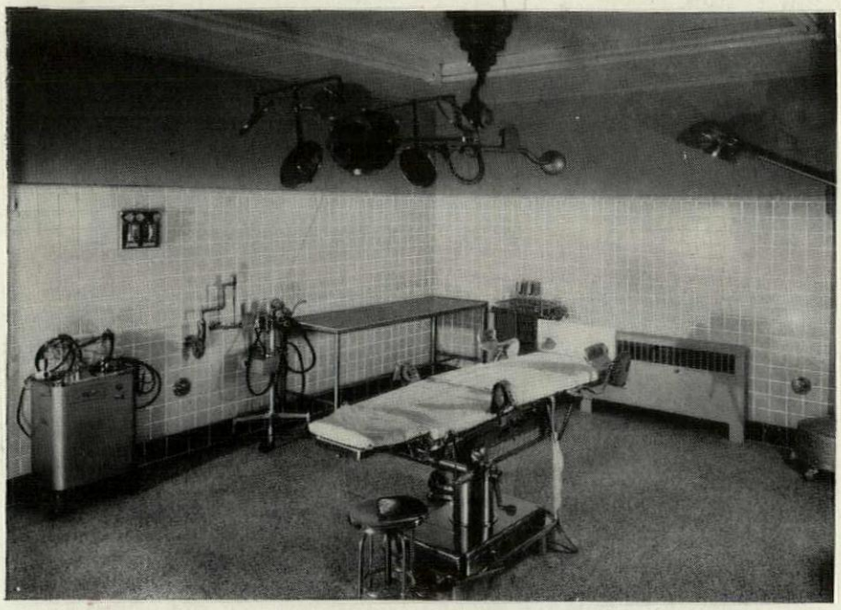
MAGAZINE OF BUILDING

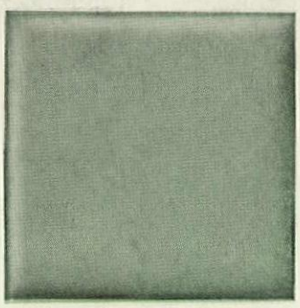
architectural **forum** edition

January 1952

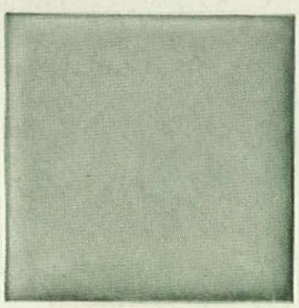
softly-shaded and functionally correct . . .

the new, beautiful Suntile colors increase the efficiency of any HOSPITAL INTERIOR!





Sea Green 511



Light Sea Green 513

Suntile SEA GREEN, LIGHT SEA GREEN

Recommended for hospital surgery

Shown above are two tones of Suntile Sea Green—an original and modern color designed by Suntile with the aid of Faber Birren, nationally known color authority. The soft tone Sea Green is recommended for surgeries and operating rooms; the bright tone Light Sea Green for other service areas. Both of these are carefully balanced green tints with a special satin finish. The tint is complementary to the color of human tissue and complexion—and will aid vision and reduce ocular fatigue for the surgeon. Both of these Suntile backgrounds present a dignified appearance, are visually restful and physically durable. These are only two of a complete Suntile line of 12 functional colors, adaptable to all parts of a hospital.

you get the right color plus the permanence of real clay TILE!

Can color help hospital interiors fulfill their functions *better?*

Color authorities say "yes."

There's a *right* color—a most suitable, most beneficial color—for surgeries, wardrooms, corridors, and cafeterias . . .

The *right* color can relieve eye strain of doctors—impart visual and emotional benefits—provide a restful and cheerful environment for both patients and staff.

Suntile's beautiful new line of softly shaded colors has been scientifically developed to *fit the function of interiors*—not only in hospitals but in schools, institutions, commercial and industrial buildings.

This "color-fitted-to-the-function feature" gives you another reason for selecting color-balanced Suntile for walls and floors. Other well-known reasons for choosing this *real* clay tile are: permanence, ability to withstand heavy use, sanitation, ease of cleaning, low maintenance!

Write Dept. MB-1 for our new color booklet "Suntile Functional Color Recommendations." See your local Authorized Suntile Dealer. **The Cambridge Tile Mfg. Co., P.O. Box 71, Cincinnati 15, Ohio.**

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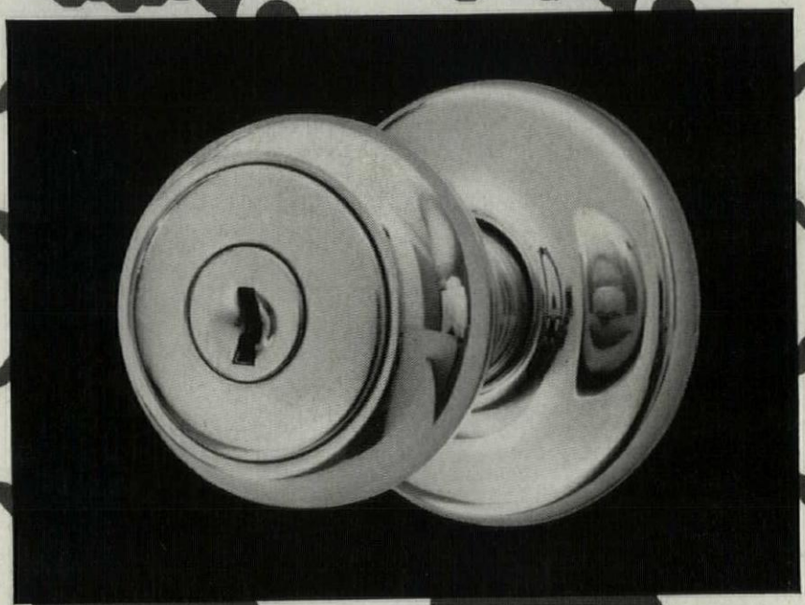

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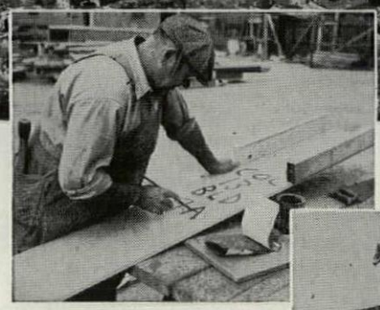

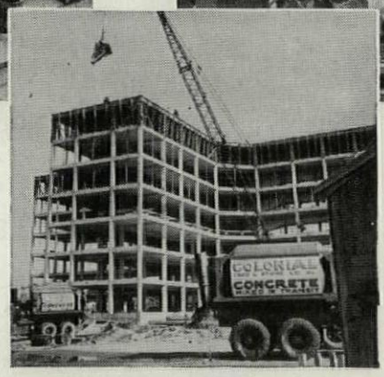

Forms for Astoria Houses, Section 2, designed and engineered in the office and built to closest tolerances, moved up at speed equal to or exceeding that of any other type of construction. Good job planning made fullest use of dependable 'Incor' high early strength. Result, 60 days' earlier completion—NET saving, $1.44 per cu. yd. concrete.

92 Floors and Roof Slabs Concreted in 98 Working Days

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● New York City Housing Authority plans and builds with a single objective—full value for every dollar—using reinforced concrete frame construction for utmost stability and fire-safety, maximum speed and economy.

General Contractor planned the 12 buildings in Section 2 of Astoria Houses to go up at the same time, but, due to unforeseen foundation conditions, went ahead with six buildings, using 'INCOR' 24-HOUR CEMENT with one set of forms for each building, then re-used these forms on the other six.

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*Reg. U. S. Pat. Off.

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THE MAGAZINE OF BUILDING

architectural **forum** edition

JANUARY 1952

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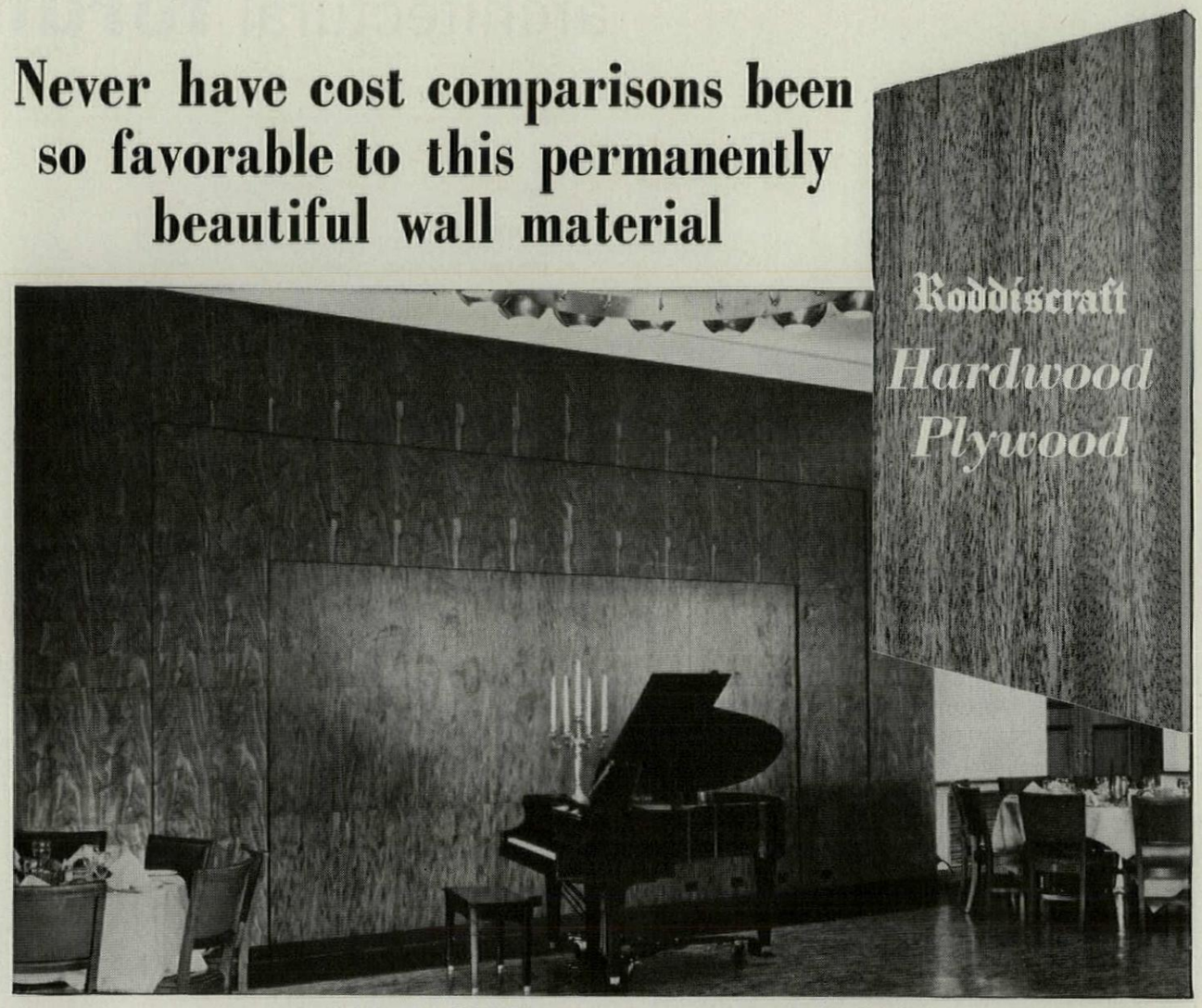

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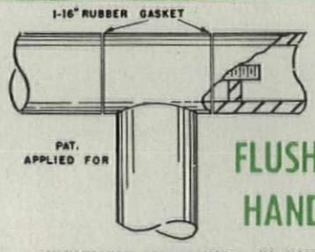

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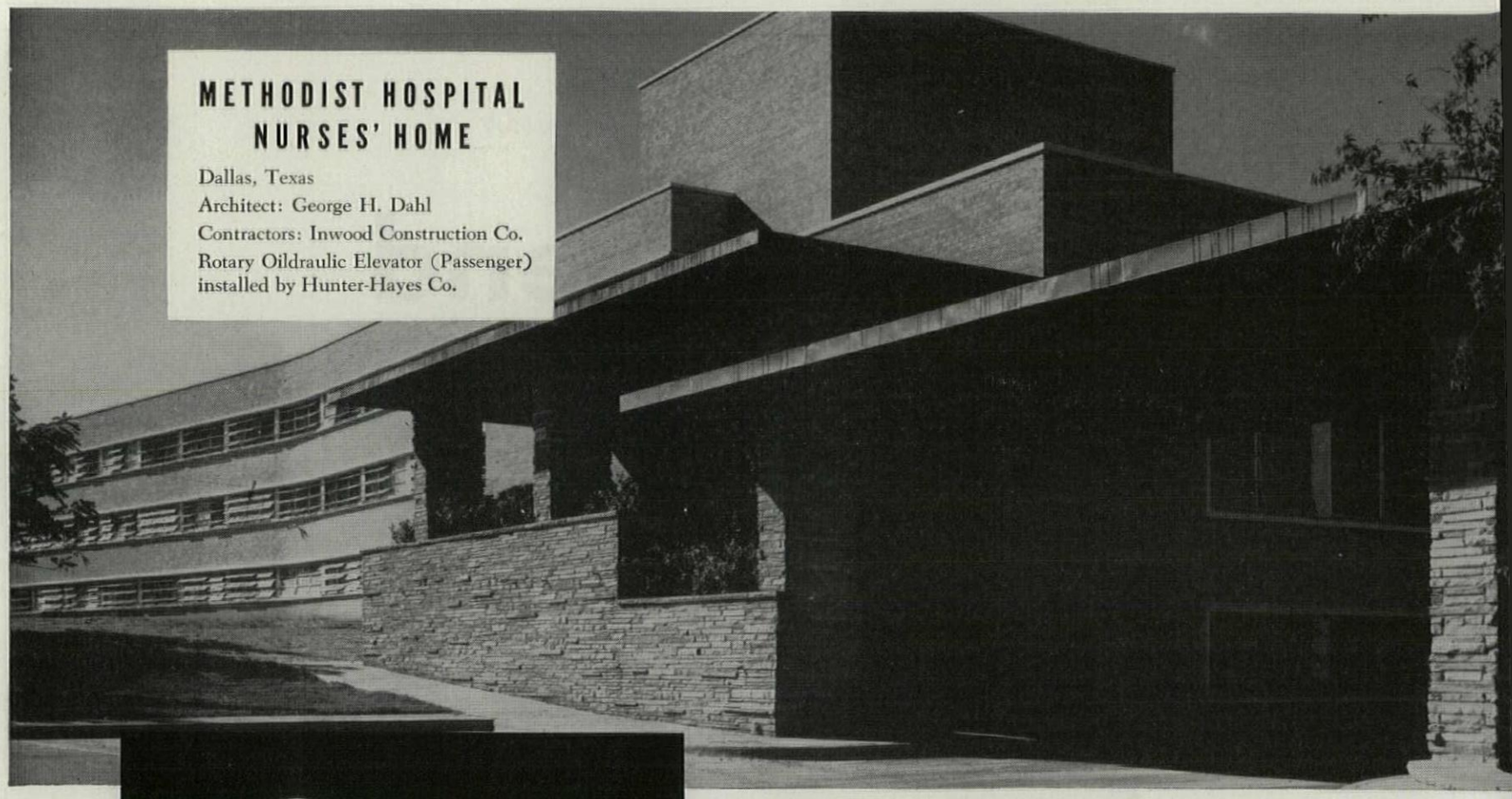

METHODIST HOSPITAL NURSES' HOME

Dallas, Texas
Architect: George H. Dahl
Contractors: Inwood Construction Co.
Rotary Oildraulic Elevator (Passenger) installed by Hunter-Hayes Co.

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Doors left open for photograph to show platform and jack.

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Architect: Company Architect.
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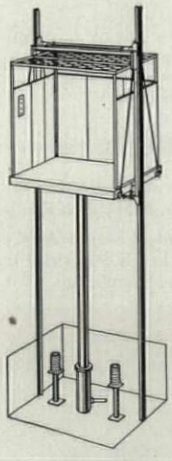
Rotary Oildraulic Elevator (Passenger-Freight) installed by General Elevator Engineering Co.

for modern 2, 3 and 4-story buildings



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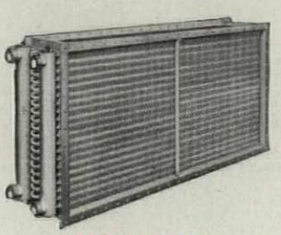
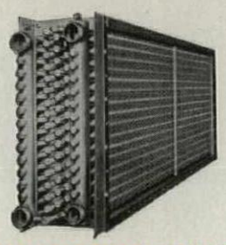


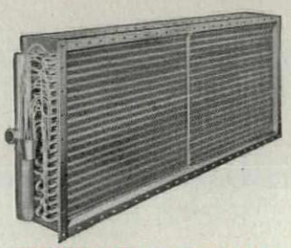
WATER COIL

For Cooling and Heating, 1 to 10 rows deep.



CLEANABLE TUBE WATER COIL

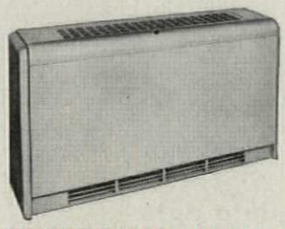
Removable Plug Type, 1 to 10 rows deep.



DIRECT EXPANSION COIL

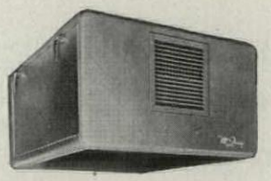
For Cooling, 1 to 8 rows deep.

AIR CONDITIONING UNITS



SEASONMAKER—(FLOOR)

Also available in basic or ceiling types, 3 sizes 200 cfm, 400 cfm and 600 cfm.



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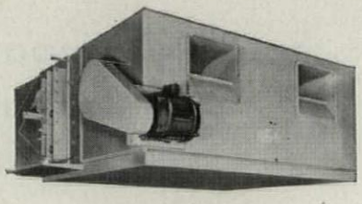

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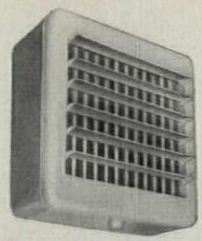
Type "A" Central Station Air Conditioners for large industrial and commercial applications.

UNIT HEATERS



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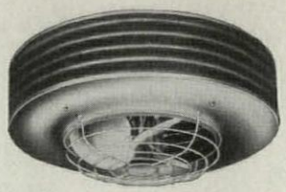

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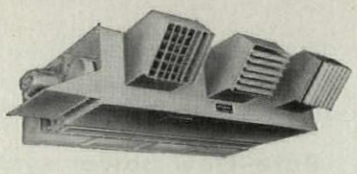

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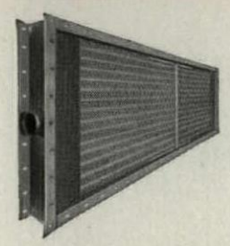
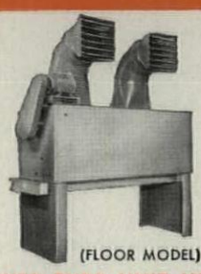


"BLAST" HEATING STEAM COIL
For Heating, 1 or 2 rows deep, using low or high pressure steam.

(FLOOR MODEL)
AIR CONDITIONER
Type "A" Central Station Air Conditioners for large industrial and commercial applications.



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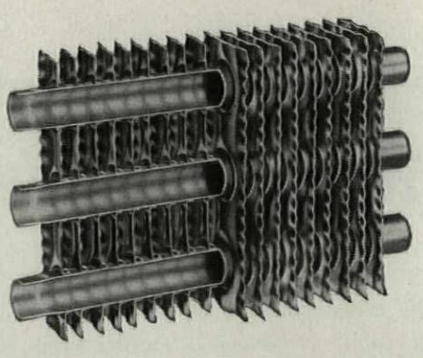

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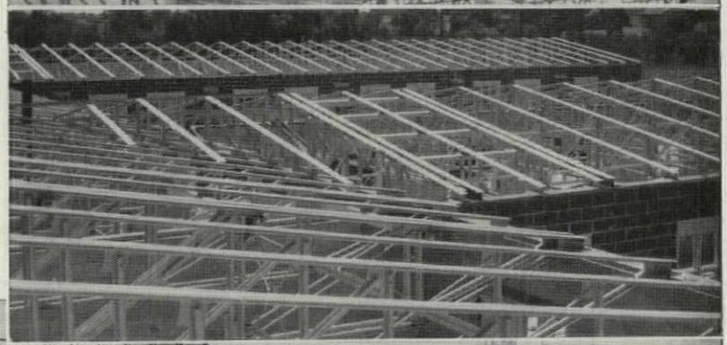

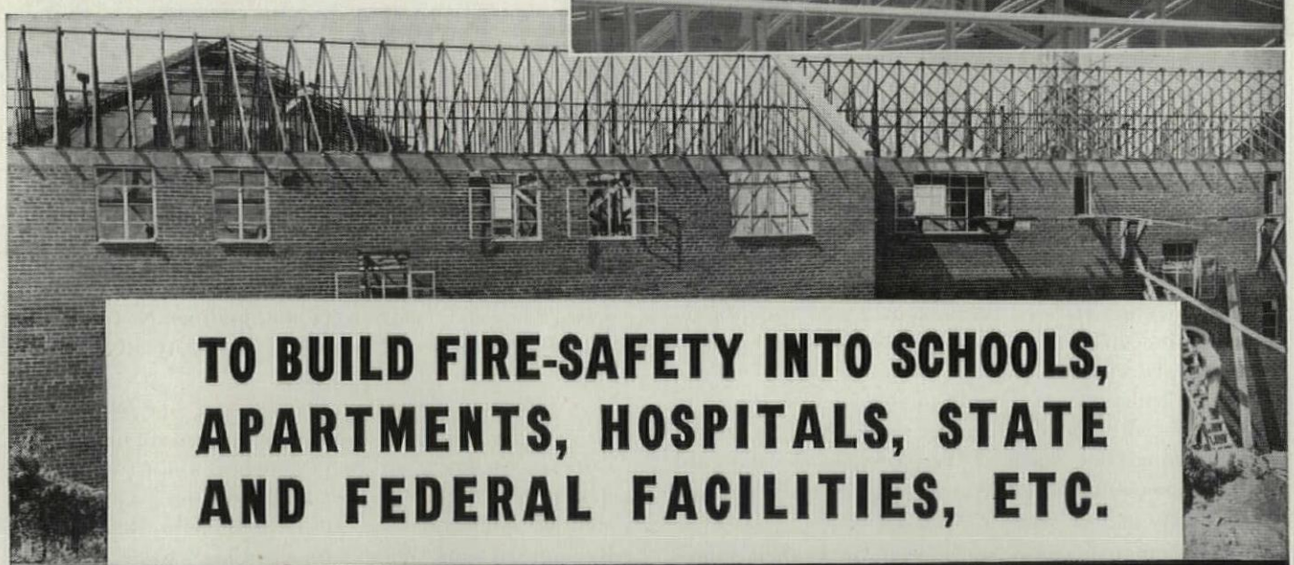

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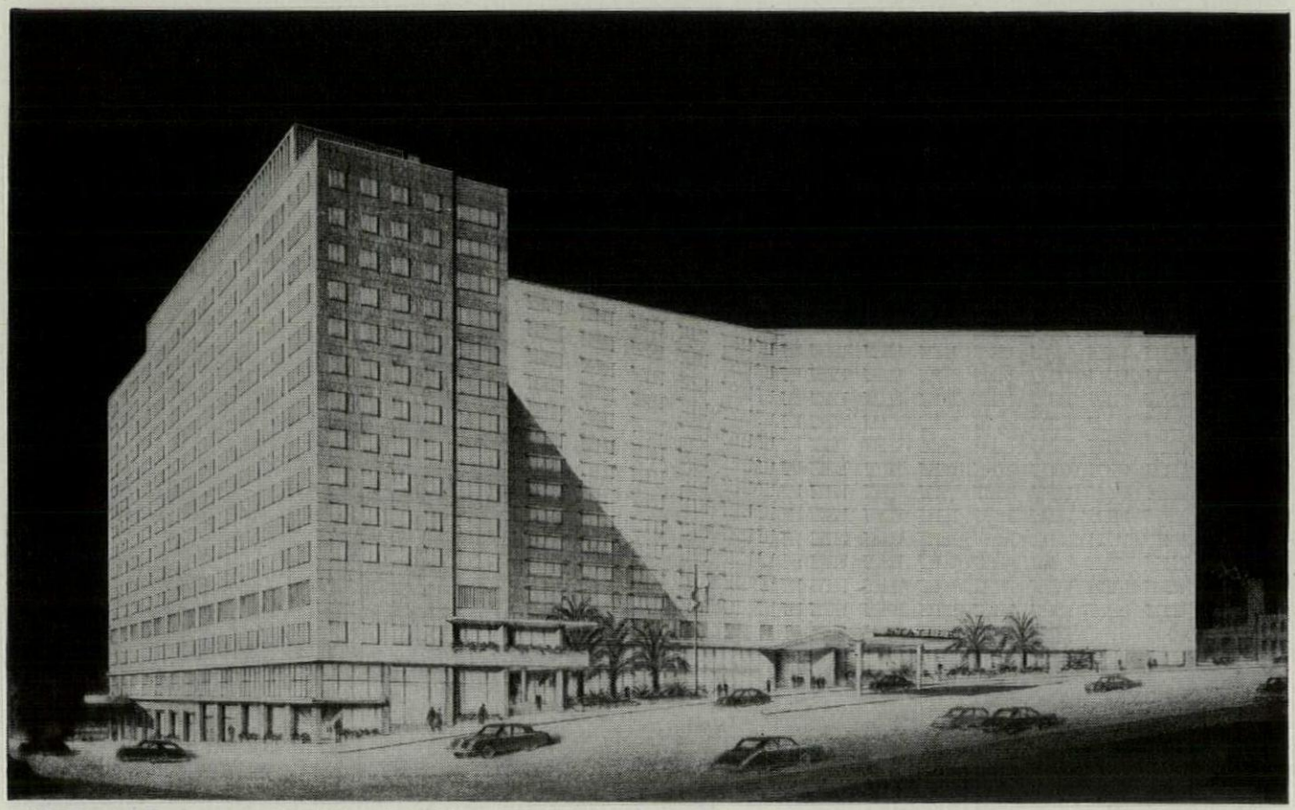


Architects and Engineers: Holabird & Root & Burgee, Chicago, Ill.
Associate Architect: William B. Tabler

New heights in comfort and convenience for the biggest hotel built in twenty years

THE NEW STATLER HOTEL now nearing completion in Los Angeles, represents the ultimate both in its appointments and construction. Comfort, convenience and efficiency are stressed throughout. Every room is air conditioned. There's an off-street concourse for motorist-guests who are checked in and whisked to their rooms without even going through the lobby. Dimmers on the ballroom lights, under-water lighting for the swimming pool, music in the passenger elevators are luxurious innovations typical of this truly modern hostelry.

And, though guests are unaware of it, their safety and comfort are further insured by NATIONAL Steel Pipe—325 tons of it—used in the heating, fire-sprinkler and dry fire systems, as well as for vacuum lines.

Here, as in other famous hotels, apartment houses, schools, hospitals, office and public buildings, NATIONAL Steel Pipe was selected because of its consistently high record of service dependability.

U·S·S NATIONAL has been the standard pipe for over 60 years for conventional hot water and steam heating systems; for fire control and plumbing lines, and the first choice for modern radiant heating and snow melting applications described in Bulletin No. 19—Radiant Heating With National Pipe. Copy upon request.

NATIONAL TUBE DIVISION

UNITED STATES STEEL COMPANY, PITTSBURGH, PA.

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES STEEL

Leader

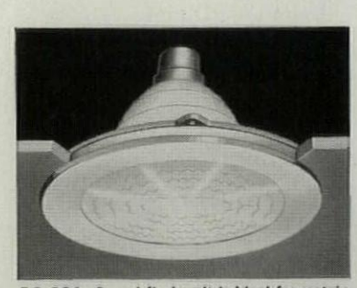
CONCENTRIC RING

FOR ECONOMICAL AND EFFICIENT LIGHTING

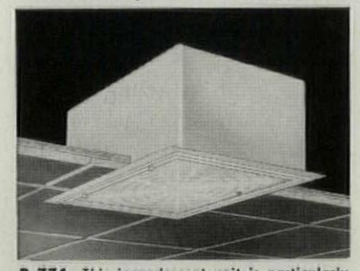
When low budgets demand high efficiency in lighting and low first cost and maintenance . . . the Leader Concentric Ring comes up for first consideration. Simple design harmonizes with almost any architectural motif. Utilizing the PS 40 silver bowl inside frosted lamp this luminaire provides maximum seeing conditions with full eye-comfort. Supplied with either medium or mogul socket. . . . The Concentric Ring can be either surface mounted or suspended from hangers. Maintenance is practically nil because there are no horizontal surfaces to collect dust and unit is open top and bottom.

RECESSED INCANDESCENT DOWNLIGHTS

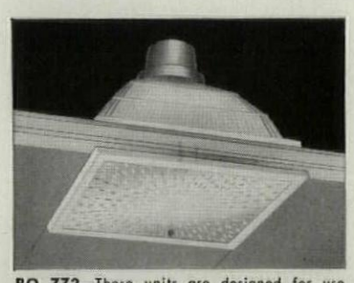
with Holophane Controlens*



RO 894—Round flush unit is ideal for certain architectural applications. For use where general lighting is required—all glass construction assures economy of operation. For 200 or 300 watt lamp.



R 774—This incandescent unit is particularly desirable for general even spaced lighting. Should be spaced 1¼ times the mounting height above the work plane. For 150 watt lamp.



RO 772—These units are designed for use with tile or block ceilings and will exactly replace a single 12″ square tile. "T" bar or metal frame construction simplifies installation. For 200 or 300 watt lamp.

Sold and installed by the better electrical dealers and contractors

Leader *America's No. 1 Lighting Equipment Manufacturer*

LEADER ELECTRIC COMPANY • 3500 North Kedzie Avenue • Chicago 18, Illinois

Leader Electric—Western: 800 One Hundredth Avenue, Oakland 3, California
Campbell-Leader, Ltd.: Brantford, Ontario, Canada

*Copr. The Holophane Co.

NOBODY GUESSES WHEN YOU USE . . .

WALSEAL*

FOR MAKING SILBRAZ* JOINTS

When you see this fillet of alloy, and the fitting is Walseal you know that you have penetration because the alloy comes from the inside.

Cutaway view of a Walseal Tee showing: 1—factory-inserted ring of silver brazing alloy; 2—fillet of silver brazing alloy that appears upon completion of Silbraz joint; 3—cutaway view of the completed Silbraz joint showing that silver brazing alloy has flowed in both directions from the factory inserted ring.

When you make Silbraz* joints in your brass, copper, or copper-nickel pipe lines with Walseal Valves, Fittings, or Flanges you know you have the right amount of the correct type of silver brazing alloy. The ring of Sil-Fos brazing alloy is factory-inserted in the ports of Walseal products at the time of manufacture.

No lost time or motion in handling the alloy . . . no difficulty in getting full penetration of the alloy regardless of the position of the valve or fitting . . . no guessing whether the joint is made right . . . the fillet of alloy that shows up when the Silbraz joint is completed, comes from the inside!! And, whether you've made the Silbraz joint yourself, or inspecting the work of another, you know that if the silver alloy fillet is visible, and the valve or fitting is Walseal, you have full penetration. That's why nobody guesses when you use Walseal!

Walseal products are backed by the reputation of the Walworth Company, manufacturers of valves and pipe fittings since 1842.

For full information regarding Silbraz joints made with Walseal products, write for Circular 84.

**Patented—Reg. U. S. Pat. Off.*

Recommended for

Hot and Cold Water Circulating Systems

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Make it "a one-piece pipe line" with WALSEAL

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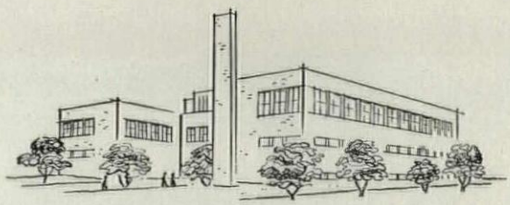
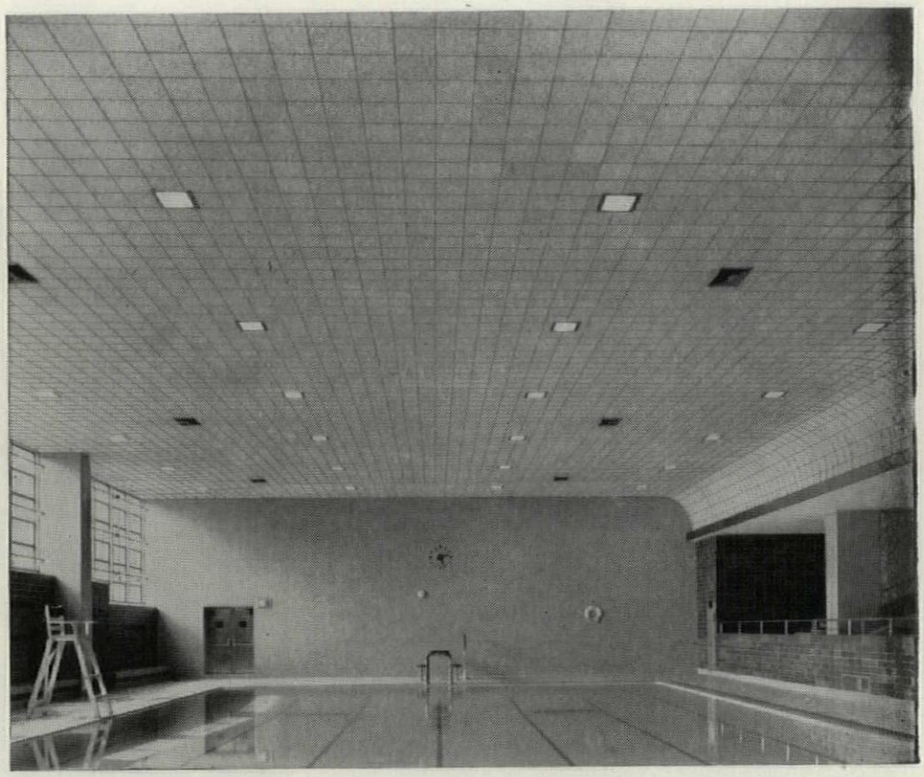
valves and fittings

60 EAST 42nd STREET, NEW YORK 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

SELECTING ACOUSTICAL MATERIALS





A RECREATION CENTER: Bronx, N. Y.

Architects: Brown, Lawford, & Forbes

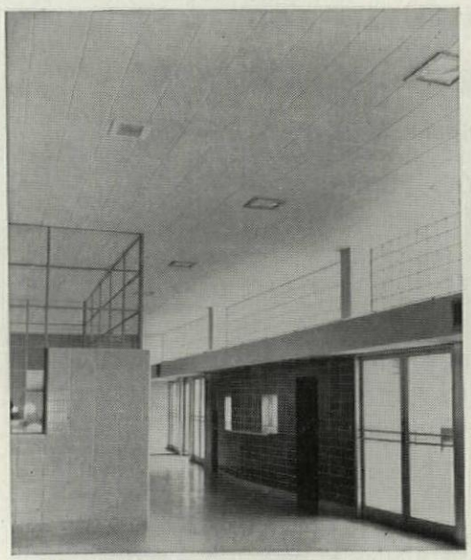
General Contractor: Rubin Construction Co.

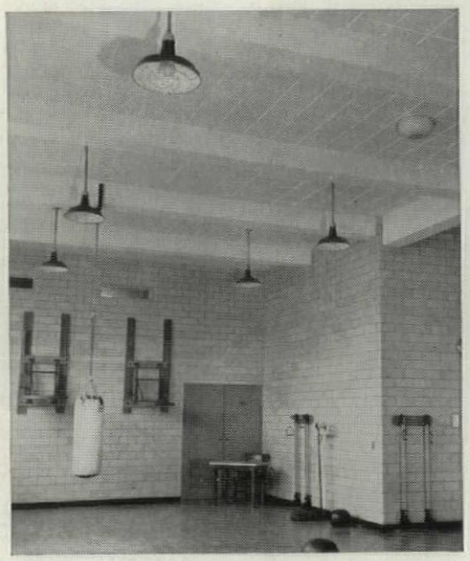
Acoustical Contractors: Hannam & Schede, Inc.

Other factors besides acoustical efficiency dictated the choice of acoustical materials for the swimming pool of St. Mary's Recreation Center. This area required a material that could withstand extreme moisture conditions, help to protect lighting and ventilating equipment above the ceiling, and bend to fit the ceiling curve.

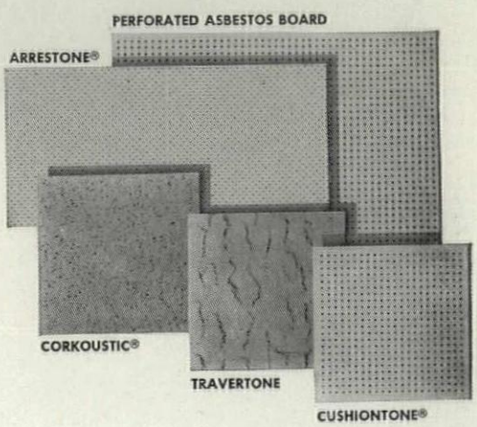
Armstrong's Corkoustic was chosen because it has high natural resistance to moisture. The pure cork composition of Corkoustic gives it a flexibility unusual in acoustical materials, and its textured surface provides both efficient sound absorption and architectural beauty.

The complete line of Armstrong's Acoustical Materials offers you a wide range of special features. Your Armstrong Contractor is ready to give you expert advice without obligation. Write for free booklet, "How to Select an Acoustical Material." Armstrong Cork Company, 5401 Stevens Street, Lancaster, Pennsylvania.





The lobby, gymnasium, and other rooms of St. Mary's are sound conditioned with Armstrong's Cushiontone, a wood fiber acoustical material. It was chosen for its low cost, high sound absorption, and clean, smart appearance. Cushiontone has neatly drilled perforations, and its washable white paint finish is high in light reflection.



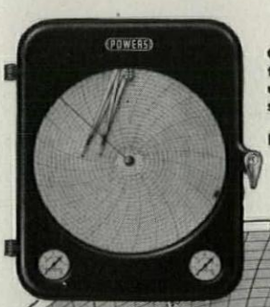
ARMSTRONG'S ACOUSTICAL MATERIALS

UNITED STATES CAPITOL
WASHINGTON, D. C.

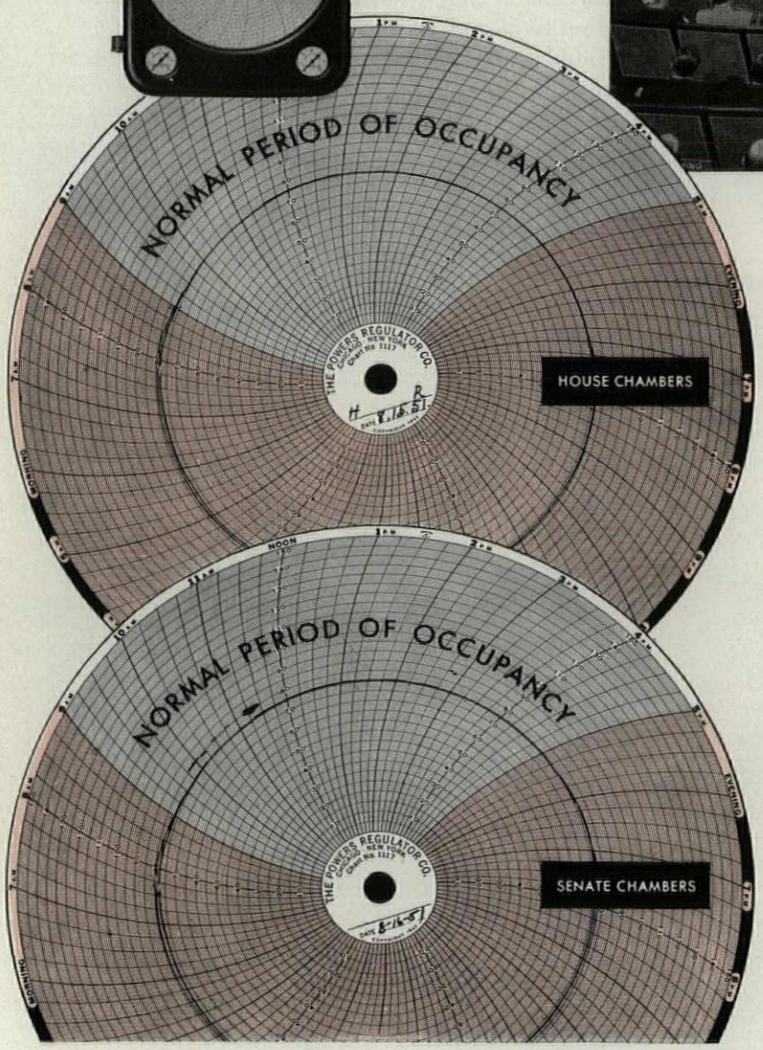
Uses POWERS® System of AIR CONDITIONING CONTROL

Right: Joint session of the Congress in the recently remodeled House of Representatives—listening to "State of the Union" address by the President.

In the historic House and Senate Chambers as well as the administrative offices in the Capitol, heating and air conditioning systems are regulated by a Powers system of pneumatic control.



Only a few of the many types of Powers Control used in the Capitol are shown here.
Left: Powers Two-pen Recording Controller.



World's Largest and Most Comfortable Legislative Hall is Regulated by—

POWERS AIR CONDITIONING CONTROL

◀ **Note Accurate Control in House and Senate Chambers**

Outdoor temperatures, during the period covered by the temperature charts varied between 75 and 95° F., yet indoor temperature was maintained constant from 9 A.M. to 5 P.M. One temperature sensitive bulb is located near the speaker's rostrum, another is in the gallery. Note separate lines during the off period of control and how the two lines merge into one when Chambers were occupied.

THE POWERS REGULATOR CO.

3400 OAKTON ST., SKOKIE, ILLINOIS • Offices in Over 50 Cities

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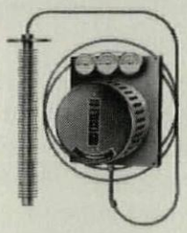
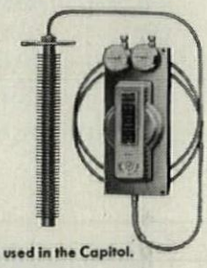
Experience gained by Powers in supplying dependable temperature and humidity regulation for these buildings may be helpful to you. When your problems involve precise control for heating or air conditioning, contact Powers nearest office . . . in over 50 cities.

Powers Room Type Thermostat

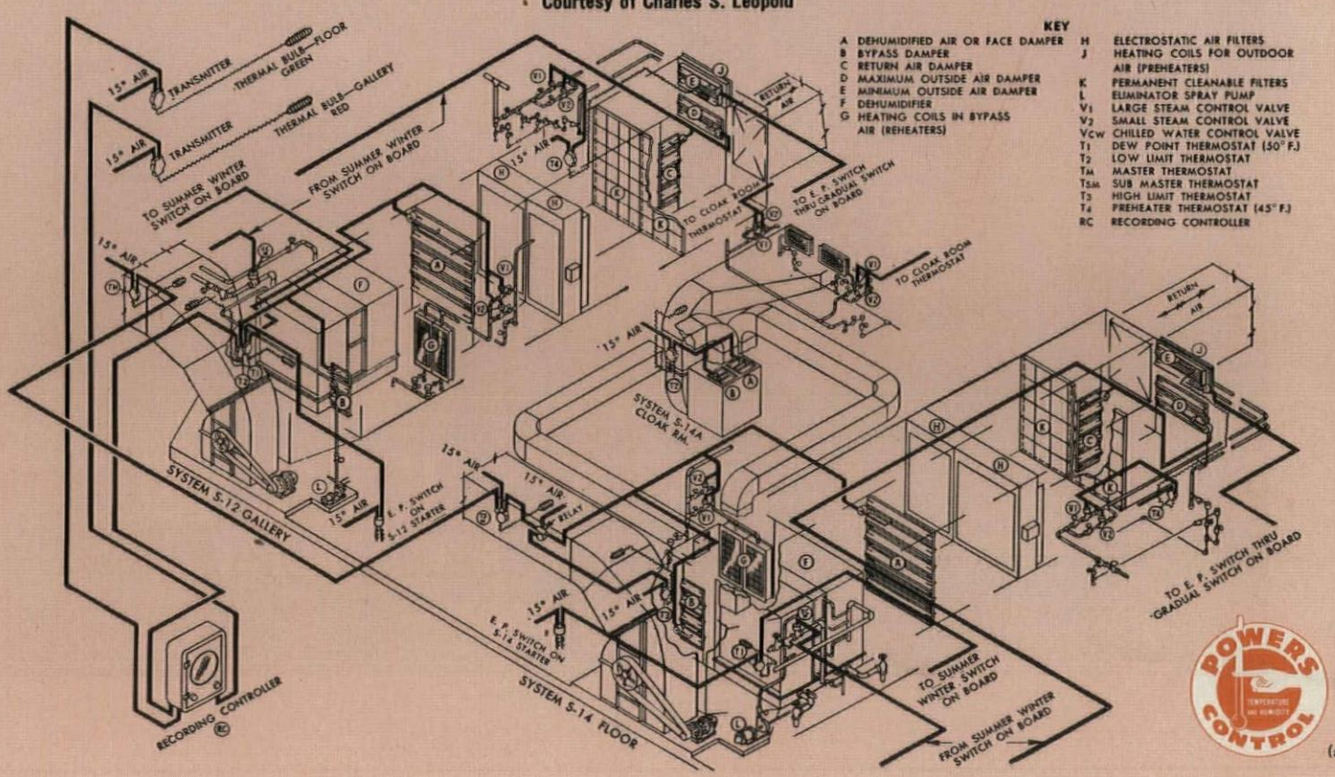




Powers Remote Bulb Thermostats for Dew Point, Low and High Limit, Preheater, Master and Sub-Master Control —only a few of the many controls used in the Capitol.

AIR CONDITIONING APPARATUS DIAGRAM FOR OPERATION AND MAINTENANCE OF SYSTEMS IN THE HOUSE AND SENATE CHAMBERS

Courtesy of Charles S. Leopold



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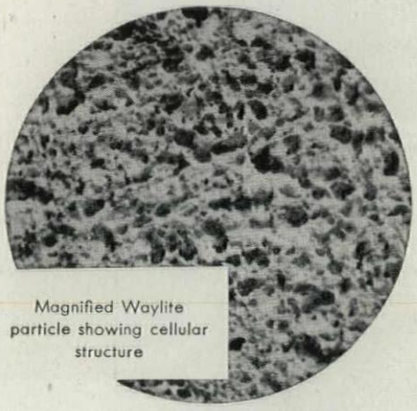


Magnified Waylite particle showing cellular structure

MORE THAN

1,000,000 CUBIC YARDS OF WAYLITE AGGREGATE

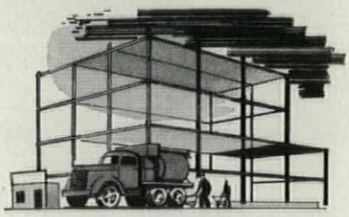
FOR THE CONSTRUCTION INDUSTRY IN 1952

WITH THE COMPLETION of an additional production unit, The Waylite Company now has production capacity in excess of 1,000,000 cubic yards of lightweight concrete aggregate per year. In the past two years over 1,700,000 cubic yards of Waylite aggregate has been furnished to the construction industry.

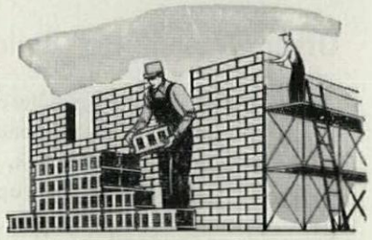
A Waylite processing plant in operation is in itself a sight to see. Molten slag at 2000° F to 2500° F temperatures as it comes from the blast furnaces is poured into a giant mixer, agitated in saturated steam and the inherent gases create air cells which are completely sealed.

Crushed and accurately sized, this is Waylite—the lightweight aggregate with plus values—that imparts desirable new qualities in modern structures.

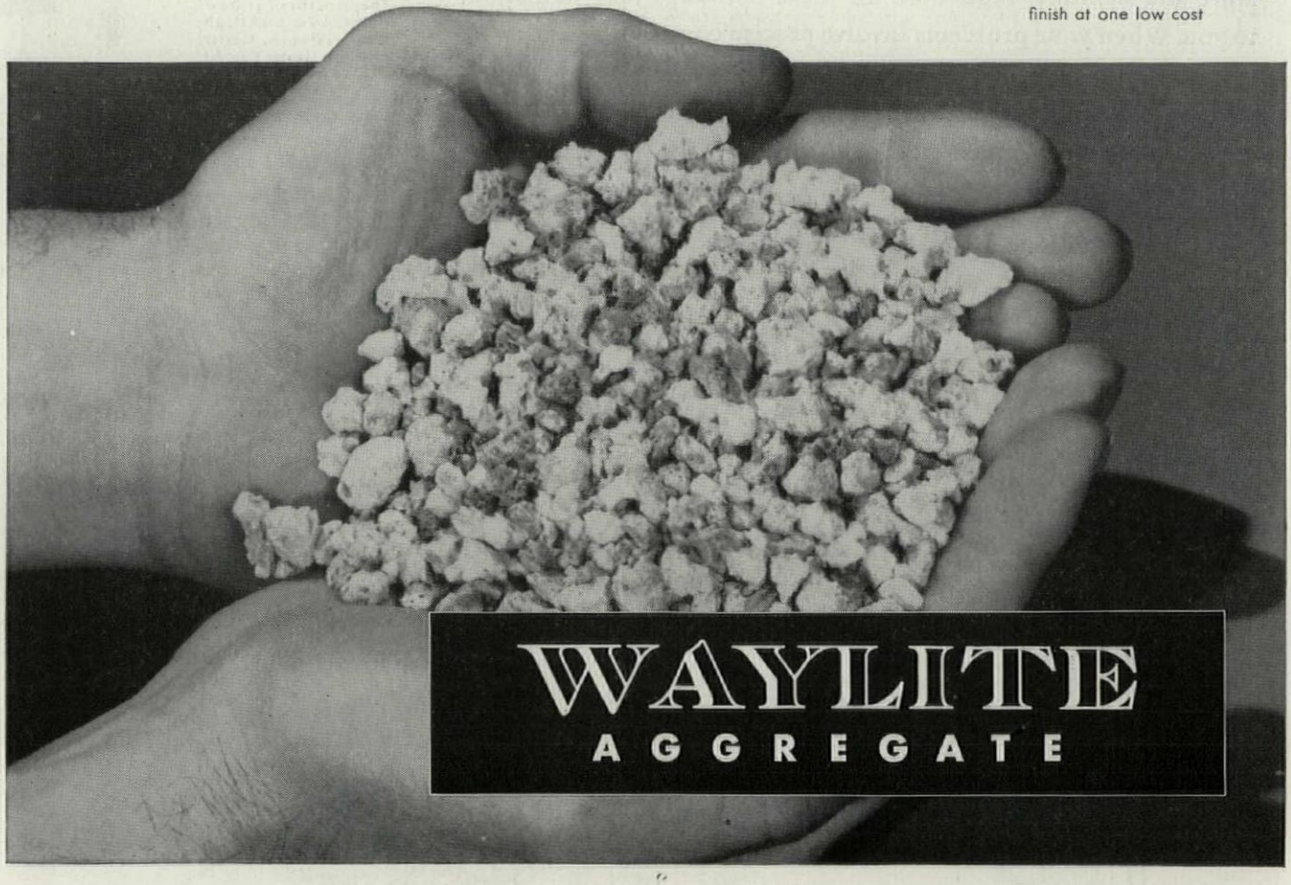
Waylite aggregate is backed up with twenty years of "know how" and used in many types of structures. Our 16-page catalog in Sweet's or sent free on request. Address the Waylite Co., 105 W. Madison St., Chicago or Box 30, Bethlehem, Pa.

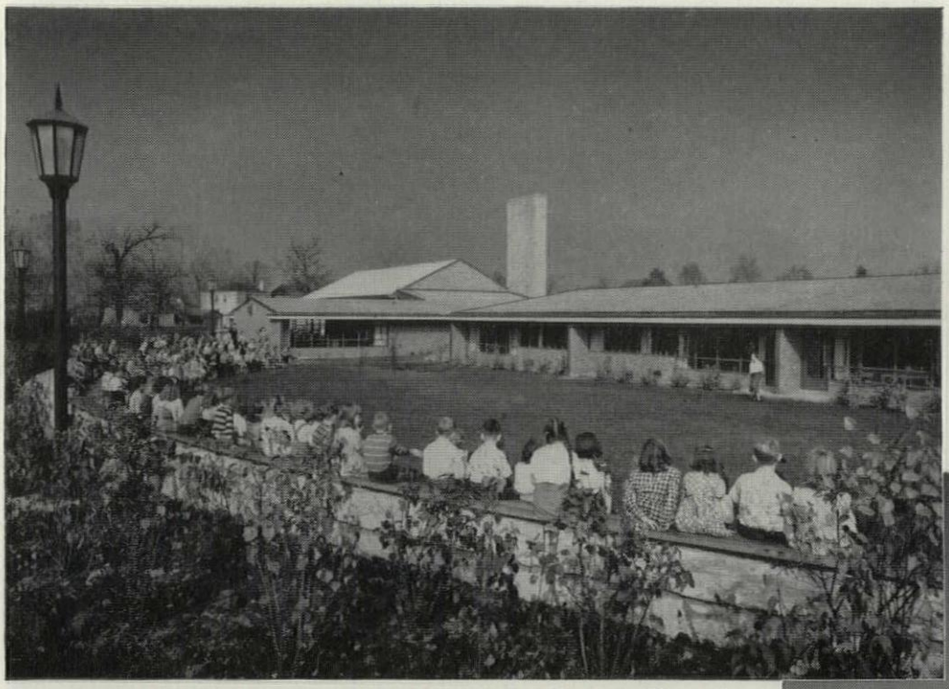


Lightweight Waylite concrete saves structural steel



Waylite provides an insulative structural wall with a decorative acoustical finish at one low cost



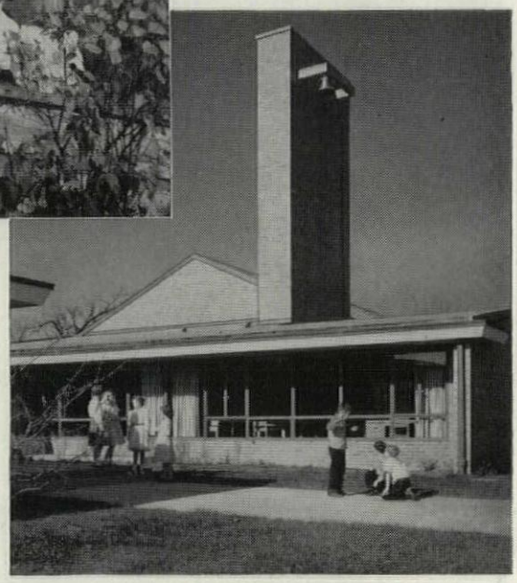


PERKINS & WILL
architects and engineers

CHELL & ANDERSON
general contractors

NORTHERN PLUMBING AND HEATING CO.
plumbing contractor

COLUMBIA PIPE AND SUPPLY CO.
plumbing wholesaler

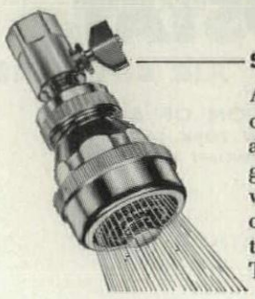


The campus of BLYTHE PARK ELEMENTARY SCHOOL *is a 5-acre public park. Adjoining the building is a lighted amphitheatre (above) for school activities and for many community uses.*

ADULTS, TOO, ARE GROWIN' UP...

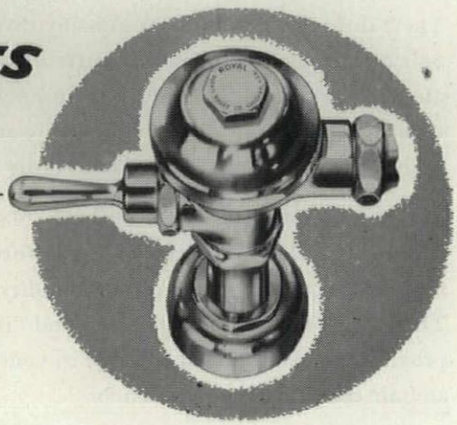
• Finally, we grown-ups are learning that ordinary school rooms have more of a jail than joyous effect. We are realizing that emotional comfort is essential to mental development. For the new Blythe Park elementary school at Riverside, Illinois, the designers used every possible device for making children's first separation from home undisturbing. This unique and friendly building, incorporating separate units for kindergarten children, older boys and girls, and community adult activities, reflects the most painstaking planning in every detail. At the beginning and continuing through to completion, highest standards of product quality and performance prevailed. As are a vast number of other schools and fine buildings of every kind, this Riverside school is equipped with SLOAN *Flush* VALVES.

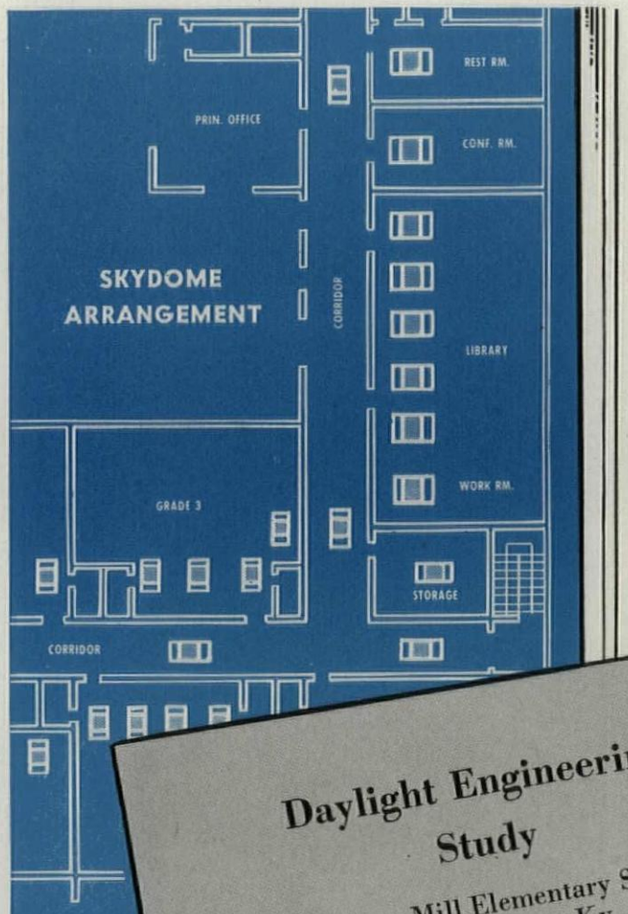
more **SLOAN** *Flush* **VALVES**
are sold than all other makes combined



SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

Another achievement in efficiency, endurance and economy is the SLOAN *Act-O-Matic* SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. When turned on it delivers cone-within-cone spray of maximum efficiency. When turned off it drains instantly. It gives greatest bathing satisfaction, and saves water, fuel and maintenance service costs. Try it and discover its superiorities.





First Step to Better Daylighting:

A Wasco Daylight Engineering Study

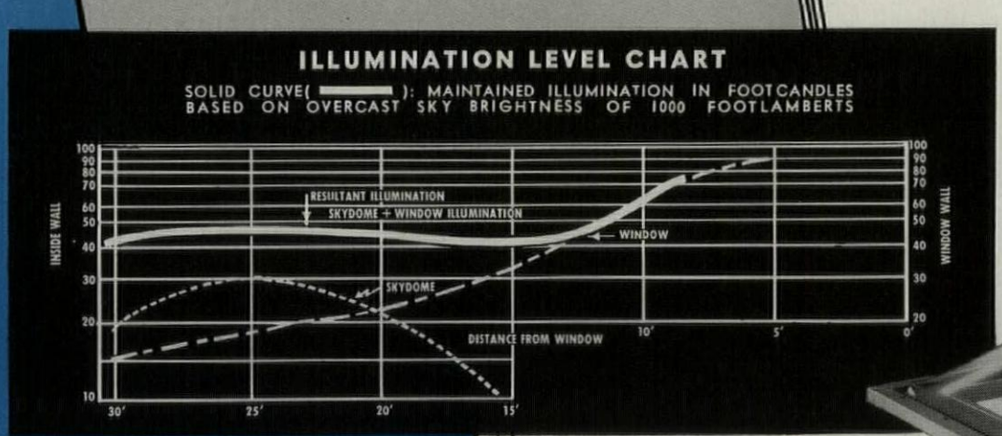
A Wasco daylight engineering study of your building project is now available without cost or obligation. This study will show the correct number, size, type and spacing of Wascolite Skydomes . . . the illumination level maintained . . . other vital data. *Result:* superior daylighting at lower cost. Just send blueprint and illumination requirements; our daylight engineers will prepare recommendations promptly.

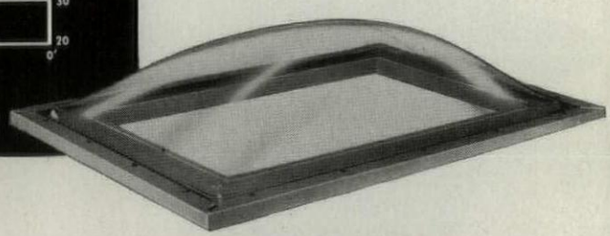
Daylight Engineering Study

For: Clays Mill Elementary School,
Fayette County, Ky.

Arch't: John F. Wilson, Lexington, Ky.
Date: November 10, 1951

Prepared by
Daylight Engineering Dept.
Wasco Flashing Company
Cambridge 38, Mass.





Prefabricated Wascolite Skydomes transmit 62% more daylight than conventional skylights . . . are weather-proof, shatter-resistant and maintenance-free . . . come in three basic shapes and with clear colorless or white translucent acrylic domes.

WASCOLITE SKYDOMES®
PATENT PENDING

"62% More Light On The Subject"

WASCO FLASHING COMPANY, 87 FAWCETT ST., CAMBRIDGE 38, MASS.

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PORTLAND CEMENT

. . . for architectural concrete units, terrazzo, stucco, cement paint

Wherever beauty and good appearance are important factors—use Trinity White. It is the *whitest* white cement. It is a true portland cement that meets ASTM and Federal specifications.

Trinity Division, General Portland Cement Co., 111 W. Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 W. 5th St., Los Angeles; 305 Morgan St., Tampa; Volunteer Building, Chattanooga.

as white

as snow

the whitest white cement...

PLAIN OR WATERPROOFED

you can always be sure

Von Duprin

puts QUALITY first of all!

Consider the Von Duprin A²—the very *finest* rim type exit device. All drop-forge bronze. Double-acting crossbar—X-Bar reinforced!

● Decade after decade, Von Duprin has put *quality* first in the manufacture of fire and panic exit devices. Even now, with more and more materials going for defense, there will be no compromise in quality—or workmanship.

In view of the current material restrictions, you can expect a reasonable delay between the time your order is placed and when it is delivered. For this reason, we suggest you advise us of your needs *as soon* as they are anticipated. We will process each order as quickly as we can. *But we will never sacrifice safety, merely to satisfy speed!*

This is our promise to you . . . and with it, your assurance that *every* Von Duprin device will *always* provide rapid, dependable exit . . . "The *Safe* Way Out!"

Don't "bargain" in human life. Specify only Von Duprin.

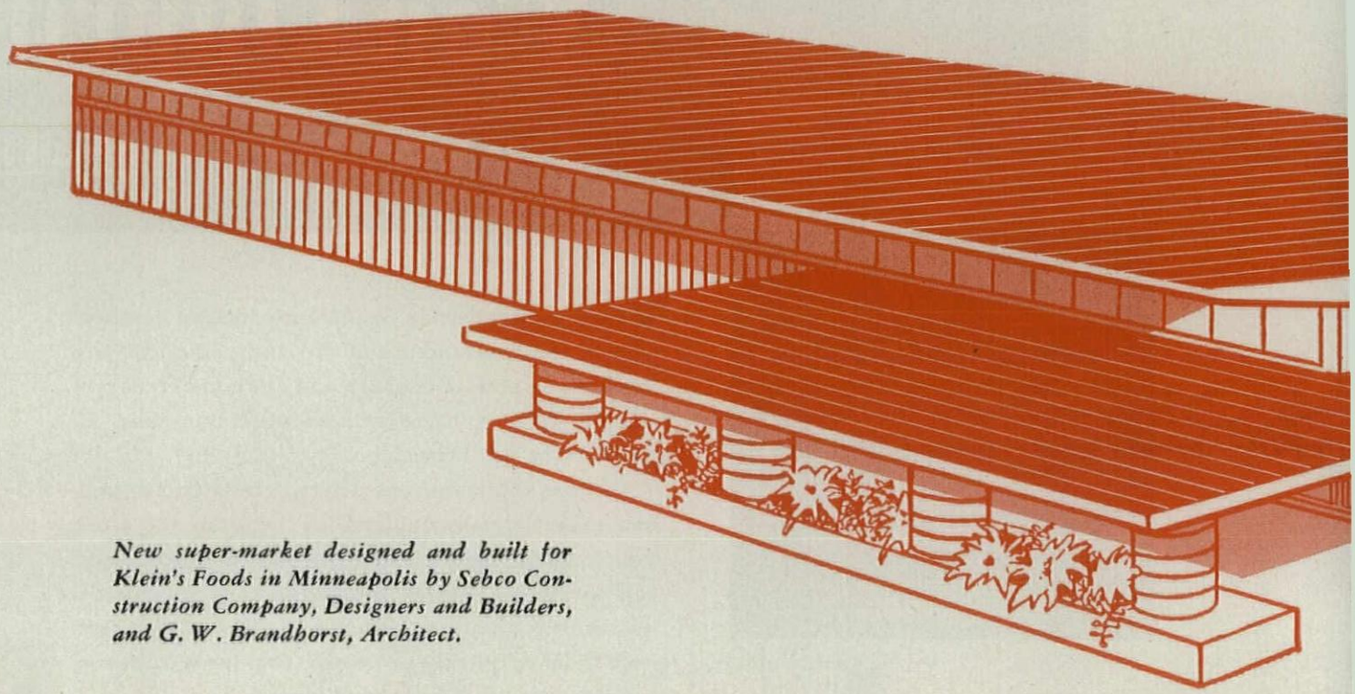
UL FOR ACCIDENT HAZARD

LET YOUR VON DUPRIN "EXIT ENGINEER" SHOW YOU "THE *SAFE* WAY OUT!"—Von Duprin "Exit Engineers"—factory representatives and contract hardware distributors—are located for your convenience in key cities across the nation. Each has the engineering and hardware experience to aid you in your exit planning. Each has all the facts on Von Duprin devices and accessories to save you time on specifications. Get acquainted with the Exit Engineer in *your* area—consult him on all of your exit problems. For his name, write:

Von Duprin PANIC DEVICES ASSURE SAFE EXIT

VONNEGUT HARDWARE CO.
VON DUPRIN DIVISION, INDIANAPOLIS 9, IND.

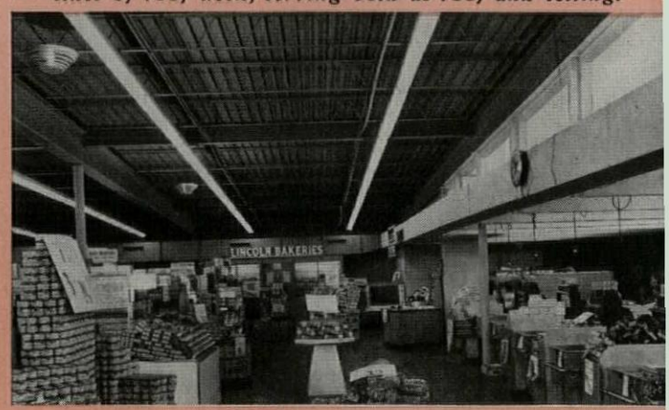
A ROOF THAT'S A CEILING



New super-market designed and built for Klein's Foods in Minneapolis by Sebco Construction Company, Designers and Builders, and G. W. Brandhorst, Architect.

Here a Wheeling representative takes a close-up look at fixtures, fastened directly to roof structure.

Sense of perspective and depth is enhanced by parallel lines of roof deck, serving both as roof and ceiling.

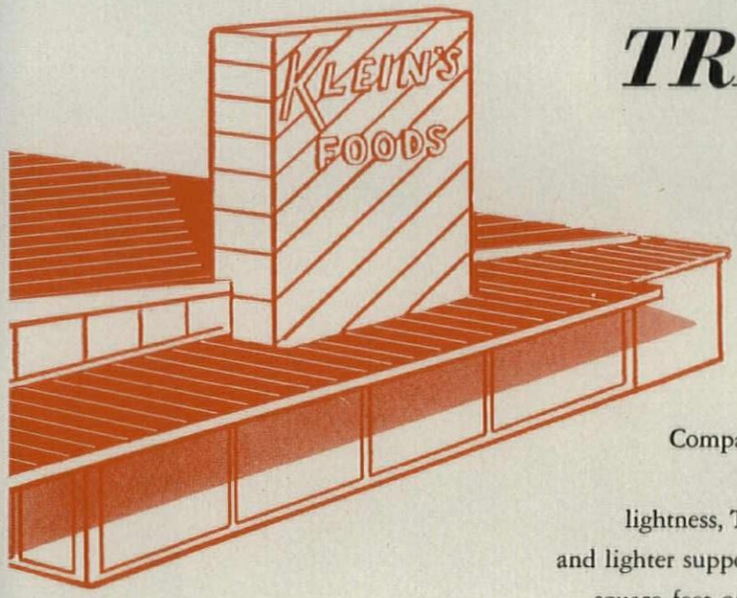


Tri-Rib Roof Deck is but one of many Building Materials for which Architects and Builders turn to Wheeling. The Wheeling line of building materials includes: Steelcrete Reinforcing Mesh • Expanded Metal • Metal Lath and Metal Lath Accessories • Tri-Rib Steel Roof Deck • ExM Angle Frame Partitions • ExM Vault Reinforcing to meet #10 Insurance Classification

WHEELING CORRUGATING COMPANY • BUILDING MATERIAL DIVISION

ATLANTA BOSTON . BUFFALO CHICAGO COLUMBUS DETROIT KANSAS CITY LOUISVILLE MINNEAPOLIS NEW ORLEANS

TOO... IT'S WHEELING TRI-RIB STEEL ROOF DECK!



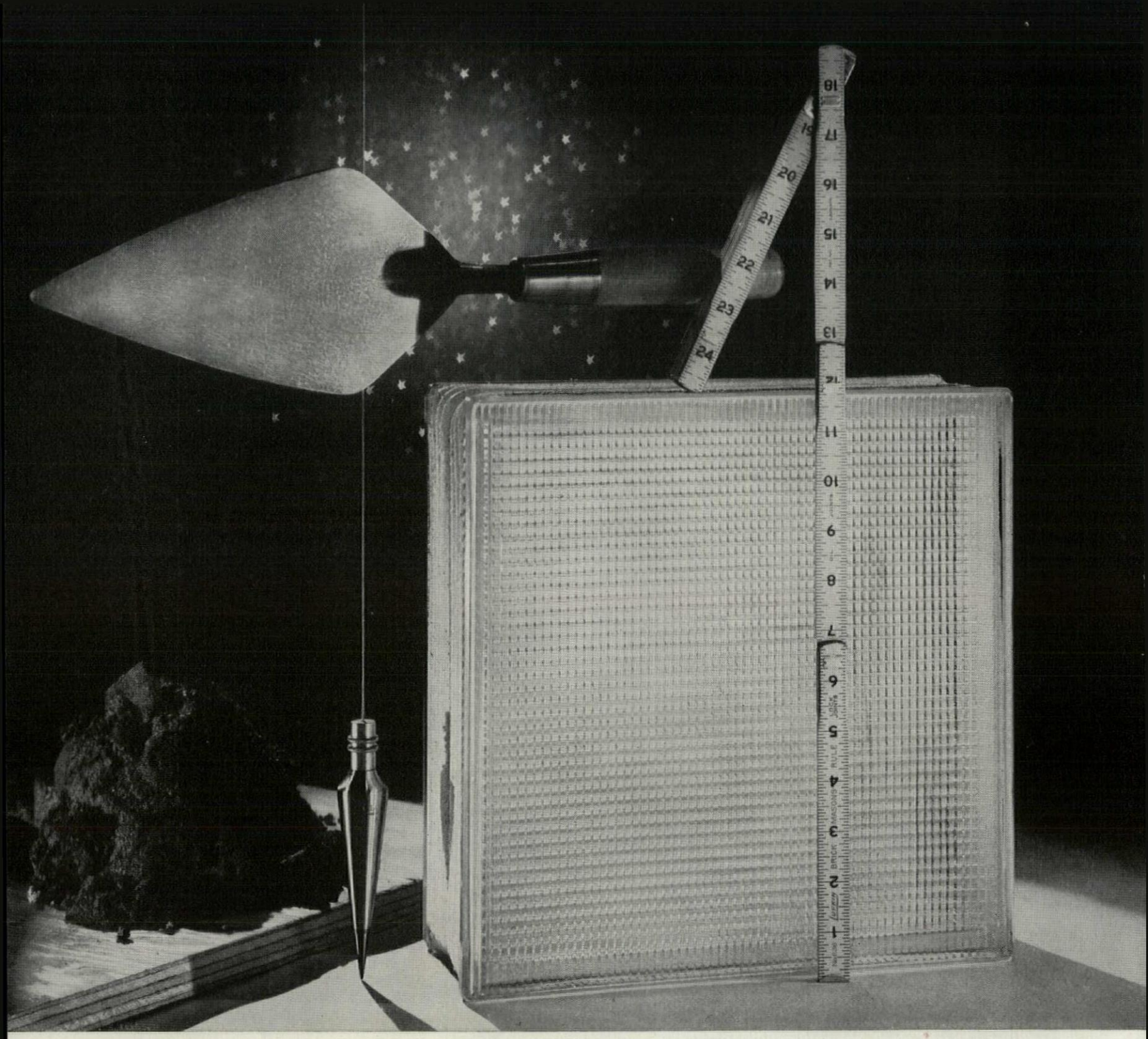
In this Minneapolis super-market, Sebco Construction Company achieves an unusually "wide-open" interior, made possible through use of Wheeling Tri-Rib Roof Deck. Because of its lightness, Tri-Rib allowed use of longer span joists, lighter roof structure and lighter supporting members—a saving of 25 lbs. of supports for each 100 square feet of deck! Taking advantage of Tri-Rib's pleasing appearance, the designers omitted underfinish, permitting the deck sheets themselves to form the "ceiling." The long parallel lines of the ribs thus add to the perspective and sense of space.

Spaciousness of interior is clearly seen here, with minimum of columns—even those of lightest weight.

Wheeling
CORRUGATING COMPANY
®

WHEELING, WEST VIRGINIA

NEW YORK PHILADELPHIA RICHMOND ST. LOUIS



Announcing the FIRST 12-INCH light-directing glass block!

THE new Insulux No. 463 Glass Block has all the features of the smaller 8" No. 363.

- **. . . same light-directing and light-controlling qualities**
- **. . . same face coating from which even hardest, dried-on mortar rubs off easily and quickly. Virtually eliminates post-construction cleaning expense**
- **. . . same 3⅞" thickness**
- **. . . same identifying gold stripe that gives instant identification of top inside of block**

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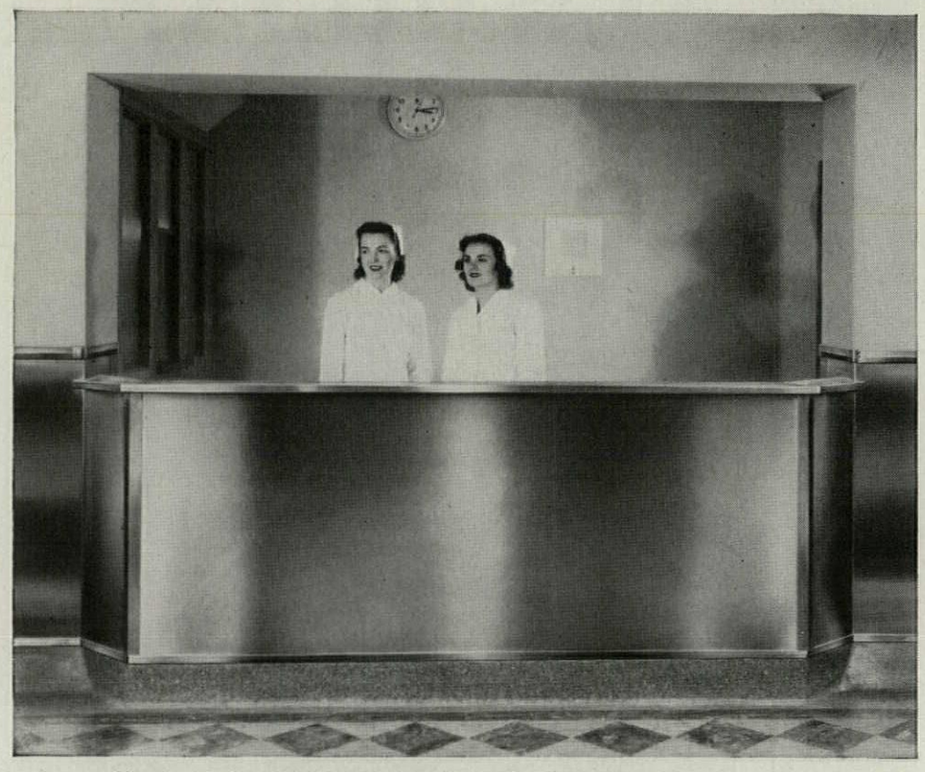

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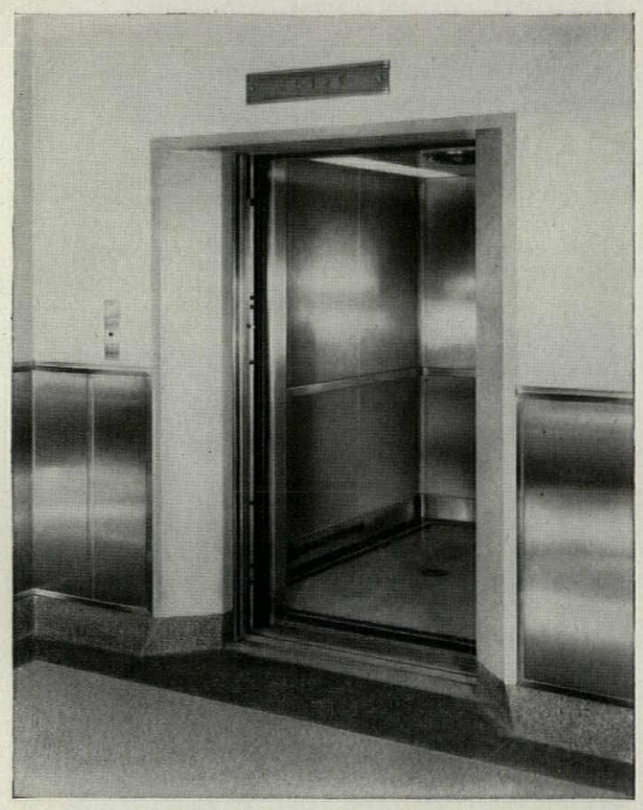

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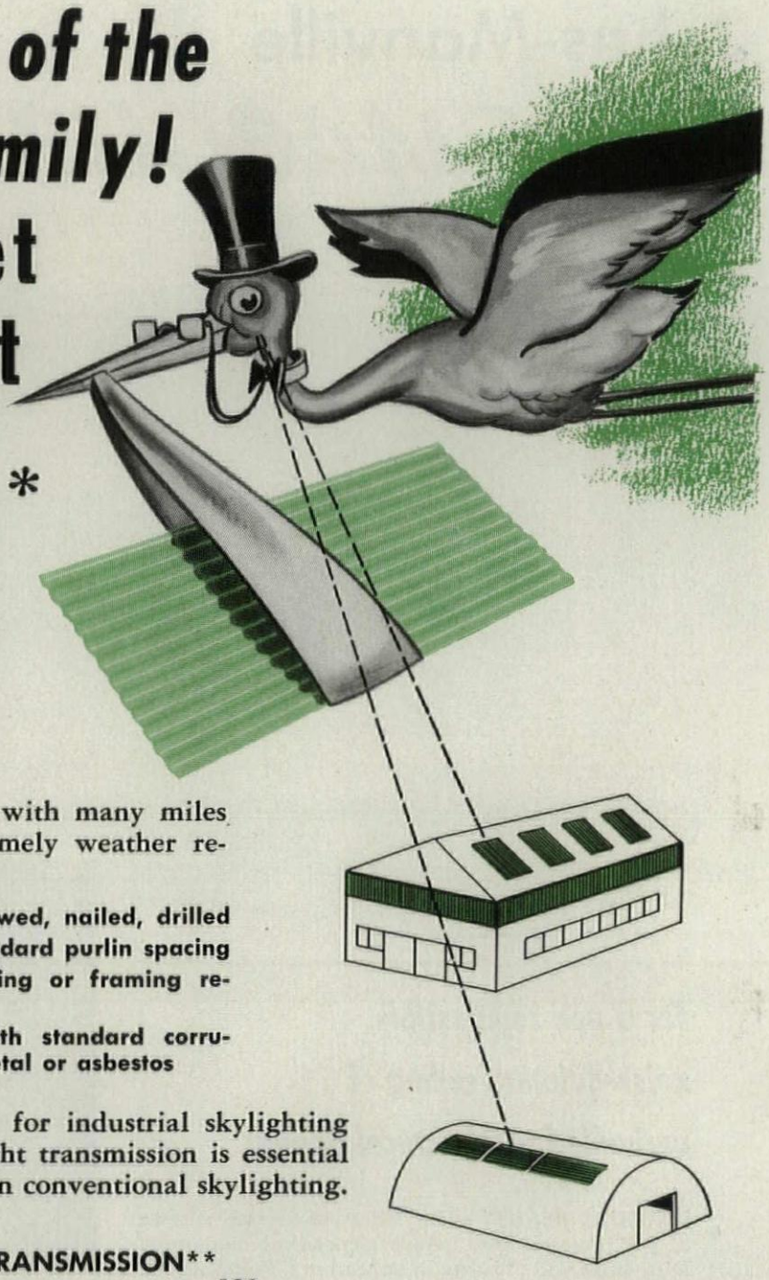

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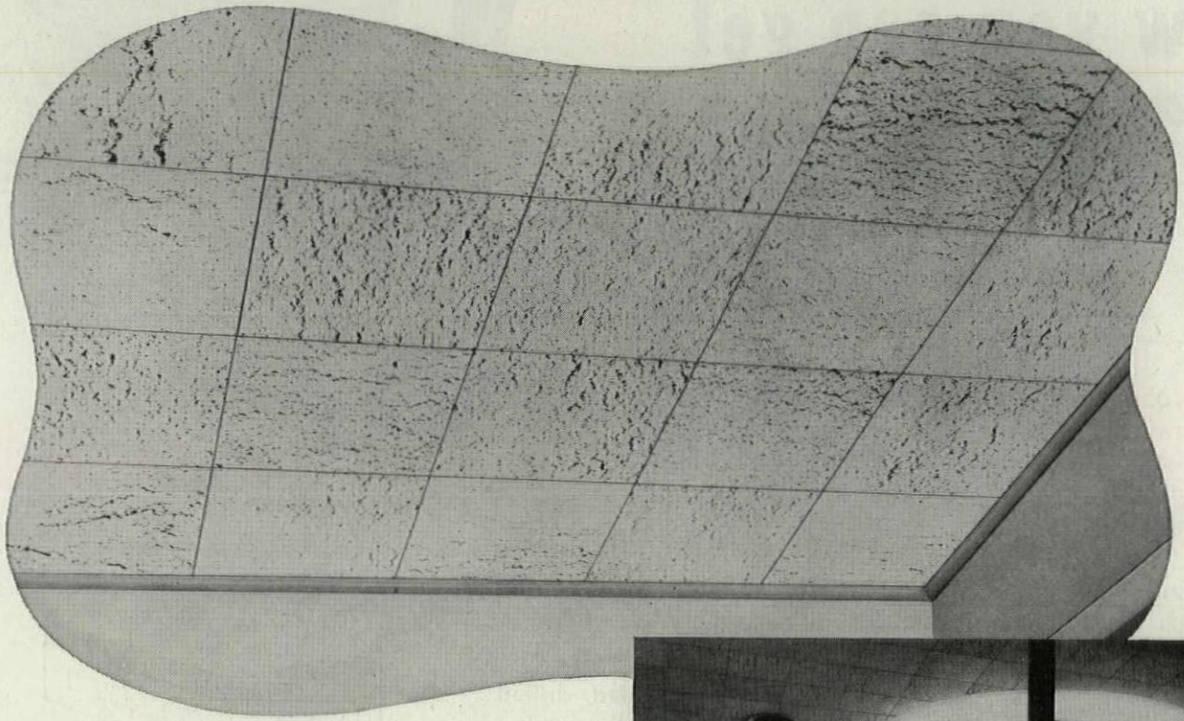

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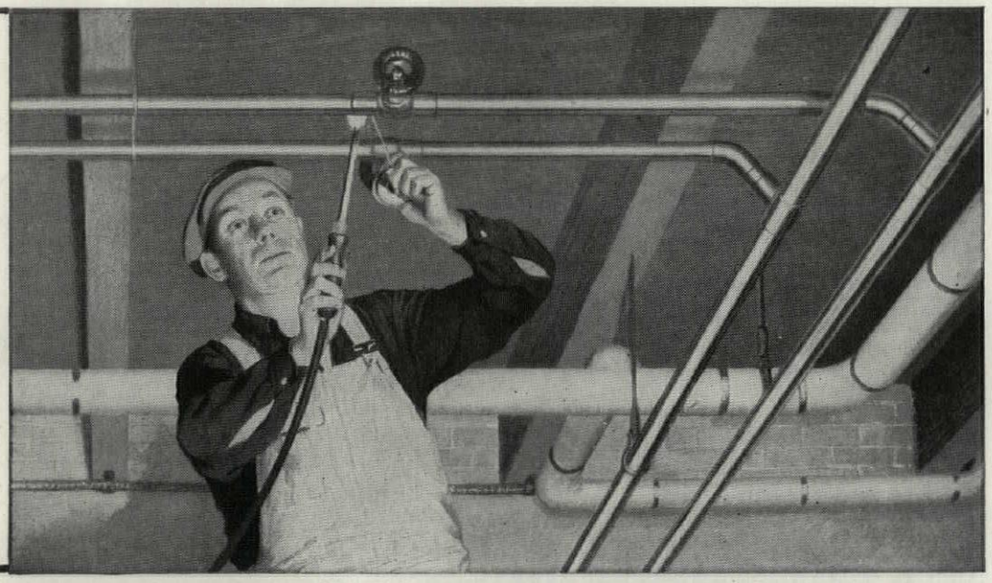

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Photos: Len Rosenberg

PLEA FOR MATERIALS by New York labor unions, contractors brought DPA Chief Manly Fleischmann to meeting with construction bigwigs including (L) Architect Louis Skidmore.

Standing beside Johns-Manville V.P. George Dandrow and Manhattan Borough President Robert F. Wagner, Jr., Fleischmann gave first hint he would approve allocating all materials at once.

Bay window of Peter Eller, chairman of Building Trades Employers Council, helps Labor Leader Howard McSpedon make a point. McSpedon warned 46% of New York's building workers.

Jamming elaborate presentation by worried Gothamites into his inevitable briefcase, Fleischmann hurried off to make another speech, leaving . . .

. . . still worried building leaders discussing their problems. L to r.: McSpedon, Architects Max Foley and Louis Skidmore, Dandrow, Contractor H. C. Turner, Jr. A later meeting enlisted aid of New York Congressmen.

Dandrow (1) and Engineer John Hennessy (r) gave Sen. Herbert Lehman's executive assistant, Julius Edelstein, a fill-in. By mid-January, N. Y. legislators were raising Grade A cry.

Mobilizers Tighten Squeeze On Building; Factories, Housing Hit

An Aberthaw Construction Co. executive, back in Boston from a trip to Washington to plead for copper, summed up the building industry's temper this month. Said he:

"I got the feeling that everybody was glad to see me and that everybody was just waiting to put their whole time in on my particular problem. But nothing definite was done (to help), and I got no definite answer, and although we have reapplied for the project, no one has given us either a rejection or a go-ahead. Yes, they are very cooperative in Washington. They usher us into marble halls, lay out the carpet, lead us to a comfortable chair—and then pull the chair out from under us as we start to sit down."

Mobilization officials listened politely to the growing cry that CMP was causing building unemployment to zoom, was so blunderingly administered that it imposed needless hardships on hundreds of individual firms (see p. 40), cheerily promised to consider the problems again. But when the time for action came, the industry felt not only the chair but the rug, too, had been yanked away.

Cutbacks & alibis. Most of the bad news was spilled to NPA's construction industry advisory committee, summoned to Washington Jan. 9 for the first time since it was peremptorily dismissed last June. New NPA Chief Henry H. Fowler revealed:

- There will be almost no new industrial starts during the April-June quarter of '52 because "military and defense-supporting programs" need more and more structural steel, copper and aluminum, and because:
- DPA has discovered (after six months trial and grave error) that the 15% overallotment of controlled materials which worked during World War II doesn't work in today's guns & butter economy. Therefore overallotment, reduced from the 4th quarter's 15% to 12% for the first quarter, would have to be pared down to 5% to "preserve CMP's solvency."
- Even for construction already approved by NPA and well under way, the future was iffy. It would get materials to complete if there were any after military demands.

Housing cut 40%. The rest of the bad news came same day from DPA Chief Manly Fleischmann: Materials for housing would be cut to 60% of 1951 consumption (or 23% below 1952's target of 850,000 houses). How to make this 40% cut would be up to HHFAdministrator Foley, who didn't like the order in the first place. Probably, HHFA will put limits on house sizes, perhaps by square footages, perhaps by limiting number of bathrooms. If this fails, Foley was thinking of quotas.

The cutback should not have taken homebuilders by surprise. Officials gave clear warning last fall that if relaxed credit controls made 1952 look like another million house year, they would use the subterfuge of materials controls to put on the brakes. The announcement brought a roar of protest from the National Association of

IN THE NEWS

Among the next 31 pages are reports on these important developments:

NEWS continued on p. 40

One Source...One High Standard for DOORS...

Whether your projects call for doors made to standard specifications or for a special engineering approach and custom fabrication to rigid requirements, the Peelle-Richmond organization is equipped to serve you. Peelle-Richmond design, engineering and installation of such products as jet engine test cell doors and motorized partitions reflect the resourcefulness born of long experience.

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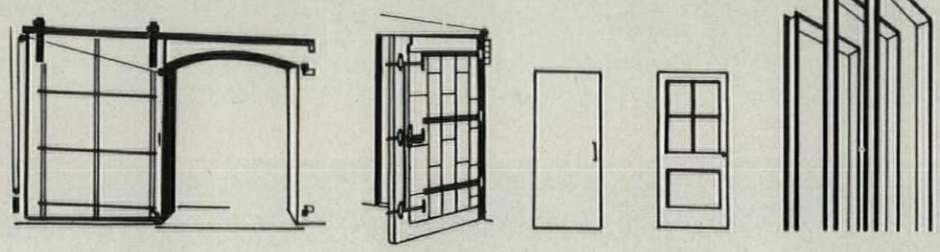

Underwriters' fire doors: metal clad; single-slide and double-slide

Underwriters' fire doors: metal clad; single-swing and double-swing

Kalamein doors: flush design or paneled; single or double-swing

Industrial steel doors: slide, single or double-swing

Welded steel frames and universal knockdown frames for fireproof doors; also frames of special widths and heights to order

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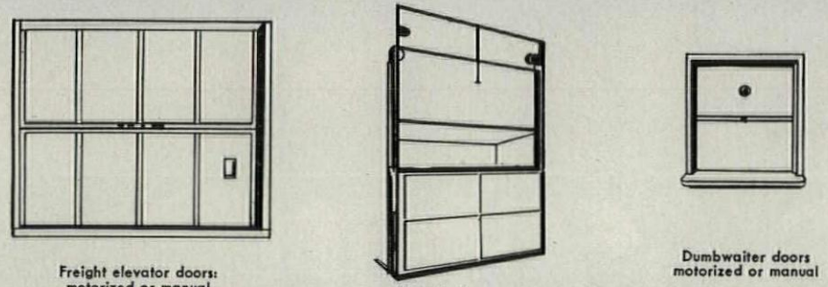
motorized and manual



Freight elevator doors: motorized or manual

Motorized car gate

Dumbwaiter doors motorized or manual

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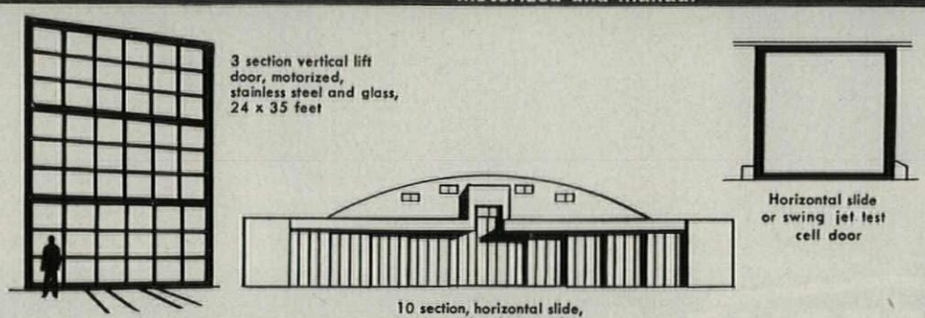
motorized and manual



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Horizontal slide or swing jet test cell door

10 section, horizontal slide, center parting, hangar door

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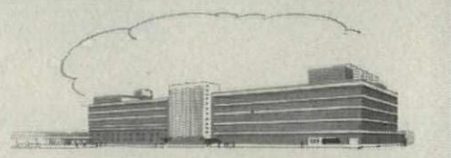
PEELLE-RICHMOND

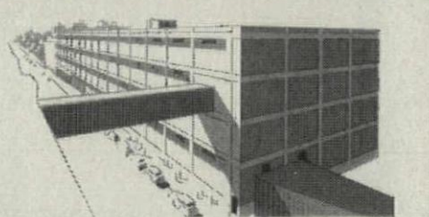
Colgate-Palmolive-Peet Building; Jeffersonville, Indiana
Albert Kahn Assoc. Arch's & Eng's, Inc.; Builders: Turner Construction Co.



Abbott Laboratories, North Chicago, Illinois
Architects: Naess & Murphy Builders: John Griffiths & Son Constr. Co.

A FEW OF THE MANY FINE BUILDINGS THROUGHOUT THE COUNTRY IN WHICH PEELLE-RICHMOND DOORS ARE INSTALLED

Standard Oil Company #3 Barrel House; Whiting, Indiana
Engineers: Standard Oil Company; Builders: George A. Fuller Co.



U. S. Rubber Company Warehouse; Eau Claire, Wisconsin
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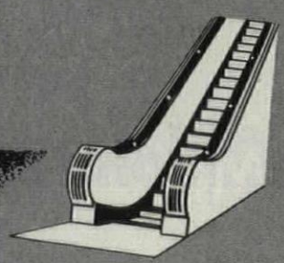
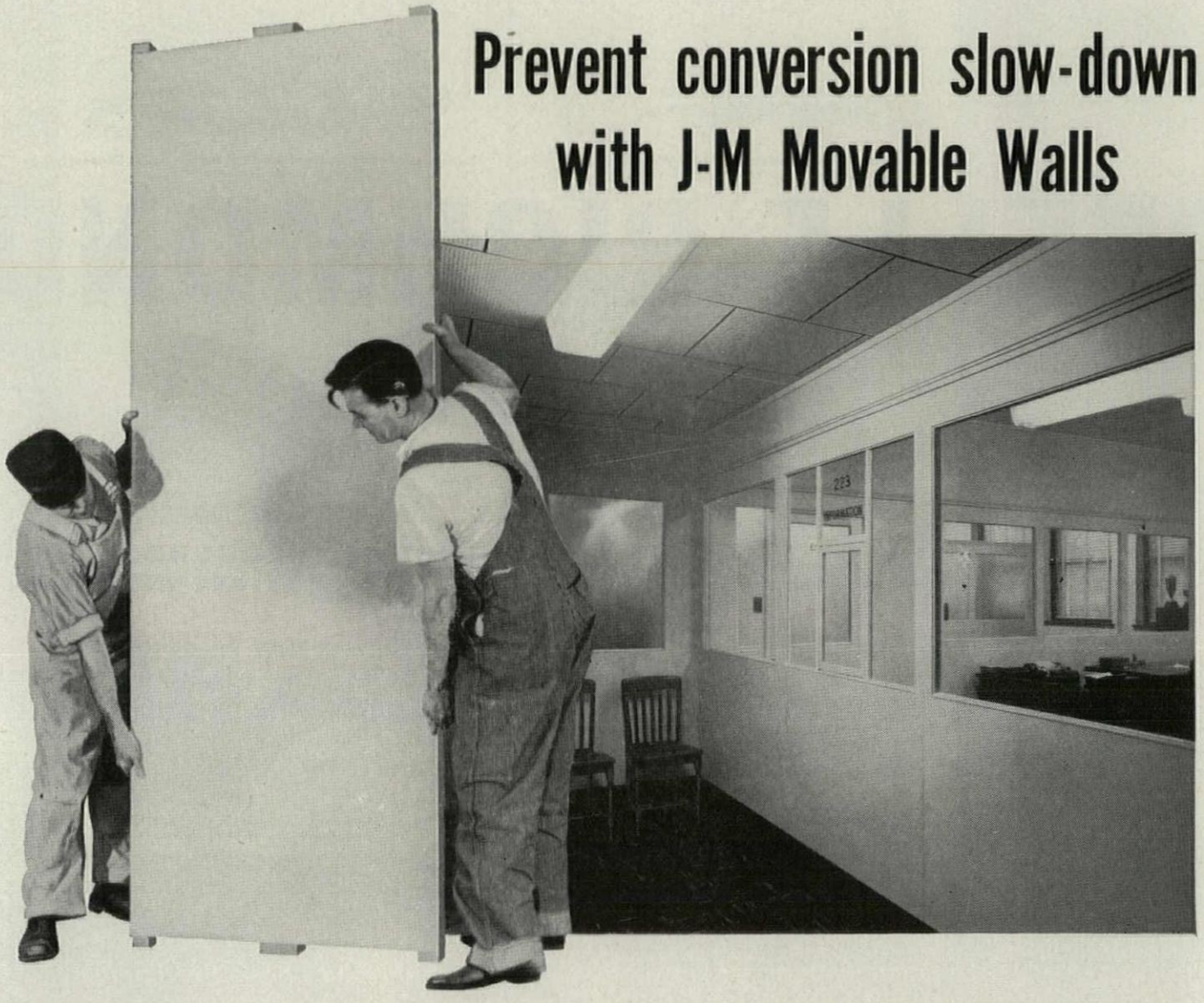


Prevent conversion slow-down with J-M Movable Walls



Johns-Manville Asbestos Universal Movable Walls are readily available. Made of noncritical materials, they give you complete freedom in planning or rearranging space

● Reallocation of existing space and partitioning of new space can be done easily and quickly with Johns-Manville Universal Movable Walls. Made of asbestos, these walls are ideally designed to help business and industry meet the space problems involved in the defense effort.

The flush panels have a clean, smooth surface that's hard to mar, easy to maintain, and will withstand shock and abuse. They're light, easy to erect and to relocate. The "dry wall" method of erection assures little or no interruption to regular routine.

Johns-Manville Movable Walls may be used as ceiling-high or free-standing partitions. The complete wall, including doors, glazing and hardware, is installed by Johns-Manville's own construction crews and under the supervision of trained J-M engineers.

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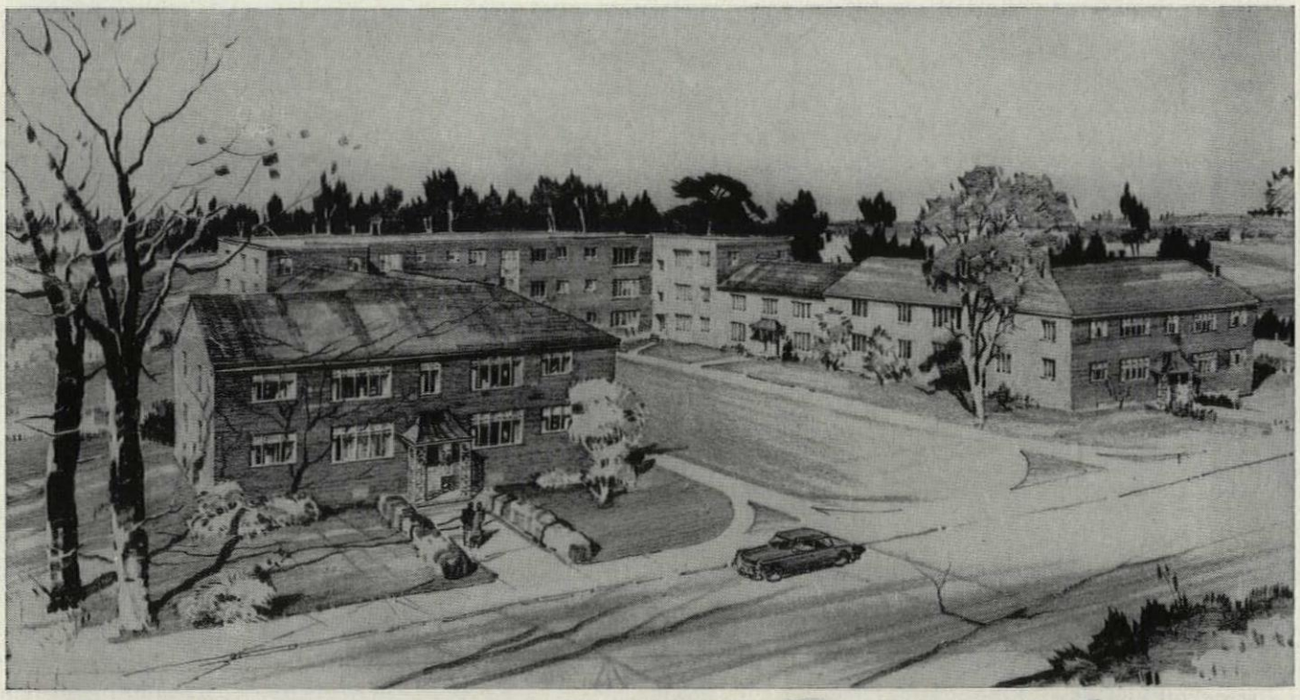
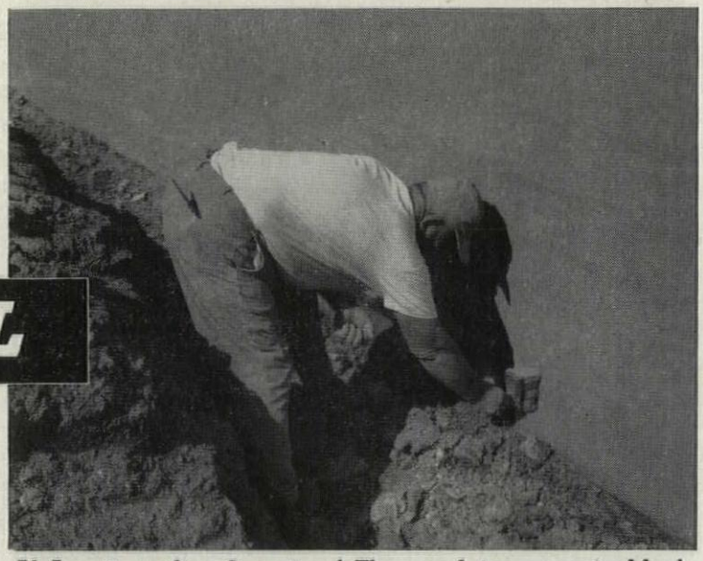


A dry foundation for Swifton Village

1200 UNITS AT THE NEW SWIFTON VILLAGE, CINCINNATI, OHIO.

The above illustration is an architect's conception of a section of the new housing project that will house, when completed, 4,500 people, covering 36 acres



Al Loreti applies 2 coats of Thoroseal to concrete block foundation, as sure protection against rain and dampness.

THOROSEAL

Developed and built by The Jonathan Woodner Company, of Washington, D. C., the project, when completed, will total $25,000,000. The Thoro System materials, used on this project, furnished by the Oakley Coal & Supply Company, through The Nurre Company, Cincinnati.

WATERPLUG Stops leaks

THOROSEAL Seals surface

QUICKSEAL Beautiful finish

For 39 years, The Thoro System materials have been protecting above and below-grade masonry, where constant dampness, caused by rain, destroys unprotected masonry.

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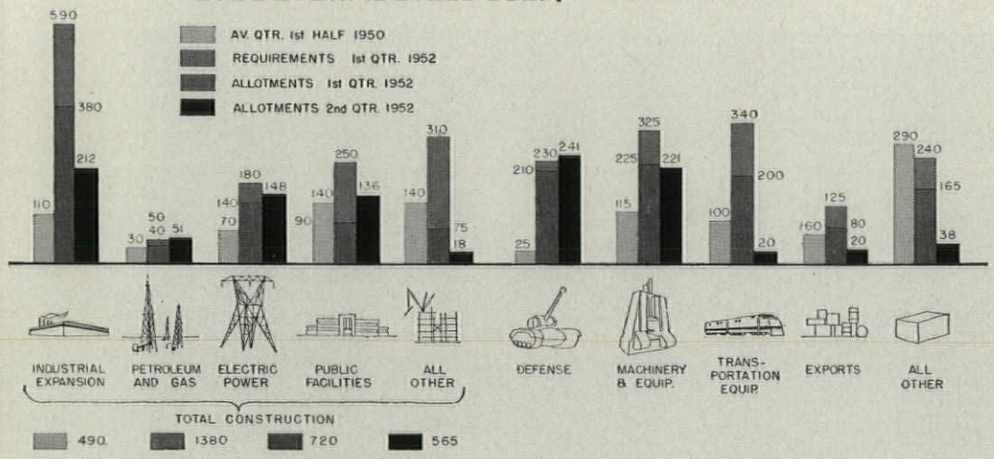


Industrial construction will suffer the stiffest curtailment since World War II in the second quarter of 1952 as a result of cutback in structural steel allocations shown here in chart adapted from NPA figures. Petroleum and electric power allocations go up, while commercial building (lumped with "all other") shrinks to 7,425 tons, about enough for one medium-sized office building.

Home Builders. President W. P. Atkinson forecast it would cause building trades unemployment to soar to 400,000, force home prices up by creating a new housing shortage, and still save only 0.42% of steel production, 0.94% of copper production.

There was some evidence that the housing cutback *was* subterfuge to circumvent relaxed credit curbs. One indication: a secret memo prepared by DPA aides for Fleischmann and President Truman. It urged a heavy cutback on housing because—as the industry itself crows in less troubled times—each house built generates so much other buying and spending: telephones (which mean miles of copper wire), television sets, stoves, autos, furniture, appliances.

One thing seemed certain: for the second time in six months NPA had foolishly triggered a rush to hoard materials. Faced with the prospect of increasing trouble with controls, builders would move speedily to start as many houses as possible before the new rules could be ordered into effect.

Rays of hope. With the thunderclouds, NPA held out hope of a rainbow. It disclosed it is revising and redrafting CMP Regulation 6 into "simple language." Proposed changes:

- Use of foreign and salvage steel would be permitted in addition to normal allotments (if approved for each case), provided the construction involved is essential and that use of foreign steel would not create a demand for "significant" amounts of copper, aluminum, new domestic steel controlled materials or Class B products.

- "Wherever possible" when construction authorizations are issued for the second and succeeding quarters, allotments will be made for entire projects instead of just the initial quarter. Thus approved projects would get advance allotments, cashable in later quarters, for all the steel, copper and aluminum the government thinks their job needs.

- To encourage advance planning, NPA is considering issuing construction authorizations with no allotment of materials until they become available—later. Frankly, NPA wonders if this will work.

- Contractors would have to file separate applications to buy machine tools on defense orders.

- Dollar value of Class B products procurable under self-authorization of materials would be limited.

Important repairs. Already, DPA and NPA had begun tardily to repair some of the worst defects in CMP. Most important: it named a Construction Analysis Group—six experts handpicked by a committee of steel industry executives to help DPA squeeze the water out of demands for structural steel by examining the phasing of every big project. The six: James B. Steep, consulting engineer, Detroit, chairman; Gordon W. L. Galloway, The Austin Co., Los Angeles; James Hamilton, American Bridge Co., Pittsburgh; Herbert J. Hess, Bethlehem Steel Co., Baltimore; Howard Mullen, U. S. Steel Co., St. Louis; Robert E. Wilmot, Bethlehem Steel Co., Bethlehem, Pa. They were not on the job two weeks before the difference began to show. Confronted by a whopping Navy demand for steel for construction, DPA asked to see the plans. The Navy blandly confessed it hadn't drawn them yet. Result: DPA ruled it will give the military no more structural steel until it produces blueprints, engineering schedules which demonstrate that plans will be ready when the structurals are rolled, that the site will be ready when the fabricated structurals arrive. For the first quarter, DPA cut military demand for carbon steel 25%. For the second quarter, said insiders, DPA had found military "demand" watered by 50%. With military forming some 15% of the 1952 building economy, such hoarding was shocking mismanagement. But the industry could now hope that DPA at last had found a check to balance The Pentagon's abuses of power.

Longer pinch. As usual in controlled economies, prospects for an end to the crisis receded into the future. Last fall, Mobilizer Charles E. Wilson forecast the materials pinch would ease late this year. In his year-end report, Wilson nudged this forward to 1953. Structural steel fabricators still disagreed. Again last month, they voiced fears of a surplus in the last half of '52. NPA listened politely. Aluminum's future hinged on the military. If the Air Force wins Presidential approval of its plans for 143 groups instead of the present target of 95, the aluminium pinch could well last to the end of 1953 and require another round of aluminium expansion.

NEW CONSTRUCTION ACTIVITY
(expenditures in millions of dollars)

	December			Annual Total		
			%			%
Type	*'50*	*'51*	*Change*	*'50*	*'51*	*Change*
PRIVATE						
Residential (nonfarm)...	1,003	809	—19.3	12,600	10,915	—13.4
Industrial	125	147	+17.6	1,062	1,975	+86.0
Commercial ...	140	69	—50.7	1,288	1,312	+1.9
TOTAL	1,721	1,521	—11.6	20,789	20,823	+0.2
PUBLIC						
Industrial	31	86	+177.4	224	880	+292.9
Military	24	149	+520.8	177	1,045	+490.4
Residential ...	30	66	+120.0	345	600	+73.9
TOTAL	513	701	+36.6	7,113	9,040	+27.1
GRAND TOTAL..	2,234	2,222	—0.5	27,902	29,863	+7.0

1951 CONSTRUCTION dollar volume rose 7% above 1950 to $29.9 billion, all-time U. S. record. But while private construction gained less than 1%, public soared 27%.

INDUSTRY PROTESTS mount against absurdities of controls

Schoolmen were first. They chorused their politically potent protests against CMP allocations late last year. Result: schools were one of the few nondefense segments of construction to receive more steel, in the second than the first quarter.

Last month and this, the rest of the country's building industry was deciding that the way to operate under Manly Fleischmann's Controlled Materials Plan was to cry as loud as possible on the shoulders of the nearest Congressmen. Observed Vice President Perry Astray of Albert M. Higley Co., Cleveland industrial builders: "The guy with the biggest mouth gets the breaks. It would make you laugh if you didn't have to cry." Some of the shouts and murmurs:

- In Philadelphia, a chamber of commerce committee sent Pennsylvania, New Jersey and Delaware congressmen a well-documented forecast that 1/3 of the 60,000 construction labor force in the five-county Philadelphia area would be jobless by the end of the year because of construction controls.

- The Baltimore Building Congress & Exchange protested six points in construction controls: 1. Controllers were ignoring NPA's construction industry advisory committee, which the law requires them to consult. 2. Control regulations lack mean-

ing. 3. Dilatory mailing results in "extreme delays" in advising the industry of regulations and amendments. 4. Controllers haven't learned that construction requires a tremendous lead time for planning, financing, materials ordering. 5. "NPA regulations . . . conserve little critical material" while "crippling" the industry. 6. NPA indulges in extreme delays processing applications.

▶ In Cleveland, the AFL Labor Council joined the Builders Exchange in urging that construction controls be returned to regional offices.

▶ In Minnesota, union business agents claimed building employment was off 25% because there was virtually no defense work.

▶ In Boston, construction unemployment jumped 500 in one week. Four small (under $200,000 a year) contractors resigned their AGC memberships the same fortnight, announced they were quitting business because of NPA's red tape and inconsistencies in approving allocations.

▶ In St. Louis, AFL sources said 12,000 of their 27,000 building labor force was idle, with only 20% of it caused by winter weather.

▶ A Miami builder snorted: "the city is bulging at the seams with reinforcing steel, wiring, aluminum and other building materials. There's a glut in reinforcing steel, shipped in from Europe. NPA ought to find out what the situation is before chopping the ground out from under legitimate projects because of a theory of shortages in Washington's bureaucratic minds."

LAST MONTH'S WASHINGTON DIARY

12/10 *NPA designates its own Facilities and Construction Bureau claimant agency for engineering and construction firms seeking priority assistance for execution of defense contracts.*

12/11 *Secretary of Commerce Sawyer orders future government-held surplus stocks of aluminum, lead, zinc, copper made available to industry. Formerly these went to government's strategic stockpile.*

12/18 *NPA reclassifies ten Class B steel products (galvanized, corrugated, V-crimp and channel drain roofing; corrugated and brick siding; etc.) as controlled materials subject to complete allocation.*

12/19 *DPA announces direct and defense-related production and construction starting first quarter, 1952 will take over 40% of the carbon steel and about 60% of aluminum, copper wire mill and copper brass mill supplies.*

12/19 *NPA reports high rate of denial (1,610 out of 2,052) of allotment applications for commercial, religious, amusement and community construction for first quarter, 1952.*

1/8 *Manly Fleischmann relinquishes stewardship of NPA, remains DPA head. New NPA chief: Henry H. Fowler, former Deputy Administrator.*

1/9 *DPAdministrator Manly Fleischmann tells Congress second quarter of '52 will see rise in military requirements, slowdown in industrial building and sharp declines in commercial and home construction.*

1/14 *DPA summarizes rapid tax write-off program to December 21: 5,443 new or expanded facilities certified, representing $11.5 billion investment.*

Senate Committee Sniffs Scandal in Hiring Methods of Overseas Contractors

Sen. Lyndon Johnson's preparedness investigating committee, at hearings in New York City Jan. 11-12, found more of the casual attitude toward wasting the taxpayer's dollar that it criticized in earlier attacks on military profligacy. For waste in the Defense Department's off-shore and foreign base construction work, however, it appeared that military brass could share the blame with contractors.

Pay for idleness. Sample: some 2,500 workers, waiting to go to Greenland to build an Air Force strip were sent first to a Minneapolis training center. After the course was over, they were told to stand by, with pay of $4 a day. The bill totaled $317,000.

"Who dreamed this up out of the blue?" asked Sen. Johnson.

"I don't know," said the witness, Col. Morton Solomon, district engineer in charge of Greenland's Blue Jay project. But he insisted the waiting pay was necessary. Besides, Greenland's weather restricted the periods of labor importation. What's more, testified the colonel, "under the same conditions" he would pay standby wages again.

Col. Solomon had another admission: his New York office was paying Pinkerton detectives $1,668 monthly to keep Blue Jay project's airstrip secret even though the *Christian Science Monitor* Nov. 2 described it as 10,000′ long, capable of launching B-36's and jet planes and even identified its location on a map.

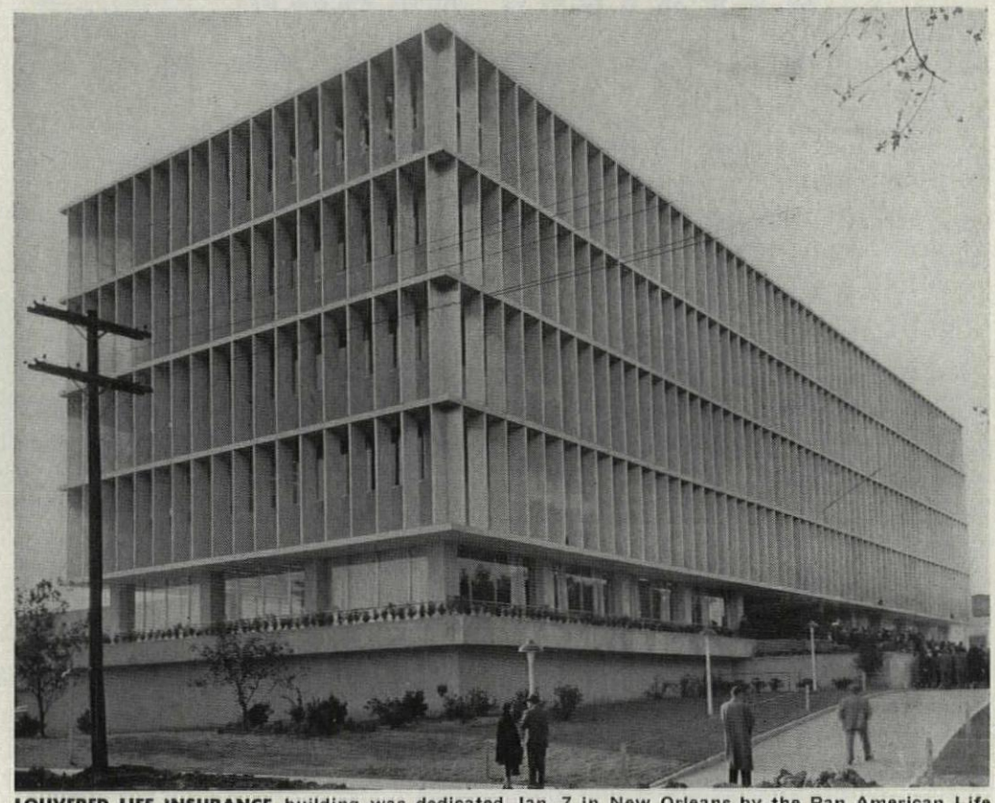
Abandoned fields. Maj. Gen. G. J. Nold, deputy chief of engineers, was questioned sharply by Sen. Johnson about "faulty engineering" which forced abandonment to floods of a North African airfield "costing $103,000 in material alone."

Another witness, James H. Dillon, leader of an overseas workers' association, asserted many men had been charged exorbitant fees by private employment agencies. But Francis A. Capell, general manager of a New York employment agency, said taking 5% of a year's pay was legal—in New York.

WOOING INDUSTRY: New England states vie with the South

A tug of war began shaping up this month between New England and the South over industrial development.

Last year, Alabama and Tennessee joined Mississippi and Louisiana in enacting laws permitting municipalities to issue revenue bonds to finance construction of factories for lease to private industry. With this lure, Elizabethtown, Tenn. already has signed up Textron, Inc. for a $7.8 million nylon plant. Maine, New Hampshire and Vermont have privately financed and operated state credit corporations to offer businessmen credit. A similar plan is before the Massachusetts legislature. Early this month, Governor Dennis J. Roberts of rock-ribbed Rhode Island (the state with the nation's highest unemployment per



W. T. Sloan

LOUVERED LIFE INSURANCE building was dedicated Jan. 7 in New Orleans by the Pan American Life Insurance Co. to celebrate its 40th birthday. The six-story, $5.5 million structure was designed by Architects Skidmore, Owings & Merrill with Claude E. Hooton of New Orleans.

NEWS continued on p. 45

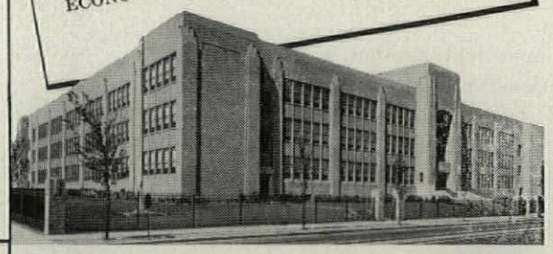
Any way you look at it . . .
GYPSTEEL PLANK
makes an ideal Roof Deck

In schools, hospitals and multiple-dwelling units—in fact in *any* place where fire safety and economy are prime considerations, Gypsteel Plank is top choice for roof decking.

This lightweight, fireproof gypsum plank—reinforced by electrically welded, galvanized steel wire and frame—is tongued and grooved to assure speedy, easy installation. The size of Gypsteel Plank is 2″ x 15″ x 10.′

GYPSTEEL PLANK
First in Its Class

FIREPROOF QUALITY	(steel reinforced gypsum slab)	A+
LIGHT WEIGHT	(12 lb. per sq. ft.)	A+
STRENGTH	(safe load, 75 lb. per sq. ft.)	A+
HIGH INSULATION VALUE	(with 1″ insulation)	A+
EASE OF INSTALLATION	(tongued and grooved —handles like lumber)	A+
PERMANENCE	(rot, vermin and termite-proof)	A+
ECONOMY	(quickly erected; no wastage)	A+



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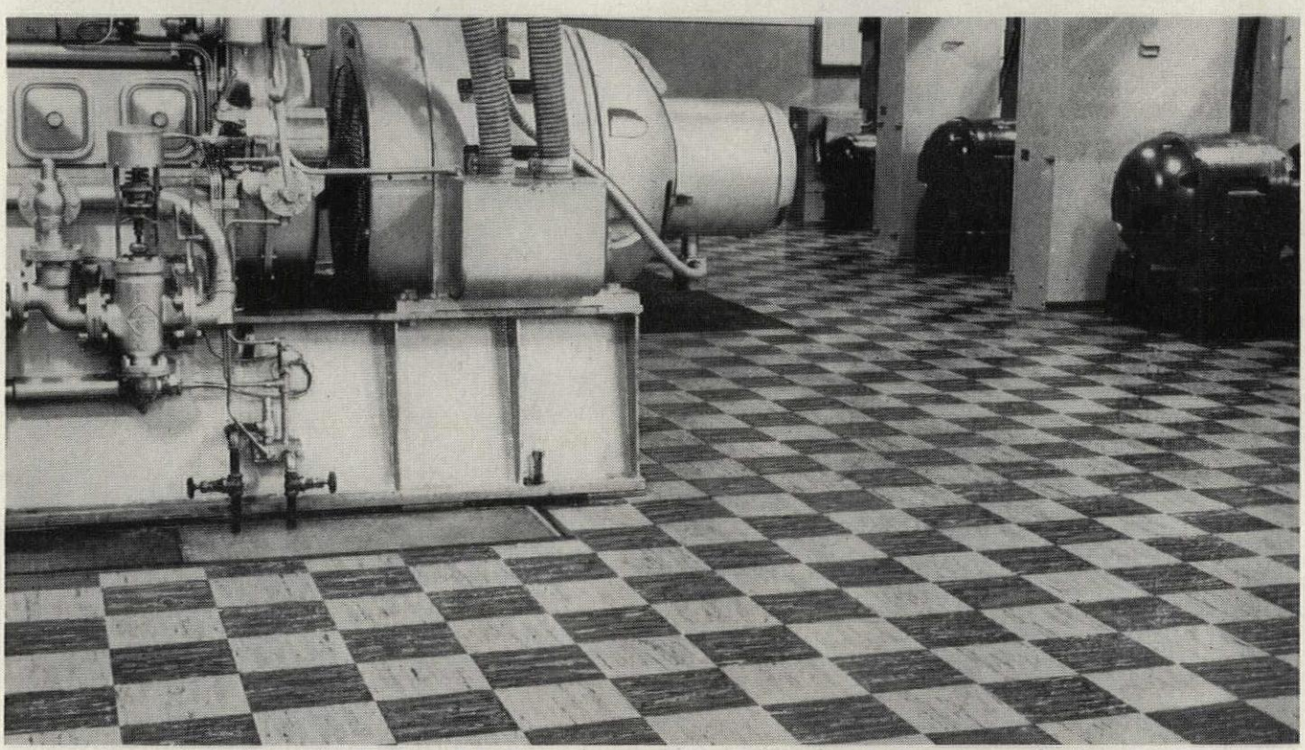

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The practical and time-saving solution to any flooring problem is a call to the local Kentile Flooring Contractor

THE OBVIOUS advantages of a certain kind of flooring in a certain installation are often outweighed by disadvantages that can be foreseen only by the expert. To keep posted on the great number of products and materials available today would be so time-consuming that busy specifiers everywhere are learning to count on specialists for accurate and up-to-date information. Such a man is the Kentile Flooring Contractor. Call on him as often as you wish... you'll find his extensive background makes him a valuable addition to your "staff."

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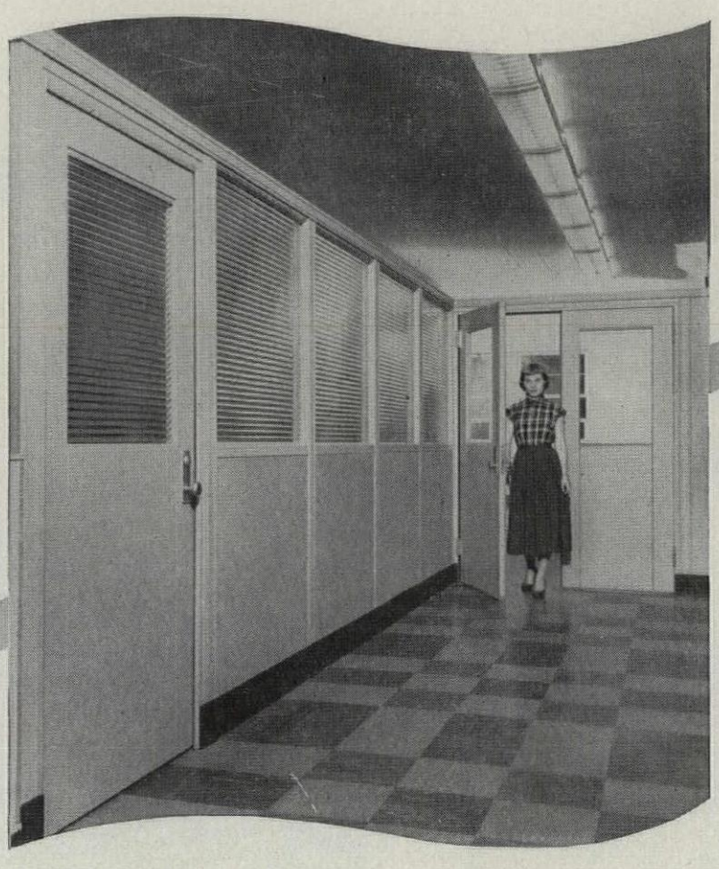

This office was planned for lifetime adaptability

Here's one office which won't be caught short on future expansion plans. *Even its walls are adjustable* . . . permanently strong, rigid, fire- and sound-resistant, yet capable of being moved or rearranged in a matter of hours.

Offices are but one of many applications for Hauserman *Movable* Interiors. In laboratories, hospitals, schools and industrial plants, they are establishing new concepts of lifetime building efficiency.

Although greatly increased demand has resulted in heavy current production quotas, expansion of Hauserman facilities already is underway. Meanwhile, by planning as far ahead as possible, you will insure delivery and erection of your clients' installations *on schedule.*

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

*Trademark

capita), proposed to woo industries with the juiciest New England bait of all. He asked his legislature to create a state-owned development corporation with $1 million of state funds as capital to buy land, build new plants and lease them to private industry. The corporation would be empowered to meet construction costs by a bank loan secured by a mortgage on both land and building, plus a lien on the state's $1 million. After the building is built, the state would assign the lease to the lender bank as mortgage security. Lease deals would include a fee in lieu of local taxes. If lenders balked, the state corporation could issue bonds.

11 Connecticut Cities Spurn Public Housing; Los Angeles Votes to End Contract

Last year, 70,800 public housing units were started in the U. S. (a gain of 61% over 1950), while private housing declined 25%. To anti-public housers who hope 1952 will see the trend change, the new year brought encouragement. In Connecticut and southern California, local revolts against public housing broke out. The same issue figured in both: does public housing cost recipient cities more than it is worth to build new schools, utilities, and increase police and fire protection?

▸ In Connecticut, 11 cities rejected state housing grants totaling $10 million for moderate rental housing:

Darien	$234,000	Milford	$2,250,000
Westport	614,000	Branford	719,000
Ansonia	958,000	Manchester	3,037,000
Bristol	750,000	Killingly	489,000
Seymour	157,000	Southington	587,000
Sprague	$207,000		

Explained James Sheekie, engineer and acting manager of Manchester: "We can't afford it. The town figured out that cost of extending sewer and water lines, building a new school and giving police and fire protection would be too much. We are going to take it easy for a few years." Observed Editor Alan H. Olmstead of the Manchester *Daily Herald:* "For a community like Manchester, every million in credit backing for housing carries with it an obligation to provide perhaps another $100,000 to $150,000 in new schools immediately. The war and postwar period has forced many Connecticut towns to evaluate more soberly what used to be considered the happy prospect of growth. The typical chamber of commerce outlook boosting a community . . . has undergone an almost complete reversal in which the influx of new population is regarded almost with dread and in which the highest community ambition becomes one of remaining the same size at least for a breathing spell." Connecticut officials earmarked the spurned $10 million for other cities, including Bridgeport and Hartford.

Case for the courts. The Los Angeles fracas began when City Councilman Harold Harby changed his vote. He explained: "I find that much of this proposed public housing is not essentially a slum clearance project and buildings will be built on heretofore unoccupied territory. When you remove the slum clearance element from public housing, there is nothing much left but socialism."

With Harby's support, the council then voted 8-7 for a resolution breaking its $110 million contract with the L. A. Housing Authority for 10,000 public housing units. Within hours, public housers petitioned California's supreme court to compel Los Angeles to live up to its contract. Their argument: the resolution breaking it was illegal because the contract was originally adopted by ordinance (Mayor Fletcher Bowron would veto an anti-public housing ordinance and the anti-public housing faction in the council lacked the ten votes required to override him).

If the public housers suit fails, the L. A. Housing Authority will sue the city for $12 million already spent for plans and sites. Anti-public housers, even if they lost in court, might win by making lenders wary of buying public housing notes, lest other councils repudiate them after a shift in political balance of power. Meanwhile, Mayor Bowron, steaming mad, fired a 6,000 word denunciation at his council. Snapped Bowron: "If this is socialism, then so are the subsidies for builders and bankers."

STEEL STRIKE would cost building 10,000 structural tons a day

If Philip Murray's CIO steelworkers walk off the job after their 45-day truce expires Feb. 18 (closing 95% of U. S. steel production facilities), the construction industry will lose some 10,000 tons of heavy structural shapes per day. That is as much as

Herald-Tribune

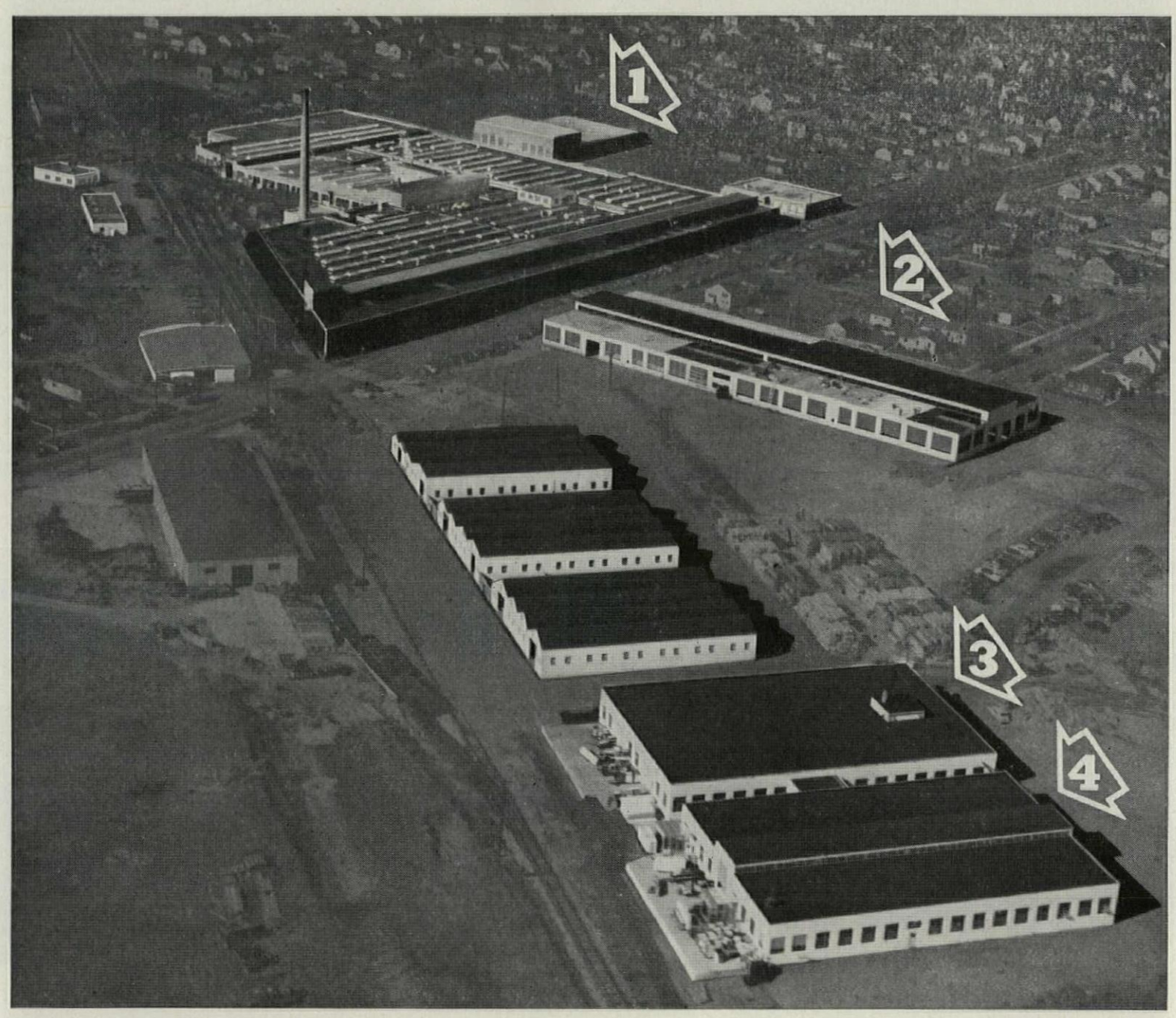
EMPIRE STATE BUILDING sold in 5 hour deal requiring rehearsal

The biggest office building deal in U. S. history, reached its complex climax last month with the $51 million sale of the Empire State Building to Henry R. Crown, 53, head of Chicago's Material Service Corp., and a three-man syndicate, Roger L. Stevens and Alfred R. Glancy, Jr., of Detroit, and Ben Tobin, of Hollywood Beach, Fla. Stevens' group had been working on the purchase since May. It issued $10.5 million in debentures, got $17 million from the Prudential Insurance Co. for title to the land, another $15.5 million from Prudential for a first mortgage on the building, borrowed $5 million from the estate of John J. Raskob, the building's principal stockholder, for a second mortgage. But the group needed $51 million (50 million for the building, $1 million for the 75 attorneys, title experts, brokers and appraisers involved).

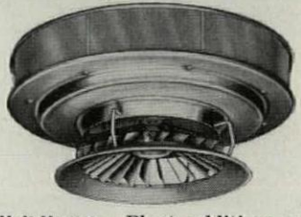
In stepped Crown with the necessary $3 million. He thus became chairman of the new Empire State Bldg. Corp. and owner of its largest operating interest. The deal was so complicated it required a dress rehearsal to insure complete coordination of title exchange and purchase details at the closing ceremonies in Wall St.'s Bankers Trust Co. (top photo). After 5¼ hours, Prudential's N. Y. Chief Donald C. Hulmes (l., with model), Stevens (c.) and Crown had their 102-story, world's tallest building.

NEWS continued on p. 52

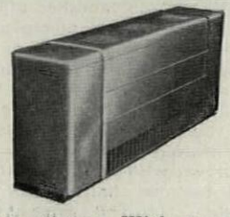
TRANE ADDS 4 NEW PLANTS . . .



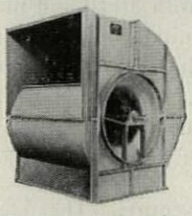
New buildings completed in recent Trane construction program. Arrows indicate: **1**) Tool Building, a separate unit immediately north of the Main Plant, **2**) a complete plant for assembly of standard heat transfer surface, **3**) Brazed Aluminum Plant, **4**) Special Heat Transfer Products Assembly Building.



More Unit Heaters—Plant additions permit expansion of unit heater assembly lines—more heat for army camps and defense plants all over the country.



More Unit Ventilators—With more schools being built all over the nation, demands are high for the warm, fresh air produced by Trane Unit Ventilators.



More Fans—Trane introduced a new line of centrifugal fans a few short months ago. Popular acceptance and increased sales make more manufacturing space necessary.

TO INCREASE PRODUCTION SPACE

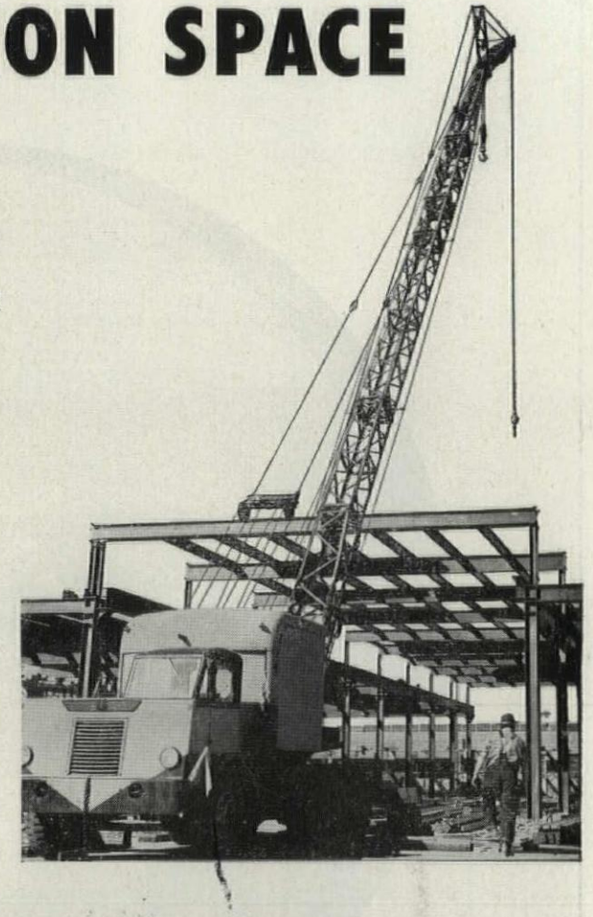
More Room to Manufacture a Complete Line of Heating, Ventilating and Air Conditioning Products

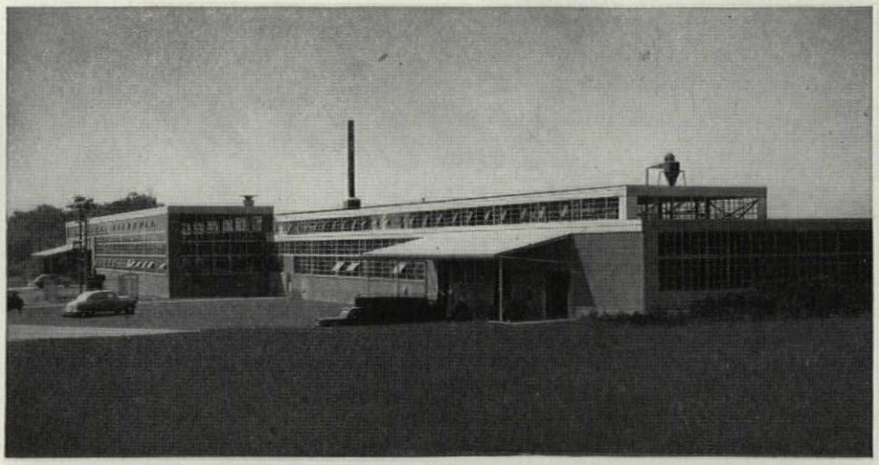
Trane builds again. To manufacture more and better heating, ventilating and air conditioning equipment, Trane is completing a major expansion program. Four new buildings have been added at La Crosse. Total factory space has been increased substantially. Many workmen have been added to Trane payrolls.

Much of the new space will be used to turn out more Trane products faster. With defense construction increasing sharply, the demand for standard Trane heating equipment is at an unprecedented high level. At the same time, the popularity of recently announced products has required additional capacity to produce them. More room will, therefore, be devoted to the manufacture of fans, refrigeration products and special heat transfer equipment.

All the space in one of the new buildings will be used to produce the dies and jigs used in the manufacture of Trane products. This ultra-modern tool shop will have twice as much machinery and will, thanks to newest tool making methods, produce three times as many tools. The new tool building will help increase production two ways. It will make more tools available quickly and on schedule. And, by pre-testing each item, it will save hundreds of hours of production time.

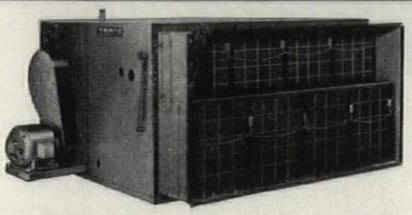
With these new buildings to expand and improve production, Trane is better able to serve the architect, engineer, contractor and the armed forces with a complete line of heating, ventilating and air conditioning equipment.



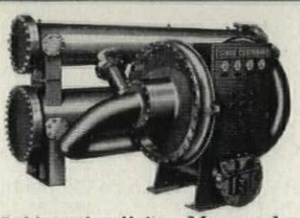


In Canada, Too! Expansion has not been limited to the La Crosse plant. At Toronto, Trane Company of Canada, Ltd., has completed a new suburban factory, the first step in enlarging and consolidating its manufacturing facilities.

At Scranton, Pennsylvania, the Eastern Manufacturing Division, The Trane Company has not only added more manufacturing space, but also more production equipment.



More Climate Changers—As industry finds new ways to use air in speeding manufacturing processes, the need for Trane air conditioning units increases.



More Refrigeration Units—More and more centrifugal and reciprocating compressors will be made in extra space furnished by the Trane expansion program.

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OF HEATING, VENTILATING AND
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THE COMPONENT PARTS of any Securitee System*, mechanical attachments for erecting acoustical tile, are made from the finest quality materials obtainable.

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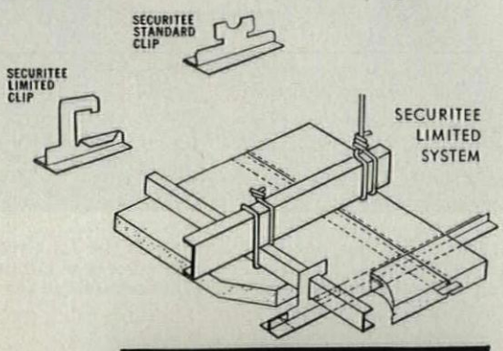

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This remodeled furniture store utilized a Pittsburgh Free-Standing Doorway. Architect: Charles Kendall, High Point, N. C.

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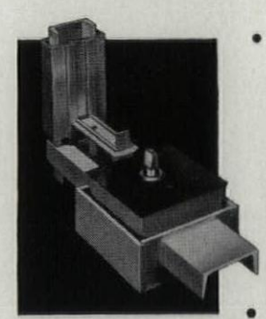
WHEN you are faced with the selection of doorways, two important factors should have your serious consideration—*quality fabrication* and *total-installed cost*, not just the list price.

That leads to but one logical conclusion: "Pittsburgh Doorways are by far the wisest choice."

Factory-assembled to precision standards, they reach the job in one "package." They eliminate time- and labor-consuming details of fitting, locating and calculating in the field. All that's required is the unpacking of the frame, bolting it into the opening and hanging the Herculite Doors, for whose strength the frames are especially designed.

All this means a sizable reduction in on-the-job costs, as well as highly satisfactory and dependable doorway installations. Why not write for illustrated booklet containing all the facts? Do it now. Pittsburgh Plate Glass Company, 2011-2Grant Building, Pittsburgh 19, Pa.



Pittsburgh Doorways swing easily always. They can't get out of line. That's because of the heavy steel construction which reinforces the heavy extruded aluminum frame. Note sidelight track in this lower section of the frame—an integral part of several standard style Pittsburgh Doorways. The unique Pittco Checking Floor Hinge is permanently fixed in its reinforced box.

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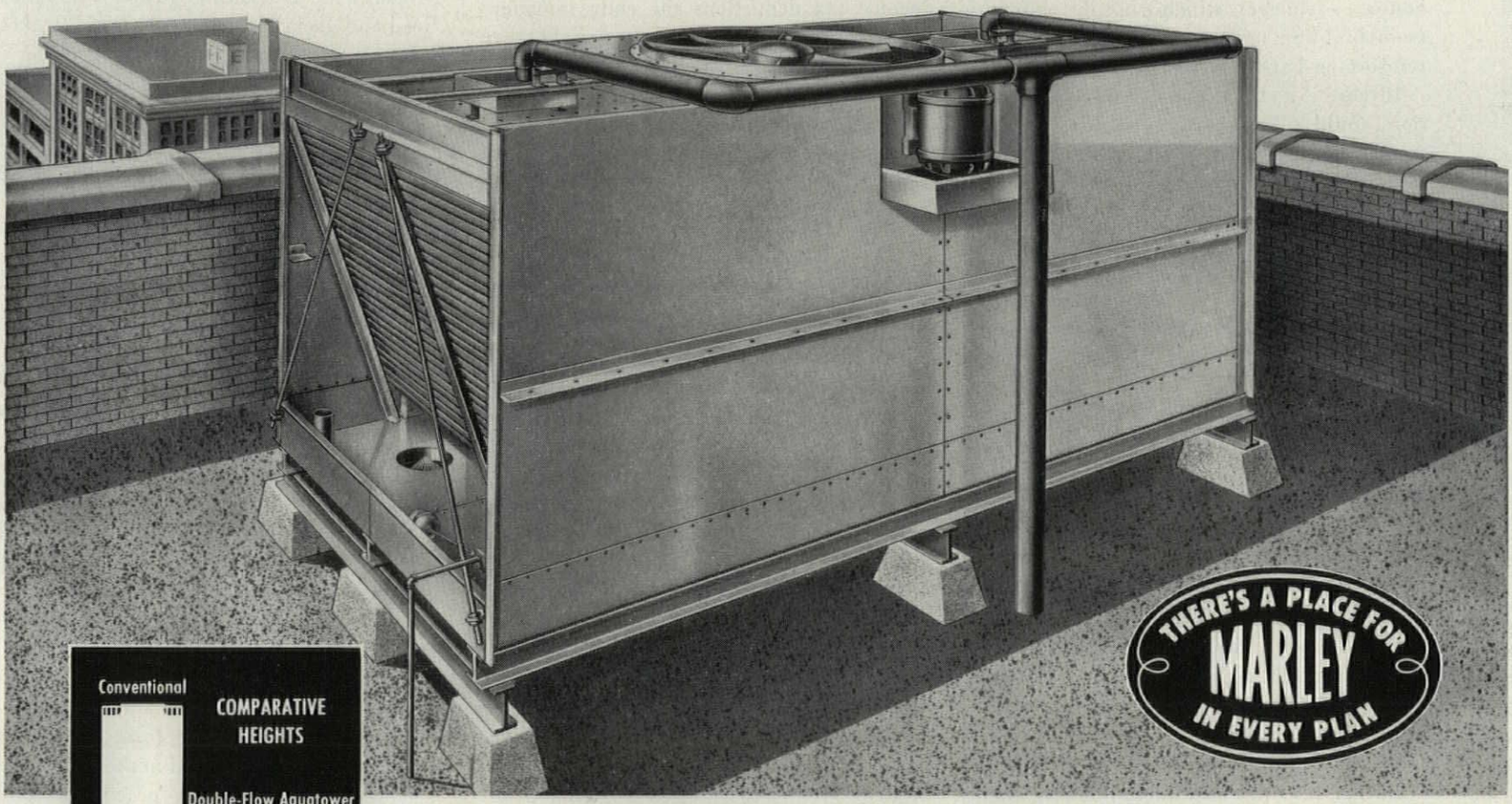
NEW DOUBLE-FLOW AQUATOWER

revolutionizes water cooling in air conditioning and refrigeration



DOWN goes tower height...UP goes cooling efficiency!

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NPA allotted to commercial construction for the entire first quarter of the year. The American Institute of Steel Construction also figures a tie-up would cost other industries in the U. S. another 5,000 tons of heavy structural daily. In the overall picture, 26,400 of the nation's daily production of 220,000 tons of finished steel goes directly to the construction industry, another 8,800 reaches it through contractors and an unspecified amount from warehouses — tonnages which run the gamut from building nails to plumbing pipe to reinforcing bars.

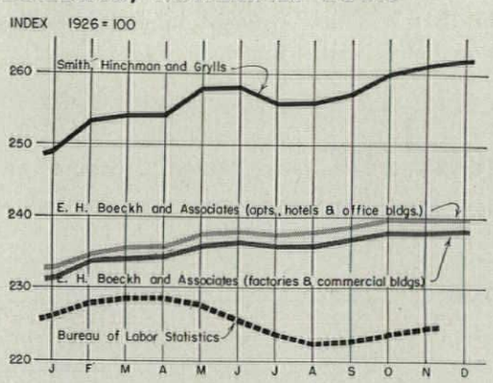
If there is a strike, non-defense construction would suffer most in resulting allotment cuts. If a strike is averted by a wage increase, followed, as seems likely, by a price increase (from $3 to $9 a ton), not only would the price of fabricated structurals get an accelerated boost from the increased labor costs in fabrication, but the wage pattern in steel would probably trigger demands for further increases in the entire building trade.

WAGE STABILIZATION: first big crackdown hits VA contractor

The Wage Stabilization Board chose the building industry for its first major crackdown. It accused the J. D. Hedin Construction Company of Washington, D. C., contractor on a seven million dollar VA hospital in Ann Arbor, Michigan, of paying some 60 bricklayers $3 per hour whereas the rate WSB called lawful in the area was only $2.75.

But at hearings last month before the WSB Michigan regional enforcement commission, the defense contended it was just a classic case of the left hand of government not knowing what the right was doing. President Hedin testified that the Washington WSB itself had approved a 10% increase over the $2.75 ceiling after union officials told the company it would have to pay $3 if it expected to get enough bricklayers. In Washington, VA admitted that it had been pressing the Hedin Co. to finish the Ann Arbor hospital within the time limit set by VA. It also conceded that a shortage of building workers—particularly bricklayers—was hampering more than one of its hospital projects. If Michigan's WSB enforcement commission throws the book at the Hedin Company, it can recommend that the WSB disallow for income tax deductions the entire amount of illegal wages paid, not merely the illegal increase. Insiders think the board probably will merely rule out the overage. VA, meanwhile, has changed its policy. Contractors now set time limits in their bids. The agency considers speed as a factor in awarding contracts.

BUILDING, MATERIALS COSTS



BUILDING MATERIALS prices and cost of construction remained relatively stable at year's end, showed little variation since September. Outlook for the next few months: some inching upward due to rising labor costs.

SCHOOL REPORT urges standardized plans for classrooms

A year ago, New York City's board of education handed Management Consultant Louis Yavner and Education Expert George D. Strayer $190,000 to study what's wrong with the biggest school system in the nation. Last month, experts Yavner and Strayer turned in their 1,200 page report, said in effect that New York's 4% of all U. S. school construction was riddled with wasted money and sloppy planning.

Their major architectural recommendation—standardized plans for classrooms, shops, auditoriums, school lunch rooms, gyms, cafeterias and lavatories to save money—seemed likely to trigger a good row in architectural circles. AIA's committee on school buildings had just completed a survey in every state to build up ammunition in its long-standing fight against stock plans. (AIA found that 36 states do not use stock plans at all, ten others limit their use to small, isolated buildings, 15 more have abandoned stock plans as "impractical.") The Yavner report also recommended:

- More attention to new types of material, equipment and construction methods which could become available "almost over night."
- School designers should consider using architectural advances, such as moving stairs. Use of elevators instead of ordinary stairs might permit economic use of multistory school buildings.
- School buildings should be designed both for the present and future. Architects should think about their buildings' convertibility into other uses once it is no longer needed as a school.
- Closer rapport between school administrators and architects to enable architects to understand what is most conducive to book learning. "Children respond less to efficiency than to delight," the report said.
- An administrator, rather than an architect or educator, should head the board of education's bureau of construction. This, plus coordination with the bureau of plant operation and maintenance, should save the city $1.3 million annually.

With the recommendations still to be voted on, the board of education was sticking to its old ways, this year plans to put up 21 new schools at a cost of $67.6 million.

AGC ASKS LAW overturning ruling on gov't contracts

When the U. S. Supreme Court ruled last November that there was no appeal beyond the government department head in factual disputes over government contracts, contractors were thoroughly alarmed. They agreed with Dissenting Justices Douglas, Reed and Jackson that the decision "makes a tyrant out of every contracting officer."

This month the Associated General Contractors asked Congress to overturn the court. In letters to the Senate-House Judiciary Committees, the AGC urged a law to: make every government contract subject to appeal to an appropriate court both as to matters of fact and law; make this provision retroactive to the date the Supreme Court decided otherwise.

STUDENT ARCHITECTS to launch magazine with AIA assistance

When Julian Sacks, fifth year architecture student at Catholic University of America in Washington, was working as a draftsman for Boston Architects Maginnic and Walsh, a friend showed him a copy of *Plan* magazine, published by British architectural students. Thought Sacks: If the Britishers can do it why can't we?

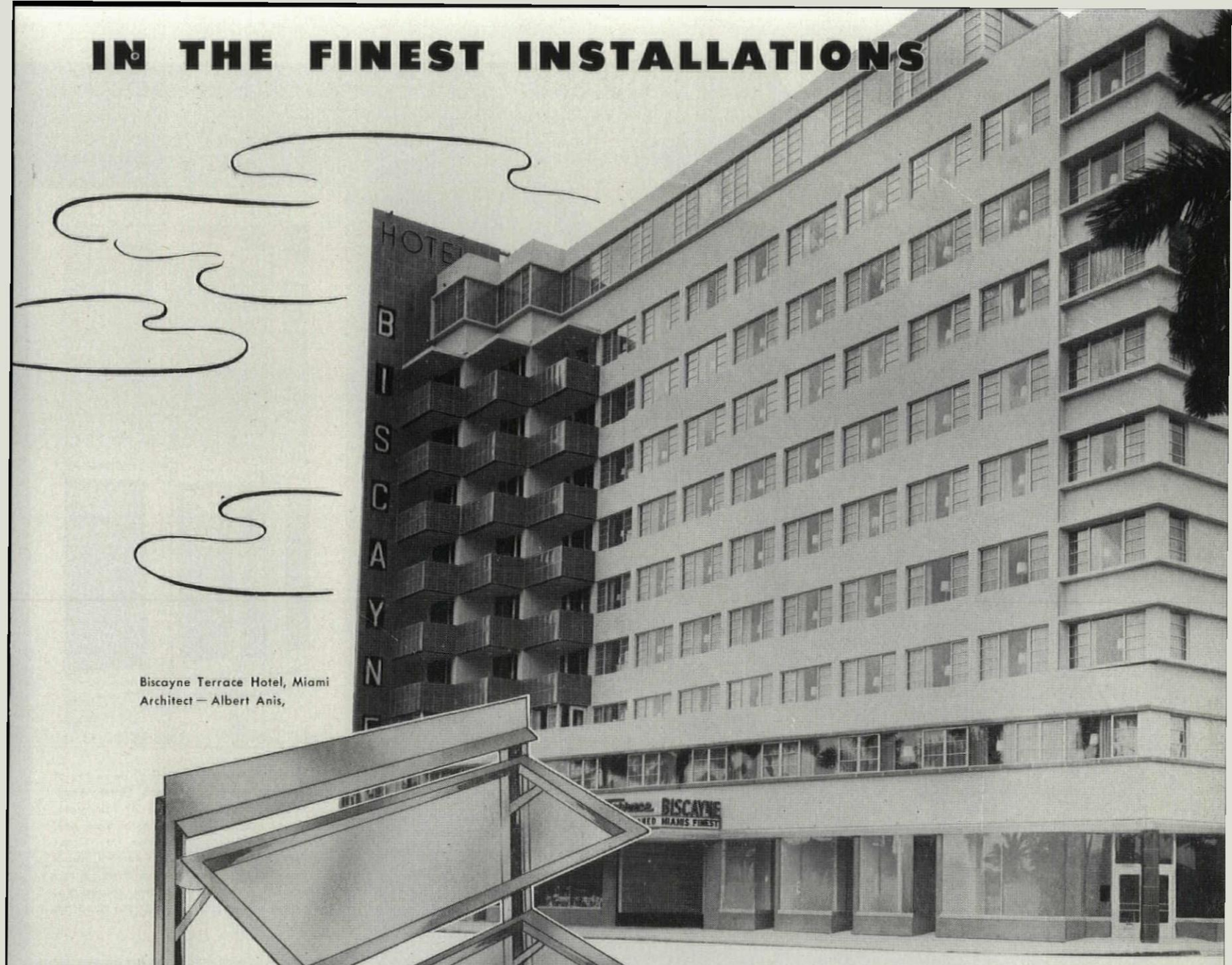
The result was *Line* magazine, due to appear next month. "Our aim," says Editor-in-chief Sacks, "is to form a stronger link between students and at the same time a closer alliance with the practitioner and the AIA." So far, the link with AIA is very close indeed: the Institute has promised to underwrite any loss on the publishing costs of the maiden issue (probably about $350). The offset-printed, 50-60 page first issue, will be devoted to architectural education. Twelve regional editors will contribute articles on teaching in their areas, illustrated by student design work. Dean Joseph D. Hudnut of Harvard's Faculty of Design has written an article on architectural principles. Among the nation's 16,000 architectural students, Sacks modestly hopes to achieve a circulation of 2,000 at 35¢ per copy. He plans to issue *Line* twice a year. Initially, it will carry no advertising.

BANNED BUILDING ALREADY UP

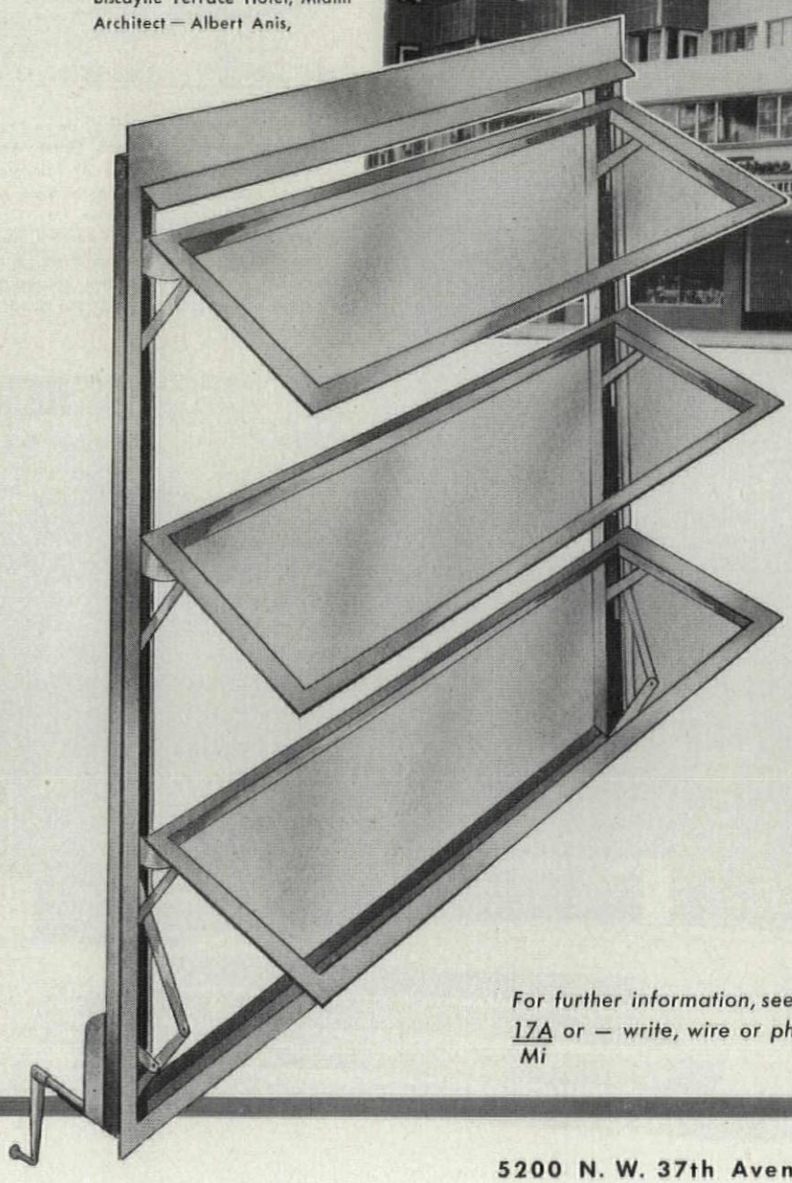
After ruling that a $498,000 municipal building in Cuyahoga Falls, Ohio, could not be started, NPA discovered last month the building had already been completed. Red-faced officials admitted they confused an electrical contractors application to put in electrical work (only 2% completed) with a request to build the whole structure.

NEWS continued on p. 56

IN THE FINEST INSTALLATIONS



Biscayne Terrace Hotel, Miami
Architect — Albert Anis,



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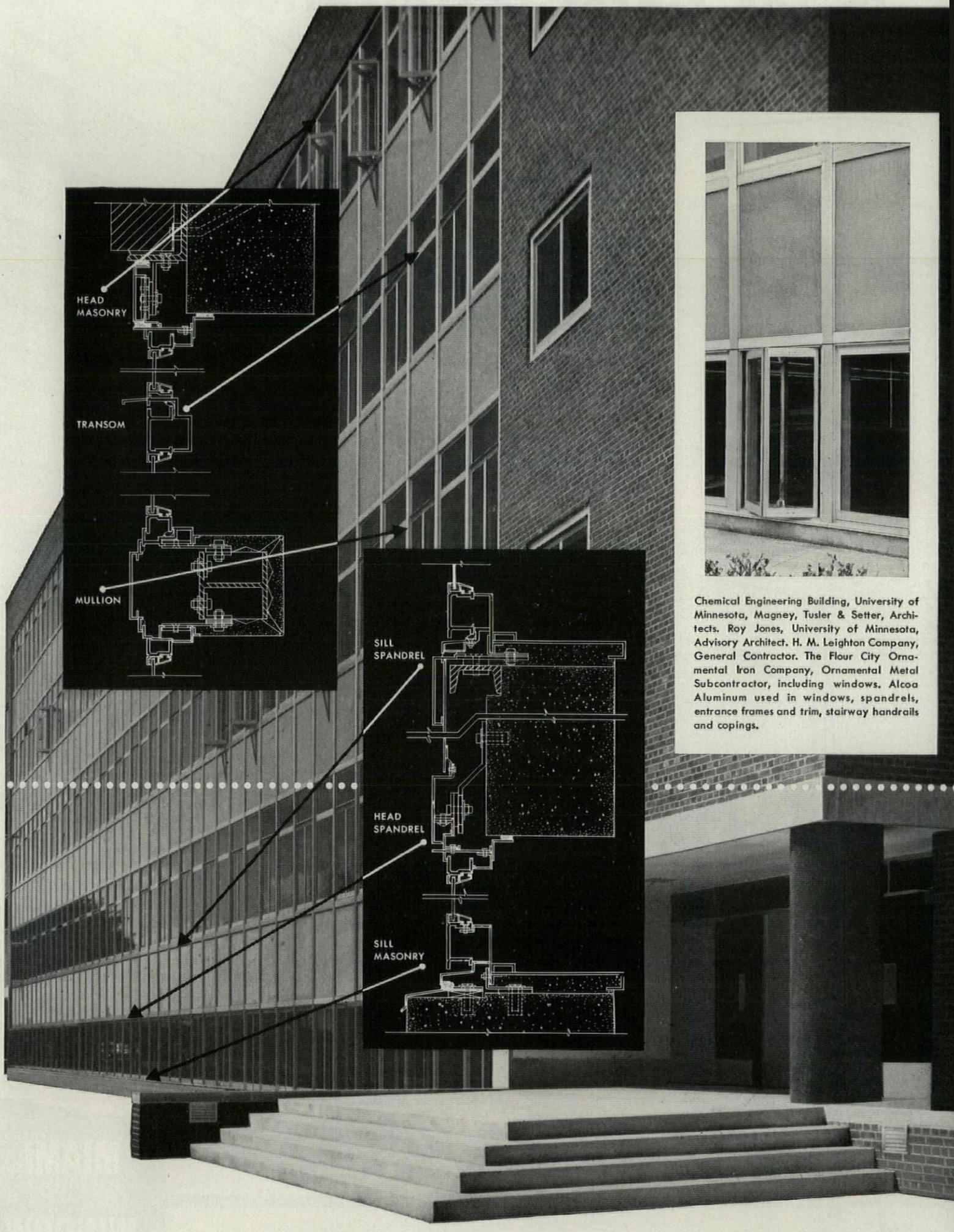
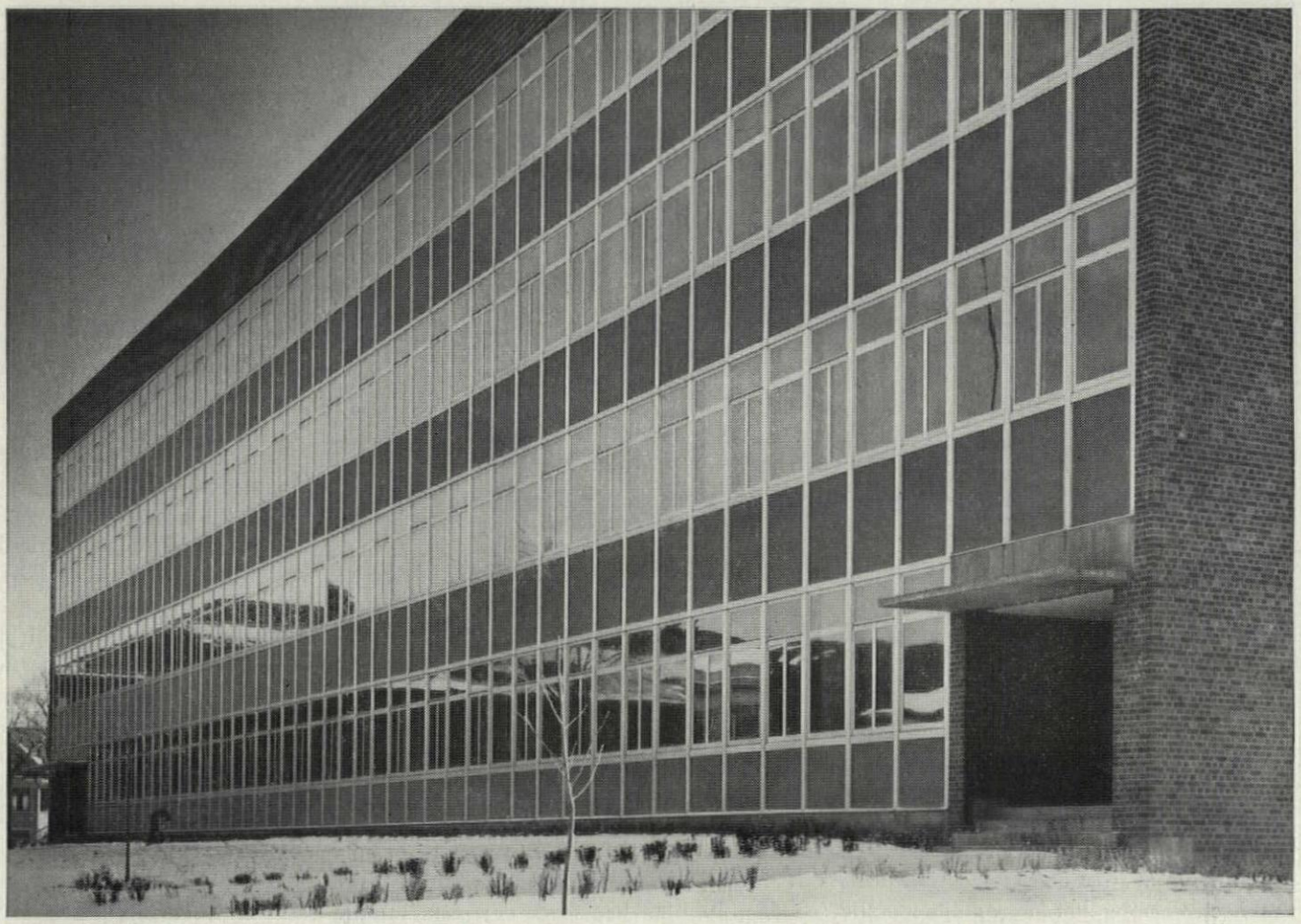


Chemical Engineering Building, University of Minnesota, Magney, Tusler & Setter, Architects. Roy Jones, University of Minnesota, Advisory Architect. H. M. Leighton Company, General Contractor. The Flour City Ornamental Iron Company, Ornamental Metal Subcontractor, including windows. Alcoa Aluminum used in windows, spandrels, entrance frames and trim, stairway handrails and copings.



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In this laboratory, the designer, making skillful use of the many shapes, colors and textures available in aluminum, has made the window-spandrel pattern an expression of both the building's purpose and of the three-foot, eight-inch modular unit used throughout.

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PARKMERCED'S 13-STORY APARTMENTS SOAR ABOVE TWO-STORY HOUSING AND PACIFIC BREAKERS

Is the West Ready for Tower Apartments? Metropolitan Life Finds Vacancies High

When Metropolitan Life Insurance Company was planning to inject its 13-story concrete tower apartments into residential areas of two-story dwellings in San Francisco and Los Angeles, Executive Committee Chairman Frederick H. Ecker received a note from at least one famed California architect, warning that Metropolitan would do well to tread lightly at imposing an eastern way of living on the wide semi-suburban spaces of the West.

Insurance Tycoon Ecker blazed ahead with concrete monoliths—18 of them on Metropolitan's Parklabrea tract in Los Angeles and 11 of the same design by the late Manhattan Architect Leonard Schultze in its Parkmerced tract in the southwestern corner of San Francisco (*above*). But so far Metropolitan had not won its gamble that over-population and rising land values had opened the way in the West for its clusters of tall dwellings. Parklabrea's 1,316 apartments in two-story colonial buildings, built during the war, were rented solid, with a long waiting list. But of the 927 apartments in the nine tower units completed (rentals $115 to $180 a month), one was fully occupied, three more were 30 to 50% vacant, the rest empty. Parkmerced's 1,687 two-story apartments were likewise fully occupied. Six tower apartments were finished. They were about ⅔ vacant.

Investor's dilemma. Should the tower apartments have been built? Under the circumstances, Metropolitan had little choice if it was to earn the 4% it sought on its Parkmerced and Parklabrea investment. The original garden apartments in both cities were built during World War II. Government materials restrictions stopped Parkmerced when two-thirds completed and Parklabrea at the half way mark. Yet Metropolitan had made complete site preparations, including (in San Francisco) foundations. By 1948 when the rest of the units could be constructed, building costs had risen so far that Metropolitan could not afford to build and rent the rest of the project at the rent-controlled levels of the original part. Meanwhile, as one Metropolitan executive put it, "we were carrying the entire development on income from half of it."

In switching the remaining land to tower apartments, Metropolitan decided on luxury appointments (stainless steel kitchens, parquet floors, bathroom for every bedroom). While the San Francisco units were slowly rising, thousands of close-packed one-story tract homes sprouted on artichoke fields not half a mile away in the next county, markedly easing demand for rental units.

Sanguine view. Metropolitan is officially unworried by the vacancy rate in its $100 million investment. "San Francisco will fill up again," say its housing executives. "We can wait. To a company as big as ours, it doesn't make a vital difference whether we amortize our investment over 33 years or, say, 40 years." The San Francisco problem, however, recently prompted 84-year-old Ecker to make a personal inspection. Result: Metropolitan will try to pump steam into its rental program. Probably—for the first time in Met's history—it will ask local realtors to help Manager W. L. Thacker rent the tower apartments.

On balance, the squeeze between rent controls and rising building costs seemed to have pushed Metropolitan into a mistake in timing. But the error, a potentially fatal wound to a lesser firm, was proving only a bothersome pinprick to the nation's richest corporation.

High rent troubles. Other skyscraper apartments were experiencing similar troubles. At the Stonestown project adjoining Parkmerced, the overall vacancy rate for its combined tower apartments and garden cottages averaged between 13-15% last year, with a peak near 20%. The garden cottages rented from $84 to $124.50 a month. The tower apartments range from $94 to $151.50. In Boston, the exciting Eastgate apartment built by New England Mutual Insurance Company (May issue '51) found a long, energetic advertising campaign necessary to fill its bigger units, renting up to $175 a month. In Atlanta, vacancies were common for apartments renting from $100 a month up. One luxury apartment cut rents from $180 to $165 a month in an effort to keep filled. On the outskirts of the city, the 1,000-unit Oglethorpe apartments ($90 to $105 a month) trimmed rents by $2.50 to $10 per unit. Nowhere, however, were there vacancies worth mentioning among rent-controlled units. In many metropolitan centers—Cleveland, Denver, St. Louis, Philadelphia and Chicago—the rent market remained tight from top to bottom.

HOTEL DEALS: year end spawns a major crop of sales, plans

The last 60 days of 1951 brought more major hotel deals than all the rest of the year. The biggest:

▶ In Los Angeles, the 29-year-old, 1,400-room Biltmore was bought by Dallas Realtor Leo F. Corrigan for $12,272,000. In the Corrigan tradition, a good part of the price ($7.5 million) came from Equitable Life Assurance Society. Corrigan, who operates through 38 family-owned corporations, built his $500 million coast-to-coast realty empire (15 hotels, 14 office buildings, 55 shopping centers, 100,000 apartment units) by mortgaging nearly every new purchase to make another. It took Corrigan just over a year to buy up 284,900 Biltmore shares from 2,500 investors ("with all the talking I almost got laryngitis"). Unworried by the fact Biltmore profits sank from 1950's $1.8 million to $1.2 million, Corrigan figures any hotel can pay its operating costs if it does 100 days of peak business a year. So he hunts for hotels in cities with big conventions, sports events. With the new $30 million Statler Hotel nearing completion in downtown Los Angeles, Corrigan figures the city soon will have facilities to draw the big con-

ventions it has been missing up to now. "For a while," he said, "I wasn't too sure, but now I think it's a sound investment."

▶ Bids were about to go out for two more new Statler hotels, one in Hartford which will have 450 rooms and cost upwards of $5 million, the other in Dallas whose cost will be known when Statler decides whether to give it 750, 850 or 1,000 rooms. William B. Tabler, of New York City, is supervising architect.

▶ In Boston, Hotel Buyer Abraham M. Sonnabend announced he had bought sufficient stock to acquire the management of New York's posh, 400-room Ritz Tower. The Ritz Tower was built by the late William Randolph Hearst in 1929 at a cost of $17 million. It becomes the ninth hotel on Sonnabend's chain.

▶ In Washington, D. C., David H. Knott, chairman of Knott Hotels Corp., bought the 300-room Congressional Hotel on Capitol Hill for $12 million. Sellers were the four-year old hotel's architect and builder, Alvin L. Aubinoe, and Mrs. Betty B. Somerville. Knott's group now owns hotels in 14 cities, including ten in New York City.

▶ Flamboyant Oil & Hotelman Glenn McCarthy (Houston's Shamrock) let it be known he is contemplating a $5-$6 million hotel and casino in Guatemala City. Negotiations with the Guatemalan government were still underway but Texas Glenn said he had offered 14% of the venture's common stock to Guatemala if Guatemala will both finance the venture and permit him to operate a TV network tax-free for 20 years.

▶ In Atlantic City, the 500-room Breakers Hotel, a boardwalk landmark for 57 years, was sold to Lakewood, N. J., hotel operators Irving Meltzer and Herman Geller. Broker H. D. Myers who said the hotel's former owner, Max Malamut, had forbidden him to disclose the sale price, figured that a boardwalk fire two days after the sale boosted the property's value by $500,000. The Breakers remains unscathed for the April season while neighboring hostelries have to chop out embers.

SCHOOL DESIGN: contest reflects trend away from monumental

In a musty library at Columbia University Teachers College, a significant exhibit of trends in school design was briefly on view this month. The blueprints, models, sketches and photos of 110 U.S. schools designed or under construction in 1951 were the cream of entries in *The School Executive* magazine's competition for better school design.

While the display reflected an encouraging decline in the proportion of monumental school architecture, it also demonstrated again that modernism by itself does not insure good looks. Too many schools struck exhibit-goers as superficially modern—reflecting modern's clichés (like leaning buttresses) without apparent meaning. Also on view were some interesting experiments such as classrooms clustered like four-leaf clovers at the ends of corridors in Perkins and Will's Heathcote Elementary School at Scarsdale, N. Y.; and the money-saving plastic bubble skylights in Reisner & Urbahn's Long Beach (N.Y.) grade school (Dec. issue '51).

PEOPLE

Fleischmann Gives NPA Reins to Deputy

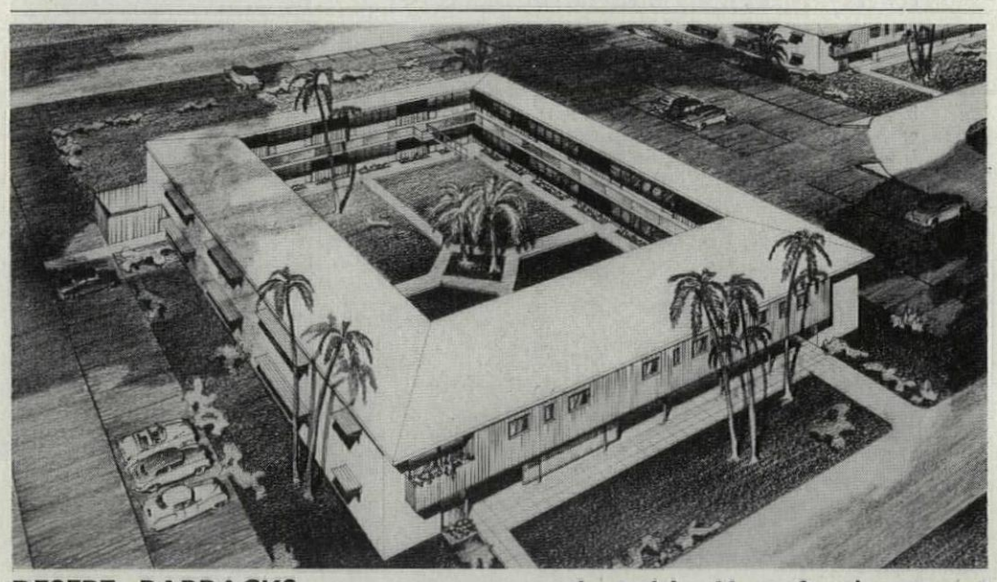
Manly Fleischmann shed one of his twin defense titles — NPAdministrator. New NPA chief is **Henry H. Fowler,** 43, deputy NPAdministrator since last September. Fowler organized the Washington law firm of Fowler, Leva, Hawes & Symington, left it for the government. Now Fleischmann will concentrate on being just Defense Production Administrator, a job he will keep till June 1 when he intends to resume private law practice.

FOWLER

For four years, skeptical Frenchmen have watched **Le Corbusier's** fascinating "radiant city" taking shape in the Marseilles suburbs. Almost from the start, his 17-story concrete and glass apartment on stilts had evoked a drumfire of critical sniping: at 2 billion francs ($3 million), the 337-family building was costing as much as 600 private homes; the master bedrooms afforded hardly any privacy from living rooms; interior kitchens would let the pungent smells of French cooking permeate the entire apartment; there was no provision for wine cellars.

Among the critics of Le Corbusier's "vertical city" (the 7th and 8th floors house stores, restaurant, barber, hotel, post office; roof has a 120-meter track, pool, solarium), the most successful turned out to be *Le Société pour L'Esthétique Générale de la France,* a private organization whose aim is to keep the country free of ugliness. Two years ago, the society asked the French Council of State (supreme court) to prevent Le Corbusier from continuing work on his building. Argued the society: radiant city is an outrage and spoils the Marseilles landscape (no other building is over 9 stories high). Moreover, the appeal pointed out, Le Corbusier didn't have a building license (having claimed the project was experimental and thus didn't require one).

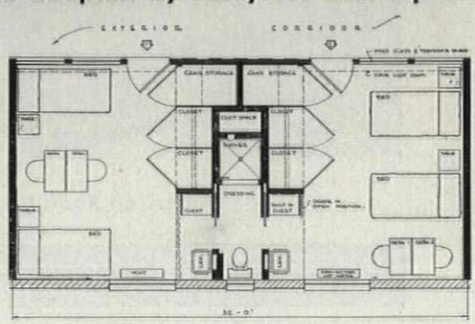
The Council of State took two years to make up its mind. Last month, it made one ruling that work must stop, then quickly negated it by deciding Le Corbusier was right, radiant city was experimental. The Reconstruction Ministry put in a good word by declaring the detractors were largely



DESERT BARRACKS: two-man rooms adopted by Navy for desert post

The Air Force's discovery at Offutt Field, Omaha, that a barracks with two-man rooms could be built cheaper than an old-fashioned open-bay barracks (H&H, Jan. '52) was beginning to produce imitations by the other services. Construction will begin soon on six of these two-story, 84-man dormitories for Naval Ordnance Test Station at Inyokern, near California's sizzling Death Valley.

While the Air Force built with steel for $1,508 per man housed, Contractor Barry Richards of North Hollywood was low bidder at $1,198,000 for the Navy's project, or $2,396 per man. Design by Kewell, Kocher & Benedict of Los Angeles calls for heat resisting light-weight masonry walls, two layers of 4" mineral wool insulation under the roof, terrazzo-floored showers with tile walls and ceiling, large reception



lounge on the first floor. Inner court will give maximum protection from the desert area's fierce wind and dust storms.

NEWS continued on p. 64

AMERICAN-Standard

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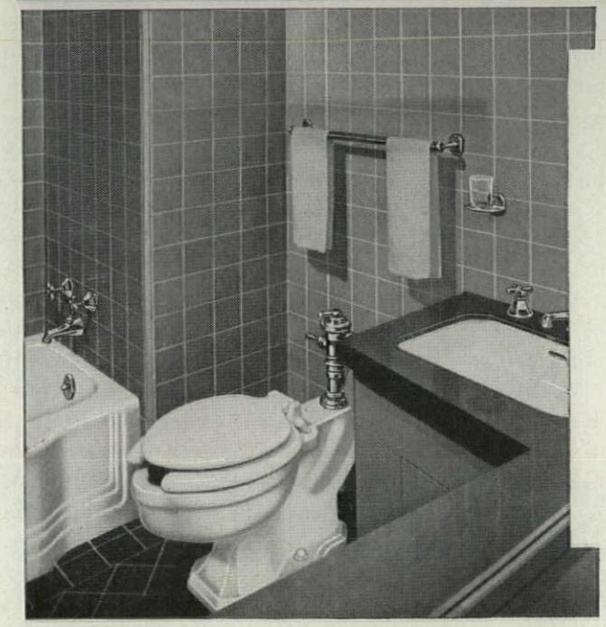

Hollywood's Hotel Roosevelt selects AMERICAN-Standard products for its $1,000,000 Resort Wing

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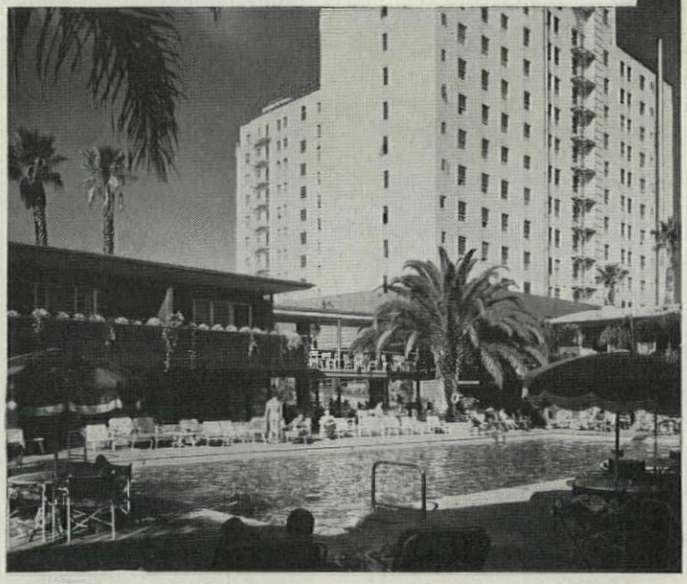

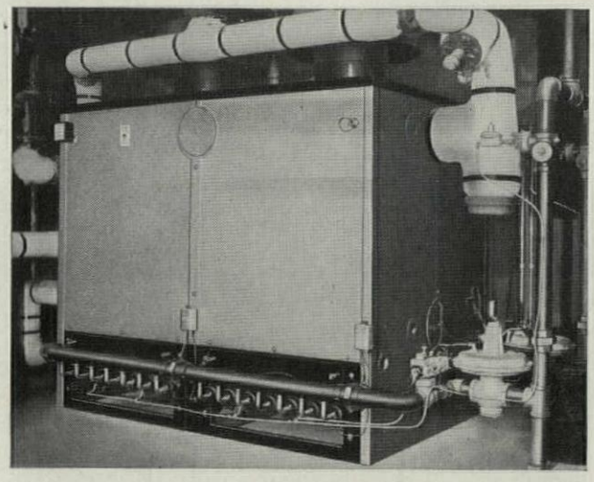

Architect: Frank W. Green, Glendale, Calif.
Mechanical Engineer: Robert Ring, Ontario, Calif.
Plumbing and Heating Contractor: H. E. Murray Co., Los Angeles, Calif.
Wholesale Distributor: Herco Pipe & Supply Co., South Gate, Calif.

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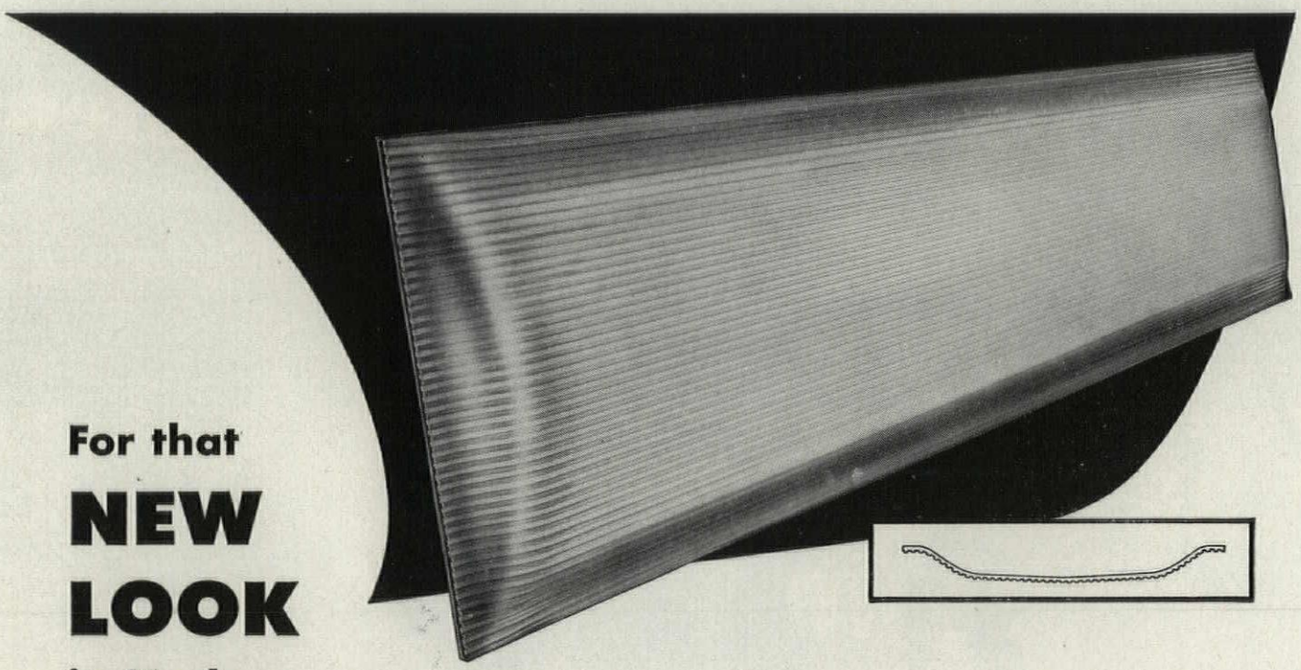

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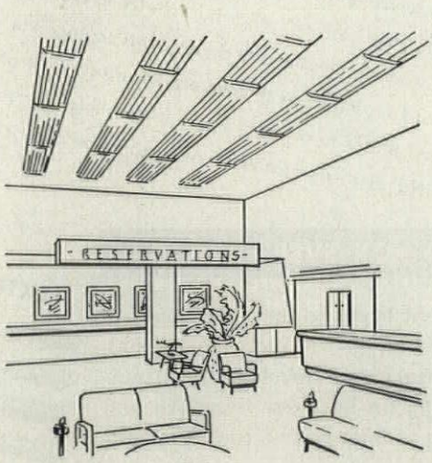
Curved ALBA-LITE panels are available through all leading fixture manufacturers, many of whom feature ALBA-LITE in their fixtures. If you are seeking new treatments or new solutions to standard lighting problems, send for Bulletin LS-32 and a set of Photometric sheets describing ALBA-LITE and other Corning engineered lightingware. They are yours for the asking.



ALBA-LITE is also available in 3 standard patterns in flat sizes up to 24″ x 100″, or bent to your particular specifications. It is adaptable to any type installation where color fidelity, high light efficiency, and maximum design flexibility are needed. It is ideally suited for totally direct lighting in luminous ceilings and recessed fixtures, or for semidirect lighting in suspended fixtures.

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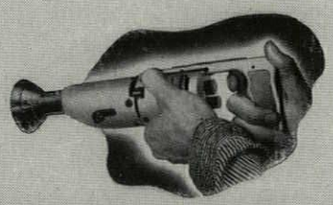
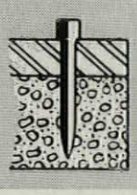
It's fast, easy and safe to operate The Remington Stud Driver

Simply hand-assemble stud and power cartridge, load as a unit in easy-to-open Remington Stud Driver, and close.



Then press loaded Stud Driver firmly against surface, depress safety lever, and pull trigger.



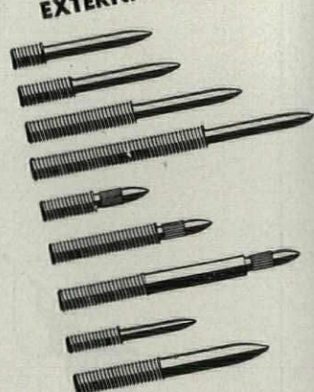
Explosive charge imbeds stud solidly. Open Stud Driver with a twist of the wrist, eject empty shell, load next stud. Whole job takes seconds!

THE RIGHT STUD FOR EVERY JOB

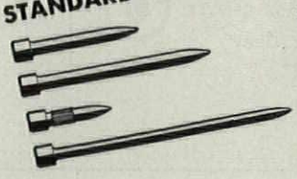
Studs are available in different types to meet the requirements of any specific fastening job. Made of a special, hardened steel alloy, these studs were developed by Remington after exhaustive testing for hardness, strength and profile. Pull-Out resistance is as high as two tons, depending on stud used.

Five different power loads are clearly indicated by colored plastic heel caps. These tough heel caps permit instant assembly of any cartridge with any Remington stud. Easily removed from the stud after driving, the heel cap also protects the thread of the driven stud.

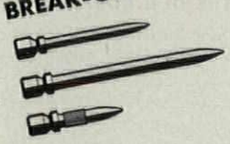
EXTERNAL THREAD



STANDARD HEAD



BREAK-OFF HEAD



INTERNAL THREAD

Only Remington studs are identified by this target trademark on the head—it's your assurance of safe, dependable fastening.

Studs up to 100 Times Faster than Conventional Methods ...and Does it Safely!

NEW CARTRIDGE-POWERED MODEL 450

REMINGTON STUD DRIVER

LOOK AT ALL THESE FEATURES

COMPACT AND PORTABLE—Weighs only 5½ pounds, ideal for scaffold, ladder, overhead work, inaccessible places. Comfortable to use in any position.

SPEED—One man can set up to 5 studs per minute, as much as 100 times faster than other methods. Sets studs at whatever depth is required up to 2¾ inches, depending on material.

ELIMINATES INVESTMENT in outside power—Self-powered. Especially useful in isolated places.

FOUR WAYS SAFE—Plainly visible red dot indicator shows when it's cocked; safety lever must be depressed before and during squeezing of main trigger; permanently attached safety shield must be compressed against work before Stud Driver will operate. Stud Driver will not operate if tilted at more than a slight angle. Slight recoil. Low noise level.

RUGGED—All working parts of the Stud Driver are made of heat-treated alloy steels, housing of strong, lightweight aluminum that carries no operating stress. Lining of safety shield is a solid block of tough, resilient Du Pont neoprene.

PRICE for Model 450 Remington Stud Driver complete in rugged steel carrying case—only $119.50.

Revolutionary tool fastens steel or wood to concrete or steel in seconds!

Speed construction fastening jobs and cut costs with the amazing new Remington Stud Driver. This lightweight fastening tool easily sets as high as 5 studs per minute. Easy to operate, it needs no outside power source . . . needs no other equipment!

The Remington Stud Driver is compact, rugged and safe. With one lightning-fast operation, it firmly fastens steel or wood structural pieces and fittings to concrete or steel surfaces.

Test-proved to be the world's finest and speediest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., *America's oldest and foremost sporting arms manufacturer*. To obtain detailed information on this time- and money-saving tool, and for the name of your nearest distributor, fill out and mail the coupon below.

"If It's Remington—It's Right!"

Remington

DU PONT

Remington Arms Company, Inc.
Industrial Sales Division
935 Barnum Ave., Bridgeport 2, Connecticut

I am interested in obtaining descriptive literature on the Model 450 Remington Stud Driver.

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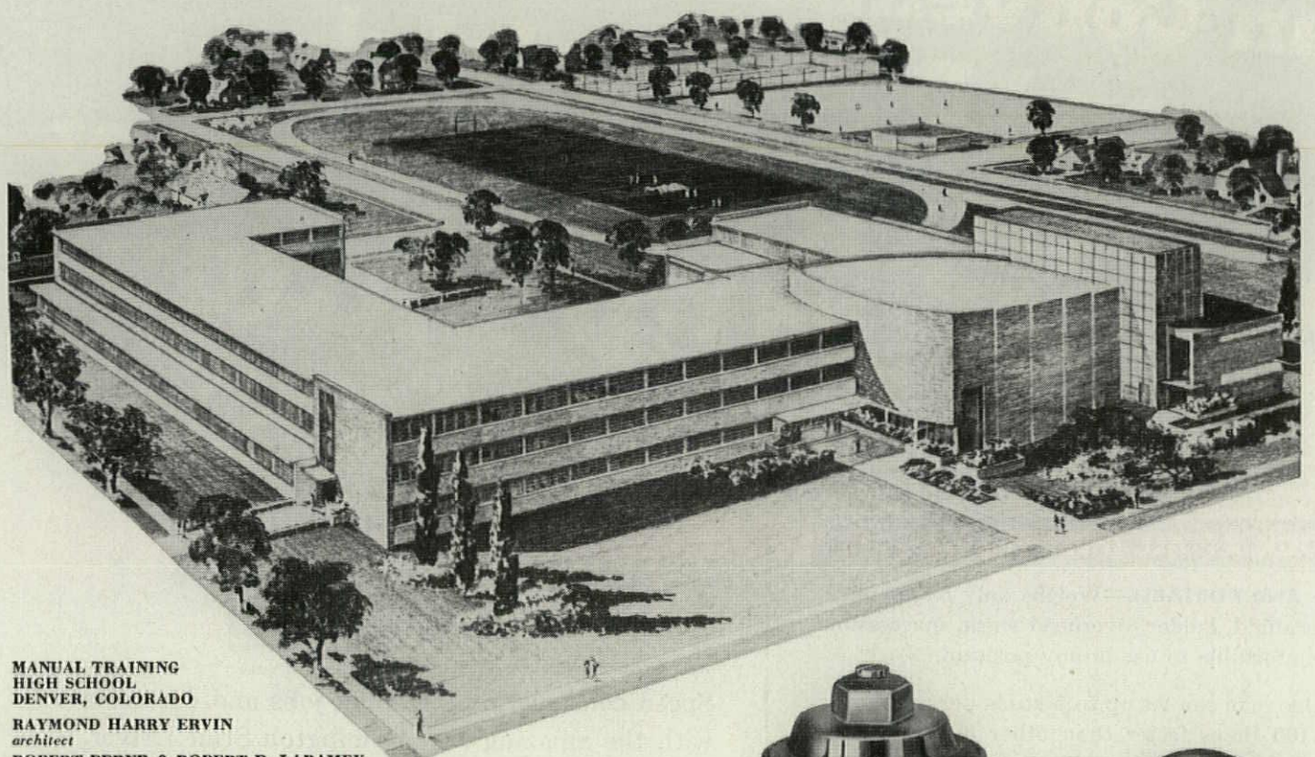
*Firm*_____

*Position*_____

*Address*_____

*City*_____ *State*_____

And in Denver – A FUTURE OF FAULTLESS SERVICE



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architect

ROBERT BERNE & ROBERT D. LARAMEY
assoc. architects

MARSHALL & JOHNSON
mechanical engineers

DENVER PLUMBING & HEATING COMPANY
plumbing contractor

CRANE-O'FALLON COMPANY
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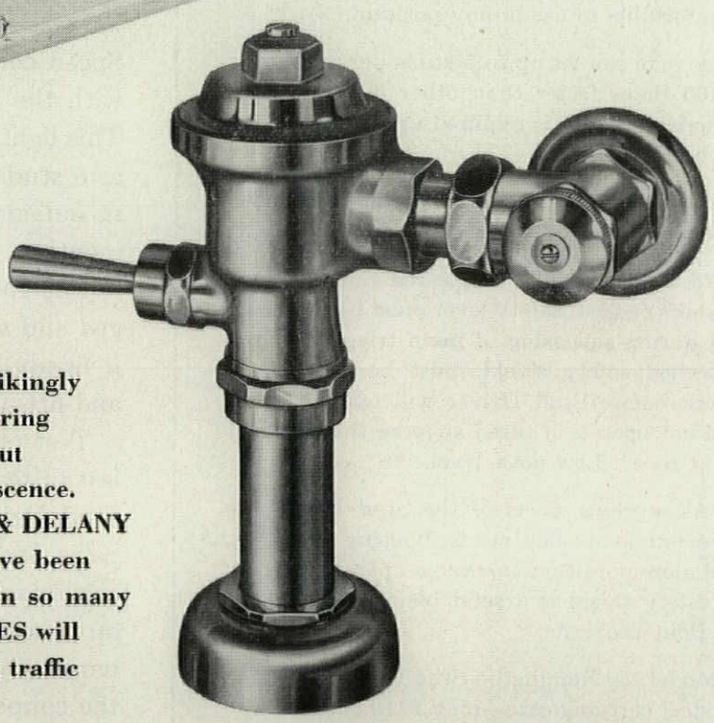
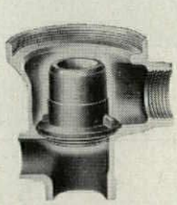


Among the largest schools ever to grace the "Mile High City" will be this strikingly conceived contemporary high school. Covering two city blocks, the plan emphasizes a clean cut progressiveness that defies early obsolescence. Understandably, it is only fitting that COYNE & DELANY diaphragm type FLUSH VALVES should have been specified and insisted upon. Here, as in so many of the nation's finest schools, DELANY VALVES will serve with distinction under the bruising traffic that only a school can provide.



The DELANY VALVE is the ONLY diaphragm type flush valve providing a renewable main valve seat, as shown at left. This feature, a basic requisite demanded in all other type valves, is just one of many contributing to the rapidly expanding prominence of DELANY VALVES. It guarantees that the flush valve will serve throughout the life of the building even should seat pitting or high pressure wire cutting occur.

DELANY *Flush* VALVES

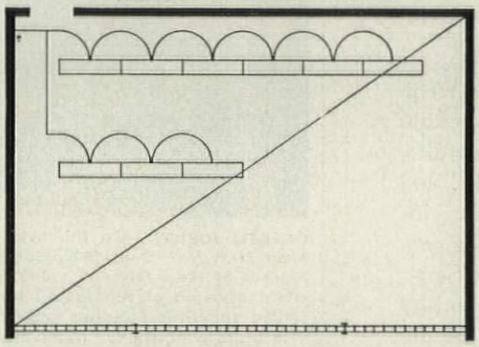
COYNE & DELANY CO. • 834 KENT AVE. • BROOKLYN, NEW YORK

Since 1879

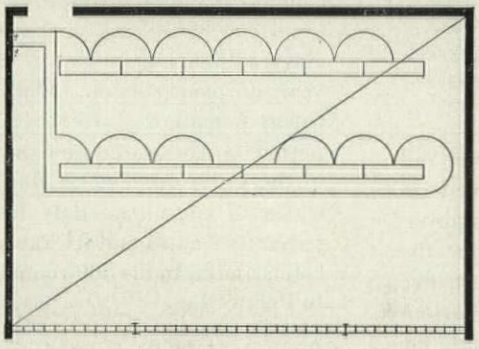
How To Have EFFECTIVE LIGHTING

and still conserve critical materials

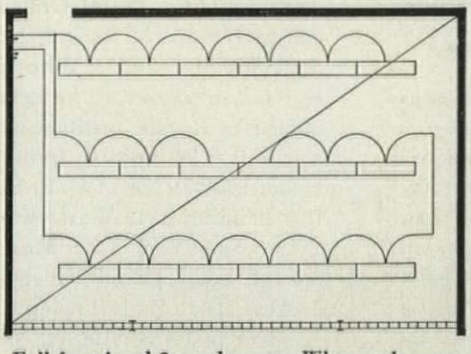
1 **Use Functional Lighting Layouts, Requiring Minimum of Luminaires.**



Save 1½ rows of luminaires—Minimum plan to supplement daylight. Utilizes 1½ rows of fixtures; corrects for body shadow cast by daylight from window-wall.



Saves 1 row of luminaires—Requires two rows of luminaires on the side away from window-wall. Supplementary light is completely adequate for daytime use.



Full functional 3-row layout —When a classroom is to be used at night. Circuits provide for 1½ rows with daylight; 3 full rows at night.

2 **Use Wakefield luminous-indirect fixtures that require a minimum of steel.**

The Star
(*fluorescent*)

The Commodore
(*incandescent*)

The Wakefield Star and Commodore both have reflectors made of non-critical Plaskon. Only hangers and wire-ways are metal. Thus, specifying Wakefield Stars or Commodores saves critical material while insuring ideal lighting conditions.

The translucent plastic reflectors completely shield the lamps, and provide a smoothly distributed, well-balanced light, free from glare and sharp brightness contrasts. The ceiling becomes the primary source of light, with the fixture and sidewalls becoming a secondary source—a basic requirement of supplementary lighting for "Co-ordinated Classrooms."

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Wakefield Over-ALL Lighting

BASIC FOR CO-ORDINATED CLASSROOMS

THE COMMODORE THE STAR THE WAKEFIELD CEILING

jealous competitors. As usual, Le Corbusier took the episode calmly. "What do you expect them to do?" said he. "They aren't going to pull it down."

The Gold Medal, the AIA's highest award, will be given French Architect **Auguste Perret** in late June during the AIA's annual convention at New York's Waldorf-Astoria Hotel. Perret, 77, is a pioneer in reinforced concrete construction and perhaps the greatest single influence on Le Corbusier. Perret's works in France have long demonstrated both the versatility of his medium and its drama and delicacy. His Rue Franklin (1903) showed the possibilities of the concrete slab; his Ecole Normale de Musique in Paris was so acoustically perfect musicians dubbed it a "Stradivarius"; his docks at Casablanca introduced the thin concrete slab for roof construction; his Notre Dame Church at Raincy displayed dignity in decoration as well as construction. Currently, Perret heads some of France's prime reconstruction projects, among them the rebuilding of the port and city of Le Havre, leveled by the war.

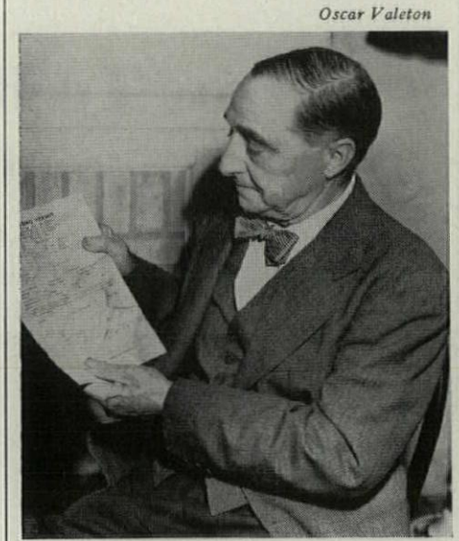
PERRET

An honorary membership in the AIA was handed to **Lewis Mumford,** author and *New Yorker* architecture critic, by Architect Arthur Holden, regional AIA director, at a lunch of the New York chapter Jan. 8. Mumford, in his response, said that in criticizing buildings he made it a special point not to know who the architect was and that he was doubly careful never to read an architectural magazine. He also asserted architectural magazines were doing nothing to popularize architecture with the public, leaving his 40 hearers in something of a quandary about how he knew this without reading the magazines. Mumford was a recent contributor to *Architectural Record*, an architectural magazine.

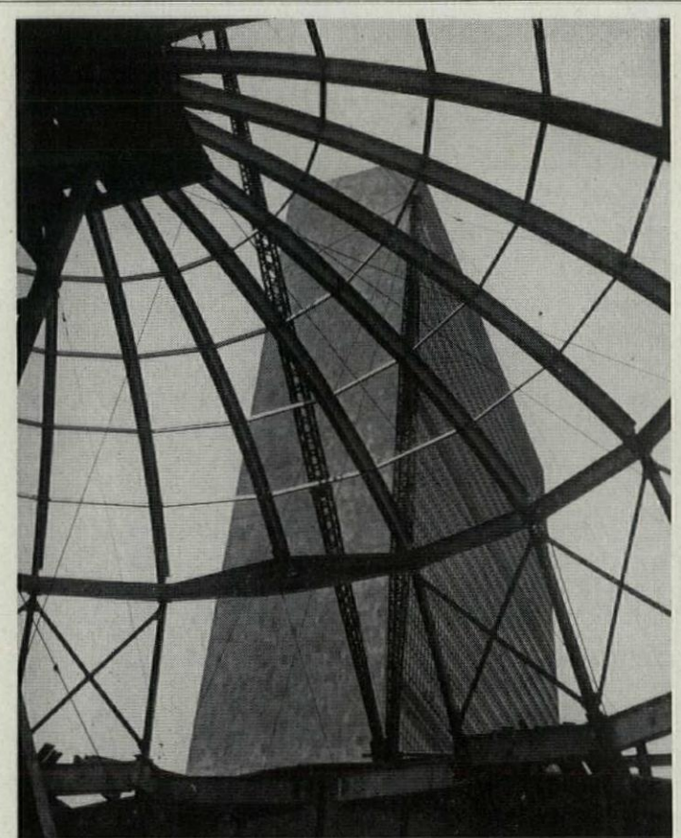
Realtor **William Zeckendorf,** whose Webb & Knapp, Inc. in Manhattan has some $100 million worth of property in its portfolio, decided to expand. Subject to SEC and stockholder approval, he will swap his Webb & Knapp stock for 60% voting control of The American Superpower Corp., an investment trust specializing in utility stocks. Zeckendorf figures he will be obtaining about $37 million worth of stock. He plans to affiliate the firms under the Webb & Knapp name and, since Superpower is traded on the New York Curb Exchange, his stock will become more marketable and he will be in a better position for raising new capital.

Los Angeles Architects **Richard Neutra** and **Robert E. Alexander** signed a long term contract with Guam officials to plan a physical, social and economic future for the island to give it a stable economy in five years. Farsighted Guam Governor Carlton Skinner wants to get going now, while the Navy is pouring in $50 to $60 million a year on construction. One undeveloped Guam potential: a freeport. This would permit Japanese who now pay a 45% duty to the U. S. on tuna to ship their fish to Guam to be canned duty free. Also projected by Neutra and Alexander: a palatial hotel, similar to the 300-room Caribe-Hilton in Puerto Rico.

Oscar Valeton



GOLDEN JUBILEE: On the first business day after New Year's in 1902, Contractor Edwin Markel of New Orleans stood in line at the city's division of regulatory inspections, received the first building permit of the year —to build a house for himself and his bride. This year, 68-year-old Markel again took out New Orleans' No. 1 building permit, just as he had in every intervening year. "That's a pretty good record," he mused. "I don't think I'll live to see anyone beat it."

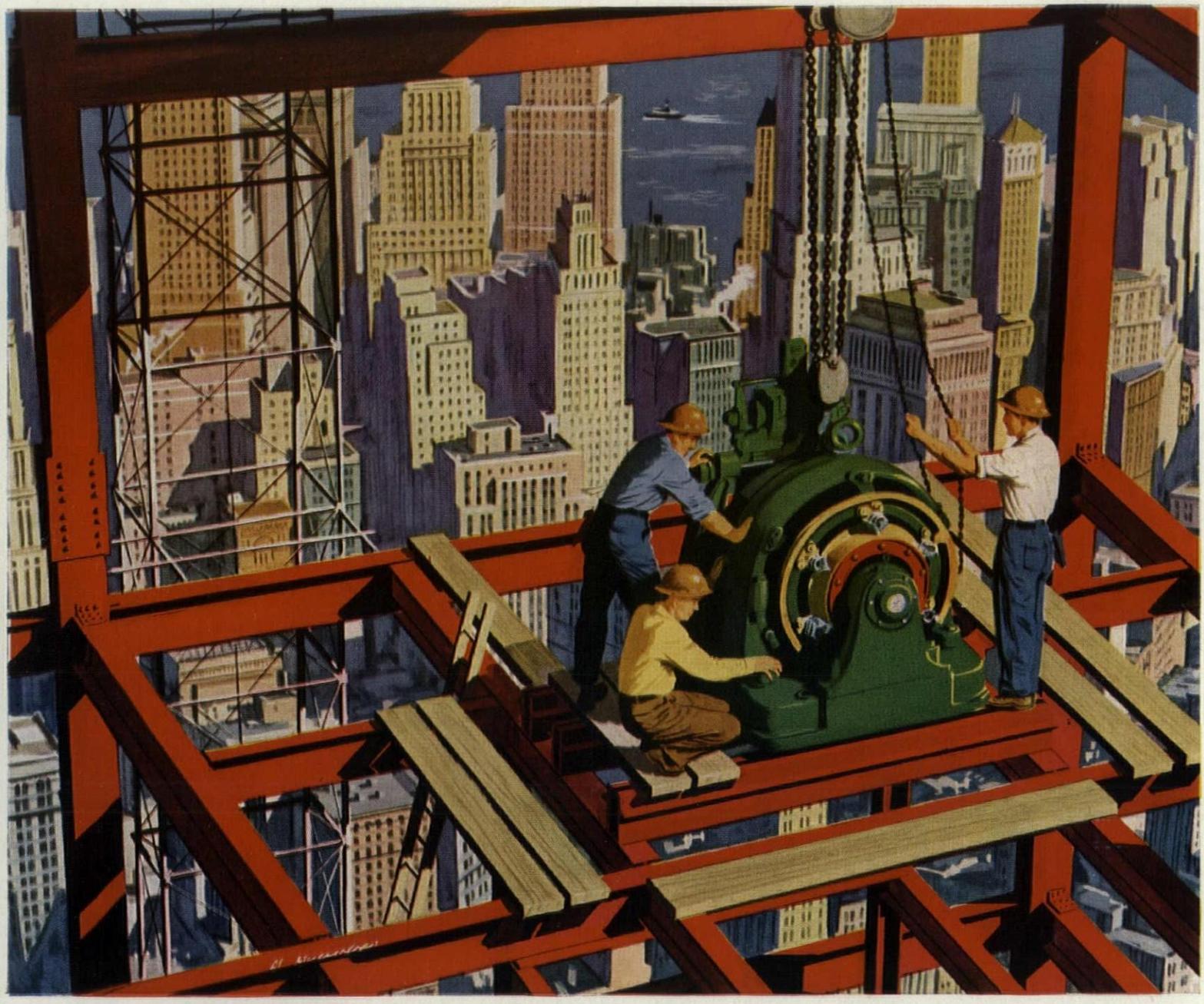


UN ASSEMBLY readied for Fall occupancy

Steel framework of the dome of the United Nations General Assembly building forms a lacy spider web before the UN Secretariat building in New York. General Assembly is scheduled to be ready for occupancy next August. The City of New York, which put up $25 million for UN headquarters and surrounding site, expects rising realty values of nearby blocks to return the entire sum in a few years through increased taxes. Before UN, the area was slaughterhouse district. UN itself, however, finds costs have risen so it will have to appropriate another $3 million to finish its three-building headquarters.

Acme

Died: **Joel D. Barber,** 75, one of the first ten architects licensed in New York State and consultant for the New York Daily News building, the McGraw-Hill building and early units of Rockefeller Center, Jan. 3 in Wilton, Conn.; **Wharton Clay,** 72, secretary-treasurer of the building material industry's Perlite Institute, Jan. 2 in New York City; **William A. Irvin,** 78, president (from 1932-1937) of U. S. Steel Corp. and for whom its Irvin Works was named, Dec. 29 in New York City **Max Gruber,** 69, one of Long Island's biggest real estate brokers, Dec. 28 following an automobile accident in Lordsville, N. M.; **G. Harvey Leach,** 50, Ohio and Kentucky contractor, Dec. 22 in Bellefontaine, O.; **Frank H. Bowerman,** 74, former president of the Associated General Contractors of America's New England branch, Dec. 21 in Providence, R. I.; **Maj. Gen. David McCoach, Jr.,** 64, Army veteran, former District of Columbia commissioner and, since 1946, vice president of the Charles H. Tompkins Construction Co., Dec. 15 in Washington's Walter Reed Hospital; **Camille E. Grapin,** 64, former Carnegie Institute of Technology professor of architecture, Nov. 27 in Pittsburgh, Pa.



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Otis construction skill *delivers* the promise that forms the basis of every Otis contract—*the world's finest elevatoring!* A promise that is not considered fulfilled until Otis headquarters has approved the field engineer's final report.

You'll find that Otis construction skill is available everywhere. No job is too small, too big, too far. Some 4,000 elevator constructors and helpers and 100 elevator field engineers are on call for construction and service through 263 Otis offices.

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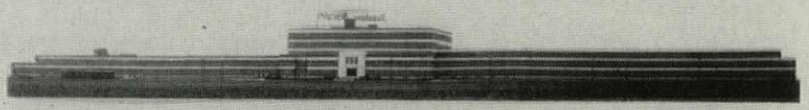

Sunshine Biscuits, Inc., Kansas City, Kan.—Architects: Engineering Dept., Sunshine Biscuits, Inc.
General Contractors: Swenson Construction Co., Inc.
Electrical Contractors: J. H. McKay Electric Co.

First National Building, Tulsa, Oklahoma
Architects: Carson and Lundin
General Contractors: Manhattan Construction Co.
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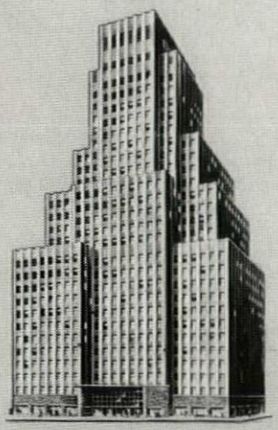
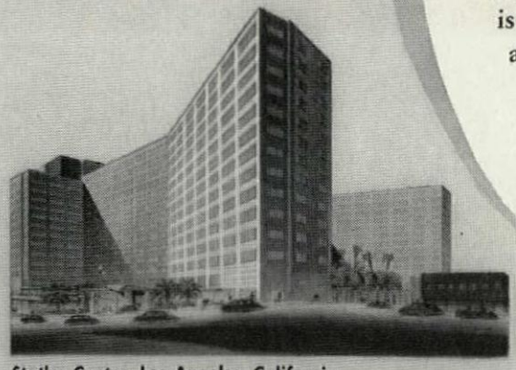


The Mutual Life Bldg., New York, N. Y.
Architects:
Shreve, Lamb and Harmon Associates
General Contractors: Turner Construction Co.
Electrical Contractors: Lord Electric Co., Inc.



Statler Center, Los Angeles, California
Architects: Holabird and Root and Burgee
Associate: William B. Tabler
General Contractor: Robert E. McKee General Contractor, Inc.
Electrical Contractor: Stetson Electric Company

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LETTERS

GM's Technical Center

Sirs:

We compliment you on the excellent article and illustrations of the General Motors Technical Center featured in your November issue. As you state, the project is Eero Saarinen's masterpiece, and in our opinion, the article does it proper justice. . . .

J. A. Holcomb
Wolverine Porcelain Enameling Co.
Detroit, Mich.

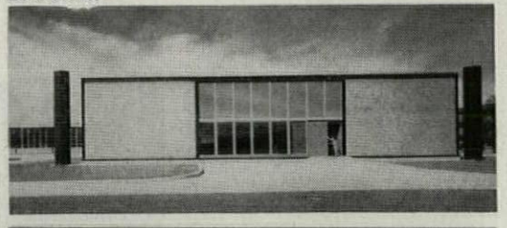
Sirs:

It would have been pertinent for you to compare the straightforward design of GM's Technical Center with the bulbous design of GM's typical car.

Arnold Broot
Gladstone, Mass.

• Herewith the front end of GM's dynamometer building and the front end of GM's Pontiac.—Ed.

Ezra Stoller



Sirs:

You have placed me in the uncomfortable position of having to eat my own words. After writing six months ago in wrathful irritation about the conduct of your magazine, I am faced with your November issue. . . .

My sincerest congratulations! The pages on the GM buildings should be hung upon your office walls. There . . . it could well be an indication of what careful illustration, enthusiasm and sensible comment can ideally become.

The entire issue . . . has prompted me . . . to bury the hatchet with suitable ceremony.

Cecil D. Elliott
Assistant Professor
Department of Architecture
North Carolina State College
Raleigh, N. C.

Sirs:

. . . an excellent article. . . .

Eero Saarinen, *Architect*
Bloomfield Hills, Mich.

(Continued on page 74)

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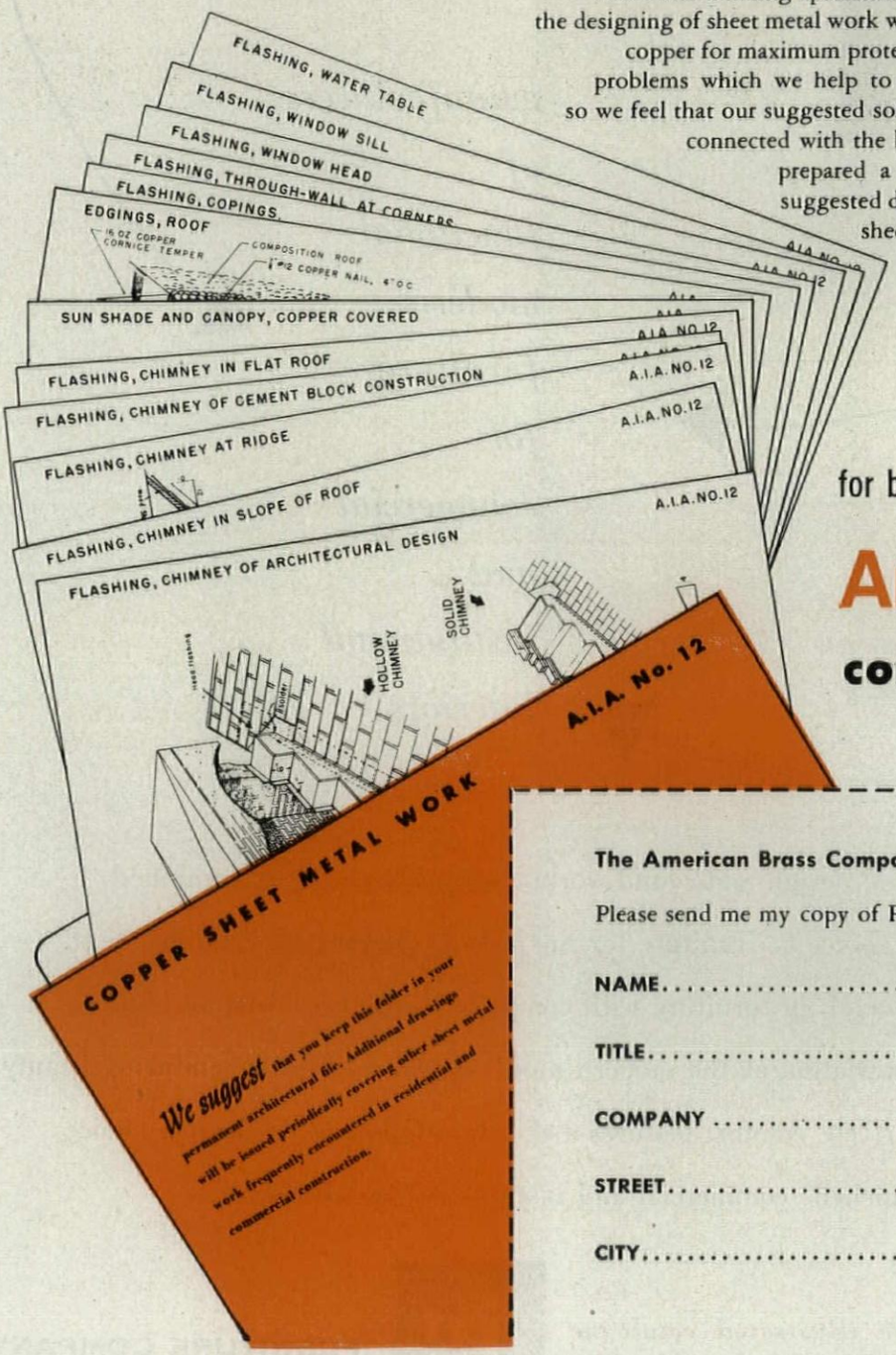

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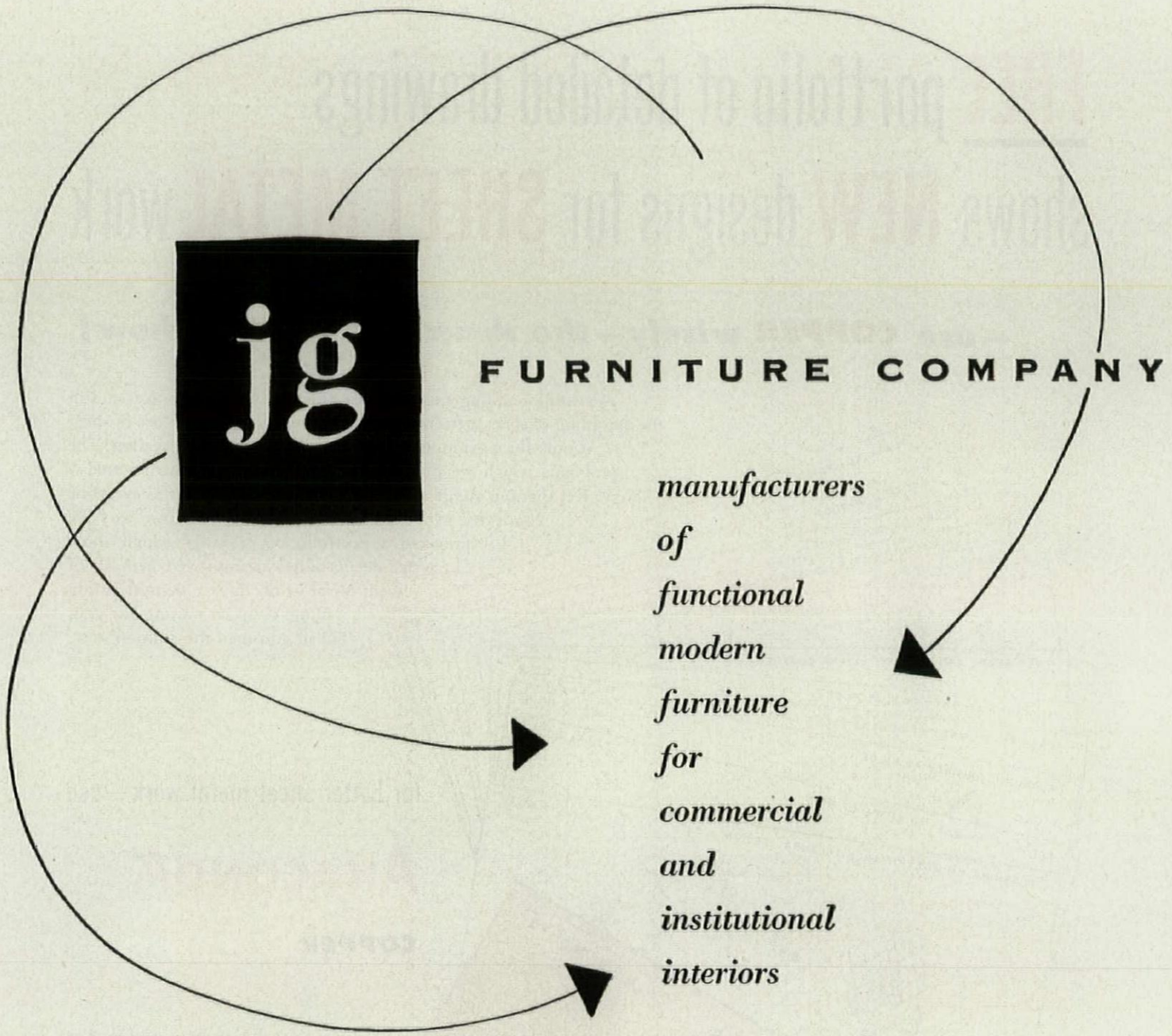

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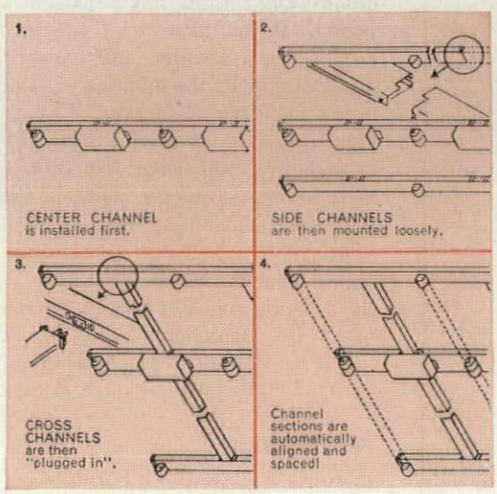

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LETTERS

Sirs:

. . . Congratulations . . . on the excellence of your November number.

W. F. RYAN
Stone & Webster Engineering Corp.
Boston, Mass.

GM's Dual-Purpose Plant

Sirs:

It is encouraging to know that you felt my dual-purpose plant proposal was of sufficient interest to present to your readers in the November issue.

CHARLES E. WILSON, *President*
General Motors Corp.
Detroit, Mich.

Room Size and Speech

Sirs:

Architects should be made aware of an important discovery in the field of speech science by John W. Black. . . . He has shown that speech is slower in large live (reverberant) rooms than in small or dead rooms. This effect is quite apart from the subject's conscious desires and should not be confused with the declamatory style deliberately chosen by orators or actors upon the stages of large auditoriums. Black's subjects were told to recite phrases typical of instructional orders aboard ship, making themselves clearly understood. This motivation is so normal to ordinary speech that it may be assumed to be in operation in practically all speaking situations. The differences in speaking rate between a small (or dead) room and a large (2,000 cu. ft.) room was 15% slower in the large room. Although a considerable amount of knowledge exists with regard to the effects of noise and room characteristics upon hearing, the extent to which these factors influence our speaking has only recently thus been brought to light.

Let us imagine a psychiatrist and patient discoursing in a room with hard plaster walls of dimensions 20 x 12 x 9′ high. Under these conditions 2,000 words might pass in a 30-minute period. If the room were acoustically treated and/or much smaller, the patient and doctor might benefit by the addition of some 300 words in the same period of time.

In these days of striving for utmost efficiency, of executives who engage in conferences which must be limited by the clock, of assistants who feel they seldom have sufficient time to impart information verbally to the boss, the speed governing effect of room size upon speech itself should not be ignored by architects and builders.

BERNARD S. LEE
Signal Corps Engineering Laboratories
Fort Monmouth, N. J.

Prefab School

Sirs:

All of us at the University of Michigan are very pleased with the presentation you gave the

(Continued on page 78)

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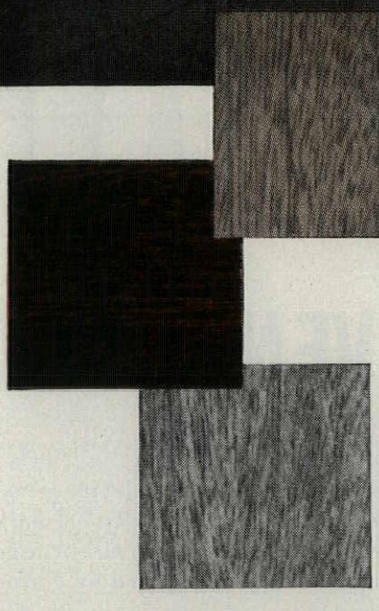

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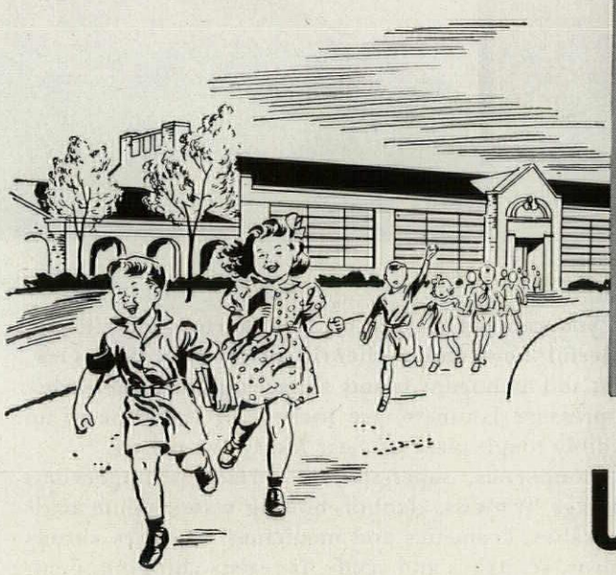

UNIT VENTILATORS

In 1918 Herman Nelson pioneered the first of a new type combined heating and ventilating unit for schoolroom use—UNIVENT. **In 1930** Herman Nelson Engineers produced the first unit ventilator which recirculated a portion of the air in the room as well as bringing in fresh air from the outside. **In 1950** Herman Nelson introduced the radically improved DRAFT|STOP system to solve the problem of drafts created by the larger window areas of modern schools.

Now *Herman Nelson has done it again! In cooperation with the engineers and scientists of the General Electric Company* DRAFT|STOP *units are now available with germicidal tubes within the unit.*

Out-of-doors as a result of the rays of the sun and air dilution the air is relatively germ free. But indoors, air sanitation is needed, particularly in areas with high occupancy such as schoolrooms. The remarkable germ-killing effect of ultraviolet rays on airborne germs is well known. Now these rays generated by germicidal ultraviolet tubes are put to work purifying the air as it passes through the unit ventilator. Germ kill is high and as a result the treated air carries fewer respiratory infections. That means better pupil and teacher health for the air within the school becomes equivalent to outdoor air.

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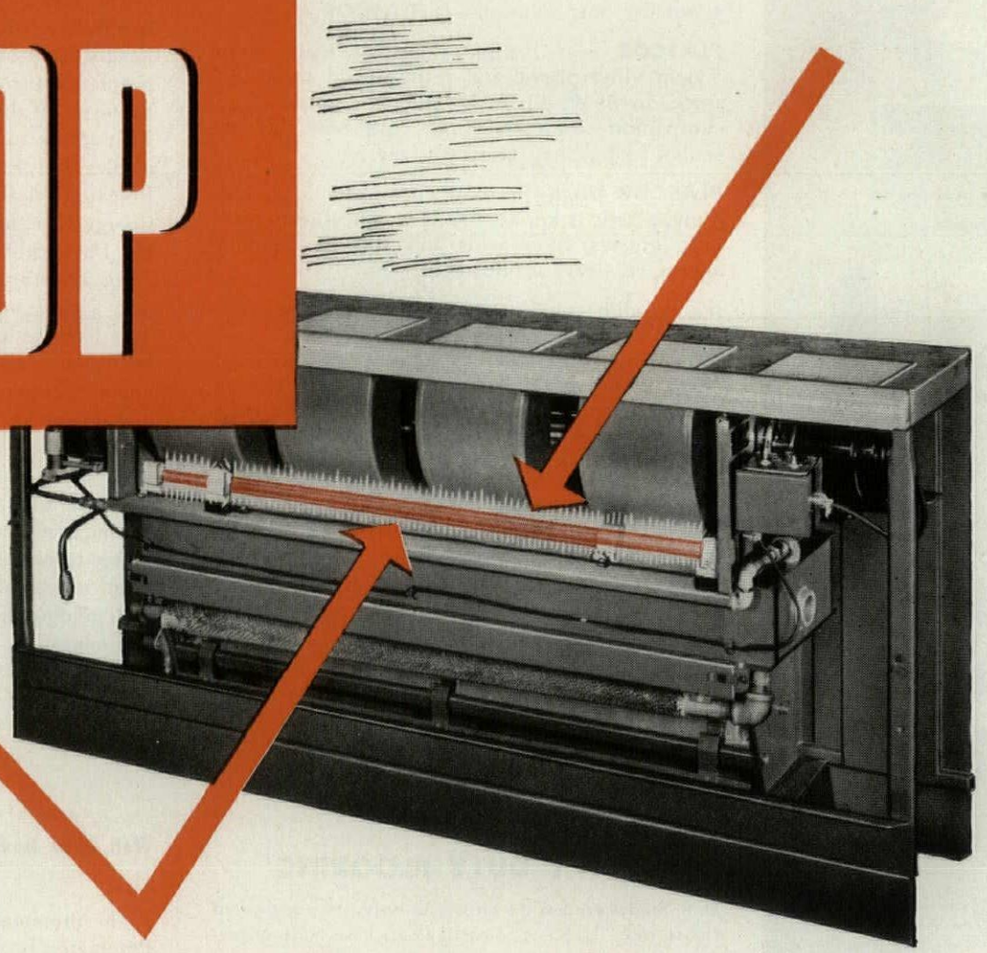

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LETTERS

Unistrut School research project in your November issue.

We are particularly impressed by the skill and understanding which was shown in developing the page layout for this story. The format—as elsewhere throughout the magazine—is superbly attractive and easy to comprehend. . . .

I should like to add a few words to the story to underscore the fact that the Unistrut School has been an undertaking in architectural research which ties in closely with architectural education. . . .

The program of architectural research is intended not to compete with the work of professional designers but rather to explore new ideas in design and construction which we hope will be generally useful to architects and the building industry. We look on the Unistrut School in exactly this light—an attempt to develop a basis prototype scheme which might be taken up by school designers and developed further in meeting local school needs. . . .

The ideas expressed in the Unistrut School design have come from many different sources—faculty, students, visiting architects and school people. Principal contributors . . . have been Professor Walter Sanders, Professor Paul Coy, Visiting Lecturer Francesco della Sala (from Naples, Italy), Instructor Charles Pearman, and Research Assistants Edward Hammarskjold, George Krassner, Edward Lecker, Margaret Po Hu, David Stiffler and Warren Todter.

An architectural research program also permits a close working relationship with industry. This likewise has its advantages in architectural education, particularly insofar as it furnishes opportunities to experiment with new materials and production methods. In the case of the Unistrut School we feel we have been doubly fortunate, since the project sponsor, Charles W. Attwood, has an architectural background. A Michigan graduate, he was a practicing architect before turning manufacturer some 20 years ago; as an industrialist, he continues to have a strong and abiding interest in architectural progress and education.

C. Theodore Larson
Professor of Architecture
College of Architecture and Design
University of Michigan
Ann Arbor, Mich.

Well Done Hospital

Sirs:

The presentation of the Eastern Pennsylvania Psychiatric Institute in your November issue was well done.

The Psychiatric Institute is perhaps the most important project undertaken by the General State Authority of Pennsylvania, and I venture to say that without the Authority, the project would not have been undertaken. . . .

Roy F. Larson, *Architect*
Harbeson, Hough, Livingston & Larson
and Harry Sternfeld
Philadelphia, Pa.

THE UPJOHN COMPANY's new manufacturing building in Kalamazoo, Michigan. Auditorium, cafeteria, employee lounge and offices are air conditioned and use Kno-Draft *Adjustable* Air Diffusers throughout. *The Austin Company, Engineers and Builders.*

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Distribution is being limited to those directly concerned with electrical planning. If you need the material and have not already received a copy, please contact your Westinghouse representative. J-94893

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EQUIPMENT FOR THE CONSTRUCTION INDUSTRY

GERMAN BUILDING TECHNIQUES—Although generally below U. S. standards, some details are worth importing—a report from Frankfurt

Intrigued by the possibility that occupied Germany might have developed new postwar building methods worth importing, the editors last month queried TIME INC.*'s News Bureau in Frankfurt.*

While the reply indicated that German building methods in general are less advanced, less efficient than ours, some new German materials and equipment are worth consideration by the U. S. For example:

▸ *A lightweight building block made of wood shavings suitable for roof, wall and partition construction.*

▸ *A plastic material with a cellulose basis which has halved the cost of various items ranging from water closet seats to factory sash.*

▸ *A new tubular lock with a minimum of parts whose push-pull action makes it particularly suitable for the doors of kitchens, hospitals and cafeterias where people's hands are frequently full and knob-turning is therefore inconvenient.*

▸ *A brush-applied wall finish that looks and behaves like tile.*

Herewith the full report from Germany:

One of the several experts to whom we put your question was Eckart Muthesius of Frankfurt and Berlin, one of the top men in the trade. His forte is construction of large, modern towns, but at present he is doing a good bit of the U. S. Army's building in Germany. He has built barracks at the new Rhine military post, a 1,000-bed hospital and a giant recreation center for the Army. Besides that, he has worked abroad a good deal, chiefly in England and India, where he built the Maharaja of Indor's air-conditioned pleasure dome. He is one of West Germany's most active and prosperous architects. This is what he had to say about U. S. and German building:

Mendelsohn's experience

"Columbus Haus (now in Soviet sector of Berlin) used to be the tallest and proudest building in Berlin until it was knocked out by Allied bombs during the war. It was designed early in the '30's by one of our ablest architects, Erich Mendelsohn, who deliberately borrowed many guiding principles and construction methods from current U. S. practice. During the planning stage, Mendelsohn sent his chief assistant to America to take a good look around and to come back with a hatful of ideas.

"Back in Germany, this man found it difficult, and in many ways impossible, to adapt or shape the ideas he had picked up to fit into the general framework of German construction practice, methods and labor conditions. There is nothing to suggest today that in the intervening 20 years German, or for that matter European, building practice has caught up with American. If anything, the gap has widened rather than diminished.

"Purely from the construction point of view, a skyscraper represents the topmost achievement of man and can be built only on the basis of an efficient and powerful industrial setup. What goes for skyscrapers goes also for any large industrial or commercial structure of the present day. We in Europe cannot compete with . . . the

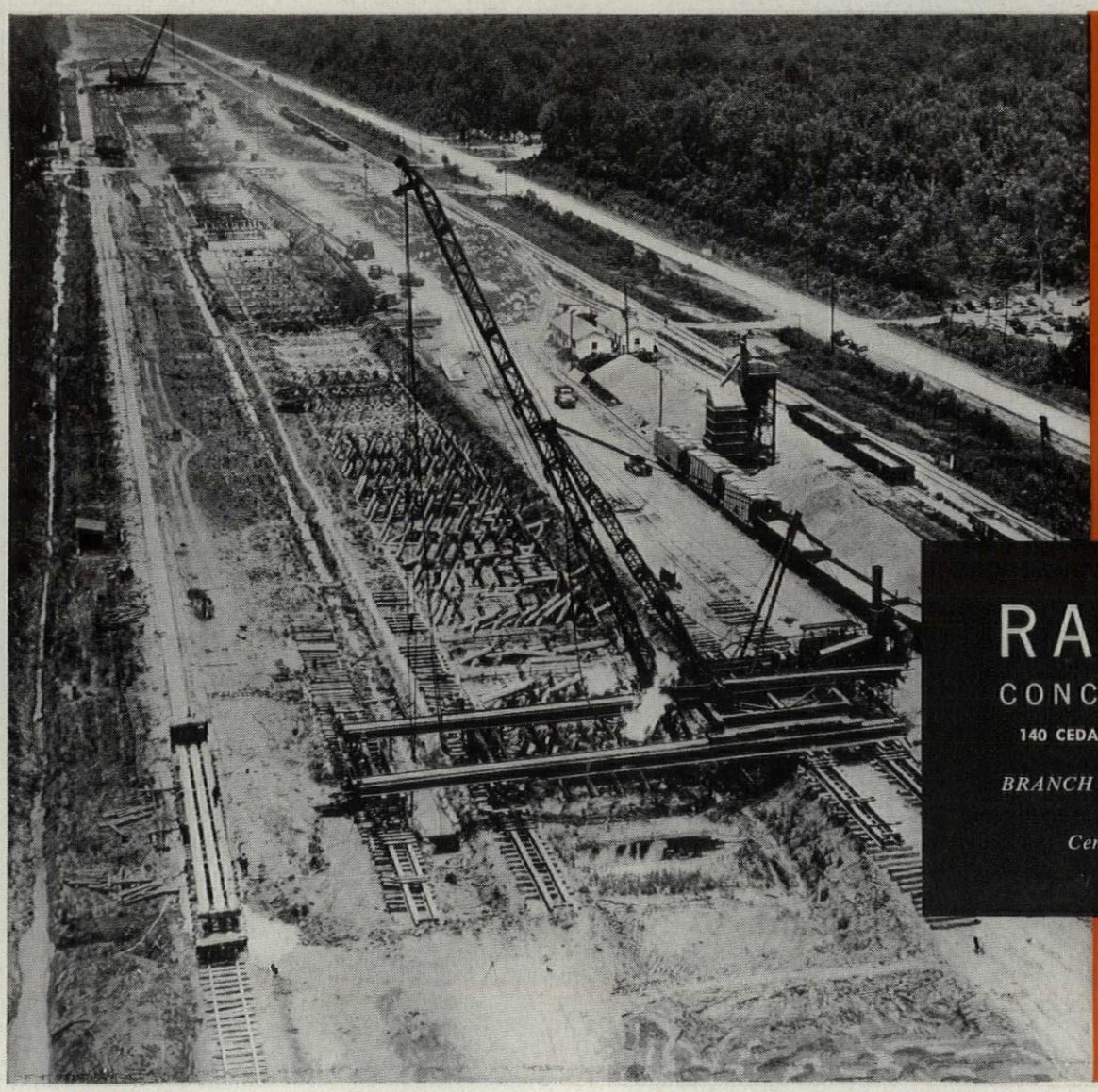
(Continued on page 86)

GIANT MORGANZA FLOOD CONTROL JOB

COMPLETED 3 MONTHS AHEAD OF SCHEDULE!

DRIVING FOUNDATION PILES for the gated portion of Morganza, La., Floodway Control Structure is one of the outstanding pile jobs of the year. Skilled planning of operations and use of two of the largest pile drivers ever built have enabled Raymond to complete this work three months ahead of schedule. Structure is supported on 3,734 precast concrete piles 80 to 118 feet in length—practically all driven on a batter.

Design and Construction under Supervision of
COL. CHARLES E. HOLLE, U.S.A., *District Engineer,*
New Orleans District, Corps of Engineers
Department of the Army.



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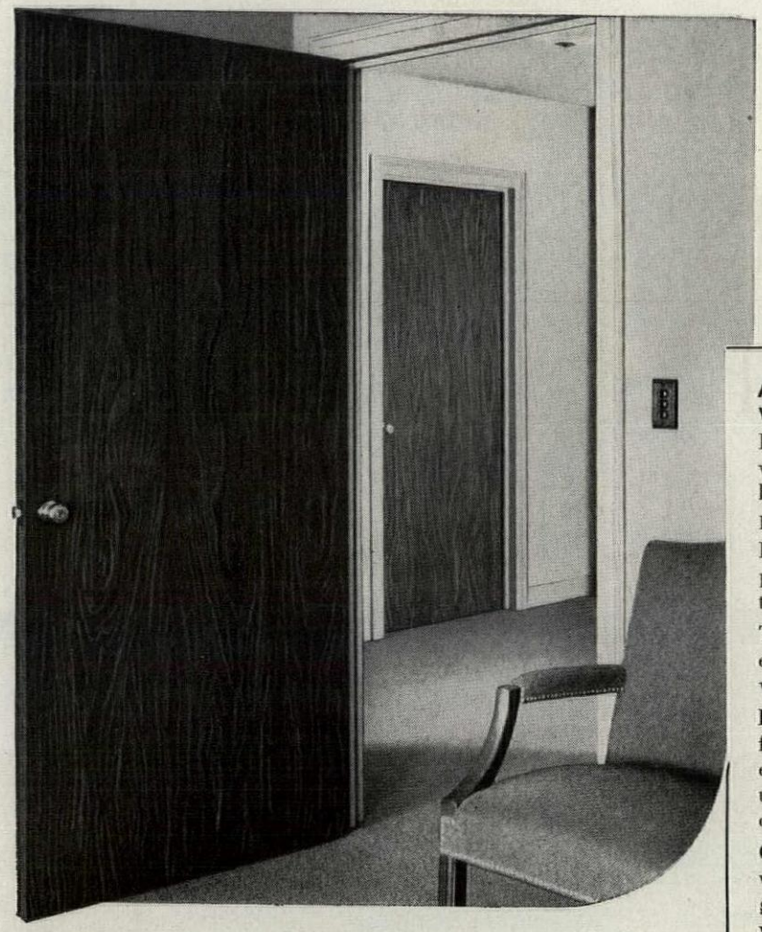

Beautiful Weldwood Fire Doors, in the offices of Arthur Andersen and Co., New York City

Architects: George B. Post and Sons.

And Now . . .
WELDWOOD PARTITION PANELS

Like Weldwood Fire Doors, Weldwood Partition Panels have all the beauty of luxurious wood . . . offer positive protection against fire.

Like Weldwood Fire Doors, these partition panels have the incombustible Kaylo* Core.

They are made in 2 types — with either non-treated or fireproofed wood edge banding.

Readily adaptable to low railing and full ceiling height partitions — and easily movable — they are ideal for use in offices, hospitals, schools and other institutions.

Can be obtained with such choice veneers as ash, avodire, birch, elm, gum, Korina, oak, mahogany, prima vera and walnut.

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Shuts fire off tight!

One glance can tell you more than a bookful of words

. . . about the soft, luxurious beauty of the Weldwood Fire Door

. . . and the warm, welcoming atmosphere it imparts to a reception room or office.

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The secret of this great protective quality lies in the door's unique construction. Choicest domestic and imported wood veneers are bonded to an incombustible mineral core — winning for the Weldwood Fire Door the Underwriters' Label for Class B & C openings.

In addition, the Weldwood Fire Door offers exceptional stability . . . extraordinary durability . . . and is proof against rot, vermin and decay. It's unusually *lightweight*, too.

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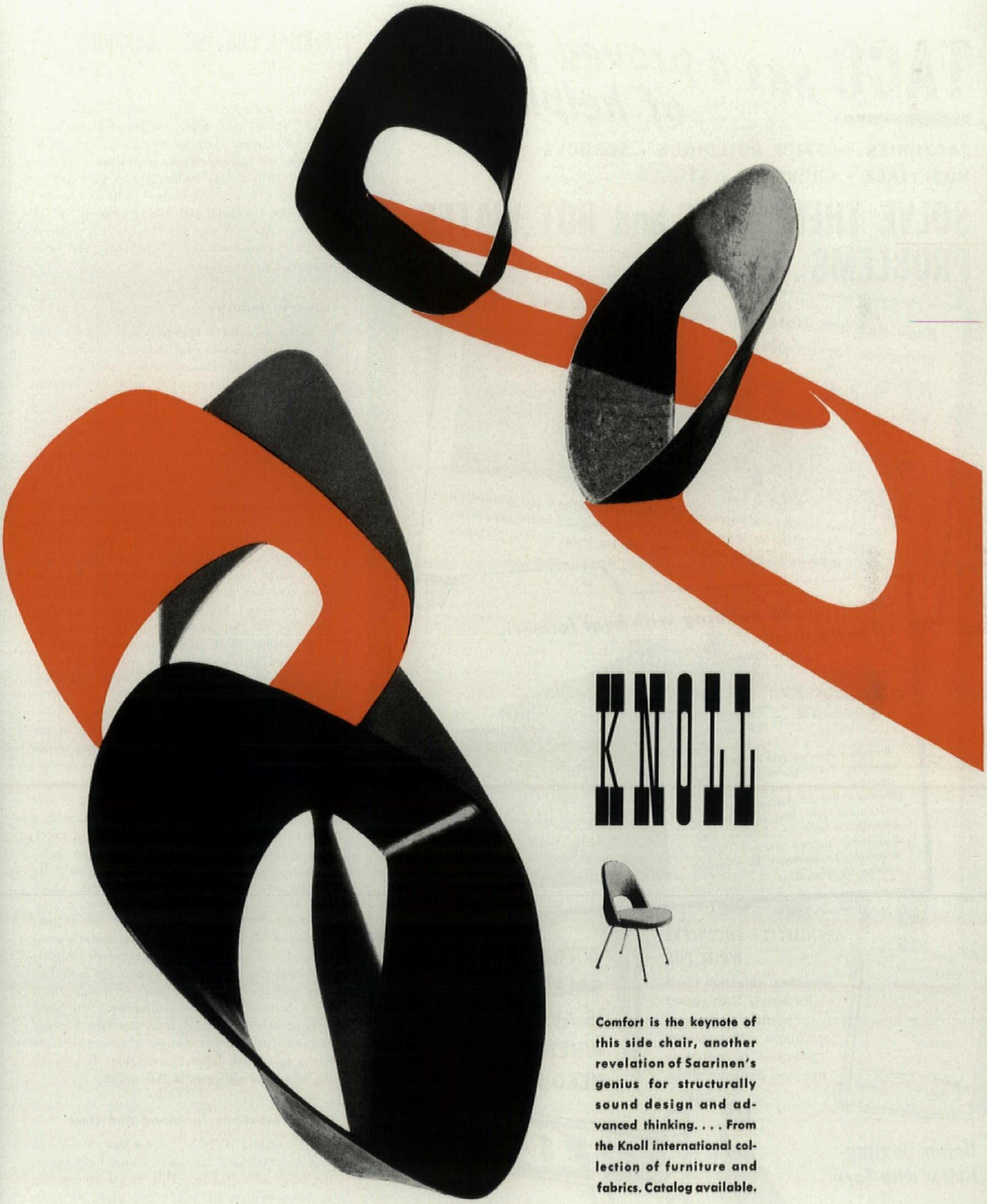

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matter

GERMAN BUILDING TECHNIQUES

Fairless works—the largest steel works ever built—which cost $400 million and occupies over 3,800 acres, with 20 miles of paved roads, 75 miles of railway track, producing 1,800,000 tons of steel a year rolling out at 60 miles an hour and with a 16,000-home Levittown to house its 25,000 workers—all this produced in 11 months after soil was first broken. We cannot do this because we just do not have the same industrial background.

Labor vs. industry

"What goes for a skyscraper or factory goes for any large building for industry or commerce, and even for apartment houses and low cost dwellings. Our construction methods here are geared to plentiful supply of skilled labor and craftsmanship. We build comparatively quickly and well because our workers are good and cheap, not because the industry behind it is efficient.

"But the emphasis in Germany is against Levittowns and other types of prefabricated construction. To a not inconsiderable extent, prefabrication originated here after World War I, but experience has shown us that hollow block construction is cheaper, that it is at least as quick and has a few other aces up its sleeve: It uses low cost, low grade materials, saves labor and does not require elaborate site equipment. Good hollow block unit is generally made of cinder and/or other materials procurable locally . . . it is lightweight, easy to handle and takes half as much time to lay as brick.

"The speed and cheapness of many ECA-financed housing projects here are attributable not to construction efficiency as such, but to use of the hollow block.

"There are certain other novelties that Americans could pick up from us. The first is still another dry wall and building block but with a difference. It is made of wood shavings or excelsior bonded in cement and is therefore lightweight, cheap and rot- and verminproof. Its novelty lies in the design of its units, which are used for roof, deck, wall or partition construction. The basis is a modular unit in prefabricated shapes which offers particularly good thermal and acoustic insulation values. Almost any wood shavings may be used in the manufacture, including old and castoff pit props which are a by-product of German mines. The main interest of the material is in low cost housing projects, particularly in out-of-the-way places where no skilled labor is available. It goes by the name of Iso-thermo in this country.

Plastic substitute for wood and steel

"The second is "xylo," a product of German chemical skill and is a new plastic built up on the basis of cellulose. This means it can use as its raw material any grass, plant or near-wood containing 15% or more lignite. Finished

(Continued on page 90)

HERE, THERE, EVERYWHERE . . . IT'S *Boltaflex*

This is a Boltaflex room! Walls, booths, bar front, doors, chairs—yes, *even* the ceilings are covered in Boltaflex!

Imaginative and dramatic it surely is, but the *real* beauty of it is that it will stay looking that way a long, long time.

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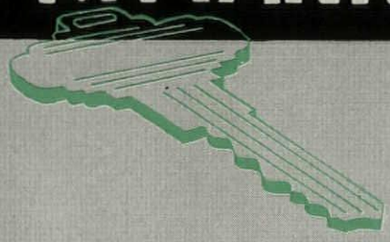

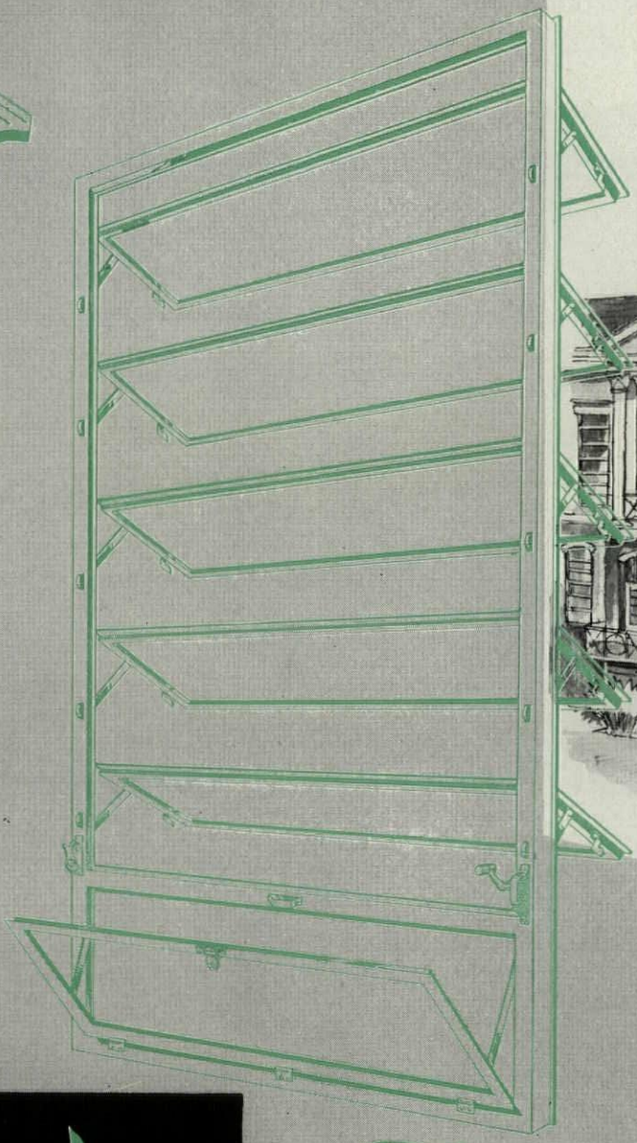

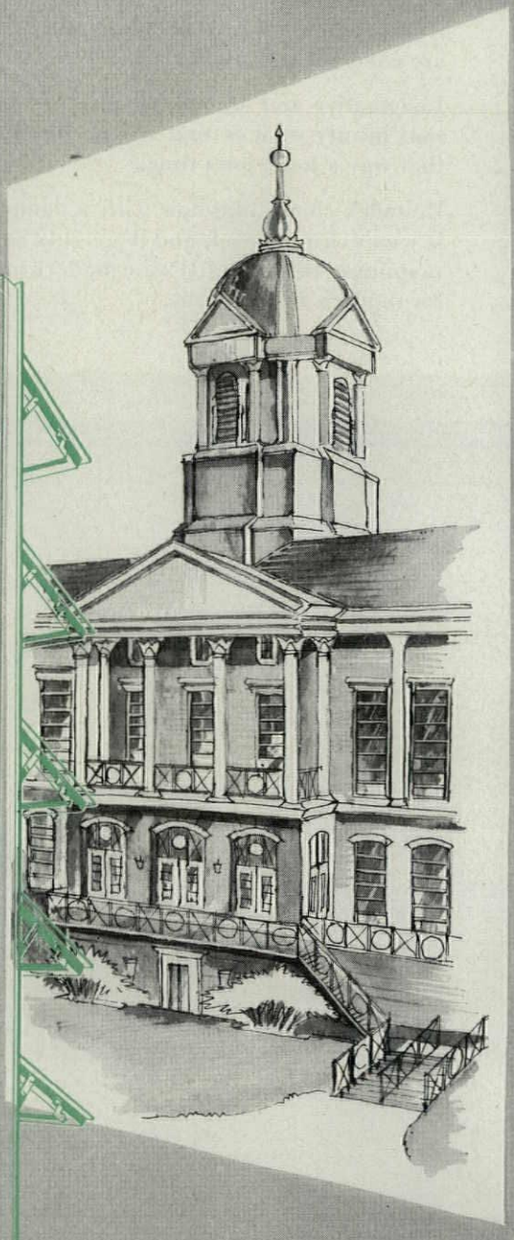

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Associate Architects: Scheeren & Rittenhouse, Kittanning, Pa.
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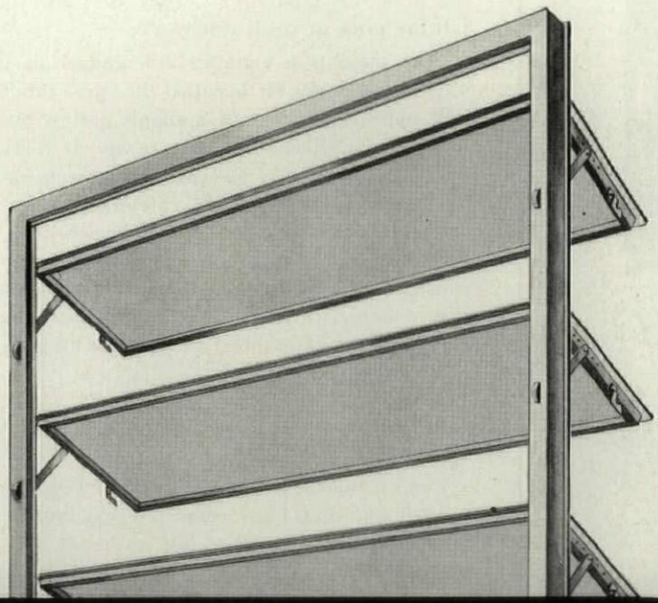

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- Skyscraper to cottage, Auto-Lok meets every requirement.

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aluminum or wood
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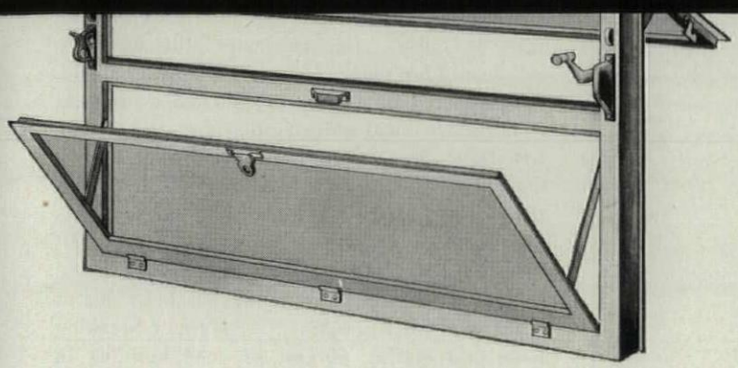

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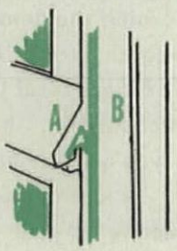

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To supplement their own facilities, architects and designers are daily utilizing our staff's experience in fenestration problems. May we assist you?

For further details on Auto-Lok -- The Perfect Window -- see SWEET'S and, by all means, write for the name of your nearest distributor and a copy of the free booklet ***"WHAT IS IMPORTANT IN A WINDOW?"*** Address Dept. **MB-1.**

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GERMAN BUILDING TECHNIQUES

articles made from it retail for less than half the corresponding cost of a wooden article. All normal household articles have been made from it—from water closet seats to brush backs, and even furniture. Window frames made of it are for practical purposes everlasting, waterproof and never need painting. They cost less than half the price of steel windows.

"The third is a cunning new gadget in the way of door locks. It is called the "pm" tubular lock and opens a door by a simple pull or push, according to which side you are on. It is used where a person may be carrying parcels or a tray, such as in hospitals, cafeterias or for a normal kitchen to help out the housewife. As currently made, the lock has a minimum of moving parts, is rather simpler in construction than a normal cylinder lock and comes in polished duraluminum metal which makes it practically corrosionproof."

U. S. Army experience

Lt. Col. George G. Davies, Corps of Engineers, pointed out that local efficiency was rooted in cheapness of labor (20 to 30¢ an hour) and in the availability and handling know-how of labor-saving building machinery in the States. Davies has supervised the building of the U. S. High Commission project in Bonn, including a large office complex (320,000 sq. ft. of office space put up in seven months), a housing project for American High Commission personnel and families and two projects for HICOG's German employees. He said the unions here are not as intent on padding employment, making for economy of already cheap labor not known in the States. Nevertheless, he insisted the job could have been done as fast and as well or better in the U. S.

Certain specifics of German building rile him. For one, he doesn't like the quality of German plaster: "Why, the Germans still use old-fashioned lime plaster!" German paints, he said, were also not up to scratch, but other products from the chemical industry that go into building were fine. He named one: Kereywitt, a wall finish applied with a brush over undercoating, then sprinkled with a fixer. Finished, it looks like and has the properties of tile (i.e., impervious to grease, washable, etc.).

He summed up: "Germany has been out of circulation for ten years . . . it's now breaking loose and getting abreast of good building in the rest of the world."

* * *

Your query was submitted to three army engineers who have been building military installations and housing in Germany and to three German architects and contractors. They did a lot of head scratching, then came to a single conclusion: To a man they doubt whether German building is more efficient than American, said, if anything, it is the other way round.

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RUST-OLEUM
769 D.P. Red Primer

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This practical coating may be applied directly over surfaces already rusted without removing all the rust! Simply wirebrush and use sharp scrapers to remove rust scale and loose particles . . . sandblasting and chemical pre-cleaning are not usually required. Easy to apply by brush, dip, or spray . . . dries to a firm, pliable coating. Cut your maintenance costs, save metal — with RUST-OLEUM! Prompt delivery from Industrial Distributor stocks in principal cities.

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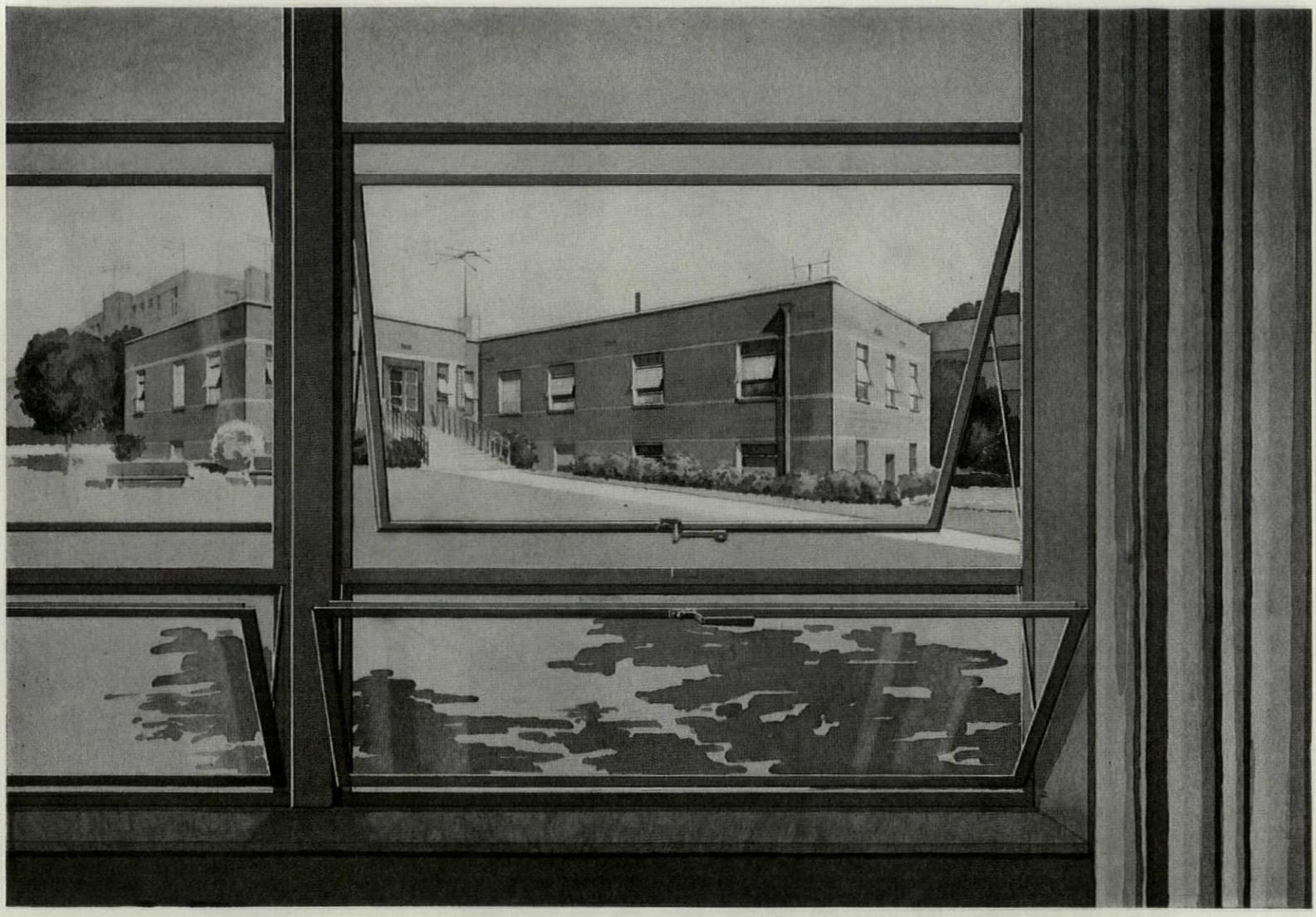

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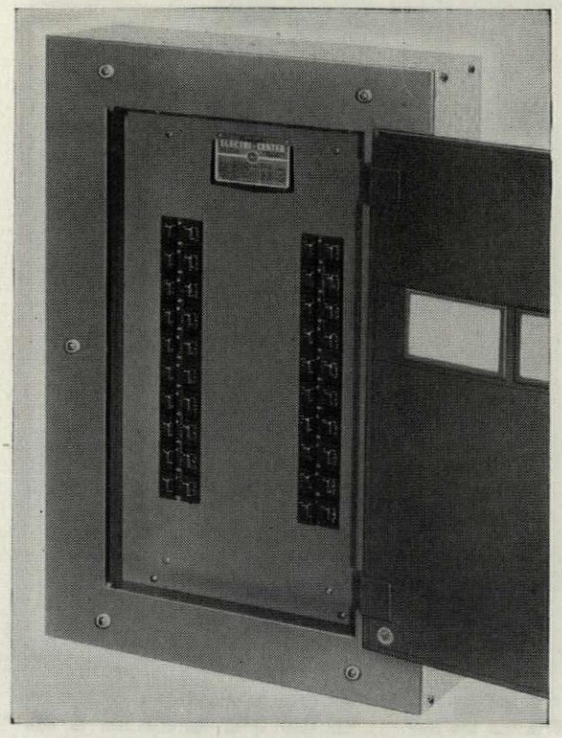

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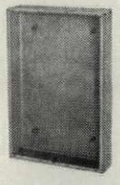
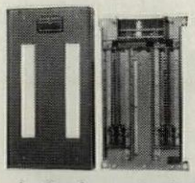


Boxes: 26", 32" and 38" high. All 20" wide; 5½" deep. Ample knockouts.



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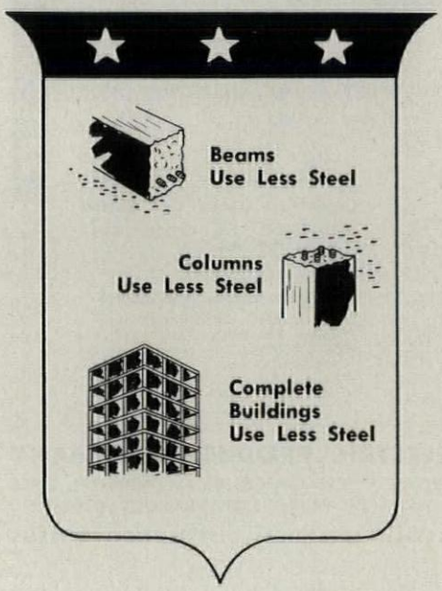

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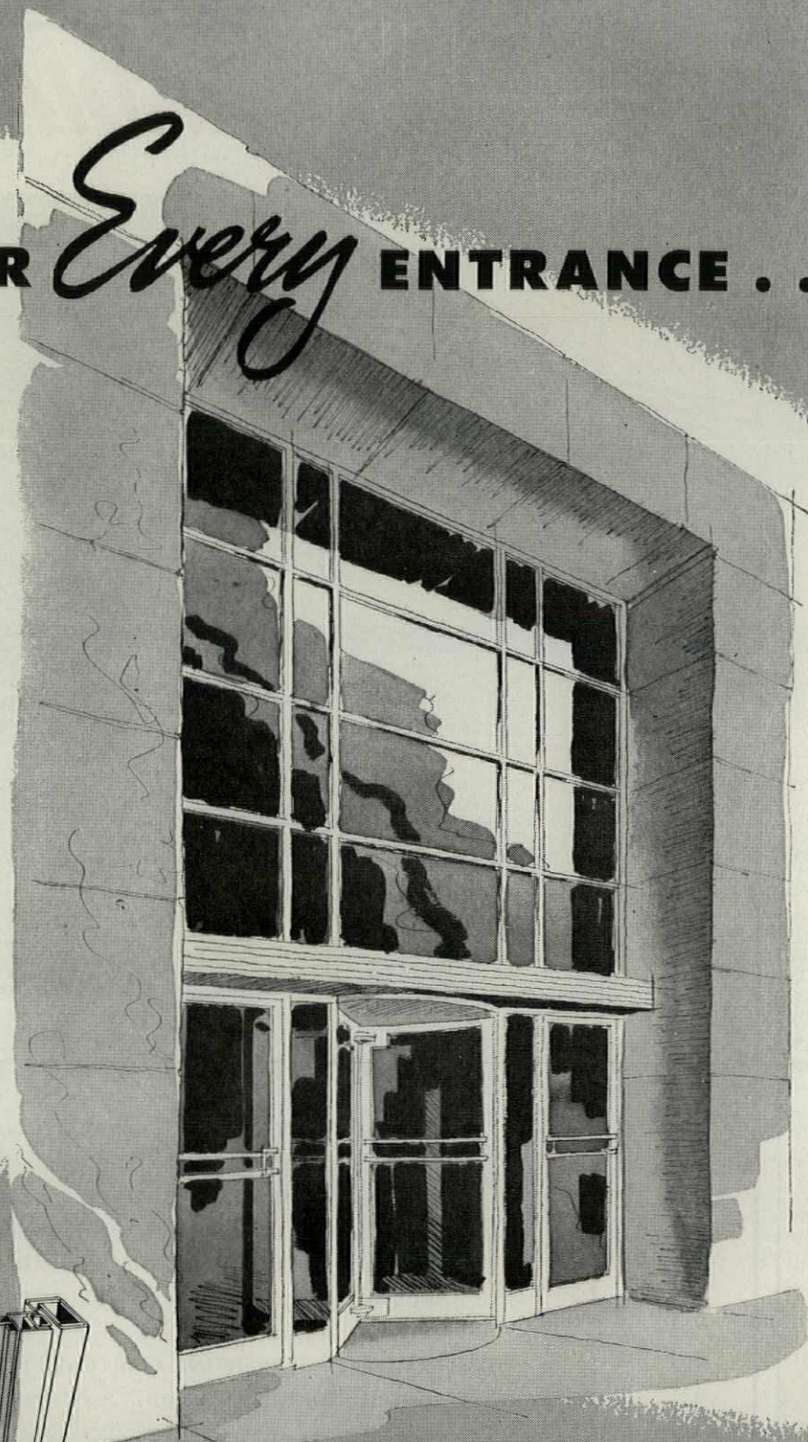
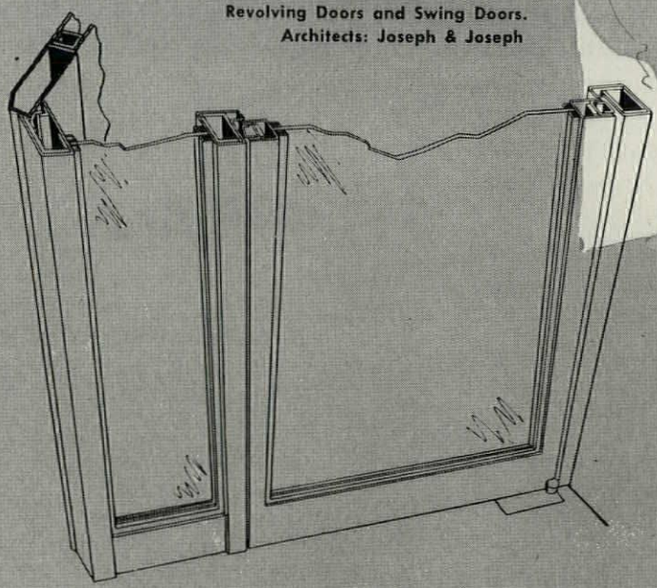


Here is illustrated the new entrance for the Liberty National Bank, Broadway Branch, Louisville, Ky., using International Standard Model Revolving Doors and Swing Doors. Architects: Joseph & Joseph



This enlarged detail of the Liberty National Bank installation shows how easily the Standard Model doors can be adapted.

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REVOLVING DOORS

INTERNATIONAL-VAN KANNEL

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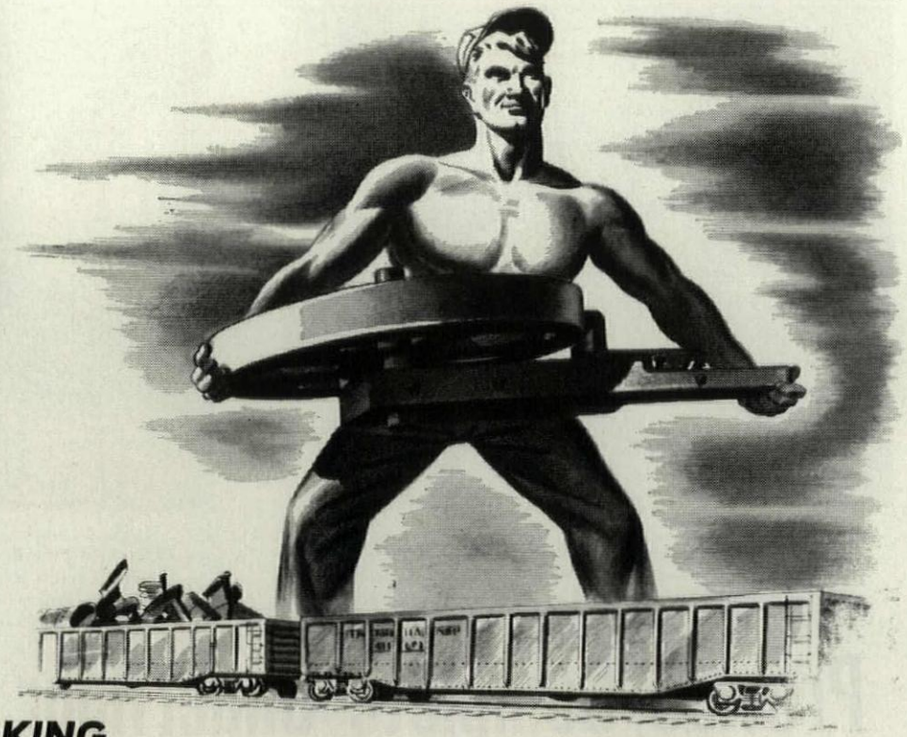

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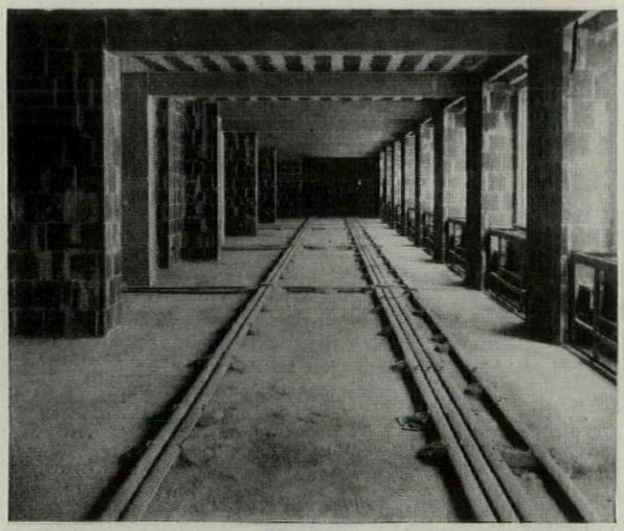

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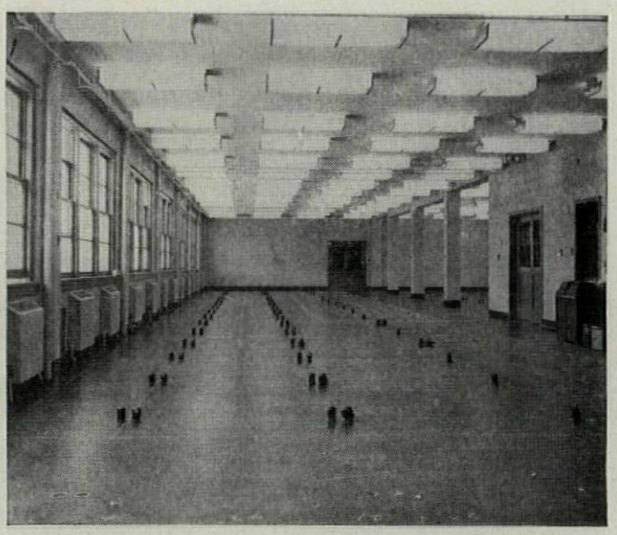

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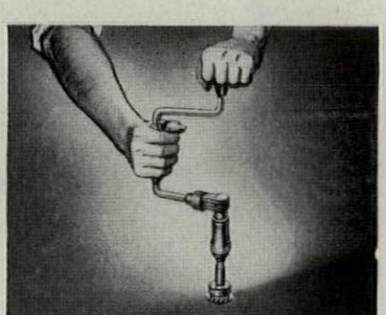
Complete specifications and installation data are available from your General Electric Construction Materials distributor. For a free copy of the G-E Fiberduct Data Manual, write to Section C57-14, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.



To add an outlet, simply make a small opening in the floor over the raceway, fish wires through, connect outlet.

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The purpose is unchanged—to create, around the central art and science of Architecture, a forum where all the planners of buildings can exchange new ideas and keep pace with the new materials, methods, trends and needs which are revolutionizing design and construction.

But now the focus is sharper, for our new HOUSE & HOME edition frees FORUM to concentrate on big buildings, frees us for such new assignments as a greatly expanded coverage of engineering progress, frees us to report much more fully on buildings abroad that will influence building at home. More important, it frees us to carry out our old assignments more completely, for now we will have space to show you, not occasionally but every month, the best of the new schools, the hospitals, stores, factories, churches, offices and apartments that develop the freshest ideas and offer the smartest economies.

In brief, we can now undertake coverage in depth of the common interests of all the planners of big buildings:

The architect—No. 1 man of every planning team, today more than ever important, for he is creating a new architecture to free building from its long servitude to the past, free to meet today's needs with today's economies, methods, and new materials.

The engineer—for the future of building hinges on a closer integration of better engineering with better design and construction, and buildings are always better when the engineer works with the architect to shape the earliest plans.

The builder—for without his construction know-how and feel for costs the best laid plans too often fail.

The material supplier—more important than ever as his research provides the new products which are modernizing construction, soon to be still more important as the industrialization of building calls for more and more prefabricated standard parts.

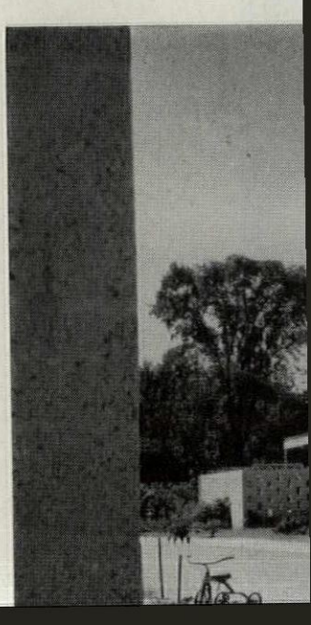
The investor—whether owner, lender, or developer—for all the other planners find his intelligent support and informed interest essential to the advance of better design, better construction, better materials.

Construction is making faster progress today than any other great and established industry. Everything about today's big building is new—from curtain wall to flexible plan, from modular floor to acoustic ceiling, from cooled ventilation to radiant heat. The architecture is new, the engineering is new, the construction is new, the materials are new, the economics are new. And the scope is new and bigger, for the unit is more and more often not just one building but a group.

By helping the planners of buildings to a quicker grasp of these accelerating changes, we hope we can help America get better schools, better hospitals, better churches, better stores, better factories, better apartments, better cities. We hope we can help raise the standard of American architecture—and lower its level of costs.

—The Editors

HIGH



"Let the street be as wide as the height of the house." LEONARDO DA VINCI

"We shape our dwellings, and then our dwellings shape us." WINSTON CHURCHILL

But what is the solution to today's pressing problem of housing our crowded city populations . . . should it be in row houses or vertical elevator buildings?

On one side of this heated dispute, the architects say with Leonardo that you can go high if you observe basic rules of air and light: "A tower of apartments in an open park furnishes a far better way of life than a warren of houses or walk-ups congesting a site."

"But," say the sociologists, "tall apartment houses are not communities . . . they are institutions. You heard what Churchill said; do highrise apartment families ever know or trust their neighbors, and is that the kind of world we want? How can mothers watch babies outdoors and do housework in apartments too? Are you architects interested in building for the esthetic sake of the structures or for the happiness of the inhabitants?"

Architects: "You can't give a city family decent living space in most situations if you have to build on the ground. You've got to build upward, and design substitutes for the ground."

Sociologists: "Is a flower pot on a balcony as good as a square foot of earth's surface?"

At this point, as temperatures rise in this argument, the arbiter enters. He is a man wearing a conservative suit, a necktie with small figures. His profession is appraising. "All right," he says, "Anybody who can live on the outskirts can have a row house. But if you are building for families who have to live in town, whatever the reason, then I'm afraid you had better give me the land cost and the top rent your people can pay. I'll give you the answer tomorrow."

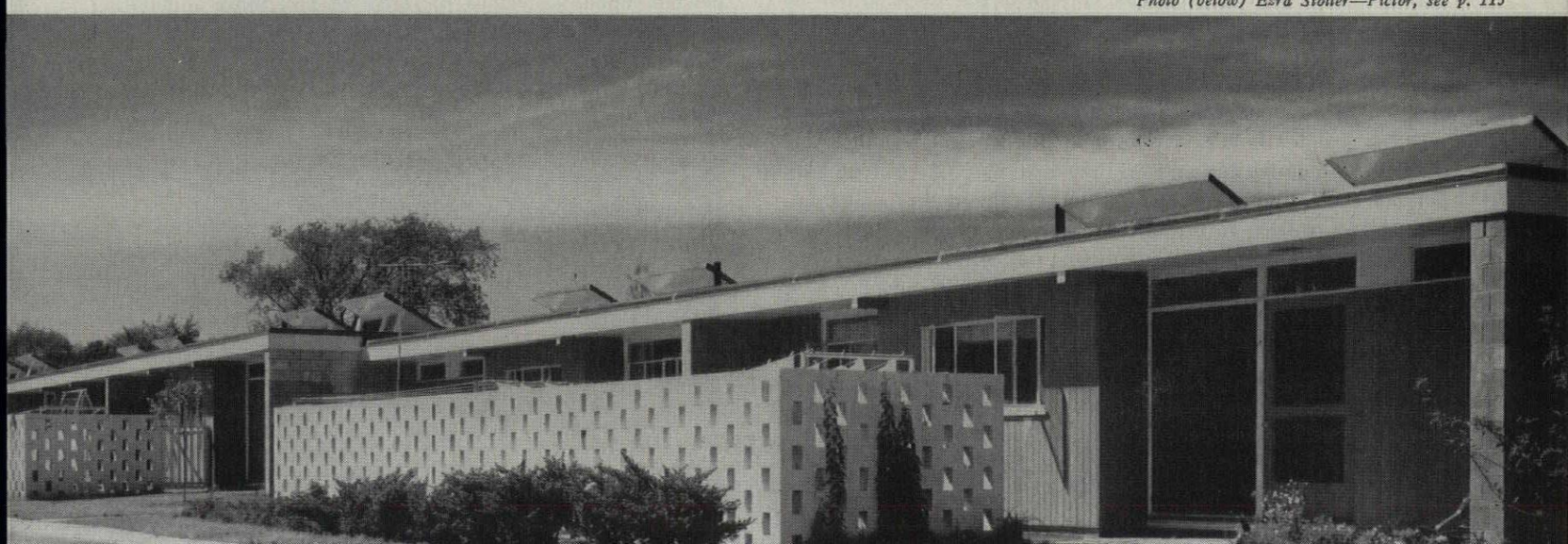
And then the complicated economics of city life are likely to express themselves like this: at high land costs—high population density; at high density—tall buildings.

Just *what* the break-point is, on this hard economic basis, no competent authority has yet tried to declare. But if the answer is the tall apartment, then the designer's job is to try to make invention equal—or outdo—Nature.

The question is how can you best carry over the advantages of one building type to the other? For example: can you build highrise apartments in which a mother *can* simultaneously do housework and watch baby outdoors? Answers do exist, and fortunately some of them are yes. In this packed 18 pages of today's best new apartment designs, high and low, you will find them. But, first, on the next two pages, read more searching analyses, by two opposed experts, on the relative advantages of high and low apartments.

APARTMENTS or LOW

Photo (opp.) Paget Studio, see p. 110
Photo (below) Ezra Stoller—Pictor, see p. 115



THE CASE FOR THE LOW APARTMENT

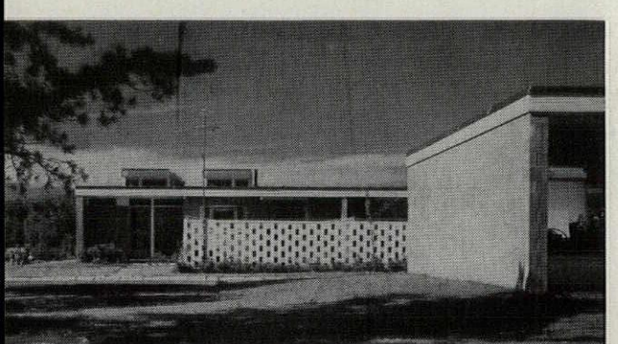
by Elizabeth Wood*

My defense of row houses starts with the assumption that one designs good living space for families with regard for functions other than just cooking, eating, bathing and sleeping. These other important functions relate in general to social, recreational, physical and creative activities.

Assuming that the design of a dwelling must make possible the fulfilment of other than mere shelter needs, the designer faces a basic choice of a philosophic nature. It is this: will his design force the family to fulfill its other functions primarily through communal or group means; or will the design favor their fulfilment within the family domain? In the answer to this question lies the basic difference between row houses and apartments.

I know that a family grows into full maturity when the social, recreational, and creative drives are satisfied both within the home and outside, in the neighborhood facilities; and I know that the ideal housing development must make possible both kinds of fulfilment. But I also know that in most cities, as in Chicago, there are so few resources for serving these needs on a group or community basis that it is folly to design housing on the assumption that they are available.

It is because I have seen families who live in our Chicago



See p. 115

Housing Authority row-house developments enjoy a greater fulfilment of their "personality" needs without so much dependence on community resources that I find myself so ardent an advocate of this kind of dwelling. To be more concrete, first, in terms of a family's need for physical activity in creation:

One of the facts in the human growth proves the pattern of a child's need for nearness to his mother. Even when he is of school age, he likes to play close enough to his house so that he has one foot on home base. The designer must understand this.

The good apartment house solution lies in nursery or play schools, or supervised play areas. But this kind of thing is available free, as a community service, in very few urban centers, to very few people. It is expensive if financed by the group served.

The row-house solution is simple and natural. The indoor-outdoor activity takes place close to where the mother is at work. The child can keep in touch with her. She can hear him if he cries or gets into a fight. A simple, natural solution.

There is another important recreation aspect. It is *good* for the family when either parent takes part in his children's play. But in an apartment house project, where playgrounds are carefully arranged at some distance, vertical as well as horizontal, from the family supper table, there will be much less parent-child play than when it can take place just outside the kitchen door.

Very important in the process of regeneration of a slum family is the growth of a sense of identification with a group. Everyone feels something which, for want of a better phrase, I call pride.

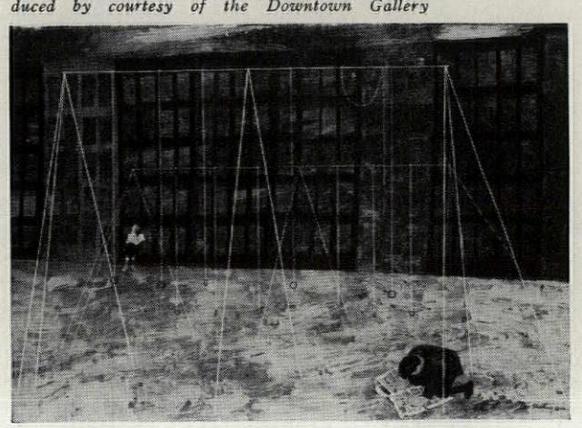
Our Chicago Housing Authority experience has shown no more effective mechanism for a family's achieving a sense of group pride than the garden program. I simply have not found any similar mechanism for use in high-rise apartment buildings. We have tried, in those buildings where we have corridor-balconies large enough for more than passageways, but even these—good as they are for sitting out and for baby sunning—are a poor substitute. Apartment house yards are just not personal enough.

And that fact leads to one final reason for my defense for houses resting on their own piece of ground. There is a shibboleth abroad among architects and planners (and housers, I am afraid) to the effect that the lower the coverage the better the project. It is argued that by piling families up in the air you have much more ground available "for use." By that fact you have a better project than you have by a high coverage row-house project. But it is also interesting that when architects and planners lay out such a low coverage high-rise project, they almost immediately will lay out a large and beautiful mall and other fenced and grassed areas, all of which will promptly be labelled with "keep off the grass" signs. This makes for a beautiful project but it also makes a travesty of the presumed value of "low coverage." No matter how many uses the landscaper and planner allot to the usable areas, they are essentially less personal, less capable of creative use by man and child, than are row-house areas.

There is a painting by Ben Shahn that I think must be of a New York City public school play yard, which expresses the essence of "project playground" and all the limitations of creative enterprise that such playgrounds have. I remember it as a picture in which most of the background is blind pink brick wall and most of the foreground is black top; crouched in a corner is a small boy leaning over a comic sheet.

The New York Housing Authority playgrounds have wonderfully imaginative rigid equipment but I still would rather have the most unimaginative row-house project because it is less dependent upon leadership for creative use, more stimulating to those seeds of creation and enterprise that a family has. But best of all, of course, I would like a well designed row-house project.

"World's Greatest Comics" by Ben Shahn reproduced by courtesy of the Downtown Gallery



* Executive Secretary of the Chicago Housing Authority, Elizabeth Wood has won wide recognition for the transfusions of imaginative design she has brought to municipal housing.

THE CASE FOR THE HIGH APARTMENT

Children are the chief victims of our city-building. Woods and fields are open to children on the farm. Small-town children can play across wide lawns and in back yards. The 70′ lot in the new subdivision still allows father to have a vegetable garden that son must hoe—to his grudging inconvenience and his lasting gain.

Children need real ground as much as vegetables do; and until recently the best way to gain ground in cities has been to build the row house. As Henry Wright Sr. amply demonstrated, row housing gathers up the land that is usually wasted in unusable strips between houses, and bunches it for play and recreation. *(See also pages 111, 115.)*

Yet what happens when population grows? There is an upset in that happy balance.

In the minds of housing idealists, row housing = grass. In point of fact, today's city densities mean that the best way for many a city child to get to the grass may be to live in the sky. The classical demonstration has taken place in New Orleans. Land was limited, its cost was high ($1.93 per sq. ft.) and consequently the public housing project called "Magnolia" was set up on 16 acres at a density of 140 people per net acre. Last year the Housing Authority of New Orleans indignantly rejected a "high-rise" scheme by young architects Curtis & Davis which would have put these 38 families-per-acre into just four ten-story elevator buildings. (Dec. 1950 issue.)

The housers said they wanted more grass for the children. What were the facts?

These can be closely estimated though plans are not yet finally approved.

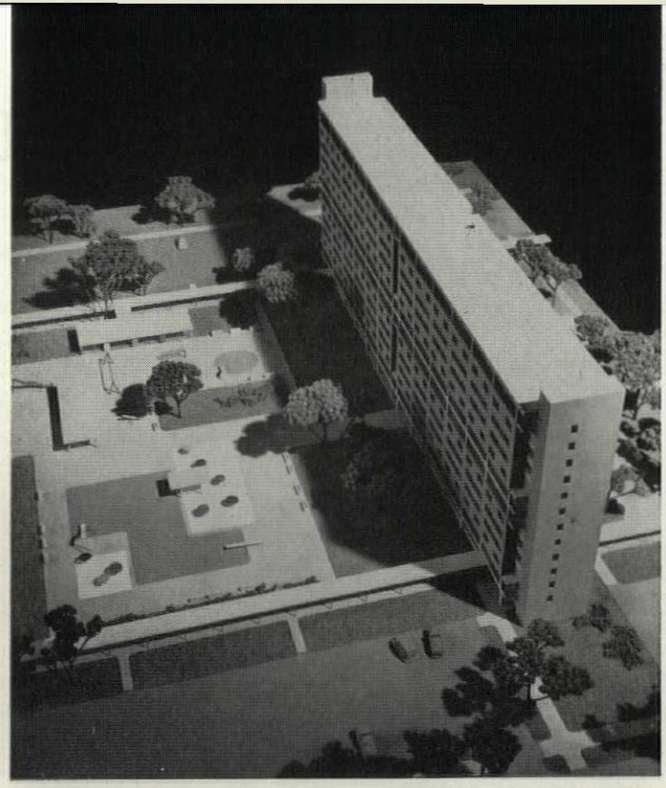
The housers ended with plans for 28 *four-story* walk-ups which ate up the ground. These 28 walk-ups covered 3½ acres of the available 16; the four high-rise buildings would have covered only 1.2—or half as many. And that was just the start. Each of the scattered walk-ups needed separate paved service access and parking: another 3½ acres gone. (The smaller number of concentrated pavement areas made possible by the high-rise scheme would have occupied only 1.6 acres.) Total result: the walk-ups, intended to give the children grass, gave them less than half as much—six instead of 12½—and that half was mostly cut into useless shreds and patches.

The high-rise scheme would have yielded acres in big sweeps. On top of that, the imaginative architects had provided "tot lots in the air" for the smallest, close to their mothers, to a total of another 8,352 sq. ft., eminently usable. And the idea that a mother could reach a child in an emergency from the fourth floor by stair faster than she could come from the tenth by elevator is just so much nonsense.

The New Orleans disaster threatens to be repeated elsewhere, because sentiment replaces reason.

Now there is no substitute for imagination. Men like Henry Wright, the last of the imaginative architects of the old school, would have noted the absolute importance of taking not just one new step—designing high-rise buildings—but taking several new steps to go with it. In order that the high-rise building may actually give the kids the grass which the row house can't deliver at high densities, there must be three ingredients in correlation:

1. *Imaginative planning and design.* If all high rise housing were based on the stupid New York pattern imposed under Boss Moses, I too would be dead against it. In order to work for kids, the high-rise building must provide balcony or terrace space for small ones, close to their mothers, on models provided by imaginative architects such as Owings, Yamasaki, Weese, Keck, or Holden, for imaginative housing directors such as Elizabeth Wood of Chicago or Mayor Darst of St. Louis *(see next pages)*.



See page 112

2. *Imaginative use of the grounds.* The big ground areas released by tall buildings must be taken away from the landscape gardeners with their signs "keep off the grass" and given to play areas and allotment gardens (the latter on the early German models).

3. *Imaginative administration.* Surely, in the large development, playground supervision can be cooperatively arranged by the tenants themselves—and management can set aside good-sized areas for individual families to handle just as they please.

4. *Leadership.* It is silly to damn high-rise buildings, private or public, on the basis of preference votes by uneducated people whose only high-rise experience—if any—has been in idiotic 608's or the products of PHAdministrator Egan's bunglers. If the development of cars or planes had depended on popular vote, based on the early models, both would have been snowed under as "silly and unsafe" under the slogan "get a horse." So, too, a public not used to elevators or play corridors must learn to use them, just as new car owners must be taught to drive; and the teaching must be done by building professionals. And reciprocally, professionals must learn to design by observing use. Imagined perils disappear; new advantages are learned until they become natural.

All this reasoning is based on the fact of an increasing density of population and of building all around the world. Intrinsically, this is not the best thing for children. Intrinsically, the optimum is one stair or none, and plenty of ground of one's own. But until the complex reasons that lead to higher density are reversed —there is no sign of it—millions of children must live in densely built areas. There the row house is not a victory but a defeat. The high-rise buildings can do surprisingly handsome things for the kids if only the building is designed with imagination, if the ground is turned to use, if administration is attuned to the actualities. For many a city kid the best way to get to the grass is to live in the sky.—Douglas Haskell.

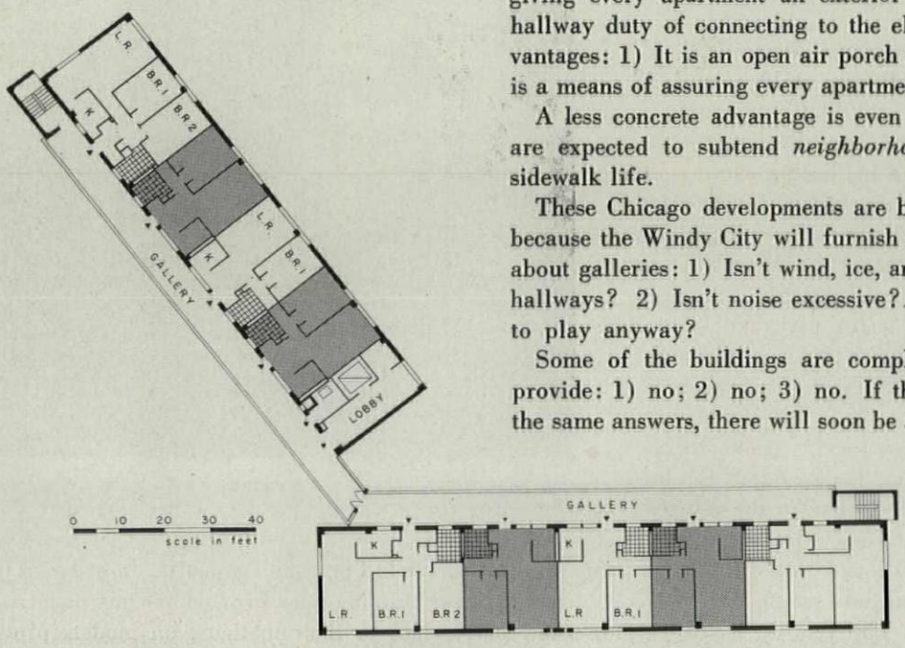
IN CHICAGO: *galleries*

Not just one, but all four of the newest Chicago Housing Authority apartment projects have "sidewalks in the sky." These are simply outdoor hallways, widened, giving every apartment an exterior door. Besides performing the conventional hallway duty of connecting to the elevator, the gallery has these outstanding advantages: 1) It is an open air porch and playground on the apartment level. 2) It is a means of assuring every apartment through ventilation.

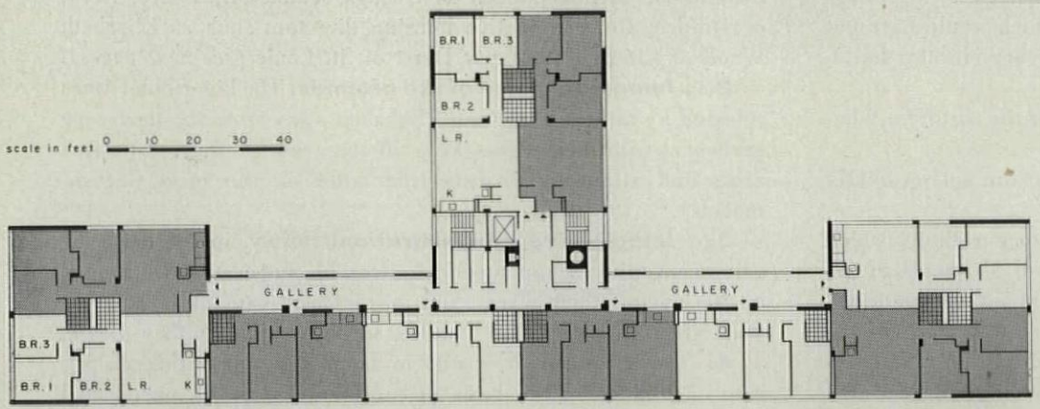
A less concrete advantage is even more important to sociologists: the galleries are expected to subtend *neighborhoods* within the apartments, substituting for sidewalk life.

These Chicago developments are being eyed closely by builders in other cities, because the Windy City will furnish a convincing proving ground for their doubts about galleries: 1) Isn't wind, ice, and snow a problem on these unheated outdoor hallways? 2) Isn't noise excessive? 3) Don't all the kids have to go downstairs to play anyway?

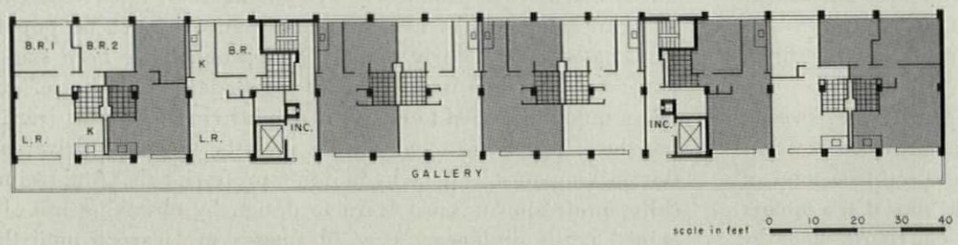
Some of the buildings are complete and newly occupied. The answers they provide: 1) no; 2) no; 3) no. If the rest of the projects, when completed, offer the same answers, there will soon be a lot of galleries in the U. S.



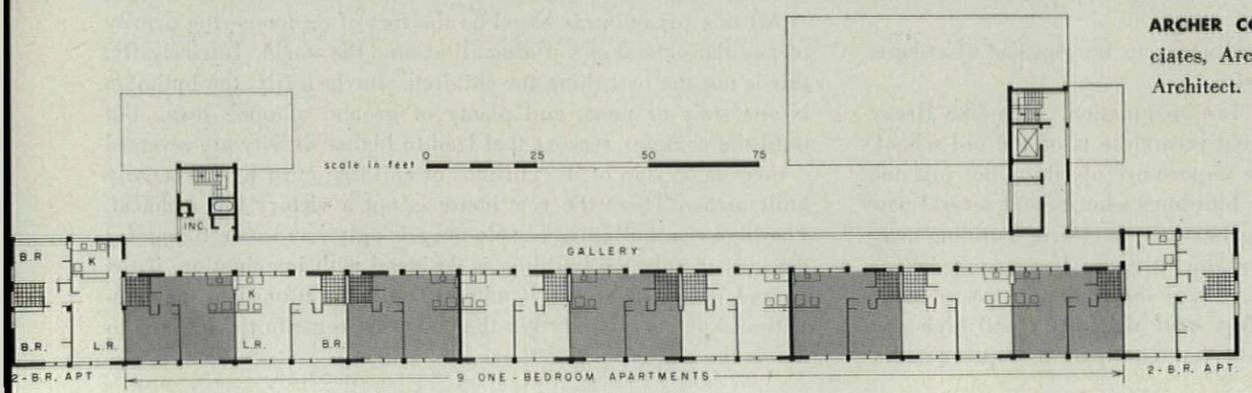
LOOMIS COURTS: Loewenburg & Loewenburg, Architects and Engineers; Weese & Van der Meulen, Associate Architects. Typical floor plan, left; plot right.



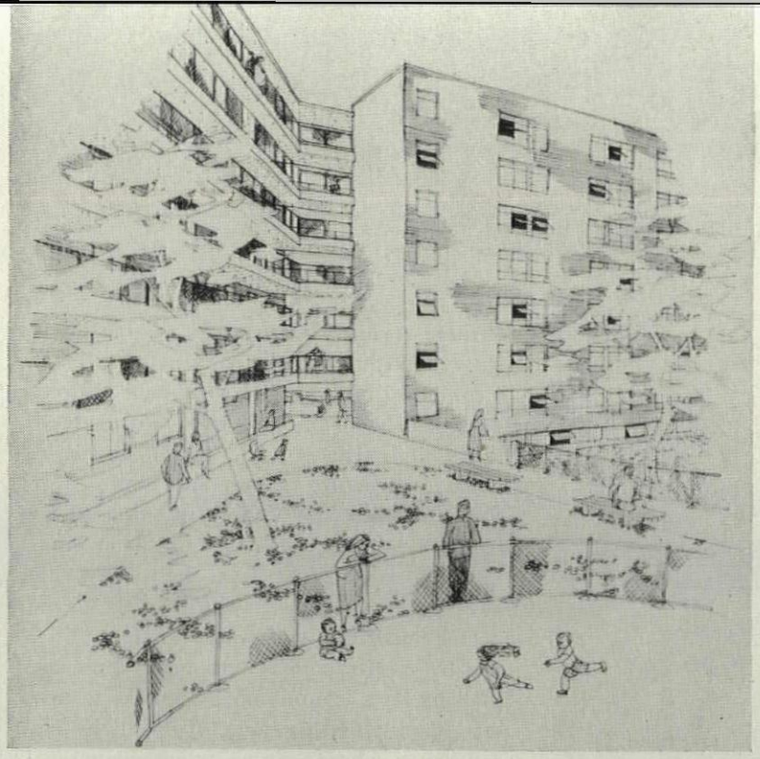
OGDEN COURTS: Skidmore, Owings & Merrill, Architects. Typical floor plan, left; plot, right.

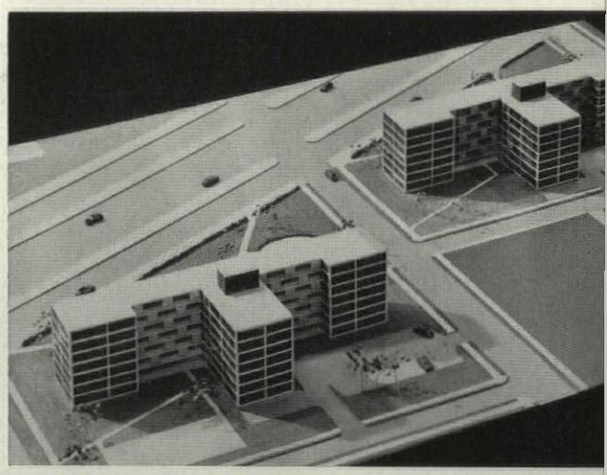


PRAIRIE AVENUE COURTS: George Fred Keck & William Keck, Architects. Typical floor plan, left; plot, right.



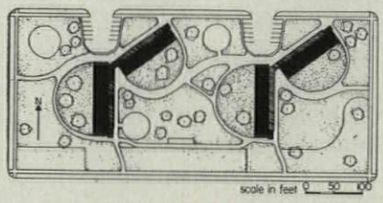
ARCHER COURTS: Everett F. Quinn & Associates, Architects; Alfred L. Mell, Associate Architect. Typical floor plan, left; plot, right.



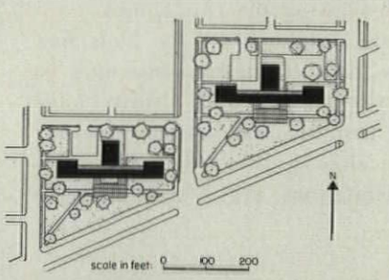


Vories Fisher

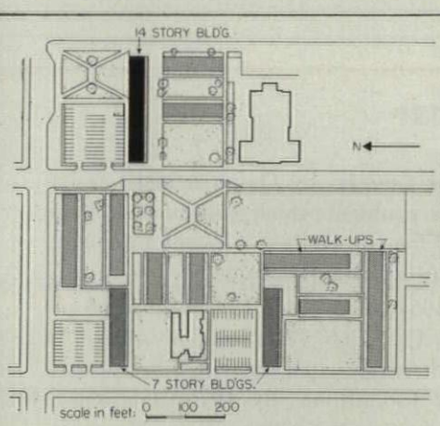
Model and progress photograph above are SOM's Ogden Courts. Checkerboard of panels fencing galleries (visible in model) are bright colors. Drawing, upper left, is study for Loomis Courts. Construction photo below is Keck's Prairie Avenue Courts, which will have south galleries.



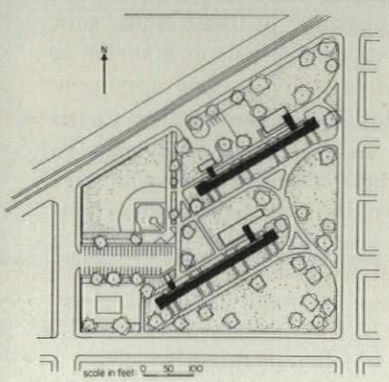
CANTED TWO-WING APARTMENT *is served by same galleries (8' deep) bridged from one wing to the other. Gallery exposures are east and northwest. Elevator is at inner end of one wing. Total number of apartments in two of these buildings, 126; average number rooms, 3.83.*



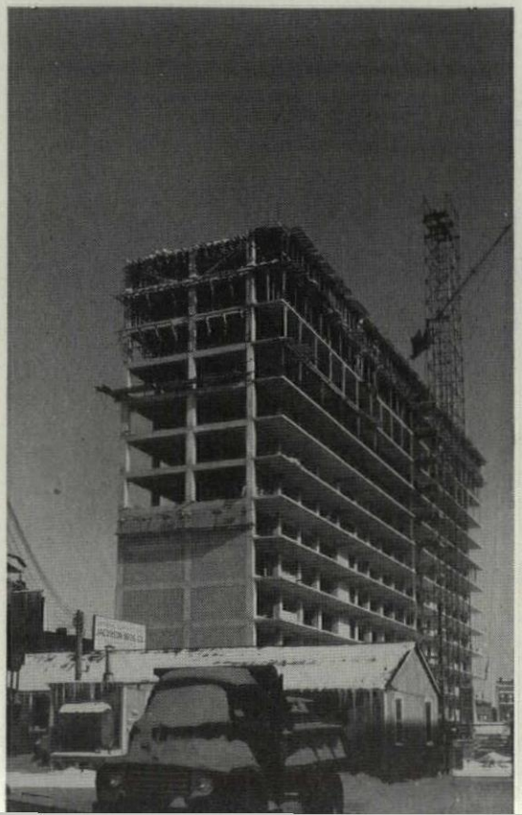
SHORTEST GALLERY *(8' deep, north exposure) is split in center by another apartment wing. This gallery is not entirely open, alternating bright colored tile squares with mesh fencing. Total number of apartments in two of these buildings, 136; average number rooms, 5.12.*



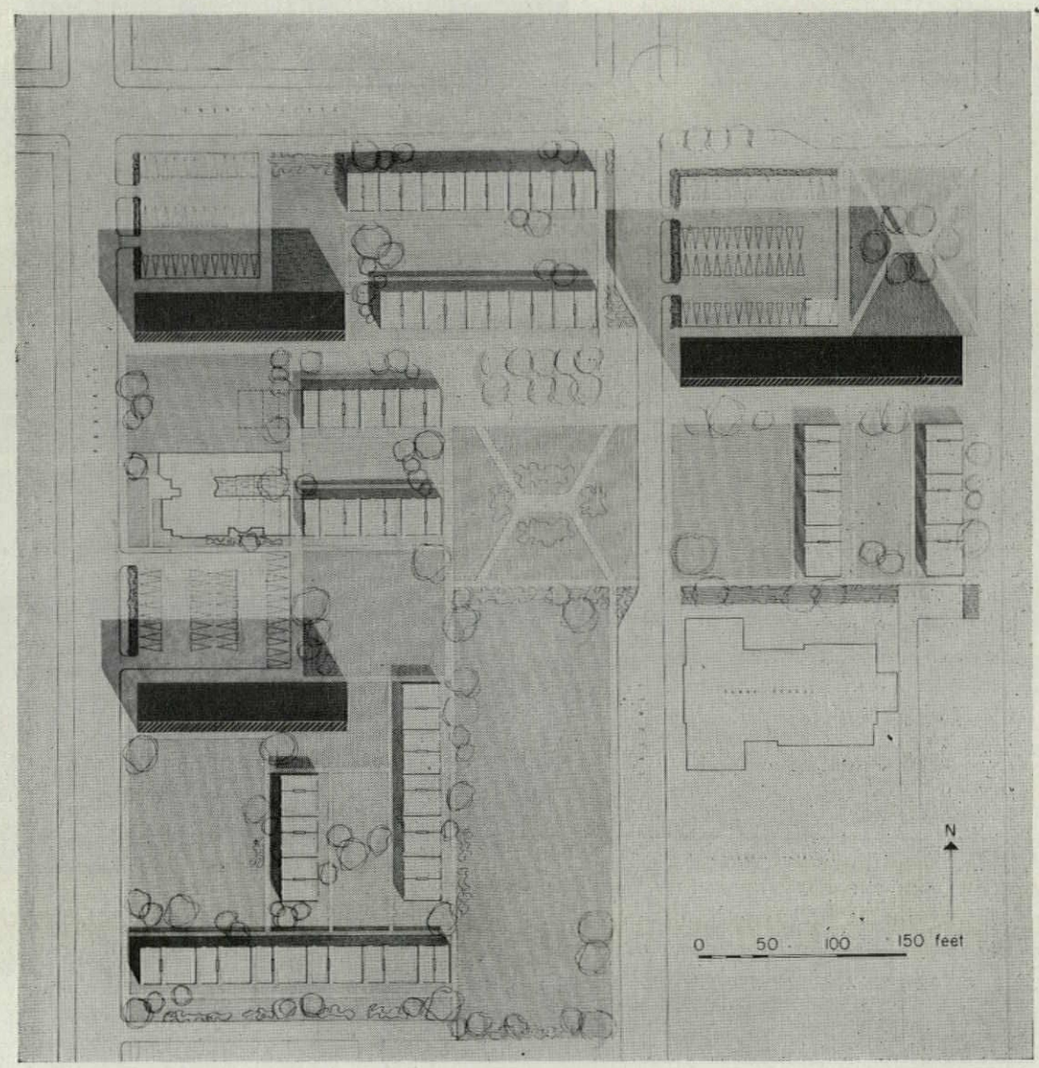
SOUTH GALLERY *is unique feature of highest building in Keck's group. Eight foot deep, gallery will admit winter sun warmth to apartments through obscure fronts, but galleries above will shade the summer sun. Total number apartments in this 14-story apartment, 130; average number of rooms, 3.3.*



LONGEST GALLERY *sweeps 225' (depth, 8'). These two 7-story slabs also have low adjacent laundries and freestanding elevator and stairway stacks. Gallery exposure is northwest. Total number apartments, 148; average number of rooms, 3.85.*



more CHICAGO

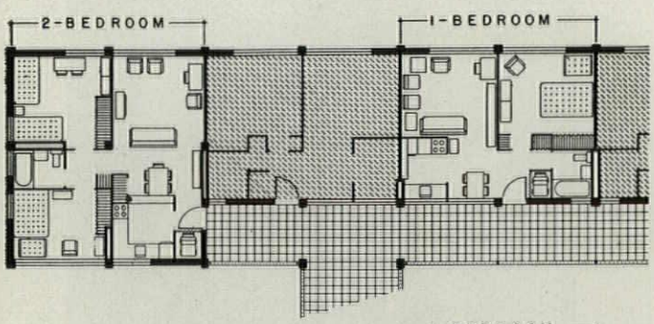


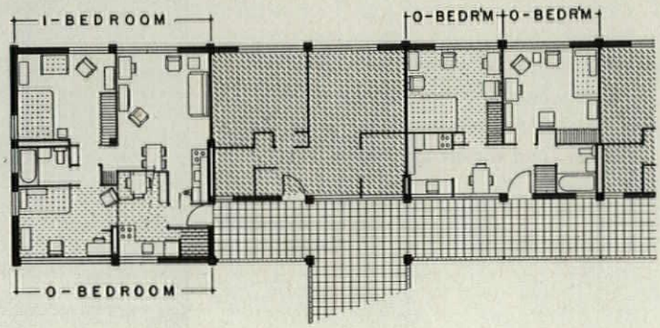
Prairie Avenue Courts, by George Fred Keck & William Keck, Architects, will be a combined highrise and row house project when finished—and will have two degrees to the high rise, as well. The highest is a 14-floor structure shown on page 107; there will also be a pair of seven-story elevator buildings on the site later on; these, like the first high building, will have galleries, but they will wear them on the north side, not on the south.

This well-rounded-community type of housing is of course more intricate to design than pure highrise or row housing, but it is a solution which avoids monotony and gets a good word from everyone. The row houses will be for large families, with three, four and five bedrooms, and there will be 68 of them, two stories high. To keep the density up, the highrise buildings will house 274 smaller families. Locations of high buildings are carefully calculated to avoid shadowing the row houses.

The high buildings will be built first on this site, because site clearance must be gradual. Getting the high density units completed first will enable easy rehousing of people already living here, as their present habitations are bought and demolished.

When age groups change





Above is plan for two apartment types for family occupancy. They can easily be broken up into smaller apartments, sharing bathrooms, (right) when the problem is housing aged people, not families.

Archer Courts, by Quinn & Mell, anticipates a problem which will become large during the life of these Chicago buildings: the housing of aged people.

In 1951, there were 12.6 million people in the U. S. 65 years old, or older. In 1960, it is estimated there will be approximately 15 million. By 1975, it is anticipated there will be 20 million. Moreover, a large proportion of these aged must dwell as units of one person, signaling a new demand for the one-room apartment.

To meet this coming need, Archer Courts is planned so that apartments may be broken up into one-room units with very little structural work. Two-room units today can become two singles, with a shared bath and kitchen. Larger apartments too can be subdivided (*see drawings*). And very little lath and plaster is involved in either transition.

...IN CONNECTICUT COUNTRY: *walkups*

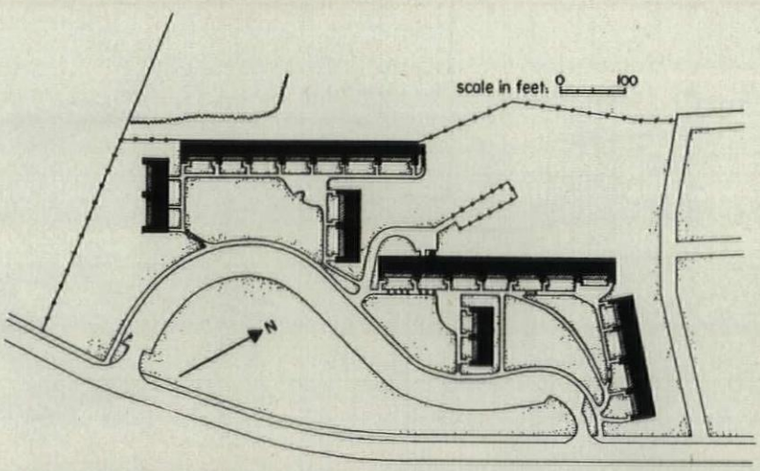
Photos by John Ebstel

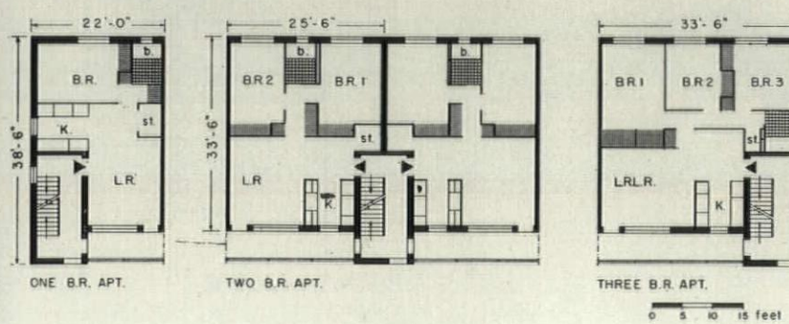
A steep, serried site predicted the variations in this standardized three-story walkup scheme in Greenwich, Conn. This is geographic architecture . . . the architects used just one basic design (with one, two and three-bedroom plan variations) and allowed the slope to dictate the massings, to produce an interesting, varied set of buildings.

Besides the site, with its attendant drainage problems (apartments at the low end had to be built on stilts to prevent sewerage line backups) here was a legal complexity: Connecticut requires that all housing units (both single and multiple story) have two means of egress. One means here is directly from the apartment into the stairwell. The other is onto the gallery that clings to the front of every apartment above ground level, and from there to a choice of stairwells down the line.

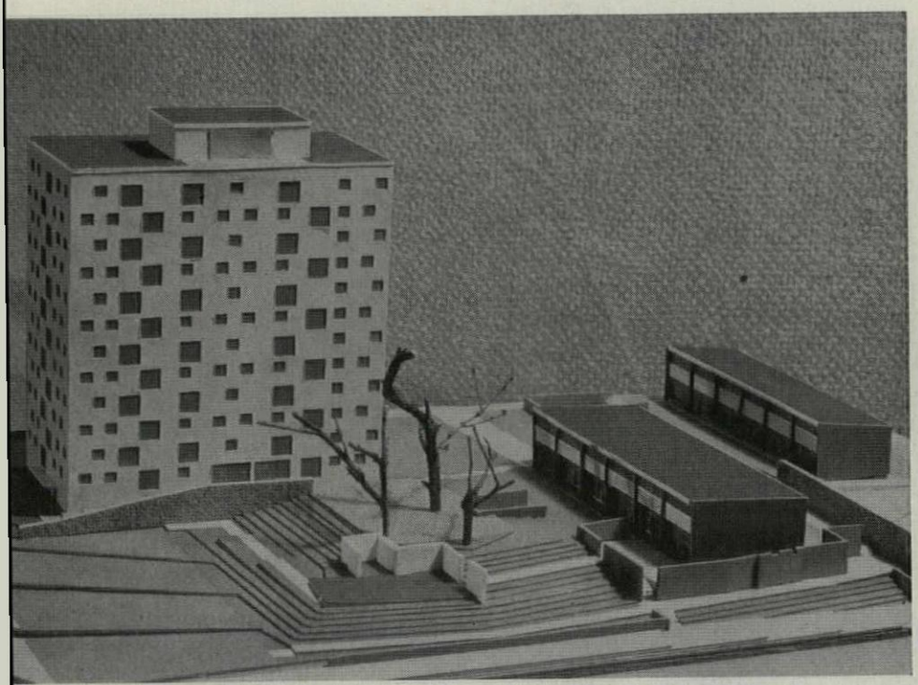
The six buildings contain 144 units at an average cost of $11,113 per unit, including land. Twelve are one-bedroom units; 108 have two bedrooms; 24 have three. Density is low, ten families per acre.

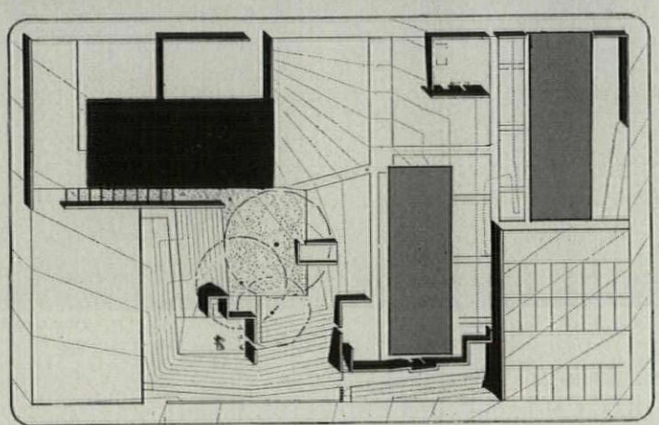
ARMSTRONG COURT, Greenwich, Conn.
HOLDEN, McLAUGHLIN & ASSOCIATES, Architects
JOSEPH WEIR, Associate Architect





IN PHILADELPHIA: *scissors*



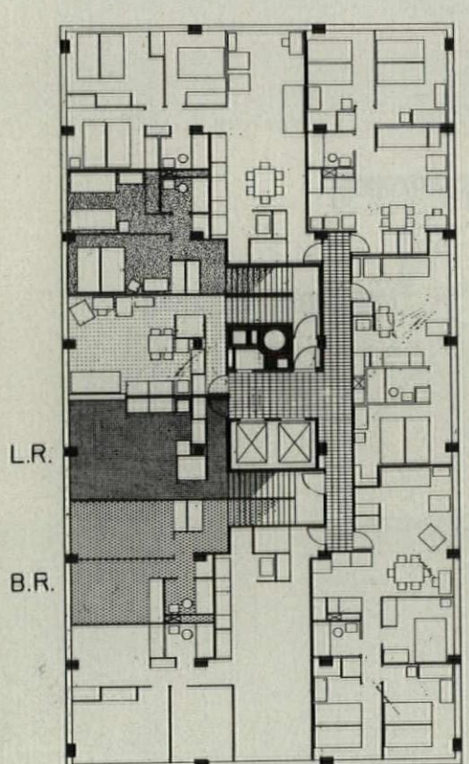


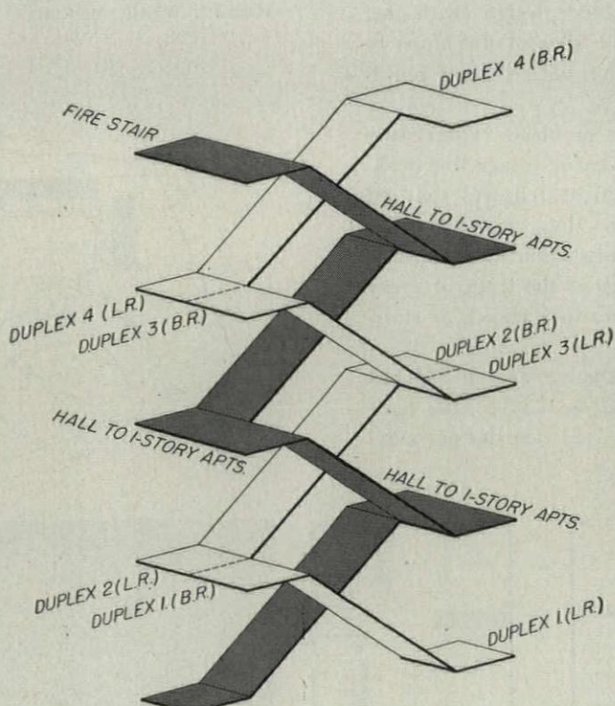
Through ventilation is guaranteed even in the core apartments of this highrise design for Philadelphia's Mill Creek area. It is done by means of a carefully studied interior private stairway scheme which sets living rooms on one side of the building and their accompanying bedrooms a full flight up on the other side of the building. The change in level is necessary to bridge the public halls that run from the elevator to the end apartments on each floor. The building is no lean slab; it remains economically "fat" by virtue of this duplex device. On first glance at the plans of typical floors (*below*) this central private stairway seems to eat a great deal of space; actually it does not because the private stairways are fitted ingeniously into the well of the fire stair (*diagram below*).

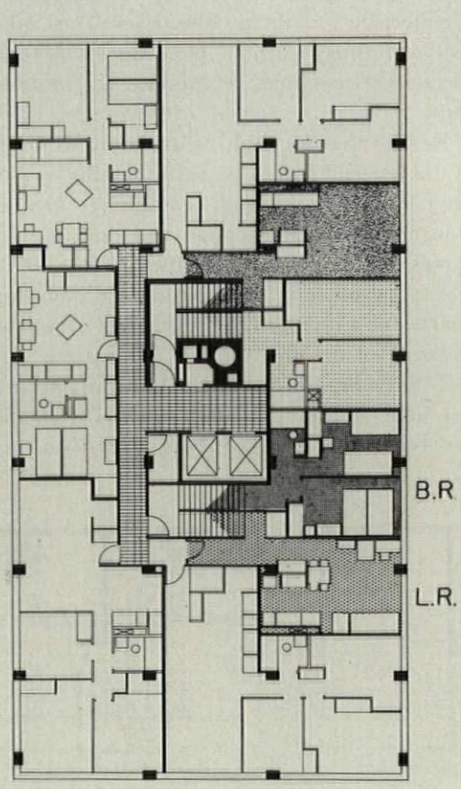
This intricate idea works clearly and well: Living and dining facilities of each duplex are on the lower level; bedrooms are on the next higher level. The scheme steps vertically up the building, so that bedrooms of one duplex sit next to the living rooms of the next. Connecting stairways are tucked neatly into vacant cubage in the fire stair, packing it full.

Row houses will also be built on this site, whose landscaping is based on a bright idea: leave some of the weathered old masonry walls standing when you clear old buildings from the land. Design them into the new scheme as economical retaining walls, play courts, and "ground sculpture." Most of the walls shown casting shadows in plot plan (*left*) are old masonry to be retained in this way.

MILL CREEK APARTMENTS, Philadelphia, Pa.
KAHN, McALLISTER, BRAIK & DAY, Architects
DANIEL KILEY, Landscape Architect
CORNELIA HAHN, Associate







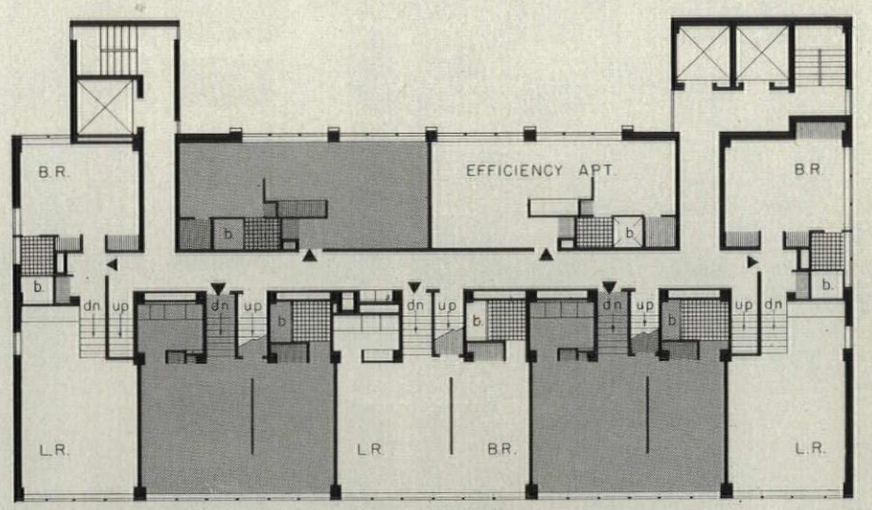
...IN BOSTON: *skipstop*

In the duplex apartments of this design, you need walk only ½ flight up or down between bedrooms and living rooms. But this is also a skipstop apartment, an unusually subtle one, so the other ½ flight of stairs which places all entrances on *stop* floors instead of *skip* floors must be accounted for.

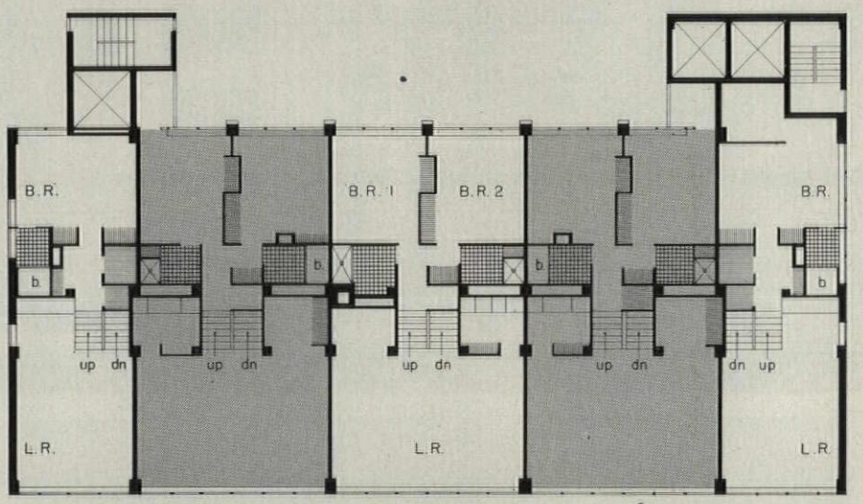
Solution: the duplex apartments actually are entered on *half* levels ½ flight above or below the regular *stop* floor planes (*see section*). The *skipped* floors are filled by the rest of the duplexes while straightforward single level "efficiency" apartments fill out the rest of the *stop* floors.

This is luxury and economy too. The contradiction of the duplex within an elevator building constitutes much of its considerable lure to city dwellers, who want "a house within the apartment." Economies in elevator service and hall space justify the complications in this apartment.

APARTMENT HOUSE for Commonwealth Ave., Boston, Mass.
GLASER & GRAY, Architects

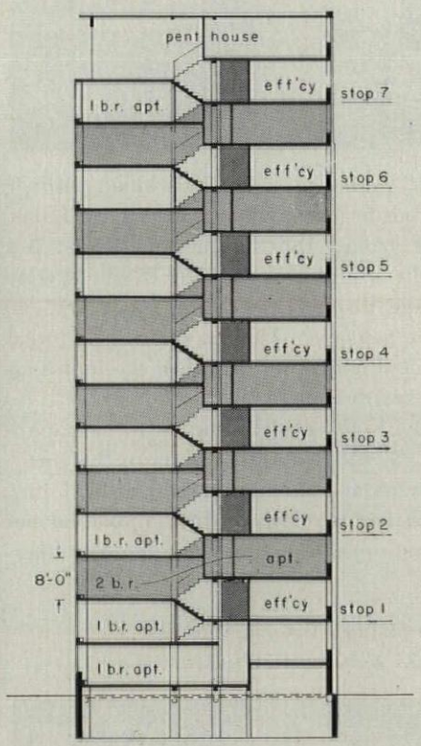


TYPICAL CORRIDOR FLOOR

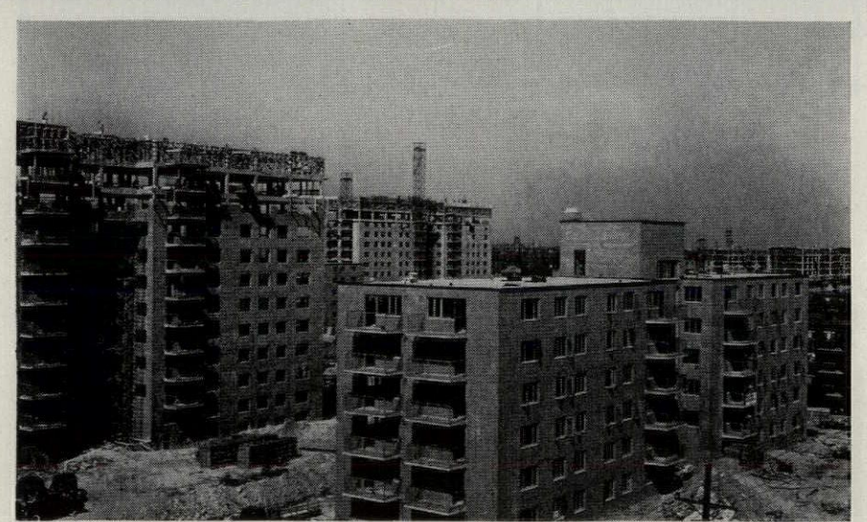


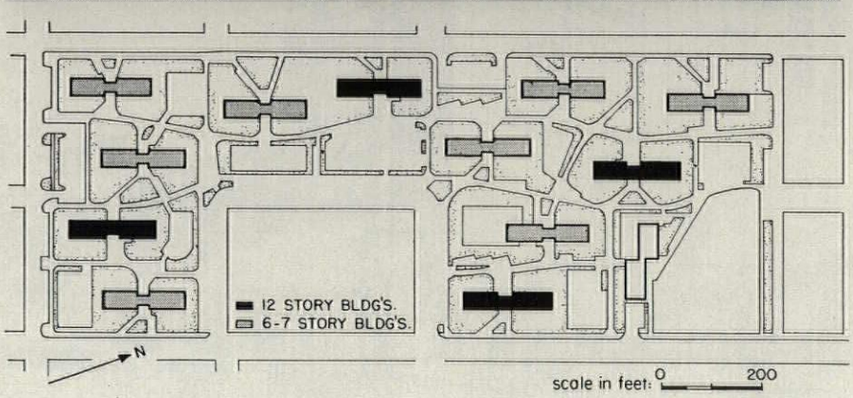
TYPICAL FLOOR - TWO LEVEL APT'S

0 5 15 25 feet



IN ST. LOUIS: *balconies*

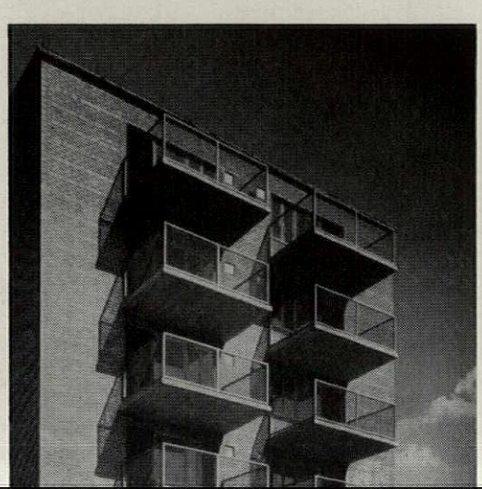




Another solution is found in these individual outdoor balconies borrowed from Scandinavia and used in St. Louis' newest public housing group. But the question arises: is a porch up so high really useful as a porch? If you have to drive the baby carriage through the living room first, do you often put it on the balcony? The answer will be found in the degree of use these balconies get when the buildings are occupied in late spring.

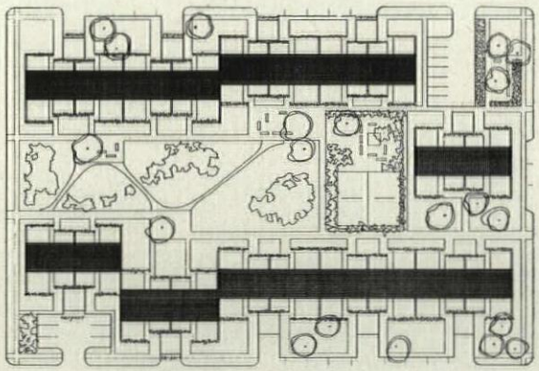
This is a typical new high density solution to metropolitan housing in the U. S. (44.3 dwelling units to the acre). Situated near the business and shopping center of St. Louis, it replaces a site which had a relatively low population but was a slum so reclamation accompanies this housing operation.

HOUSING PROJECT for St. Louis Housing Authority
LEINWEBER, YAMASAKI & HELLMUTH, Architects

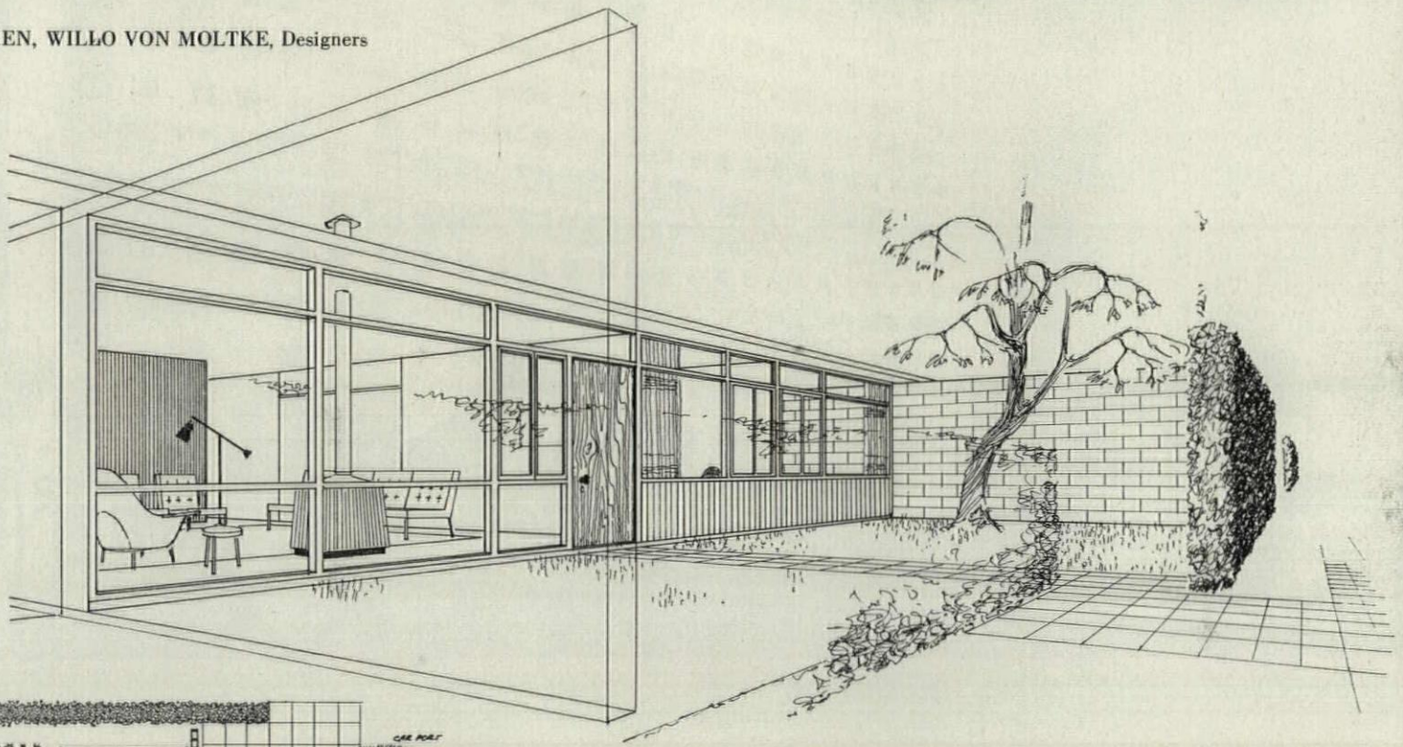


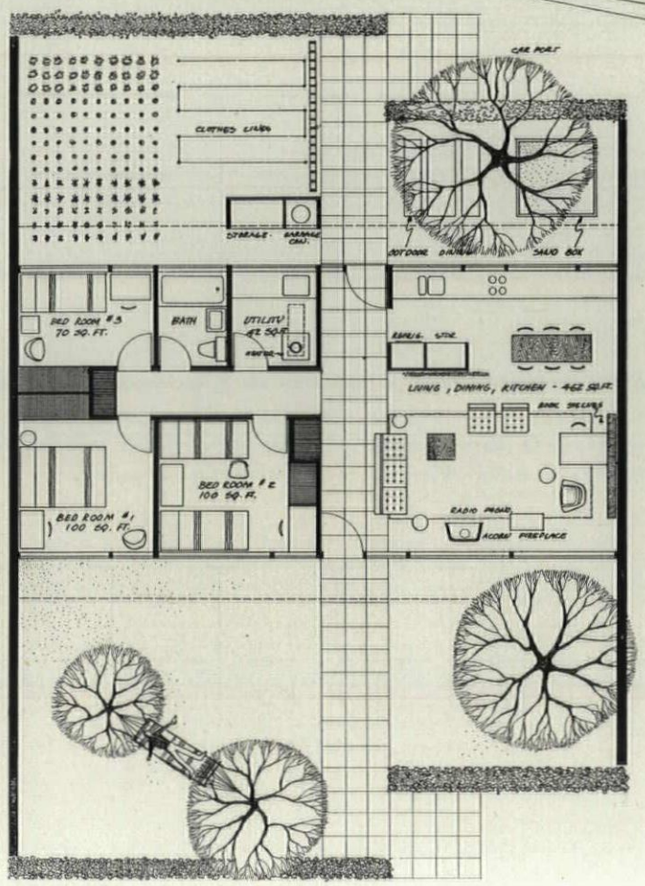
...IN A COMPETITION: *flouting the rules*

Last year's NAHB-FORUM ***Small House Competition*** drew few more exciting entries than the one on this page—and none that was more iconoclastic. This row house design was submitted in a competition open only to detached houses . . . and was roundly disqualified by the jury. The designers are two young men in architecture (Von Moltke is employed in Saarinen's office in Bloomfield Hills, Mich., Weren in Skidmore, Owings & Merrill's N. Y. office), and their design was their statement of disbelief in the separated house as a solution to the mass dwelling problem. Because it is such a good solution to row housing, it is equally applicable as an argument in the dispute between high and low apartment building. Notice particularly the graceful balance between private yard and communal land around these houses.



EDWARD C. WEREN, WILLO VON MOLTKE, Designers





Collaboration on the project was long distance; at design time, Weren was working for architect Jacques Marmey in Tunisia, and Von Moltke was in Bloomfield Hills, where the entry was postmarked. But the contestants' thinking, some of which is worded here, was identical.

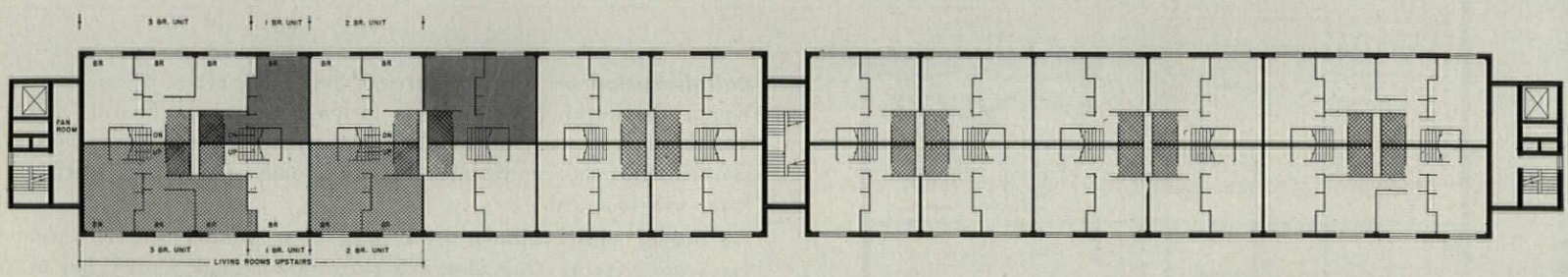
"A row of houses without some form of separation between them gives no privacy. Our idea was to maintain land density *but to organize the individual houses into groups, each house with its private garden and service yard so that about half the land would be available as common recreation area. Naturally there would be certain legal problems about ownership and maintenance, but they do not seem insurmountable.*

"There is no basic reason why the repetition of a standard house unit should lead inevitably to monotony. When houses are combined into blocks, varying blocks *become the visual unit of design; and the desire for individual expression within the house and garden is wedded into a harmonious whole.*

"There is nothing new about the 'court house' for it has appeared successfully in one form or another in places as widely separated as China and the Mediterranean. Couldn't the savings which it brings in cost of services in large-scale projects be used to pay for the additional expenses of enclosing the courtyards?"

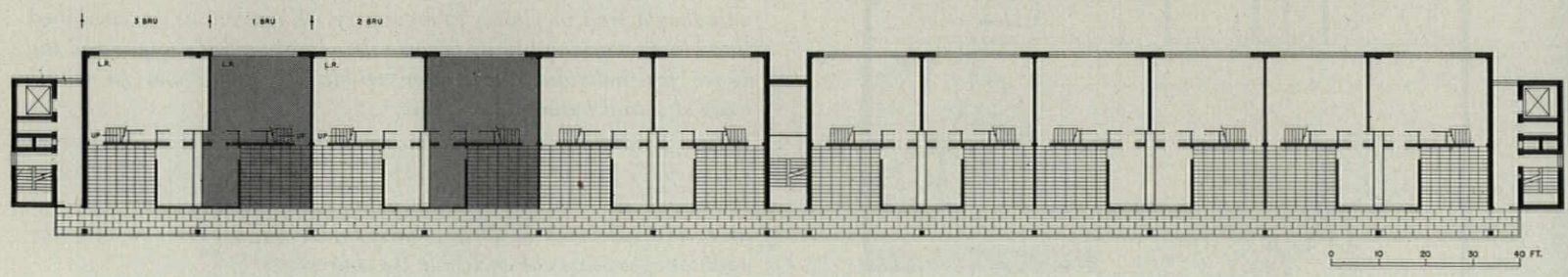
BEST HIGH APARTMENT

Model by MITCHELL MODELS; photos by Richard Shirk



TYPICAL BEDROOM FLOOR

Entire floors of bedrooms occupy every third level above ground floor (which is devoted to community space, and contains no apartments). At the other end of connecting stairways within the apartments are living room and traffic floors like the one below. Note generous size of terraces off gallery.



TYPICAL CORRIDOR AND LIVING ROOM FLOOR

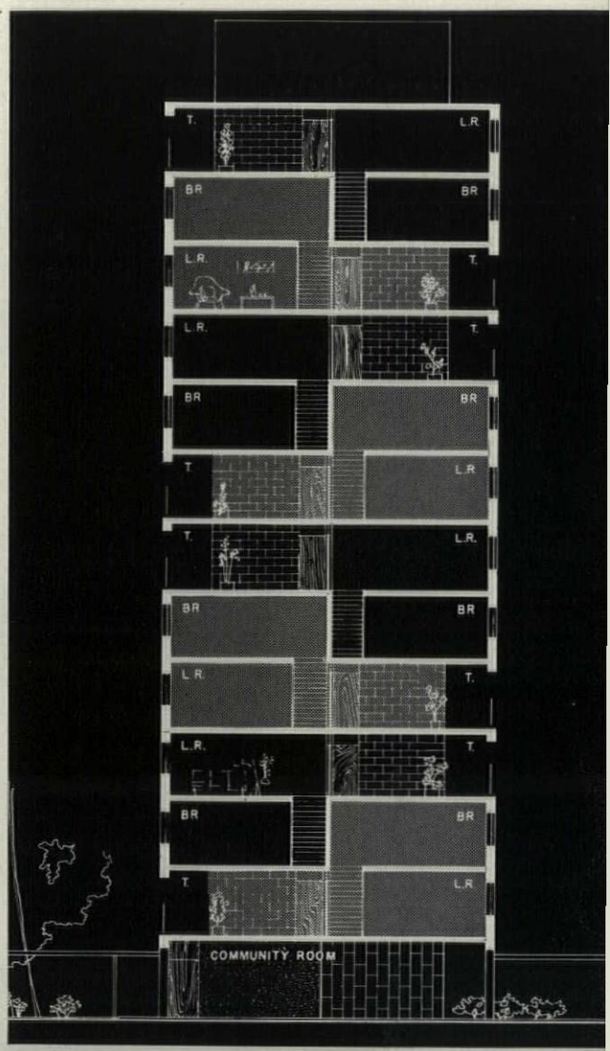
Here again is the gallery, the sidewalk in the sky. It appears on both sides of this building, alternating exposures, and something new has been added: In plan a room-sized terrace is notched off the gallery into the apartment wall for each family. Enclosed on three sides, this terrace is sheltered from winds; placed directly outside the kitchen window, it is an excellent supervised-play area for small children. Older children can take the elevator down to the park below, where playgrounds are insulated carefully from the street by parking areas. Another achievement of the site plan: no living room windows overlook parking lots.

Each apartment is a duplex (*see section, right*). You enter through the terrace off the gallery, and arrive in a wide-windowed living room. Then in half the apartments you go *up* to bed; in the other half you go *down* to bed—this is the trick the architects used to make the slab two apartments thick, an economy, and yet retain through ventilation, a luxury. And the duplex arrangement also has the advantage of encouraging intramural privacy within the apartment by splitting the rooms with a concrete floor slab into living and sleeping divisions.

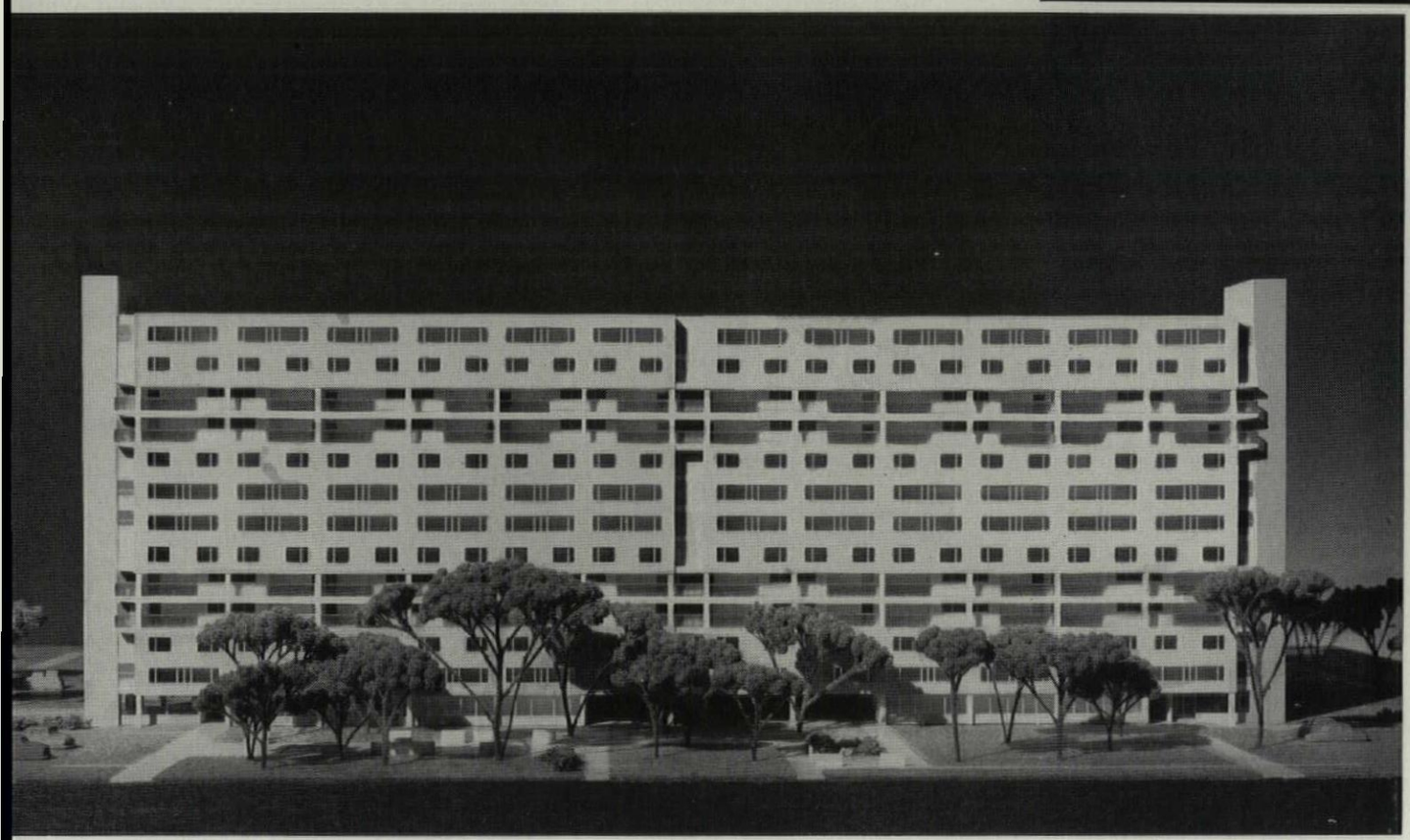
Other advantages planned into this advanced design:

- Complete privacy from gallery traffic in all living and bedrooms (gallery schemes, from early Rotterdam to date, have had difficulty preserving this privacy in the second and third bedrooms).
- Structural simplicity, by use of standard bays throughout (use of precast slabs is anticipated).
- Combination bathroom and kitchen plumbing stacks, with four bathrooms connected to a single stack—a real plumbing economy.

Project by LEINWEBER, YAMASAKI & HELLMUTH, Architects
Project Staff: William H. Kessler, James Bell



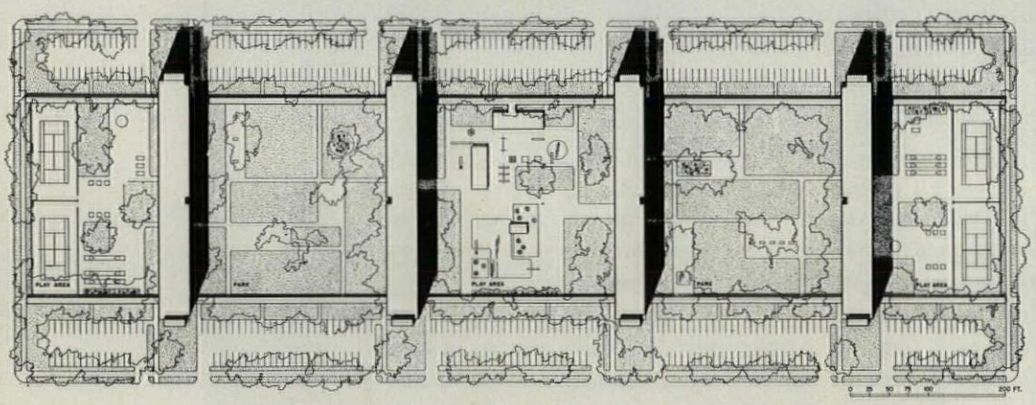
Two elevations of apartment (model photo below and facing page) show how galleries occur on both faces of building on various levels. On both facades, long windows denote living rooms, entered from gallery on opposite side of structure. Smaller windows denote bedrooms.



... best high

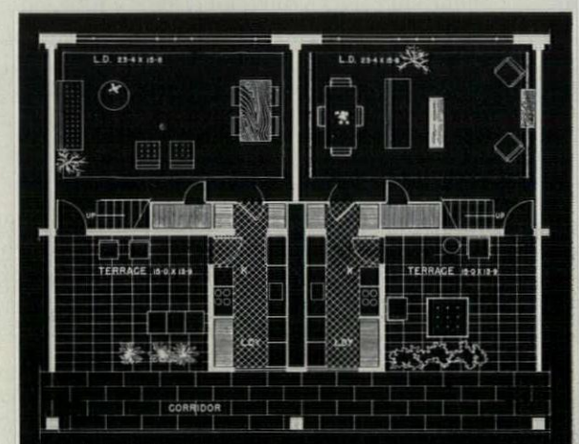
Architect Yamasaki's sketch of the gallery and terrace opening from it is made from mid-air near the face of the building. Above the gallery floor are bedrooms; below it is another gallery floor. Only room of apartment which actually is adjacent to gallery traffic is the kitchen (see plans below) thus giving the living-dining room insulation from gallery noise. Kitchen also has an advantage rare in this size apartment—a separate entrance, which in this design accrues still another advantage: it will be easy to serve meals on the terrace.

A full flood of ***community living*** is in this imaginative design for a luxurious vertical neighborhood. All ground floor area is for use of all the tenants, including the enclosed first floor of the apartment units. In the plot for four of these apartment units *(below)*, communal land is subtended into parks and play areas, and fenced by parking areas down the long sides of the rectangular plot. Short ends are fenced with tennis courts.



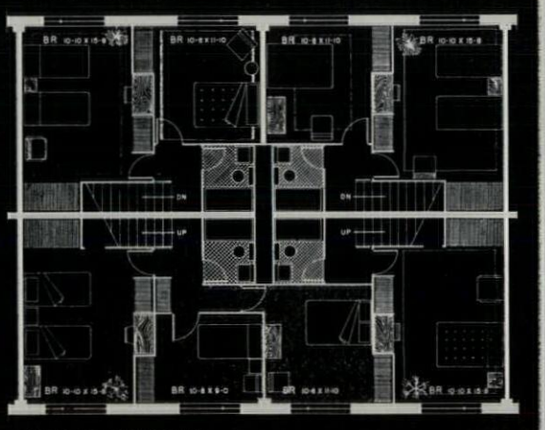
SITE PLAN

The architects of this apartment-type also gave deep and obvious attention to the more intimate undertow of ***family life,*** in addition to the community life of the ground level, and the intermediate porch life on the terraces adjoining the sidewalks in the sky. Within the apartments in this ingenious design the family can be alone without being closed in; and even in the one-bedroom apartments there is the duplex arrangement, guaranteeing further privacy. Three-bedroom and one-bedroom apartments are created simply by transferring proprietorship of one of the two bedrooms in the basic arrangement.

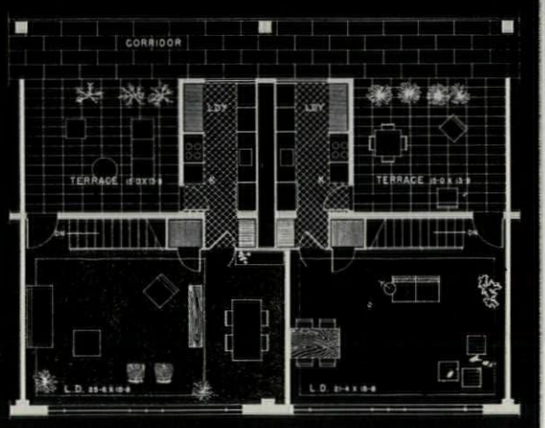


TYPICAL 2 BEDROOM UNITS

TYPICAL 2 BEDROOM UNITS



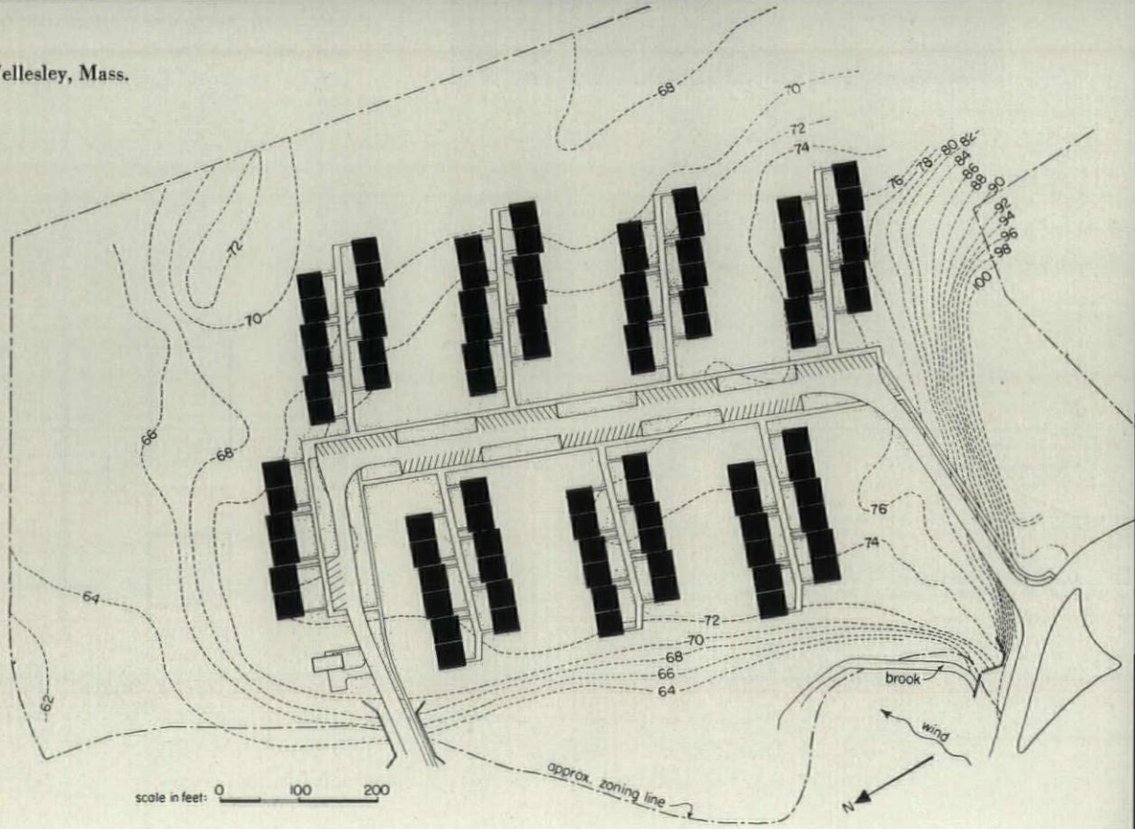
TYPICAL 1 & 3 BEDROOM UNITS



TYPICAL 1 & 3 BEDROOM UNITS

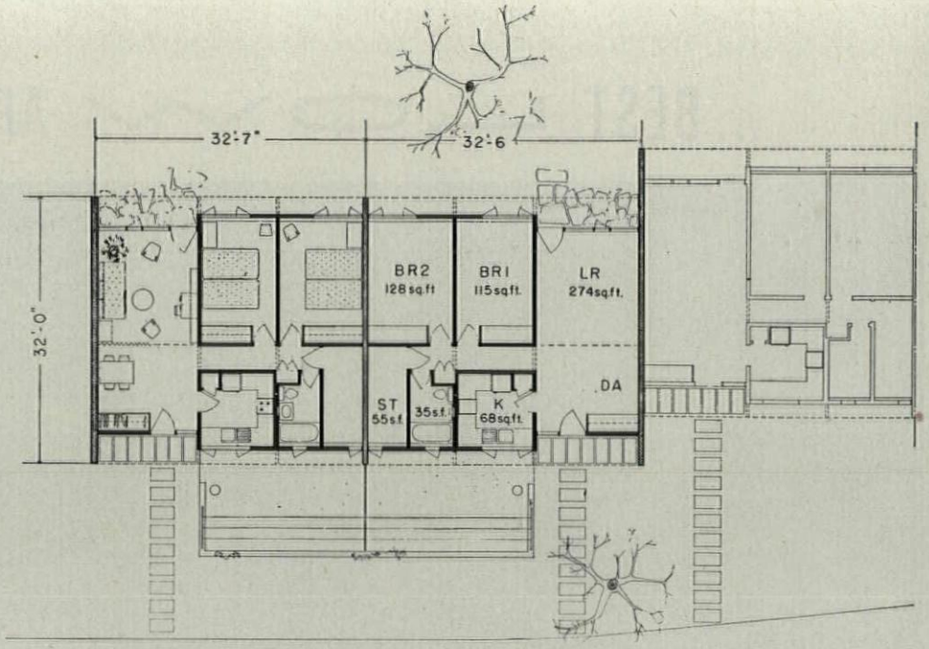
...BEST LOW APARTMENT

ROW HOUSES for Wellesley Housing Authority, Wellesley, Mass.
HUGH STUBBINS JR., Architect
WALTER L. CHAMBERS, PAUL MORIECE,
Landscape Architects
THOMAS WORCESTER INC., Engineers
S. & A. ALLEN CONSTRUCTION CO.,
General Contractors



...best low

Both ends of living area are widely glazed; above, view toward entrance door (and into kitchen); below, view reverse direction, into living room.

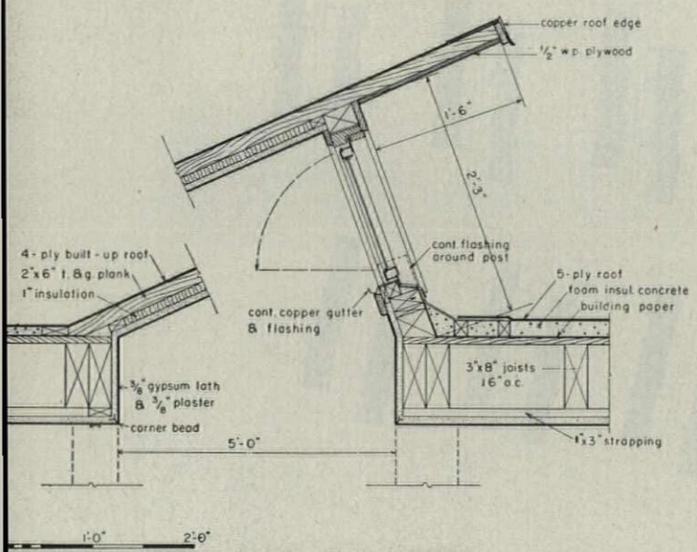


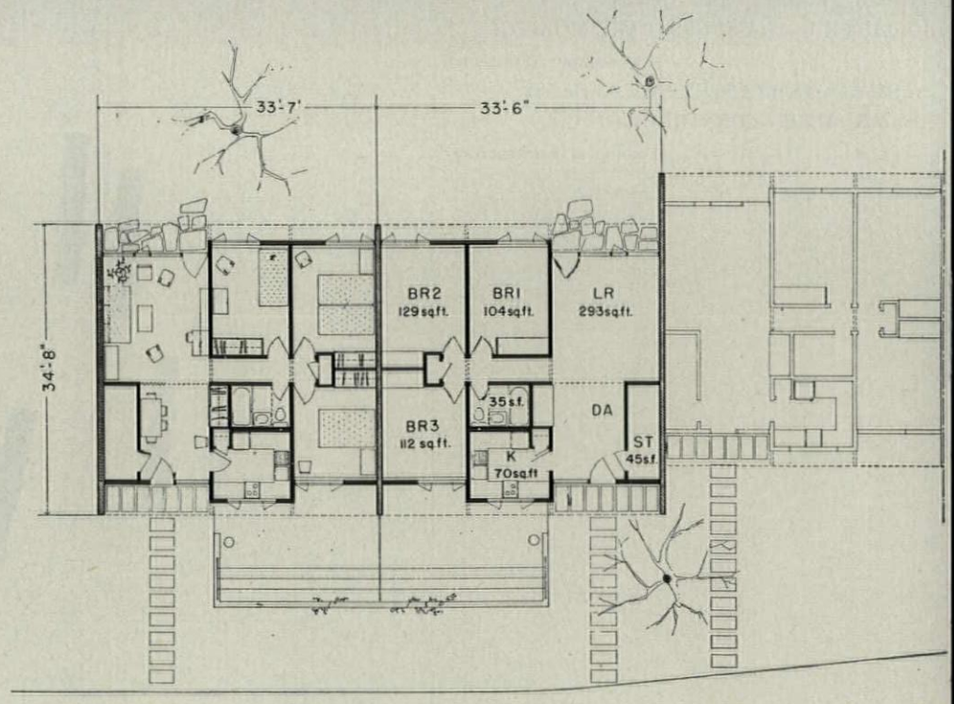
All the opportunities of low density row housing are fulfilled in this double design by architect Hugh Stubbins for the Wellesley, Mass. Housing Authority. (One plan variation is shown above, the other below. Main difference: the larger—three bedroom—unit has an interior bathroom with kick-up skylight. *See detail, below left.)*

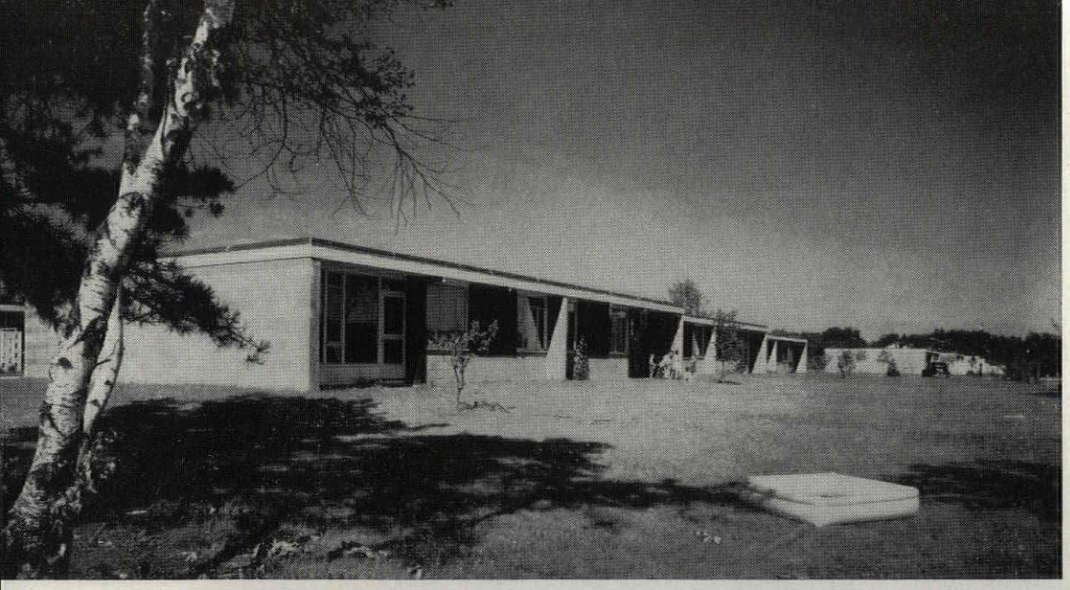
Even though the apartments lie in long ribbons they have privacy from neighbors, created by extending partywalls and offsetting adjacent apartments. A full 800 sq. ft. of lawn is available to each family (and they maintain it) plus individual clothes-drying facilities, screened by cheap and maintenance-free cinder block fences.

Control of outdoor play is easy. A mother looking out through the big windows or sheets of fixed glass can see a wide play space at one glance. There is through ventilation in every unit, and the plans provide plenty of closets and big enough bedrooms for play-space on rainy days. Simple construction of these buildings could pay a big bonus if this project were to be repeated on a large scale.

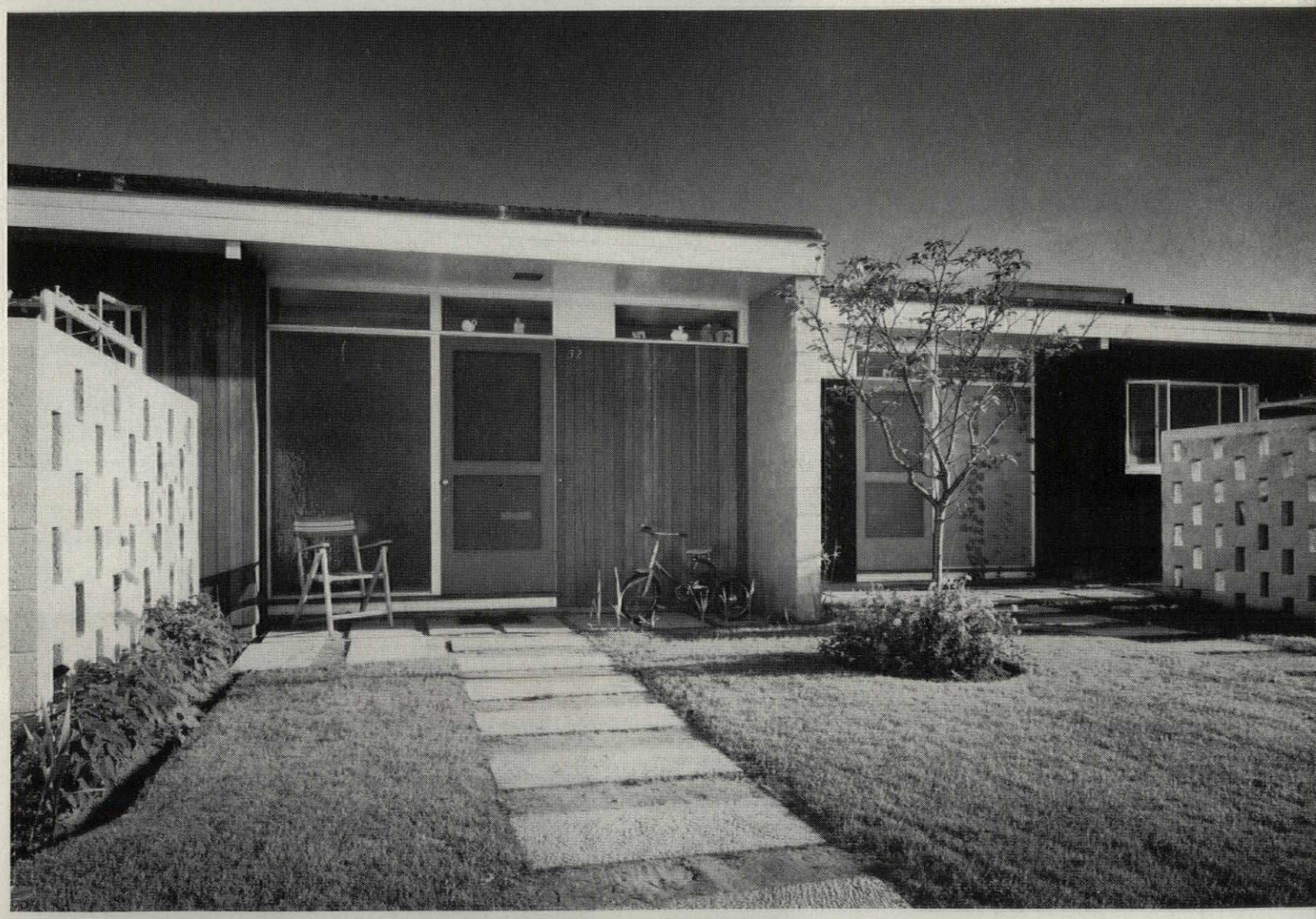
And there is another advantage which cannot be measured with a ruler. It is the intangible which underlies much of the argument of the unrelenting adherents of row housing: the ambition to root the tenants in their surroundings, whether paved streets or wild fields—the wish to make them residents, not transients. Architect Stubbins did it here. Taking full advantage of the low density situation (eight families per acre) he made the land outside an extension of the mental floor on which these people live.

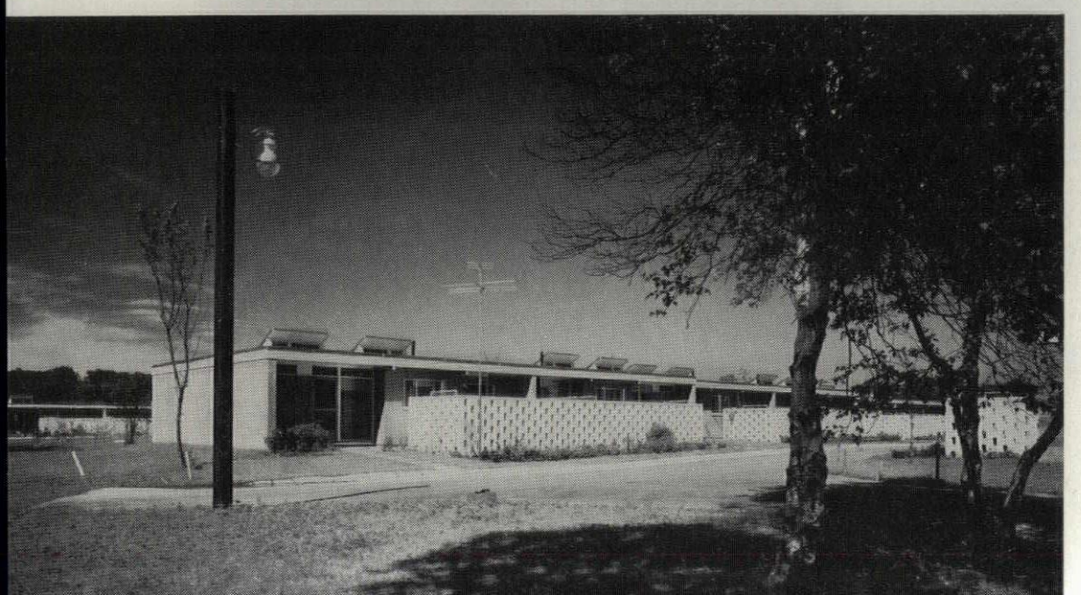






Smaller apartment from rear (plan, opposite).



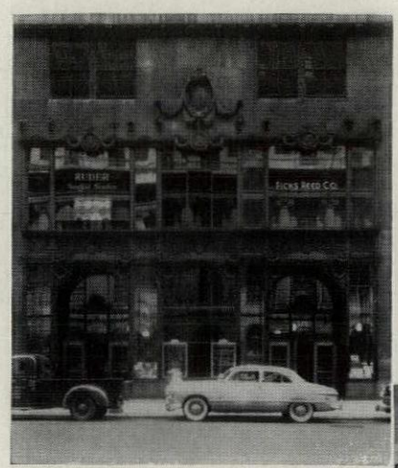


Larger apartment, street side (plan, opposite).

Above: Entrances to two adjacent apartments.

LOBBY OF LIGHT identifies and advertises an office address

It cost $125,000. It takes 288,000 watts to light its 1,920 lamps. It rises three stories above the street and covers 1,200 sq. ft. But the sloped ceiling of light at 383-5 Madison Ave., N.Y.C. makes Realtor William Zeckendorf of Webb & Knapp, Inc. happy to pay its $10,000 yearly operating cost. Reason: These newly renovated office buildings, unified by this lobby of light, have become the most talked-about, stared-at buildings in New York City. And that is just what Zeckendorf wanted.

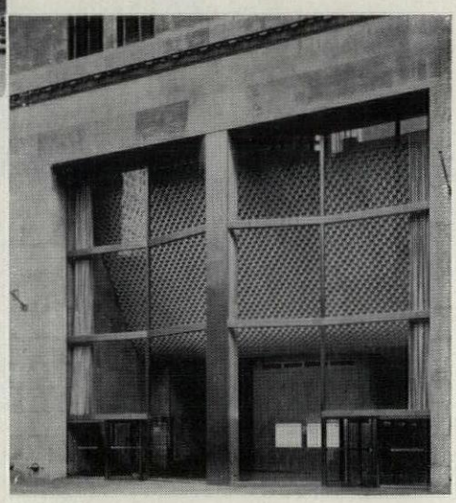


Cluttered old facade (above) of the 383-5 Madison Ave. buildings (put up in 1922-23) contrasts sharply with the remodeled version (right).

ALBERT W. LEWIS and RUDOLPH C. P. BOEHLER of WEBB & KNAPP, Inc., Architects

PAXTON, KRUEGER & ASSOCIATES, Inc. in association with NORMAN BEL GEDDES, Designers

R. GILLESPIE WILLIAMS, Illumination



Cellular ceiling, sloped up for better display, is lighted with single color or . . .

The twin lobbies, formerly cluttered with columns and a cigar and newsstand, were given a $500,000 going over. One obstructive column was removed (its load was transferred to a girder on the third story level). Now, stainless steel mullions and horizontal transom bars frame huge lights of 3/8" polished plate glass. Terrazzo flooring, limestone faced walls and reeded aluminum elevator bank walls provide a simple, unified lobby space for the dramatic ceiling of light.

Light: The modern medium

Complex mechanisms and circuits behind the constantly changing ceiling lights were invented by Rollo Gillespie Williams, an Englishman and an authority on store and stage lighting.

Appropriately named Rollo-Color, the system borrows stage lighting techniques to focus attention in the desired direction and to produce and control mood.

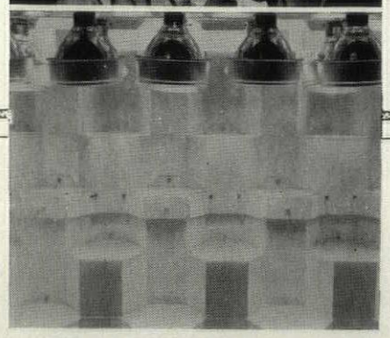
The lobby ceiling draws a passer-by's eye to it, even against his will. Colors fade into other colors, patterns change shape and color in a few seconds. More than 500 shades of color combined in various patterns make possible a virtually limitless range of effects. Warm colors in the winter, cool ones in the summer, cheerful patterns or placid, slowly changing solid colors can be "played" to affect everyone in sight of the lobby.

Not all Rollo-Color systems are so big or expensive as this lobby ceiling. They vary through medium-sized units to small portable ones costing as little as $200 and simple to operate. These can be used to light window displays, spotlight interior store displays, or serve as a versatile stage lighting unit. Effective church installations have also been made.

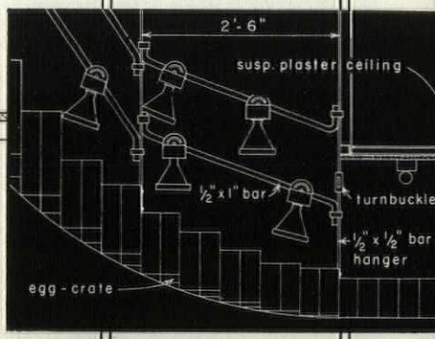
The cell

Simplest of these units is one with four lamps producing the four basic colors: red, blue, green and white. These colors are "mixed" to produce any desired color by varying the voltage across the respective lamps. For example, with only the red and blue lamps on, purple results. If more voltage is put across the red lamp the purple changes to magenta, which, seen through a diffusing plastic or glass screen, appears as a nearly homogenous color.

Maintenance worker uses one of three catwalks behind ceiling to relamp.

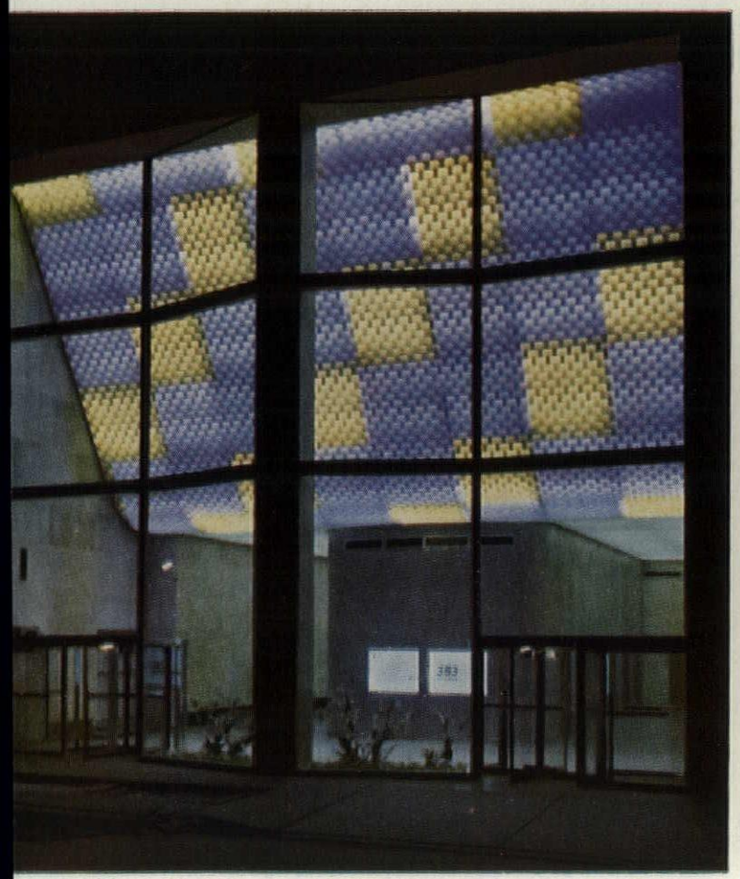


Left: Detail of lamps and plastic "hexcrate" ceiling through which light is diffused. Right: Lamps precisely placed assure even lighting.



Hexcrate ceiling seen from below shows diffused lights filtering through.

. . may be covered with constantly shifting patterns of colored squares and stripes



Workers installing hexcrate ceiling hung below banks of colored lights

The brain

The mechanism that selects the colors, called a master controller, consists basically of four variable potentiometers (one for each color) and a series of motor-driven parts. These in turn operate at a desired, preset speed and shift the potentiometer controls by the most direct route. This finally regulates the voltage across each lamp which varies the intensity of its color.

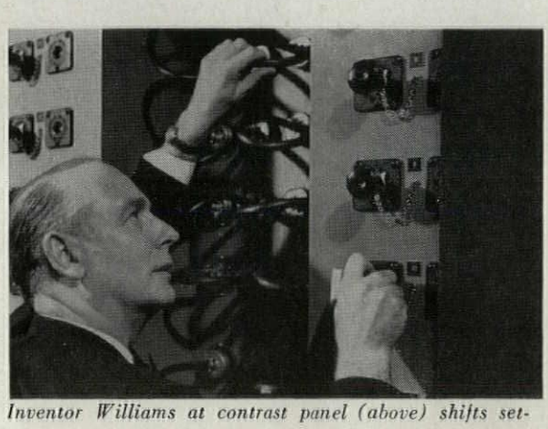
In the new lobby, two master controllers are used: one to control moving lights, the other to control a static pattern of lights. Each controller has a chromatic index and a moving marker which traces the color changes and permits the operator to set a sequence of color changes accurately.

The time interval of change is also variable. It can be adjusted to effect a complete change in six seconds or as slow as two minutes.

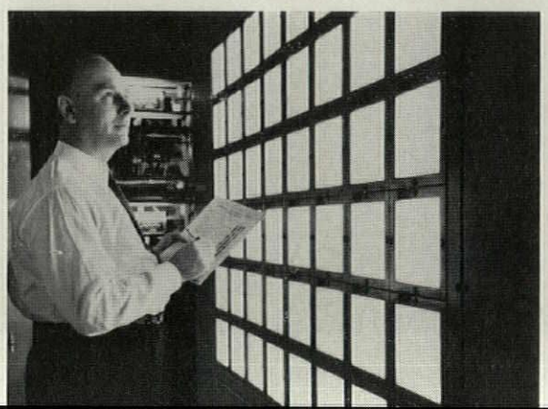
The eye

To assure harmonious color changes, a complex color contrast panel automatically selects pleasing colors adjacent to those being produced by the master controller. For example, a brilliant blue turning to brilliant red would undeniably clash with a pale, fixed green. To avoid this, the contrast panel gradually changes the green to a harmonizing color and regulates its brilliance throughout the change.

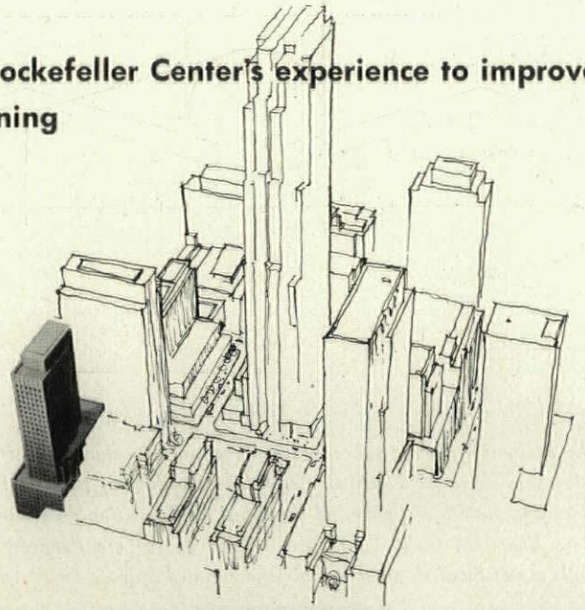
(Continued on page 178)



Inventor Williams at contrast panel (above) shifts settings to achieve different harmonizing colors. Below: He checks miniature viewing panel which reproduces colors and patterns seen from the street.



NEW SKYSCRAPER profits by Rockefeller Center's experience to improve ground floor design, uses modern lighting and air conditioning to make deep space rentable



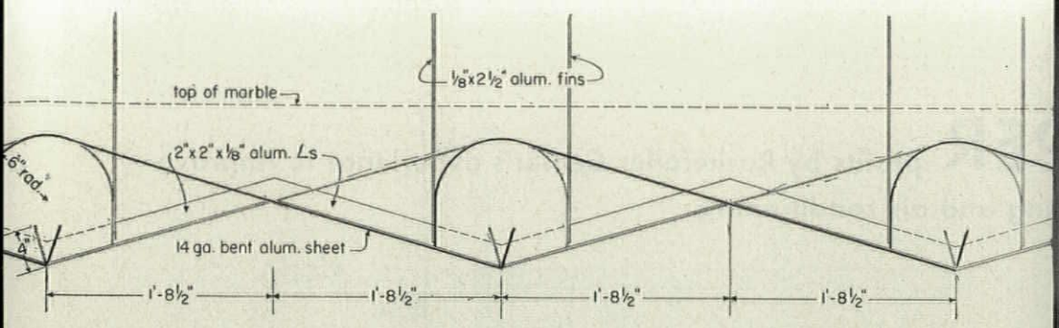
Fifth Ave. strollers could not be more mistaken. The fine new baby skyscraper on the 48th St. corner is not a new unit of Rockefeller Center next door. Its resemblance to the older towers goes little deeper than the limestone skin (details, p. 124) *and it succeeds most notably just where Rockefeller Center obviously failed—in the development of its ground floor lobby and shops.*

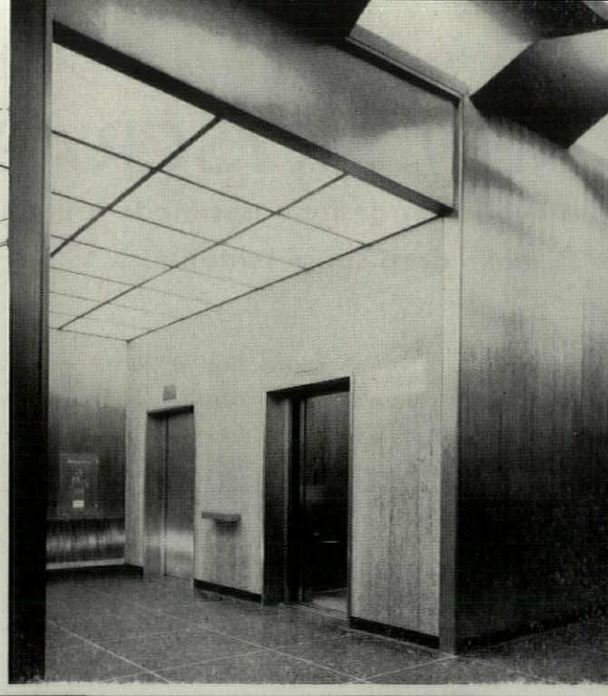
The Sinclair Oil Building cost more per cu. ft. than any other N. Y. building ($7.5 million, or $1.60 a cu. ft.); gets higher rents (close to $8 in the tower) than any building now occupied; belongs to the Massachusetts Mutual Life Insurance Co.; takes its name from its principal tenant which rents all the office floors up through ten. It is the first N. Y. building in which the local electrical union permitted cellular steel floors (they cost a little more than concrete arches, but speeded construction and give complete electrical flexibility); the first N. Y. building whose beams are fireproofed by the same perlite hung ceiling that fireproofs the steel floor; the biggest N. Y. building completely air conditioned with evaporative cooling *(details, p. 192)*.

But architects and investors alike will find greatest interest in the ground floor, which has one of the smartest small lobbies in the city *(below)* and already boasts more good stores than all Rockefeller Center. Here the Sinclair planners went all out to give tenants a chance to do something good, eliminating nearly half the free-standing ground floor columns with distributing girders, raising ceiling

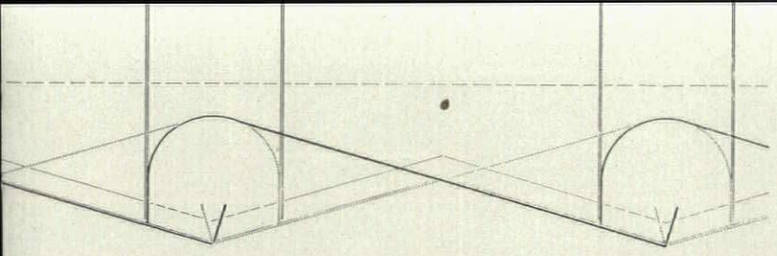
LOCATION: 600 Fifth Ave., New York City
CARSON & LUNDIN, Architects
JAROS, BAUM & BOLLES, Mechanical Engineers
EDWARDS & HJORTH, Structural Engineers
TURNER CONSTRUCTION CO., Builders

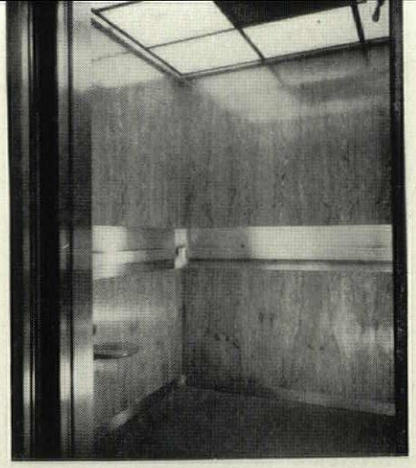
Open front and brightly lighted ceiling make the new Sinclair Oil Building's lobby an inviting entrance, give spaciousness to its small dimensions.



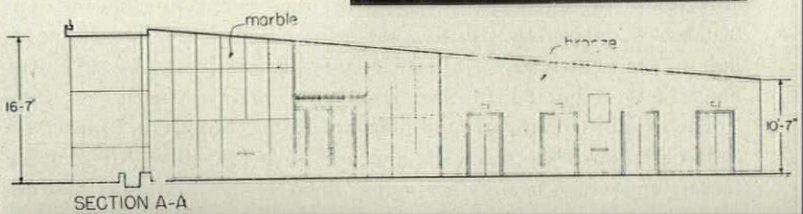


To light the ordinarily gloomy space between recessed elevator banks (right), cold cathode tubes shine from behind a translucent ceiling of plastic. Below: The sloped ceiling pattern of lights and simplified wall detailing give this lobby its character. Enameled metal light coves (detail above) are hung from the ceiling. Walls are of Swedish green marble and seriated bronze; floors, terrazzo.





Over-all lighting of elevator cab ceilings is possible with plastic panels (glass being illegal). Dark center panel is service-emergency door and ventilator. Heat flows in around the perimeter of the ceiling. Section through lobby (below) dramatizes downward slope of ceiling from front to rear, which exaggerates the lobby's apparent size.



SECTION A-A

heights to a minimum of 17′ in the rear and a maximum of 19′ at the windows, putting the building entrance and lobby on the side street to leave the whole avenue frontage for retail development *(details, p. 124-5)*.

High light: a creative lobby

The lobby of the Sinclair Oil Building was kept small for economic reasons. To make it appear as spacious as possible, however, the architects employed three major devices: a sloped ceiling, uninterrupted surfaces, repetitive light patterns.

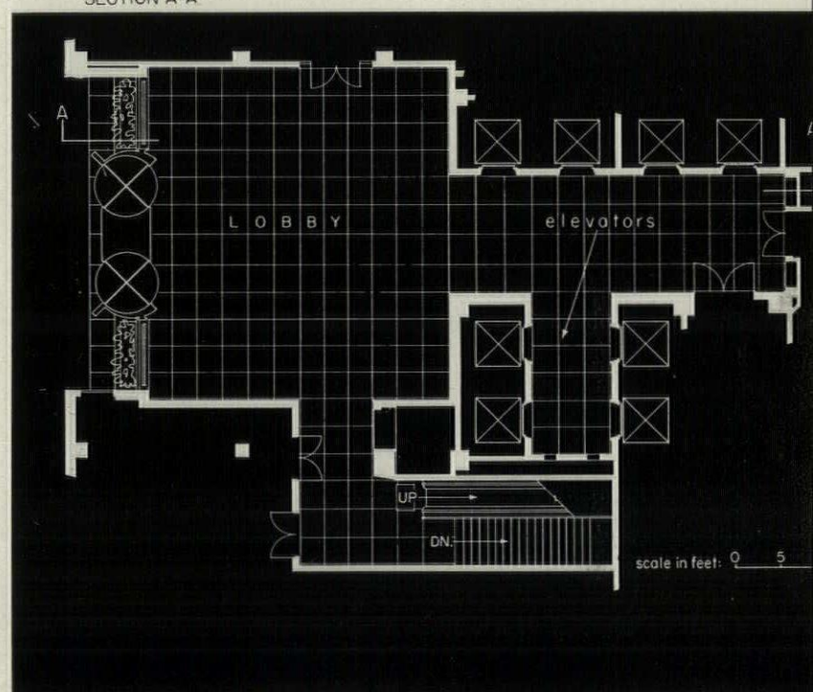
Sloped ceiling: To reconcile the high ceiling required at the front of the lobby with a low one in the narrow rear area between elevator banks, the architects achieved a simple solution. Instead of employing the usual method of dropping the ceiling at the forward edge of the banks, they sloped the finished ceiling so that a single plane moves from a height of about 17′ in front down to 10′ 7″ in the rear.

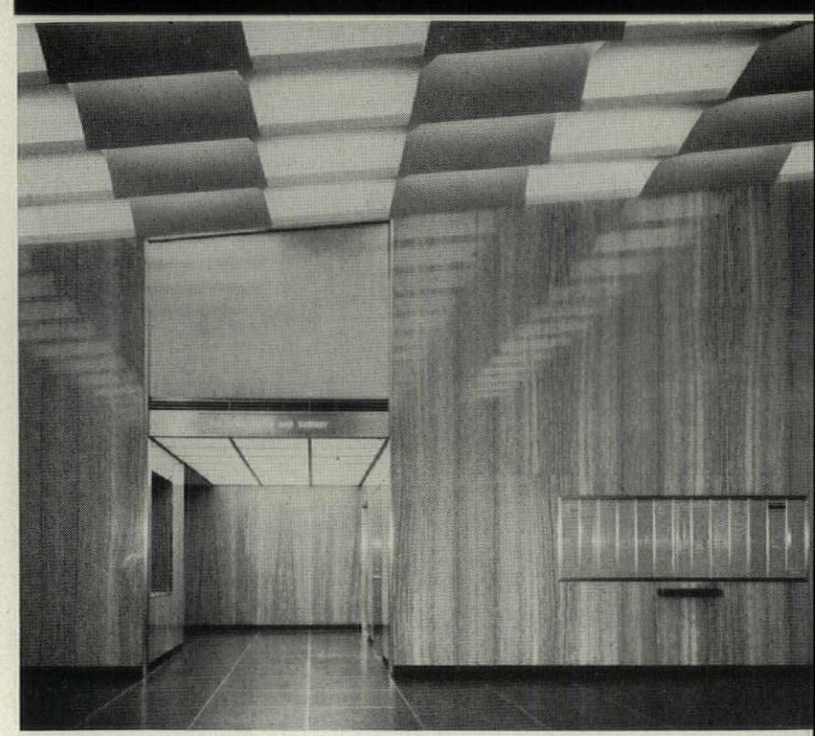
The treatment paid an unexpected dividend. While it kept ceiling heights in proportion, it also emphasized the perspective and permitted more of the ceiling to be seen. Result: an illusion of greater depth.

Uninterrupted planes: Wherever possible, the Swedish green marble and seriated bronze walls were left unbroken by doorways. Required doors were made of the surrounding wall material and flush-fitted. If the door was to be used solely as an exit, handles on the lobby side were omitted. The same treatment prevailed even outside the lobby where a fire door was made of 675 lbs. of granite and steel and flush-fitted so as to recede visually into the surrounding walls.

Heating and air conditioning grilles recessed in the seriated bronze walls had openings designed just twice the width of the surrounding seriations to make them as inconspicuous as possible.

Illusion by light: The repetitive basketwork pattern of lights that covers the ceiling was developed by the architects. Scroll-like metal coves holding cold cathode tubes are suspended from the ceiling. Their arrangement in alternating rows and the effect produced by the light itself make it virtually impossible to tell where light ends and metal edges begin. This ingenious use of light produces a pleasant effect of more space.





Ground floor development

Another outstanding contribution of the Sinclair Oil Building to good office building design (and one way it surpasses many of its Rockefeller neighbors) lies in the development of the ground floor. Here, on some of the most valuable real estate in the world, judicious

planning avoided many errors inherent in office buildings being planned and built today.

Chief among the good points was the decision to have only one building entrance and to place that entrance on the side street. This entrance, although retaining its 600 Fifth Ave. address, is located on 48th St. well back from the corner.

Several things grew out of this basic decision. First, the entire Fifth Ave. frontage remained rentable as well as the 48th St. frontage near the corner. Next, since this is the only building entrance, valuable space was not wasted in long corridors connecting multiple entrances. (Contrasting with this, the nearby British and French buildings in the Center have wasteful connecting corridors and give over much of their small Fifth Ave. frontage to main entrances.)

The windows on the ground floor are framed simply in bronze, are well out toward the sidewalk line and have low sills. All of these factors encourage tenants to employ them as show windows and use the office itself as one large display case.

At least two of the ground floor tenants have designed their offices with open windows. In addition, they have shown an ingenuity in design that is on a par with the compact lobby of the building.

Pan-American ticket office

Pan-American World Airways which leases 2,250 sq. ft. on the corner of Fifth Ave. and 48th St. has plans to make full use of the open window display technique *(upper plan, p. 125)*. The interior space remains unbroken by bisecting partitions. Instead, two partitions placed obliquely along the side wall shelter service areas and enclose a private office. On one of these angled partitions will be a large air-route map. Result: It will be visible from both Fifth Ave. and 48th St.

Swiss Center

The canny Swiss made 3,126 sq. ft. of space do more than triple duty *(lower plan, p. 125; photo, below)*. First, they rented the space and then built a 2,534 sq. ft. mezzanine which gives them two floors for the rental rate of one. Utilizing the mezzanine principle also permits them to have open windows on the street and still appear uncluttered.

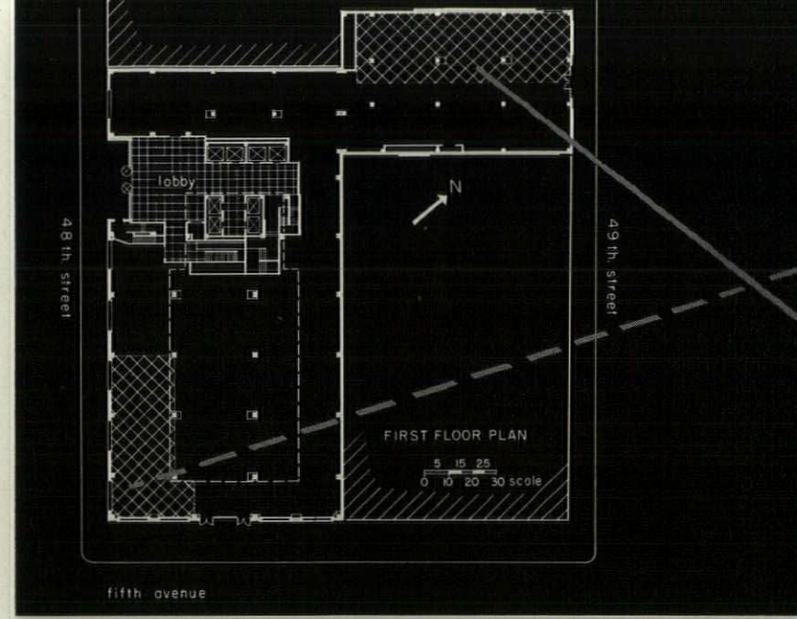
Into the office went three separate firms (Swiss Bank Corporation, Swissair and Swiss National Travel Office). Their public business is done on the ground floor where the only physical division of space is a bank counter running back from the one building column visible in the office. Private offices fill the mezzanine. Despite these close quarters, there is no sense of being crowded.

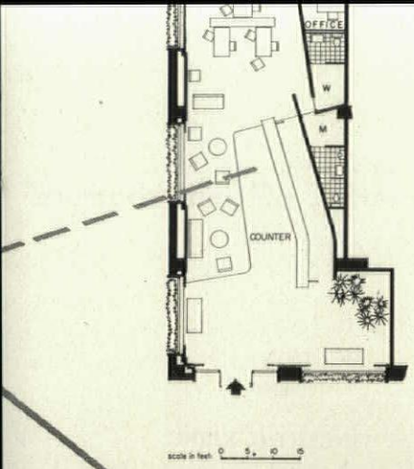
Of particular interest is the way the Swiss Center is lighted. Instead of getting attention by focusing light on the window displays or by flooding the whole interior with light, the rear of the office was accented by high-intensity lighting which comes from coves running back underneath the mezzanine floor. This draws an onlooker's eye far back into the office with the implied invitation to come inside.

A mirror along one wall does the barber-shop trick of redoubling the apparent interior space but vertical wooden spindles mounted a few inches in front of it and plants along the base take away any barber-shop banality and keep it fresh.

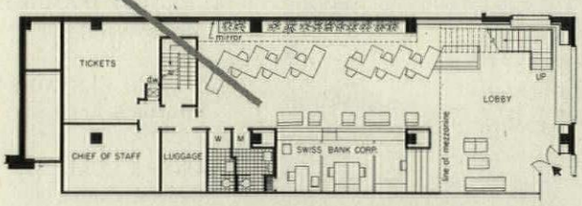
The new building vs. Rockefeller Center

Rockefeller Center is a group of big office towers (the smallest 8,200 sq. ft., the biggest 17,000 net) surrounded by less than a quarter of the additional lower floor cubage permitted inside New York's antiquated zoning cake mold (except where that added cubage could be developed for such nonoffice purposes as stores, theaters, garages, or windowless soundproof broadcasting studios).





Open plan for Pan-American World Airways ticket office shows entrance, lounge, ticket counter, a tour planning department in the rear. Oblique walls shield service facilities without breaking up the office space.



In Swiss Center on 49th St. the Swiss Bank Corp., the Swiss National Travel Office and Swissair share the same office space. Mezzanine floor over rear two-thirds added to office capacity, left two-story space for front lobby and permitted use of large windows for display purposes.

On the other hand, the Sinclair Building is a small tower (6,612 sq. ft. gross, 5,400 net)—the smallest erected anywhere in the U. S. since 1930—sitting atop a bulk building which fills almost every foot of the zoning envelope up to the seventh floor.

Actually the Sinclair Building fills only 70% of the cubage that could legally have been built around its tower, but the principal limiting factor was an agreement with Rockefeller Center under which the new building acquired 60 front ft. on 49th St. and gained underground access to the Rockefeller Center concourse and sub-basement servicing. In return the owners agreed not to black out any windows in the nearest Center unit and to move its tower so near Fifth Ave. that its setbacks had to stop at the 11th floor instead of staggering on up to the 18th.

Perhaps the biggest reason Rockefeller Center is so open is that its sponsors considered office space more than 30′ from a window almost unrentable and therefore not worth building. The reason the Sinclair Building crowded its lot is that the rental value of deep space has since been multiplied from almost nothing to nearly $5 a ft. by air conditioning, modern lighting, and the preference of many big corporations for large compact floors on which to house their clerical workers.

So those who had seen in Rockefeller Center the hope of more open cities can take small comfort from the Sinclair Building. Only in the Equitable's widely spaced towers now abuilding in Pittsburgh is the Rockefeller Center concept being kept alive.

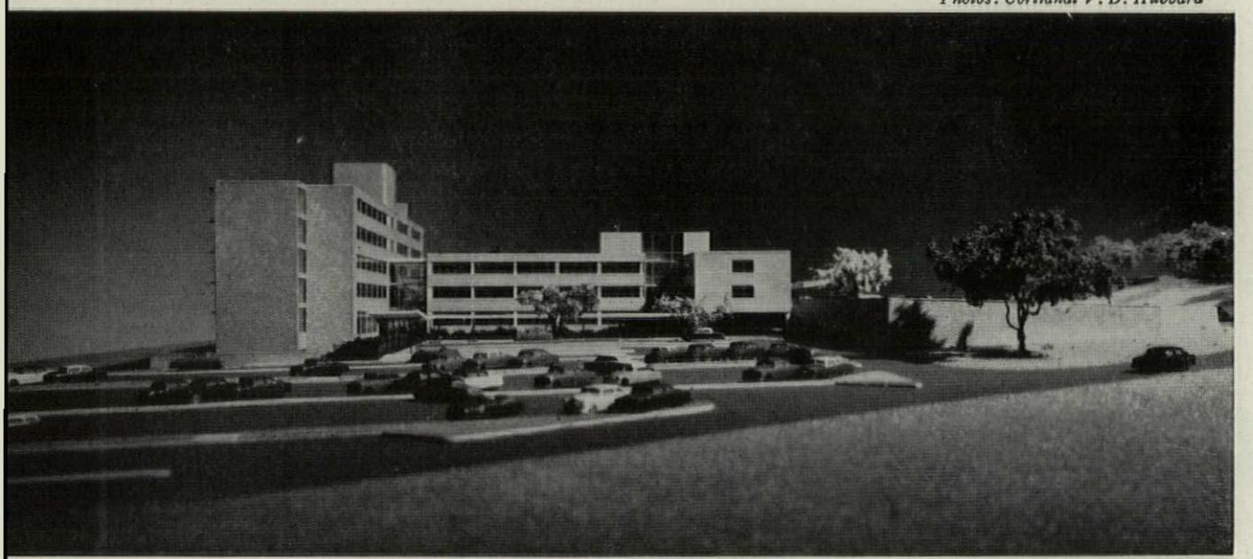
* * *

For details of the Sinclair Oil Building's evaporative cooling air conditioning system, see p. 192.

COMMUNITY HOSPITAL OF THE YEAR

integrates all rural county health services in a cheerful, efficient structure

Photos: Cortlandt V. D. Hubbard



LOCATION
Flemington, N. J.

VINCENT G. KLING,
Architect

WILLIAM W. ESHBACH,
Associate Architect

A. ERNEST D'AMBLY,
Mechanical Engineer

SEVERUD, ELSTAD & KRUEGER,
Structural Engineers

NASON & CULLEN,
General Contractors

DONALD C. SMELZER,
Medical Consultant

"No other hospital has been better planned to meet the needs of a rural community." This is the tribute paid the new $2,600,000 Hunterdon County Medical Center in New Jersey by John G. Steinle, regional hospital program director of the U. S. Public Health Service.

"These country people, by their own initiative, have obtained a rural health center with big-city advantages. Local country doctors are able to have their offices conjoined with a complete 106-bed general hospital; there is a direct teaching tie-in with New York's Bellevue Medical Center; there is a headquarters for voluntary and official health services—all in one building of top-rank design."

Though this new concept required 110,000 more cu. ft. than a conventional 100-bed hospital, Architect Vincent Kling managed to hold construction costs to $2.16 per cu. ft. as against a regional average of $2.25. Among his cost-cutting devices:

- A 4′ cantilevered extension of two floors which gained space for operating and delivery suites in the slim main nursing wing with a minimum increase in cubage.
- Reinforced concrete framing with flat plate slabs which held story heights to 9′9″ and eliminated ceiling plastering and beams.
- A new type continuous convector enclosure that serves as an interior finish for spandrels, lowering the cost of cavity wall construction.
- Toilets which open on the corridor between pairs of rooms to serve more patients, shorten pipe runs and permit an economical three-door assembly.

Architect Kling's mission was not only to combine hospital and health center in an efficient, compact structure but to express the theme of friendly community service throughout. To make country people feel at home, the building was put out in the country on a sloping farmland site. (The land cost $24,000, and improvements, $110,000.) And to give patients full benefit of sun, breeze and view the building was located high up on the slope with the main nursing wing facing south. This shortened pipe runs from wells at the top of the hill, but lengthened access drives.

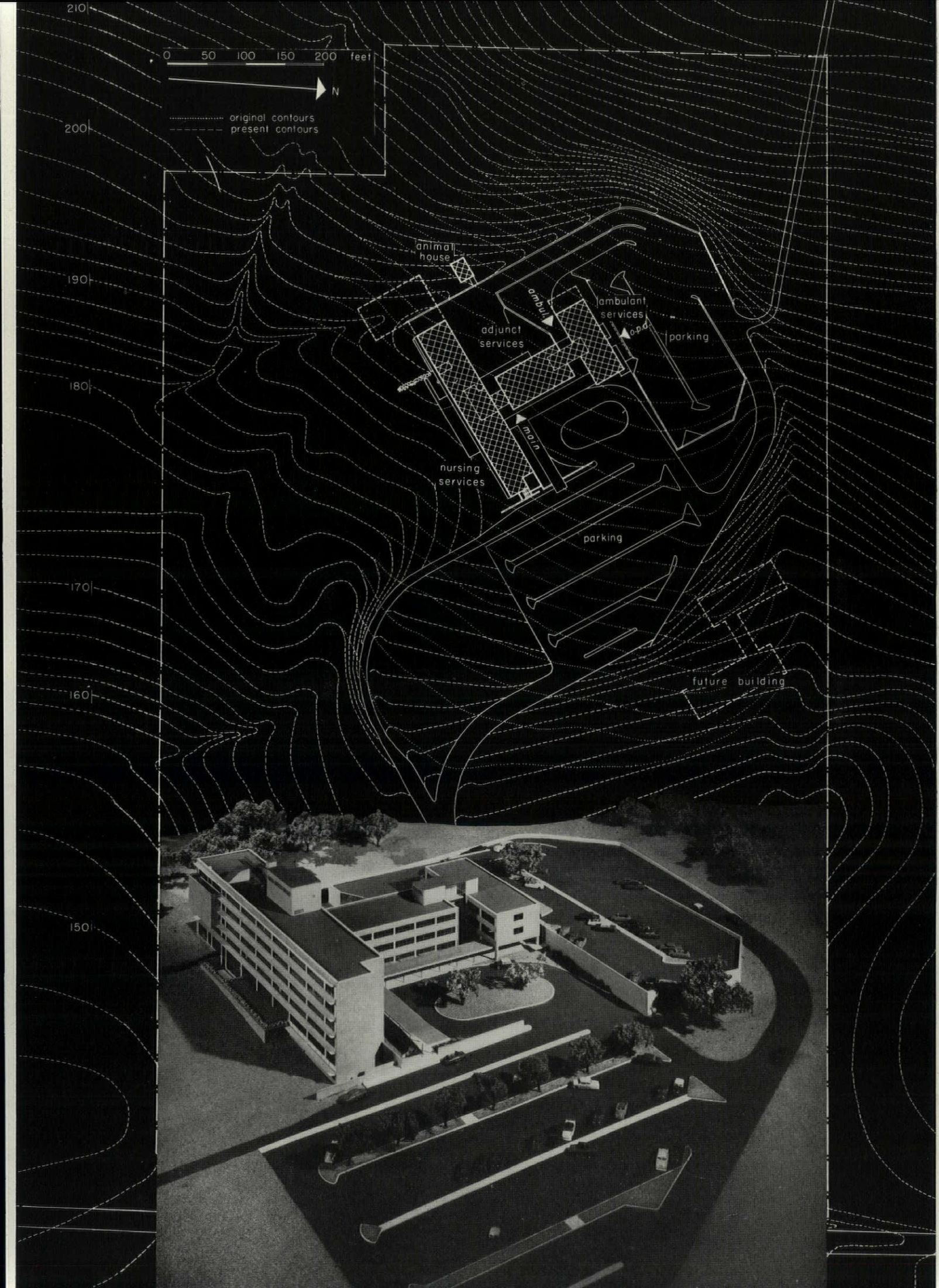
The Center's T-shaped plan puts jointly used adjunct facilities in the stem between the main hospital and the ambulatory services wing, cleanly separates acute patients from public areas. Instead of merging the three elements of the T, Kling has linked them lightly with glass-walled stairwell passages which give patients en route to treatment a pleasant outlook. And the slope of the site is skillfully exploited to segregate entrances for various types of patients and services on different levels.

Ambulatory wing combines treatment and health education

The ambulatory services wing is designed not only to perform the usual out-patient clinic functions but to serve as a community workshop for family physicians and the hospital's specialists. On the ground floor is a 190-seat auditorium for community health education. Its foyer and covered entrance terrace may be used as play space for children while their parents are in the clinic. Next to the auditorium in the wing leading to the hospital is the headquarters for community services—public and voluntary health agencies and a dental clinic. The second floor provides a spacious, glass-walled waiting space, social services and suites of examining rooms. Specialists' offices, physical and hydrotherapy facilities are on the top floor, served by an elevator.

Main nursing wing saves on the low levels, spends on the high

Compact planning of basic service areas in the main nursing wing helped to offset the cost of special health center facilities. Operating and delivery suites are economically stacked at the west end of the surgical and maternity units, reducing patients' elevator travel to a minimum. And to meet USPHS space standards they are cantilevered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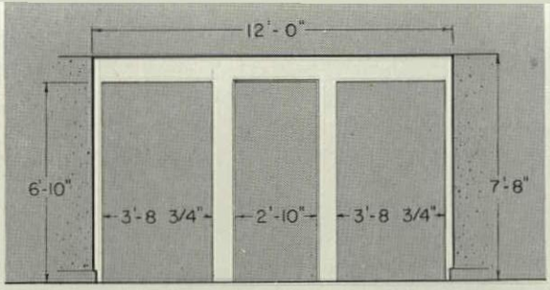
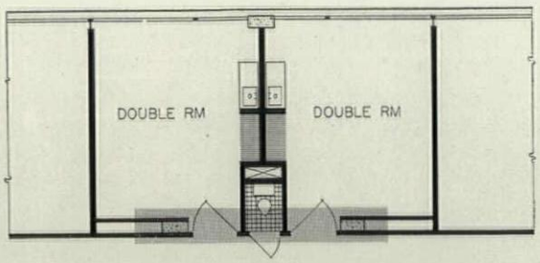
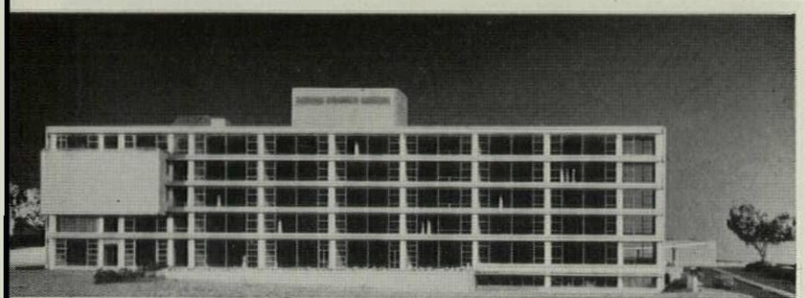




Toilets between rooms open on the corridor, permitting three doors to be assembled as a unit with a filler panel forming the transom. Though less desirable than individual toilets, this arrangement cut plumbing costs, saved corridor partitioning.

4′ beyond the south wall. The exterior of this projecting box will be faced solidly with stucco, since windows on the south would merely create a light-control problem for surgery. Operating rooms will be insulated from the basement boiler room by a ventilated plenum and an intervening nursing unit for ambulant patients only (*plan opp.*).

By opening toilets between pairs of two-bed rooms onto the corridor, Kling made them available to patients in four-bed rooms as well. This sacrificed some convenience but gained a pipe-saving tie-in



to lavatory chases, and formed an economical three-door assembly which saved corridor partition block. Bucks for doors to rooms and toilet are made up as a unit with ceiling-high members at both ends and a transom panel on top (*detail, above*).

Preliminary plans called for glass panels on the corridor side of patients' rooms, with standard cubicle curtains, giving patients a choice of privacy or a view of the corridor, but plaster on gypsum block was used instead to cut costs. In the southern wall, however, glass between columns extends from 18″ sills to the ceiling. Panels of fixed glass run full length alongside patients' beds (to eliminate drafts) and permit use of drapes without cutting ventilation through panels of movable sash at the foot of beds. Continuous 4′ wide overhangs diminish glare and offset the possible dizzying effect of low sills.

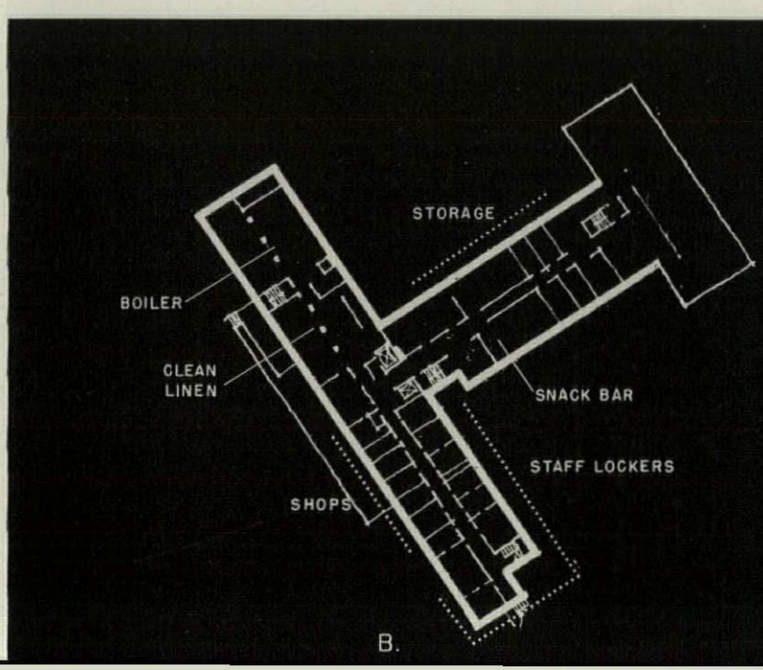
Other cheering features of this wing are a spacious (48′ x 16′) main waiting room with a snack bar, and an adjunct staff cafeteria. Both rooms have window walls opening to the south on a terrace overlooking the valley.

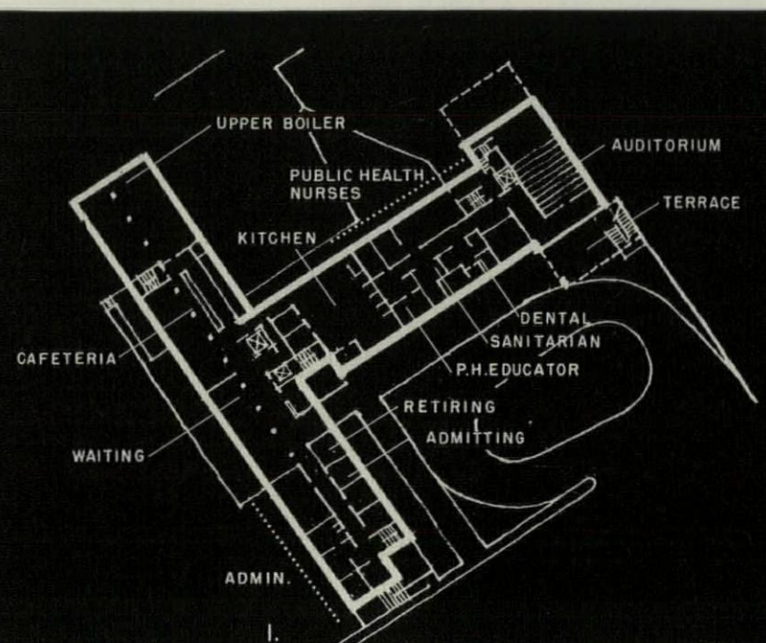
Structure provides design freedom, cuts cubage and costs

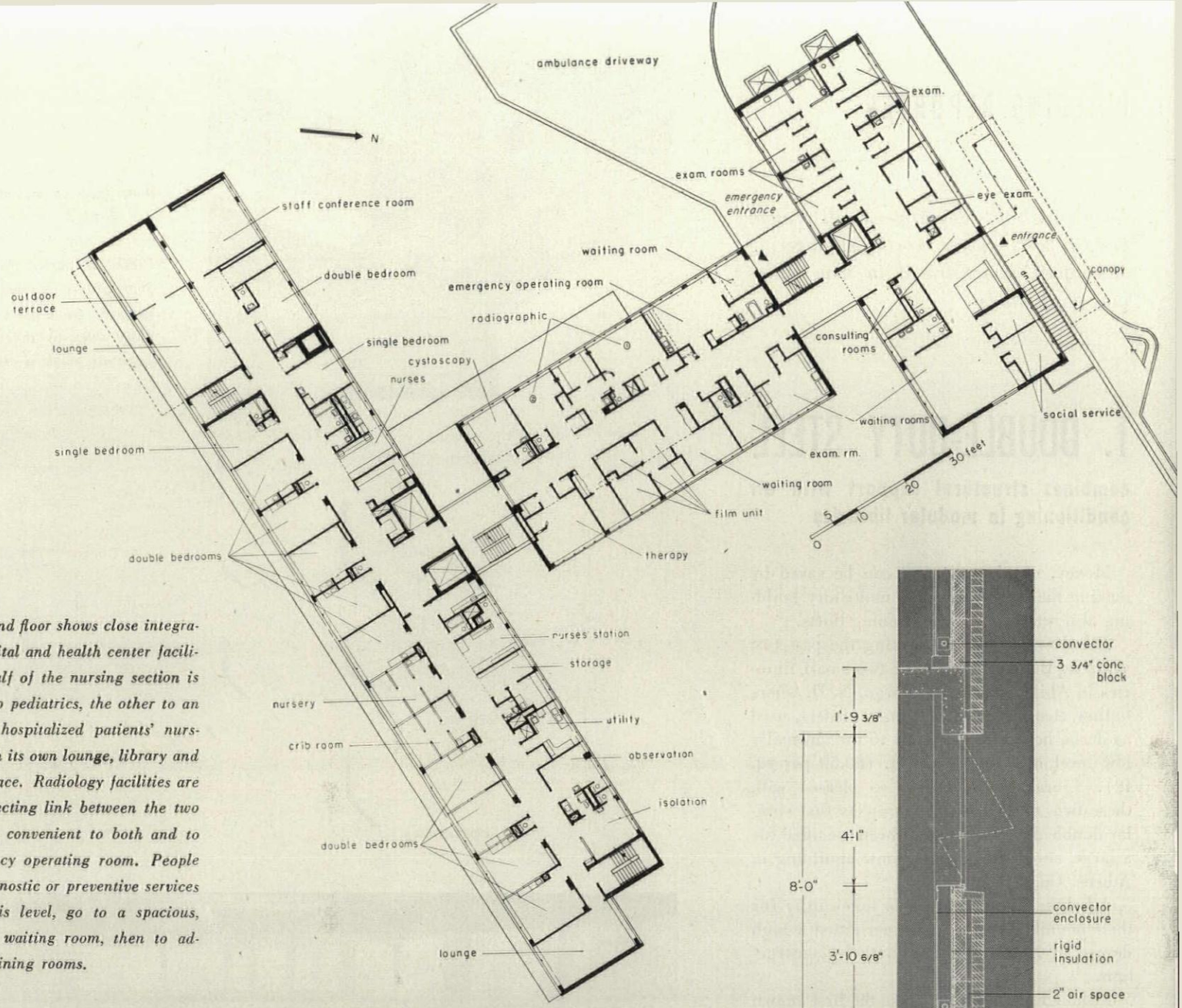
Reinforced concrete framing with 8″ flat plate slabs lowered story heights by eliminating beams and simplified the duct work and ceiling finishes. It also permitted varied column spacing to fit different plan requirements. Kling used 27′ column spacing in the south wall of the nursing wing with uninterrupted ranges of windows in between (corresponding to two-bed rooms). But in the balance of the wing, columns were spaced 13′6″ apart to carry the heavy live loads of corridor and utility areas.

In the ambulatory services wing, slabs are carried clear across the 36′ width by two big two-way panels formed with filler block on 5″ concrete ribs. This eliminates columns from the first floor auditorium and permits flexibility of partitioning on the upper floors.

Metal shortages and the difficulty of weatherproofing exposed concrete led to the use of cavity walls of face brick and concrete block backing throughout most of the structure. Cost of cavity spandrels was cut by using a new type continuous metal convector enclosure which forms the interior sill and wall finish (*detail, right*).

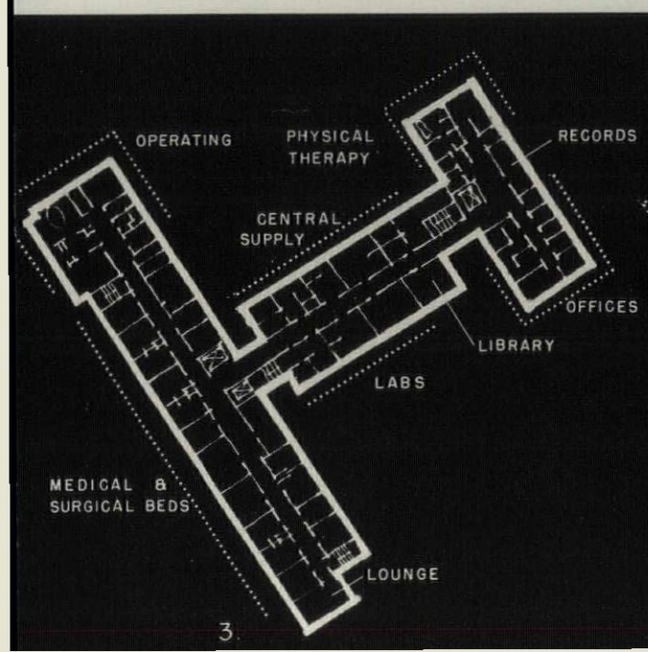


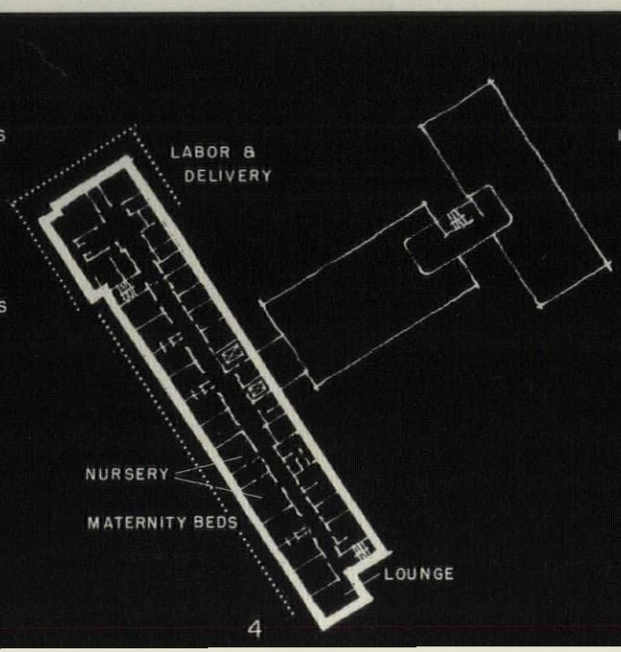


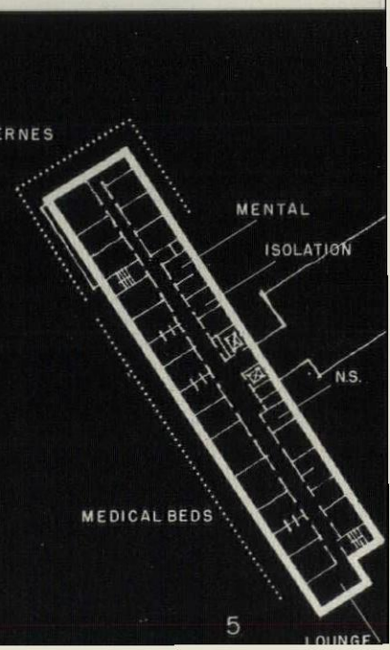


Plan of second floor shows close integration of hospital and health center facilities. One half of the nursing section is given over to pediatrics, the other to an ambulatory hospitalized patients' nursing unit with its own lounge, library and outdoor terrace. Radiology facilities are in the connecting link between the two main wings, convenient to both and to the emergency operating room. People seeking diagnostic or preventive services enter on this level, go to a spacious, glass-walled waiting room, then to adjacent examining rooms.

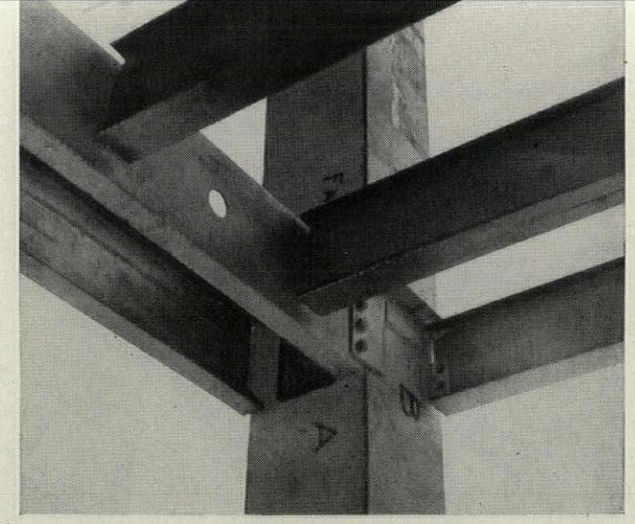
Cavity walls with continuous convector enclosures forming interior sills and spandrel finish proved more economical than other brick sections tested for most of the structure (detail, right).







Each month this department will present brief reports on newsworthy engineering techniques demonstrated in new buildings of all kinds



Heart of this system of combined structural support and air-conditioning ducts is the hollow box columns which pass fresh air into floor ducts formed of twin channel girders. Alternate columns act as inlet and exhaust ducts. Fresh air passes from the twin floor girders into ceiling plenums between each floor joist, and filters down into the room through egg-crate louvered ceilings.

1. DOUBLE-DUTY STEEL

combines structural support with air conditioning in modular libraries

Money, metal and space can be saved by making the steel frame of a multistory building also serve as air conditioning ducts.

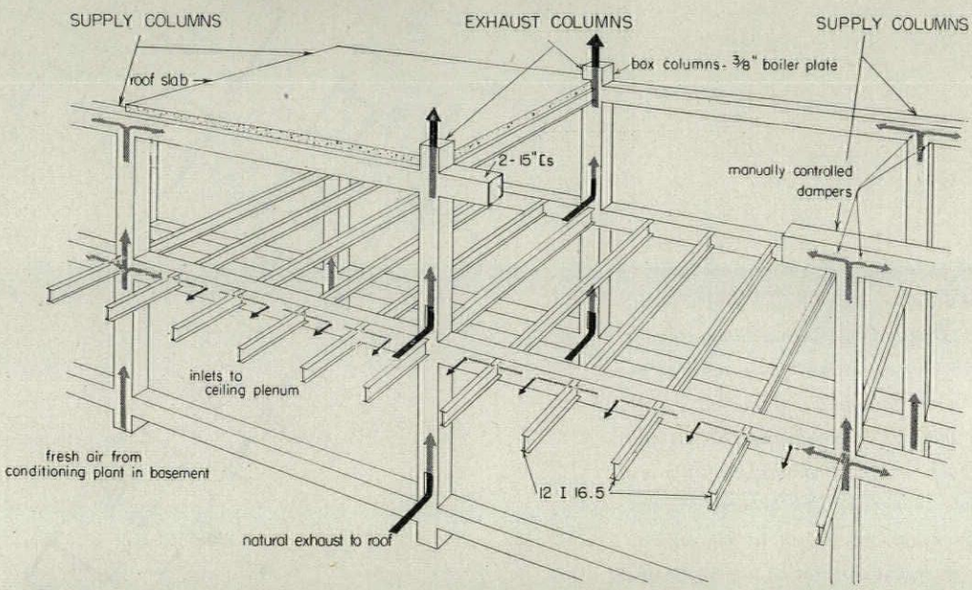
This has been proved during the past two years by the construction of two small libraries in Abilene, Tex. and Fargo, N. D. where hollow steel columns and floor girders, used as ducts, helped reduce costs to the unusually low level of 85¢ per cu. ft. ($8.59 per sq. ft.). Library builders are so pleased with these two- and three-story projects that similar double-duty framing has been specified for a large, seven-story library now abuilding in Athens, Ga.

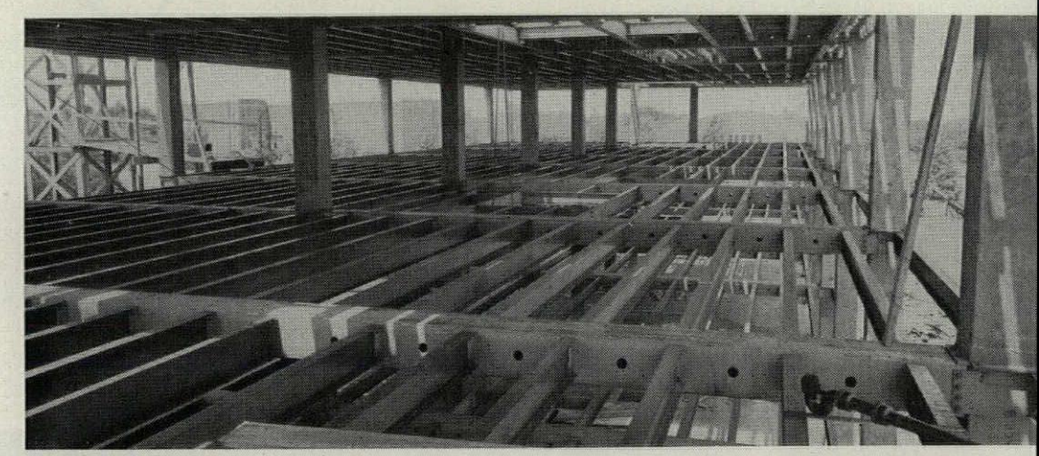
All three libraries are also noteworthy for their modular design which permitted a high degree of standardization in their construction.

Although these libraries are the first known buildings to use hollow structural members as an integral part of the air conditioning system, designers have long been thinking about such a solution. As far back as 1915 one of the RCA plants at Camden, N. J. designed by Ballinger & Perreau was ventilated through hollow cast-iron structural columns, and in 1913 one of the Ford plants in Detroit was similarly ventilated through hollow reinforced concrete columns. These applications, however, were for ventilation rather than complete air conditioning and did not utilize horizontal structural members as ducts.

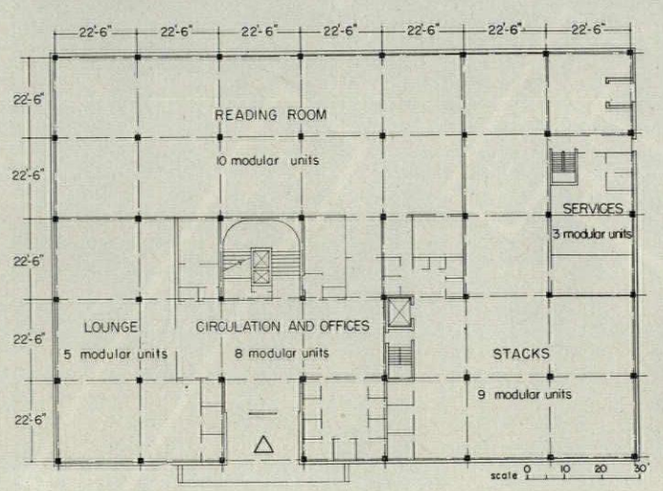
As used in the libraries, the integrated technique of air conditioning and structural support was developed by Angus Snead Macdonald, architect and library builder, in collaboration with Alfred Morton Githens, library architect, and Gilbert D. Fish, structural engineer.

The frame of these library buildings consists basically of hollow box columns manufactured from structural steel plate, with hollow floor girders made up of two 16″ channels placed between the columns to serve as floor ducts. The great advantage

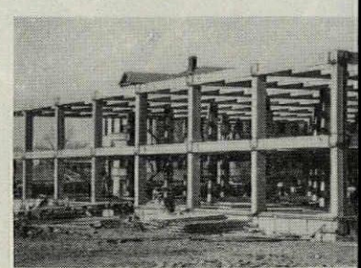




Thurman's Studio



The North Dakota Agricultural College shown here is a completely modular designed building with standardized movable partitions that can be moved to conform with any future changes in study or reading habits.



Don C. Christensen

of this system lies in the elimination of separate duct work, which is a tremendous space-eater in most air conditioned buildings. Yet another advantage is that for an equivalent cross section of steel, a hollow box column has a far greater radius of gyration than the conventional H-column, and so is a more efficient structural support.

A real problem exists in the fireproofing of these hollow structural members. Building codes at Fargo, Abilene, and Athens at present do not require that steel work in libraries be fireproofed and it was merely painted. Though library stack areas do not need to be fireproofed, however, it is necessary in the public areas of buildings over three stories high, as specified in most building codes. New York City building authorities, for example, require that hollow steel members be fireproofed on the outside, and probably, depending on the purpose of the building, on the inside too since the columns would be considered as flues and therefore a possible fire menace. On the other hand Engineer Fish points out that "flue fires are most unusual but if necessary the hollow members could be fireproofed with vermiculite plaster at a small extra cost." Air Conditioning Engineer Charles Leopold agrees that "flue fires rarely occur and constitute no real hazard, but smoke in an air conditioning system presents a very serious problem, and should be localized by an automatic damper on every vertical duct on every floor." In both Fargo and the Abilene libraries air flow is controlled by manually operated dampers at each column opening.

The hollow structural frame

In both the Fargo library of North Dakota Agricultural College and the Abilene library of Hardin-Simmons University the 16″ and 18″ square hollow columns are made of 3/16″ to 7/16″ thick steel. Plates 3′ wide and as long as required are bent at right angles down the middle, and each pair of plates is machine-welded at the seams to form a strong and rigid box column. Hollow floor girders, running longitudinally between columns, are made up of twin 16″ WF # channel members covered above and below with light steel plates to form the horizontal ducts. The comparatively light live load (115 lbs. per sq. ft.) allowed the use of ordinary ¾″ bolt connections instead of rivets or high-tensile steel bolts. The larger Athens library will be welded throughout.

Columns are spaced on 22½′ centers each way and the resulting bays are spanned transversely by 12″ I 16.5# beams at 4½′ intervals, topped by a 5″ thick concrete slab. This 4½′ floor beam interval, based upon the optimum distance between bookstacks, is the basic small module on which the design is calculated, and five of these modules make up the 22½′ column spacing. This simple, standardized design was economical to erect; the frame of the Fargo building was put up in only 10 working days.

Air conditioning system

Alternate columns throughout the buildings act as supply and exhaust ducts. Fresh air is drawn in at the roof through a wide masonry duct to the air conditioning equipment in the basement, then driven into supply columns by a 6′ fan. Damper controlled openings about 12″ square allow the fresh air to flow from the columns into the girder-ducts on each floor. On either side of these channel girders, 5″ diameter holes spaced on the same 4½′ module allow the air to enter ceiling plenums, and so down through egg-crate louvered ceilings into the room itself.

Stale air enters the exhaust columns by vents placed 2′ to 3′ above each floor level, and is exhausted to the roof. Thus in every room fresh air enters through the louvered ceiling and stale air is removed at floor level.

The system serves as a heating medium in winter by warming the air before driving it into the building.

Modular layout—flexibility with economy

Modular design produced great savings in construction costs by allowing a complete standardization of column, girder and beam lengths. The 22½′ square column bay (known as unit module) was chosen as a convenient multiple of the 4½′ centers on which bookstacks are usually placed (to give adequate room for two people to pass one another between facing shelves). The vertical module of 8′ 2″ between floor and ceiling permits ventilation and light above the 7′ high movable bookcases.

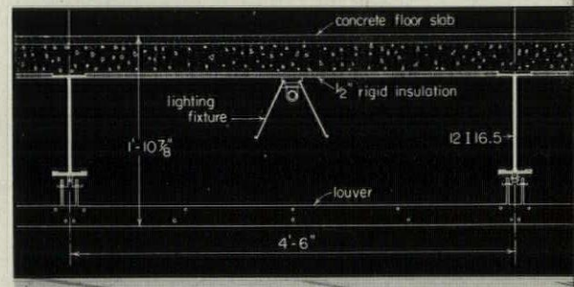
Thus, each floor of the Fargo library is 5 x 7 unit 22½′ modules in area (112½′ x 157½′). Space is allocated in terms of unit modules—three for the student lounge, eight for the stack area, two for a classroom and so on. Each unit module will seat approximately 25 students for study purposes, or shelves from 7,500 to 8,000 volumes in the stack areas.

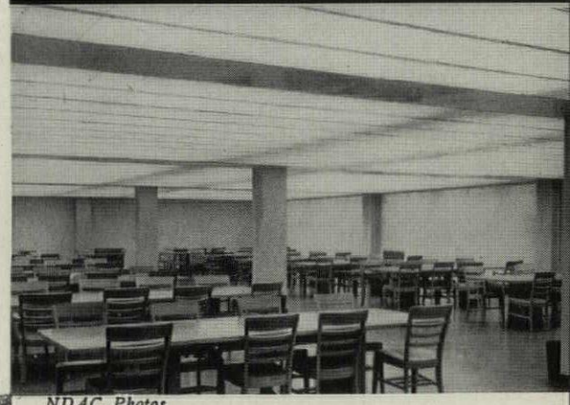
Modular planning permits library space to be rearranged at any time. The 8′ 2″ high ceilings are completely free of projections, so that partitions or bookstacks can be moved at will. Such a completely open library plan is dynamic; space requirements can be analyzed and layout adjusted to conform with any future changes in study or reading habits.

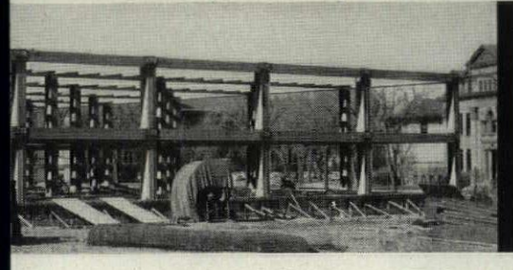
To provide optimum lighting conditions Macdonald has devised a special type of overall egg-crate louvered ceiling. Fluorescent light tubes are placed parallel to and between the floor beams to give 75 foot-candles of light at table height. The entire ceiling is a reflecting surface through deep louvers that eliminate glare and shadow, and also filter fresh air down from the ceiling plenum.

Good noise reduction is obtained by rigid insulation board on the ceiling, while some of the individual studies in the reading rooms are soundproofed with cork so that typing can be carried on without disturbing other students.

Architects for the Fargo library were William F. Kurke Associates, while that in Abiline was planned by the David S. Castle Co. For both libraries the steel work was designed by Gilbert D. Fish, Structural Engineer.







NDAC Photos

Ventilation and lighting are integrated in this egg-crate louvered ceiling. Fluorescent light tubes placed parallel to and between the floor beams provide 75 foot-candles of light at table height. On the left is shown the North Dakota Agricultural College library designed by the W. F. Kurke Assoc.

2. PRESTRESSED BEAMS

With headed wire anchorages span 60′ in new industrial addition

An unobstructed factory area of 200′ x 60′ is spanned by 11 60′ prestressed beams in a new addition to the Wakefield Brass Co. plant at Vermilion, Ohio. These beams use less than a third as much steel as would be required for an equivalent structural steel frame and employ a simple and efficient headed wire anchorage that can easily be handled by any conscientious building crew.

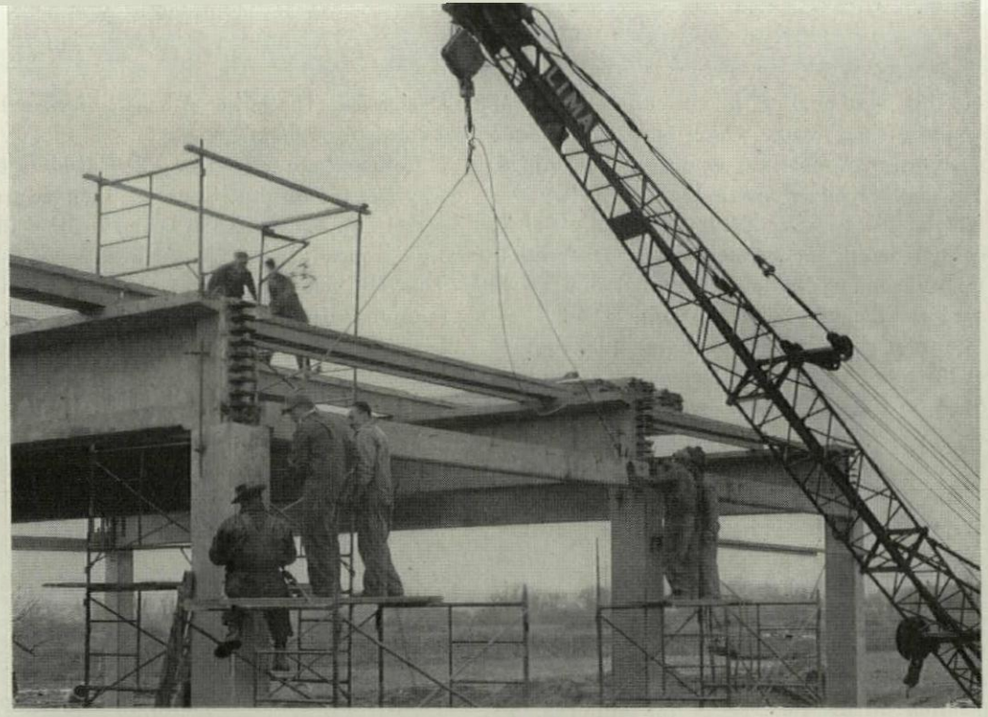
The prestressed beams are 40″ deep, top flange 28″ wide, bottom flange 12″ wide, and each beam weighs 12½ tons. After being cast and tensioned on the ground, the beams were hoisted into position atop reinforced concrete columns separated by precast concrete struts.

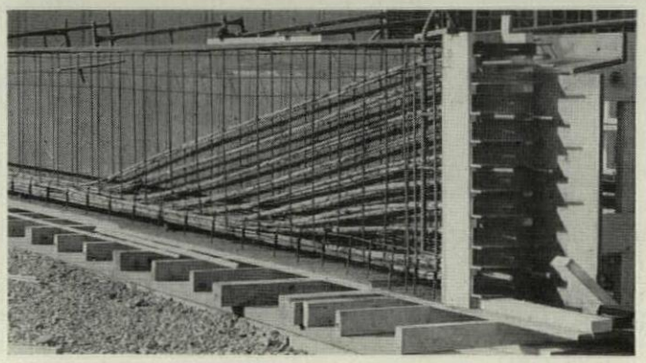
Each prestressed beam contains 60 strands of ¼″ high-tensile steel wire (215,000 psi specified ultimate strength) in ten double cables of three wires each. To prevent bond during casting the cables are sheathed with waterproof asphalt paper. Stirrups of ¼″ diameter mild steel are placed 12″ apart in the body of the beam to withstand shear stresses and also to help align cables.

The headed wire technique of prestressing is employed. The wires are cut to the specified length, bearing plates and pulling tees are slipped over the ends of each pair of 3-wire cables. Then the end of each wire is upset and shaped into a buttonhead that tests have shown to be stronger than the wire itself. The 6-wire units, prefabricated complete with anchors and hardware ready for placing in the forms, were supplied to the job site as a "B" classified material by Prestressed Concrete Corp. of Kansas City.

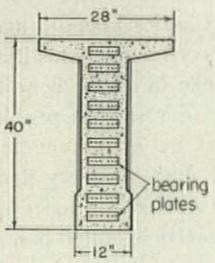
When the concrete (2″ maximum slump, 5,000 psi after 28 days) is poured one of the bearing plates is cast into one end of the beam to anchor the cable at that end. At the opposite end each 6-wire unit has both a bearing plate and a pulling tee. A 30-ton hydraulic jack is hooked to the pulling tee and stretches the cable against the beam. When the desired stress of 145,000 psi is attained, U-shaped shims are placed between the plate and the tee to anchor the wires. Each of the ten 6-wire cables is stressed in turn and, when the beam is in place, the entire end is grouted.

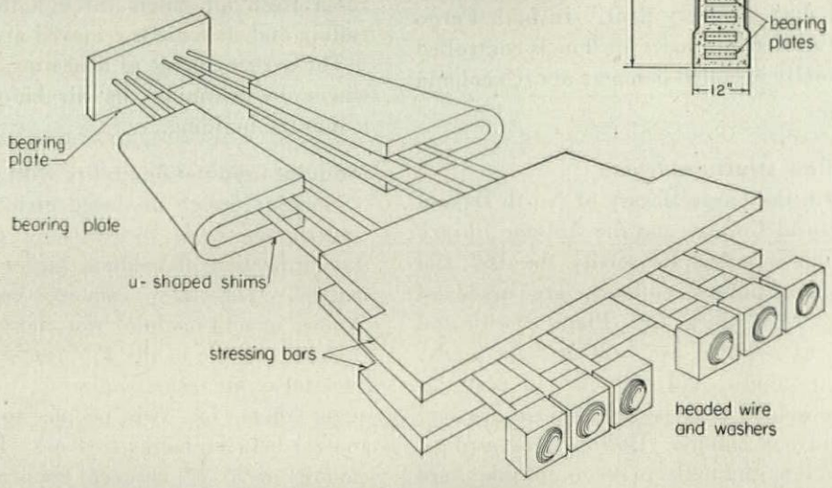
The headed wire technique was developed by K. H. Middendorf of the Prestressed Concrete Corp., Kansas City. Austin Co., designers and builders of this factory extension, selected the headed wire system after extensive tests (Sept. issue '51, p. 193).





Above, struts being positioned between prestressed beams and columns, end connections are welded, then grouted. Left, tensioning wires and reinforcing stirrups in place ready for casting.



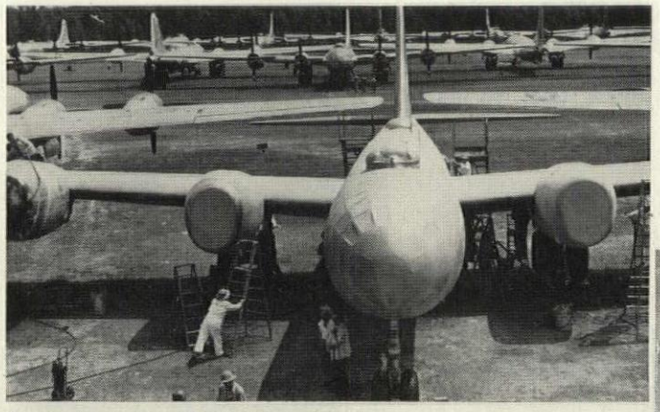


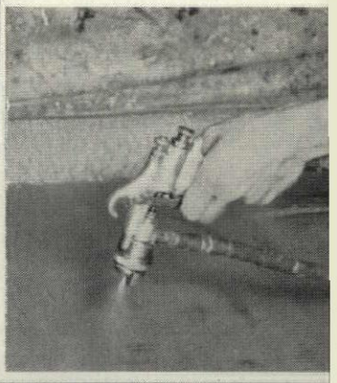
The headed wire technique of prestressing. ¼″ headed high tensile steel wires are stretched against bearing plate cast in end of beam and shims are inserted to hold the prestress in the beam. Left, a six-wire unit being tensioned. The headed wire technique was previously used by Prestressed Concrete Corp. in the 103′ span Arroyo Seco Pedestrian Bridge in Los Angeles, and for ten 38′ span beams in a machine shop in Tulsa, Okla.

Photos: Richard Koontz, Courtesy of The Austin Co.; U.S.A.F.; Alexander Studio

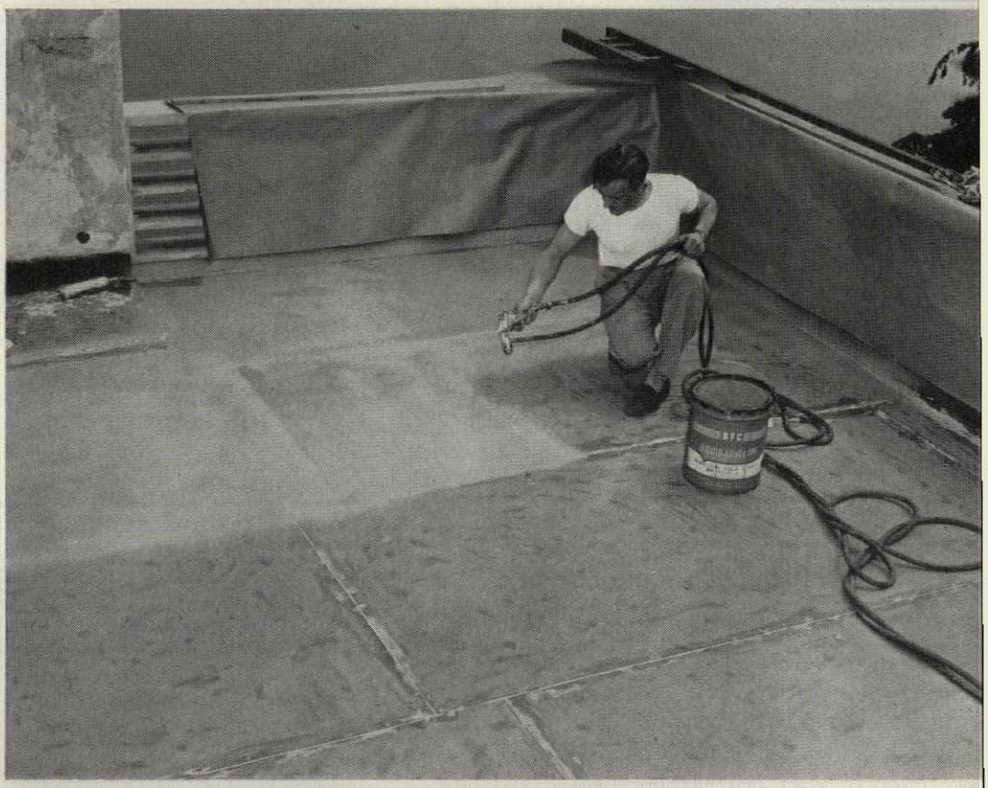
3. PLASTIC SKIN

Sprayed skin which resists moisture, corrosion, heat and cold finds new uses in buildings.





Vinyl plastic "mothballing," developed to preserve valuable Army and Navy equipment, has now been applied as a surfacing material in building. These liquid plastics can be sprayed on to almost any surface to form a tough, flexible, rubbery material, warm to the touch, completely waterproof, a good heat insulator, and nonslip.



As a roof surfacing material vinyl plastics provide a water-tight continuous seal over the parapet, across the roof, and around any projections. Properly applied in three skins, these plastics have remarkably good weathering properties.

One of the most versatile building materials developed in the past decade is a plastic waterproofing material which can be modified to suit even the most rigorous of weathering tests, which can be used both indoors and outdoors, and which is not subject to cracking by expansion or contraction of the base it is covering. Already it has been effectively employed on 52 buildings, large and small, including 21 roofing and 12 external wall applications.

This new material is a vinyl plastic that can be sprayed onto almost any surface by unskilled labor for costs as low as 18¢ a sq. ft. It dries quickly into an inert membrane, a rubbery substance that is tough and pliable. It can be bent, hammered, scratched and stretched into various shapes and still remains watertight. It will not crack at 40° below, nor will it get tacky at temperatures as high as 200° above.

Originally developed by the Army and Navy to "moth-ball" valuable exposed equipment, these organic chemical plastics have now been adapted to the building industry—to waterproof walls both above and below grade, to preserve roofs and to build new ones, to repair cracks both on outside walls and on inside walls and ceilings, to provide nonskid waterproof floor surfaces for swimming pools, besides numerous industrial uses such as tank linings to withstand corrosive liquids.

Known under various trade names as "Cocoon," "Liquid Envelope," "Brevon," and "Strippable Coatings," this organic material is made up of salt, natural gas, chlorine and ethylene into a vinyl chloride-acetate polymer, a liquid form of vinyl plastic which can be applied by spray gun equipment. The vinyl base can be modified to suit almost any application, and to provide almost any color or texture. The polymer is dissolved in carefully balanced solvents and plasticisers, and pigments are added to obtain the optimum properties for the particular application intended, such as, for example, the addition of aluminum paste to withstand the deleterious effects of bright sunlight where encountered in an external application.

The largest application of plastic wallcovering to date is in the 60 rooms of the Broadview Hotel in Wichita, Kan., where a single, tastefully colored plastic skin was sprayed on plain brick walls to provide an economical and easily maintained surface. In the same hotel the kitchen ceilings were covered with an oil-resistant, pure white vinyl coat that could be cleaned with a dry cloth.

Vinyl plastic has been applied to roof New York's Wanamaker store and the Springfield Museum of Fine Arts. The museum roof was composed of three layers of plastic: first a penetrating vinyl seal, then an extendable vinyl coating, and finally a coat of aluminum impregnated plastic, which produced a roof of high insulative value at a cost of 22¢ per sq. ft.

A stronger roof, with greater resistance to the destructive actinic rays of the sun, is made by sandwiching a vinyl plastic roof sheet between the roof deck and a heavy weather-resistant mastic coating composed of mineral rubber, asbestos fiber, granular cork and pure mid-continent asphalt. This roof is twice the cost of a built-up roof, but would require considerably less maintenance.

Costs of interior plastic wallcoverings range from 18 to 35¢ per sq. ft., and external applications from 18 to 65¢ per sq. ft. The film can be sprayed quickly, 100 sq. ft. can be coated to a dry film thickness of 1/8" in less than 12 mins. The material can be handled in 30 mins., dries hard in 12 hrs.

4. PRECAST JOISTS

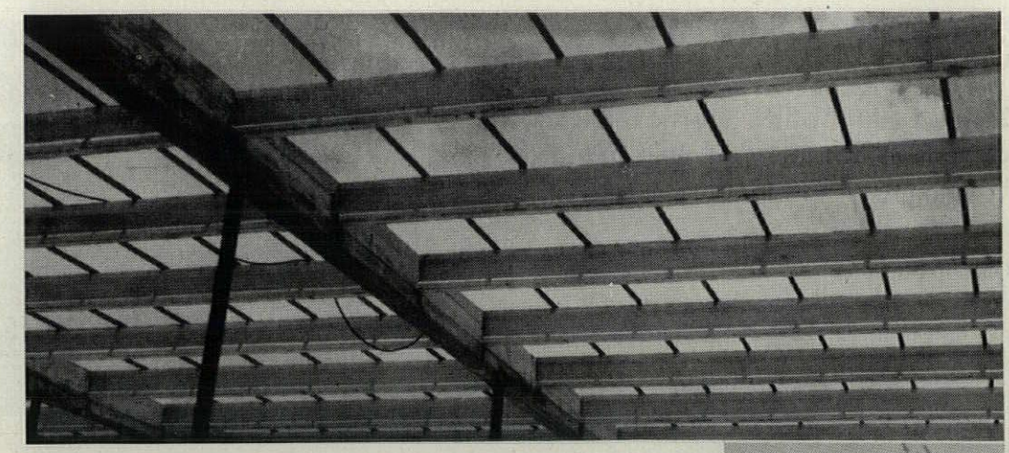
save steel, hold warehouse cost to $4 per sq. ft.

Unable to get steel, Engineer Jules Channing devised a simple and economical roof for this warehouse by combining cast-in-place beams with precast joists and topping them with a 3″ lightweight gypsum roof. This 29,000 sq. ft. single story warehouse cost only 25¢ per cu. ft. ($4 per sq. ft. of floor space, including 4,000 sq. ft. of air conditioned showroom and office.)

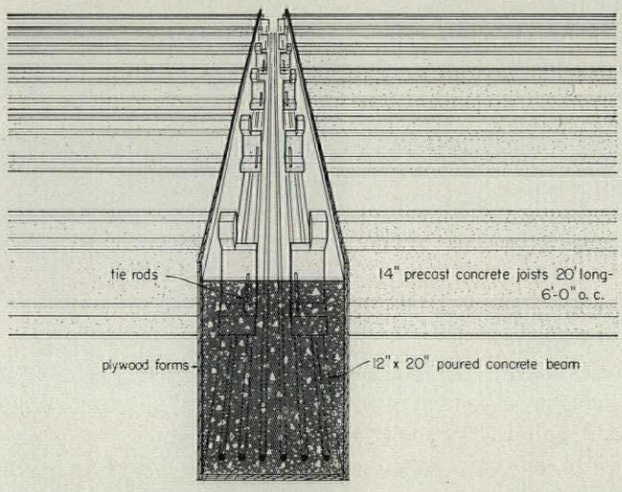
The 250 I-shaped concrete roof joists, each 20′ long and 12″ deep, were manufactured locally for $26.10 each. Total cost of the roof, including framing, was $1.24 per sq. ft.

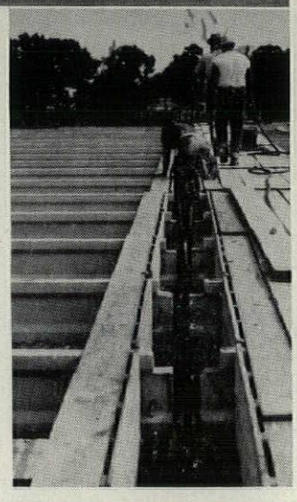
Main roof beams were cast in place, 12″ wide and 20″ deep, supported by 4½″ O.D. concrete-filled steel pipe columns on 20′ centers. The beams are connected by the precast joists placed on 6′ centers flush top with the beams. Ends of the joists were projected 4″ into the form work of the beams and became embedded in them when the concrete was poured. Steel anchor bars set into the ends of the joists provided rigid connection between members.

In design calculations the joists were considered part of the compression area, but the area of beam section occupied by the joists was deducted from the total beam section in computing shear stresses for stirrup design.



Precast roof joists of one-story Miami warehouse were framed into forms of cast-in place beams. Steel tees across joists support a 3″ thick cast-in-place lightweight gypsum roof.





Joist ends became embedded in main beams. Photo and diagram shows forms with joists and reinforcing in position for casting of main beams.

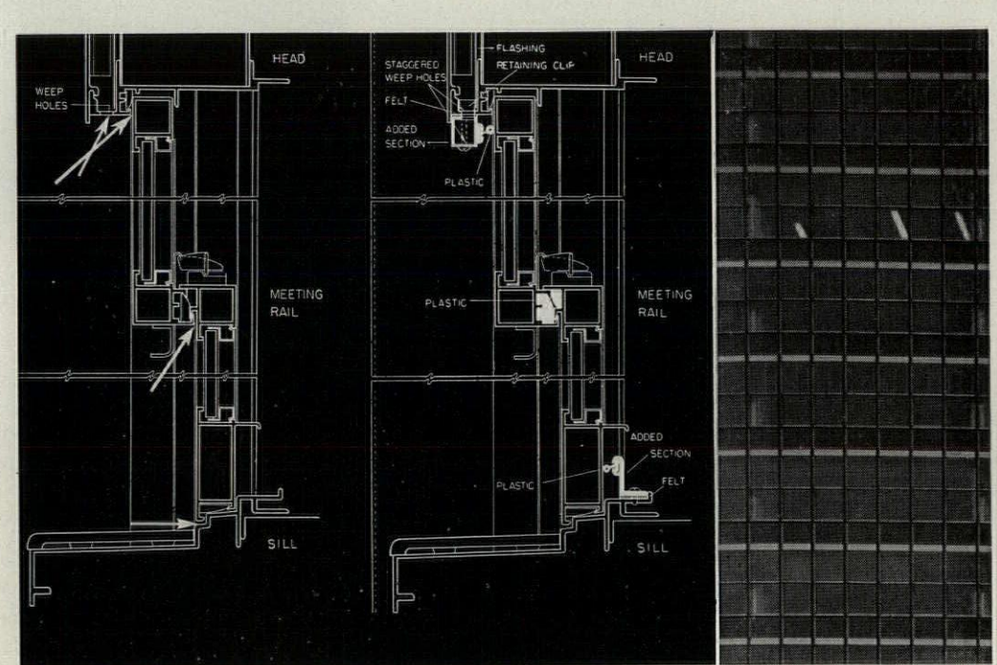
5. WINDOW LEAKS OVERCOME in UN

Secretariat's huge exposed curtain wall

The 5,000 windows of the UN Secretariat no longer leak. Modifications carried out during the summer reduced the incidence of window leaks from the 4,916 counted a year ago to only 16 after last October's gales, and now these have also been fixed.

Cause of the trouble was the large pressure differential between the inside and the outside which led to leakages upward through weep holes in the head of the window, through the top of the doublehung window, through the stainless steel weather stripping at the meeting rail, and also through the sill (June issue, '51.)

All UN windows have now been strengthened to withstand considerably greater wind pressures (up to 100 mph.). As shown in the second diagram: 1) a section was added at the bottom of the spandrel to baffle the weep holes; 2) a plastic head gasket was positioned to guard the top of the window; 3) continuous plastic strips were placed in the voids between the meeting rails; and 4) a plastic gasket was positioned against the bottom of the window.



Last winter's unprecedented storms driving on a highly exposed East River site developed window leaks indicated on left. Diagram on the right shows how the problem has been successfully overcome by adding sections with plastic strips.

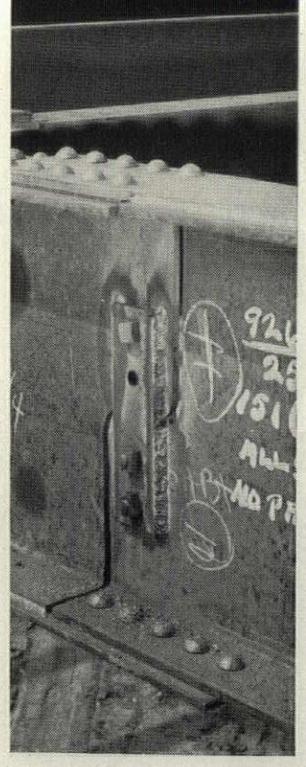
6. CONTINUOUS DESIGN

in 4-story department store saves 300 tons of steel, reduces girder depth, simplifies erection

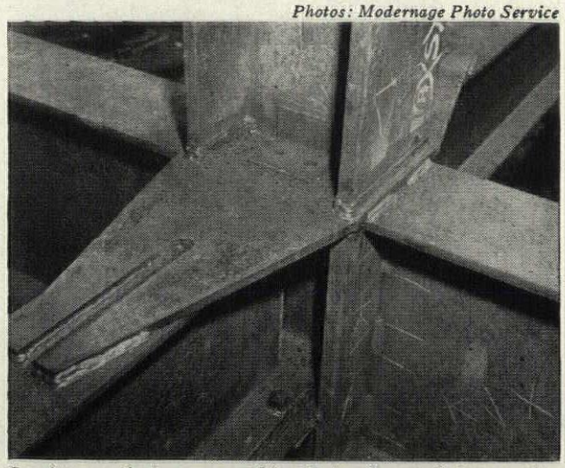
Continuous beam and girder design, using both shop riveted and field welded connections, saved 300 tons of steel in this 4-story Beverly Hills department store now being built for J. W. Robinson Co.

Besides saving 15% of the steel needed for a conventional riveted structure, continuous design reduced floor-to-floor heights by permitting shallower girders. Erection was speeded by comprehensive detailing of all connections.

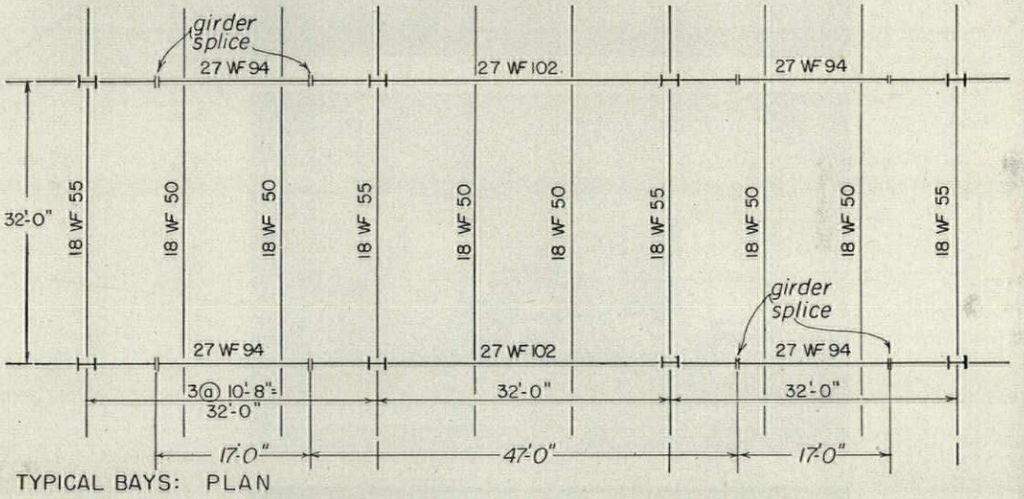
Each floor is framed with continuous 27″ girders on 32′ centers, bridged by 18″ beams on 10′ 8″ centers. Girders are made up of alternate 47′ (27″ WF 102#) and 17′ (27″ WF 94#) girder lengths spliced to act as a single continuous girder the full length of the building. Girders are seated on columns on 32′ centers in such a manner that the ends of each 47′ girder are cantilevered out 7½′ each side of a pair of adjacent columns. In effect each pair of columns with its surmounting 47′ girder acts as a rigid frame, and these frames are joined by the 17′ girder, with connecting splices located near the point of minimum bending moment. The girder splice permits adjustments to overcome fabrication inaccuracies, and top and bottom continuity plates are used to stiffen the frame against any possible hinge action.



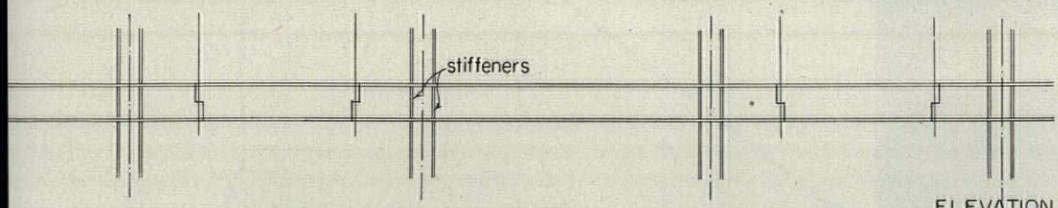
Photos: Modernage Photo Service



Continuous design was achieved in the steel frame of a 4-story California store by welded connections and cantilevering every other girder 7′ 6″ beyond columns and hanging a lighter girder between the ends of the cantilevers. Girder splices shown on left, column connections with connecting plates shown above.



TYPICAL BAYS: PLAN



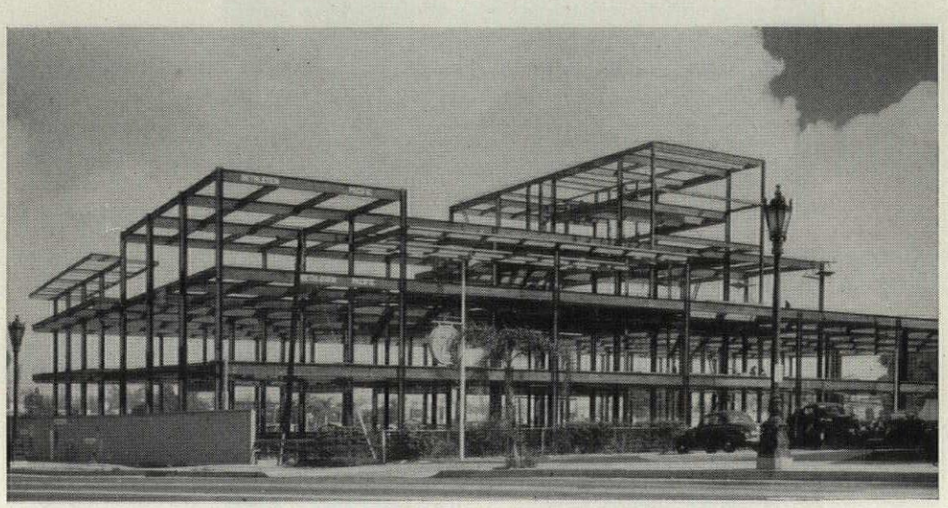
ELEVATION

Part of a typical floor plan and section shows how girders are cantilevered beyond the columns. Continuous girders break the columns, and vertical stiffeners are welded between girder flanges to transmit vertical loading stresses. Below is the completed frame of the building.

This type of framing, of course, makes it impossible to erect continuous columns. Instead, the columns for each floor are mounted on top of the girders, whose flanges are reinforced (*see photo*) with vertical stiffeners so shaped that when welded into position they fill the entire space between the girder flanges under the column flanges.

Beam connections are also designed for rigid-frame continuity across the building, with stresses transferred through plates attached to top and bottom beam flanges. A welded connecting plate across the top unites beam, girder and beam flanges—even under the columns.

Architects Pereira & Luckman. Charles O. Matchman, associate. Structural Engineer Paul E. Jeffers.



Station Wagon Store

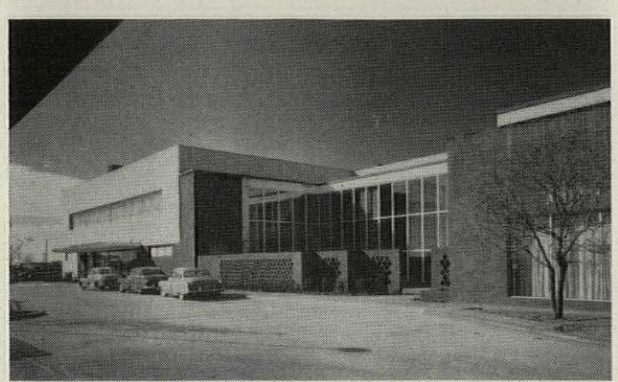
LOCATION: Preston Center, Dallas, Texas

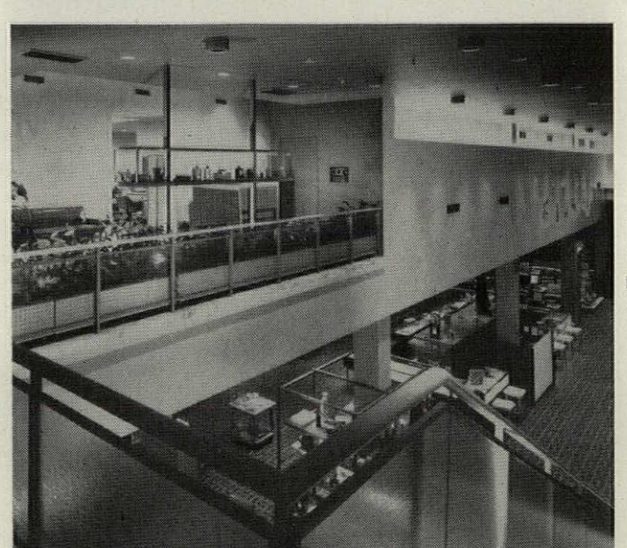
NEIMAN-MARCUS CO., Owner

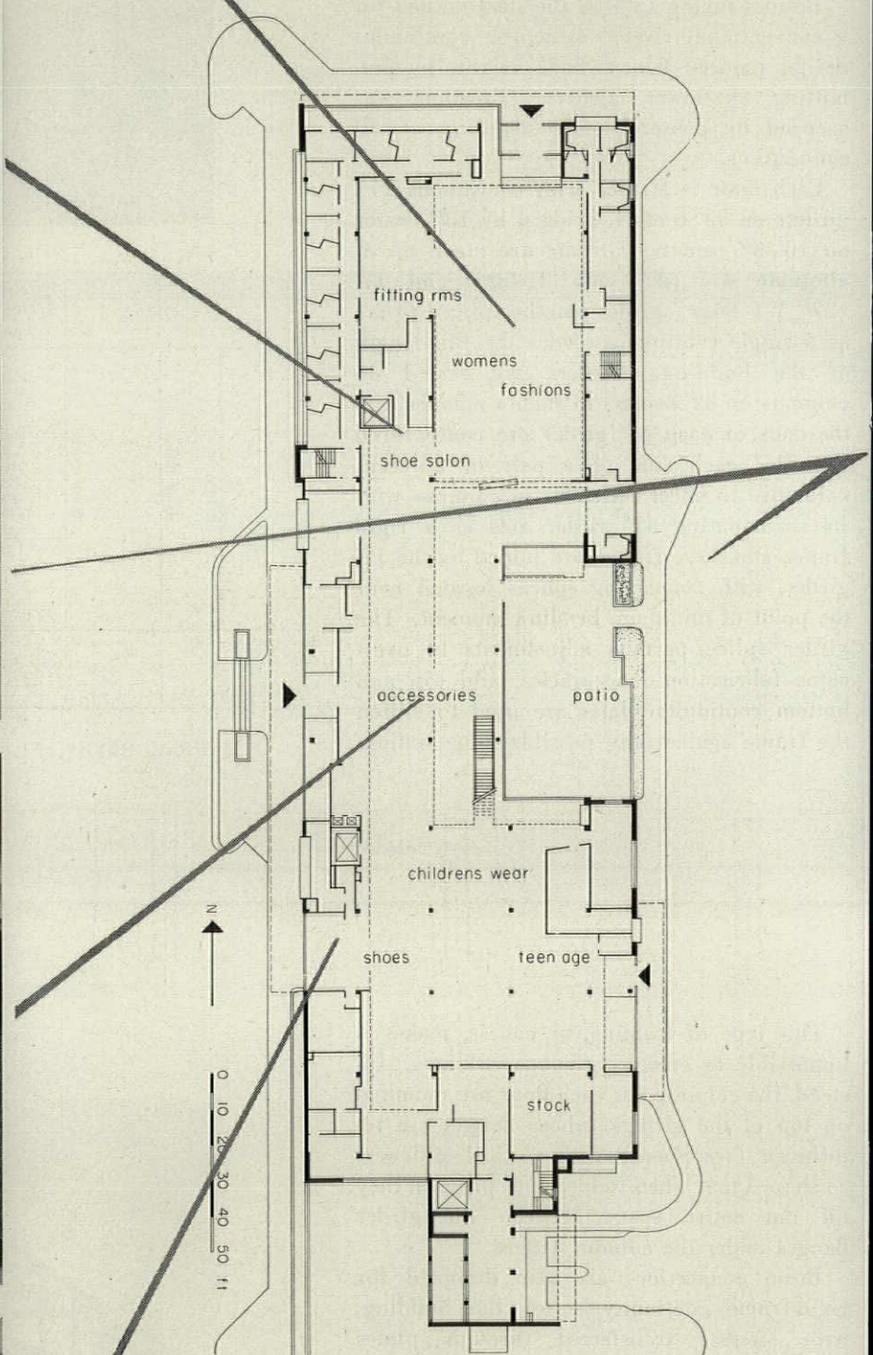
DEWITT & SWANK, Architects

ELEANOR LE MAIRE, Designer

A. J. RIFE CONSTRUCTION CO., General Contractor







Neiman-Marcus branch store in Preston Center, Dallas offers young women 63,000 sq. ft. of luxury shopping service arranged with studied casualness. West side exterior (opp. page) shows main entrance, open show windows. Fitting room windows line northwest corner.

achieves casual sophistication using color, space, light and personalized selling

How do you make a suburban store so informal that women will run in and out to shop there as casually as in the neighborhood supermarket? How at the same time do you make it so suggestive of luxury that it will put every shopper in the mood to spend more money than she planned to spend?

That was the problem which faced Neiman-Marcus when that famous luxury shop set out to move its merchandise closer to its local customers by opening a branch 7 mi. from downtown Dallas.

More briefly, the question was: How can a store be both informal and luxurious at one and the same time?

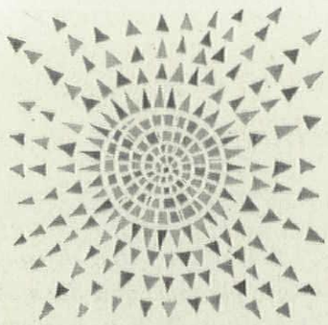
Part of the answer is space. *For space, while it is "the ultimate luxury," can also be informal. Some of the space is given the added luxury of unutilized height through ceilings two floors high. The new store budgets between two and five times as much space per dollar of sale as the downtown store ($32 to $78 per sq. ft. vs. $150). It devotes much space to open customer seating areas and traffic aisles which seem totally unused for merchandising.*

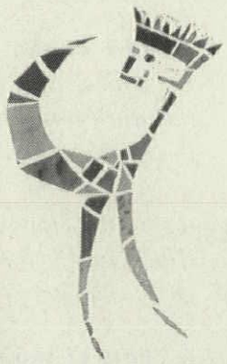
Part of the answer is color. *Store specialist Eleanor Le Maire, who is also a color expert, planned and designed the store interior, around which Architects DeWitt & Swank designed a handsome building. Over 80 different colored paints ranging from Indian orange to cloud blue are used inside the store to define and relate the various departments. Additional color is obtained in the specially designed drapery and upholstery fabrics.*

Part of the answer is personalized selling. *Perhaps the Neiman-Marcus answer is best epitomized by the fitting rooms. Thirty-one of them—some as large as 10′ x 12′—are luxuriously designed to put the customer in an expansive mood. Eleven rooms have natural light and in 15 of them any item of dress in the store can be bought to complete a Neiman-Marcus ensemble.*

Part of the answer is light. *A two-story, heat-resistant glass wall on three sides of the patio floods much of the store with sunlight. Glass doors at the four entrances plus glass-backed*

Photos: Ezra Stoller—Pictor





Earth colors, Indian theme characterize store. Beige and dark brown brick east wall (right) is broken by glass-walled patio. Below: Light from patio window plays over store interior. Calder mobile hung from ceiling in foreground decorates portion of women's wear section. Figures on these pages are part of glass-and-plaster mural on mezzanine wall by the Urbains.

Customer seating area and traffic aisle add informality to the design; changing ceiling heights add fluidity; planting boxes and central patio add outdoor atmosphere.

show windows bring in more light to enliven the interior colors. Where sunlight does not reach, general and display lighting fixtures take over to keep even the most remote corners from being dark.

Plan

Preston Shopping Center—where the store is located—is on the edge of the best suburban districts in Dallas. This, and the now national "race to the suburbs," prompted the decision by Neiman-Marcus to branch out. Unfortunately the only lot available to them was not ideally shaped for a single store. It was long and narrow and forced a store approximately 90′ x 320′. The decision to build a patio in the middle of the long east side resulted in a shallow U-shaped floor plan. The two primary departments, children's and women's wear, occupy the two ends. Accessories, gifts and other impulse items are sold in the narrow neck of the store. The gain from this arrangement is that customers must pass the impulse items several times en route from one end of the store to the other and going upstairs to the tearoom and beauty salon. The loss is in an awkward movement of stock from the receiving department (in the basement at the south end) to the more remote parts of the store. However, since this is a specialty store—not a department store—restocking of sales areas is a minor problem and is normally accomplished after the store has closed.

Four entrances on three sides (north, east and west) lead into the ground floor. Standing at any one of them nearly 90% of the main selling areas can be seen. Low partitions and irregularly arranged counters break up the view. This arrangement keeps a passer-by from noticing the store's emptiness on a day when attendance is poor and from being discouraged when the store is crowded.

Stairways in the center of the building lead to basement and second floor areas. In addition, a passenger elevator and two freight elevators serve the three levels of the store.

Basement: The only selling area here is the toy department. Shipping and receiving (at the south end), utilities and service departments fill the remainder of the area.

Ground floor: Women's wear, infants', children's and teen-age departments plus gifts and accessories occupy the ground floor.

Second floor: It accomodates offices, a 120-seat-capacity tearoom, private dining room (catering to party luncheons and teas), the beauty salon, kitchen and employees' dining room.

Merchant's View

Like all suburban stores, the Neiman-Marcus store stocks merchandise of primary interest to housewives: casual women's wear and children's clothing. One noteworthy exception is that Stanley Marcus stocked fewer different items but stocked these in depth to give the enormous selection for which the main store is famous. This specialty stocking plus a price ceiling of $125 on women's dresses prevents the suburban store from drawing trade from the parent store.

Teen-age and children's (south) section is handled informally. Red quarry tile floors, lower ceiling height, more rustic decoration (note painted animal skin on wall) accomplish design goal.

Elements of Design

The decision to use space as a major design element and extensive color as well presented two problems: 1) Within the long, narrow confines of the store shape, the principle of openness had to be kept from giving the effect of a barn or tunnel. 2) Since many departments could be seen from a single point, the colors used in each had to be related agreeably throughout.

Space

The intrusion of the patio wall into the narrow dimension of the store helped solve the first problem. Standing at either end of the store, the glass wall of the patio with double glazed lights set in aluminum frames interrupted the extreme vista without completely stopping it. Green planting in the patio offered further visual distraction from the longer view.

Greatest danger point in the store with regard to space was the narrow neck between the patio and the west entrance. For here, unless a positive solution had been found, the tunnel effect would have been unavoidable as a customer looked a total distance of nearly 320′ with a continuous ceiling stretching before her.

The solution lay in the breaking of the ceiling line. The highest part of the store is an open, two-story well (24′ high) in the center of the store surrounding the patio. The lowest part is the 12′ ceiling over the entire south end of the ground floor where children's goods are sold. (The mezzanine above this south end continues along the west side of the store.) The north end of the store is one story high with a higher ceiling of 16′9″. Giving play to the third dimension, the changing ceiling height enhances the store's quality of fluidity.

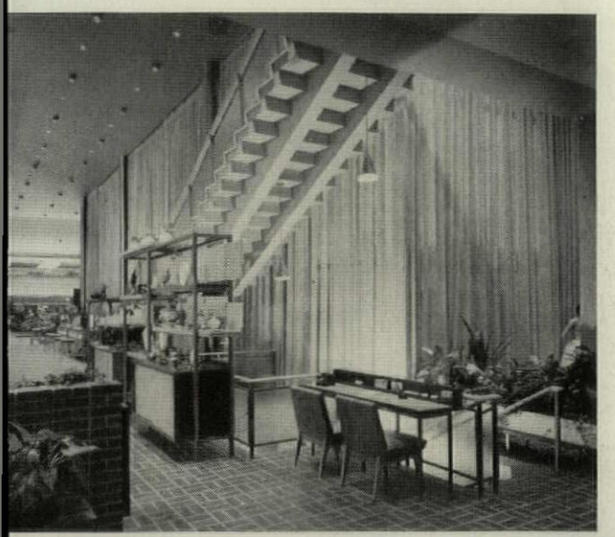
Color

Careful consideration was given to the store's decoration. Its geographical location (in the Southwest) and the desire for an outdoor atmosphere prompted the selection of Indian patterns and decorative ideas.

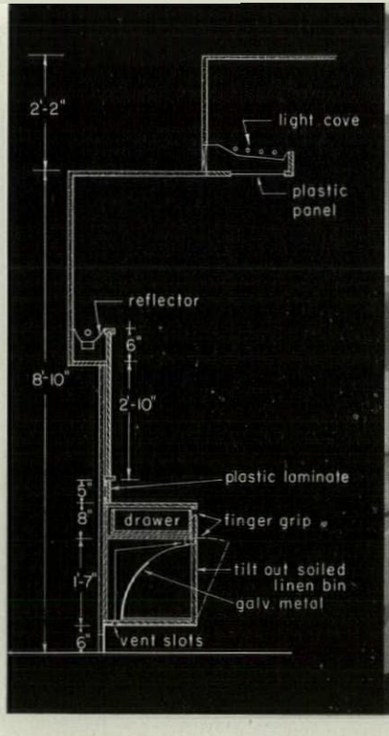
This decision also proved helpful in relating the color schemes of various departments. Reason: Earth colors which formed the palette of Indian art have the advantage of an inherently harmonious relation.

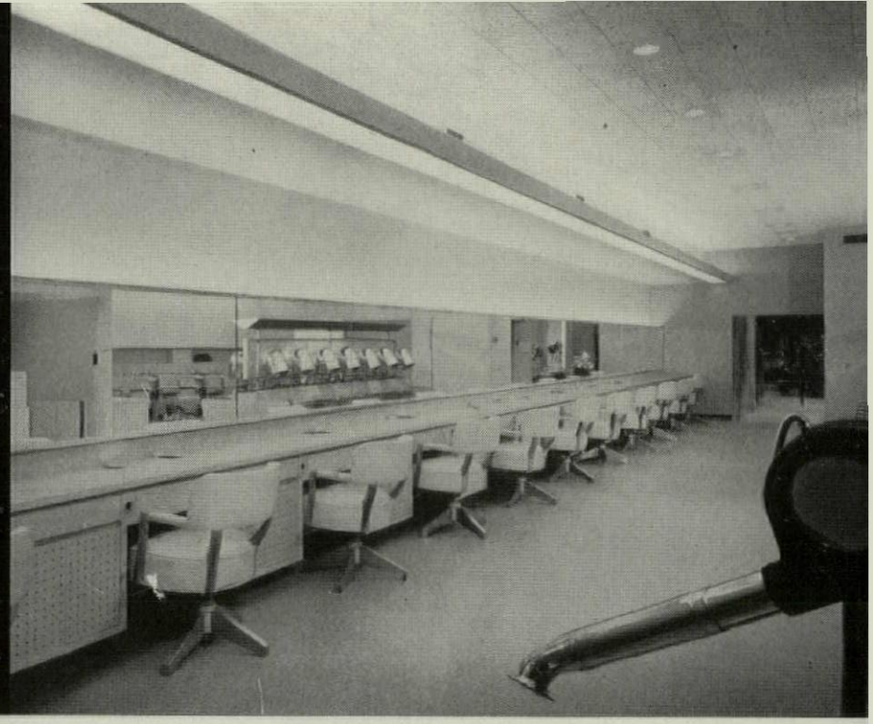
With this freedom, colors were selected to express particular departments. The children's department, for example, uses ceilings of sunny yellow, fixtures of Indian turquoises and red oranges with some jade green. The fashion section, at the north end of the store, uses more subtle colors. Among them: adobe, cloud blue, Indian orange and desert greens.

Draperies, rugs and wall decorations also carry out the extensive use of earth colors. Two major decorative elements point up the sophisticated handling of the primitive colors and Indian theme. A large colorful mobile hangs inside the north wall of the patio (formerly over the stairs to the second floor, it was moved lest a fascinated observer climbing or coming down the stairs should trip and fall). A mural of glass and plaster decorates the large mezzanine wall area in the center of the store. Its theme is Indian but its treatment, like all other decorations, is sophisticated.



Center accessory section (left, above) is close to main east and west entrances. Stairs go up to tea room and beauty salon, down to toy department (below), have the quality of a stage from which shoppers enjoy the store's many vistas. Feature here is a simulated orange tree (foreground) which dispenses free orange juice. Average consumption: 10 gals. a day.





Special lighting requirements in beauty salon call for precisely placed down lighting (attained through plastic panel in bottom of lighting cove) plus a high degree of indirect lighting near mirror. Dull-finished walls reflect light without glare.

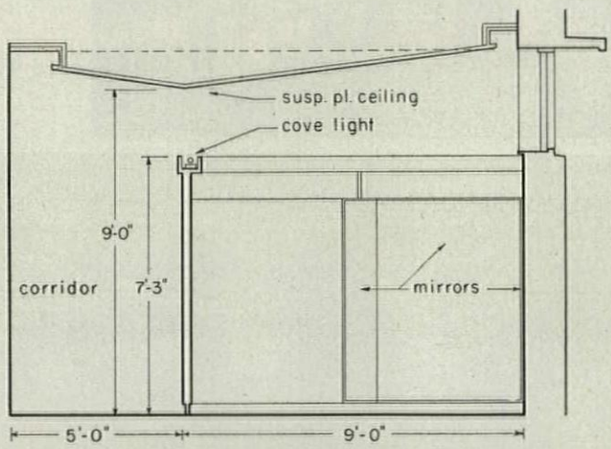
Light

Light helped get both a sophisticated as well as an outdoor feeling in the store. Natural light gave the outdoor feeling while artificial light provided the sophistication.

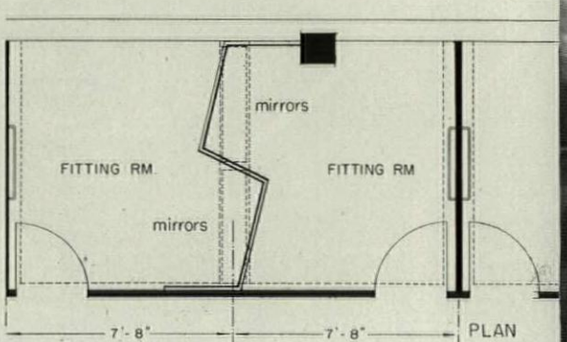
Natural: Primary element introducing natural light is the glass wall of the patio. Two stories high, it covers over 2,700 sq. ft. of wall space. Three circular stainless steel columns carry the roof load across the glass-walled area. The mezzanine principle on three sides of the patio permits light coming through the upper portion to get further into the store. The double glazed windows are heat resistant and are spared the hot afternoon sun rays by being on the east side of the store.

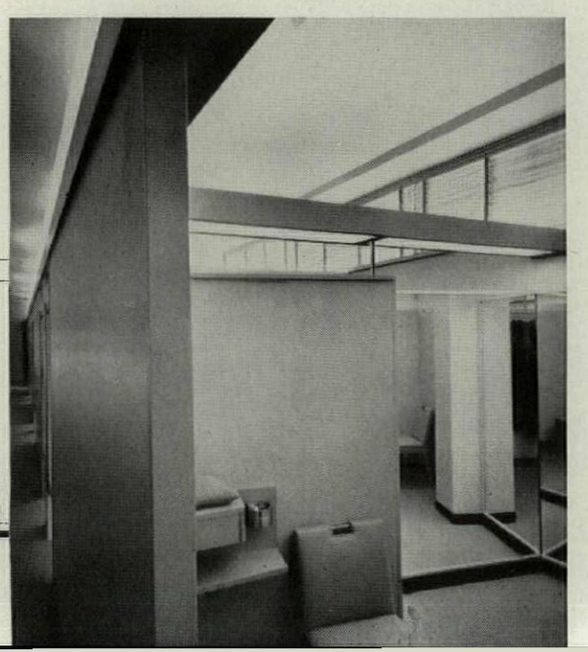
The four store entrances are all sources of natural light, being made of glass and flanked with glass-back show windows. At the insistence of Stanley Marcus, all fitting rooms were placed to get natural light into them for obvious merchandising reasons. This decision denied natural light to many interior store display areas, where artificial light took over.

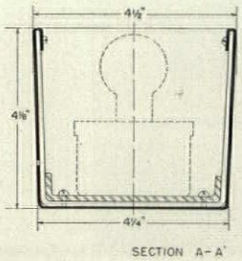
Artificial: The ready-to-wear section utilizes a combination of dropped, indirect lighting panels and direct down lighting for general illumination. Cove lights supplement this. Displays are accented with light in all departments, more formally in the women's section, less so in the children's and toy departments. Special-use areas required special lighting. Examples: the details of both fitting room and beauty salon lighting shown on these pages. All direct light is incandescent; fluorescent light is limited to coves and other indirect lighting devises.



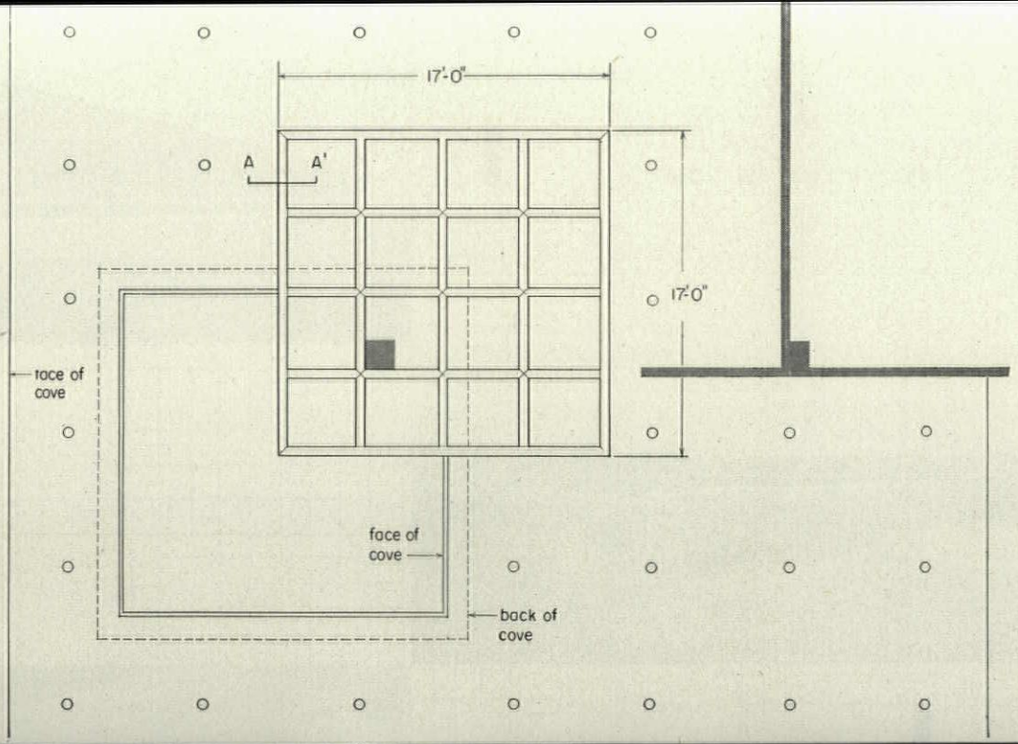
Special lighting in fitting room supplements natural light. Single light trough over staggered mirror arrangement (plan, below) gives detail down lighting for two rooms. Hung ceiling of two opposing planes which meet over light trough above partition reflects light to both corridor and fitting room (above).



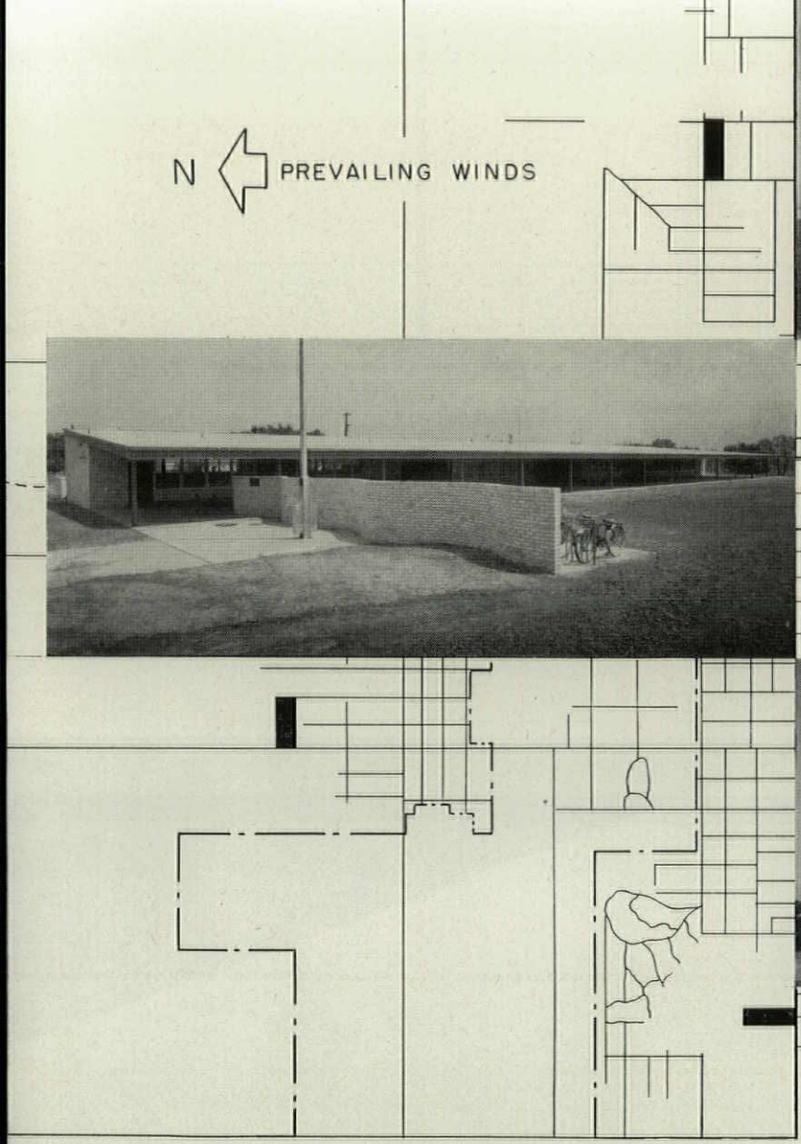


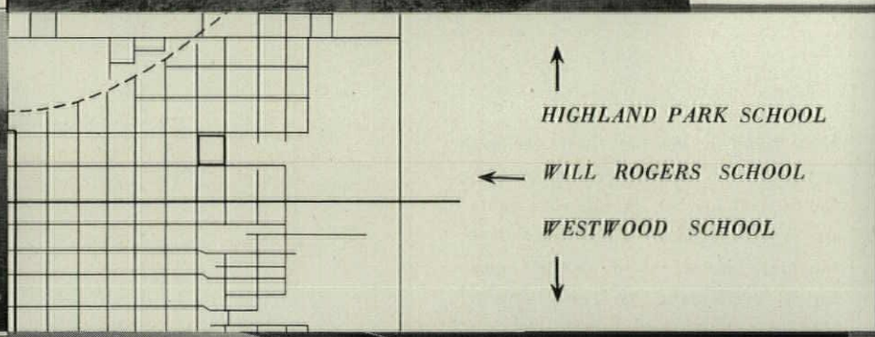


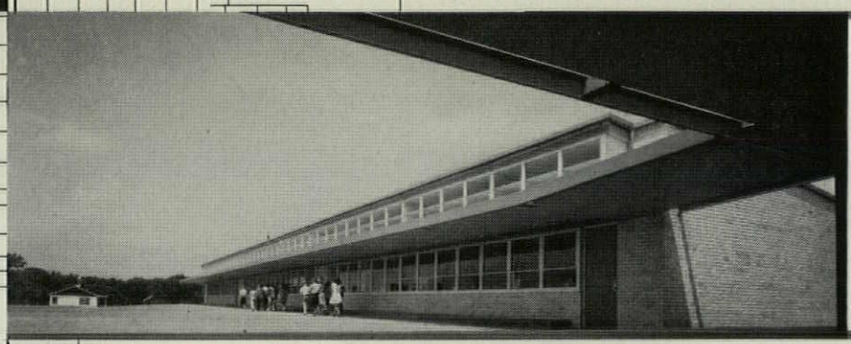
SECTION A-A'



Main light in the tea room (below) comes from a combination of two reflected light sources. Simple cove lights are supplemented by lights from steel channels (above) in a special hung fixture overlapping the cove (right, above).





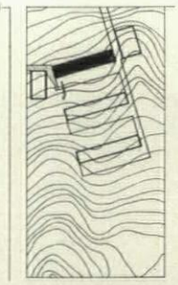


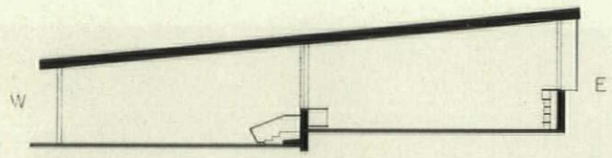
SCHOOLS FOR THE SOUTHWEST combine

"What's new in U.S. school design?" One answer is "whatever young architect Bill Caudill is doing."

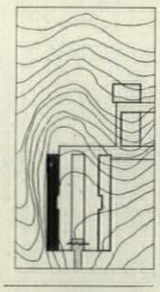
One reason is that Caudill designs each of his schools as if his young daughter Ann were going there. Another is that Caudill (whose other job is to direct school research at Texas A & M Experiment Station) brings the research approach to school planning. He picks out the best basic type *in current use, tries to perfect it by* tested variations. *But he is ready to try* another basic type *if that seems to hold more promise for little Ann and her education.*

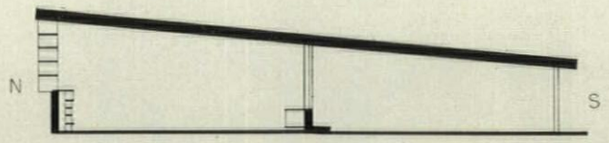
The schools presented here and on the following four pages show how Caudill and his associates have tried to improve the type considered most progressive up to now—the Western "finger plan" school. Another group, to be presented in a later issue, will show what they are doing with a more experimental type first suggested in Forum's 1949 School issue—a compact rectangle in which a central multipurpose space is flanked by classrooms. This two-part study will enable school men and architects not only to compare two different basic plans, but also to evaluate a variety of new environmental controls which Caudill has developed to keep pace with his successive plan changes.



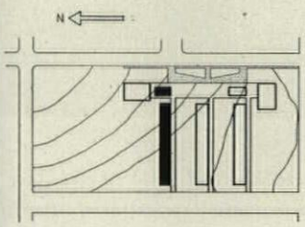


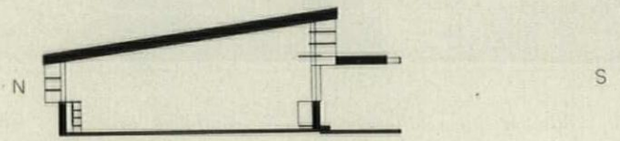
Big overhang shelters play shed-corridor, shades western exposure dictated by sloping site. Vertical interior window baffles keep out eastern sun.





Same cross section with window baffles placed horizontally instead of vertically controls sun and glare for classrooms opening to north and south.





First school designed has more complicated structure, detached play shed. On south, outdoor corridor roof and clerestory baffles shield sun.

LOCATION: Stillwater, Okla.
CAUDILL, ROWLETT, SCOTT and
PHILIP A. WILBER Architects
J. W. HALL JR., Mechanical Engineer

child-centered design, low cost construction, new environmental controls

These three finger plan schools for Stillwater, Okla. have the same basic character, but variations in their details show Caudill's steady progression toward simpler, more economical structure with no sacrifice of essentials. Westwood, largest of the three and first to be designed, improves the daylighting and natural ventilation devices developed by the architect for his earlier schools at Blackwell, Okla. yet retains the same type plan and structure (*p.* 146). Highland Park and Will Rogers schools, designed later, eliminate Westwood's clerestory windows and put classrooms, outdoor corridor and play shed under a single roof which serves as a sun shade for either southern or western exposure (*above and p.* 148).

All three are inexpensive "dungaree" type schools. Instead of wasting money on monumentality and expensive finishes, the architects have stripped them to clean essentials, made the needs of the child and the limits of a tight budget the yardstick for design. Among the innovations which helped to create an ideal teaching environment at low cost ($9.12—$9.72 per sq. ft.) are these:

▸ Daylighting is controlled by a combination of roof overhangs and *interior* window louvers of cement asbestos board which eliminate costly exterior shading devices and Venetian blinds or shades.

▸ A new type of window sill ventilation regulated by sliding panels permits fixed glass to be substituted for more expensive movable sash, provides draftless circulation even in driving rain.

▸ Big umbrella roofs (in two schools) not only integrate corridors and play areas with classrooms but give sun protection and improve light distribution.

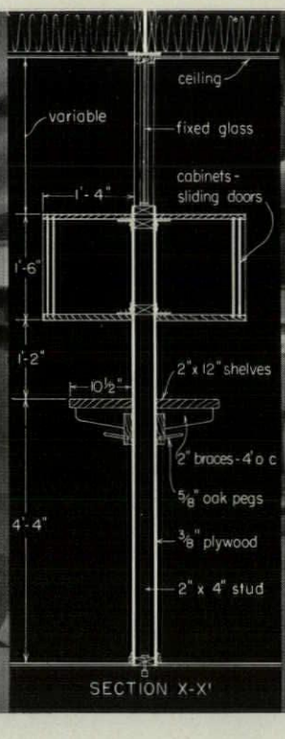
▸ Classroom partitions of plywood panels topped with glass cut construction time, permit quick rearrangement of space for future needs, prevent youngsters from feeling "boxed-in."

▸ A movable "teaching center" with tack and chalkboards on one side, closets on the other, allows flexible seating arrangements and frees perimeter space for built-in storage suits.

In addition to these special features, all of the schools have the same economical structural system: slab on grade, brick cavity walls (exposed inside), steel framing spaced to accommodate standard 16′ rafters and stock size plywood for partitions, continuous commercial sash (which also serves as lateral bracing) shed roofs and perforated fiber board ceilings.

The architects' scheme for each site (above) made it possible to build one classroom wing immediately, add duplicates as needed without interfering with classes, and wind up with a coherent, complete school plant—a virtue inherent in the finger plan.

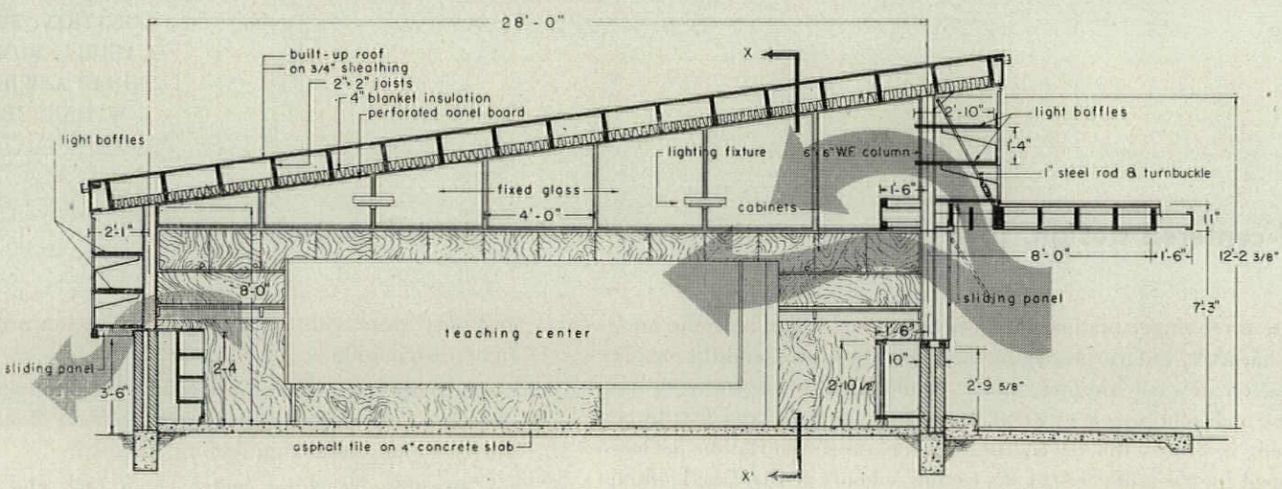
Now that the initial wings are in full operation, school authorities' original qualms about advanced design have given way to enthusiastic endorsement. Teachers find that the new ventilating system provides "plenty of air and no drafts." One who questioned the advisability of outdoor corridors in winter now boasts that they dissipate nervous tension for both teachers and pupils. (They also saved enough to cover the cost of an additional classroom.)



WESTWOOD SCHOOL

Window sill ventilation is easily controlled by sliding panels which cover convector outlet grilles when open. Interior baffles reduce sky glare.

Glass-topped partitions and louvered clerestory on south add spaciousness to classroom. Partition behind teaching center serves as a storage wall.

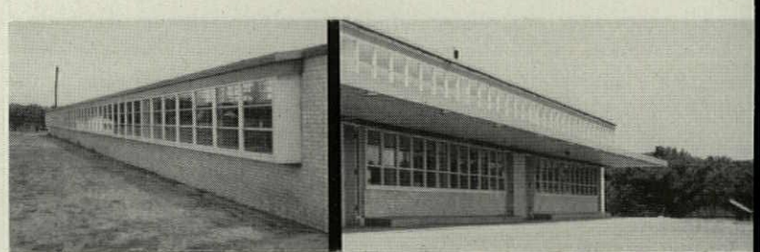


Clerestory scheme tests interior light baffles and slot ventilation

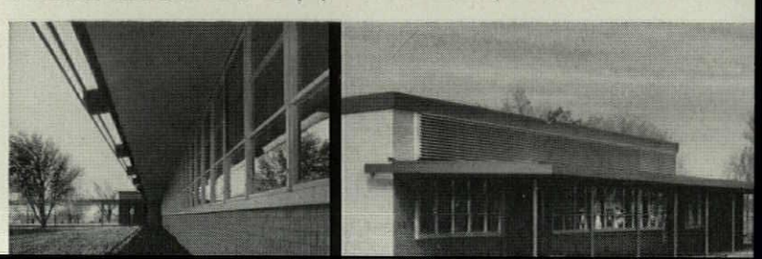
The Westwood School at Stillwater is an improved version of Caudill's school for Blackwell, Okla. (May issue '51). Basically the same in orientation plan and structure, it achieves better daylighting and natural ventilation at lower cost (*section, above*).

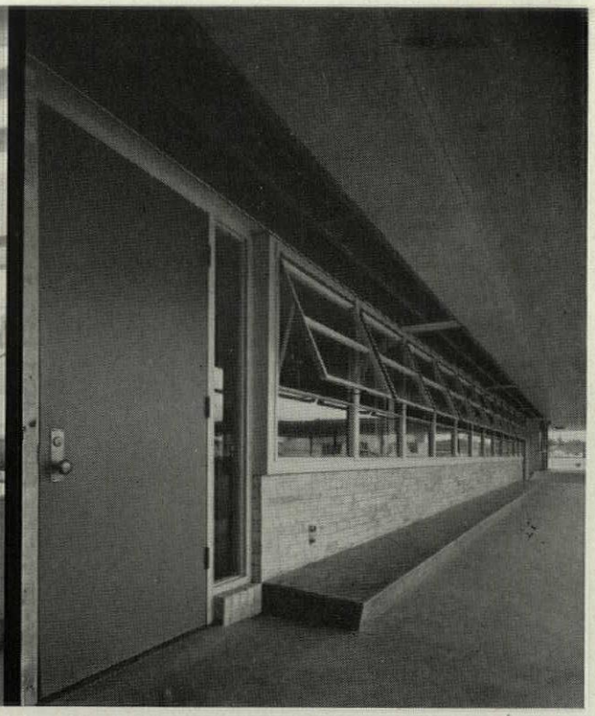
At Blackwell Caudill used projected sash in south-facing clerestory windows shaded outside by metal louvers (*photos, right*). To make the wind blow through these windows instead of eddying over the top of the building he had to equalize air pressure on both sides of the outdoor corridor roof by cutting a slot in it below the windows. But rain swept through the slot into the corridor, particularly with a south wind. At Westwood, he projected the clerestory out over the slot and provided a horizontal door to seal the opening in cold weather. This change led to other improvements:

1. In the interior space gained over the slot, horizontal light



Westwood School (above) simplifies cross-section of earlier Blackwell School





Slot in roof of outdoor corridor and awning-type sash (above) trap prevailing southern breeze. Concrete curb serves as a seat for children and as protection from projecting sash.

ached play shed (below) is protected from th wind by block of toilets and mechanical ipment, will form connection between first ssroom wing and additions.

baffles of cement asbestos board framed in wood were installed. Result: a 60% saving over Blackwell's exterior metal louvers, less maintenance, more light, but slightly less glare control.

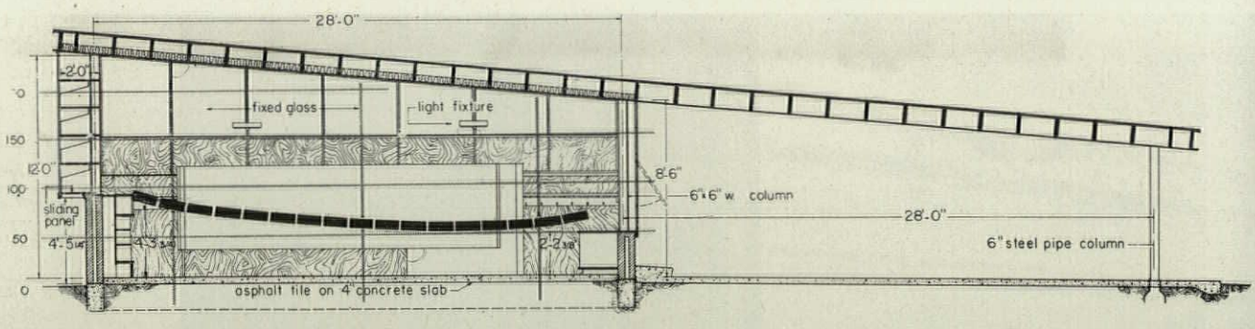
2. Tie-rods carrying the load of the outdoor corridor roof to interior columns were also housed in the added clerestory space, eliminating Blackwell's exterior corridor columns and footings, providing greater safety for children and cutting costs 8½%.

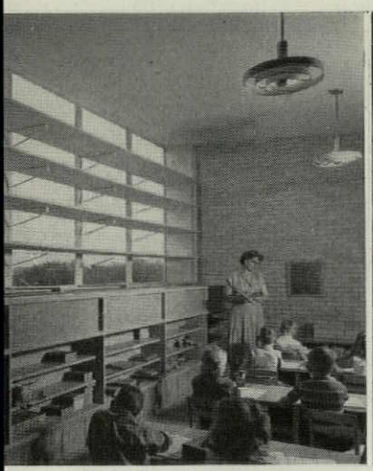
3. Slot ventilation was also built into the north wall by projecting the windows outward, leaving the sill open and providing horizontal sliding wood panel for control. In effect, this brought Blackwell's overhang inside the building, gained space and saved maintenance. In this space Caudill installed storage cabinets, convectors and the same system of light baffles used in the clerestory opposite. The slot assures draftless, easily regulated ventilation in all kinds of weather, also permits fixed commercial sash to be substituted for the more costly movable sash used in clerestory windows at Blackwell.

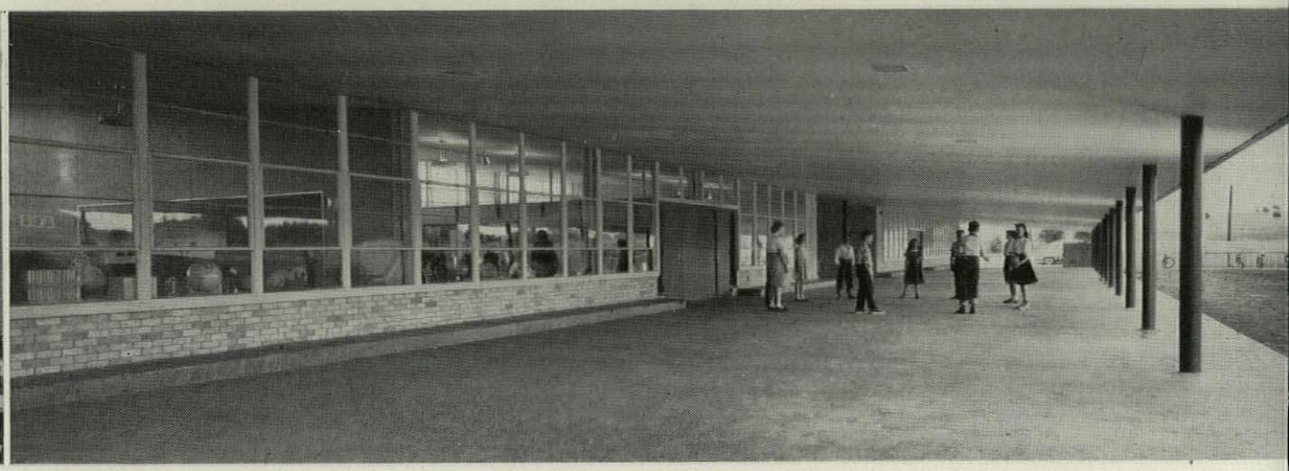
Westwood's big detached play shed will form the connecting link between this first six-classroom wing and future additions. Like Blackwell's play shed, it is paved to provide dry footing in Oklahoma's heavy rains and is lighted by recessed fixtures. After school hours it can be used for community games and square dancing. Stillwater's school superintendent prefers this type play shed to the attached type used in his other two schools (mainly because it keeps noise away from classrooms) but admits that the attached sheds provide better wind protection in winter.

Square foot costs for Westwood and Blackwell were about the same—$9.72, with covered walks and play sheds figured at one-half enclosed areas. But Blackwell had the benefit of 1948-1949 prices, and Westwood provides many more built-in classroom storage units. Westwood's cost per classroom—$15,833.

With bilateral lighting, big overhang equalizes light distribution. Horizontal baffles in north windows reduce glare. Intensity, charted on foot-candle scale shown at left of section, is well above minimum.







WILL ROGERS SCHOOL

Attached play sheds cut costs, permit varied orientation

For Stillwater's Will Rogers and Highland Park schools, the architects eliminated the clerestory used in Westwood and Blackwell and integrated the classrooms, outdoor corridor and play shed under a single big roof. This simplification lowered costs without sacrificing the daylighting and ventilation advantages of the earlier scheme. It also proved to be more adaptable to different orientations—the 30′ wide overhang gives sun protection to classrooms facing either south or west.

In the Will Rogers School, Caudill put three classrooms on either side of a core of toilets and mechanical equipment. The play shed, facing south, gets the benefit of the prevailing summer breeze and the low rays of the winter sun, is sheltered from cold north winds by the wing of classrooms. (*Plan opposite.*)

Lighting tests on this school show that a big overhang is an asset rather than a liability when classrooms are lighted from the sides. Says Caudill, "Readings near windows far exceed the minimum standards and the light should be cut down to improve distribution." The overhang accomplishes this on the south, and on the north the light is reduced by using the same system of horizontal baffles that is employed in the Westwood School. The result is an almost level light distribution curve of good intensity (*cross section, above*).

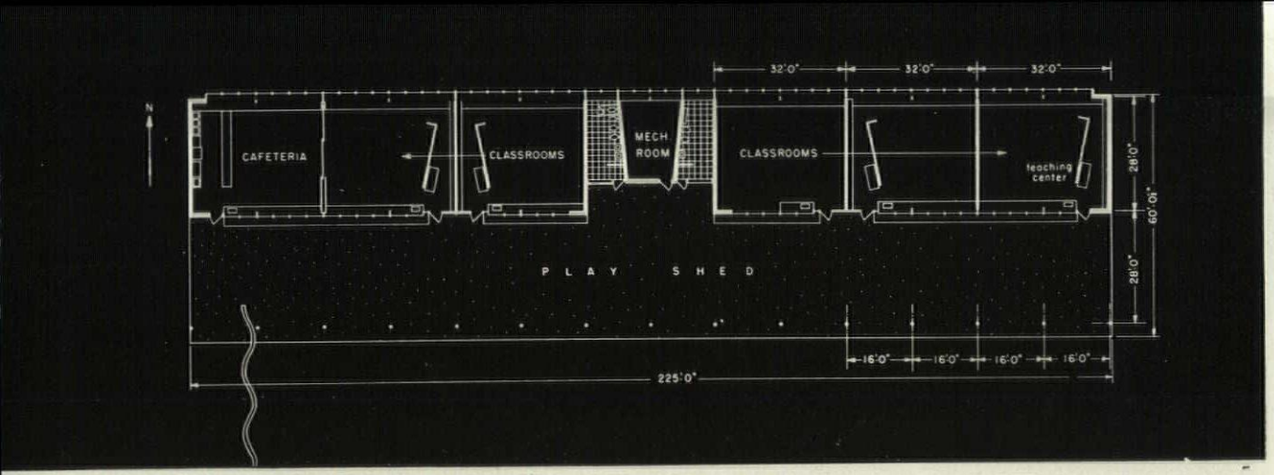
Classrooms are ventilated by a combination of projected sash on the south and Westwood-type slots under the windows on the north. This system works well in the 8-mile-an-hour breezes prevailing in Stillwater during the hot months, but would not be as effective in slow moving air. The overhang shoots the main air stream toward the ceiling, creates a slower moving eddy in the seating area. (This would be fine in cooler climates.) Though vanes could be installed in the windows to lower the main air stream for the direct hot weather cooling needed in Oklahoma, the fundamental drawback of this cross section is that the outlet opening is smaller than the inlet. Recent tests at Texas A & M show that when the section is reversed, air speed and distribution in the classroom are greatly improved (*diagrams opposite*). To take advantage of this discovery, the next classroom wing at Will Rogers will be built with the play shed on the north side, protected from cold winds by the existing wing.

With the same number of classrooms, the Will Rogers wing cost $3,000 less than Westwood, or $9.12 per sq. ft. as against $9.72.

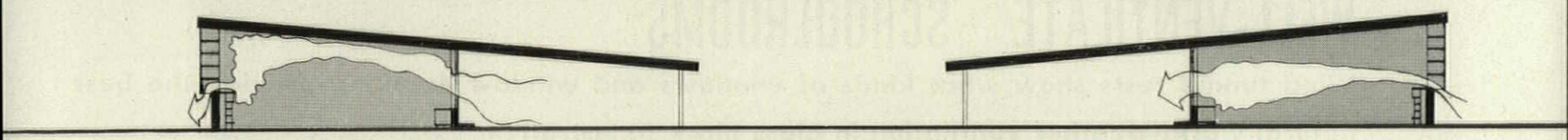
For the Highland Park School, where site contours dictated an east-west orientation of classroom wings, the cross section developed for Will Rogers has worked well with only a slight variation of daylighting controls. To keep direct eastern sunlight from entering classrooms, interior window baffles of cement asbestos board are installed vertically rather than horizontally (*right*). On the opposite side, the 30′ overhang shuts out the hot western sun. Though this combination of controls produces a light distribution curve similar to that of Will Rogers, the vertical baffles are less effective in controlling sky glare.

To catch the prevailing breeze in hot weather and protect play sheds from the northern winter winds, Caudill angled classroom wings as far as possible to the south. A free-standing brick wall at the north end also helps to protect the open play shed in winter and direct the south wind into classrooms in warm weather.

This four-classroom wing cost $9.28 per sq. ft. as against Will Rogers' $9.12, mainly because it required just as large a heating plant as the six-room structure.



Free-standing "teaching centers" in classrooms combine closets and chalkboards, free perimeter for built-in storage units.

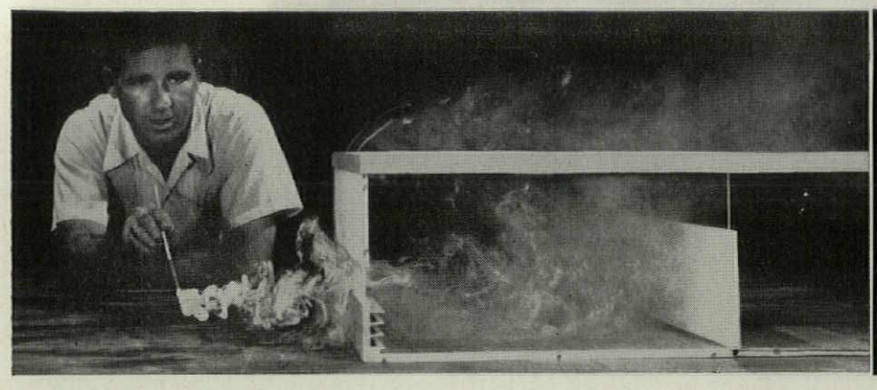


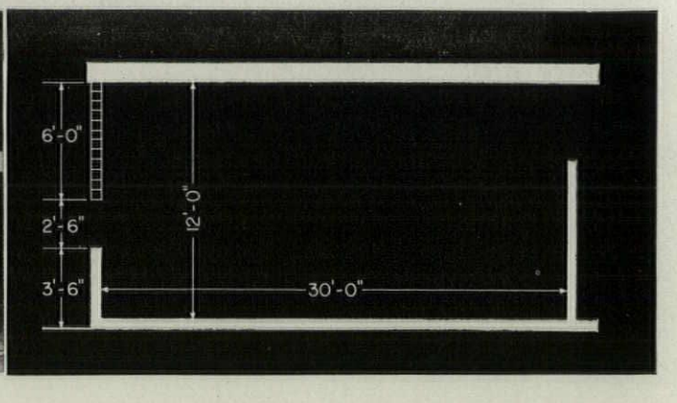
In first wing of Will Rogers School (left) projected sash faces the breeze, sill slot serves as exhaust on the opposite side. Since later tests showed that this cross section would work better reversed, future wings will face the other way (right), have less blanketing effect on wind.

HIGHLAND PARK SCHOOL

Play shed-corridor keeps out the hot western sun. Detached brick wall wards off north winds, directs south wind into classrooms in hot months.

Highland Park's vertical window baffles keep out direct eastern sun, are less effective than horizontal type in reducing glare. Space below baffles provides additional storage, houses connectors which supplement radiant heat in floors. Sloping ceiling of perforated fiber board helps acoustics. Glass above plywood partitions adds spaciousness, has not created any sound transmission problem.





WELL-VENTILATE SCHOOLROOMS

Wind tunnel tests show what kinds of windows and window detailing provide the best natural warm-weather ventilation in glass block fenestration

Schoolrooms are notorious victims of bad ventilation. In the first place the school is about the only modern building type in which mechanical ventilation is not yet considered essential. Moreover, since most standard windows are designed to shut out winter drafts, they also block proper natural ventilation in warm weather. However, as graphically shown on these pages, schoolrooms can be made comfortable—even in hot Texas weather.

Because glass block walls usually provide only a shallow vision strip of movable sash, modern schoolrooms of this kind require particularly careful window detailing to assure proper natural ventilation. To help meet this need, the biggest glass block manufacturer (American Structural Products Co.) asked the Texas Engineering Experiment Station to test glass block schoolroom walls of various designs to determine their effect on natural ventilation. The results indicate that a satisfactory flow of air in the lower part of the room—where it will do the most good on warm days— is easily obtained under these conditions:

- If movable sash can be adjusted to direct the breezes downward—as in the case of the typical casement window and the horizontally pivoted windows rotating more than 90°.
- If sun hoods over the vision strip are properly slotted to permit a downward flow of air into the windows.
- If big enough air outlets are provided in the wall opposite the windows. A continuous strip outlet is best, but the placement of outlets seems to have little effect on the rate and path of air flow within the room.

Of course the procedure in cold weather, where direct draft is to be avoided, must be different.

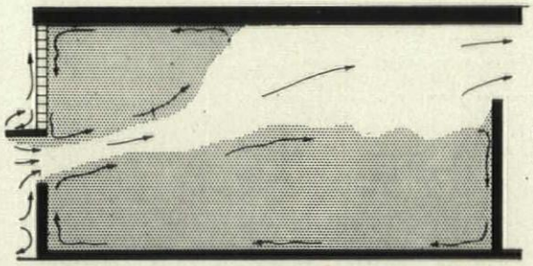
In the wind tunnel

These pointers for school designers come from the Experiment Station's "wind tunnel." There researchers headed by School Architect William Caudill have proved that they can duplicate the effect of nature's breezes on the ventilation of real buildings by blowing smoke through scale models (May issue '51) and recording the path and velocity of drafts with cameras and highly sensitive instruments. Into this laboratory wind tunnel the researchers moved a small model of a typical glass block classroom. Then they continually modified its window opening, sill detail, sun hood design, outlet facilities and tested the effect of each variant on the flow of air through the model. The results charted and explained on the following pages apply specifically to glass block fenestration, but the principles revealed are equally suggestive for other types of fenestration not only for schools but also for any type building in which adequate natural ventilation is a problem.

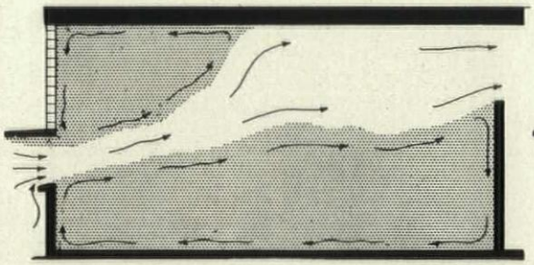
Wanted: a better window

In addition to their specific findings, the testers came to important general conclusions concerning the inadequacy of today's windows in their dual role of lighting and ventilation. Like earlier research at the Texas station, the testing program for American Structural Products Co. spotlighted the extent to which most standard manufactured windows are designed solely for wintertime needs and thus have operating parts limited to deflecting drafts upward. "In hot weather," the researchers point out, "these undesirable drafts become much-wanted breezes and should be directed downward. Very few standard windows are capable of doing this. If both deflection of winter drafts and direction of summer breezes are important to good natural ventilation, then windows should be designed to meet both requirements. There is a need for further research and development in window design."

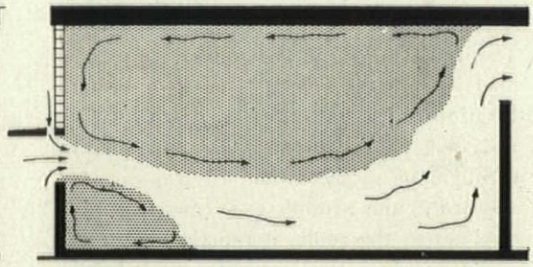
Even where the few available windows capable of directing breezes downward are used, there may be further trouble with the Venetian blind or other brightness control. If blinds are in a tilt-up position, they will direct the breeze up no matter what type of window is used. The researchers suggest outside blinds as one solution to this problem. "The brightness could be controlled by tilting the exterior blinds upward and leaving the windows inside as the final air control to direct the breeze downward into the zone of occupancy." This, of course, is only one suggestion and the Texas team plans to study further the whole problem of ventilation vs. glare at the vision strip.



Sun hood was used with casement window in this test. Hood, 2'6", interrupted the downward flow of air on the outside of the glass block panel above the window. Result: an upward air flow inside.



Testers thought a small sill projection might interrupt the upward flow of air over the outside wall surface below the window and create a downward pattern inside the room. But a 6" sill failed to do it.

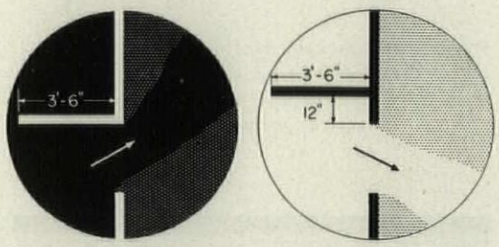


Downward pattern of air flow was restored by slotting the hood. This permits an uninterrupted flow of air down the face of the glass block, causing downward air flow needed at seating level.

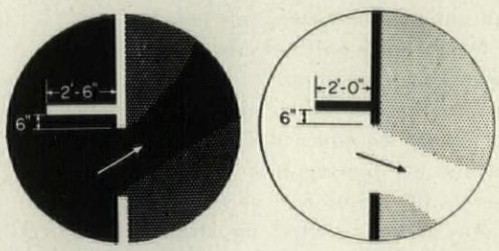
SUN HOODS

Analysis of the windward wall was the first step in the testing program. The question: how do the proportions of solid and open areas in this wall affect air flow in the interior? All the known treatments of the windward wall actually used in existing buildings were duplicated in the models set up in the wind tunnels.

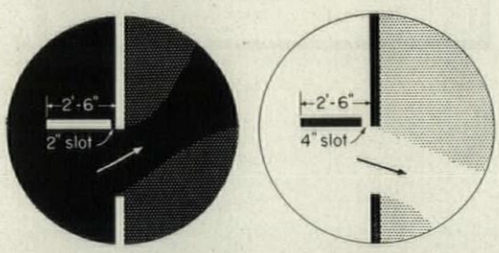
One of the most common exterior wall treatments in school building is the use of a sun hood over a vision strip to give protection from direct sun rays and sky glare. The testers found that the usual or solid sun hood has a pronounced effect on the pattern of air flow inside the room. For example, whereas a plain wall produces a downward flow of air (*basic diagram on the page opposite*) the addition of a sun hood may direct this air flow up where it means little to the people using the room.



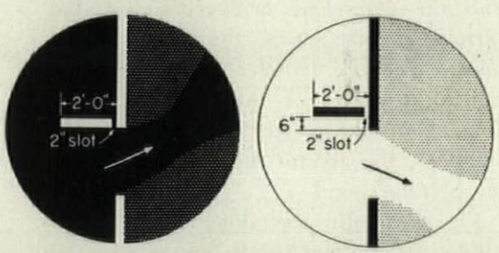
Testers checked 24 sun hoods of varying dimensions and detailing for their effect on the path of air flow through the room. Diagram above shows how upward path of air flow was turned down by window head projecting 12" below the hood.



Here the sun hood was reduced to 2'6" and tried with a 6" head. At this size, the projecting head proved unable to turn the upward air path down. But with a 2' hood (r.), the 6" head projection was enough to produce the desired downward flow.



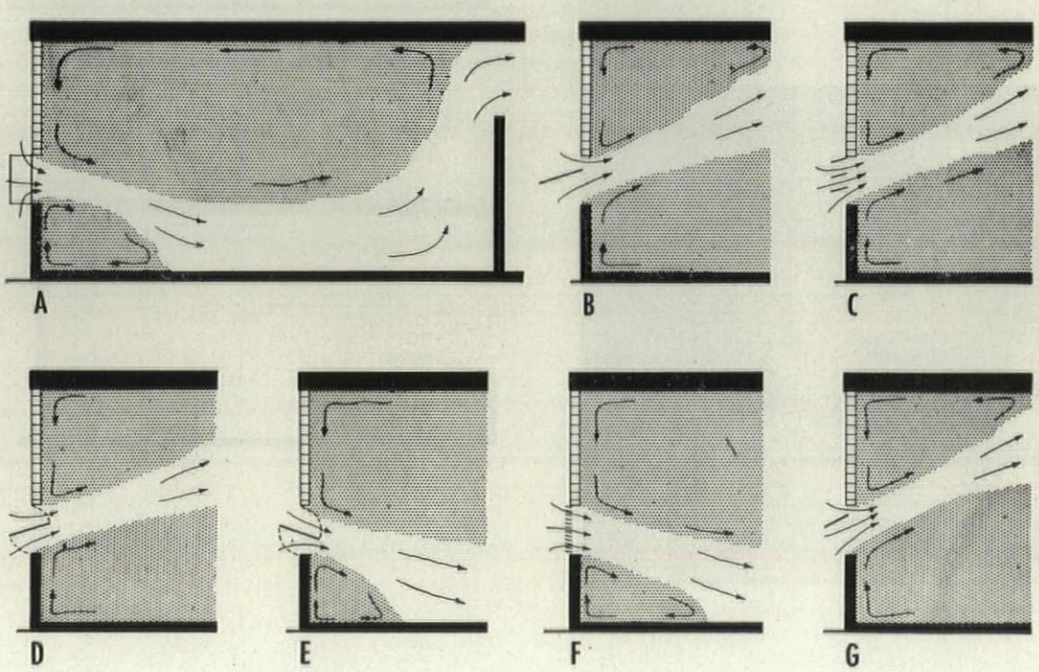
With a 2'6" hood, the testers tried a 2" slot between hood and upper wall surface. This had no effect on the upward path of air flow (l.). But when the slot was increased to 4", it proved big enough to direct the path of air movement down.



Here an alternative for making use of a 2" slot in the hood was explored. With a 2' hood, the slot alone was ineffective in directing air flow. But when used in connection with a 6" window head projection, the 2" slot solved the problem.

WINDOW TYPES

All types of windows commonly used in schoolrooms were set up in miniature and tested for their effect on ventilating air flow. Findings: most windows, as they are used with glass block fenestration, direct air flow upward; only a few are capable of directing air flow in the downward pattern needed for good ventilation. The casement is one of the few standard windows which permits a downward air pattern (*Fig. A*); it has no redirecting effect on the fast downward flow of air past the exterior face of the glass block panel. Most projected sash direct air upward, because they will not swing through an angle of more than 60° (*Fig. B*). Awning windows, which likewise have a limited arc of operation, also direct air upward (*Fig. C*). Horizontally pivoted windows, with limited rotation, direct air upward (*Fig. D*). But horizontally pivoted windows which rotate more than 90° can be used to direct air downward into the zone of occupancy (*Fig. E*). Some jalousie windows are also designed to rotate more than 90° and therefore will direct air downward (*Fig. F*). The Astrial-type window, unless the sash are specially designed to rotate more than 90°, directs air upward (*Fig. G*).



OUTLET WALL

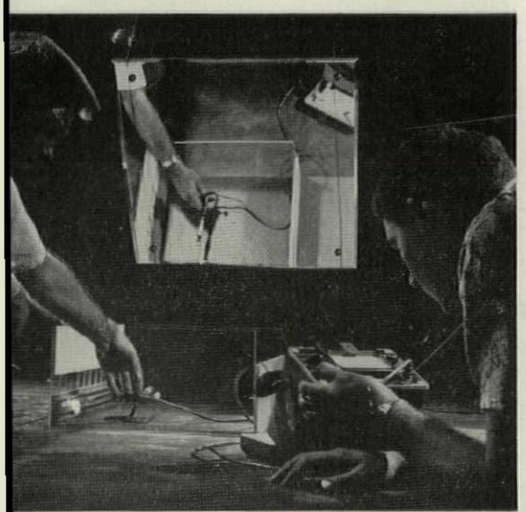
The outlet wall of the model room was also investigated. The testers found that location of the outlet opening had little or no effect on the over-all air flow pattern through the room. If the air was directed upward at the window to form an upward flow across the room, it remained up until it approached the opposite wall before seeking an outlet. If the air was directed downward at the window, it continued downward across the room until it approached the opposite wall before seeking an outlet. The testers concluded:

- Dual outlets will not create dual air flow across the classroom.
- Variations in the location of outlet openings have no effect at all on the direction of the air flowing into the windows and across the major part of the room.
- Any directing effect on air flowing into and across the room must be accomplished at the window opening itself.

AIR SPEEDS

While investigating outlets in the opposite wall, the researchers measured air speed at various points across the room. They wanted to check the effect on air speed of varying the size of the outlet opening. Conclusion: the greater the area of *outlet* openings, the greater the rate of air flow through the room.

Figures used in the tables (*right*) which summarize the test results are relative air speeds, that is, speeds inside the room are relative to that outside which is defined as 100%. Most air speed readings were taken at an arbitrary height of 3′ above the floor, which was considered a good height for a person seated to realize any sensation of air movement. The testers were careful to attempt no definitions of comfort in terms of air speed.



Testing equipment at Texas Engineering Experiment Station is set up to measure velocity of air flow within schoolroom model.

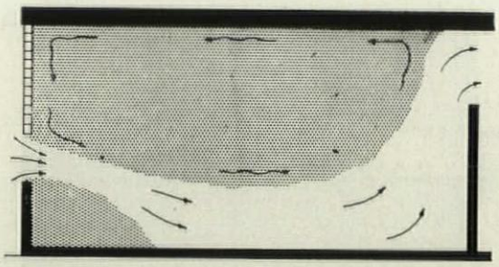
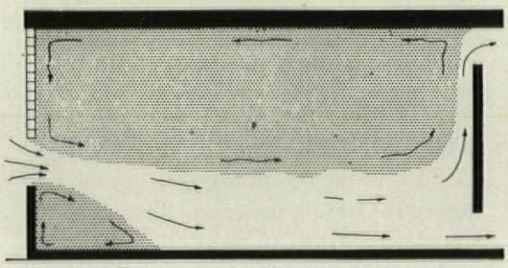
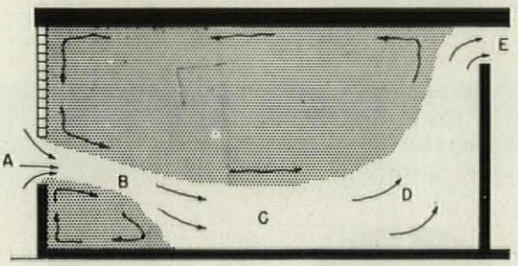


Diagram above shows path of air flow downward through the casement window and out through a large outlet under the ceiling on the opposite wall.

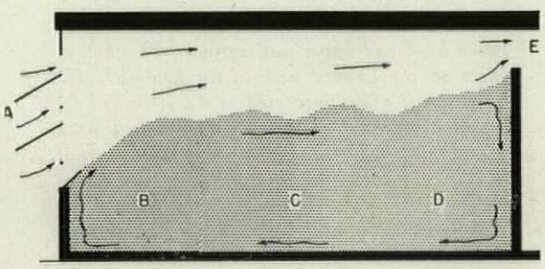


While testers thought dual outlets might spread the air flow or create dual paths, this diagram shows that splitting the outlet opening had no effect on the path of air movement.



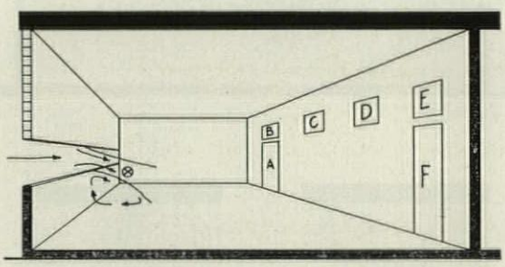
In this series of air speed tests, a window opening of 2′6″ was constant. Size of the air outlet was varied from 2′ all the way up to 8′. The table below shows that air speed increases as the size of the outlet is increased:

	Air Speed (at various points)				
Outlet Size	A	B	C	D	E
2′	100	62	39	12	87
2′6″	100	85	47	17	76
4′	100	110	61	25	69
6′	100	127	84	30	66



A second series of air speed tests used an inlet wall containing continuous openings with 8′1″ architectural projected windows. With this inlet as a constant, outlet size was varied from 2′ to 8′. The results, summarized in the table below, show that this intake provides poor air movement.

	Air Speed				
Outlet Size	A	B	C	D	E
2′	100	13	20	18	96
4′	100	20	31	28	88
6′	100	25	32	34	70
8′	100	16	26	34	57

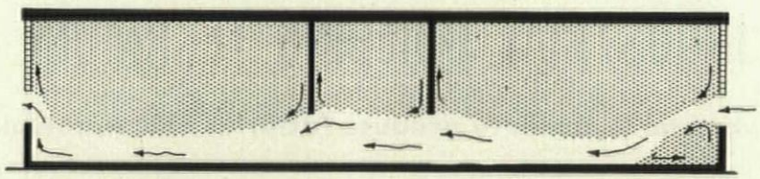


This diagram shows how outlets might be distributed in a typical schoolroom wall with one or two corridor doors, transoms, supplementary openings. The table below shows how air speed increases in ratio to the amount of outlet area.

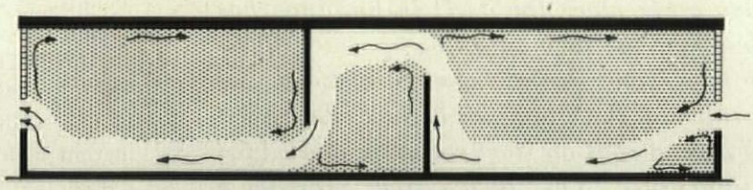
Test	Total Outlet	Sq. Ft.	% Ratio of Outlet Area to Inlet Area	% Relative Air Speed at X
1	A	21	27	30
2	AB	27	34	35
3	AF	42	53	53
4	ABEF	54	68	73
5	ABCDEF	66	84	84
6	ABCDE	45	57	58
7	BCDE	24	30	38

DOUBLE LOADED VARIATIONS

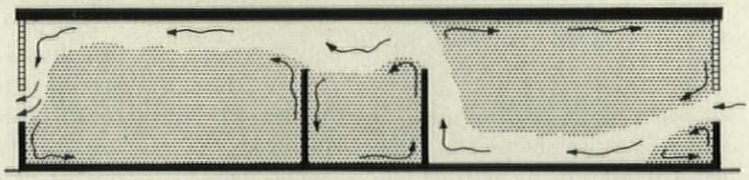
Double loaded corridors are, of course, most commonly used in one-story school buildings. The testers, therefore, paid special attention to the effect of corridor openings on the pattern of air flow through the classrooms on either side. They found that location of corridor openings determines whether the room on the leeward side of the corridor will get the downward air movement necessary for good ventilation. High continuous corridor openings (common in most school buildings) mean that air through the leeward room will take an upward path, flowing straight across just under the ceiling. Staggering corridor openings, on the other hand, will direct air flow in a downward path through the leeward room (*second diagram, right*). This staggered placement is also a good solution for noise control. The testers also found that transom type vanes or louvres could be used effectively at the corridor opening to direct air flow down in the leeward room (*last diagram*).



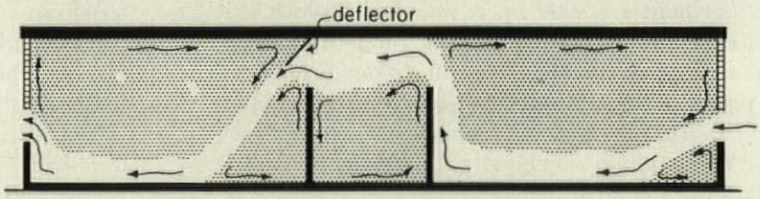
One-story school with double-loaded corridor was tested with continuous 4' high openings in corridor walls. This provided downward air flow in both rooms, but involves sound difficulties.



Staggering corridor openings provided both rooms with air flow at level of occupancy. But if direction of the air source were reversed, one room would suffer.



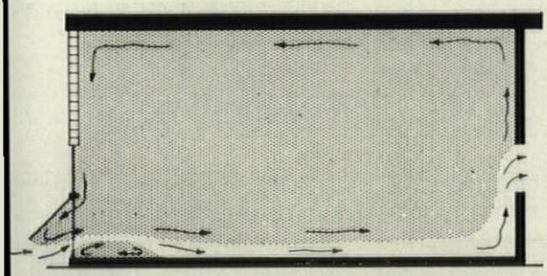
High continuous corridor openings cause poor air flow in leeward room. Many schools have this type of venting.



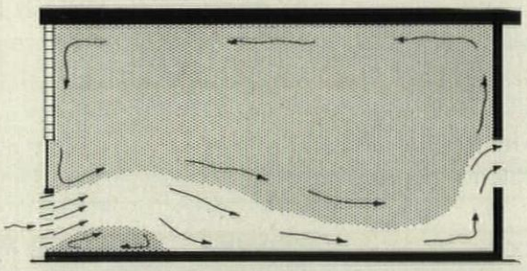
The addition of a flap at the corridor vent directs the air stream down in the leeward room.

VENTILATION BELOW WINDOW

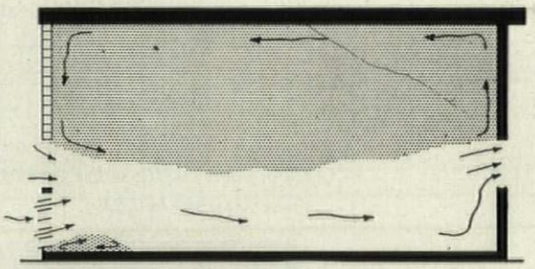
Several schemes for ventilating the room by admitting air below the windows were investigated. Where the window was fixed glass, the vents produced an air flow too small to be effective. Where the vents were combined with a window opening capable of directing air downward, the combination intake produced a good ventilating pattern. The flaps commonly used to protect openings of this kind were found to have no directing effect on the air flow and also, unless raised to a 90° angle, cut down air.



A screened vent below a fixed glass vision strip was tested with the flap set at 45°. This opening provided only a small air flow.



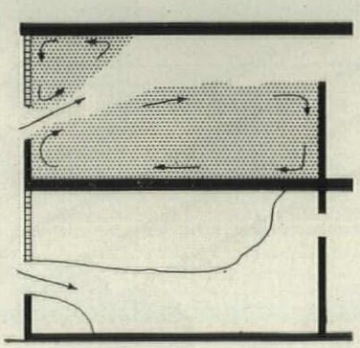
A louvered vent below the fixed glass vision strip provided a slightly better air flow with louvers set at 10°. But louver results proved inconsistent.



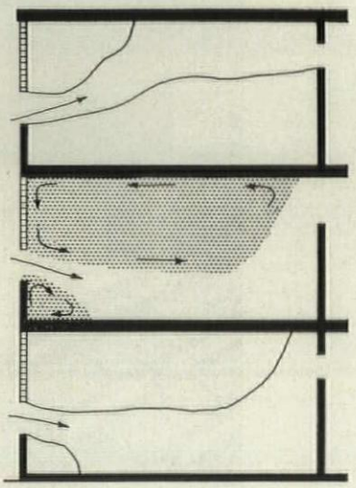
Best pattern of air movement was obtained when 10° louvered vents were used as a supplement to open casement windows. Air speed was also high.

MULTISTORY BUILDINGS

Schoolroom models have also made it possible to find out something about the effect of the building cube on the pattern of air flow. The Texas testers have been especially interested in this question. They could predict, of course, that there is some point on the surface of a building where the approaching wind separates, part of it becoming an updraft. The diagrams at left suggest that this point moves up with the height.



Test of 2-story model showed that rooms on the top floor will have an upward air pattern, even though casement windows are used below the glass block strip.



Test of a 3-story model suggests that only the top floor may suffer from diverted air path, but tests on even higher models would be necessary to verify this premise.

NEW INDUSTRIAL BUILDING TECHNIQUE modifies the light steel framework

of the wartime Quonset to produce factories and warehouses in a hurry

The fast building, low cost Quonset, which has already made a big place for itself in building, has been redesigned for new advantages: wider spans and more headroom. Great Lakes Steel Corp. has clipped a third off the Quonset's arched ribs, raised them as a domed roof on steel columns, and added straight side walls. This new system provides a clearance under struts of up to 18′ (high enough to take care of inside freight car unloading) and a dome height between struts of up to 28′.

All this new room means that the war-born Quonset can be more widely used as warehouse and light manufacturing space. Boeing Aircraft Co. in Wichita, for example, has just finished four warehouses in this new "long span" system covering over 200,000 sq. ft. Nash-Kelvinator in Milwaukee has built a 60,000 sq. ft. warehouse which will release space in the plant, hitherto used for parts storage, for manufacture of aircraft engine parts *(photo below)*.

Boeing reports costs at around $1.40 a sq. ft., excluding floor and foundation. Man hours required to erect one 14,200 sq. ft. building amounted to 1,700, or about 23 working days for a crew of nine.

Moreover, manufacturers in a hurry can count on prompt delivery of these prefabricated steel parts. Like the Quonset, this new multiple arch system uses no critically short hot-rolled structural steel. All its light-gauge parts are cold-formed.

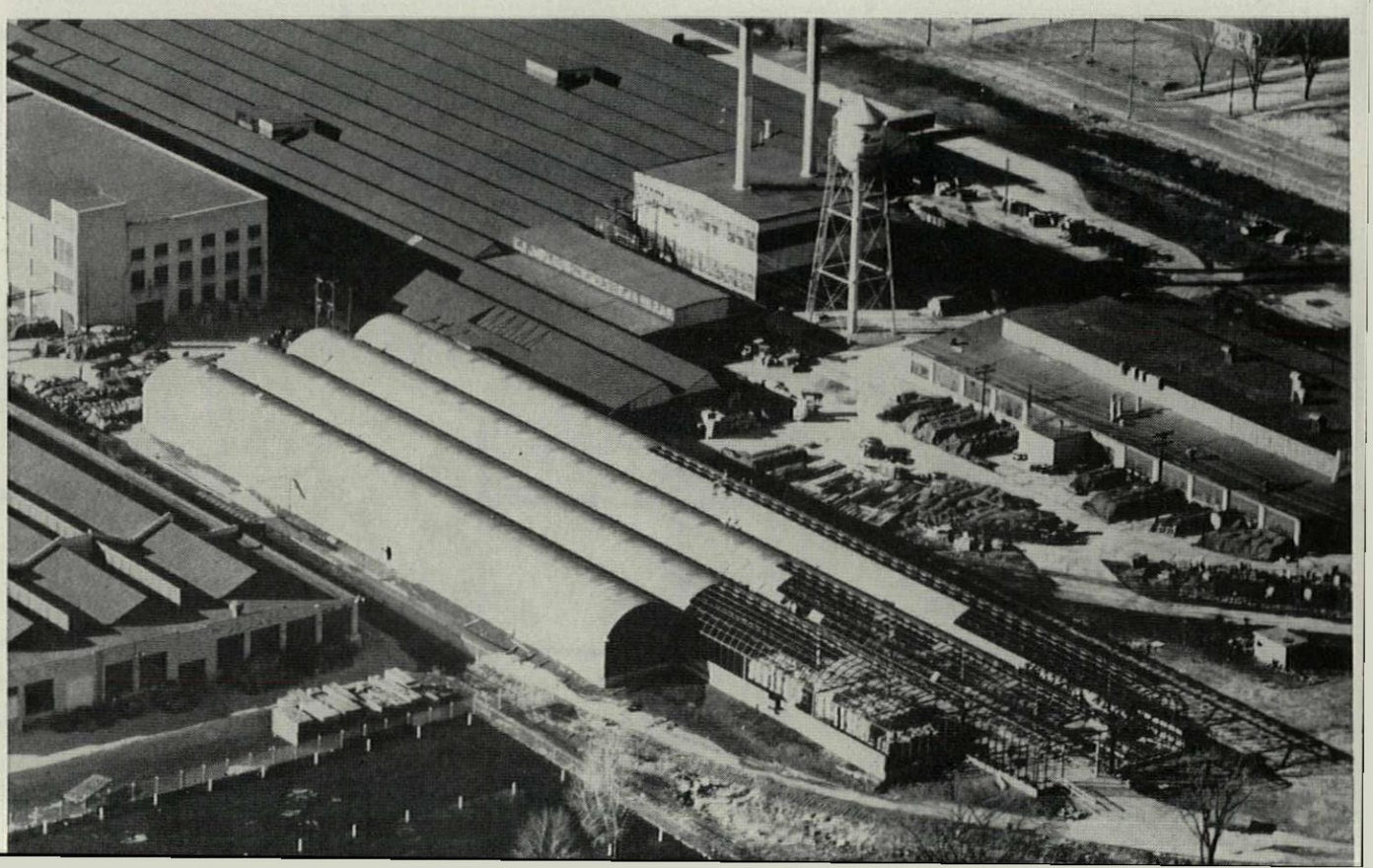
The new system is designed with bays 35′ 6″ wide and 40′ long. This provides 1,424 sq. ft. per bay compared with the 20′ x 20′ bay of the old Quonset.

The straight side walls in these multiple arch buildings permit doors to be installed without the special fitting between ribs necessary in the 20° Quonset arch. For warehouses, this easy adaptability to overhead rolling doors and other special door types is important.

Like other Quonsets, the long-span system is made largely of nailable members. (Stran-Steel provides a nailing channel by welding two or more specially formed steel parts back to back. The parts are convoluted so that nails driven into the channel are bent and held in place.) This means that, if necessary, the building's enclosure can be handled by carpenters; iron workers are needed only for raising the structural members. This also means that any kind of material can be easily attached to the basic steel structure, and that the building can be economically insulated and finished for, say, manufacturing space. Side walls are generally finished with galvanized corrugated steel sheets.

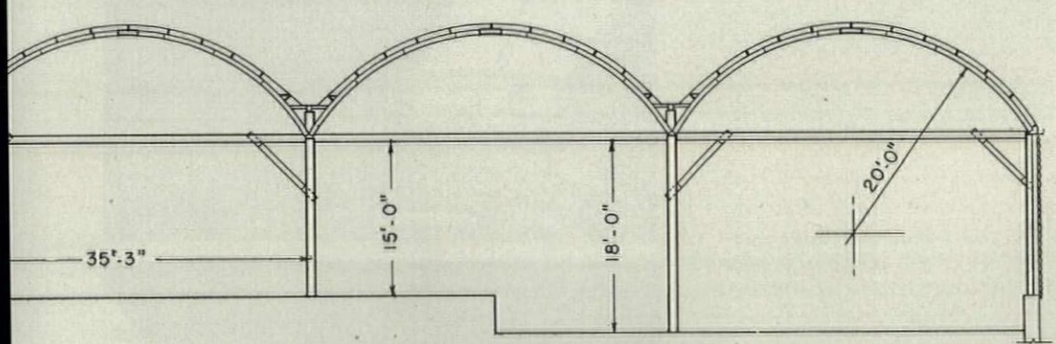
The structure is designed for a minimum building two bays wide (71′) by two bays long (80′). This minimum is easily expandable by adding modules of 35′ 6″ in one direction and 40′ in the other for any desired dimensions. All parts are factory fabricated, prepunched for bolts and metal screws, packaged and shipped ready for erection.

Vaulted construction of new arch-rib warehouse at Nash-Kelvinator Corp. plant in Milwaukee contrasts sharply with saw-tooth roofs of old manufacturing buildings.



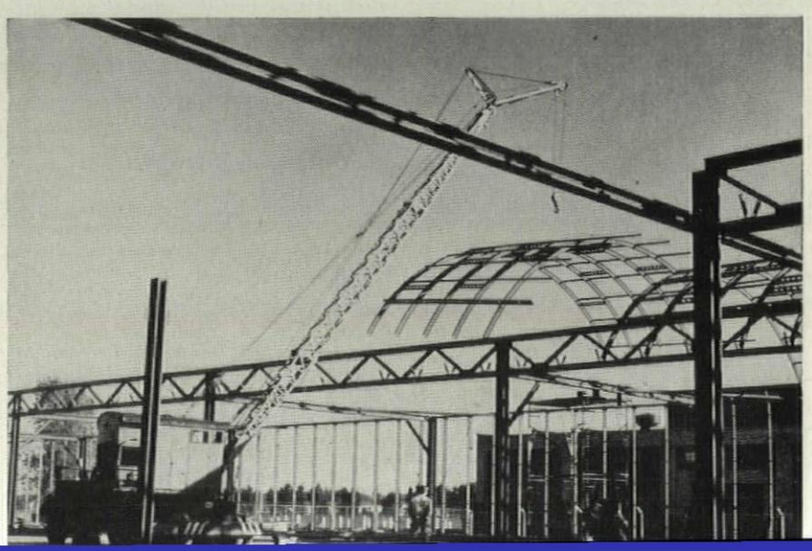
Courtesy A. O. Smith Corp.

Familiar arched ribs of Quonset, clipped one-third in length, are put together on the ground in subassemblies 20' long (above), then raised atop light steel structure with the aid of a crane (below). Side walls including door openings are also framed on the ground in bay sizes, then fitted between columns.



Cross-section shows 35'-6" center-to-center spacing of columns. Clearance under struts is 18'. Roof arch provides an unobstructed dome height between struts of 28', generally ample for such equipment as boilers and for mechanical stacking of warehoused items. (Column spacing in outside bays is slightly less than standard 35'-6".)

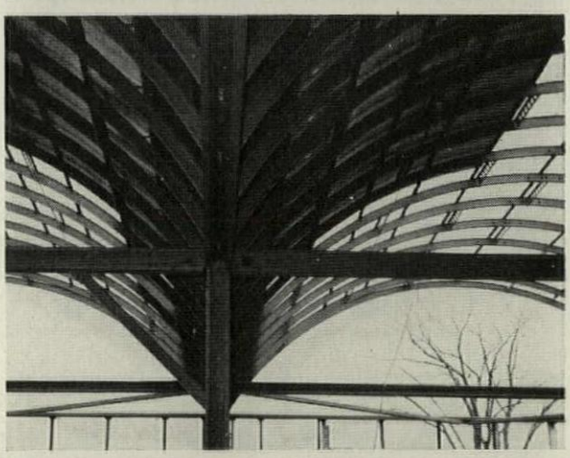
Structural frame consists of columns, shop-welded trusses, struts and knee braces. Knee braces are required only in outside bays. Trusses are prefabricated of small lightweight pieces. Truss chords are made of high tensile steel (50,000 psi. minimum yield with working stress of 27,000 psi).



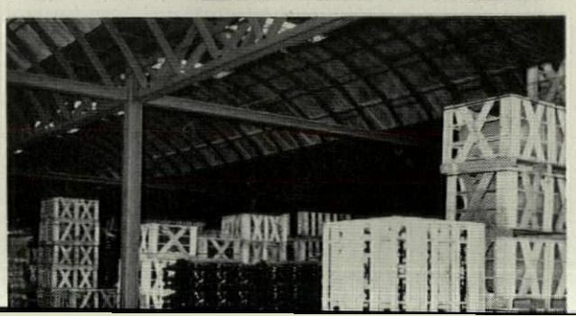
Workmen on portable scaffold secure 20' arched rib roof subassemblies together after they have been positioned on the wall structure. Note light character of the completed framework, small size of the assembly crew.

Corrugated steel side wall sheeting is nailed to framework. Knee bracing is required only at juncture of horizontal framing members with outside walls—not at interior columns.

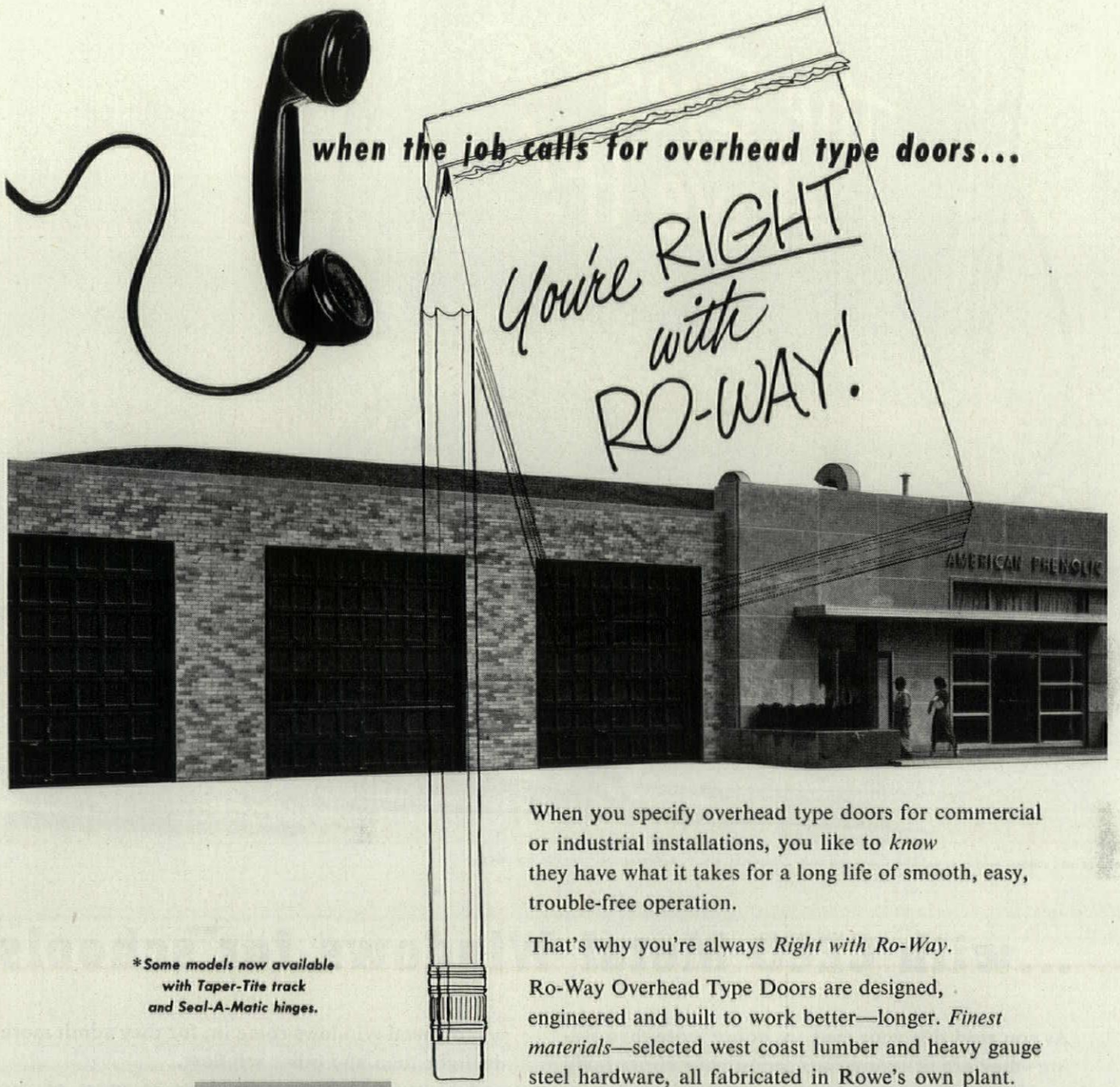
Sheets are edged with a rubber-base sealer to assure watertight laps and are applied from the bottom up like shingles by nailing them to the ribs. Seams which fall between ribs are stitched together with sheet metal screws. Matching sheets of corrugated translucent plastic reinforced with glass fibers may be substituted for metal sheets as skylights.



Arch ribs of roof are supported on the lower chord of the truss to minimize difference between clear height and dome height and to help cut down steel requirements. Upper chord is left clear to support gutters which run between ribs of adjoining vaults.



Completed enclosure provides 18' clearance below struts, 28' clearance below top of vault, makes ample room for installation of big machinery or vertical warehousing of materials.



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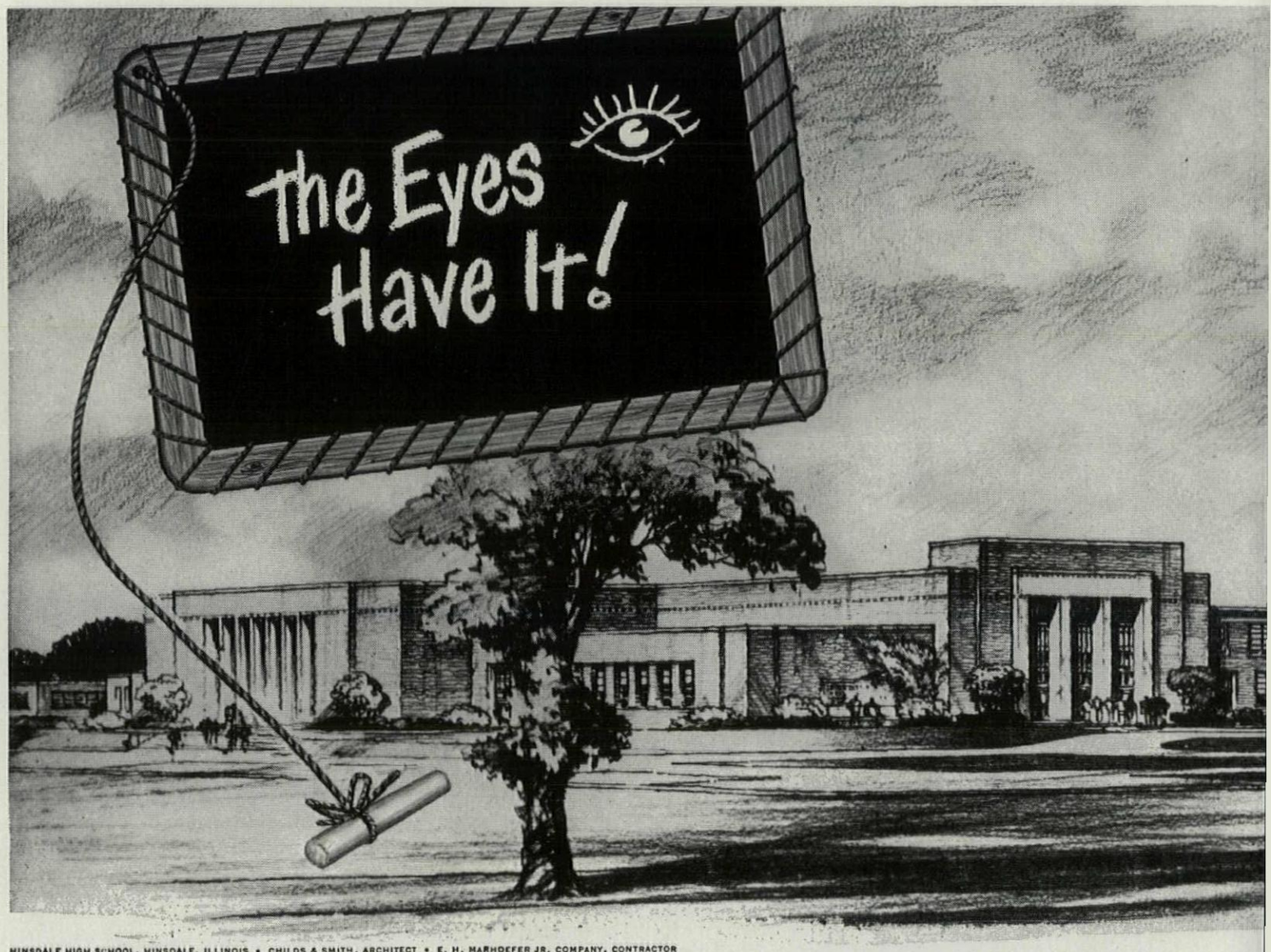

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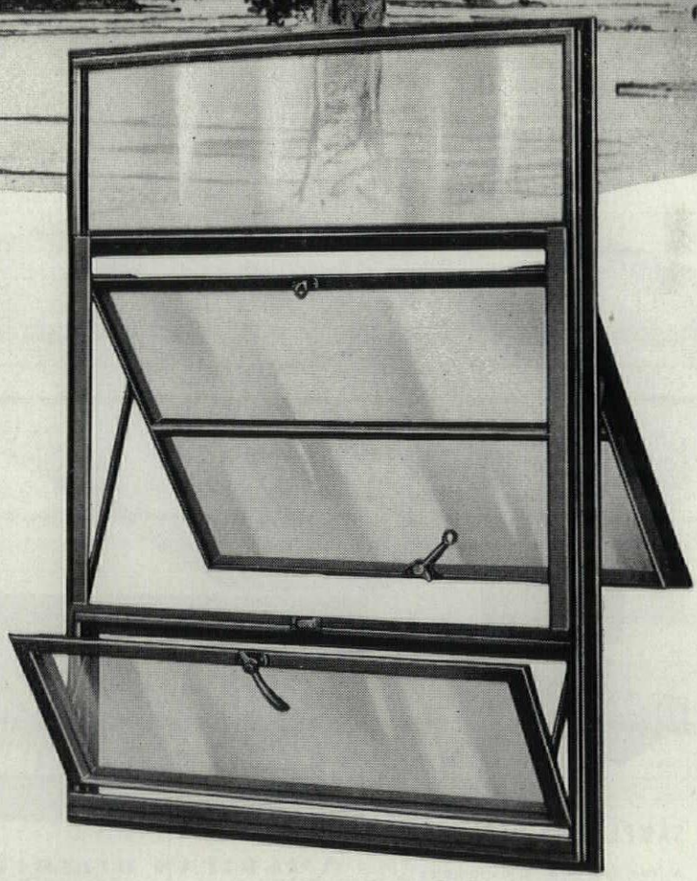

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IS HOUSING INFLATIONARY?

Not necessarily, says Home Building's No. 1 Economist, not even with minimum down payments. In fact, this year too few homes would be more inflationary than too many

By Miles L. Colean

Is housebuilding inflationary? This is a loaded question and it cannot be answered unless we first agree on the answer to another question: what is inflation?

Our definition is this: Inflation is what happens when money loses its purchasing power. This may result when 1) the available supply of money increases faster than the obtainable quantity of goods and of services, or 2) the supply of goods and services declines in comparision with the money in circulation.

What, now, about housebuilding? Is it inflationary? Does it threaten to make money lose its purchasing power?

Since houses are among the most necessary and most durable of goods—since, in other words, they represent real, long-term utility and a means of long-term investment—there is nothing inherently inflationary in their production (as there is in the production of war goods). In fact, so long as home building is financed out of savings, home building cannot have any direct or prolonged inflationary impact, regardless of whose savings are used, regardless of how big the down payment or how big the mortgage.

There are no other kinds of goods about which this may so confidently be said. And yet, we are often told that home building was one of the most inflationary features of the postwar period.

Let's look at the record

During the war housebuilding was sharply curtailed at the very time when the number of people with the money to buy houses was greatly increased. This created one of the conditions for inflation—an excess of money in relation to the supply of goods. The result was immediate. The price of existing houses skyrocketed as purchasers well supplied with money pressed into a market undersupplied with houses.

The same inflation continued after the war when we began to build again. People rushed to buy the new houses much faster than ever the materials to produce them could be made. Home prices, already high because of the inflation in the price of existing houses, rose all over the place.

Effect of government policies

This price rise should have corrected itself by slowing down buying until supply could

(Continued on page 166)

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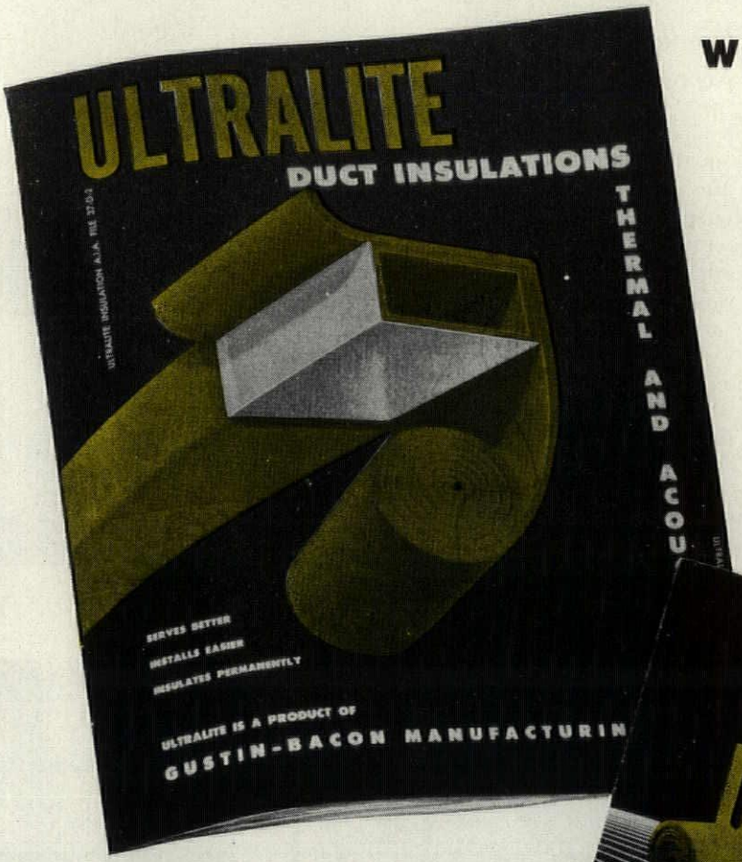

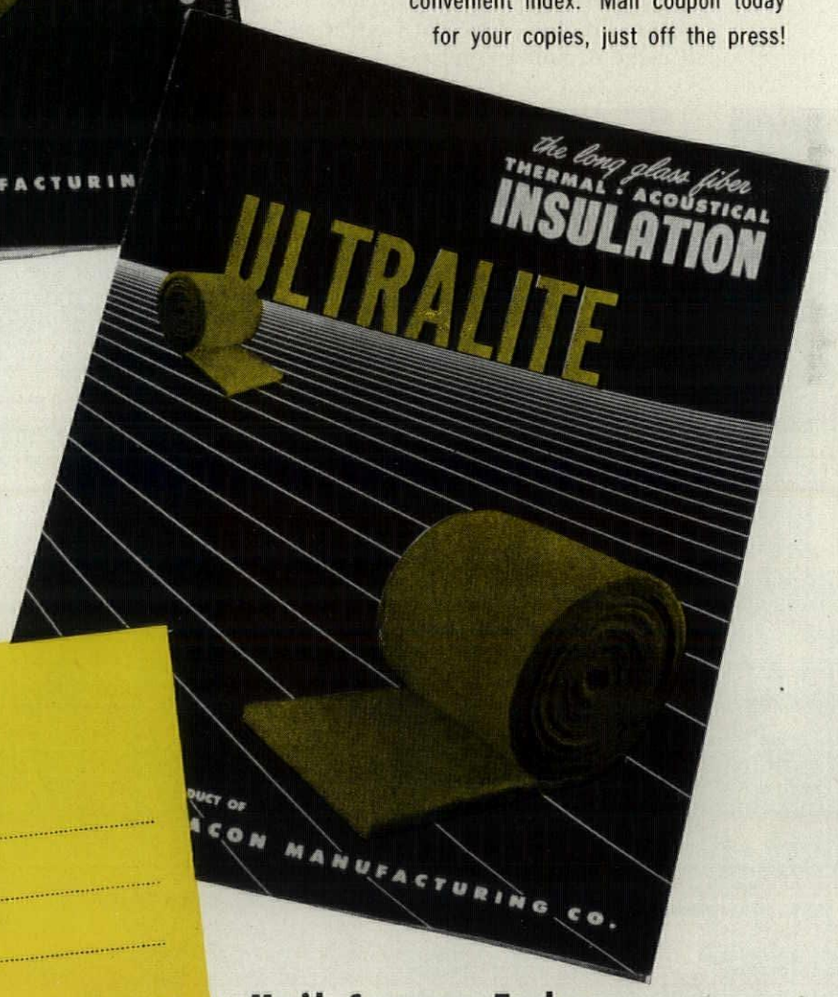

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How Honeywell Customized Temperature Control Helps Provide Year-Round Comfort in Bonwit Teller's New Chicago Store

Specially designed system easily handles control problems created by variety of room sizes, exposure, use and occupancy differences

The main salon, pictured below, dramatically demonstrates the kind of atmosphere Bonwit Teller, Chicago, offers customers on the city's swank north side.

And it dramatically demonstrates, too, the reason why the Chicago architectural firm of Shaw, Metz and Dolio specified Honeywell Customized Temperature Control when designing the store.

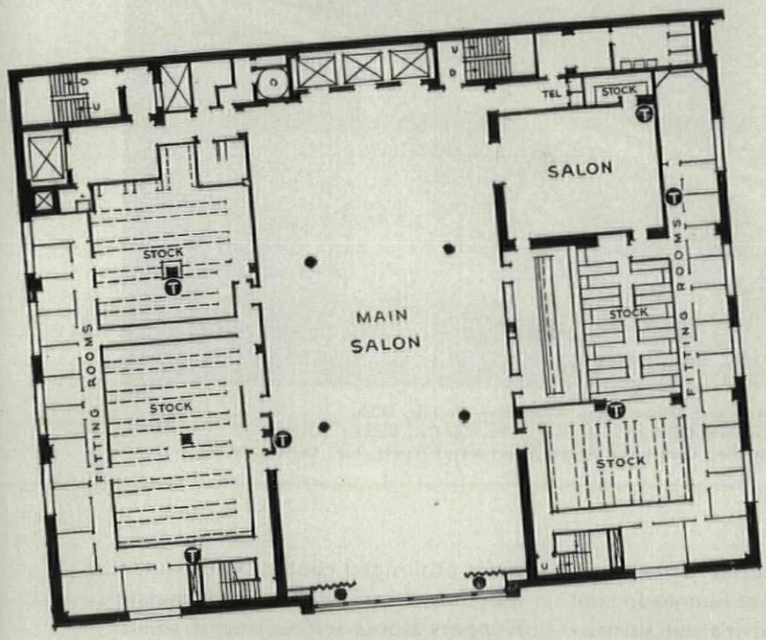
At the southern end of this spacious salon on the second floor, the striking ceiling-to-floor window is exposed to icy winds in winter—and the hot sun in summer. A separate thermostat in this area compensates for the problems created by these exposure and weather factors.

Other thermostats in other areas of the second floor, as indicated on the plan, are especially important in meeting the comfort demands of smaller-sized rooms. These have different use, occupancy and exposure problems.

Honeywell Customized Temperature Control easily meets these problems throughout the store. How it does so, on the second floor, is highlighted by the other interior views.

The heating plant and air conditioning were installed by William Adams Engineers, Inc., Chicago; ventilating by R. B. Heyward Co., Chicago; George A. Fuller Company, Chicago, was the general contractor.

Stock rooms offer a real opportunity for important savings—if a store is equipped with Honeywell Customized Temperature Control. Take the room where hats are stored, for instance. Because no patrons and few employees enter here, it's unnecessary to maintain as high temperatures in winter as in other parts of the store. In summer the reverse is true. This saves fuel in winter—and refrigerated air in summer.



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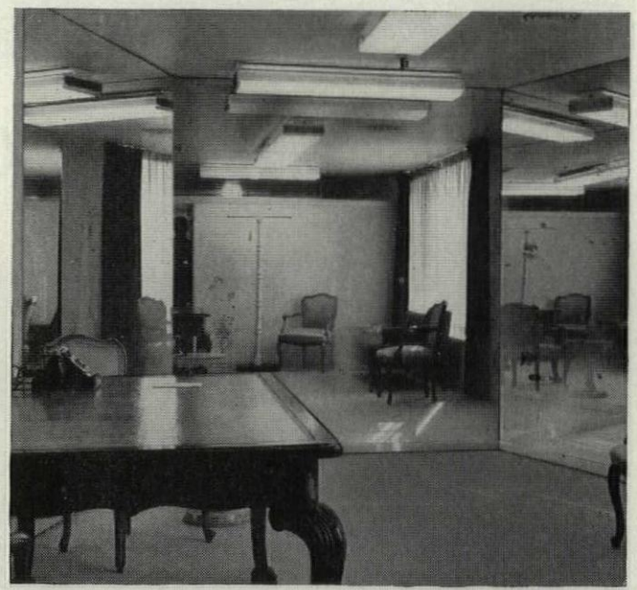


If the fitting rooms were controlled by a thermostat located in the main salon, customers changing their clothes here would be uncomfortably cool much of the time. But Honeywell Customized Temperature Control—with a separate thermostat system in the fitting rooms—maintains the right degree of warmth all the time.

A separate thermostat system provides customers who patronize the fur salon, pictured above, with the *special* degree of comfort *they* need. And so it goes throughout Bonwit Teller, Chicago. As Robert Marriner, the store's engineer and superintendent, says: "Summer and winter, we've got the most comfortable store in town. Both customers and employees will back me up on this. And with our Honeywell Customized Controls, maintenance is no problem at all."

MINNEAPOLIS-HONEYWELL
Dept. MB-1-19
Minneapolis 8, Minnesota

Gentlemen:

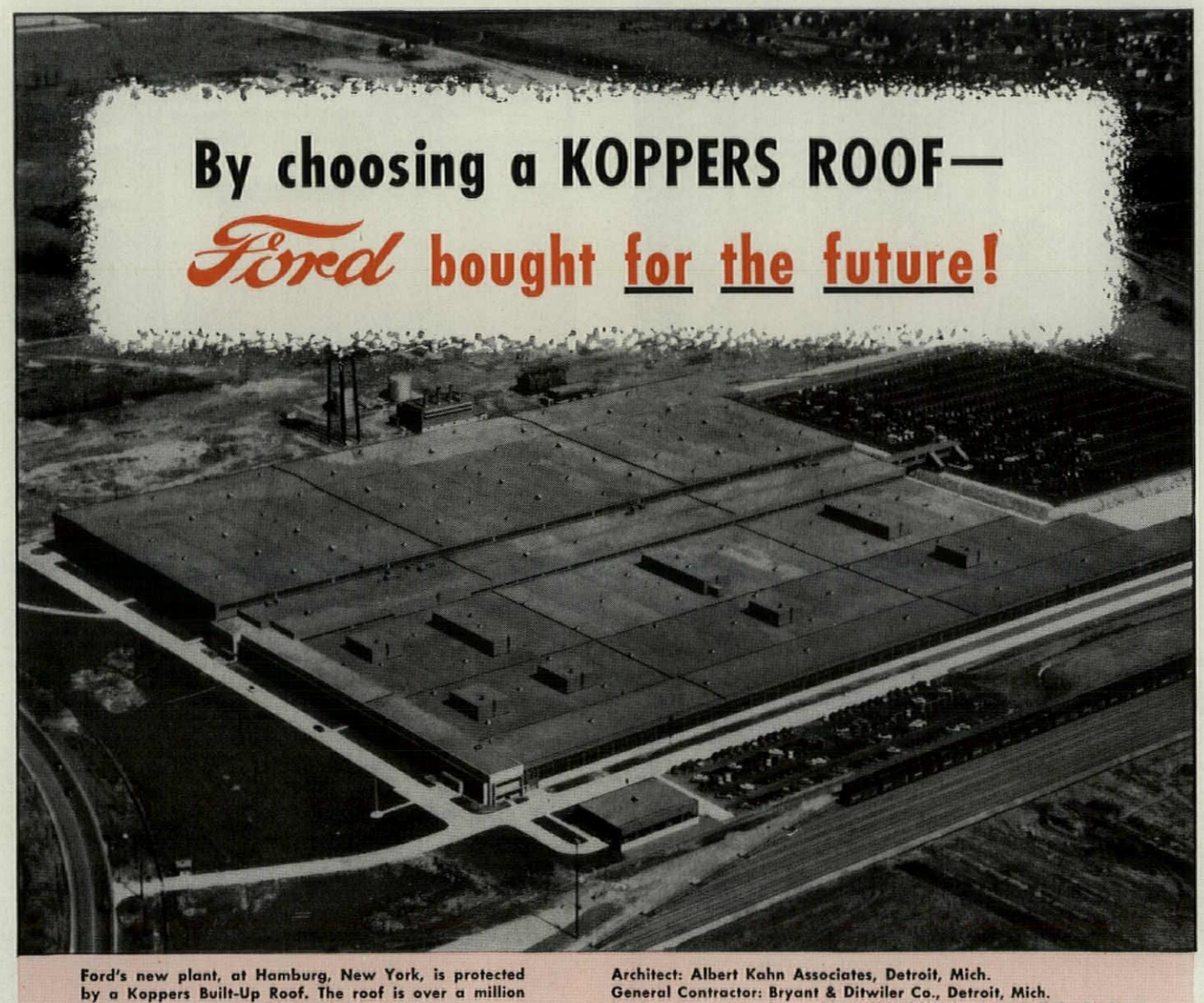
I'm interested in learning more about your Customized Temperature Control Systems for public buildings.

Name.....

Firm Name.....

Address.....

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



By choosing a KOPPERS ROOF—

Ford bought for the future!

Ford's new plant, at Hamburg, New York, is protected by a Koppers Built-Up Roof. The roof is over a million square feet in area, and is bonded for 20 years.

Architect: Albert Kahn Associates, Detroit, Mich.
General Contractor: Bryant & Ditwiler Co., Detroit, Mich.
Roofing Contractor: Arrow Sheet Metal Works, Inc., Buffalo, N. Y.

"BUY FOR THE FUTURE"—that's what the Ford Motor Company tells its customers. And Ford followed its own sound advice . . . bought a Koppers Roof for its new stamping plant at Hamburg, New York. Koppers has *guaranteed* the performance of the roofing materials in this huge roof for 20 years.

Koppers Roofs are famous for the way they last. And it's not surprising! For these roofs are built-up with layers of Koppers Approved Tarred Felt, cemented together with Koppers Old Style coal tar pitch, to form a continuous skin over the entire roof deck.

The felt imparts elasticity and tensile strength to the roof membrane. The pitch provides the element that enables Koppers Roofs to resist prolonged contact with water *without deteriorating*, and makes Koppers Roofs self-sealing if small breaks occur. Together, Koppers Old Style Pitch and Approved Tarred Felt make an unbeatable roofing combination.

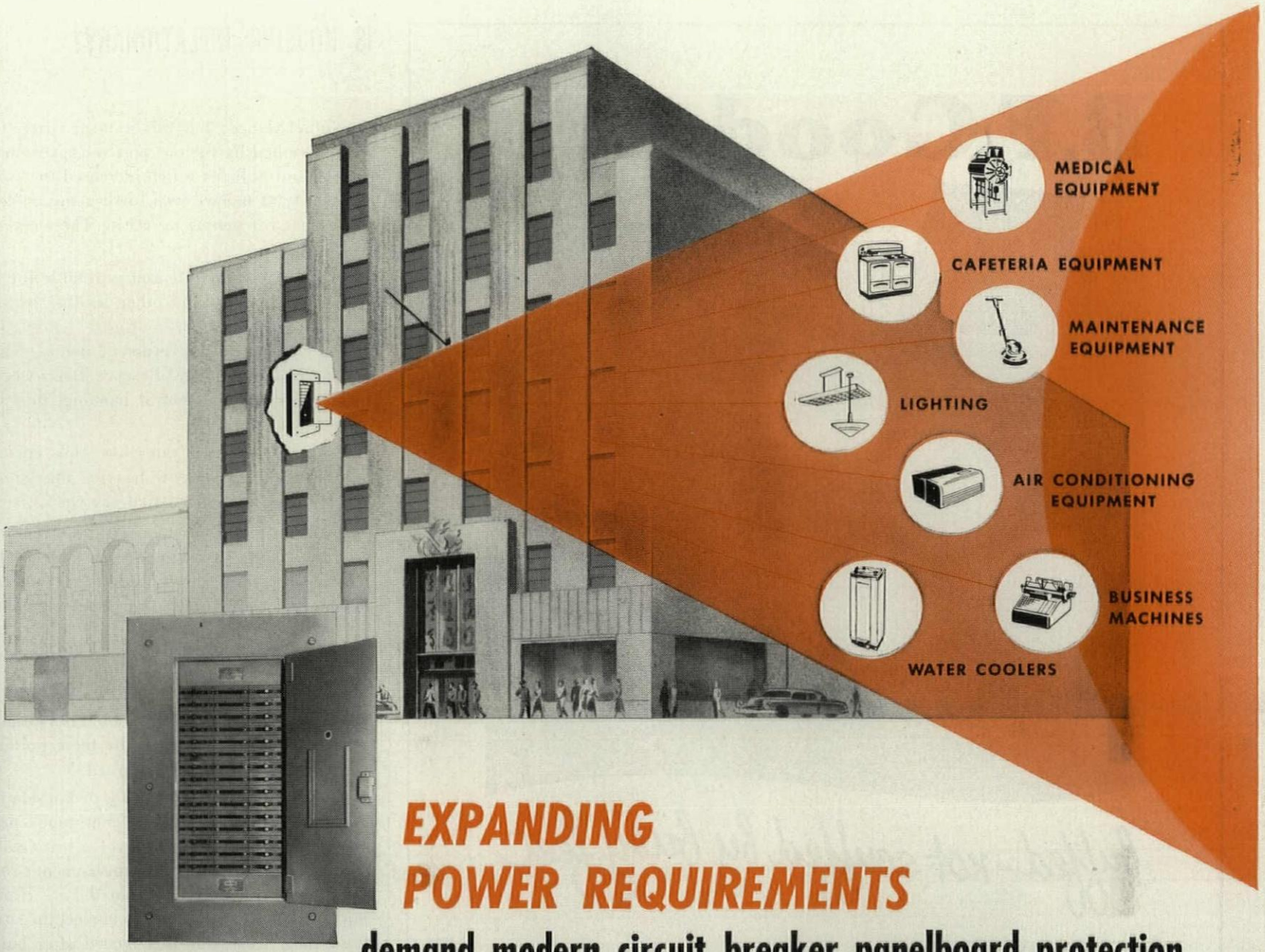
Koppers Roofing Materials are available from coast-to-coast. Specify these materials, and your projects will have the best in built-up roofing. For full information and specifications, get in touch with us.

KOPPERS

KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH AND WOODWARD, ALABAMA

• SPECIFY KOPPERS FOR LONG-LIFE ROOFING •



EXPANDING POWER REQUIREMENTS

demand modern circuit breaker panelboard protection

For every *new* commercial building, there are 30 others that need electrical modernization. Why? New, room air-conditioning units, lighting systems, business machines, medical equipment put unforeseen loads on electrical distribution systems.

Westinghouse Circuit Breaker Panelboards assure maximum protection against dangerous overloads and outages, against costly, embarrassing service interruptions—and your building is safer. Proved Westinghouse Circuit Breakers eliminate the possibility of dangerous over-fusing. Cut maintenance expense, too—in restoring power, when trouble has been removed from the line, there is nothing to replace.

You can save up to 25% in installation time and cut job costs through such features as built-in neutral bar extension on distribution boards, sequence phasing and circuit identification on lighting boards.

Westinghouse Panelboards provide maximum adaptability for future unpredictable load demands. Change-overs are rapid, economical.

When you modernize or build, Westinghouse Panelboard specification assures quality—Be Sure!

Ask for our new booklet "Panelboard Planning". Write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-93465

YOU CAN BE SURE.. IF IT'S

Westinghouse

PANELBOARDS

IS HOUSING INFLATIONARY?

get into balance; but this natural correction was prevented by various postwar government actions and policies which increased the swollen supply of money even further and made it still easier for people to use it. These actions included:

1. making it possible and profitable for insurance companies and other lending institutions to get funds for mortgage lending by selling their U. S. government bonds to the commercial and Federal Reserve Banks where, by the processes of central banking, they became new money;

2. keeping interest rates low, thus encouraging people to borrow heavily the money that did not represent actual savings;

3. lowering down payments on FHA and veterans' loans so as greatly to increase the number of people who could bid for the excess money that was available for mortgage loans

Why prices went up

Even though home building increased t ten times its wartime low, it could not keep u with the demand suggested by these policies so prices moved steadily upward.

But it was not housebuilding or housebuild ers that caused the almost continuous pric rise. It was the combination of a war-create shortage of houses with the government's rec lessly easy money policy that did it. Hous builders did all they could to correct the situa tion: they broke building record after build ing record to meet the souped-up demand. they had not done so, the price rise in house would have been even greater than it was, s long as demand remained high and the reckles money policy was followed.

What happened in 1951

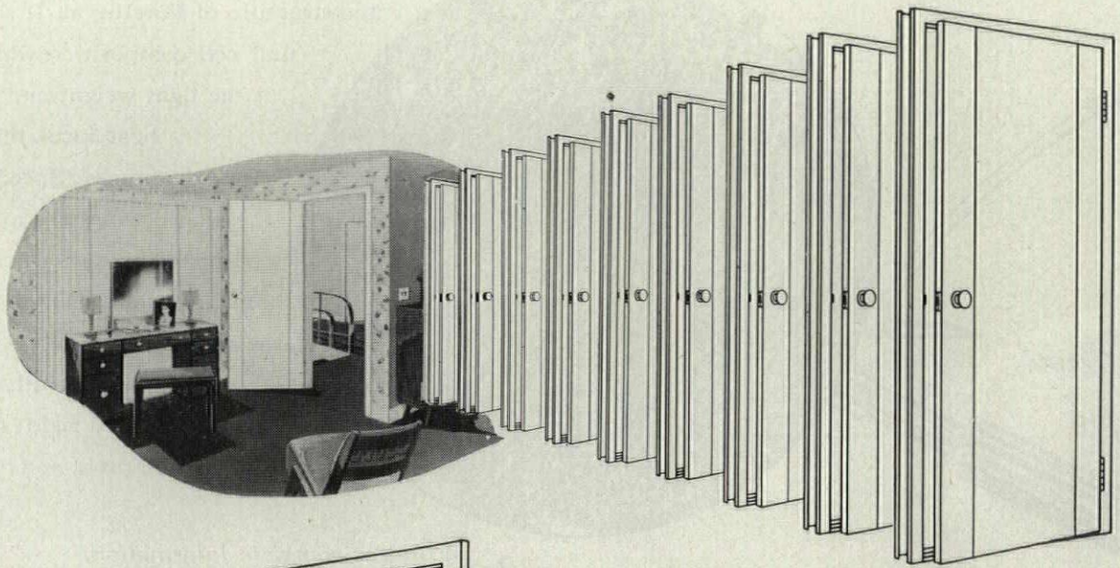
With a brave show of spirit, the Federal R serve Board in March of 1951 finally change its bond buying policy, so that temporarily a least the money-making process was slowe down. The froth was taken off the marke and house buying was restored to its true cha acter of savings investment.

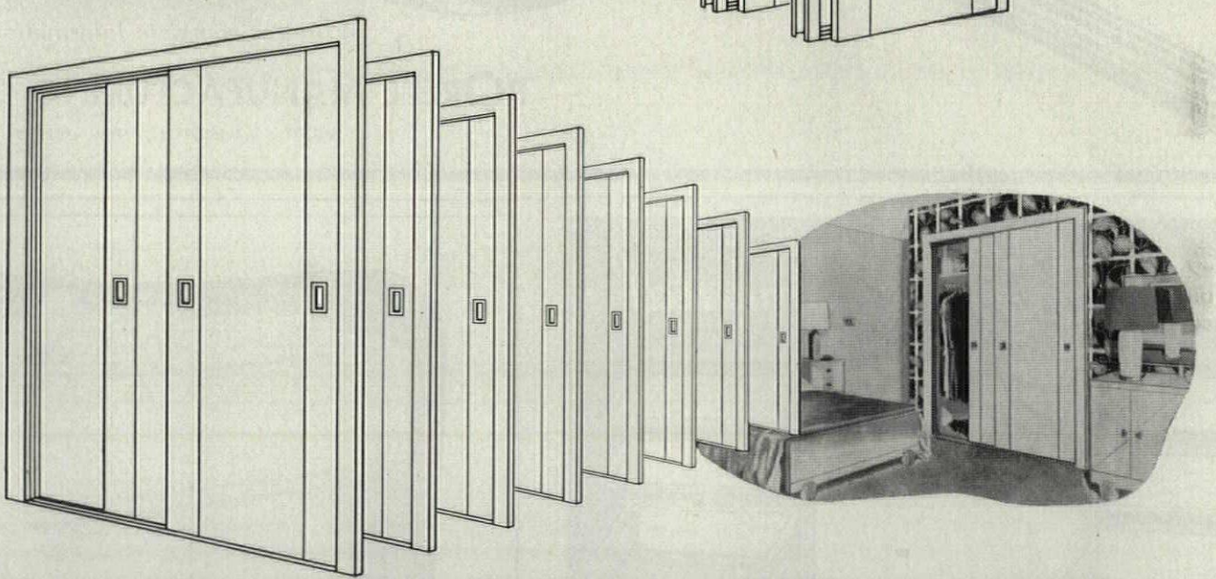
As long as the new FRB policy can be mai tained, lending institutions will have to re primarily on the funds that come to them i the form of savings, and the volume of the loans can be increased only as rapidly as ne savings come in. The rate of expansion obv ously cannot be as rapid as that made possib by the artificial methods of making money, b once the shock of the change is over, the ra probably would prove satisfactory. And the would be no resulting inflation.

(Continued on page 172)

IMMEDIATE DELIVERY!

Truscon Residential Interior Steel Doors





Now you can design and build into your residential projects these newest and smartest of all interior doors . . . and get prompt delivery from warehouse stocks to coincide with your building schedule!

Greatly increased production facilities enable Truscon to set larger manufacturing schedules for these strong, beautiful swing and slide steel doors. They offer these exceptional advantages: STABLE DIMENSIONS. Won't ever warp, twist, shrink or swell.

QUICK INSTALLATION. No fitting, cutting or planing at any time.

EVERYTHING FURNISHED. All hardware, hinges, locksets and frames supplied with each door.

LOW COST. Compete very favorably with doors of other materials when all factors are considered.

See SWEET'S for complete details on the entire line of Truscon Residential Steel Doors (Swing and Slide Types) for every purpose; and write for detailed literature on all other Truscon Steel Building Products. Truscon® Steel Company, 1056 Albert Street, Youngstown 1, Ohio. Subsidiary of Republic Steel Corporation.

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January 20-24
Booth 5-6-7

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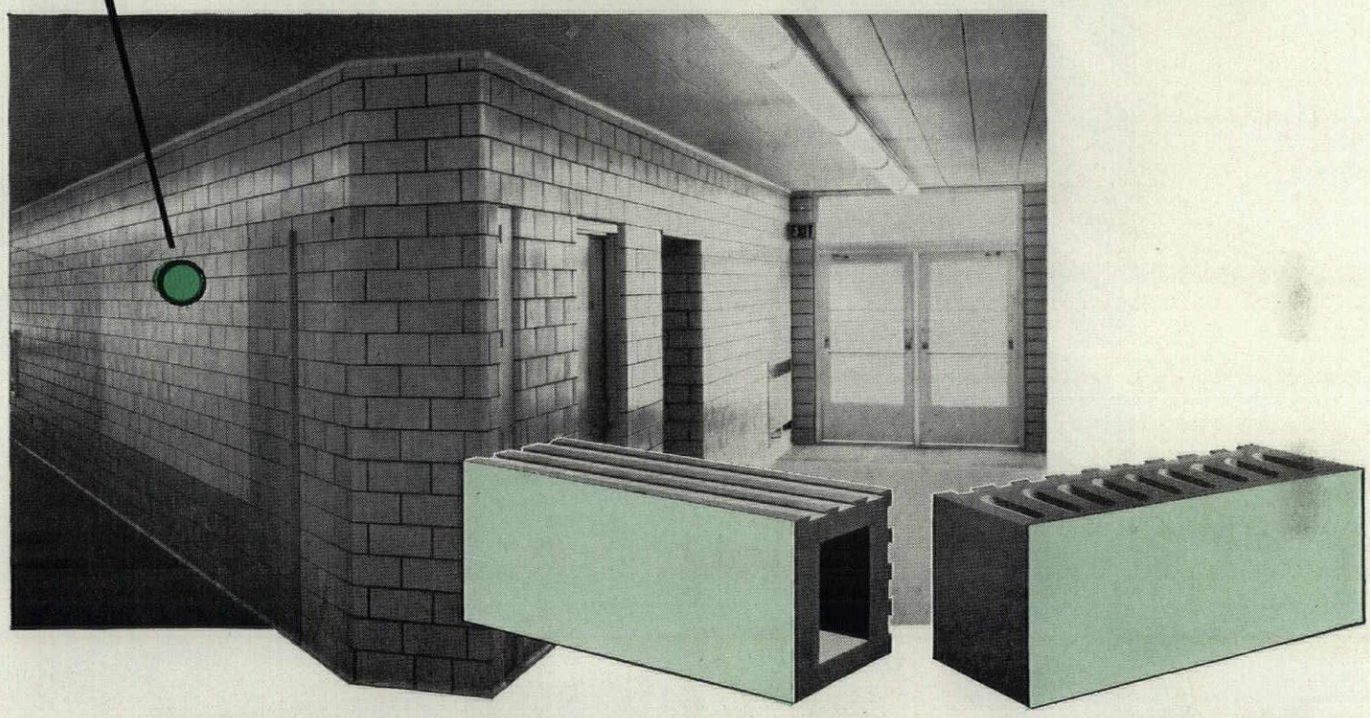
through increased production

FACING TILE



Increased production makes it possible to meet present demands for Facing Tile for all types of permissible building.

Orders placed now will receive prompt scheduling and delivery as needed.

Remember:

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- First cost is last cost
- It's "Color-engineered"
- It saves critical steel

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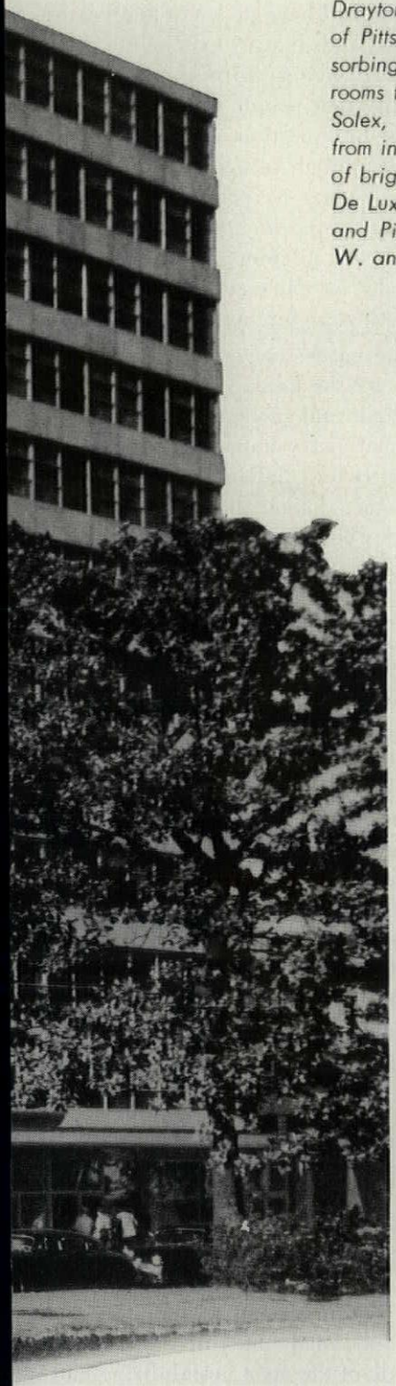
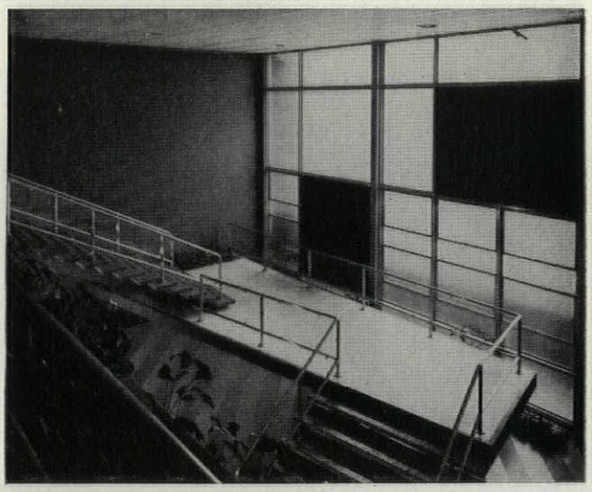
1949 Grand Central Terminal, New York 17, N. Y.

How American

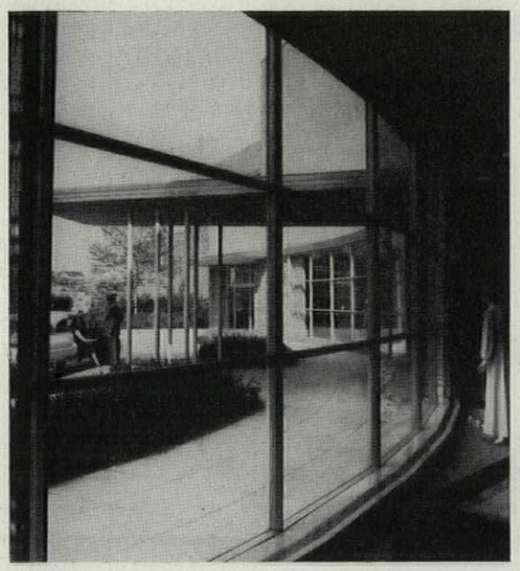
architects are utilizing Pittsburgh Glass in heavy construction



CONTRIBUTING to the over-all distinctive appearance of the new Drayton Arms Apartments in Savannah, Georgia, is the ample use of Pittsburgh Products. Windows are glazed with Solex Heat Absorbing Plate Glass—"the best glass under the sun"—to keep rooms ten to twenty degrees cooler. The soft greenish coloring of Solex, while almost unnoticeable when looking through the glass from inside, acts as a wonderful guard against eyestrain from glare of bright sunlight. Pittsburgh Doorways, Polished Plate Glass, Pittco De Luxe and Premier Metal help to create an open-vision lobby, and Pittsburgh Mirrors are used in every room. Architects: Cletus W. and W. P. Bergen, Savannah, Ga

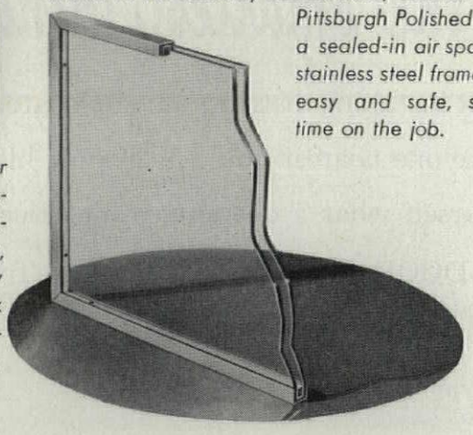


THIS STAIRWAY of a remodeled office building in Charlotte, N. C., shows the application of 1/4" Herculite Polished Plate Glass on the stair rails. The first floor of this building features large expanses of Pittsburgh Plate Glass. The second floor, which overhangs the first, is glazed with Solex Heat Absorbing Plate Glass. Other glass products used here include Herculite Doors, Pittco Premier Store Front Metal, Pittsburgh Mirrors in the washrooms. Architects: A. G. Odell, Jr. & Associates, Charlotte, N. C.



ALL EXTERIOR GLAZING at the new John Wanamaker department store at Wilmington, Del., with the exception of the display windows, utilizes Twindow, Pittsburgh's window with built-in insulation. Additionally, 2700 sq. ft. of Pittsburgh Polished Plate Glass, ninety Herculite Doors and 1/4" Pittsburgh Copper-Back Mirrors are effectively used in this most appealing structure. Architects: Massena & du Pont, Wilmington, Del.

TWINDOW® permits designing large window areas, without sacrificing heating or air-conditioning efficiency. That means abundant daylighting, with interior comfort. Twindow, as shown in the cutaway section here, consists of two panes of Pittsburgh Polished Plate Glass, with a sealed-in air space between. The stainless steel frame makes handling easy and safe, saves installation time on the job.



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PITTSBURGH PLATE GLASS COMPANY

IS HOUSING INFLATIONARY?

But how will things work out in 1952?

Our present difficulty is that we are again in a war and are getting ready for a still bigger one. Consequently, it is again necessary to pay billions of dollars for goods that have no economic value in the ordinary sense. So far these war goods have pretty well been paid for by taxation, but the outlook is that, before 1952 is out, taxes will not be enough. Then the government will have to go out and borrow —issuing new bonds that will come into direct competition for savings with houses and all the other things that people want to buy or to invest in. The big question will then be: Will the savings be enough to go around? Unless government spending is reduced, they almost certainly will not. So the government may be faced with the old dilemma of either making more money by an expansion of bank credit or else restricting the buying of normal goods.

Neither alternative is good. If the bonds are taken up by the banking system (instead of by individuals and savings institutions), an immediate inflationary impact will be felt. If goods are restricted, the influence on prices will be the same. And if the two are used together as they were during World War II, the lid will be off.

Priority for housebuilding

Another curtailment of private housebuilding can be seriously inflationary. Demand for houses is still strong—so strong that despite credit controls, material controls, and general confusion, the market has absorbed 1,000,000 new homes in 1951 on top of 1.4 million in 1950. The number of families is still increasing, and full employment makes new families seek houses sooner and older couples hold on to them longer. We are still far short of being replaced. The amount of deteriorated housing accumulated during depression and war.

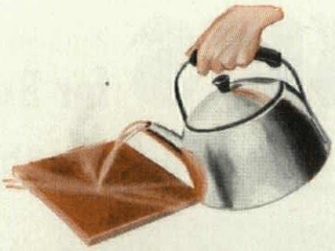
Any severe restriction now, therefore, will breed trouble for both the present and the future.

Yet it is just such action that bemused prophets are now vigorously urging. Mr. Eric Johnston, the erstwhile economic stabilizer, has demanded that housebuilding be cut to a limit of 450,000 to 500,000 new units during 1952 as an "anti-inflationary" measure. The effect would obviously be just the opposite. It would be about the most unstabilizing move that an economic stabilizer might dream of making.

For the present, it would mean the bidding up of prices and rents of existing houses, with the attendant evils of rent control and danger

(Continued on page 178)

TILE IS STAINPROOF



TILE IS WATERPROOF

TILE IS FIREPROOF

TILE CLEANS LIKE CHINA

TILE LASTS A LIFETIME

ONLY GENUINE CLAY tile DEFIES ALL SIX!

Genuine Clay Tile takes the heavy toll of traffic over the years . . . in kitchens, utility rooms, foyers and recreation rooms . . . resisting alike the constant wearing action of footsteps or the scratching of a carelessly dragged toy. Clay tile is proof against water and fire and wages a lifetime battle against staining and fading. It cleans like a china dish, paying a constant maintenance dividend. This handsome, *non-critical* building material is worth a fresh appraisal every time you design or build any type of building. Remember —whether it is for modern or traditional styling—clay tile is one of the most versatile materials you can use in designing distinctive color schemes.

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

PARTICIPATING COMPANIES:

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THE MODERN STYLE IS CLAY TILE

plain facts
you should know about ventilators . . .

fact 1 Although ventilators have long been selected primarily on the basis of capacity ratings, those ratings usually are based on *horizontal* wind tests only. *In actual use ventilators must perform with winds blowing at* ANY *angle.*

fact 2 Capacity ratings of most ventilators are not certified. Performance does not equal ratings claimed in some cases.

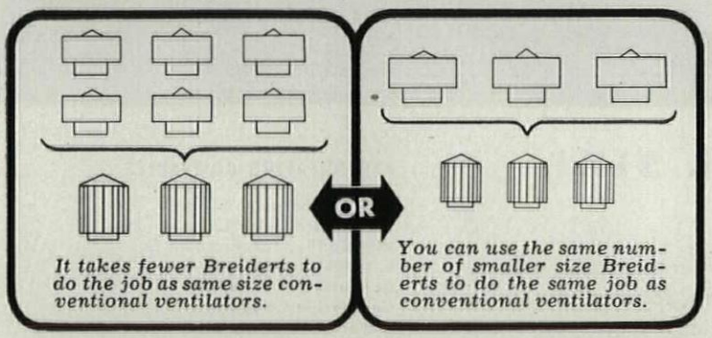
fact 3 Breidert Air-X-Hausters are the *pioneer* ventilators with published capacity ratings based on tests* made with wind blowing in *all* directions, as shown below.

Breidert Air-X-Hausters provide safe, sure ventilation no matter which way the wind blows (barring interior negative pressures). Stationary, no moving parts, nothing to jam or get out of order.

Breidert Air-X-Hausters

Patent No. 2269428

fact 4 The Breidert delivers better results at minimum cost, as indicated below.



It takes fewer Breiderts to do the job as same size conventional ventilators.

You can use the same number of smaller size Breiderts to do the same job as conventional ventilators.

Get *all* the facts! Write today for complete Engineering Data Book, including certified capacity ratings. Address Dept. J.

✔ Every businessman should read "Plain Facts and Simple Figures," written by G. C. Breidert. This thought-provoking article pertains to the problems of every American businessman. The first twenty lines will open your eyes! Write for a free copy.

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

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

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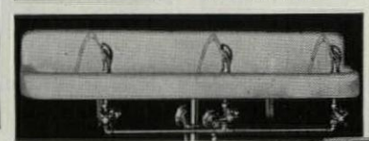
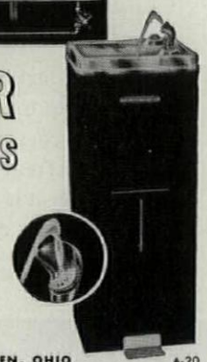
- BATTERY TYPES
- COOLERS



HALSEY TAYLOR COOLERS & FOUNTAINS



The Halsey Taylor line of Drinking Fountains and Coolers embraces types for every kind of structure . . . public, educational, church, hospital, commercial and industrial. And you'll find types to suit your needs, each with typical Halsey Taylor advantages . . . sanitary contamination-proof projector, contemporary design and a welcome freedom from servicing annoyances.

SEE OUR CATALOG IN SWEET'S

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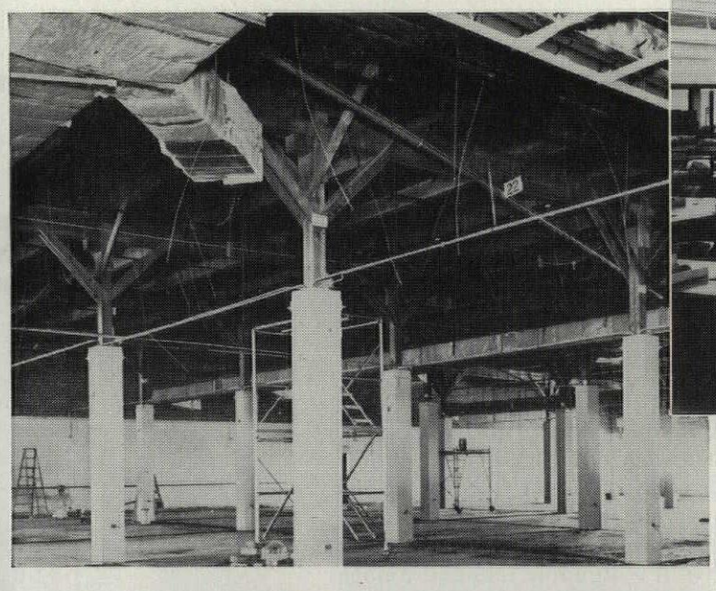
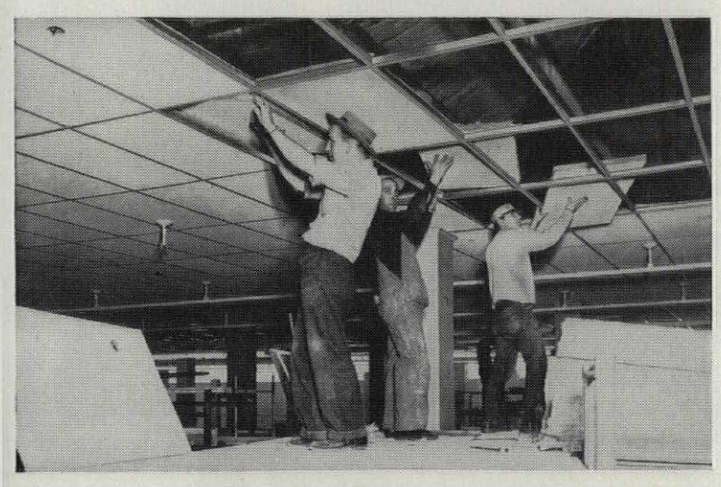
Building—3800 YORK BUILDING of Denver, Colo. **Building Designed by** Denver Region of Public Buildings Service of General Services Administration. **General Contractor**—Kirchoff Construction Co. of Denver. **Ceiling Contractor**—Construction Specialties Co. of Denver. **Material**—425,000 sq. ft. of Fiberglas Ceiling Board.





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This lightweight, low cost mineral-type acoustical material is easily and rapidly suspended on a grid system of T sections. Cost of materials and installation is about that of conventional non-acoustical ceilings.

For complete specification information on Fiberglas Ceiling Board call your Fiberglas acoustical contractor listed in the yellow pages of the phone book, or contact the Fiberglas branch office nearest you. OWENS-CORNING FIBERGLAS CORPORATION, Department 67-A3, Toledo 1, Ohio.

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BUILDING MATERIALS

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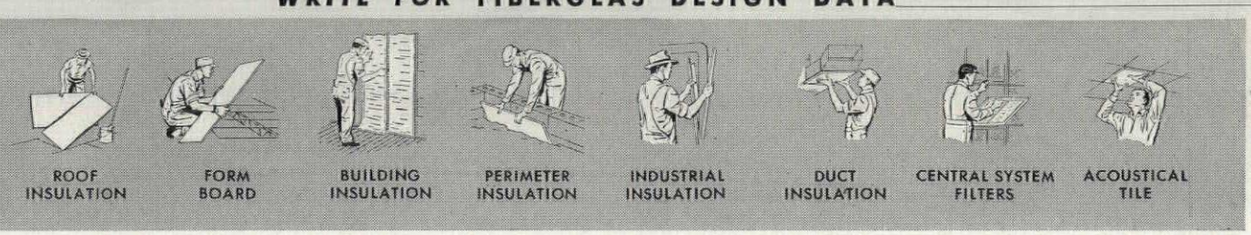

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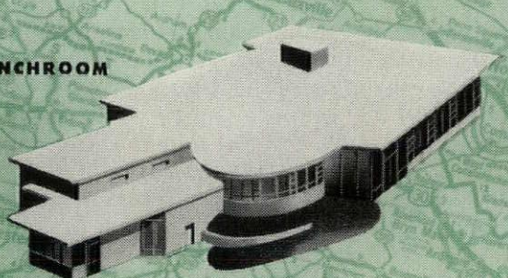
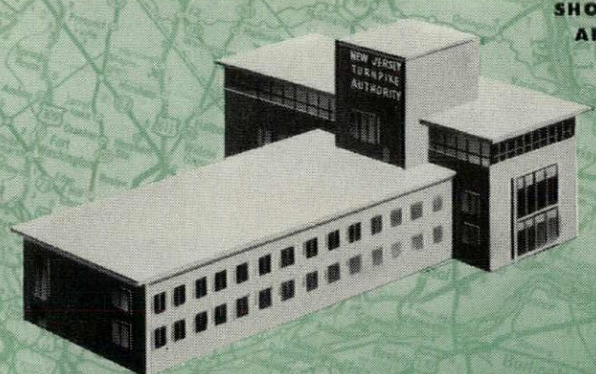
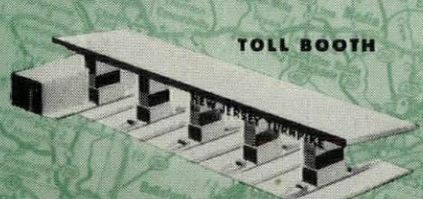


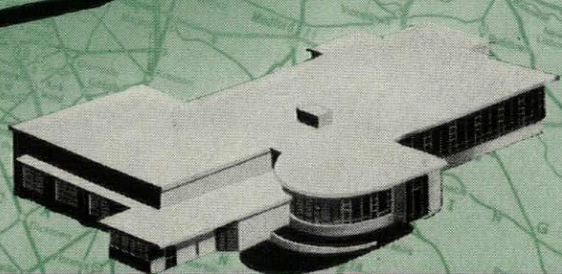
LUNCHROOM



ADMINISTRATION BLDG.



TOLL BOOTH



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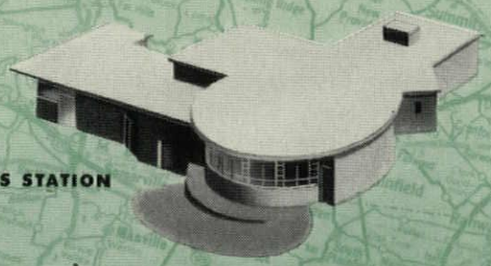
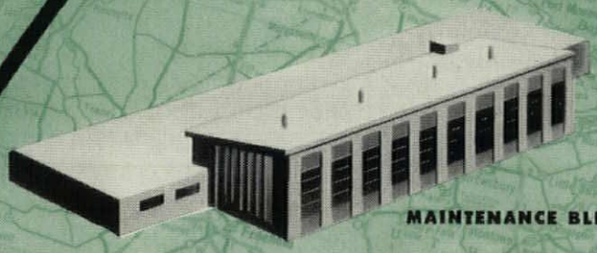


GAS STATION



MAINTENANCE BLDG.

118 MILES . . . 255 MILLION DOLLARS

Running from Delaware to the approaches of Manhattan, the 118 mile New Jersey Turnpike was constructed at an estimated cost of 255 million dollars. It boasts six lanes and forty-three service buildings, all exclusively equipped with YALE hardware. The entire system is Grand Master-keyed!

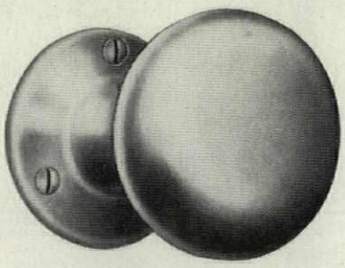
Architects:
Fellheimer & Wagner
New York, N. Y.

Associate Architects:
Frank Grad & Son
Newark, New Jersey

Contractors:
A. A. LaFountaine & George Arace
Hackensack, New Jersey

Hardware Supplier:
New Jersey Hardware Company
Newark, New Jersey

And, heres the Yale hardware specified...



YALE knobs and roses, #D35 and G222

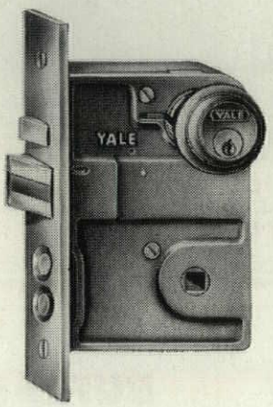
A knob within a knob, the #D35 has a bronze finish spun over an inner shell of steel. Result —beauty with strength and resistance to indentation. The perfect companion, rose #G222 is finished in bronze as well.

YALE Compact door closers—series 90

Available in many sizes and models, these famous YALE door closers work quickly, quietly and firmly. Smart-looking, they combine low installation costs with minimum upkeep.

YALE Builder's locks #8656

With self-lubricating latchbolt and armored front, this Builder's lock offers extra years of service and top security. Bronze fronts.



YALE is a registered trademark

IS HOUSING INFLATIONARY?

of further corruption of the credit system. It would cause the disruption of efficient building organizations, with the loss of capacity later to overtake the shortage.

For the future, it could produce again the impatient clamor for houses which followed World War II and made it politically difficult to restore sound financing methods.

What to do

Every effort should be made to prevent a repetition of the policies which forced construction costs up to more than twice their pre-World War II levels. That experience indicates that the first objective should be to control the monetary system—rather than trying first to control everything else.

The resort to bank financing of a federal deficit should be a very last resort. The way to avoid this is to keep the deficits to a minimum by reducing waste in military expenditures and by imposing a Spartan frugality on other government spending, and then to finance what must be borrowed directly from savings rather than from the banking system.

Saving, of course, should be encouraged, and home buying should be recognized as such an important form of saving that it could play an important part in economic stabilization. Money invested in houses is not available for spending on more volatile commodities. Consequently, the stabilizers might well consider giving housebuilding a priority next to defense itself, encouraging as large a volume of new housebuilding as may be financed out of savings (including, of course, the savings of lenders) and limited otherwise only by the amount of materials that can be made available.

Inflation vs. invasion

The requirements of national security plainly must come before everything else. But it is also well to bear in mind, as the insatiability of the military appetite is more and more demonstrated, that national security means more than arms alone. Since there can be no such thing as absolute security, the several dangers to it and the several means of achieving it must be weighed together. Inflation can be as serious a threat—and is perhaps a more present threat—than invasion. Both must be guarded against, not one to the exclusion of the other.

One important way to guard against inflation is to put real savings into housebuilding. And considering all the risks ahead, we may well begin to ask, not *is housing inflationary?* but *can we afford to run the risk of inflation by unduly restraining housing?*

Q-Floors modernize the method of construction

The architect has designed his building not only to *be* modern but to be *constructed* with modern methods.

This is something to consider—why put up temporary floors? A building under construction does not have temporary frame or temporary spandrels.

When Q-Floors are used, as in the handsome new Oil & Gas Building, a great deal of temporary material has been eliminated which is required by slower, old-fashioned construction. The steel subfloor, Q-Floor, goes up as fast as the frame. Welded permanently into position, it is used immediately as a working platform by all subcontractors. Clean, noncombustible, free from falsework and shoring, it is not slowed by inclement or freezing weather. Mechanics can work *continuously* throughout a Q-Floor job. Materials can be stored close to where needed, saving extra handlings and off-site storage space. By proper job organization, construction time can be cut 15 to 20% with Q-Floors.

On big jobs, this has saved a great deal of money. Furthermore, the earlier completion date brings revenue in sooner.

The electrical feature of Q-Floor, also, has construction and economic advantages. The steel cells of Q-Floor act as raceways for electrical systems. An outlet can be established on any six inch area of the finished floor, in a matter of minutes, by merely drilling a small hole and installing a fitting. Therefore, outlets and partitions can be located *after* tenants move in. This saves a lot of drafting room time.

Quick-change of electrical layout spares tenants the usual prohibitive initial and future alteration costs. This feature alone is giving Q-Floor buildings a great lead in the competitive rental field.

When you build with Q-Floor, you and your client have the satisfaction of knowing that the building can never become electrically obsolete.

Write for the latest Q-FLOOR CATALOG and folder showing the new Q-Floor buildings with architect listings.

Oil & Gas Building, Fort Worth, Texas
J. Russ Baty—*Architect*
Robert J. Cummins—*Structural Engineer*
Reg. F. Taylor—*Mechanical Engineer*
Butcher & Sweeney, Inc.—*Contractor*

Q-FLOOR

H. H. ROBERTSON CO.

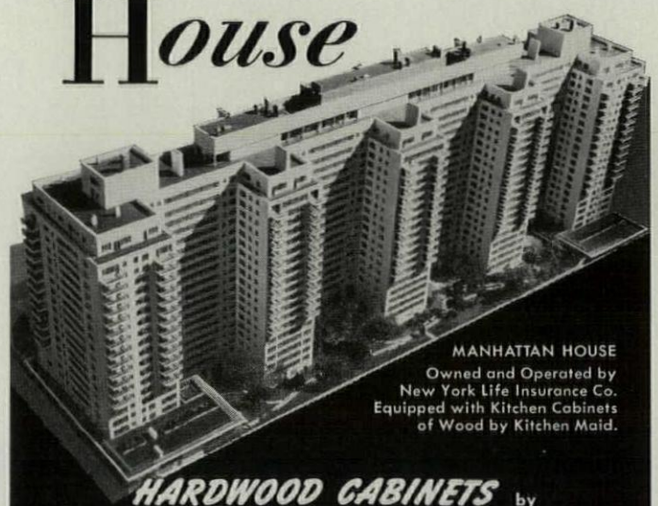
2403 Farmers Bank Building
Pittsburgh 22, Pennsylvania

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

World-Wide Building Service

In magnificent

Manhattan House

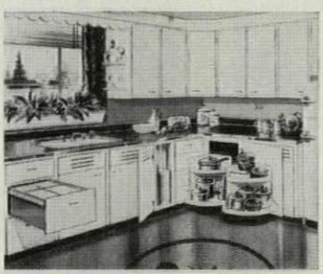


MANHATTAN HOUSE
Owned and Operated by
New York Life Insurance Co.
Equipped with Kitchen Cabinets
of Wood by Kitchen Maid.

HARDWOOD CABINETS by

KITCHEN MAID

Magnificent Manhattan House, the remarkably modern residential apartment project recently completed in midtown New York, contains many notable advances that contribute to the comfort, pleasure and convenience of its occupants. It is not surprising, therefore, that the owners selected Kitchen Maid Flo-Line cabinets of warm, friendly wood. By their use in scores of modern apartment buildings and thousands of fine residences throughout the land, Kitchen Maid has proved their superiority time and again. Builders appreciate especially, the modern Flo-Line styling, the fine cabinet work, the flexibility and permanency of wood construction, and the skilled assistance provided by an old, experienced dealer organization. Decide now to choose Kitchen Maid cabinets for your next job. Write for catalog.



Kitchen Maid builds kitchens for apartment houses, residences, schools, hospitals and other public buildings. Above—a typical residential installation.

KITCHEN MAID
FIRST AND BEST IN
KITCHENS

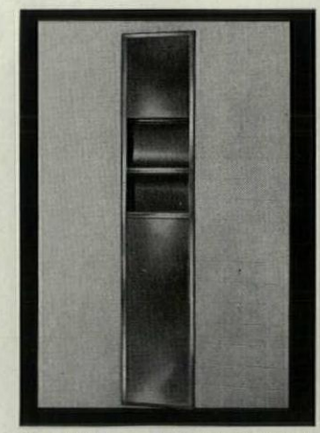
THE KITCHEN MAID CORPORATION, 621 Snowden Street, Andrews, Ind.
Please send new booklet containing 10 practical kitchens with details of the complete Kitchen Maid line. I am an ☐ **Architect,** ☐ **Builder,** ☐ **Dealer.**

Name_____

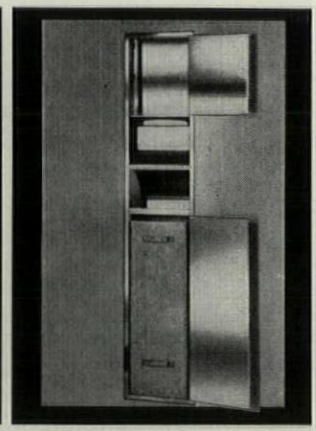
Address_____

Look for this Sign

Look for this sign in your dealer's window. It signifies his skill as a member of the nation's oldest kitchen planning organization.



No. 945 Recessed Towel Cabinet & Waste Receptacle...fabricated of stainless steel . . . designed for efficiency.



Removable waste receptacle. Towel compartment dispenses approximately 400 "C" type folded towels.

For *really* modern washrooms—

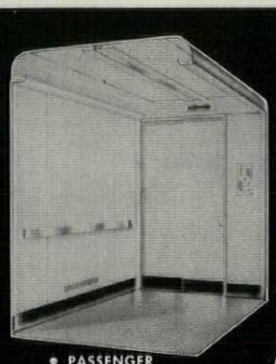
the Scott No. 945 Recessed Towel Cabinet and Waste Receptacle

Here's the fixture designed specifically to meet today's growing trend to recess fixtures.

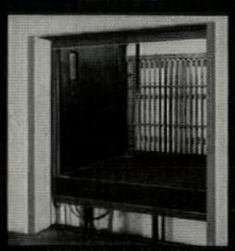
For a detailed dimension and installation drawing of the No. 945 fixture or for the help of a trained Scott consultant, write Washroom Advisory Service, Dept. A1, Scott Paper Company, Chester, Penna.

SCOTT
Symbol of Modern Washrooms
Trade Mark "Washroom Advisory Service" Reg. U. S. Pat. Off.

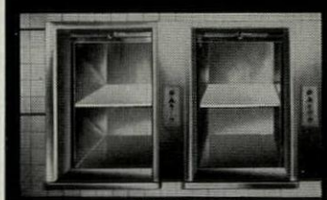
SHEPARD



• PASSENGER ELEVATORS



• FREIGHT & SERVICE ELEVATORS



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for HIGH DEPENDABILITY
GREATER ECONOMY
LESS MAINTENANCE

Shepard passenger and freight elevators are quiet, dependable and extremely trouble-free. Their simple yet ruggedly designed mechanism and foolproof controls require minimum maintenance. Liberal use of ball bearings, practical design and precision manufacture assure long, low-cost service. Write for 58-page architect's elevator reference book.

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5007-A2 BROTHERTON RD.
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LAMIDALL®

a *true* decorative plastic laminate—

3 reasons why you'll like it—and want to use it!

1 It's **QUALITY**—A hard durable surface . . . structural 1/8" thickness . . . beautiful wood grains*, patterns and colors in panels up to 4 x 12 ft. . . . resists stains, heat, hard blows and wipes clean with a damp cloth.

2 It's **VERSATILITY**—For 101 wall, ceiling *and* top surface uses . . . use it everywhere that you want the combined advantages of beautiful, long-lasting, maintenance-free surfaces.

3 It's **ECONOMY**—Although a genuine plastic laminate, Lamidall is priced in the range of low-cost, less-durable wall paneling materials . . . its structural strength and thickness permit simple on-the-job application.

Whether your jobs are new building or remodeling in commercial, industrial or residential work, you can use beautiful Lamidall in the many places you want the top quality of a true *plastic laminate but at a price within the budget.*

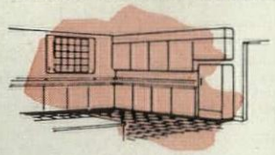
**FOR 101 WALL PANEL CEILING AND TOP SURFACE APPLICATIONS*

commercial buildings

hotels—hospitals

restaurants—bars—clubs

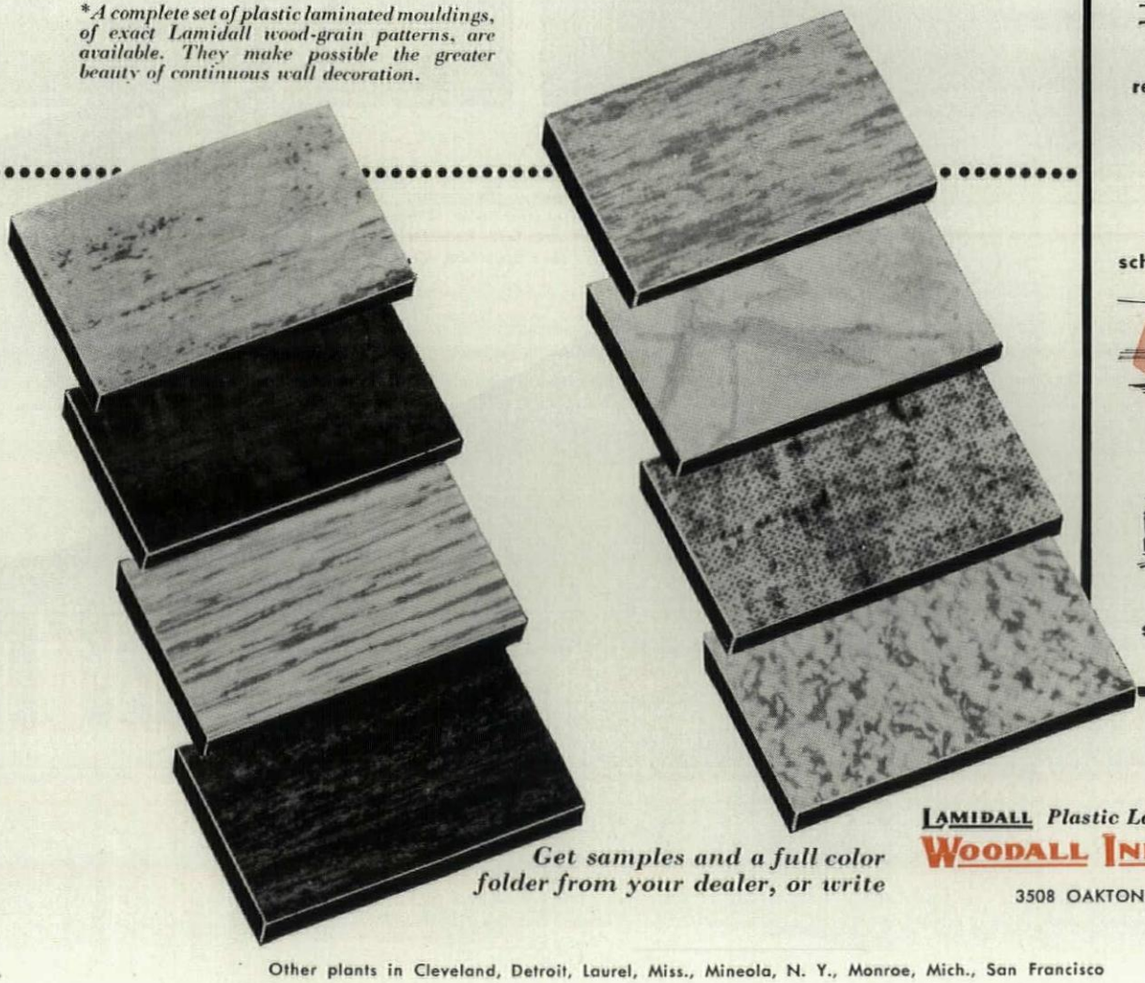
schools—churches—theatres



kitchens—baths

stores—shops—offices

*A complete set of plastic laminated mouldings, of exact Lamidall wood-grain patterns, are available. They make possible the greater beauty of continuous wall decoration.



Get samples and a full color folder from your dealer, or write

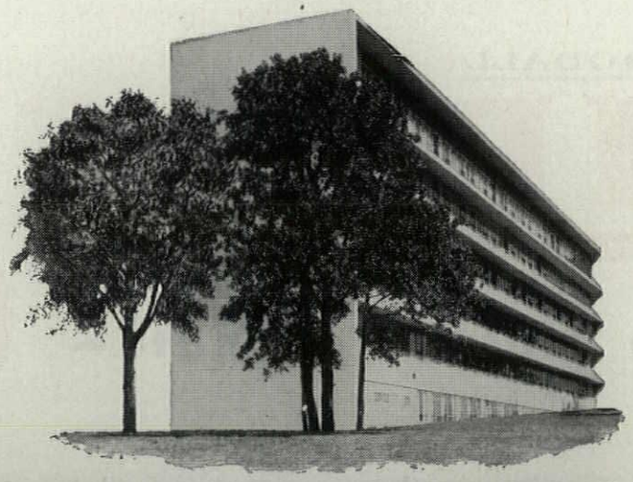
LAMIDALL *Plastic Laminate is a product of*

WOODALL INDUSTRIES INC.

3508 OAKTON ST., SKOKIE, ILL.

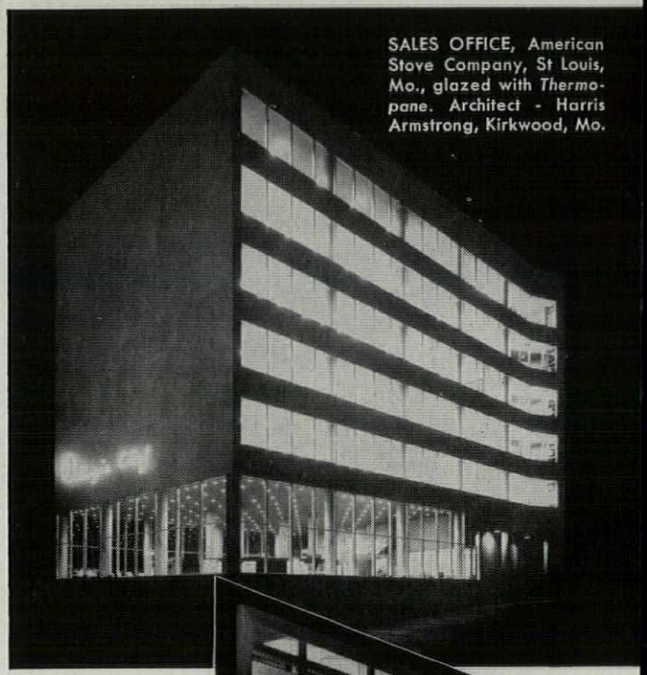
Other plants in Cleveland, Detroit, Laurel, Miss., Mineola, N. Y., Monroe, Mich., San Francisco

See THE

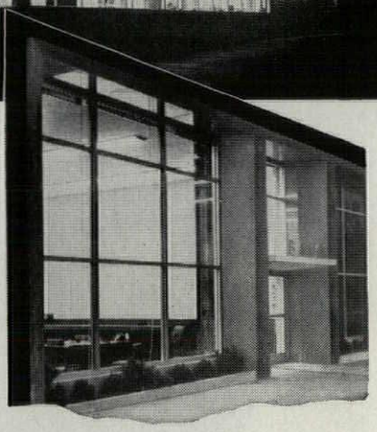


HOSPITAL, Smith County Hospital, Tyler, Texas, glazed with *Thermopane*. Architect - Shirley Simons, Tyler, Texas.

FACTORY, Florsheim Shoe Company, Chicago, Ill. Architects - Shaw, Metz & Dolio, Chicago, Ill.



SALES OFFICE, American Stove Company, St Louis, Mo., glazed with *Thermopane*. Architect - Harris Armstrong, Kirkwood, Mo.



BANK, American Trust Company, Sunnyvale, Calif., glazed with *Thermopane*. Architect - Rudolph Iqaz, Jr., San Francisco, Calif.

LOGIC...AND THE BEAUTY OF...

today's façade

No matter what is to be housed behind the facade—factory, office, school or hospital—if it's modern, it's a Daylight Wall. And if it's a Daylight Wall, people like it.

The new philosophy of building is to protect—not imprison. A Daylight Wall is clear, flat glass from wall to wall and sill to ceiling. In many instances—from floor to ceiling.

Clear, flat glass, because people like lots of daylight and clear glass transmits more light than glass in any other form . . .

Wall to wall, because this is economical, lightweight protection, especially economical for curtaining a multistory building . . .

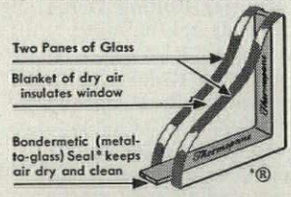
All the way to the ceiling, because any nontransparent material above the window presents a barrier to vision and so sets up psychological limits to the room size; whereas, clear glass does not obscure vision but permits the lines of the ceiling to go on, apparently into the sky. Thus the feeling of bigness and freedom from the outdoors is linked with the room space.

Daylight Walls have now proved themselves in all orientations, in all types of buildings and in all regions of the country. They are economical—judged by first cost, by installation cost and by low maintenance cost. When made of *Thermopane** insulating glass, they increase the efficiency of air-conditioning and heating systems. But they also provide ventilating units close to the ceiling, when desired, for air circulation. Heat Absorbing plate glass is available to serve special needs.

So consider the value of view, a sense of spaciousness, lots of daylight and economy—these are the reasons why the Daylight Wall has become the facade of modern living in all its aspects.

FOR WINDOW INSULATION

*Thermopane** insulating glass is widely and successfully used. *Thermopane* with ½" of dry air hermetically sealed between two panes has twice the insulating value of single glass. This minimizes chilliness, drafts and heat loss at windows. *Thermopane* cuts air-conditioning costs by reducing the amount of heat entering during summer. Write for *Thermopane* literature. Libbey·Owens·Ford Glass Company, 4212 Nicholas Building, Toledo 3, O.



L·O·F GLASS

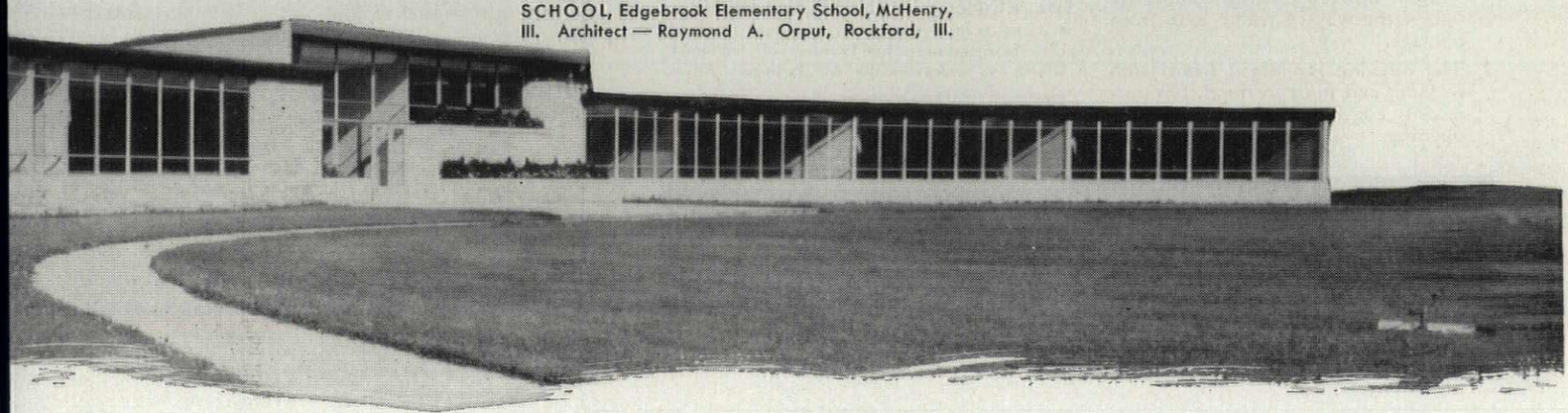
DAYLIGHT WALLS

THAT DON'T OBSCURE VISION

THERMOPANE • PLATE GLASS • WINDOW GLASS

Other L-O-F Glass Products: Vitrolite Safety Glass E-Z-Eye Safety Plate Tuf-flex Plate & Doors Fiber-Glass

SCHOOL, Edgebrook Elementary School, McHenry, Ill. Architect — Raymond A. Orput, Rockford, Ill.



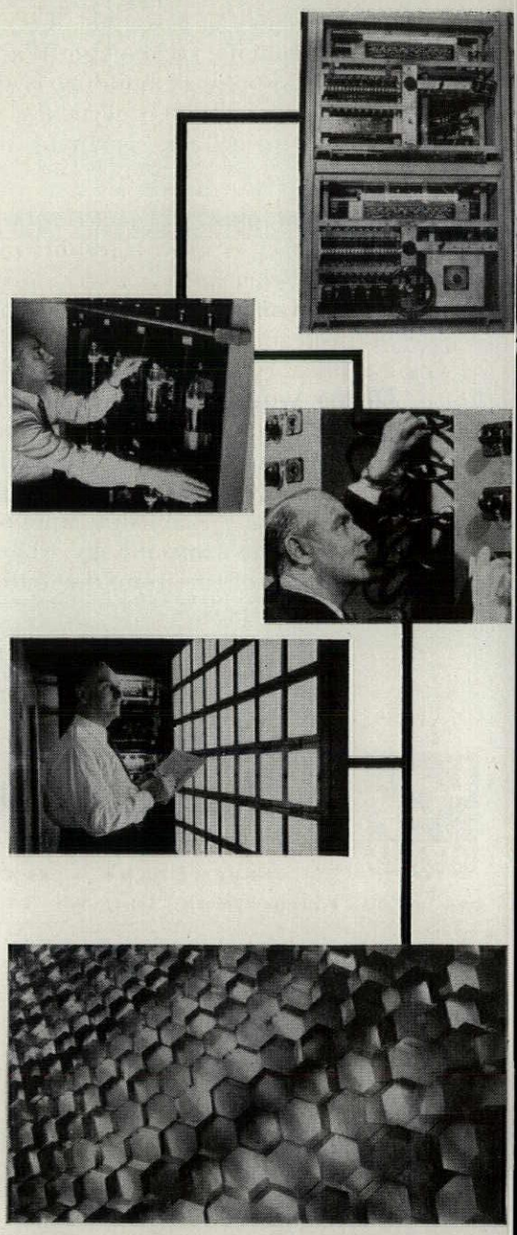
LOBBY OF LIGHT

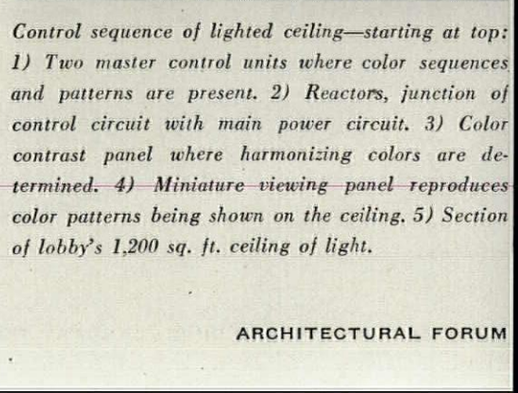
(Continued from page 120)

Any number of units may be added to the basic, four-lamp unit. The Webb & Knapp lobby contains 480 of them arranged in banks to produce 48 operating electrical units. Each of the 48 may be operated independently of the others and the results viewed "backstage" on a miniature viewing panel divided into 48 squares.

In Webb & Knapp's huge arrangement, the two master controllers are aided by a photoelectric cell which automatically increases or

(Continued on page 186)





Control sequence of lighted ceiling—starting at top: 1) Two master control units where color sequences and patterns are present. 2) Reactors, junction of control circuit with main power circuit. 3) Color contrast panel where harmonizing colors are determined. 4) Miniature viewing panel reproduces color patterns being shown on the ceiling. 5) Section of lobby's 1,200 sq. ft. ceiling of light.

"maintenance time cut 50%"

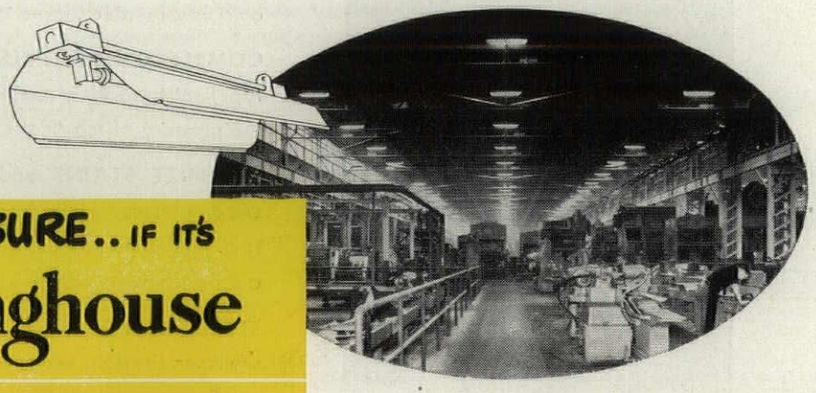
with Westinghouse MERCURY lighting

A typical customer's problem: "To reduce the time spent on lighting maintenance."

Westinghouse recommendation: "To install Westinghouse Mercury Lighting."

Result: "Less than half as many fixtures to maintain and fewer lamps to replace, because mercury vapor produces more light per luminaire than any other lighting system."

This is only one case out of hundreds of "time-tested" installations. All show evidence that Westinghouse Mercury Lighting is a fast growing industry favorite. Investigate the complete line: 400, 1,000 and 3,000-watt units for either low or high-bay areas . . . open or closed fixtures for clean or dirty locations . . . high or low-voltage ballasts for any distribution system. Send for B-4727, **"Westinghouse Lighting at Work" in every industrial area.** Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.



YOU CAN BE SURE.. IF IT'S

Westinghouse

LIGHTING DIVISION

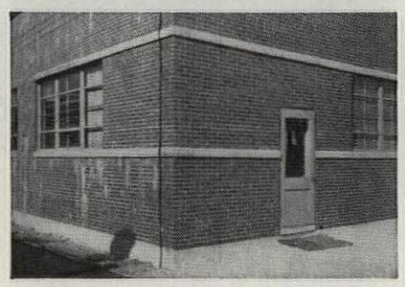
Edgewater Park, Cleveland

J-04294

KEEP THE MASONRY BUILDINGS YOU DESIGN DRY AND FREE FROM UGLY STAINS AND EFFLORESCENCE

Among many able advocates of water repellent treatments made with Dow Corning silicones, we are proud to name *ALDEN B. DOW*. His enthusiasm is based on his own experience as architect of Midland's Northeast Intermediate School, one of the first buildings to be protected from rain and efflorescence by this new silicone treatment.

Specify a water repellent treatment made with Dow Corning silicones to protect above-grade masonry



A WATER REPELLENT EXTERIOR KEEPS INTERIOR WALLS DRY; PREVENTS SPALLING & CRACKING. Within 24 hours after one of these silicone treatments is applied, masonry walls become so water repellent that a light rain will not wet the surface. Even after prolonged exposure to a driving rain, silicone treated walls absorb only a small fraction of the amount of water sucked in by an identical, untreated surface.

COMPLETELY INVISIBLE and NON-PLUGGING. These silicone water repellent treatments cause no change in the color or texture or in the porosity of masonry walls.

MINIMIZE STAINS and EFFLORESCENCE. Most of the dirt that settles on silicone treated walls will be washed-off rather than soaked in by the rain. Furthermore, soluble salts within the walls are not dissolved and drawn out by the water to form efflorescence.

EFFECTIVE FOR YEARS. Tests indicate that properly treated masonry walls may remain water repellent for five years or more.

EASY and INEXPENSIVE TO APPLY. Quickly and easily applied whenever outdoor work is practicable, the cost of a good silicone treatment is low enough to justify its use on homes as well as public and industrial buildings.

the silicone ingredient is made by **DOW CORNING CORPORATION • MIDLAND, MICHIGAN**

ATLANTA • CHICAGO • CLEVELAND • DALLAS • LOS ANGELES • NEW YORK • WASHINGTON, D. C.

In CANADA: Fiberglas Canada, Ltd., Toronto • In GREAT BRITAIN: Midland Silicones, Ltd., London

LOBBY OF LIGHT

reduces brilliancy (by varying the amount of white mixed with the colors) according to changing daylight conditions.

To diffuse the lights and produce a well mixed color, a ceiling of hexagonal plastic sections was used. Called a hexcrate, it provides the screen through which the continuing drama of light is played.

Behind the facade

The lobby of light is the finishing touch on the renovation of a block-sized pair of buildings erected at minimum cost in 1922-23 to house furniture showrooms. When a builders' strike delayed opening a nearby buildings in the 1920's, the owners opportunistically converted the 383-385 Madison Ave. building into office space. During that booming decade, the buildings earned many times their preconstruction budget, but when the depression hit and millions of square feet of office space were brought on the market, the buildings were among the first to suffer. One of them went broke and was taken back by the New York Central Railroad whose tracks run underneath. Then Webb & Knapp bought the buildings at a bargain price.

When Zeckendorf joined Webb & Knapp, he had an inspiration that air conditioning and high-brightness artificial light would soon change the economics of office rentals. In addition, he had become convinced that big corporations can operate their offices more efficiently on big, square floors rather than on long floors stretched out to keep all offices close to windows. Square floors, he argued, reduce distances from office to office and provide large open spaces where clerical workers can be more easily supervised. Furthermore, the Webb & Knapp buildings on Madison Ave. had the big, square, compact floors and *could* have the lighting and air conditioning necessary to convert the dark, gloomy areas into highly desirable space.

Back in competition

Over the past six years, Zeckendorf has been backing his ideas with a renovation program which cost more than the original structures. Exterior sand blasting, interior redesigning, redecorating and rewiring (for a.c.), plus complete air conditioning now are nearly finished. The renovation has put the former loft buildings into direct competition with not only the best prewar offices but the best postwar buildings as well.

"...involving the world's largest and most intricate air conditioning project."

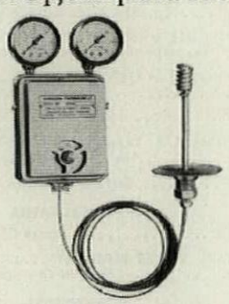
The Kalamazoo, Michigan, Plant of the Upjohn Company
The Austin Company, engineers and contractors, Chicago, Ill.

Over all, constantly on duty, are the super-human "brains" of another Johnson System of automatic temperature and humidity control. Like all Johnson Systems, the installation at Upjohn's was designed especially to solve the precise requirements of the industry which it serves. Such flexibility assures just the right results, regardless of the unusual applications which are encountered.

In the thoroughly modern Upjohn plant, the adaptability of Johnson equipment is demonstrated conclusively. There are 126 separate year-round air conditioning systems, with central heating and cooling coils, and at each the temperature of the air delivered to eight or more branch reheaters is controlled by Johnson instruments commanding Johnson valves and dampers. The characteristic Johnson "Master-Submaster" principle is employed in controlling Johnson valves on the reheaters. Submaster room thermostats for each area are reset, in accordance with outdoor temperature, to maintain exactly the required condition.

In addition to the comprehensive air conditioning equipment, 10 heating systems for smaller areas, 27 sets of convertors and 108 exhaust systems also are Johnson-controlled. In the truss spaces, 52 unit heaters are operated by Johnson thermostats and dampers, to prevent roof losses. Various special-purpose systems, for snow melting, office heating, hot water circulation in the warehouse, produce proper temperatures at the command of Johnson controllers which operate Johnson valves and dampers.

"Comfort" air, "process" air and critical humidity requirements present varied problems at the Upjohn plant. The proper solution of those problems is a part of the Johnson planned-for-the-purpose, installed-for-the-purpose policy. Whatever your problem may be, ask a Johnson engineer from a nearby branch office. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.



Johnson T-800-A
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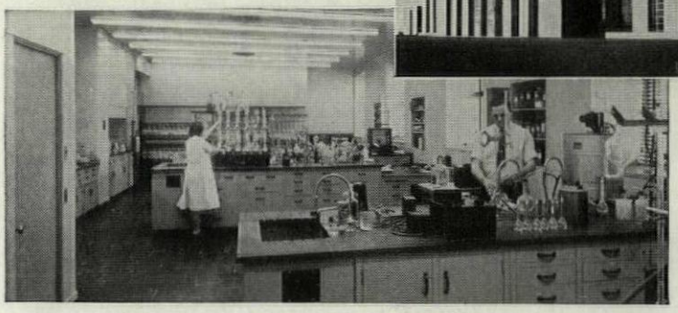
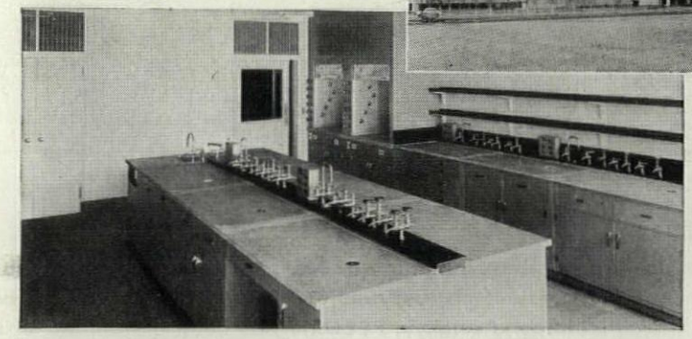
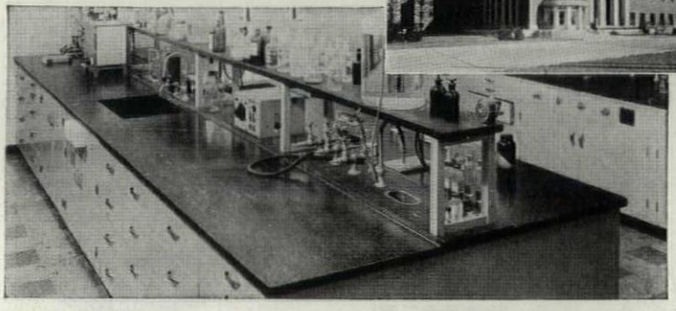


Esso Research Center of the Standard Oil Development Company at Linden, N. J. Architects—Voorhees, Walker, Foley & Smith.



Sinclair Refining Company's new research center at Harvey, Illinois—design and construction by the Austin Company.



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NEW SKYSCRAPER

(Continued from page 125)

Absorptive air conditioning system sets record in size and flexibility

Air conditioning of Manhattan's new Sinclair Oil Building is noteworthy on two counts: 1) It is the biggest system of its kind in existence, and 2) Its design permits the most flexible operation possible today.

Decision to make a roof installation of direct absorption type air conditioning units was motivated by complicated basement conditions and economic considerations with regard to pumping costs.

What normally would be the basement was to be used for stores on the underground concourse connecting the building with Rockefeller Center. Normal sub-basement space was needed for services, which would have meant deeper excavation to place air conditioning equipment below the ground floor. Thus, 1,763 cu. yd. of excavating of solid Manhattan rock were eliminated (at an approximate saving of $12,000).

By placing these units on the roof no static head pressure is lost in the chilled water circuit. Proximity to the cooling tower also materially reduced friction drop in condensing circuit pressure. As a result, the decision for roof installation was made.

Four of the direct absorption type units were installed in parallel on the 27th floor. Though the installation cost of these refrigeration units ran 5 to 10% higher than that of other systems, the fact that piping to cooling tower was kept at a minimum and excavation for housing the units was eliminated more than offset this expenditure.

Two condensing water pumps (with a third on a stand-by basis) supply cooling water to the four refrigeration units which are the largest such machines commercially available: rated at 350 tons at 45° F. Steam at 60 psi is the source of energy.

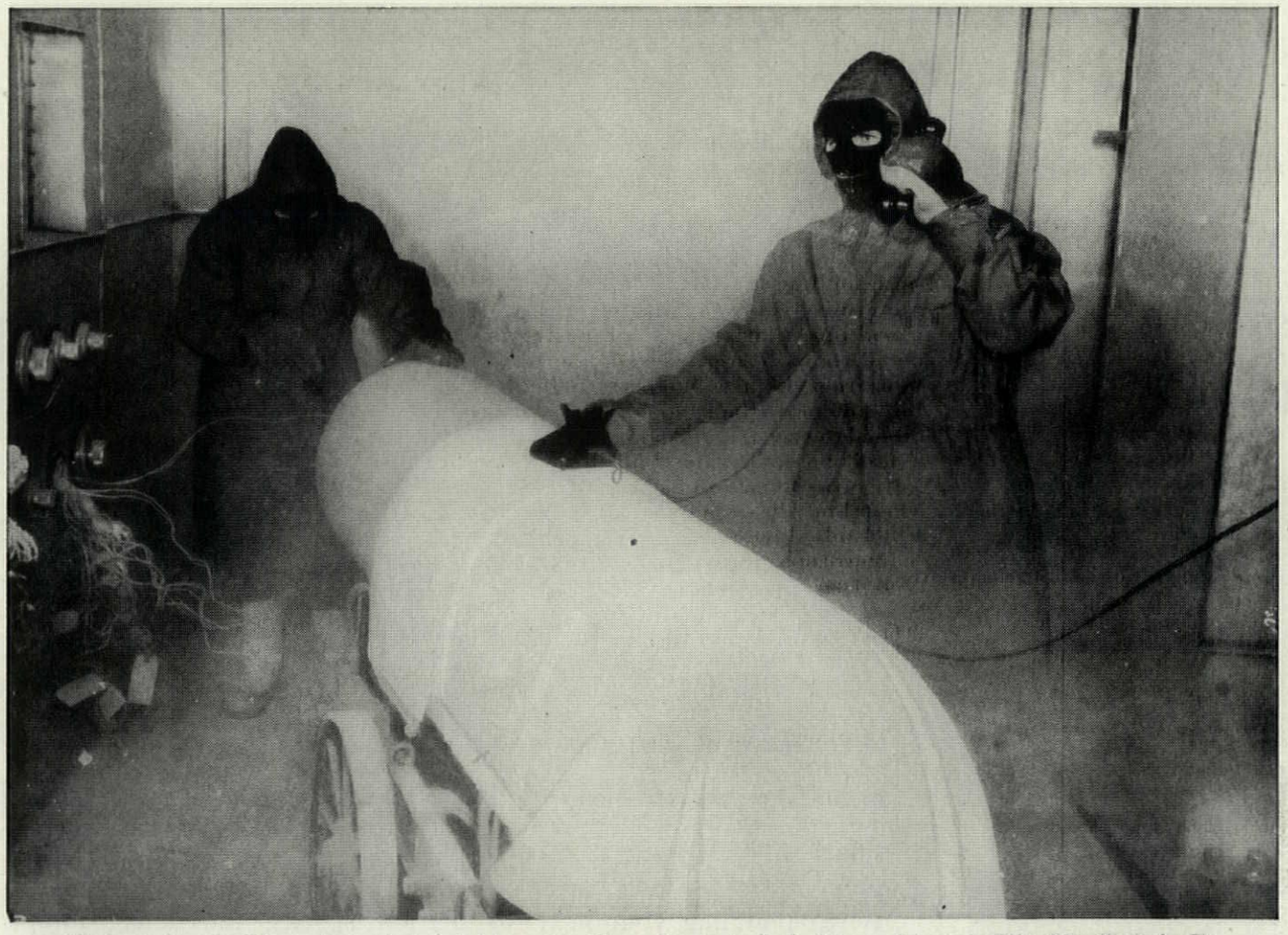
Chilled water goes to 1) four high-pressure central station units which serve a typical high-pressure window unit system, 2) interchanger or mixing valve assembly for secondary coils in the window unit system and 3) low pressure central station units on each floor which serve interior zones from the second floor through the tenth, plus two additional low pressure central stations serving the relatively small interior zones in the tower.

The entire system provides for winter heating and summer cooling through the same central stations and window units. In line with the most advanced engineering practice, room to room control is available and one room can be heated while a room on the opposite side of the same floor can be cooled as the sun load shifts.

This is accomplished by varying the operation of the secondary (chilled or hot water) coil in the window unit system and the primary air source. One can produce heat while the other continues to cool and the resulting mixture is controlled by the room thermostat.

Water to water heat exchange is used for the window units up to the tenth floor. Reason: The static head pressure in the window unit circuit resulting from the 27-story height of the building is in excess of the window units' design specifications.

Room thermostats (controlled by the occupant) are arranged to provide maximum flexibility in any future redisposition of the wall partitions.



"We have to know that this new mine is going to do its job even after riding for hours under the belly of a plane or being stored long periods in sub-zero temperatures," said R. E. Hightower, chief of the Technical Evaluation Department, Naval Ordnance Laboratory, White Oak, Maryland. The desired temperature and humidity conditions are precisely provided by Worthington refrigeration. Contractor: Arthur E. Magher Co., N. Y., N. Y.

They're Checking Ordnance at 65° Below!

You see, that cylindrical object is a mine. The masks keep faces from freezing as the Navy studies icing effects to be certain that neither ice nor stiffened parts will affect its operation when dropped from a sub-zero atmosphere into the ocean.

These studies are made in the new stainless steel temperature simulation chamber at the Naval Ordnance Laboratory, White Oak, Maryland, where ordnance equipment can be subjected to temperatures from 200 above to 100 below zero, Fahrenheit, with any desired humidity.

The naval laboratory uses a Worthington brine cooling system composed of one centrifugal compressor and four reciprocating compressors to reduce the temperature of the chamber to minus 100 F.

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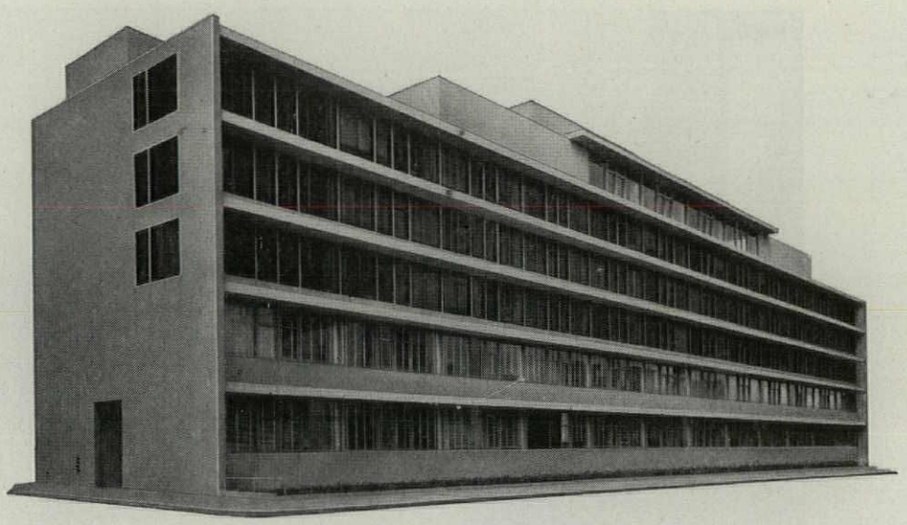

Mount Zion Hospital, San Francisco, Calif., Architects: Skidmore, Owings & Merrill, N. Y.

Along with many other types of public buildings, hospitals enjoy the advantages of LEVOLOR-built Venetians—their smooth, quiet performance, their easy-to-clean (and *keep* clean) plastic-coated finish, and their smart tailored heads and bottom bars!

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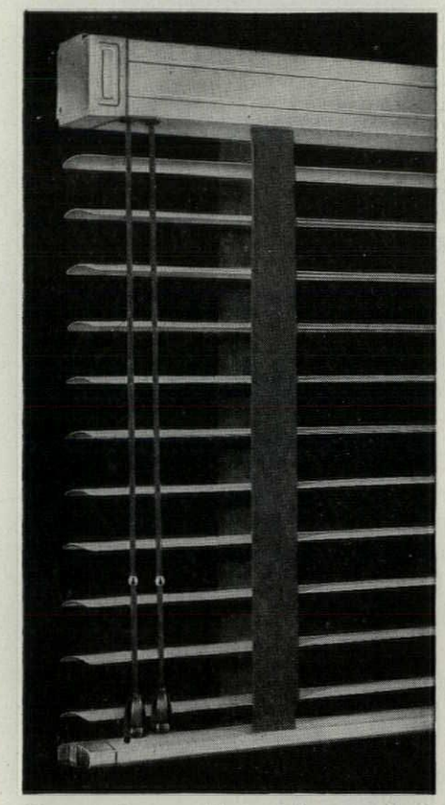

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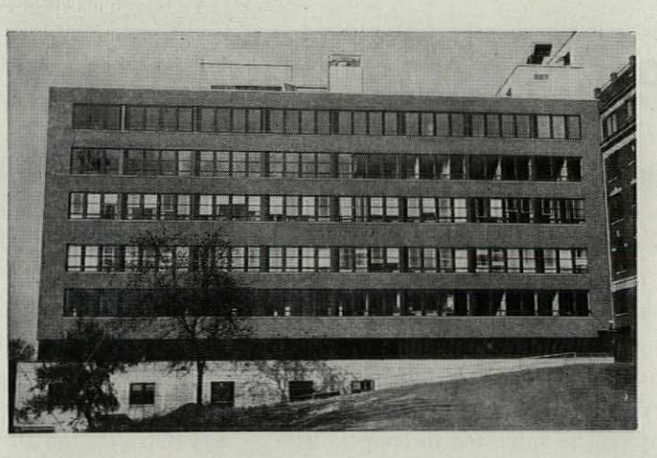
See our catalog in Sweet's Architectural File, 19D-3A, and Sweet's File for Builders, 3E-5.



Iowa Methodist Hospital, Des Moines, Ia., Architects: Brooks & Borg.

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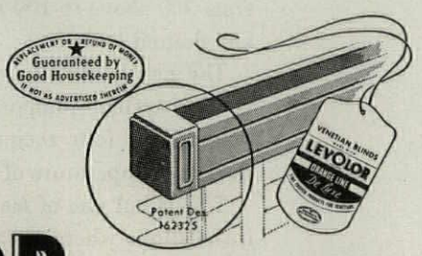

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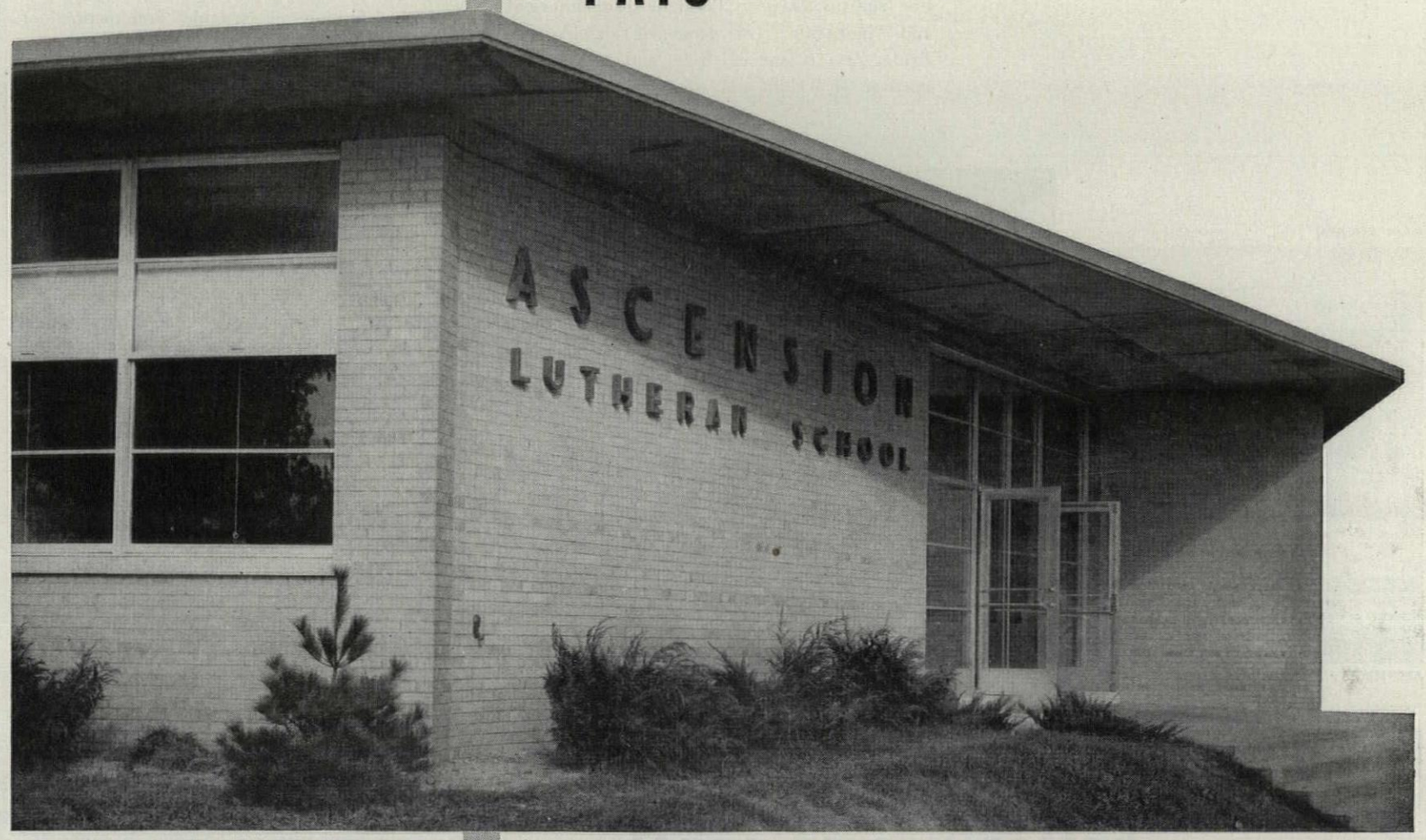

Ascension Lutheran School. Architect: Kenneth E. Wischmeyer (formerly Wischmeyer & Lorenz), St. Louis. Contractor: George Moeller Construction Company, St. Louis. Wood Treater: Associated Wood Preservers, St. Louis. Lumber: Hill-Behan Lumber Company, St. Louis.

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REVIEWS

TOWARDS AN ORGANIC ARCHITECTURE by Bruno Zevi. Faber & Faber, Ltd., London. 173 pp. 5¾ x 9". 25s.

In the current "Battle of the Styles" within modern architecture, some critics have drawn the line sharply between "organic" (or informal) and "inorganic" (or geometric) architecture. Bruno Zevi is one of these, and as an ardent partisan of Wright and, thus, of "organic architecture," he is in as good a position as anyone to speak up for this direction. It is a direction best represented in the U. S. on the West Coast; but its followers have worked all over the world, notably in Switzerland and in the Scandinavian countries.

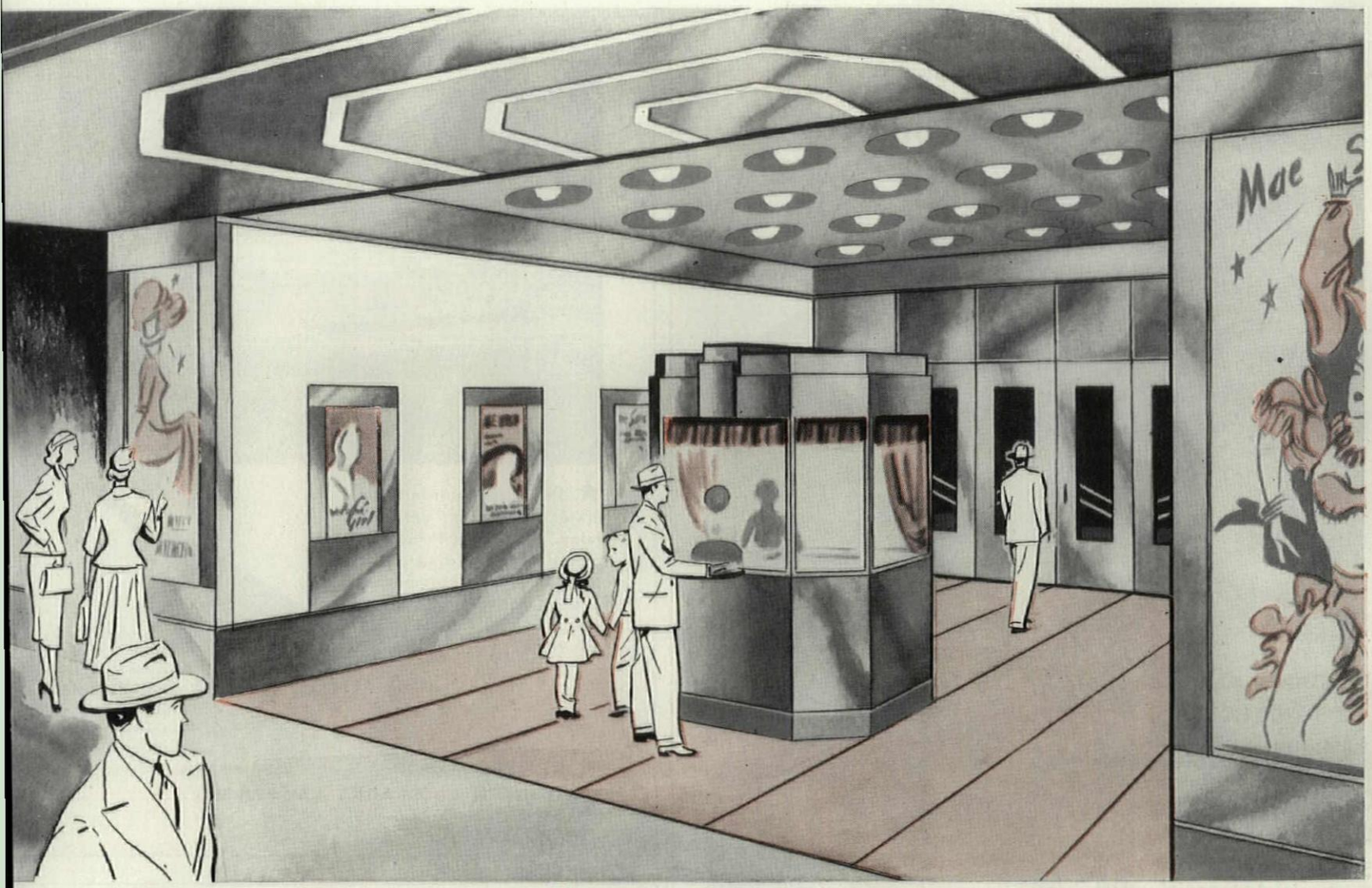
His definition of organic architecture—or, rather, that of Walter Behrendt, with whom Zevi seems to identify himself—is that its characteristics are close contact with nature, multiformity, structure conceived of as a growing organism, intuitive design, dynamic forms free from geometry, and reasonable beauty—and that its buildings are a product of contact with reality. Against this, Zevi (and Behrendt) believe that inorganic, geometric architecture is contemptuous of nature, ruled by systems and laws, considers structure as a mechanism to produce absolute order, is based on stereometry and is the product of education and thought. If one were to name two living architects who most clearly exemplify these two directions as Zevi sees them, then Aalto and Mies van der Rohe would, probably, stand at the extreme opposite ends of his scale. In transferring the analogy to painting, Zevi sets up the free-form painter Hans Arp against the late geometric purist painter Piet Mondrian.

Now these differences are real enough—although they are, perhaps, less deep than they appear today. It should be remembered, for example, that both Mondrian and Arp belonged to the *Stijl* group of painters, sculptors and architects in the early '20's, and that the principles underlying their (apparently) very different abstractions were considered almost identical.

Where Zevi's brief for informal, organic architecture breaks down is when he goes beyond the residential field: For in the field of tall structures, of monumental buildings of every type, the exponents of organic architecture (with the sole exception of Wright) have made no original contribution; where they have tried they have produced merely what one critic has dubbed "the biggest d - - - - d cottages in the world."

In residential architecture, however, the organic boys have made a real contribution. It may be that their deliberate opposition to structural order and formal discipline will some day be rejected; but even if it is, their work in "humanizing" the modern house is likely to leave its mark.

As a defense of this movement—so far as it concerns residential architecture—Zevi's book, then, is valuable and interesting. However, in his attempt to extend the principles of organic architecture to large-scale structures, the author has failed to be very convincing. But so have the architects who have tried to do this in actual buildings; for most of their large-scale structures have ended up geometric and thus, in Zevi's vocabulary, apparently inorganic.—P.B.



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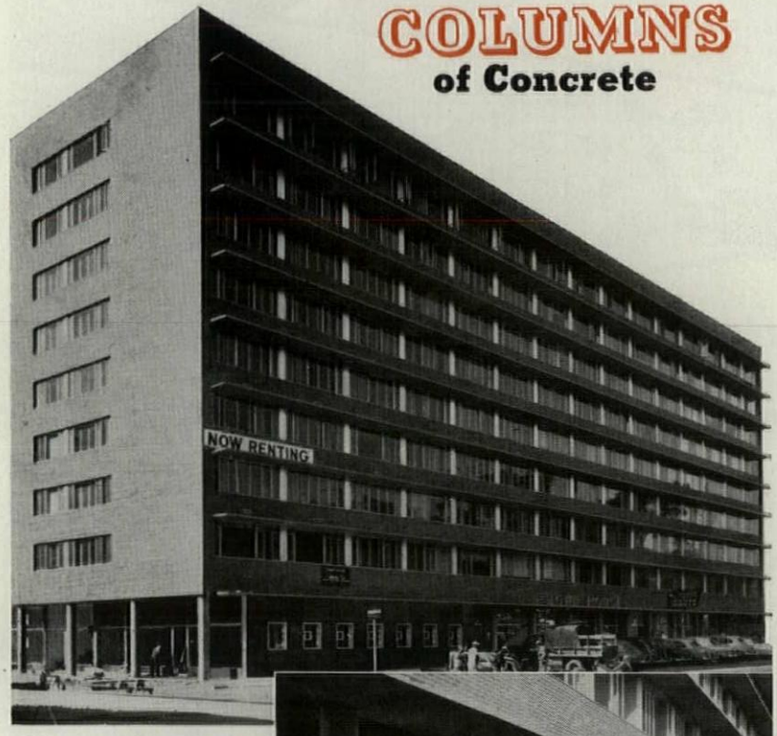

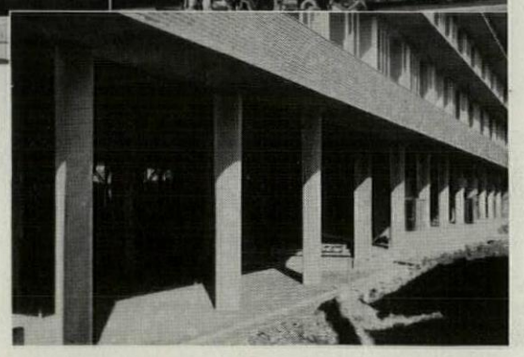

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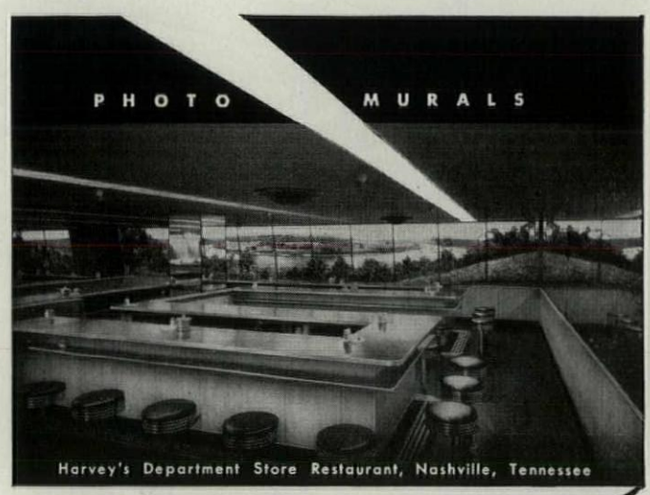

Harvey's Department Store Restaurant, Nashville, Tennessee

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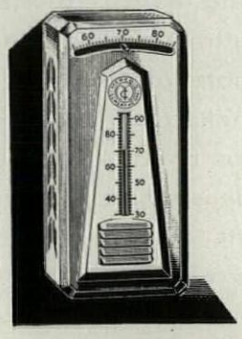

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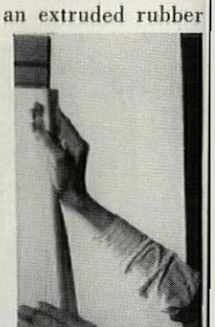
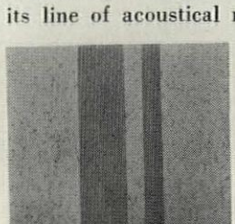
A clear plastic fitting with an extruded rubber inset, ABCO forms a neat weather stripping on glass doors. Designed for tempered ¾″ glass doors, the new device may be slipped on and off the edges quickly and easily without tools as seasonal needs change (or left on, where year-round air conditioning systems are in use). Not only does it reduce drafts and dust but it also eliminates the whirring noise sometimes caused by air passing through abutting glass doors. The strip is effective on either single or double action doors. A 7′ length sells for $12.50.



Manufacturer: Abbott Glass Co., 160 E. 120 St., New York 35, N. Y.

EMBOSSED ACOUSTICAL TILE creates decorative ceiling patterns

Armstrong Cork has added an embossed tile to its line of acoustical materials. Containing two delicately scored bands across its surface, the new product makes it possible to design many interesting geometric ceiling patterns: The embossed squares may be alternated with plain tile; they can be used in rectangles as a subtle overhead echo to the dimensions of an office bay or, arranged to form a simple border for the entire ceiling. Like standard Travertone, the embossed panels are made from mineral wool fiber (rated as incombustible material by U. S. Bureau of Standards). Offered in 1′ squares, the tile ha



(Continued on page 204)

Every feature you could ask for in

ASBESTONE WALLBOARDS

UTILITY OR FLEXIBLE ASBESTOS-CEMENT SHEETS

PRETTY AS A PICTURE

Perfect medium for modern exteriors. Big (4′ x 8′) sheets give simple, clean effect. Smooth, natural gray finish is beautiful and gives ideal surface for painting.

RUGGED AS A ROCK

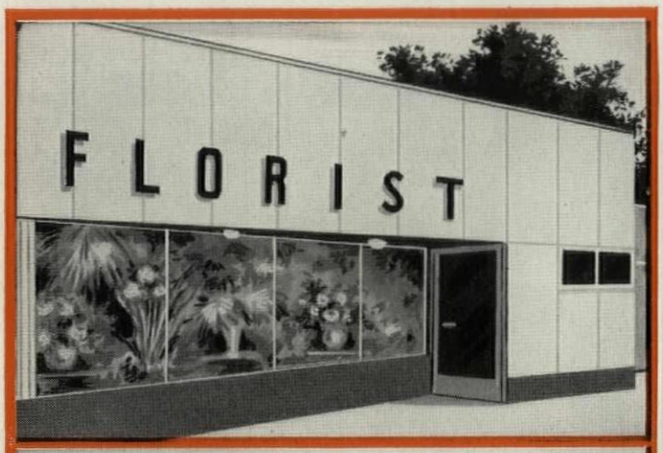
Wears for life of building—under any climatic conditions. Fireproof and non-corrosive; needs no upkeep. Unexcelled for all around protection and long-range economy.

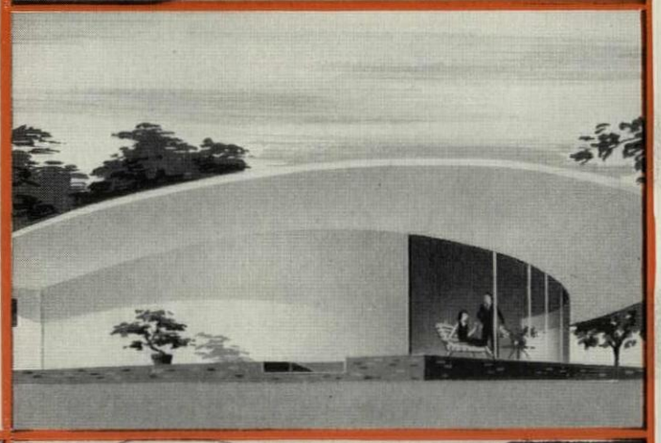
PRACTICAL AS A SLIDE RULE

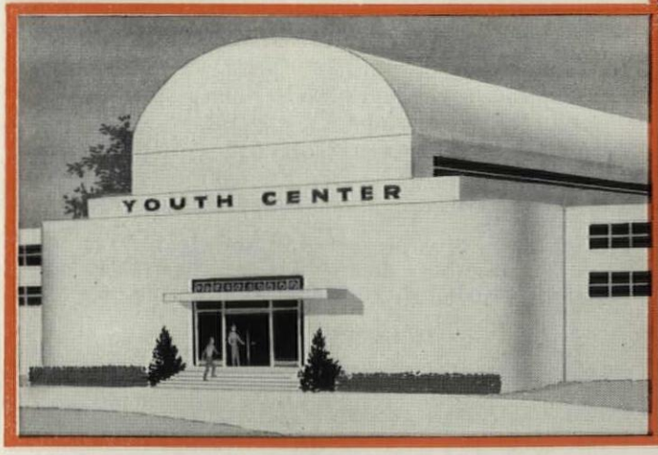
Easy to install without special tools, using nails, screws, or adhesives. Can be sawn, scored and broken, or cut with shearing jig. Ideal for use over light framing.

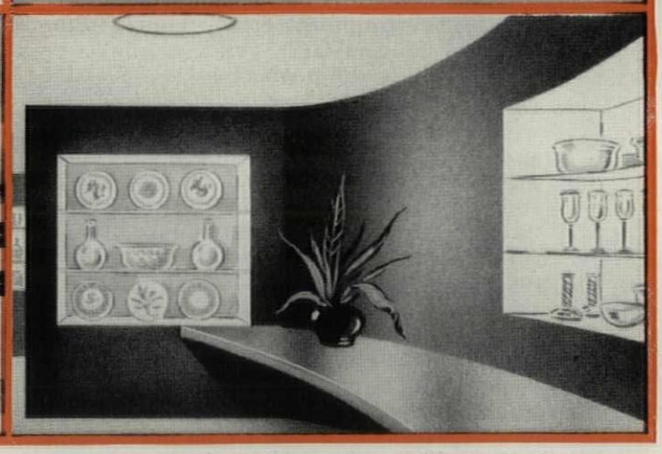
VERSATILE AS A HANDY MAN

Specify with confidence for complete exteriors and interiors of residences and commercial buildings—plant interiors, shower stalls, air ducts, laboratory interiors, garages. Hundreds of other uses.









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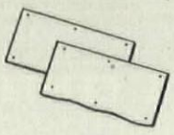
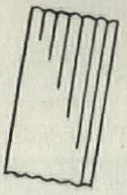


ASBESTONE CORRUGATED
in two weights: "Standard 400" and lighter "Economy 250"



See Asbestone Section in Sweets Architectural File

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The Control Center that OUTSMARTS ACCIDENTS

No longer is it necessary to expose personnel to "hot" buses or to sacrifice safety to gain accessibility to your control centers. Removal and replacement of Westinghouse Starter Units is safe and simple. "Magna-Grip" stab connectors simply "plug-in" to the power bus.

1 **To work on the panel,** starter unit may be withdrawn to a tilt-out disconnect position and locked. The unit is "dead"... completely disconnected from the power bus and self-supporting in this position. Protection is assured since it is impossible to reach around the starter unit and touch the bus.

2 **For work on the bench,** it is a simple matter to remove the complete starter unit. Note that the *unit door remains on the panel* so that it can be closed to guard the exposed bus. Rigid guide rails in the structure facilitate replacement of the starter unit. These rails align the starter and steer the "Magna-Grip" stab connectors into accurate contact with the power bus.

Westinghouse Control Centers offer still more points of safety.

For example:

Complete baffling to localize unusual arcing if faults occur.

Interrupting capacity of each starter not less than 15,000 rms amps.

Self-cooling construction for foolproof ventilation.

Sturdy structures that are self-supporting.

Get all the facts as presented in booklet B-4213 from Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna. J-27008

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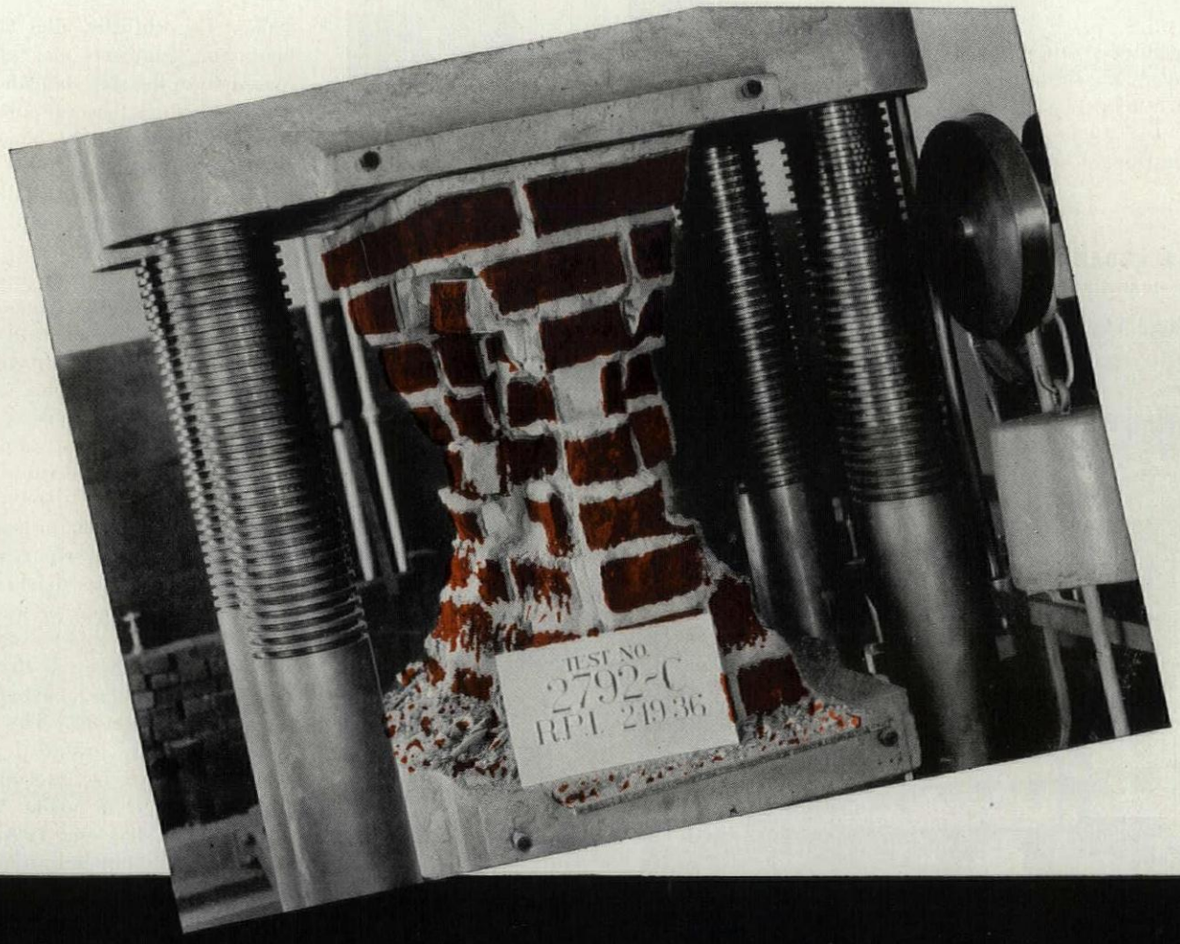
CONTROL CENTERS



BRIXMENT

assures stronger walls!

BRIXMENT exceeds the strength requirements for masonry cement (both Type I and II) of the American Society for Testing Materials' Specification C91-49 and the Federal Specification SS-C-181b. Type II is usually specified when high strength is required.

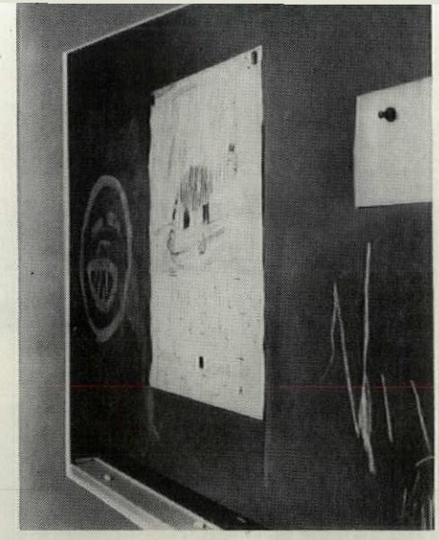
When Brixment mortar is tested in compression between two brick, at 28 days or later periods, the brick usually crack before the mortar fails.

The strength of piers laid with Brixment mortar approaches the strength of piers laid with straight portland cement mortar.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

a fissured surface painted cream-white. Its noise reduction coefficient is .65. Installed cost ranges from about 65 to 70 cents per sq. ft. in the 11/16″ thickness.
Manufacturer: Armstrong Cork Co., Lancaster, Pa.

SQUEAKLESS CHALKBOARD made of matte-finish porcelain enameled steel on plywood



The green enameled steel-on-plywood chalkboard is available with an integral recessed chalk tray.

Slate and stylus have characterized the young student for centuries. But in recent years, as illuminating engineers and school architects have turned from the slate *black*board to muted green writing surfaces, several substitute materials for the weighty and hard-to-handle material have appeared. One of the more successful of these is a porcelain enameled chalkboard.

Utilizing U. S. Plywood's *Armorply* process of pressure-bonding different materials together with strong adhesives, Bettinger Corp. applied a porcelain enameled 20-gauge steel sheet over plywood and backed it up with another metal sheet as insurance against warpage. Unlike most other chalkboard materials, this one may be installed without trim on any type of wall or adapted as a portable unit. For a completely flush installation, the board can be supplied with an integral recessed chalk tray (*above*). Bettinger's board also doubles as a bulletin board: Its steel face attracts small magnets which may be used to hold paper notices. Matte-finished in a restful green color, the surface may be washed or wiped clean. It is abrasion and chip resistant and is unaffacted by temperature changes. Because of the plywood core, panels may be joined simply by butting and gluing them together. The raw paneling costs $1.50 per sq. ft.; installed price, depending on type of wall surface and whether moldings are used, ranges from about $2.30 to $3. Stock widths are 3′, 42″, and 4′. Although the material is supplied in any required length, 8′ and 10′ panels are said to be most practical. Desk tops of the same material are also available. On these, the porcelained-steel surface is extended and bent to cover the edges of the panel smoothly, and the corners are welded. Besides serving as a durable work surface, the matched color of chalkboard and desk top cuts the contrast in light intensity value to a minimum.
Manufacturer: Bettinger Corp., Waltham, Mass.
Distributor: U. S. Plywood Corp., 55 W. 44 St., New York, N. Y.

GREEN PAINT transforms any smooth hard surface to chalkboard

Although lacking the glamour and longevity of the porcelain enameled unit above, Sapolin's canned writing surface also lacks an uppity price tag. Easily brushed or sprayed over plywood, hard board or metal, Rite-On Green paint takes chalk and erasing well and may be washed many times without harming its finish. One coat is said to be sufficient coverage for most surfaces. The paint sells for $2.10 per qt.
Manufacturer: Sapolin Paints, Inc., 229 E. 42 St., New York, N. Y.

(Continued on page 208)

FIRST on all counts!

National Electric's New "LO-LOSS" FEEDER BUS

The NEW "Lo-Loss" Feeder Bus

was designed for the transmission of electric current up to 4000 Amperes at 600 Volts or less. Ideal for welding and other low power factor loads.

Efficiency

Insulated copper bars mounted on close centers provide low reactance, low voltage drop, minimum temperature rise.

Toughness

No. 12 gauge channel frame supporting insulators makes it *toughest in the business.* Recent independent, unbiased tests prove "Lo-Loss" can take it—100,000 RMS Amperes at 440 Volts! Details on request.

Compactness

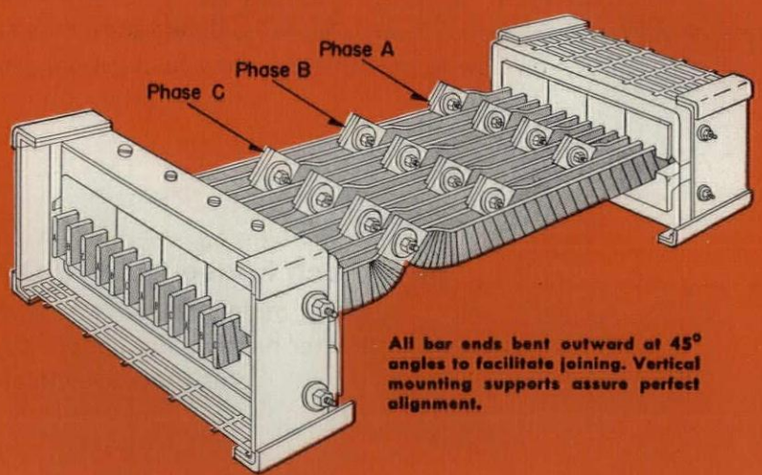
Composite drawings comparing size of "Lo-Loss" with other busways prove why it is ideal for remodeling jobs where space is at a premium.

Flexibility

Can be installed in any position with bars in vertical or horizontal position. Readily adaptable to industrial or commercial installations. Approved for vertical mounting when used for risers.

Installation Ease

Factory built, ready for installation.



All bar ends bent outward at 45° angles to facilitate joining. Vertical mounting supports assure perfect alignment.

Write for the new Busway Catalog and Sample Specifications

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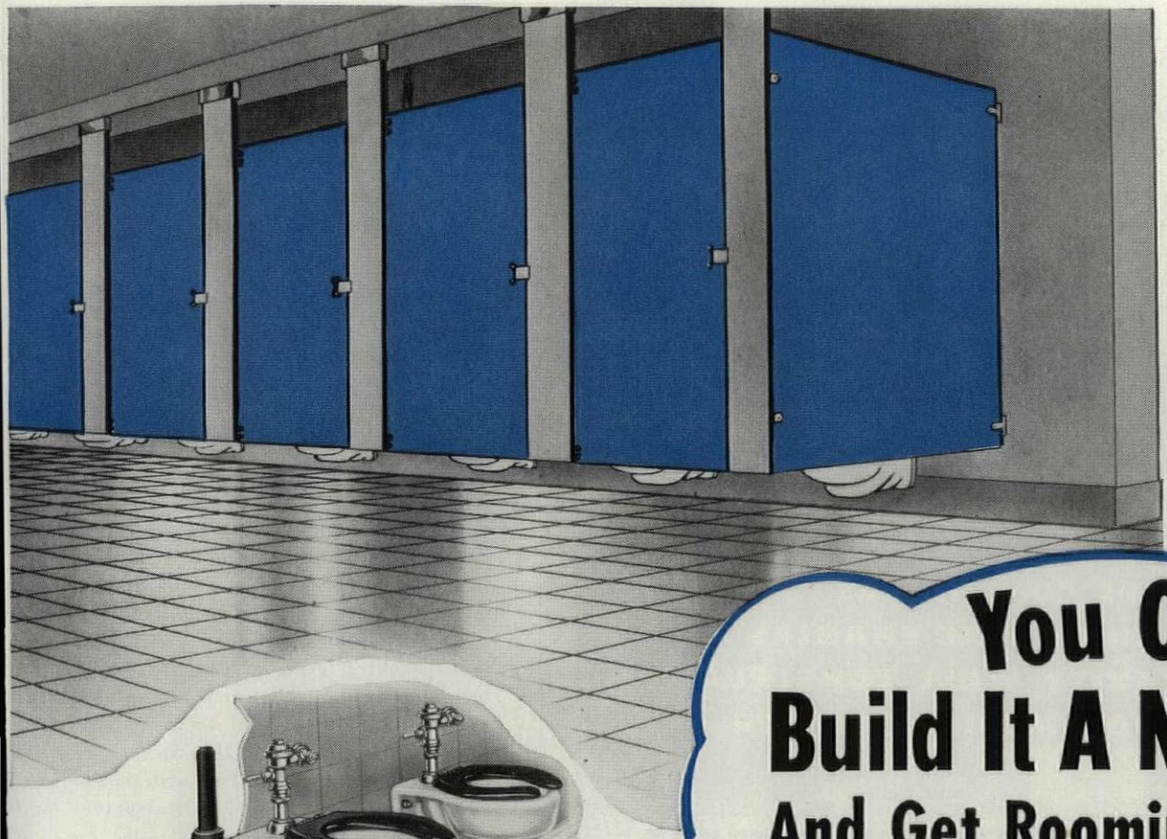


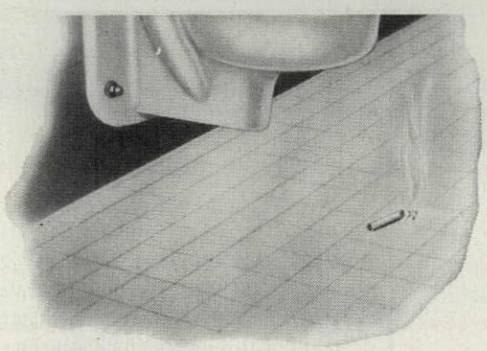
You Can Build It A New Way

And Get Roominess That Is Otherwise Unobtainable

Toilet rooms are as necessary as are lobbies and corridors to make a building livable and usable. Fixture-bare floors and furredless ceilings distinguish the modern toilet room from the crowded closed-in environment that has been common where old fashioned floor type equipment is used. *The desirable effect of an expanse of Fixture-Bare Floor can be obtained within the same area usually allotted to a toilet room by:* (1) *utilizing floor space that is usually required for floor supported equipment;* (2) by avoiding exposed or furred-in drainage lines on the ceiling. This New Way of building utilizes wall type plumbing fixtures throughout installed the Zurn Way—the simple, fast, safe way to install wall type closets, lavatories, sinks and other fixtures. This New Way reduces the use of building material; eliminates the necessity of suspended ceiling constructions; saves time and labor and protects toilet rooms against premature obsolescence. Wall type plumbing fixtures lift sanitation to a new high. Insist on wall type plumbing fixtures installed with Zurn Wall Closet Fittings and Carriers for toilet rooms in old and new buildings of every type. Write for booklet entitled "You Can Build It (Cubic Foot of Building Space) For Less A New Way".

Fixture-Bare Floors Reduce The Cost Of Cleanliness

Immaculate cleanliness is no problem in toilet rooms with fixture-bare floors—where plumbing fixtures are off the floor, because there is nothing to interrupt the sweep of the broom and the swish of the mop. Fixture-bare floors reduce the day-by-day dollar cost of maintenance of cleanliness to an all-time low while lifting sanitation to a new high. Specify wall type plumbing fixtures—they give toilet rooms a roominess that is otherwise unobtainable.



Write for this booklet. It tells how "You Can Build It (Cubic Foot of Building Space) For Less A New Way".

J. A. ZURN MFG. CO. PLUMBING DIVISION • ERIE, PA., U. S. A.

Sales Offices in All Principal Cities

Pre-eminent Manufacturer of Sanitary Products for the Protection of Human Health and Modern Structures

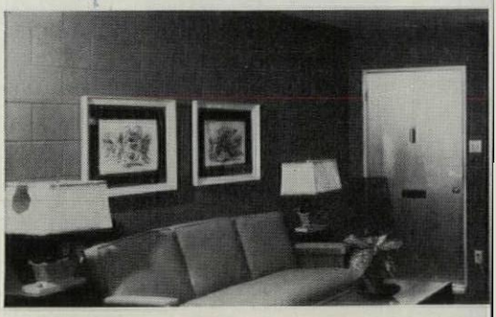
ZURN

The Zurn Carrier Catalog and Handbook describes the complete line of Zurn Wall Closet Fittings and Carriers for all makes and types of plumbing fixtures. Use it with Zurn Carrier Indexes and fixture catalogs to save time in selecting and specifying wall type fixtures.

ALUMINUM FLUSH DOOR. Its installed price is competitive with wood

Truline, a packaged aluminum flush panel interior door and frame, can add a neat decorative note to the contemporary office or apartment. In initial cost the new door compares favorably with finished wood units: F.o.b. factory prices run from $33 for the 2′ x 6′8″ to $47.12 for the 3′6″ x 6′8″. Frames, of rolled aluminum sheet, list at $20.83 to $27.43, and lock sets sell for

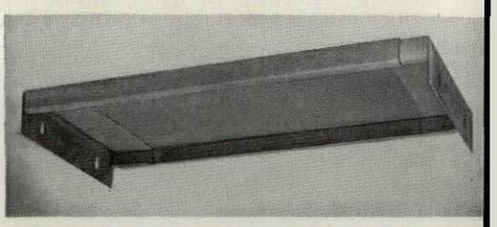
Suitable for commercial and apartment interiors, aluminum flush doors require little maintenance.



$2.31 to $7.18. (Builders' discounts are allowed on all components for quantity orders.) A rea saving is reflected in the labor- time-saving in stallation. Once a workman is familiar with the setup, he can affix the frame and hang the doo in 15 minutes, using a screwdriver as his only tool. The clamp-type frame makes up for wal deviations up to ¼″ and opening irregularitie up to ⅜″. No paint or other finish is required the doors are factory-sprayed with durable alum inum lacquer (said to be corrosiveproof for 6 years) and maintenance is negligible. The door' construction consists of flat 24-gauge aluminu sheets over a phenolic-impregnated paper honey comb. Its stiles are solid extruded aluminu alloy sections and have provisions for interlock ing hinges. The doors are fire and warp resistan and have low sound and thermal transmissio Swinging and sliding models are also available *Manufacturer:* Truline Developments, 9155 Su set Blvd. West Hollywood 46, Calif.

ADJUSTABLE CLOSET SHELF slips into plac over nailheads, eliminates fancy carpentry

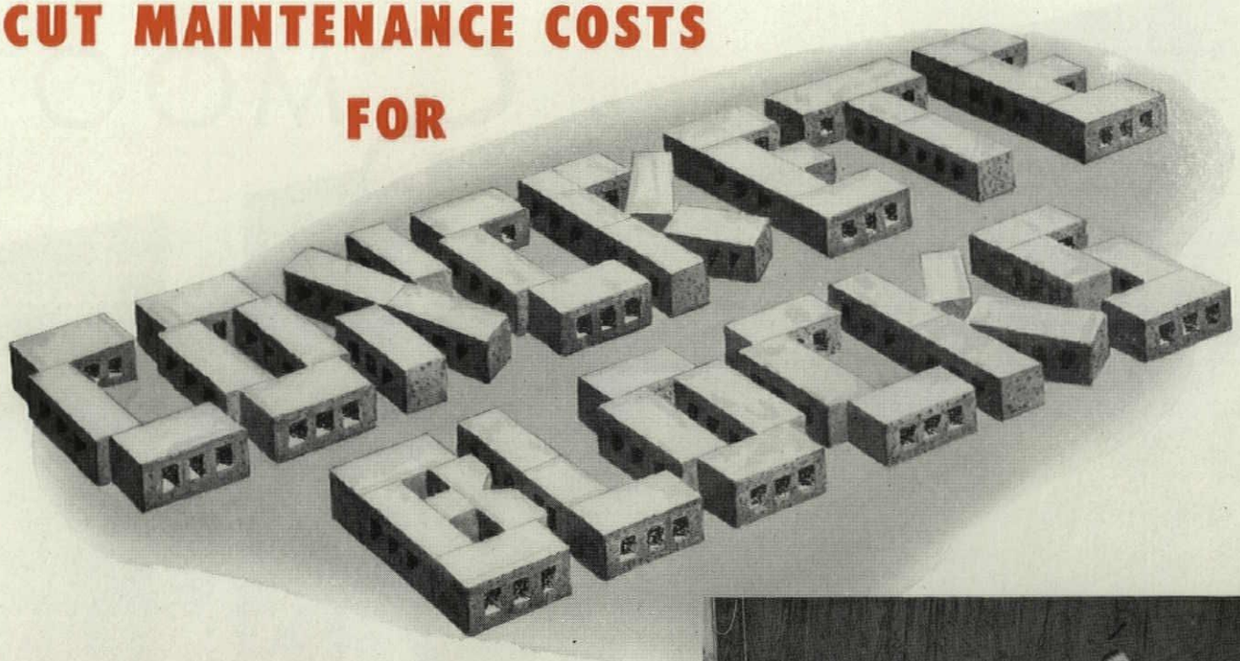
No hook strips, cleats, poles or sockets are neede to install the Titon storage shelf. Made of tel scoping 22-gauge steel sections, the shelf slip over four nail or screw heads placed in th wardrobe or linen closet walls. Sizes range fro 10″ to 24″ deep and up to 8′ wide. (Units ov 4′ wide have center brackets for bracing.) Th



1′ x 3′ shelf sells for about $2.50; the 18″ 4′ costs approximately $3.50. Hanging rods, i tegral with the shelf, cost 23¢ per lin. ft. Co hooks, too, will be supplied in place at 10¢ eac (On a recent large apartment project the savi realized through factory attachment of the low bent wire device was estimated by the architec at 21¢ per hook!) The shelves receive a bak aluminum enamel finish at the factory. *Manufacturer:* Titon Tool Works, 7 S. Dearbo St., Chicago 3, Ill.

(Continued on page 212)

CUT MAINTENANCE COSTS FOR CONCRETE BLOCKS



GET UTMOST PROTECTION FOR CONCRETE FLOORS

WITH COATINGS BASED ON

Now, concrete blocks get really lasting resistance to moisture and water seepage—with an easily applied coating system based on VINYLITE Brand Resins.

In basements that once leaked water to the floor in every rain, these remarkable paints have kept walls dry and gleaming white for more than a year. Applied to the exterior of a Cincinnati warehouse that was half inundated for nine days during a flood, there was no evidence of blistering, chalking, erosion, flaking, or map cracking.

Coatings based on VINYLITE Brand Resins are tops in their field for resisting weather, salt and corrosive atmospheres, oils, greases, alkalies, most strong acids.

Available in a wide range of colors, they cut maintenance costs by staying on the job far longer than older materials. They're highly recommended for concrete floors, bricks, stucco, cinder block and asbestos siding—for homes, apartments, factories, chemical plants.

They're the last word in providing dry, clean, attractive walls.

Ask us for a list of representative suppliers of concrete coatings based on VINYLITE Brand Resins. Write Dept. LG-14.

Data on concrete block coatings courtesy Perry & Derrick Co., 109 Corwine, Cincinnati, Ohio
Data on concrete floor coatings courtesy Benjamin Foster Co., 4635 W. Girard Ave., Philadelphia 31, Pennsylvania.

Vinylite BRAND **RESINS**

TRADE MARK

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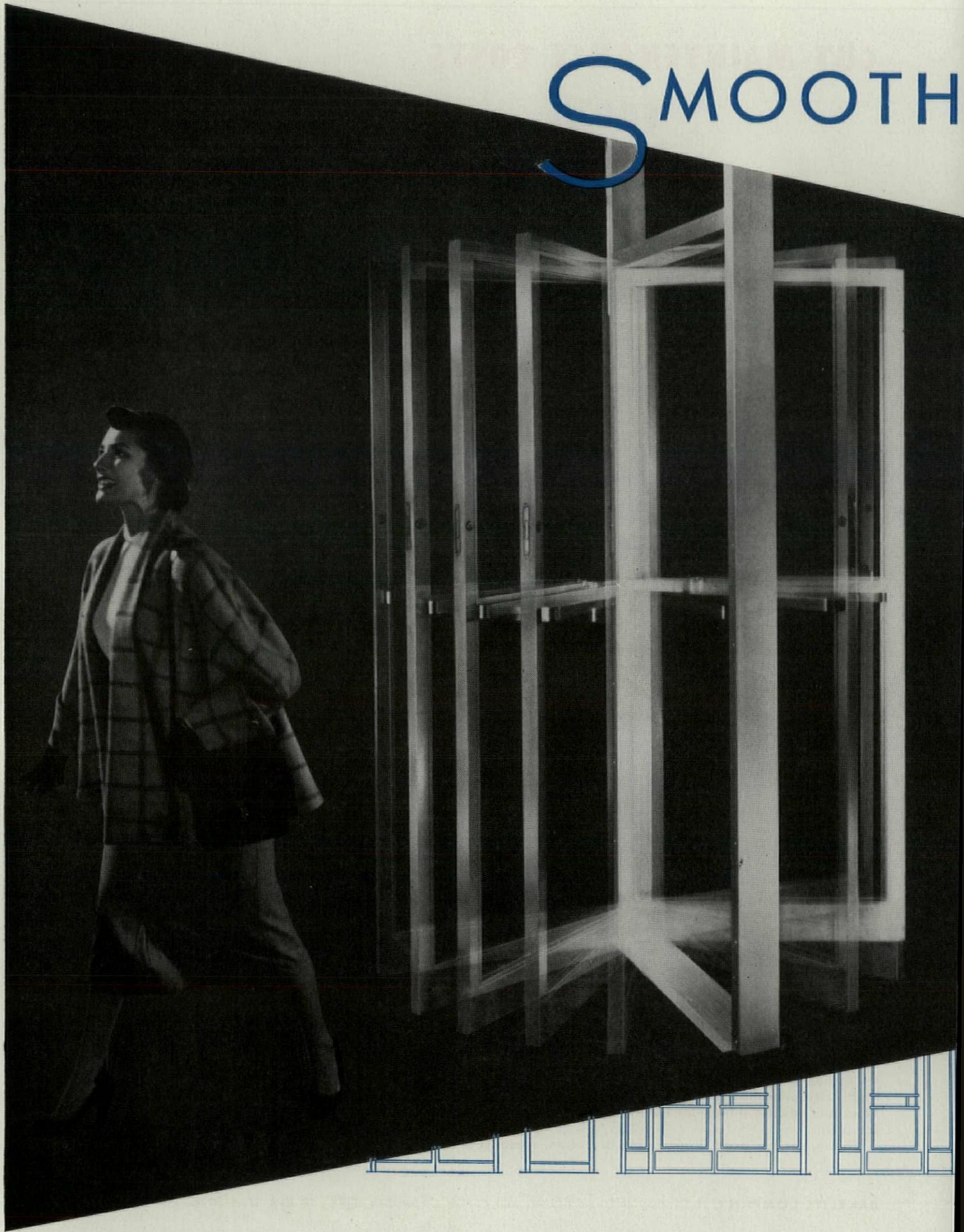

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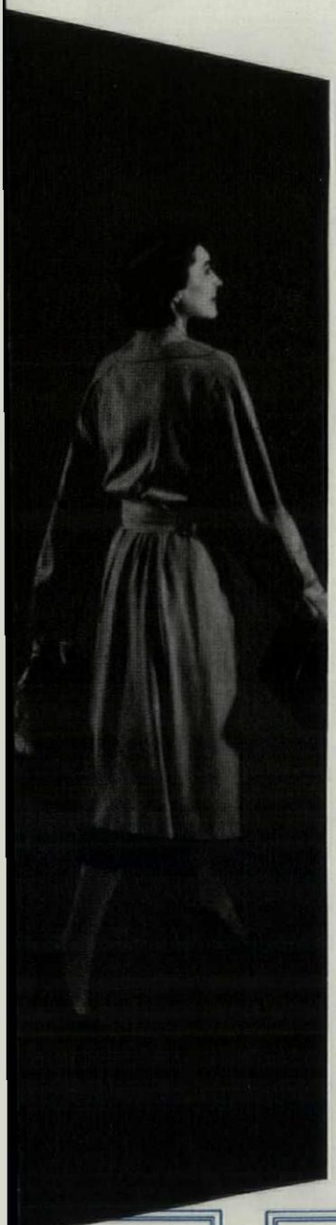
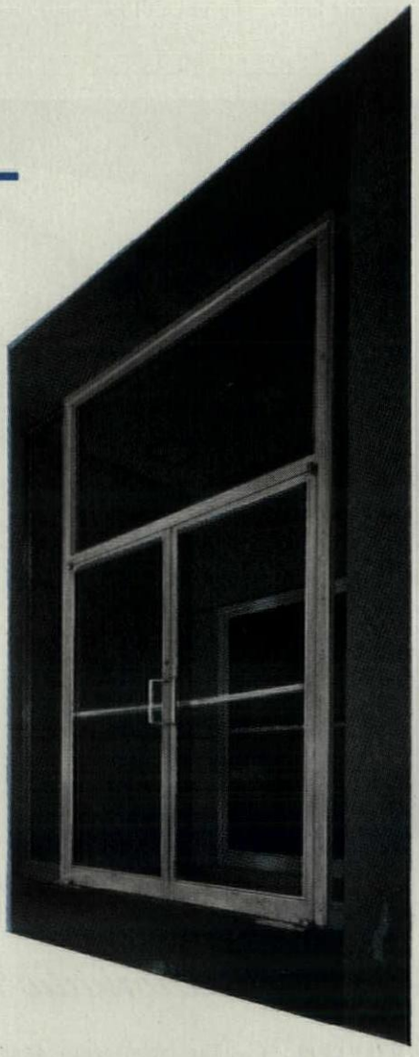
–hundreds of times a day–

–day after day–

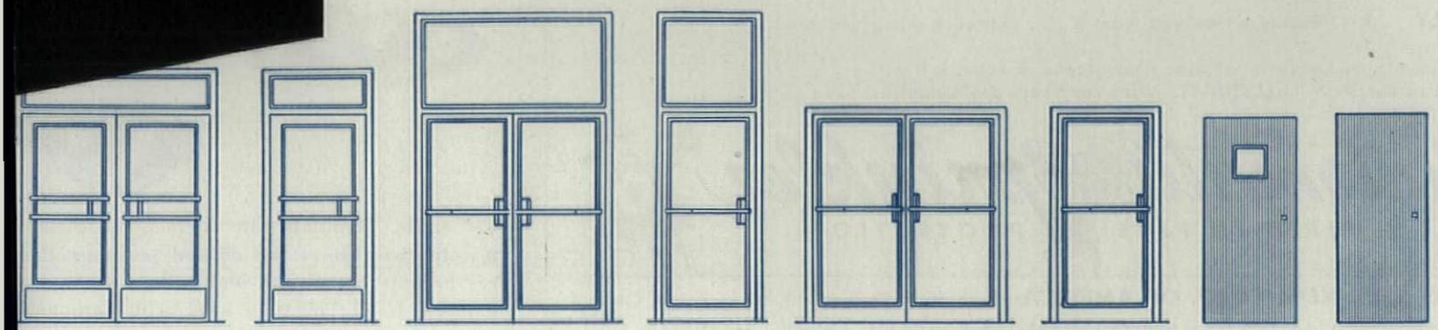
–year after year–





Kawneer Entrances fulfill every modern architectural requirement in performance, appearance, and installation. They are precision-manufactured for effortless, trouble-free service through the years.

The Kawneer Entrance Line is the most complete in the industry. Consult your portfolio of Kawneer details, Sweet's Catalog, or write The Kawneer Company, Dept. MB-82, 1105 N. Front St., Niles, Mich., or Dept. MB-82, 930 Dwight Way, Berkeley, Calif.



THE **Kawneer** COMPANY

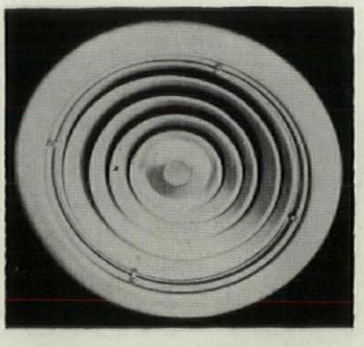
AWNING BOXES AND HOODS • SHOWCASE DOORS • ENTRANCES

ARCHITECTURAL METAL PRODUCTS

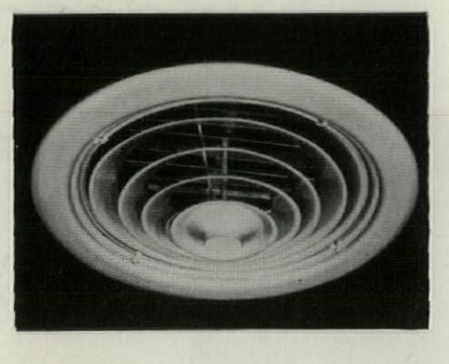
SPIRAL-LOUVERED DIFFUSER utilizes its directional vanes as integral damper

Whether set for low or full delivery, the Flexiflo maintains a uniform air flow pattern. Instead of the familiar concentric rings, this diffuser employs a conical spiral to regulate the amount of air distribution as well as its pattern. Connected to the main cross bar by a threaded center rod, the flexible blade is raised or lowered by turning the center rod knob. The pitch of the continuous louver remains unaltered so that the effective area served by the unit may be controlled without changing the pattern of diffusion. Deflector vanes, behind the cone, may be moved individually from the outside. Adjusted after the unit is in place, this built-in deflector is said to compensate for unequal air distribution in the supply duct and to block off air in the direction of a nearby obstruction, such as a beam. Very rapid mixing with room air is claimed for the jet-like action of the Flexiflo. The model is available in 11 sizes, the largest of which is capable of handling up to 9,000 cfm with a throw of 48′. Prices range from $16 for the 6″ neck size equipped with equalizer vanes up to $105.50 for the 30″. All are finished with a baked aluminum lacquer, but special colors will be supplied on order.

Manufacturer: Universal Diffuser Corp., 890 Whittier St., New York 59, N. Y.



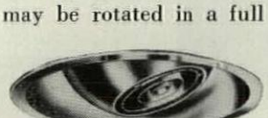
The spiral ring of flexible metal acts as a continuous diffuser vane.



Lowered and raised by the center rod knob, the diffuser ring controls the amount of air discharged to a variable area without altering the air flow pattern.

ADJUSTABLE CEILING SPOTLIGHTS made i moderate price range

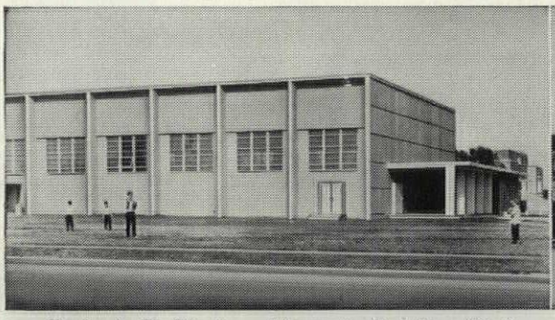
The new Controlite ceiling fixtures provide flexible spot lighting for showrooms, theaters, display windows, and restaurants. Made in semi and fully recessed ceiling models, with and with out concentric louvers, the models sell for abou $25. The light source, an R-40 reflector lamp may be rotated in a full circle and tilted at



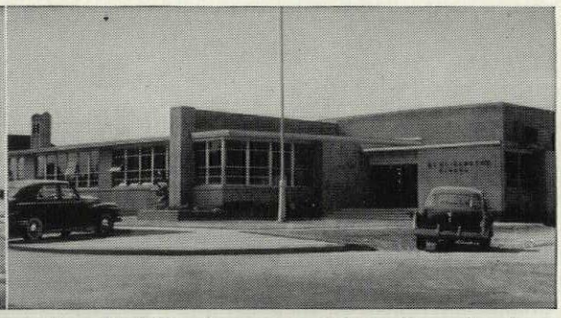
42° angle. Regulated by friction, the globe i merely swiveled to the desired position; ther are no nuts or bolts to play with. The fixture housing is of 20-gauge steel with satin-finis chromium trim, and is equipped with bar hang ers for easy installation.

Manufacturer: Marvin Mfg. Co., 3071 E. 12 St Los Angeles 23, Calif.

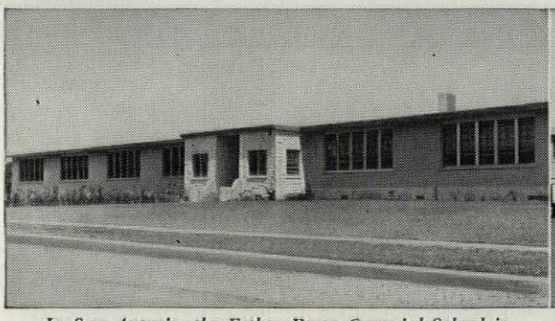
(Technical Publications page 214)



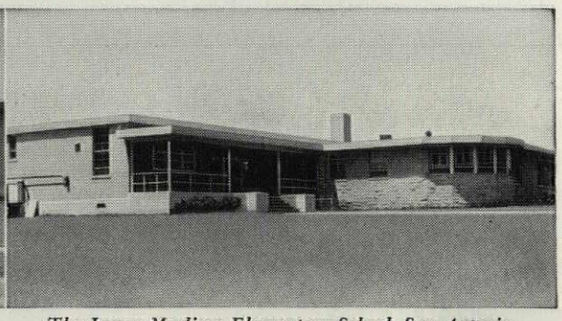
Benjamin K. Wyatt, architect, specified Stran-Steel Framing in the construction of Robstown High School Gym, Robstown, Texas.



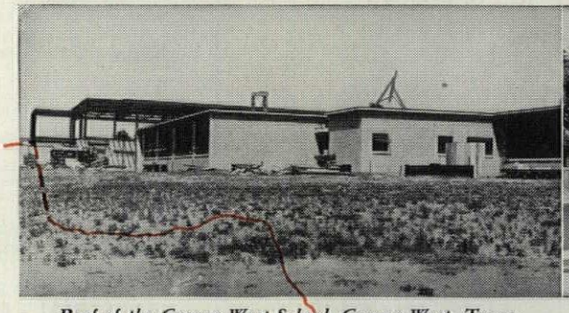
Stran-Steel Framing was used in walls, roof and partitions in the St. Elizabeth School, Alice, Texas. Wade, Gibson & Martin, architects.



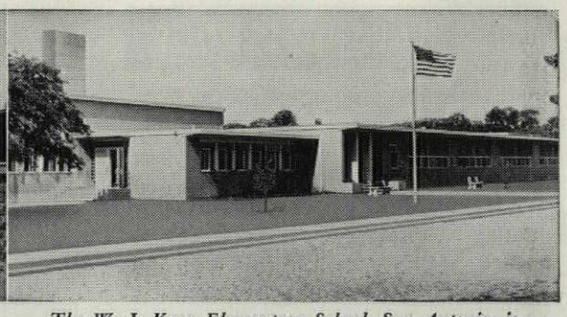
In San Antonio, the Esther Perez Carvajal School is constructed of Stran-Steel Framing. Percy W. and J. Clyde Williams, architects.



The James Madison Elementary School, San Antonio, Texas, is built around Stran-Steel Framing. Phelps, Dewees & Simmons, architects.



Roof of the George West School, George West, Texas, is constructed of Stran-Steel Framing. Wade, Gibson & Martin, architects.



The W. J. Knox Elementary School, San Antonio, is another example of widespread use of Stran-Steel Framing. Benjamin K. Wyatt, architect.

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The Texas school buildings pictured here are typical of the successful use of Stran-Steel Framing in schools, factories and multiple-type dwellings throughout the country. You owe it to your client to thoroughly investigate this dollar-saving, time-saving method of construction.

Complete literature and specifications data available on request; or see Sweet's catalog service, architectural $\frac{3c}{Gr}$ *and building* $\frac{3a}{Gr}$ *files.*

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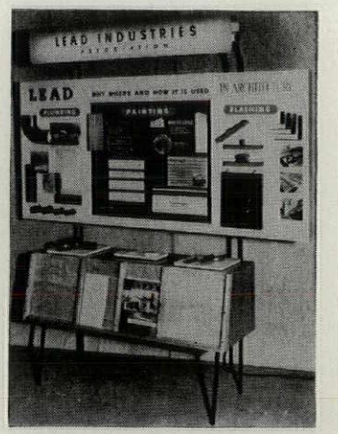
BUILDING MATERIALS. Techniques and Materials, 17 John St., New York 7, N. Y.

A small but handsome road show of building products is now circulating among architectural schools. Bridging part of the hiatus which exists for most incumbent designers between classroom theory and utilization of current materials, the exhibits might also be well received by local architectural groups interested in keeping up with manufacturers' offerings. Technical information, brochures, and actual samples are shown on neatly designed 3′ x 6′ display boards and natural wood counters which give a welcome continuity to the exhibit. There is no charge for looking; contributors foot the bill. The firms taking part at present include: Otis Elevator, Pittsburgh Plate Glass, Structural Clay Products Institute, Gate City Sash and Door, American Iron and Steel Institute, Lead Industries Associations, H. R. Fletcher Co., R.O.W. Windows, and U. S. Plywood Corp.



EXPANDED METAL. Penmetal Expanded Metal Meshes. Penn Metal Co., Inc., 205 E. 42nd St., New York 17, N. Y. 26 pp. 8½ x 11″.

Based on the theme "how to make a little metal go a long way," this new catalogue shows several architectural and decorative applications of expanded metal and suggests other uses. The publication emphasizes savings made possible in steel and other critical metals, pointing out that a foot of sheet metal becomes five or more feet of expanded metal.

INDUSTRIAL COATINGS. Flintkote Industrial Products Digest. The Flintkote Co., Industrial Products Div., 30 Rockefeller Plaza, New York 20, N. Y. 24 pp. 5 x 7″.

Written in the style of a magazine digest, this illustrated booklet briefly tells how Flintkote's products are used in industrial construction. It discusses "custom formulated" asphalt emulsions and cutbacks, asphalt, rubber and resin adhesives, coatings and sealers. Some of the fields it covers are: protective coatings, flooring binders and cements, underlayments for decorative floors, sound deadener and insulating compounds, and laminants for fiber board.

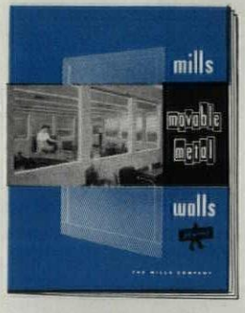
HEATING. Torridor Unit Heaters. The Trane Co., La Crosse, Wis. 56 pp. 8½ x 11″.

Selection and application of Trane's blower-type unit heaters are explained in this recently revised catalogue. Providing complete performance data on Torridors with capacities ranging from 100,000 to 1,500,000 Btu, the publication illustrates various models which deliver heat directly or through ducts from floor, wall or ceiling. Used most frequently to heat large spaces such as factories and warehouses, the heating-ventilating units also may be used for industrial processing and purposes such as fog removal and maintaining proper conditions for dry storage.

(Continued on page 218)

Mobilized interiors solve your layout problems today and tomorrow

. . . this Book of Facts shows you how



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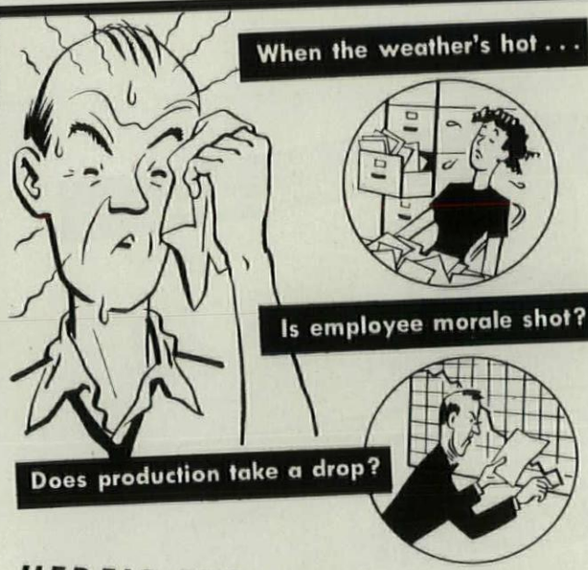
MILLS *Movable* **METAL WALLS**

. . . You'll also find this catalog in Sweet's File, Architectural, for 1952.

This ad is one of a series telling industrial and commercial Management the story of Coolair Breeze Conditioning.



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It's the breeze that cools you and your car after you've been parked in the hot summer sun. With Coolair Breeze Conditioning Fans you can introduce cooling, healthful breezes into plants and offices at low cost, without major installation expense and at a minimum outlay for operation and upkeep. No water required! Result—more comfort, better summertime production.

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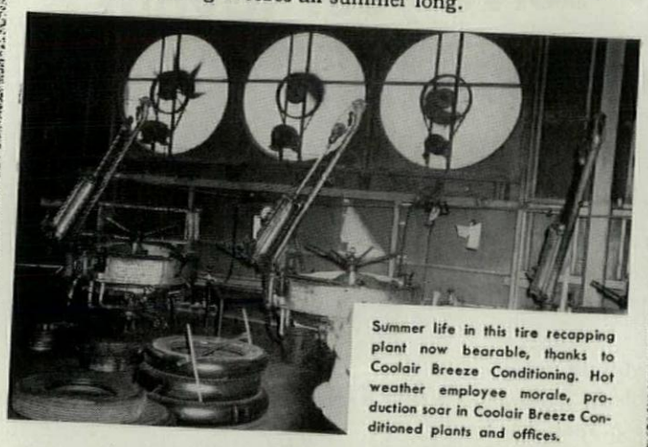
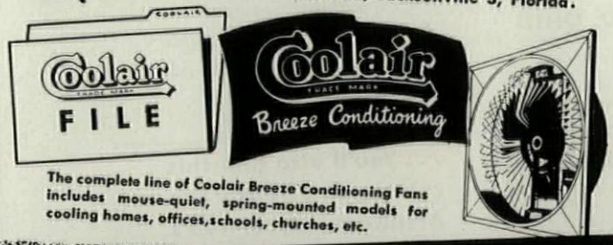


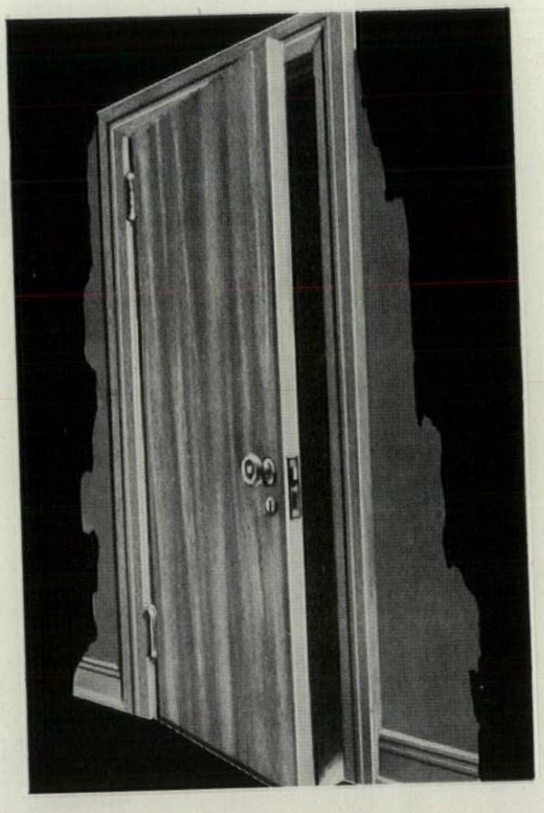
Summer life in this tire recapping plant now bearable, thanks to Coolair Breeze Conditioning. Hot weather employee morale, production soar in Coolair Breeze Conditioned plants and offices.

Low-Cost Cooling? **You'll be surprised how little Coolair Breeze Conditioning costs! Write TODAY for complete information and the name of your local Coolair representative. American Coolair Corporation, Jacksonville 3, Florida.**



The complete line of Coolair Breeze Conditioning Fans includes mouse-quiet, spring-mounted models for cooling homes, offices, schools, churches, etc.

Interested also in cooling homes, apartments and other non-commercial and industrial buildings? Read this!



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ENVIRONMENTAL LIGHTING . . . With a PLEXIGLAS Luminous Ceiling

For *environmental* room lighting, the whole field of view must be in brightness balance . . . as in this drafting room with its PLEXIGLAS luminous ceiling.

The surface brightnesses of the ceiling, the walls, and the window areas of this room are less than three times as bright as the paper on the drawing boards. Note how these surfaces produce a field of uniform brightness in which there are no eye-fatiguing light-to-dark contrasts.

An average illumination of 118 footcandles is provided through the PLEXIGLAS diffusing panels, without objectionable direct glare from the large-area ceiling surface.

PLEXIGLAS acrylic plastic offers other advantages as a diffusing medium. Because it is rigid, light in weight, and strong, PLEXIGLAS can be handled easily and safely during installation, cleaning, and relamping operations. And because it is highly resistant to breakage and discoloration, it gives long, low-maintenance service.

If *you* have a lighting problem, investigate *environmental* lighting with a PLEXIGLAS luminous ceiling. We'll be glad to send you full technical details about the installation shown above. Write for them.

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TECHNICAL PUBLICATIONS

WINDOWS. Industrial Pivoted Steel Windows. The Steelcraft Mfg. Co., Rossmoyne, Ohio. 4 pp. 8½ x 11".

Printed in two colors, the folder describes Steelcraft's pivoted windows for commercial and industrial installations. It gives dimensional data, specifications, and illustrates various window types. Fabricated of hot rolled steel in all standard sizes (as adopted by the Metal Window Institute), the new windows are available with either a push bar, spring latch or cam latch type operator.

WOOD STRUCTURAL MEMBERS. Rilco Arches, Beams and Trusses. Rilco Laminated Products, Inc., St. Paul 1, Minn. 16 pp. 8½ x 11".

Practical construction information on glued laminated wood arches, trusses and beams is presented in this new booklet. The photographs of churches, gyms, hangars, warehouses, factories and schools, and diagrams of various types of arches and beams which illustrate the text, are excellent.

ELECTRIC STAIRWAYS. Electric Stairways Buyer's Guide, Booklet B-4582. Westinghouse Electric Corp., Elevator Div., Jersey City, N. J. 32 pp. 8½ x 11".

Although the text on electrical stairways is basically technical, it is written so that the proper application and features of this means of vertical transportation may be understood easily by the businessman who buys as well as the architect who plans the layout. The function of each important part in the stairway is discussed (close-up cutaway views help explain the mechanics), available sizes are listed, and price data is given on a budget line. The publication also includes a valuable section on arrangement of stairways, and tells how the units may be utilized advantageously in remodeling jobs.

VERTICAL TRANSPORTATION. Hints for Better Elevatoring. Otis Elevator Co., 260 Eleventh Ave., New York, N. Y. 28 pp. 8½ x 11".

The fundamentals of planning vertical transportation systems for many kinds of multistory buildings are discussed in this publication. Covering such factors as building layout and structural requirements, elevator arrangement, operating and supervisory systems, the booklet outlines the elevator needs of office buildings, retail stores, apartments, hospitals, hotels and industrial buildings. Traffic flow graphs which plot the number of passengers carried during the day show various patterns of hour-by-hour traffic in different types of buildings. Full-page line drawings illustrate typical freight and passenger elevator layouts, and schematic drawings show the use of crisscross and parallel escalator arrangements in retail stores.

MATERIALS HANDLING. Mathews Conveyers. Mathews Conveyer Co., Ellwood City, Pa. 4 pp. 8½ x 11".

Presenting useful data on the manufacturer's conveyers for brick, lumber and other building materials, the brochure includes dimensioned drawings and photos of various models.

STEEL GRATINGS. Klemp Open Steel Gratings. Wm. F. Klemp Co., 6660 S. Melvina Ave., Chicago 38, Ill. 4 pp. 8½ x 11".

The brochure explains concisely the construction and uses of the manufacturer's structural steel footwalks, riveted open steel grating and stair treads, flexible floor armor and conveyor belt, and open steel and aluminum bridge decking.

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THE FINEST IN OVERHEAD GAS HEATING FOR

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Ask also for Electrical Testing Laboratories' report on performance ratings assigned to the 300 Fleur-O-Lier fixtures.

Coefficients of Utilization

LUMINAIRE DISTRIBUTION DATA
MEAN VERTICAL

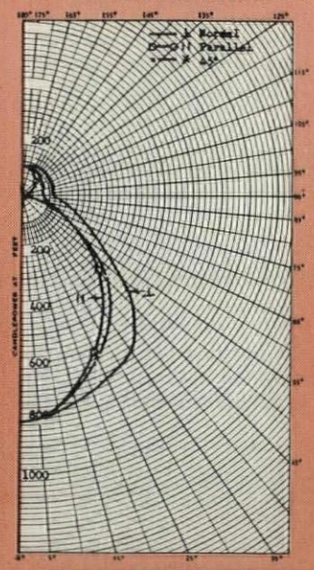
180°	82.0		90°	43.0	
175°	82.0	8	85°	55.0	60
165°	83.0	23	75°	104	109
155°	83.5	38	65°	171	175
145°	82.0	52	55°	289	259
135°	76.5	58	45°	638	339
125°	66.0	59	35°	965	355
115°	60.5	60	25°	650	301
105°	53.5	57	15°	740	209
95°	44.8	49	5°	815	77
			0°	825	

LIGHT FLUX VALUES

0°–90°	587	13.0	0°–90°	1884	41.0
0°–40°	942	20.5	90°–180°	406	9.0
0°–90°	1560	33.5	0°–180°	2288	50.0

These enable the specifier to select the proper unit for the job.

CANDLEPOWER DISTRIBUTION



A complete photometric test of the luminaire is provided.

The Fleur-O-Lier label indentifies units that meet precise specifications and are ETL certified.

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Manufacturers

2116 Keith Building • Cleveland 15, Ohio

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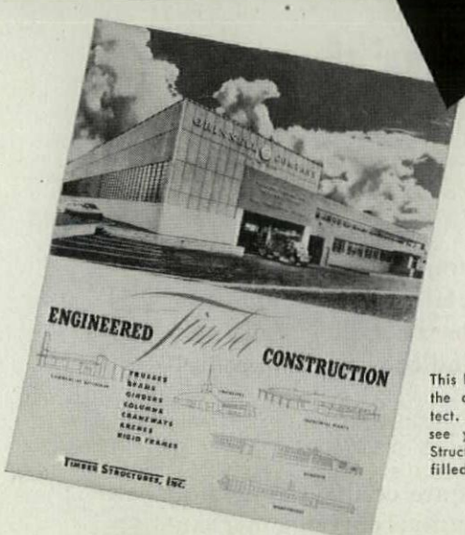
Permanent, Economical Construction



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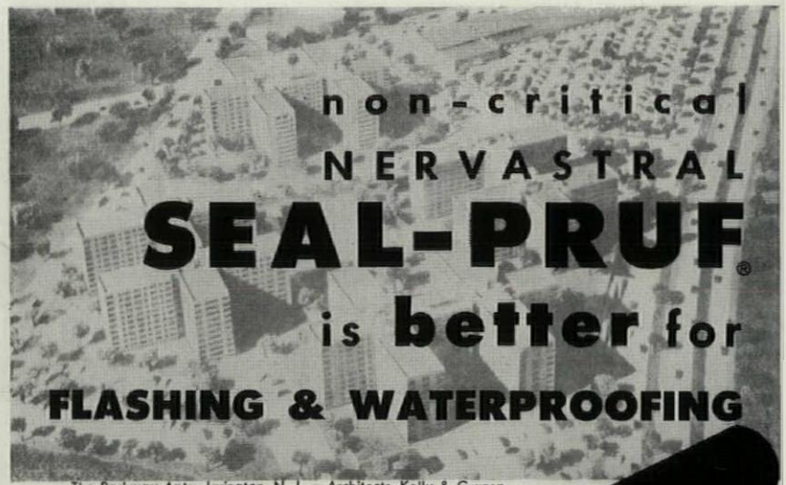

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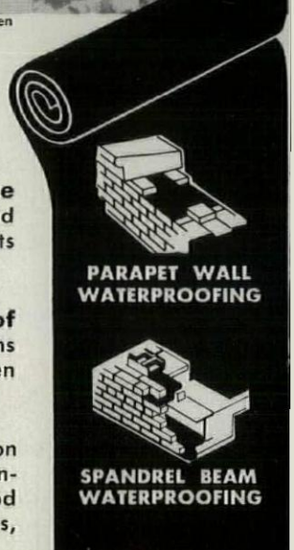
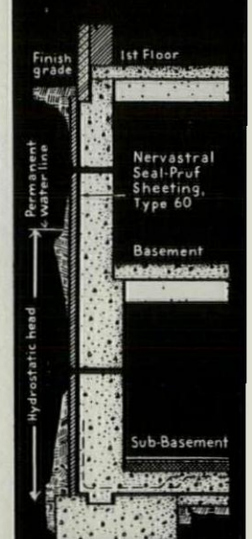


PARAPET WALL WATERPROOFING

SPANDREL BEAM WATERPROOFING



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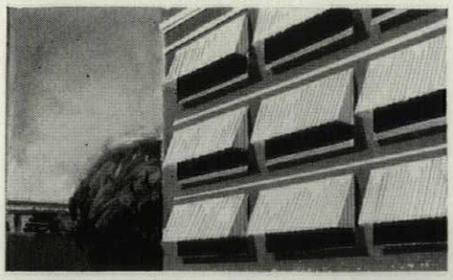
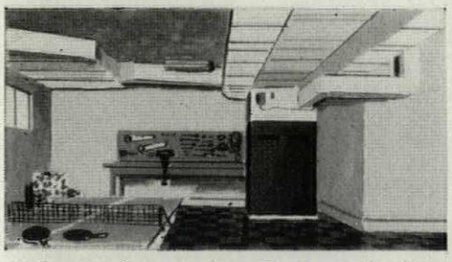


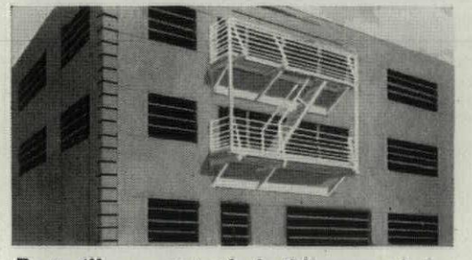
Rapidly increasing use of aluminum awnings is due to their advantages in all types of structures—institutional, commercial, industrial and residential. Besides providing desired shading, aluminum awnings reflect sun's heat—do not absorb and hold it against the building. Maintenance is never a problem with fireproof, rustproof, permanent aluminum . . . either in natural finish or one of the unlimited number of color combinations that are available. Fixed or roll type awnings made from Reynolds Aluminum are sold by many reliable manufacturers. We'll be pleased to send you their names.

Better Ductwork



A fast-moving trend to aluminum for heating, ventilating, and air conditioning ducts will soon make it the accepted material standard. Aluminum makes neater installations—an important factor in such places as game rooms. Rust problems are eliminated in laundry areas or wherever moisture is a consideration. Finished costs for aluminum ductwork are comparable to those with less permanent materials because lightweight aluminum is easier to handle, fabricate and install. For completely satisfied clients specify aluminum ductwork.

Modern Fire-Escapes



Rust will never stain the buildings you design when you specify fire escapes made of always attractive Reynolds Aluminum. Painting expense is eliminated for the building owner, too . . . especially important where corrosive industrial fumes are encountered. Savings made possible by the lighter structural load and easier erection frequently offset the small added material cost. A Reynolds architectural aluminum specialist will work with you on fire escape or any other aluminum design problem.

(Advertisement)

There's more than one way to build a strong America...

And this familiar emblem of the Advertising Council has done its share superbly. For the past ten years you've seen it in magazines, in newspapers and in posters, always with an urgent message to all the American people. And time and again you've responded with typical American warmth.

In the first dark days of World War II, when civilians needed to be shown how they too could help win the war, a group of volunteer businessmen set up the Advertising Council to mobilize Americans for the jobs that needed to be done. The Council is an independent non-profit, non-partisan organization composed largely of advertisers, advertising agencies and media, including magazines, newspapers, radio and television, the outdoor and transportation advertising groups.

Millions of messages over the Council's emblem have helped conserve scarce metals . . . helped prevent costly forest fires and save vast stores of timber . . . helped unite public opinion behind the drive for better schools . . . helped promote highway safety, just as they are helping today to collect blood for wounded soldiers in Korea.

Over a billion dollars in advertising space and time have been given freely by American business to spread these appeals. And countless Americans have participated in every campaign the Council launched. Now, on its tenth anniversary, the Advertising Council is ready to accept tomorrow's challenge, knowing it can count on you to support its future programs as you have met the nation's needs in the past.

This advertisement is contributed by

THE MAGAZINE OF BUILDING

as a public service

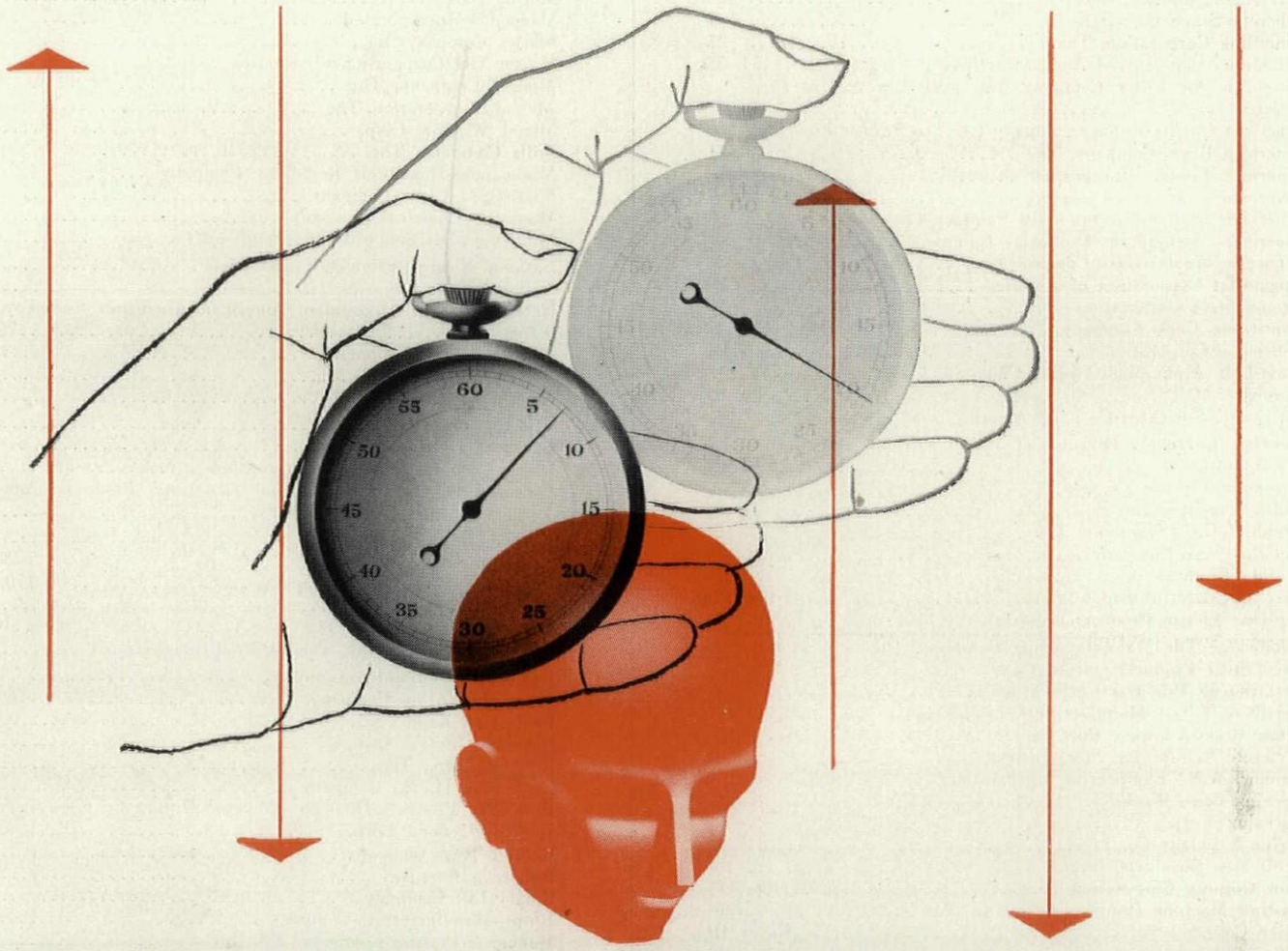
Although there are more picnickers and campers present in the woods each year, the number of forest fires has been cut by about 100,000 annually. When the campaign began there were more than 200,000 destructive forest fires per year, most of them caused by human carelessness. Smoky has helped us all to be more careful and prevent such waste.

The posters you see along the thoroughfares and in your transportation vehicles often carry messages in the public interest. Posters like this have helped to cut down percentage of fatal accidents to miles traveled. The space is given by the Outdoor and Transportation advertising industry.

When scrap is needed quickly to keep our defense plants rolling, ads like this, sponsored by leading business and trade publications, help make that need known.

The posters you see along the thoroughfares and in your busses and trains often carry messages in the public interest — a reminder to send a CARE package abroad, a plea for better schools, or a warning about traffic accidents.

The house magazines of hundreds of leading companies carry ads like this regularly to remind us all that the better we produce the stronger we grow.



THE ONLY ELEVATOR SYSTEM THAT RUNS THE 900 IN 15 FLAT

Elevators are like race horses. The only way to tell which one is best is to "time" them under pressure.

When you time Selectomatic's "running time," you see what fast service really means. For instance, in one Selectomatic installation this fabulous system gets 900 people out at night in 15 minutes *flat!* (25% faster than in pre-Selectomatic days.)* And it's done with fewer cars—an investment factor worth considering.

All over the country, in new-building and modernization jobs, the wise money is riding on Selectomatic. So, if you're thinking about an elevator investment . . . *test ride Selectomatic before you decide.* Notice how you speed from floor to floor. See how Selectomatic always stops exactly level with each floor . . . never wastes time releveling.

Write us today for the names of Selectomatic installations you can "test-ride" in your locality. Westinghouse Electric Corporation, Elevator Division, Dept. F-1 Jersey City, N. J.

*Facts given on request.

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

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

J-98596

ADVERTISERS INDEX

Now MATICO offers a SUPERIOR, NEW PLASTIC FLOORING for on, above or below grade

- Impervious to petroleum solvents, oils, greases, turpentine, alkalis and household acids.
- Extremely resilient. Good sound absorption.
- Smooth, non-porous surface sheds dirt — wipes clean with damp mop.
- Excellent indentation recovery.
- Fire-resistant—will not support flame.
- Wide variety of bright, clear, non-fading colors.
- Easy to install—no special adhesives needed.
- Available in 9" x 9" standard gauge and ⅛" tiles.

QUALITY CONTROLLED
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ARISTOFLEX

THE ARISTOCRAT OF RESILIENT FLOORING

PLASTIC—ASBESTOS . . . NO FELT BACKING

New MATICO Aristoflex Tile Flooring is plastic-asbestos through and through. It's extremely tough, very flexible. Vivid, sparkling colors and marbleization go clear through each tile. Long wearability and enduring beauty is assured.

Aristoflex may be laid direct on concrete . . . over terrazzo or ceramic . . . or wood over 15-pound saturated felt . . . and over magnesite (above grade).

Installation is unusually easy, and less costly. No special cements are required, ordinary asphalt tile adhesive does the job. It lays in tightly, immediately, due to square corners and clean edges.

Write for free Aristoflex samples and specification data.

Dept. 61

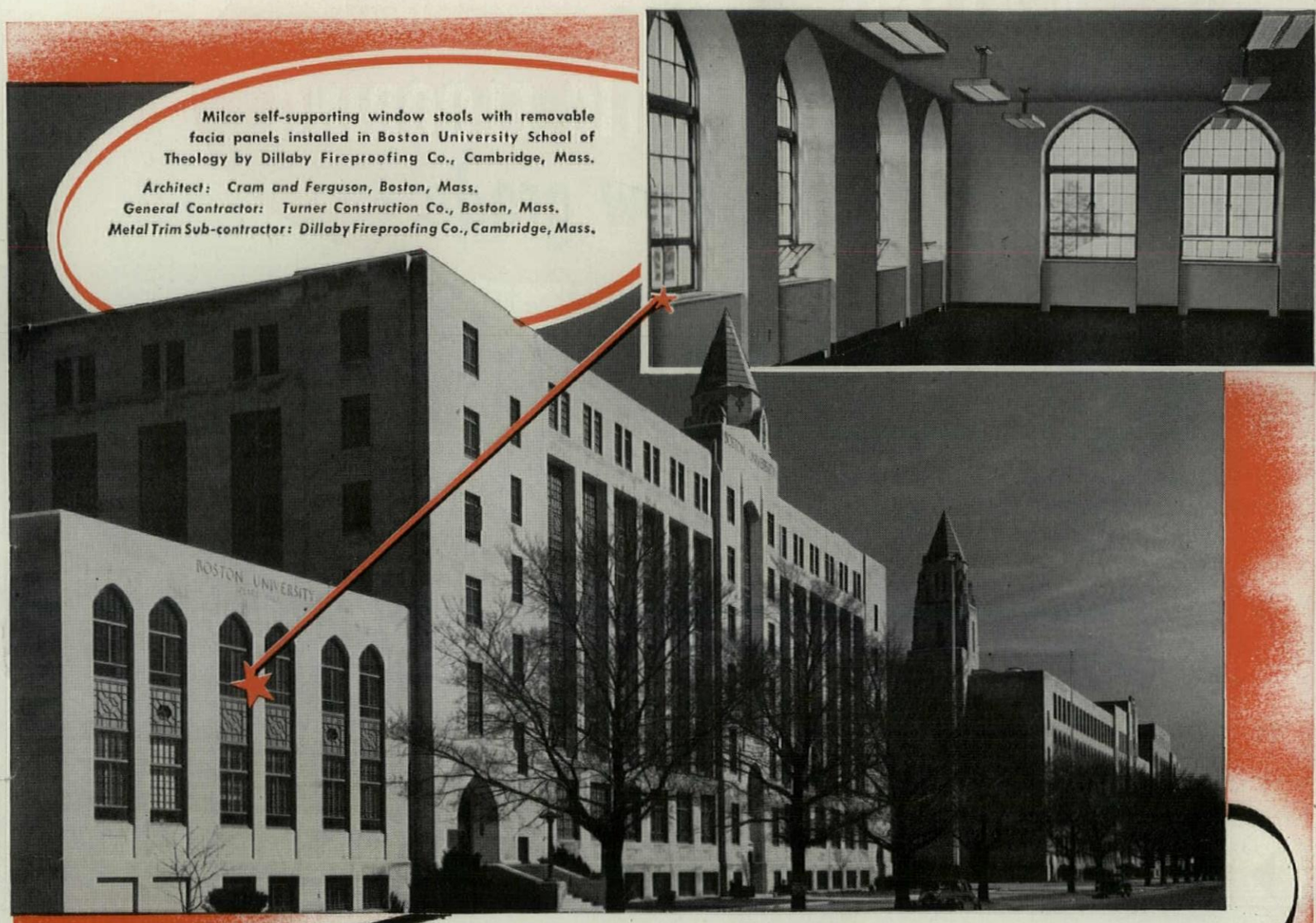
MASTIC TILE CORPORATION OF AMERICA

Member Asphalt Tile Institute

Joliet, Ill. Long Beach, Calif. Newburgh, N.Y.

World's largest producer of asphalt tile

2A62



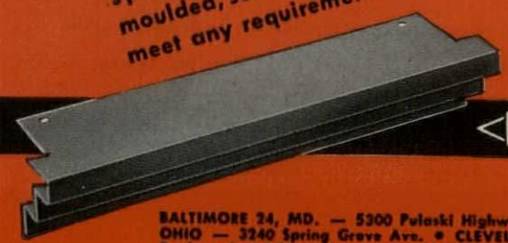
Milcor self-supporting window stools with removable facia panels installed in Boston University School of Theology by Dillaby Fireproofing Co., Cambridge, Mass.

Architect: Cram and Ferguson, Boston, Mass.
General Contractor: Turner Construction Co., Boston, Mass.
Metal Trim Sub-contractor: Dillaby Fireproofing Co., Cambridge, Mass.

MILCOR* Steel Window Stools

...practical, permanent, and firesafe

Milcor Window Stools are available in radius, flat, or splay types, plain or moulded, solid or grilled to meet any requirement.



Milcor Steel Window Stools are *practical* — because they are economical to install, easy to clean and maintain . . . *permanent* because they are wear-resistant — can't warp, rot, shrink, or crack . . . and *firesafe* because they are made of steel!

The complete Milcor Window Stool line gives you an attractive selection, too—in a full range of styles, types and sizes to suit your specific interior design.

These handsome window stools may be used separately or together with Milcor Metal Window Trim, corner fittings, and other accessories. Look for full details in Sweet's, or write for a copy of the latest Milcor Manual.

*Reg. U. S. Pat. Off. F-378

<INLAND> STEEL PRODUCTS COMPANY

4127 WEST BURNHAM STREET • MILWAUKEE 1, WISCONSIN

BALTIMORE 24, MD. — 5300 Pulaski Highway • BUFFALO 11, N. Y. — 64 Rapin St. • CHICAGO 9, ILL. — 4301 S. Western Avenue Blvd. • CINCINNATI 25, OHIO — 3240 Spring Grove Ave. • CLEVELAND 14, OHIO — 1541 E. 38th St. • DETROIT 2, MICH. — 690 Amsterdam Ave. • KANSAS CITY 8, MO. — S. W. Boulevard and State Line • LOS ANGELES 58, CALIF. — 4807 E. 49th St. • NEW YORK 22, N. Y. — 230 Park Ave. • ST. LOUIS 10, MO. — 4215 Clayton Ave.

TO THOSE WHO HELP *build* AMERICA

America is growing. The pioneer spirit is as bright today as it was when covered wagons moved along the Oregon trail. Today, our nation continues to grow vertically as well as horizontally . . . and architects and builders of big buildings continue to pioneer new appearance, utility and investment values in every project they create.

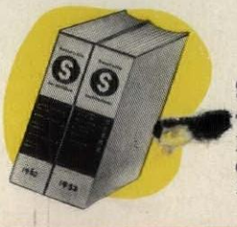
Eljer has been active in the American construction scene since 1904, and every year more and more Eljer Plumbing Fixtures are being installed in new commercial, industrial, institutional and government buildings.

Eljer's Line covers the complete range of vitreous china and enameled cast iron fixtures, as well as brass trim. Quality is rigidly controlled and *second to none*. New design features for style, trouble-free service and ease of cleaning, give Eljer *extra values* you should know about. There is an Eljer Distributor near you.

Quality
THROUGH AND THROUGH

Eljer Renewable Brass Fittings

Eljer Fixtures are available with quality renewable brass fittings . . . featuring the exclusive Eljer Swivel-Disc that virtually eliminates dripping and corrosion. Faucets operate smoothly at the touch of a finger and wear on moving parts is reduced to a minimum.



See Sweet's File, Architectural, and Sweet's File for Builders

There is an Eljer Fixture for *every* need. Sweet's Files contain Eljer's Condensed Catalog of popular plumbing fixtures. For complete data write: Eljer Co., Specifications Department, Box 192, Ford City, Pennsylvania.

ELJER

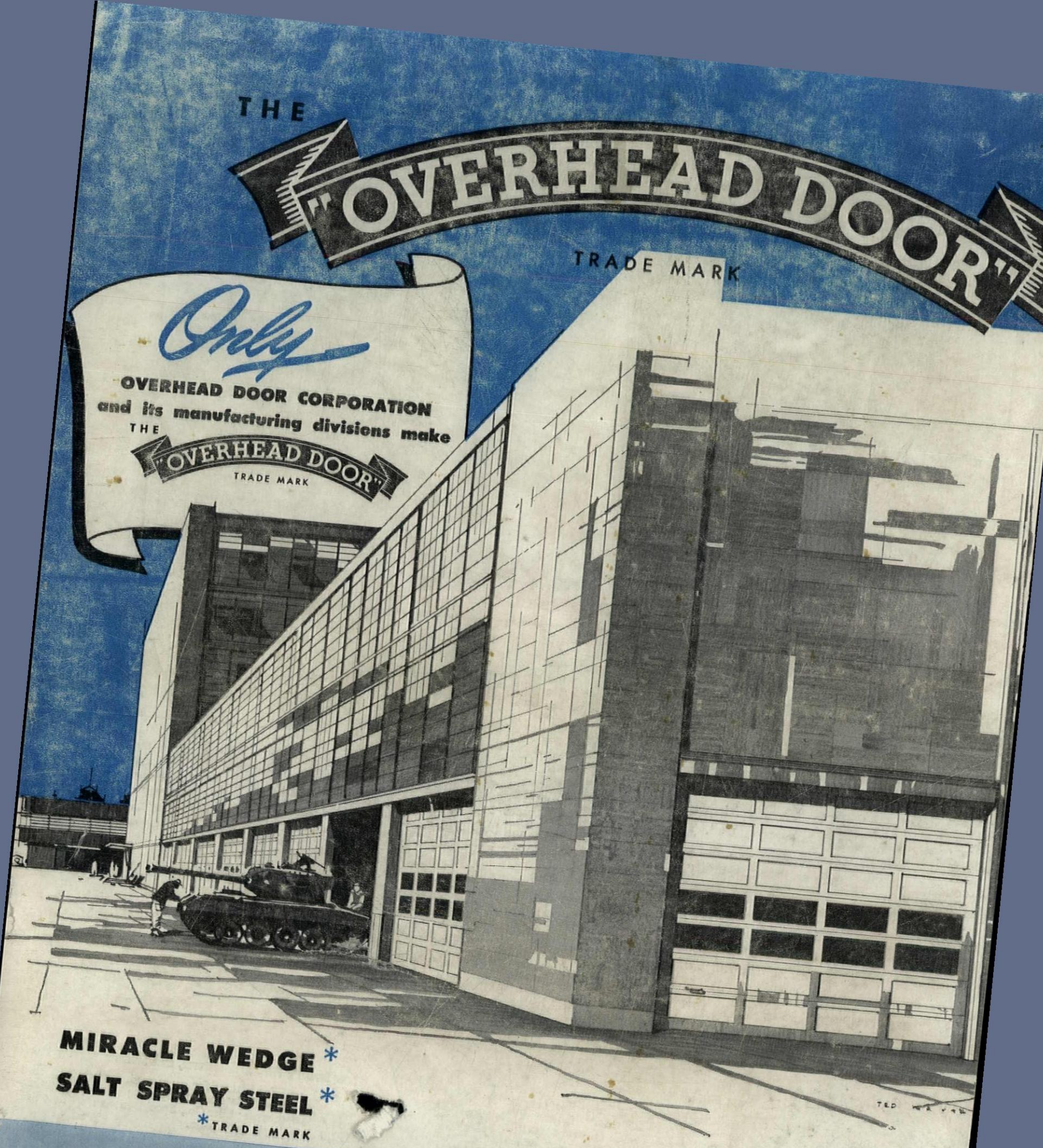
THE "OVERHEAD DOOR"

TRADE MARK

Only

OVERHEAD DOOR CORPORATION and its manufacturing divisions make

THE "OVERHEAD DOOR" TRADE MARK



MIRACLE WEDGE*

SALT SPRAY STEEL*

*TRADE MARK

OVERHEAD DOOR CORPORATIO

Hartford City, Indiana, U. S. A.

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PORTLAND, OREGON
LEWISTOWN, PENNSYLVANIA
DALLAS, TEXAS