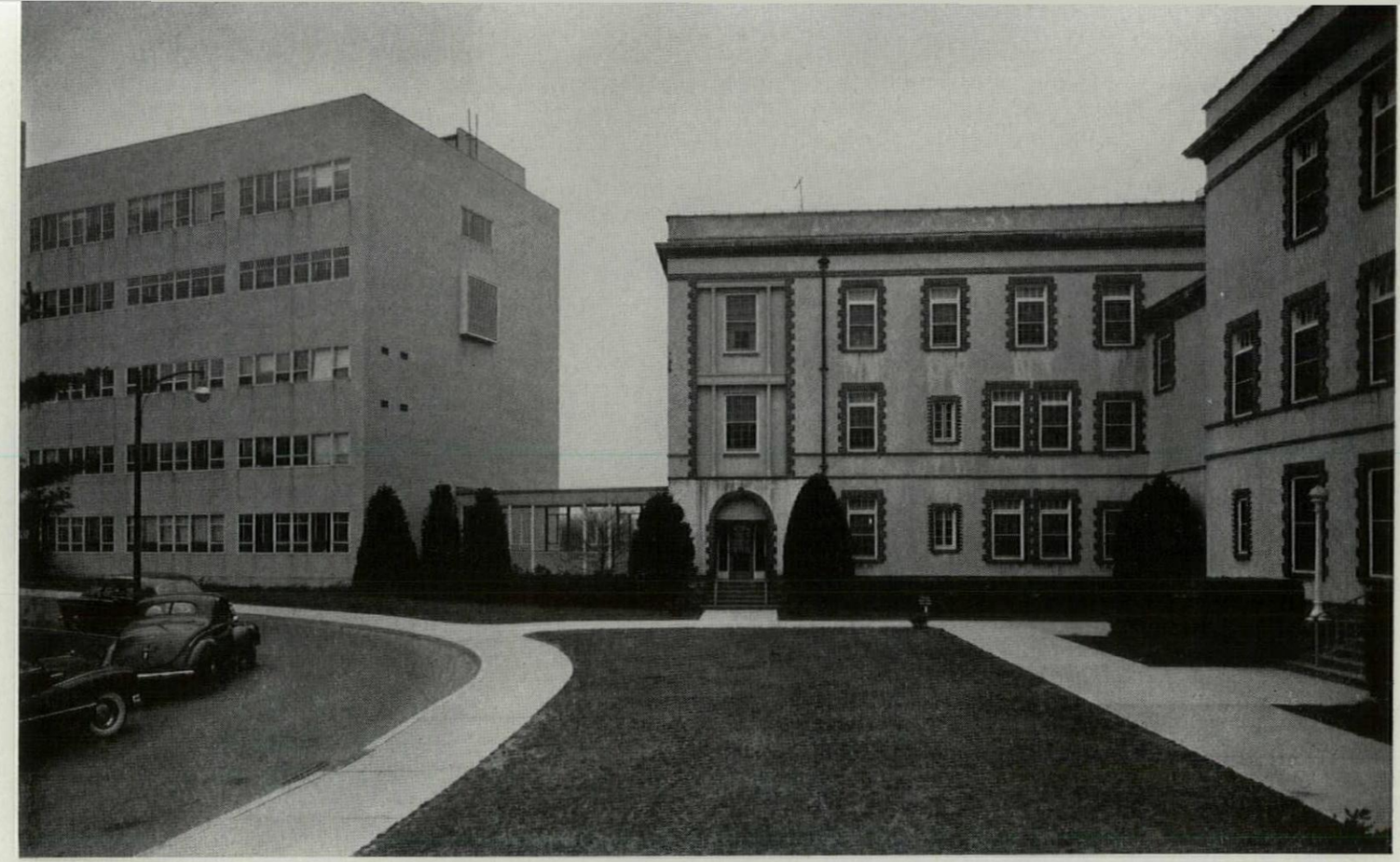


Corridor detailing nicely solves problem of many doors by achieving effect of plywood paneling.

Lobby ceiling (right) is paper-backed copper sheeting glued to plasterboard and lacquered to prevent oxidation. It makes highly decorative insulation, cost $210.

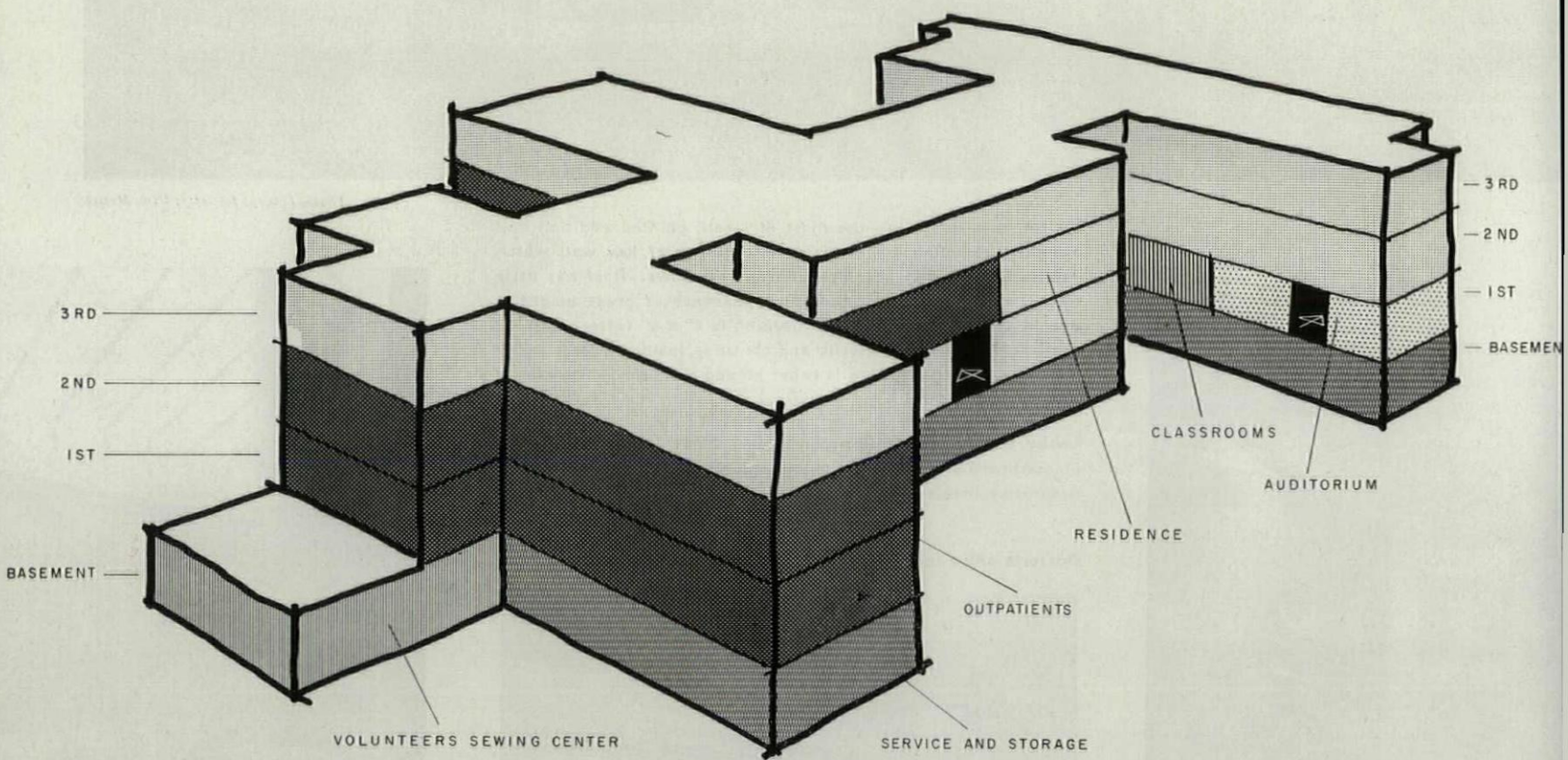
Doctor's office (below) overlooks garden on north side





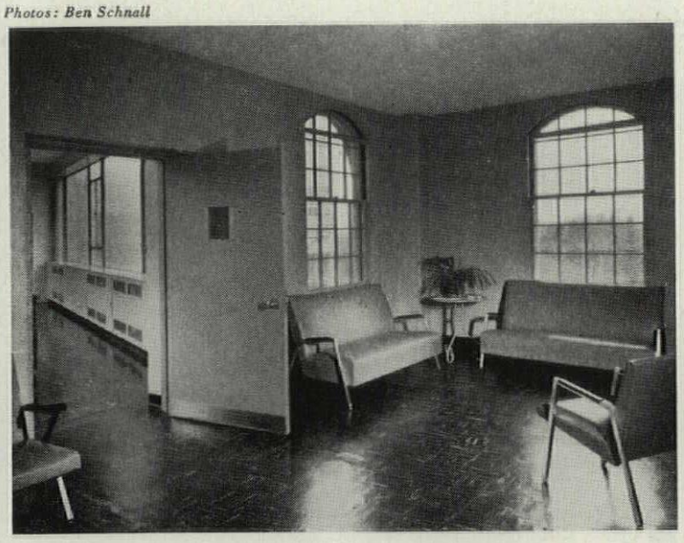
Old building links to new by glazed passageway. Pleasant, rather cocky red and white exterior was sensibly left unchanged

Conversion of old hospital is a triumph

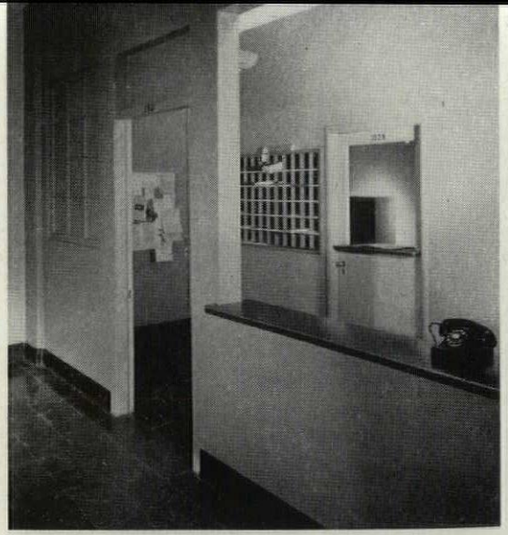


Conversion gives third floor, much of first and second, to residence facilities for 65 student nurses and technicians. Outpatients have own vertical circulation. Auditorium, used with classrooms, has public entrance. Wing at left formerly was private pavilion; wing at right had wards; medical services were between. Building, which opened just in time for 1917 flu epidemic, was well built of reinforced concrete. Only structural change was addition of steel beam auditorium. Architects' fee was 3% higher than for new construction up to $200,000; then 1% higher.

Photos: Ben Schnall



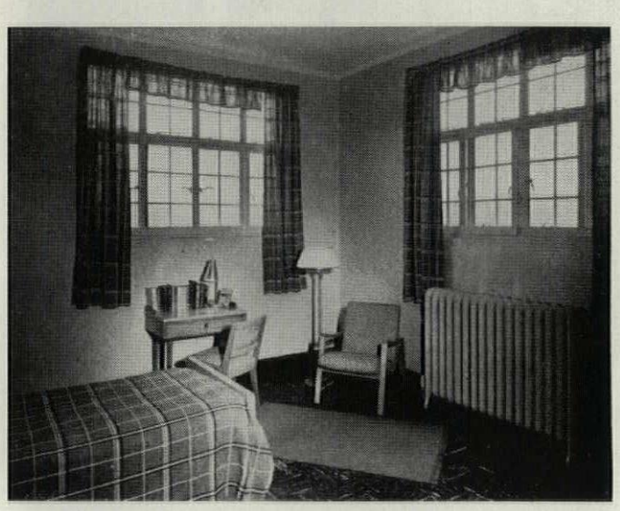
Outpatient waiting room used to be private patients' rooms



Residence office was formerly business office

BENEDICT BUILDING, GREENWICH HOSPITAL
LOCATION: Greenwich, Conn.
SKIDMORE, OWINGS & MERRILL, architects
(Robert W. Cutler, partner in charge)
DUGE CONSTRUCTION CO., general contractor
WILLIAM J. DONNELLY, administrator

# of master planning



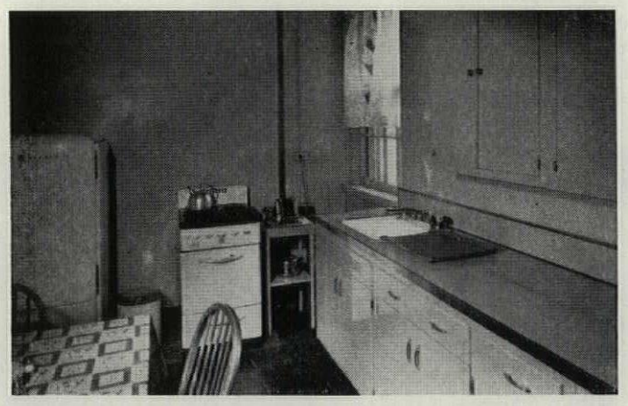
Dormitory room; this used to be nursery

At Greenwich hospital they are almost as proud of their converted 1917 building as of their fine 1951 hospital (AF, Apr. '52). Architects Skidmore, Owings & Merrill (who did both jobs) gave the old building an excellent outpatient department and a nurses' residence more luxurious of dormitory space and social facilities than any new building could possibly be. They also gave it a careful interior paint job that ties it to the new hospital and eliminates any suggestion of crossing into an "underprivileged area."

None of the converted facilities is makeshift in plan. Yet they were achieved for only $3.67 per sq. ft. A chief reason for the low remodeling cost was the room-by-room care given to economy. Where possible, original functions—as utility rooms, kitchens or storage—were kept. Where not, ingenuity minimized change. For instance, the old surgery workroom became a lounge; its two sterilizing alcoves, single bedrooms. A 12-bed ward became the auditorium, an adjoining four-bed ward (once a porch), the stage.

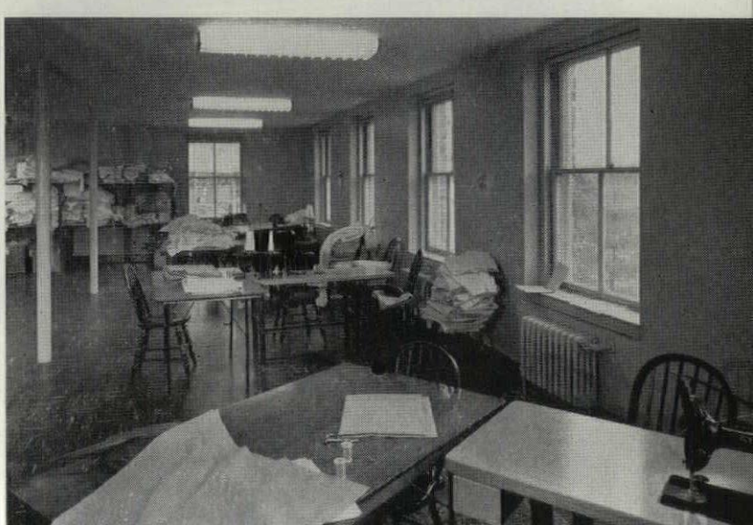
Of the $225,279 cost, only $2,279 represented changes over contract. And after more than a year of use, the staff would change nothing.

This good specific planning grew out of a good master plan. For ten years the staff knew how the old building would eventually be used. Minor changes—like remodeling obsolete business offices—were made with future use in mind. Over this period the staff built up a solid index of conversion ideas, and a program realistically geared to space.

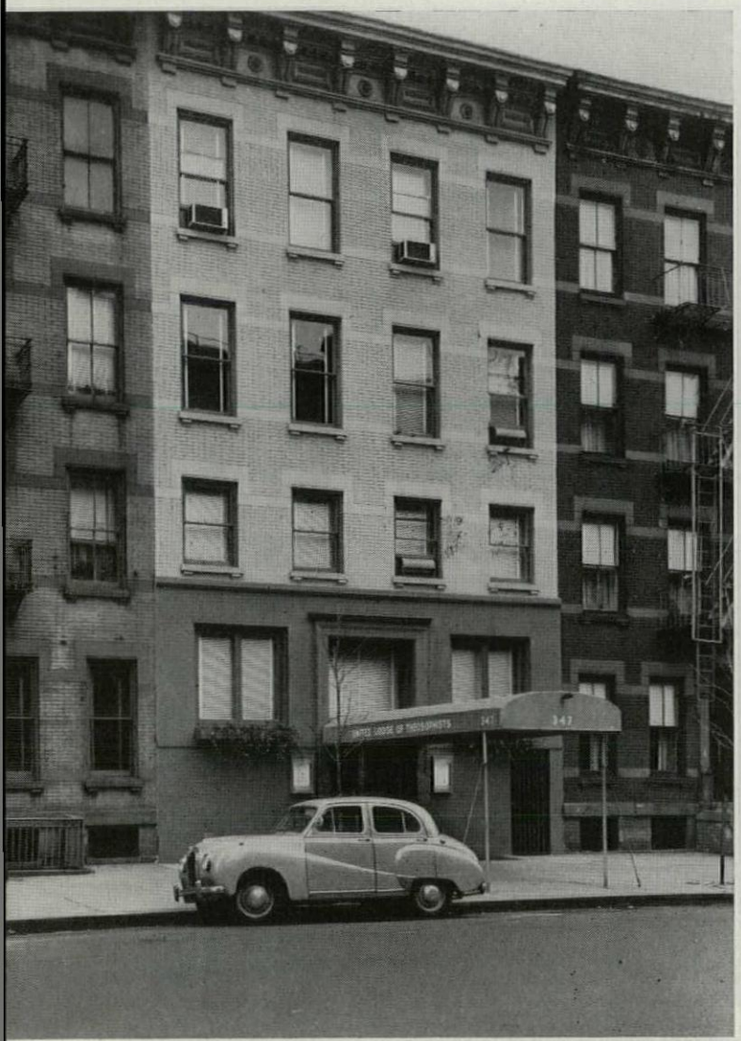


Residence snack kitchen (one of five) was floor kitchen

Volunteers' sewing center is in old clinic space



From a rough old brownstone,

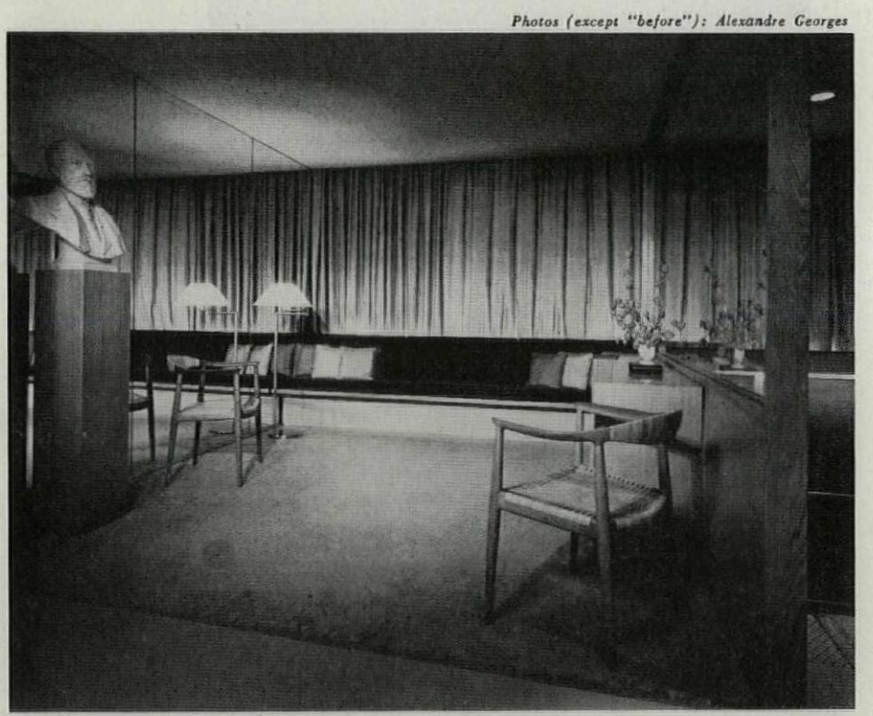


BEFORE

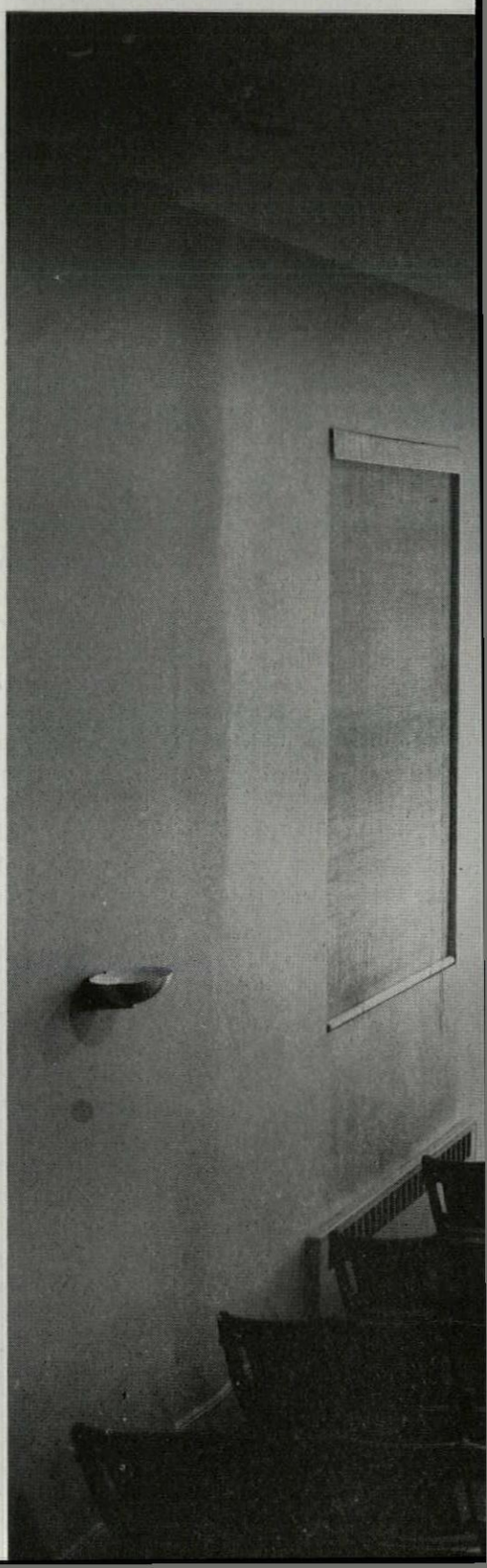
AFTER

Exterior was changed with a light hand, but a great shift was accomplished in its character. Gray paint and the canopy did the job, with one side entrance walled in, and the door framing and decoration chastened.

Photos (except "before"): Alexandre Georges



Entrance lobby is at head of short stairway (right) from street level. Mirror wall to left eases narrow proportions; built-in window seat also emphasizes width.



a calm religious building

UNITED LODGE OF THEOSOPHISTS
NEW YORK CITY
EDWARD L. BARNES, architect
MURPHY-BRINKWORTH, INC.,
general contractors

The old owner of this building on Manhattan's E. 72nd St. was a middle European national society of a boisterous cast, particularly during ceremonies in the basement barroom. The new owner is the New York lodge of a nonsectarian religious and educational organization respected for its serious, calm approach to humanity, religions, philosophy and science. The economical recharacterization, sketched by Architect Barnes's deft hand, involved subtraction.

The junk went out of the building, and Barnes put things back in judiciously, minimally. He was careful to include a lot of lighting (mostly recessed in the ceiling) to brighten the calm rooms and he also covered his big planes with small textures, such as grass cloth and acoustical tile, to bring them into register with one another.

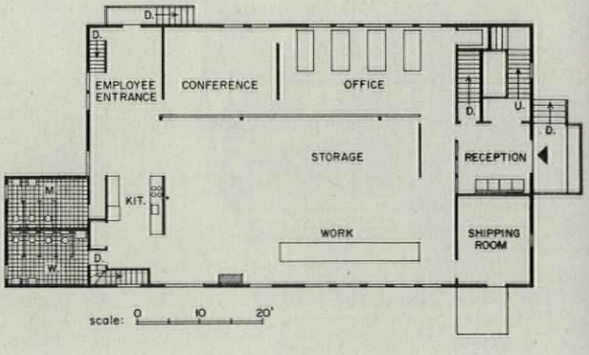
No expensive structural changes were undertaken. Typical of his light-handed solution is the handsome frame platform in the main meeting hall (pictured below) replacing a clumsy box stage.

Glass-cloth walls, acoustical ceiling add neat fine texture to main meeting hall. Window arches were bricked up, old chairs repainted for temporary use

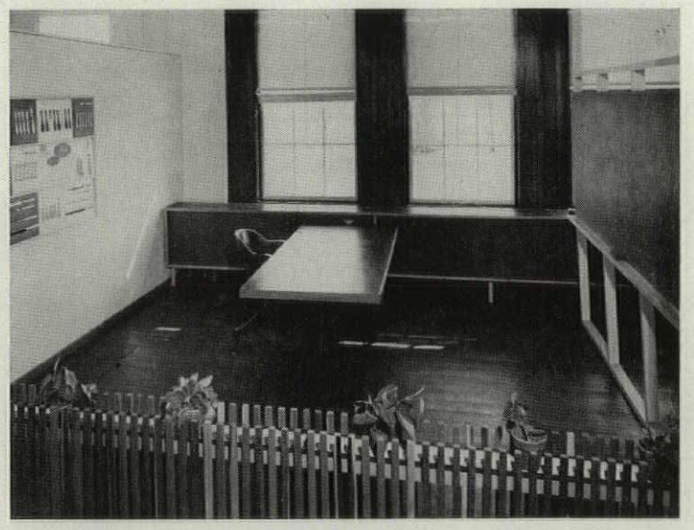
Photos: Robert D. Harvey Studio

Exterior changes were additions of sunshades on south windows and remodeled entrance. Otherwise, outside retains its 1875 school-and-community-hall architecture.

Old School becomes



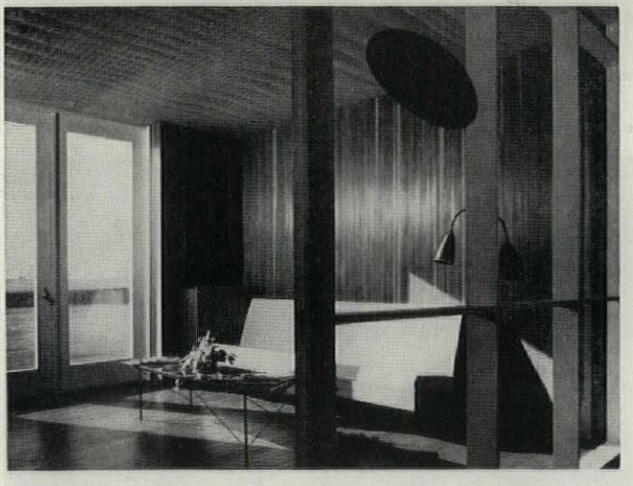
Reception room, in old front entrance hall, has screen and dropped ceiling (with lights above) of bamboo on wood frame. Door is bright blue. Second blue door, at far end of building, is seen hazily through screen.

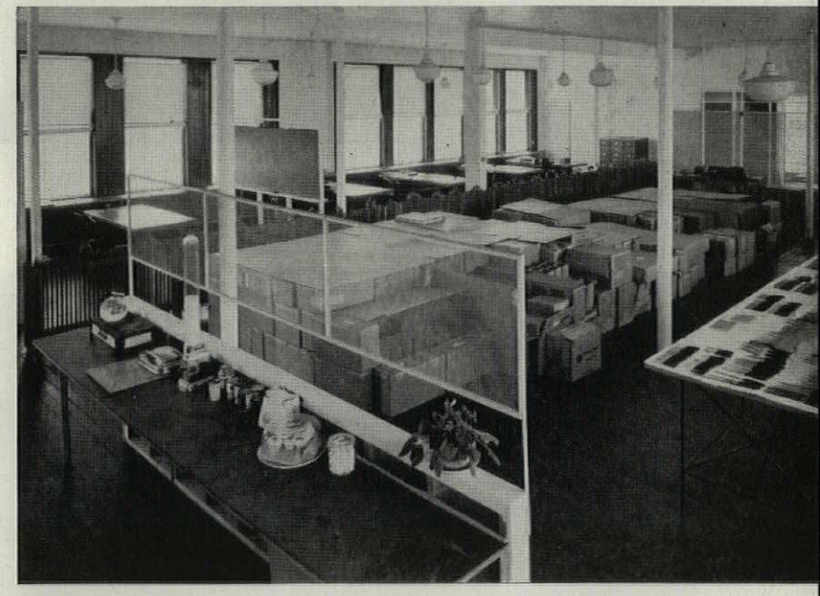


Conference space is marked off with divider made from old school blackboards. Desks are classroom doors, edged with oak, topped with linoleum, on locally made iron legs. Cost: $75 each.

Assembly-packaging area is separated from business offices only by 3' fence of redwood grounds with potted plants on top. **Lunch kitchen is** screened with expanded metal lath to serve as ivy trellis.

New entrance uses old doors with glass in place of wood panels. Delicately scaled reception-room paneling is ¾" x 1⅞" redwood plaster grounds, costing about 2¢ per lin. ft.





Home of a new business—for $6,000

This school and community hall was still standing only because it would have cost more to demolish than the salvage would bring. Blair Macomber, partner in a newly formed automotive accessories company, came upon it while driving one day with his wife. The local church—which had title by reversion—was delighted to lease it with option to buy for $5,000. Another $6,000, including most furniture and a $1,000 fee (on an hourly basis) to Architect Dan Kiley, made the place ready for business—in fact for two businesses since the firm has branched into porcelains.

The building including the heating plant was sound. Kiley tore out first-floor partitions, also removed heavy interior moldings around the windows leaving a light, clean ¾" casing. The entire room was sprayed with white paint. Bright doors, seen distantly through bamboo or metal lath screen, emphasize the feeling of space.

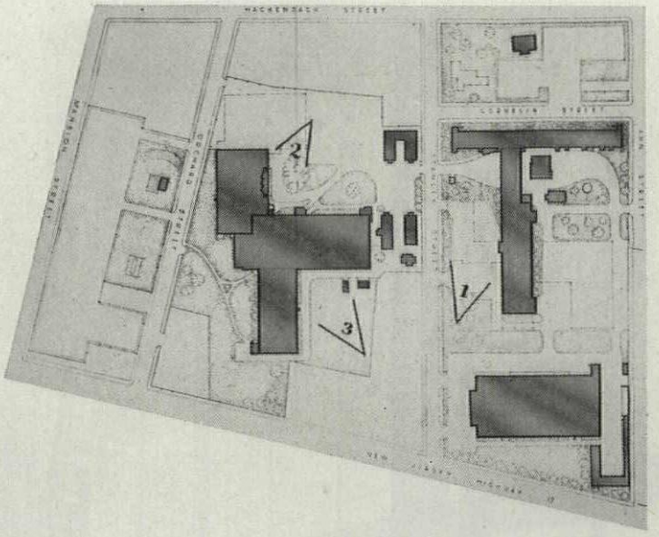
The basement got the same paint spray treatment; it will house kilns and shops. When the business expands, executive offices will move to the second floor. Kiley calls his client ideal: "open-minded by nature, allowing great freedom in design."

GALE HALL ENGINEERING, INC.
LOCATION: North Hampton, N. H.
DAN KILEY, architect
JOSEPH SKOVRON, general contractor

Old and new plants have been laid out externally to create pride in working there. The new reception room seen in corner is designed to service and tie together, both inside and out, the old and the new.

Photos: Gottscho-Schleisner

Luminous plastic ceiling with acoustical baffles and fluorescent lighting (at low price of $3.20 per sq. ft.) and brick walls and Venetian blinds painted a frosty green convert the old factory to modern office.



New buildings were laid out as far as possible in narrow wings so that natural light and air prevail over most of the floor space.

FELLHEIMER & WAGNER, architects
ROLAND A. WANK, associate in charge
BECTON, DICKINSON & CO., engineering department
DONALD A. VAN ANTWERP, manager, industrial engineering
ANTONIO ARMINO, manager of maintenance

Updated factory respects old landscaping and architecture

In remodeling and adding to this New Jersey plant, owners and architects respected three truisms that are generally neglected: trees are dateless; honest brick is dateless; harmonious scale is dateless despite dated detail.

Beginning outdoors the new trees and rhododendron ground cover harmonize with old trees carefully preserved (below). Indeed the floor levels and foundations of the additions were located so as not to injure the roots of existing trees.

The outcome of careful landscape treatment is pleasant lawns and ready shade during lunch period for employees.

The brick and massing of the new building wing blends with color and texture of the old.

In the interior, although ostentation is avoided in remodeling, the owner was willing to pay for what he considered justifiable amenities such as white paint on sash and trim despite the higher maintenance costs involved.

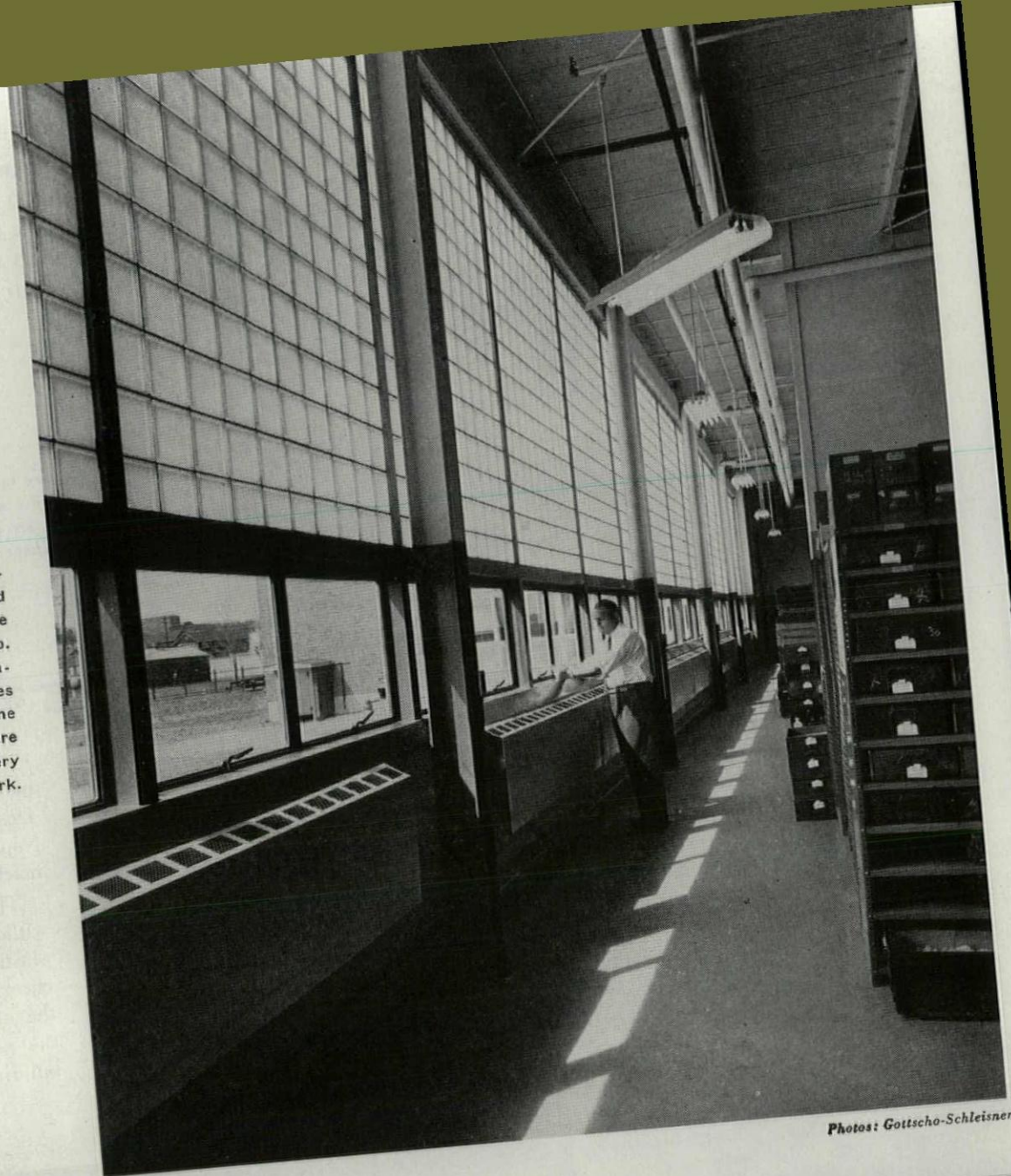
At left the fourth floor of the original plant is transformed by luminous ceiling, frosty green Venetian blinds and walls and Napoleon gray linoleum so no hint of a machine shop remains.

The 100 foot-candle lighting, obtained without glare or sharp contrast because of plastic ceiling and light colors, makes a cheerful work space. The frosty green of the office matches the turquoise green of the glazed tile used throughout the new building.

Fine old willow tree set grades and floor levels, makes ready shade over **outdoor lunch benches**

Updated factory cont'd.

New manufacturing wing has directional glass block with glass-fiber filter. Architects have found that Venetian blinds or outside louvers are needed at vision strip. In addition to the general illumination from the glass wall, luminaires provide controlled lighting in the production area. Luminaires are hung at 45° angle with machinery to throw shadows away from work.



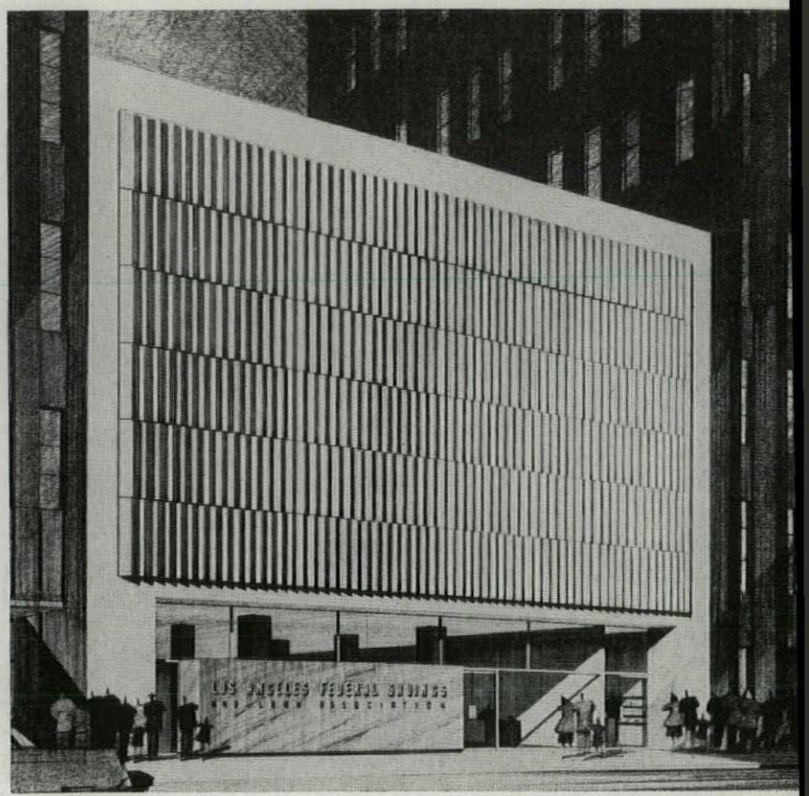
Photos: Gottscho-Schleisner

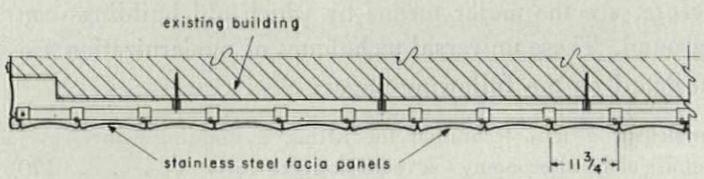
Exterior of old section was not remodeled, but ventilation and air conditioning were added (see roof) to reduce heat in annealing room.

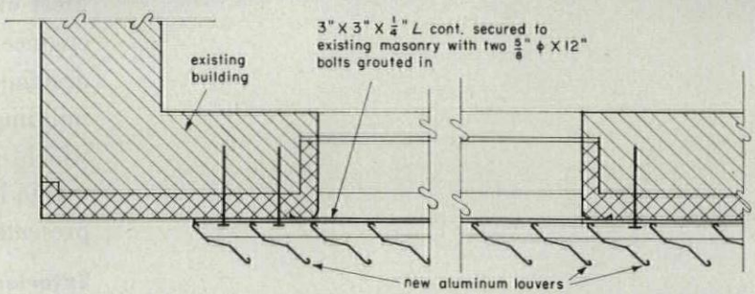
MODERNIZATION TECHNIQUES

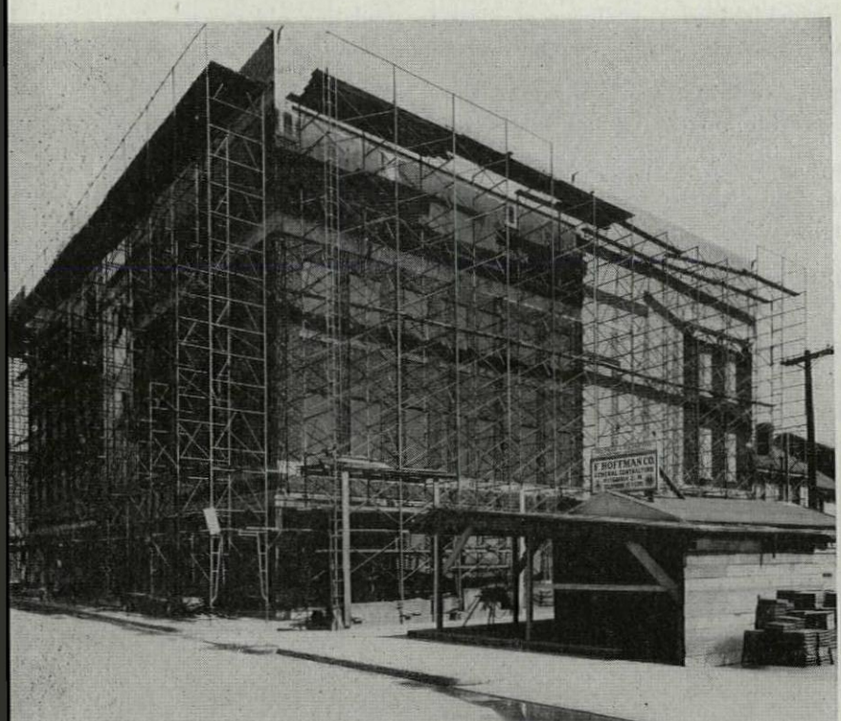
Although every modernization job is a "special case," even as wide a variety of buildings as those included in the foregoing case studies have many common modernization problems. Most of these problems are of a technical nature and are as much engineering as architecture. They involve the new developments in design, construction and mechanical equipment which have given new buildings their great competitive advantage in recent years and which, therefore, are the major means by which old buildings can regain lost ground. These universal techniques of modernization are presented in detail on the following pages:

EXTERIOR REMODELING—masking saves face, saves money,









Photos: "Dick" Whittington; "Judge" of Good Pictures; A. Church; Herve of Paris

leads design to post modern

A remodeled exterior can be even more modern than today's "modern" built new; moreover its cost can be a minus instead of a plus. The secret lies in the paradox of "masking."

How a savings bank saved

Look, for example, at the highly handsome new front for a Los Angeles savings bank (left). It cost less than nothing. The first savings were on the face of the matter: the masking by an aluminum louver screen was of the cheapest because the old stone front was not even touched above the first floor, nothing structural ripped away, no messy demolition undertaken. But the second set of savings lay deeper—in reduced air-conditioning load because of heat reflected away by the new louvers:

	Per sq. ft. of window wall
Savings in air-conditioning installation	$6
Less installation cost of louvers	4
Net installation savings above cost of louvers	$2
Yearly saving in air conditioning operation	5¢

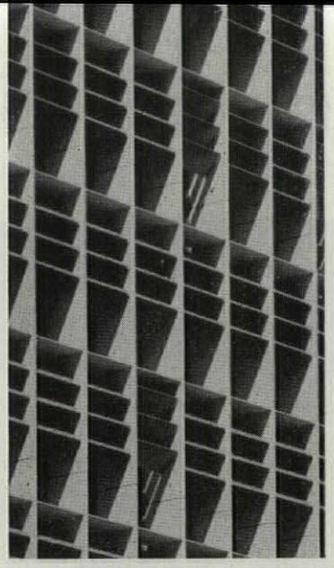
LOS ANGELES FEDERAL SAVINGS & LOAN Assn. building
DOUGLAS HONNOLD, JOHN REX architects and associates
LOS ANGELES, Calif.

How an office building was wrapped

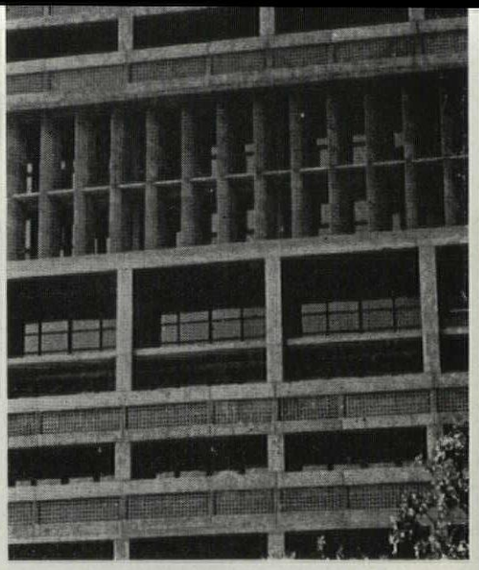
The remodeled Heppenstall building in Pittsburgh shows perfectly how to leave existing walls alone and still tie two widely separated buildings of different height into a single effective picture. It is done with a skin mask instead of the louver mask.

The need for windows was killed (so the owners felt) by new air conditioning, so fluted stainless-steel skin was simply stretched across both buildings and across the gap between them, too. The curve in the fluting lets metal expand and contract without oil-canning or buckling and adds enough stiffness so light gauges serve long spans.

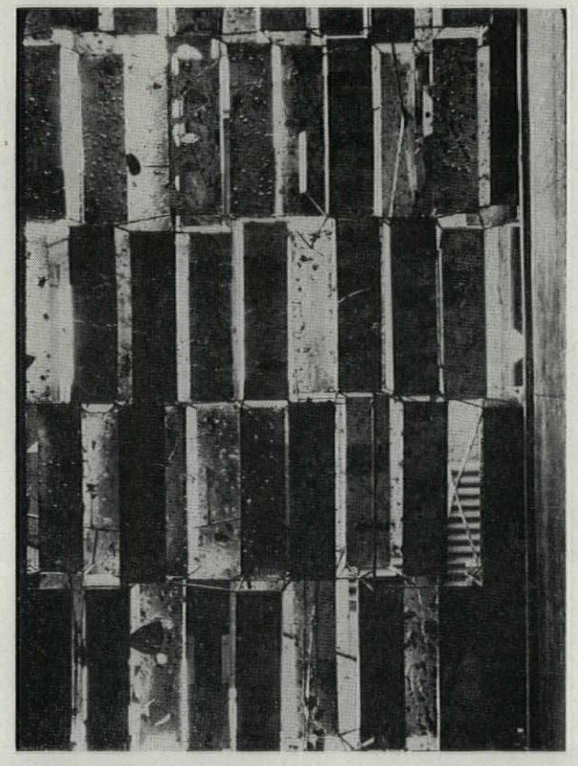
HEPPENSTALL OFFICE building
HOFFMAN & CRUMPTON, architects
PITTSBURGH, PA.



Louvers in Rio



Balconies in Marseilles



Screens in the future?

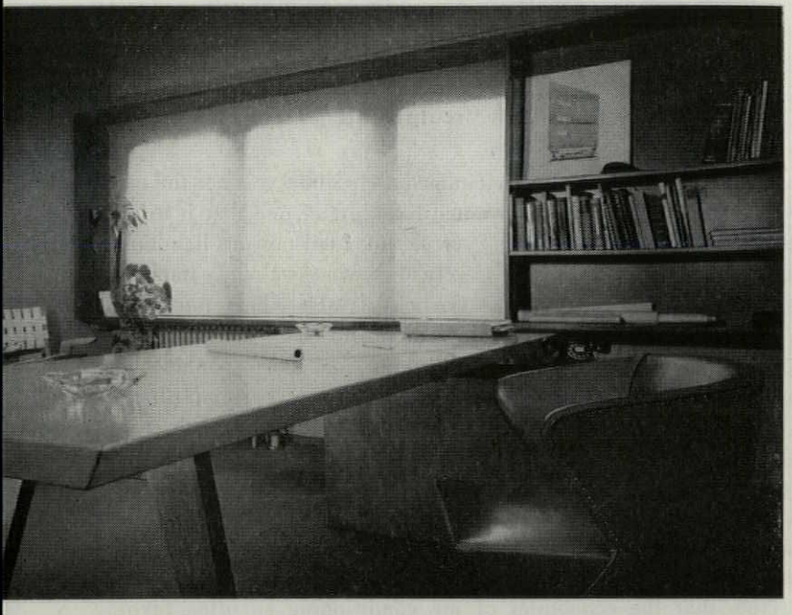
Back again in new form: the "sculptured" exterior

The picture of a sculpture-screen (immediately above) is not the exterior of a building but looks so much like part of one that it helps suggest the future. With its free, ever varied, sponstaneous handling of louver-like vanes it carries one step further what is already implicit in existing development. Thus Le Corbusier's Marseilles apartment house wall, with its cellular balconies acting to shade the windows (above, right) is already a more "sculptural" and more spontaneous treatment of shading than was done earlier with severely standardized sunbreak of louvers on the Ministry of Education and Health, Rio (above, left).

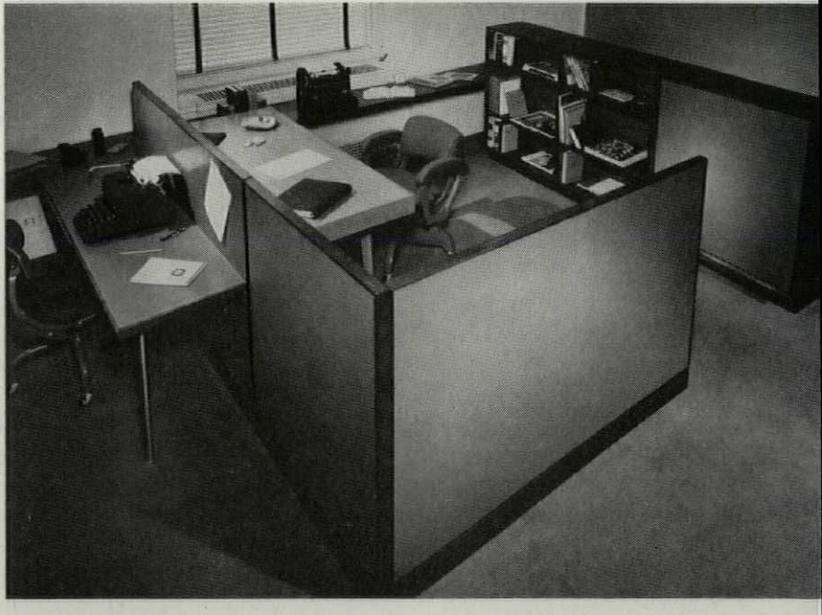
In all three cases the face of the building gains depth, texture, the ever varying play of sunshine and shadow, which is missing from the flat-slab architecture of recent years. Architects have long sought this opportunity to restore lively modeling to the face of modern buildings. Now that the economics of air conditioning so often favor screening, designers may have more chances. Sculptors like Harry Bertoia may be employed to surround today's flat slabs with a golden or multicolored foliage screen, scintillating against the sky.

INTERIOR REFURBISHING—a catalogue of screening ideas for dividing

Remodeled office for Federal Reserve Bank in Detroit (by Leinweber, Yamasaki & Hellmuth) runs full list of space-creating devices: loose-woven curtain down to simplified radiator enclosure; floor-length drapes; hung acoustic plaster ceiling with surrounding light cove and egg-crate light panel over desk; plant screen over quiet wall-hung cabinetwork; wall-to-wall carpet.



Masked window in office of Architects Ketchum, Gina & Sharp shows old mullions reduced to a slight shadow behind glass-fiber screen in box-type surround which continues lines of bookshelving.



Cubicles 43" high in TIME and LIFE offices (by Maria Bergson) are lined with acoustically absorbent perforated metal; are high enough to back up typewriters on desks. Carpet adds further sound absorption.

space and masking dated details

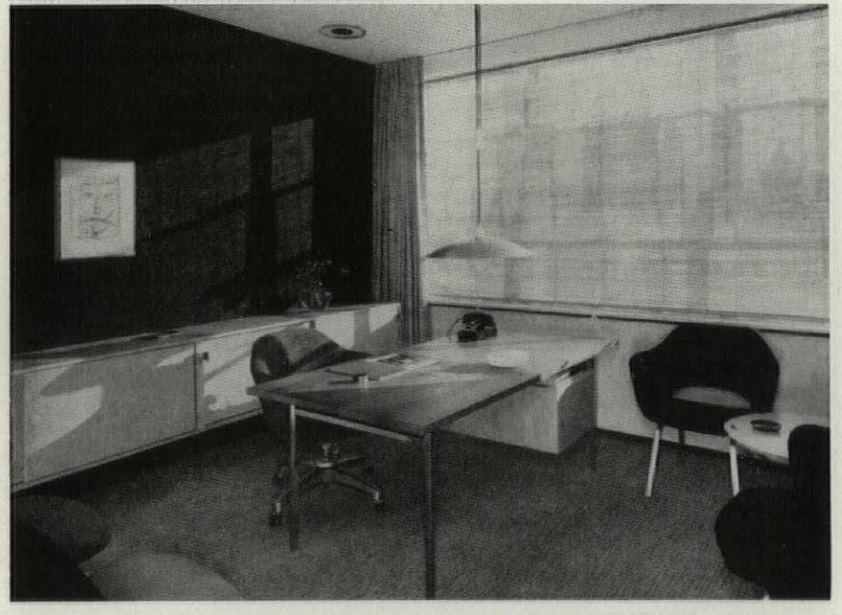
Three kinds of geometry interact in remodeled interiors, especially office interiors: *floor space* assignments keep getting smaller; *walls and partitions* get cut partly away or cut down, or removed in favor of screens or storage furniture or other "space dividers" so the smaller spaces open up and create less claustrophobia. Meanwhile *surfaces* of wall, floor or ceiling get quieted by being held to large simple shapes, stripped of small attention-calling accidental features, so smaller spaces can be more serene.

Screening materials reach into an endless catalogue: insect screen in metal or plastic; wire fencing; perforated metal; expanded metal lath; plywood, perforated fiberboard; bamboo or other wood sticks or narrow boards; gypsum panels on lath; translucent glass or plastic flat or corrugated; glass-fiber sheets free or encased in plastic; Venetian blinds sometimes down to the floor; jalousies or vertical movable strips in fabric or other materials; drapes and shades and fish net; various kinds of folding doors; storage furniture; planting boxes; sculptured screens—these begin the list but no one can be sure of completing it.

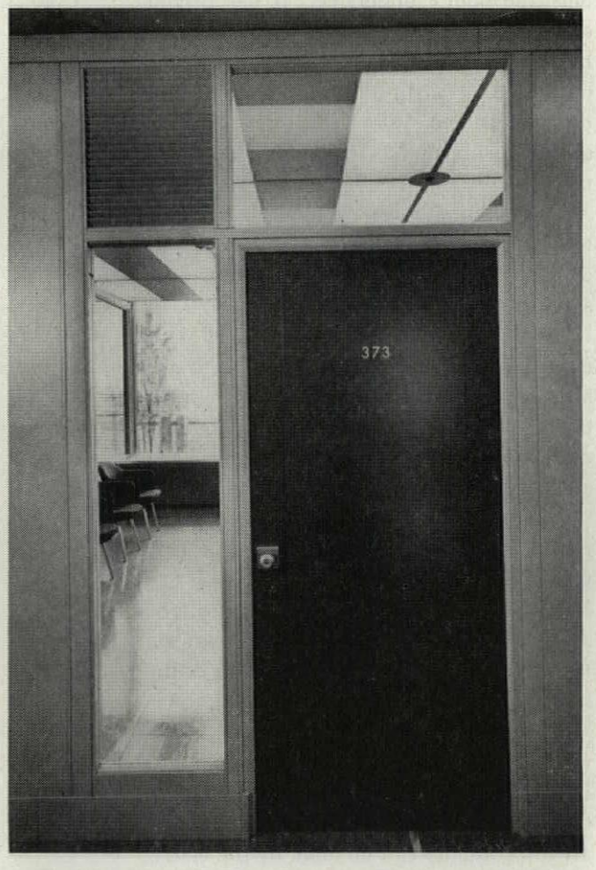
Floor and ceiling materials, too, very nearly as numerous.

Interior office space for Stillwater Sales Co. (by Designs for Business) shares windows of outer offices through glass partitions. Note Venetian blinds down to floor; cork or carpet sound-absorbent floor; acoustic plaster-hung ceiling; blond desk tops of walnut veneer in plastic laminate.

Photos: © Ezra Stoller, Robert Damora, Ben Schnall

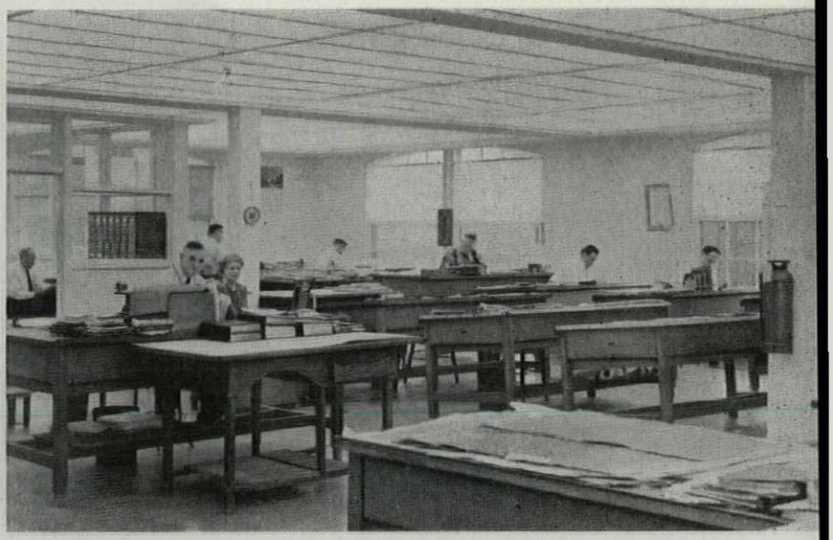


Individual office of Hans Knoll shows quieting but live effect of bamboo shade over perforated-metal radiator enclosure; full-length India-silk drape on ceiling track; full carpet; painted wall.



Stock movable partition to Saarinen Associates' specifications (originally used in GM Technical Center) is designed to 5'-2" module; has louvered panel, top and sidelights of glass.

Photos: courtesy Smithcraft Lighting Div. of A. L. Smith Iron Co.



Relighted drafting room dramatically shows how luminous ceiling cleans up room. Note how desk lamps and ceiling paraphernalia have disappeared

MULTIPURPOSE CEILINGS

Once merely a finish, the ceiling now handles light, acoustics, air distribution, raceways and partition anchorages

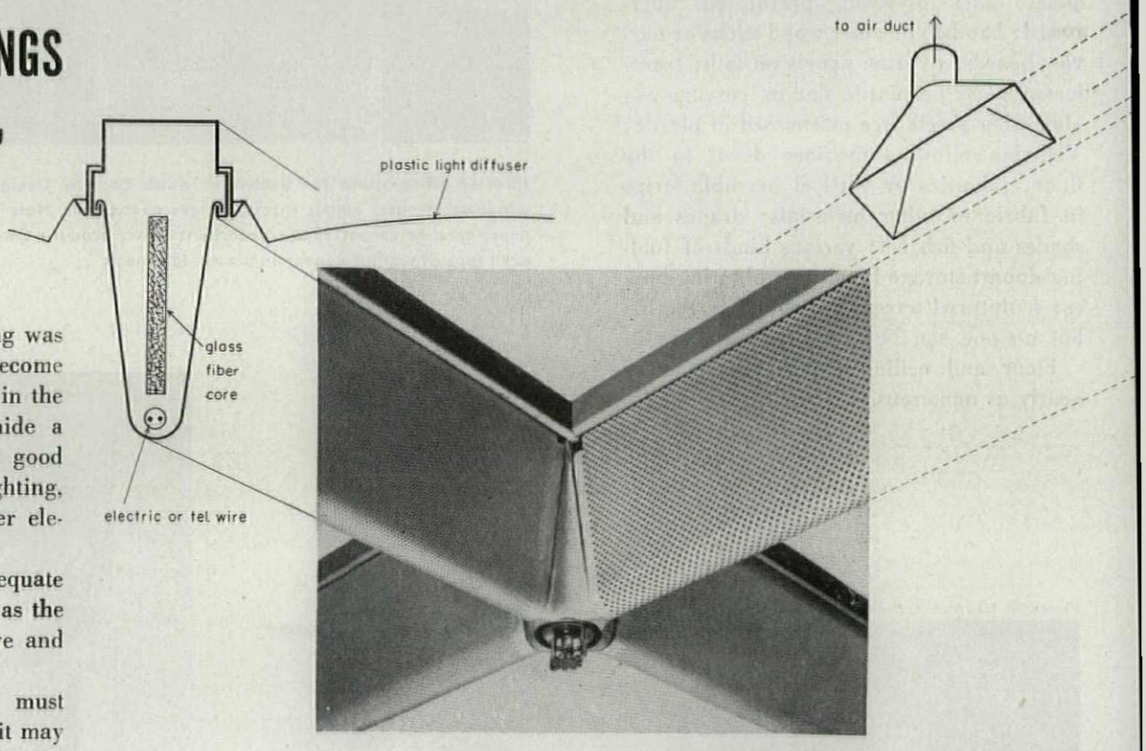
The day is long past when the ceiling was only the floor's underside. It has become one of the hardest working elements in the building. Any hung ceiling will hide a multitude of utility lines, but with good design, it can also integrate lighting, acoustics, air outlets and many other elements.

The lighting must provide an adequate tool for work, but it may also serve as the ceiling itself, be a decorative feature and support the acoustical material.

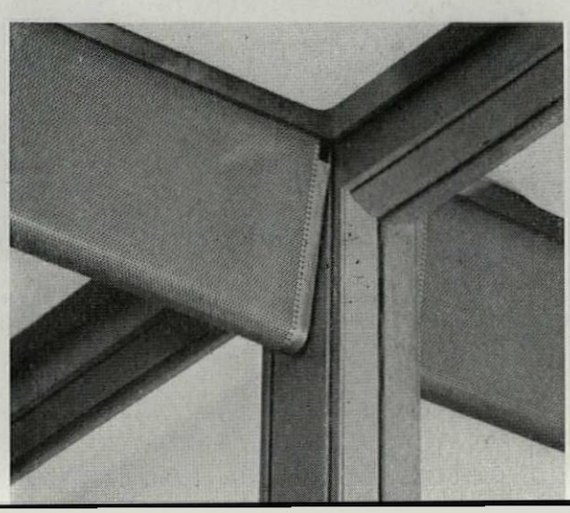
Similarly, the acoustical system must correct a specific noise problem, but it may also support the lighting system, help distribute air, provide raceways for lighting and phone wires, support sprinkler heads and serve as a matrix for flexible partitions.

The principal advantage of the integrated ceiling is the potential cost saving, but costs vary widely. For instance, luminous ceilings use plastics ranging in thickness from .015″ to .125″, and erection labor may run from 25¢ to $1.25 per sq. ft. of ceiling surface.

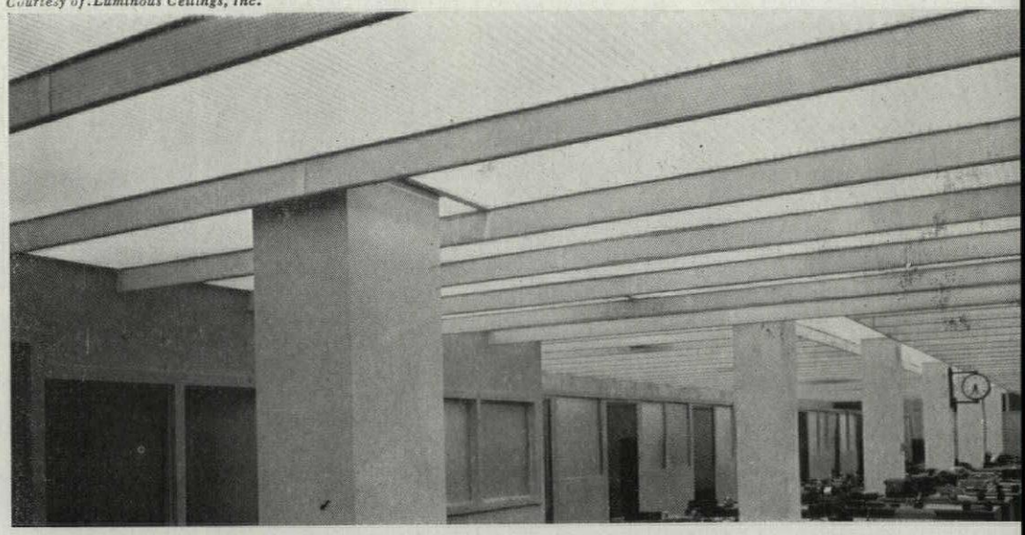
It is important to consider what trades will be involved in the erection of the ceiling. Where the lighting fixtures support the acoustical material or luminous ceiling, all work usually can be done by the electricians. If acoustical material is hung from the ceiling, both electricians and metal workers are required.

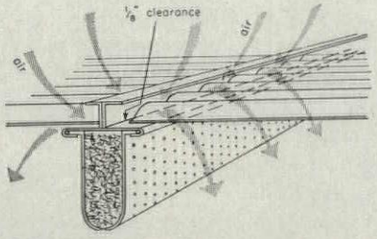


Luminous ceiling, derived from initial design for GM Technical Center, consists of domed plastic panels, which double as ceiling finish and light diffusers, and perforated metal supports which also act as acoustical baffles, diffusers for high-velocity air, raceways for wiring, supports for sprinkler heads and anchorage for partitions. Strip of acoustical material inside baffle directs air out each side.



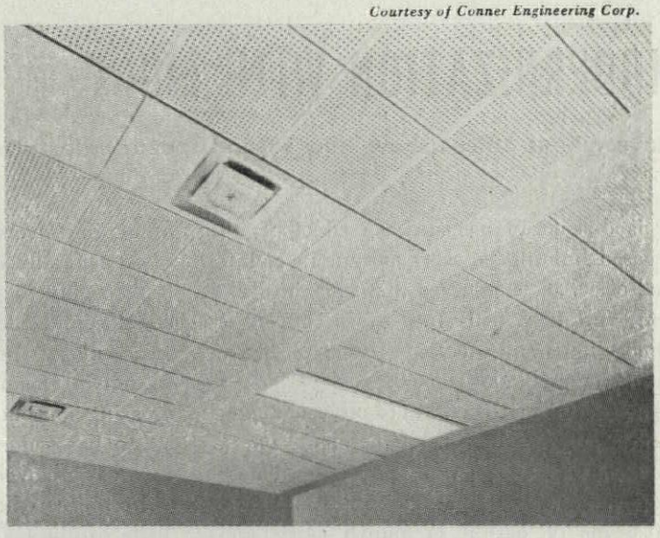
Courtesy of Luminous Ceilings, Inc.





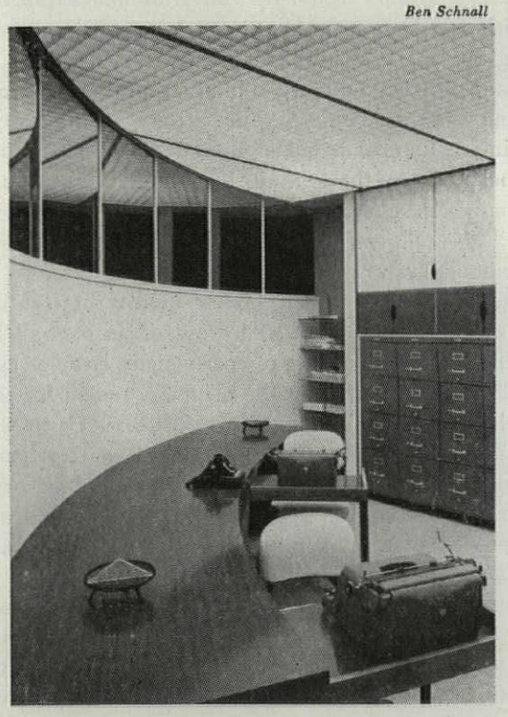
Acoustical baffles of this luminous ceiling system are arranged in strips to support continuous sheets of thin corrugated plastic. Because plastic drops to floor in presence of excess heat, sprinkler heads may be concealed above. Air is discharged from ceiling plenum into room at loose-fitting juncture of plastic panels and metal ribs (diagram above). Luminous ceilings are particularly helpful for work involving potential eye strain. For work involving office machines, more acoustical control may be preferable.

Courtesy of Conner Engineering Corp.



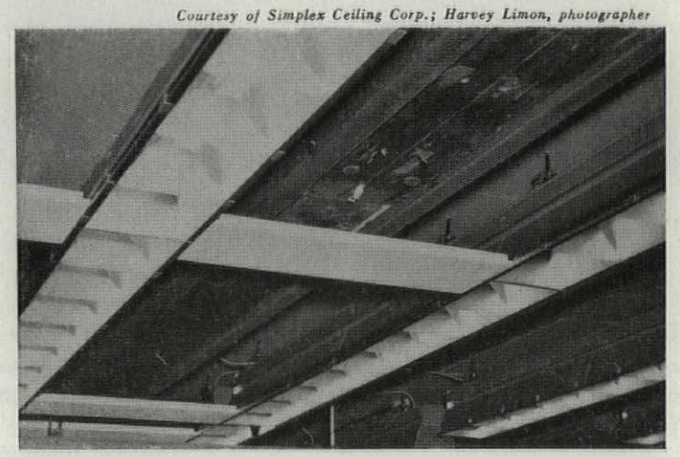
Modular system integrates acoustical panels, lighting and air outlets. Snap-on hanging mechanism for all units permits their assembly for a wide variety of desk or office arrangements. Troffer lighting in hung ceiling creates rather high brightness contrasts.

Ben Schnall



Egg-crate ceiling, because of its small-scale, over-all pattern, lends itself to use for odd-shaped ceilings. It has lower light intensity than plastic luminous ceilings providing equal illumination at working level. Care must be taken to prevent reflection of light by furniture, which should be light in color. (Office by Designs for Business.)

Courtesy of Simplex Ceiling Corp.; Harvey Limon, photographer



One-trade ceiling: because lighting fixtures support acoustical ceiling, entire installation can be done by electricians. Flanges on continuous troffers carry 12″ x 36″ perforated aluminum pans.

Post-office transformation—how efficiency and morale under dim lights are boosted by new light fixtures and lighter colored walls, ceiling and floor

MODERNIZATION WITH LIGHT

Government offices show how raising foot-candles also raises efficiency of employees

It is difficult to measure the effect of increased lighting on work output in a normal office. It is assumed that more work is done, or done with less strain, but it is almost impossible to make exact measurements and comparisons over a period of time, excluding the effects of other changes, such as the installation of air conditioning or acoustical correction. The federal government, however, has measured efficiency in terms of output of punch cards and pieces of mail handled over a long period of time before and after installing improved lighting, and these measurements are an indication of the economic value of improved lighting. (Although there is a lack of agreement by lighting experts on how many foot-candles should be provided for general office illumination, the level provided by these government agencies is a rough indicator of current practice.)

	Foot-candle*		Increased
	From	To	efficiency
Bureau of Census	30	50	3.5%
Internal Revenue Dept.	10	50	5.5
Post Office, Richmond, Va.	10	50	8.0

The modernization program of the Post Office Dept. began four years ago. It is concentrated on improving lighting, but includes painting of interior equipment and furnishing, new linoleum floors and other minor improvements designed to provide a more generally luminous environment with less brightness contrasts. Post-office engineers found that a great deal of human effort under former conditions was being wasted in visual strain. In addition to increasing output, the reduction of visual strain has reduced labor turnover and improved employee relations.

Post-office officials estimate that the uniform brightness from the new lighting has permitted 14 to 20% more intensive use of space by making possible a more flexible arrangement of sorting cases and desks. This confirms the practice of architects who design the ceiling lighting to permit a wide variety of office subdivision and limitless arrangement of desks or other equipment.

Building owners and managers can certainly rent well-lighted space faster than dark space. Moreover, building owners can rent it at a premium where designed-in flexibility in lighting and air conditioning permits space to be used more intensively.

The decision as to what type of lighting will be most suitable to a particular remodeling job is not always as simple so in post-office remodeling, where appearance is secondary to lighting efficiency, and where a luminous hung ceiling would not be permitted in any case because it would obstruct view by inspectors from observation ports.

In broad terms, the choice of a lighting system will be between: 1) exposed fluorescent luminaires at about $2 per sq. ft. of ceiling, 2) luminous ceiling of plastic or egg crate to spread light from fluorescent fixtures more evenly at about $3 per sq. ft., and 3) troffer lighting from fluorescent fixtures set flush with some type of hung ceiling at about $2.50 per sq. ft.

High-quality illumination can be obtained with a wide variety of fluorescent fixtures attached directly to or suspended from the ceiling. The hung fixture costs more but may be needed to offset high ceilings or to avoid shadows of exposed beam ceilings.

A somewhat higher quality of lighting can be obtained by use of an over-all luminous ceiling of corrugated plastic or egg-crate type but the principal reason for this ceiling is appearance. The plastic or egg crate hides a multitude of ceiling paraphernalia (beams, pipes, conduits, sprinklers, etc.) yet permits easy access to mechanical equipment above the visual ceiling.

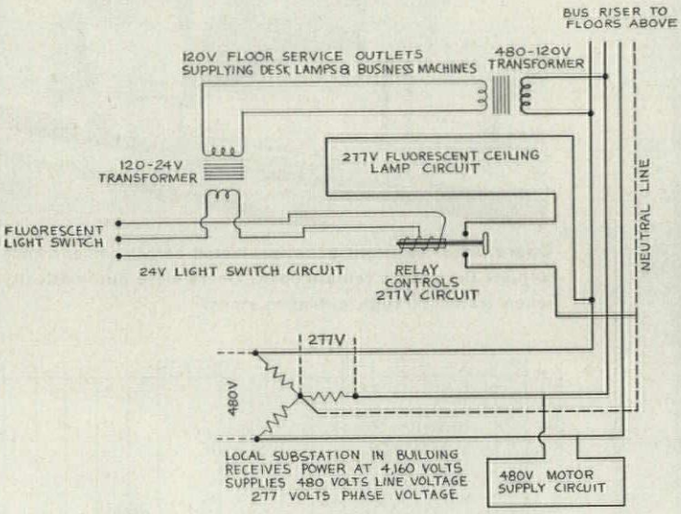
The troffer ceiling, because all light is directed downward, gives high efficiency from current input; but because of high brightness ratio between the troffer and the adjacent ceiling, is not so satisfactory from the lighting standpoint as luminous, egg-crate or semidirect fixtures. Troffer lighting has great appeal where air conditioning or structural limitations necessitate a low ceiling. When integrated with air conditioning and acoustical control the troffer ceiling may be accepted on other grounds than its value purely as a light source.

Simple rules for relating the light source to its environment are clearly covered in the 50¢ pamphlet "Recommended Practice of Office Lighting" by the Illuminating Engineering Society, 1860 Broadway, New York City 23.

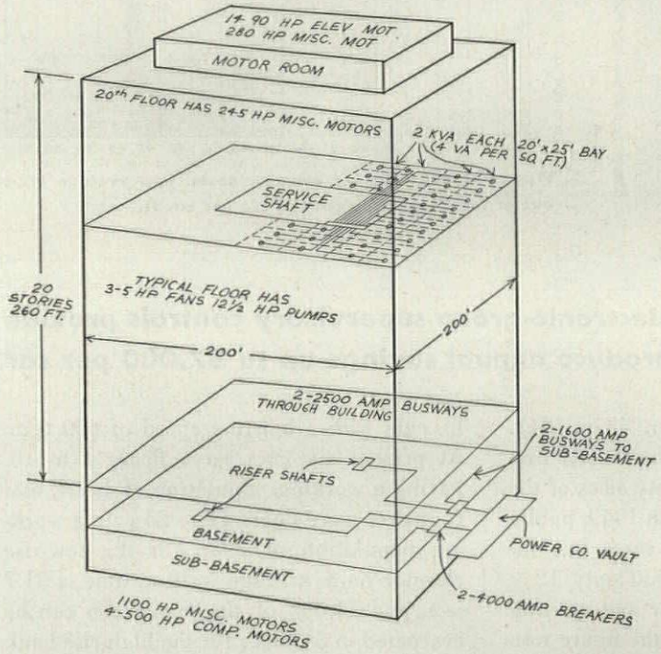
*In all cases light colors with good reflective values were used on walls and furniture. In the Post Office building the ceilings and beams were painted white, upper walls light green, dado medium green, light gray floor covering and office furniture refinished in a warm green.

REMODELING DEMANDS BETTER WIRING

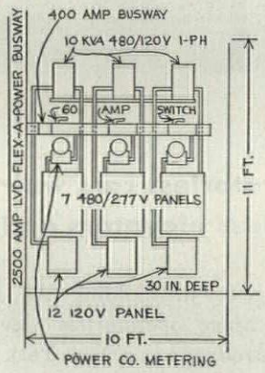
Higher voltages can save up to $26.50 per installed kva, make two risers do the work of four



Schematic wiring diagram shows how 480-v. power, 277-v. fluorescent lighting and 120-v. "plug-in" circuits are obtained from a 480-v. supply.



Typical 20-story building distributes 480-v. power through two riser shafts. At 208 v., four shafts would be required with considerably more wiring on each floor area.



Floor panelboard for three-tenant occupancy takes up 10' x 30", including 480/120-v. transformers.

Comparative costs of 480Y/277 vs. 208Y/120 wiring in typical 20-story office building shown above:

Design data: net area 640,000 sq. ft. Elec. demand—6,000 kva.	480Y/277	208Y/120
Wiring (40 unit areas)	$142,400	$161,600
Panelboards and transformers (14 U.A. one tenant)	24,080	7,616
Panelboards and transformers (26 U.A. three tenants)	64,220	15,366
Entrance switchgear and risers	112,200	271,575
Motor control centers	126,100	174,750
4-500 hp motors (air conditioning)	26,400	29,100
Motor feeders	5,400	12,510
	$500,800	$672,517
Omit reactor on 208 v. motor control centers	.....	—6,500
Use fused pressure switches on 208 v. (for entrance)	.....	—27,500
	$500,800	$638,517

Total savings by 480Y/8277-v. system $137,717 equivalent to $23 per kva, or 21.5¢ per sq. ft. (net).

How can existing buildings—offices, factories, stores, even schools—satisfy today's spiraling electrical loads that have, in many cases, risen over 400% since the twenties? An answer lies in the use of higher distribution voltages, 480 v. in place of 208 v., allowing twice the electricity to be pumped through the same diameter cables, saving up to $26.50 per kva installation costs and 26% copper.

Already used in seventeen industrial plants, this 480Y/277-v. system (or 460Y/265-v. depending on operating voltages) can now be used in office buildings, stores and schools, thanks to an important new clause in the 1953 National Electrical Code. Instances of the growing trend:

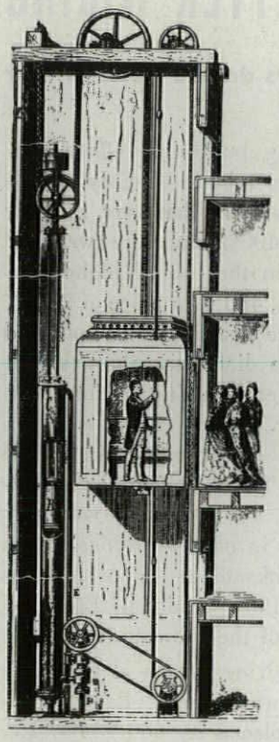
- A 120-v. D.C. wiring system at Chicago's 22-story Continental Illinois Bank building has been replaced by 480/277-v. A.C. wiring, to reduce excessive voltage drop (from 127 to 105 v.) in the long risers. Lighting circuits remain at 120 v. on each floor. Wired in the twenties for a load of 1½ va. per sq. ft., the building now has a capacity of 6 va. per sq. ft.
- In New York the new US Rubber building and the Socony Vacuum building will use high-voltage wiring at 480Y/277.
- Rockefeller Center is now using 480-v. wiring to save space in supplying power for four 1,500-hp air-conditioning compressors now being installed.
- Utilities are supporting the drive for higher voltages because space beneath city streets is becoming too crowded to cope with the increasing demand for air-conditioning power. Seventeen 480-v. spot networks have been established in Chicago since 1946, while Consolidated Edison in New York is ready to supply 480-v.

The 480Y/277-v., three-phase, four-wire system will distribute current in three-phase wires and a neutral wire. By joining two of the phase wires you get a *line* voltage of 480 v. for power circuits and by joining a phase wire to the neutral wire you get a *phase* voltage of 277 v., which can be used for fluorescent lighting circuits provided they are 8' off the ground and have provision for low-voltage switching.

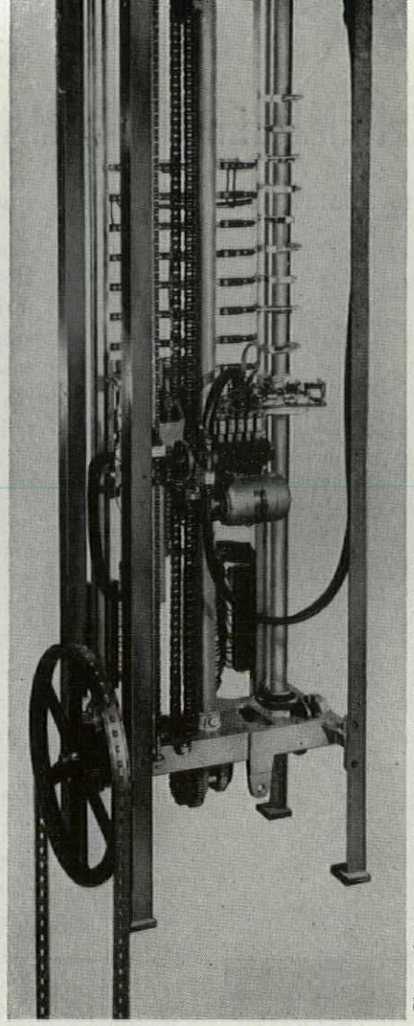
Where required for miscellaneous incandescent lamps or office equipment, 120-v. circuits are obtained by small 480/120-v. step-down transformers.

In general, high-voltage distribution is worth looking into where the building, or group of buildings, takes a total electrical

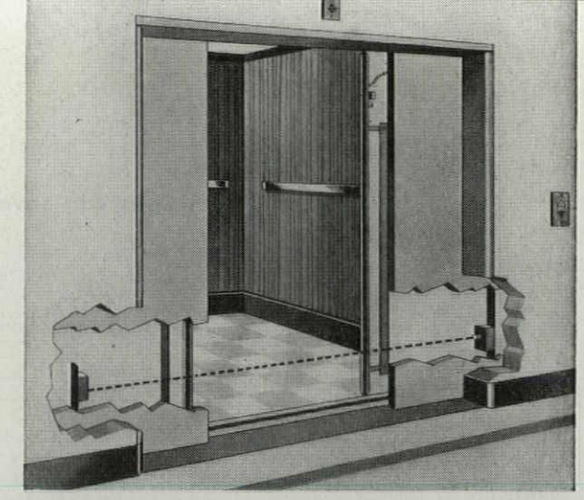
continued on p. 250



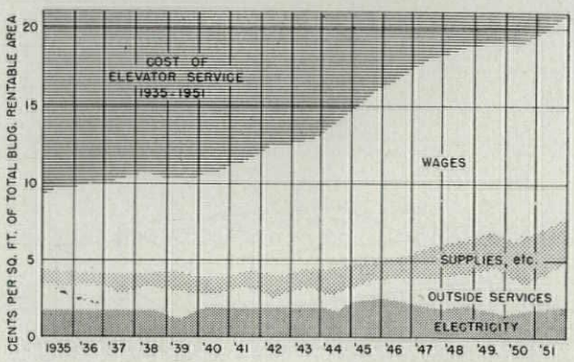
First electric elevators were controlled by a rope directly connected to switches on the hoisting motor. Modern "selector" control (right) moves in step with car, operating maze of contact circuits.



Photos: (right) courtesy Westinghouse Elec. Corp.; (left) Otis Elevator Co.



Operatorless car: light beam projected across car entrance adjusts time doors remain open. Doors close automatically when traffic through entrance stops.



Wages absorb 66% of elevator costs, now average 14½¢ out of total operating cost of 22¢ per sq. ft. net.

ELEVATOR ECONOMICS—Operatorless cars with electronic-group supervisory controls provide more service with less elevators and produce annual savings up to $7,000 per car

Building owners might well start their remodeling with the elevators. Careful analysis of vertical transportation in existing office buildings will likely suggest two-way improvements that can be made without a rent hike. They pay for themselves. The improvements: 1) fast, modern equipment with electronic group supervisory controls may permit three remodeled cars to do the work of four of the old manually operated car-switch elevators, thus releasing one or more shafts for air-conditioning risers or even for additional office space; and 2) operatorless elevators controlled by electronic "brains" may reduce building operating costs 20% by saving labor.

On entering an operatorless car passengers merely press a button for the floor they want; electronic computers dispatch and direct the cars, send cars ahead if they are over 80% full, and figure corridor calls to give maximum service with the most efficient traffic pattern. At an average annual labor saving of $7,000 per car the $50,000 to $90,000 installed cost of this equipment can be amortized in a few years, during which the new elevators will promote good will among the tenants and prestige for the building (AF, Jan. '53, p. 154).

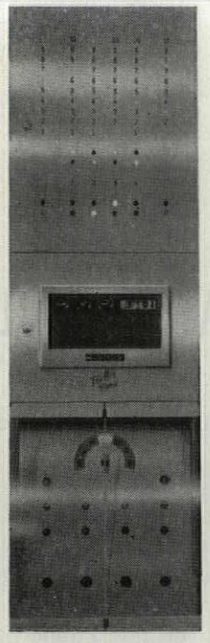
Since operatorless elevators were first introduced in a New York City office of the N. Y. Telephone Co. in March 1949, public interest and acceptance in them has increased tremendously. In 1950 only 12% of the elevators sold for new and existing buildings were operatorless: the figure rose to 38% in 1951, to 58% in 1952 and to 80% in 1953. Notable instances of elevator remodeling are shown in the picture captions at the right.

Elevator traffic studies

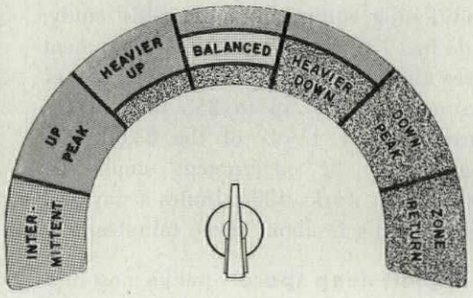
The first step in designing a new elevator service for an existing building is to determine exactly the waiting times and elevator-carrying capacities throughout the day. If the main lobby is excessively crowded when all the employees enter the building in the mornings, the elevator service is either inefficient or insufficient.

Various means of improving such a situation are suggested in an analysis of a typical 23-story office building prepared by Syska & Hennessy Inc., consulting engineers. The building contains ten 3,000-lb. cars with a hoisting speed of 600 fpm. At present six cars serve floors 1 to 16, having a working population of 1,304, and four cars serve floors 17 to 23 with a working population of 293. For the low-rise elevator bank average waiting time is 31.7 secs. and 11.6% of the population can be evacuated in 5 mins.; for the high-rise bank these figures are 42.5 secs. and 38.8%, respectively. An elevator service is good if waiting time is under 30 secs. and the peak 5-min. ratio is over 12%. Proposed remedies for this particular building:

- Balance low-rise and high-rise working populations. Use four cars between floors 1 to 11, working population 930, and four cars between floors 12 to 23, working population 667, leaving the remaining two cars for freight. Waiting times are still high, 38.6 secs. for the low-rise and 49.3 secs. for the high-rise banks, but 5-min. ratios go up to 13.6% and 14.6%, respectively.
- Change the existing two-speed doors to the faster center-opening type. Waiting times are cut to 30.2 and 42.5 secs. respectively, and 5-min. ratios go up to 17% for both banks. Estimated cost: $8,800 per car.



Group supervisory control is directed by an illuminated starter panel wired for seven different traffic programs. Control can be automatic or by manual switch.



▸ Increase car speed to 700 fpm. This cuts waiting times to 29.7 and 38.7 secs. while 5-min. ratios improve to 17.4% and 18.7% for the low-rise and high-rise banks, respectively. Waiting time for the high-rise bank is still excessive, therefore raise the high-rise car speed to 800 fpm. bringing waiting time down to 37.7 secs. and 5-min. ratio up to 19.2%. Estimated cost: $35,000 per car, including new doors.

▸ Install automatic group supervisory controls with attendant-operated cars. Operating efficiency of each bank goes up 25%; waiting times become 20.8 and 28.5 secs.; 5-min. ratios 21.7% and 24%, respectively. Cost $70,000 per car including doors.

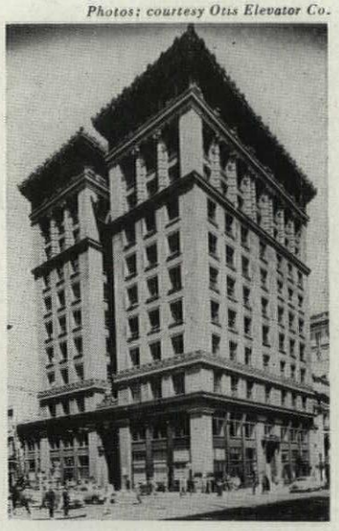
▸ Add operatorless controls (including provision for attendant operation at will). Average operation efficiency is boosted a further 10%, cutting waiting times to 18.7 and 25.7 secs., while boosting 5-min. ratios to 23.9% and 26.4% for the low-rise and high-rise banks, respectively. Estimated cost of complete remodeling: $90,000 per car but with a potential saving of 1½ attendants per car, equivalent to an annual saving of $7,000 per car at New York City costs.

First operatorless elevators in new office building were successfully proved in this new Dallas office of the Atlantic Refining Corp. Tenant response is "wholly favorable." Annual operating savings on four cars amount to $22,000.

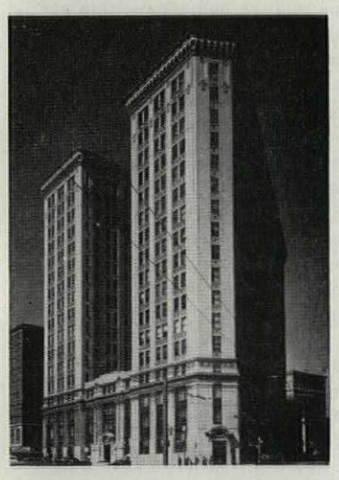
Chicago's Railway Exchange building is being remodeled with two banks of operatorless elevators—four 500 fpm low-rise cars for the first eight floors and five 700 fpm high-rise cars for floors 8 to 17.

Service improved 30% after three operatorless elevators replaced 27-year-old car-switch equipment in Nashville's General Shoe building. Average waiting time was 25-30 secs., is now 19 secs. Remodeling took about 11 months, cost $27,000 per car.

Photos: courtesy Otis Elevator Co.

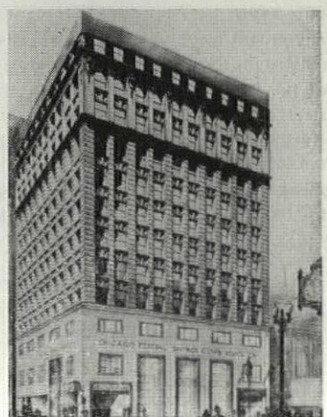


Built in 1906, San Francisco's Kohl building is one of the first diversified tenant office buildings to be modernized with three operatorless elevators under automatic group supervisory control.



Four elevator shafts eliminated by the more efficient operatorless elevators in Atlanta's Hurt building have provided 2,350 sq. ft. of rental space. Eleven new machines replace 15 car-switch units. Cost: $59,000 per car. Estimated savings when all cars are operatorless: $30,000 annually.

Three operatorless elevators replace five car-switch models in the 14-story Chicago Federal Savings & Loan Assn. building to cut annual operating cost by $15,000. Elimination of old hydraulic elevator equipment and use of old shaft space helped provide 18,000 sq. ft. of extra rental space.



AIR CONDITIONING—A MAJOR MODERNIZATION TOOL

Available at $2 to $7 per sq. ft., it helps put old buildings in competition with new ones

DESIGN DATA:

A good air-conditioning system performs four functions:

1. It maintains temperature at an optimum 74° to 78° F.;
2. It keeps relative humidity within acceptable limits, about 40 to 50%;
3. It circulates fresh and reconditioned air without objectionable drafts (preferred air velocity, under 50 fpm);
4. It removes dust from the circulating air by filtering it.

Heat loads to be carried away are considerable. Inside a building heat comes from the lighting, an average of 3 w. per sq. ft., and from the occupants, about 400 Btu's per person per hour (each person occupies an average of 100 sq. ft.). Ventilation requirements for offices are 10 to 25 cfm outside air per person with four changes per hour. Total refrigeration required works out at 0.0025 to 0.004 tons per sq. ft. of rentable area with an average figure of 0.003 (or 0.33 tons per occupant). One ton of refrigeration provides a rate of cooling equal to that produced by the uniform melting of one ton of ice in 24 hours. Its value is 200 Btu's per minute or 12,000 Btu's per hour and equals the heat given out by 30 adults.

Solar heat gain from the outside walls of the office can be considerable, as much as 60% of the total heat load. This load varies during each day as the sun moves around the exposed sides of the building. In large office buildings with three or four exposed sides it is often economical to erect outside louvers to keep direct sunshine off the walls. For example: sunshades installed on Architect Platt Roberts' Waterman Steamship building in Mobile, Ala., cost $36,000 plus installation but saved 30 tons of air-conditioning equipment, equivalent to a saving of $21,000 plus $1,200 a year in operation; and at the Flint Ridge office building at Fairfield, Ala., Architects Holabird & Root & Burgee put up sun louvers for a price of $107,000 to cut air-conditioning equipment costs by $98,000 and to save another $16,000 in reducing the size of the building, plus a further $1,000 a year in operating costs. (AF, Dec. '50, p. 92.)

Like an automobile, air conditioning can be bought to give either Cadillac or Chevrolet comfort and durability, depending on how much you want to invest. But there is one important difference. In air conditioning, the operating costs are reversed—Cadillac-type air conditioning, a year-round zoned system with individual controls, proves cheaper to run than the inexpensive window unit designed for summer cooling only.

Faced with increasing competition from new air-conditioned office buildings, owners and managers of existing buildings are looking apprehensively toward the future. In the long run, they know they must either compete with the new buildings or risk losing their best tenants, but they are not sure that tenants are prepared to pay the additional 50¢ to 90¢ a ft. required to operate and pay for air conditioning. Further, with a wide variety of air-conditioning systems available, it is hard to decide which is the most suitable for a particular application.

For guidance, here are the main factors to be considered in air conditioning an existing building, together with reports and studies of final solutions adopted in four office buildings. They cover the full range of air-conditioning systems from the year-round central zoned system with individual perimeter controls, costing up to $7.00 per sq. ft., down to the simplest application of window units that give summer cooling only and cost as little as $2 per sq. ft.

Why air conditioning?

There are three good reasons why existing buildings need air conditioning:

Growing competition—by the end of 1955, there will have been 51 new air-conditioned buildings in Manhattan, with 12,332,700 sq. ft. of rentable office space, roughly 18% of the area in 343 non-air-conditioned office buildings previously built below Manhattan's 61st St. A similar trend can be found in most cities.

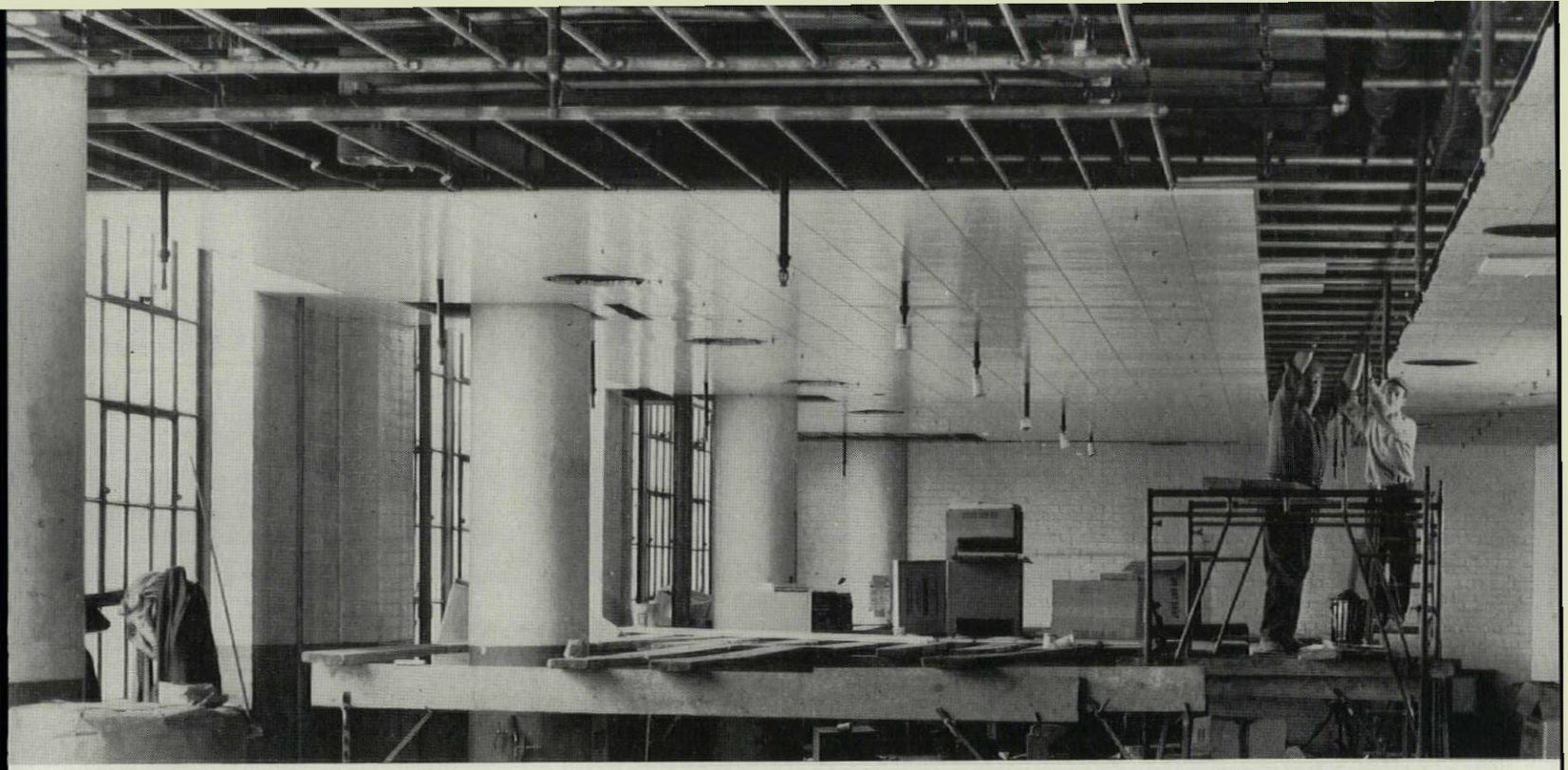
Morale and efficiency—businessmen agree that the efficiency of office workers is increased by air conditioning, but there is no agreement as to the percentage return due from this greater efficiency. W. E. Reynolds, head of the Public Buildings Administration in Washington, declares that if air conditioning encourages people to produce seven minutes additional work per day, then an employer breaks even on the extra cost of installing and operating air-conditioning equipment. (Reynolds' study, made in 1950, showed that for government offices air conditioning costs about $45 per person—probably up to $55 today. This represents only 1½% of the $3,600 average salary of government employees. Each person works 480 minutes a day and 1½% of this is about seven minutes.

To exploit deep space—unlike most new buildings, existing buildings contain little-used deep space that can be raised to a higher rental bracket by air conditioning and new lighting. The best instance of this is the 500 Fifth Ave. building in Manhattan, where, thanks to modern air conditioning, two basement floors were converted into offices to rent at $5 per sq. ft.

A leading air-conditioning equipment manufacturer reports that, for the first time, there are more large contracts being executed for existing buildings than for new buildings; further, that "over-all orders for 'big' air conditioning are up nearly 40% over contracts booked for the same period last year." The yearly increase in production of air-conditioning equipment during the seven years following 1945 averages about 11%. All this remodeling is taking place while office vacancies are low (US average; 3%), demonstrating that wise building owners are taking advantage of the good years to improve their competitive position for the future.

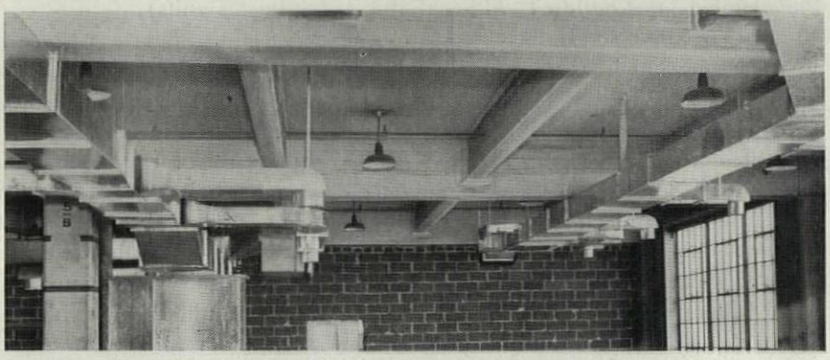
Systems of air conditioning

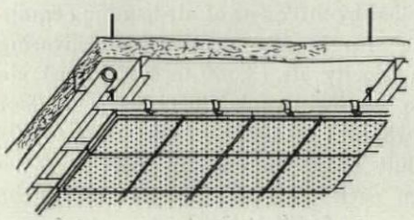
Functionally, air conditioning systems can be classified as to whether they are self-contained or built up. Self-contained systems include prefabricated window or console units that cool perimeter rooms only



Photos: Sam Rosenberg

Aluminum radiant ceiling goes into position along south and east sides of Port Authority building, to supplement the central duct air-conditioning system (shown below).





Perforated cooling panels are snap-clipped to galvanized pipe carrying chilled water. Suspended construction is backed with acoustic thermal blanket.

1. Central-duct system, plus radiant cooling, for $5.25 per sq. ft.

(⅓ to ¾ hp, costing $250 to $400 each); also the self-contained "package" units that consist of large equipment cabinets serving interior offices through short lengths of ductwork and have to be connected to a cooling tower; capacities—2 to 25 tons, cost—$500 to $800 per ton installed with ducts and cooling tower. In contrast, central built-up systems are assembled in the field; usual installed cost, $800 to $1,200 per ton.

The system adopted for a particular building depends on the space available, whether the entire building can be air conditioned in one operation and on the quality of air conditioning desired. If the building's heating system is obsolete, it should be replaced with a year-round air conditioning system. Examples of central duct and perimeter control systems, plus an application of radiant cooling, are described on this and the following pages.

A conventional, built-up, low-velocity duct system is being used to air condition 14 floors, 418,000 sq. ft. of the 15-story New York Port Authority building. Fresh air will be supplied to zoned air handling units in the ceilings from eight fan-rooms throughout the building to maintain 78° F. and 45% relative humidity when it is 95° d.b. and 75° w.b. outside. To control solar heat gain along the east and south perimeter walls, each floor is being fitted with 14′- to 20′-wide strips of radiant cooling ceiling panels similar in design to those in the Alcoa building (AF, Aug. '52 *et seq*).

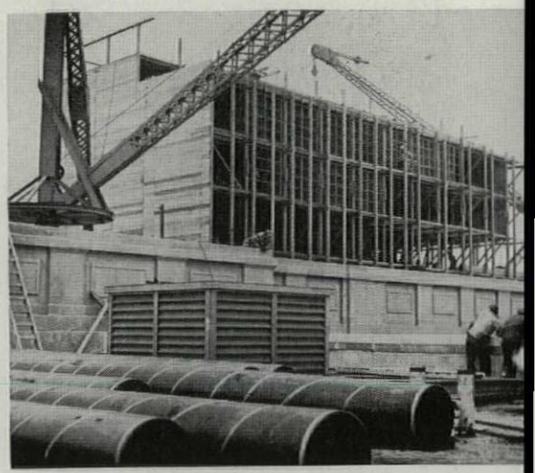
The cooling panels consist of perforated aluminum acoustic panels clipped to ½″ galvanized piping hung 12″ o.c. from the floor above and topped by an acoustic thermal blanket. Chilled water from the refrigerating plant goes to the unit air conditioners in the hung ceilings at 45° then to the radiant cooling panels at 55°, where a three-way mixing valve mixes the incoming water with 65° return water from the radiant cooling panels. Thermostat controls are set to keep the radiant ceilings at 60°.

Total heat load of the building is 19,800,000 Btu's (4.55 Btu's per sq. ft.) of which the 26,500 sq. ft. of radiant ceiling strips will carry off about 450,000 Btu's (17 Btu's per sq. ft.).

Estimated cost of air conditioning the building, including two 1,000-ton steam driven compressors, comes to $5.25 per sq. ft. including the supplementary radiant cooling panels. Installed cost of the panels alone, including piping and acoustic backup, is given as $3 per sq. ft. The entire air-conditioning system is designed by the Port of New York Authority engineers, headed by Chief Engineer John M. Kyle assisted by Project Engineer Charles Broder. Contractors: Perfect Contracting Co. and Buensod-Stacey Inc.

Fidelity-Philadelphia Trust building is largest US building air conditioned in one operation. The cooling tower (center); one of the two air-handling equipment penthouses (left).

Ex-elevator shaft now carries pipes and ducts. Ladder rests atop high-pressure duct leading down to 22nd floor loft. Large pipes are secondary water risers serving perimeter cabinets.



Redwood cooling tower will be faced with cement asbestos board patterned to match rest of building; open east face visible in photo will contain air-intake louvers.

2. Thermostat-controlled perimeter zoning gives quality, year-round air conditioning for $7 a sq. ft.

One of the finest business addresses in Philadelphia is the 26-year-old Fidelity-Philadelphia Trust building. Although this 30-story, 600,000 sq. ft. net structure is 100% occupied and has a long waiting list, the owners are investing $4,165,000 ($6.94 per sq. ft.) in a high-quality, zoned air-conditioning system for which tenants will pay an extra 80¢ a sq. ft. to cover the estimated annual owning and operating cost of the new equipment.

Seven systems of air conditioning (detailed below) were analyzed before the go-ahead was given. The one finally selected was chosen because it is lowest in operating cost, is easy to maintain, takes up the least amount of rentable space and is quietest in operation (there are no motors in the perimeter units).

In effect, there are two air-conditioning systems in this building, one for the interior and one for the exterior zones. The interior zones (areas over 19′ from windows or separated from them by partitions) are supplied by two sets of air-handling equipment—steam preheater, electrostatic and dry filters, dehumidifier with cooling coil, steam reheater and supply air fan—located in new penthouses. They deliver conditioned air to each floor at low velocity (1,500 to 2,000 fpm) through five vertical trunk ducts for horizontal distribution through unobtrusive ceiling ducts. The perimeter zones are supplied by three sets of air-handling equipment, also in new penthouses, delivering high-velocity air (3,500 to 4,000 fpm) via three vertical trunk ducts to a 22-floor loft where it is distributed laterally to 10″ conduit risers running up and down between each pair of windows around the perimeter of the building.

While the interior zone usually needs year-round cooling, even in winter, the perimeter zone needs a more flexible system to permit winter heating and to control the varying solar heat gains as the sun moves around the building. Air-control cabinets replace the radiators beneath windows.

Comparative analysis of seven air-conditioning systems for Fidelity-Philadelphia Trust building

System I (see text). Rentable area lost to trunk ducts, 2,350 sq. ft. Costs: installation, $6.94 per sq. ft.; operating, 16.5¢; annual owning and operating cost, 80.8¢ including loss of rentable space.

System II would be similar to System I in principle, but in place of central, penthouse fan rooms, the air-handling equipment supplying the interior zones would be decentralized into 12 fan rooms throughout the building. Besides saving on trunk ducts, this would permit greater flexibility in case the building were to be air conditioned only a few floors at a time. The numerous fan rooms would take up 1,300 sq. ft. more space and would be more of a maintenance problem. The initial cost would be $6.83 per sq. ft.; annual operating cost, 17.8¢; owning and operating, 82.1¢.

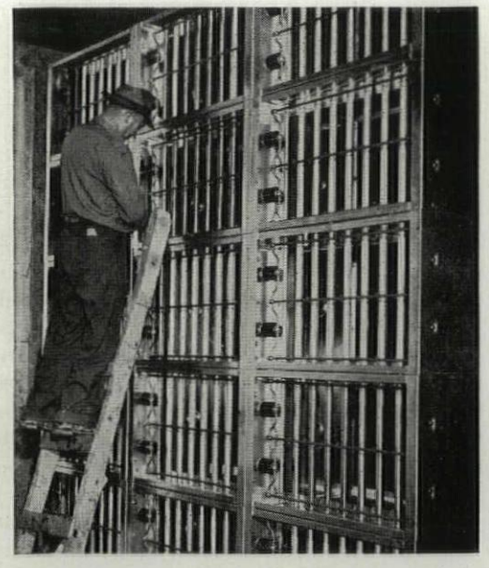
System III. To avoid building air ducts at the perimeter wall of the building, fan-coil units would be installed under each window. These contain filters, fans, cooling and heating coils, to condition room air, but do not ventilate. Existing steam risers could be used for the heating, but additional chilled water pipes would be required for summer cooling. The central duct system of the interior zone, supplied from the roof as in System I, would have to be enlarged to provide ventilation and humidity control for the perimeter zones. Limitations of this system: it would occupy 1,250 sq. ft. more rentable space than System I because of more interior ductwork, the room units would create more noise and the filters in them would need changing every six months. Installation cost, $7.23 per sq. ft.; operating cost, 17.7¢; owning and operating cost, 85.6¢.

System IV would be similar to System III but the window cabinets would contain no heating coils. Instead, the cooling coil would be adapted for winter heating. Ductwork for the perimeter areas would need to be separately zoned from the interior areas to ensure adequate temperature and humidity control. Installation costs would be reduced to $7.01 per sq. ft. while the operating cost would remain 17.7¢; owning and operating, 83.5¢.

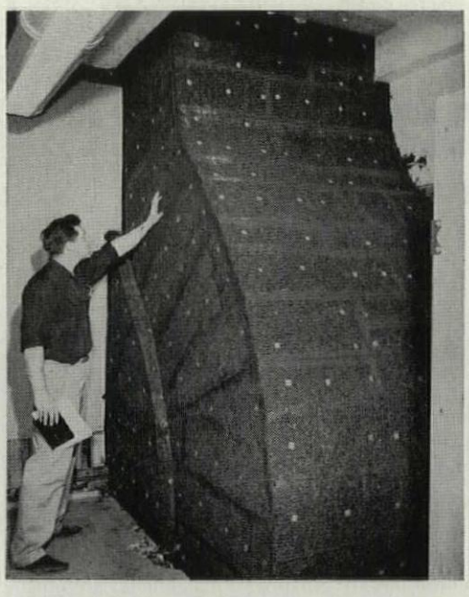
System V would also be similar to System III but with twenty decentralized fan rooms that would permit air conditioning of the building in stages. This would require 2,550 sq. ft. more space than System I and would be more expensive to operate. Installation cost, $6.97 per sq. ft.; operating cost, 19.6¢; owning and operating cost, 86¢.

System VI would be similar to System V but with the steam coil left out of the perimeter cabinets (as in System IV). Again, separate ductwork would be required for the perimeter zones. Costs: installation-$6.82 per sq. ft.; operating, 19.6¢; owning and operating, 84.5¢.

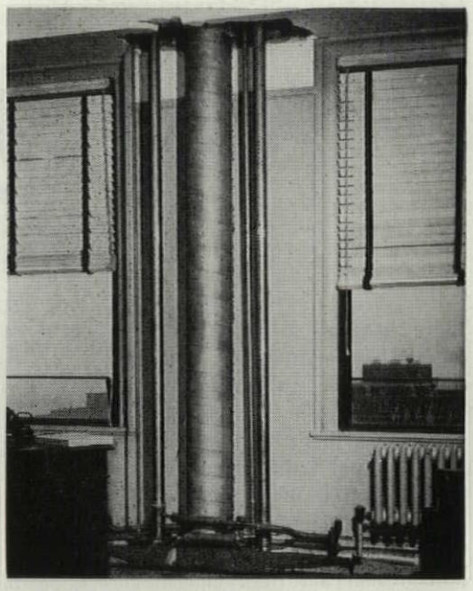
System VII. To avoid any work at all on the perimeter walls, all air conditioning and control would be by means of an overhead duct system. This would require three fan rooms on each floor, 69 in all, taking up 16,800 sq. ft. of valuable rental space. Installed cost, $7.39 per sq. ft.; annual operating cost, 22.1¢; owning and operating cost, $1.00.



Electrostatic air filters in penthouses carry most of air-cleaning load. Dehumidifier with cooling coil, behind filter, uses chilled water from 2,500-ton capacity refrigeration plant in basement.



Cork-insulated trunk ducts, led through men's room at 27th floor, carry interior and exterior zone air to 22-floor loft, where air and water is laterally distributed to perimeter zone.



High-pressure perimeter risers take up little space, distribute air to each pair of wall cabinets (shown below). Radiator remains connected to hot-water pipes until replaced by cabinet.

Alongside each perimeter riser are two insulated pipes to carry warm or chilled water and a drain pipe to guard against condensation. High-velocity air from the vertical ducts is blown through a jet in each cabinet, inducing a secondary circulation of room air over a copper coil that can be used for either heating or cooling, the temperature being adjusted by individual thermostats.

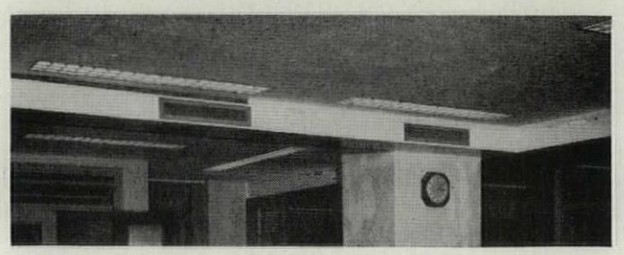
Trunk ducts occupy only 2,350 sq. ft. of rentable area (under ½%); the perimeter ducts, another 4,900 sq. ft., but in such small parcels along the perimeter wall (the largest is 3′ x 18″ wide) that rental areas are not affected. Initial cost of this system is $6.94 per sq. ft.; annual operating cost 16.5¢ per sq. ft. giving an annual owning and operating cost of 80.8¢ per sq. ft., based on 15-year amortization including loss of rentable space.

Tenant response

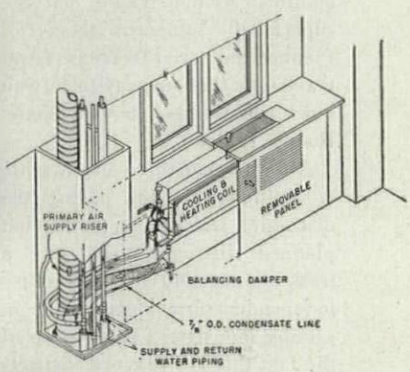
In the course of casual conversations with his tenants, building Manager Henry Lear of Fidelity-Philadelphia Trust soon discovered that tenants were indifferent to the whole idea of air conditioning, especially when he told them that it would cost them 80¢ a ft.

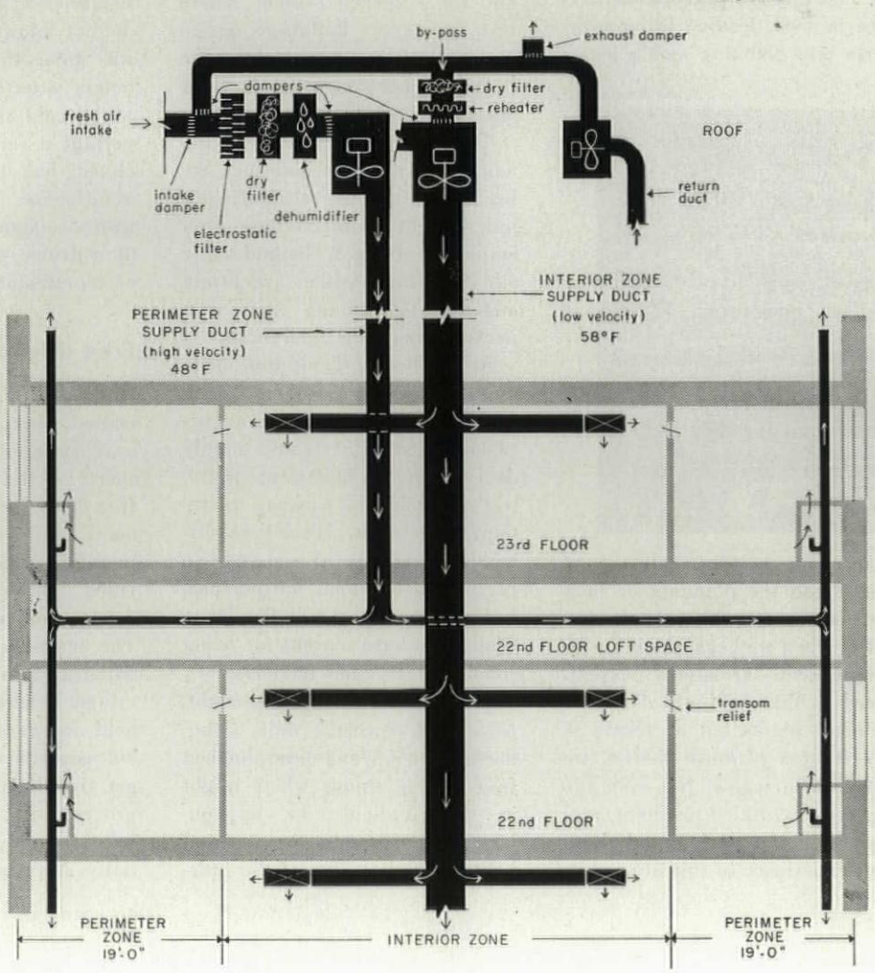
To gain tenant cooperation, Lear first sent out a form letter explaining his plans, informing tenants exactly when the remodeling would start, how much disturbance it would involve to them and giving the names of the engineers and contractors who would carry out the work. Then he personally visited the tenants occupying over 800 sq. ft.; to the others he sent out supplementary lease forms on air conditioning for signature and return. Those tenants who would not agree to paying the 80¢ additional rent for air conditioning (all

continued on p. 254



Zone air-conditioning controls separately the varying heat loads of perimeter zone. Different sets of equipment supply high-velocity air for perimeter zone and low-velocity air for interior.





for architects only

More than once FORUM's intrepid editors have started bravely after fox and come up against bear, which they wish they hadn't. A sudden bear hunt is noisy as well as risky, and makes you look as if stirring up the animals had been your intention, when it was only a consequence. But if the animal that has been molesting your general vicinity is bigger than you had thought, there is at least some advantage in coming to grips with the real beast.

An episode occurred at last month's Round Table on the superficially innocent theme of Planned Industrial Districts. (And maybe it's time anyway to let you know why we have so many, many Round Tables.)

All was smooth to begin with. A main reason for having the discussion was FORUM's idea that planned districts might give a fresh opportunity to the smaller independent firm of architects in serving industry. (This on top of the fact that the planned districts idea is good, leading to more orderly city planning and a better

Squire Haskins

chance for smaller industry as such. And the planning of such districts is spreading fast.)

But when we began looking for independent architects experienced in that field, the field not of small plants but of plants as a part of a planned district, we found them scarce. Not even the big architectural firms doing regular industrial work reported recent experience in this area of it.

In our inquiry we did, however, turn up two good architects and true—Clarence Kivett, who is actively planning such a district in Kansas City, and Roland Wank, who is currently planning none, but whose broad grasp of industrial planning and of architectural philosophy in general left us feeling we could ask none better. As our habit is, we rounded the group with industry-wide representation: managers of districts, railroad and trucking and rapid-transit men, industrial lenders.

Well, pretty soon we found we were dealing with a client group far from the ordinary. Managers like Doug Wells of the Chicago Clearing Industrial District (we were sorry John Cromelin, his skilled architect, could not come too) know their building problem down to the last critical inch, and for a special reason. Where the average building group *houses* the client's operations, the building these men do *is* their operation.

Then up reared the bear. Its name was package building. We began to see why relatively few independent architects have been employed. Doug Wells and many others in his position are firmly addicted to running their own package building operations.

At the Round Table this made uphill work for members Wank and Kivett. This was not an occasion where either could simply declare the independent architect's aversion to package operations. It was an occasion requiring every variety of constructive persuasion to widen the perspective of experienced men like Doug Wells who have reasons for being committed to such methods.

The two architects, we thought, performed especially well. Using the finest tact Wank never flinched from saying things which might in that audience be unpopular. For example, he insisted politely on the value of the independent architect's independent viewpoint, even where the client might think his own knowledge was better than any outsider's. Wank challenged, again politely, standards that might put even an experienced operator in a rut. He suggested that an experienced architect might bring in useful experience from other fields. And he mentioned that an independent professional might be in better position to hold out for fine execution, even against the monetary hurry of "the boss."

Now it would be highly presumptuous for FORUM's editors to declare that Wank and Kivett carried all their points. What ultimate effect they had we frankly do not know. Part of the effect was going to depend on the listeners' afterthoughts. The longer we thought about it the more important it seemed that a fine architect had had the try, in the atmosphere of open discussion, *with no immediate job at stake,* to convince an intelligent group of representative building clients.

Free discussion wins

Out of this experience and many others, FORUM's editors have emerged with a healthy respect for the sovereign value of free discussion. There are a great many issues on which our great manifold building industry is divided. The many component groups hold different viewpoints. The easiest way out is for all to withdraw into separate cozy gatherings, where opinions already held are warmly reaffirmed without contradiction. But problems get truly solved—or at any rate progress is made toward their solution—only when groups initially at variance get together.

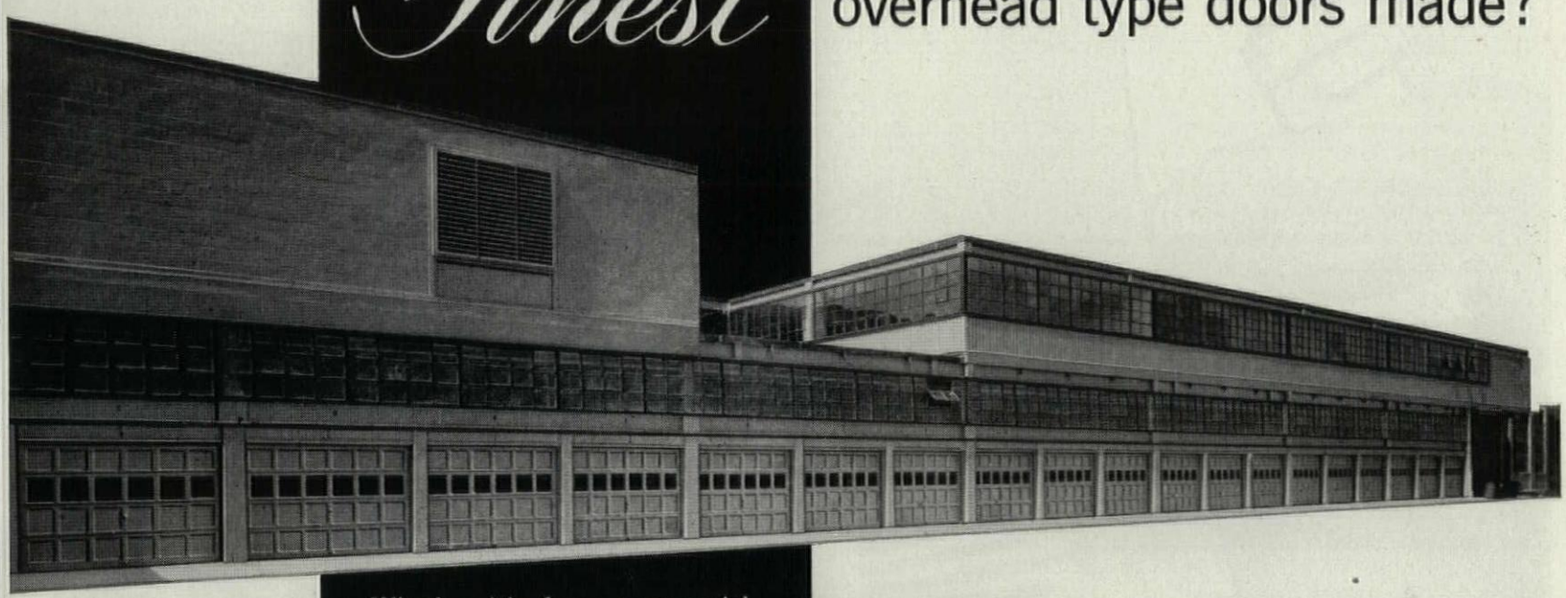
FORUM's only secret in all this is an open secret. If you have read any of our Round Table reports you will have noticed that they concentrate almost wholly on *agreements.* Paradoxically, it is because we promise to stick to agreements in the end that we are able to get all the cards laid out on the table, so discussion *at* the table is unreserved, sometimes hot and almost always useful. But if people are genuinely trying to seek the extent of their agreements, it's surprising how many areas of disagreement begin to melt away. The men who meet find that the other fellow is human, and much that seemed to be a disagreement turns out to be only misunderstanding.

Better than battles

Lest Pollyanna seem here to be showing her sweet and silly face, let us hasten to recall that nobody said the bear in the present story was shot dead. Between the advocates of package building operations and the architectural profession the cleavage is still deep and in the eyes of sincere men fundamental. We can say only that it would be wonderful if energy now used in battle could be turned to more creative adjustments. We don't know that it can. Yet we have lived to see another battle composed that once seemed to be to the death—between the homebuilders and the prefabricators. Behind the battle line they were trading so much in each others' methods that in the end they found they could work together to better advantage than they could fight.

In listening to many a Round Table discussion, FORUM's editors have been brought to see again and again how little they themselves had really foreseen possibilities of resolution. As we say, the only assurance of progress is to do no forcing. The number of agreements obtained up to now has been surprising. Those architects who participated have felt they were part of a solid achievement. We are happy to say that by far the most of those who have had the experience love the chance to come again. We wish you all could. D.H.

are these the *Finest* overhead type doors made?



Whether it's for a commercial, industrial, or residential installation, *every* Ro-Way overhead type door is designed, engineered and built to be the finest of its kind.

Finest in appearance—with clean, simple lines that blend well with any style of architecture, perfectly complementing the design of the structure.

Finest in construction—with mortise and tenon joints not only glued but *steel* doweled as well . . . muntins, rails and stiles squared up with precision . . . sections rabbeted to assure weather-tight joints . . . millwork both drum and hand sanded . . . heavy gauge steel hardware both Parkerized and painted *after* fabrication.

Finest in operation—with Taper-Tite track, Seal-A-Matic hinges, smooth-running ball bearing Double-Thick Tread rollers, and Power-Metered springs individually matched to the weight of each door.

No matter how you look at Ro-Way doors, you see that finest quality is engineered right into every detail. If that's what you want, specify Ro-Way on every job.

Ro-Way
OVERHEAD TYPE DOORS

SEE OUR CATALOG IN SWEET'S

ROWE MANUFACTURING CO.
917 HOLTON ST., GALESBURG, ILL.

Nationwide sales and installation service. See your classified telephone directory for nearest Ro-Way distributor.

there's a Ro-Way for every Doorway!

A SKYLINE OF UNIVERSAL INSTALLATIONS

SEALUXE engineered Metal-Glass buildings and Solarized buildings actually represent a new science — a new kind of Engineering — a new kind of Architecture.

SEALUXE has pioneered and developed this type of Architecture — truly a "REVOLUTION ON THE SKYLINE" — a 100% American type of Architecture that is beautiful in appearance — low in original cost (no more than conventional buildings) — lower in maintenance cost — easy to heat — and easy to cool.

UNIVERSAL CORPORATION has authorized agents in ALL of the Architectural Centers to assist you with your preliminary drawings. Mr. Aladar Olgyay, internationally known Architect, is retained as a Consultant for our research work on Solar Shading and Climatology.

WRITE IN FOR THESE UNIVERSAL AIDS*

★ DRAFTING ROOM STANDARDS ★ CATALOGS ★ MANUAL OF TECHNIQUES FOR METAL-GLASS FACADES

IMPORTANT: ***Send Universal Engineers your preliminary drawings for study. They will be returned within three to seven days with worthwhile suggestions.***

UNIVERSAL CORPORATION

J. P. TRAVIS, *President*

DALLAS NEW YORK CHICAGO LOS ANGELES DES MOINES

ENGINEERING • MANUFACTURING • INSTALLATION

Too many cooks do you know what

Too many cooks not only spoil the soup . . . they take a lot longer to make it. And if the customer finds fault, who's responsible? Nobody knows.

But *everybody* can pinpoint the responsibility when you make it a flat spec for Dunham—which you can easily do since Dunham makes a *complete line* of quality heating equipment. *One Catalog,* designed to help and speed your spec writing, contains everything from the simplest radiator trap to fully automatic precision temperature control equipment.

So why gamble on divided responsibility for equipment performance? Why leaf through dozens of catalogs? Why not, instead, make it a flat spec for Dunham—to simplify *your* work and keep *your* customers happy.

DUNHAM **HEATING EQUIPMENT**

RADIATION • UNIT HEATERS • PUMPS • SPECIALTIES

QUALITY FIRST FOR FIFTY-ONE YEARS

C. A. DUNHAM COMPANY • CHICAGO • TORONTO • LONDON

C. A. DUNHAM COMPANY
Dept. AF-5, 400 W. Madison St.
Chicago 6, Illinois

Please send bulletin on your complete line.

Name_____

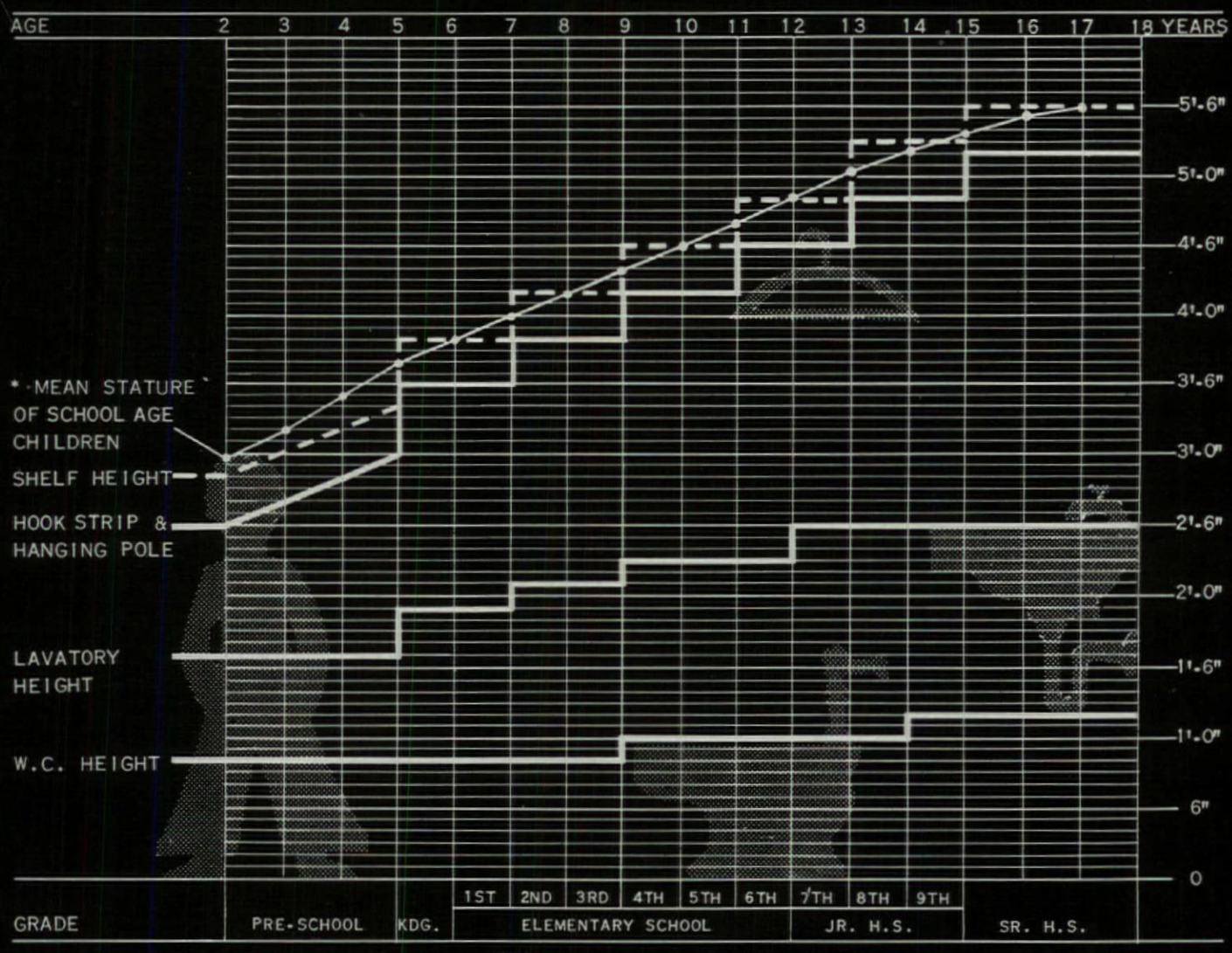
Firm_____

Address_____

City_____ Zone____ State____

SCHOOLS—FIXTURE DIMENSIONS

HEIGHTS OF FIXTURES AND EQUIPMENT



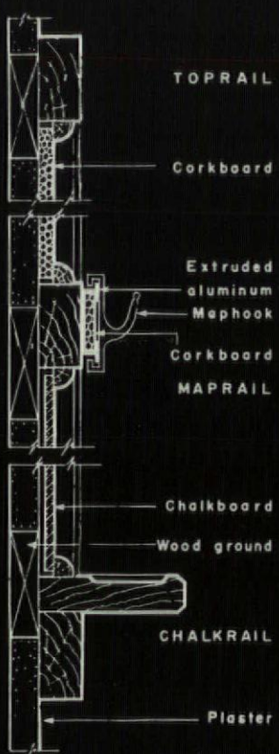
* MEASUREMENTS BY U.S. DEPARTMENT OF HEALTH EDUCATION AND WELFARE

DESK AND SEAT SIZES BY GRADES

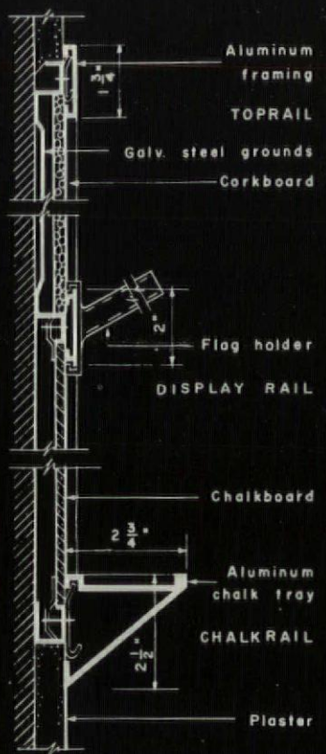
SEAT HEIGHTS	10"	11"	12"	13"	14"	15"	16"	17"	18"
DESK HEIGHTS	20"	20" 21"	21" 22"	22" 23"	24" 25"	25" 26"	26" 27"	27" 29"	28" 30"
% BY GRADES	%	%	%	%	%	%	%	%	%
KINDERGARTEN	20	60	20						
1ST GRADE		20	50	30					
2ND GRADE		10	40	50					
3RD GRADE			20	60	20				
4TH GRADE			10	40	50				
5TH GRADE				20	60	20			
6TH GRADE					30	40	30		
7TH GRADE					10	40	50		
8TH GRADE						20	40	40	
JUNIOR HIGH SCHOOL							40	50	10
SENIOR HIGH SCHOOL							30	50	20
ADULT							20	50	30

STATISTICS BY NORCOR MANUFACTURING COMPANY

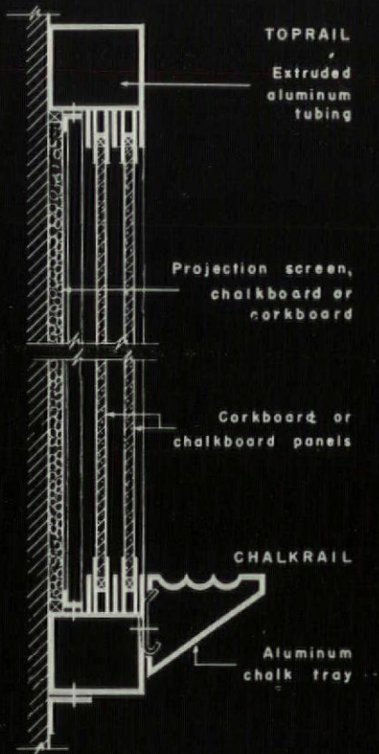
SCHOOLS—CHALKBOARD DETAILS



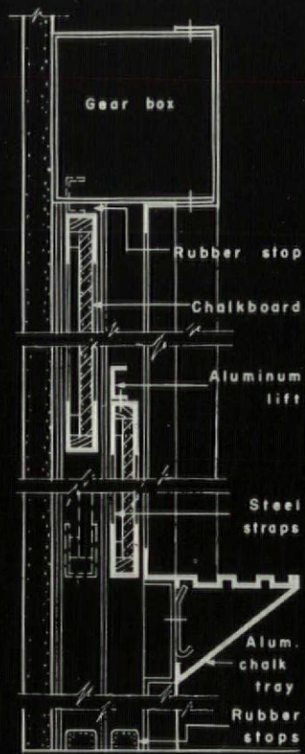
CHALKBOARD WITH WOOD FRAMING



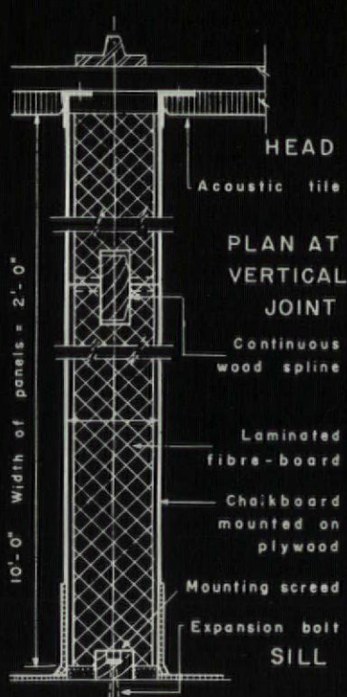
CHALKBOARD WITH ALUMINUM FRAMING



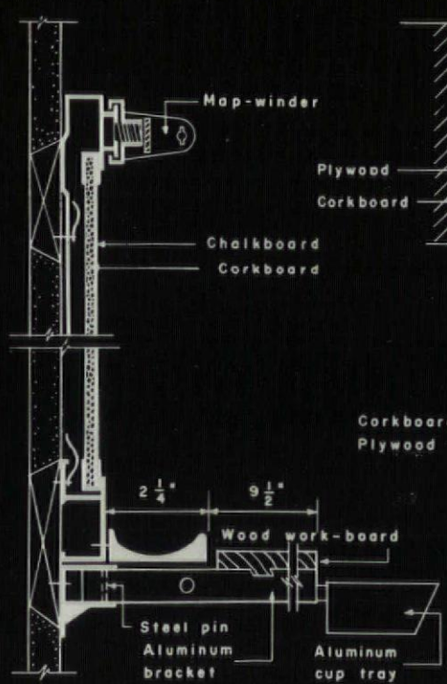
HORIZONTAL-SLIDING CHALKBOARD



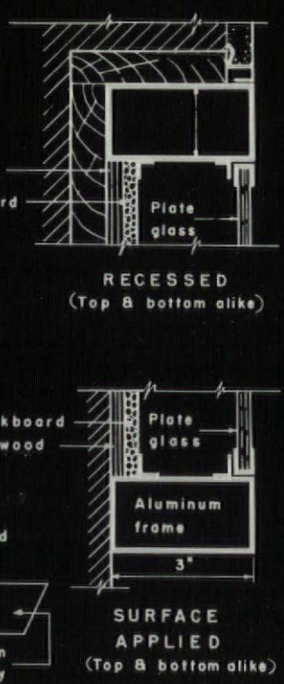
VERTICAL-SLIDING CHALKBOARD



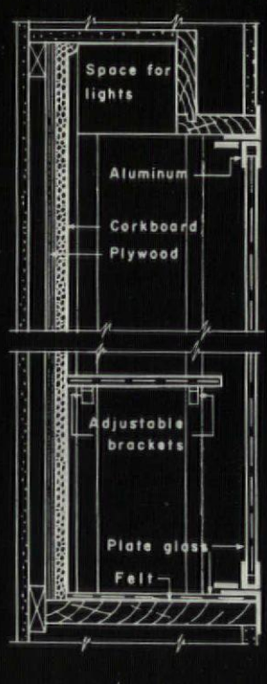
CHALKBOARD PARTITION



REVERSIBLE EASEL BOARD



BULLETIN BOARD



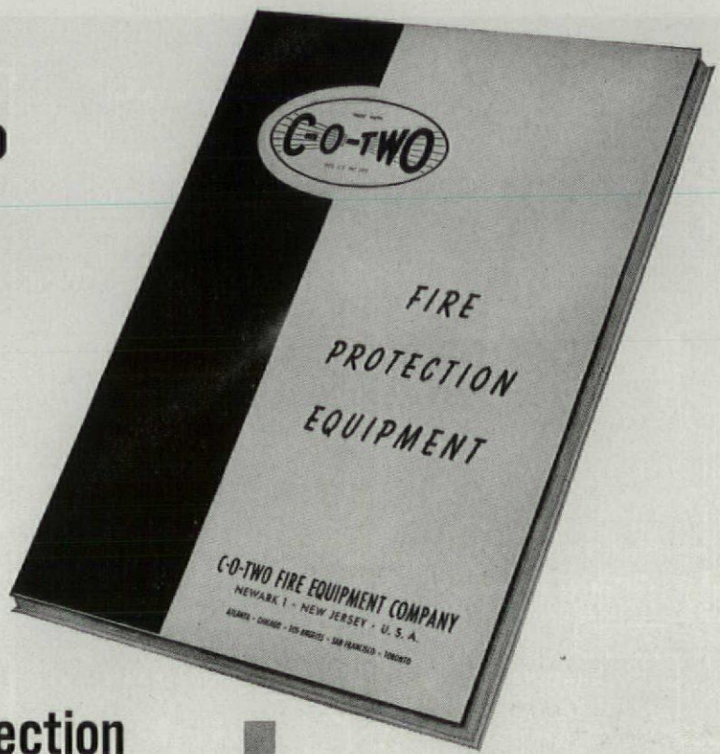
DISPLAY CASE

GLASS ENCLOSED CASES

WORKING ON INDUSTRIAL CONSTRUCTION?

Get this handy guide to

- SPECIFICATION DETAILS
- LAYOUTS
- ENGINEERING DATA



for specialized fire protection

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

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

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

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

- ✓ DIP AND QUENCH TANKS
- ✓ SPRAY BOOTHS
- ✓ MIXING VATS
- ✓ DRYERS AND OVENS
- ✓ PRINTING PRESSES
- ✓ KITCHEN RANGES
- ✓ ELECTRICAL EQUIPMENT
- ✓ FUR AND RECORD VAULTS
- ✓ STORE ROOMS
- ✓ AIR CONDITIONING EQUIPMENT

C-O-TWO

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeez-Grip Carbon Dioxide Type Fire Extinguishers
Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

C-O-TWO FIRE EQUIPMENT COMPANY
NEWARK 1 • NEW JERSEY

C-O-TWO FIRE EQUIPMENT OF CANADA, LTD. • TORONTO 8 • ONTARIO

Sales and Service in the Principal Cities of United States and Canada

AFFILIATED WITH PYRENE MANUFACTURING COMPANY

how much light for a dollar?

In lighting, first costs are not real costs! Real costs are the sum of the first costs including installation *and operating and maintenance expenses during the life of the system.*

Time and again, fewer Smithcraft lighting units are required to produce recommended lighting results. Because fewer Smithcraft units are required, your first cost is lower, but your really big savings are in the lower power costs and lower maintenance costs that go with fewer units.

On a typical factory installation lighting 20,000 square feet of floor space, for example, the Smithcraft A. L. S. Factory Lighting Unit will save roughly $8,000 over a ten-year period, when compared with a typical industrial fixture with 6-10% up-lighting (design and performance conforming with RLM standards). So, it's possible to enjoy the benefits of the finest lighting that money can buy and effect really substantial savings at the same time, simply by buying the right fixture.

Ask us to send you our A. L. S. Factory Lighting Folder.

PHOTOGRAPH SHOWS INSTALLATION OF 4450 SMITHCRAFT A. L. S. UNITS LIGHTING 397,000 SQ. FT. TO 75 FOOTCANDLES.

SCHOOLS—CHALKBOARD DIMENSIONS

RECOMMENDED HEIGHTS OF CHALKRAIL ABOVE FLOOR

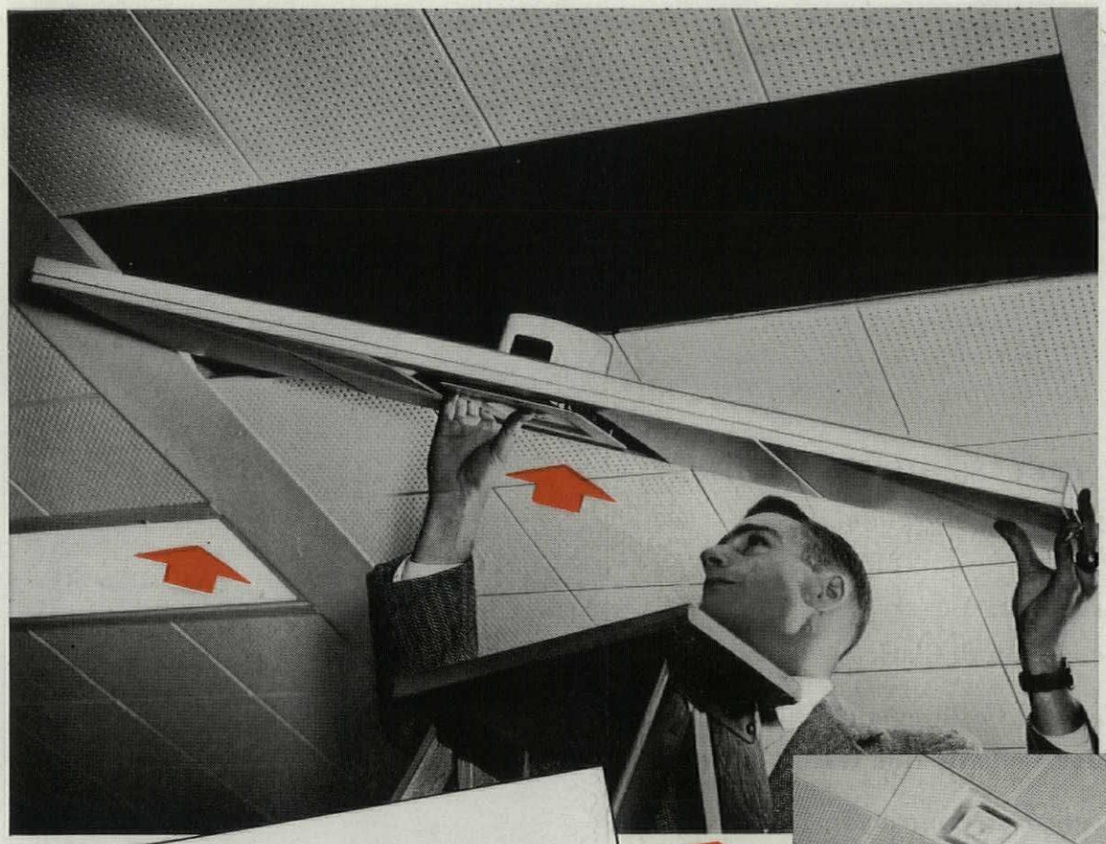
GRADE	AUTHORITY MAKING RECOMMENDATION					
	Engelhardt, Engelhardt & Leggett	Nat'l Council on Schoolhouse Construction	Brown & Fields	Ray L. Hamon	N.Y. Code	California (Suggested by Dept of Education)
Kindergarten	20"			23"	24"	22" - 24"
1st grade	20" - 23"	24" - 28"	25.75"	24"	27"	24" - 26"
2nd grade	20" - 23"	24" - 28"	26.5"	25"	28"	24" - 26"
3rd grade	20" - 23"	26" - 30"	30.5"	26"	29"	27" - 28"
4th grade	28" - 30"	26" - 30"	32"	27"	30"	28"
5th grade	28" - 30"	28" - 32"	32.5"	28"	31"	30"
6th grade	28" - 30"	28" - 32"	32.5"	29"	32"	30"
Junior High School	34"	30" - 36"		32"		32"
Senior High School	36"	30" - 36"		33"		32" - 36"

TACKBOARD SIZES

COMPOSITION	TOTAL THICKNESS	MAXIMUM SIZE	COLORS AVAILABLE
3/8" CORK MOUNTED ON 1/4" WOOD FIBER BOARD	3/8"	4'-0" X 12'-0"	GREENS, TANS, GREYS, NATURAL
1/4" CORK MOUNTED ON 1/8" WOOD FIBER BOARD	3/8"	4'-0" X 12'-0"	GREENS, TANS, GREYS, NATURAL
1/4" CORK MOUNTED ON 1/4" WOOD FIBER BOARD	1/2"	4'-0" X 12'-0"	GREENS, TANS, GREYS, NATURAL
1/8" CORK MOUNTED ON 3/8" PRESSED WOOD PULP	1/2"	4'-0" X 12'-0"	GREENS, TANS, GREYS, NATURAL
UNMOUNTED CORK	1/4"	5'-0" & 6'-0" WIDE X 75'-0" OR 85'-0" LONG	GREENS, TANS, GREYS, NATURAL

CHALKBOARD SIZES

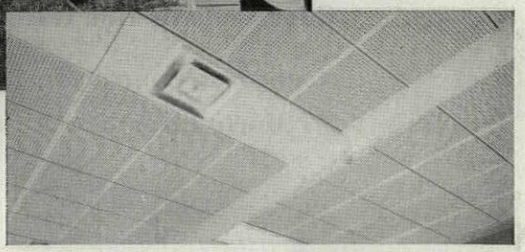
SURFACE	BASE COMPOSITION	THICKNESS	WIDTHS	LENGTHS	COLORS AVAILABLE
Vitreous enamel	Plate glass	1/4" ±	4" to 4'-0"	4" to 8'-0"	Green, ivory & black
	Aluminum alloy	3/16" +	3'-0", 3'-6", 4'-0"	3'-0" to 8'-0"	Green
	Steel & fiber board	3/8"			Green, ivory & black
	Steel, backed with plywood & wood fiber board	7/8"	3'-0", 3'-6", 4'-0"	4'-0" to 8'-0"	Green, ivory & black
Ceramic porcelain on steel	Plywood on steel	9/32" ±	3'-0", 3'-6", 4'-0"	6'-0" & 8'-0"	Green
Solid acrylic plastic			3'-0", 3'-6", 4'-0"	5'-0" & 6'-0"	Green
Solid polyesther-resin plastic		1/4"	3'-0", 3'-6", 4'-0"	up to 7'-0"	Green
Synthetic plastic	Cement-asbestos board	3/16"	3'-6", 4'-0"	up to 8'-0"	Green, black
	Plastic & wood-fiber board		3'-0", 3'-6", 4'-0"	up to 12'-0"	Green, black
	Wood-fiber board		3'-0", 3'-6", 4'-0"	up to 12'-0"	Green, black
	Tempered wood-fiber board		3'-0", 3'-6", 4'-0"	up to 12'-0"	Green, black
Synthetic plastic & silicon carbide	Tempered wood-fiber board	1/4" & 1/2"	3'-0", 3'-6", 4'-0"	4'-0" to 12'-0"	Green, black
Carborundum	Cement-asbestos board	3/16"	3'-6", 4'-0"	5'-0" to 8'-0"	Green, black
	Wood fiber board	1/4"	3'-0", 3'-6", 4'-0"	up to 12'-0"	Green, black
	Hardboard	7/16"	3'-0", 3'-6", 4'-0"	up to 12'-0"	Green, black
	Laminated wood fiber	1/4"	3'-6", 4'-0"	up to 12'-0"	Green, black
Powdered slate	Wood fiber board	1/4" to 7/16"	3'-6", 4'-0"	6'-0" to 12'-0"	Green, black
	Tempered wood fiber board	1/4"	3'-0", 3'-6", 4'-0"	6'-0" to 12'-0"	Black, 2 greens
	Laminated wood pulp		3'-0", 3'-6", 4'-0"	up to 16'-0"	Black, 2 greens
Natural slate		1/4" to 3/8"	3'-0", 3'-6", 4'-0"	no standard	Black
Pulverized slate & carborundum	Laminated wood fiber	1/4"	3'-0", 3'-6", 4'-0"	up to 12'-0"	Green, black
	Wood fiber board	1/4"	3'-6", 4'-0"	5'-0" to 12'-0"	Green, black
	Cement asbestos board	3/16"	3'-6", 4'-0"	5'-0" to 12'-0"	Green, black



Announcing

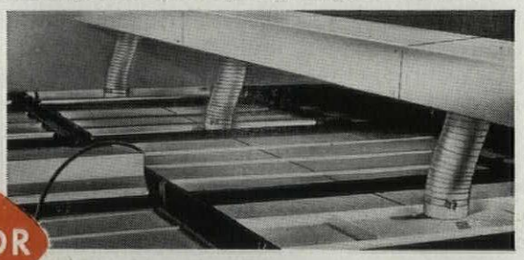
kno·draft

panel type air diffusers



ACTUALLY PART of the ceiling, Kno-Draft Panel Type Air Diffusers fit precisely into the acoustical tile pattern, creating a unified "dead level" surface that is pleasing to the eye.

FLEXIBLE TUBING connects Kno-Draft Panels to ducts, permits wide latitude in installation. Panels may be moved as necessary without affecting efficiency or requiring change in ductwork.



ESPECIALLY DESIGNED for acoustical suspended ceilings, Kno-Draft Panel Type Air Diffusers can be installed as fast and easily as the acoustical tiles themselves—a matter of minutes. Ducts and tubing connections are readily accessible.

Furthermore, Kno-Draft Panels do not have to be lined up with ducts. They can be placed anywhere on the ceiling—are connected to ducts by special patented flexible tubing. This allows great flexibility and permits relocation of offices and partitions without moving ductwork.

Air volume through Kno-Draft Diffusers is adjustable *after* installation. Air velocities remain constant at all damper settings. Mail coupon today for full information on this new exclusive development in air diffusion. Connor Engineering Corporation, Danbury, Conn.

CONNOR ENGINEERING CORPORATION

kno·draft®

panel type air diffusers

see our catalog in ARCHITECTURAL FILE or write for copy

CONNOR ENGINEERING CORPORATION
Dept. D-54, Danbury, Connecticut

Without obligation, please send your Bulletin K-36 describing the new Kno-Draft Panel Type Air Diffusers.

Name_____

Position_____

Company_____

Street_____

City_____ **Zone**____ **State**_____

E. C. GLASS HIGH SCHOOL

Lynchburg, Virginia

Architect:

Pendleton S. Clark

General Contractor:

Good Construction Co.

Acoustical Contractor:

W. Morton Northen & Co.

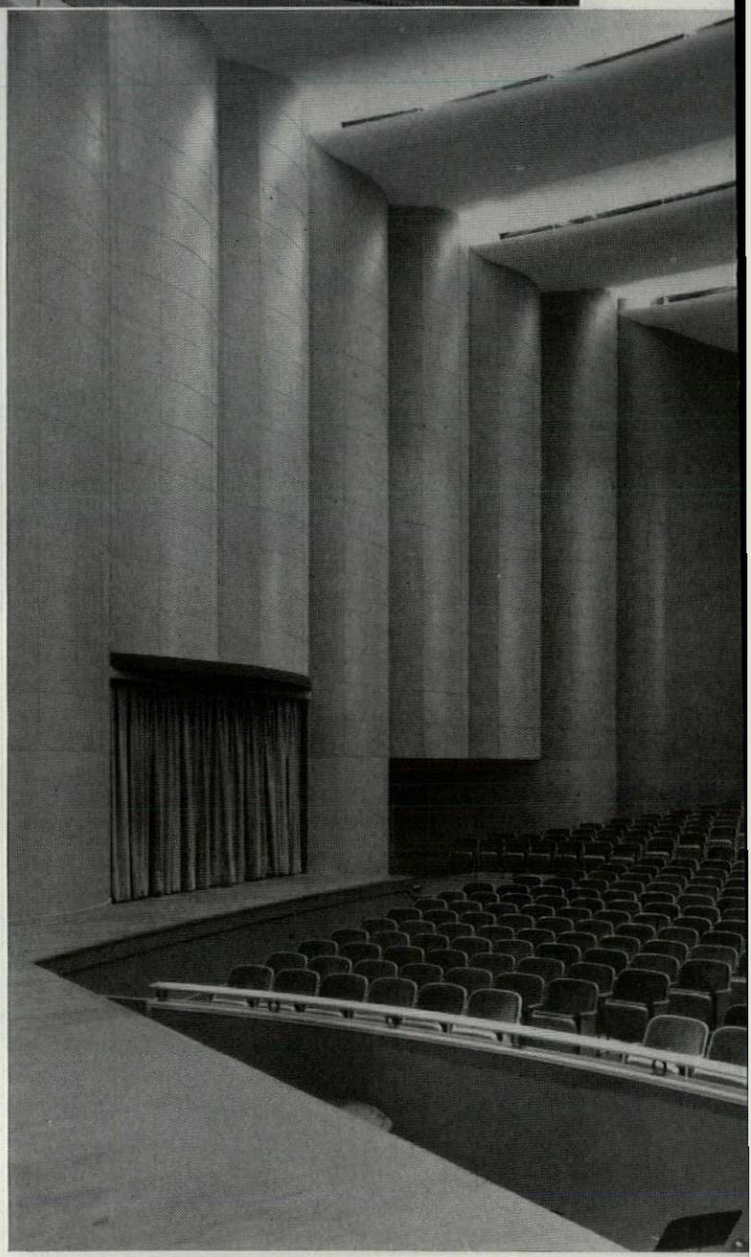
The new E. C. Glass High School in Lynchburg, Virginia, is an impressively large building. In its thoroughly up-to-date design, architect Pendleton S. Clark has reflected the dignity and charm of this conservative southern city.

The school's quiet atmosphere is largely due to careful planning before construction. Foreseeing the possibility of serious noise problems, the architect selected sound-absorbing ceilings of Armstrong's Perforated Asbestos Board, Perforated Hardboard, and Cushiontone.

Perforated Asbestos Board and Perforated Hardboard, backed by mineral wool, are unusually efficient noise absorbers. Used in the auditorium, they were especially adaptable to the complex acoustical treatment this area required.

In the school's three cafeterias, band room, library, and corridors, ceilings of highly efficient Cushiontone absorb as much as 75% of the noise that strikes its surface. Surprisingly low in cost, Cushiontone is a logical selection where large areas must be sound conditioned economically.

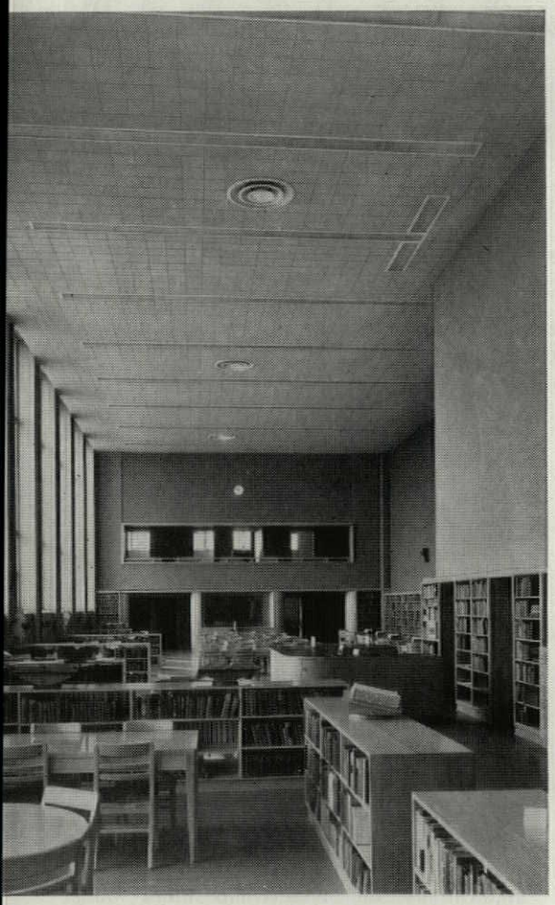
No single material can solve every kind of sound-conditioning problem. That's why Armstrong offers a complete line of acoustical materials, each with its own special features. For full details, call your Armstrong Acoustical Contractor. For the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4205 Rooney Street, Lancaster, Pennsylvania.



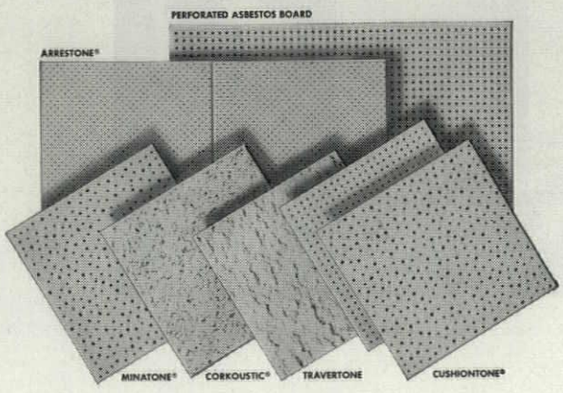
Seating over 2100 people, the main school auditorium is acknowledged to be one of the finest in the world. Treated with Perforated Hardboard around the radial surface of the sidewalls and Perforated Asbestos Board on the rear wall, it has almost perfect acoustics.

the band room, sound-absorbing Cushiontone
ers the ceiling and upper walls. This acous-
al treatment helps prevent build-up of distract-
noise levels and provides proper acoustics.

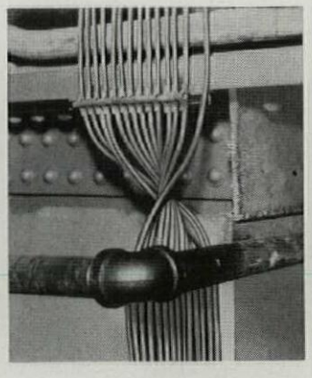
Easily washed or repainted, Cushiontone ceilings in the corridors are simple to keep clean and new looking. A perforated, white painted fiber tile material, Cushiontone soaks up noise efficiently, economically.

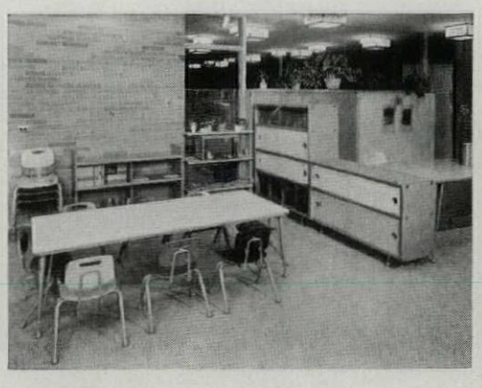


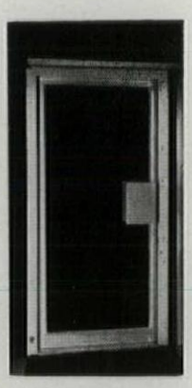
ndisturbed quiet in the library is essential to con-
entration. This quiet is assured by the Cushion-
ne ceiling. Easily nailed or cemented in place,
ushiontone does not interfere with the installa-
on of recessed lighting and air conditioning.



ARMSTRONG'S ACOUSTICAL MATERIALS

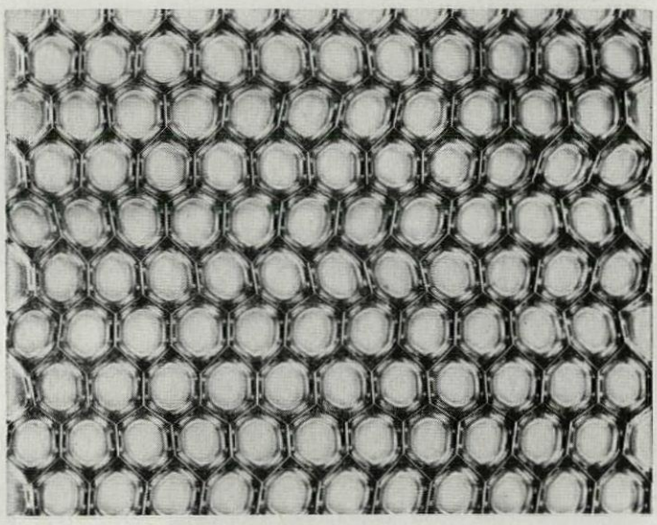




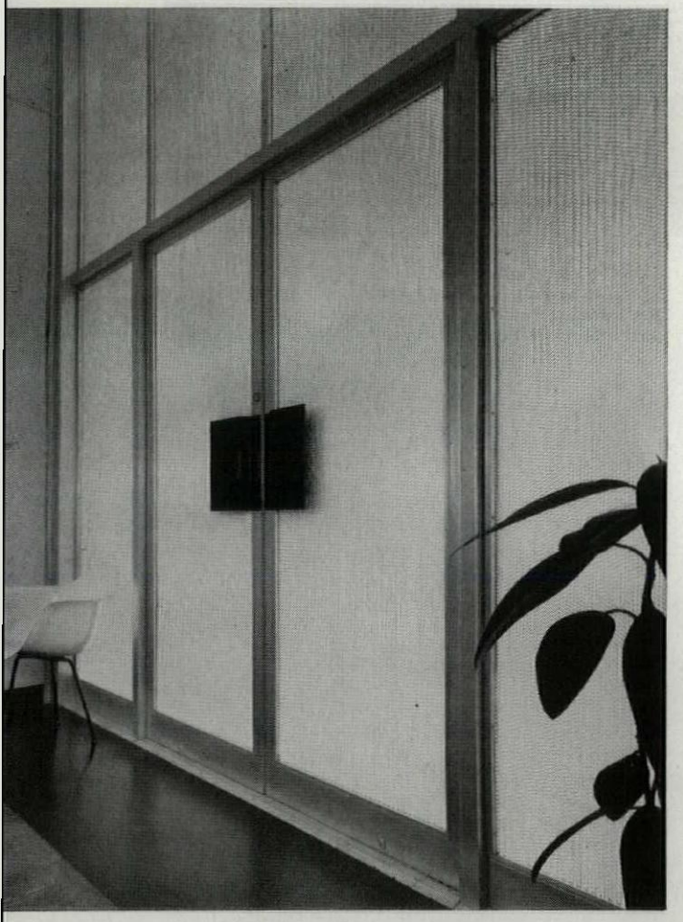


Frothing agent for insulating concrete (p. 210). . . . Self-insulated cable (p. 212). . . . Mobile school storage cabinets (p. 214). . . . Clean-cut door (p. 208)

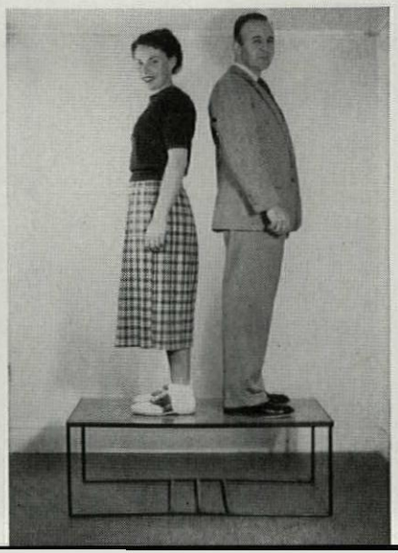
Aluminum foil honeycomb structural core is shown off in new glass sandwich



Close-up of Hexcelite reveals 3/8" cellular makeup of aluminum core

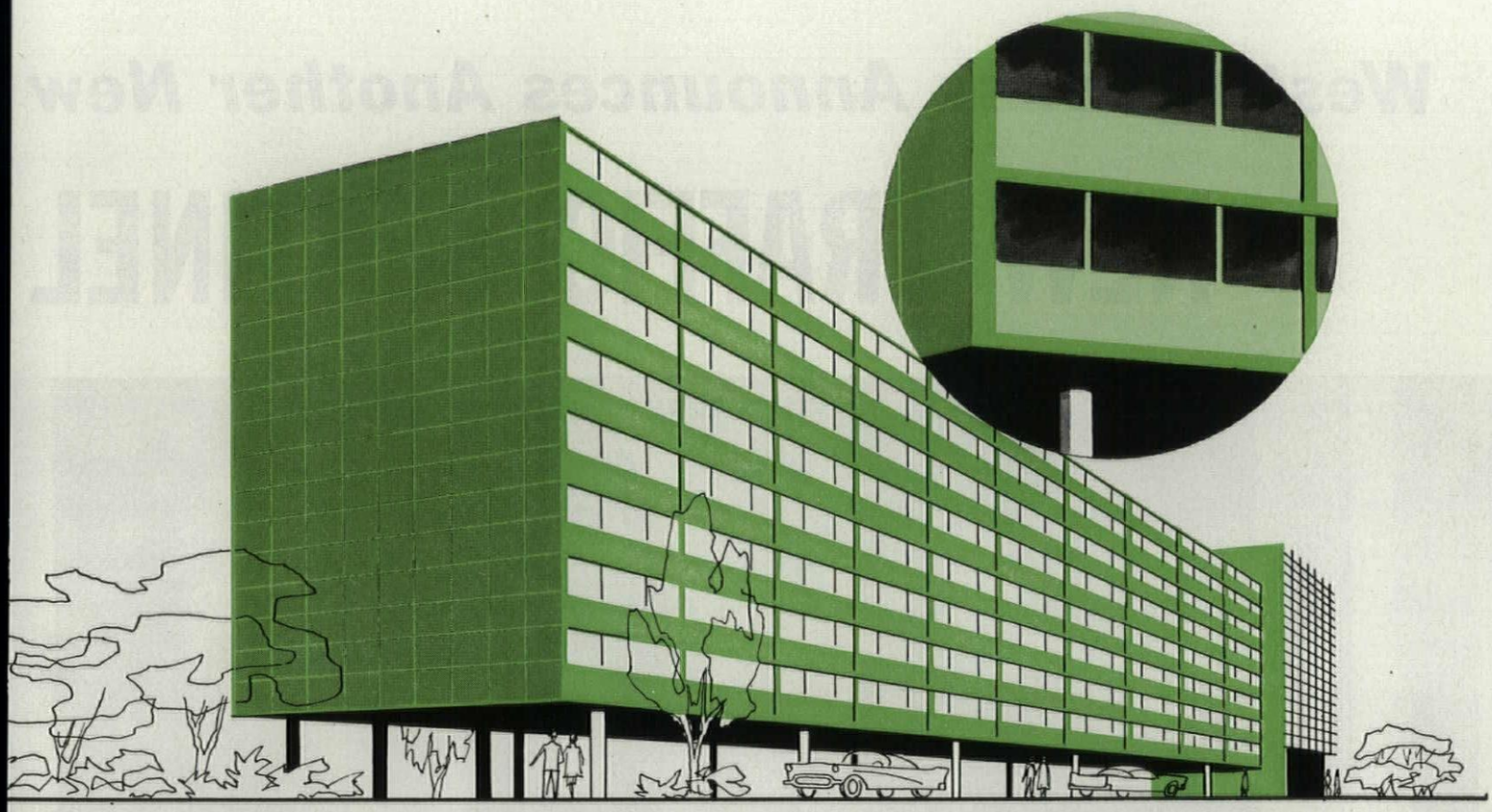


Laminate of ordinary window glass and expanded foil makes handsome office foyer entrance (left) or table top strong enough to support two adults (below).



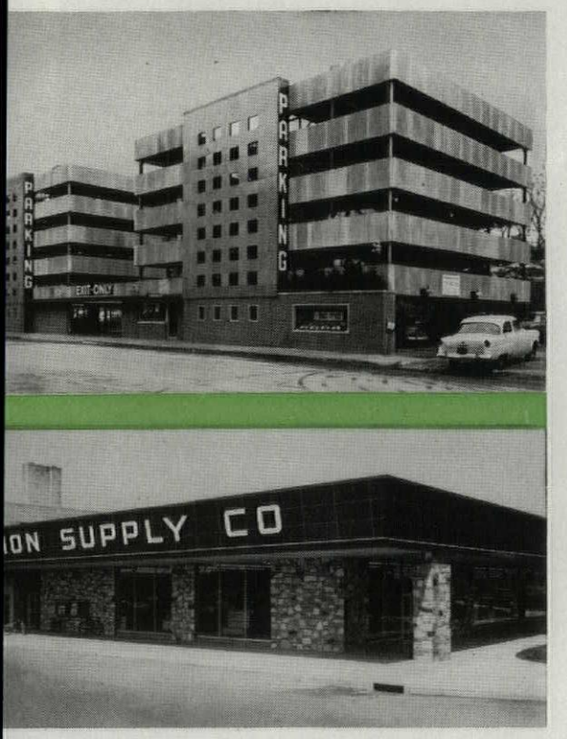
Starting on a daily budget of $1.25 six years ago, two young mechanical engineers, Roger C. Steel and Roscoe T. Hughes Jr., undertook some serious studies on structural materials and the interrelations of weight to strength to cost. Out of their home-basement research came this subtly strong and intrinsically attractive product, *Hexcel* aluminum foil honeycomb—and the machine to produce it economically. Marketed initially as a core material, the lightweight (1 oz. per sq. ft.) incombustible foil found quick acceptance in the aircraft industry as the rigidizing core of structural panels on the *Sabre Jet*. More recently, building product manufacturers have picked up *Hexcel* core for metal-faced spandrels and nonwarping doors. In these applications the honeycomb hides under opaque facing, but now in *Hexcelite* translucent figured glass, the inventors capitalize on the appearance as well as the strength of the scintillating little cells. This new construction material is comprised of an expanded layer of the foil lattice laminated between two sheets of ordinary window glass. A thermo-setting adhesive (clear or tinted light blue or green) used for bonding adds

continued on p. 204



● *The modern material for your most modern designs . . .*

ING-RICH PORCEL PANELS



You have greatest freedom of color, design and texture when you use Ing-Rich PORCEL PANELS for walls and spandrels. These colorful, durable porcelain enamel panels are applied either as curtain-wall construction or as surfacing for exterior or interior wall areas. Whether for a new building or a modernization project; a multi-story structure, a school, or a small shop, Ing-Rich PORCEL PANELS offer you maximum flexibility in developing your ideas and economy in construction.

For more than half a century, Ing-Rich has manufactured porcelain enamel products, and is a leader in the specialized field of architectural porcelain enamel. Our newest development in this respect is the application of porcelain enamel to aluminum sheets, adding the advantages of color to this weight-saving architectural material. Our Architectural Division is available to cooperate with you in making best use of these modern, versatile products.

Left above—Ing-Rich Porcel Panels form the exterior walls in the center sections of this modern parking garage. *Architect:* KLING & FROST, Youngstown, Ohio.

Left—Ing-Rich Porcel Panels make a fireproof, non-fading and easy-to-keep-clean canopy on this shopping center at Fairless Hills, Pa. *Architect:* TULLY, HOBBS & KELLOG; *Contractor:* DANHERST CORP., Fairless Hills, Pa.

WRITE FOR a copy of our 8-page descriptive bulletin, giving detailed drawings of typical applications of Porcel Panels.

INGRAM-RICHARDSON MFG. COMPANY
Beaver Falls, Pennsylvania

SEE OUR CATALOG IN SWEET'S

Please send copy of your bulletin 1053 to:

Name_____

Firm_____

Address_____

_____

INGRAM-RICHARDSON MFG. CO.

Member of Architectural Division, Porcelain Enamel Institute

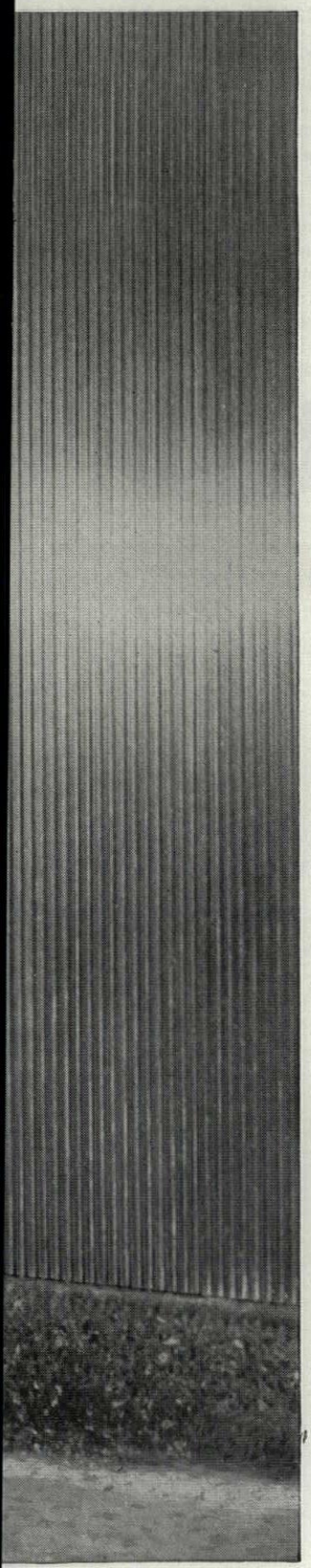
Beaver Falls, Pennsylvania

Westinghouse Announces Another New

NEW TRAFFIC SENTINEL

Development For Automatic Elevators

CUTS WAITING TIME



Invisible Ray Controls Door Closing . . . System Retains All Safety Features

Now Westinghouse presents another milestone in modern, operatorless, heavy traffic elevatoring—*New Westinghouse Traffic Sentinel*. Combined with Westinghouse SAF-T-EDGE Doors (which assure complete protection) this intriguing new device speeds overall round trip time . . . eliminates unnecessary delays at intermediate floor stops. It vastly improves Operatorless Selectomatic service—the system that cuts operating costs up to $7,000 per car a year.

Here's how TRAFFIC SENTINEL works—

Normally, doors remain open for a predetermined time—regardless of how few people enter or leave the car. During light traffic periods, this door-open time is wasted. With new TRAFFIC SENTINEL, an invisible ray is broken by people entering or leaving the car. The ray automatically adjusts the door-open time according to the number of people moving in and out of cars at intermediate floors. The lighter the traffic, the shorter the door-open time. During heavier traffic, Traffic Sentinel holds the doors open long enough to permit loading or unloading of the car. At the lobby, it allows ample time for a fully loaded car to empty. It combines complete safety with minimum door-operating time. To find out more about this Westinghouse first, call our nearest office—we're listed in the Yellow Pages.

Westinghouse Elevators

PASSENGER AND FREIGHT ELEVATORS • ELECTRIC STAIRWAYS

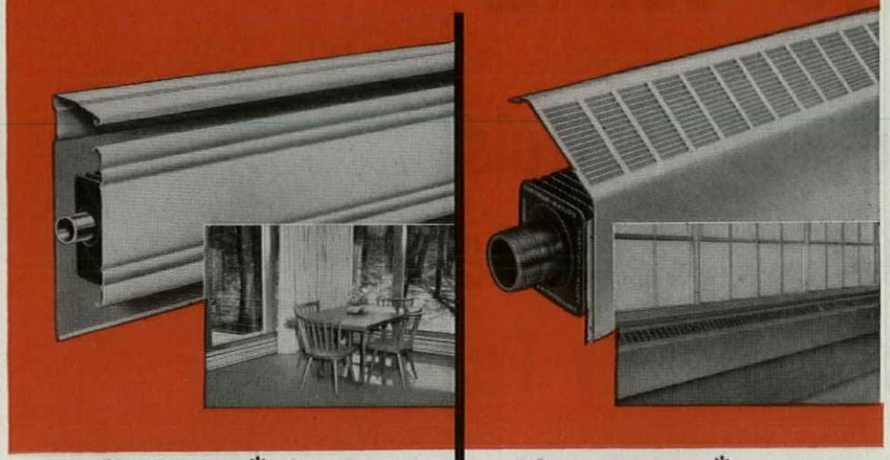
PROTECTIVE MAINTENANCE AND SERVICE

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

J-98700

There's no limit to the versatility of

Over 29 years a leader in Fin-tube Radiation



VULCAN

COMPLETE FLEXIBILITY FOR ANY PLAN

The complete flexibility of Vulcan baseboard radiation meets all installation requirements. Vulcan fits into any plan . . . new construction . . . extension . . . modernization . . . remodeling . . . because Vulcan is engineered for any type system, hot water or steam.

Vulcan is the "beauty" line of fin-tube radiation that will blend with any modern or traditional decorative scheme . . . residential or commercial.

Vulcan provides the two most used types of heat . . . Radiant for floor level comfort. Convection for warm air throughout the "comfort" zone.

Vulcan is light in weight, requires less piping, fewer fittings and supports. In the "long run" it pays to specify Vulcan baseboard radiation.

Radi-Vector* *baseboard*

TRIMLINE residential radiation presents a NEW STREAMLINED COVER of enduring beauty. Designed to harmonize with any decor. Shape of top reduces apparent depth. Front easily removed for cleaning.

Linovector*

LINOVECTOR commercial radiation is ideal for schools, auditoriums, hospitals and commercial buildings. Vulcan Linovector elements can be curved to fit special installations such as bay windows.

**Trade-mark Reg.*

Representatives in Principal Cities

COMPLETE I=B=R RATINGS

Send for new Vulcan Radi-Vector Catalog No. 54 (residential), Linovector No. 625 A (commercial).

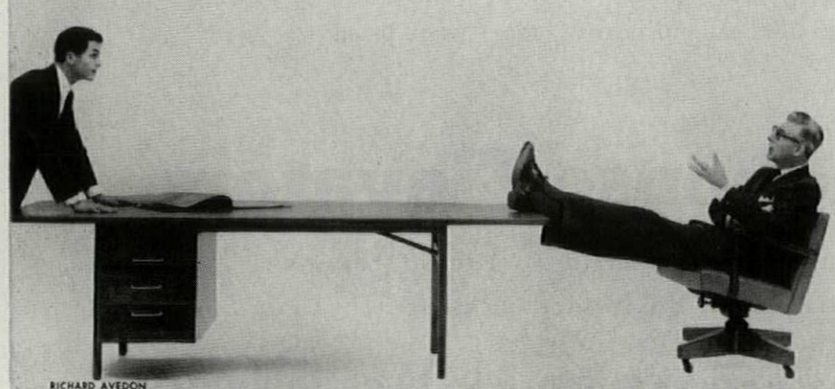
In the long run **VULCAN** *costs less*

The VULCAN Radiator Company 26 Francis Avenue, Hartford, Conn.

JENS RISOM DESIGN, INC., 49 EAST 53 STREET, NEW YORK 22 • ALSO: CHICAGO • HOUSTON • ATLANTA . . . WRITE FOR NEW BOOKLET

the answer is Risom

for fine contemporary furniture



RICHARD AVEDON

Sunshine State Skyscraper

The modern 22-story South-Central Home Office Building of the Prudential Insurance Company of America will dominate the skyline of fast-growing Jacksonville, Florida. Architects: Kemp, Bunch & Jackson. General Contractor: Daniel Construction Company.

Fabricating Steel is our Business

Ingalls, the nation's leading independent steel fabricator, supplied the steel and is erecting it for the new South Central Home Office of the Prudential Insurance Company of America. The building will be the highest in Jacksonville.

Thousands of commercial and industrial buildings, constructed during the past 44 years and located in every section of the country, are proof that Ingalls can meet any fabricated steel requirement, regardless of size or location. Plants at Pittsburgh, Birmingham, Pascagoula, Miss., and Decatur, Ala., assure *you* of a service that's prompt, efficient and economical.

FABRICATED STEEL FOR

Power Plants • Hangars
Stadia Bridges • Stores
Office Buildings • Theaters
Hotels • Apartment Buildings
Hospitals • Churches • Schools
Industrial Buildings • Tanks
Bins • Pressure Vessels
Stacks

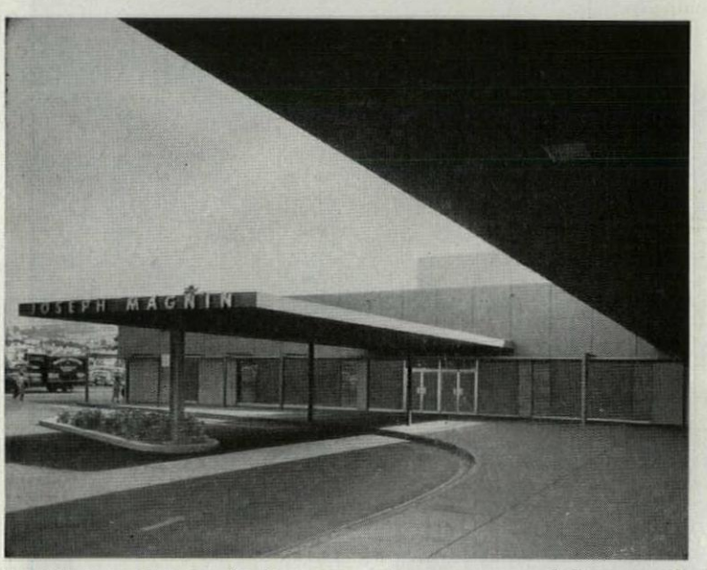
FOR COMPLETE INFORMATION WRITE INGALLS

THE INGALLS IRON WORKS COMPANY

BIRMINGHAM, ALABAMA

SALES OFFICES: New York, Chicago, Pittsburgh, Houston
PLANTS: Birmingham, Ala., Verona, Pa., North Birmingham, Ala., Pascagoula, Miss., Decatur, Ala.

The comfort problem in a large department store such as the Emporium above is quite different from a small shop. Crowds change greatly in size; department needs vary. But Honeywell Customized Temperature Control easily meets the comfort problems in a variety of Stonestown shops.



Inviting modern exteriors are an important part of Stonestown's customer appeal. Generous over-hang provides shelter from rain and sun. Interiors of all buildings provide the finest comfort—because Honeywell Customized Temperature Control is on the job everywhere at Stonestown.

Inside the medical center (above) you'll find a Honeywell thermostat in every suite or office. This means patients and guests can enjoy *individual* comfort—truly a customized feature that can't fail to please everyone who works in or visits Stonestown.

How Honeywell Customized Temperature Control helps provide

Better business weather for your clients

Why Honeywell Customized Temperature Control is becoming a "must" in all types of buildings

THE state of *Business,* with a capital "B", depends on a multitude of varying factors. But to an important extent, the state of business of a particular client of yours depends on the kind of service he offers—and *how* he offers it.

Take, for example, the Stonestown Shopping Center in San Francisco. All aspects of sound shopping center construction and procedure have been carefully adopted.

Important among these is "indoor weather." Its proper control means a lot to the people who work for your clients—and to those who buy from them, too.

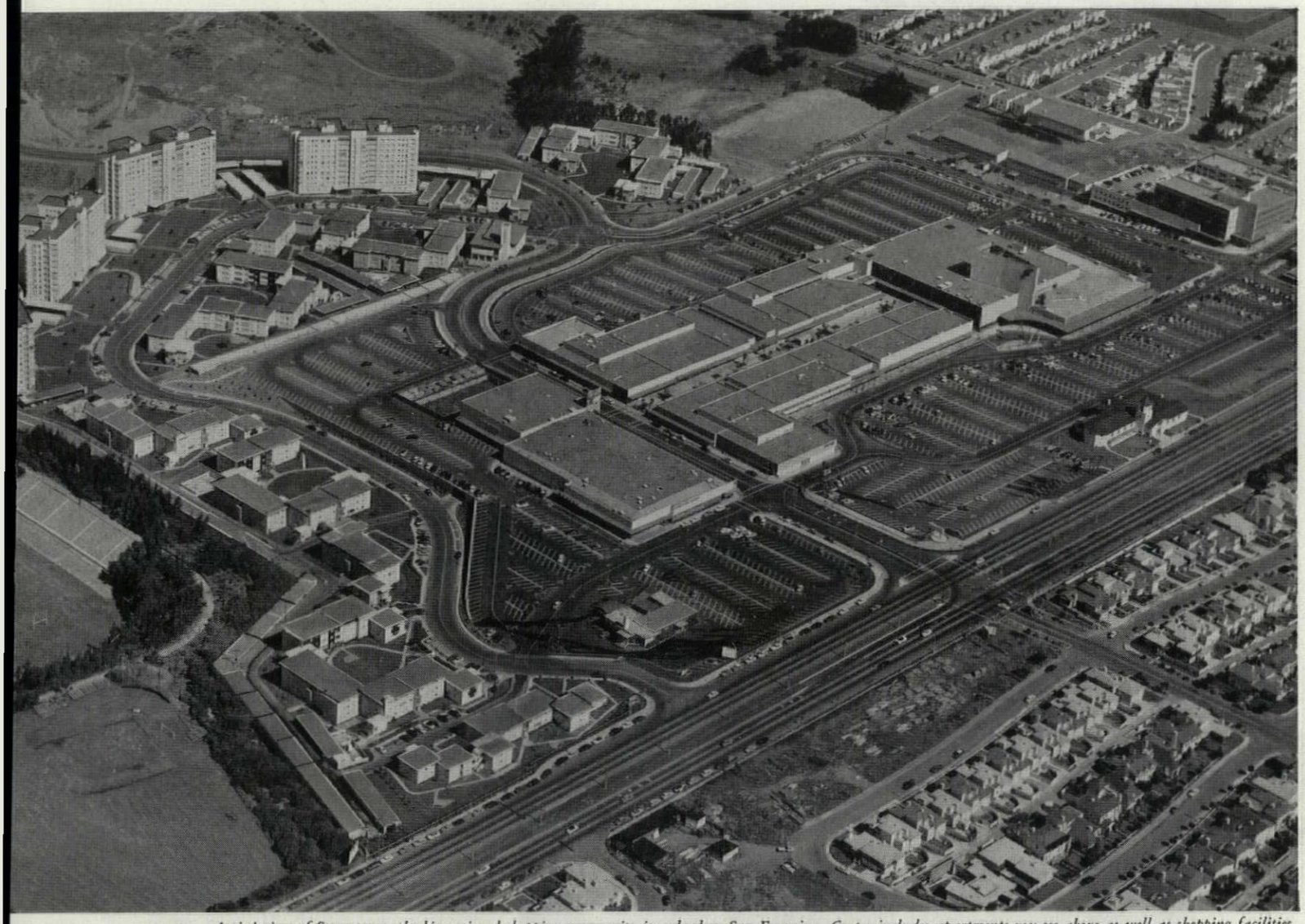
Today the best way to provide proper temperature control is through the use of *Honeywell Customized Temperature Control.*

The key word here is "customized." It means that whatever your clients' control requirements, a Honeywell Customized Temperature Control installation *designed to fit the needs of the building and its occupants is your answer.* This applies not only to heating and cooling, ventilating and humidity control but to industrial control as well.

Only Honeywell can provide true "customized" control. Because only Honeywell manufactures all three types of controls—pneumatic, electric and electronic.

The story, in brief form, of the Honeywell Customized Temperature Control installation in the Stonestown Shopping Center is told here.

The *techniques* used, applied to your particular problems, can help you give your clients the "indoor weather" they've always wanted.



Aerial view of Stonestown, the big regional shopping community in suburban San Francisco. Center includes apartments you see above as well as shopping facilities. Architects: Welton Becket & Associates, Los Angeles. Engineers: Deane & Hill, San Francisco.

For comfortable, even temperature in new or existing buildings – of any size – specify Honeywell Customized Temperature Control

Whether it's a shopping center, factory, office, motel, hospital, school–or any size building–new or existing, Honeywell Customized Temperature Control can help meet your clients' heating, ventilating, air conditioning and industrial control problems.

Your clients will not only enjoy more comfort and efficiency, they'll save fuel, too.

For full facts on Honeywell Customized Temperature Control, call your local Honeywell office. Or mail the coupon today.

MINNEAPOLIS **Honeywell**

H HONEYWELL

First in Controls

112 OFFICES ACROSS THE NATION

Henry Stoneson, community builder, president of Stoneson Development Corporation, owners of Stonestown Shopping Center, says:

"We believe Stonestown, a 'City Within A City', is one of the most pleasant in the world for the shopper. Important in helping make possible this comfort is our Honeywell Customized Temperature Control installation."

MINNEAPOLIS-HONEYWELL REGULATOR CO.
Dept. MB-5-82, Minneapolis 8, Minnesota
Gentlemen: I'm interested in learning more about Honeywell Customized Temperature Control.

*Name*_____

*Firm Name*_____

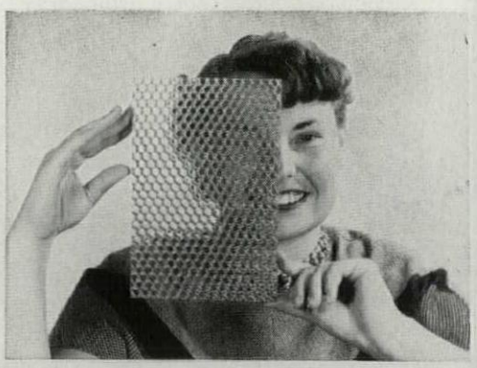
*Address*_____

*City*_____ *Zone*____ *State*_____

First sizable installation of glass panel with aluminum honeycomb core will be in lobby of Webb & Knapp's Denver office project (p. 152).

NEW PRODUCTS *continued*

to the intrigue of the pattern. Installed much the same way as plate glass (with clips and glazing compound or set in mastic with metal stops), *Hexcelite* is suitable for sundry installations calling for a durable translucent material: interior and exterior walls, partitions, skylights, shower compartments, table tops and counter surfaces. Its physique is no more impressive than its physical properties: *Hexcelite's* U factor of .95 lies halfway between ordinary glass (1.14) and double-glazing



(.63). Flatwise tensile strength on a 1" square is 341 psi. In a bending test, *Hexcelite* failed at 608 lb.; plain window glass at 64. Edgewise compression tests show an average ultimate loading of 43,440 psi. The material also has excellent resistance to impact and thermal change. Cost is roughly $2 per sq. ft. Standard panels are 2′ x 4′ x ½″ thick but other sizes and thicknesses can be ordered. To make the material available nationally this summer, the inventors have franchised the process to six companies:

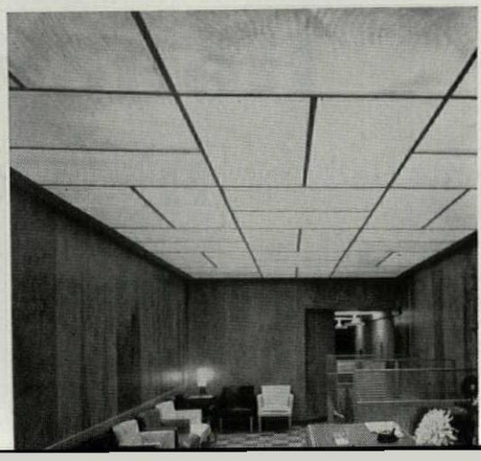
Manufacturer: (*Hexcel* and franchising agent for *Hexcelite*) California Reinforced Plastics Co., Inc., 955 61 St., Oakland 8, Calif.

Fabricators: *(Hexcelite)* E. L. Cournand & Co., Inc., Havre de Grace, Md.; Winner Mfg. Co., West Trenton, N. J.; Skydyne, Inc., Port Jervis, N.Y.; Seaporcel Metals, Inc., Long Island City, N.Y.; Dumont Corp., San Rafael, Calif.

In a more purist exploitation of the new product, Honeylite Co. takes unfaced sheets of expanded 3/32″ thick *Hexcel* and mounts them in simple aluminum supporting frames for use as fireproof dropped-ceiling light-diffusing panels. Mounted on any of several standard suspension systems, *Honeylite* uniformly breaks up light from bare bulb fixtures while successfully masking pipes, ducts and sundries that hang overhead in many buildings. So effective are its diffusion properties that *Honeylite* has been used with happy results in the San Francisco shop of Whitsett and Higdon, dispensing opticians. Welton-Beckett Associates and Robert B. Liles, architects, specified panels of the foil for its soft flattery to customers and merchandise for the fitting-room ceilings of a California department store. *Honeylite* is also reported to have good acoustical properties; the cells do not absorb, but break up the sound.

Manufacturer: Honeylite Co., 576 W. Grand Ave., Oakland, Calif.

continued on p. 208



GLASS REFLECTS THE PATTERN OF PROGRESS

Architect:	Harrison & Abramovitz
Assoc. Architect:	William Y. Cocken
Gen. Contr.:	Turner Construction Co.
Glazing Contr.:	Pittsburgh Plate Glass Co.
Construction and	Management: John W. Galbreath & Co.

Mississippi Glass Used In Outstanding New Skyscraper Offices of U. S. Steel

The rhythmic pattern of translucent, light diffusing Structural Corrugated Glass highlights the modern interior of the 525 William Penn Place Bldg. in Pittsburgh. Used in partitions, doors, foyers . . . figured glass floods offices with copious quantities of "borrowed light" . . . yet protects privacy completely. Interiors look larger, brighter, more pleasant, with the glass that promotes working efficiency and builds employe morale.

And figured glass is as practical as it is beautiful. It never wears out, never warps, rots . . . never requires repainting or refinishing. Glass wipes shining clean, is extremely easy to maintain, always looks new. That is why more and more interiors reflect the pattern of progress with extensive use of the modern material—figured glass by Mississippi.

Structural Corrugated Glass is being specified by architects everywhere for its beauty and utility . . . offers new scope for talents . . . suggests numerous ways to handle design problems. Mississippi figured glass is manufactured in a wide variety of patterns and surface treatments and is available wherever quality glass is sold. Select glass by Mississippi and add sparkle to your ideas.

Write today for free booklet, "Figured Glass by Mississippi." Contains many ideas on ways to utilize diffusing glass in modernization or new construction.

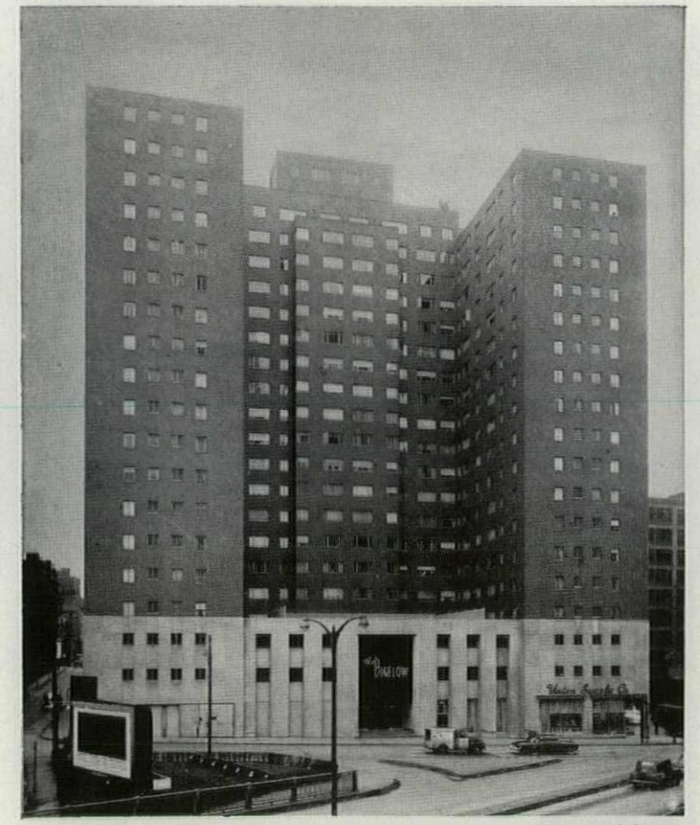
see our catalog in ARCHITECTURAL FILE or write for copy

MISSISSIPPI *Glass* COMPANY

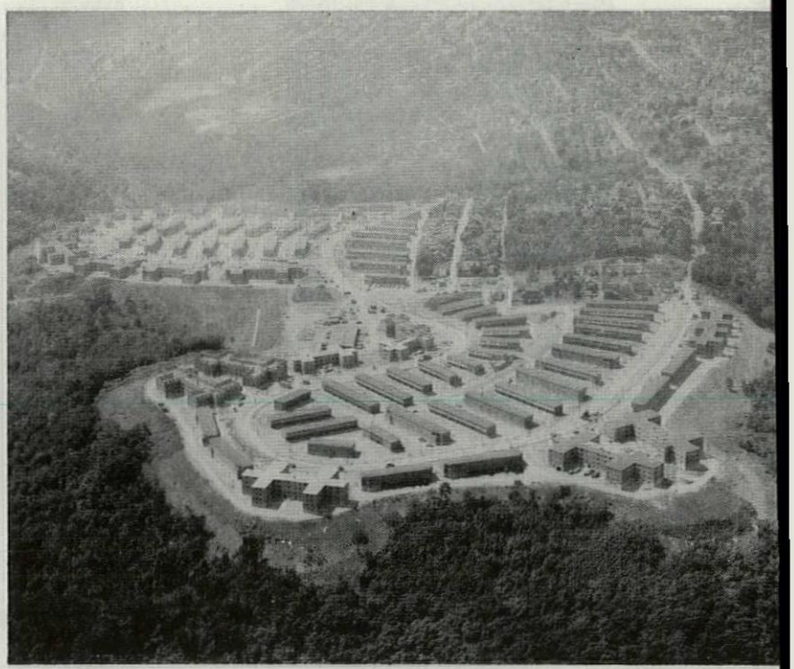
88 ANGELICA ST. SAINT LOUIS 7, MO.

NEW YORK • CHICAGO • FULLERTON, CALIF.

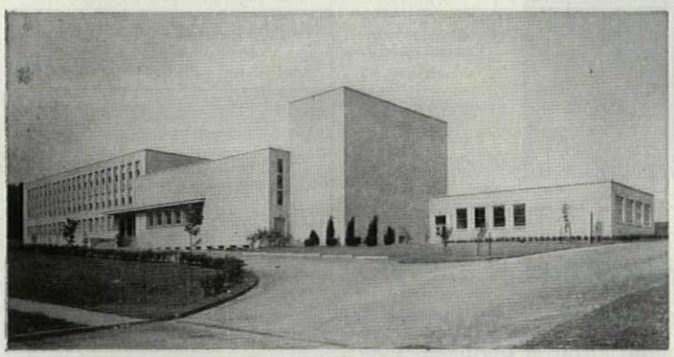
WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS



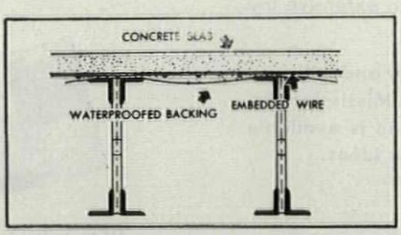
$5-million Bigelow Apartments, at the top of Pittsburgh's famed Golden Triangle tower 20 stories, contain 465 units all air conditioned. Steeltex Floor Lath provides reinforcement for all floors. Arthur E. Tennyson, Architect. Martin C. Knabe, Structural Engineer. Behrman & Passel, Contractors.



$13-million low rent public housing project, St. Clair Village, 79 buildings, 723 units in 3-story buildings, 366 units in 2-story row houses. Concrete floors poured over Steeltex. Marks, Fisher & Simboli, Architects. George Levinson, Design Engineer. Ragnar Benson, Inc., Contractors.



New 3-story addition to Shaler Township High School added 20 classrooms, upped accommodations from 750 to 1400 students, cost $1.35 million, has gym, auditorium, three shops, offices and locker. Steeltex Floor Lath on all floors. Charles M. & Edward Stotz, Jr., Architects. Geo. H. Chilli, Contractor.



NOTE: In the cross section the weight of the wet concrete forces the backing away, which permits the galvanized steel mesh to assume its proper position in the slab. Steeltex floor lath also performs two other functions: It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.

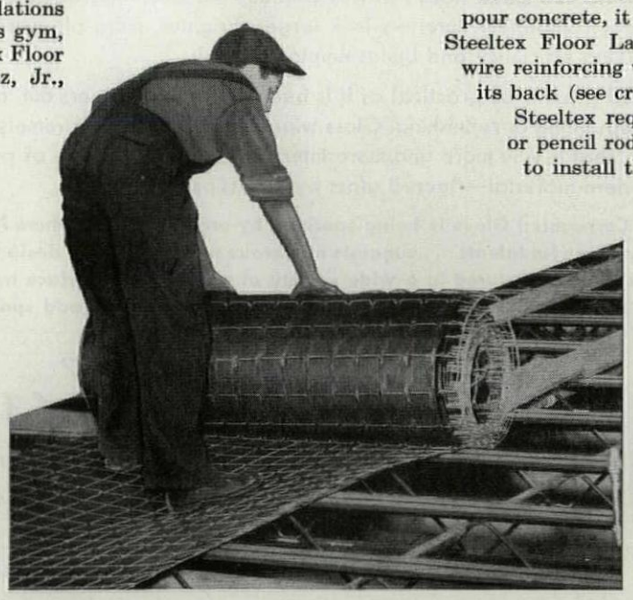
Why building designers
for reinforcing concre

Pittsburgh, City of Vision, is one of the most progressive cities in America today. Once dirty and smoky and threatened constantly with floods, Pittsburgh, now undergoing a renaissance, is one of the country's cleanest cities.

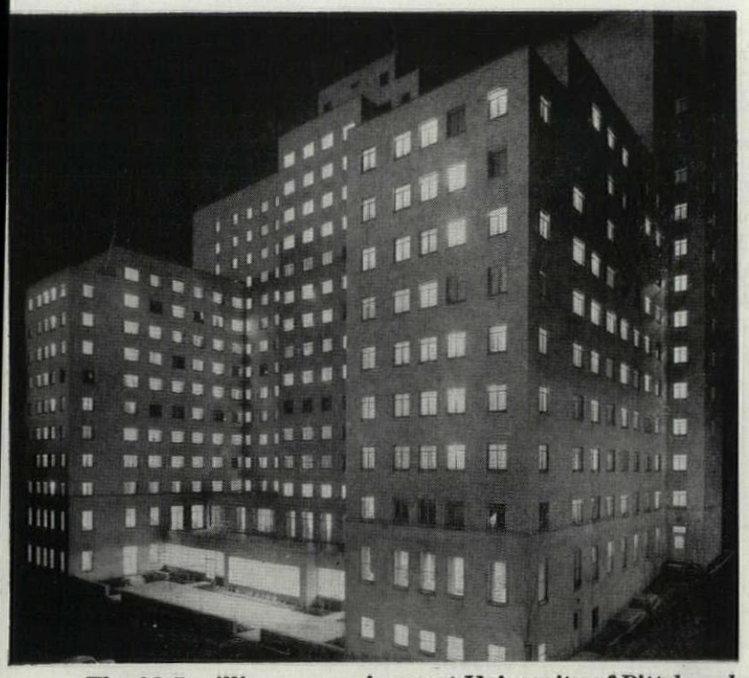
A vast network of dams in the headwaters of the Allegheny and Monongahela make damaging floods virtually impossible. A stream purification program is well under way. A new $5-million-per-mile east-west parkway, partially completed and in use, will speed traffic through the city's heart without cross streets or traffic lights. New skyscrapers, new research centers, new industrial plants, new parks, new off-street parking garages have brought about a boom in new apartments and public housing, new schools and hospitals, new shopping centers.

When buildings of this type are being designed, poured concrete decks are most desirable and when you pour concrete, it is only natural to specify Steeltex Floor Lath, the galvanized steel wire reinforcing which carries its form on its back (see cross section below left).

Steeltex requires no additional form or pencil rod reinforcing. It costs less to install than other types of forms

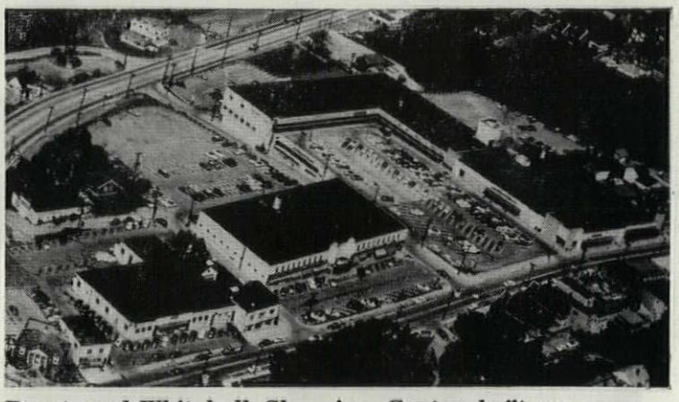


One man can roll out a 125' roll of Steeltex in a few minutes. Steeltex provides both waterproof form and steel reinforcement for concrete floors, roofs.



The $3.5-million nurses home at University of Pittsburgh towers 14 stories, completely air conditioned, contains library, recreation room, reception rooms, cafeteria seating 400—comfortable living quarters for 600. Steeltex in upper floors. Ingham, Boyd & Pratt, Architects. Trimble Company, Contractors.

St. Clair Hospital, Mt. Lebanon Township, Pa., serving the growing South Hills area has 116 beds—cost $1.34 million. Steeltex used in all floors. Kuhn & Newcomer, Architects. R. A. Zern, Structural Engineer. H. Busse, Contractor.



Brentwood-Whitehall Shopping Center built on two levels has 25 shops in 210,000 square feet—80% are air conditioned—parks 1,000 cars. All floors reinforced with Steeltex. Forsyth & Blezard, Architects. Leland Cook, Structural Engineer. Landau Bros., Contractors.

Mammoth decks in this fabulous $10-million terminal building at $42-million Greater Pittsburgh Airport, were poured on Steeltex Floor Lath. Last year 2.5-million people including travelers spent $20 million at ticket counters, restaurants, nightclub, theater, hotel and shops. Joseph Hoover, Architect. Leland Cook, Structural Engineer. Dick Construction Co., Contractors.

ittsburgh specify STEELTEX® loors and roofs

and reinforcement for concrete because Steeltex can be rolled out like a carpet, stretched with a special tool, and clipped tightly in place by one man (see photo below left).

Steeltex with its waterproofed backing also prevents waste of concrete by reducing leakage to a minimum from the freshly poured slab—craftsmen can continue working on the floor below without getting splattered. Expensive clean-up time is eliminated.

Steeltex insures a strong floor because embedment of steel reinforcing takes place automatically (see note below left). Steeltex allows concrete to cure slowly, properly—guards against excessive cracking—can be installed over any type of joist—will support ample safe loads from 109 to 886 lbs. per square foot depending on spacing of joists and thickness of slab. No wonder Steeltex has been the choice of architects, engineers, contractors, and building owners alike, not only in Pittsburgh but wherever concrete slabs are poured over joists.

If your building plans call for poured concrete floors, roofs, plaster walls or ceilings, masonry veneer or Portland cement (Stucco) exteriors, there's a type of Steeltex reinforcing that will do the job better, faster, with less effort at lower overall cost.

For complete details see the Steeltex catalog in Sweet's or write for your free copy of a new 24-page illustrated booklet "Pittsburgh Steeltex, Backbone of Concrete, Plaster, Mortar." It's yours for the asking.

STEELTEX®

manufactured by the

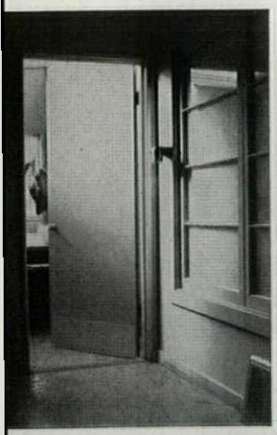
Pittsburgh Steel Products Company

a subsidiary of **Pittsburgh Steel Company**

Pittsburgh 30, Pa.

Here are other recent buildings in Pittsburgh and vicinity using Steeltex:

Amberson Gardens
Bedford Dwellings
Center-Negley Apartments
Greentree Apartments
Hebron Grade School
Kennilworth Apartments
Pennsylvania College for Women (Administration Building)
Shadyside Presbyterian Church (Chapel)
St. Augustine's High School
Talbot Towers (Housing Project)
Union Railroad (Office Building)
Westinghouse Educational School
Westinghouse Electric Corporation (Atomic Project Buildings)



Strips of honeycomb and glass fiber make light weight, quiet door core.

DISTORTION-FREE DOOR has aluminum skin, aluminum honeycomb core

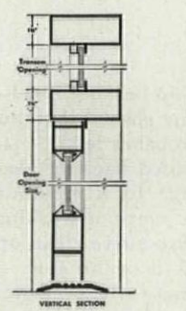
Employing aircraft panel production methods, down to the kind of cloth bond, O'Keeffe has developed a line of sleek aluminum doors for metal or wood jambs. Particularly suitable for schools, hospitals and office buildings, the rigid, verminproof units are made with all-aluminum honeycomb cores (see *Hexcel* story, p. 196) and with cores combining strips of the honeycomb with sound-deadening glass fiber. Each type weighs less than 3 lb. psf. Aluminum is used for the channel frame as well as for outer skins which are bonded to the core in a hot press with the cloth adhesive. The doors are furnished in any size specified with either a plastic laminate topping or an acid-etched zinc chromate surface ready for painting. Standard models are available with windows, kick plates and louvers. Aluminum jambs and snap-on trim will also be supplied. Price for the flush panel door (pictured) is about $125, including priming treatment, locks and butts. The aluminum frame costs $22.

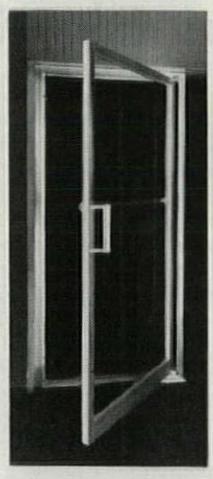
Manufacturer: O'Keeffe's, Inc., 225 Shaw Rd., South San Francisco, Calif.

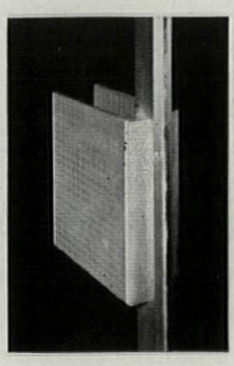
SLIM STILE DOORS have smart, stock push-pull hardware

Rails and stiles on Kawneer's new "*W*" series of extruded aluminum doors are welded along concealed contact points to make up strong one-piece frames of minimum bulk. Styled with an eye to contemporary facades, the slim-membered entrance units feature clean butt-joint corners and a choice of several well-designed push-pull plates and bars. Architects can specify the stock unit with a scored-aluminum block (below) or stripped for insertion of a custom-designed plaque. Series "*W*" doors, all 7′ high, will be made in single-acting units 3′ and 3′-6″ wide and in double-acting 5′ and 6′. Deeply anodized, the door sections are said to be highly wear- and weather-resistant. Beveled metal stops

continued on p. 210

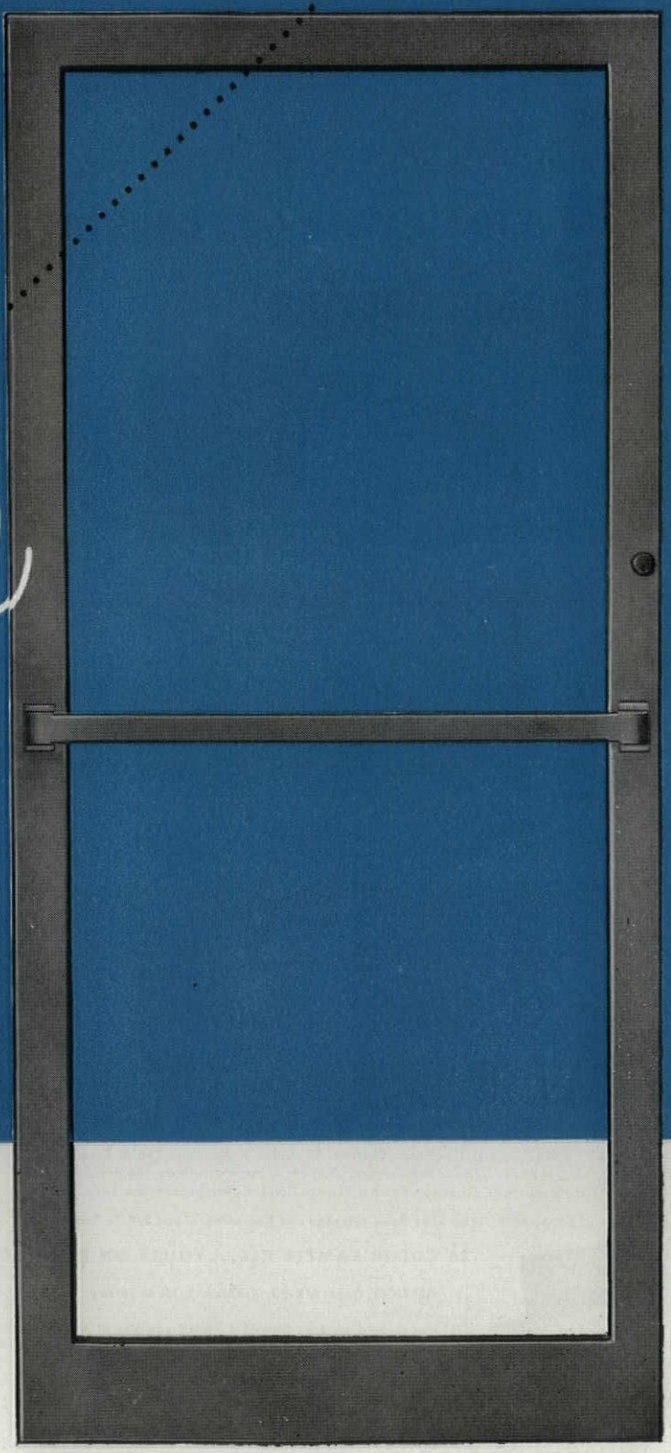






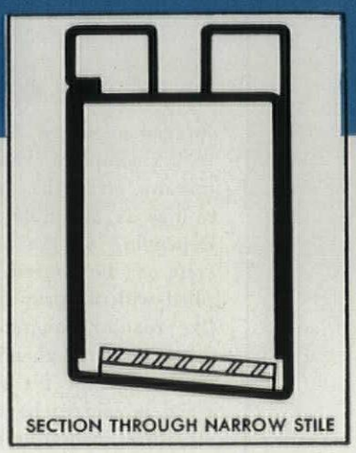
for hard usage it's ...

Overline®



Built of double thickness 18 gauge *steel* or *stainless steel*. New Overline Entrance Door has exceptional stamina. Combines ruggedness with beauty. Slender lines. Full vision. Economical—compare the costs. Write us today for our hollow metal door Folder, "O.D."

OVERLY MANUFACTURING COMPANY
GREENSBURG, PENNSYLVANIA
LOS ANGELES 39, CALIFORNIA



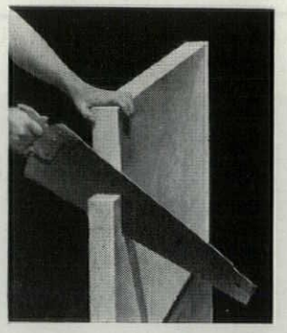
SECTION THROUGH NARROW STILE

retain the glazing without face screws or mechanical clips. Installed cost for a 3′ x 7′ door and frame, complete with hardware and glazing, is $400 to $450.

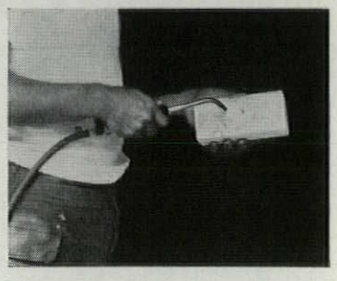
Manufacturer: The Kawneer Co., Niles, Mich.

AERATED CONCRETE. Stable foaming agent promises precise density control

The density of cellular concrete now can be gauged accurately within 2 lb. per cu. ft.

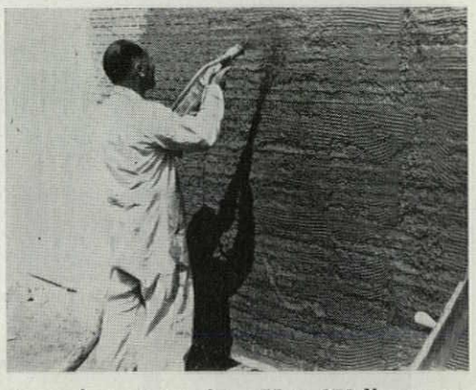


Cellular insulating concrete workable with carpenter tools.



with the *Aerofill* method. Here is how the new lightweight insulating material is made:

Water and the stabilizing chemical agent are transformed into a foam by a simple, compact generator device. Resembling whipped cream, this foam of air cells of uniform size is added to a conventional mix of Portland cement and sand (in regular mixing equipment) in the quantity necessary for a particular density. For such uses as fireproofing steel, insulating roof fill, frost insulation and subfloor fill in radiant heat installations, density would range from 25 to 45 lb. per cu. ft. For non-load-bearing walls, cast-in-place partitions, the density would be from 50 to 80 lb.; and in reinforced panels for tilt-up construction, for precast slabs, and



sprayed-on stucco, from 85 to 100 lb. per cu. ft. (A complete chart which also covers compressive strengths and thermal conductivity ratings is available from the manufacturer. Depending on the application, *Aerofill* concrete can be poured in place, pumped or applied with a spray gun. It sets and hardens like regular concrete. Since it contains no gas-generating chemicals it cannot overflow forms. Weight for weight, the cellular material is said to be stronger than other nonstructural insulating concretes.

Manufacturer: Cellular Products Co., Los Angeles, Calif.

continued on p. 212

IN PITTSBURGH'S GOLDEN TRIANGLE . . .

34,200 Tons of Steel Frame Construction by AMERICAN BRIDGE in 24 months!

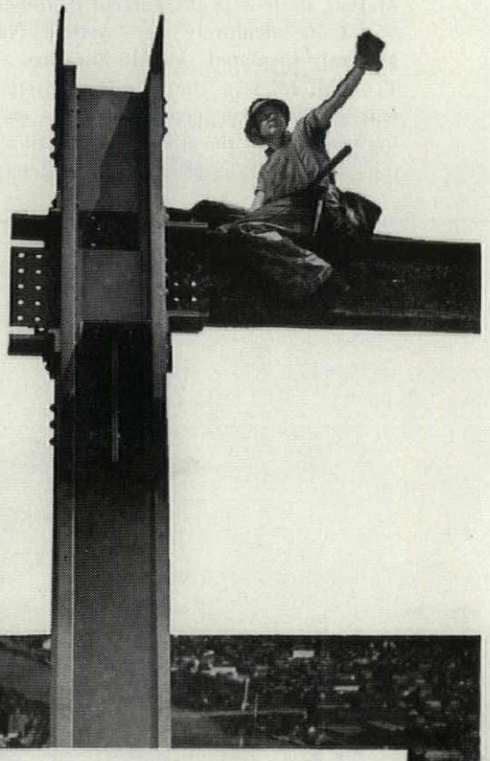
PITTSBURGH'S new buildings have been the talk of the business world. Few cities anywhere have experienced as much commercial construction in so short a time.

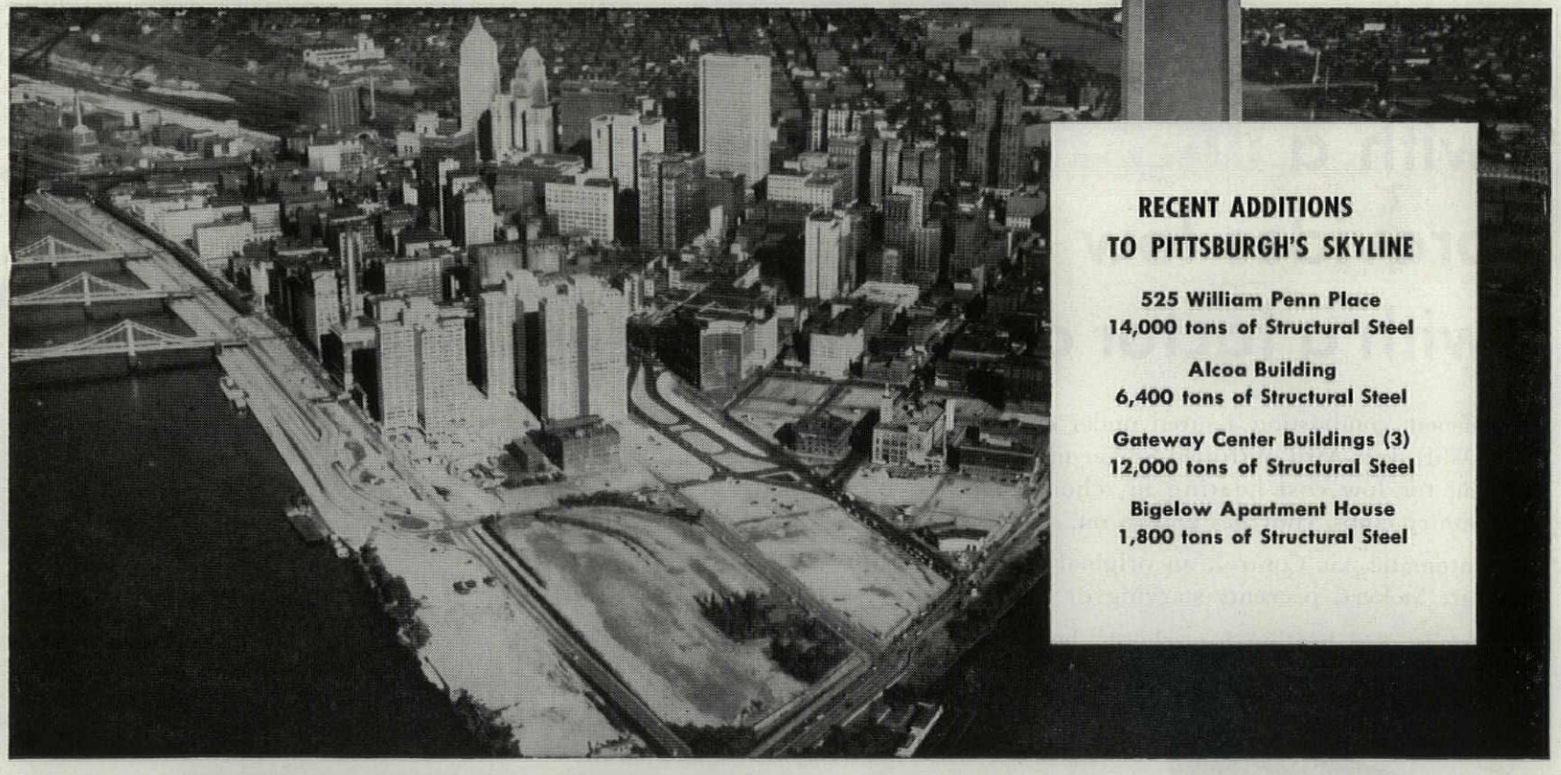
For example, in the famous Golden Triangle, busy hub of this hustling metropolis, American Bridge alone erected 34,200 tons of steel framework for six towering new buildings in the two year period between April 3, 1950 and March 31, 1952.

American Bridge fabricated and erected all structural steel for the 41-story building known as 525 William Penn Place; the 31-story Alcoa building; the three Gateway Center buildings (one of which is 24-stories, and two 20-stories); and the 20-story Bigelow Apartment House.

Such an accomplishment is unusual only in the fact that all buildings are located in the downtown area of a single city . . . and that all were under construction at practically the same time. The interesting point is that one company had the facilities, the skilled manpower, and the engineering know-how to handle six sizable jobs like these with such speed and efficiency without disrupting the time schedule of the numerous other construction projects which it was handling in other parts of the country.

It only goes to prove that no job is too large for American Bridge. If you would like to know more about the advantages of American Bridge fabricated and erected construction, call our nearest office.





RECENT ADDITIONS TO PITTSBURGH'S SKYLINE

525 William Penn Place
14,000 tons of Structural Steel

Alcoa Building
6,400 tons of Structural Steel

Gateway Center Buildings (3)
12,000 tons of Structural Steel

Bigelow Apartment House
1,800 tons of Structural Steel

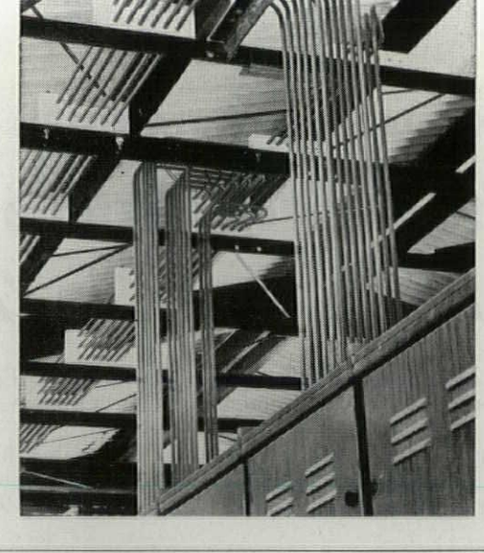
AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION
GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.
Contracting Offices in: AMBRIDGE · ATLANTA · BALTIMORE · BIRMINGHAM · BOSTON CHICAGO · CINCINNATI · CLEVELAND · DALLAS · DENVER · DETROIT · ELMIRA · GARY MEMPHIS · MINNEAPOLIS · NEW YORK · PHILADELPHIA · PITTSBURGH · PORTLAND, ORE. ROANOKE · ST. LOUIS · SAN FRANCISCO · TRENTON
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

AVAILABLE NOW! *For showing in churches, schools, clubs and industries, the new sound and color motion picture— BUILDING FOR THE NATIONS — a candid, factual photographic record of the highlights of the fabrication and erection of the United Nations Secretariat Building.* For free bookings, write Pittsburgh office.

AMERICAN BRIDGE

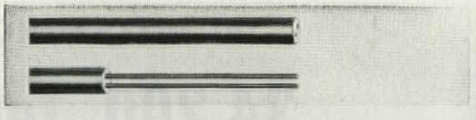
USS

UNITED STATES STEEL

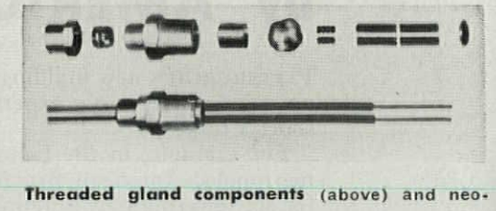


SELF-CONTAINED CABLE. Mineral insulation and copper sheath protect conductors in hot, wet or tight spots

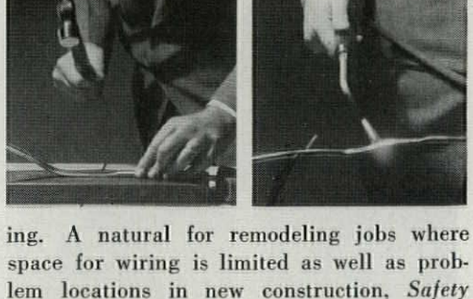
Making its bow in the current *National Electric Code* demurely as "Article No. 330 Mineral Insulated Metal Sheathed Cable, Type M. I." is a simple wiring system that will surely make deep impressions on building owners and the whole construction industry. In recent months this completely self-sufficient flameproof cable has even penetrated that building-code holy of holies, New York City. *Safety m.i.* is comprised of a seamless annealed copper tubing surrounding a compressed mass of magnesium oxide insulation in which is imbedded 1, 2, 3, 4 or 7 copper conductors. The wiring's working voltage is rated at 600 v. but tests at 2,500 v. Overloads — fleeting or deliberate — cannot hurt the cable: the copper wires and sheath will melt at 1,910° F. but the magnesium oxide surrounding the conductors remains stable up to 4,000°. Supplied in long coiled lengths of single and multiple conductors in sizes for power, lighting and control circuits, the new wiring carries its own conduit. It needs no raceway, no enclosure, no additional grounding; it is installed in one operation. Fittings and terminations are designed to work with standard boxes. The cable can be fastened directly to any wall, woodwork or steel structure; can be exposed indoors or out, or embedded in concrete or masonry. It will withstand rough twisting and deforming. A natural for remodeling jobs where space for wiring is limited as well as problem locations in new construction, *Safety m.i.* can be shaped to fit into cramped quarters. (Smaller sizes are bent by hand, larger with a hickey.) Robert A. Goller Sr., of Hatzel & Buehler, Inc., electrical contracting firm which has used *Safety m.i.* on several jobs, says that the cable's reduced diameters, ductility, and resistance to intense heat and imperviousness to moisture especially suit it for application in power plants, around machinery. Asked about its ability to take overloads he points out that conductor can only transmit temperatures that terminations now on the market can take (standard fittings have a range of –40 to 85°C.).



Magnesium oxide surrounds copper conductors inside seamless tubing of electrolytic copper.



Threaded gland components (above) and neoprene sleeves complete the wiring termination.



Actually, *Safety m.i* has had an established reputation for 20 years in Europe. It was

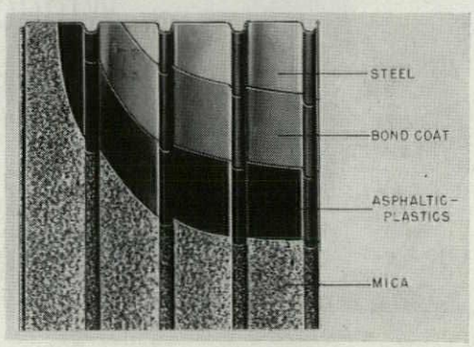
continued on p. 214

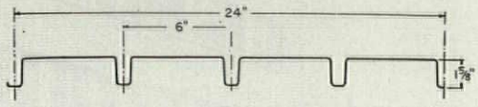
developed in France in the early thirties for use on naval vessels and as wiring for historical buildings (like the Louvre) where safety against fire was the *sine qua non*. It came to the attention of General Cable Corp. when the French battleship *Richelieu* limped into Brooklyn Navy Yard during World War II after escaping from Dakar, and the firm was called upon to make electrical repairs. After the war, General Cable purchased US patent rights, made the wiring, got Underwriters' approval, and now has launched it commercially. The firm maintains this trouble-free wiring system will last as long, if not longer, than any structure it goes into. As for cost, in some of the more tortuous or hot-area applications, it should win hands down over conventional wiring. In regular installations, final prices will run about equal to or less than pipe and wire.

Manufacturer: General Cable Corp., 420 Lexington Ave., New York, N.Y.

MICA-TOPPED METAL DECK defies corrosive fumes, humid air

Three coatings surround each piece of *Plasteel* metal roof decking: a rust-inhibitor bond coat, an asphaltic-plastic layer and a mineral surface. The middle coat acts as a weather seal, eliminating use of any supplementary felt and tar vapor barrier under the insulation of the built-up roof. Especially suited for industrial jobs where there are extremely corrosive or humid atmospheres—paper mills, chemical plants—*Plasteel* panels need no periodic painting or maintenance. The tough mica-flake topping, embedded under heat in the self-sealing asphaltic compound, is a good reflective insulation—working against the sun in summer, and, in winter, for the fuel-generated heat inside the structure. (Mica particles on the underside also help break up and diffuse light.) Cost of the deck runs about 50 to 60¢ installed. It comes in 2′-wide panels in lengths up to 25′. Ends telescope for a smooth, unbroken roof surface. Ribs are 6″ o.c., and corrugations 1⅝″ deep. Companion *Plasteel* products, similarly treated for weather-resistance and minimum maintenance: roofing and siding sheets in standard corrugations, flashings and ridge roll.





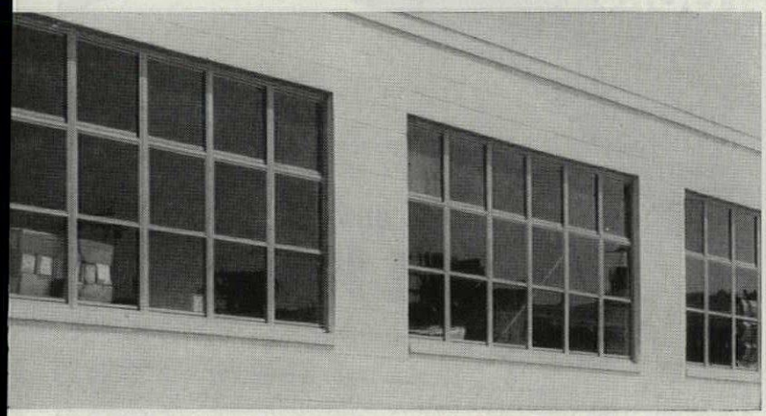
Manufacturer: Plasteel Products Corp., Washington, Pa.

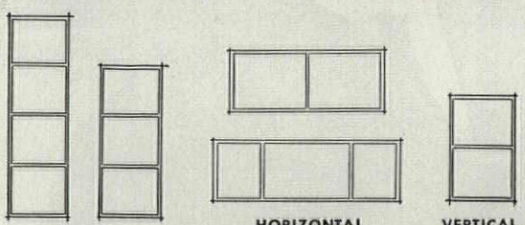
MODULAR SCHOOL CABINETS made mobile to meet needs of modern teaching

In answer to architects' and educators' pleas for classroom furniture that can adapt itself to the variable demands of contemporary education, Brunswick-Balke-Collender has taken its own exemplary line of movable, stackable, nestable chairs, desks and tables (AF, Oct. '53) a few strides further. It now offers a childproof yet comely group of cabinets and bookshelves of knockdown modular panels and hardware parts. Russ Wilson, former school superintendent, now merchandise man-

continued on p. 218

These **RUSCO** Products Offer Unique Advantages For Efficient Remodeling and Modernization





Available in wide range of styles and sizes.

For Window Modernization—or Simplified Replacement

RUSCO *Hot-Dipped Galvanized Steel* PRIME WINDOWS

Fully Pre-Fabricated, Ready-to-Install Units

These windows offer exceptional characteristics of design flexibility, weather tightness and economy. Precision-manufactured in complete form—glazed, finish-painted with baked-on enamel, fully weatherstripped, complete with casing. Installation is extremely simple and fast. Units easily joined in series with streamlined non-load-bearing mullions. Available with insulating sash and Fiberglas screen, if desired.

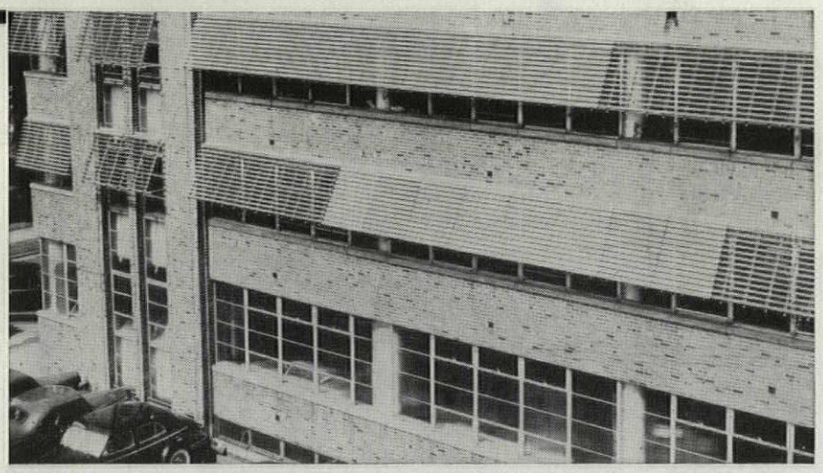
before **after**

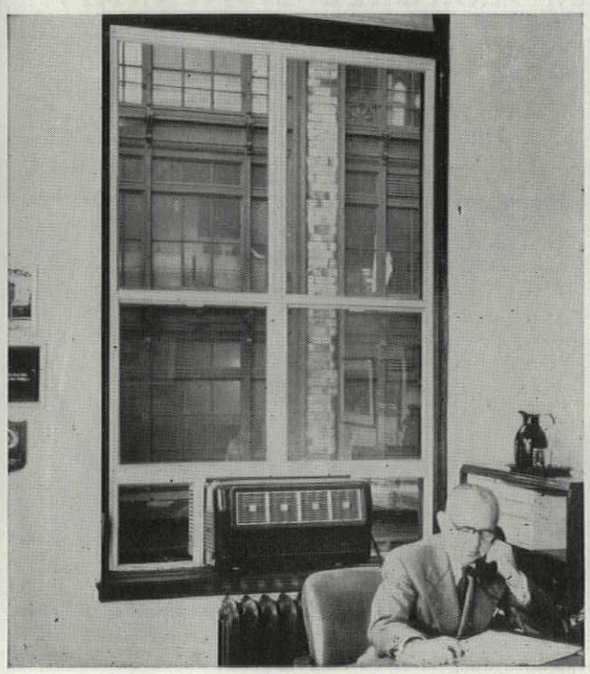
Photos show how Rusco Prime Window units with insulating sash were used to replace old, worn wood windows in Hollenden Hotel, Cleveland, Ohio. Complete replacement effected in *hours*—room back in service same day!

For Attractive, Efficient, Controlled Window Shading

RUSCO *Adjustable* VENETIAN AWNINGS

A permanent treatment that gives truly effective control of shade, light and ventilation. Louvers are adjustable from inside with gear operator. You will find Rusco Venetian Awnings an ideal answer to the proper shade treatment so necessary to efficient air conditioning installations. Allow continuous air flow, insulate against heat and dispel it. Available in Bonderized, galvanized steel or alodized aluminum—finish-painted with baked-on enamel.





For Practical, Workable Window Unit Air Conditioning

RUSCO Air Condition WINDOW

The first window unit designed to accommodate any type of window air conditioner. Completely replaces conventional window. All glass panels, including flankers, are removable from inside for washing, eliminating window cleaning problems. An extra lower glass panel replaces air conditioner unit and flankers when unit is removed for storage or servicing.

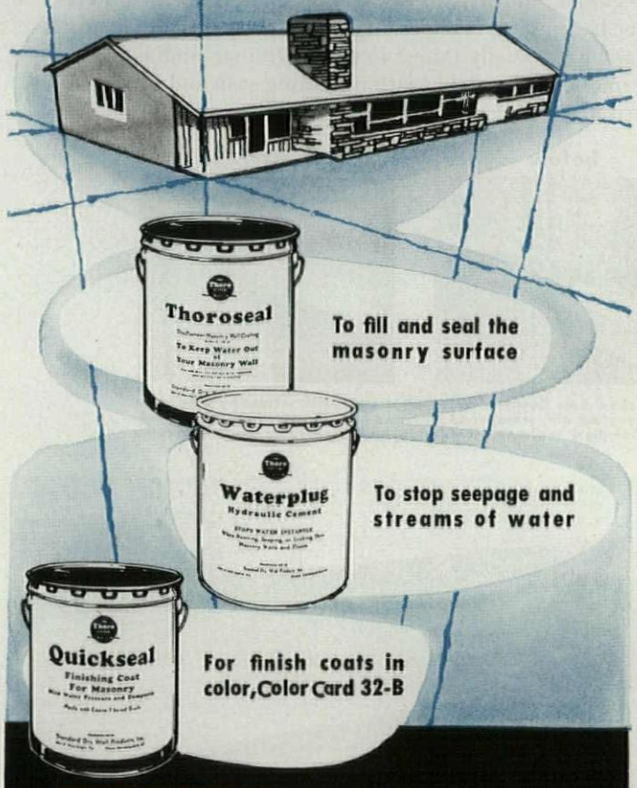
RUSCO *Hot-Dipped Galvanized Steel* **PRIME WINDOWS**

For illustrated literature and specifications, write

THE F. C. RUSSELL COMPANY, DEPT. 7-AF54

Cleveland 1, Ohio • In Canada: Toronto 13, Ontario

The modern home is a DRY THOROSEALED home!



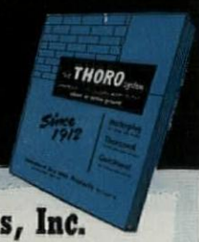
EXPERIENCE counts in getting quality materials.

PRODUCTION volume counts in getting the lowest cost to the ultimate consumer.

ORGANIZED DISTRIBUTION and **SERVICE** count in getting materials to contractor, when needed.

Distributors and dealers are located throughout United States, Cuba, Puerto Rico, Canada and Honolulu.

Get our pictorially-described literature, "HOW TO DO IT" and specification guide.



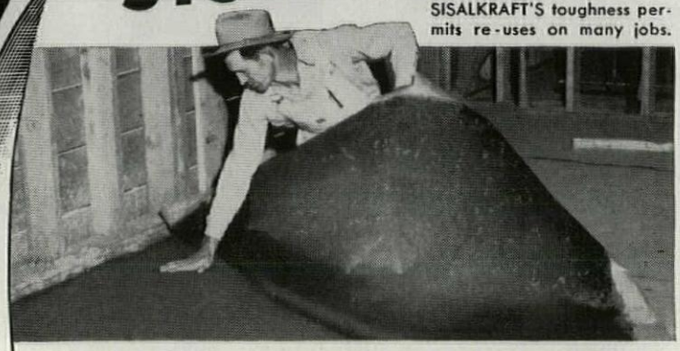
Standard Dry Wall Products, Inc.
NEW EAGLE, PENNSYLVANIA

ANY JOB CAN BE FINISHED WITH CLEAN, DUST-FREE FLOORS AT VERY LOW COST!

when cured and protected with

SISALKRAFT

SISALKRAFT'S toughness permits re-uses on many jobs.



Sisalkraft is so strong it provides positive protection from debris and construction stains and helps prevent marring.

Since it is light in weight and easy to handle, Sisalkraft can be rolled into place easily, and can be removed quickly after completion of the job! Since it resists tearing and scuffing, Sisalkraft can be re-used on many jobs . . . and it performs a big service at very low cost per job.

Curing and protection of concrete becomes automatic with Sisalkraft . . . no watching, sprinkling, inspection . . . no other cover needed.

Perfect protection too for stone trim and covering of materials and equipment at the job site.

Standard widths from 3 to 8 feet, 13½'. Big "blankets" can be made in *any* widths up to 26½ feet.

COPPER ARMORED SISALKRAFT

another Sisalkraft product, provides the advantages of heavy gauge copper at one fifth the cost.

Write for samples and information on Sisalkraft for protection and curing or on Copper Armored Sisalkraft. Department AF-5, Attleboro, Massachusetts.

Make Certain It's GENUINE SISALKRAFT

SISALKRAFT PRODUCTS

AMERICAN
SISALKRAFT
CORPORATION
Attleboro, Mass. • Chicago 6, Ill.
New York 17, N. Y. • San Francisco 5, Calif.

Modernization

The low cost answer for new classrooms

Built in 1915—Exterior view of Silver Street Elementary School, New Albany, Ind., as it looks today.

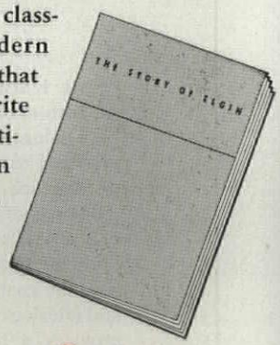
Silver Street Elementary School, New Albany, Ind., was a modern 10-room school when built in 1915. Today, 39 years later, it is again a modern school grown to 13 classrooms and a multi-purpose room.

From all outward appearances, Silver Street School has changed little. But once you step inside, the miracle is apparent. Contrasting color treatments, modern lighting, sloped acoustical ceilings, individual room lavatories and the Herman Nelson DRAFT|STOP System—these and many other design and equipment features contribute to classroom comfort and up-to-date teaching practice.

The total construction cost was $140,089—or only $10,776 per classroom!

Architects Hawkins and Walker and Superintendent of Schools Harry R. Davidson estimate that yearly fuel costs will be cut at least 15 to 20% by the replacement of the central system with the new Herman Nelson DRAFT|STOP System.

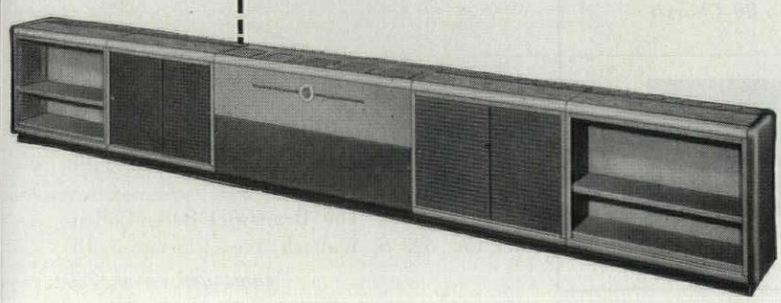
Get the facts today—send for your free copy of "The Story of Elgin", another actual, documented case history of how school modernization resulted in lower new classroom cost—and how modern unit ventilators returned that cost out of fuel savings. Write Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.



DRAFT STOP

Modernized in 1953—A typical classroom after modernization. Herman Nelson DRAFT|STOP Unit Ventilators and modern lighting are major contributions to classroom comfort. Superintendent of Schools: Harry R. Davidson; Architects: Hawkins & Walker.

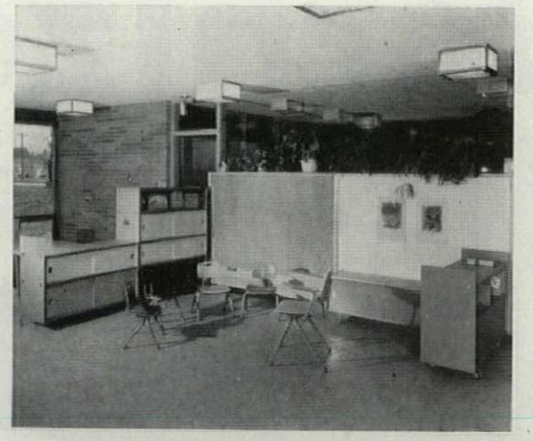
Provides
COOLING, HEATING,
VENTILATION, ODOR CONTROL,
DRAFT ELIMINATION
All at minimum cost



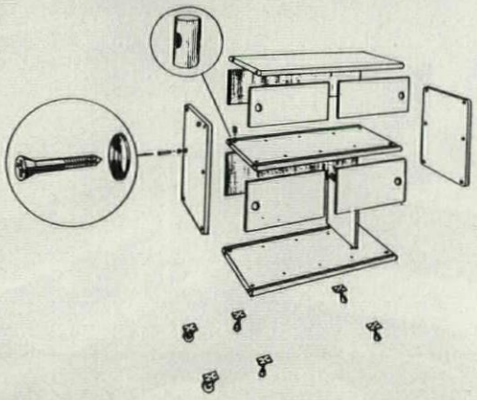
herman nelson
UNIT VENTILATOR PRODUCTS
American Air Filter Company, Inc.

SYSTEM OF CLASSROOM HEATING, VENTILATING AND COOLING

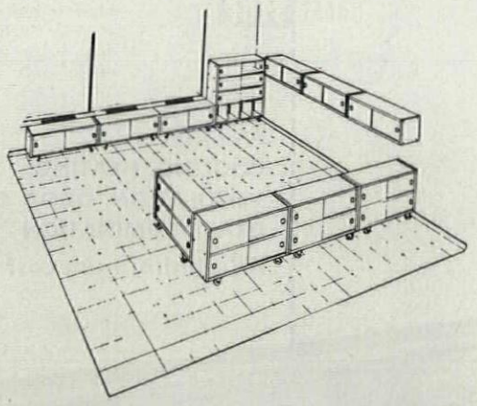
ager for Brunswick, and the firm's design staff developed the flexible line in consultation with Designers John Lyon Reid, Henry Wright. This team saw in the problem of classroom storage a need for rugged, handsome cabinets of standard dimensions. Their goal was to design truly interchangeable and mobile storage units made of parts and prefinished panels that could be shipped flat, easily assembled on the job, and, when necessary, dismantled and juggled by the aver-



age school teacher armed with a screwdriver. All completed units measure 47½" long, 15⅜" deep. One basic single-compartment assembly — two end panels, top and lower shelf, and four legs—sells for $39.50 plus shipping (less than $2 anywhere in the coun-



try); a double-compartment unit costs about $56 delivered and, with sliding doors and back panels, about $75. The four-compartment unit (pictured below) runs about $115 delivered. A book truck with casters costs $61. Any of the cabinets can be ordered with legs, casters or wall hangers; with sliding doors either of blue, yellow or gray finished hardboard or transparent plastic on one side or, where the units are to divide a classroom,



on both sides. Side and shelf panels are gray. All the colored coatings are the almost indestructible melamine plastic.

Manufacturer: The Brunswick-Balke-Collender Co., 623 S. Wabash Ave., Chicago 5, Ill.

continued on p. 220

For lasting value in roof insulation, specify

FIBERGLAS

FORD MOTOR COMPANY PLANT, Hamburg, New York. ARCHITECT: Albert Kahn & Assoc., Detroit. GENERAL CONTRACTOR: Bryant & Detwiler, Inc., Detroit

1. More thermally efficient, *thickness for thickness*

2. Longer lasting *because it will not rot*

★ Its low "k" value provides more insulation in relation to thickness.

★ Resists fire and moisture, will not decay, swell, shrink or buckle.

★ Light weight and easy to apply, can be cut on job.

★ Resilient and non-brittle, absorbs shock and pressures on felts without rupturing.

★ Approved for bonded roofs.

PRODUCT DATA—
FIBERGLAS* ROOF INSULATION

Standard Size—24″ x 48″
Packaged in
Paper-wrapped Bundles

AVAILABLE THICKNESS (Inches)	HEAT CONDUCTANCE at 75°F Mean Temp. (Btu/hr./ Sq. Ft./°F.)*
½	.50
¾	.33
⅞	.30
1	.25
1¼	.20
1½	.17
1¾	.15
2	.13

*Subject to manufacturing and testing tolerances.

OWENS-CORNING
FIBERGLAS

When you specify roof insulation, remember . . .
It's **thermal efficiency** *that counts . . . not* **thickness!**

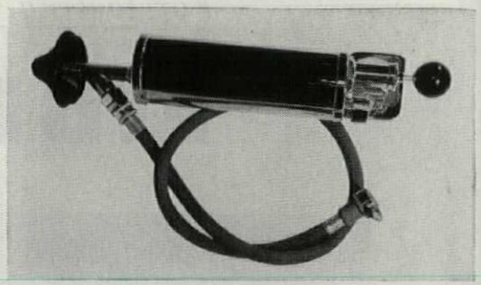
Distributed Nationally by these two industry leaders

Certain-teed BUILDING PRODUCTS

FLINTKOTE BUILDING MATERIALS

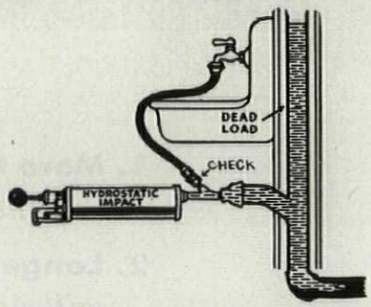
**Fiberglas is the trade-mark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation.*

NEW PRODUCTS *continued*



MAINTENANCE TOOL cleans badly blocked drains

Releasing a small slug of compressed air, the *Hydraulic Water Ram* strikes a column of water against any solid matter clogging a drain pipe or sewer to disintegrate the trouble-causer. The *Ram*—which works for everything in a drain system from drinking fountains to 6″ sewers — is a good maintenance item for plants or big buildings where, after a few uses, it can pay for itself (it sells for about $98) in savings on calls to outside plumbers. Not only is it said to be more effective than snakes, cables or chemicals but in many cases its split-second impact can clear out stubborn drain conditions ordinarily requiring replacement of the pipe. The manufacturer explains the tool's action by comparing the hydrostatic force it creates to the kinetic energy created in a corked bottle of water when the cork is struck with a mallet: the bottom, not the sides, of the bottle breaks away. Similarly, 98% of the *Ram*'s force is expended forward where needed, and only 2% against the pipe side walls.



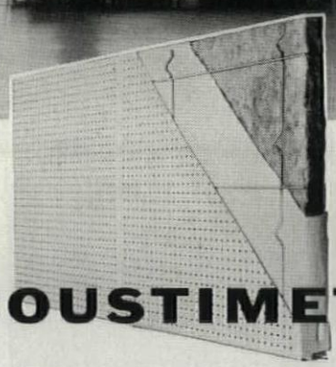
Manufacturer: Hydraulic Mfg. Co., Kiel, Wis.

HYDRAULIC DOOR CONTROL: light footstep puts automatic device to work

The instant someone steps on the vinyl carpet leading through an entranceway equipped with an *Invisible Dor-O-Matic Dor-Man*, the door opens and stays open until the person walks through. It then closes with a two-speed action —quickly until almost shut, then slow for the last few inches for noiseless operation. Adaptable to stock doors—glass, wood or metal—without necessitating alterations to head jamb, the *Dor-O-Matic* apparatus consists of the control mechanism concealed in the floor and the compact hydraulic power unit which can be placed anywhere out of sight—400′ away from the control, if necessary—and plugged into a standard 110-v. circuit. Even a child's

continued on p. 231

NEWARK AIRPORT TERMINAL BUILDING, NEWARK, NEW JERSEY
Design by: The Port of New York Authority. *General Contractor:* Turner Construction Co., New York, N. Y.
Gold Bond Acoustical Contractor: National Acoustics, New York, N. Y.



A star-filled sky of Gold Bond ACOUSTIMETAL sound-conditions Newark Air Terminal!

THIS 60,000 square foot sky-blue Gold Bond Acoustimetal ceiling incorporates efficient sound-conditioning with unusual beauty. At night, the blue Acoustimetal ceiling in the brand-new Newark Air Terminal Building's passenger concourse is lighted to simulate a star-filled sky! And at all times, the big room is comfortably quiet and extremely restful.

Gold Bond Acoustimetal is as practical as it is attractive, and makes one of the most effective acoustical systems you can specify. Its .85 noise reduction coefficient comes from specially wrapped, sound-absorbing mineral wool pads supported behind the steel casings (see inset). The abrasion-resistant finish takes repeated washings without damage—making it easy to maintain. Color schemes can be changed if necessary because repainting doesn't affect Gold Bond Acoustimetal's sound absorption. And the individual steel casings can be readily snapped in or out of place for access to plumbing, wiring, or other utilities.

Gold Bond Acoustimetal's ease of installation helps speed job completions. Contact your Gold Bond Acoustical Contractor for further details. He's a qualified sound control expert. Ask to see all six Gold Bond Acoustical products—the *complete* line with a specific material for every job and every budget, and have him recommend the one that fits your requirements.

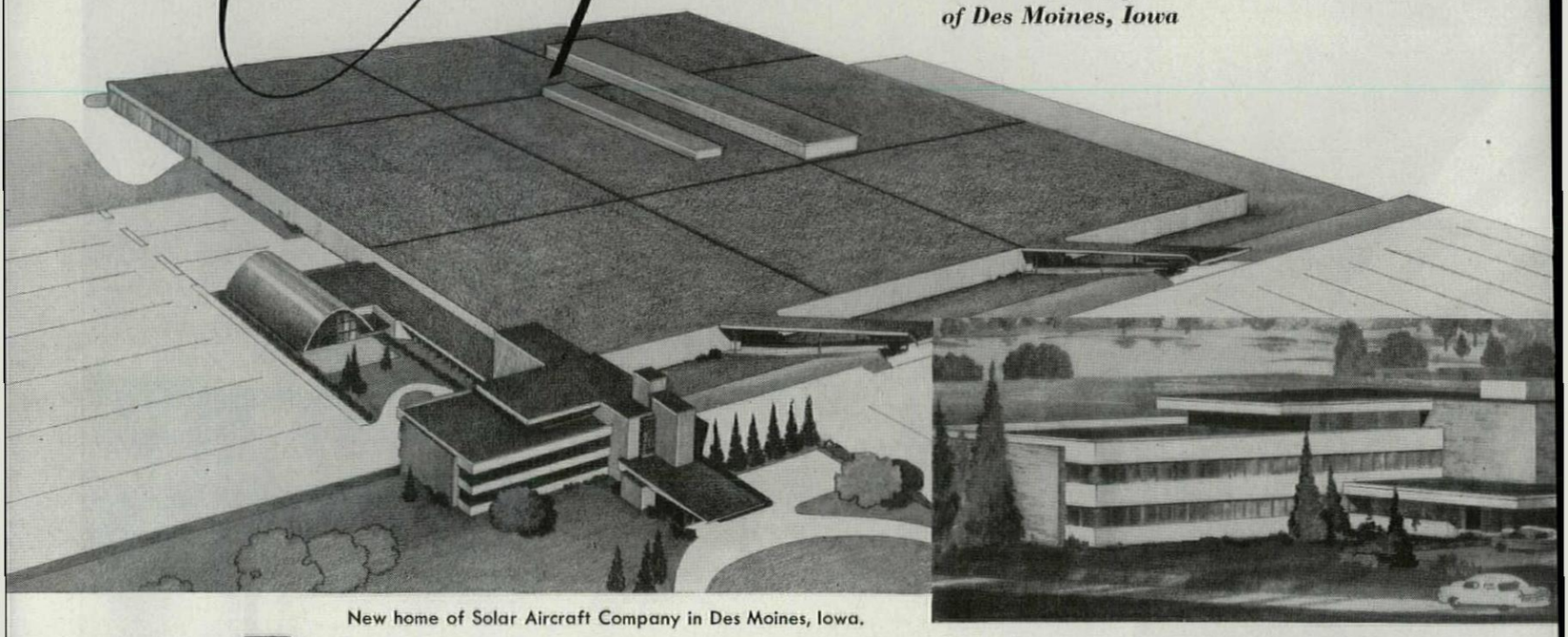
Get the undivided responsibility of National Gypsum

Specify Gold Bond® inside and out

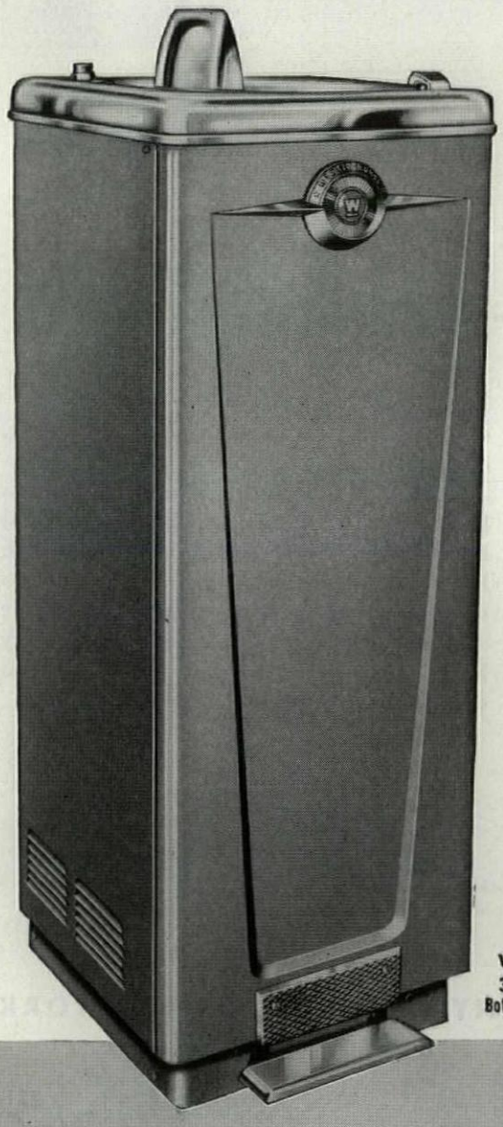
NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

Congratulations

TO ARCHITECTS:
Brooks-Borg
of Des Moines, Iowa



New home of Solar Aircraft Company in Des Moines, Iowa.



Here's how the architects have succeeded in providing stretching room for a growing industry. This plant contains three units completely flexible for expansion. The office unit (inset) has one stair tower on each side of the building which contains all permanent circulation areas. This leaves approximately 10,000 square feet of free office space on each floor. This building can be expanded upward. The shop building carries no load in its exterior walls, permitting distention in any direction. The quonset-type cafeteria can easily be elongated to permit more seating than the present 500-person capacity.

Throughout the entire project Westinghouse Water Coolers are conveniently placed to accommodate all personnel, visitors and customers. These quality Water Coolers will render longer service for less operating cost than any other on the market.

Model WA13B...has a 13-gallon per hour capacity. Comes equipped with finned-tube condenser, air-cooled by fan. Its patented *Pre-Cooler* and *Super Sub-Cooler* give more cold water for less money.

WSB3B 3-Gallon, Bottle Cooler

WS5B 5-Gallon, Static Air Cooled

WS8B 8-Gallon, Static Air Cooled

WA13B 13-Gallon, Air Cooled

WA17B 17-Gallon, Air Cooled

WW14B 14-Gallon, Water Cooled

A Westinghouse *exclusive* . . . the Pay-Way Plan enables you to save your client many payroll dollars each year by ending wasted employe time and motion due to improper water cooler placement. Drop us a card for additional *free* information.

Water Cooler with both finger-tip and toe-tip operation at no extra cost is made possible by the Westinghouse *dual electric control.* No other water cooler on the market offers this convenience feature.

means have been found by Westinghouse to utilize the refrigerating effect of the cold waste water. With the exclusive *Super Sub-Cooler* and patented *Pre-Cooler* this cold waste water is used to sub-cool the refrigerant and pre-cool the incoming drinking water.

superior in attractiveness, too. Leading architects say the compact, modern styling of the new Westinghouse Water Cooler complements the decor of any room, store, office or factory.

performance is guaranteed with the Westinghouse 5-Year Warranty Plan. It consists of a standard One-Year Guarantee on the complete Water Cooler and an additional Four-Year Guarantee on the entire Hermetically-Sealed Refrigeration System.

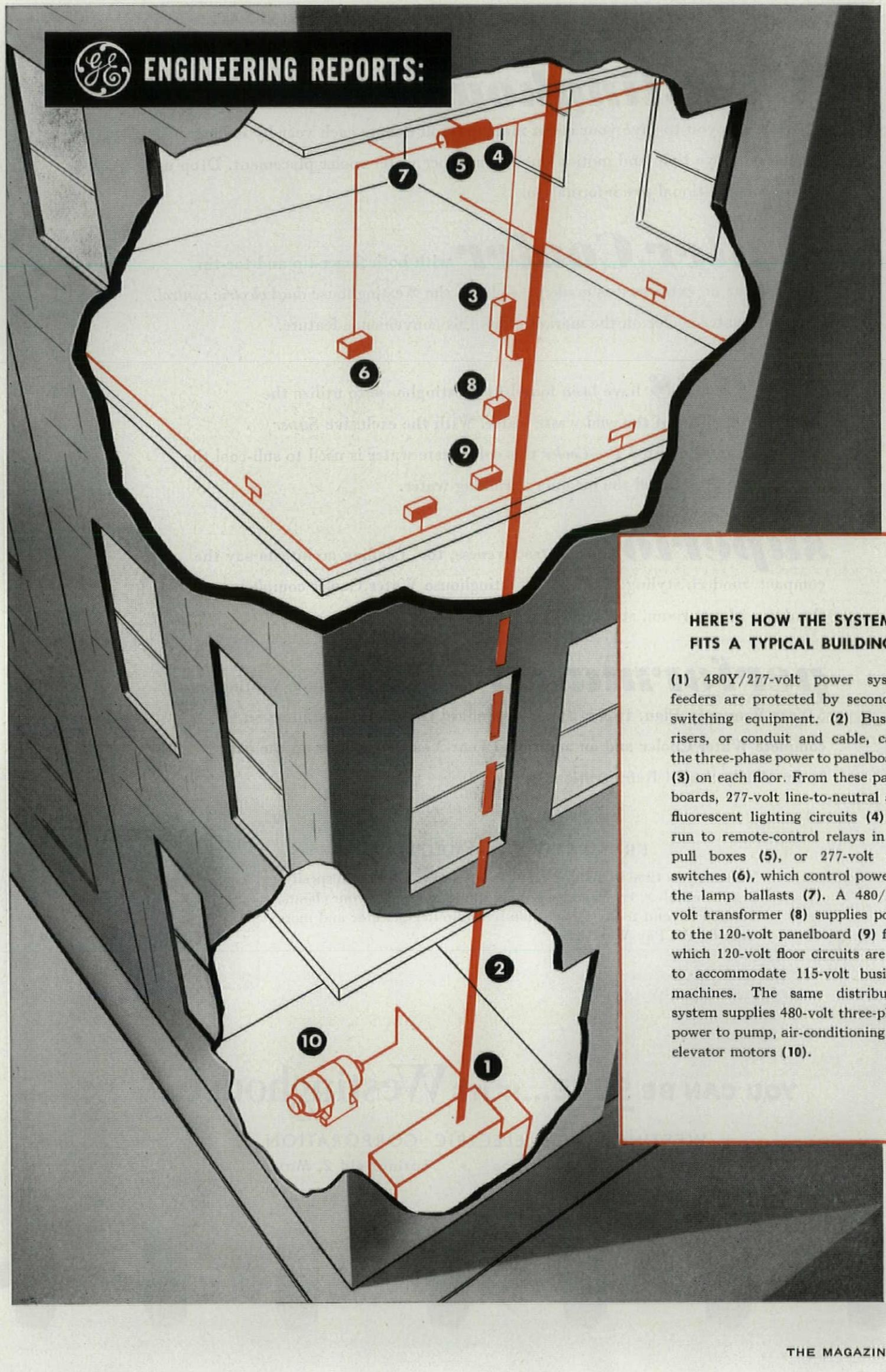
FREE PAY-WAY COMPUTER

To save you time in making calculations and to aid you in specifying the number, type and location of water coolers for your clients, be sure to send today for our handy Computer-Selector and more data on the Pay-Way Plan.

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

WESTINGHOUSE ELECTRIC CORPORATION

Electric Appliance Division • Springfield 2, Mass.



HERE'S HOW THE SYSTEM FITS A TYPICAL BUILDING

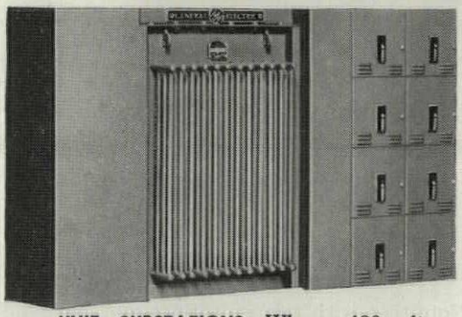
(1) 480Y/277-volt power system feeders are protected by secondary switching equipment. **(2)** Busway risers, or conduit and cable, carry the three-phase power to panelboards **(3)** on each floor. From these panelboards, 277-volt line-to-neutral area fluorescent lighting circuits **(4)** are run to remote-control relays in the pull boxes **(5)**, or 277-volt wall switches **(6)**, which control power to the lamp ballasts **(7)**. A 480/120-volt transformer **(8)** supplies power to the 120-volt panelboard **(9)** from which 120-volt floor circuits are run to accommodate 115-volt business machines. The same distribution system supplies 480-volt three-phase power to pump, air-conditioning and elevator motors **(10)**.

Lower cost power for commercial buildings made possible by General Electric 480Y/277-volt electrical systems

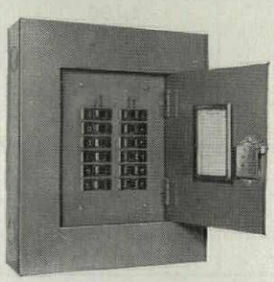
Many kinds of large commercial buildings—schools, department stores, shopping centers, office buildings, —can now take advantage of the flexibility and substantial savings made possible by 480Y/277-volt electrical systems. This economical system has now been accepted for commercial and public buildings by the National Electrical Code. Pioneered by G.E., it is already in wide use in industry. Co-ordinated standard General Electric components, including the recently developed low-voltage remote-control system, make application easy.

Building owners and contractors: With higher-voltage systems you get substantial savings in initial installations. On the next page you will find figures which demonstrate these savings in dollars and cents for a typical building. Area fluorescent lighting fixtures are supplied at 277 volts, while motors can be operated at 480 volts.

STANDARD G-E COMPONENTS MAKE SYSTEM APPLICATION EASIER

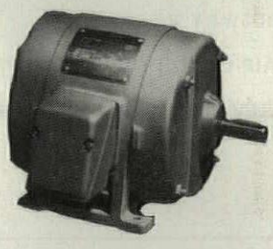


UNIT SUBSTATIONS—Where 480-volt power is supplied, only the switchgear section of the substation is required.

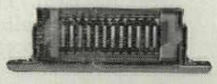


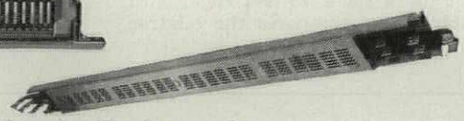
FLOOR-CIRCUIT PANELBOARDS—From these panelboards circuits are run to accommodate business machines, etc.

480/120-VOLT TRANSFORMERS Supply power to floor-circuit panelboard. Type M (above) available from ¼ to 15 kva.

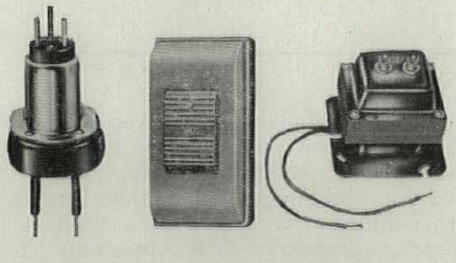


G-E MOTORS AND CONTROL supply more reliable drive and control for pumps, air conditioning.

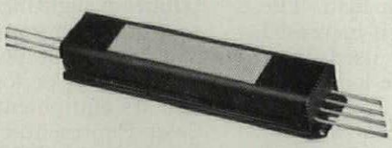




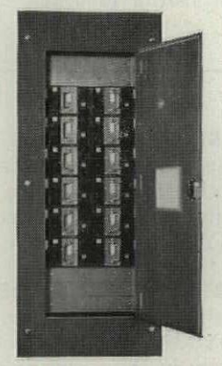
RISERS & FEEDERS can be either busway, interlocked cable, or cable in conduit for distributing 480-volt power to panelboards.



CONTROL-CIRCUIT TRANSFORMER—G-E 120/24-volt transformer (right) provides 24-volt power to the remote-control relays (left) and wall switches (center).



LAMP BALLASTS—This one shown above (rated 265 volts) for use with two 40-watt rapid-start lamps, designed for use with 277-volt systems.



PANELBOARDS—Either circuit breaker or fused panelboards may be used to help protect 277-volt circuits.

TURN THE PAGE AND COUNT YOUR DOLLAR SAVINGS

GENERAL ELECTRIC

CONTINUED FROM PREVIOUS PAGE

Here's how you can save up to 25% with G-E 480Y/277-volt power systems

EQUIPMENT	Old-Style Low-Voltage System (208Y/120 volts)		New High-Voltage System (480Y/277 volts)	
	Estimated Installed Cost	Weight of Copper, lb	Estimated Installed Cost	Weight of Copper, lb
REMOTE CONTROL	$ 6,750	240	$ 6,750	240
BRANCH-CIRCUIT WIRING FOR LIGHTS	42,450	1,530	29,800	1,100
FLOOR CIRCUITS (120 VOLTS)	28,125	1,080	31,650	2,460
PANELBOARDS	4,950	150	4,515	255
UNIT SUBSTATION	55,300	6,700	36,000	6,500
BUSWAY RISERS	12,400	5,200	6,200	2,200
AIR-CONDITIONING EQUIPMENT	23,370	5,855	17,450	3,470
ELEVATOR AND FIRE-PUMP EQUIPMENT	9,010	2,400	6,470	1,145
TOTAL	$182,355	23,155	$138,835	17,370
TOTAL PER KVA	$121.57	15.44	$92.55	11.58

BY COMPARING THE EQUIPMENT COSTS of a 480Y/277-volt system with those of a conventional 208Y/120-volt arrangement for a typical building, the economies of high-voltage distribution become readily apparent. As an example, consider a five-story office building consisting of three units 160 x 75 feet each, with total load of 1500 kva. The table above compares the relative costs for this building. Note that with two exceptions, one due principally to the need for the 480/120-volt transformer for the floor circuits, the high-voltage system results in dollar savings item for item. The total saving is approximately $30 per kva. Studies of smaller and larger buildings have indicated similar savings in proportion to size.

FIRST SAVING IS IN CIRCUITS. Higher voltage means lighting circuits can carry a much greater kva load. The number of circuits can be halved. Conversely, if increased illumination is the goal, the same circuits used in a 208Y/120-volt system can now carry twice the load.

FURTHER SAVINGS RESULT from the lower cost of 440-volt motors and power equipment. Altogether, a complete 480Y/277-volt system can save as much as 25%, as shown in the chart above.

General Electric engineers specializing in power distribution, lighting, and construction materials are ready to work with your consultants or contractors in applying 480Y/277-volt power to your buildings. To arrange for this service, or for further information about the system and its equipment, contact your nearest G-E Apparatus Sales Representative *early in the planning stage,* or write for Bulletin GET-2307 to General Electric Company, Apparatus Sales Division, Section 665-122, Schenectady 5, New York.

Engineered Electrical Systems for Commercial Buildings

GENERAL ELECTRIC

First Wisconsin National Bank, Milwaukee, Wisconsin

Beauty and efficiency plus ...for the modern bank

A perfect combination of functionalism and beauty is being continually demonstrated in today's banks ... thanks, in countless cases, to the efficiency of Acousti-Celotex Sound Conditioning.

Low-Cost Method

Where distinguished decor is as desirable a factor as efficient design, installation of Acousti-Celotex Tile ceilings proves the precise and economical answer. Result in every instance is a bank that unmistakably *invites* customer traffic ... while it reduces fatigue, improves comfort and morale of bank employees.

Unlimited Versatility

No matter what the project may be ... whatever the problem of acoustics, building code, or design itself —your local Acousti-Celotex distributor stands ready to assist you ...

- **He is a member of the world's most experienced acoustical organization with hundreds of thousands of expert installations to its credit.**
- **His professional training and experience embrace acoustical installations of every type, size, and application technique.**
- **He has a complete line of specialized acoustical products to meet every job requirement, and can make recommendations to fill exact architect specifications.**

TRADE MARK

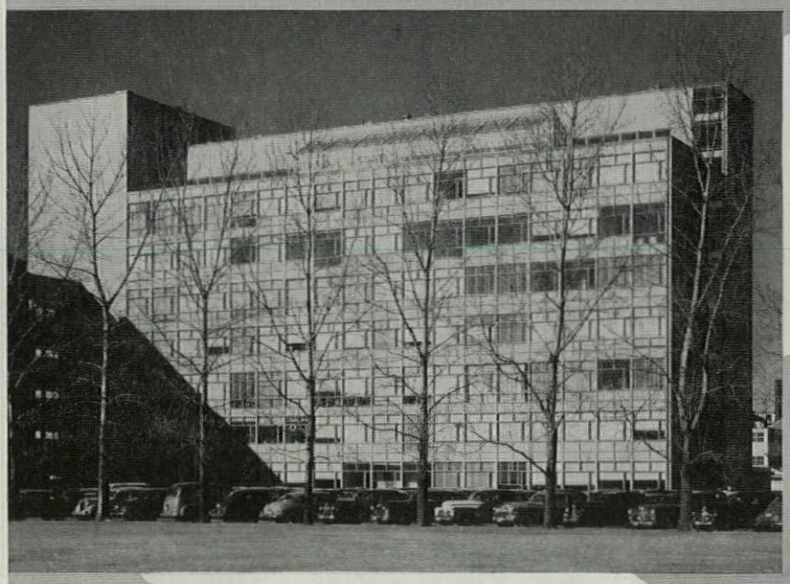
ACOUSTI-CELOTEX

REGISTERED U. S. PAT. OFF.

Sound Conditioning

FOR FULL DETAILS on the complete line of Acousti-Celotex products, please write to The Celotex Corporation, Dept. A-54, 120 S. LaSalle St., Chicago 3, Ill.

Products for Every Sound Conditioning Problem—The Celotex Corporation, 120 S. La Salle St., Chicago 3, Illinois • In Canada: Dominion Sound Equipments, Ltd., Montreal, Quebec.



The new Dorrance Laboratory
of Biology and Food Technology
Massachusetts Institute of Technology
Cambridge, Massachusetts

Architect
Anderson & Beckwith

General Contractor
Sawyer Associates Construction Co.

Plumbing Contractor
M. Ahern Co.

DURIRON for corrosion resistance at M.I.T.

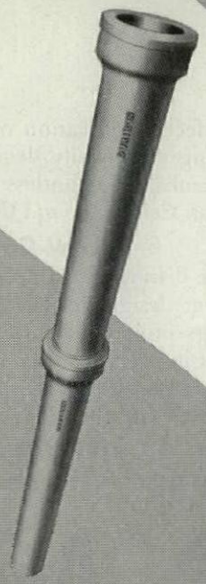
Duriron was the choice for the extensive waste disposal system on all the floors of M.I.T.'s new John Dorrance Laboratory because of the corrosive solutions to be handled.

Architects specify Duriron Acidproof Drain Line because they know it meets the requirements of corrosion resistance and will generally outlast the building.

Duriron is a high silicon iron which resists most corrosives, as well as erosion and abrasion *throughout the entire wall thickness.* It is installed by ordinary plumbing methods.

Duriron pipe and fittings are available from stock in principal cities. Duriron Catalog PF/4 gives physical characteristics and complete details.

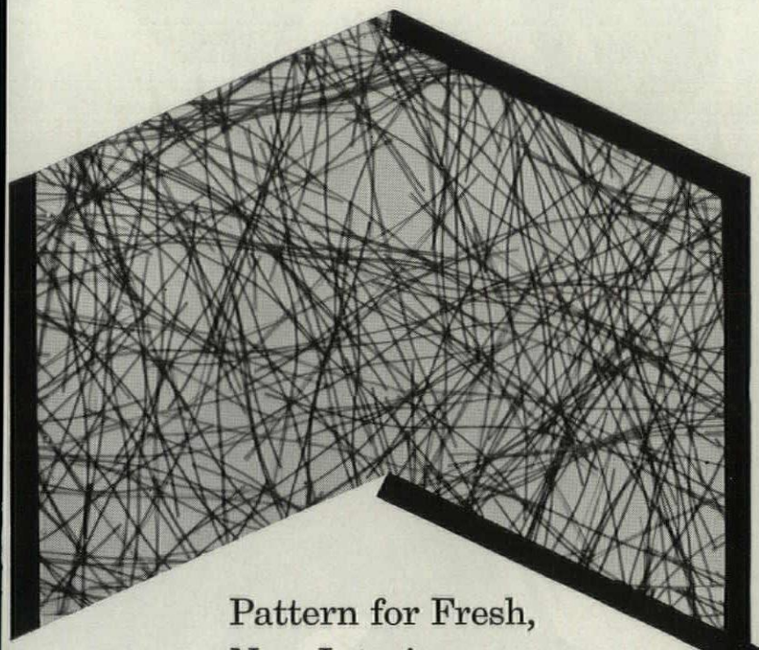
Specify Duriron—Insist upon Duriron.

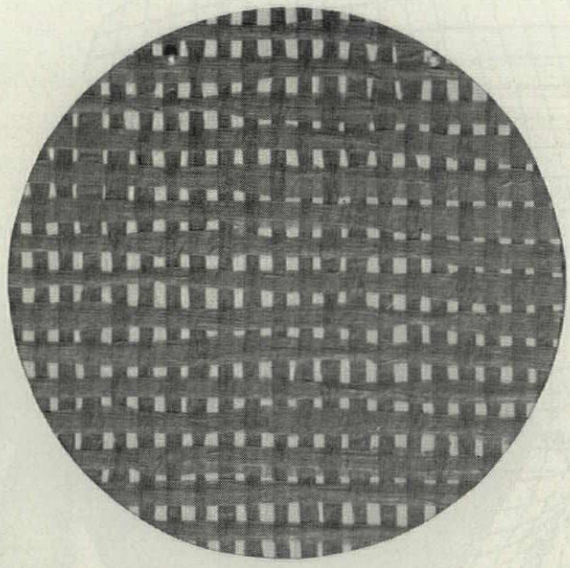


DURIRON
LOOK FOR THE NAME ON EVERY PIECE

THE DURIRON COMPANY, Inc.
Dayton, Ohio

DURCO
CORROSION RESISTING ALLOYS & EQUIPMENT

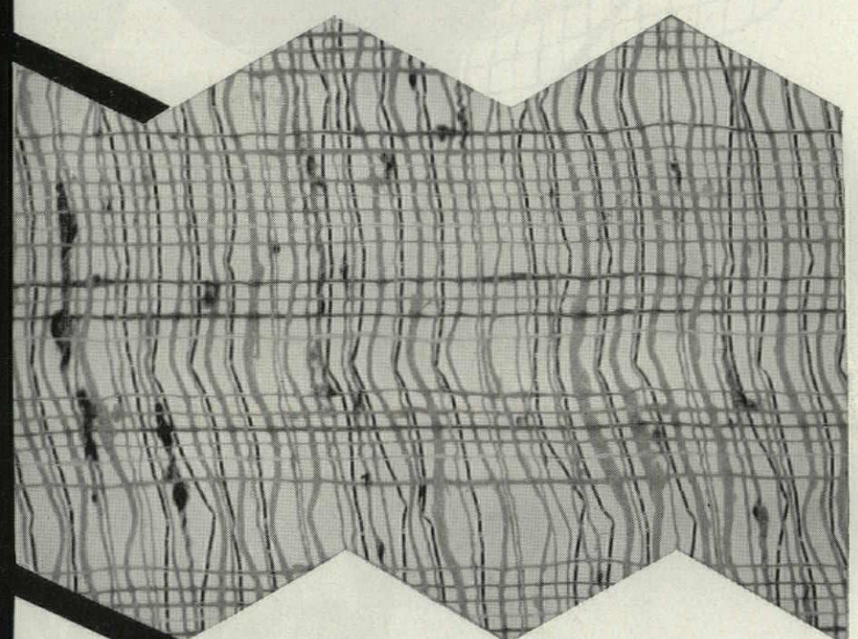


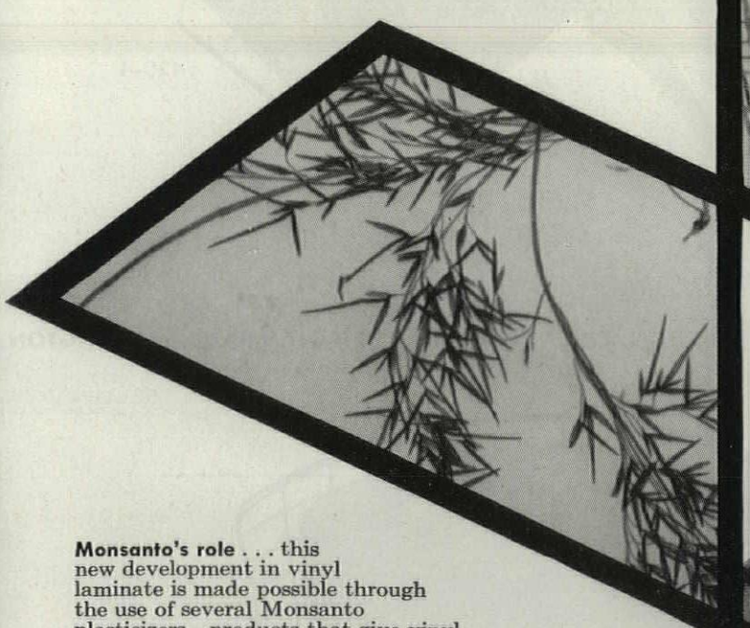


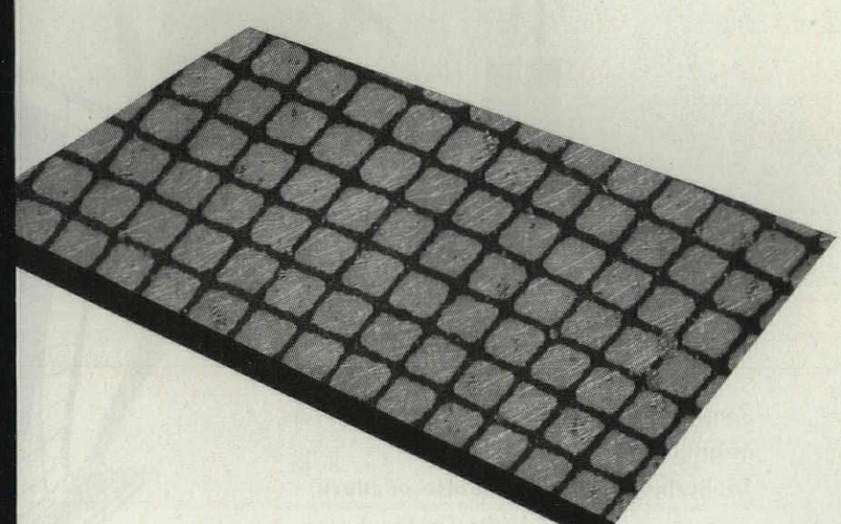
Pattern for Fresh, New Interiors... Vinyl Laminate

What Vinyl Laminate is . . . a new means of imprisoning delightful patterns and designs in a sturdy, clear vinyl plastic. Grasses from Italy, textiles, metallic threads . . . literally dozens of decorative materials have been laced through solid sheets.

How you can use Vinyl Laminate . . . this striking decorative material has already proved its worth in original creations used for upholstery, wall coverings, lamp shades, decorative table tops, room dividers and a variety of other applications.







Monsanto's role . . . this new development in vinyl laminate is made possible through the use of several Monsanto plasticizers—products that give vinyl resilience, pliability, resistance to heat, light and fire.

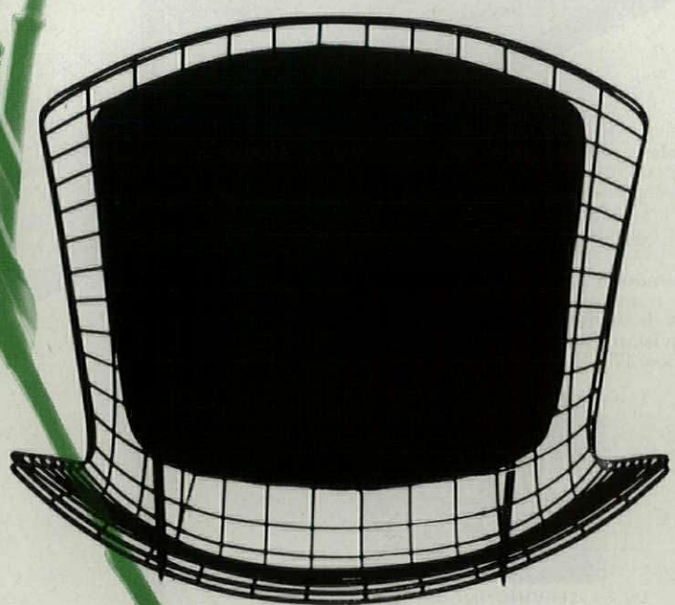
For more information . . . Monsanto will be glad to furnish the name of the company which has pioneered this development. Write to Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478, St. Louis 1, Missouri.

MONSANTO
CHEMICALS AND PLASTICS

SERVING INDUSTRY...
WHICH SERVES MANKIND

KNOLL ASSOCIATES, INC. • 575 MADISON AVE., NEW YORK 22 • BOSTON, CHICAGO, DALLAS, DETROIT, MIAMI, WASHINGTON

Furniture • Fabrics



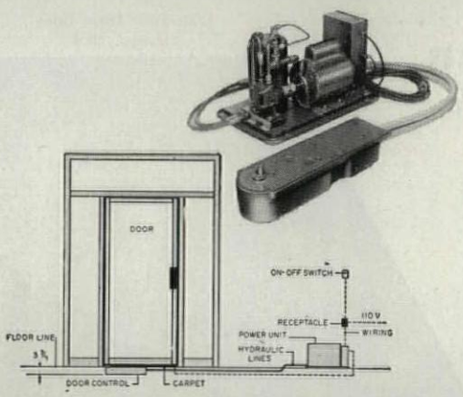
INDOOR — OUTDOOR CHAIRS

by Harry Bertoia. Versatile and low-cost.
Form wire with rust resistant black oxide
or white vinyl plastic finish.
Removable canvas seat pads and covers
in bright clear colors:
Tangerine, Lemon, Turquoise or Black.
Write for brochure.

maker

NEW PRODUCTS *continued*

footstep on the 80″ long x 30″ wide carpet will activate the hydraulic control through a low-voltage control circuit. The hydraulic unit applies pressure to the oil in the lines leading to the door-control mechanism, causing the control to function. For safety's sake, the door is set to open away from a person entering but will not operate if someone steps on the opposite side until pressure on that portion of the carpet is relieved. In case of power failure, the door will work manually. The mechanism is available with a counting device which keeps tabs on individuals cross-

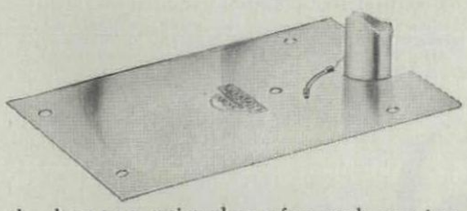


ing the threshold—useful in stores, galleries, auditoriums. Price, not installed for a single-door model, is $647.50; for two-door, operating on one power unit, $1,132.50. Counter is an additional $40.50.

Manufacturer: Dor-O-Matic Div., Republic Industries, Inc., 4440 N. Knox Ave., Chicago 30, Ill.

DOOR CLOSER responds to light or heavy traffic

Engineered for entrance and vestibule doors that have large crowds passing through them on occasion, Rixson's heavy-duty door closers now can be furnished with a selective hold-open apparatus. By setting a selector lever, located on floor plate or threshold, the automatic mechanism (regulated at factory to open the door to any degree up to 165°) is placed in contact position so that it engages and holds the door open as called for. A firm pull releases the door. Set at "noncontact," the closer functions in its normal way, bringing



the door to a quiet close after each opening. The selective hold-open should find wide application in schools, public auditoriums and theaters where sporadic crowds can move in or out fast without wear and tear on doors or jambs.

Manufacturer: The Oscar C. Rixson Co., 4450 Carroll Ave., Chicago 24, Ill.

Technical Publications, p. 232

TILE. Thin-Bed Setting Methods and Materials, K-400. Tile Council of America, 10 E. 40th St., New York 16, N. Y. 24 pp. 8½" x 11"

Thin-bed setting methods approved by members of the Tile Council and the US Dept. of Commerce are presented in this manual. Prepared as a companion reference to the *Tile Handbook* by Don Graf, the publication presents a roundup of current tile-setting practices in the construction industry. Besides specifications for application, the booklet establishes, with the Dept. of Commerce, minimum performance standards (CS 181-52) for water-resistant organic adhesives for installation of clay tile. Products meeting the standard qualify for a hallmark on their labels.

LIGHTING. Some Whys and Hows of Modern School Lighting. Sylvania Electric Products Inc., 1740 Broadway, New York 19, N.Y. 16 pp. 8½" x 11"

Current trends in school lighting theory and practice are reviewed in this well-illustrated booklet. Among the topics covered in the nontechnical text are: quantity and quality of light and brightness contrast; comparative costs of incandescent and fluorescent systems; and recommended lighting levels for various areas in a school.

HARDBOARD. Masonite Presdwood in Architectural Design and Construction. Masonite Corp., 111 W. Washington St., Chicago, Ill. 32 pp. 8½" x 11"

HARDWARE. Hinges and Miscellaneous Hardware. Catalogue No. 14. C. Hager & Sons, 139 Victor St., St. Louis, Mo. 124 pp. 10½" x 12"

SUSPENDED CEILING SYSTEMS. Sanymetal Suspended Ceilings, Nailock and Screwlock, Catalogue SN-6. The Sanymetal Products Co., Inc., 2093 E. 19th St., Cleveland 15, Ohio. 8 pp. 8½" x 11"

PAINT & COLOR. Colorizer 162 Color Pack, and Exterior Decorating Guide. Colorizer Associates, 345 N. Western Ave., Chicago, Ill. 162 pp. 4" x 8"

MASONRY PIGMENT. Cement Colors. Landers-Segal Color Co., 78 Delavan St., Brooklyn 31, N.Y. 6 pp. 3½" x 6"

FLOORING. How You Can Lay a Rubber Tile Floor. Rubber Mfrs. Assn., Inc., 444 Madison Ave., New York 32, N.Y. 1 p. 21" x 27"

FLOORING. How to Finish Wood Floors. Pierce & Stevens, Inc., 710 Ohio St., Buffalo 3, N.Y. 24 pp. 5" x 8". 10¢

HARDWOOD PANELING. New Design Opportunities. Roddiscraft Plywood Corp., Marshfield, Wis. 8 pp. 8½" x 11"

PLYWOOD. A Treasury of Hardwood Plywood. Hardwood Plywood Institute, 600 S. Michigan Ave., Chicago 5, Ill. 18 pp. 9" x 12". 25¢

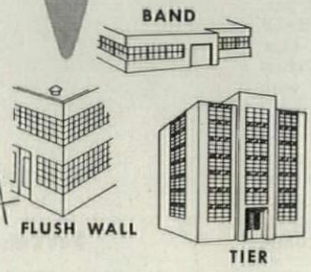
WINDOWS & DOORS. Steel Windows and Doors. Crittal, Inc., Waukesha, Wis. 32 pp. 8½" x 11"

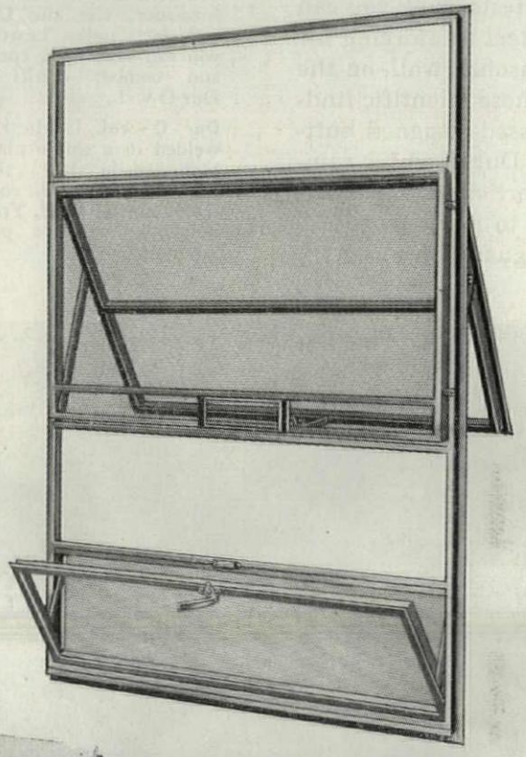
continued on p. 236

Another far-reaching advancement from

BAYLEY *Visioneering**

ALUMINUM PROJECTED WINDOWS IN PANEL WALL ARRANGEMENTS





Bayley Visioneering makes another contribution to advanced building architecture. Without the costliness of special window designing you can now execute many of your design treatments in modern panel-wall or "skin" construction. With Bayley sub-frame design, which accommodates separate window units, standard Bayley Aluminum Projected Windows (with channel frames) of any standard size can be used—offering wide flexibility in the use of newer panel decorating materials, plus the desired window area for providing maximum air, light and vision. The maintenance-free aluminum construction of the Bayley projected-type window complements all types of building materials. If you're not fully acquainted with this newest Bayley development be sure to look up Bayley's Aluminum Window Catalog in Sweet's or write.

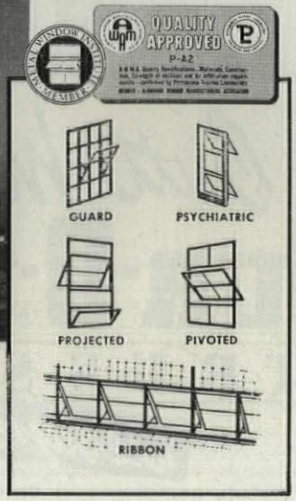
WRITE TODAY for these two helpful Data Files . . .

The Catalog gives you complete specifications, while the Drafting Room Standards give full size details for drafting simplification.

**Visioneering—The science of coordinating vision, air and light in modern building walls with windows of advanced design.*

Bayley Visioneering® Reflects 75 Years of Reliability

Aladdin Industries, Nashville, Tenn.
Spencer J. Warwick, Archt., Cincinnati, Ohio



THE WILLIAM BAYLEY COMPANY

Springfield, Ohio

District Offices:

Springfield · Chicago 2 · New York 17 · Washington 16

Just what the Architect ordered!

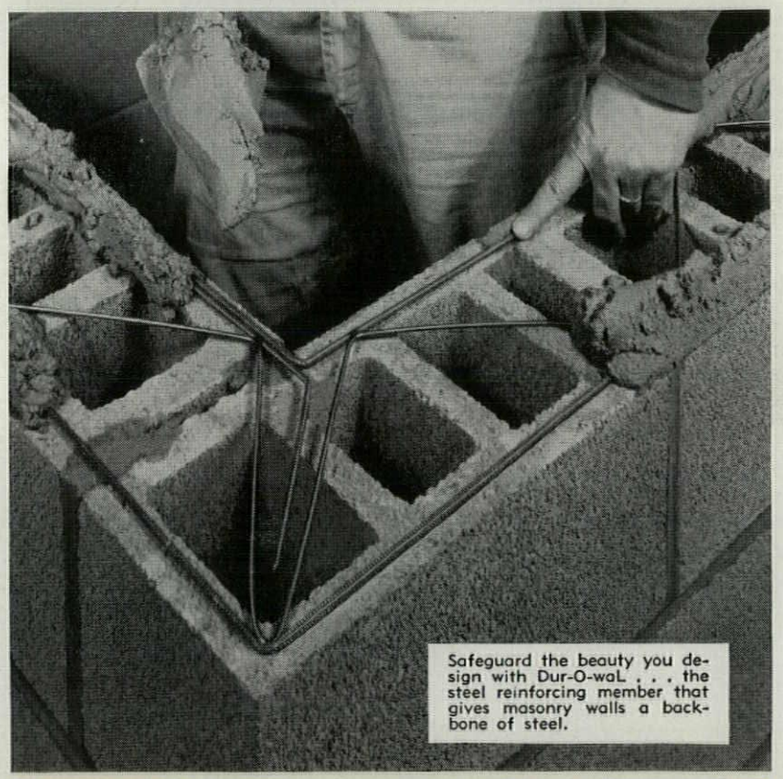
LEADING architects are studying the findings of Dur-O-waL's independent research tests. Now you can specify steel reinforcing for every masonry wall, on the basis of these scientific findings. Trussed-designed, butt-welded Dur-O-waL reinforces vertically and horizontally to combat cracks . . . safeguard masonry beauty.

Get Laboratory-Tested PERFORMANCE FACTS and Specify by Name

Independent Research Findings available now on Dur-O-waL.

Patented Dur-O-waL features a trussed design. This steel reinforcing for block, brick and tile walls assures uniform quality of product and scientifically tested performance. Get the Dur-O-waL facts today. Learn how you can save time, cut costs and combat cracks with Dur-O-waL.

Dur-O-waL is electrically-welded in a single plane of high tensile steel (100,000 p.s.i.); knurled side rods increase mortar bond. Your inquiry will receive prompt attention.



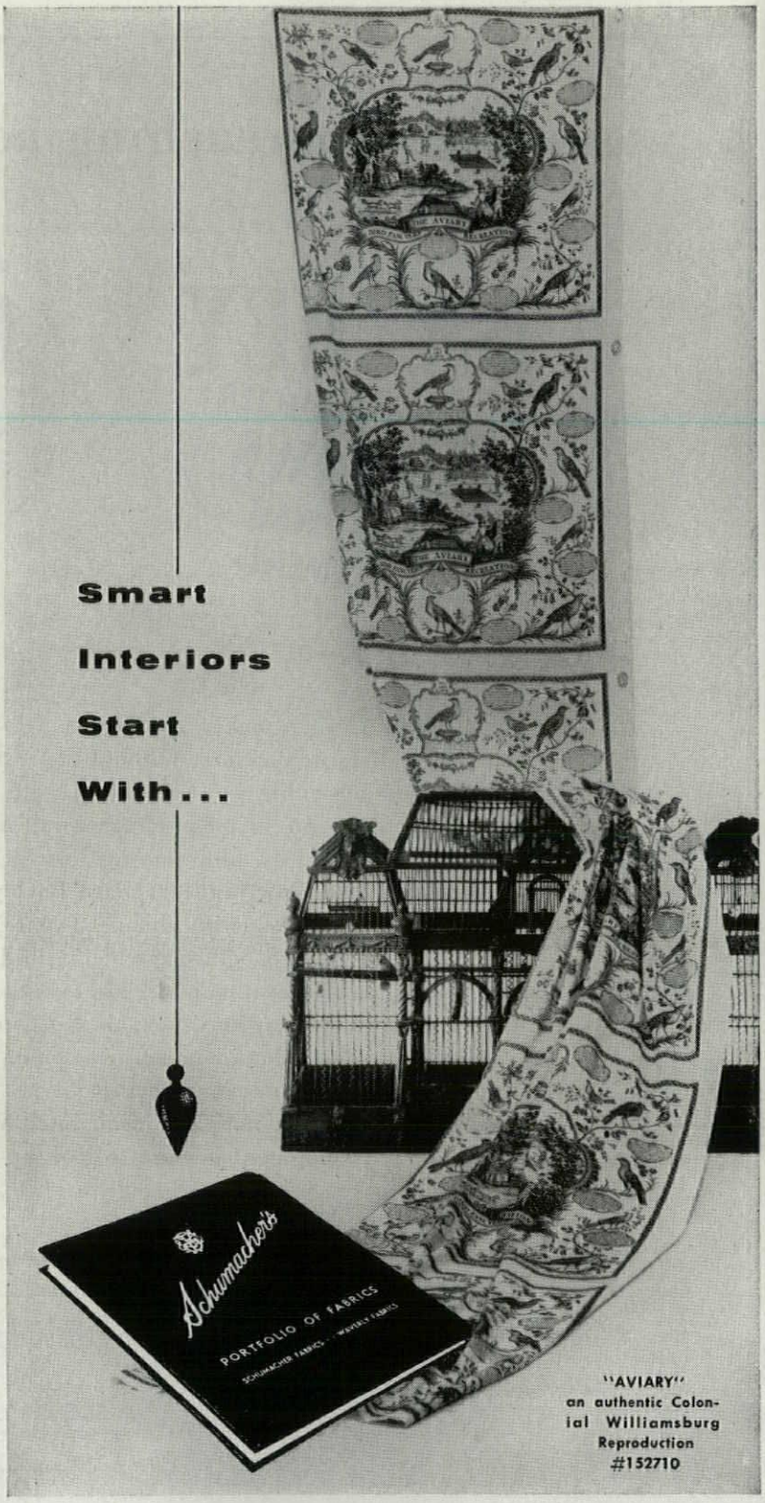
Safeguard the beauty you design with Dur-O-waL . . . the steel reinforcing member that gives masonry walls a backbone of steel.

Butt Weld

DUR-O-WAL®

WITH TRUSSED *Design*

- **Dur-O-waL Products, Inc.**
  P. O. Box 628
  Syracuse 1, New York
- **Dur-O-waL Division**
  Frontier Manufacturing Co.
  Phoenix, Arizona
- **Dur-O-waL Products of Ala., Inc.**
  P. O. Box 5446
  Birmingham 7, Alabama
- **Dur-O-waL Div., Dept. 651**
  Cedar Rapids Block Company
  Cedar Rapids, Iowa



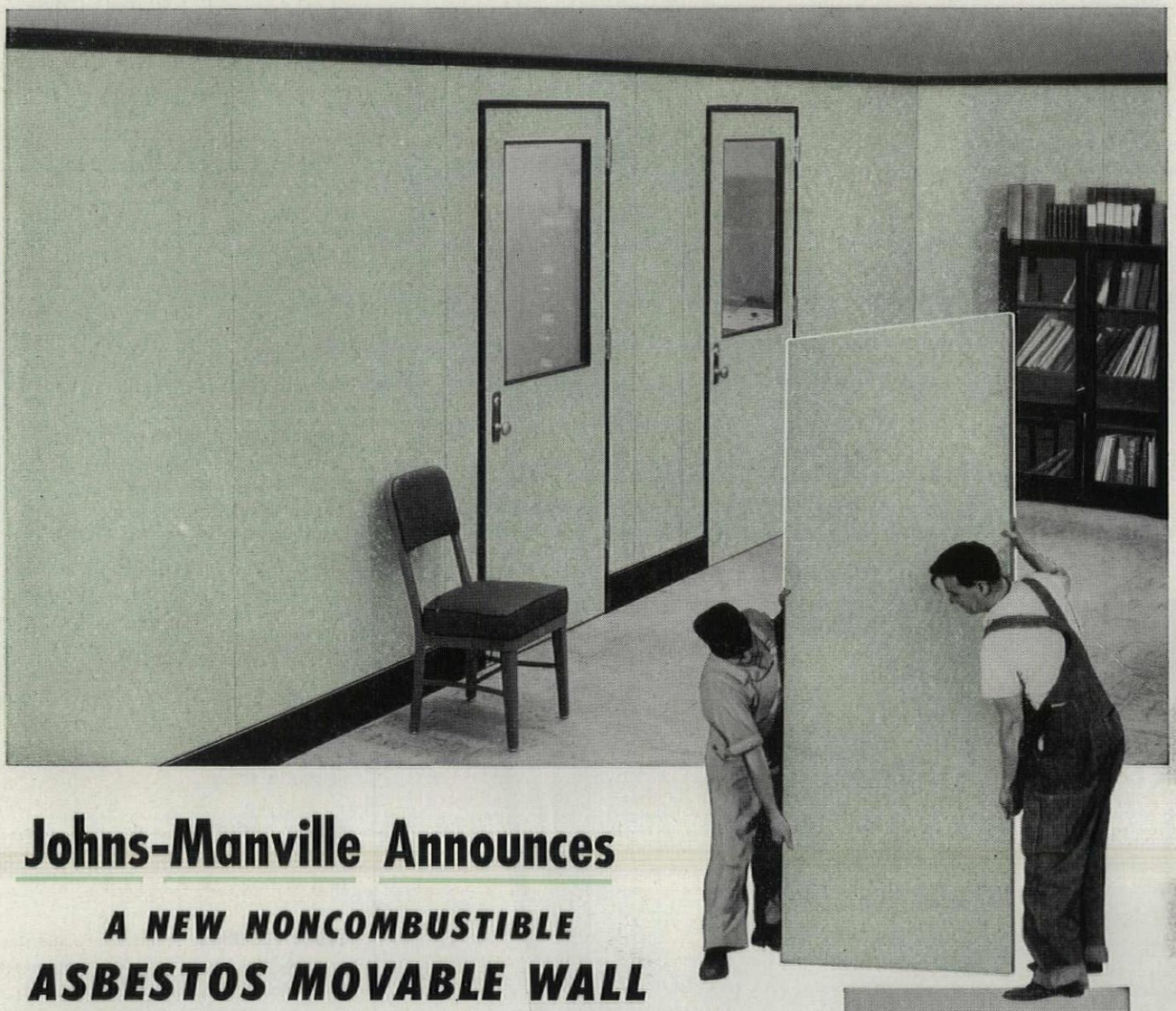
"AVIARY"
an authentic Colonial Williamsburg Reproduction
#152710

Fabrics by *Schumacher's*

At your fingertips . . . a ready reference to more than 2,000 outstanding decorating fabrics from the collection of world famed Schumacher's.

Cleverly contrived in a compact sample book, kept up to date by periodic supplements. Like a copy? Just write for details on Schumacher's "Portfolio of Fabrics."

F. SCHUMACHER & Co. · 60 W. 40th St., N.Y. 18, N.Y. · **FABRICS · CARPETS · WALLPAPERS**



Johns-Manville Announces

A NEW NONCOMBUSTIBLE ASBESTOS MOVABLE WALL

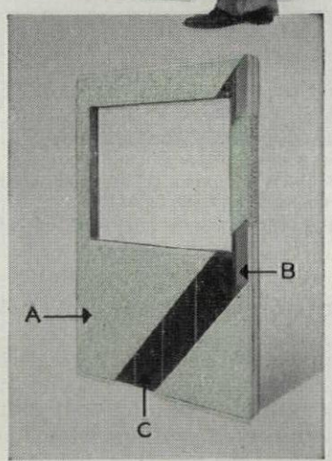
Economical in cost . . .
Pleasing colors — Scratch and stain resistant

New Johns-Manville Class A Movable Walls offer you advantages never before combined in an asbestos movable wall. They are modestly priced. They are noncombustible. They have a textured, stippled finish in restful colors. They reduce maintenance and re-location costs to a new low.

Class A Movable Walls consist of a noncombustible all-mineral core with sturdy asbestos-cement surfaces. The finish is a tough, hard film many times thicker than on the usual movable partition. It is mar and scratch resistant . . . rejects stain and soil . . . can be easily washed and even scrubbed, if necessary. If damaged, it can be touched up inexpensively to look like new . . . and, unlike other types of factory-finished partitions, can be repainted with ordinary paint.

Both flush and glazed partitions are available in ceiling high or free standing heights. Walls are erected complete with doors, door hardware, glass and trim. For best results, they are erected by Johns-Manville's own Construction Department. In this way every job, large or small, receives the benefit of Johns-Manville's undivided responsibility.

An estimate will convince you that the cost of J-M Movable Walls compares favorably with other types of wall construction. For details, write Johns-Manville, Dept. AF, Box 158, New York 16, N. Y. In Canada write 199 Bay Street, Toronto 1, Ontario.



TYPICAL PANEL CONSTRUCTION

A Noncombustible asbestos-cement surfaces.

B Generous reinforcing for added strength.

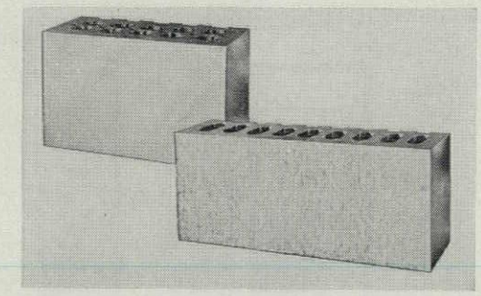
C Noncombustible all-mineral insulating core.

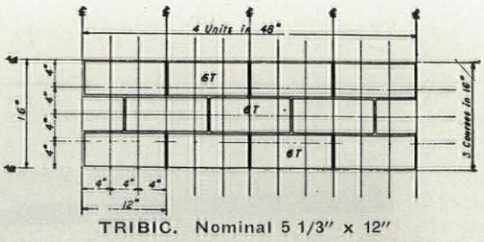
JOHNS-MANVILLE JM PRODUCTS **Johns-Manville**

TECHNICAL PUBLICATIONS *cont'd.*

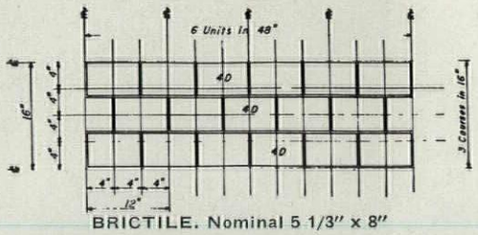
MASONRY. The New Measure for All Masonry —4" Module. Stark Ceramics, Inc., Canton 1, Ohio. 56 pp. 18" x 11¾"

A convincing piece of proselytizing (both for the 4" module and the manufacturer's product), this publication points out the economy of architectural planning to a uniform grid. It also catalogues and gives specifications for Stark's entire line of ceramic color glaze and tinted clear glaze structural facing tile.





TRIBIC. Nominal 5 1/3" x 12"



BRICTILE. Nominal 5 1/3" x 8"

clearly illustrates the layout procedure for numerous typical applications and pictures several completed installations.

LABORATORY EQUIPMENT. Better Laboratory Planning. Laboratory Equipment Section, Scientific Apparatus Makers Assn., 20 N. Wacker Dr., Chicago 6, Ill. 28 pp. 8½" x 11"

AIR CONDITIONING & REFRIGERATION. Freon Compressors 3,150 hp Bul. C-1100-B300C. Advertising and Sales Promotion Dept., Worthington Corp., Harrison, N.J. 12 pp. 8½" x 11"

REFRIGERATION & WATER SYSTEM EQUIPMENT. Worthington Equipment for Industry, Bul. WP-1099-B61. Worthington Corp., Harrison, N.J. 16 pp. 8½" x 11"

SAFETY TREADS. Wooster Safety Treads and Thresholds, Catalogue 54. Wooster Products, Inc., Wooster, Ohio. 12 pp. 8½" x 11"

STONE CLEANING. Maintenance and Restoration of Stone Structures. Western Waterproofing Co., Inc., 1220-27 Syndicate Trust Bldg., St. Louis 1, Miss. 8 pp. 8½" x 11"

TINTED ALUMINUM WALL PAINT. Opal-Glo . . . A Distinctive Opalescent Finish Developed for Professional Use. Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa. 4 pp. 8½" x 11"

HOT WATER HEATING. Hydrotherm High Temperature Water Systems for Large Area Heat Distribution, Bul. 100. American Hydrotherm Corp., 33-70 12th St., Long Island City 6, N.Y. 16 pp. 8½" x 11"

AIR CLEANING. Type H Washer for Electro-Cell, Bul. 252-E3. American Air Filter Co., Inc., Louisville 8, Ky. 4 pp. 8½" x 11"

STEAM & HOT WATER HEATING. Powermaster Packaged Automatic Boilers for Light Oil, Heavy Oil, Gas or Combination Gas-Oil Firing. Orr & Sembower, Inc., Reading, Pa. 4 pp. 8½" x 11"

HEAT AND POWER EQUIPMENT. Form 3048 Petro Burners—Oil Burners, Oil Pumps, Gas Burners, Combination Oil-Gas Burners. Petro, 3170 W. 106th St., Cleveland 11, Ohio. 20 pp. 8½" x 11"

Alcoa Building, Pittsburgh, Pa. — *Harrison & Abramovitz, Architects*

not 10%, Mr. Zeckendorf! 2% is plenty!

We agree with Mr. Zeckendorf that it's worth 10% of a job to achieve the distinction that enables the initial 90% to sell itself.* But if you can get the effect with less than 2% why spend more? The thousands of feet of beautiful marble used in the Alcoa Building in Pittsburgh actually cost only 1.7% of the total construction cost.

And that is the story of marble. It does two big things for every construction job, whether it's new building or remodeling. *First*, it *sells* the job, as no other material can: sells it to the owner, to the tenants, to the public. Second, it *completes* the job, in beauty, with economy, and for long years of low-cost service.

Literature Available FREE

"Proof that Marble costs less . . ."
"Marble in the Bank"
"Marble Forecast, 1953-1954"

MARBLE MIA INSTITUTE OF AMERICA, INC.
108 FORSTER AVENUE MOUNT VERNON, NEW YORK

*As discussed in Architectural Forum, June, 1953, pg 151 by William Zeckendorf, Pres., Webb & Knapp, Realtors.

MODERNIZATION vs. RENT CUTTING

While low rents give old office buildings a big advantage, tenants prefer modern amenities and are willing to pay for them

Excerpts from an address by James W. Bamford, manager of the Law & Finance Building in Pittsburgh, and past president of the Building Owners & Managers Association of Pittsburgh, delivered before the National Association of Building Owners & Managers.

I would rather manage an old office building than a new one, because of the differential in rental rates. During the 20-year hiatus of construction between 1928 and 1948, building costs doubled and in every city there is a differential of at least $1 per sq. ft. per year between the rates for the newer and older buildings. This gives the older buildings a tremendous advantage.

However, I should like to issue a very definite warning. There is no salvation for any older building faced with competition from newer buildings in the lowering of rents. Rental rates are not a very decisive factor in attracting new tenants, renting vacant areas or holding tenants. Most tenants want comfortable, modern, well-maintained offices in a building with an attractive address.

When office buildings rent space solely on a price basis, that space will not stay rented very long. There are a great many other factors which are important to every office building tenant: the character of the building, the type of tenancy, service to tenants, maintenance of the building, cleanliness of the offices, modern lighting, constant redecorating and, above all, a friendly interest in making the tenant happy in his business office. All of these are the things that keep older buildings in step with newer structures.

In the 20-year period when construction of new office buildings was at a standstill, the building industry made tremendous advances in the use of completely new materials. New floor coverings, for example, advances in lighting and use of plastics, new heat-resisting glass, new metals, advances in vertical transportation. All of these things have contributed to a "new look" for office buildings. However, just as medical science has made tremendous strides in lengthening the useful life of human beings, so the science of building management can do an equally spectacular job of lengthening the useful life of old office buildings.

What are the factors which date an office building and definitely mark the building as an "aging" structure? First, heavily ornamented entrances and old-fashioned entrance doors in contrast to the clean, simple lines of new construction; second, unattractive, badly lighted entrance lobbies with old-fashioned elevator doors and unattractive, hidden directory boards; third, old-fashioned, badly maintained, badly lighted elevator cabs (with this sort of equipment, you will usually find discourteous, careless, badly uniformed elevator operators).

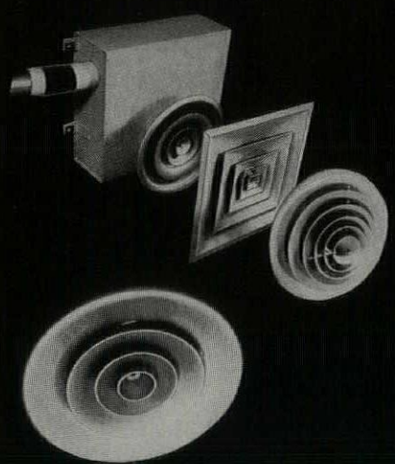
These three factors give every visitor his first impression of the structure, and that first impression is vitally important. These factors have a direct effect on rental rates and tenant appeal. Modernization, carefully planned, must also be extended to upper floor corridors where efficient and proper lighting and proper painting can work wonders. Have you ever looked at the public toilet rooms in your building with the cold, critical eye of a visitor who had never been in your building before? Nowhere in an office building does the age of

continued on p. 242

This is why you should always specify and buy

ANEMOSTAT

Air Diffusers



The largest selection of sizes and types for conventional or High Velocity Systems.

Proven performance and design for every engineering and architectural need.

A consistent record of prompt delivery and customer satisfaction

ANEMOSTAT®

DRAFTLESS *Aspirating* **AIR DIFFUSERS**

ANEMOSTAT CORPORATION OF AMERICA

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

REPRESENTATIVES IN PRINCIPAL CITIES

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

AC-1310

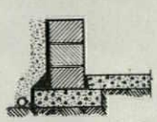
1772 AND 1907...
FAMOUS DATES IN WATER PROTECTION!

• In 1772 a citizen of Baltimore bought the first umbrella seen in America from a sailor returned from India. Its appearance caused women to shriek, horses to stampede, children hooted, and finally a mob seized and ripped the umbrella to shreds. But the umbrella has been with us ever since as a protection against water.

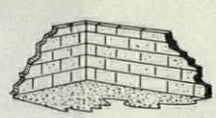
• In 1907 another famous event occurred in water protection. Dr. S. B. Newberry, a Medusa Portland Cement Company engineer, originated the first water repellents for masonry construction . . . Medusa Waterproofed Gray and White Portland cements and Medusa Waterproofing Paste and Powder. Their use since that time in concrete and mortar in thousands of buildings—buildings that today remain perfectly dry—is proof that Medusa's integral method of waterproofing does protect against the menace of moisture.

• If you want the best in water protection—always use one of the four Medusa water repellents wherever concrete and mortar is exposed to water above or below grade. Contact your nearest Medusa sales office for complete specifications.

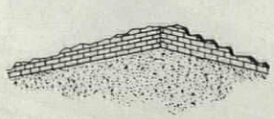
MEDUSA WATER-REPELLENT PRODUCTS



FOR FOOTINGS...

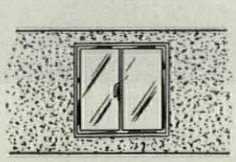


...FOUNDATION WALLS...



...BASEMENT FLOORS...

...MORTAR...



...AND STUCCO

MEDUSA Portland Cement Company

1000 Midland Building • Cleveland 15, Ohio

SALES OFFICES

Cleveland, Ohio
Chicago, Illinois — Toledo, Ohio
Pittsburgh, Pa. — New York, N. Y.
Milwaukee, Wisc. — York, Pennsylvania

WHITE • WATERPROOFED WHITE • GRAY
WATERPROOFED GRAY • AIR ENTRAINING • STONESET
HIGH EARLY STRENGTH • BRIKSET
WHITE TILE GROUT CEMENT

MAKERS OF AMERICA'S FINEST PORTLAND CEMENTS FOR OVER SIXTY YEARS

Sherwin-Williams Paints
selected for new

EDGEWATER TOWERS!

In the new 2½-million-dollar Edgewater Towers Apartments overlooking Lake Erie on Cleveland's West Side, Sherwin-Williams Paints were selected for all interior and exterior painting. Over 400 tenants in 205 suites are enjoying the pleasing harmonies of Sherwin-Williams color.

There is a Sherwin-Williams product for every interior and exterior painting need . . . a paint product designed especially for the job specified. Ask your Sherwin-Williams Representative for your copy of *Painting Specifications and Buyer's Guide*. This handy book will relieve you of many of the details of specification writing and will assure you the finest finish available for the job.

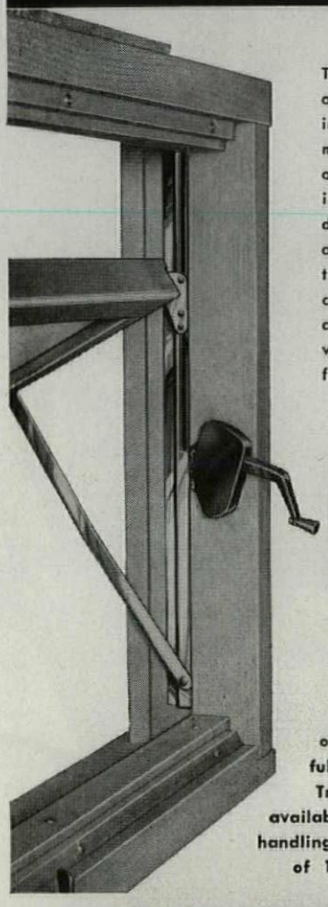
Fridy, Gauker, Truscott and Fridy, Philadelphia, Pa.
—*Associate Architects*
Byrne Organization, Inc., Washington, D. C.
—*Builders*
The Wm. Downie Co.
—*Painting Contractor*

COVER THE EARTH

SHERWIN-WILLIAMS

ARCHITECTURAL SERVICE DIVISION • CLEVELAND 1, OHIO

both sides of windows can be washed from the inside with the new Grand Rapids Ven-Trol-Gear

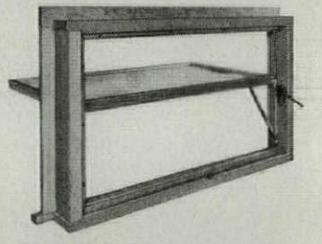


The popular new Grand Rapids "Ven-Trol-Gear" opening mechanism for window ventilating panels in the modern multi-panel window systems offers many exclusive advantages that appeal to owners of residential, monumental and commercial buildings. It swings ventilating panels outward and downward to any degree of opening desired to assure full view as well as the most efficient ventilation regardless of weather . . . opens and closes windows smoothly, quietly and easily . . . and permits easy washing of both sides of the window panes from the inside. See other important features listed below.

VEN-TROL-GEAR
VENT PANEL ACTUATOR
PATENT APPLIED FOR

FOR PANEL WINDOW SYSTEMS

Ventilating Panels open outward to a full 90°. Ven-Trol-Gears are available in 5 sizes handling a minimum of 15 openings.



MOST PRACTICAL AND EFFICIENT OPENING MECHANISM AVAILABLE TODAY

CHECK THESE FEATURES:

1. Fingertip gear-operated control — nylon rollers assure smooth, noiseless operation.
2. Operating mechanism fully concealed including hinging mechanism.
3. Handle grip location adjustable down 15° from horizontal position.
4. Positive locking mechanism fully concealed except for operating lever.
5. Designed for use on wood or metal windows with minimum frame opening height 1′ 0″ . . . maximum sash weight 40 lbs.
6. Can be used with any type of glazing up to 1″ including double glazing.
7. Can be used with any wall thickness or trim as mechanism is integral part of window.
8. Quick, easy installation — exposed controls finished in antique bronze enamel with special finishes available on request.

Make your A.B.C. for 1954..."Always be Competitive"

WRITE FOR ILLUSTRATED LITERATURE TODAY!

GRAND RAPIDS HARDWARE CO.
GRAND RAPIDS 2, MICHIGAN
NEW YORK • LOS ANGELES • DANBURY, CONN.

FORUM was first
to present . . .

all the buildings which won Architectural League Gold Medal Awards

Since 1950, the Architectural League of New York has awarded the Gold Medal in Architecture to six celebrated buildings . . .

1950 Welfare Building, US Naval Training Station, Great Lakes, Illinois, by Skidmore, Owings & Merrill.
The Museum of Modern Art, New York City, by Louis C. Jaeger associated with Edward D. Stone.

1951 Harvard University Graduate Center, Cambridge, Massachusetts by The Architects Collaborative.

1952 Hotel Panama, Panama City, Canal Zone, by Edward D. Stone

1953 Fitchburg Youth Library, Fitchburg, Massachusetts by Carl Koch.

1954 Lever House, New York City, by Skidmore, Owings & Merrill.

Read FORUM and see the Architect's favorite buildings first.

Subscribe today—
basic professional rate for a 1-year subscription to U.S.A., Possessions, Canada, Philippines & the Pan American Union—$5.50

architectural forum

540 North Michigan Avenue
Chicago 11, Illinois

TRADITIONAL OR CONTEMPORARY

TOP: CHRISTIAN CENTER BLDG., MILLSAPS COLLEGE, Jackson, Miss.
Architects: N. W. Overstreet & Associates
Contractor: Howie Construction Co.

BOTTOM: PAN AMERICAN LIFE INSURANCE BUILDING, New Orleans, La.
Architects: Skidmore, Owings & Merrill
Contractor: George J. Glover Co., Inc.

Combine **BEAUTY OF DESIGN** with **LOW-COST MAINTENANCE**

The design and style of a building may vary, depending upon taste as well as its functional requirements. But regardless of its style, you can enhance its beauty of design, and at the same time assure lowest possible maintenance costs if you specify "Quality-Approved" aluminum windows. No other single building material adds so much to a building's appearance, or subtracts so much from its maintenance budget.

"Quality-Approved" aluminum windows are available in all types—double-hung, casement, awning and projected—to fit your architectural style and plans exactly. They cannot rust or rot, never need painting or costly repairs. They always operate without trouble and they remain beautiful for the life of the building. That's why each year more architects specify more aluminum windows for more jobs.

For a copy of our 1954 Window Specifications Book, see Sweet's (16a/ALU) or write to Dept. AF-5.

BEFORE YOU BUY LOOK FOR THIS SEAL

insist on *Quality Approved*

ALUMINUM WINDOWS

Aluminum Window Manufacturers Association

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

MEMBERS: Alcasco Products, Inc., Muskegon, Mich. • Aluminum Home Products Co., Knoxville, Tenn. • The Wm. Bayley Co., Springfield, Ohio • Ceco Steel Products Corp. (*Sterling Aluminum Window Division*), Chicago, Ill. • Cupples Products Corp., St. Louis, Mo. • Fentron Industries, Inc., Seattle, Wash. Michael Flynn Mfg. Co., Philadelphia, Pa. • General Bronze Corp., Garden City, N. Y. • Hunter Mfg. Corp., Bristol, Pa. • Metal Arts Mfg. Co., Inc., Atlanta, Ga. • Miami Window Corp., Miami, Fla. • Reynolds Metals Co. (*Parts Division*), Louisville, Ky. • J. S. Thorn Co., Philadelphia, Pa. • Timm Industries, Inc., Los Angeles, Calif. • Universal Window Co., Berkeley, Calif. • Ware Laboratories, Inc., Miami, Fla. • Windalume Corp., Kenvil, N. J.

the building stand out so prominently as in the public toilet rooms. The same "aging" process certainly extends to rentable areas. Badly lighted, poorly painted rooms are a certain mark of a building which is growing old and not doing so very gracefully.

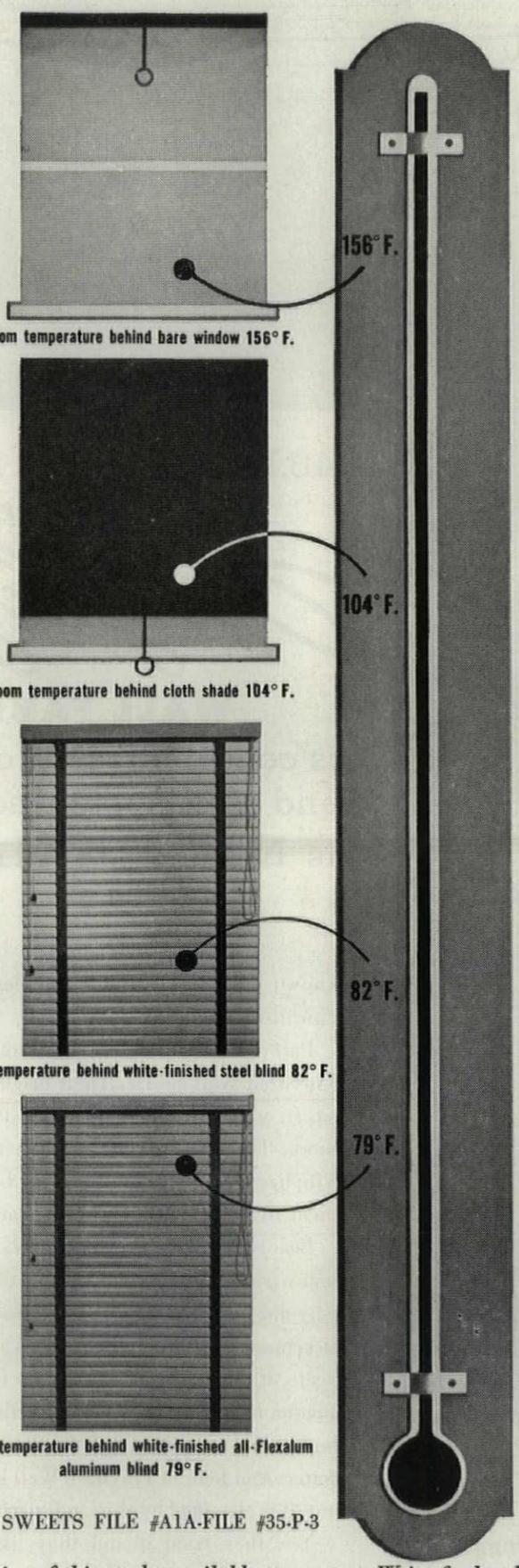
Most building managers are aware that any system of lighting in an office building more than ten years old is obsolete and should be replaced. This is a prerequisite to meeting the competition of new construction. Not too many years ago, 10 to 15 foot-candles on the working plane was considered reasonably good lighting for office space. Today the lighting industry is using from 35 to 50 candles and the end is not yet in sight. If we are to meet these new demands for better lighting, it may even be necessary to install heavier wiring in some of our older buildings, but if we fail to meet the demands, we will face the threat of decreased income and vacancies. Fluorescent lighting, in my opinion, is just beginning to come into its own, and there will be many improvements in this type of lighting in the next few years.

A complete change of color and redecorating of an office building can and does work miracles in disguising its old age. However, colors used with incandescent lighting are completely unsuited to fluorescent lighting. Lighter colors in pastel shades are being used extensively in the newer buildings, and the older buildings must adopt satisfactory color schemes if they are to hold existing tenants and maintain rental income.

In this connection I made a test some years ago. I had two offices, identical in size. One of them was poorly lighted and painted in the typical tan shade then prevalent in office buildings. The other was improved with the latest type of incandescent lighting and with light pastel colors. I priced the newly decorated and properly lighted office at $65 per month and the other office at $50, but I was very careful to tell prospects that the badly lighted and badly decorated office could be properly lighted and decorated. The first two prospects to whom I showed the new office insisted on paying the extra $15 per month, and they would not believe that the other office could be made to look like the properly lighted and properly decorated room. This convinced me that lighting and painting have a definite rental and sales value.

During the past five years we have conducted in Pittsburgh a well-organized, hard-driving campaign to get building owners to clean the exterior of their buildings. The campaign was well supported and a great many of the downtown buildings emerged from behind a coating of dirt and grime with some surprising results. Some of the buildings which had been almost black emerged with gray limestone or pink sandstone, and I am certain that this clean-up campaign contributed greatly to the improved appearance of our central business district. I highly recommend such a campaign in any large city because following the exterior cleaning, the owners of most buildings moved indoors and started to modernize interiors. This campaign was responsible for lowering the apparent age of buildings in the Golden Triangle by at least ten years.

I have not discussed air conditioning for the older buildings because I am not yet convinced that the use of air conditioning in office buildings has developed far enough to become a serious competitive factor, nor do I believe that tenants are prepared to pay approximately 75¢ per sq. ft. additional rental per year in order to have their office air conditioned. I believe that we shall have to watch this development very carefully and the time may come when we will have to provide air conditioning service in order to hold our competitive position. This will present some rather serious problems for the older buildings.



room temperature behind bare window 156° F.

room temperature behind cloth shade 104° F.

room temperature behind white-finished steel blind 82° F.

room temperature behind white-finished all-Flexalum aluminum blind 79° F.

SEE SWEETS FILE #A1A-FILE #35-P-3

no window covering controls temperature like the all-*Flexalum* blind

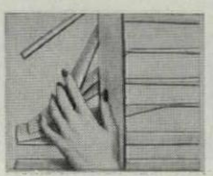
An objective study by the Faber Birren Company* shows: the all-FLEXALUM aluminum blind controls room air temperature more effectively than any other window covering—including venetian blinds made with other materials. An even more dramatic difference was obtained by measuring the surface temperatures of unfinished FLEXALUM aluminum and raw steel exposed to solar heat... the FLEXALUM reading was 19° F. lower. This study points to all-FLEXALUM blinds as an effective way to reduce heat.

THE AMERICAN INSTITUTE OF ARCHITECTS MEMBER THE PRODUCERS' COUNCIL

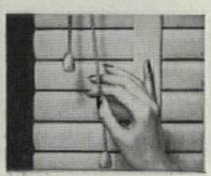
REPLACEMENT OR REFUND OF MONEY Guaranteed by Good Housekeeping IF NOT AS ADVERTISED THEREIN

only all-Flexalum blinds have all these long-life and low-maintenance advantages:

Wipe-Clean Plastic Tapes—Won't fade, fray, shrink or stretch.



Spring-tempered aluminum slats—Snap back to perfect shape. Won't rust, chip, crack or peel.



Long-Wear Nylon Cords—Won't fade or fray. Tassels are noiseless, unbreakable plastic.

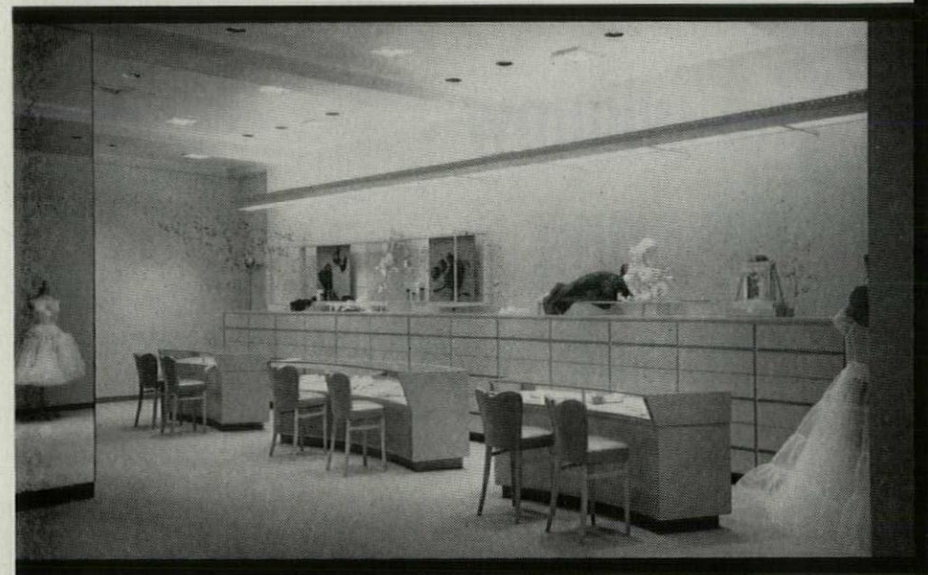
**Copies of this study available on request. Write for local Flexalum sources, free file of venetian blind information*

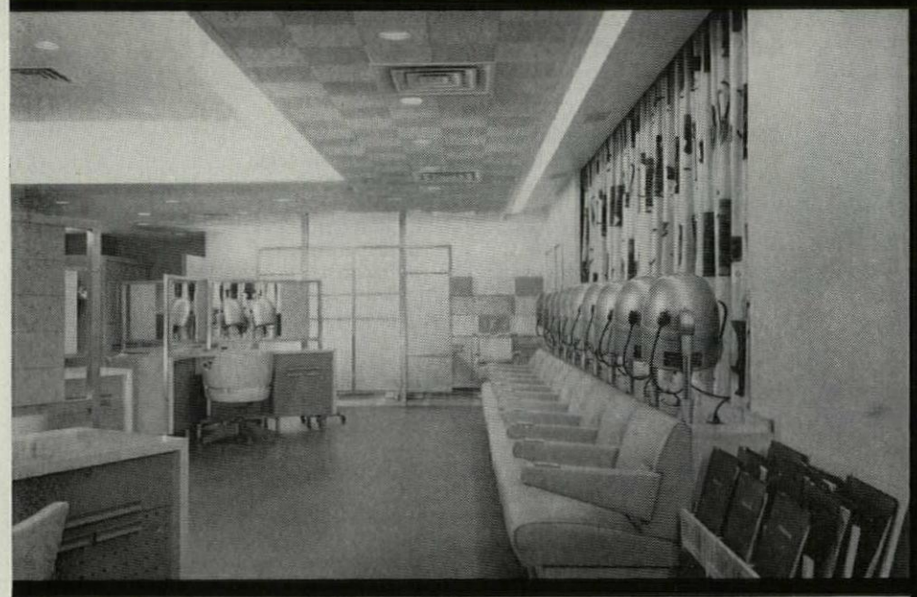
HUNTER DOUGLAS CORP., 150 BROADWAY, NEW YORK 38, N. Y. • IN CANADA, HUNTER DOUGLAS LTD., MONTREAL 3, QUEBEC

✓ They tried it...
✓ They liked it...
✓ They came back for more!

Architecture by DeWitt & Swank, Dallas • Designer Eleanor LeMaire & Associates, New York

Photographs by Ezra Stoller





(top illustration) Lingerie Department, Neiman-Marcus Store, Dallas, Texas
(bottom illustration) Beauty Salon, Neiman-Marcus Store, Dallas, Texas

Joanna Vinylized Wall Fabric is recommended and approved by the Wallpaper Research Bureau of the Painting and Decorating Contractors of America.

Write today for Sample Folder S22—the same one that sold Neiman-Marcus.

JOANNA WESTERN MILLS CO. • 22nd & S. Jefferson • Chicago 16, Ill.

Canadian Representative: DALY & MORIN LTD., Lachine, Montreal, Quebec, Canada
JOANNA WESTERN MILLS CO., Export Division: 1 Exchange Place, Jersey City 2, N. J., U.S.A.

48,132 SQUARE FEET OF

JOANNA

Vinylized

WALL FABRIC

is contributing its distinction and color to the elegance that is NEIMAN-MARCUS

The Dallas store of Neiman-Marcus is known the world over for the elegance it brings to downtown shopping.

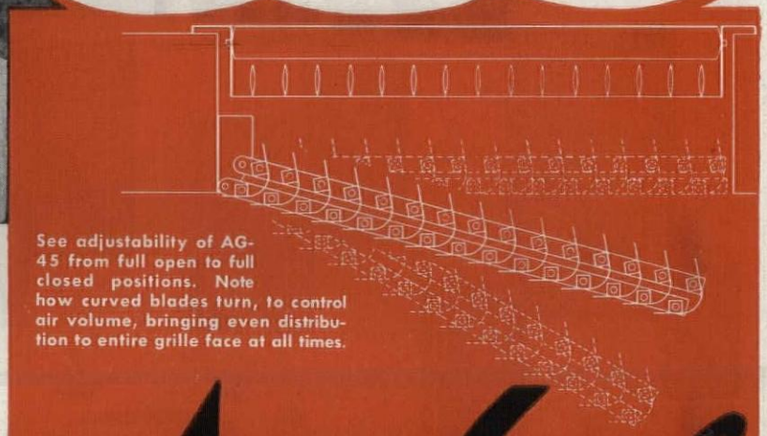
Part of the beauty that is Neiman-Marcus is Joanna Vinylized Wall Fabric. Their original order of 4,500 sq. ft. was supplemented in 1953 by 43,632 sq. ft. more. The attractive colors and texture of Joanna Vinylized Wall Fabric proved to be another inducement to women to shop at Neiman-Marcus.

Beauty is only part of the story, however. With so many possibilities of wall decoration to choose from, why did the management select Joanna? The answer is economy. Joanna Vinylized Wall Fabric lasts for years, it cuts decorating costs to the bone. You see, Joanna is built to take heavy punishment. It resists bumps and scrapes . . . dirt washes off with soap and water. And Joanna Vinylized Wall Fabric is fire resistant, it is classified by the Underwriters' Laboratories.

Yes, they tried it and they like it . . . and they came back for more.

NEW ADJUSTABLE DOUBLE DUTY AIR VOLUME EXTRACTOR & CONTROLLER

FACTORY ASSEMBLY SAVES UP TO 50% OVER SLOW HAND-MADE METHODS



See adjustability of AG-45 from full open to full closed positions. Note how curved blades turn, to control air volume, bringing even distribution to entire grille face at all times.

11 TREMENDOUS ADVANTAGES:

1	FACTORY ASSEMBLED
2	INSTALLS WITH 2 SCREWS
3	Double Duty Extractor & Vol. Controller
4	Replaces Extra Vol. Controller
5	Equalizes Air Distribution & Air Flow
6	Turns Air from Main Duct
7	Reduces Pressure Losses
8	Stops Excess Turbulence
9	Low Cost
10	Rattle Free
11	14 & 20 Gauge Steel

Air Foil

AIR CONDITIONING OUTLETS

Slash unit costs with this amazing new Titus AG-45. Make it easy for yourself to *keep bids low.* Use this *cost saver* to beat competition. Eliminate the extra work of putting in volume controllers. Save time, labor. IMPROVE THE AIR CONTROL EFFICIENCY OF EVERY INSTALLATION. Get complete free information now. Order a sample AG-45 today. Remember, not until you have one of these AG-45s in your hand, can you see its *amazing cost-saving value.* IMMEDIATE DELIVERY.

Free

Check Type of Grille on Which Information Is Desired:

- ☐ Air conditioning outlets
- ☐ Return air grilles and registers
- ☐ Volume controllers
- ☐ Perforated metal and ornamental grilles
- ☐ Industrial grilles
- ☐ Special made-to-order grilles.

TITUS MANUFACTURING CORP., WATERLOO, IOWA

- ☐ RUSH information on AG-45 Extractor & Controller
- ☐ Send complete catalog
- ☐ Send literature on above checked items

NAME _____

ADDRESS _____

CITY _____ STATE _____

continued from p. 153

work on the old buildings. He adds: "These older buildings will get some protection from lower rents, but not enough to keep them from having to dress up."

Architect Alan Fisher: "Owners and landlords have had it their way too long. What has been done so far has been on an individual tenant basis, but the day is coming when management will have to do the buildings over to keep their tenants." Muchow backs this up, saying: "Management will have to step into the picture; this job cannot be done on an individual tenant basis."

Mountain air vs. air conditioning

Air conditioning is a particularly sore point. Knowles of Van Schaack says flatly: "It is economically unfeasible in many of these older buildings. Up to a couple of years ago no one thought anything about it in Denver. It is safe to say it is not needed more than ten days in a year, but the new buildings needed a gimmick to sell all their office space. Air conditioning is that gimmick." Van Schaack has not put air conditioning in any of its buildings, but individual tenants like Ideal Cement, Argo Oil and others have included it in their remodeling in Van Schaack buildings. (Van Schaack offers air conditioning to individual tenants who will have to pay the price.)

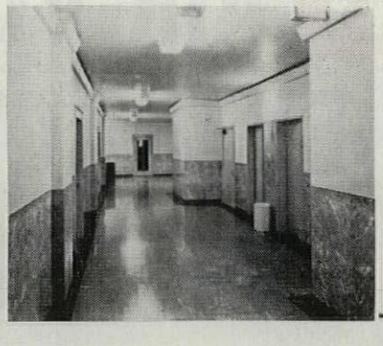
Hackstaff of Ross Investment says: "We are investigating the air-conditioning problem. Actually air conditioning in Denver is not warranted and most of Denver's older office buildings present a horrible problem in air conditioning, economically speaking. However, talk of air conditioning in the new buildings has convinced many of our tenants it is a great thing. Some of them have put in their own units and we charge for the extra electricity. However, we realize that this is no permanent solution."

Garrett of Garrett-Bromfield also poo-poos air conditioning, says he certainly would not pay an extra $1.50 per sq. ft. to have it in his office. He simply does not think it is needed in Denver. "We've got our own natural air conditioning," he says, pointing out the window to the nearby front range of the Rockies.

Evans of Cheesman Realty says: "So far the pressure for air conditioning has not been too heavy. It presents a tremendous problem in the old buildings, but I suppose when the new air-conditioned buildings are up we'll have to put it in."

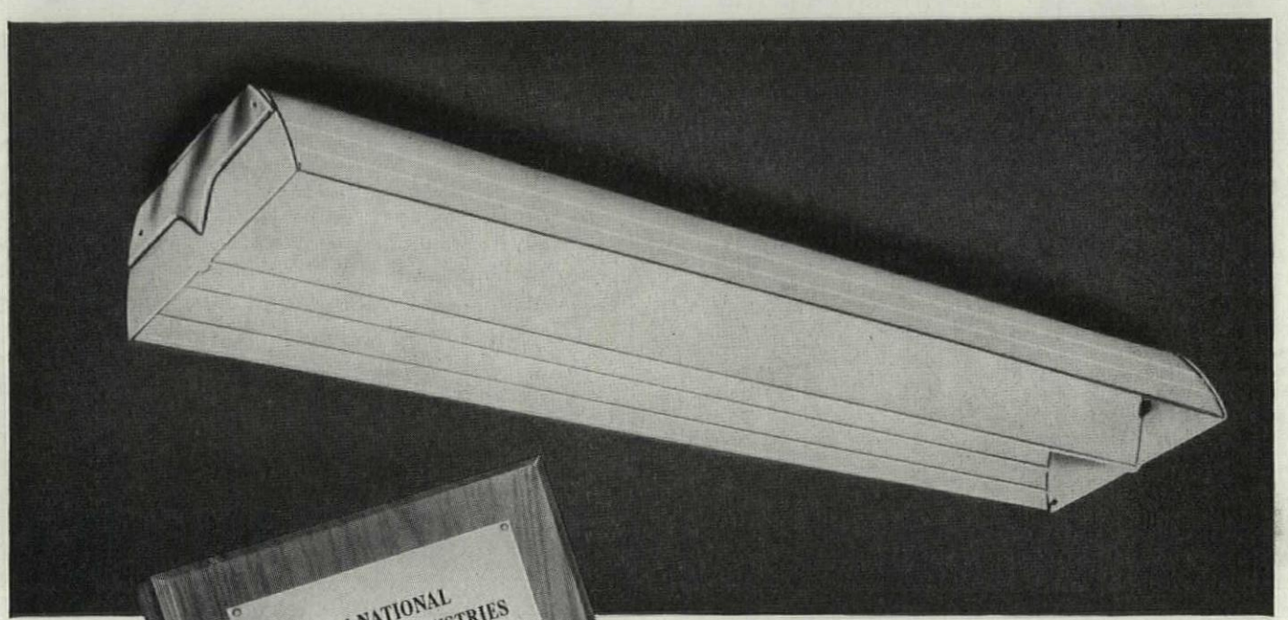
Architect Fisher also thinks the older buildings will be forced to provide air conditioning. "People here have been oversold by Chamber of Commerce talk about our weather; they don't realize that air conditioning is not merely cooling in summer but provides fresh, filtered air the year around. It's got to come."

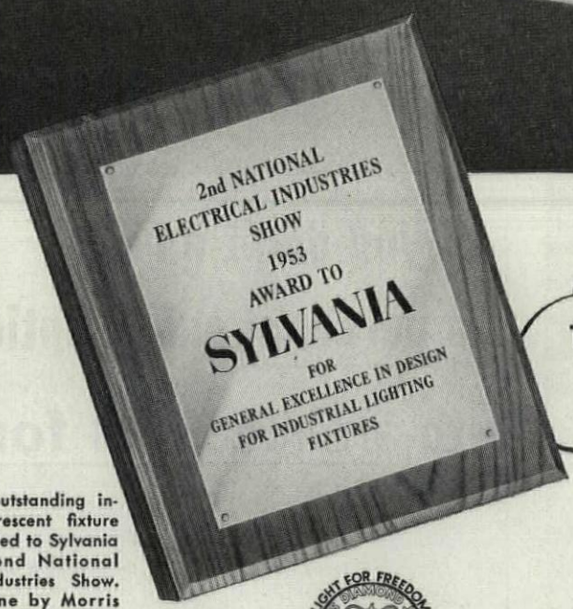
C. W. Brown



Interior remodeling of Johnson Building, done several years ago, features new wainscoting and fresh paint; new elevators were installed in earlier stage of program.

ARCHITECTS! Specify Sylvania... the award-winning fluorescent fixture!





Plaque for outstanding industrial fluorescent fixture design awarded to Sylvania by the Second National Electrical Industries Show. Judging done by Morris Lapidus and Francis Gina, members of the New York Chapter of the A.I.A.

Any way you look at it, this new Sylvania IC Series of Fluorescent Fixtures is a winner. Its appearance is smooth, smart, and harmonious. Its efficiency is unsurpassed by any similar type fixture, and it offers economy of installation and maintenance.

Wonderfully versatile!

This fixture meets the needs of scores of applications. Available in 4, 5, and 8-foot lengths, with deep "V" reflector and side panels, they provide 45° crosswise shielding. The addition of louvers provides 45° longitudinal shielding. Also may be equipped with the new T-17 low-brightness lamps for critical seeing tasks (42° crosswise shielding for this lamp).

Metal parts are Bonderite treated to resist deterioration. Channels, shielding, and steel panels finished in Sylvania's Miracoat baked enamel give 86% reflectivity.

For full details and the latest specification sheets call your nearest Sylvania Representative or write to Dept. 4X-1205, Sylvania.

LIGHT FOR FREEDOM
POWER FOR PROGRESS

SYLVANIA

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

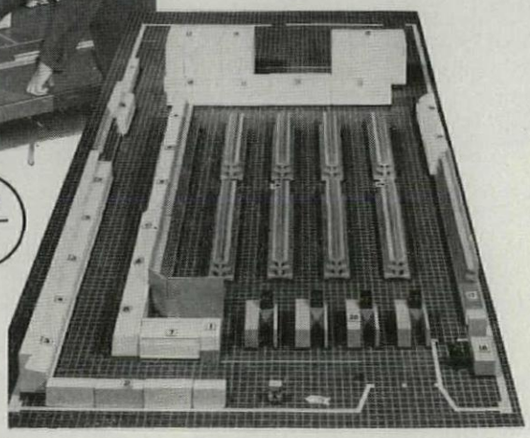
In Canada: Sylvania Electric (Canada) Ltd.
University Tower Bldg., St. Catherine Street, Montreal, P. Q.

LIGHTING · RADIO · ELECTRONICS · TELEVISION

Food store planning assistance available to Architects

—BACKED BY MORE THAN 25 YEARS EXPERIENCE IN THE MANUFACTURE OF FOOD REFRIGERATION EQUIPMENT AND MANY THOUSANDS OF CALLS YEARLY ON SUCCESSFUL FOOD STORE OPERATORS!

The Tyler Store Planning Department can help you take advantage of the latest ideas in food store planning and operations, with new Tyler food refrigeration equipment. For help on your problems, at no obligation to you, write Tyler Refrigeration Corporation, or call your nearest Tyler Agent.



NOW IN SWEET'S CATALOG 23c / Ty

Tyler manufactures the most complete line of refrigerators, display cases, storage freezers and coolers for: supermarkets; food stores; restaurants; hotels; institutions; drug stores; etc.

TYLER

Write Store Planning Department
Tyler Refrigeration Corporation, Niles, Michigan

Installation on remodeled office building

Sun glare and heat no longer a problem where large glass areas are specified in your plans

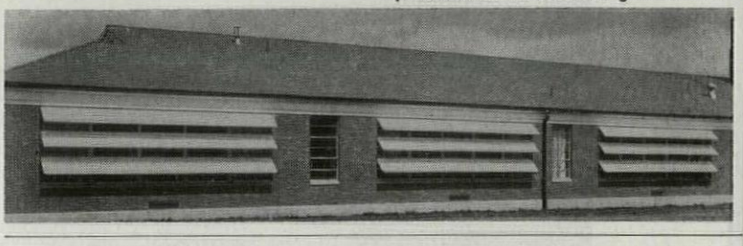
TROY

Louvered metal awnings are the answer!

Glass areas are becoming larger, heat and light problems are becoming more acute. You need a functional awning, with horizontal louvers to preserve and retain harmonious architectural lines. Troy awnings of rustproofed steel, with baked enamel finish, offer remarkable life expectancy. We have a brochure prepared to give you complete details. Ask for it—no obligation.

The TROY SUNSHADE CO., TROY, OHIO

Installation on functional grade school.



Snow white **ROMAN ROCK FACE** (shown here) is one of many distinctive new ceramic creations produced by Malvern Brick and Tile Company in addition to a complete line of structural clay products. For inspiring new colors, textures and sizes choose from our wide selection. Send for illustrated literature.

For the finest in brick . . . for individuality to fit every type of architecture, specify products manufactured by

MALVERN
BRICK & TILE COMPANY
200 Grigsby Ford Road
MALVERN, ARKANSAS
Manufacturers of Fine Structural Clay Products Since 1925

If you don't have a personal subscription to architectural forum

. . . start your subscription right now to the only magazine that fully reports today's *new thinking* on the planning and design of *big* buildings

. . . *prophetic* buildings by the foremost architects in practice

. . . *significant* buildings that set the pace with new engineering concepts, construction methods and materials

. . . *practical* buildings that give their owners a more profitable investment

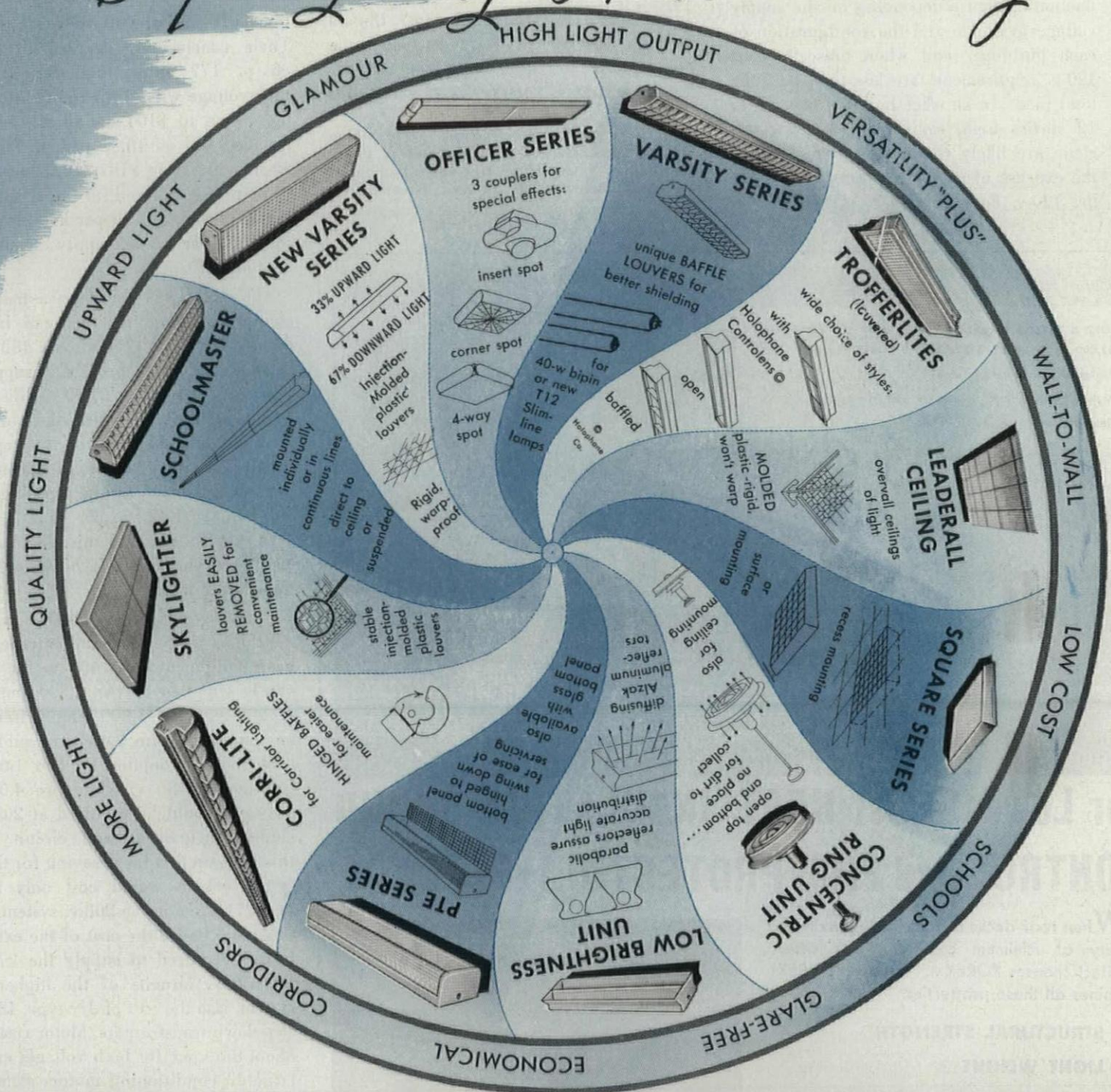
. . . *outstanding* buildings of all kinds presented in detail to show you what the architect did on the project—and *why*. To enter your subscription . . .

send the subscription form bound in this issue

Just sign it and drop it in the mail. We'll enter your subscription immediately.

ARCHITECTURAL FORUM
540 North Michigan Avenue, Chicago 11, Illinois

the Benjamin Leader Line...First in Versatility



Nothing is left to chance or compromise when you choose from the Benjamin Leader Line "Wheel of Versatility." One look at the wide range of fixtures and features tells why the Benjamin Leader Line is FIRST in Versatility, no matter what your basis for selecting lighting equipment. Be it first cost or economical upkeep...lighting for effect or high footcandle levels...whether you're trying to match existing architectural treatment or striving to achieve a new, modern decor...Benjamin Leader Line VERSATILITY enables you to find exactly the lighting unit you need. FREE Catalog Data Sheets contain complete details.

BENJAMIN

Leader Line

Sold Exclusively through Electrical Distributors

Exclusive licensee of the Leader Line in Canada: Robertson Irwin Limited, Hamilton, Ontario

B-330AFJ

Benjamin Electric Mfg. Co., Leader Division, Dept. YY, Des Plaines, Illinois, also makers of famous Benjamin lighting equipment and sound signals for Industry, Institutions and Commerce.

load of more than about 2,800 kva (a fluctuating figure depending on the supply voltage available and the configuration of each building) and where miscellaneous 120-v. requirements are less than half the total load. In an office building over 10 to 12 stories high, savings on 480-v. risers alone are likely to amount to more than the expense of step-down transformers for the 120-v. floor circuits.

Comparative studies, 208Y/120 v. vs. 480Y/277 v.

In an important study last Jan.* Donald Beeman and H. D. Kurt calculated the comparative cost of conventional 208Y/-120-v. wiring vs. 480Y/277-v. wiring for typical 10-, 20- and 40-story office buildings. Their conclusions, detailed in the table on p. 177 show that the savings of high-voltage wiring for the ten-story building comes to $104,520 in all, $17.30 per installed kva or 16.3¢ per sq. ft.; for the 20-story building $137,717, $23 per kva or 21.5¢ per sq. ft.; and for the 40-story building $317,640, $26.50 per kva or 24.8¢ per sq. ft. These savings apply equally well to new or existing buildings.

The study was based on a modern air-conditioned building that can be served from either 208Y/120-v. or a 480Y/277-v. network. If only the 208-v. supply were available, however, 480-v. distribution could still be used within the building by installing autotransformers to step up the supply voltage, at a cost of $8 per kva.

Electrical loads of the building: power, 567 kva, or 1.42 va. per sq. ft.; lighting, 4 va. per sq. ft.; and miscellaneous 120-v. loads, 1½ va. per sq. ft. of rentable area—total 3,622 kva.

Main savings for the 480-v. system are developed in the riser and entrance switchgear equipment. At 480 v. the building can be supplied by two 2,500 amp. risers; at 208 v. four 3,000 amp. risers would be required. The 2,480 kva subbasement load can be supplied by two 1,600 amp. busways at 480 v. while two 4,000 amp. busways would be required at 208 v. Including switchgear and circuit breakers this adds up to a large saving for the 480-v. system which would cost only $112,000 vs. $271,575 for the 208-v. system. Against this must be set the cost of the extra panel boards required to supply the 277-v. and the 120-v. circuits of the higher voltage system, also the cost of dry-type, 480/120-v. step-down transformers. Motor costs remain about the same for both voltages except for large air-conditioning motors over 500 hp, but motor controls are cheaper: 480-v. 15-hp starters list at $162 compared with $203 for a 208-v. unit.

Electrical loads for air conditioning

The spark initiating a complete rewiring program is often set by the decision to provide air conditioning. A rewiring program should therefore be adequately designed to allow for it. The average electrical load for air conditioning, reported by the AIEE:

Banks or department stores...5 to 7 va. per sq. ft.
Hotels (for bedrooms).....1.3 va. per sq. ft.
Offices .....4.2 va. per sq. ft.
Restaurants .....13.5 va. per sq. ft.
Theaters .....15 va. per sq. ft.

* American Institute of Electrical Engineers Conference Paper, Jan. '54. "High Voltage Power Distribution Systems for Large Office Buildings," by Donald Beeman & H. D. Kurt, General Electric Co.

aluminum WINDOWS *by* GENERAL BRONZE

● Whether the hospital building you plan is to be a part of a large medical center in a metropolitan city like the one shown here or a small, one story all-purpose hospital in a small town, there's one thing to keep in mind. Low annual maintenance costs are of paramount importance in enabling any hospital to meet its budget.

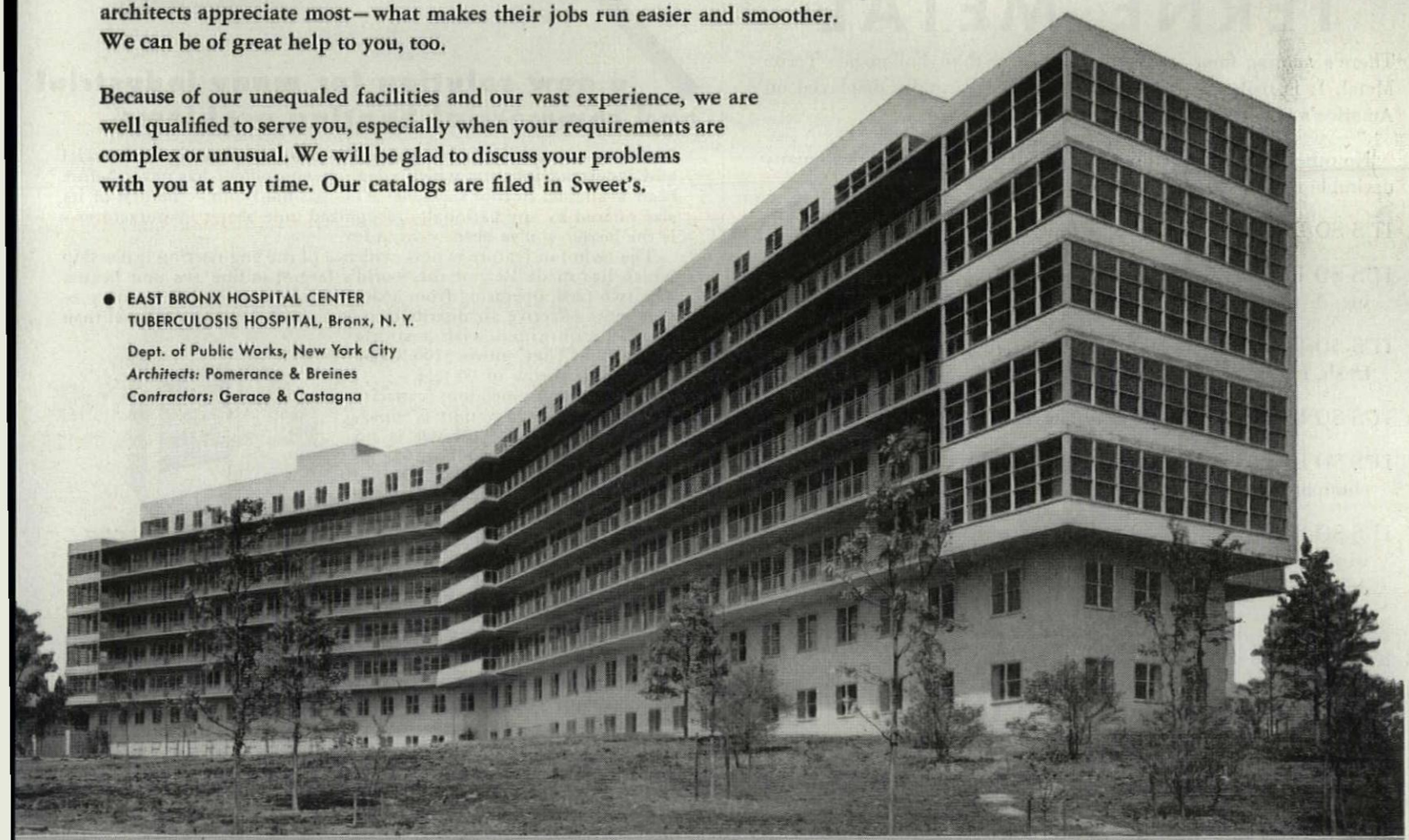
Because aluminum windows by General Bronze satisfy every requirement for permanent beauty, easy, efficient operation, controlled ventilation, freedom from cold drafts and rain, and because they never need painting and are easy on the annual maintenance budget, they are preferred and specified by leading architects and by hospital authorities in every section of the country.

QUALITY APPROVED

A.W.M.A. Quality Specifications—Materials, Construction, Strength of sections and Air Infiltration requirements—confirmed by Pittsburgh Testing Laboratory.
MEMBER—ALUMINUM WINDOW MANUFACTURERS ASSOCIATION

As you plan new buildings—hospitals, schools, apartments or commercial buildings—take full advantage of the service and 40 years of practical experience General Bronze offers in solving your problems as they pertain to windows, spandrels, curtain walls and architectural metal work. We know from experience what kind of help architects appreciate most—what makes their jobs run easier and smoother. We can be of great help to you, too.

Because of our unequaled facilities and our vast experience, we are well qualified to serve you, especially when your requirements are complex or unusual. We will be glad to discuss your problems with you at any time. Our catalogs are filed in Sweet's.

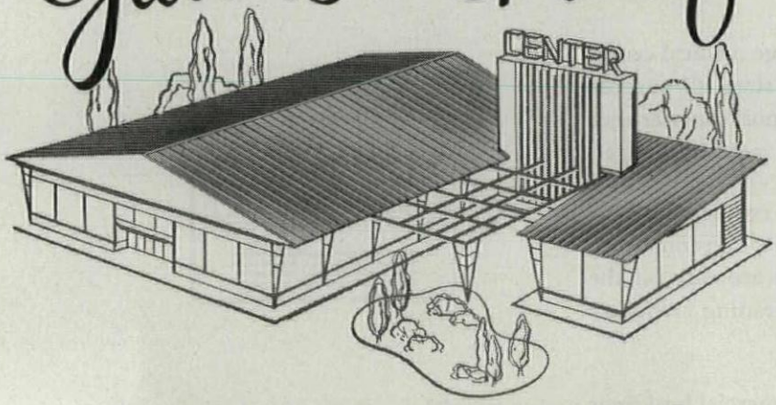


● EAST BRONX HOSPITAL CENTER
TUBERCULOSIS HOSPITAL, Bronx, N. Y.
Dept. of Public Works, New York City
Architects: Pomerance & Breines
Contractors: Gerace & Castagna

GENERAL BRONZE CORPORATION • GARDEN CITY, N. Y.

PERMATITE DIVISION—Custom-built Windows, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Residential Aluminum Windows.
BRACH MFG. CO. DIVISION—Multel, T. V., Radio and Electronic Equipment STEEL WELDMENTS, INC. DIVISION—Custom fabrication in steel and iron.

AMERICA'S *Glamour Roof*



FOLLANSBEE TERNE METAL

There's *nothing* finer in roofing *anywhere* than Follansbee Terne Metal. It is truly America's glamour roof—proudly displayed on America's finest buildings.

No other roofing material offers architects and builders so many desirable features.

IT'S SO DURABLE . . . lasts as long as the building stands!

IT'S SO BEAUTIFUL . . . different seaming methods offer exciting, distinctive design opportunities.

IT'S SO COLORFUL . . . paint it any color, any time. Keep that fresh, modern look year after year.

IT'S SO LIGHT . . . weighs only 70 lbs. per 100 sq. ft.

IT'S SO EASY TO APPLY . . . 50-ft. seamless rolls cover quickly, eliminate cross seams, save construction time.

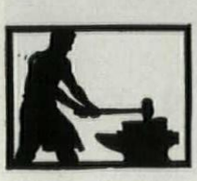
IT'S SO WEATHER PROOF . . . keeps weather *outside*. Fireproof, windproof, hailproof, easily grounded. The perfect answer to drainage problems of low-pitched roofs!

Be *sure* your plans include Follansbee Terne Metal "Glamour" Roofing. Write for complete details today.

FOLLANSBEE STEEL CORPORATION

GENERAL OFFICES, PITTSBURGH 30, PA.

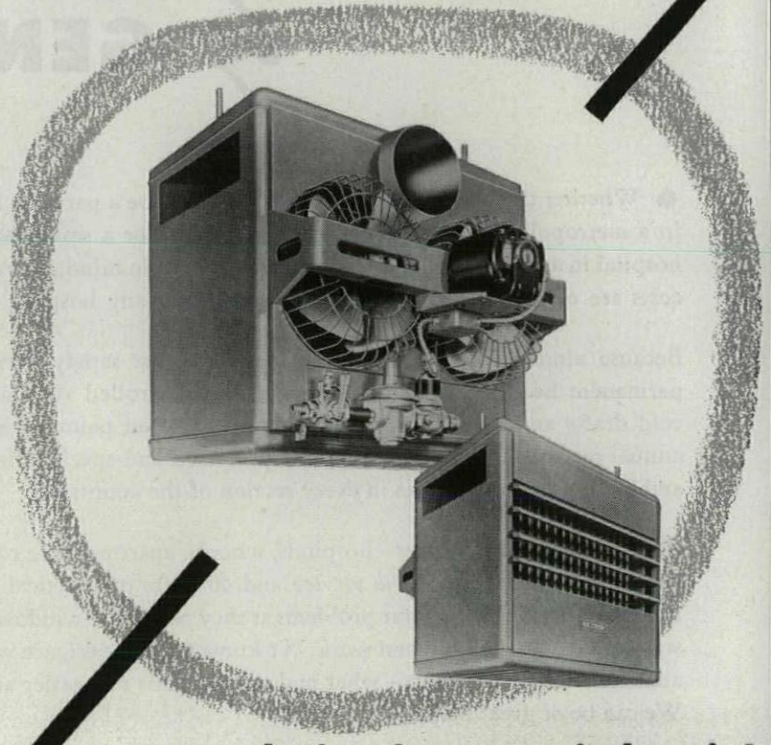
COLD ROLLED STRIP **SEAMLESS TERNE ROLL ROOFING**
POLISHED BLUE SHEETS AND COILS



Sales Offices—Chicago, Cleveland, Detroit, Indianapolis, Kansas City, Los Angeles, Milwaukee, Nashville, New York, Philadelphia, Rochester, San Francisco, Seattle; Toronto and Montreal, Canada.
Mills—Follansbee, W. Va.

FOLLANSBEE METAL WAREHOUSES
Pittsburgh, Pa. **Rochester, N.Y.** **Fairfield, Conn.**

NEW – Reznor's 250,000 BTU twin-fan gas unit heater



a new solution for many industrial and commercial heating problems

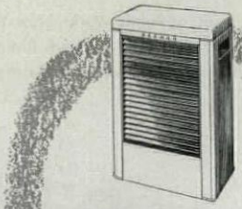
Now you can specify Reznor gas unit heaters on those big commercial and industrial jobs for which adequate equipment has never before been available. Reznor's 250,000 BTU gas-fired unit – the first of its size offered by any nationally-recognized unit heater manufacturer– is the heater you've been waiting for.

The twin-fan feature is new evidence of the engineering leadership which has made Reznor the world's largest-selling gas unit heater. The two fans, operating from a single heavy-duty ¼ HP motor, provide more effective air distribution at a much lower noise level than could be obtained with a single larger fan. They move 3200 CFM with an air throw of 90 feet.

Despite its tremendous capacity and power, the new unit is amazingly compact. The cabinet is no higher than on Reznor's 175,000 BTU heater: 33½". The 250,000 BTU model is 36" wide and 40-3/16" deep overall; cabinet depth is 24⅝".

For more details on this revolutionary new heater, write today for your copy of specification sheet NPS-5401A. For the whole story on the complete Reznor line, ask for a copy of Catalog GN-52 or see it in Sweet's Architectural File.

The Reznor Manufacturing Company, 40 Union Street, Mercer, Pennsylvania.



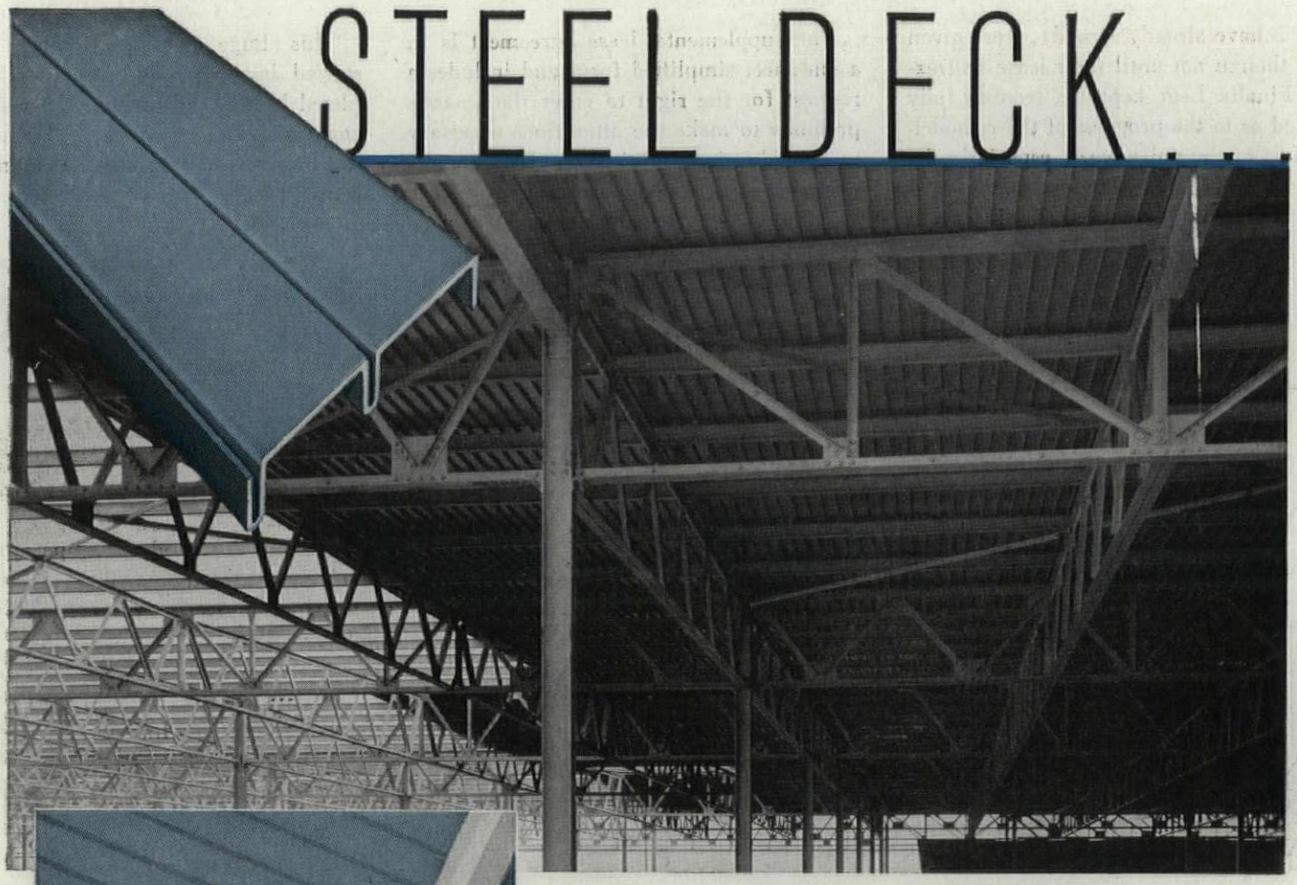
only Reznor room heaters have these 4 exclusive features

- Wall Thermostat
- Adjustable Vertical *and* Horizontal Louvres
- Two-Speed Fan
- Independent Fan Control

3 sizes—handsome, furniture-styled cabinets — for primary or supplemental heating in stores, offices and homes.

REZNOR
THE WORLD'S LARGEST-SELLING GAS UNIT HEATERS

STEEL DECK . . .

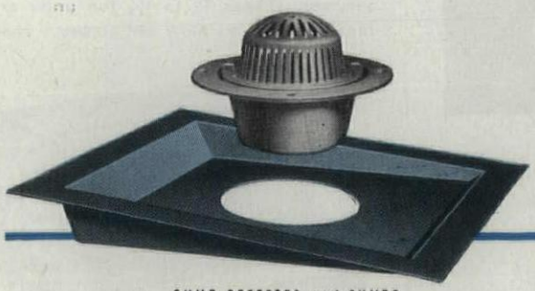


BUILT-UP SADDLES ELIMINATED

Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting, fitting or bending necessary.

Now Provides SAFEST ROOF, and it is the LOWEST COST ROOF Obtainable!

A new concept in roof construction adds to Steel Deck's many advantages over other types of deck material. An effective, new type vapor seal provides safeguard against pitch seepage under extreme fire conditions. Now, more than ever before, Steel Deck is the most practical deck material available for modern roof construction. Year after year, Steel Deck roofs a greater percentage of new construction. The reason for this is simple . . . the over-all cost of a Steel Deck Roof is less than any other type of permanent, firesafe material. Steel Deck's light weight, and the fact that it can be insulated to the exact degree to meet local requirements, permits substantial savings in the supporting structure—total dead roof load will prove to be less than any other type in any given locality. Mahon Steel Deck is available in Galvanized or Enamel Coated Steel . . . stiffening ribs are vertical—no angular or horizontal surfaces where troublesome dust may accumulate. In the enamel coating process, the metal is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. Consider these extra-value features . . . See Sweet's Files for complete information, or write for Catalog B-54-A.



SUMP RECESSES and SUMPS

Mahon Roof Sump Recesses for use with Mahon Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms; Insulated Metal Walls of Aluminum, Stainless or Galvanized Steel; Insulated Metal Wall Panels; Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Shutters.

MAHON

but 15% have already signed), were given notice, though not until their lease had expired. Finally Lear kept his tenants fully informed as to the progress of the remodeling. Most of the noisy work, especially the drilling around the perimeter walls, was done at night and a special cleaning force cleaned up the offices after each night's work.

The supplemental lease agreement is in a one-sheet simplified form and includes a request for the right to enter the tenant's premises to make the alterations necessary to provide air conditioning. This supplemental lease made it unnecessary to rewrite existing leases. All tenants were given as much warning as possible before being invaded by contractor's crews.

This huge air-conditioning job was started last September and will be completed by the end of June. Consulting mechanical engineer, Charles S. Leopold; Day & Zimmermann Inc. are the engineers and contractors.

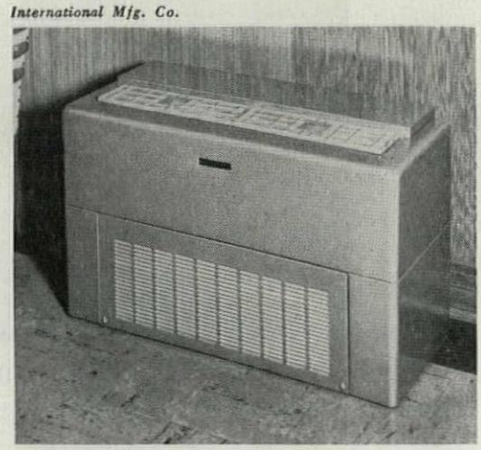
3. Air-conditioning services provided by owner, and fan equipment and ducts by tenants, proves more economical than window units

When the temperature gets up to the high nineties the perspiring executive often picks up the phone to order a window air-conditioning unit. Further, he demands that it be installed and operating by 9 o'clock the next morning because there must be no interruption in the daily routine of the office.

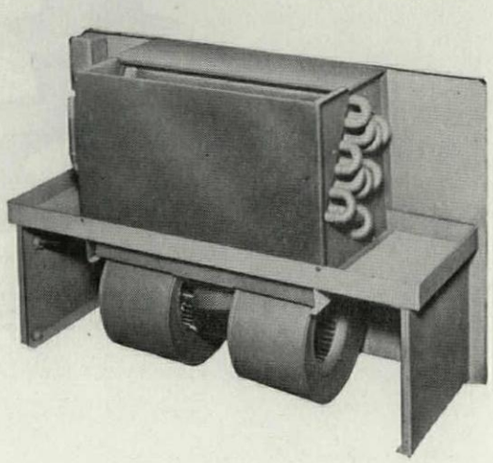
Another executive belonging to a large concern occupying several floors of Manhattan's RCA Building was more practical. He ordered Engineers Syska & Hennessy to make a comparative study of the relative advantages and costs of self-contained

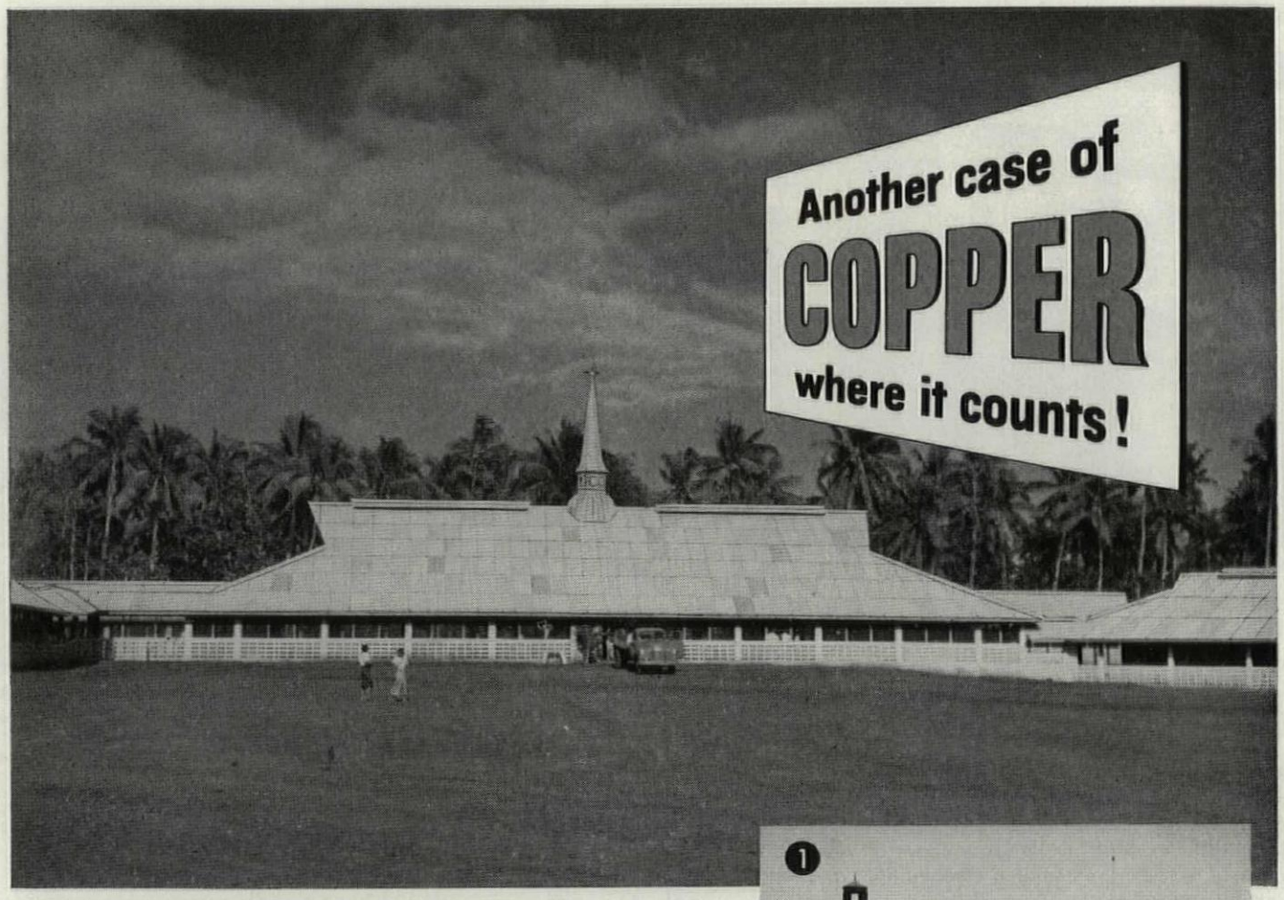
continued on page 258

International Mfg. Co.



Chilled water units provide low-cost summer cooling where landlord supplies air-conditioning services. These ¾ to 1½-ton units are simply fans mounted to blow air across a cooling coil.





18,000 LBS. OF NON-RUSTING REVERE COPPER, IN THE FORM OF PREFABRICATED ORNAMENTAL TOWERS AND SHEET, IS SENT TO THE SOUTH SEA ISLANDS TO FIGHT THE BATTLE OF CORROSION.

When the question was broached as to what metal should be specified for the flashing, gutters, downspouts and towers of the 15 new chapels and 3 new schools to be erected in the Pacific Islands, there were no ifs, ands or buts. Architect, EDWARD O. ANDERSON (A.I.A.), specified copper . . . the metal that has already proved its superior endurance under the most adverse atmospheric conditions throughout the centuries.

Also, copper was the ideal choice for the decorative towers as it is so readily fashioned into any desirable form and takes solder so well. This project, which covers schools in Tonga, British Samoa and Tahiti, and 15 chapels in various Samoan Villages, introduced the concrete block to the Islands. Roofs, interestingly enough, are corrugated Transite.

You may have few projects in the South Sea Islands, but it's a good thing to remember; whether you are designing buildings for a tropical clime or Main Street, U.S.A., the way to keep out of trouble is to use the metal that has already proved itself everywhere . . . copper.

Protect *your* reputation. Give *your* jobs the many benefits of Revere Copper. There is a Revere Distributor near you who stocks Revere Sheet, Strip or Roll Copper for flashing and roofing. Ask him about the money-saving advantages of Revere Keystone Thru-Wall Flashing* and the new Revere-Keystone 2-piece Cap Flashing.** And, if you have technical problems, he 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

230 Park Avenue, New York 17, N.Y.

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

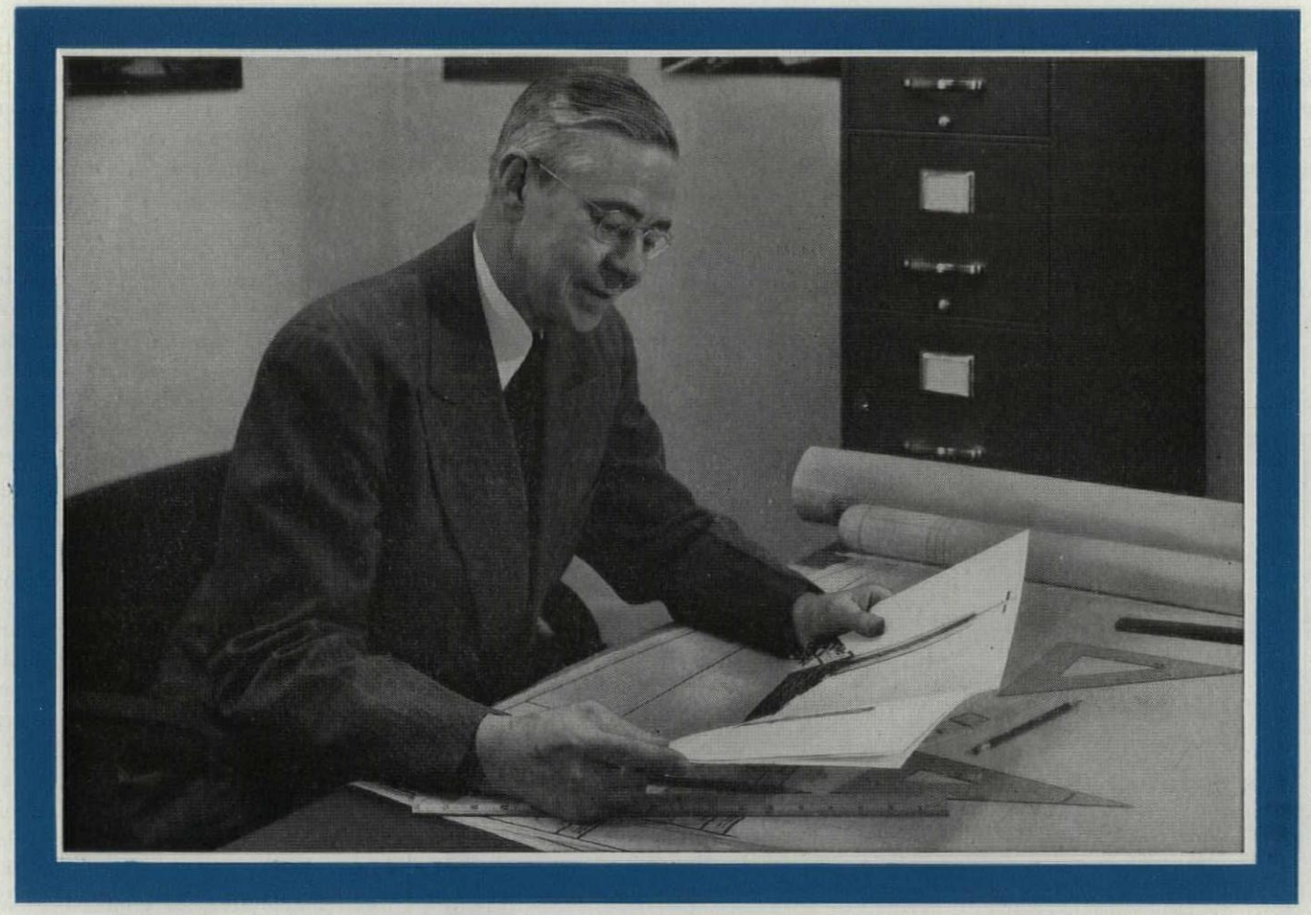
SEE "MEET THE PRESS" ON NBC TELEVISION, SUNDAYS

Main illustration shows PESEGA SCHOOL, Apia, W. Samoa. All buildings built by the Church of Jesus Christ of Latter-Day Saints.

• • •

(1) LIAHONA COLLEGE for Girls and Boys, Nukualofa, Tonga. One of 18 buildings protected by Revere Copper. 6,000 lbs. were used for flashing and gutters.

(2 and 3) Two of the numerous towers which consumed an additional 12,000 lbs. All were 16 oz. Towers were prefabricated in the United States by CARVER SHEET METAL WORKS, INC. All Revere Copper was supplied through PACIFIC METALS CO., Ltd., both of Salt Lake City, Utah.



NOW, AN IMPRESSIVE BROCHURE FOR ARCHITECTS CONCERNED WITH CHURCH SPIRE ARCHITECTURE

"Pointing to God" now available with over 35 illustrations of ancient and modern spires

CHURCH spires have played a noble part in the spiritual history of Western Man. For 15 centuries, they have been powerful symbols with which man has expressed his desire to commune with God.

Believing that a survey of spire architecture is of special interest to architects and churches today, when lightweight metals and new techniques are so wonderfully reviving the form, Overly Manufacturing Company presents a 28 page brochure on spires.

Over 35 illustrations illuminate the text. All the great schools of spire architecture, from the 6th century through modern times, are presented. Problems of lateral stress, leakage, corrosion and buckling are discussed. Materials and techniques are covered.

Overly's brochure, "Pointing to God," is offered without charge to registered architects and churches. (The price is $1.00 per copy to all other interested parties.)

Write on your firm or church letterhead to . . . ***OVERLY MANUFACTURING COMPANY, GREENSBURG, PENNSYLVANIA.***

Wren's City Steeples

Two Fine Modern Spires

window units vs. a central dual duct system that would take advantage of the chilled water now available to the Rockefeller Center group of buidings. (Cost: 35¢ per sq. ft. of rented area; 50¢ purchases steam for winter heating as well as chilled water). The engineers recommended the central duct system because of its advantages in operation, appearance and adaptability over the lower cost window-unit system.

Comparative costs*:	Central duct system	Window unit system
Capital cost	$3,040,000	$2,274,000
Annual cost	143,000	121,000

The window units, electrically driven and designed for summer cooling only, would be installed in the windows through which they take in air for ventilation and refrigeration condensing, distributing the cooled air up to 15′ to 20′ from the window. Since many of the offices are over 20′ deep and are partitioned, a supplementary system of air conditioning by duct type cabinets would be required.

* Including loss of rentable area.

In contrast the central duct system, which is already used in the Esso building at Rockefeller Center, supplies automatically controlled, year-around conditioned air from fan rooms on tenant floors. Separate ducts installed above acoustic ceiling panels supply perimeter and interior zones: such zoning is especially important in offices since an interior zone may need cooling in winter while a perimeter zone, which loses heat through the outside walls, may at the same time need heating.

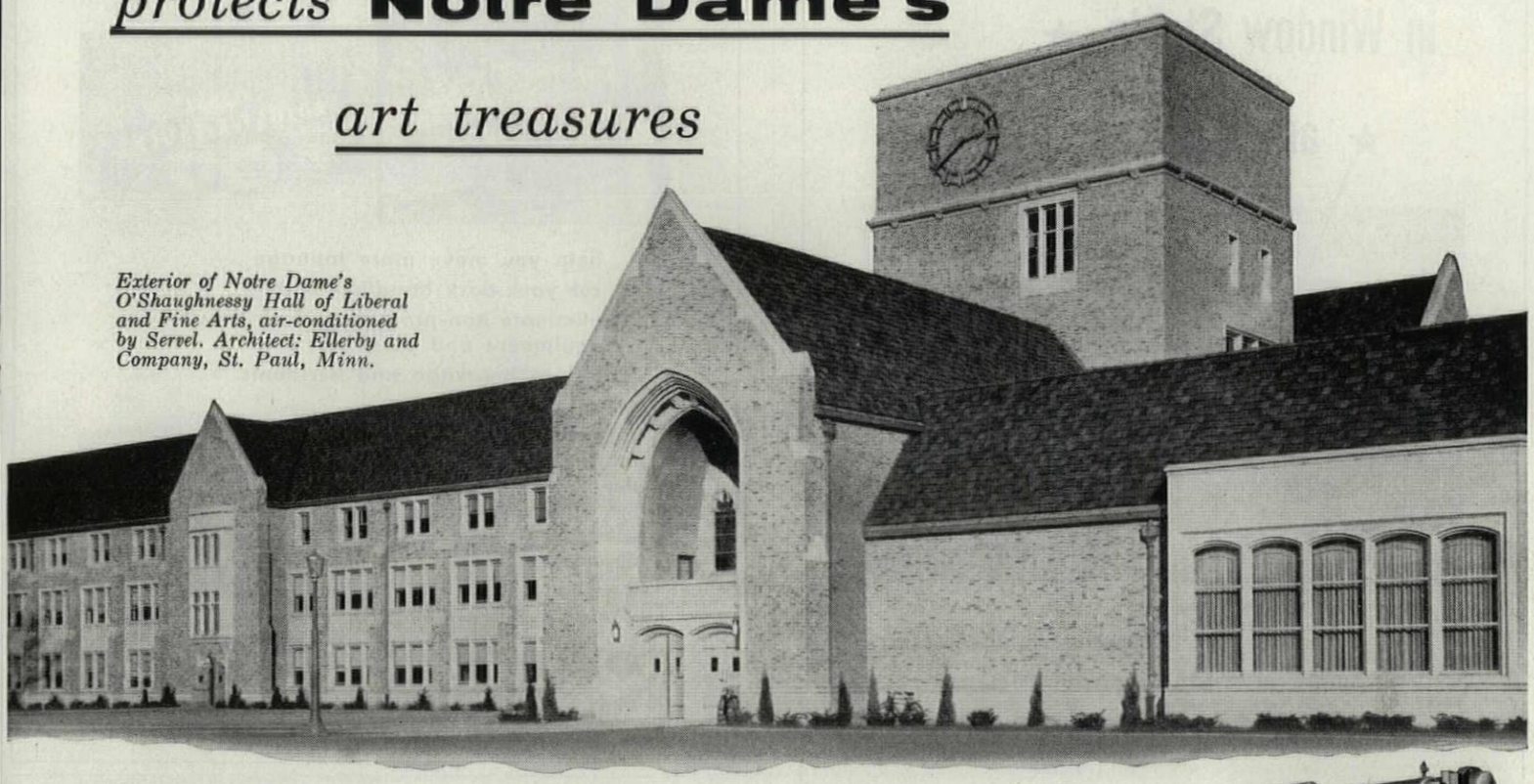
Manhattan's 52-story Chanin building is now being provided with air-conditioning services—chilled water, steam, compressed air, drains and electric power—leaving the air handling equipment and distribution ducts to be installed on a gradual basis after the central plant is completed. Capital cost of the 1,800-ton refrigeration plant and services for the building's 514,400 sq. ft. of rentable area: $1.1 million or $2.10 per sq. ft.; operating cost, $74,655 annually or 14.5¢ per sq. ft. estimated by Syska & Hennessy, Inc., mechanical engineers.

This idea of the owner providing only air-conditioning services and letting the tenant install his own air-conditioning system at his own expense has great appeal because the initial investment is small, and because the air conditioning can be installed in stages as tenants desire it. However, it makes less economic sense for buildings having many small tenants than for buildings having relatively few big tenants. For instance: 1) the tenants are apt to install different systems and equipment which might cause maintenance problems, particularly at the beginning and end of each summer season; 2) many ventilation openings will be required, which may deface the exterior of the building and cause headaches through freeze-ups in winter; 3) tenants will not all install air conditioning at once, thus structural modifications to the building may continue over several years; 4) a particular summer cooling system adopted by one occupant might not be suitable for the next; and 5) if the owner does go to the expense of installing air-conditioning services, expecting to recoup his investment by selling chilled water at say 35¢ a sq. ft., he will lose money if only a few tenants buy it.

Servel Air Conditioning

protects Notre Dame's

art treasures

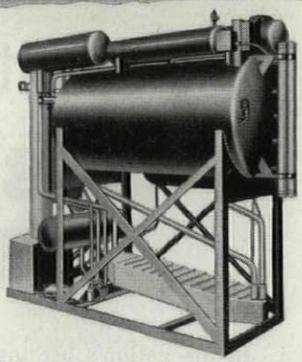


Exterior of Notre Dame's O'Shaughnessy Hall of Liberal and Fine Arts, air-conditioned by Servel. Architect: Ellerby and Company, St. Paul, Minn.

Only the most *perfect* "weather" is good enough! Fine old paintings that can never be duplicated must be carefully guarded from changes in temperature and humidity.

The valuable collection in the University of Notre Dame's O'Shaughnessy Hall Galleries is safely kept in a constantly controlled environment of optimum temperature and humidity. Selected for the job: two Servel 25-ton Water Chillers. Low-cost operation is achieved by using steam from the central power plant. You will find Servel Water Chillers ideal for many such installations. Since water is the refrigerant, simple piping replaces expensive ductwork; zone control is easy. No moving parts means quiet, vibrationless operation with less wear. Light floor loading permits installation almost anywhere.

And—perhaps most important—Servel Water Chillers operate on steam from *any* source . . . even waste heat! Send the coupon for information on Servel Air Conditioning for residential, institutional, industrial, or commercial applications.



The Servel 25-ton Water Chiller operates on the absorption principle of refrigeration—quietly, with no moving parts to wear or vibrate. It is light, easily installed, backed by a 5-year warranty.

Interior. You will recognize some of the valuable paintings here, protected from temperature and humidity changes by Servel 25-ton Water Chillers.

Servel

the name to watch for great advances in

AIR CONDITIONING ✓ REFRIGERATION

SERVEL, INC., Dept. AF-54, Evansville 20, Indiana

Please send information on Servel Air Conditioning for

☐ Residential ☐ Commercial

☐ Institutional ☐ Industrial uses.

Name_____

Address_____

City_____ County_____ State_____

STEEL STRUCTURES PAINTING MANUAL—VOL. I, GOOD PAINTING PRACTICE. Edited by Dr. Joseph Bigos. Steel Structures Painting Council, 4400 Fifth Ave., Pittsburgh 13, Pa. 432 pp. 9" x 11". Illus. $6

This is a useful reference work on the cleaning and painting of structural steel. Designed to fill a long-felt need in the steel industry, it should be invaluable to structural engineers and architects.

The work is prepared and published by the nonprofit Steel Structures Painting Council, which was organized in 1950 by the American Institute of Steel Construction and is supported voluntarily by organizations concerned with paints and other coatings for the protection of steel surfaces.

Vol. I describes the current practice of steel preparation and painting used in various industries. Its well-written 18 chapters (plus bibliographies, glossary and index) are highly comprehensive, packed with useful cost figures. Subjects covered:

- Six chapters on corrosion, mechanical and chemical surface preparation, practical application, inspection and quality control.
- A chapter on comparative costs, emphasizing the importance of high-quality primary painting to cut subsequent maintenance bills.
- Nine chapters on detailed applications in various industries—from bridge structures to industrial plants and with a good section on color.
- A chapter on the up-and-coming technique of metalizing, in which finely divided molten metal particles (usually of zinc or aluminum) are sprayed onto prepared surfaces. This is more expensive in first cost but saves on annual maintenance bills. (A sea-going ship of the U.S.C. Marine laboratory was metalized early in 1948; in 1952 savings in cost of painting alone more than paid for the cost of the metalizing.)
- Finally, a chapter on the causes and prevention of paint failure.

Scheduled for issue later this year, Vol. II of the Painting Manual will give more detailed specifications for painting steel in various structural and exposure conditions, backed by numerous reports of field experience.

PORCELAIN ENAMEL IN THE BUILDING INDUSTRY. Published by Building Research Advisory Board, 2101 Constitution Ave., Washington 25, D.C. 8½" x 11". 160 pp. Illus. $6

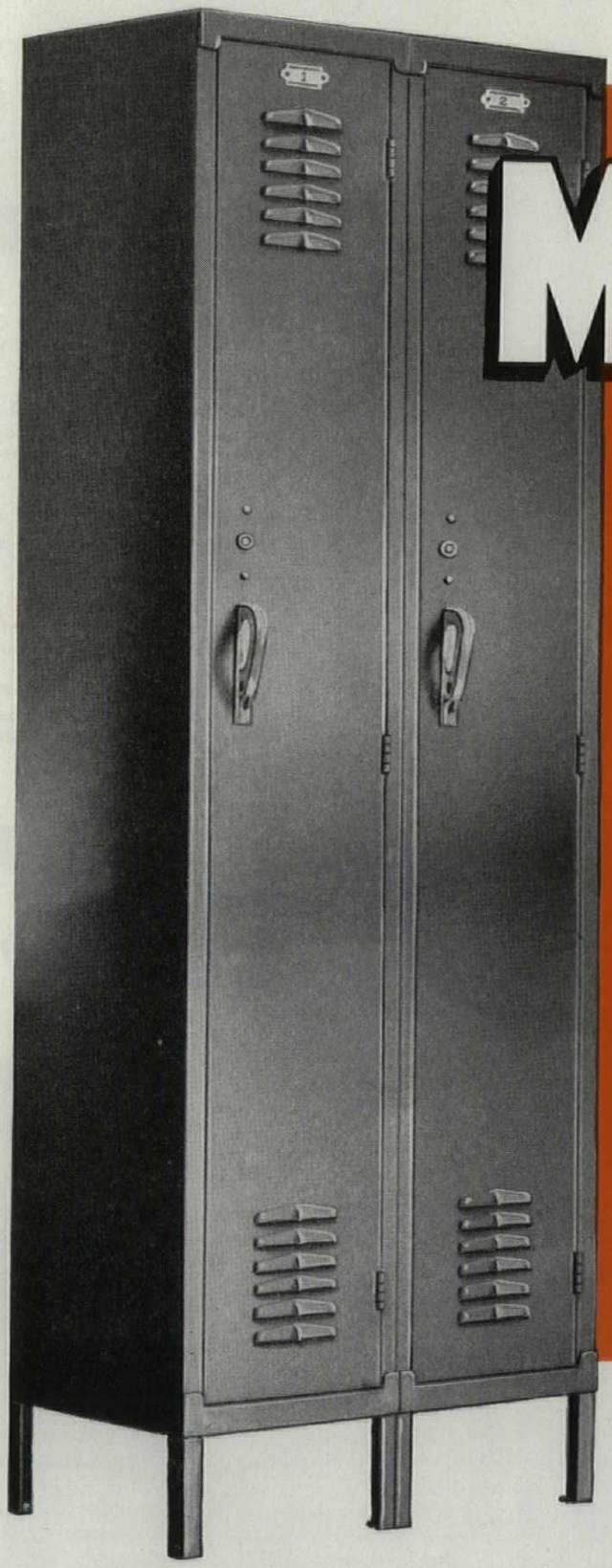
This is a full review of the manufacturing and technical developments in the architectural application of porcelain enamel. It is comprised of the 18 major papers presented by leading experts on chemical and physical properties of this material, design uses, engineering methods and practical experiences on construction sites.

FLOW AND FAN. Principles of Moving Air through Ducts. By C. Harold Berry. Published by The Industrial Press, 148 Lafayette St., New York 13, N.Y. 5¾" x 8¾". 232 pp. Illus. $4

This book explains the how and why of basic calculations in the design of systems for moving air or other gases. *Flow and Fan* meets the needs of students interested in acquiring a working knowledge of ventilation but is useful to practicing engineers as well. It is an outgrowth of a compilation of lecture notes developed for a course at Harvard.

Subjects covered include: Factors in gas flow measurement, head, density, pressure, boiler draft, losses in laminar and turbulent flow through various shapes of duct, fan types and performance, fan selection and model testing.

better can't be bought!



MEDART Steel Lockers

WITH A NEW TYPE LOCKING MECHANISM

- **Positive Locking**
- **Pre-Latching**
- **Fool-Proof**

Write For Catalog

LOCKERS in all standard types and sizes, both recessed and free-standing, and . . .
BASKET SHELVING in all popular sizes, both permanent and portable, are made by **MEDART**

SEE OUR CATALOG IN SWEET'S

Medart ST. LOUIS MISSOURI

FRED MEDART PRODUCTS, INC. • 3584 DEKALB ST. • ST. LOUIS 18, MO.


give old buildings an exciting
NEW LOOK with
use any color, or color combination: Pastels, deep colors, white, gray or black.
use any texture: Smooth, floated, stippled, spatter-dash, brushed, combed, tooled, striated, rough trowelled or tapestry.
use any pattern: Natural stucco; simulated stone; wood panelling; or masonry.
use any profile: Plane, curved, fluted, panelled, or corrugated. Combine it with other materials as you please.
use over any surface: Stucco overcoating may be applied over wood siding, masonry, stone, tile, terra cotta or metal.
for long,

STUCCO

FIRE SAFE •

DURABLE •

MEETS ANY ARCHITECTURAL REQUIREMENT •

LONG LIFE •

LOW COST •

LITTLE MAINTENANCE •

Stucco gives you complete freedom of design when you modernize old buildings: Unlimited color, texture, patterns and profile. You can use it over any surface.

Yet you get all these advantages at amazingly low cost using the same craftsmen you use on any quality construction job: Lathers and plasterers. No matter how old a building may be, it's easy to give it a fresh new look with stucco.

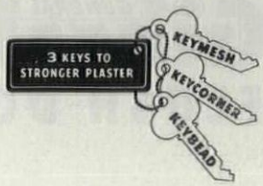
low-cost life, reinforce it with **KEYMESH** *lath*

When you use Keymesh reinforced stucco, you wrap your building in a full inch of reinforced concrete. Think what that gives you: Fire safety; strength; long life; and low maintenance. You get all this at exceptionally low cost. No matter how you figure it, stucco reinforced with Keymesh offers you maximum value for exterior modernization jobs. What's more, it gives you top value as an exterior finish for new buildings, too. It's as modern as tomorrow, yet it complements traditional design. That is why it meets any architectural design.

It will pay you to figure stucco on your next job.

KEYSTONE STEEL & WIRE COMPANY

Peoria 7, Illinois



MAKERS OF KEYMESH · KEYCORNER · KEYBEAD · NAILS
TIE WIRE · ORNAMENTAL AND NON-CLIMBABLE FENCE

when office buildings modernize . . .

JOHNSON CONTROL
automatically solves the
TEMPERATURE REGULATION PROBLEM

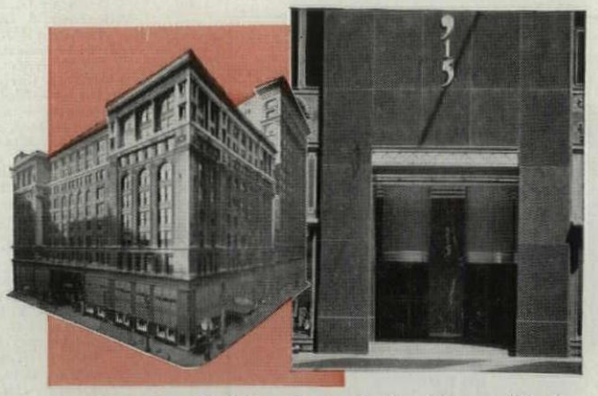
When modernizing older buildings, skillful and thrifty planners wisely entrust their temperature regulation problems to Johnson, because they know Johnson engineers apply the same specialized knowledge and service to existing buildings as they do to new construction.

In the Syndicate Trust Building in St. Louis, for example, a complete system of Johnson Automatic Temperature and Air Conditioning Control was installed nearly 40 years after the building was built!

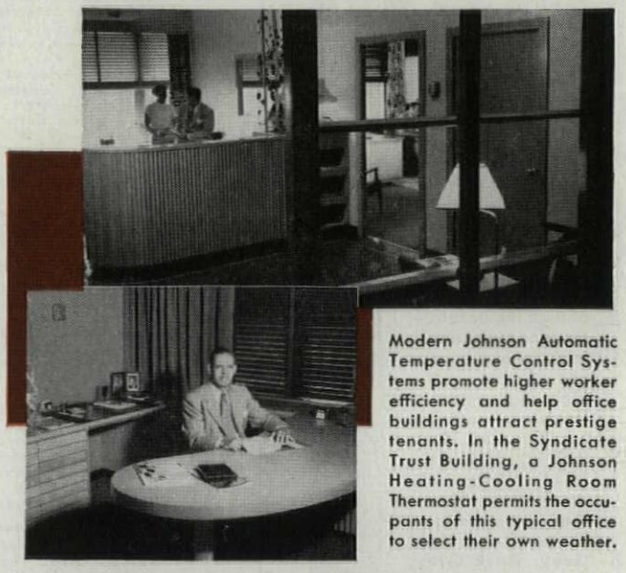
With Johnson Control in command of the heating and air conditioning systems, there is automatic comfort control every minute of the day for the occupants of each office in the building.

In addition to *individual room* control, behind the scenes Johnson Thermostats operate Johnson Valves and Damper Operators on 17 central fan air conditioning systems which serve the entire building. All control apparatus is combined in one "Planned-for-the-Purpose" automatic control system, resulting in maximum comfort and savings for every heating and cooling dollar spent.

Johnson Automatic Control Systems are designed specifically for each individual installation. Let a Johnson engineer from a nearby branch provide the answer to your control problems. A talk involves no obligation. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

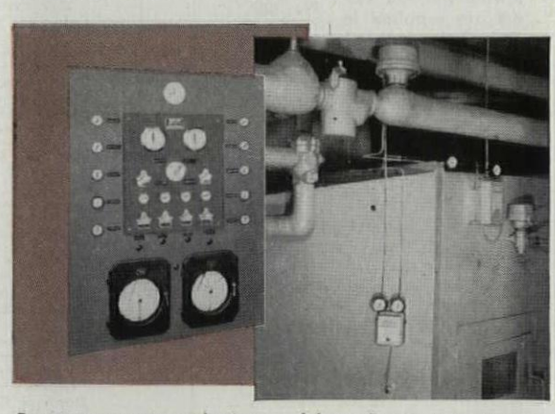


Syndicate Trust Building, St. Louis, Mo. (Air conditioning and modernizing of heating system). Leo S. Weil and Walter B. Moses, mechanical engineers, New Orleans, La.; Sodemann Heat and Power Co., mechanical contractors, St. Louis, Mo.



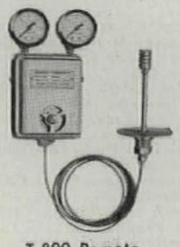
Modern Johnson Automatic Temperature Control Systems promote higher worker efficiency and help office buildings attract prestige tenants. In the Syndicate Trust Building, a Johnson Heating-Cooling Room Thermostat permits the occupants of this typical office to select their own weather.

"The Johnson Control System in our building does exactly the job required—providing year 'round comfort with a minimum of maintenance and at substantial fuel savings," says E. B. Shannon, the building manager.



Remote temperature selections for the heating and air conditioning systems are made from this convenient central control panel.

Johnson Remote Bulb Thermostats control Valves and Damper Operators on this typical central fan air conditioning unit.



T-800 Remote Bulb Thermostat

T-901 Submaster Thermostat

T-432 Heating-Cooling Room Thermostat

D-251 Piston Damper Operator

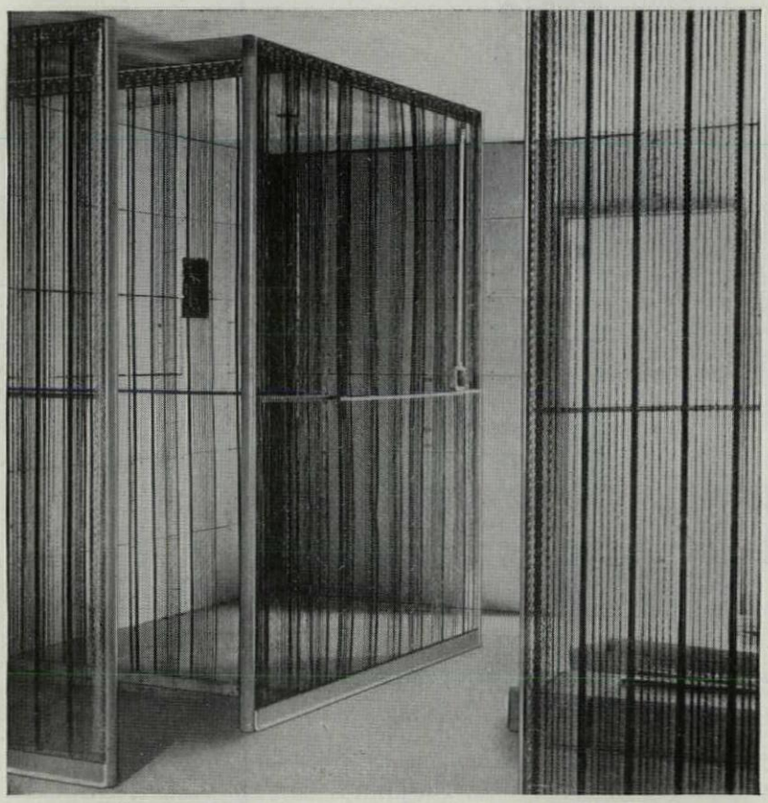
JOHNSON *Automatic Temperature and Air Conditioning* **CONTROL**

MANUFACTURING • PLANNING • INSTALLING • SINCE 1885

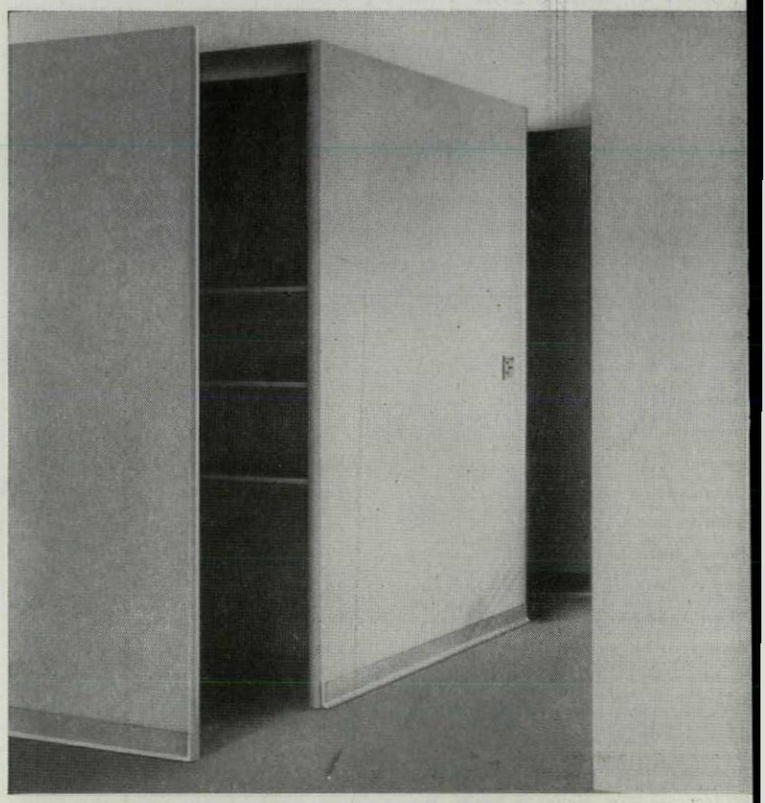
Advertisers index:

MILCOR* Studless Partitions

for solid-plaster strength, erected at low cost



Milcor Stay-Rib Metal Lath reinforces the partition vertically. Milcor Housing Base acts as plaster grounds and eliminates the need for base screed.



Partition is plastered on both sides of the metal lath to two-inch thickness. Milcor Bull-Nose Corner Bead is used as partition cap.

Hollow partitions go up fast with MILCOR Steel Studs

Milcor Hollow Partitions have several basic advantages: (1) A partition-strength equal to, or greater than, that of tile or gypsum block of equivalent thickness; (2) Fire-safety; (3) Exceptional insulation value; (4) Sound transmission loss of 46 decibels (using Milcor 3/8" Rib Lath); (5) Earthquake resistance.

The versatility of Milcor Hollow Partitions commends their use where there are long lines of horizontal conduit or service piping and ducts . . . as enclosures for vertical pipe chases . . . as bathroom and corridor partitions . . . as elevator enclosures.

No studs to cut and install . . . Lathing is quick and easy . . .

Milcor Studless Partitions make 2" solid-plaster walls extremely practical from a cost standpoint — and extend the following advantages to all types of buildings:
(1) Saving of floor space; (2) Full one-hour fire rating;
(3) Resistance to impact; (4) Reduced floor load;
(5) Reduced sound transmission.

Material costs are less, because there are no studs. Instead, Milcor Stay-Rib Metal Lath is erected so that its ribs provide vertical reinforcement. The lath fastens to a ceiling runner and a floor runner — or to a ceiling runner and Milcor Housing Base.

Milcor Studless Partitions are increasing in popularity as non-bearing, subdividing partitions . . . as enclosures . . . as free standing furring walls.

Consult the Milcor Manual in Sweet's Builders' File for helpful information. Write for bulletin.

Metal lath for strength — plaster for beauty.

M-130

INLAND STEEL PRODUCTS COMPANY

4033 WEST BURNHAM STREET • MILWAUKEE 1, WIS.

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

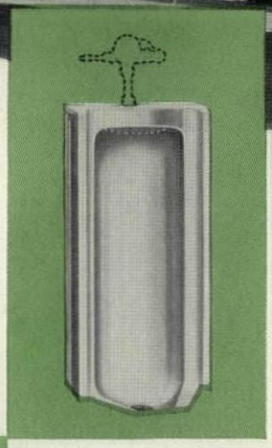
BALTIMORE 5, MD., 5300 Pulaski Highway — BUFFALO 11, N. Y., 64 Rapin St. — CHICAGO 9, ILL., 4301 S. Western Blvd.—CINCINNATI 25, OHIO, 3240 Spring Grove Ave. —CLEVELAND 14, OHIO, 1541 E. 38th St.—DETROIT 2, MICH., 690 Amsterdam Ave.— KANSAS CITY 41, MO., P. O. Box 918 — LOS ANGELES 58, CALIF., 4807 E. 49th St. — NEW YORK 17, N. Y., 230 Park Ave. — ST. LOUIS 10, MO., 4215 Clayton Ave.

Lord & Taylor

Handsome new West Hartford store gets ELJER quality plumbing fixtures

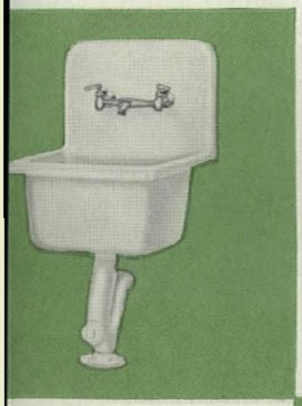
Architect: Irving Rutherford
Engineer, plumbing design: John Legnos
Plumbing contractor: James J. Murphy & Sons
Wholesale distributor: The Callahan Co.

* *These Eljer fixtures are installed in the new Lord & Taylor building.*



Beautiful buildings merit the finest in plumbing fixtures. Customers of the finest stores deserve the best in plumbing facilities. Architects of such fine buildings appreciate the ease of specifying from one wide, top-quality line that includes a fixture for every need.

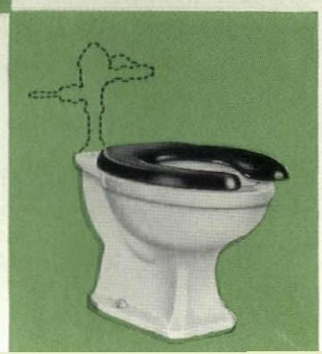
For just such reasons, Lord & Taylor's new West Hartford, Connecticut, store has been equipped with Eljer fixtures! Note these important points:



1. Eljer specialists carry on a continuous, strenuous program of design and development in specialized plumbing fixtures for all kinds of public buildings.

2. Eljer offers a wide selection of materials (cast-iron, formed steel, and vitreous china fixtures), plus quality Eljer brass. You specify from *one source.*

For more facts, see your Eljer distributor or write Eljer Co., Box 192, Ford City, Pa.



ELJER

A SUBSIDIARY OF THE MURRAY CORPORATION OF AMERICA

Eljer—the only name you need to know in plumbing fixtures

smart flooring for your practical clients... **MATICO ARISTOFLEX**

low-cost vinyl-plastic tile flooring

Smart clients are usually practical . . . and that's why they like MATICO ARISTOFLEX, vinyl-plastic tile — the flooring that's both smart and practical. Available in low-cost standard gauge, as well as 1/8" thicknesses, Aristoflex is ideal for almost every type of installation. Vinyl-plastic throughout (no felt backing), it can be used on, above or below grade . . . it resists acid, alkali, petroleum and grease . . . is easy to maintain . . . comes in 12 clear, bright colors.

Yes, when next you specify tile flooring, be sure to consider long-lasting MATICO ARISTOFLEX!

Write Department 6-5 for full details and specification data today.

MATICO Tile for floors you can be proud of!

QUALITY CONTROLLED MATICO PRODUCTS Guaranteed by Good Housekeeping

MASTIC TILE CORPORATION OF AMERICA • Joliet, Ill. • Long Beach, Calif. • Newburgh, N. Y.

Manufacturer of: ARISTOFLEX • CONFETTI • PARQUETRY • ASPHALT TILE • CORK TILE • PLASTIC WALL TILE