

architectural **forum**

February 1954

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Minneapolis School of Art



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In the past twelve years, however, actual cash savings of \$41,831 have resulted from major wall changes required to provide additional work area for hundreds of new employees. And equally important, there were no costly interruptions of business efficiency . . . a minimum of confusion while these changes were in progress.

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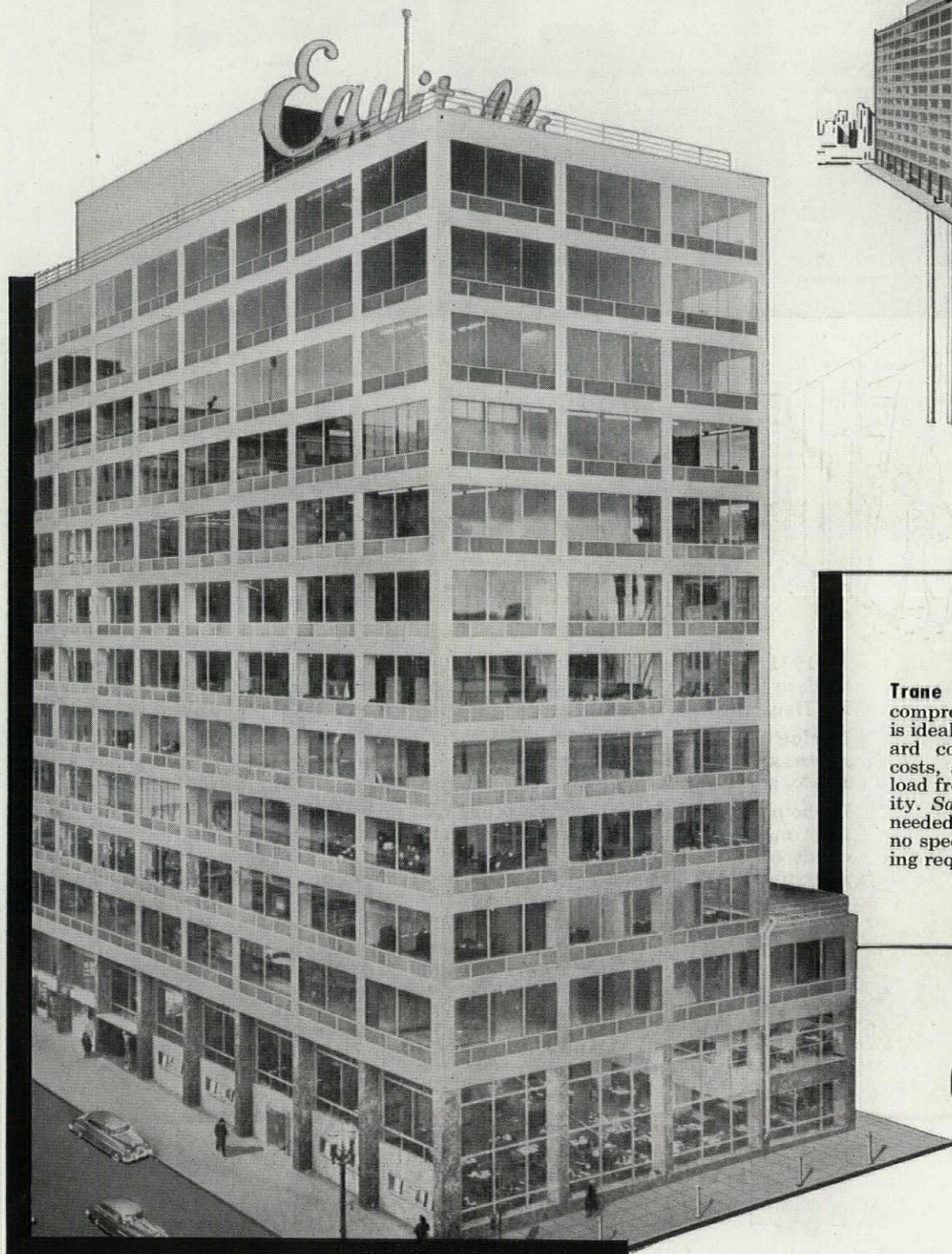
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*Engineers of Portland's 12-story
provides heat for only 16%*



Three wells used
for TRANE-equipped
heat pump cooling
and heating system.

Two wells, 150' deep,
63° F water.
One well, 510' deep,
57° F water.

Trane CenTraVac, refrigeration compressor from 50 to 400 tons, is ideal for heat pump or standard cooling jobs. Cuts power costs, automatically adjusts to load from 10% to 100% capacity. Saves labor—no attendant needed. Simplifies installation—no special base or sound-proofing required.

one source

new economy record!

Equitable building report heat pump of district steam costs!

- If district steam had been used for heating, total year-round heating-cooling costs would have been 64% greater.
- A total of 37% of the entire heating need was met with "by-product" heat—heat salvaged from the cooling process during those periods when heating and cooling were both required.
- Combined heating and cooling costs were 11.3 cents per sq. ft. (less than half the average for air conditioned office buildings in the U.S.)

These are findings reported by the installation's designer, J. Donald Kroeker, consulting engineer—as taken from a recent report to the A.S.H.V.E. and published in the November, 1953, issue of Heating, Piping & Air Conditioning.

This outstanding economy record was set by a 540-ton year-round heat pump. A complete TRANE installation, including 4 hermetic centrifugal compressors, fans, coils and circulators.

The installation fully exploits Portland's low electrical rates, availability of well water at two temperatures from 57° to 65°, relatively mild climate and other favorable factors. While these conditions are not generally so favorable in most areas, your investigation of the heat pump for year-round air conditioning may save thousands of dollars per year.

The New Trane CenTraVac— heart of an efficient heat pump installation

Fundamental to a low-cost operation in any heat pump installation is the system's ability to closely match power input to widely varying load conditions. The new TRANE CenTraVac (current model of the TRANE Centrifugal Compressors used in the Equitable job) has automatic, continuously-variable capacity control from 10% to 100%. This limits power use to the load requirement for outstanding economy.

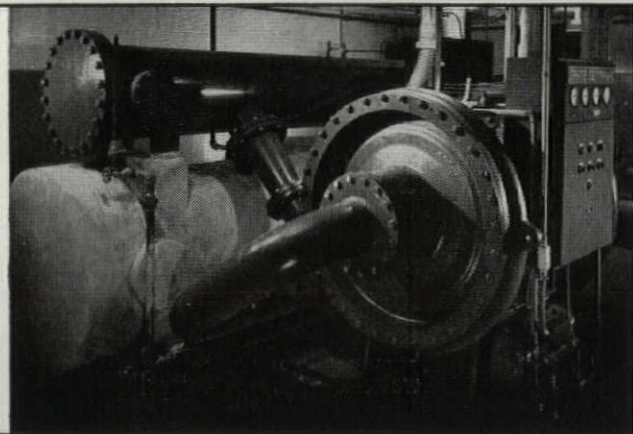
Completely automatic CenTraVac permits unattended operation

The fully automatic design of the TRANE CenTraVac leaves the system supervisor free for other duties. The only hermetic centrifugal refrigeration unit on the market, its exclusive design eliminates shaft seals . . . frequent cause of breakdowns. Direct drive eliminates noisy, power-wasting gear boxes.

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Climate Changers heat, cool, humidify, dehumidify, filter air. Multi-zone models provide up to 6 (or more) zones with different climates at the same time.



UniTrane room air conditioners give more year-round comfort air conditioning for less money. Save space. Can save cost of central ventilation system.

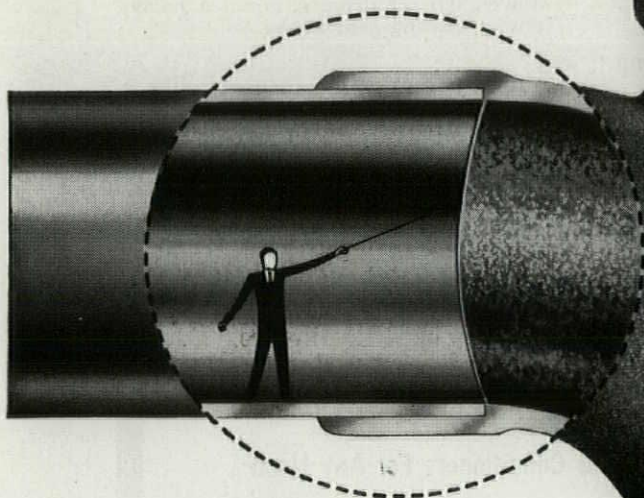
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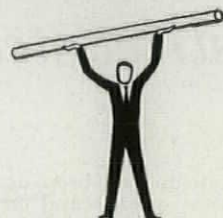
Chase Copper Tube with Chase Solder-Joint Fittings for waste, vent and soil lines can be installed rapidly . . . more economically . . . do a better drainage job . . . last longer.

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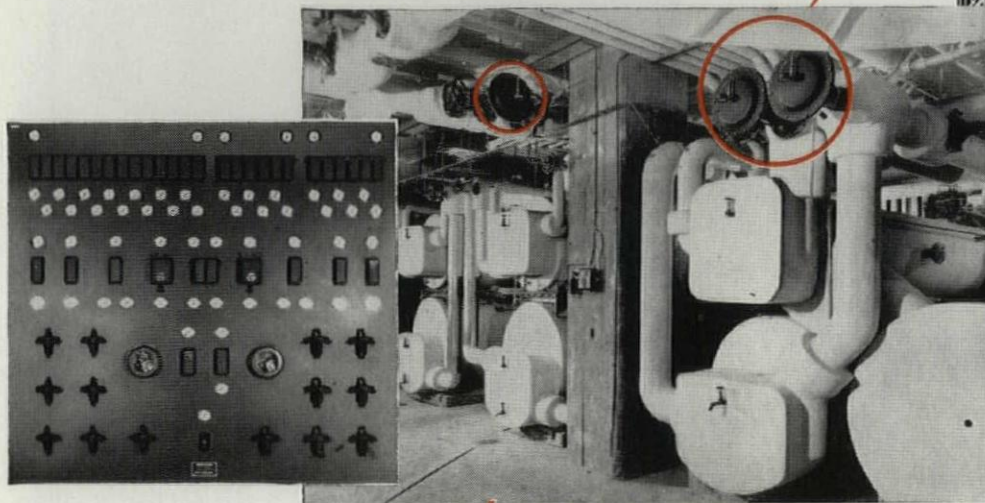
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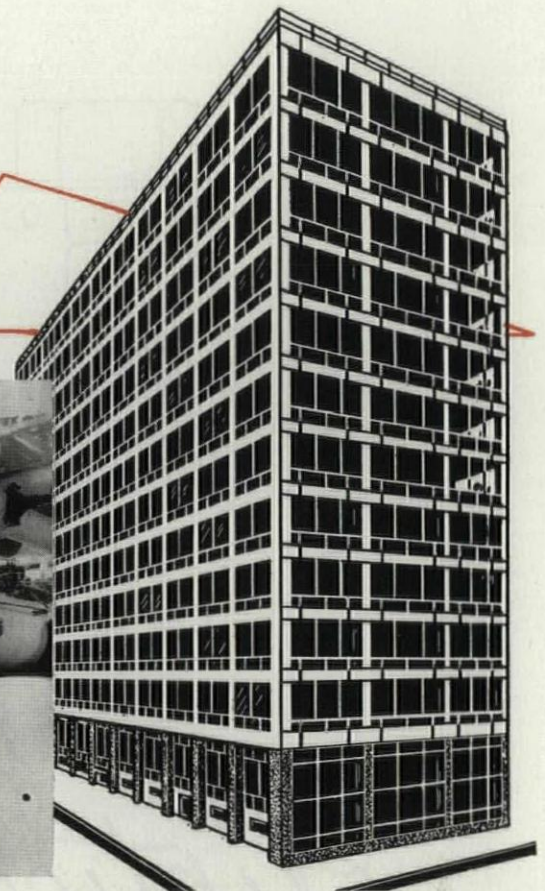
Automatically SOLVES THE CONTROL PROBLEMS

OF FAMOUS **"HEAT PUMP" INSTALLATION**



ONE OF SEVERAL JOHNSON CONTROL PANELS WHICH PERMIT THE OPERATION OF THE SYSTEM TO BE OBSERVED FROM CENTRAL LOCATIONS.

JOHNSON VALVES IN COMMAND AT THE TRANE TURBO-VACUUM COMPRESSORS.



THE EQUITABLE BUILDING, PORTLAND, ORE. J. DONALD KROEGER, ENGINEER; PIETRO BELLUSCHI, ARCHITECT; P. S. LORD, CONTRACTOR, ALL OF PORTLAND. TRANE AIR CONDITIONING EQUIPMENT USED THROUGHOUT.

The world famous "heat pump" installation for air conditioning Portland's Equitable Building has established a remarkable record of operating economy. Solving the many intricate control requirements of the heat pump and responsible for operating the system in the most efficient manner possible is a specially designed system of Johnson Automatic Control.

Year 'round air conditioning demands—usual or unusual—present no problems! *All* are controlled with precision. The whole system is the result of perfect planning . . . and this "reverse cycle" system is completely automatic. There are no definite transition points between the various cycles of operation: (1) when the demand for heating is greater than that for cooling; (2) when the need for cooling exceeds

that for heating; (3) when there is a demand for cooling only. The unique control features of this interesting air conditioning system are made possible by the superior control characteristics of the highly accurate "T-900 Series" of Johnson Thermostats.

The nationwide Johnson organization brings to each job more than 65 years of experience in solving all types of temperature and air conditioning control problems in all classes and sizes of buildings. Next time you have a temperature or air conditioning control problem, let an engineer from a nearby Johnson Branch prove how it can be solved best by a Johnson Automatic Control System. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

FEATURES OF JOHNSON CONTROL IN THE EQUITABLE BUILDING



The building is divided into heating and cooling zones. (Most of the floors are arranged to provide 11 zones.) Each zone is controlled separately by a Johnson Room Thermostat.



Johnson T-900 Outdoor Master Thermostats measure the external heating and cooling requirements and limit the amount of refrigeration capacity which can be brought into operation at less than design load. This reduces the electric power demand charges to the lowest possible minimum.



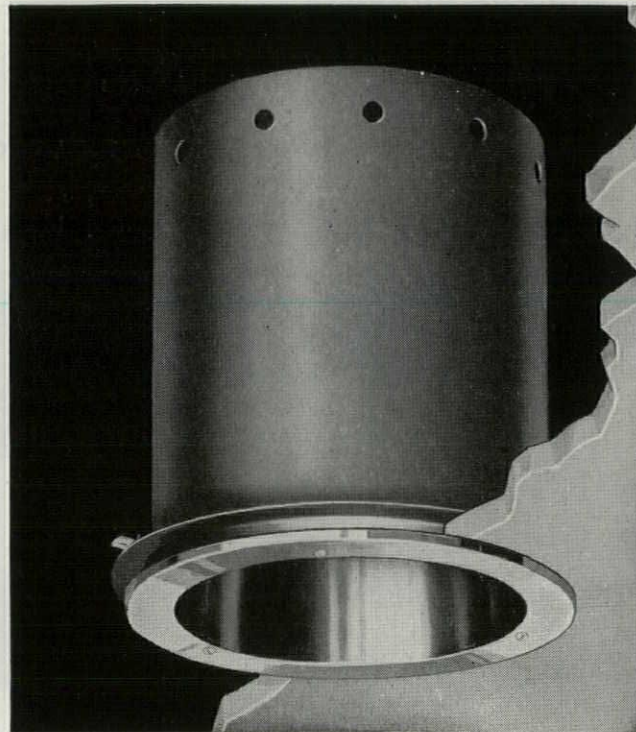
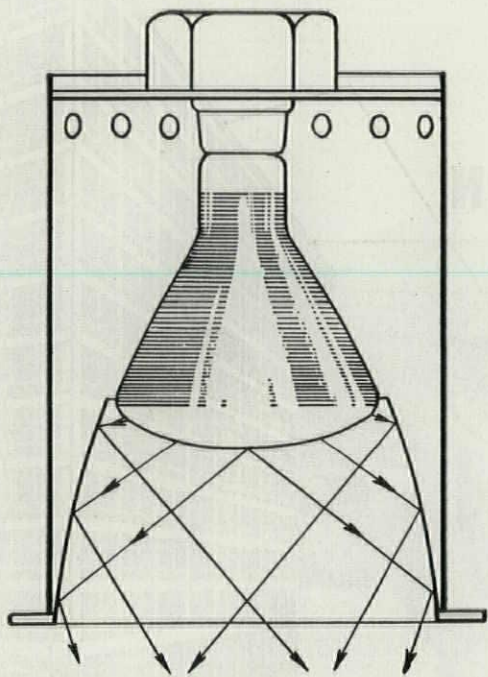
The refrigeration capacity is controlled by a Johnson Pneumatic Step-Controller, operated from Johnson Thermostats which measure the heating and cooling demand. The number of refrigerating compressors in operation, at any time, is determined by whichever demand (heating or cooling) is greater.



Water temperatures are varied continually, for heating and cooling. Automatic control is accomplished by Johnson T-901 Submaster Thermostats commanded by a Johnson T-900 Master Thermostat which measures outdoor temperature.

JOHNSON *Automatic Temperature and Air Conditioning* **CONTROL**

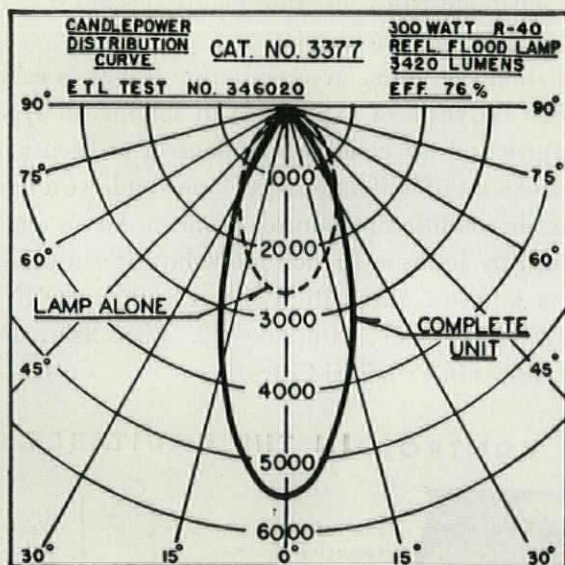
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Full data on the unit is on page 25 of the ART METAL catalog. Write for a copy.

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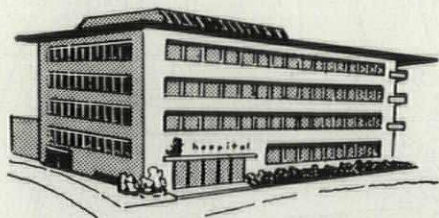


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the safe control of **RIXSON**
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single and double acting ...
floor type and overhead

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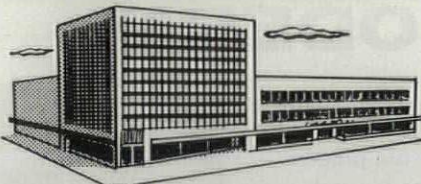
HOSPITALS

- entrance and vestibule doors • patient room doors
- service room doors • toilet room doors



SCHOOLS

- entrance and vestibule doors • class room doors
- gymnasium and cafeteria doors • toilet room doors



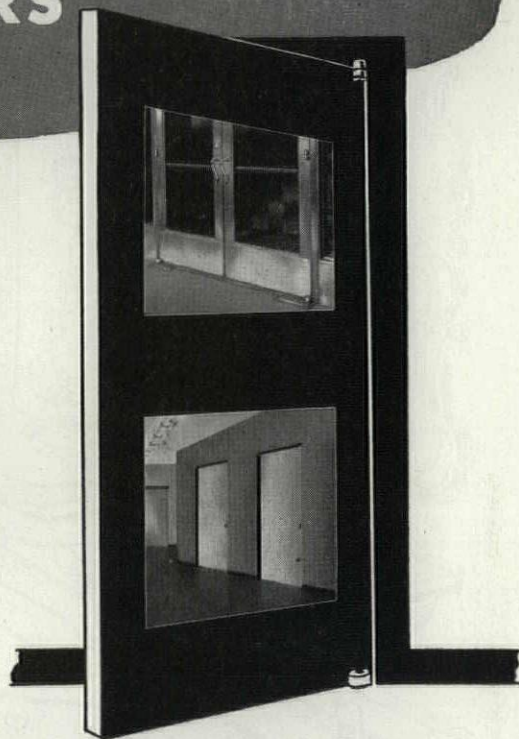
OFFICE BUILDINGS and STORES

- entrance and vestibule doors
- suite entrance doors • office rail gates
- toilet room doors • toilet stall doors



THEATRES, HOTELS and RESTAURANTS

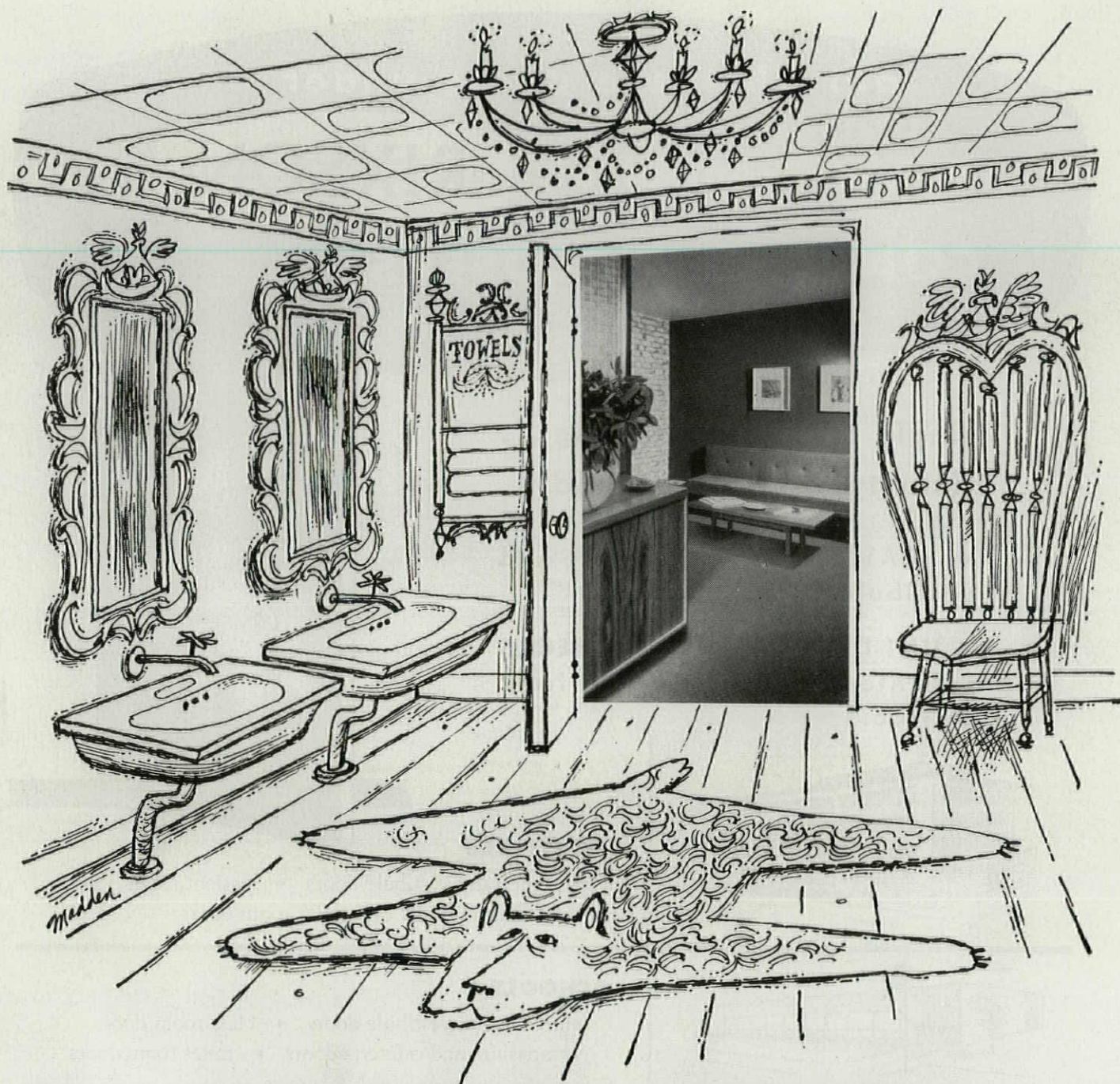
- entrance and vestibule doors • toilet room doors
- toilet stall doors • office rail gates
- single and double kitchen doors



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We've printed a full-color booklet showing what we've learned over the years about washroom design. Send for your copy on your company's letterhead today.

Write Scott Paper Company, Dept. AF-3, Chester, Pa.

"ScotTissue," Reg. U.S. Pat. Off.



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Recessed Towel
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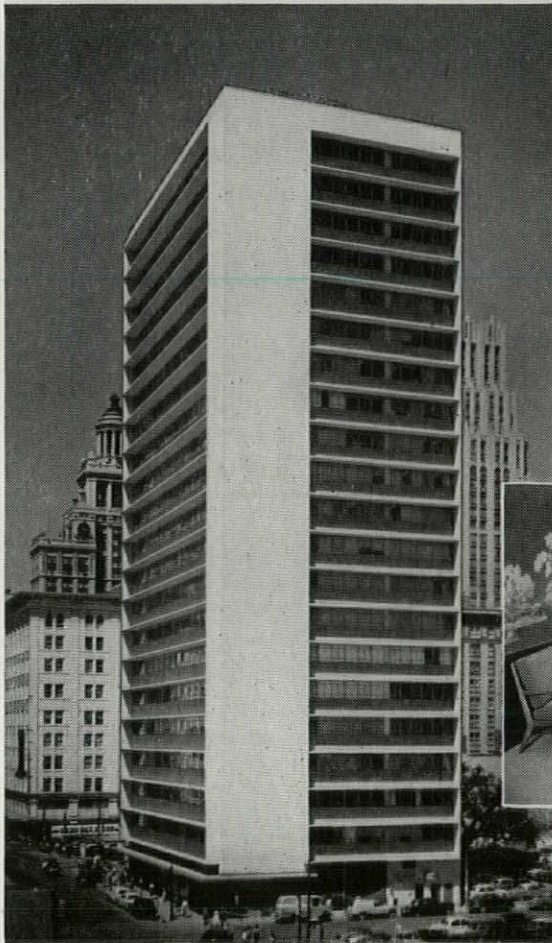


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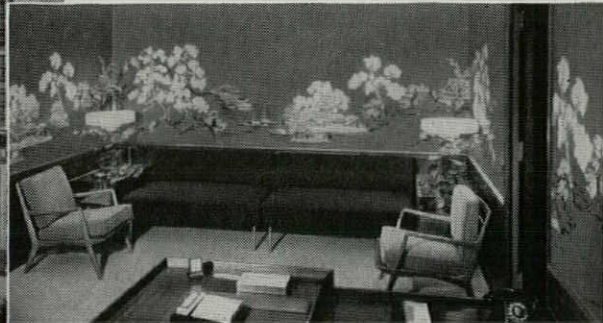
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*Typical business office reception room
in Houston's new ultramodern Melrose Building*

ACHIEVEMENT IN DRAMATIC STYLING

• Combining dramatic exterior appearance and spacious, pleasant interior work space, the new MELROSE BUILDING in Houston, Texas, is an outstanding example of new architectural thinking. On two sides of this 21-floor office building sunshades extend four feet beyond horizontal continuous windows which are emphasized by spandrels faced with reflective blue-green tile. To

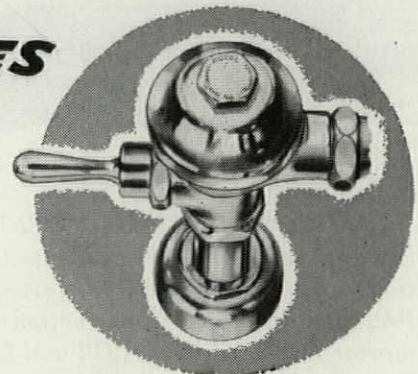
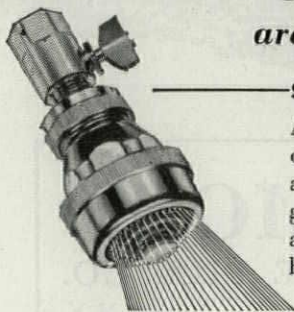
establish maximum rental areas, elevators are placed along one of the brick, windowless walls and service areas along the second. Reduction of sky glare added to air conditioning provide a high degree of work comfort. SLOAN Flush VALVES, famous for efficiency, durability and economy, were selected for installation throughout the fine Melrose Building—more evidence of preference that explains why...

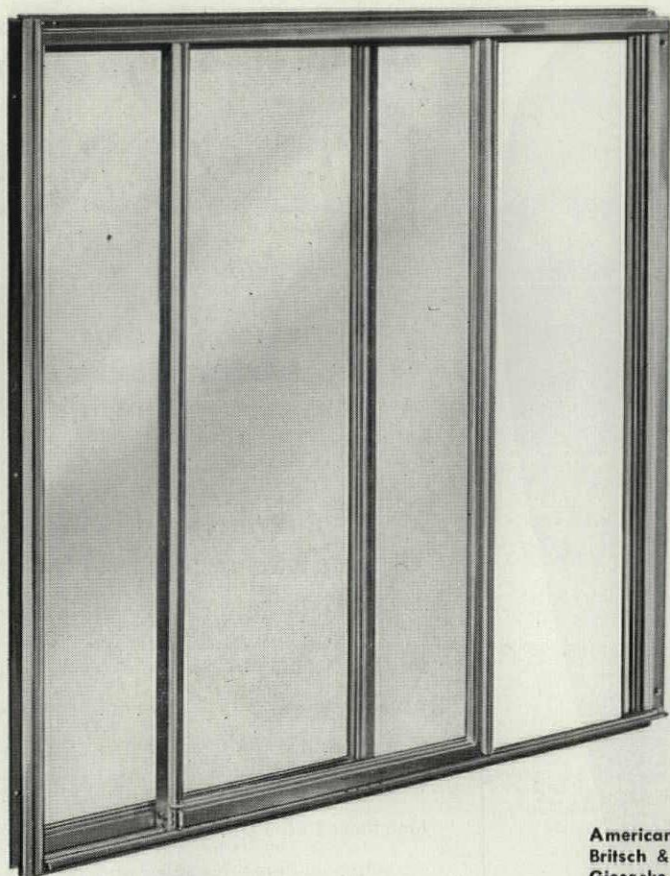
more **SLOAN Flush VALVES**
are sold than all other makes combined

—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. Architects specify, and Wholesalers and Master Plumbers recommend the Act-O-Matic—the better shower head for better bathing.

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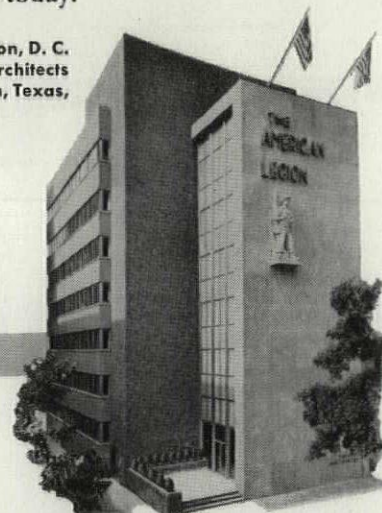
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Associate Architects



1953 "IDEAL HOME" by Builders Assn. of
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Specify Peterson . . . For These Features:

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Effortless horizontal operation on stainless steel rollers.

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Streamlined beauty for all design motifs.

STURDY

Hollow-type aluminum extrusions.

MINIMUM MAINTENANCE

No painting, rusting, swelling, warping or sticking.

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Eliminates putty, sash balances, cranks, projecting hinges.

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Sliding sash removes into room for easy washing.

SAFE

Positive locking in closed, one, two and three inch open positions.

WEATHERPROOF

Hi-pile mohair provides insulated, draft free comfort.

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with double glazing panels and aluminum screens if desired.

50 STANDARD SIZES

All shapes and sizes popularly specified for residential, commercial and monumental buildings supplied promptly. Special sizes can be obtained at slightly higher cost.

Constructed of sturdy aluminum extrusions—63S-T5 Alloy, minimum thickness .062"—engineered for maximum strength.

SEE 16a/p₆ IN SWEET'S CATALOG
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Here's

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BIG TRUTH*

about

boilers...

***The only safe way to specify
boilers is on nominal capacity to
operate at "cruising speed"...**

KEWANEE

reserve
plus
rating

guarantees dependability, higher efficiency, lower costs, longer life—because it means "cruising speed" operation.

■ There's a lot of confusion in sizing boilers today because rating methods have not been brought into the open with a clear-cut definition. That's all changed with Kewanee Reserve Plus Rating. Here for the first time these truths are stated: Only nominal-rated boilers with built-in reserve *safely provide* efficiency—low maintenance—dependability—longer life. Only nominal-rated boilers *safely provide* for fluctuating loads—emergencies—expansion.

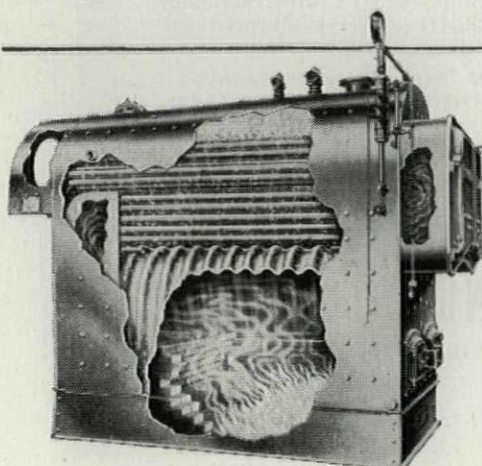
So when you consider "bidding data" be sure you compare like examples . . . know whether ratings are based on maximum capacity or nominal capacity.

Follow the Kewanee Reserve Plus Rating Plan which is based on the commercial code of the Steel Boiler Institute. Kewanee Reserve Plus certifies 50% or more extra power for pick-up and additional capacity. Kewanee gives you complete data and dimensions, so you can realistically consider sizing requirements.

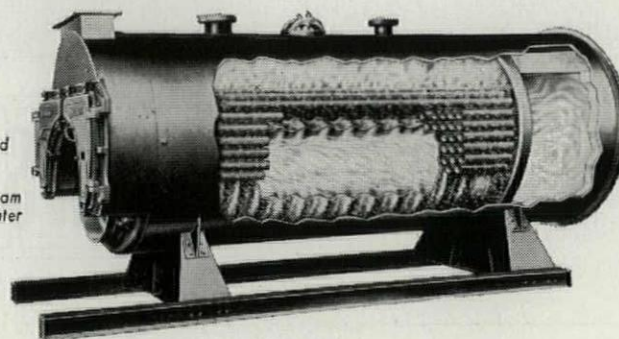
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**Kewanee type
"C" boiler**
with exclusive corrugated
crown sheet. 16 sizes
for oil, gas or stoker
3650—42500 sq. ft. steam
5840—68000 sq. ft. water



M-800 series boiler
Here is rugged "M-800"
Series Scotch Boiler
constructed in 13 sizes
for high pressure steam
39 to 304 horse power
and low pressure 15 lb.
steam or 30 lb. water.

BASE FLASHING, SCUPPER LINING AND CONDUCTOR HEAD:
20-OZ. COPPER, CORNICE TEMPER

COPING:
16-OZ. COPPER, CORNICE TEMPER

Caulking
Copper Edging Strip
held by Bronze Fastenings

Solder at Scupper, Mitered Corners
and End Joints of Base Flashing.

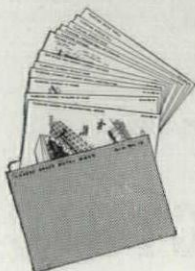
Flashing design for parapet with roof scupper

On buildings where the parapet is designed as little more than a curb and in climates where snowfall is not severe, scuppers leading to outside downspouts offer an economical method of providing for roof drainage.

This drawing shows the details of a base flashing and scupper lining secured to the roof deck. A 16-oz.

copper coping, joined to the 20-oz. base flashing with a loose clinch lock, protects the vertical mortar joints of the masonry. Free-sliding, weathertight expansion joints should be installed on the copper coping at 24-ft. intervals and wherever expansion is provided for in the structure.

5345

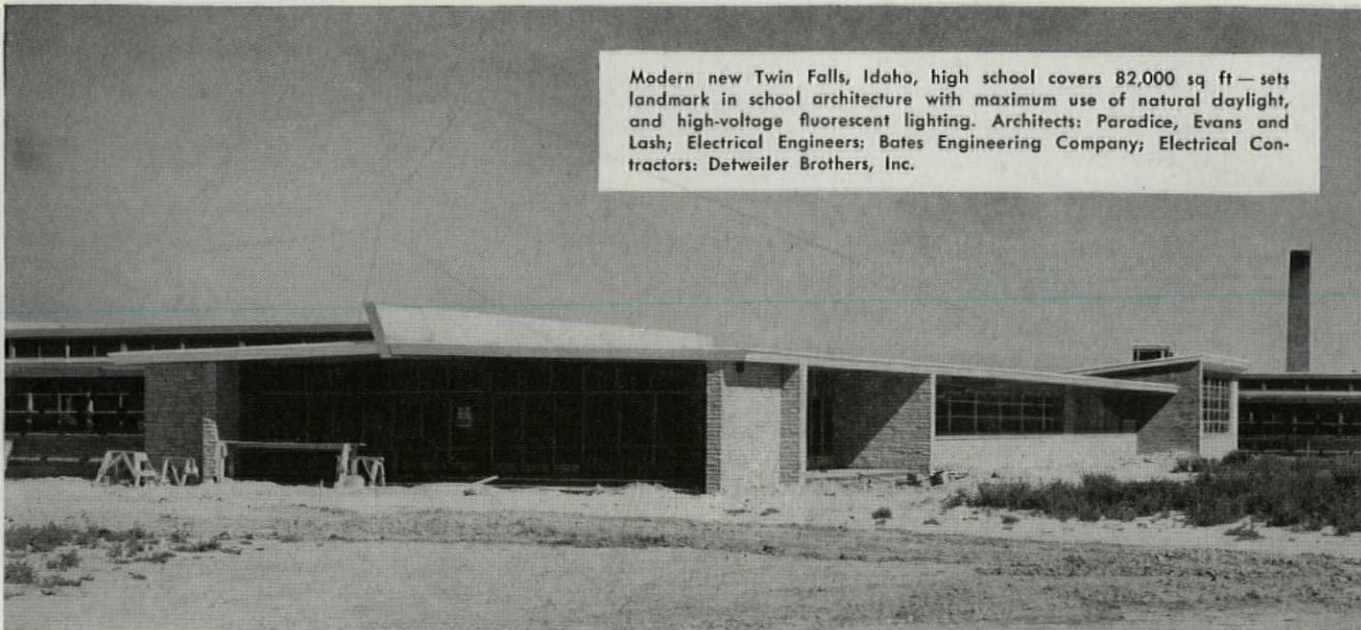


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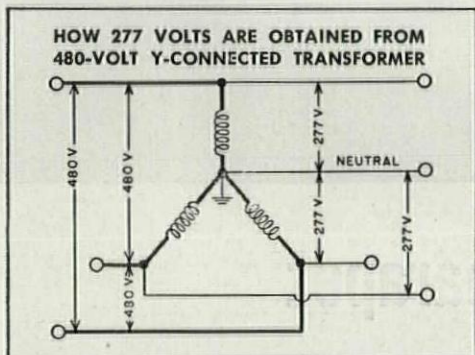
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work — use

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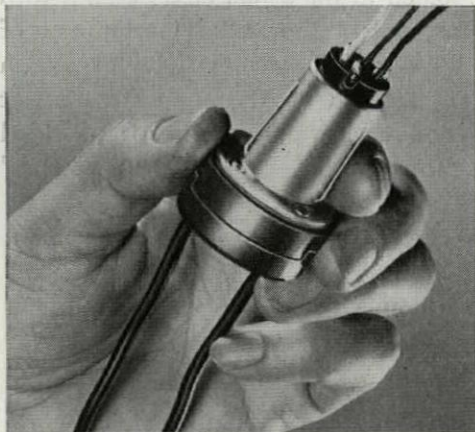


Modern new Twin Falls, Idaho, high school covers 82,000 sq ft—sets landmark in school architecture with maximum use of natural daylight, and high-voltage fluorescent lighting. Architects: Paradise, Evans and Lash; Electrical Engineers: Bates Engineering Company; Electrical Contractors: Detweiler Brothers, Inc.

NEW SCHOOL USES 480Y/277-VOLT DISTRIBUTION to cut wiring costs and voltage drop



With the common 480-volt, 3-phase, 4-wire distribution system, voltage between any line and ground is 277 volts. For 120-volt needs, small dry-type transformers are used.



Heart of the 277-volt lighting system is this RR-2 remote-control relay. It will switch up to 10 amperes of fluorescent load. Operates on 24 volts—mounts through ½-inch knockout of outlet box or fixture.

Only 24 volts at wall switches with G-E remote-control system

The new Twin Falls, Idaho, high school takes advantage of the recent amendment to the National Electrical Code, permitting the use of 480Y/277-volt distribution to supply power for fluorescent lighting in large schools, office buildings, and stores. This high voltage wiring—with low-voltage switching—is saving an estimated \$20 per kva in installation costs, will cut power losses and maintain excellent voltage regulation in the most remote corners of this modern school. The 4-wire lines supply 480 volts for motors, 277 volts for fluorescent lighting—using standard fixtures and lamps, and high-voltage ballasts. (See wiring diagram at left).

G-E Remote-Control Switching Is Safe and Convenient

The General Electric remote-control switching requires only a safe 24 volts at wall switches. The switches actuate relays which can be installed in any convenient location. The relays do the actual on-off switching of the higher voltage. The light, 24-volt wiring is inexpensive to install or relocate. Master switches will control as many as nine circuits from one convenient location.

Give your clients extra convenience and lower wiring and power costs with 480Y/277-volt distribution and G-E remote-control switching. Write for the "G-E Remote-Control Manual of Layout and Installation." Section D97-24, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

You can put your confidence in—

GENERAL  ELECTRIC

Now... set fastening studs
wherever they're needed

MODEL 450 REMINGTON STUD DRIVER

Here's new economy... new speed in construction fastening! The Remington Stud Driver joins wood or steel sections to concrete or steel surfaces in seconds... easily sets as high as 5 studs a minute. Powerful 32 caliber charges drive studs arrow-straight. The tool's light weight—only 5½ pounds—simplifies handling wherever studs are needed.

New guards for specific uses now make the self-powered Remington Stud Driver more versatile than ever. These attachments take all the guesswork out of stud location... assure fast, accurate fastening for every job. Illustrated are just 4 of these special guards. For full information about the complete line and about the Remington Stud Driver, send the coupon below.

*A complete line of guards
for special applications*



Listed & Approved by Underwriters' Laboratories, Inc.

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Remington Arms Company, Inc.
939 Barnum Ave., Bridgeport 2, Connecticut

Please send me my free copies of the new booklets showing how I can cut my fastening costs.

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"If It's Remington—It's Right!"

Remington



NOBODY GUESSES

WHEN YOU USE...

WALSEAL[®]



When you see this fillet of alloy, **and the fitting is Walseal** you know that you have full 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 Walseal joint; 3 — cutaway view of the completed joint showing that silver brazing alloy has flowed in **both** directions from the factory inserted ring.

When you join brass, copper, or copper-nickel pipelines 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 silver brazing alloy that shows up when the Walseal joint is completed, *comes from the inside!* And, whether you've made the joint yourself, or are 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 silver brazed joints made with Walseal products, write for Circular 115.



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

WALWORTH

valves and fittings

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

Recommended for

**Hot and Cold Water
Circulating Systems**

Boiler Feed Lines

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Air Systems**

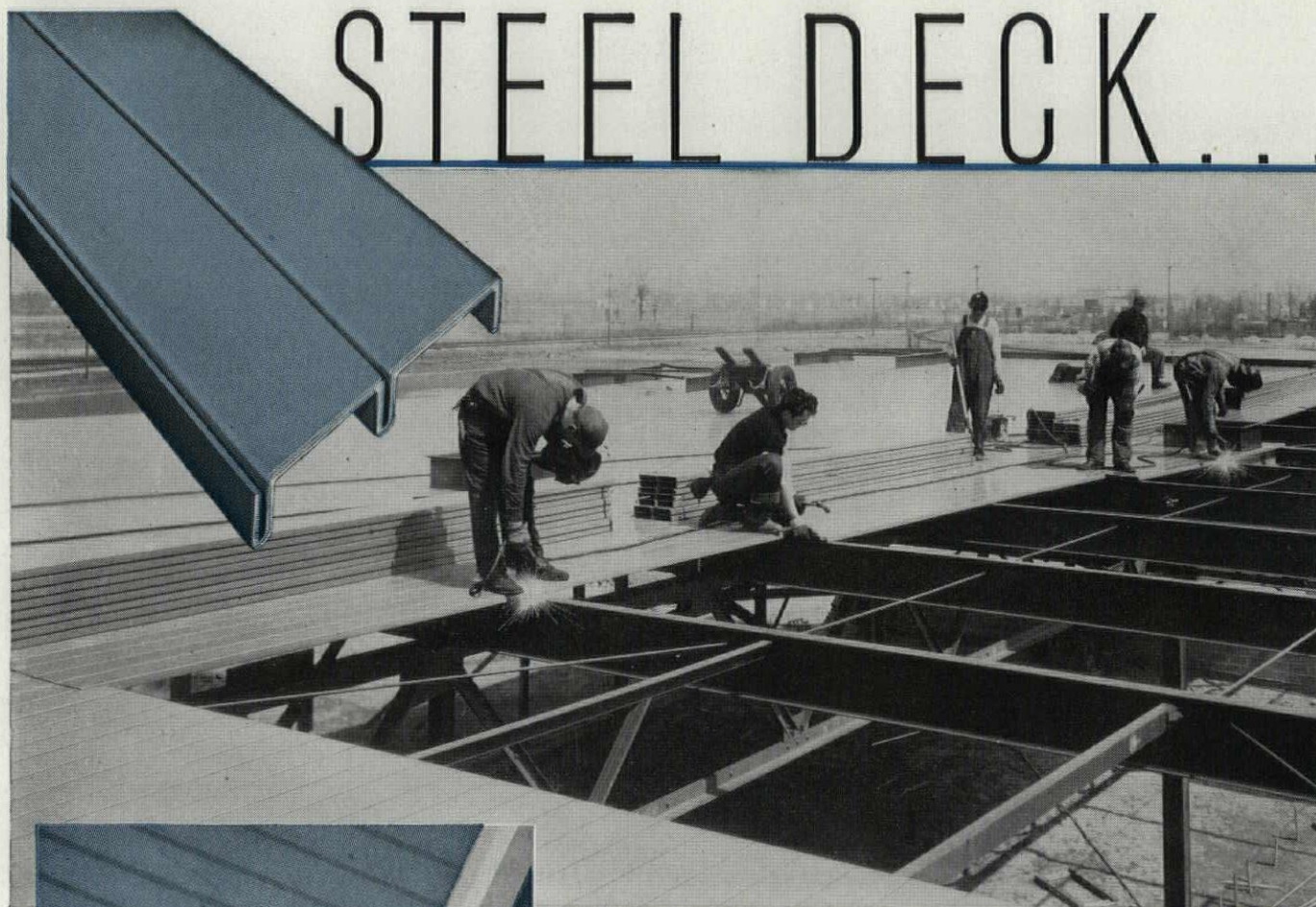
**Lubricating Oil Circulat-
ing Systems**

Industrial Gas Piping

**Solvent and Vacuum
Piping Systems**

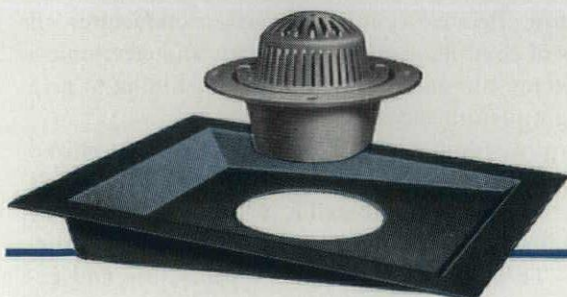
DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

STEEL DECK...



BUILT-UP SADDLES ELIMINATED

Built-up saddles are eliminated in Steel Deck Roofs. Purlins can be set to create valleys at sump locations in the drainage area. Steel Deck can be warped to conform. No additional deck plates are required—no cutting, fitting or bending necessary.



SUMP RECESSES and SUMPS

Mahon Roof Sump Recesses for use with Mahon Steel Deck can be furnished to fit any roof pitch. Mahon Cast Iron Sumps can also be furnished for 4", 5", and 6" conductors.

Protects a Greater Percentage of New Construction Year After Year!

Steel Deck continues to gain favor in the industrial and commercial building fields. Why? . . . because steel deck is the logical and most practical deck material available for roof construction today. And it's more economical, too. Steel Deck's light weight permits substantial savings in the supporting structure . . . it can be insulated to the exact degree to meet local "U" Factor requirements—total dead roof load, including insulation and waterproofing materials, will prove to be less than any other type of permanent, firesafe roof construction in any given locality. And, important too, Steel Deck can be installed in any kind of weather . . . erection progresses rapidly—no waiting for materials to dry. Mahon Steel Deck is available in Galvanized Steel, Enamel Coated Galvanized Steel, or Enamel Coated Black Steel. Stiffening ribs are vertical—no angular or horizontal surfaces where troublesome dust may accumulate. In the enamel coating process, the metal is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. Investigate these extra-value features of Mahon Steel Deck . . . See Sweet's Files for complete information, or write for Catalog B-54-A.

T H E R . C . M A H O N C O M P A N Y

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

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

MAHON



The Parker Pen Company's new Arrow Park plant at Janesville, Wis. Architects: John J. Flad & Associates, Madison, Wis. Mechanical Engineers: Beling Engineering Consultants, Moline, Ill. Heating Contractors: Hyland Hall & Co., Madison, Wis.

How Honeywell Customized Temperature Control can help you **Give your clients the "working climate" they've always wanted**

Why Honeywell Customized Temperature Control is becoming a must for all types of buildings

"Working climate," as important to the success of your clients' business as black ink in the ledger, is made up of a lot of things.

The handling of personnel, proper lighting, vacations with pay, temperature and humidity control, are a few.

And the best way to provide proper temperature control is through use of *Honeywell Customized Temperature Control*.

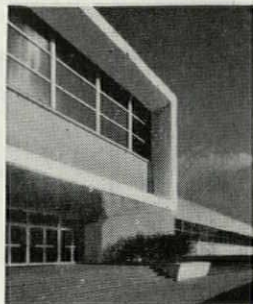
The key word here is "customized." It means that whatever your clients' control requirements, a Honeywell Customized Temperature Control installation, *designed to fit the needs of the building and its occupants*, is your answer. This applies to heating and cooling, ventilation and humidity control, and to industrial control as well.

Only Honeywell can provide true "custom-

ized" control. Because only Honeywell manufactures all three types of controls—pneumatic, electric and electronic—which often must be integrated in a single building to give you the right performance.

The story, in capsule form, of the Honeywell Customized Temperature Control installation in Parker Pen's new plant in Janesville, Wisconsin, is told by the floor plan and picture captions opposite. They tell how specific occupancy, use and exposure problems were met—to provide an ideal "working climate."

The *techniques* used, applied to your particular problems, as well as the problems of your clients, can help you give your clients even better performance—by providing the kind of "working climate" they've always wanted.

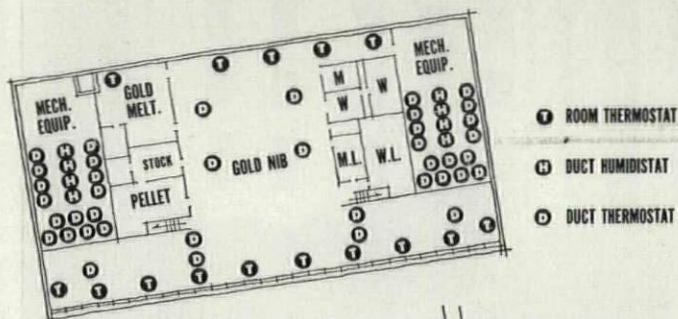


*For comfortable, even temperature in new
or existing buildings—of any size—use
Honeywell Customized Temperature Control*

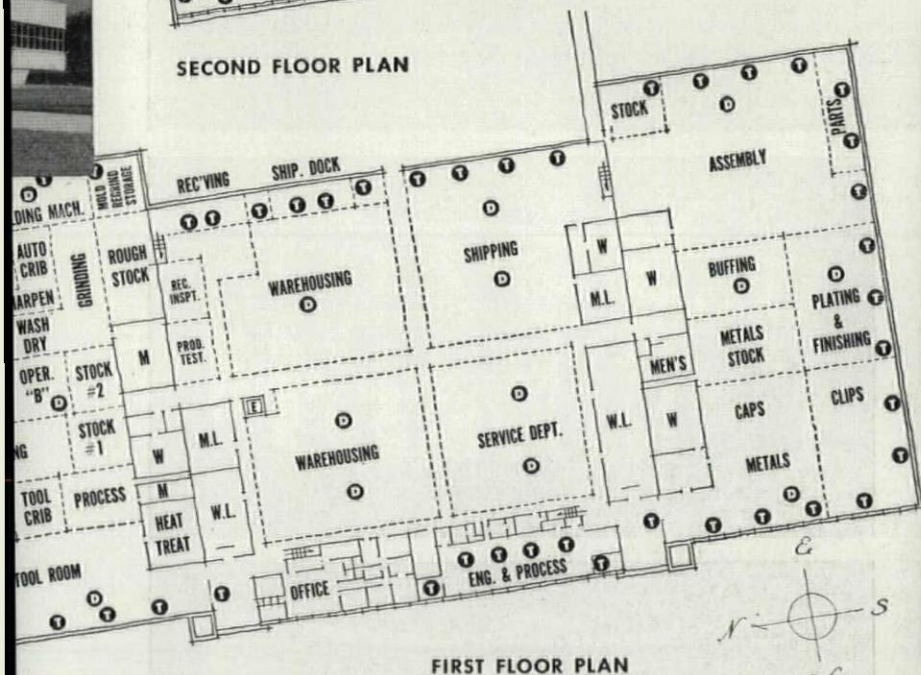
Whether it's an office, motel, airport, hospital, apartment, church, school, factory, store, garage—or any size building—new or existing, Honeywell Customized Temperature Control can help meet your clients' heating, ventilating, air conditioning and industrial control problems.

Your clients will not only enjoy more comfort and efficiency, they'll save fuel, too.

For full facts on Honeywell Customized Temperature Control, call your local Honeywell office. Or mail the coupon below.



SECOND FLOOR PLAN



FIRST FLOOR PLAN



*Philip Hull, manufacturing vice-president,
the Parker Pen Company, says:*

"When we planned our new Janesville plant we wanted it to be the best of its kind ever built. Certainly the ideal indoor climate Honeywell Customized Temperature Control helps provide has aided us in approaching that goal."

MINNEAPOLIS
Honeywell



First in Controls

OFFICES
ACROSS THE NATION



Strategically located thermostats guard the comfort of workers in the large engineering and process room. Sunshine entering through the big windows could upset the comfort balance in summer as well as in winter—if Honeywell Customized Temperature Control weren't on the job controlling heating and cooling.



"Working Climate" problems are different here. The room is huge; physically more active workers find their best room temperature is lower than in the engineering room. But Honeywell Customized Temperature Control—with thermostats strategically located in the area—easily handles this occupancy and use problem, as well as compensating for different exposure problems.

MINNEAPOLIS-HONEYWELL REGULATOR CO.

Dept. MB-2-07, Minneapolis 8, Minnesota

Gentlemen: I'm interested in learning more about Honeywell Customized Temperature Control.

Name

Firm Name

Address

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

Alabama Beautifies its State Capital with Architectural Concrete



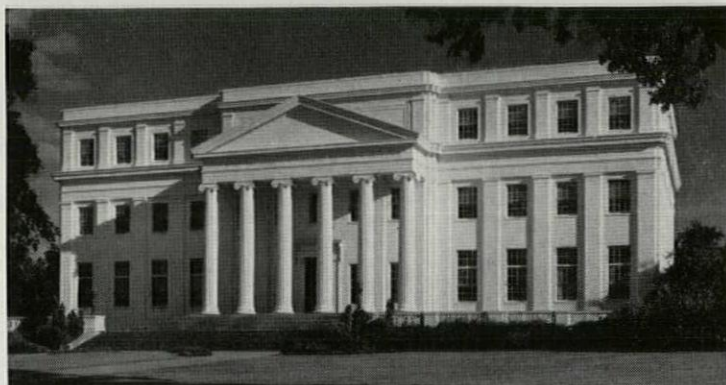
In 1937 the State of Alabama built its Highway Department Building (above) with architectural concrete. It was so pleasing the Archives and History Building (upper right) followed in 1940.

When it was decided, a decade later, to build additional structures, the beauty and outstanding performance of the Highway and Archives Buildings led to the choice of architectural concrete again. The State Office Building (middle right) now is being built. Construction of the Public Health Building (lower right) starts this year.

These structures in Alabama's capital illustrate the beauty and adaptability of architectural concrete for public buildings. It is equally adaptable to schools, hospitals, apartments, churches and industrial and commercial buildings.

Architectural concrete fulfills every structural requirement too—durability, strength, firesafety, low maintenance expense and *low annual cost*.

More and more architects are discovering that architectural concrete is the ideal medium for giving form to their finest designs. For more information write for free, illustrated literature, distributed only in the United States and Canada.



Architects: for Health Building, Charles H. McCauley, Birmingham; for others, Warren, Knight & Davis, Birmingham. Structural engineers: for Health Building, Strickland and Associates, Birmingham; for others, Carl Wilmore, Birmingham. Construction: Highway and Archives Buildings, WPA; State Office Building, Ray M. Lee Company, Atlanta, Ga.; Health Building, Batson-Cook Company, West Point, Ga.

PORTLAND CEMENT ASSOCIATION

Dept. 2-7, 33 West Grand Avenue, Chicago 10, Illinois

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





building for the future

Imaginative architects and engineers know that inhibitions and prejudices must be stifled if creative development is to have full freedom of expression. That's why many seemingly senseless drawing board doodles often emerge as revolutionary ideas in building technology.

We are happy to have had a hand in shaping some of these mental images into metal miracles for today's innovations in the heating, air conditioning, lighting, acoustical, structural and ornamental fields of building construction.



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FARM EQUIPMENT



METAL FURNITURE

VanHuffel

TUBE CORPORATION • WARREN, OHIO



TRANSPORTATION

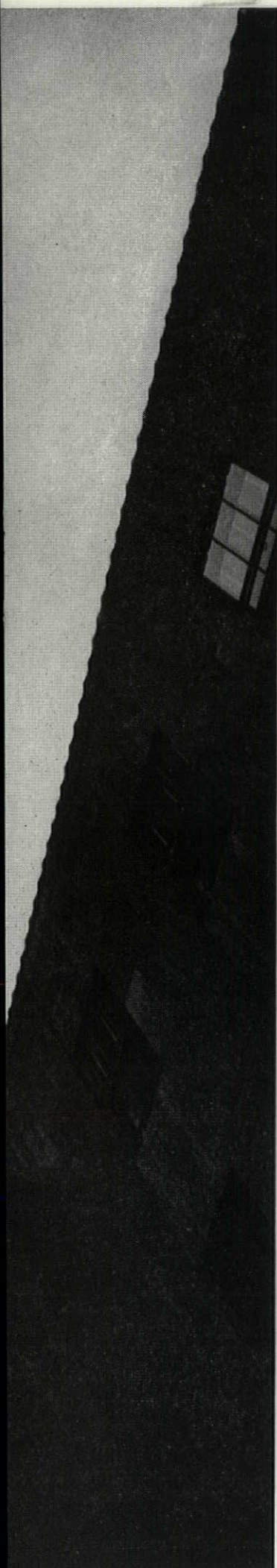


COMMUNICATIONS



where ideas take shape for the industries that serve the nation





Could 166 Westinghouse Elevators Lift Half The People In The World?

They can and have! Since 1932, 166 Westinghouse elevators in Rockefeller Center have carried over ONE BILLION passengers . . . or about half the population of the world! And, 8 of these elevators are *still* the world's fastest . . . travelling from the first floor to the 65th in 37 seconds.

Westinghouse elevator-engineering produced this world famous installation. This same progressive thinking is incorporated in Pittsburgh's Gateway Center where today's ultra-modern Selectomatic elevators with Synchro-Glide have been installed to give the most efficient service possible.

Red and green—up-peak, down-peak and in between, Selectomatic balances the complete traffic pattern—*instantly* and *automatically* its electric brain matches the movement of the cars with the size of the demand. This puts cars *where* they're needed, *when* they're needed—cuts floor-to-floor time to the minimum.

So, if you're planning a modernization or a new building program it will pay you to learn all about Selectomatic. Test-ride our equipment and see for yourself the speed and efficiency of Westinghouse Selectomatic. Call our local office for the name of a nearby installation.

Westinghouse Elevators

PASSENGER AND FREIGHT ELEVATORS • ELECTRIC STAIRWAYS

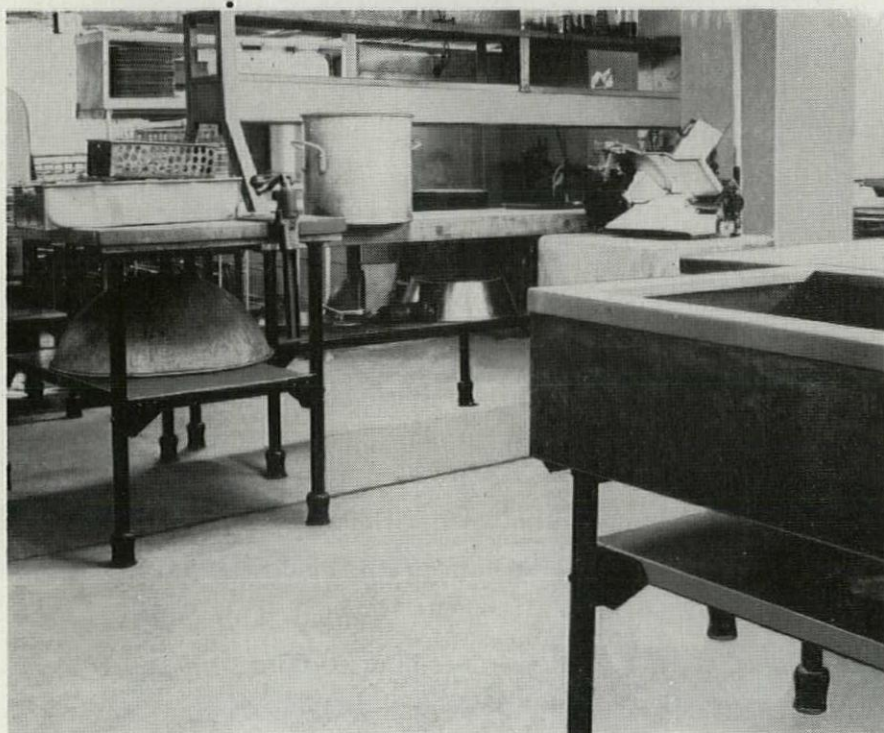
PROTECTIVE MAINTENANCE AND SERVICE

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

J-98659

SURCO FLOORS

Pass the Acid Test!



This cafeteria kitchen* floor was resurfaced with special SURCO without moving tables, stoves, or sinks. Food spillage and caustic cleaning agents extensively pitted the original concrete. Present SURCO floor is highly chemical resistant, non-skid, and its resiliency greatly reduces damage to glasses and crockery dropped by accident.

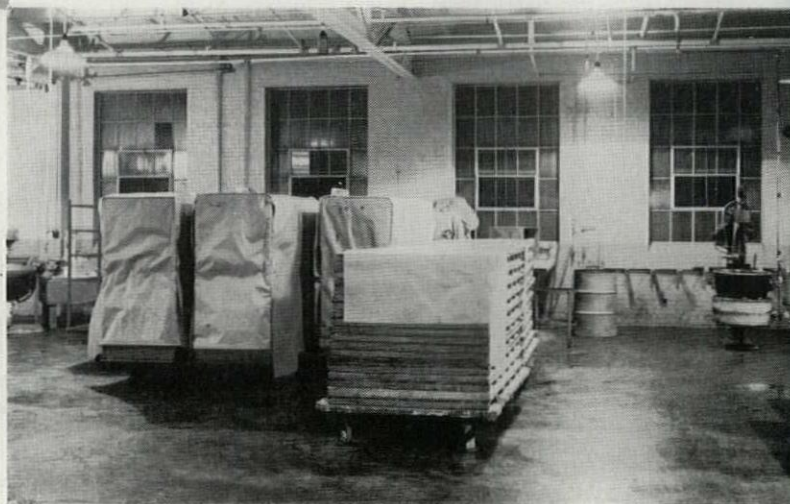
A SURCO floor in the processing department at one of the largest candy specialty manufacturers*. Chemicals from peanuts and sugar had severely damaged previous concrete floors. Special SURCO Red Label mixtures were applied 1/4 inch thick directly over original concrete providing a resilient, acid-resistant floor.

Concrete floors deteriorate rapidly in many specialized food processing plants and restaurant kitchens due to the destructive acids present in vegetable, meat and sugar juices. Special SURCO floors have high chemical resistance. Tests made under identical conditions indicate that special SURCO coatings last many times longer than ordinary concrete.

SURCO bonds permanently to concrete, wood, metal, masonry, even glass.

It is applied right over old concrete in a thickness of only 1/4 inch. This means the original floor need not be replaced, merely resurfaced; heavy machinery and equipment not moved at all.

- *Sweet's Architectural, Industrial Construction, and Plant Engineering Files contain complete information on SURCO products.*



SURCO SURFACE COATINGS, Inc. 110 Pear Street, S. E., Atlanta, Ga.

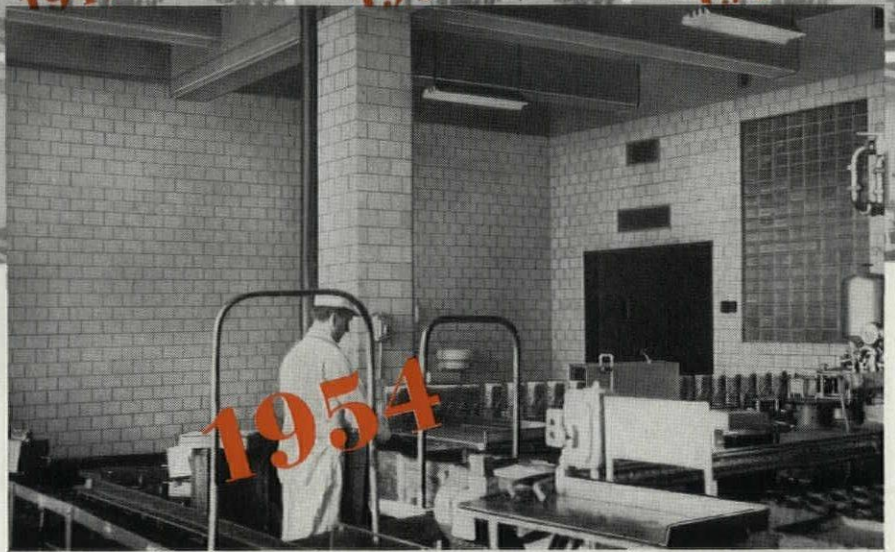
**Name supplied upon request.*

where time's verdict counts...



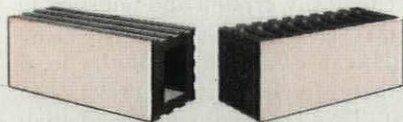
Thanks to walls of glazed Facing Tile, this pasteurizing and bottling room at Sheffield Farms Company's Long Island City plant looks as clean and bright today as it did when the plant opened 19 years ago.

Says Bernard Lynch, Sheffield's head of maintenance, "All of our Facing Tile walls have stood up very well, and they've been easy to keep clean. I have recommended this material highly for our new plants."



Stohldrier & Zetsche, architects

use Facing Tile—it's proved by years of varied use!



CHARLESTON CLAY PRODUCTS CO.
Charleston 22, West Virginia

THE CLAYCRAFT CO.
Columbus 16, Ohio

HANLEY CO.
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HYDRAULIC PRESS BRICK CO.
Brazil, Indiana

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STARK CERAMICS, INC.
Canton 1, Ohio

WEST VIRGINIA BRICK CO.
Charleston 24, West Virginia

NO REFINISHING COSTS—Glazed or unglazed, Facing Tile saves your clients the expense and inconvenience of redecorating—its tough ceramic finish takes all sorts of heavy punishment without harm—year after year.

MINIMUM MAINTENANCE—Facing Tile's smooth impervious surface offers no foothold for dirt or grime, washes down easily with plain soap and water.

PERMANENT "COLOR-ENGINEERING"—Facing Tile colors are scientifically designed by color expert Faber Birren to help you fit the surroundings to the task—and you can rest assured that the color you specify will last.

STRUCTURAL STRENGTH—No need to worry about material failures—Facing Tile provides the time-tested structural stability of burned clay products.

CONSTRUCTION ECONOMY—Made in large modular sizes, Facing Tile lays up fast, with a minimum of cutting and fitting, builds a load-bearing wall and finish in one.

For complete data, contact any Institute Member, or write us direct. Address: Dept. AF-2.

FACING TILE INSTITUTE

1520 18th St., N. W., Washington 6, D. C. • 1949 Grand Central Terminal, New York 17, N. Y.

LOOK FOR **FTI** THIS SEAL



Used only by the members of the Facing Tile Institute, it is your assurance of highest quality. In the interest of better

Facing Tile construction the companies listed above have contributed to the preparation of this advertisement.



Altoona Veterans Hospital

Altoona, Pennsylvania, designed by Marlier, Wolfe and Johnstone; Architects, Pittsburgh, Pennsylvania.



Washrooms of another notable building

finished in Carrara Glass

• In the country's foremost buildings, beautiful and durable Carrara Structural Glass has long been first choice of leading architects for walls, stiles and partitions in washrooms.

And this is particularly true when specifications for hospital washrooms are under consideration. For Carrara Glass has many features which make it especially adaptable to the needs of the modern hospital.

Carrara is all glass, with a smooth, homogeneous

texture that is highly impervious to the attacks of acids, water, steam, soap, chemicals and cleaning compounds.

Its surface is mechanically ground and polished to an unusually smooth, even finish that is easy to clean and keep clean. And because Carrara is manufactured in large sections, there are fewer joint crevices to catch dust and dirt. Thus the maintenance of high hospital standards of sanitation is greatly simplified.

For more information on this beautiful and colorful structural glass, write to Pittsburgh Plate Glass Company, Dept. 4177, 632 Fort Duquesne Blvd., Pittsburgh 22, Pennsylvania.

Carrara

...the quality structural glass

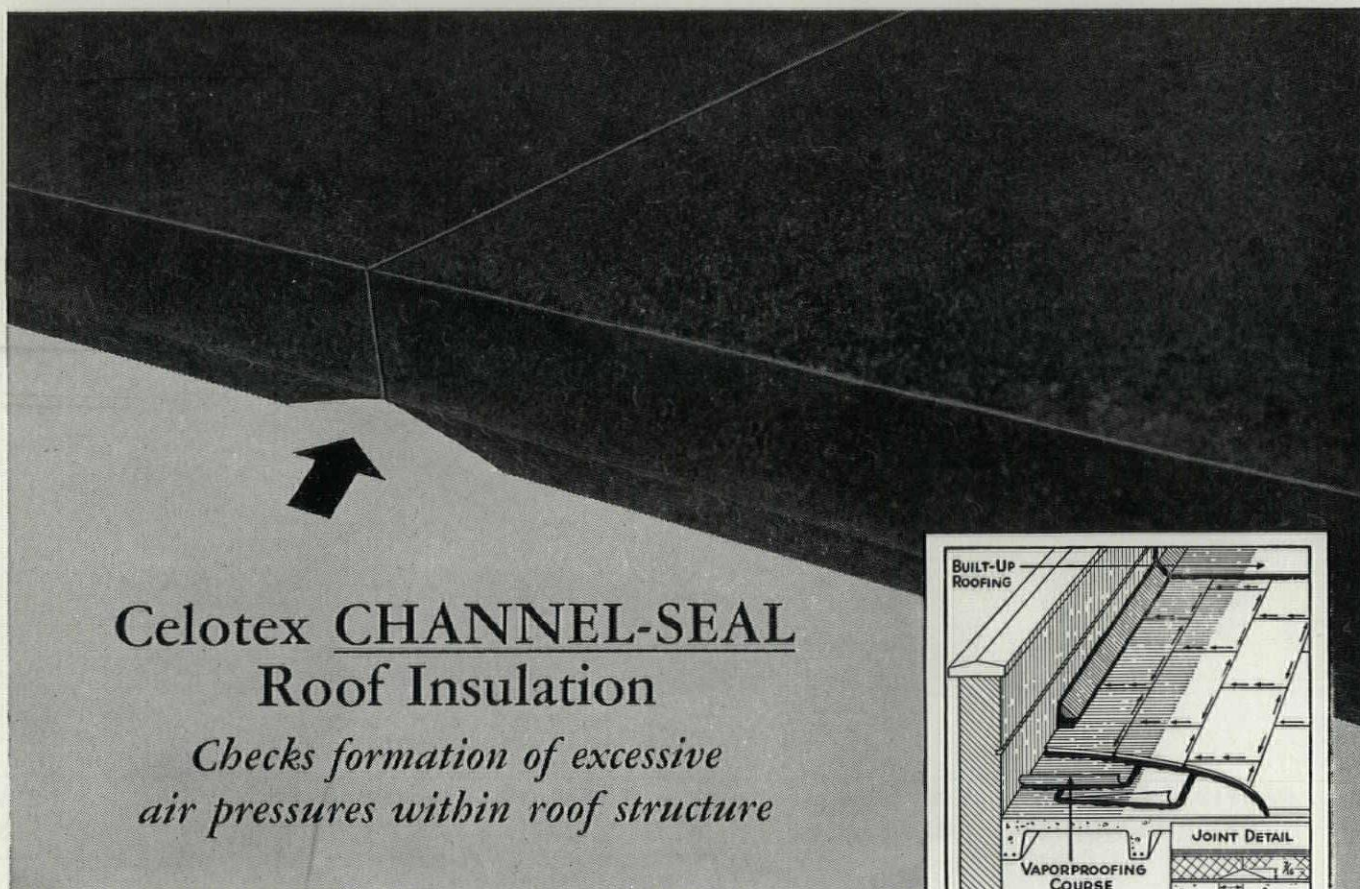


PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

Exclusive channeling guards against blistering and separation of felt and insulation



Celotex CHANNEL-SEAL Roof Insulation

Checks formation of excessive air pressures within roof structure

YOU PROVIDE an extra margin of safety against roof damage due to the formation of high-pressure air concentrations, when you specify Celotex Channel-Seal Roof Insulation. Its built-in "safety release" equalizes the pressure of air trapped in the roof, gives protection no ordinary roof insulation can provide!

Each piece of Channel-Seal has bevels $\frac{7}{16}$ " high by $1\frac{1}{16}$ " wide on all bottom edges. When units are laid on the deck, these bevels form a network of broad, interconnecting channels extending over the entire roof.

How "Safety Release" Works

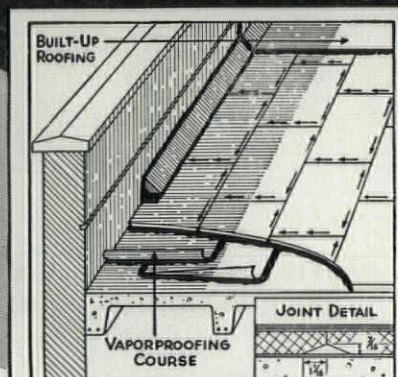
As higher pressures build up in some areas of the roof due to rising surface temperatures, they are relieved by air

movement through the channels. Thus, pressure is reduced and equalized—the risk of blistering or separation of felt and insulation is minimized.

Made of a special board of unusually high insulating efficiency, Celotex Channel-Seal Roof Insulation is available in a range of thicknesses to meet the specific insulation requirements of each job. It is asphalt-coated on both sides and all edges, for extra moisture protection in storage and on the job.

Low Cost, Quickly Applied

Low in both initial and applied cost, Celotex Channel-Seal is remarkably rigid and tough, yet light and easy to handle. Resists damage from job handling. Smooth surface assures positive bond to both roof deck and roofing felt.



Here you see why high-pressure air pockets won't build up with Celotex Channel-Seal Roof Insulation. Pressures due to temperature differences are equalized by movement of air through the channels. This channeling principle of roof protection has been proved effective by many years of actual use on jobs of every type and size.

What's more, it is the only roof insulation made of durable, interlocking, long Louisiana cane fibres—and protected by the patented Ferox® process from dry rot and termites. Write now for full data on Channel-Seal and other types of job-proved Celotex Roof Insulation for every need. The Celotex Corporation, Dept. AF-24, 120 S. LaSalle Street, Chicago 3, Illinois.

*For a better roof...
specify genuine*

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

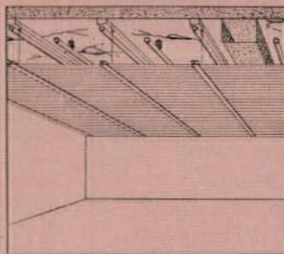
THE CELOTEX CORPORATION, 120 SOUTH LA SALLE STREET • CHICAGO 3, ILLINOIS

PROVIDES CORRECT ILLUMINATION



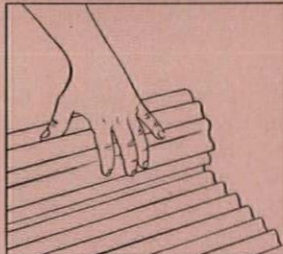
Acusti-Luminus Ceiling is both efficient and easy on the eyes. Foot-candles may be regulated by varying the number of fluorescent lights above Lumi-Plastic ceiling. The source of light is not perceptible—thus creating a "luminous environment" for minimum eye strain and maximum working efficiency.

MODERNIZES OLD CEILINGS



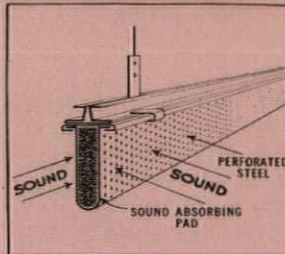
New lowered ceiling hides pipes, sprinklers, ducts, cracks. This gives ceiling clean, modern lines. Not only are these old eye-sores hidden, but the Acusti-Luminus Ceiling makes a readily accessible cover for the pipes, ducts, and valves. To get to any of these, the plastic is simply rolled up like a blind.

SAVES ON MAINTENANCE



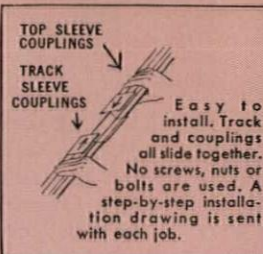
Rolls easily for washing and relamping. And light is so evenly diffused up to 20% of lamps may burn out, before dark spots are noticeable. Thus, *all* lamps may be replaced at once. While plastic is down, it can be washed and destatized in a detergent or by a specially furnished machine for only 1¢ to 3¢ a sq. ft.

ABSORBS SOUND ECONOMICALLY



Acusti-Louvers absorb sound, also louver out the view of ceiling. Clip-on acoustical baffles can be added or subtracted as requirements in an area vary to meet any acoustical need. Their cost is far less. Lumi-Plastic is "transparent" to sound so that any existing acoustical material above it still functions.

SAVES ON INSTALLATION



Installation is clean and simple. No special skill is required for simple and rapid assembly of these lightweight units. The product is self-spacing, rigid, and fool-proof. Complete shop drawings and instructions are included. Acusti-Luminus engineering staff is available in major cities for consultation.

MADE BY THE NATION'S LEADING PRODUCER OF LUMINOUS CEILINGS—

Luminous ceilings inc.

HOME OFFICE: 2500 W. NORTH AVE., CHICAGO 47, ILLINOIS

PHONE: ARMITAGE 6-2800

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Acusti-luminus ceilings

...a Light for Indoors

Actually Superior to Daylight!

Bring Modern Design well within the Budget

Now! Evenly diffused light...without shadow or glare! Streamline your remodeling jobs and "dreamline" your new ones—with beautiful, modern Acusti-Luminus Ceilings.

Light is uniformly diffused by the lightweight, unbreakable corrugated Lumi-Plastic—so there is no shadow or glare. The result is a source of low brightness—of any intensity.

A solid "ceiling of light"—this is the last word in the newest trend toward large sources of light—already 2800 installations in 36 states!

Excellent acoustical correction is also provided by noise-absorbing fins which may be hung at intervals below the plastic ceiling.

The cost is low—less than conventional ceilings with the same illumination and sound correction.

Quickly and easily installed—these lightweight units make possible sizeable savings in installation. Also, once installed, the ceiling is readily adaptable to future interior alterations such as new walls and partitions.

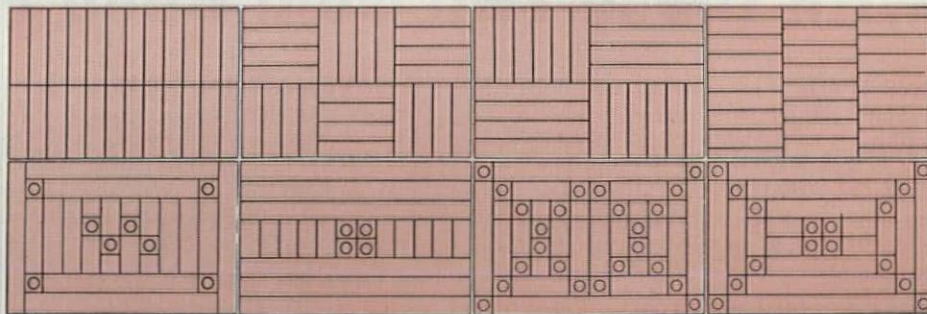
Your inquiry is invited on any installation you may have in mind—or simply write for more information.

**LABELED BY
UNDERWRITERS'
LABORATORIES**

Acusti-Luminus Ceilings are UL labeled for use under sprinkler systems—without any change in fire insurance rates. In event of fire, the plastic (which does not support combustion) softens and falls to the floor so sprinklers function normally.

*unlimited designs
possible with
Acusti-Luminus
Ceilings*

Simple construction allows the creation of varied designs. Modules of 3 feet make up the design. Spotlight sections may be inserted to emphasize displays and merchandise areas.



send for **FREE BOOKLET!**

For complete information, send for your copy of this fact-filled, illustrated booklet. It contains photographs of major installations across country, easy steps for layout, and architectural diagrams. No obligation.



LUMINOUS CEILINGS INC.
2500 W. North Avenue, Dept. AF-2
Chicago 47, Illinois

Please rush me a copy of your FREE illustrated booklet containing complete information on Acusti-Luminus Ceilings.

NAME _____
FIRM _____
TITLE _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

mail this coupon today!

© LUMINOUS CEILINGS INC., CHICAGO, ILL., 1954

Partial view of Acusti-Luminus Ceiling at J. A. Folger & Kansas City, Mo., makers of Folger's Coffee, shows how former dining room was remodeled to this modern, efficient counting department.
Architect: Emmett M. Robison of Robison and Carlson, Kansas City.

OVER 2800 INSTALLATIONS IN 36 STATES!

Now are a few of the many installations: factories, offices, drafting rooms, critical work areas, stores, banks, schools, libraries, and public buildings:

Admiral Corporation
American Airlines, Inc.
American Cyanamid Co.
E. I. DuPont de Nemours & Co.
Ford Motor Co.
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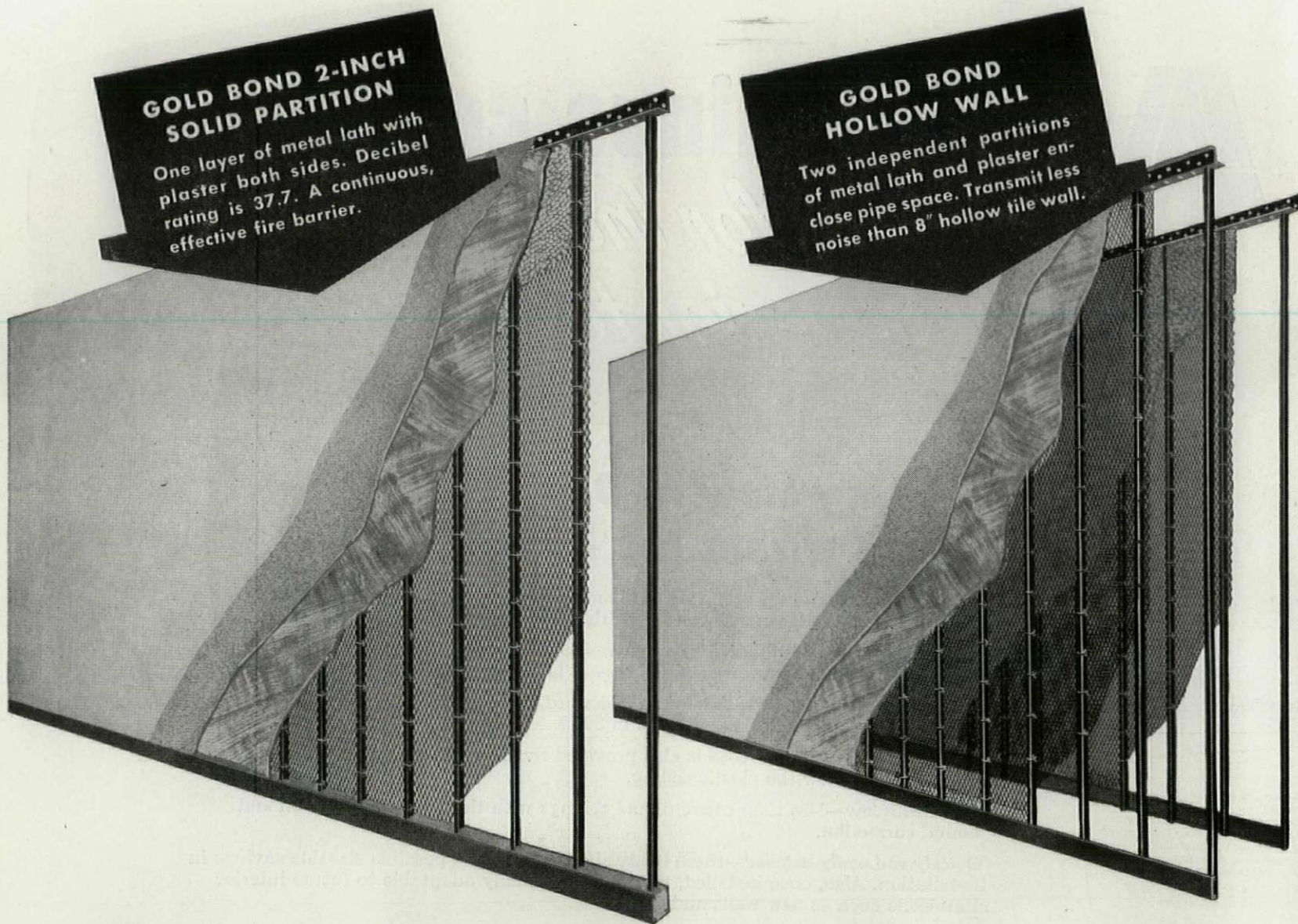
ANGELES
FRANCISCO
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IA
MONTREAL, CANADA

GOLD BOND 2-INCH SOLID PARTITION

One layer of metal lath with plaster both sides. Decibel rating is 37.7. A continuous, effective fire barrier.

GOLD BOND HOLLOW WALL

Two independent partitions of metal lath and plaster enclose pipe space. Transmit less noise than 8" hollow tile wall.



Cut construction costs 4 ways with these Two Gold Bond Partition Systems!

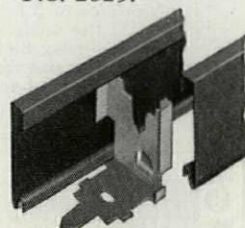
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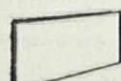
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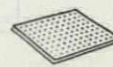
Insulation Plank
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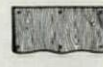
Rock
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Paint
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Acoustical
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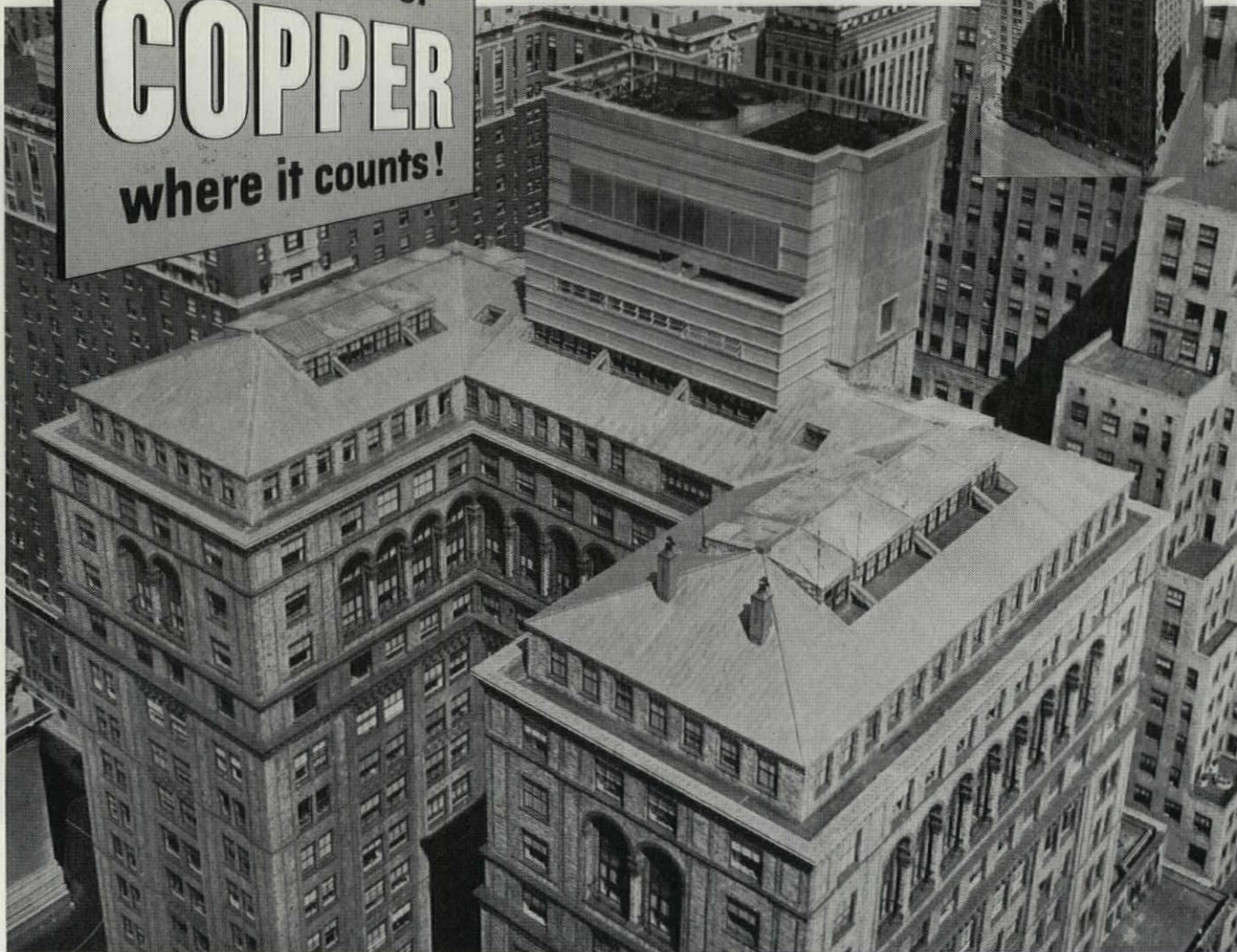
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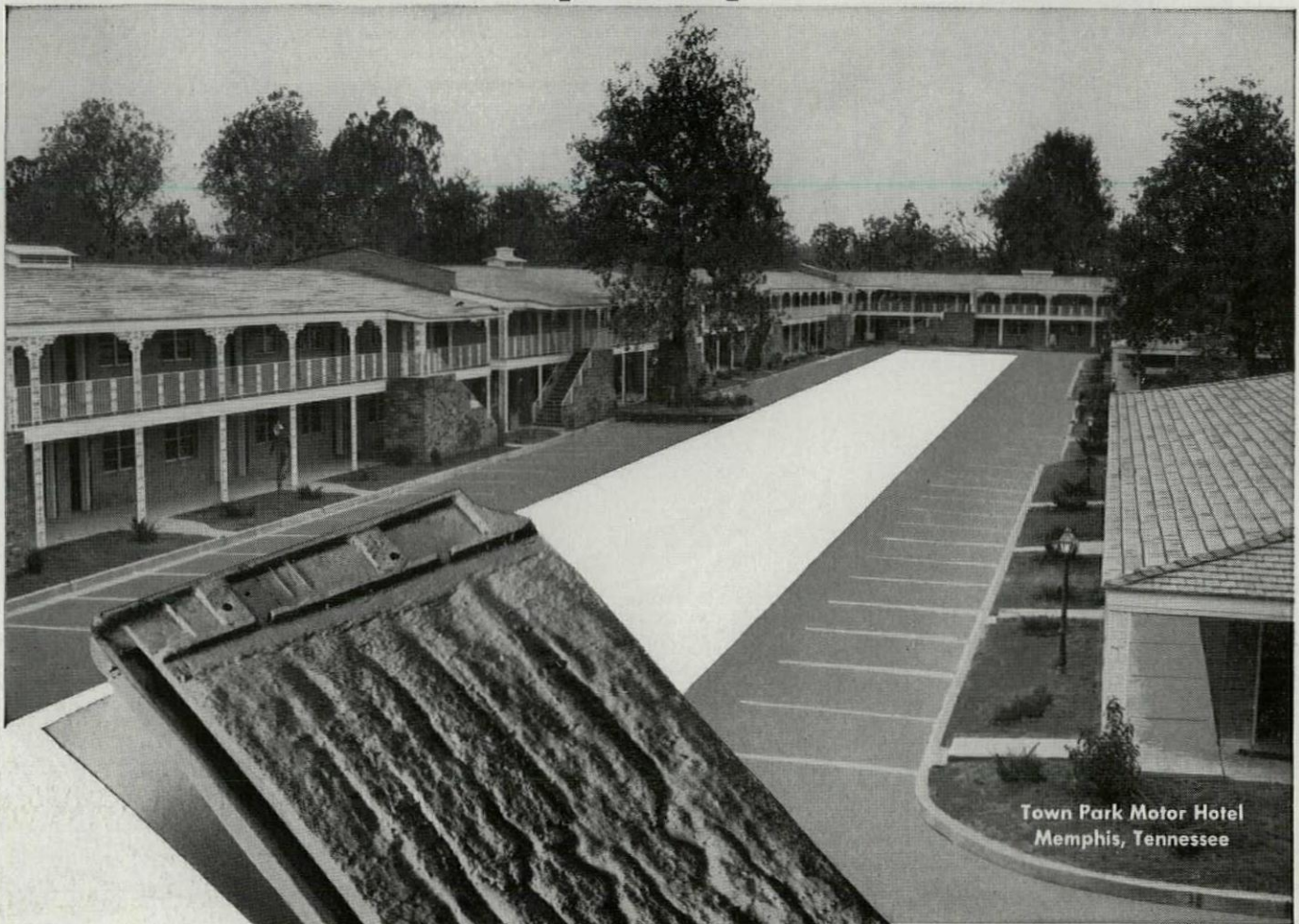
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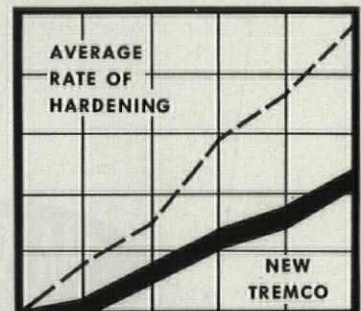
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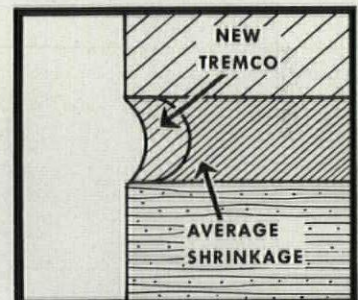
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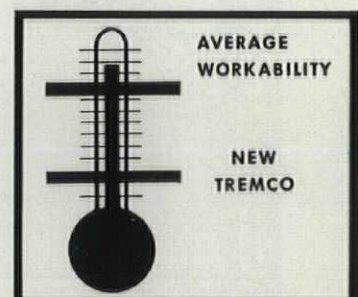
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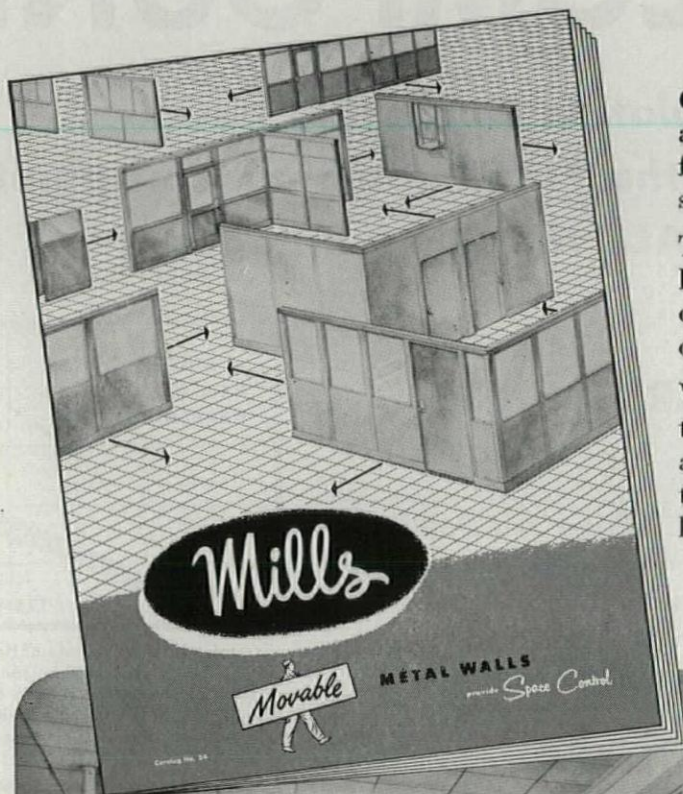
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Relocating slum families

► A row in New York points to a problem some say is widespread, and some insist should be insignificant

► Big or small, the problem revolves around housing migrant minorities—who seem to move less during recessions

Does slum clearance via redevelopment and public housing breed new slums? In New York, a rent-controlled city where housing is still a big problem, the question became a front page issue last month. Its national implications pointed at the touchiest building problem of all: race prejudice.

The ruckus began back in December when word leaked out that New York's city planning commission was bottling up a sizzling staff report on relocation of slum families because—so the allegations went—City Construction Coordinator Robert Moses and three other commission members wanted to water down some of the findings. Civic groups (among them the Citizens Housing & Planning Council) and finally the city council itself put heat on the planning commission to air the study. After seven weeks of pondering, the commission did so. Facts revealed:

► Between Jan. 1, 1946 and March 31 last year, 45,810 families and 17,820 individuals (total: 170,000 persons) had to move because of slum clearance. Of them, 37% were nonwhite and Puerto Rican.

► About 29% wound up in public housing. But even New York officials did not know what happened to the other 71%. A sample survey among 3,284 tenants showed these movements:

To public housing...32%	Unknown42%
To other slums11%	Misc. 4%
To nonslums11%	

► In the next three years, New York expects to uproot 56,120 more tenants (about 18,700 a year, compared to a 14,000 a year pace for the last three years). About 35% of the displacees will be nonwhite and Puerto Rican—the groups that have most trouble getting into private housing.

► To help rehouse these 18,700 annual pawns of redevelopment, New York offers cash bonuses from \$300 to \$500 to families that find themselves new homes. The real estate bureau of the Board of Estimate (top city governing body) supervises most relocation except that involving public housing, which is handled by the City Housing Authority. (In practice, as the report did not point out, the city realty bureau turns the job over to private realty firms.)

Is it well done? Was the machinery adequate for the relocation job? On that, the planning commission split 4-3. The majority agreed with Moses that it was. The minority, including Planning Commissioner Laurence Orton, demanded the city set up a central relocation bureau to insure uniform treatment of displacees. It accused the majority of distorting the staff's conclusion that New York

has too little vacant land to meet its needs for new housing in the next decade. (The commission did agree the city should have a \$100 million public housing program financed by a tax of \$2 a year on every telephone.)

All in all, the report shed a disappointingly faint glimmer on one of redevelopment's darkest corners. But if facts were slim, there were still a lot of people deeply troubled over relocation of slum displacees. Said Executive Vice President Ira Robbins of Citizens Housing & Planning: "Slum displacees come from the worst areas. If they are not elderly perhaps they are poor credit risks or extra large families with kids, or Negroes. They can't pay substantial amounts under the table (to get into vacant apartments). Putting relocation in the hands of private developers isn't good policy. As it is now, some New York relocation is fine. But in other places tenants get shuffled around. There's no uniform policy of paying moving expenses, the overlap of a month's rent, and no care about the standards of where they move. You're more likely to get a decent job if an official agency handles it."

Renewed outcry. Fighting for its beliefs, Robbins' CHPC demanded a two month halt by the city in approving new slum clearance projects. It charged that the city was showing "blithe disregard for the needs of displaced families," warned that such policy "will only accentuate the developing crisis, accelerate the spread of blight, and in the long run defeat the efforts to clear slums." In general, city officials steamrolled past the housers' objections, went on approving Title I projects.

The hue and cry over relocation reflected another aspect of building issues, too: it is one of the most potent arguments left for more public housing. To this, opponents of public housing like Builder-realtor Fritz Burns of Los Angeles have this answer: so many US families move every month (40,000 in Los Angeles County alone) that the injection of a few thousand slum displacees "should be hardly noticeable in the over-all picture." Statistically, it appears unanswerable. Census figures, unfortunately, do not correlate migration with income levels.

Slums gaining. The relocation report in New York went further than most official

utterances do toward identifying relocation and slum problems with minority groups.* Citizens Housing & Planning went a lot further. It announced results of a survey that documented what realty men and housers alike admit: a Puerto Rican and Negro influx (chiefly Puerto Rican) is helping turn the west side of Central Park—not long ago one of the city's finest residential sectors—into a slum at dazzling speed. The symptoms were familiar: legal and illegal conversion of brownstone flats to accommodate more and more families in less and less space; a Department of Housing & Buildings with procedures so "antiquated" that researchers could not make a "thoroughgoing check" of pending violations against buildings in even the single census tract (177) under study. Yet the eight block tract showed a 36% jump in family dwelling units since the 1950 census, with "virtually no new building." Since the 1950 census counted 1,045 Puerto Ricans in the eight blocks, their ranks have swelled to some 6,000. Thus, CHPC found, the deterioration results directly from the "great influx and crowding."

Too late the recession? Many students of the problem think the No. 1 reason for the postwar wave of Puerto Rican and Negro immigrants has been the easy availability of jobs. Indeed, the Puerto Rican department of labor's office in Manhattan this month reported the other side of the equation. It said the tide of Puerto Rican migration turned last October; in the last three months, 25,057 more Puerto Ricans returned to their island than came to the mainland. Reason: unemployment in the US. Only three times before, since 1908, has this happened—always amid rising unemployment.

Puerto Rico officials debunk the widely held theory that easy relief in New York (there is, in effect, no residence requirement) contributed much to the migration. While some 6 to 7% of New York Puerto Ricans were on relief last year, they assert that is not bad for a recently-arrived group starting up the economic ladder. It compares with 3 to 4% of the city's total population on relief.

Others disagree. In Chicago this month, Welfare Commissioner Alvin E. Rose noted that transients including hundreds of Puerto Ricans were flocking into the city and seeking relief. He planned, instead of handouts, to pay fares home for unqualified transients. "We can benefit from the example of New York," he said.

Land, lots of land. Would the slump in jobs and business turn the tides of migration across the US that had intensified rot in old city neighborhoods? It was too soon to tell;

* In Chicago, Mayor Martin Kennelly called "an end to the flight from the city" an "imminent reality." He made no mention of police scandals that have filled Chicago papers for months, nor of the continuing race relations problem on the slum-choked South Side, where the city police detail at Trumbull Park was doubled on the night shift after a man flung a brick through a police car window.

but popular demand for cities to use their policing power to prevent new slums from forming was clearly on the rise when a public housing group like CHPC took a firm stand in favor of conservation.

The first job was to end the present overcrowding. More and more building men are coming to agree with the formula of Chicago's James Downs Jr. who said recently the only

hope is "moving families from jammed slum areas directly to outlying areas where adequate housing must be provided."

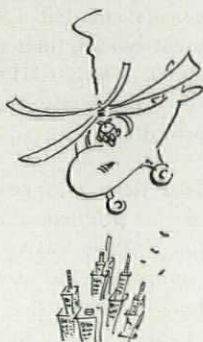
NAHB's Yates Cook, meeting with officials in city after city to stir action for slum rehabilitation, was putting it in similar vein. Said he: "If you won't make some land available for your Negroes to live on, you can't say you are doing a thing about slums."

SIDELIGHTS

Helicopters and city planners

"There are two things that are going to put Los Angeles out ahead on helicopter business—favorable conditions and hellish long distances."

This is the unprejudiced opinion of Los Angeles Planning Director Charles B. ("We've got great weather out here and that's no C of C statement") Bennett, fresh from a West Coast panel discussion on the future of helicopters in urban life. Bennett figures the helicopter future to begin in about five years. By that time, he says, the technical problems with which manufacturers are now wrestling will be pretty well solved. Los Angeles has no definite plans for landing fields yet, says Bennett, but mail has been landing on the roof of the city's post office for years. "Be prepared!" is Bennett's advice to other city planners. "Keep one eye on the helicopter picture! We're waiting—not ignoring—just waiting for the necessary scientific work to get done. We're all set to go."



Four more AIA chapters

AIA revamped its setup in Tennessee, formed a new state society and granted charters to four new chapters—Memphis, Middle Tennessee, East Tennessee and Chattanooga. Number of chapters in the nation is now 114.

Redevelopment upheld

For the tenth time, the Illinois supreme court rejected a legal challenge to the constitutionality of the state's 1947 redevelopment act. At issue was a suit charging that authorities had no right to condemn some of the private property acquired for Chicago's Lake Meadows redevelopment project because by re-selling the land to New York Life Insurance Co. they put it back in private use. As it has before, the court last month held that the controlling motive was to end blight, so the re-sale of the land was incidental. What made the case important: it was the last appeal involving the big Chicago project. Said Chairman Michael J. Long of Chicago's land clearance commission: "This decision makes the commission's right to redevelop blighted neighborhoods indisputable."

Supermarkets: a profile

Close to 40% of the 1,049 new supermarkets opened in 1953 were in shopping centers and about two-thirds of them were owned by single independents or small chains, according to a survey by the magazine, Super Market Merchandising. They were bigger, showed rapid expansion into nonfood departments, went in heavily for air conditioning, music and kiddie corners and more self-service. The average: a market of 11,950 sq. ft., with a parking lot of 25,510 sq. ft.; air-conditioned; probably located in a suburban area and open at least five nights a week; serves about 5,800 customers a week and rings up weekly sales of about \$32,800, or more than \$1.7 million a year.

A prize for replanning Chicago

Carson Pirie Scott & Co., Chicago's second largest downtown department store, announced a \$32,500 competition for an "inspiring" plan for redevelopment of the city's central commercial area. First prize in the contest (being held in conjunction with the store's centennial observance) will be \$20,000. Objectives are "increased efficiency in the functions of the district . . . a high degree of convenience to the public . . . and architectural, planning and engineering cohesion." Said John T. Pirie, Carson's president: "We firmly believe in the present and the future of the Loop area."

College housing loans

Although other interest rates were falling, HHFA announced this month that the interest rate on college housing loans will remain at 3½% until July 1.

One-stop shopping centers?

Predicted Vice President Harold Toppel of the National Grocery Co. of Elizabeth, N. J.: "The supermarket of tomorrow will be a one-stop shopping center. Supermarkets have just begun to scratch the surface in the variety of items they can handle." Rising operating costs and lower unit profits are so squeezing supermarkets, Toppel explained, that they will have to turn more and more to nonfood items with bigger markups. Samples: men's and women's clothing, shoes, drugs, toys, soft goods, housewares.

Bricklayers pass up raises in industry promotion move

For the third time in three years, Seattle's Local 2 of the AFL bricklayers voted to pass up a wage increase, stand pat on the \$3.30 an hour scale that has been in effect since 1950. Said Secretary-treasurer Ed Gill: "I think we're educating the public to the fact that we're not just a bunch of robbers, but people trying to do a job." One of Ed Gill's jobs: he persuaded the union to form a unit masonry association with employers for joint promotion of masonry construction. Bricklayers put up 40¢ apiece per month; contractors and manufacturers pay \$2 per workman a month.

AFL building trades study drive for CIO building jobs

In recent years, powerful nonconstruction unions like the coal miners, steelworkers, autoworkers and railroad maintenance men have wangled jurisdiction over more and more maintenance construction in their contracts with employers. Contractors claim the trend is depriving them of millions of dollars worth of work.

This month, as the AFL building trades department bosses met in Miami beach, word leaked out that construction men were having another try at goading the AFL into helping put a stop to the practice. Getting the work back in the family would obviously benefit contractors and union alike.

The AFL talked the matter over with representatives of the Associated General Contractors and the National Constructors Association. Meetings were harmonious. The announcement that surprised almost everybody—and boded future disharmony within the union—had to do with a different, although related, subject.

Joe Keenan, building trades secretary-treasurer, told newsmen that the AFL unions had authorized appointment of committees to work with contractors and make surveys of ways to eliminate "practices that inflate building costs." Getting such a plan across to members—especially union bosses on the local level—is obviously a delicate job. Keenan was criticized by both sides for mistiming the announcement. The next day he clammed up, refused to elaborate on the action or to name any specific make-work practices or fringe costs that the new committees might tackle.

How much did growing use of nonconstruction labor in building contribute to the proposal of the cost-cutting alliance? Labor Reporter A. H. Raskin of The New York Times wrote: "He [Keenan] emphasized that a precipitating element in the decision to undertake the surveys had been employer reports that several of the country's largest industrial corporations and housing contractors had been ignoring AFL construction workers in putting up new projects or in modernizing old ones."

AGC and NCA were keeping a discreet silence on the Miami proceedings. Outsiders

in the construction field who followed the action expressed franker views. A few felt Keenan's proclamation of a cost-cutting alliance was "in good faith" and "encouraging." Most did not. One went so far as to brand the plan "a nice phantasy." A logical possibility, said observers, was that talk of cost-cutting was a popular way to smokescreen a loaded topic like inter-union jurisdiction.

Shakedowns send St. Louis laborers' chief to prison

There was no confusion about how things were shaping up for the AFL in St. Louis. There, the first of 16 indicted building union leaders to be brought to trial was sentenced to 12 years in prison. Convicted: Paul H.



HULAHAN

Hulahan, business agent of Local 42, AFL Building Laborers Union. He was found guilty on eight charges of violating federal anti-racketeering laws; sentenced to eight 12-year terms, to run concurrently, and fined \$8,000. A second indictment against him is pending.

Contractors charged during the trial that Hulahan, sometimes alone and sometimes accompanied by a henchman, had shaken them down for several hundred dollars to insure labor peace on construction jobs. One testified that Hulahan had tried to extort \$50,000 from him during work on a big housing development.

Said U.S. District Judge George H. Moore, refusing to grant Hulahan bail: "There are men and women who tremble at the very thought of what this man and men like him have been doing in this community."

News crusade. The government moved against union racketeering after two years' spade work by the St. Louis *Post-Dispatch*, which ran story after story spelling out what contractors (by their own admission) were up against. Two Chicago contractors told newsmen they had decided to withdraw from competitive bidding on St. Louis jobs, so great had their losses been on some government contracts they fulfilled there. One testified he had lost \$80,000 on a \$320,000 Federal housing project in Madison County in 1948; the other that he had dropped \$125,000 on a \$622,000 housing job at Scott Air Force base in 1947. Labor costs in St. Louis, they said, were three-and-a-half times what they would have been in the Chicago area. (Last year, by E. H. Boeckh figures, construction costs in St. Louis were 13% higher than the average for eight major southern cities and 2½% higher than the average for the 20 principal cities in the US. The cost of bricklaying got so out of hand—\$7.60 a sq. ft. in one instance—that some contractors have switched to masonry substitutes.)

Among others indicted: Leo F. Havey, business agent for the bricklayers union in St. Louis and former member of the city's hous-

ing authority, on a charge of threatening violence to a Cincinnati concern in an endeavor to prevent Negro and out-of-state bricklayers from working in St. Louis; Lawrence Callanan, ex-convict and boss of the steamfitters local, on charges of racketeering.

Wages for defense. Callanan's first step after indictment was to assess union members 50¢ a day until further notice to finance legal defense for himself and two others—George E. Seaton and John (Doc) Lawler. His second move came last month: he warned con-

tractors that they could expect demands for a wage increase from the steamfitters. The demands would include "at least" a 25¢ hourly increase, said Callanan (steamfitters now get \$3.05 an hour), plus a 2½% rise in contributions to the educational and welfare fund.

The cleanup in St. Louis seemed likely to keep rolling. For one thing, the US Justice Dep't., as determined as the now-alerted populace to get to the bottom of things, had sent a special racket investigator to town to speed up the investigations.

Shoppers' World, nation's pioneer regional shopping center, files bankruptcy petition

The great shopping center at Framingham, Mass. (AF, Dec. '51), 19 mi. west of Boston, is the project that started the regional shopping center movement in the US. The 41 massed stores of Shoppers' World (photo below), set in cheap meadowland along the Worcester Turnpike, were dedicated to the theory that enough of the right kind of stores to create "one-stop" shopping machinery could pull auto-borne shoppers far away from customary business districts.

When it opened in Oct., '51, Framingham looked like an immediate hit. Enough customers turned up to keep its 2,800 parking spaces filled regularly and Jordan Marsh, the center's only department store, did a thriving business.

Last month, in US district court at Boston, Middlesex Center Inc., operators of Shoppers' World, filed a petition to reorganize under federal bankruptcy laws. President William A. Coolidge said the corporation was unable to pay its debts as they fell due.

The hard facts of the Framingham case were that the center's \$275,000 of sinking fund bonds held by Equitable Life Assurance Society were in default. As a result, Equitable had demanded payment for its entire bond holdings on the center: \$5,211,000.

Over- or underbuilt? Coming at a time when some economic prophets were warning that too many shopping centers were being built, Framingham's difficulties promised to have much impact on the future of such construction. Was there something wrong with the center itself? Or had subsequent competitors lured away the customers it expected?

One glaring defect was promotional. Huston Rawls, godfather of the regional shopping center idea, was never able to lure the second major department store into the center that its original planning called for. As a result, instead of twin department store magnets for shoppers—one at each end of the sunken mall—Framingham had only the domed, circular Jordan Marsh store as a basic attraction. Some of the stores farthest from it did less business than those closer.

But over-all business for Shoppers' World was good. So far this year, it had shown a 12% gain over 1953, compared to only 2% for downtown Boston department stores. Jordan Marsh volume increased about 20% last year over 1952, and gratifyingly exceeded original expectations.

The big troubles seemed to lie in four directions: 1) Rawls spent millions in research and promotion to develop the prototype cen-

Rothin P.F.I.





Photo by Offie Lites—Pine Bluff

Diesel engine shed, St. Louis Southwestern R.R. Co., Pine Bluff, Ark. Roof and sides of "Century" Asbestos Corrugated. Erection Contractor: Mound City Erection Co., St. Louis, Mo.

**Cotton Belt Railway gets
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ter; 2) it was gradually becoming clear that big regional shopping centers may take five years or more to reach economic maturity and may face tough sledding through that period if mortgage principal repayment schedules are heavy then; 3) Jordan Marsh and some other tenants talked Rawls into too-cheap rents—2½% of gross for the department store, whereas Architect Ken Welch, who was economic consultant for the center, thinks 3% is about rock bottom for solvency (with a provision for lowered rents if a store's annual gross sinks below \$90 per sq. ft.). Jordan Marsh disagreed. A spokesman indicated the rent it paid based on its high volume was a handsome return to the owner and covered a good portion of the shortages from other sources. 4) The research and contract-awarding procedures were so cumbersome they dragged on two years, permitting construction costs to soar at a time when they were really soaring. As a result, the parking lot had to be finished only with gravel instead of pavement. Architectural plans were trimmed to pare costs and Framingham came up with heavy operating costs. Upshot: the center found it had too little income to keep up with bond payments, despite the fact that its assets, \$6,147,576, topped its indebtedness.

As two court-appointed receivers replaced the Middlesex management, attorneys hoped for arrangements to compel tenant stores to pay a bigger percentage of their gross in rent.

Nothing in Framingham's troubles seemed to cloud the basic soundness of the regional shopping center concept. Some other stores were prospering mightily. But the bankruptcy proceedings—the only course left for the Shoppers' World investors to try to preserve their equity in the center—would send architects, economists and would-be shopping center promoters into a deep-probing re-examination of costs, leases and financing. As for Framingham, one man close to the picture prophesied: "Given a little time, despite the obvious mistakes, it will become a profitable venture."

Spanish base work due to begin before summer

Although it still kept costs and most details a secret, the Defense Dept. was pushing to get construction started before summer on its Spanish air and naval bases.

Last month, Rear Adm. John R. Perry, chief of Navy civil engineers, announced that three firms will build the Spanish facilities: Brown & Root, Houston; Raymond Concrete Pile Co., New York and Walsh Construction Co., Davenport, Iowa. All three had been consultants for the Air Force on NATO bases in France. A big factor in the choice: a large aviation fuel pipe line will be needed to link the inland air bases with the naval bases to be built at Cadiz. Brown & Root have a top record in pipe-line construction.

Working initially on a letter of intent, the construction combine will open New York and Madrid offices to begin studying where

to get Spanish labor, materials and equipment and whether to use surplus armed forces machinery already in the European-Mediterranean-North Africa area.

Under the US agreement with Spain, as

much construction as possible must be done by Spanish subcontractors using local labor and materials. US contractors are not expected to send more than 400 people to Spain—all supervisors.

Church architects foresee a faster trend to modern design, expect a record year

It has been years since anything except modern design won a prize from the American Assn. of School Administrators. Colleges, too, have begun to swing decisively toward up-to-date plans.

Last month, at the annual National Joint Conference on Church Architecture in Knoxville, the mixture of design types among the prize-winning churches indicated that whereas in Gothic times church architecture led architectural development, today church architecture is the best building type to move toward contemporary design.

Yet it was moving. And the shift, encouragingly enough, coincided with a year when church building is expected to reach a new high of \$500 million. Delegates called Gothic and colonial styles "artistically archaic." It was estimated that one of four churches now being built was more modern than conventional. On the West Coast, modern churches outnumber conventionals four to one, said convention-goers. Said W. A. Harrell, secretary of the church architecture department of the Baptist Sunday School Board: "The design of church building is changing. . . . The day of the ornate, extreme, classical and cathedral type of building is fast passing."

One of the biggest reasons is that classical design is costly. Said Conference Chairman Anthony B. Ferrar, Washington, D.C., architect: "Contemporary design offers much greater flexibility, economy and use of modern materials." Among the four top prize winners, none had a steeple. Few of the honorable mentions even boasted a spire. One winner—the best executed church architecture of the year seating fewer than 300 wor-

shippers—spotlit the cost problem dramatically. It was Architect Culver Heaton's Christ the King Lutheran Church at Van Nuys, Calif. (see cut)—a structure which, in Heaton's words—required "\$50,000 worth of facilities for a budget of \$25,000." His solution: "Simple A-frame construction [which] provided a vertical motif lifting the worshippers above the squat proportions of the conventional mission church [plus] simplicity, scale and taste . . ."

Other winners: the Mt. Zion Lutheran Church in Minneapolis, by Armstrong & Schlichting (for the best completed church seating more than 300); seats 375, cost \$110,000; the First Congregational Church in Spencer, Iowa (see cut) by Harold Spitznagel & Associates of Sioux Falls, S.D. (for the best unfinished church seating more than 300) which seats 384, cost \$231,807; designs for a hypothetical church by Casper S. Noer of Washington, D.C.

Chairman of Judges Henry L. Kamphoefner, dean of the North Carolina State College school of design, commented that the four winners reflected "a search for new forms, primarily in structure, but also that better express the religious." The latter, speakers agreed, must be retained. Said Walter Taylor, AIA's director of research and education: "Some people say you can worship in a barn, but they don't."

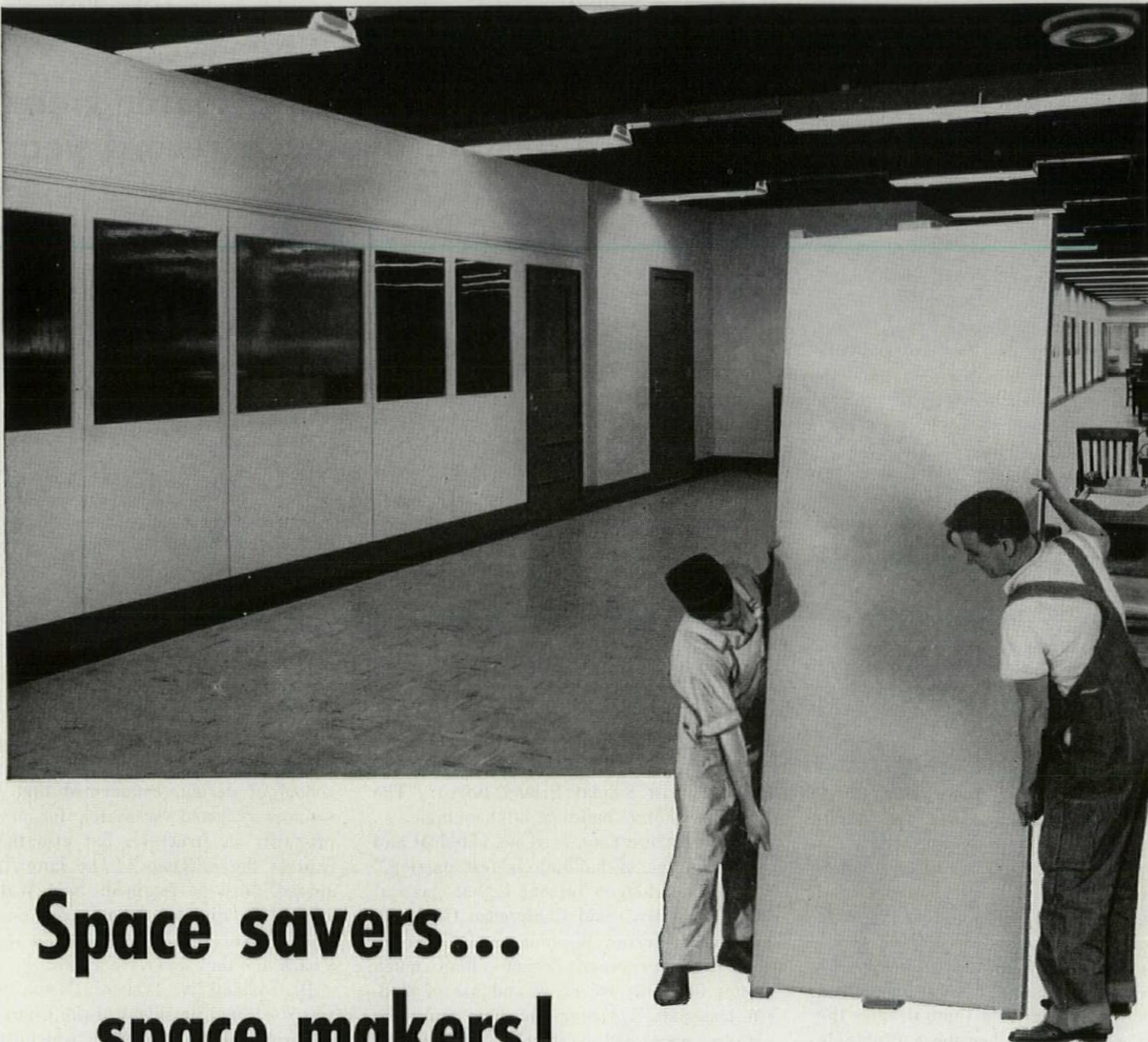
Dr. Arland A. Dirlam, Boston architect, was re-elected president of the Church Architectural Guild of America, which sponsored the conference with the bureau of church building of the National Council of Churches of Christ.

Kon's Studio



TWO WINNERS: First Congregational Church in Spencer, Iowa (above) by Harold Spitznagel & Associates, Sioux Falls, S.D., which seats 384, cost \$231,807. It is a roomy 14,000 sq. ft. Above-ground design was dictated by site's underlying strata of water. Culver Heaton's Christ the King Lutheran Church in Van Nuys, Calif. (right) is an opposite type—seats 150 and costs \$24,822. Folding panels can be used to divide interior.





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PEOPLE:

Eero Saarinen weds Critic Aline Louchheim;

John O'Connell heads National Constructors Assn.

Aline Bernstein Louchheim, associate art editor and critic on *The New York Times*, married famed Architect **Eero Saarinen** this month in a



MRS. SAARINEN

private ceremony in her Manhattan apartment. Mrs. Louchheim, who graduated from Vassar in 1935 and took her MA at New York University's Institute of Fine Arts, has been on *The Times* since 1947. She has written many magazine articles and in recent years has won several

awards for her art criticism. Her most recent award (last month) was a \$250 prize from the American Federation of Arts for her work on *The Times*.

John F. O'Connell, a vice-president of San Francisco's Bechtel Corp., was elected president of the National Constructors Assn. 21-member organization of construction firms specializing in power and chemical plants, steel mills and petroleum refineries. He succeeds **John J. O'Donnell**, personnel and labor relations manager for the Lummus Co. in New York City, who served two years in the job. **J. H.**



O'CONNELL

Sharpe, construction manager with Arthur G. McKee & Co. in Cleveland, was elected NCA vice-president.

John Taylor Egan, 63, ex-PHA commissioner with 12 years of government service, will join the Washington office of Arthur C. Holden & Associates, New York architects. Egan was nudged out of the commissioner's job (which he had held for five years) last June to make room for administration choice Charles E. Slusser, former mayor of Akron, Ohio. Egan's return to private practice will bring about a change in the firm's name: Holden, Egan & Associates.

Leland W. King, who resigned from the State Department's foreign buildings division amid plaudits from AIA (AF, Jan., '54, News), will join the quartet of architect-engineering firms planning the Spanish military bases. King is slated to be resident architect in Madrid. He will actually be employed by Shaw, Metz & Dolio, one of the four firms.

Architectural Record will be in line for its fourth top editor in five years when Executive Editor **Joe Mason**, in charge since 1951, leaves this spring. His successor was not immediately announced. Previous editors were **Harold Hauf** and **Kenneth Stowell**.

Olindo Grossi, practicing architect with a Prix de Rome and a Brunner Scholarship from the AIA to his credit, was named head of the newly-formed school of architecture at Pratt Institute in Brooklyn, N. Y. Grossi has been chairman of the architecture department at the Institute's art school since 1946. The new school will officially come into being next July 1; a graduate course leading to a master of architecture degree will be offered in the fall, in addition to the present five-year curriculum. Architect Grossi, who lives in a self-designed split level dwelling in Manhasset, L. I., is on the executive committee of the New York chapter, AIA, and chairman of the education committee of the Architectural League.

W. Cirardi



GROSSI

George I. Lovatt Jr., who was fired as city architect in Philadelphia in December on a debated accusation of "insubordination and unacceptable performance" (AF, Jan., '54, News) scored 98.38% on a civil service exam last month and was reappointed. The local chapter of AIA had joined with Lovatt in protesting the firing as "unfair." Lovatt, a practicing architect since 1927, had been serving provisionally, awaiting results of the examination.

A typographical error cost Newark Realtor **J. I. Kislak** \$35,500. In September, he was the only bidder for a vacant lot on downtown Broad St. owned by the federal government. His bid: \$1,166,000. Somebody noticed at the last minute that the check for the 10% deposit had been inadvertently filled in for \$116,060 instead of \$116,600. Kislak offered the needed \$540 in cash, but the government administrator ruled that legally he could not

receive it. So the property had to be advertised for bids all over again. Recently, with two others bidding against him, Kislak made the grade with a bid of \$1,201,500.

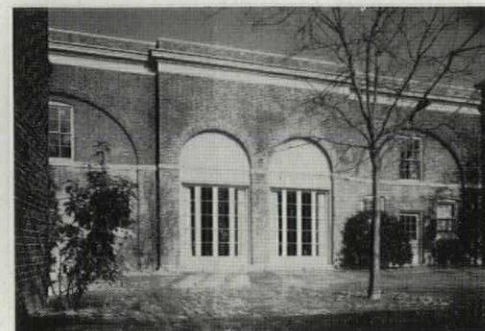
CONGRATULATIONS: to **Arthur B. VanBuskirk**, former vice-chairman of Pittsburgh's Urban Redevelopment Authority, named Man of the Year there by a panel of civic leaders; to Prof. **Thomas Howarth**, British author and architect, who received the book award of the Society of Architectural Historians for his "Charles Rennie Mackintosh and the Modern Movement"; to New York Architect **Eric Kebbon**, who received a certificate of merit from the Municipal Art Society for his "outstanding" design of a Manhattan school.

DIED: **Father Francis E. Fox**, 44, recently appointed dean of the School of Engineering and Architecture at Washington's Catholic University, Dec. 29 in Washington; **Everett V. Welch**, 56, well-known southwest architect whose practice ranged from housing projects to schools and churches, 1950 president of the Dallas AIA chapter, Dec. 31 in Dallas; **Antonin Heythum**, 52, German-born head of Syracuse University's industrial design department, Jan. 10 in Munich; **William D. Bordeaux**, 69, architect of commercial as well as residential buildings, Jan. 15 in Miami; **Clarence S. Stauss**, 53, New Orleans realtor, a past vice president of NAREB and former president of the Louisiana Real Estate Board, Jan. 16 in New Orleans; **William O. Ludlow**, 83, senior partner in the old Ludlow & Peabody architectural firm, a founder and past president of the Construction League of the US, Jan. 21 in Fort Myers Beach, Fla.; **John J. Sheridan**, 66, architectural designer and head of the building codes division of the National Rehabilitation Administration under Roosevelt, Jan. 23 in New York; **Arthur C. Comey**, 68, city planner, architect and consulting engineer, Jan. 26 in Kittery Point, Me.; **Wilbur D. Peugh**, 56, noted West Coast architect who designed more than 2,000 buildings, including San Francisco's 26-story Equitable Life skyscraper now under construction, Jan. 28 in San Francisco.



AIA remodels Octagon House stable into a library

Restoration of a historic Washington property was completed last month with the opening of AIA's new 2,200 sq. ft. library. The building, on the grounds of Octagon House, AIA headquarters since 1899 and James Madison's temporary White House in 1815, had been a stable, once slated for demolition. While the brick facade was preserved nearly intact, the interior, roof



and rear walls were completely rebuilt. Carriage room, stable area and granary gave way to three public rooms, one of which is generously fenestrated by the arched carriage doors. The upper story, once a haymow, is now lined with book stacks. The remodeling cost AIA \$70,000, or \$31 per sq. ft. William Dewey Foster was the architect.

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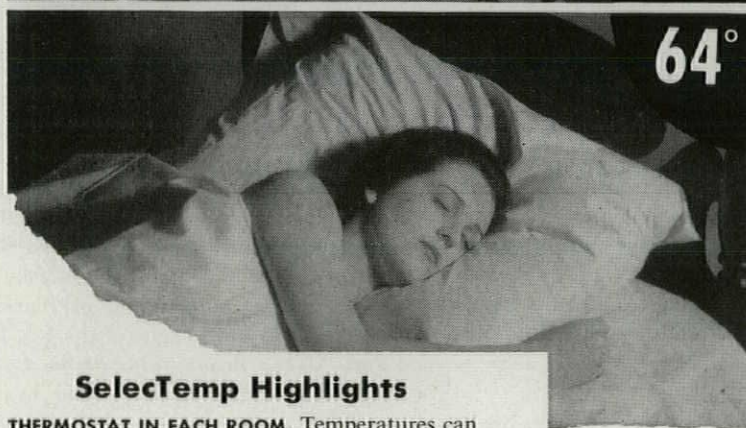
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BUILDING STATISTICS:

1954 expenditures start ahead of '53 level, private gain offsets dip in public outlays

Construction was off to a fast start in '54. Total January expenditures as estimated by BLS and the Commerce Department were \$2.4 billion. That set an all-time January record—one all the more remarkable because it included a 3% dip in public construction outlays compared with Jan. '53 (see chart and table). So far, construction spending showed no sign of trailing last year's by 2% as BLS and Commerce have predicted.

Private commercial construction outlays declined seasonally from December, but at \$164 million were a fat 52% above January '53. In fact, as the normal midwinter building slump neared bottom, only one category of construction showed a contra-seasonal increase: private industrial construction. It turned up 2.3% from December, but it was still considerably behind the 1952 defense build-up peak and trailed January '53 expenditures 10%. Public expenditures for industrial plants were 9% below January '53.

Most building cost indexes were unchanged through December (see chart). But with a trend to lower materials prices and sharpening contractor competition the outlook was for moderate declines in the months ahead. Biggest news in materials last month was US Plywood's guarantee against any increase for the remainder of '54 in its Feb. 1 base price of \$85 per M sq. ft. (up \$5) for its basic 1/4" A-D grade Douglas fir plywood, "subject only to contingencies beyond our control." Several smaller firms promptly instituted first quarter guarantees. One, Evans Products Co., explained:

"The steel industry has been guaranteeing prices on a quarterly basis for many years. We felt the same should be done on plywood. Our jobbers have felt they should have it, and their customers demand it from them. In the construction market, where building spreads over 60 to 90 days, rising costs present quite a problem."

NEW CONSTRUCTION ACTIVITY

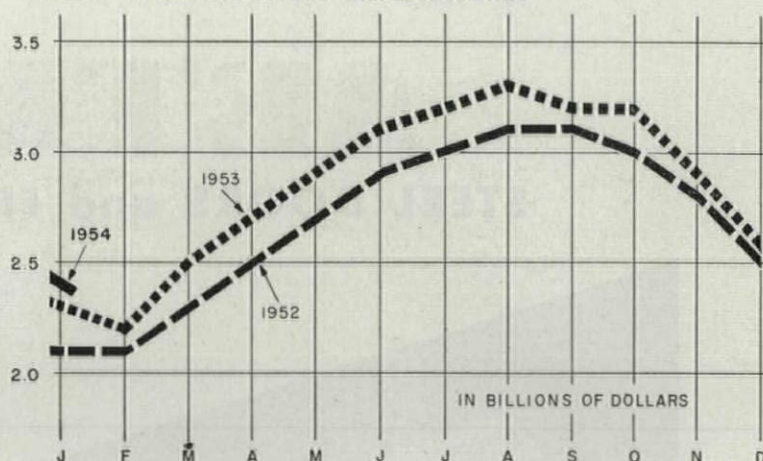
(expenditures in millions of dollars)

Type	January			12 months		
	'53	'54	% change	'53	'54	% change
PRIVATE						
Residential (nonfarm)	816	825	+1.1	11,905	11,225	-5.7
New dwelling units	735	735	.0	10,530	9,650	-8.3
Additions & alterations	63	67	+6.3	1,108	1,300	+17.3
Nonhousekeeping	18	23	+27.8	267	275	+3.0
Industrial	201	180	-10.4	2,226	1,950	-12.4
Commercial	108	164	+51.9	1,791	1,950	+8.8
Other nonresidential	122	143	+17.2	1,659	1,675	+1.0
Religious	35	43	+22.9	474	500	+5.5
Educational	32	39	+21.9	425	450	+5.9
Hospital	27	26	-3.7	316	300	-5.0
Public utilities	275	307	+11.6	4,439	4,575	+3.1
*TOTAL	1,627	1,713	+5.3	23,615	22,800	-3.5
PUBLIC						
Residential	47	35	-25.5	554	365	-34.1
Industrial	134	122	-9.0	1,758	1,600	-9.0
Educational	132	155	+17.4	1,742	1,925	+10.5
Hospital	34	21	-38.2	347	275	-20.7
Military	106	85	-19.8	1,323	1,200	-9.3
*TOTAL	734	712	-3.0	11,228	11,200	-0.2
GRAND TOTAL	2,361	2,425	+2.7	34,843	34,000	-2.4

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

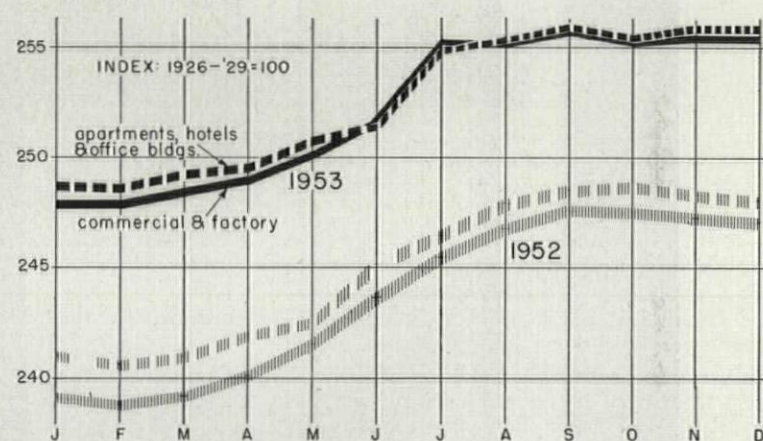
Private construction expenditures last month totaled \$1.7 billion, a 10% seasonal decrease from \$1.9 billion in December. They were 5% ahead of comparable January '53 outlays. However, by handsomely offsetting the dip in public expenditures, they kept total construction spending almost 3% ahead of last January's (see chart).

TOTAL CONSTRUCTION EXPENDITURES



In November, '52, BLS and the Commerce Dept. estimated total expenditures for new construction in 1953 would increase 3.7% over 1952 (from \$32.6 billion to \$33.5 billion). Actually, outlays climbed 6.8% to reach \$34.8 billion. Last November, the same two agencies forecast a 2% decline for new construction this year (to \$34 billion). But when the January outlays were added up, they totaled \$2.4 billion, or 2.7% ahead of last January.

BUILDING COSTS



The cost of building was on as even a keel as it has known in years. From November to December, building costs for commercial and factory buildings as compiled by E. H. Boeckh & Associates remained unchanged at 255.4. Costs for apartment, hotel and office buildings held at 255.7. Two other monthly indexes also stayed on dead center: AGC's at 129.3, and the American Appraisal Co.'s, at 124.5.

PUBLIC CONSTRUCTION ACTIVITY

(expenditures in millions of dollars)

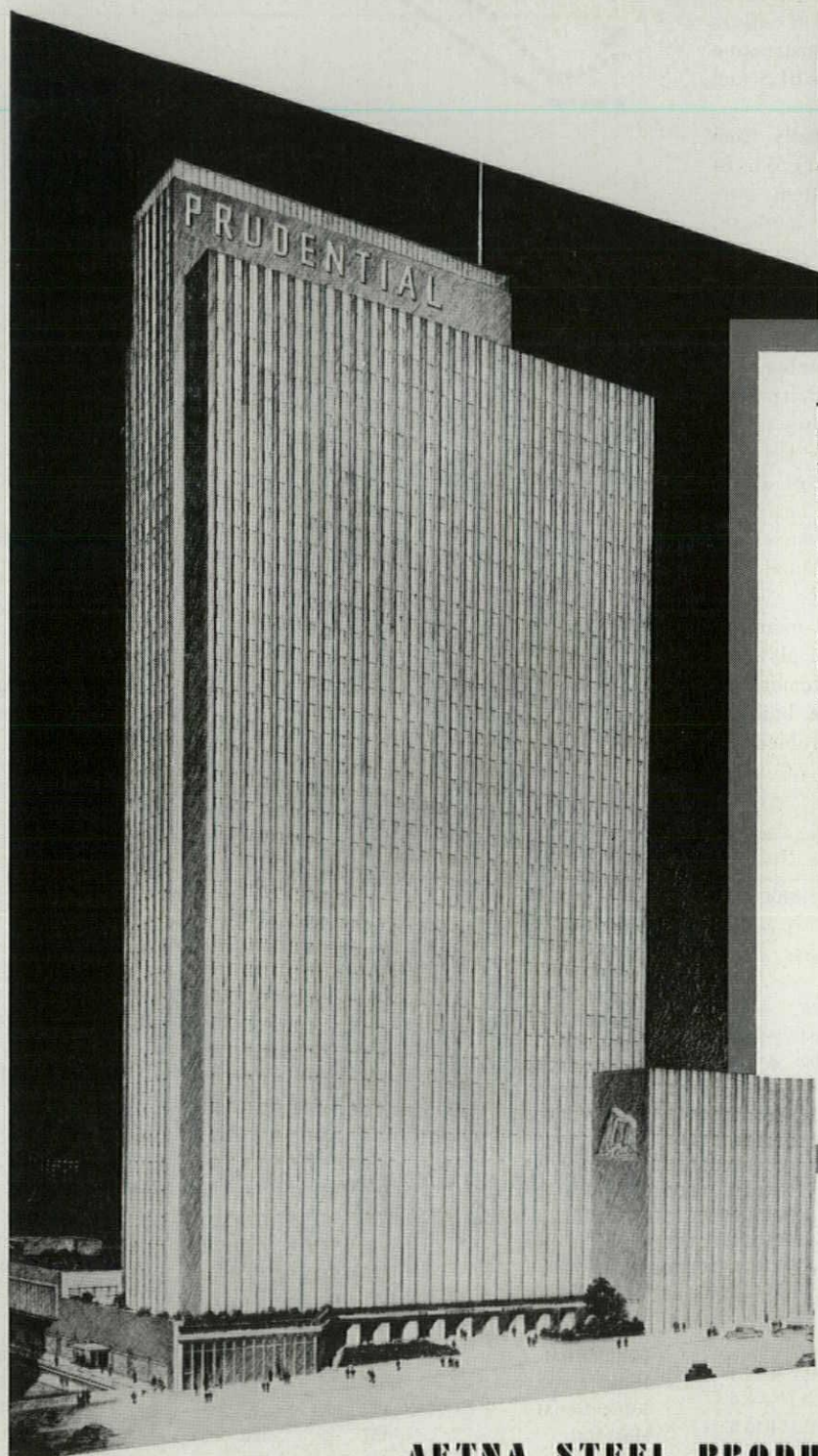
Type	Full year			'53 spending as % of year's total public outlays
	1952	1953	% change	
FEDERAL				
Residential	16	20	+25.0	0.2
Industrial	1,667	1,758	+5.5	15.7
Educational	77	137	+77.9	1.2
Hospital	157	100	—36.3	0.9
Military	1,388	1,323	—4.7	11.7
*TOTAL	4,783	4,770	—0.3	42.5
STATE AND LOCAL				
Residential	638	534	—16.3	4.7
Educational	1,542	1,605	+4.1	14.3
Hospital	316	247	—21.8	2.2
All other building	304	429	+41.1	3.8
Sewer & water	692	761	+10.0	6.8
*TOTAL	6,043	6,458	+6.9	57.5
GRAND TOTAL	10,826	11,228	+3.7	..

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



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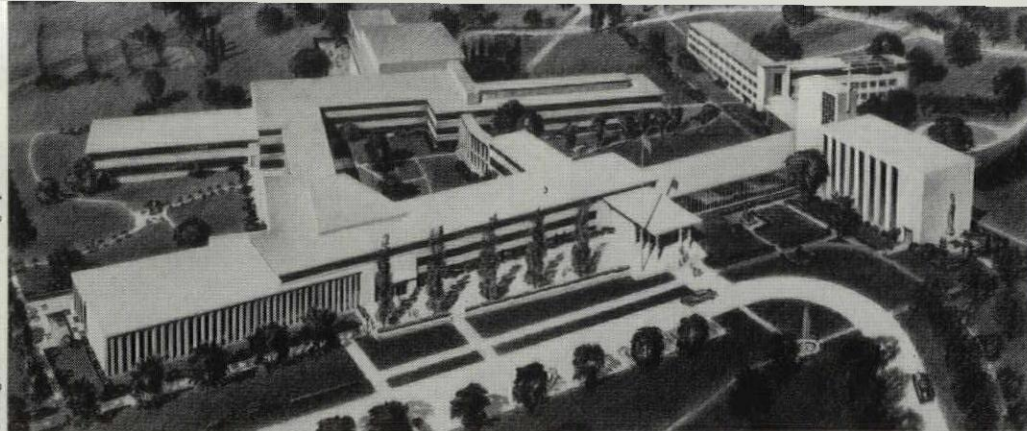
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\$5 million Chicago college under one roof

Bids will be sought next month to start construction of this \$5 million complex for St. Xavier's College on a new campus on Chicago's far South Side. Its new integrated, interconnecting buildings, which will accommodate 750 students, were designed by Chicago Architects Naess & Murphy.

Main entrance in this view is at the left end of the curve in the driveway in foreground. To the right of the entrance are the administration

building and chapel. To the left are the theology and philosophy building and the library. Other buildings in the connecting and back wings include a theater, social sciences, fine and applied arts, community service, natural science and mathematics buildings, and a gymnasium and swimming pool. A residence hall and convent (right background) and a \$2 million nursery-kindergarten-high school unit to be built later, will not be tied directly to the college complex.

NEW BUILDINGS

A new FORUM feature—a roundup of the most significant nonresidential buildings and building projects disclosed recently across the nation and items on noteworthy buildings just completed.

Schools and colleges

First major bill passed by the House of Representatives in Congress' current session was an appropriation of \$26 million to start a \$175 million **Air Force Academy** comparable to West Point and Annapolis. The bill (still to clear the Senate) authorized \$1 million for a temporary school. There was no prospect for blueprinting the proposed permanent campus until Congress settled on the site. . . . Ground was broken this month at **Northwestern University** for a \$2 million, 7-story Morton medical research building designed by Architects Holabird & Root & Burgee. . . . **Bucknell University** in Lewisburg, Pa., received \$900,000 from the Olin Foundation, Inc. of Minneapolis to build and equip a new 4-story F. W. Olin science building to be completed by early 1955. . . . **Brandeis University** in Waltham, Mass., received a grant from the Charles Hayden Foundation for a \$1 million science building.

Offices in suburbia

Ground breaking was scheduled this spring for **Standard-Vacuum Oil Company's** new headquarters at Harrison, in New York's suburban Westchester County. New York Architects Eggers & Higgins were completing plans for a \$5 million, 200,000 sq. ft. air-conditioned structure to accommodate 700 employees who will leave the nerve-jangling crush of midtown Manhattan where they were inefficiently scattered in three buildings. The low two-story and penthouse building will be set back more than 300' from the street on the brow of a 90' hill. Builder: Starrett Bros. & Eken.

Hospitals and medical centers

Three Mellon family foundations donated \$15 million last month to help establish an \$80 million **Pittsburgh University Health Center**. The Mellon funds can be used only for administrative and operating expenses. But center officials already have \$9 million to build. With additional public contributions they plan a 10-year building program including a \$15 million medical science building, a diagnostic clinic, a rehabilitation center and a dormitory, as well as improvements for 13 existing health schools and hospitals. . . . In New Haven, the **Yale School of Medicine** and **Grace-New-Haven Hospital** announced they had agreed to develop a major medical center, but gave no indication when their pro-

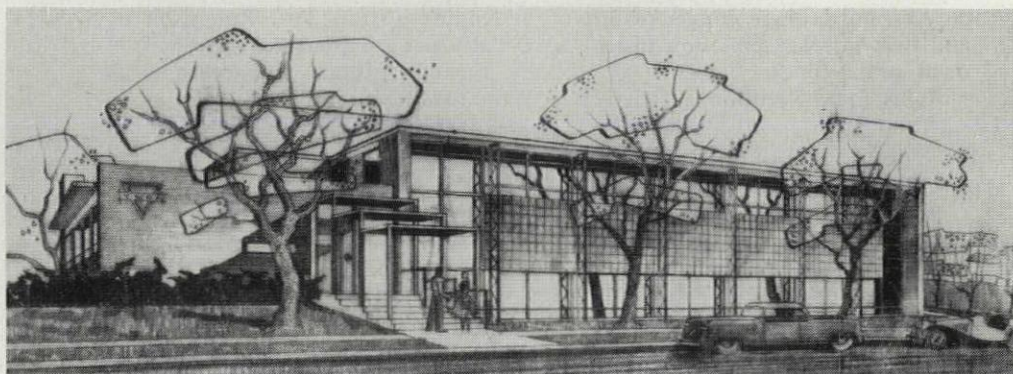
gram might involve construction. . . . Charles H. Tompkins Co. was awarded the primary contract for \$6.2 million to erect the new **Providence Hospital**, Washington, D. C. . . . William A. Berbusse, Jr., Inc. of New York will build the \$4.4 million Phelps Memorial Hospital in Tarrytown, N. Y. designed by Eggers & Higgins, architects. . . . A \$2 million 8-story addition to **St. Agnes Hospital**, Fond de Lac, Wis. will be started in April by the Hutter Construction Co. . . . The **Wesley Memorial** and **Chicago Memorial Hospitals** announced plans to merge effective July 1, and build a new 117-bed institution.

Two Philadelphia towers

Since the first of the year, reawakening Philadelphia got plans for two new 10-story air conditioned office buildings. Realtor Frank G. Binswanger said the **Shelby Construction Co.**, of New Orleans will build a \$10 million structure with 250,000 sq. ft. of floor space at Chestnut and Fourth Sts. overlooking the Independence Hall Mall, starting this spring. Plans will be the work of New Orleans Architect Charles R. Colbert and a Philadelphia architect to be named later. Realty Investor **Laigh M. Cohan** announced a 200,000 sq. ft. L-shaped building at Chestnut and Second designed by Architect Herman H. Line. It will have parking for 500 cars in the basement and first two floors, seven office floors and a terrace roof garden with a restaurant for 1,000 overlooking the Delaware River.

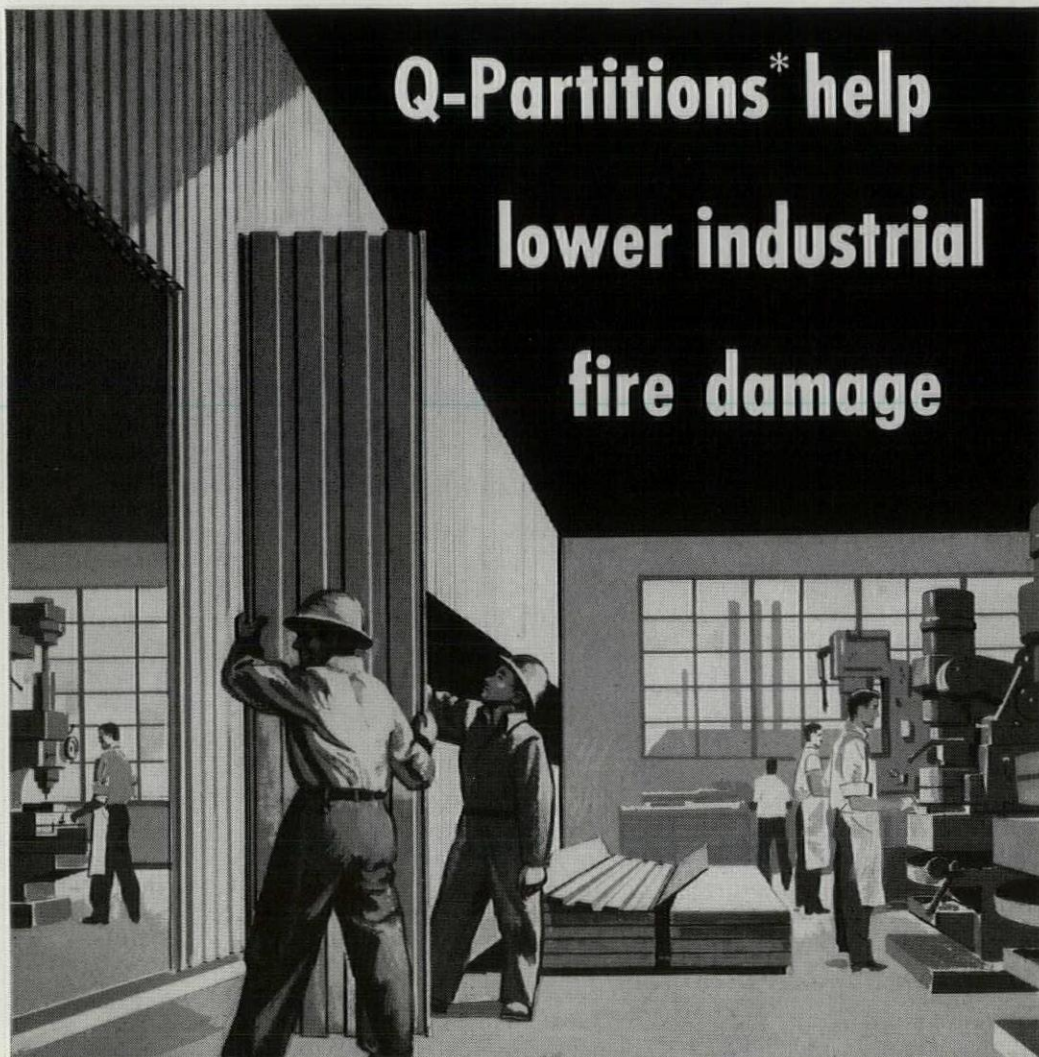
On drafting boards

Design and engineering studies for a \$30 to \$35 million titanium plant that will probably be built in Tennessee were being made for the **General Services Administration** by **E. I. Du Pont de Nemours & Co.**, which already is producing titanium sponge under government contract in Delaware. Du Pont will receive about \$600,000 for its design work. It was still undecided whether Du Pont also will erect or operate the plant. . . . Philadelphia's **Henry D. Dagit & Sons** were picked as architects for Dinneen Hall, to be erected next year



YWCA to wear blue midriff and exposed red girders

This \$98,000 split-level County Branch YWCA in St. Louis is being erected by Contractor Oscar A. Schneiderhahn from plans by Architect Harris Armstrong. Its large front central panel interrupting ground-to-roof windows will consist of foot-square concrete blocks painted gray-blue, contrasting with six exposed sidewalk-to-roof web girders painted bright red. The main split-level entrance will go in midway between the two floors in the front section of the building, which is on a sloping site and will have one story in the rear. The building will be 85' x 43' overall, on a 120' x 200' site.



Q-Partitions* help lower industrial fire damage

Fire prevention experts agree that one way to prevent costly industrial fires is to reduce large areas by the use of fire-resistive partitions. By doing so, fires that would tend to spread swiftly can be contained in a smaller area where they can be fought more effectively and brought under control. Robertson Two-Hour Fire Resistive Q-Partition is ideal for this purpose. Its installation will not interrupt production schedules . . . it is quick, clean, dry construction. It goes up while production goes on. And because it is clean and dry, there is no discomfort to employees, nor is there danger of dirt and dust injuring precision instruments or machines.

Robertson Q-Partition units arrive

at the job-site ready for installation, and require a minimum of field work, scaffolding and working space. They are easily and quickly demounted and re-erected elsewhere, giving a freedom of planning and layout not possible with other types of construction. They are good looking and have a high factor of light reflection. A Robertson Two-Hour Fire Resistive Q-Partition unit consists of two 18 gauge rolled steel fluted sections (each 1 5/8" deep) between which is sandwiched 1 1/2" (three 1/2" layers) of gypsum board. Each unit or panel is 24" wide and made in lengths up to 22'0". Robertson Q-Partitions are listed and approved by Factory Mutual Laboratories. Write for literature.

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by St. Peter's College, Jersey City . . . **Broad & Nelson** of Dallas won a commission to plan a \$2.1 million sanitarium at East Texas State Hospital in Tyler, the first phase of a \$5 million reconstruction program there.

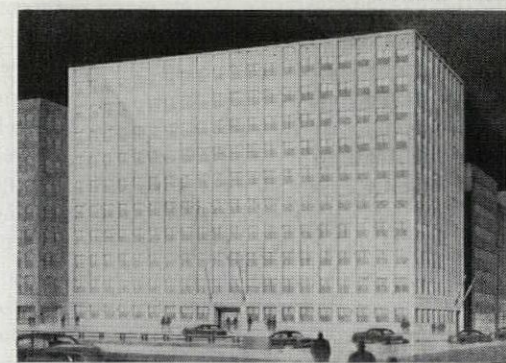
Beer work abrewing

Contractors—at least some contractors—will get a chance to satisfy champagne tastes with beer incomes; **Liebmann Breweries, Inc.**, creators of Miss Rheingold, bought the Acme breweries in Los Angeles and San Francisco and planned to spend \$4 million for remodeling and enlargements; the **Joseph Schlitz Brewing Co.** was building a \$20 million plant in Van Nuys, Calif. to produce 1 million barrels of beer a year; the **Goebel Brewing Co.** started a \$2.5 million expansion and modernization of its Detroit plant, including construction of a 53,000 sq. ft. warehouse; the **Anheuser-Busch** organization was negotiating for a 150-acre tract near New Orleans to erect a \$20 million plant.

Telephone and utility buildings

For telephone companies talk is money, and in Ohio Cleveland's **Ohio Bell Telephone** was going to turn a lot of that money back into construction this year: \$15 million for plant expansion around Cleveland, and a total of \$50 million throughout the state . . . **Jersey Central Power & Light** announced it would spend \$18.5 million for construction this year, greatest annual sum in its history. . . . **Pennsylvania Electric Co.** will spend about \$4.2 million in the northwestern sector of the state including construction of a new division headquarters in Erie to consolidate operation now scattered in six separate buildings.

Art Photo Assoc.



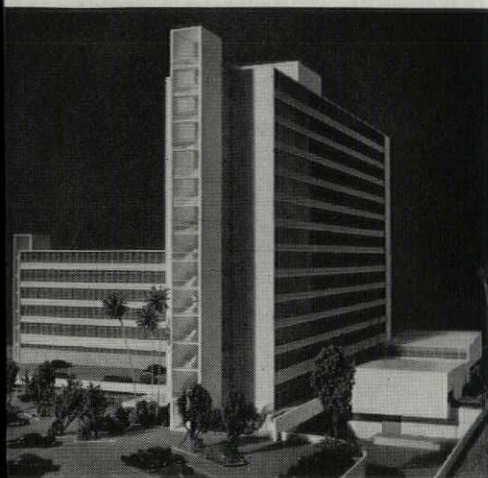
Chicago Sinclair building due for summer occupancy

First major office building to be completed in Chicago in 20 years will be the \$5 million Sinclair Building (sketch above). It was started last April, is scheduled for occupancy this summer. Sinclair Refining Co. has rented the first six floors. Negotiations are on to rent three of the other four \$5-per-sq.-ft. floors. Total floor area: 264,000 sq. ft. Elevators will be operatorless.

John W. Galbreath & Co., of Columbus, Ohio is the owner; Holabird, Root & Burgee the architects; and Turner Construction Co. the builder. The structure, at 155 N. Wacker Drive, is directly across the Loop from the 41-story Prudential Building now under construction.

New Industrial facilities

In Burlington, N. J. Hercules Powder Co. will build a \$4 million plant to manufacture DMT, a chemical used in making terylene, a British synthetic fiber akin to dacron. The entire chemical output until 1960 will be shipped to a \$22 million terylene plant being built in



Los Angeles hospital rises on pay-as-you-build plan

Construction of this 13-story building in West Hollywood for Los Angeles' Mt. Sinai Hospital has reached the third floor, and as a result of contributions reported last month will continue to the eighth instead of the sixth floor for the present. It was designed so construction could stop at any floor, depending on the funds available. Total cost: \$4 million, including equipment. C. L. Peck is contractor; Richard Bradshaw, engineer, and Welton Becket & Associates and Palmer, Krisel & Lindsay, associated architects.



Ten-story garage to serve Houston office building

Parking for more than 430 cars will be provided in this ten-story open deck garage being built in Houston by the South Texas National Bank near its new 20-story bank and office building (AF, Jan. '53, News). When completed this fall, it will be the highest garage in the city by four stories. It will cost an estimated \$1.3 million, including \$230,000 for five elevators large enough to hold four cars each. Architect: Kenneth Franzheim. Builder: Dederick Construction Co., Houston.



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Millhaven, Ont. to be put in operation about June, '55 by **Imperial Chemical Industries of Canada, Ltd.** . . . To enlarge its Dover, Del. facilities and modernize newly acquired plants in the South, **International Latex Corp.** will spend \$4 million this year. . . . A new phonograph record factory in Terre Haute, Ind. is included in a \$1 million modernization program this year of **Columbia Records, Inc.**, subsidiary of Columbia Broadcasting System. . . . In Chicago, **E. J. Brach & Sons** plan two new candy manufacturing plants to cost \$1.5 million and increase production space about 116,000 sq. ft. . . . **Industrial Rayon Corp.** of Cleveland will enlarge its Covington, Va. plant with a \$5 million building for production of a new nylon-type staple fiber. . . . **General Mills, Inc.** acquired a 50-acre tract near Toronto for facilities for a Canadian subsidiary it is organizing. . . . **Union Carbide & Carbon** reported it will build an office and distributing center at Needham, Mass. to consolidate its operations in that area. . . . **Cone Mills Corp.** announced it has tentatively selected San Marcos, Tex. as the site for a new textile mill to expand operations into the Southwest.

Auto, plane makers plan expansions

First specific projects revealed after **General Motors** announced its whopping \$1 billion expansion program last month: expansion and modernization of the **Pontiac Motors** plant at Pontiac enlarging it from 5.4 to 6.3 million sq. ft.; expansion of the **Fisher Body** Kansas City plant from 100,000 to 277,000 sq. ft. at a cost of \$2 million . . . In Ecorse Township, southwest of Detroit, **Ford Motor Co.** will build a manufacturing headquarters building this year for its "special products division" now developing a new passenger car. . . . In Kansas City, **Westinghouse Electric Corp.** planned a \$30 million expansion of its jet engine operations. . . . **Thompson Products, Inc.** of Cleveland announced a \$16 million expansion improvement program for its auto and aircraft parts operations, including a new research building at Euclid, Ohio, costing more than \$1.5 million, a new manufacturing plant in St. Louis for its subsidiary Ramsey Corp., and a new factory in Detroit. . . . As part of a \$4.2 million expansion at Terre Haute, **Allis-Chalmers** will build an 84,000 sq. ft. plant addition.



STATE OFFICE BUILDINGS started this spring in Illinois and California will cost less than legislators anticipated. Bids on the 8-story structure at Springfield, Ill. (above) indicated total costs would be about \$8.9 million, \$2.1 million below original estimates. The air-conditioned building will have 445,000 sq. ft. of floor area, 82% of it usable. It will house state agencies now scattered in 19 other buildings in the city. Prime contractor, on a \$4.8 million bid: Chicago's **W. E. O'Neil Construction Co.** Architects and engineers: Peoria's **J. Fletcher Lankton & John N. Ziegele Associates.**

R. C. Quale Associates



CALIFORNIA'S DEPARTMENT OF EMPLOYMENT will be housed in this 6-story structure on Sacramento's Capitol Mall. It will be the largest building in the state north of San Francisco. The legislature authorized \$10.4 million for construction, but with the steel frame contract already awarded (to Bethlehem-Pacific of San Francisco) and other bids to be taken over the next two months, costs were now expected to reach only \$9.5 million. Architect: Alfred Eichler of the state division of architecture. It will have 500,000 sq. ft. of usable floor area.

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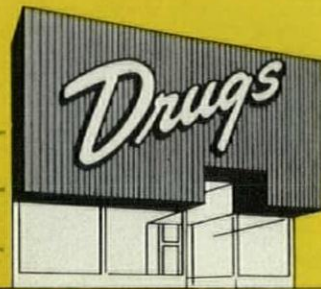
ZOU

FIVE PORCELAIN ENAMELED

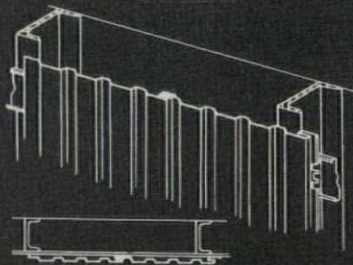
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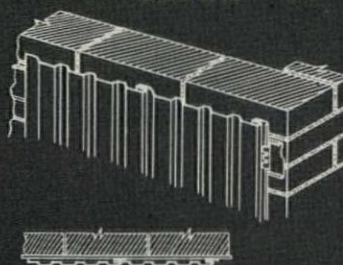
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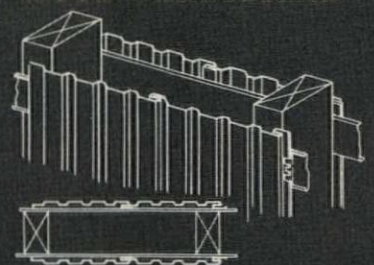
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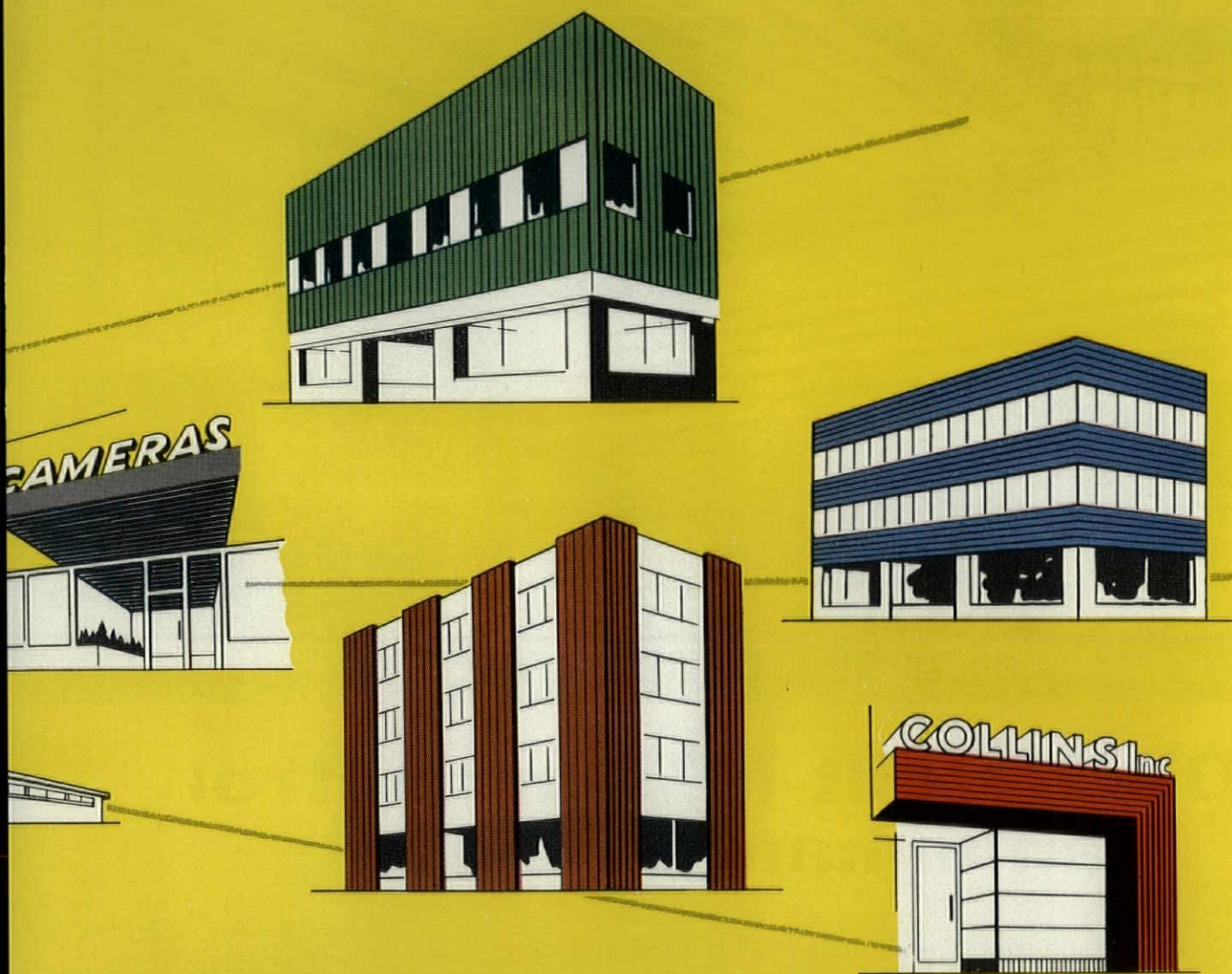


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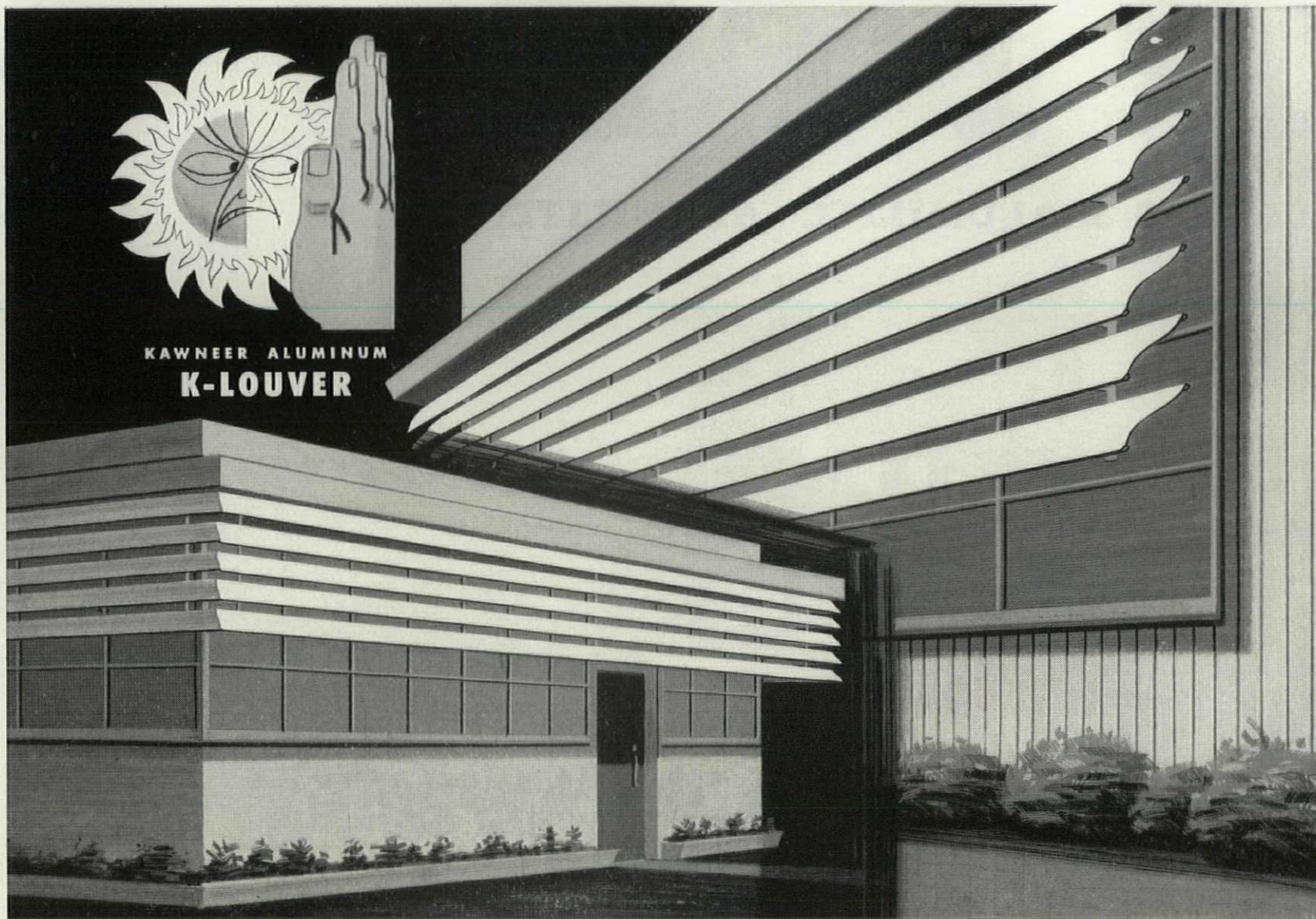
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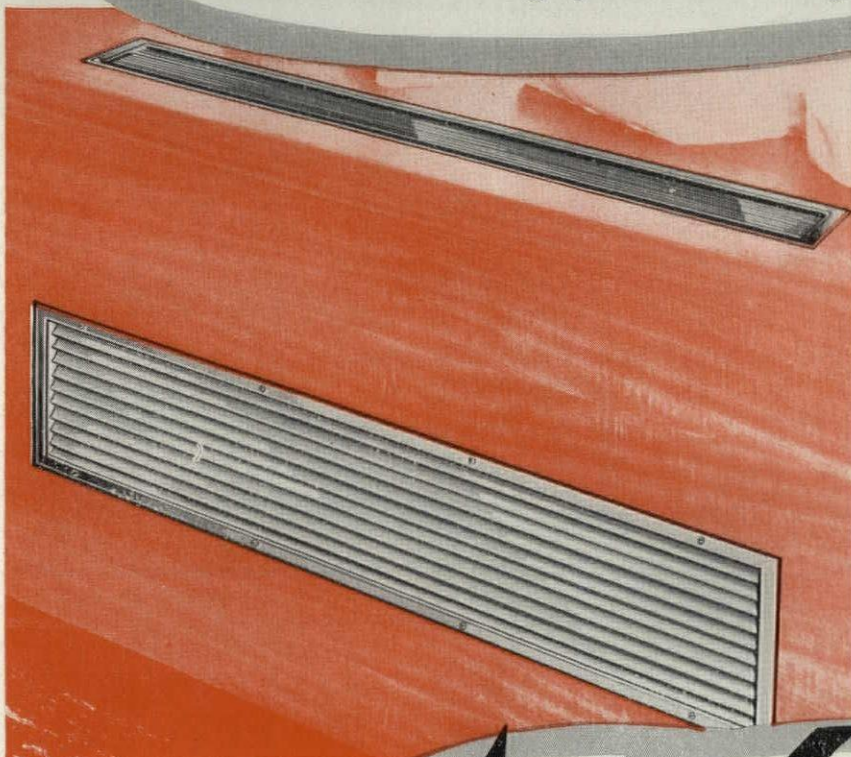


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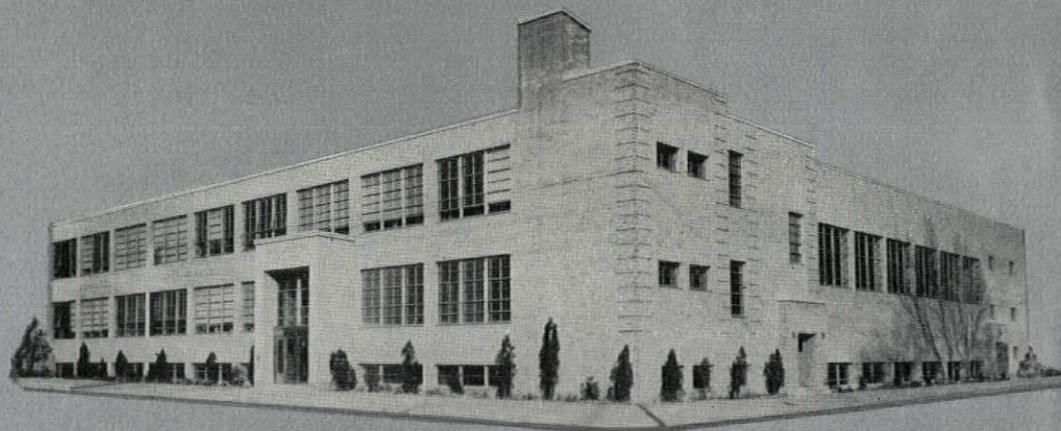
• South Mountain Junior H.S.,
Allentown, Pa.
Architects: Heyl, Bond & Miller
Contractor: L. W. Hunsicker Co.

• Colwyck School, Wilmington, Del.
Architect: E. William Martin
Contractor: Rupert Construction Co.



• Troy High School, Troy, N. Y.
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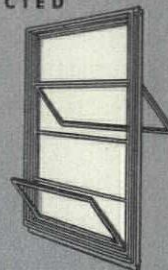
Aluminum Window Manufacturers Association

74 Trinity Place, New York 6, N. Y.

DOUBLE-HUNG



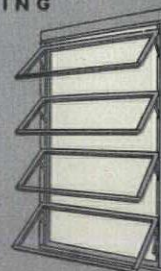
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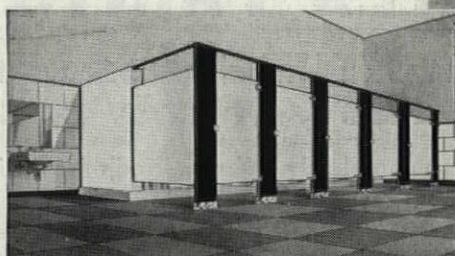
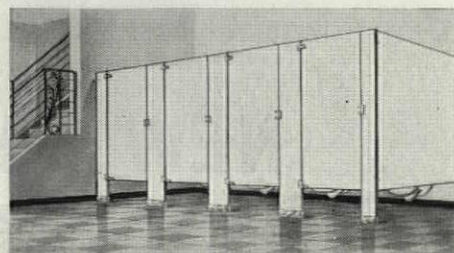
It reduces the cost of maintenance to an all-time low.

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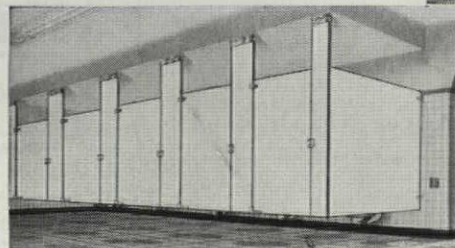
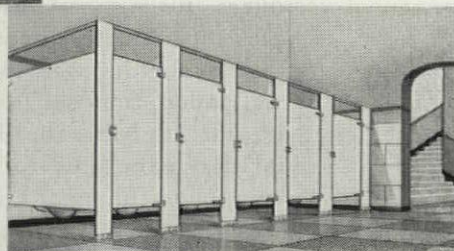
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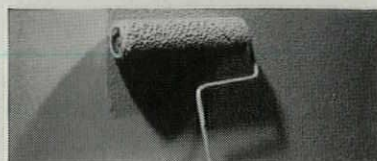
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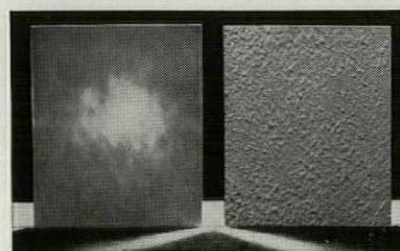
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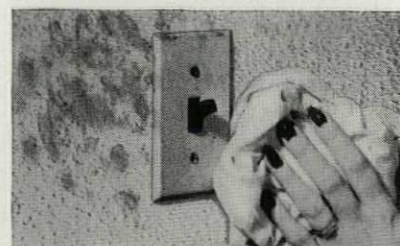
SPRED TEXTURE is a completely different kind of texturing material for most surfaces. It is a heavy-bodied, 100% latex base paste in a neutral color that can be mixed with any Glidden latex paint. It offers all the ease-of-use and cost-saving advantages of latex paint, plus the added eye-appeal of modern textured patterns. You'll find it ideal for dry wall, plaster board, masonry, masonry block and wallpaper. It is self-sealing, fast-drying, durable and the surface is amazingly washable. SPRED TEXTURE is also excellent for use as a spackling compound for small cracks and imperfections.

Glidden Offers Complete Latex Schedule

Texturing can now be done in over 100 colors with all three Glidden latex finishes—SPRED SATIN, SPRED GLOSS enamel, and PROFESSIONAL ULTRA FLAT. For average jobs use two parts of SPRED TEXTURE base to one part of Glidden latex paints.



SUPERIOR HIDING! Glass test panel at left is coated with a popular high quality flat. Notice how one coat of SPRED TEXTURE (right) completely blocks out the powerful rays of a 300 watt light bulb.



WASHES EASILY The edges are soft and contoured, not sharp needle-like points made by ordinary texturing materials.

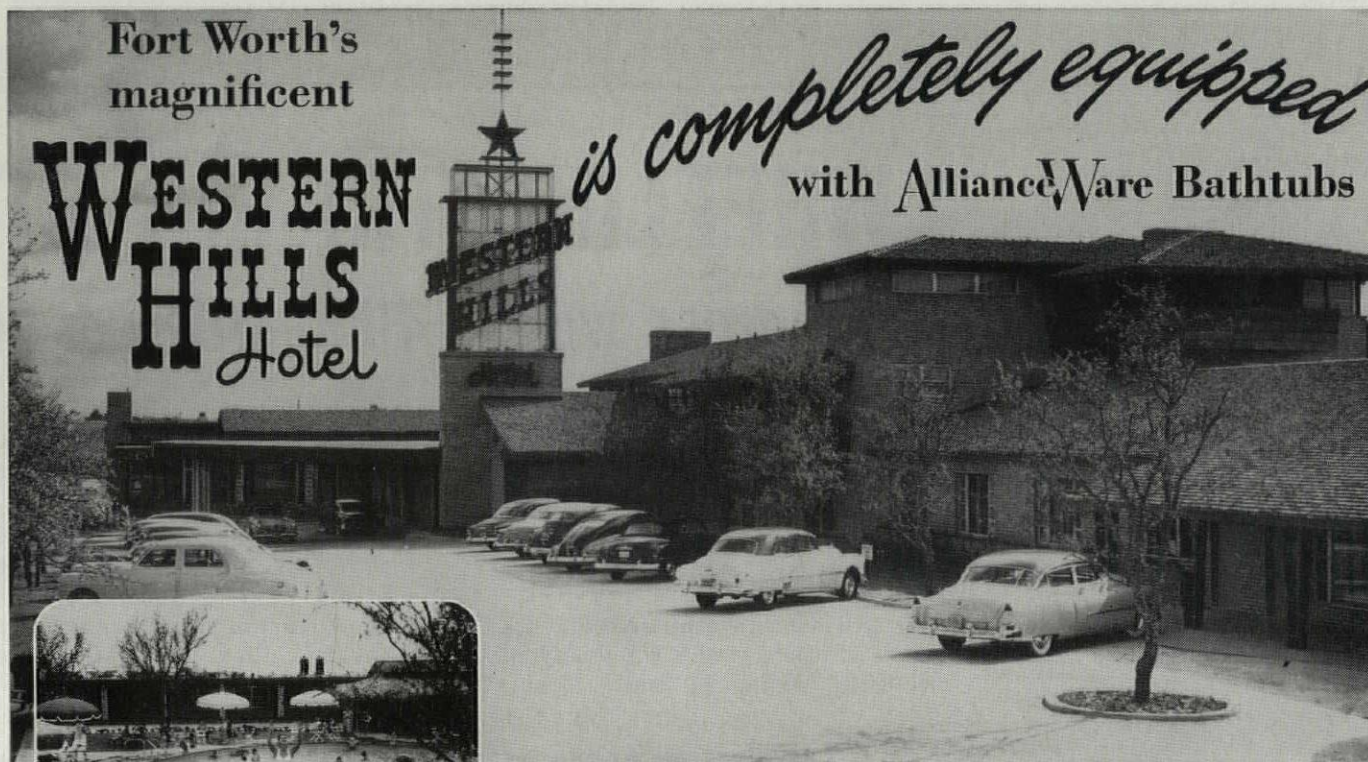
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I'm interested in obtaining details on SPRED TEXTURE ...
and on Ultra Flat Latex.

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Convenient parking space and a patio with a swimming pool equipped for heating of water and with underwater lighting are features of beautiful Western Hills Hotel.



An AllianceWare bathtub, with sliding frosted-glass enclosure, in Western Hills Hotel. The hotel is completely equipped with AllianceWare tubs.

Plumbing Contractor: Harrison & McGinnis
AllianceWare fixtures furnished by Morrison Supply Co.

AllianceWare, Inc. Alliance, Ohio

Bathtubs • Lavatories • Closets • Sinks

Plants in Alliance, Ohio and Colton, California

DESCRIBED by TIME Magazine as "a dazzling example of the vast change which has taken place in the hotel business," the Western Hills Hotel of Fort Worth, Texas, is a new and different type of hotel.

Of rambling Mediterranean type of architecture, with tiled roof and tan adobe brick walls, this 200-room air-conditioned hostelry combines the luxurious appointments and service of the best city hotels with recreational facilities and ample parking areas of motels.

AllianceWare bathtubs are installed in every bathroom of Western Hills Hotel as in other famous hotel and recreational structures including S.S. United States, Statler hotel, Hartford, and Florida's Kenilworth, Miami Beach, as well as many motels.

There are sound, practical reasons for specifying AllianceWare sanitary fixtures for hostelries of all types:

(1) An integral wall guard flange extends around three sides of AllianceWare tubs to prevent leaks at the wall line, (2) AllianceWare tubs are wall-hung with anchor lugs that prevent shifting and settling, (3) Stain-proof porcelain-enamel surfaces are easily cleaned and keep their beauty for years under hard usage, (4) Five colors and white furnish a wide choice of matched color combinations for modern styling.

Write for complete details of AllianceWare porcelain-on-steel

AllianceWare
PORCELAIN ON STEEL

WHEELING TRI-RIB STEEL

cuts gross weight 40% — reduces weight

UNIVERSITY OF CONNECTICUT'S NEW FIELD-
HOUSE UTILIZES HIGH STRENGTH/WEIGHT
RATIO OF WHEELING TRI-RIB ROOF DECK!

This spacious new athletic fieldhouse is the latest addition to the University of Connecticut's campus at Storrs, Conn. When

completed the \$930,000 elliptical structure will be 343' long, 150' wide and 40' high.

To roof this new structure, the builder used over 42,000 square feet of Wheeling Tri-Rib Steel Roof Deck, covered with 4-ply built-up roofing. Finished with an undercoat of aluminum paint, it also serves as the ceiling. Result: gross weight of Tri-Rib Steel Roof Deck is only 40% of a wood

WHEELING CORRUGATING COMPANY • BUILDING MATERIAL DIVISION

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Structural Engineer:

Robert W. Loomis, Windsor, Conn.

Mechanical and Electrical Engineers:

*Hubbard, Lawless & Blakeley,
New Haven, Conn.*

Contractors:

*The Associated Construction Co.,
Hartford, Conn.*

Structural Steel Fabrication and Erection:

City Iron Works, Hartford, Conn.

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of supporting joists!

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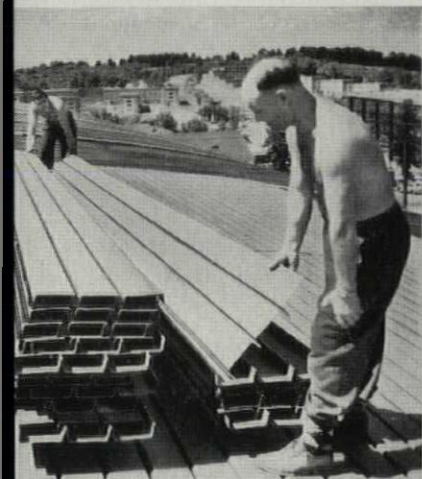
ew York Philadelphia Richmond St. Louis



RI-RIB HANDLES EASILY—weighs ap-
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SAVES STRUCTURAL STEEL—reduces dead
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INSTALLS SWIFTLY—a four-man crew
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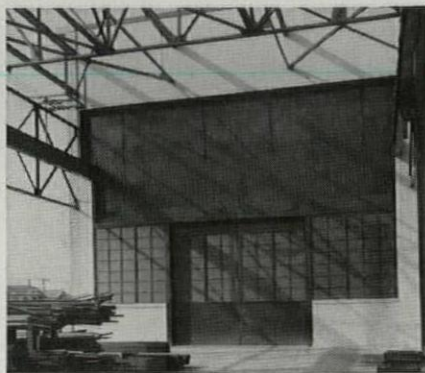


Designed in accordance with specifications adopted by A. I. S. I. for light-gauge structures, dated January, 1949.
For specifications, consult Sweet's Files, or write us.

CRANEWAY DOORS

Provide

Open and Shut Case



Architect—Albert Kahn Associated Architects and Engineers, Inc.
General Contractor—Maxon Construction Company, Dayton, Ohio.

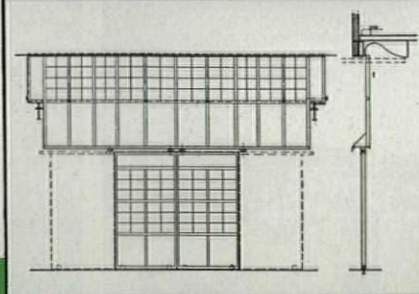
... of increased working efficiency
and reduction of heating costs!

When a craneway extends from inside a building to an outside railroad siding or storage yard it's an open and shut case that Byrne can provide the finest in a dependable closure. This craneway opening shown above provides a substantial reduction in heating costs with the added advantage of increased working efficiency.

Byrne crane entrances combine upward acting doors at the crane rails with swinging or sliding doors below. The upper door is always motorized, the lower doors may be specified for manual or motor operation. Interlocks insure complete safety, with automatic or selective controls located as desired.

Crane entrance doors are furnished in steel, or aluminum which is gaining increasing acceptance as a construction material. Windows may be installed as desired for consistent architecture.

Byrne Crane Entrance Door Operation



For successful development of crane entrance doors, our engineering consultation is furnished without obligation.

FOR INFORMATION
regarding Byrne doors and facilities consult Sweet's Catalog or write direct for our brochure.

BYRNE doors, inc.

Dept. f-3

1421 East 8 Mile Road, Ferndale, Detroit 20, Mich.

101 Park Ave., New York 17, N.Y.
Cafritz Bldg., Washington 6, D.C.

EVENTS

American Concrete Institute, 50th anniversary annual convention, **Feb. 22-25**, Denver.

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

Peale Museum, Baltimore, "Blueprint for Tomorrow" exhibition of designs for buildings to be erected in the Baltimore metropolitan area, **Mar. 1-May 2**. For details address Peale Museum, 225 U. Holliday St., Baltimore.

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

Precast Concrete Foundation is sponsoring series of special courses on precast concrete construction; the first of the six-session series will be held **Mar. 5-10**, Congress Hotel, Chicago. Will also be given in Detroit, Philadelphia, New York, Boston, Cleveland, Houston and Seattle. Lecturer is F. Thomas Collins from whom details can be obtained at 921 W. Las Tunas Dr., San Gabriel, Cal.

National Electrical Manufacturers' Assn., annual meeting, **Mar. 8-11**, Edgewater Beach Hotel, Chicago.

Michigan Society of Architects, 40th annual convention, **Mar. 10-12**, Hotel Statler, Detroit.

American Institute of Planners, annual meeting, **Mar. 11-14**, Biltmore Hotel, Dayton, Ohio.

Midwest Conference of Building Officials and Inspectors, eighth annual school for building inspectors, **Apr. 12-16**, Washington University, St. Louis; annual conference and business meeting, **Sept. 20-22**, Hotel Commodore Park, Toledo, Ohio.

American Institute of Steel Construction, annual engineering conference, **Apr. 13-15**, Hotel Schroeder, Milwaukee.

Western Mountain District, American Institute of Architects, annual conference, **Apr. 22-24**, Fonda Hotel, Santa Fe, N.M.

Air Pollution Control Assn., annual meeting, **May 3-5**, Patten Hotel, Chattanooga, Tenn.

American Planning & Civic Assn., conference, **May 18-21**, Columbus, Ohio.

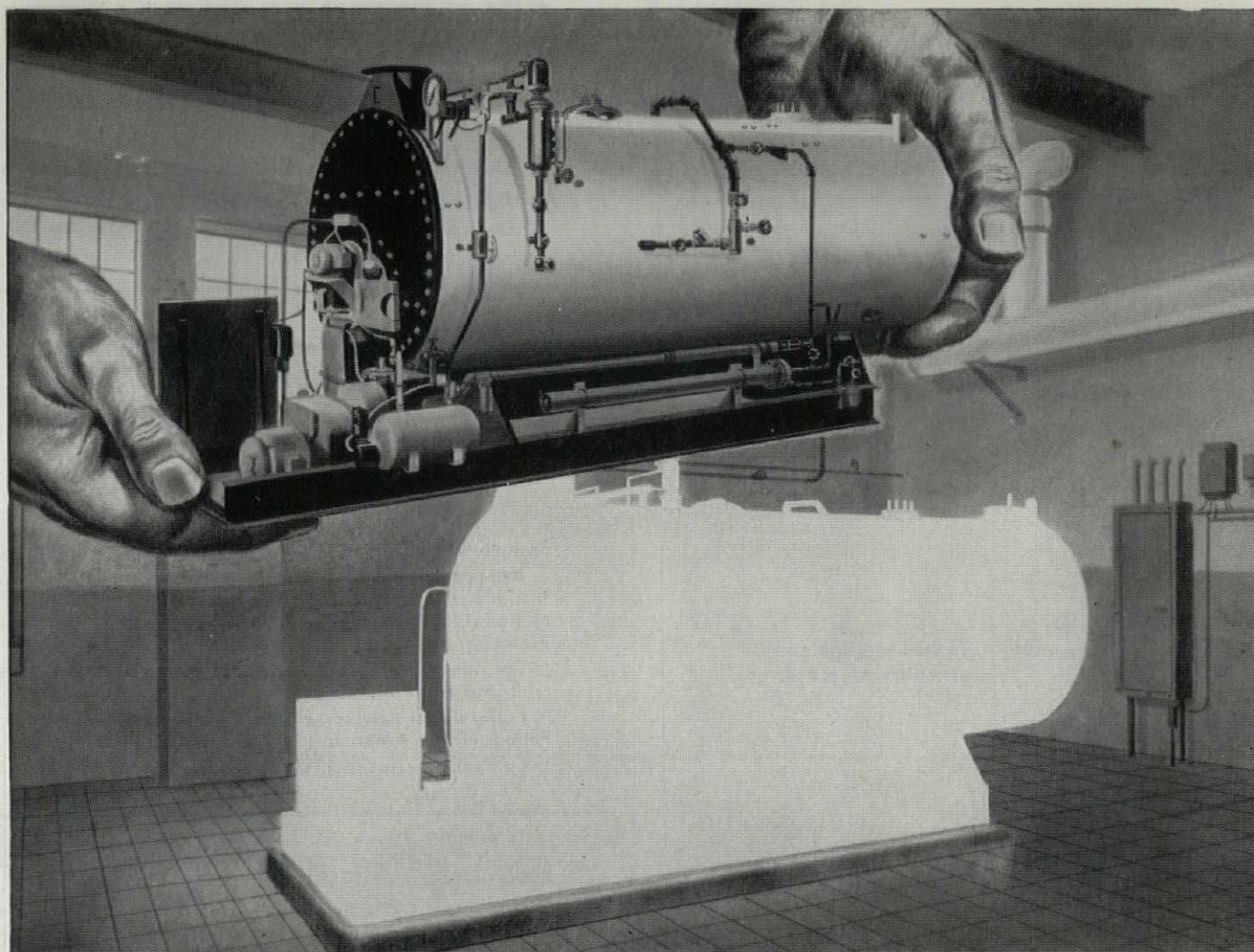
Royal Architectural Institute of Canada, 47th annual assembly, **May 11-14**, Mount Royal Hotel, Montreal.

British Architects' Conference, **May 26-28**, Torquay, England. Program can be obtained from M. C. D. Spragg, secretary, Royal Institute of British Architects, 66 Portland Pl., London, W. 1, England.

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

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

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To provide a plan which will serve as an inspira-
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First Prize \$20,000

Second Prize \$7,500

Third Prize \$2,500

Five Prizes, ea. \$500

Total Awards \$32,500

Sponsored by Carson Pirie Scott & Co., Chicago, Illinois.

Approved by the Committee on Competitions of The American
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National Executive Committee of the American Institute of
Planners.

Considered by the Chicago Plan Commission to be a major
contribution to planning in Chicago.

Professional Advisor, Howard L. Cheney, of Chicago, Illinois,
Fellow of The American Institute of Architects.

Competition closes 5 P.M. Thursday, July 15, 1954.

The objective of this competition is to produce a redevelop-
ment plan that will achieve:

(1) Increased efficiency in the functions of the Central
Commercial District as the vital focal point of trade in the
greater Chicago region.

(2) A high degree of convenience to the public in terms
of the people working here, shopping here and engaging
in regional commerce.

(3) Architectural, planning, and engineering cohesion,
and the enhancement of the cultural and aesthetic aspects
of the district.

The competition is open to architects, city planners, engi-
neers, persons engaged in allied professions, and college
students of these professions, who are residents of the con-
tinental United States.

Winning entries will be decided by a jury of awards con-
sisting of recognized architects, city planners and engineers
of established reputation, whose names will be announced
after the jury has met and selected winning solutions.

Information given here is to be considered an announce-
ment only. Mandatory requirements and detailed informa-
tion are fully covered in a program which will be ready for
mailing February 15, 1954. Your copy will be mailed
promptly upon request to:

Centennial Office
CARSON PIRIE SCOTT & CO.

1 South State Street
Chicago 3, Illinois

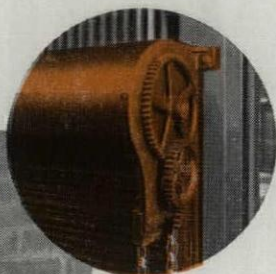
100 Years



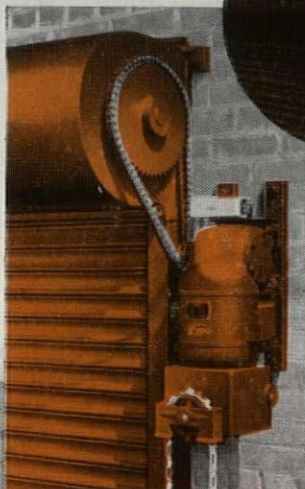
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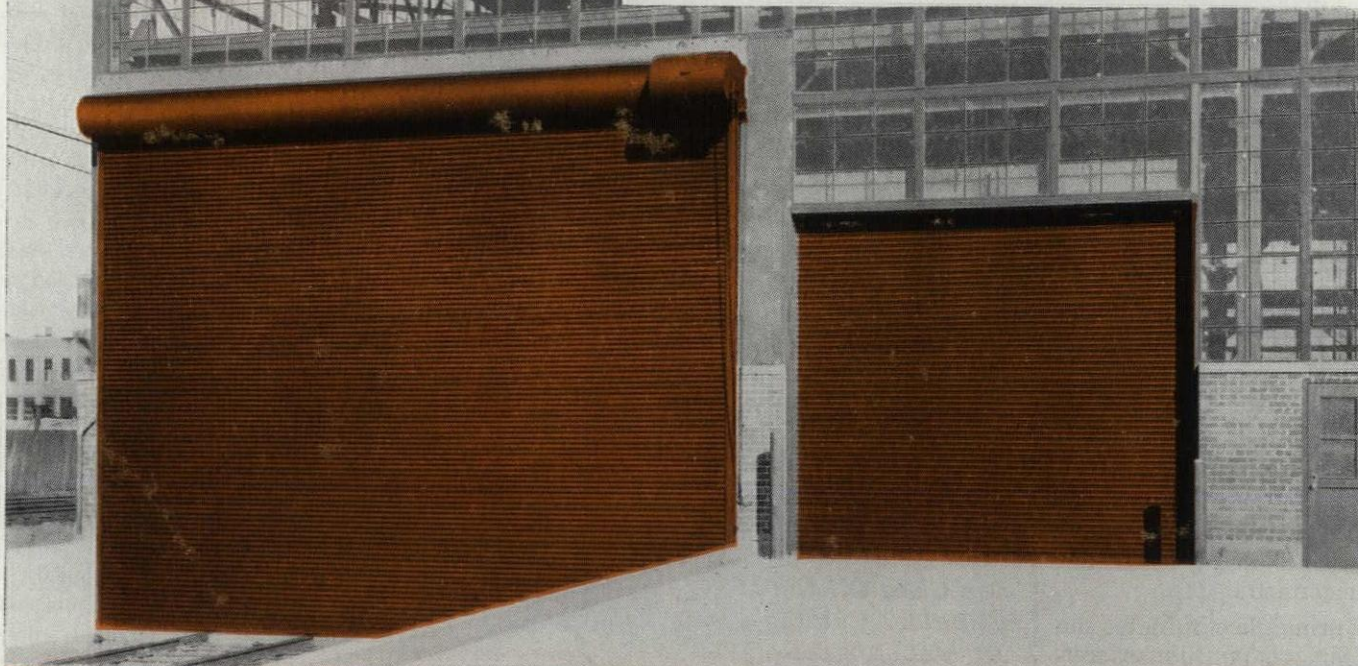
**MAHON STANDARD
POWER OPERATOR 920-P**

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An electrically operated rolling steel door meets present-day requirements more fully than any other type of door. The quick-opening, quick-closing, vertical roll-up action of a rolling steel door requires no usable space either inside or outside the door opening . . . there are no overhead tracks or other obstructions to interfere with crane operations—materials can be stacked within a few inches of the door curtain on either side. No other type of door offers these inherent advantages of space economy and compactness in operation . . . in addition, rolling steel doors are permanent—their all-metal construction assures a lifetime of trouble-free service and maximum protection against intrusion and fire. When you select a rolling steel door, check specifications carefully . . . you will find many extra-value features in Mahon doors—for instance, the galvanized steel material, from which the interlocking curtain slats are rolled, is chemically cleaned, phosphated, and treated with a chromic acid solution to provide paint bond, and, the protective coating of synthetic enamel is baked on at 350° F. prior to roll-forming. You will find other materials and design features in Mahon doors that add up to a greater over-all dollar value. See Sweet's Files for complete information including Specifications, or write for Catalog G-54.

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

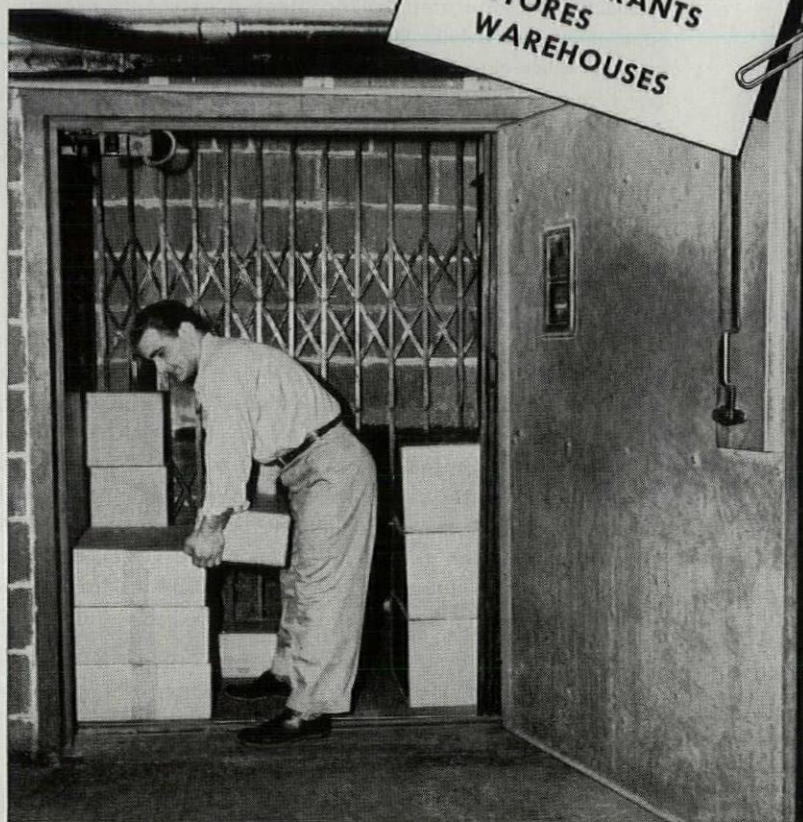


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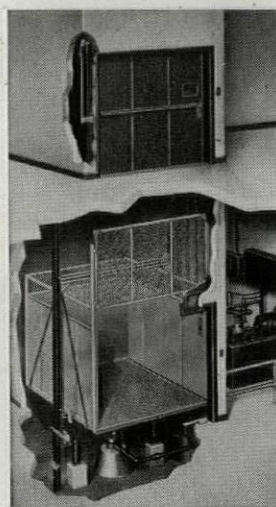


IN a busy restaurant, this Globe OiLIFT Freight Elevator makes quick work of transferring food and restaurant supplies from street level to basement—saves both time and manpower. The two-entrance car has a collapsible gate at each entrance. Globe OiLIFT Elevators cost less to install and operate. Savings in maintenance run as high as 80% as compared with that of cable types, so that in a period of years these savings will amount to more than the original cost of the Globe OiLIFT. In Globe OiLIFT Elevators, ascent is powered by an oil-operated cylinder; descent is by gravity controlled through the hydraulic mechanism.

The OiLIFT principle eliminates the need for expensive penthouse con-

struction and load-bearing shaftway walls. Here you see typical doors, hydraulic cylinder and plunger, piping, and electric motor pump units. Globe OiLIFT Elevators are assembled to meet *your* specifications. To suit *your* needs and preferences, variations can be made in car style, type of doors, control systems, speed of ascent and descent. Globe Elevators are recommended for any rising height up to approximately fifty feet in both new buildings and converted structures. *Send today for new Globe OiLIFT Elevator Catalog AF-602.*

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LETTERS

Lionel Freedman



GATEWAY CENTER

Forum:

A thousand congratulations on your criticism of the Gateway Center scheme in Pittsburgh (AF, Dec. '53).

The Pittsburgh errors are more than those of commonplace architecture. They lie deep in the conception of the use of open space, its relation to the users, its purpose, the amenities adjacent—and also in the basic question in which American designers so frequently fail (*vide*, UN), of the scale problems inherent in the relation of big buildings and open area.

The mere term "park" leads us astray. Even Le Corbusier himself has no real understanding of the fact that "buildings in a park" has little real human meaning. Actually, buildings and open spaces and surroundings are all interrelated in reality so closely that on a real study of use, of scale, of views in approach, of approaches and exits, of circulation and rest spaces, of types of tree form and foliage form in relation to building shape, effects in winter as well as in summer—only study of these factors can give a solution that is more than a mere diagram. I know a few landscape designers (and very few architects) who are prepared to make such studies or even to understand their necessity!

TALBOT HAMLIN
School of Architecture
Columbia University
New York, N.Y.

Forum:

Why this architectural turkey should have been given the respectful attention it has received is a miracle of modern press agency. Your rather mild comments and reservations are some distance from the cuffing that overrated and puffed-up scheme deserves.

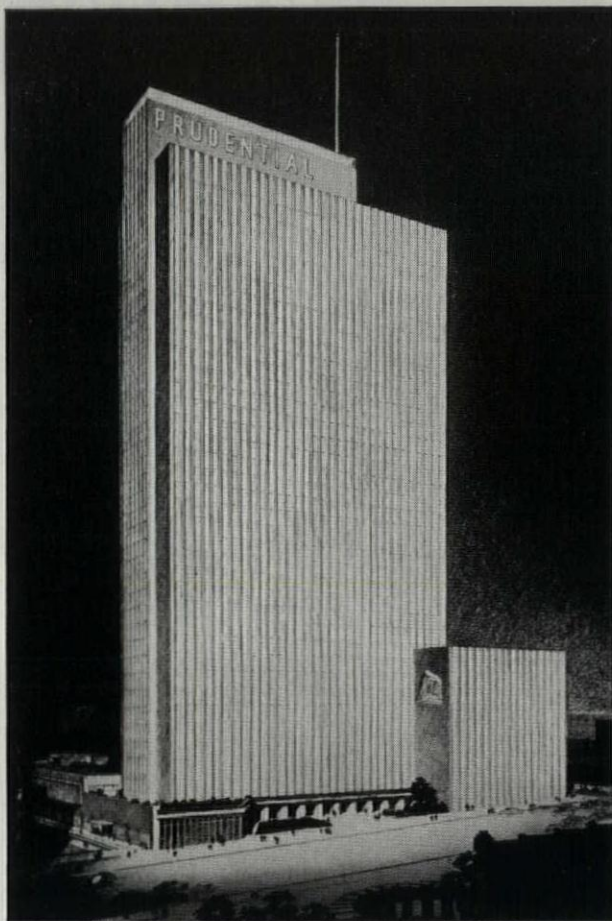
The architecture is negligible, but nothing has been claimed for it and it is neither better nor worse than other parallel commercial building—the new Madison Ave., for example. What has been claimed are the planning virtues. But a wrong location, ghastly monotonous drearily empty spaces between buildings make it look like a graveyard. This isn't planning.

continued on p. 2

Buildings that make news... (First of a series)

Mid-America Home Office, Prudential Insurance Company of America, Chicago, Illinois

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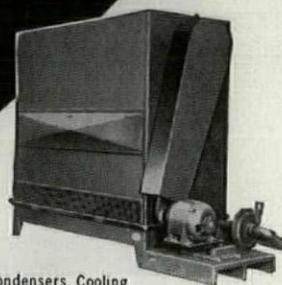
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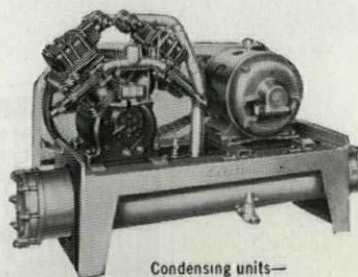
Street.....

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

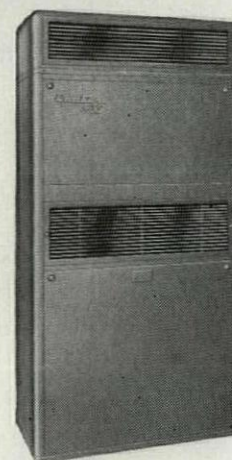
Signed.....



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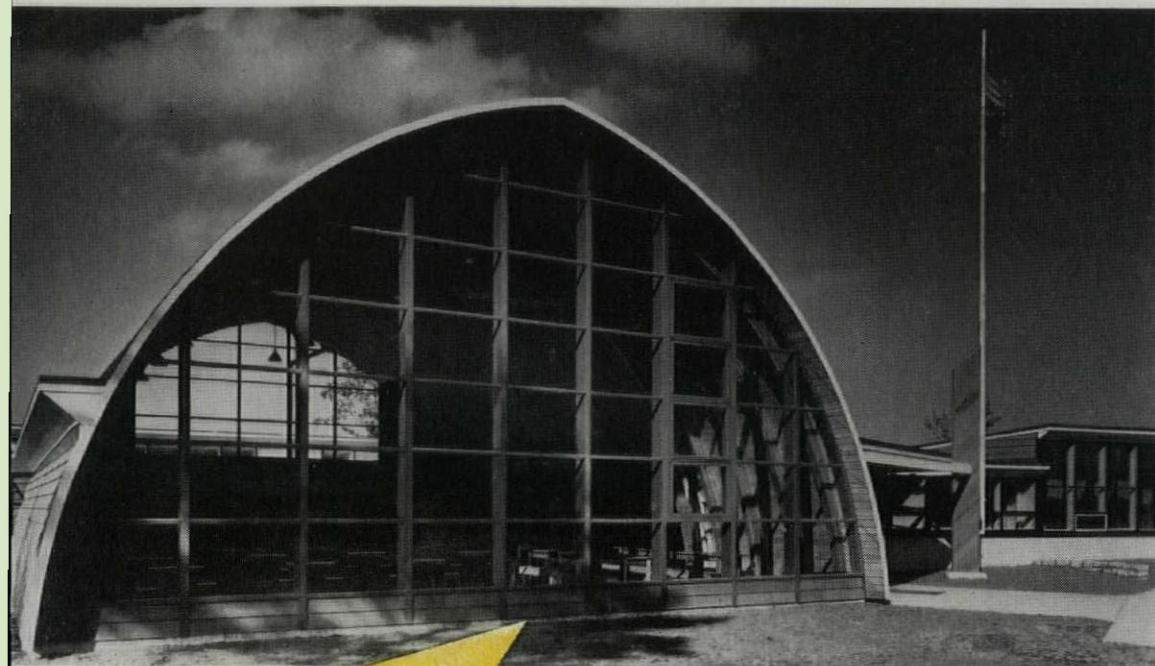
Residential cooling and heating units

New 1954 Curtis Room Air Conditioner in three popular sizes.

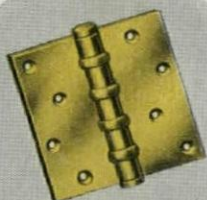
CURTIS REFRIGERATING MACHINE DIVISION
of Curtis Manufacturing Company
1914 Kienlen Ave. — St. Louis 20, Mo.

ELEMENTARY SCHOOL, BAR HARBOR, MAINE
 Architect: ALONZO J. HARRIMAN
 General Contractor: H. P. CUMMINGS
 Hardware furnished by HALL & KNIGHT HDWE. CO., LEWISTON, ME.

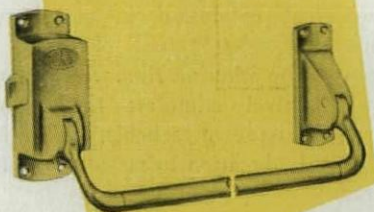
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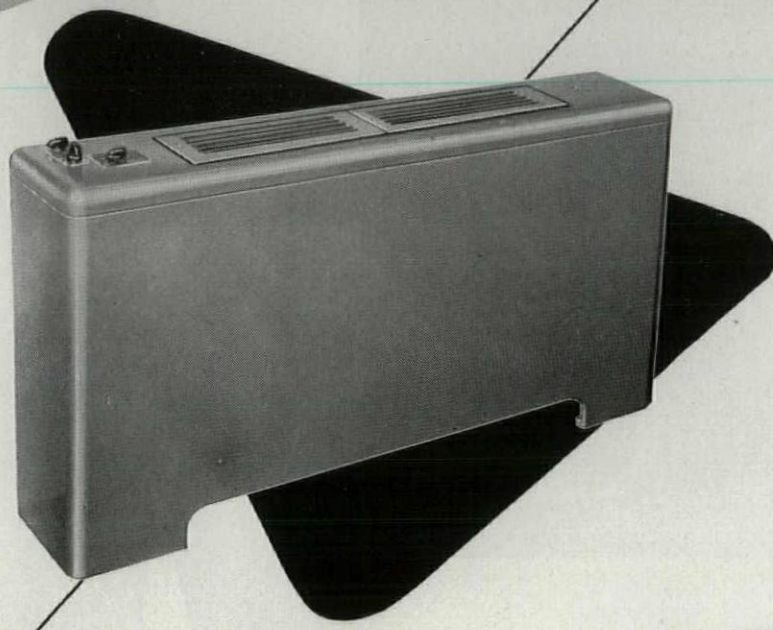
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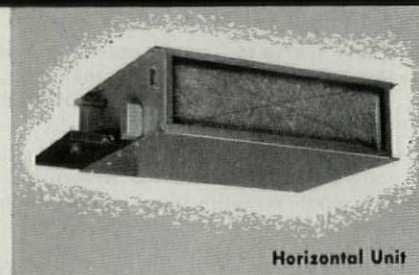


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ADVANTAGES . . .

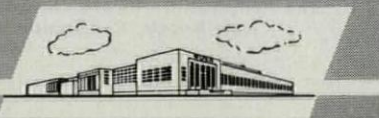
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LETTERS *continued*

What the Triangle development shows me is the folly of building big projects without the context of a city plan, and the stupidity of attempting major buildings without getting the best architects on the job in the beginning, and taking their advice. That doesn't mean rental analysts, appraisers, construction men, mortgage men and other specialists can't be on the team: it means the architect can't—in your wonderfully graphic phrase—be “painted on” at the end. This project just makes me want to holler for the flit gun.

FREDERICK GUTHEIM
*College of Architecture and Design
University of Michigan
Ann Arbor, Mich.*

Forum:

. . . Your analysis gets right to the point. There is so much that is fine about the project, it is particularly sad to find architectural understanding in such short supply.

The insurance companies now have a substantial body of directly financed work behind them. It is my impression that some was designed by architects in direct professional relationship with the client, and others by the back-room, board-of-design method, with architects reporting to the great builder-coordinator. It would be interesting to evaluate the comparative results.

ROBERT W. McLAUGHLIN, *director
School of Architecture
Princeton University
Princeton, N.J.*

SCHOOLS

Forum:

Belated congratulations on your outstanding October issue on schools. We members of the profession depend on presentations such as this to acquaint us with the most recent developments in educational concepts and their technological resolution in our time and culture.

I know of no other medium which so quickly and so effectively stimulates the architect as this special issue on schools. It has served as a liberal education to me and members of the staff.

Thank you for your great contributions to our professional betterment.

MARIO J. CIAMPI, *architect
San Francisco, Calif.*

Forum:

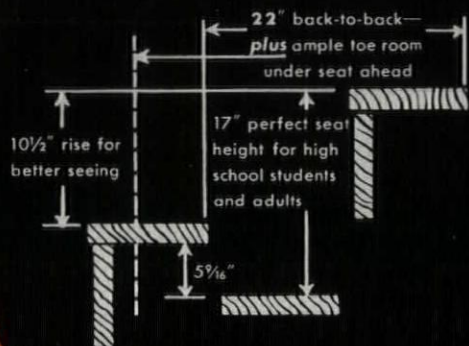
Each time we refer to the October school issue of the FORUM, we find new inspiration. We would not have believed that so much of such supreme importance to professionals and laymen alike could be assembled in one issue. Congratulations and our heartiest thanks. ERNEST SIBLEY & ERNEST SIBLEY JR., *architects
West Hartford, Conn.*

continued on p. 76

NOW... CHOOSE EITHER!

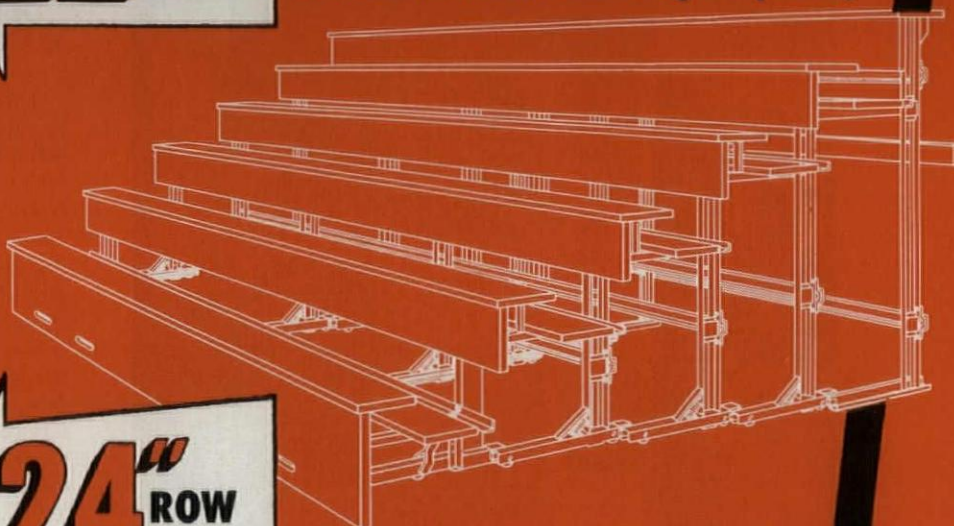
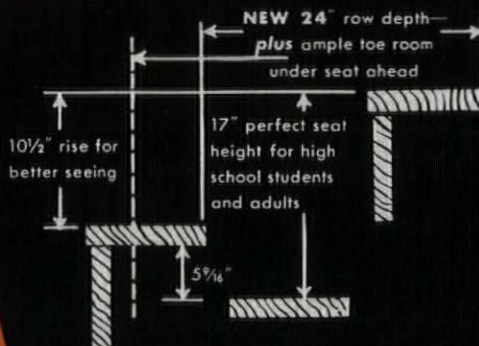
22" ROW DEPTH

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24" ROW DEPTH

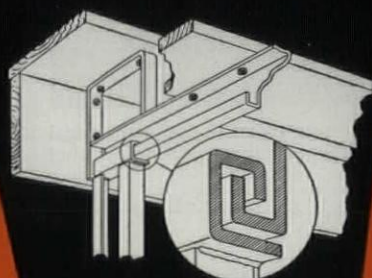
For Greatest Seating Comfort



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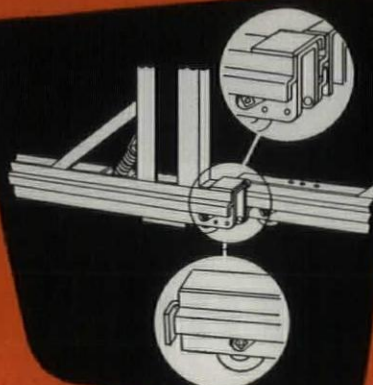
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"Floating Motion"

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cushioned roller housings are keyed together and interlocked for straight-line trackage.

Complete re-design provides these additional improvements:

- Weight reduction up to 70 pounds per row
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NEW COMFORT FOR EMPLOYEES through year-'round air conditioning is enjoyed in the Alcoa Building. Architects Harrison and Abramovitz chose a Worthington system for maximum performance. Installation by Dravo Corporation, Pittsburgh. Engineers: Jaros; Baum & Boles, New York. Assoc. Architects: Mitchell & Ritchey and Altenhof & Bown, Pittsburgh.



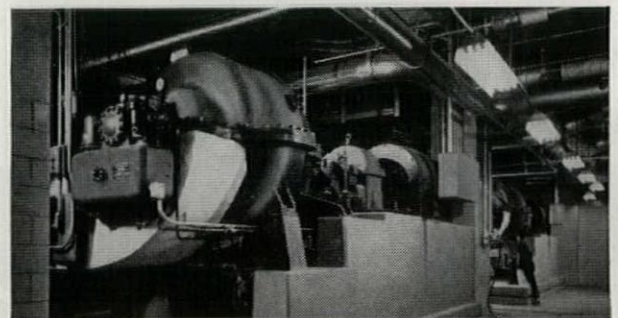
WORK-SPEEDING METHODS, such as this new way of crimping aluminum ceiling panels to water-circulating aluminum tubing resulted in fast completion.

New idea in air conditioning adds 1½ floors of rentable space to aluminum building

Displaying aluminum exterior walls and featuring aluminum throughout, Pittsburgh's new Alcoa Building sets a high point in advanced construction methods and materials. And it is fitting that the heating and cooling requirements are met by the first system of its kind in the country.

Crimped to perforated aluminum ceiling panels, a grid of aluminum tubing circulates hot or cool water for winter or summer. Chilled water in this panel cooling system meets half of the summer's air conditioning needs. For the balance of the cooling and for all dehumidification, primary air fans in three locations service local mixing units on each floor. Chilled water for both systems is supplied by two Worthington 625-ton centrifugal refrigerating units — each unit consisting of a compressor, condenser and water chiller. And because this new air conditioning system eliminates radiators and their extensive piping, the building's rentable area is increased by the equivalent of one and one-half floors.

For over half a century, Worthington air conditioning installations have been serving business and industry. Today, the complete Worthington line can meet any assignment, large or small. So when you think of air conditioning — think of Worthington. Get in touch with your nearest Worthington district office or write to Worthington Corporation, Air Conditioning and Refrigeration Division, Section A.4.32, Harrison, New Jersey.



WORTHINGTON'S DESIGN for these two 625-ton centrifugal refrigerating units called for special finned aluminum tubes for condensers and coolers.

A.4.32

WORTHINGTON



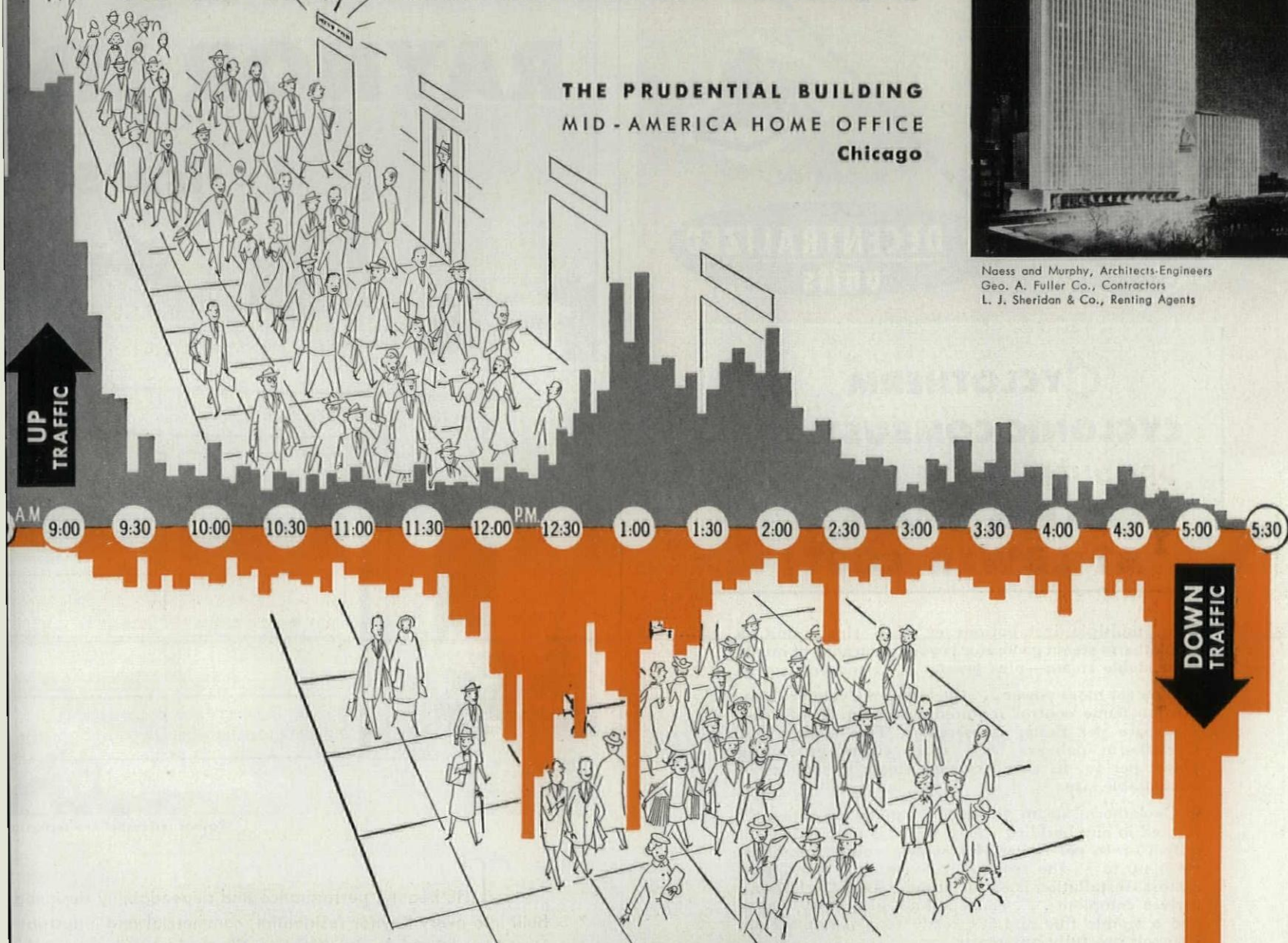
CLIMATE ENGINEERS TO INDUSTRY, BUSINESS AND THE HOME

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Prudential Building traffic is both single purpose and diversified its density will vary, depending upon the time of day, as graphed. The 41-story Prudential Building, with its one million square feet of leasable area, will be served by 27 completely automatic elevators, grouped in 4 banks, and operated at speeds up to 1,400 feet a minute. The building will occupy the lower floors for its Mid-America Home Office. The upper floors will be leased to some of the most important companies in the business world. The AUTOTRONIC Elevator was developed to secure maximum

quantity and quality of performance from a group of elevators. It varies the plan of operation to suit the changing requirements of the traffic throughout the day and night.

All operations are AUTOMATICALLY and ELECTRONICALLY controlled. This includes automatic programming of all cars at all times.

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or **DECENTRALIZED**
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Find out how Cyclotherm Cyclonic Combustion will fill your steam requirements. Write for a free illustrated folder. Dept. 22

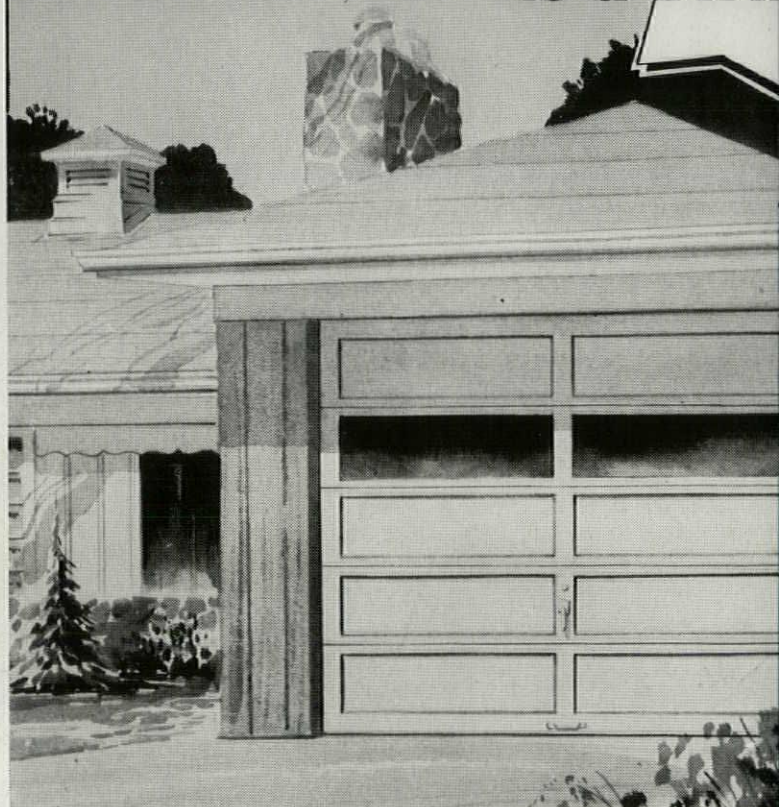


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Every Wood Sectional
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THE beauty, performance and dependability designed built into every Raynor residential, commercial and industrial is emblematic of the justifiable pride the entire Raynor Mfg. organization takes in the Raynor door line.

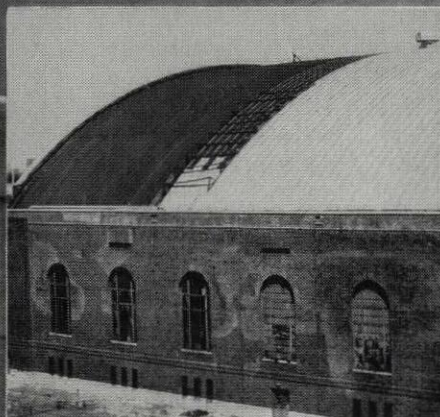
Raynor features such as Patented Graduated Seal, special way stress construction, protecto-dipped hardware and many others assure the perpetual continuation of the Raynor pledge for quality door construction.

If you have not already done so — we urge you to inspect Raynor Catalog in Sweet's File. If additional information is desired check your telephone directory for the nearest Raynor representative or write direct.

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SWEETS

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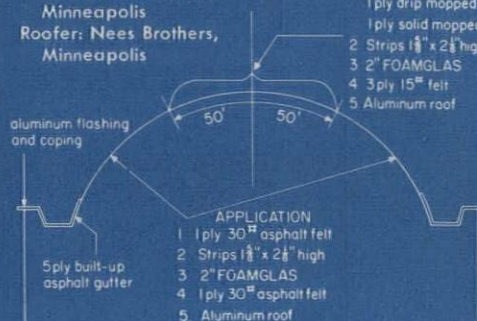
Builders of a Complete Line of Wood Sectional Overhead



General Contractor:
Knutson Constr. Co.,
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Roofers: Nees Brothers,
Minneapolis

APPLICATION

1. 2 ply 15" asphalt felt
- 1 ply drip mopped
- 1 ply solid mopped
2. Strips 1 1/2" x 2 1/4" high
3. 2" FOAMGLAS
4. 3 ply 15" felt
5. Aluminum roof



APPLICATION

1. 1 ply 30" asphalt felt
2. Strips 1 1/2" x 2 1/4" high
3. 2" FOAMGLAS
4. 1 ply 30" asphalt felt
5. Aluminum roof

18,000 Gopher fans made "rain" until field house roof was insulated with **FOAMGLAS**

Large crowds in the University of Minnesota Field House used to be crackerjack "rainmakers." How? . . . They generated so much humidity that the original insulation on the roof became water-soaked. Then there was nothing to prevent condensation from forming on a cold underside of the roof deck. "Rain" literally fell in the field house. During a basketball game, for example, play had to be stopped frequently to mop up the floor.

FOAMGLAS, the cellular glass insulation was picked to solve this problem in 1948. It hasn't rained since. The sealed glass cells of FOAMGLAS *can not* absorb moisture, assuring constantly high insulating performance despite the high humidity inside and the frequently extreme outside temperatures in the Minneapolis area. The roof curvature was no problem with easily handled blocks of FOAMGLAS, readily shaped and fitted where necessary and with

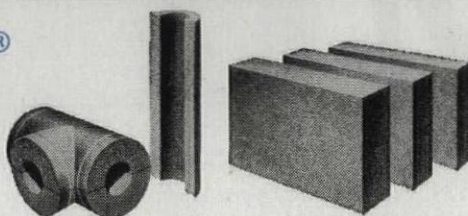
sufficient strength and rigidity to permit easy, efficient application to the roof.

Whatever *your* insulating problems may be, FOAMGLAS is the ideal answer. This strong, stay-dry insulation guarantees efficient insulating service plus unique design advantages. Let us send you our new booklets describing the use of FOAMGLAS to insulate roofs, walls, floors, ceilings, piping or equipment in normal or low temperature buildings. Write, to Dept. D-24 . . .

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the cellular, stay-dry insulation



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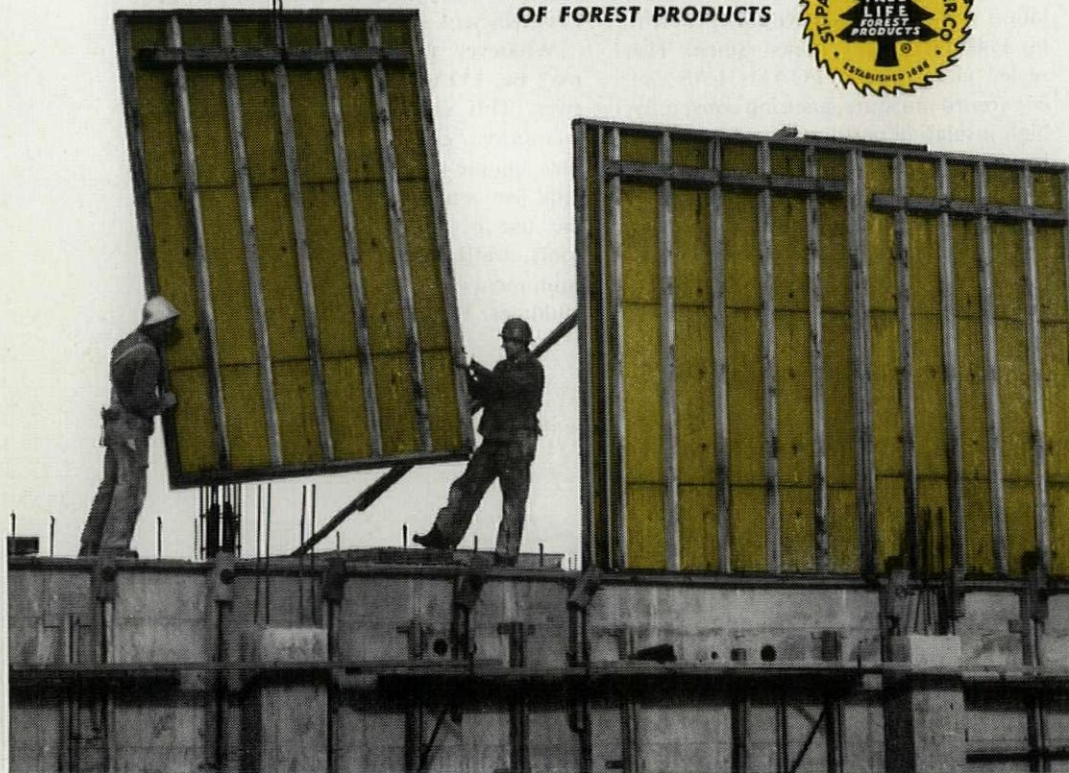
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Plyglaze comes in 4' x 8' panels; 1/2", 5/8", and 3/4" thick. For complete data, write St. Paul & Tacoma Lumber Co., Tacoma 2, Wash.

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OF FOREST PRODUCTS



LETTERS *continued*

Forum:

Heartiest congratulations to your staff for an outstanding job, the October school issue.

The Economy Forum participated in by an impressive array of talent produced many stimulating and thought-provoking ideas in school building, and I thought the buildings chosen for illustration were outstanding.

TEMPLE H. BUELL

T. H. Buell & Co., architects and engineers
Denver, Col.

SCHOOLHOUSE EFFICIENCY

Forum:

Your October issue says the Senior High School for Groton, Conn. devotes 83% of gross area to exclusive educational use. . . .

Unfortunately, the plans of this campus design do not bear out the text. I figure the total plant has an educational area of about 41,500 sq. ft. This includes all the classrooms, preparation rooms, shops and the library in the four teaching units; also the auditorium, the stage, the gymnasium, the cafeteria and four classrooms in the main building. Compared to the gross area of approximately 65,500 sq. ft., this is 63.5%, which is about average for a decent noncampus layout with double-loaded corridors, but not 83% as claimed. . . .

Undoubtedly the campus plan is a fine thing as far as its psychological and educational value for students of a certain age and a certain degree of maturity is concerned. If wisely handled, it can result in a most striking and workable solution, mainly by avoiding any monumental massiveness and by making the best and the most organic use of everything the site offers. However, the demand for the designer's talent increases with the amount of freedom allowed him by the program, and this type of a conception.

But it certainly is not a very economical solution; row houses have always been more economical to erect and to run than one-family houses. Hence, to sell the campus idea as a bargain because of left-out corridors is not rendering real service to the client.

If we consider the corridors in schools as a necessary evil only, why not leave them out of all school designs and enter the lined-up classrooms direct from the outside? . . .

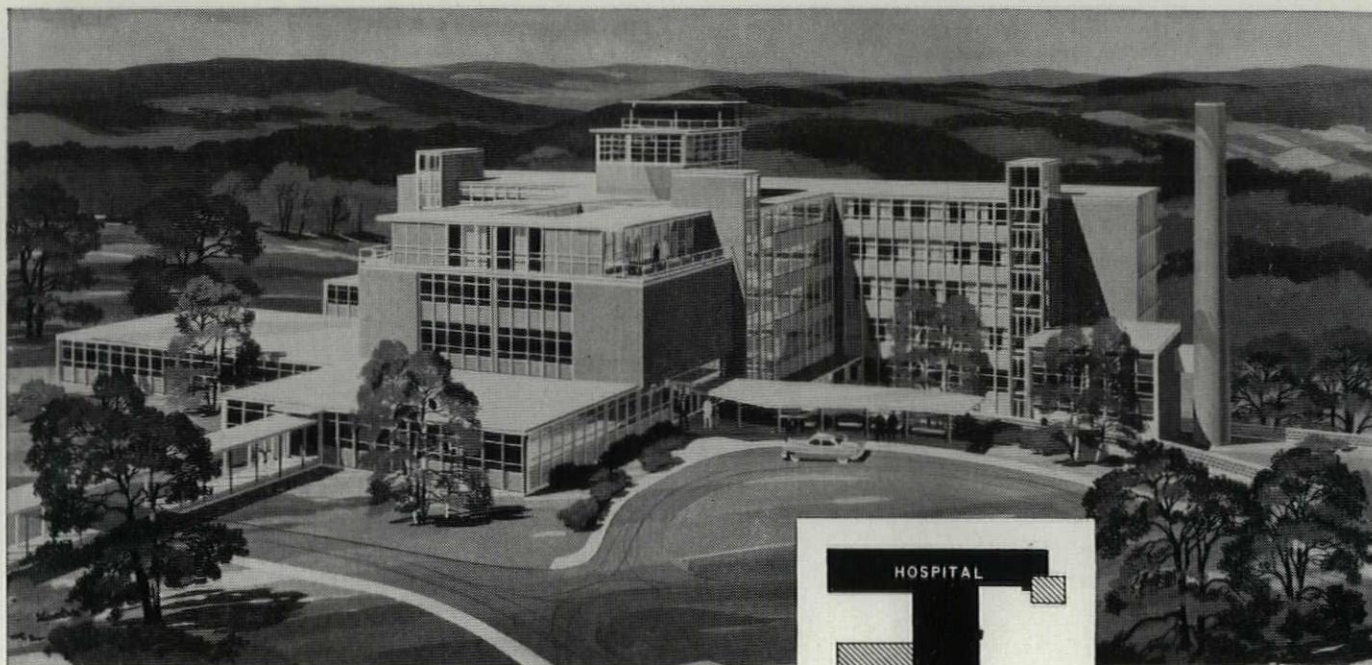
I should appreciate it very much if you would publish my letter. There is no better proof that your magazine really is a forum.

HANS-PETER KLEIN
West Avon, Conn.

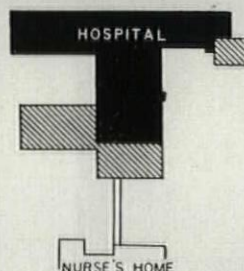
• Methods of calculating efficiency vary. Architect Ashley uses the method suggested by the State of Connecticut and, refiguring the ratio on the basis of final drawings, now comes up with 79.8 instead of 83% (see below).—Ed.

Forum:

The plant has a total area of 63,205 sq. This is figured in strict accordance with the
continued on p. 4

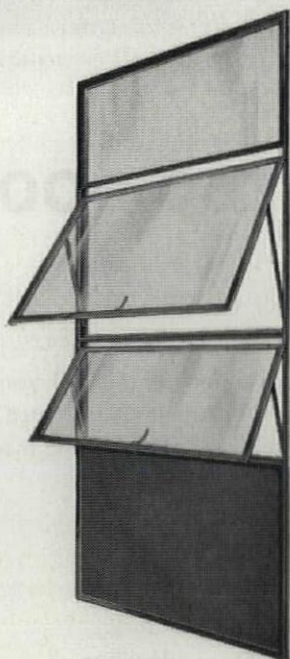


Beckley Central Hospital, Beckley, W. Va.
Memorial Hospital Association of Kentucky, Inc.
Isadore Rosenfield, architect.
J. A. Jones Construction Co., general contractor.



TRUSCON'S NEW VISION-VENT WALL

offers Mass-production Economy of Standard Steel Windows



This exciting new Truscon development opens entirely new concepts of window walls in steel and glass. Vision-Vent is a new building unit incorporating all mass-production and installation economies of standard steel windows. It is designed to cover entire wall surfaces.

Vision-Vent was developed in cooperation with architects, contractors and building owners. Initial application is a chain of ten hospitals built for the Memorial Hospital Association of Kentucky. Anticipated results of this new Truscon construction method are (1) simplicity of design, (2) weather resistance, (3) low first cost, (4) low maintenance cost.

Each Vision-Vent unit is complete—with fixed lights, awning type ventilators, and insulated steel panels. All elements may be varied to meet functional and appearance requirements. Insulated panels—in colored porcelain enamel or in stainless steel—have a "U" factor of .197, equal to that of an ordinary masonry spandrel wall. They retain interior heat. And, they provide for efficient air-conditioning. Minimum wall thickness provides extra square feet of floor space. Erection goes forward in any weather.

Vision-Vent construction is recommended for use in the design of all types of single or multi-story buildings. Truscon window engineers will be glad to study your requirements, and develop design details and costs. More details in Sweet's, or write:



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92 Liberty Street, N.Y.C.

Arnold A. Arbeit, A.I.A., Architect

marble gave this owner a \$60,000 bonus

Have you ever heard of getting \$100,000 worth of remodeling for \$40,000? Owner Aaron Levin says this was accomplished in his 21 story, 92 Liberty Street, New York, office building — *and he did it through the use of Marble** Here's what he says: "The competition of new construction was getting tough for our 50 year old building, so I decided to meet the competition on its own level. Our architect, Arnold A. Arbeit, A.I.A. used the most beautiful materials he could find, yet gave us one of the soundest investments we've ever made. Marble made the difference — and a whopping big difference it was." Here is the cost breakdown:

Literature available FREE

"Proof that marble costs less"
"Marble Forecast 1953-54"
"Marble in the Bank"

*As told in the
Magazine of Building, Nov., 1953,
Page 118

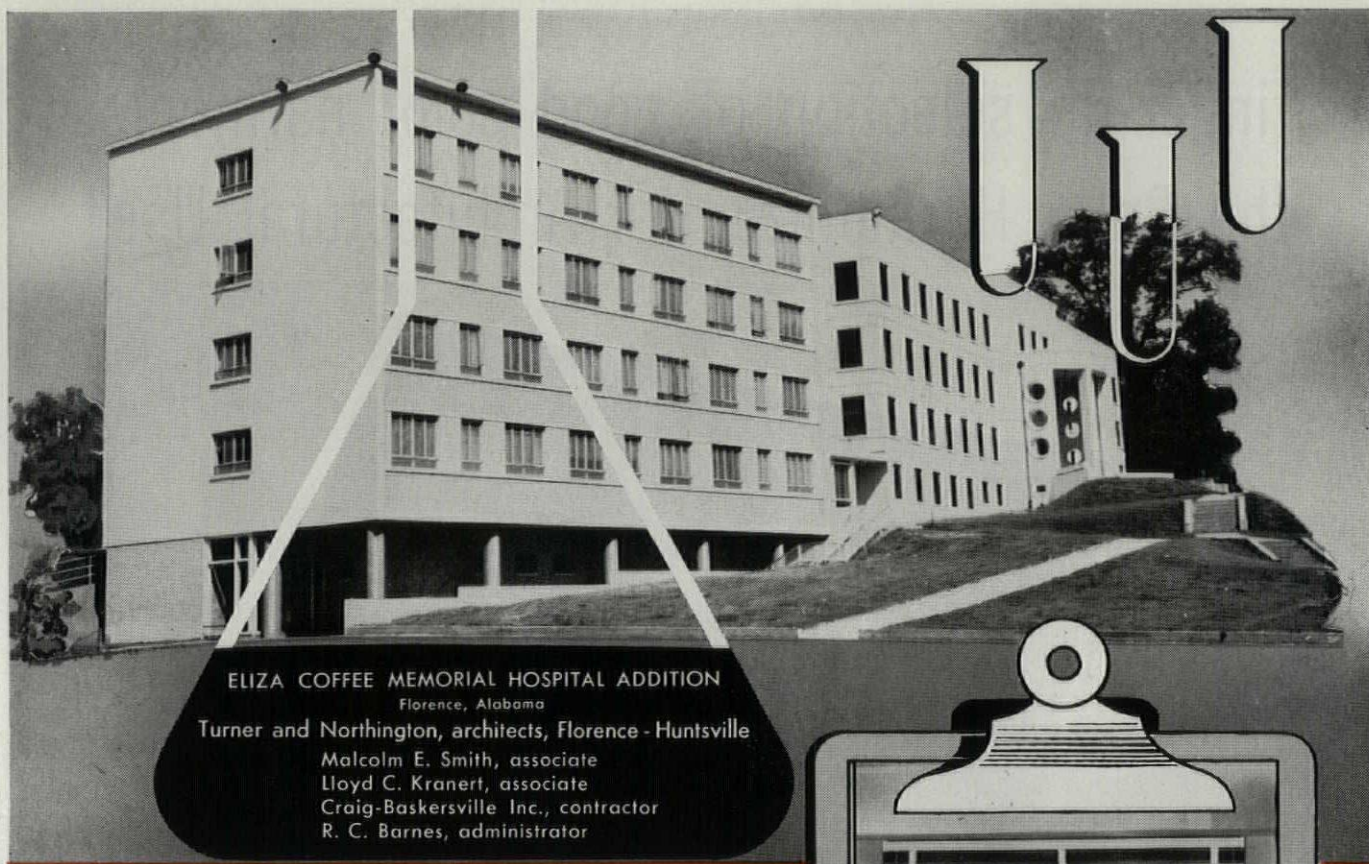
Demolition	\$ 700	Doors	\$ 1,200
Misc. metal	1,000	MARBLE	17,500
Terrazzo	1,750	Clock	50
Electric	2,100	Mailbox	75
Radiators	100	Stainless steel	4,000
Directory & misc.	4,000	Architect's fee	3,600
Lath & plaster	3,000	Total	\$40,200

MARBLE



INSTITUTE OF AMERICA, INC.

108 FORSTER AVENUE, MOUNT VERNON, NEW YORK



ELIZA COFFEE MEMORIAL HOSPITAL ADDITION

Florence, Alabama

Turner and Northington, architects, Florence - Huntsville

Malcolm E. Smith, associate

Lloyd C. Kranert, associate

Craig-Baskerville Inc., contractor

R. C. Barnes, administrator

Prescribed **for**
every hospital need . . .

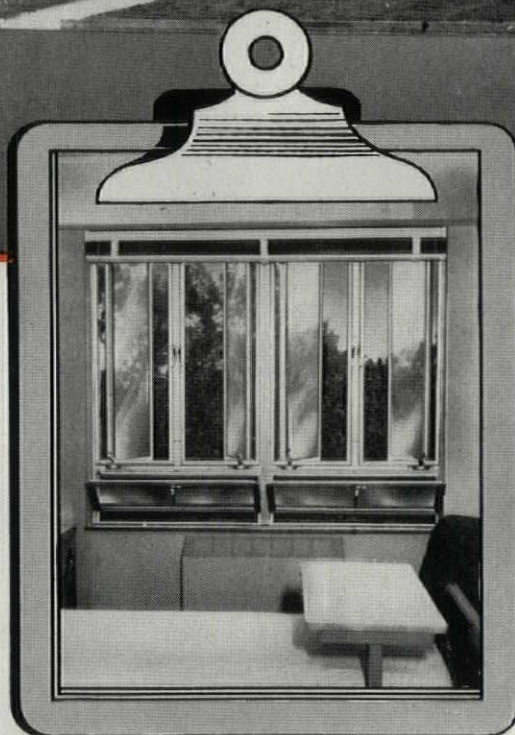


aluminum windows

Architects Turner and Northington have designed an addition to the Eliza Coffee Memorial Hospital which leaves the hospital virtually free from window upkeep expenses—forever!

These windows will never rot, rust, warp or need painting! They'll keep their beauty for the life

of the building! They're easily cleaned! Their satin-smooth surface and neutral color are a tribute to modern design. They operate perfectly! And—the Ualco Aluminum Hopper Vent Window exactly meets the hospital's need for both 100% and controlled ventilation!

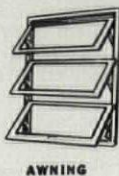


SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE ^{18A} UN OR WRITE US FOR COMPLETE INFORMATION

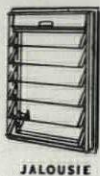
UNION ALUMINUM COMPANY, INC. • SOUTHERN SASH SALES & SUPPLY CO.
SHEFFIELD, ALABAMA



DOUBLE HUNG



AWNING



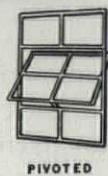
JALOUSIE



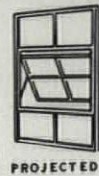
CASEMENT



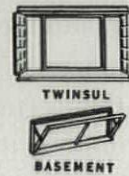
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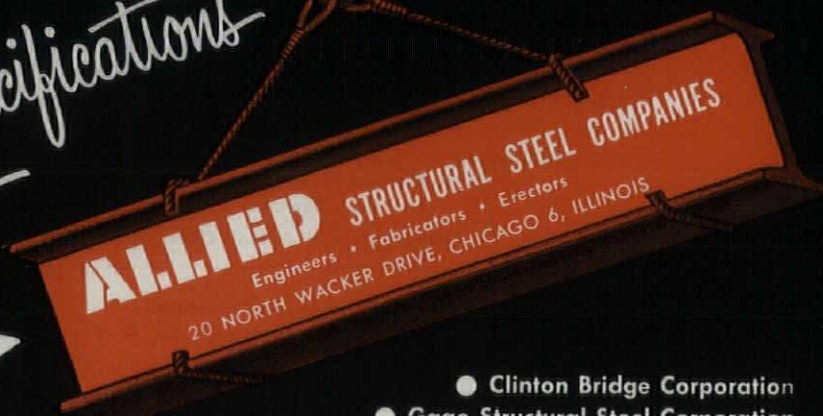
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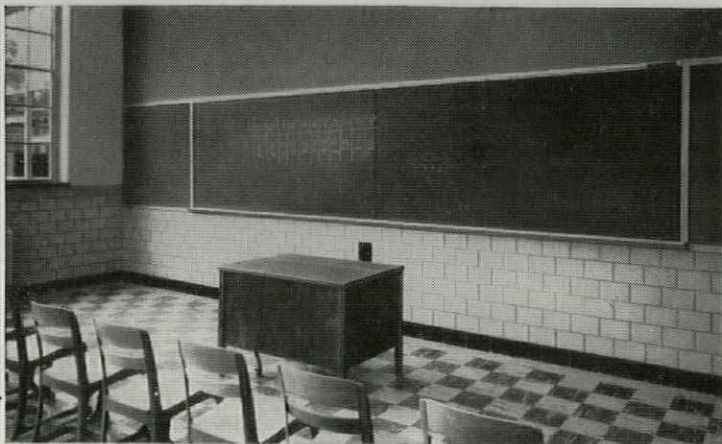
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FABRICATED
STRUCTURAL STEEL

...Send your Plans and Specifications
to us to be Estimated—



- Clinton Bridge Corporation
- Gage Structural Steel Corporation
- Midland Structural Steel Corporation

12 Reasons why Architects specify ARMORPLY® CHALKBOARD



BERGEN COUNTY VOCATIONAL SCHOOL—ARCHITECT: LAWRENCE C. LICHT, ENGLEWOOD, N. J.

The days of the old "blackboard" are numbered. And here are plenty of good reasons why the attractive green porcelain-on-steel *Armorply Chalkboard* is taking its place in schools, offices, hospitals, and terminal buildings . . . for visual aid work, personnel training, production control, scheduling, and so forth.

1. Takes chalk beautifully.
2. Never needs resurfacing—the color of *Armorply Chalkboard* is constant throughout, from face to base.
3. Resists abrasion, scratching, chipping, cracking or denting.
4. Cannot shatter or break under impact, stress, temperature changes or concussion.
5. Will not warp or buckle.
6. Can be permanently installed or used as a portable unit.
7. Is easily and quickly erased.
8. Can be silk-screened with diagrams, maps, etc.
9. Scientifically selected green color—perfect reflectance factor.
10. The porcelain*-on-steel surface attracts magnets—outstanding for visual aid instruction.
11. Never needs repair or replacement.
12. Guaranteed for the life of the building in which it is installed.

SPECIFICATIONS

The porcelain-enamelled steel face of an *Armorply Chalkboard* panel is a three-coated special composition of ceramic porcelain, fired on 18 ga. enamelling steel at high heat, under special control. It is bonded to exterior grade *Weldwood* fir plywood with .015 aluminum backing sheet.

SIZES: Standard Stock Size Panels:
Widths 36", 42", 48"
Lengths 72", 84", 96", 108", 120"
Non-Stock Standard Sizes:
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Lengths 36", 48", 60"

* Porcelain faces manufactured by The Bettinger Corp.

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LETTERS *continued*

formula required by the Connecticut Department of Education, which follows:

"The sum of the areas within the building perimeter computed at all occupied floor areas with the following stipulations: 1) attics, pipe tunnels and crawl spaces not to be included; 2) the following spaces to be computed at one-half actual area: boiler room, janitor's workroom, basement storerooms, fan rooms, porches covered but not completely enclosed."

The total square feet of area devoted to the educational program amounts to 50,444 and includes the following areas:

Classroom area unit No. 1.....	5,824	" "
Classroom area unit No. 2.....	5,696	" "
Classroom area unit No. 3.....	5,824	" "
Classroom area unit No. 4.....	6,272	" "
Classroom No. 7 and art room.....	1,702	" "
Music, auditorium, cafeteria and kitchen.....	12,203	" "
Locker rooms and gymnasium.....	10,603	" "
Administration.....	2,320	" "
Total educational program.....	50,444	" "

Therefore, the total area in the educational program is 79.8% of the total plant area. These calculations are based on the final drawings sent out to bid.

In a good conventional plan the above educational program area would represent about 70% of the gross area which would bring the total area of a conventional building to 72,064 sq. ft., or 8,859 sq. ft. more than our plans have. During our preliminary designing we made many studies of conventional plans and found that the above differential in area appeared in all solutions.

It is my opinion that a plan which will provide the same amount of educational area with a 12.3% saving in gross area is a very economical school. I believe that the savings in cost will amount to 15% to 18% or more because there are savings in building repetitive units and because a group of small units will attract a wider range of bidders.

WARREN H. ASHLEY, *architect*
West Hartford, Conn.

DESIGN STANDARDS

Forum:

FORUM's new "Design Standards and Data" department will be of considerable value up to the point where the sheets become too numerous to thumb through. We assume by that time some provision will have been made for indexing the sheets.

We would also like to comment on the "Classroom Daylighting" standards in your October issue. We have tried and proved (on four elementary schools) the use of the entire classroom ceiling area as the light source. The result is similar to two of the unilateral lighting schemes in your standards.

W. O. BURWELL

John Graham & Co., *architects and engineers*
Seattle, Wash.

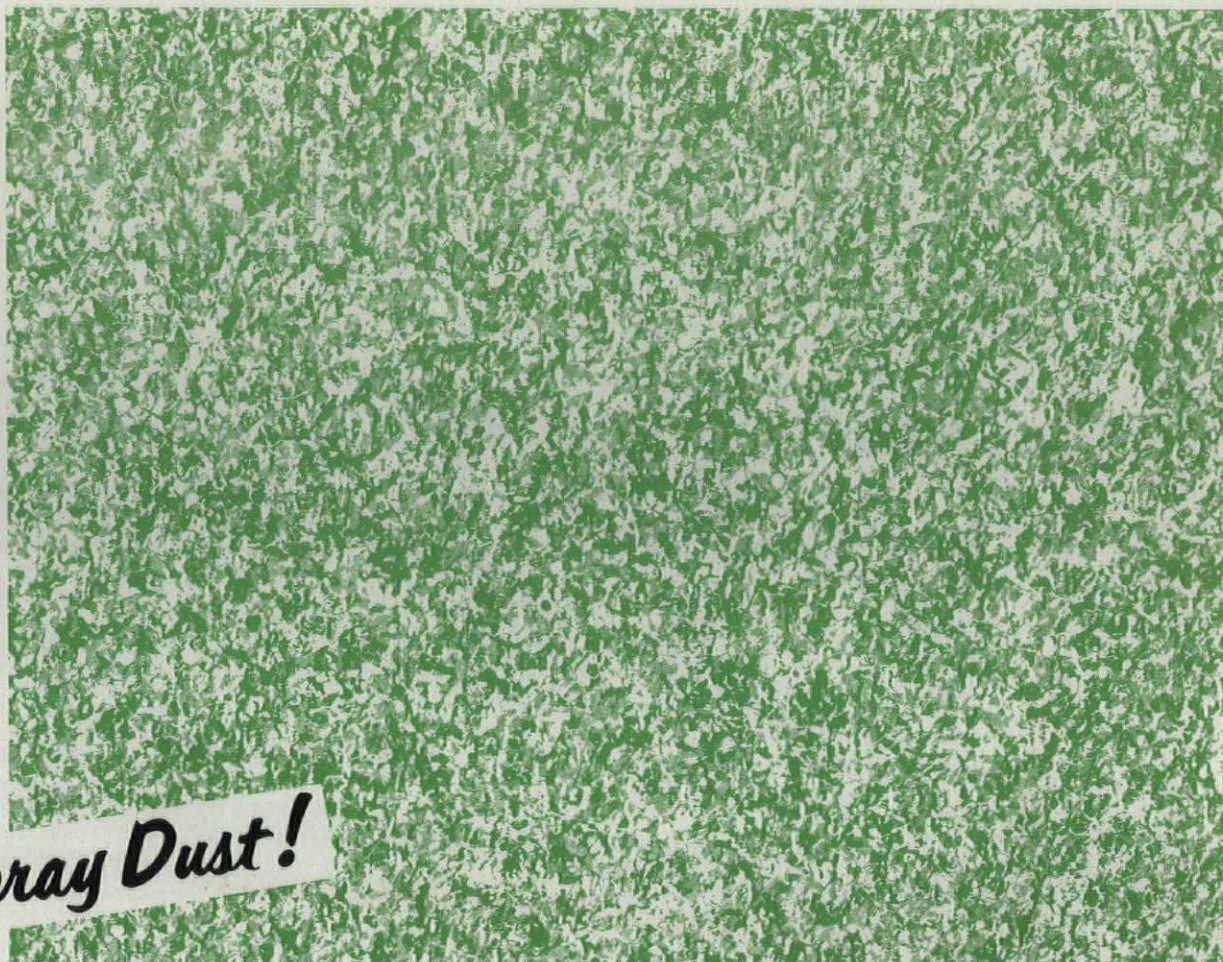
continued on p. 8

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ONE COAT**

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PLEXTONE
SINCE 1876 Mfd. under U. S. Pat. # 2591904
TEXTURED ENAMEL

**Sprayed at
ONE TIME
from
ONE GUN**

Without Spray Dust!



You Get BOTH Beauty AND Toughness. This is what ONE easy-to-apply spray coat of PLEXTONE gives you:

- 1** The dramatic multicolor effect of the most skillful spatter-dash painting . . . in subtle tones-on-tone or a circus of brilliant colors
- 2** The restrained beauty and distinctive charm of high-grade wallpaper

- 3** A surface so rugged that it can be washed, scoured and even sandpapered without harming it
- 4** A *textured* painted surface with the hiding power of the best stippling

All this in ONE COAT—from ONE GUN applied with ordinary spray equipment and ordinary techniques—that covers uniformly and completely **WITHOUT SPRAY DUST!**

Color-flecked PLEXTONE saves preparation costs
PLEXTONE has excellent hiding power—bonds firmly and uniformly to all common building materials. ONE COAT covers *uniformly* and *completely* minor imperfections in primed taped wallboard joints, trim, plaster, and other interior finish . . . gives a *uniform*, quality paint job on non-uniform wall, ceiling and trim surfaces.

Color-flecked PLEXTONE saves extensive do-overs, speeds up work
PLEXTONE can be touched up without showing. Painters can now go ahead with their job in new construction before other craftsmen are finished. Soil marks left by

workmen are easily washed off. Minor damage can be covered with a quick touch-up that cannot be detected!

Color-flecked PLEXTONE cuts production costs
The speed with which PLEXTONE can be applied and still produce a quality job will leave the average painter speechless. Its excellent hiding power and adhesion result in complete coverage with uniform sheen and color. PLEXTONE dries fast—within two hours. It's easy to work with . . . painters can start on a half-finished wall without the lap showing.

Where Color-flecked PLEXTONE Can Be Used
Color-flecked PLEXTONE can be used for

any interior work. It bonds uniformly and firmly to all common building materials.

Colors Available
Twenty-four color-flecked color combinations are available for modern or traditional interiors. Also available in fifteen solid colors and in custom colors for large projects.

Where and How Available
Distributors in leading cities stock PLEXTONE in 5-gallon kits. Ask your distributor about PLEXTONE.

GET ALL THE FACTS about color-flecked PLEXTONE
Free application data and color chips will be sent to you upon request, or contact your local distributor.

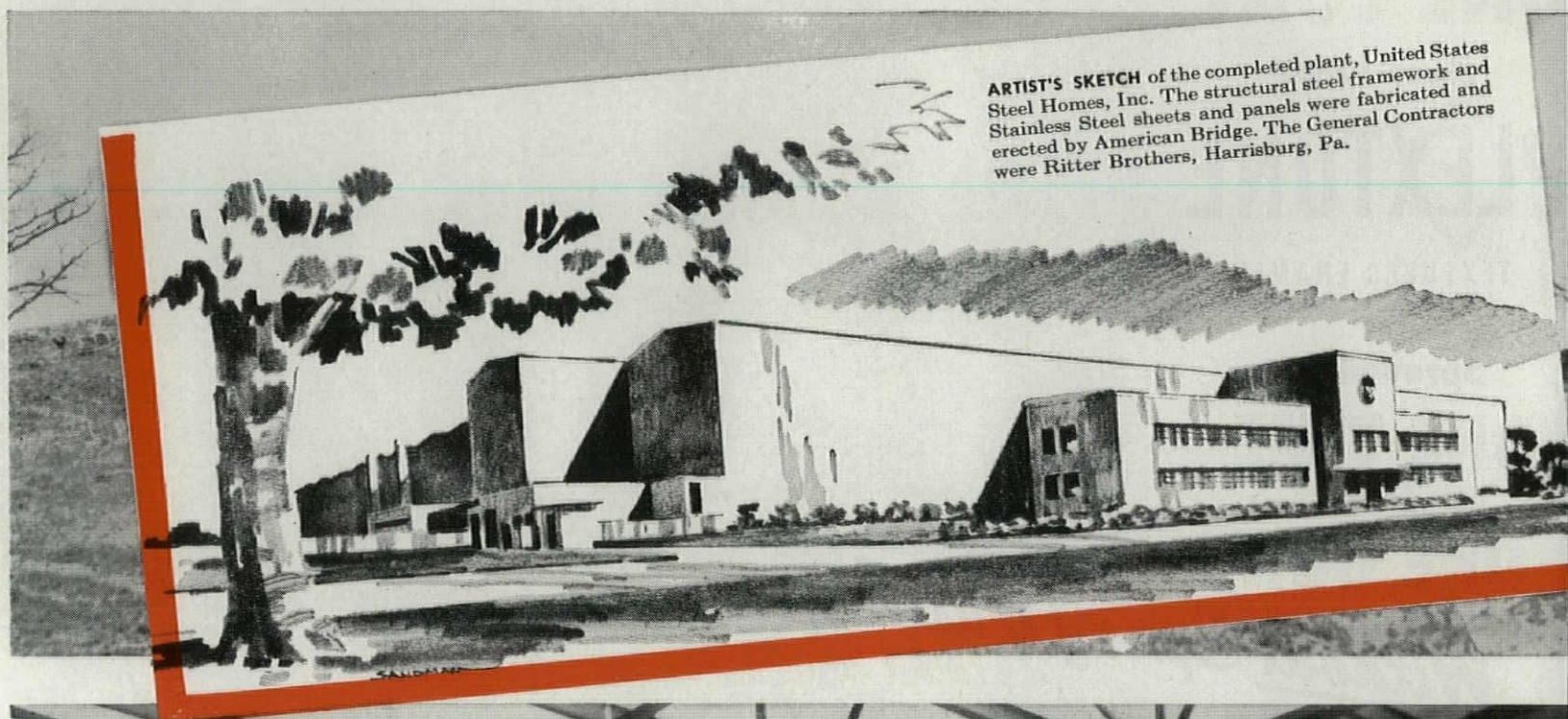
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Design for lasting economy—



ARTIST'S SKETCH of the completed plant, United States Steel Homes, Inc. The structural steel framework and Stainless Steel sheets and panels were fabricated and erected by American Bridge. The General Contractors were Ritter Brothers, Harrisburg, Pa.



A SECTION OF the 1900-ton U-S-S Structural framework showing the wide spacing of the columns. The framework, consisting primarily of columns and trusses, now supports 55 tons of 26-g corrugated Stainless Steel sheets.

with lasting strength!



U·S·S Structural Steel

THE UNITED STATES STEEL HOMES plant during construction. The vast, "L"-shaped building covers a floor area of 310,000 square feet, the longest side being 780 feet. The walls vary from 34 to 36 feet in height.

THE structural steel framework of the new plant of United States Steel Homes, Incorporated—formerly Gunnison Homes, Inc.—near Harrisburg, Pennsylvania, is an excellent example of planned economy in permanent construction.

To provide as much unobstructed floor space as possible for the installation of plant machinery, the steel supporting columns were placed at unusually wide intervals—75 feet in one direction, 65 feet in the other. The application of U·S·S Structural Steel—the most economical of load-carrying materials—in such a cost-cutting method of construction, heaped economy upon economy, yet produced in the end an extremely strong, durable building.

And for good reason. Structural steel is tough. It will withstand more abuse than other structural

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

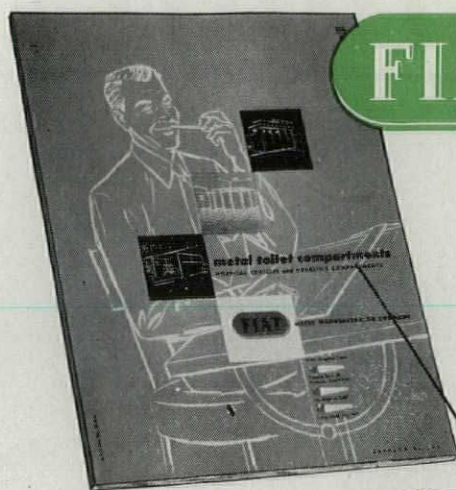
For complete information on construction with steel, write today to the United States Steel Corporation, 525 William Penn Place, Room 2820-A, Pittsburgh 30, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
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U·S·S STRUCTURAL STEEL



UNITED STATES STEEL



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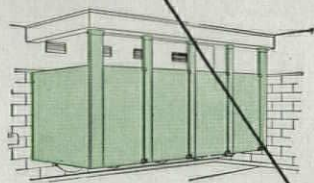
**toilet
compartments**

Satisfy your requirements!

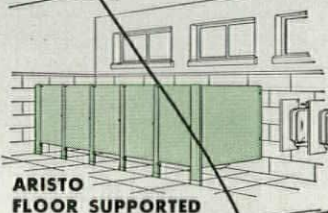
Please building owners and maintenance superintendents with FIAT quality compartments, and their beautiful, durable, easy-to-clean finishes.

Now, FIAT offers you a complete line, with adaptability to any type of installation. All FIAT compartments are made of the finest stretcher-leveled furniture steel, either cold rolled or bonderized-galvanized . . . finished with a baked-on prime coat and two coats of baked-on enamel. Available in white, choice of eight colors, or any two-color combination.

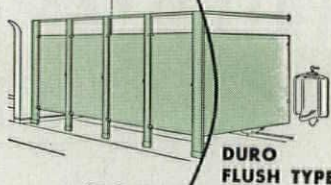
Check FIAT construction for the latest improvements. For greater strength, pilasters in the ARISTO line have solid wood cores. Other FIAT exclusive features are theft proof screws and concealed type fastenings. All chrome-plated hardware has been newly designed to complement the streamlined beauty of these compartments.



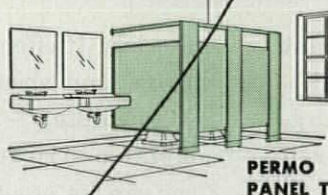
**ARISTO
CEILING HUNG**



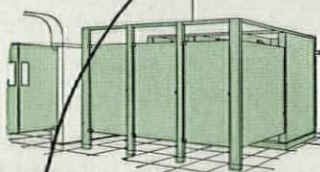
**ARISTO
FLOOR SUPPORTED**



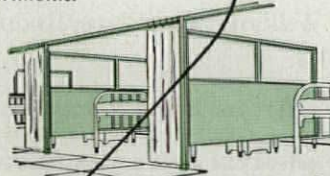
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FLUSH TYPE**



**PERMO
PANEL TYPE**



**DRESSING COMPARTMENTS
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LETTERS *continued*

MODERN CHURCHES

Forum:

The article on churches (AF, Dec. '53) is tremendously interesting and unusually "meaty." What I particularly like is that so large a proportion of the buildings have a highly religious spirit. Some seem cold to me but others have feeling to a superlative degree. All are certainly interesting. . . .

EDWIN A. KEEBLE, *architect*
Nashville, Tenn.

Forum:

. . . One of the most interesting collection of contemporary church work I have seen.

The work in these buildings indicates the possibilities of using modern materials and gaining results which are dignified and appropriate. In comparison with the fake Gothic and gingerbread versions of Medieval and Renaissance architecture which are still perpetrated, the simple contemporary designs are most refreshing. This sort of work should certainly be encouraged and I am glad to see that the field of contemporary church design is considered one of the important phases of architecture today.

J. SANFORD SHANLEY, *architect*
New York, N.Y.

A TEXT FOR ARCHITECTURE

Forum:

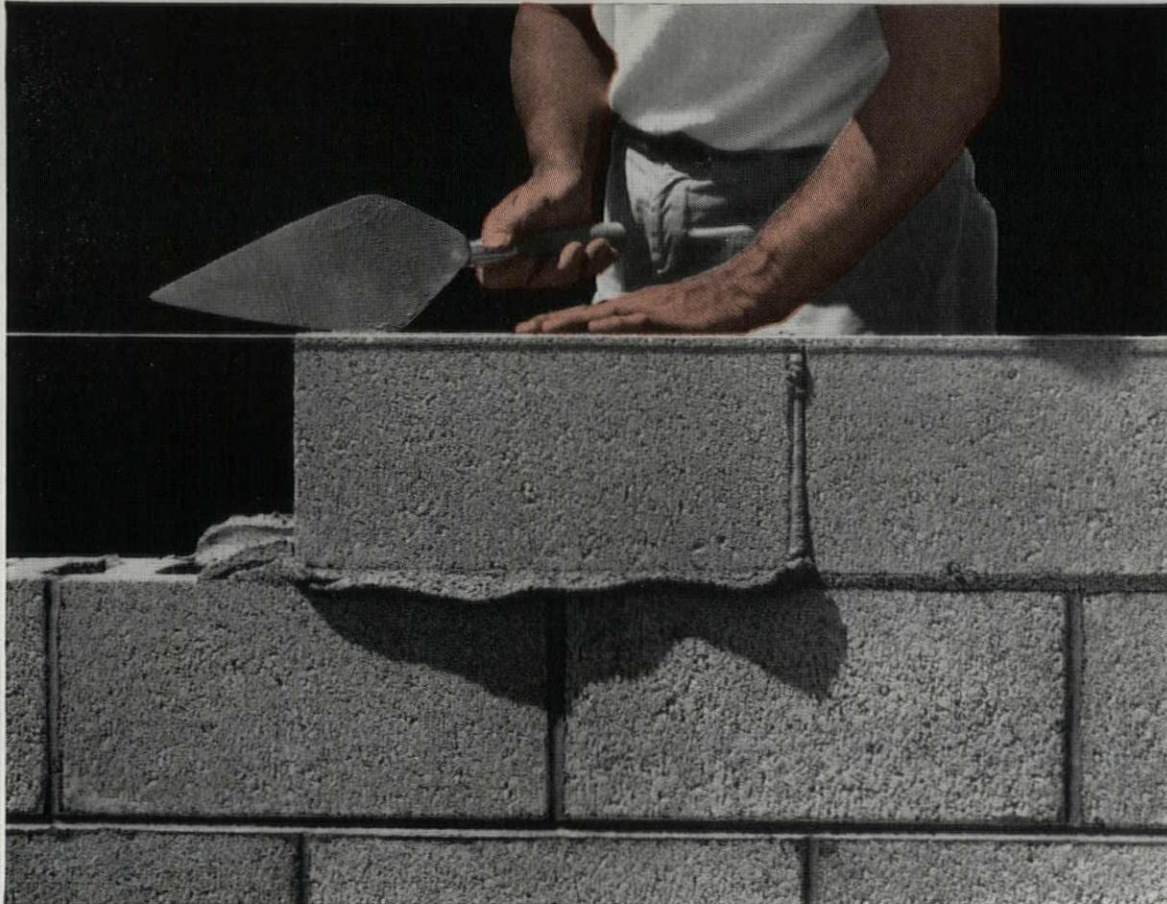
The texts for architectural history and philosophy of architecture are unbelievably overaged and inadequate; and this includes all the very recent offerings "from Rameses to Rockefeller." Like an incurable drunkard who jumps on and off the wagon, one forswears Bannister-Fletcher and after a negative experience with any of the next texts, goes avidly back to it. On the philosophical side only Mumford's *Origins of Modern Architecture* is useful, and there the necessary limitation to American texts is a handicap. So we force expensive books about special periods and masters on our libraries and students, and the results are still unsatisfactory. The reason why I, for one, have never dared to undertake the writing of an adequate, purely architectural survey is the plain fact that the only way to make such a backbreaking task pay is the conquest of the textbook market. And there are too many schools that feel next to no concern about the lack of a good text.

May I suggest that the courageous Boston University Junior College (AF, Dec. '53, p. 41) make one more step and write to the schools of architecture in the US, asking for specific grievances and suggestions concerning the textbook question. A summary of this information would give an indication which approach is most wanted.

SIBYL MOHOLY-NAGY
Department of Architecture
Pratt Institute, Brooklyn, N.Y.
continued on p. 9

BRIXMENT

Better Mortar for Blocks

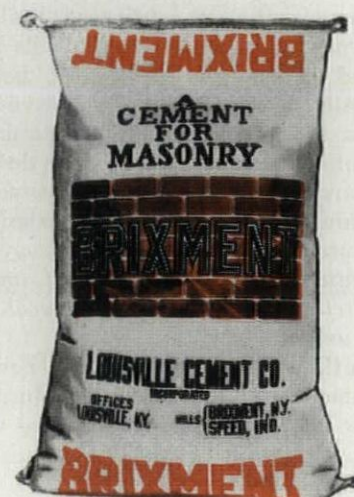


BETTER BODY

When concrete block are laid, the mortar should have "body", to support the weight of the unit, thus holding it up to the line. If the mortar lacks body, the block will settle below the line even if a thick bed of mortar has been spread.

At the same time, plasticity is required. Unless the mortar is plastic, the bricklayer cannot quickly and accurately tap the block down to the line.

Brixment has body and plasticity. It is firm but not stiff — soft but not sloppy. This combination of body and plasticity makes Brixment the best possible mortar to use with concrete blocks.



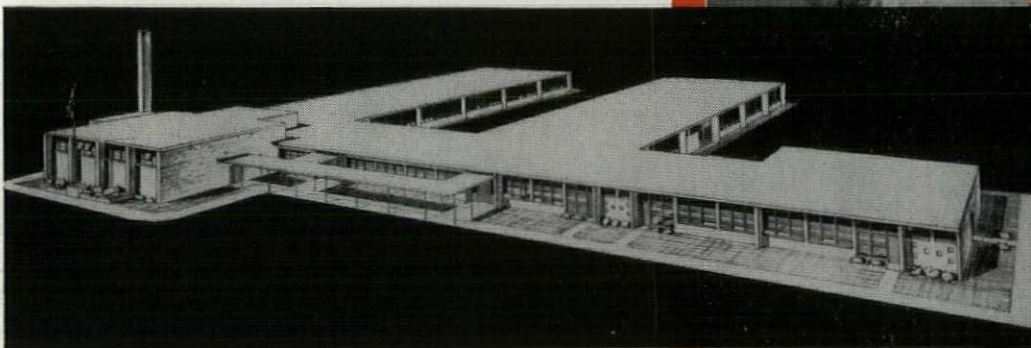


Junior Beams

**fit modern design and building budget
of Bascom Elementary School**

*Today's new school must be functional,
permanent, safe and economical to build.*

To realize these features in the Bascom Elementary School, Leavittsburg, Ohio, Architect Arthur F. Sidells specified J&L Junior Beams for purlins throughout the entire roof area. These 12 in. Junior Beams—11.8 lbs. per ft., 29 ft. long—proved a good choice to keep material and handling costs to a minimum.



The Campbell Construction Company of Warren, Ohio was the general contractor and J. A. McMahon, Inc., of Niles, Ohio was the steel fabricator. On the job, both found Junior Beams easy to handle and quickly adaptable to the ultra-modern design of the building. The raising, positioning and fastening of these light-weight structurals required only 3 men and a portable gin pole.

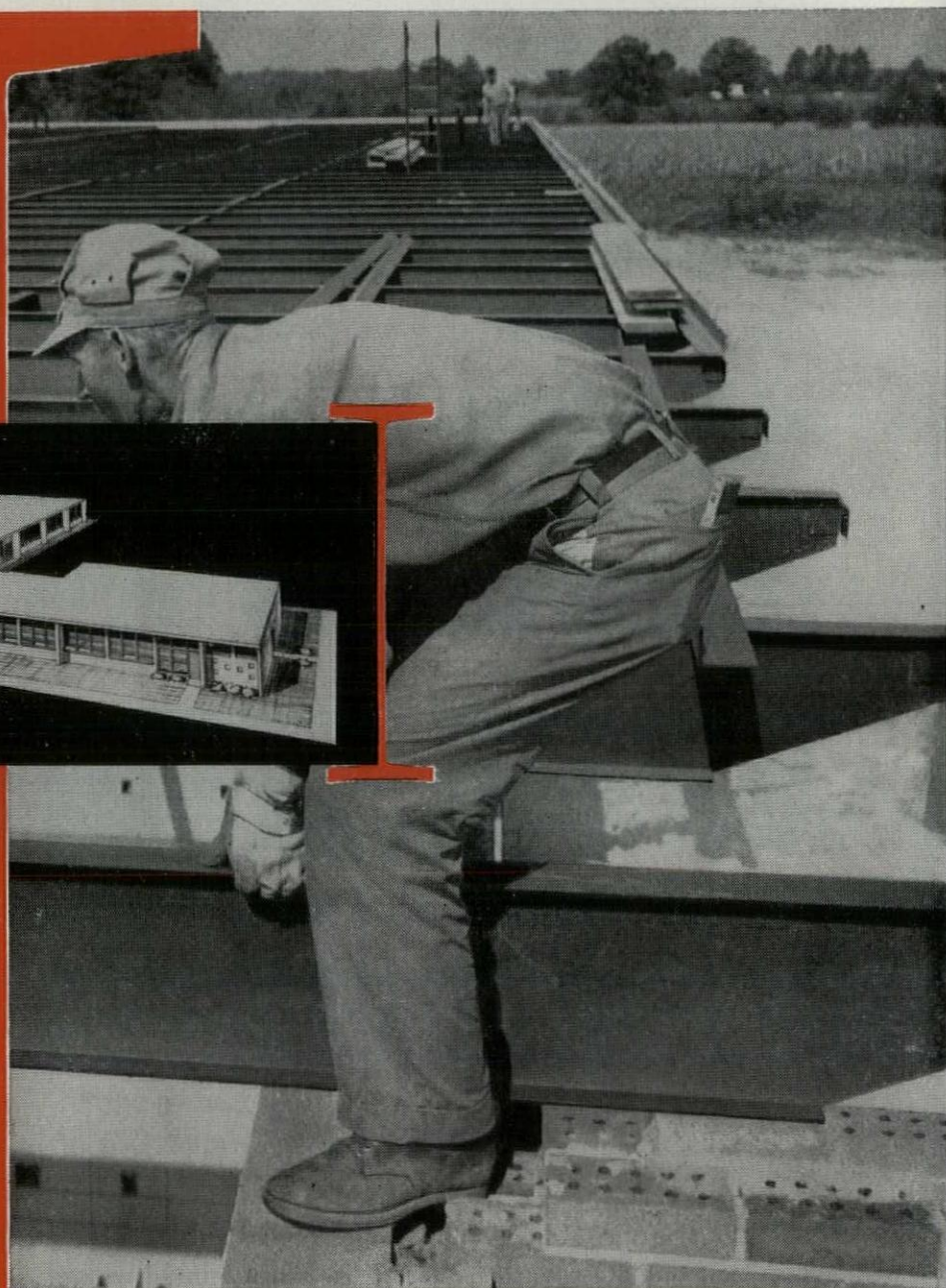
At the eaves, the pre-fabricated Junior Beams were fastened atop the masonry walls and lintel beams and cantilevered four feet beyond the outside walls to support an attractive overhang as well as the main roof. Thus Junior Beams solved a difficult problem in modern design.

There are many other ways versatile J&L Junior Beams can help solve your design problems and facilitate construction. They're *easy to install, rigid, vibration resistant, shrink proof, and have the lowest deflection factor of any structural section of equivalent weight.*

Find out! Write today for our new booklet "J&L Junior Beams." It shows how Junior Beams are used as floor joists and roof purlins with loading and spacing tables for various spans.



Jones & Laughlin
STEEL CORPORATION — Pittsburgh



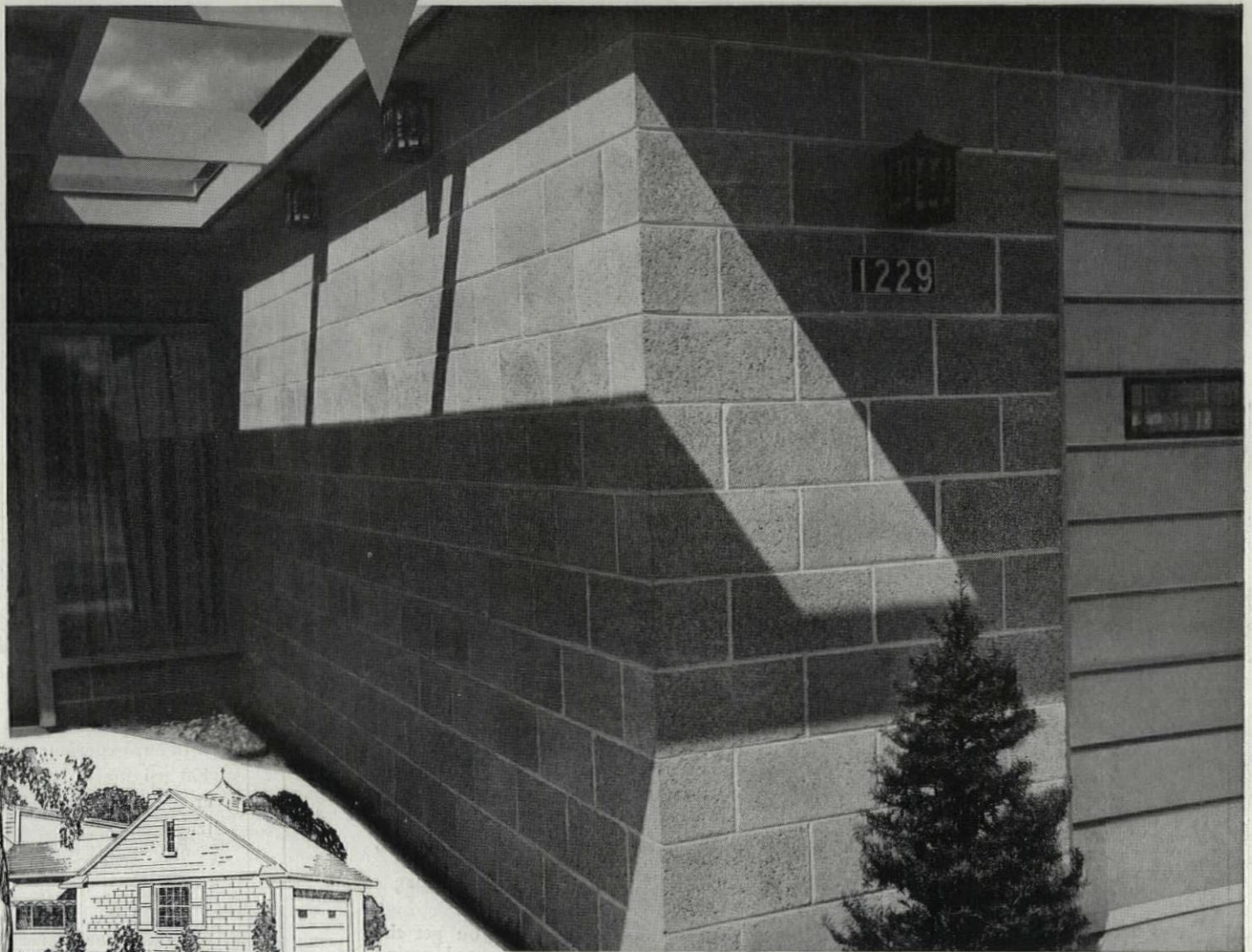
Jones & Laughlin Steel Corporation
Dept. 491, 3 Gateway Center, Pittsburgh 30, Pa.
Please send me a copy of the booklet entitled "J&L Junior Beams."

Name _____

Company _____

Address _____

Build Better with **VIBRAPAC** Block



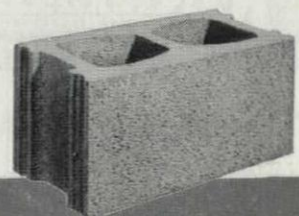
**You Get Both *Beauty* and *Permanence*
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Compare the beauty of Vibrapac Block with any other type of building block, regardless of cost. You can tell at a glance, it is something substantial and enduring, as well as eye-appealing. Available in a variety of attractive and distinctive designs, Vibrapac Block challenges the skill and imagination of the designer.

Then consider such other plus values as *firesafety*, *stormsafety*, *insulation against heat and cold*, *acoustical and soundproofing qualities*, *vermin-proofness* and *low-upkeep*. Yes, Vibrapac Block gives you both beauty and permanence at an amazingly low cost.

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Vibrapac Block are produced on Besser Automatic High-Production Block Machines. Ask your nearby Vibrapac-equipped Products Plant for literature describing the many styles and sizes available. Or write directly to the Besser Manufacturing Company, Box 179, Alpena, Michigan.



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Extra "Doorability" of Heavily Galvanized Sections*

Will not sag, warp, rot or split
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Opens completely out of the way

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In Kinnear Steel Rōl-TOP Doors, you get the efficiency of smooth ball-bearing upward action . . . *plus* all-steel strength and durability . . . *plus* provision for glass panels in one or more door sections, as desired.

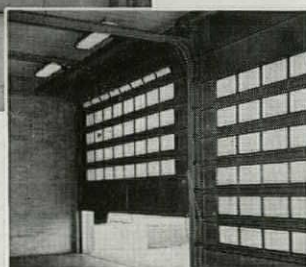
*To assure extra service life with minimum maintenance, the rugged steel sections are given a heavy coating of pure zinc (1.75 oz. per square foot of flat metal per ASTM standard) by the hot process. Then Kinnear's Paint Bond (a special phosphate immersion process) is added, to make sure paint will adhere *immediately and thoroughly* to the protective zinc coating.

In every detail, Kinnear Steel Rōl-TOP Doors feature extra strength and ruggedness, for long, heavy-duty, low-cost performance. Sizes to fit any opening. Manual, chain, or motor operation. WRITE FOR FULL DETAILS.

Kinnear Steel Rōl-TOP Doors are designed and built by the same door specialists who *originated* the door with the interlocking steel-slat curtain—famous for more than half a century as the Kinnear Steel Rolling Door.

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LETTERS *continued*

IDEAS AND MATERIALS

Forum:

Like any other progressive hotel group, we are constantly building and remodeling, so we are repeatedly referring to FORUM for ideas and materials to be used in this work.

Several architects we use would tell you that it is not unusual to receive from a client an advertisement torn from your magazine suggesting that they will find the product usable on a specific job—and they generally do.

EDWIN A. BOSS, *president*
Boss Hotels
Des Moines, Iowa

LIGHTWEIGHT CONCRETE

Sirs:

We are so used to hearing good comments about the accuracy and thoroughness of FORUM articles that we were surprised to get several critical letters from our member companies, challenging the validity of the physical properties attributed to vermiculite concrete in your well-illustrated article on p. 16 of the September issue. The article states that "Concrete panels are precast with a 1-to-6 mix of cement and vermiculite aggregate (giving 28-day compressive strength of 450 psi, a density of 26 pcf and a 'k' factor of 0.76)."

We assume that the "26 pcf" should have been "26 pcf," since the weight of the entire wall was calculated at only 14 pcf.

In our experience, a compressive strength of 450 psi for a 1-to-6 mix of vermiculite concrete is unheard of and sounds too good to be true.

R. S. FUNK, *promotion director*
Perlite Institute
New York, N. Y.

• Neither FORUM nor the architect on the job (see below) can explain where the erroneous 450 psi came from. It was meant to be 250.—Ed.

Forum:

The 450-psi figure is definitely an error. The 1-6 vermiculite mix will produce a minimum of 125-psi compressive strength as listed in the standard concrete specification issued by one of the vermiculite manufacturers. However, field tests and past experience have shown that 250 to 300 psi are not uncommon for the 1-6 mix with good mixing and plant casting control. The 250-psi figure is one which the fabricator of the panels, Precast Concrete Products Co., St. Louis, furnished us as the strength of the panels in question.

ELMER H. OECHSLE, *office engineer*
Marcel Boulicault, *architects and engineer*
St. Louis, Mo.

KUDOS

Forum:

. . . We always look forward to receiving the FORUM. It is of great practical value in the endless search for new ideas.

J. H. W. BRADFELD, *architect*
Toronto, Ontario

Wolmanized^{*} L U M B E R is your assurance

... Because only Wolmanized clean pressure-treated lumber gives you all four of these important advantages:

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Basic *Wolman salts are produced under a single exacting standard of control. And the pressure-treatment process by which Wolmanized lumber is made is the same throughout all 14 sources operating 24 pressure-treatment plants. Wherever you buy Wolmanized lumber, you can be certain of uniform undeviating standards of treatment.

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No matter what use you may have for treated lumber, Wolmanized lumber will serve your purposes ... and serve them better. Deadly to rot and termites, Wolmanized lumber is clean, odorless, completely paintable, harmless to clothing and skin, and noncorrosive to metal fittings.

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It is easy to specify Wolmanized lumber by name. And delivery is assured, since Wolmanized lumber is produced coast-to-coast and in Canada by 24 recognized and dependable wood-preserving plants. You are assured, too, by the fact that 47% of all clean pressure-treated lumber is Wolmanized lumber ... nearly as much as the total output of all other sources combined. You are assured of a nationally recognized and accepted product with Wolmanized lumber.

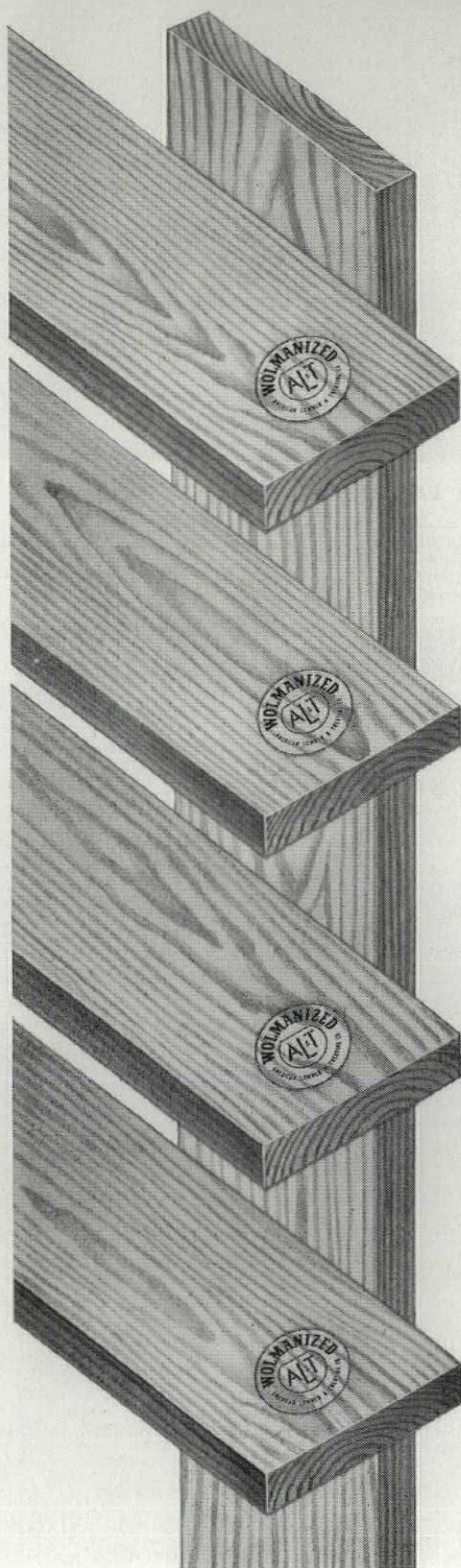
4 proved dependability

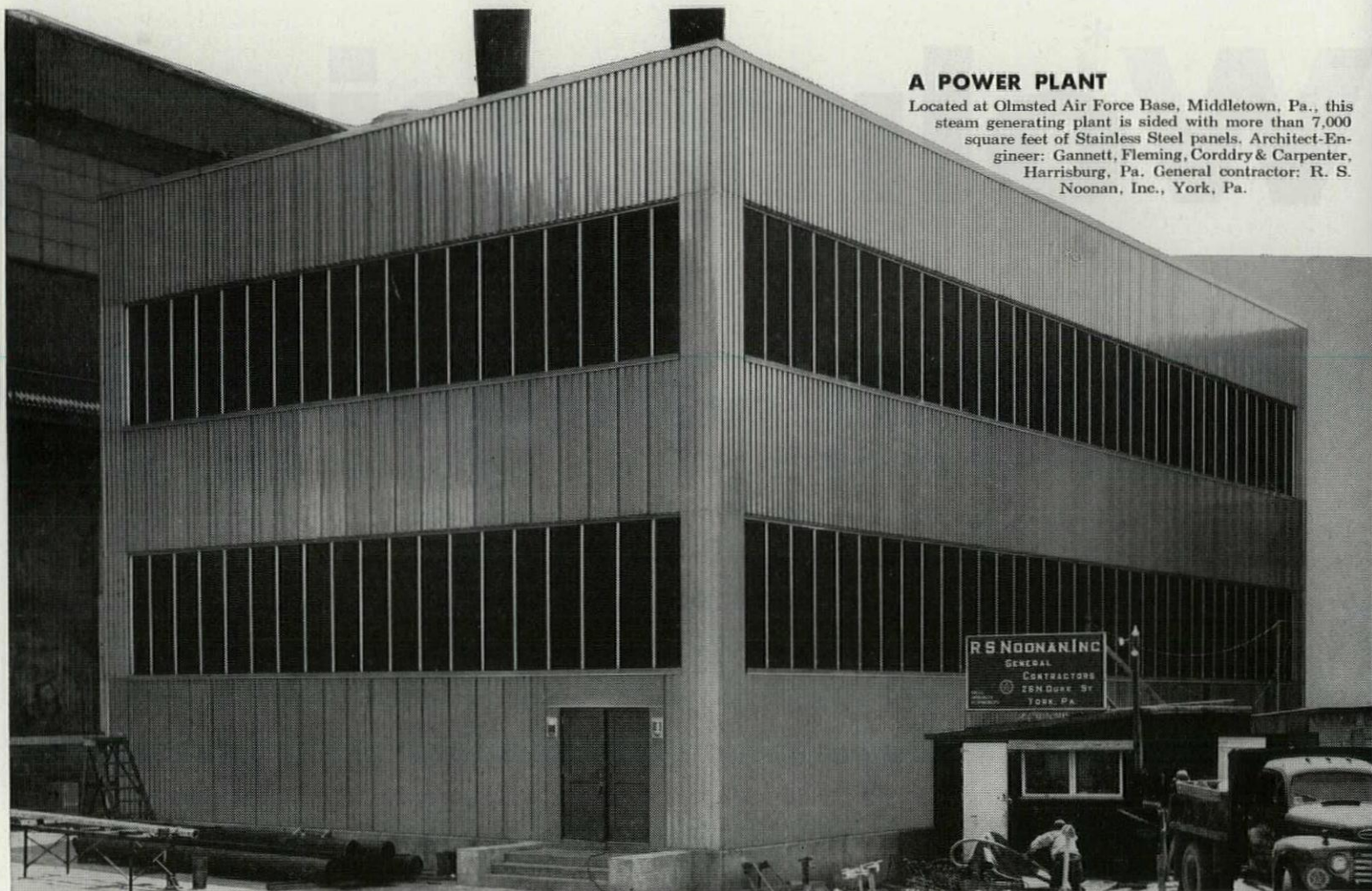
Actual service records prove that Wolmanized pressure-treated lumber lasts years longer. Even under the most demanding conditions ... such as "Wet Process" industries ... Wolmanized lumber gives many times the service of untreated lumber, or lumber that has merely been dipped in preservative. For further information write: American Lumber & Treating Company, McCormick Building, Chicago, Illinois.

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

Pressure-Treated

Wolmanized L U M B E R





A POWER PLANT

Located at Olmsted Air Force Base, Middletown, Pa., this steam generating plant is sided with more than 7,000 square feet of Stainless Steel panels. Architect-Engineer: Gannett, Fleming, Corddry & Carpenter, Harrisburg, Pa. General contractor: R. S. Noonan, Inc., York, Pa.



A LABORATORY

Two types of Stainless Steel panels combine to give the Metallurgical Laboratory at United States Steel's Fairless Works an attractive exterior. Architect: Hoffman and Crumpton, Pittsburgh, Pa. General contractor: Joseph R. Farrell, Inc., Philadelphia, Pa.

THESE THREE BUILDINGS WENT UP FASTER,
WILL STAY ATTRACTIVE LONGER WITH

Stainless Steel panel construction

• Although Stainless Steel was first used as a material of construction more than 25 years ago, its use in the form of insulated panels is a comparatively recent development. But architects and engineers have accepted it so rapidly that a wide variety of buildings using Stainless Steel panel construction are completed and occupied today.

Here are three structures . . . differing widely in size, in design and in purpose . . . that demonstrate the advantages of Stainless Steel panel construction.

From the standpoint of design, Stainless Steel panel construction offers simple, clean lines with a material that never loses its attractive appearance. Stainless Steel panels can be combined with other materials with pleas-

ing results. And their method of erection—they are hung on the structural framework—allows fullest possible utilization of interior floor space.

Erection is quick and cost-saving. It requires a minimum crew and goes forward in any type of weather.

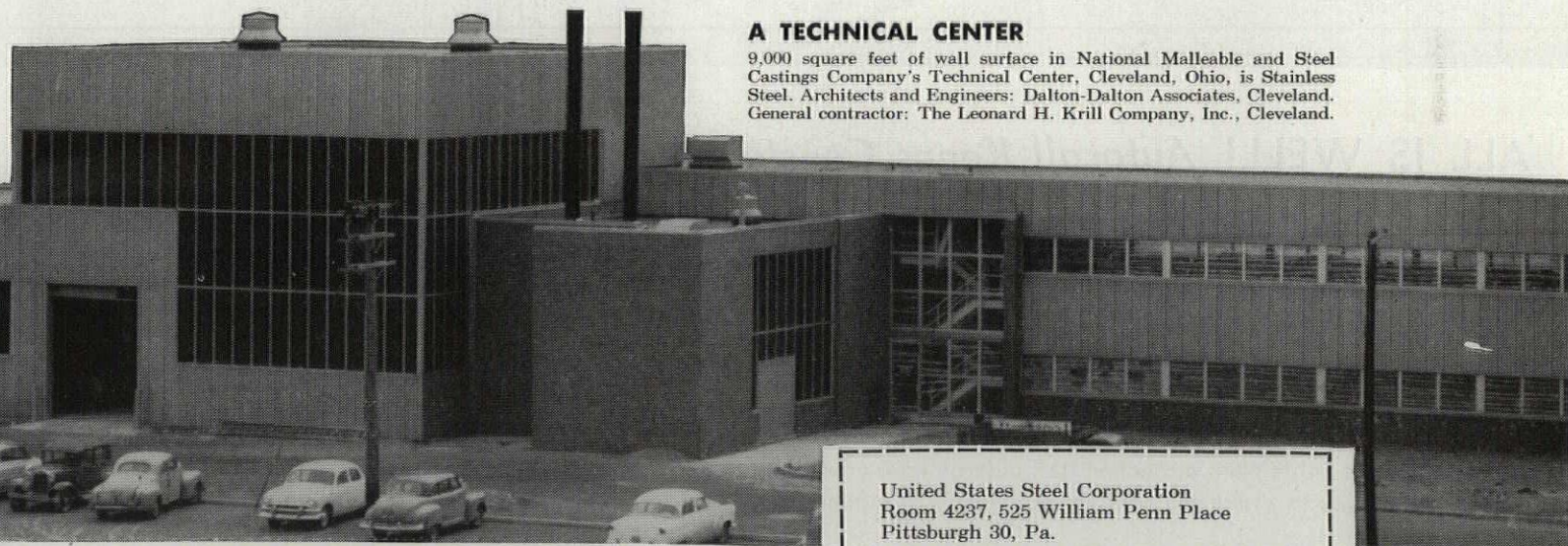
Once the building is occupied, Stainless Steel panel construction continues to pay off. Maintenance is at a minimum . . . no painting is required. The low thermal conductivity of these insulated panels holds down heating and cooling costs. And the life of the building is long.

• • •

If you would like more information on panel construction with U-S-S Stainless Steel, mail the coupon below.

A TECHNICAL CENTER

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☐ Please arrange to have fabricators of Stainless Steel wall panels send me literature on their particular type of construction.

Name Title

Address

City State

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Stainless Steel panels on these buildings fabricated and erected by the H. H. Robertson Co., Pittsburgh, Pa.

4-200-A

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the Autocall Company

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Monsanto PENTA specified to protect wood against decay and insect attack

Gymnasium, State Teachers College
New Haven, Connecticut

Architect:

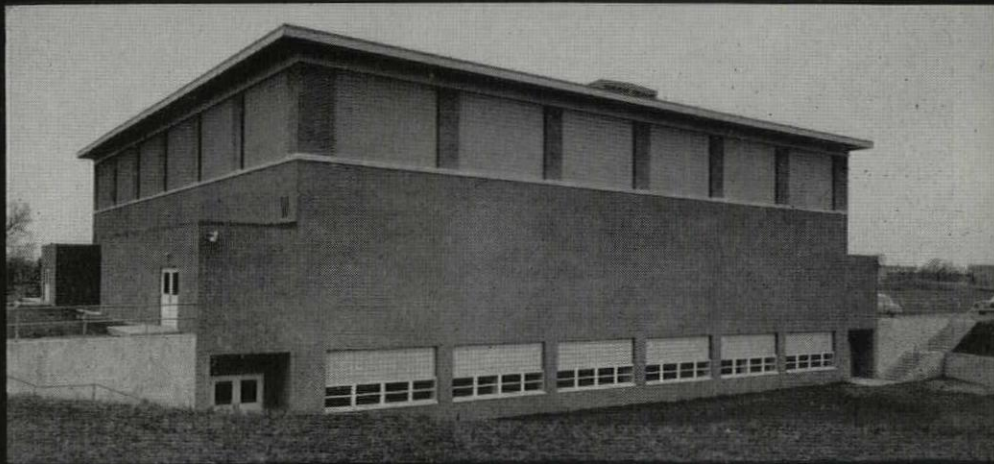
Douglas Orr, New Haven

General Contractor:

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Specify Monsanto Penta for:

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Architects and engineers: For useful data on what Penta will do and how to specify, see our catalog in Sweet's, or write: Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478, St. Louis 1, Missouri.

Sleepers and subflooring of this gymnasium floor were pressure-treated before construction with Monsanto Penta, a clean preservative that stops decay and insect attack. Penta does not stain hands or clothing, leaves wood dry, easy to handle, virtually odorless, paintable if desired.

Driven deep into the cells of the wood under pressure, Penta stays in there for years, will not evaporate or leach out. The chemical is highly toxic to all forms of wood-destroying fungi and insects. Cost of Penta treatment is low, and 60 treating plants throughout the country will provide architects and engineers with technical information on request.

You multiply the service life of exposed wood 5 to 7 times when you specify Monsanto Penta.



SERVING INDUSTRY...WHICH SERVES MANKIND

Tuf-flex Glass permits



Light, view and basketball go together, thanks to *Tuf-flex* Tempered Plate Glass, in this multi-purpose room at Alhambra Union High School, Martinez, Calif. Architect, John Lyon Reid, San Francisco.

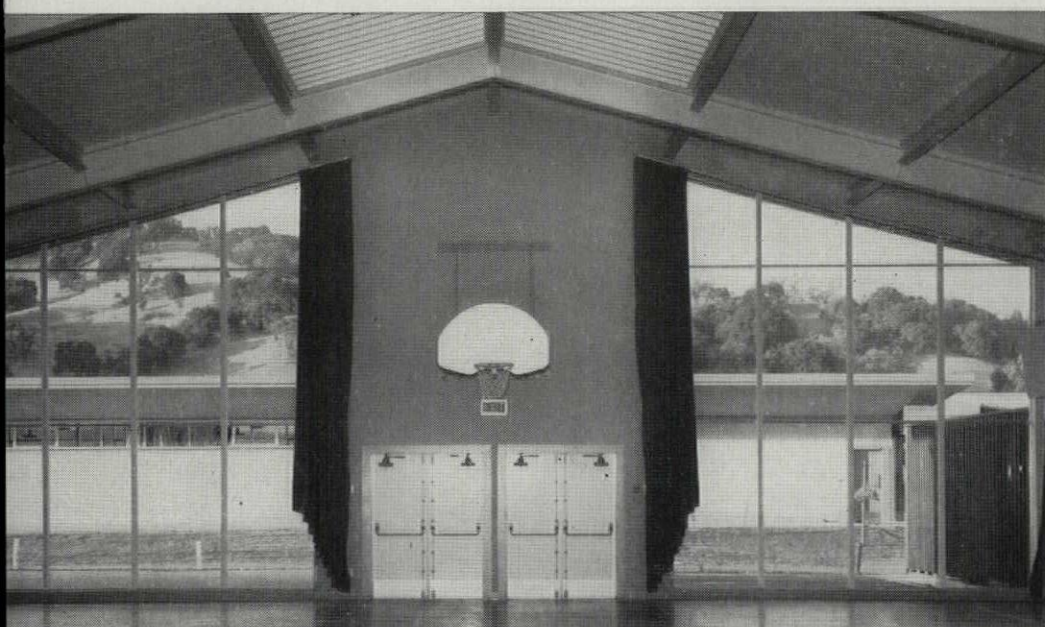
NO FINER GLASS THAN

LIBBEY • OWENS • FORD

new freedom in school design...



Playgrounds and windows go together and dangers and hazards of vandalism are reduced by using *Tuf-flex* in these windows at Beresford School, San Mateo, Calif. Architects, Kump and Falk, San Francisco.



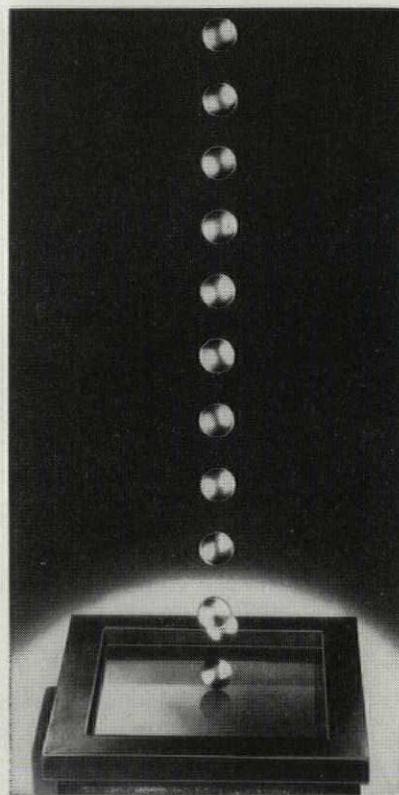
Inviting assembly room plus gym. Daylight Walls of *Tuf-flex* permit this gymnasium to double as a cheerful meeting room. Pacheco School, Ignacio, Colo. Architect, John Lyon Reid, San Francisco.

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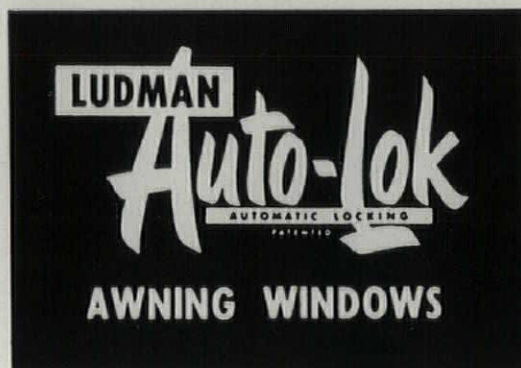


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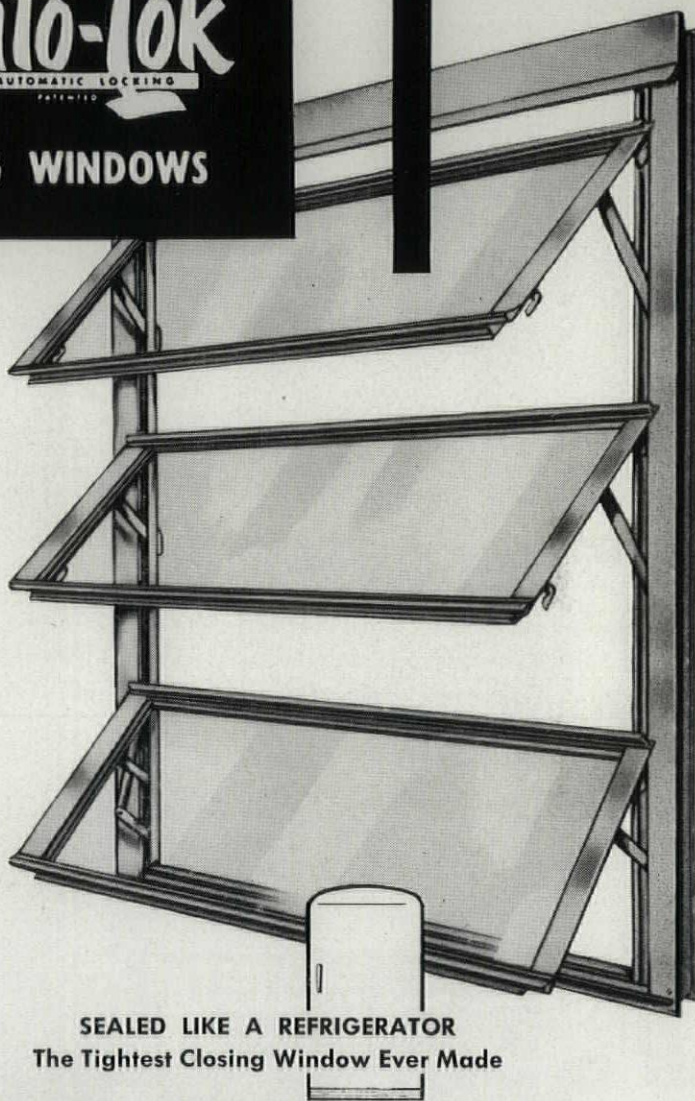
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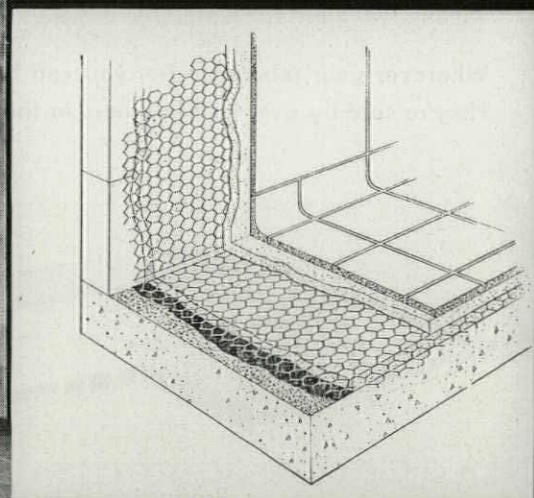
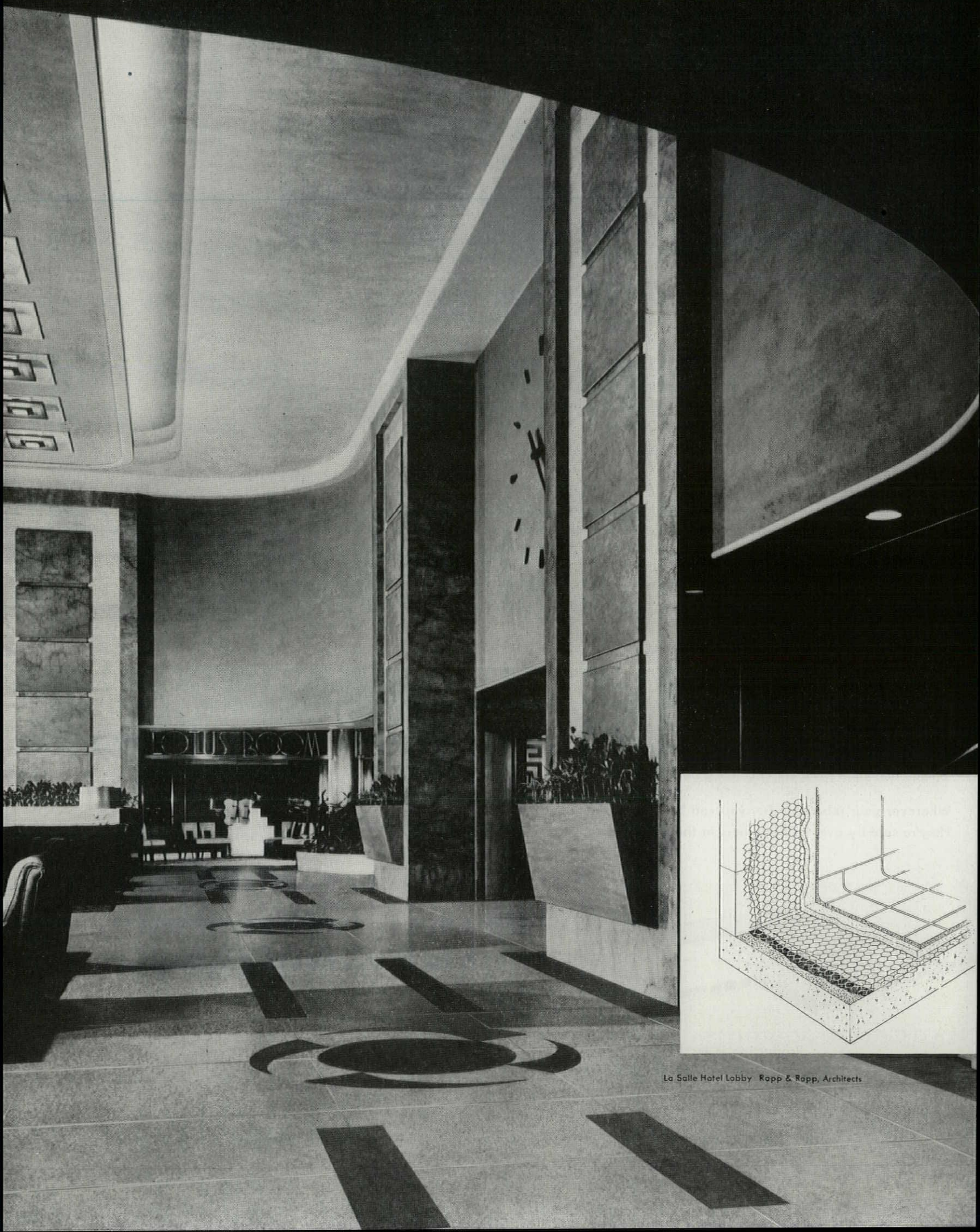
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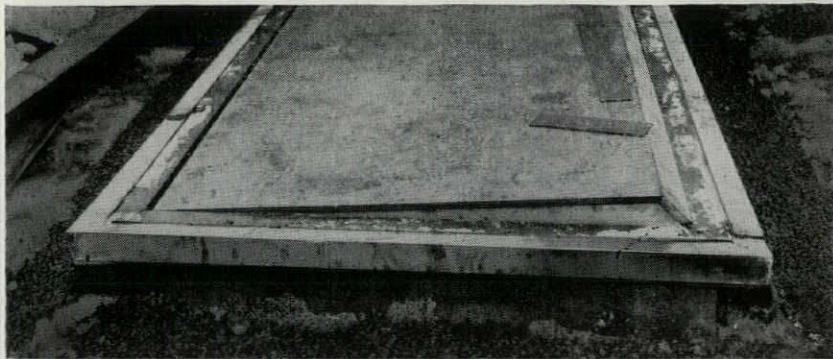


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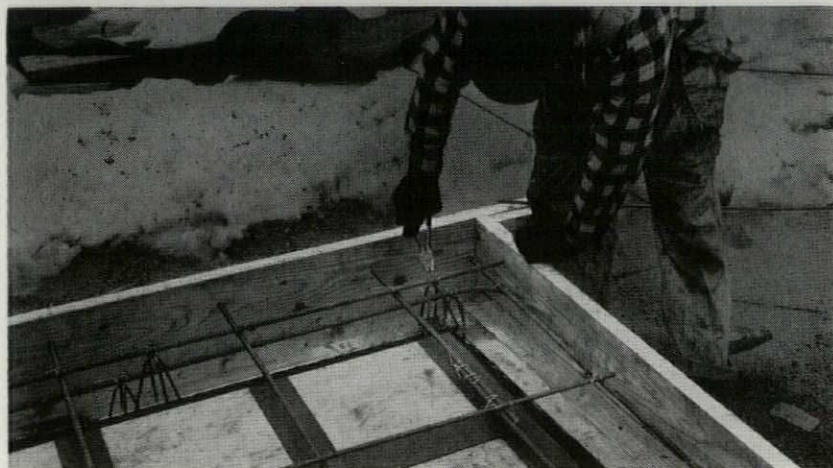
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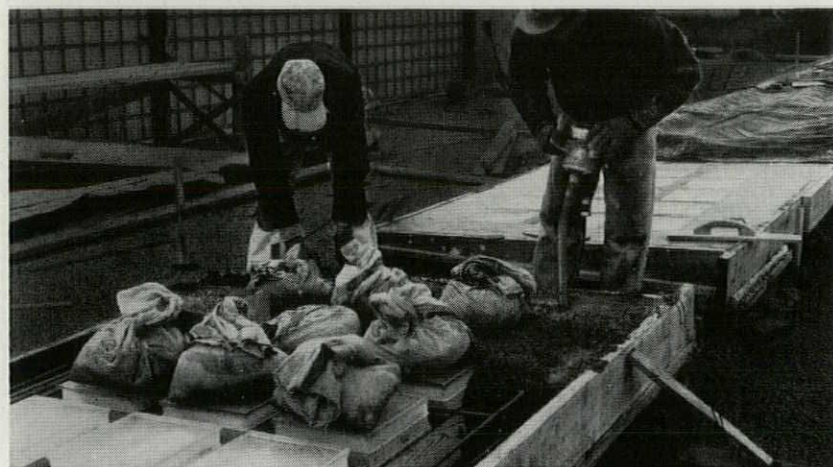




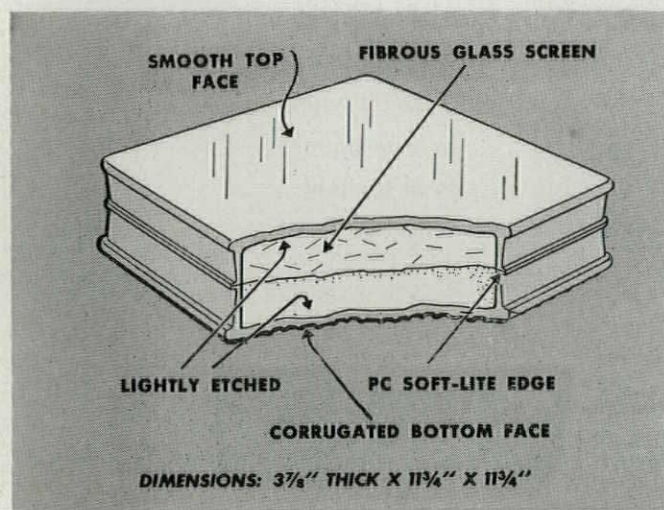
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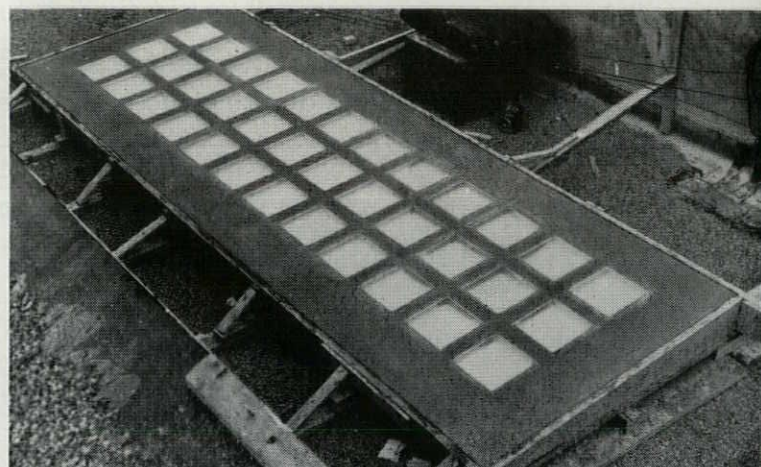
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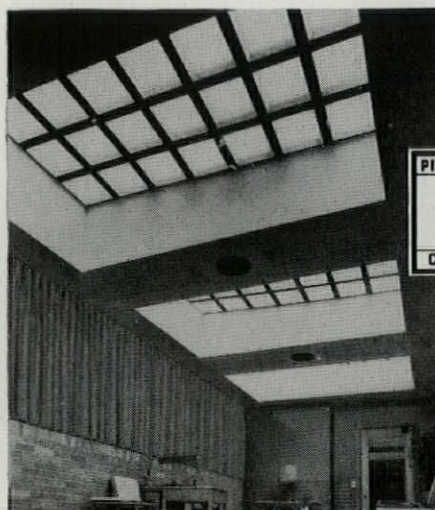
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TOPS IN TOPLIGHTING



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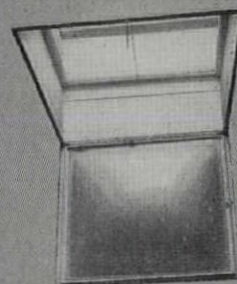
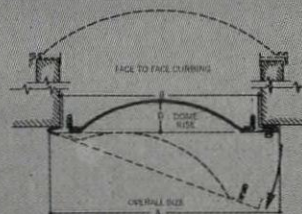
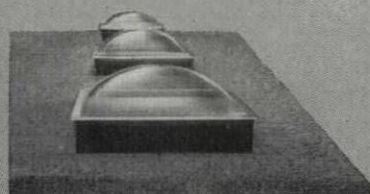
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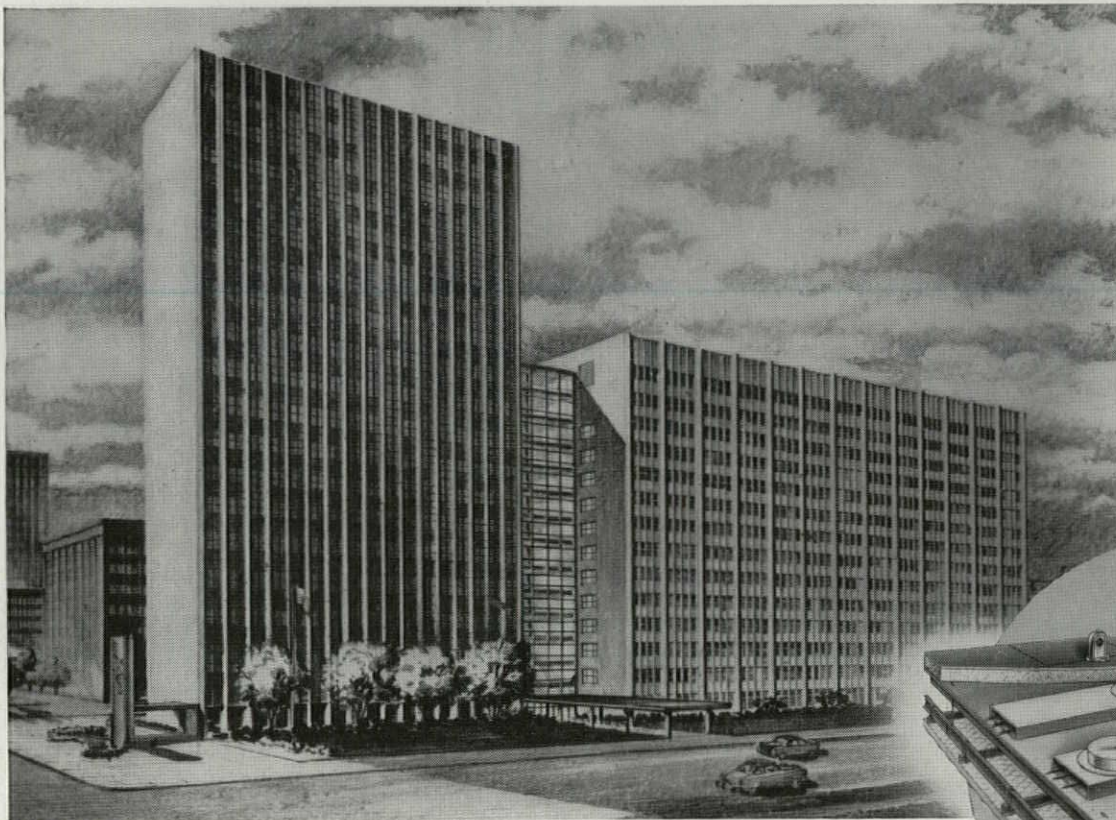
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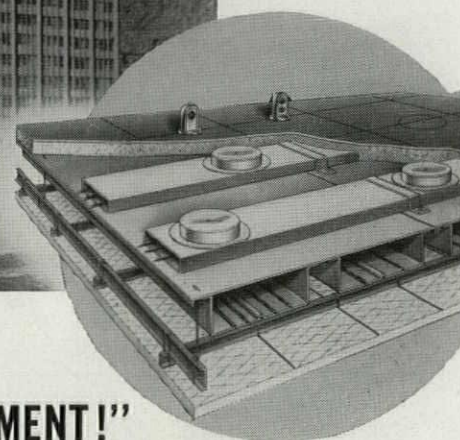
wascolite  **skydomes**

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architectural forum

FEBRUARY 1954

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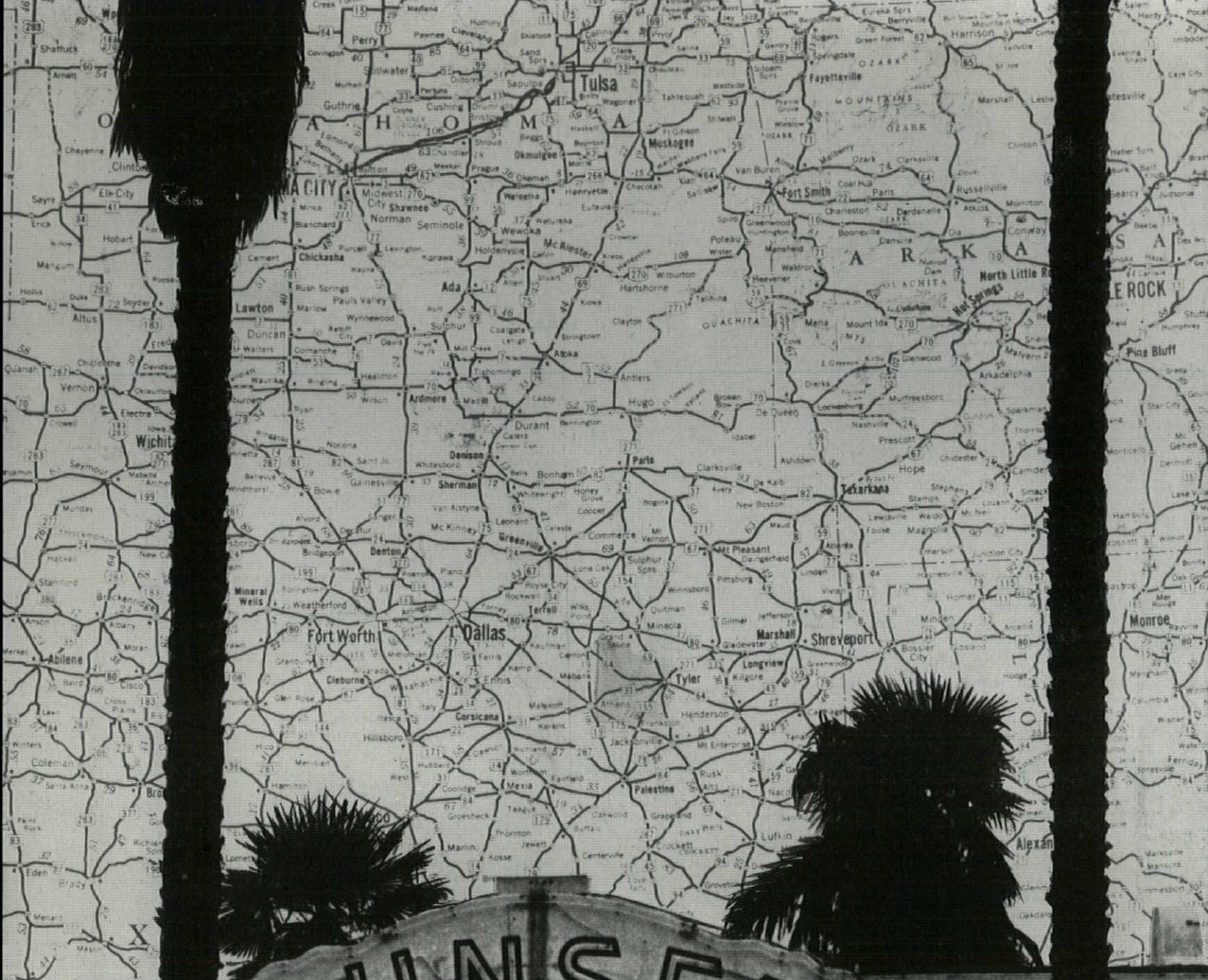
A new department of small talk on big subjects.

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the change in

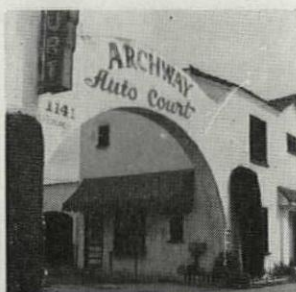
MOTELS

20 pages about a young US business that put \$420 million into construction last year:

The motel business has tripled itself since World War II and is still accelerating. This makes things important to any building professional:

The motel has grown up slowly, with particularly long architectural adolescence, through . . .

sideshow . . .



The operational and financial questions every client and architect should ask—with hard-headed authoritative answers (p. 108).

The rattle of oncoming chain operations; the highway hotel (p. 110).

The importance of architecture (p. 108).

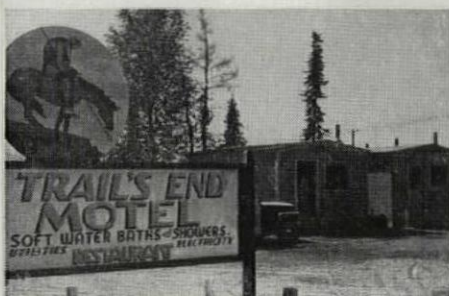
A canny look into the future (p. 112).

Motel standards, dimensions, types (p. 168).

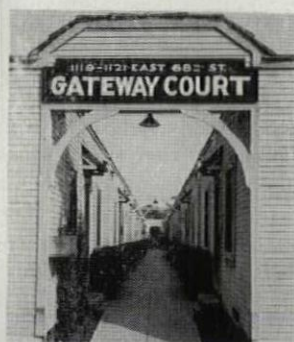
New products for motels (p. 218).

Five new motels indicating that architecture finally has penetrated this field (pp. 113-125).

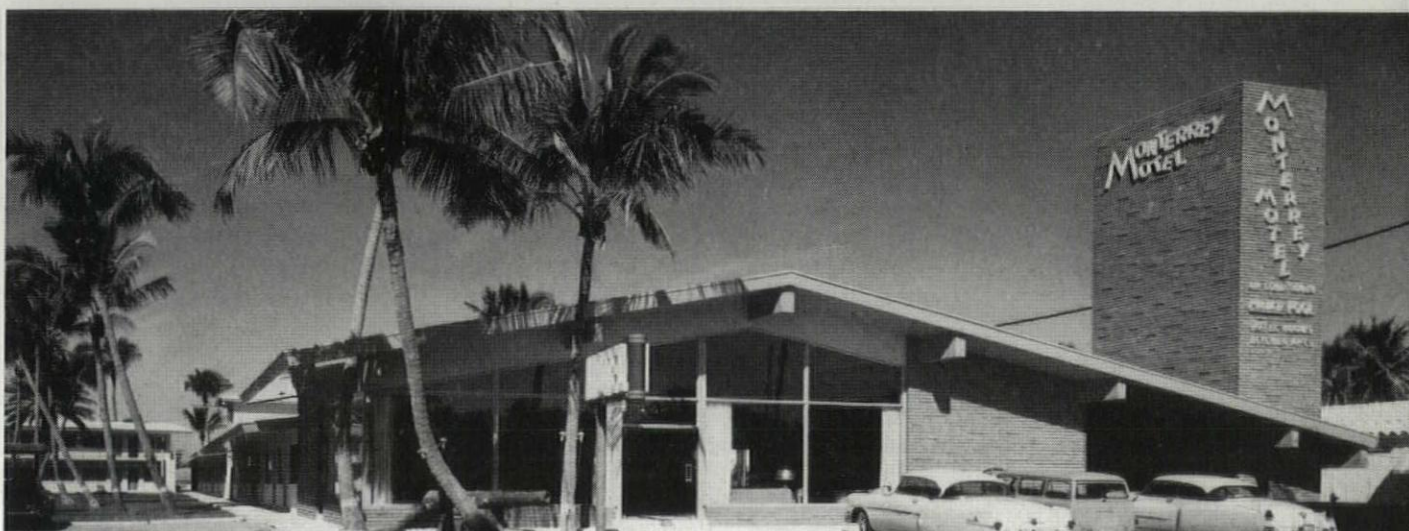
barrack . . .



open-air hallway . . .



But today there are signs of maturity. Below, one of the many motels in Miami by Architect Norman M. Giller & Associates



Architectural allure has always been of essential importance to the successful motel

This dates back to the thirties, when motels first transcended classification as mere conveniences, and went out after customers hard. They have been going harder and harder as the years have gone by: last November, for example, a justice of the Tennessee Court of Appeals ruled that it was quite all right for Mr. and Mrs. A. J. Haile to get out by the side of the highway running through Soddy, Tenn., and wave potential customers into their motel. (They had been sued by operators of a competing motel.)

But in most places outside of Soddy, motelmen have been content to compete for the eye of the motorist by building highly emotional architecture. Here are some common types:



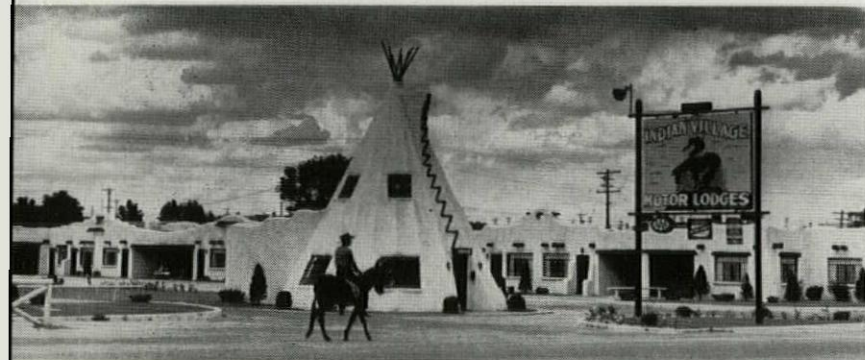
Barn

H. B. Cross

Western

Colonial

Photos: LIVE-Alan Grant



What an architect (and his client) should know

What is the biggest factor in a motel's success?

Location. A second factor that is becoming increasingly important is design of a motel to suit its probable patronage, which can be classified roughly as transient or terminal. A *transient* motel houses mainly overnight guests who stop in the afternoon or evening and are on their way early in the morning. A *terminal*

motel rents to guests who have reached their destination (for business or pleasure; increasingly, traveling men are using motels) and can be expected to stay a few days. Terminal motels need bigger rooms, eating facilities (perhaps kitchenettes) and telephones. Transient motels don't.

How should a motel investment be divided?

Land	10%
Building	70%
Furnishings	20%

The proportion of the total invested in land may increase as motels are built closer to, or actually inside of, cities, as is happening.

How many motel units are needed to justify eating facilities?

This depends on location and patronage. A motel that has transient business should be cautious about trying to profit from even a small coffee shop. More centrally located motels may need food facilities to com-

pete with hotels. There should be no facilities at all if the motel is located close to a well-known chain restaurant. Aside from these factors, a minimum of 40 units seems needed to justify food service.

How much should each unit of a nonresort motel cost?

The total investment should not exceed \$5,000 per bedroom for everything.

(Note: Most new US motels, including most shown in this article, run well above this figure.—ED.)



Playland

There are effective signs,

and effective symbols, too

Southern mansion



World Wide



Bob Towers



Architect for Desert Inn (top, above): Ramon Low
For Bon Air and Castaways in Miami (above): M. Tony Sherman
For West Palm Beach motel (left): Belford Shoumate

about motels

—by C. Vernon Kane, CPA, an authority on motel operation and financing,

partner in Horwath & Horwath, prominent hotel accountants

How much can a motel charge?

As much as the public is willing to pay. So far, motels have been able to charge from 25% to 50%

more than their local hotel competition. For non-resort motels, \$6 to \$9 (double) has been acceptable.

What is the typical motel size?

The average size is only about 15 units. However, postwar motels have been getting larger, so that 20 to 35 units are common. A recent trend has been

toward the large 75- to 150-unit roadside motels, with complete hotel facilities, and sometimes even kitchenettes in resort areas.

How big should a room be?

A room with twin double beds can be comfortable with an area of only 230 sq. ft., including bathroom. A room with a single large bed need only be about 175

sq. ft. Decide the beds to be in the room, then design it for the minimum possible size—and expand it if necessary to make space for special equipment.

What are the most frequent mistakes in motel design?

First, poor use of the land—planning that prevents expansion. Second, poor choice of room sizes. (It is common to see motels with rooms all of the same size although the demand varies from rooms that will

accommodate only one person to those that will handle an entire family.) Third, the tendency to set motels too far back on the site so that motorists pass them before having a chance to note their presence.

continued on p. 110

Big-time hotel competition for small-time motels

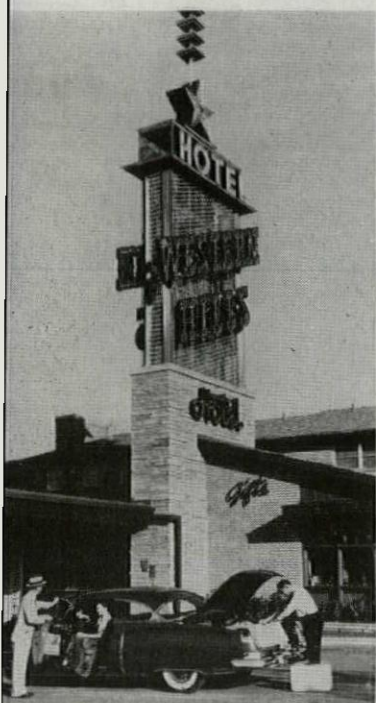
Many of the proprietors of small 15 or 20-unit motels are feeling the cold shadow of approaching competition from two relatively new arrivals in the motel field: 1) chain operations, and 2) the super motel which is really a scaled-down hotel beside the road.

Chains: some of the organizations entering this field are familiar ones, like Howard Johnson's (see p. 120) and the Hot Shops, restaurant colossi to the roadside trade who are about to spread their services. Others are new organizations with big investing money behind them, like Tourinns, Inc. One of the most interesting chains now evolving is Tennesseean Kemmon Wilson's "Holiday Inns of America," who are franchising branches all over America, starting with four already in operation in Memphis. Many of the 88 franchises signed up for Holiday Inns are held

by contractors and builders in various cities; the central office will supervise all planning and operation on a fee basis. Wilson's architect is Ned Cole of Austin, Tex.

Highway hotels: some of these are still called motels, some are called motor hotels. They were invented in resort areas such as Las Vegas and Miami, but many of them can be called "resorts without a view." Beside the long, monotonous ribbons of our cross-country highways, they generate their own excitement, and often do it with bizarre structures overlooking wigggle-shaped swimming pools.

These buildings are big. The Western Hills near San Antonio (see pictures) has 200 rooms, including penthouse accommodations renting at \$23 per night. The big motor hotels are also expensively built, and



Western Hills Highway Hotel near Fort Worth, by Architects J. N. MacCammon and Carlos B. Schoeppl, has 200 air-conditioned rooms and suites, swimming pool, restaurant, banquet rooms.



What an architect should know . . . (continued)

What special features appeal most to guests?

In addition to the normally greater convenience of motels, their owners report that the following features have received the most favorable comment:

1. Clothes-drying rack in bathroom for light laundry.
2. Twin double beds. Families like them and traveling men (in pairs) will take a double room with large beds more readily than one with single beds.
3. Radiant heating especially the glass wall-insert type.
4. Air conditioning, no matter what the climate or area of the country.
5. Convertible or multipurpose furniture. This applies mostly to long-staying guests who like the greater spa-

ciousness which combination sofa-beds, desk-dressers, etc., give to a room.

6. Covered walkways from unit to office in case of inclement weather.
7. Television sets—free or coin-box rental types.
8. Wall-to-wall carpeting.
9. Two easy chairs in preference to a single one.
10. Circulating ice water.
11. Ice-cube machines in preference to getting ice from office.
12. Private phones or comfortable booths located at various places around the court.

What savings can be made in construction without hurting business?

The biggest money saving can be made by planning, more specifically by prefurnishing rooms—determining their dimensions on the basis of the furniture to go into them. In addition, there are a number of points where savings can be made without hurting the general appeal of the motel.

1. Eliminate closets in favor of built-in luggage racks

(up to 10' long) and provide a small space for hanging garments.

2. Install simple shelves and mirrors in bathrooms instead of expensive medicine cabinets. Few guests use the interior of a medicine chest.
3. Use stall showers in baths instead of tub-showers.
4. Install cut-off switches on air conditioning.

financed by everything from gambling money to municipal bond issues. They include restaurants, meeting halls, bars (or bottle clubs, in dry counties).

There are observers who look on this new development of supermotels as an overripening of the motel melon. But on the other hand there are others who point out that there are a half million Cadillacs ranging the highways these days, creating a rich roadside market. Highway hotels also are a logical development in a country that has built only a handful of new hotels since depression days.

Perhaps the best indication of the motor hotel's place in today's world is the fact that the Rotary, Kiwanis and Elks clubs in our smaller cities, now drive to the outskirts for their weekly luncheon meetings instead of dragging into the middle of town.



Bob Towers

Pan American Motor Hotel in Miami Beach, Carlos B. Schoeppl, architect, has 100 rooms, complete resort hotel services, 60 stalls for covered parking, 60 for parking in open.



Hotel Desert Hills, Phoenix, successful highway hotel, is by Architect Ramon Low.

What is the average profit per motel unit?

A recent study shows that the newer motels follow this general pattern:

Rental (70% occupancy at \$7)	\$1,800
Expenses, including taxes and insurance	900
Furniture replacements and major repairs...	100
Mortgage payments—on \$2,500 per unit at	

5% interest over 12 years.....	300
Cash profit per unit	500

This includes neither an allowance for the owner's time nor a return on his own cash investment. No provision for depreciation is made. Equivalent is included in replacements and mortgage amortization.

What are the usual complaints of guests?

The most common complaints relate to the management of motels, including the housekeeping and the handling of guests. From a physical standpoint, the following are common complaints:

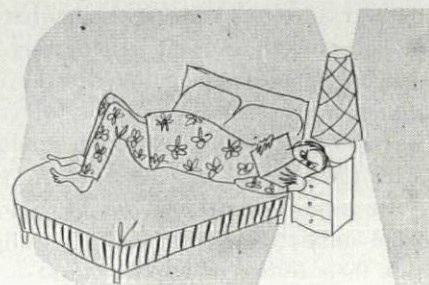
1. Inadequate water pressure and hot water.
2. Noisy rooms (due to lack of interior soundproofing).
3. Cheap furniture (often despite an excellent building).

4. Small bathrooms. Most guests prefer a stall shower instead of tub-shower because it makes the bathroom more spacious.

5. Inadequate luggage racks. Long, built-in racks are more popular than closets.

6. Lack of mirrors.

7. Improper lighting—fancy but impractical lamps.



MOTEL TRENDS

Bigger and better, but at what kind of a risk?

—by C. Vernon Kane, CPA

With the tremendous growth of the motel industry, which now numbers close to 50,000, two questions may naturally occur to anyone interested in this field:

1. Will the motel industry continue to grow?

2. Who will be the investors?

Even at the risk of going out on a limb, the author is inclined to provide some very positive answers to these questions.

First, the industry is likely to continue to grow even if the country should suffer a business recession. Second, the investors will follow the present patterns, they will continue to be people with a wide variety of backgrounds. Very likely, however, there will be an increasingly large number of hotelmen investing in motels.

Reasons for growth

The number of motels in the country in the 1939 census was 13,500. By the end of the war (1946) estimates placed the total at 20,000. Yet, by the end of 1953, even the most conservative estimates placed the total at 45,000 and, if they could be counted, the total would probably be closer to 50,000. Rarely has any American industry more than doubled itself in a short seven-year period. Even this is an understatement since the typical postwar motel is at least 50% larger than its prewar counterpart. Thus, in many respects, the motel industry is largely a postwar industry.

One reason for the growth is to be found in the lack of growth of the "mother" industry—hotels. The tremendous losses from bankruptcy of hotels in the thirties discouraged all but a handful of investors up to 1939. Then, although a hotel-room scarcity was certainly predicted by wartime demands, restrictions on building set in and few hotels were built. By the end of the war, investors still were somewhat wary of hotel investment and left the very great demand for accommodations to the mushrooming motel business. This, of course, was aided by the boom in auto production after the war.

However, even the heaviest demand is not filled unless there are investors willing to sink their resources into an industry. For-

tunately, there were many that were willing to do this. It is paradoxical that the people who knew the least about motels were the most willing to invest. Perhaps this was because they did not know what they were getting into. At any rate, the early postwar investors found gold mines—and passed the word around, if not by word of mouth, then by their obvious prosperity.

In another sense the growth of motels is traceable to a facet of the American character: the desire to be one's own boss, to pioneer, to be self-sufficient. The same impetus that leads a prosperous American businessman from his luxuriously appointed residence into a cold, watery duckblind or fishing pond, will lead him into a motel investment.

Financial success

The motel owner *appears* to be a lot more successful than he really is. Consider, for example, the owner of a successful 20-unit court may expect a cash profit of \$9,000. This is not too bad in the eyes of many people, but most fail to consider that it includes a return on investment. In this case, suppose that the owner had \$50,000 of his money invested, his annual return on that amount from gilt-edged investments would be at least \$3,000. In fact, if he had made his investment in the early postwar years, a portfolio of virtually sure-fire securities would likely bring in 10 to 15%. In any event, deducting a 6% return on \$50,000, or \$3,000 from the \$9,000 cash profit shown above leaves \$6,000 for the owner and his wife as a reward for 365 days of demanding work.

Profits forecast

Few new motels of 20 to 40 units will yield a cash profit (after mortgage amortization) of more than about \$500 to \$600 per unit. Of course, a well-operated property should yield around \$500 per unit operated; perhaps higher profits may be earned with resort-style motels.

No one should be encouraged to go into a motel investment unless he is willing to risk a cash profit of no more than \$300 per unit. Of course, a well-operated property should yield around \$500 per unit,

but it is unwise to have to count on that in order to take care of personal cash requirements.

Other rewards

Cash profit is not the entire story, however. In addition, the owners receive their lodging rent-free. In some areas of the country the cash reward is earned in a seasonal period as short as five to six months, leaving them free to vacation or otherwise occupy themselves. One owner of a court in the Catskill mountains operates for six months there and for four months in St. Petersburg—with a two-month vacation. He nets about \$15,000 from the two operations and claims to have a wonderful time doing it. To him, the motel industry was a godsend, because his health forced him to retire from a \$25,000 executive job in 1937 when he was given about five years to live.

Future motels

It is a fairly safe assumption that the motel industry will continue to grow, even if it does not thrive as it has in the past. Future owners can be expected to be somewhat more cautious than their predecessors who virtually plunged into investments without even a modest amount of preplanning. The new crop of owners seemingly wants to profit from the mistakes of others. In the past six months the author has been approached for advice from an average of about one person a week. They come from all walks of life, each with some positive ideas on what he wants in his motels, and most are mistakenly informed on the profitability of the industry. My advice generally comes under these headings:

1. The necessity for conservative forecasting of the profitability of their planned motel in relationship to its cost and the annual mortgage requirements.

2. The growing popularity of "highway hotels" as a competitive factor.

3. The strong desirability of owner-operation of a motel, as opposed to making an investment only and relying upon hired management.

4. The common sense involved in having

continued on p. 210



From down the road sign accosts motorist, sells idea of stopping

IN CATSKILL, N. Y.: **two big motel virtues—visibility, accessibility**

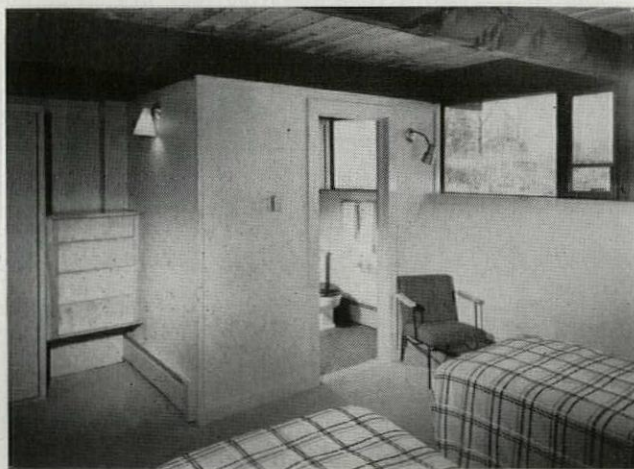
Photos: Ben Schnall

From up the road long stretch of motel itself is convincing stopper

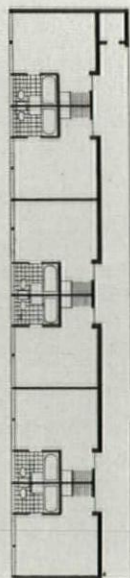




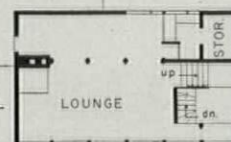
Photos: Ben Schnall



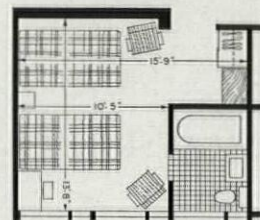
Small sash framed into fixed glass ventilates room; high windows make for easy furniture arranging as well as privacy.



UPPER LEVEL



LOWER LEVEL
manager's appt.



Statistics: 20 units; cost, about \$4,500 per unit, furnished, about \$12 per sq. ft. unfurnished; rates, \$8-\$10 per night double, \$5-\$7 single; average stay, one night; plot size, 5 acres; no restaurant, small breakfast facilities in lounge; planned expansion—20 more units.



Economical structure consists of painted concrete block and redwood-surfaced frame

SLATER & CHAIT, architects

I. & O. SLUTZKY, general contractors

Solutions to two basic motel problems:

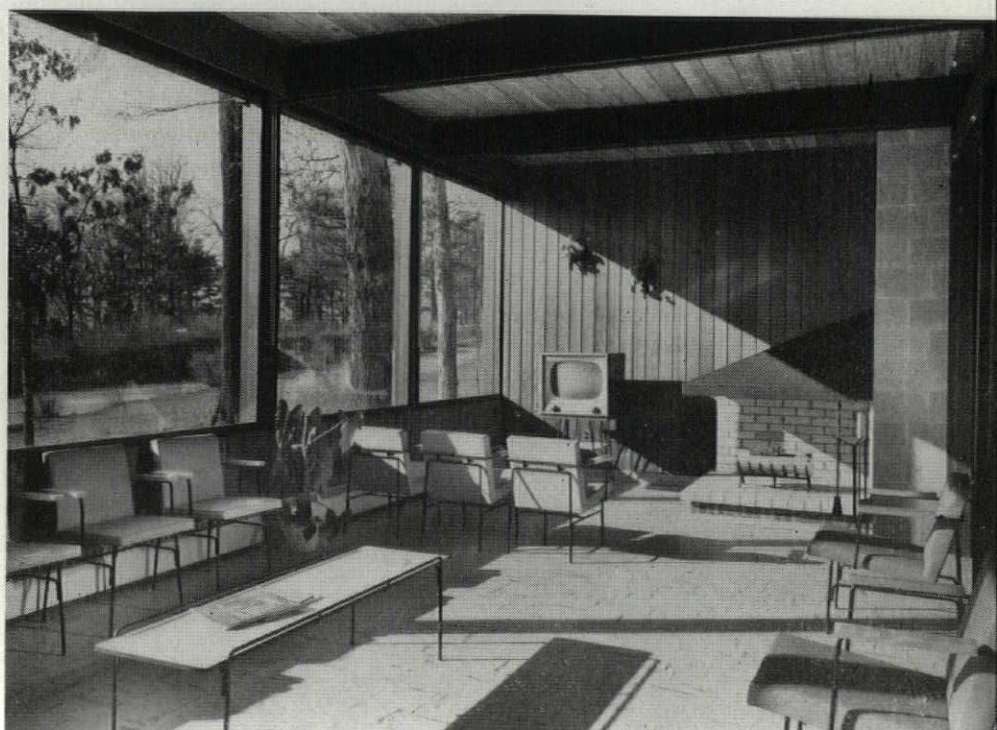
Problem No. 1: unless a detached parking lot is provided to one side of the motel units, parked cars usually obscure the oncoming motorist's view of a motel. A separate parking lot is a solution, but a compromising one; the short-haul luggage convenience of a motel is diminished.

Solution: here the architects took advantage of the sharp natural grade of the site to keep "side-walk" levels several feet above the parking level. Patrons do not mind walking up a few risers, and prospective patrons can see the buildings.

Problem No. 2: should motels put their best, glassiest face forward toward traffic to attract trade, even if car lights and engine noises may annoy?

Solution: the reception-room wall, facing the street, has enough glass to indicate the contemporary character of their building and furnishings. But inside the rooms, all glass looks the other way; and even this is set high in the walls, between the beams, alternating fixed sheets and sash.

Reception room-lounge (exterior behind sign, above) is elevated over manager's apartment





From access road, motel hangs over hilltop, based firmly on local stone walls

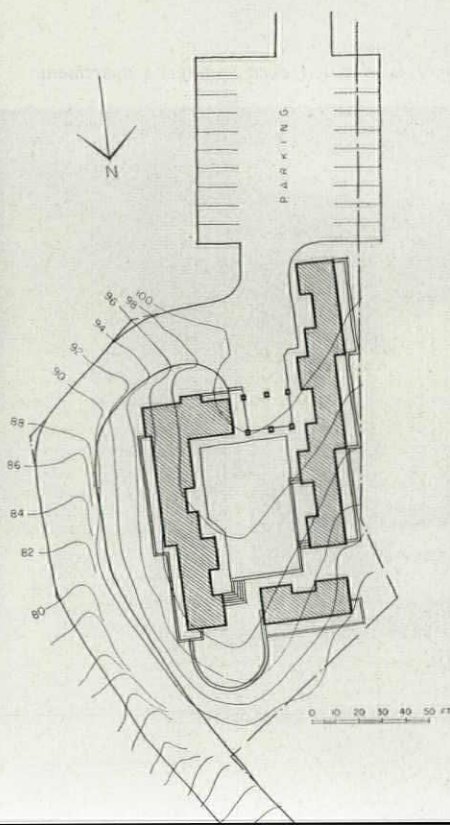
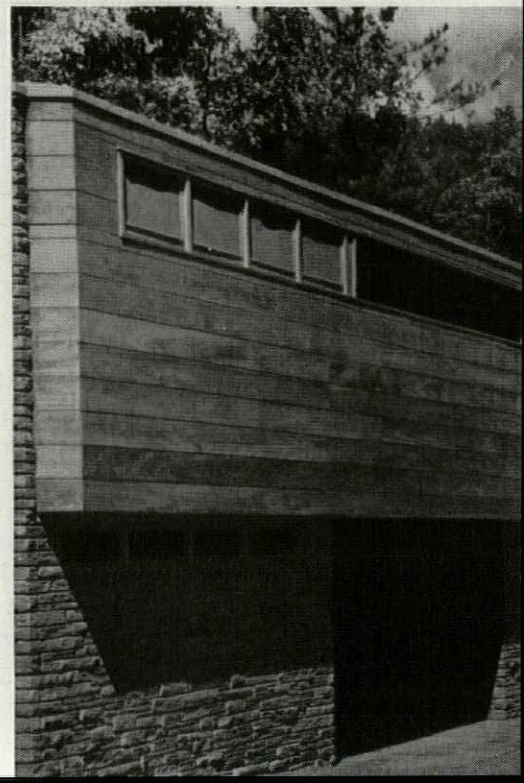
IN GATLINBURG, TENN.: a motel that pulls cars uphill

To get to this motel the motorist has to get off the main highway, point his car uphill and climb 60' on a graded access road. Yet during the first 150 days the motel was open, occupancy was 99.6%

The architects accomplished this considerable feat of magnetism by building a two-story motel atop the hill. Its wings are tall enough in themselves to be seen from below, over the slope. (With two-story buildings, they also could build more units on this difficult site.) Then, high in the air, they used warm natural materials to make it all reassuringly pleasant. The materials are an exterior veneer of gray mountain stone—matching the retaining walls on the approach road and warm, brown, natural-finish cypress.

Statistics: 18 units; cost, \$7,000 per unit furnished, \$11 per sq. ft. unfurnished; rates, \$7-\$8 per night double; average stay, two nights; plot, 150' x 400'; no restaurant; planned expansion, ten units.

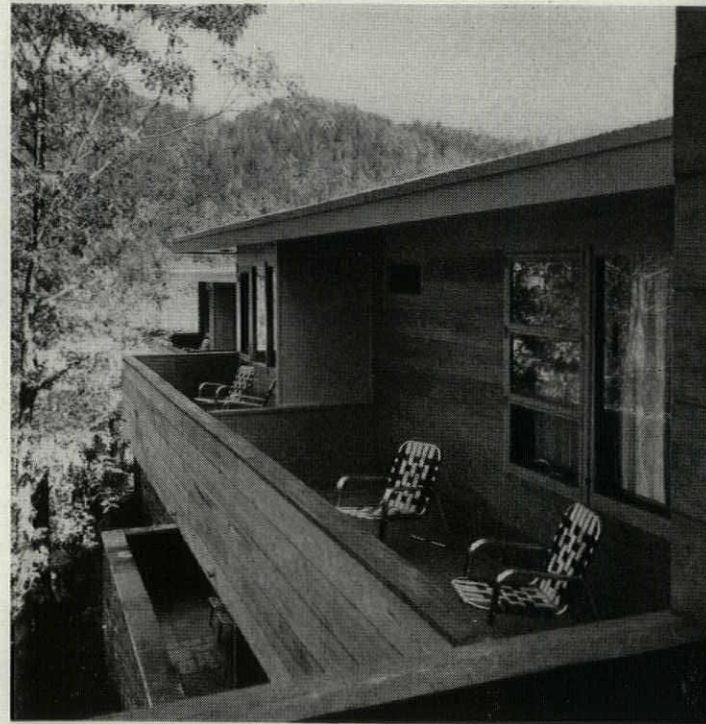
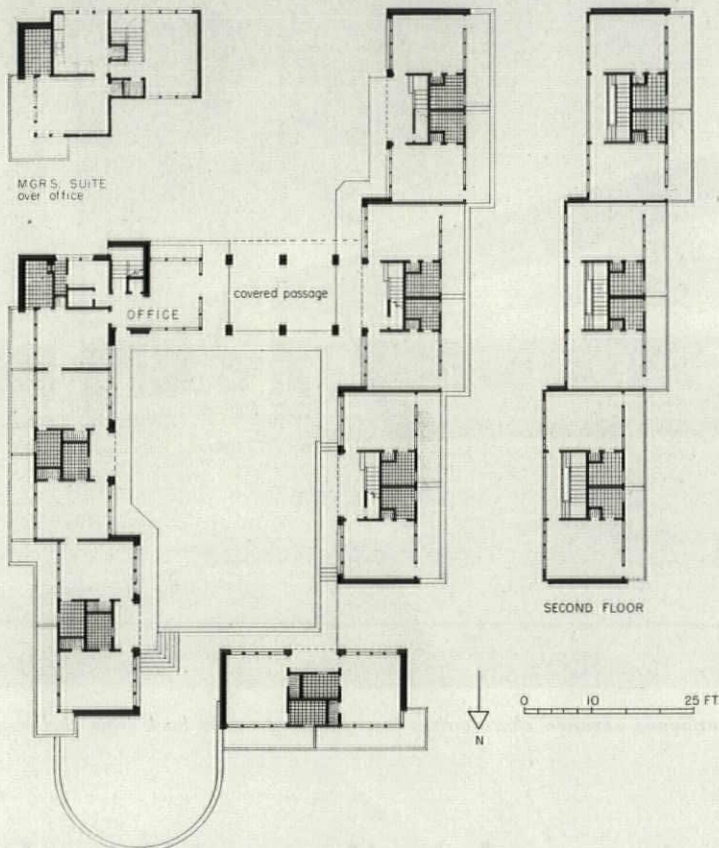
Photos: J. C. Gardiner





Past hill crest, motel plane steps down again to rear terrace

BON-AIR MOTEL
PAINTER & WEEKS, architects
BRUCE McCARTY, associate
DEWEY MOORE, general contractor



Balconies are floored with canvas set in white lead paste. Interiors are finished with mahogany boards in natural finish. Heating is by electric cable run in ceiling plaster.

Entering hilltop group, driver stops under canopied passage to register. Each pair of second-story units has a stairway

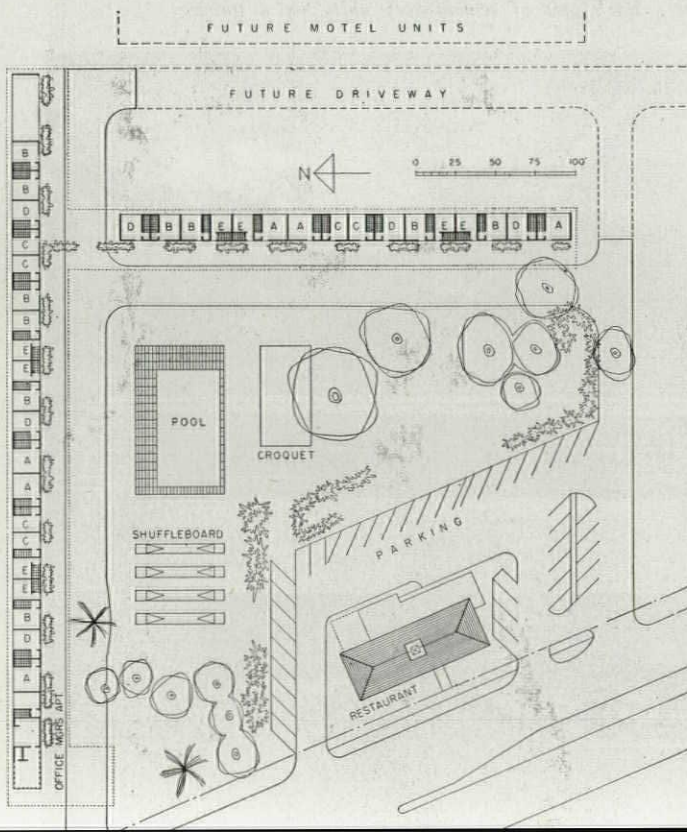




Continuous veranda characterizes long sweep of rooms back from sheltered entrance

IN FORT MYERS, FLA.

Howard Johnson makes his first move into the motel business

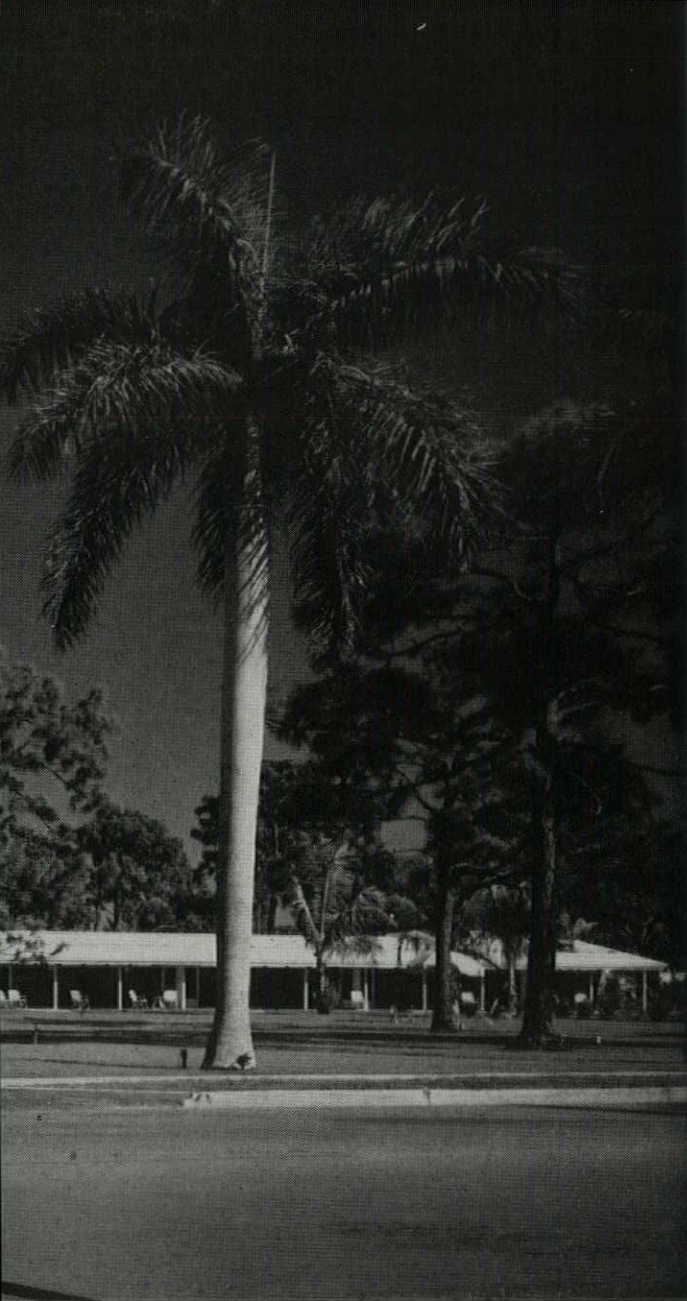


DRIFTWOOD MOTEL
RUFUS NIMS, architect
ROGER B. HALL, general contractor

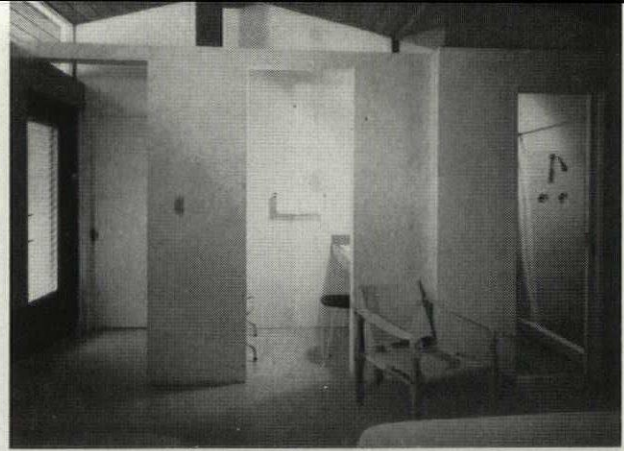
Howard Johnson's first restaurant was built in New England; the chain grew south. But the first combined operation—food plus lodging—connected with this No. 1 roadside chain is in Florida.

The sponsorship is not exact; actually Howard Johnson owns neither the restaurant nor the motel. But he leases the restaurant from the man who owns all the buildings, and thus gives tacit blessing to the motel too, by virtue of the real estate facts of life and location. And this is enough to strike terror into the ledger of any motel entrepreneur who might be faced with such competition. Many soon will be, hints Johnson.

What the traveler and architect will notice about Rufus Nims's designs for the first three of these

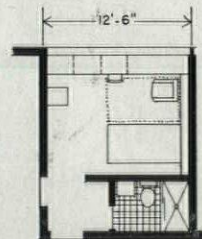
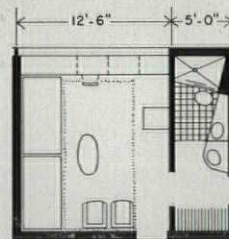
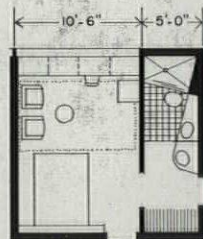
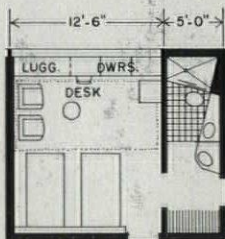
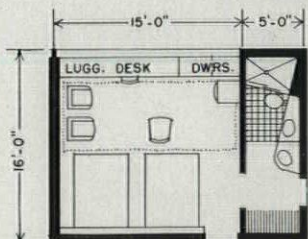
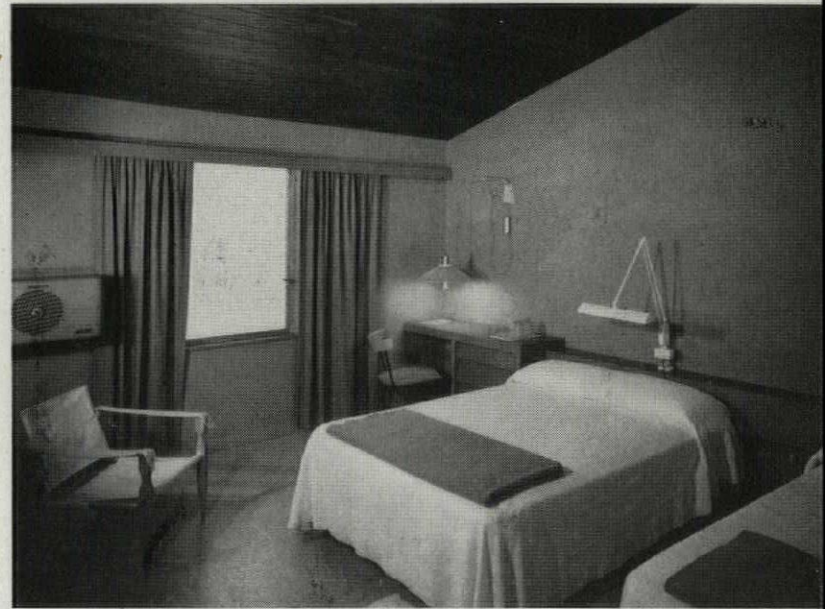


Photos: © Ezra Stoller



Partitions of interior bathrooms extend only few inches above door height, borrowing light.

Walls are stucco on concrete block, lathed and plastered inside. Much of furniture is built in.



Unit plans, slightly different from those at Fort Myers, will be used in future Howard Johnson motor lodges. Dressing table with extra washbasin will be feature.

Restaurant completes boundary of open court on highway





© Ezra Stoller

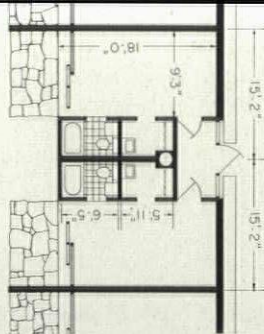
motels is the absence of the old fake antique decoration which litters most restaurants in the chain. Nims has lured Johnson out of his starched shirt and linsey-woolsey tradition into relaxed, sportive, modern attire. Roofs are flatter (or nonexistent, see p. 121). Glass areas are bigger, unbroken by fussy woodwork. There is neon on the palm trees but none is on the buildings. The promise of the design is a casual, relaxed lodging.

The open-court plan, with entrance and office for motel at one side, restaurant at other, uses a lot of space, but owner has since filled this with swimming pool and other alluring recreational facilities.

Statistics: 21 units (plus 18 completed since photography); cost, \$4,100 per unit furnished, \$13 per sq. ft.; rates, \$5-\$7, single, \$10-\$14 double; average stay, one night; plot, 375' x 275'; restaurant facilities; planned expansion, 24 more units for fall, 1954.

Wide sidewalk under overhang is used as communal porch by guests, separated from units by planting strip and head-high blank wall. Plate glass above for lighting, is interrupted in a regular pattern by redwood shutters. Back wall is similarly ventilated for cross-circulation.

ADMIRAL MOTEL
RUFUS NIMS, architect
ROGER HALL, general contractor



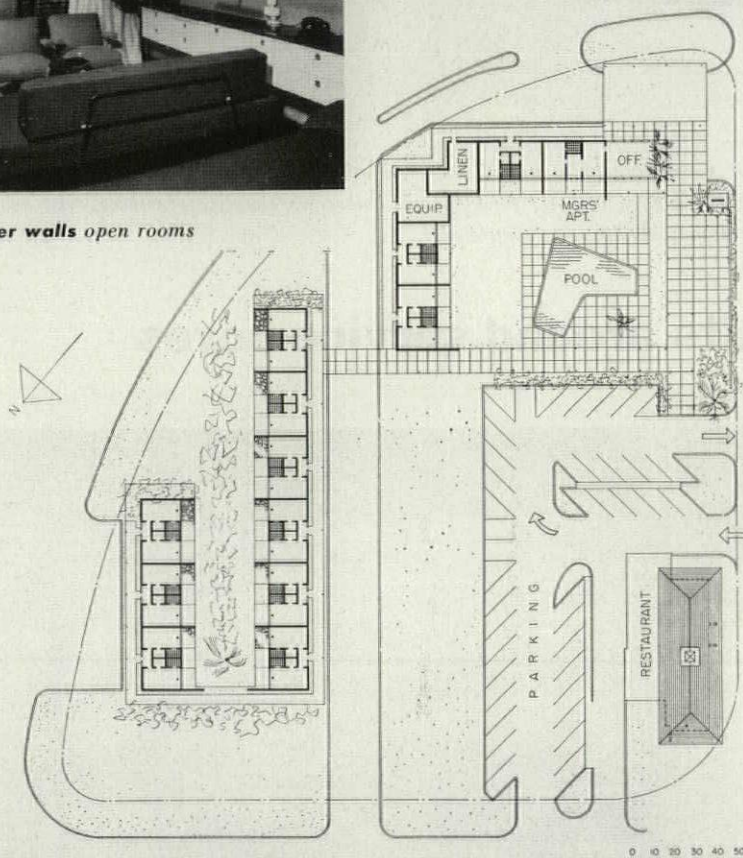
Screens and landscaping separate terraces

AND IN REDINGTON BEACH, FLA.

flat roof with Howard Johnson's blessing



Sliding louver walls open rooms



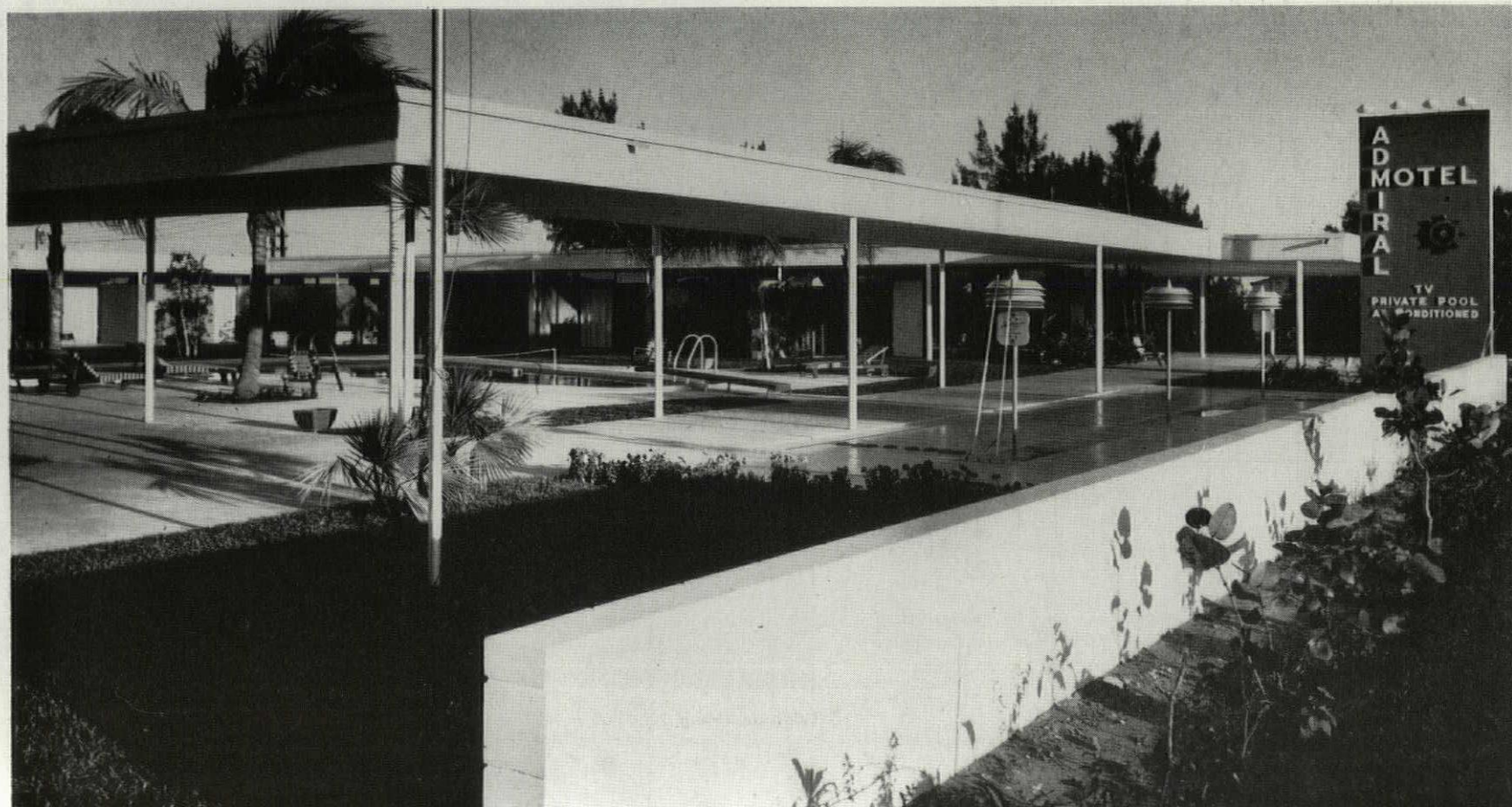
Slightly more complex in arrangement, yet even simpler in structural expression, this motel uses somewhat smaller plan units than the one in Fort Myers on the preceding pages. But also present in each unit is a separate lavatory-dressing room complete with washstand. Other additions: a swimming pool bounded by a sheltered loggia, TV sets in all the rooms, a private entrance foyer for each pair of units. All this plus a Howard Johnson's in the group.

All ventilation is by adjustable wooden louvers; all glass is fixed—and fixed up close to the ceiling to bounce light from that plane. On the patio side, half the wall of each unit is made of the adjustable wooden louver screens, and slides open.

Fireproof construction of this motel was expensive (see text) but insurance and air conditioning costs are considerably lower than Fort Myers' motel.

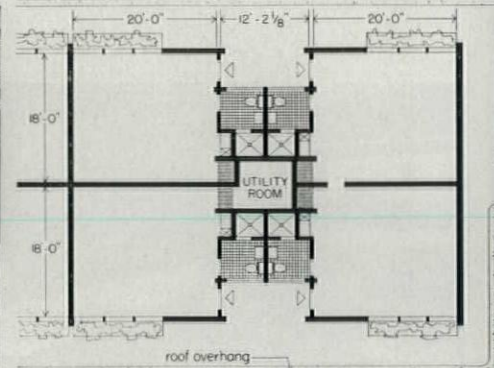
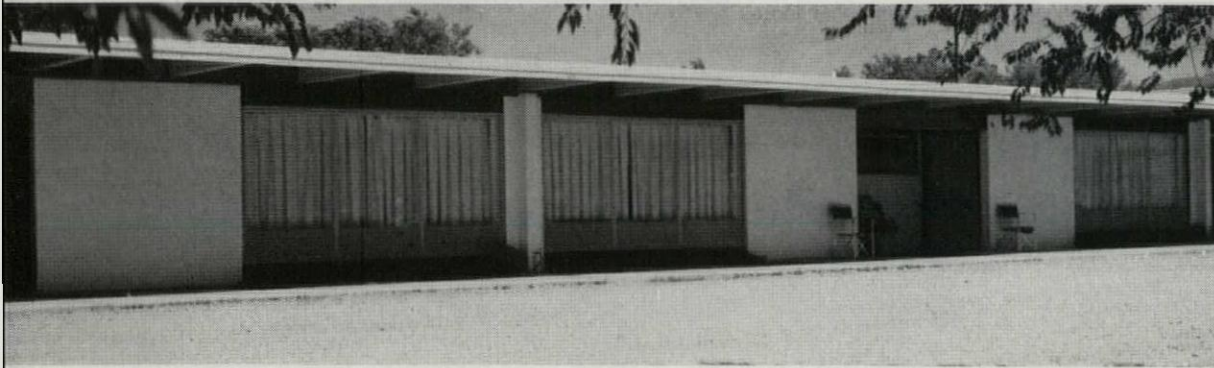
Statistics: 24 units; cost \$6,500 per unit furnished, \$17 per sq. ft. unfurnished; rates, \$8-\$14 single, \$10-\$20 double; average stay, ten nights; restaurant facilities; planned expansion, 22 more units for fall, 1954.

Roofed loggia secludes swimming pool without hiding it



WALTER HARADA, designer
 WILLIAM G. SCHRAM, associate
 WHITE & HERMANN, consultant architects
 CHARLES VON BERGEN, electrical engineer

by Rondal Partridge



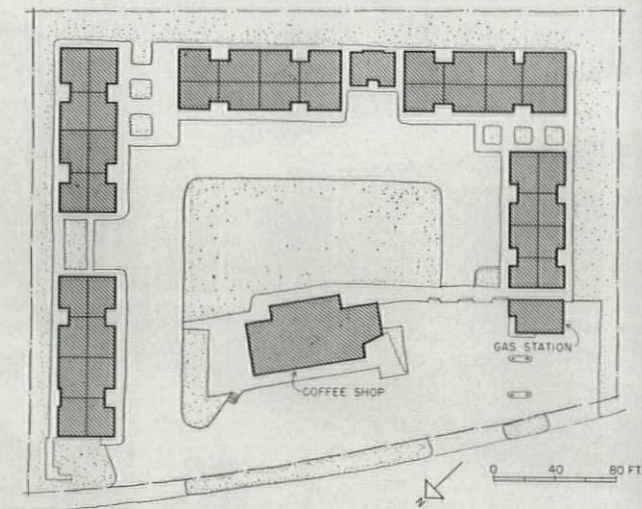
IN WINNEMUCCA, NEV.:

Four rooms are built around a central utility core, containing hot-water heater and air-conditioning equipment. Back-to-back bathrooms simplify plumbing. All heating is electrical, individually room-controlled.

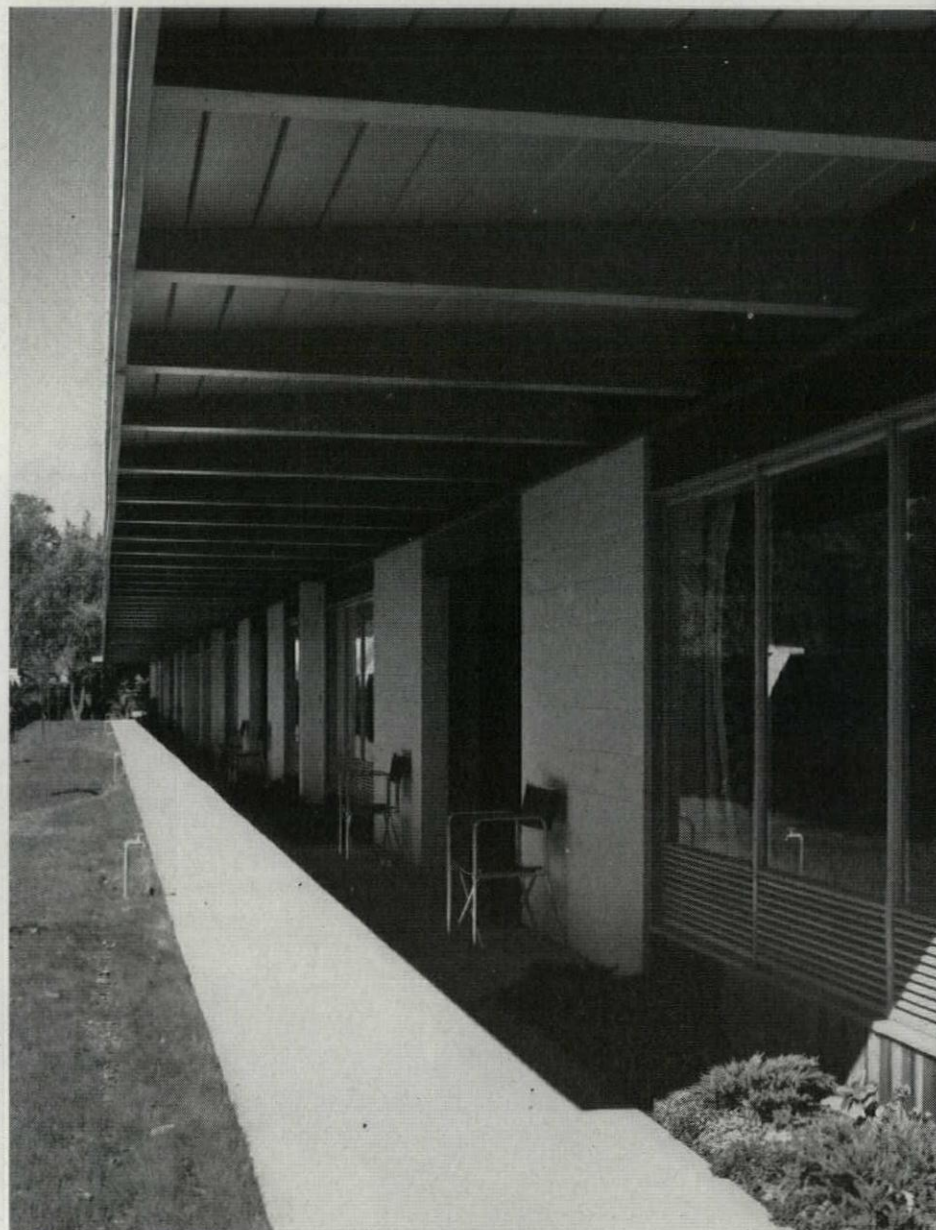
quartets of motel units around service cores

Halfway between Salt Lake City and San Francisco (one day to either by car), Motel Winnemucca is a fine place to pause in architectural transit in either direction. Although built with better-than-resort spaciousness, this is strictly a transient motel. When completed the group will include 40 guest rooms, a service station and a coffee shop around a small, landscaped park.

Rooms are large enough (18' x 20') for two over-size double beds plus a roll-away bed in emergencies, two or three easy chairs, coffee table and luggage racks. Big windows make the space seem even larger. The owner asked the designers for the finest motel in the country in accommodations; they gave him one of the handsomest as well.



Statistics: 13 units; cost, \$10,000 per unit furnished, \$11.25 per sq. ft. unfurnished; rates, \$8-\$10 per night, double; average stay, one night; plot, 13 1/4 acres; restaurant facilities included; planned for expansion (see above).



Wide overhang is for sun protection as well as rain. Under-window louvers ventilate



Rooms sit in two parallel rows on hillside

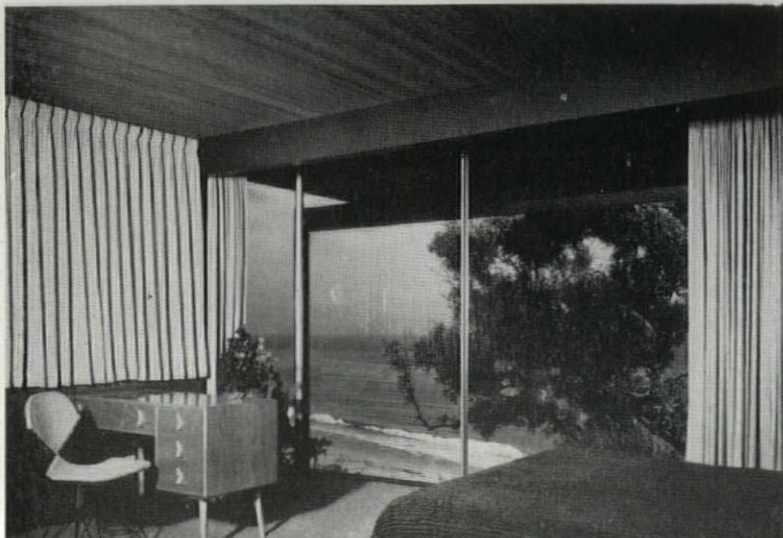
HOLIDAY HOUSE
RICHARD J. NEUTRA, architect
RAY HOWE, general contractor

AT MALIBU, CALIF.:

for every room, a terrace; for every terrace, a sea view

Bedroom looks seaward past private terrace

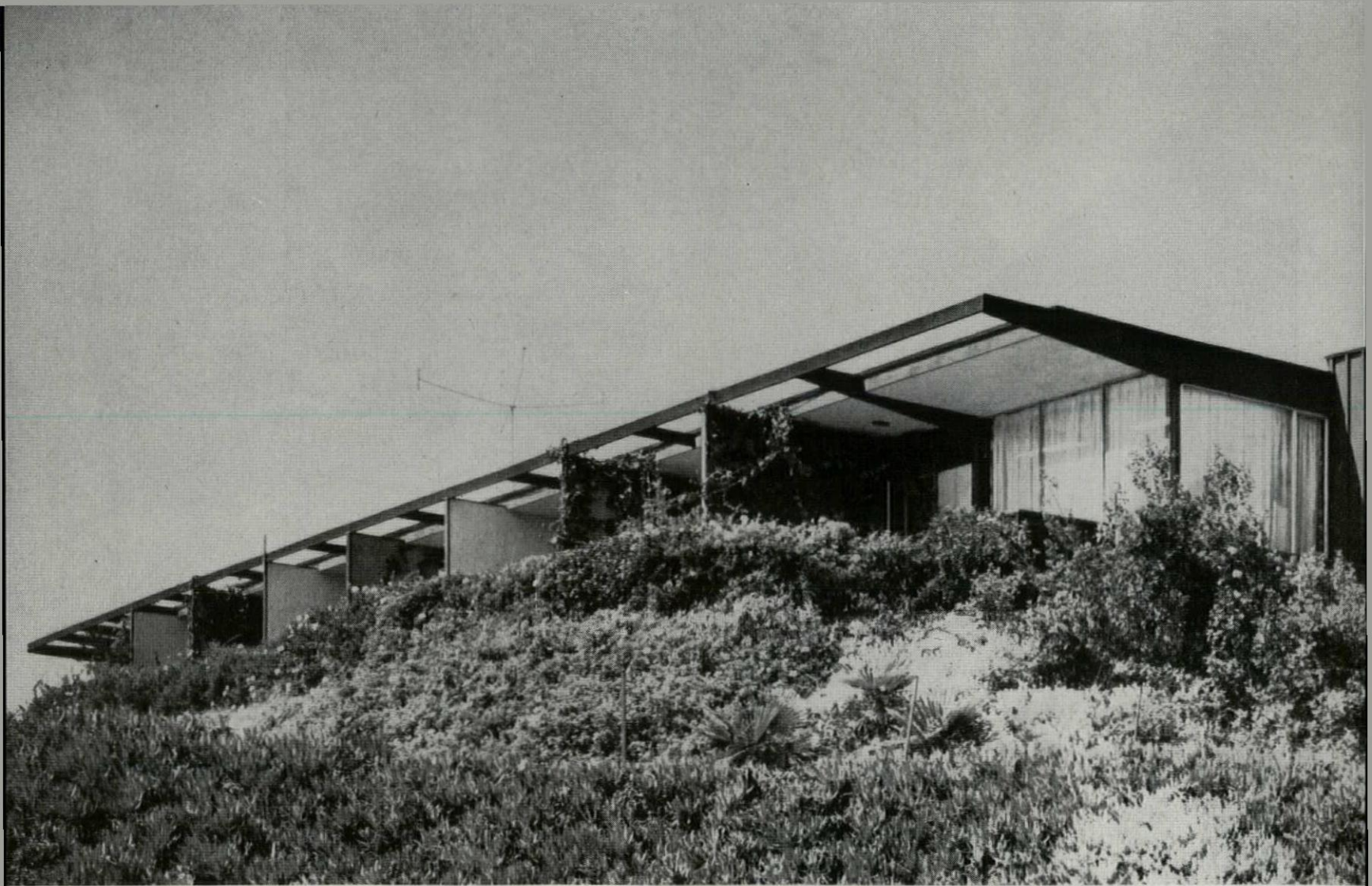
Photos: Julius Shulman



Over Escondido Beach, Richard Neutra has built an architectural peak for motels to climb; it is well worth climbing—rates are \$8 to \$15 in wintertime, \$10 to \$20 in summer.

Oriented south for view and sun, the rooms are in two wings perched on the hillside. The top wing looks over the lower. Typical accommodations are single rooms entered from a landscaped, covered walk on the north; at the wing ends are suites with fireplaces, small kitchens, etc.

The cliffside of swank units are offshoots from a successful restaurant that still operates to one side of the residential wings, a fact which should interest both architects and investors.



Unit terraces are separated by screens. Restaurant (parent of group, right) shares lower level with one of two motel wings and picturesque olive tree

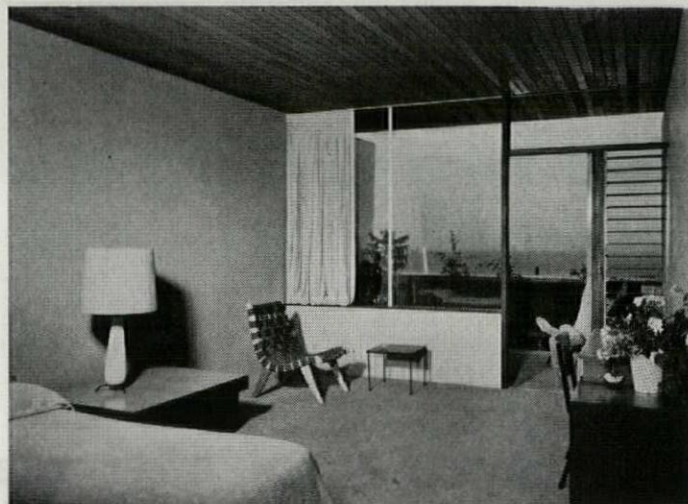
Photos: Julius Shulman

Expansion: uphill and down

This successful venture has a lesson for anyone planning a restaurant in a resort area: buy plenty of land and use it in a way so that wings of resort rooms can be added later. Having grown this far, Holiday House is still planning to add a swimming pool, lower terrace and barbecue nearer the foot of the cliff.

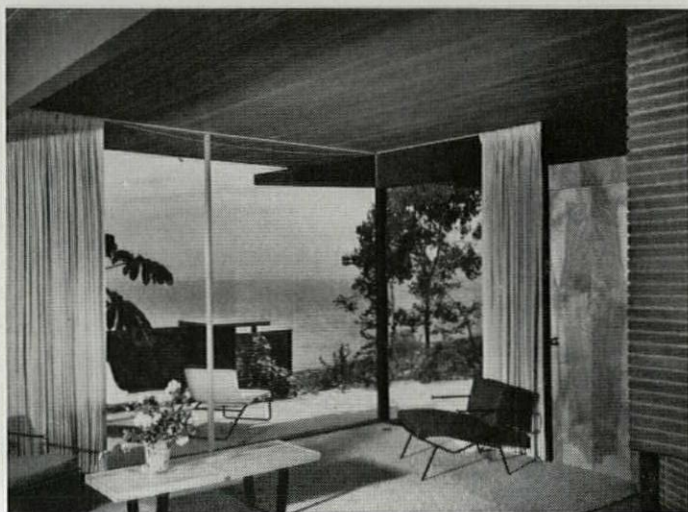
The simple timber chassis, framed parallel to the long fronts over cantilevered cross-girders, is finished in waterproof Eucalyptus plywood, redwood T&G siding, asphalt tile and brick masonry. Neutra's familiar, strong, elegant rectilinear planes are further defined by the corners and struts which thrust out of the framing. The color composition is rich: light yellow spur walls separating terraces and rust colored balcony rail panels reflected calmly in big, cool, shaded plate-glass walls.

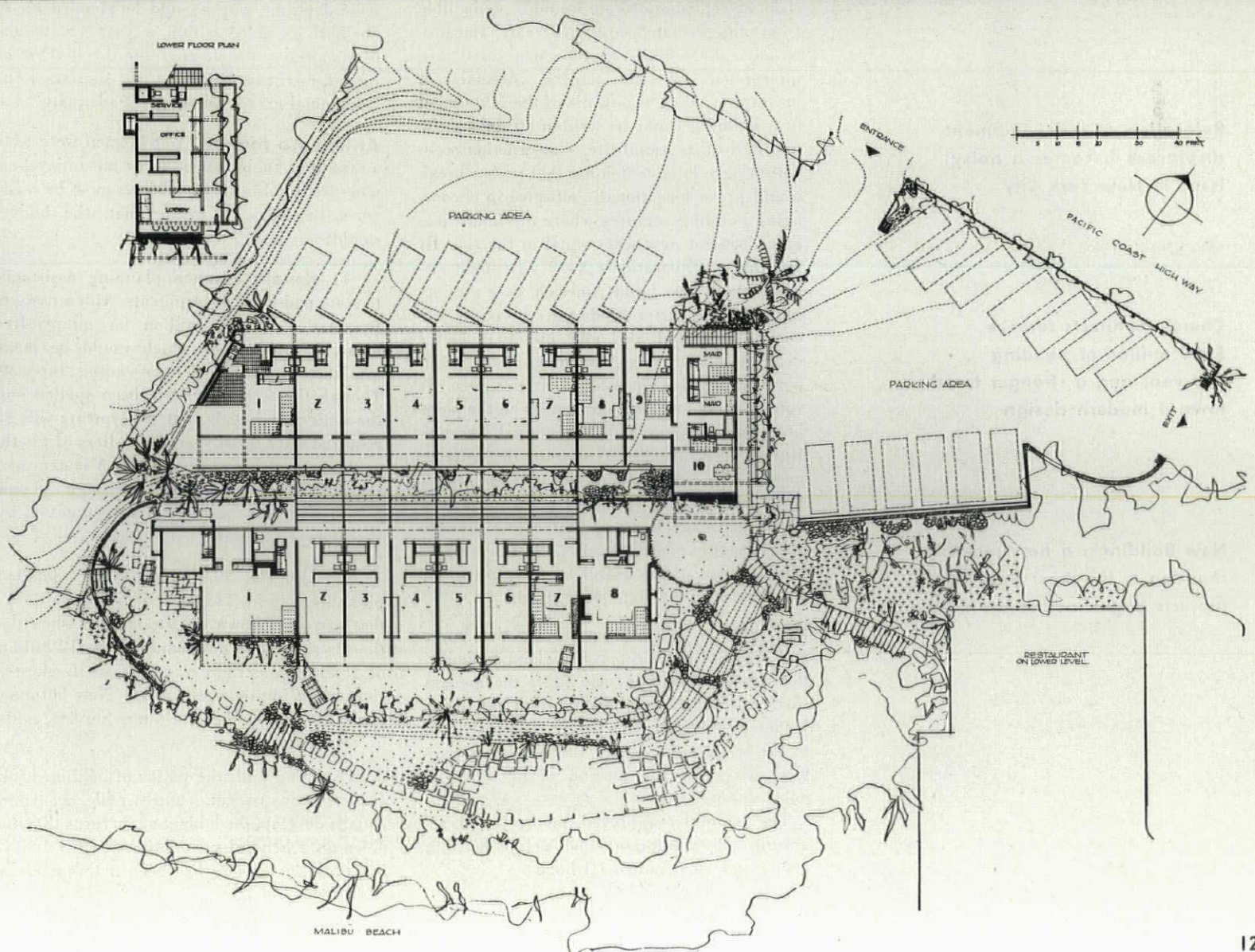
Statistics: 18 units; cost \$5,500 per unit furnished, \$11.00 per sq. ft. unfurnished; rates, \$8-\$20; average stay, two nights; size of plot, 1 $\frac{3}{4}$ acres; restaurant facilities; planned for expansion.



Single room opens on secluded terrace

Corner room uses exposed framing for decoration





Administration moves to aid building

► **House committee votes for faster tax write-off on private buildings—a big potential boost**

► **Budget would trim federal construction but allow more advance planning for anti-recession works**

IN THIS MONTH'S NEWS

(see pp. 35 through 48)

AFL building trades, after appeal by big constructors, study ways to recapture work going to other unions

Shoppers' World, the pioneer regional shopping center, asks a bankruptcy reorganization

Relocation of redevelopment displacees becomes a noisy issue in New York City

Church architects foresee \$500 million of building this year and a stronger trend toward modern design

New Buildings: a new monthly roundup of the most significant projects begun across the nation

TAXES

Backing up its talk about tax relief with action, the House Ways and Means Committee decided to ease the existing law in several ways that promise to cheer the building industry. In preliminary votes during its section-by-section revision of the nation's complicated tax structure, the committee:

► Endorsed President Eisenhower's suggestion for liberalizing depreciation on new plants and equipment and other buildings, including rental housing, retroactive to Jan. 1. Under present law, depreciation is spread out equally for the full life of a building. Under the new "declining balance" method, double the straight depreciation rate would be deductible from undepreciated cost each year. The proposal, said committee sources, was widely misinterpreted in daily papers. Actually, it meant that about two-thirds of the investment in a building could be written off during the first half of its useful life. Construction economists have long contended that such a break would prove sensationally effective in encouraging building ventures where the immediate gain does not now seem equal to the risk. It was the administration's No. 1 way of encouraging those who build America, thus producing more and better goods for everybody. The committee would also give owners a better deal in determining how long amortization periods must be for income tax purposes. It voted to make written agreements on the point between taxpayers and the Internal Revenue Bureau overturnable (even by the government) only on presentation of facts which were not taken into account when the agreement was made. It voted that unless revenue men disagree more than 10% with a taxpayer's estimate of the useful life of a property, the taxpayer's estimate shall stand.

► Adopted a revision permitting the buyer and seller of real property to claim as deductions from federal income taxes the amount each contributes in meeting local tax liens. Under present law, this privilege is restricted to the seller even though the purchaser pays local taxes for the portion of the year he holds the property.

The committee approved, then rejected, removing tax exemption from public housing bonds and local industrial bonds.

BUDGET

In its bearing on construction, President Eisenhower's new budget was remarkable chiefly for the emphasis it placed on the economic-balance-wheel concept of building. While the President put total federal public works expenditures for the new fiscal year of 1955 at \$4.5 billion—only a slight falling off from the fiscal 1954 estimate of \$4.9 billion—he outlined definite measures for boosting the volume if the sag in the nation's business deepens. The administration view: public works should be "accelerated in slack times and restrained in boom times." Said the economic report:

"If it should become necessary, outlays for federal public works could be stepped up by one-half or more within a year. State and local outlays, which are now the highest on record, might be expanded to a similar extent, if financial arrangements were adequate."

Antislump moves. But Ikemen were well-aware that to be effective as an anticyclical measure, public works projects must be ready when needed. To insure that, the budget would:

1. Restore advance planning assistance to state and local governments, with a new appropriation of \$10 million for interest-free loans, \$3 million of which would be made available in the fiscal year ending June 30. Though the terms have not been spelled out, the understanding is that repayments will be required after three years regardless of whether the project has started. HHFA is expected to run the program, probably through the new Urban Renewal Administration suggested by Eisenhower's housing policy committee.

2. Allocate \$9.5 million for detailed planning on a backlog of federal public works that can be thrown on the market when the time is ripe. The government has \$12 billion of reserve construction on its shelf—mostly river-basin improvement work. New building work, by the Public Buildings Service, adds up to a mere \$500 million.

In keeping with the policy of holding back federal construction until real economic squalls develop, the budget again turns thumbs down on a general resumption of PBS' building program. There has been nothing like a

full-scale public building program since before World War II.

Few civil public works. The budget estimate of \$4.5 billion for federal public works expenditures during the new fiscal year distorts the picture as far as construction undertaken directly by US agencies is concerned. Reason: it includes federal aid via loans and grants for joint programs such as highways, airports and hospitals. Without such matching aid projects, proposed civilian-type federal public works would shrink almost to zero. For both direct federal and federally aided programs, the budget calls for outlays of \$1.6 billion for fiscal 1955. For fiscal 1954, the corresponding total is estimated at \$1.9 billion.

A big exception to the policy of no federal construction while the economy remains on an even keel: two 1,000-bed neuropsychiatric hospitals that VA calls "urgently needed." One will be near San Francisco; the other in Topeka, Kan.

The \$25 million San Francisco hospital was originally scheduled for construction at Ft. Funston, an abandoned coastal defense facility on the Pacific Ocean not far from the new Stonestown shopping center (AF, Mar. '53). But in December, after VA had spent \$200,000 grading the site, the Civil Defense Administration asked for a ban on such structures within 10 mi. of any critical atom-bomb target area (unless they were built to withstand atom blasts). Upshot: VA began inspecting sites in outer suburbia where it will be hard to persuade able neuropsychiatric doctors to work, thus canceling one big reason for building the hospital in San Francisco at all. VA men complained that bombproofing would cost \$2 million more.

Military plans: a puzzle. For military construction, outlays estimated at \$1.65 billion for fiscal 1955 would be the same as for the current fiscal year. AEC would get \$1.25 billion—some \$3.25 billion less than this fiscal year—but carry-over funds will probably make actual spending at least the same.

The budget did not tell the whole story on military building. It noted that \$1.1 billion more will be sought later for projects the armed forces are not ready to talk about yet (see p. 35). This would be on top of the \$2.69 billion in carry-over appropriations still unspent by the armed forces. Regardless of what the budget says, outlays for military construction during fiscal 1955 should be close to \$2 billion. The big backlog moved the House appropriations committee to complain that it shows "an inability on the part of the Defense Dept. to carry out a construction program which has been presented to the Congress as essential."

Public housing. For public housing, the President recommended a 35,000-unit-a-year program for four years as "an interim measure" while time tells whether his proposed long-term, low-down-payment FHA loans for low-income families displaced by slum-clearance will work.



HOSPITAL NEEDS as shown in an exhibit in the Welfare Dept. building at Washington are inspected by Welfare Secretary Oveta Hobby; Dr. John W. Cronin, director of hospital facilities for the US Public Health Service; Architect Marshall Shaffer, chief of technical services under Cronin; and Dr. Leonard Scheele, US surgeon general. In pie charts, darkest tone denotes unmet need in 1953.

Eisenhower asks more federal aid to build hospitals and new stress on nursing homes

Under the 1946 Hill-Burton Act, the US government has ladled out \$600 million to help states and localities build hospitals. The result: 105,000 beds in 2,192 projects under way or completed—hospitals for which localities put up another \$1.16 billion of their own money—plus 464 public health centers. Another \$1 billion has gone into hospitals built without federal aid in the last six years.

Even so, declared President Eisenhower last month in his health message to Congress, "new hospital construction continues to lag behind the need." Accordingly, the Chief Executive called for more federal aid to hospital construction—with a new emphasis on chronic disease and rehabilitation hospitals and nursing homes for the aged because they 1) are cheaper, 2) would tie up fewer nurses needed by desperately ill patients, and 3) would extend effective medical care to areas where it is now inadequate.

New formulas. Legislation to carry out Eisenhower's ideas was introduced in Congress promptly. The Senate bill (S. 2,578) was sponsored by Sen. Alexander Smith (R, N.J.) and cosponsored by Sens. Ferguson (R, Mich.), Upton (R, N. H.), Hill (D, Ala.) and Ives (R, N. Y.). The House bill (H.R. 7,341) was introduced by Chairman Charles A. Wolvertson (R, N. J.) of the interstate commerce committee. Both measures would authorize another \$60-million-a-year appropriations (for the next three fiscal years) to match state and local funds. The money would be sliced up on this basis: \$20 million for nonprofit diagnostic or treatment centers, \$20 million for nonprofit chronic disease hospitals, \$10 million for nonprofit rehabilitation facilities and \$10 million for nonprofit nursing homes. The \$60 million—if Congress passes the bills and votes the money—would be added to the \$50 million earmarked in the Eisenhower budget to continue the existing Hill-Burton program. The \$110 million would nearly double federal construction funds in the health field next year; although the Hill-Burton act calls for \$150 million a year outlays by the government,

Congress has never voted that much; this year the appropriation is only \$65 million.

Higher minimum grants. The new measures would pare down the preferential treatment now accorded projects in poorer states (but not state allocation of funds). Under the present formula, the government puts up between one-third and two-thirds of the amounts put up locally (in 13 states, the state government splits the nonfederal share with the city or absorbs it *in toto*). But the amount of federal grant varies in inverse ratio to the state's per capita income. Under the new bills, the minimum grant would start at 50%, with the same 66% ceiling. New minimum allotments: \$100,000 for diagnostic and treatment centers and chronic disease facilities, \$50,000 for nursing homes and rehabilitation centers; \$2 million in matching funds would help states survey their needs in these fields.

Survey and planning grants would become available as soon as Congress appropriates the money; construction grants would become available six months after the enactment of the new law—to give officials time to set up standards and priorities. That job, like supervision of other Hill-Burton construction, would fall to the US Public Health Service. In design, said Dr. John Cronin, director of hospital facilities, USPHS would expect to continue its policy of imposing no standard planning, requiring only a regional check of blueprints to see that they meet minimum requirements.

USPHS Architect Marshall Shaffer saw intriguing design challenges in some of the new facilities, notably nursing homes. Except for a few scattered retirement homes built by religious and fraternal groups, there has been practically no such construction. While nursing homes would cater to convalescents on the first lap of their journey home from hospitals, they are expected mainly to fill a long neglected need for old people's homes. And, as Eisenhower told Congress: "The provision of such facilities, particularly in rural areas and small isolated communities, will attract physicians . . . where they are urgently needed."





FEDERAL RESERVE BANK, Detroit
SMITH, HINCHMAN & GRYLLS, INC., architects and engineers
MINORU YAMASAKI (of Leinweber, Yamasaki & Hellmuth)
design consultant
O. W. BURKE CO., contractors

MODERN BANK ANNEX

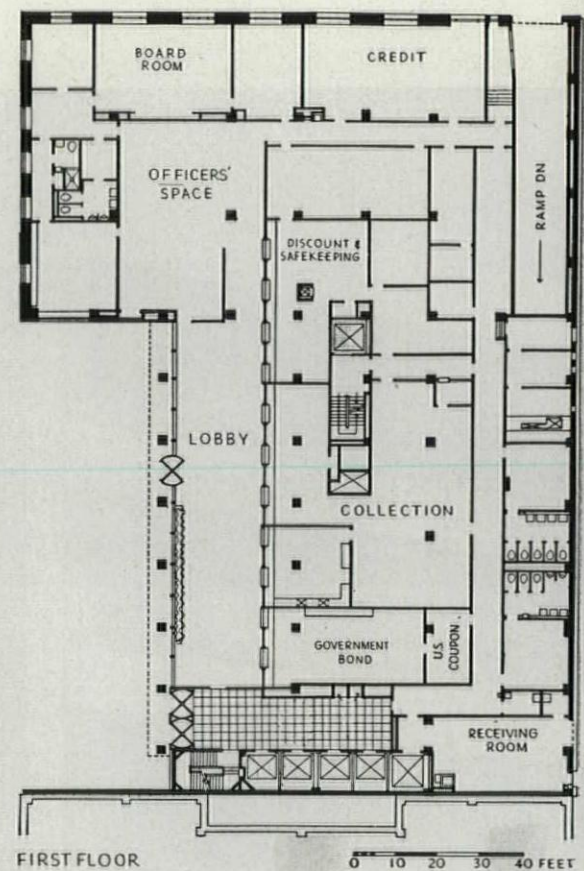
sets five examples for downtown building

1. *An example in integrating architecture new and old.*
2. *An example of flexible plan and friendly open atmosphere for the public.*
3. *An example in thin marble curtain wall-design.*
4. *An example in how to open up a downtown street front to light and air with a patch of green.*
5. *An example in converting a roof to elegant employee recreation.*

"Shariwaggi" is a word from India describing the art of picturesque composition in combining new architecture with old so as to enhance both. Small bank building (at left) designed in 1927 by Graham, Anderson, Probst & White, was considered a gem of Detroit. Instead of razing or skinning it, the new architects respected it, made minimum alterations, let it "front" ornamentally for new, sleek, eight-story annex, as good "shariwaggi."



Photos: © Ezra Stoller



Ornate cornice, frieze and belt mold were continued around the new exposed part of old building for integrity.

Outdoors: neoclassic and modern meet in friendly marriage

When the bank annex was first projected, as Detroit's only new downtown office building since the war, it was expected that the old building would either be razed or else swallowed by the new. This old Federal Reserve Bank, built in 1927, was an excellent neoclassic building greatly admired. But architect Minoru Yamasaki—then employed by the Smith-Hinchman firm—came up with a brilliant idea:

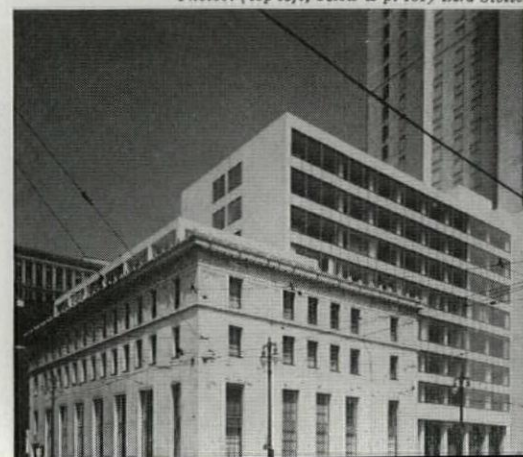
1. Save the skin of the old bank—to replace the building would have cost between \$250,000 and \$400,000—and modernize the interior.
2. Set a fully modern annex alongside and slightly behind the old bank, covering less than the whole site.
3. Cut through from the interior of the old building into the new, for a unified open-banking plan.

The resulting union between buildings as different as the old bank and the new annex sets a shining example for architects and building owners in every US city. Today's common practice is either to "modernize" all the past history out of existing buildings in harmonizing them with the new, or else to ignore the contrast between unaltered old buildings and unbending new ones, and be content with chaos. Every time an old building is shorn of its history, the citizen not only loses from sight a piece of his past but some sense of his destiny, too. In Detroit's old bank is preserved not only the earlier ornament but the small neighborly scale.



BEFORE
and AFTER

Photos: (top left, below & p. 131) Ezra Stoller





In well-lighted lobby, note second high row of small windows above solid panels in wall at left. All-glass front would have produced glare and spoiled the space effect of the room.

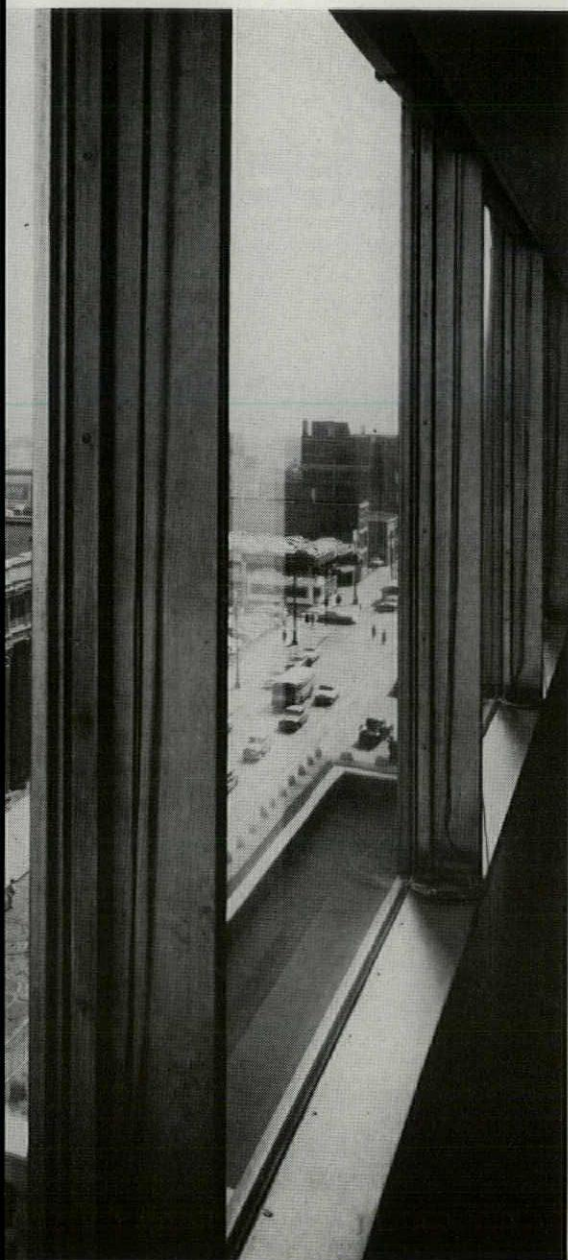
Indoors: open planning points to candid future

Unlike yesterday's banker, today's retreats to no sanctum in the inner recesses of a solid palace. Like the merchant, the baker, the candlestick maker, he welcomes the public behind an open front and shows as much as possible of what he is doing. In the friendly atmosphere of the main lobby, its beauty enhanced by the use of plants and handsome furniture, the customer can relax in comfort until his number is called, and can watch the whole busy activity of tellers through a continuous plate glass window.

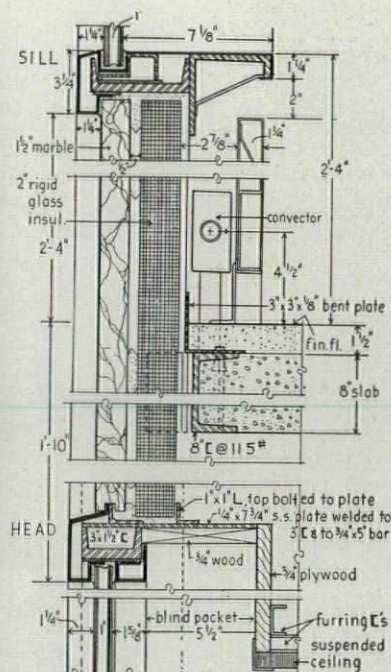
Meanwhile the bank personnel, in their own working quarters, whether on the lobby floor (right) or on office floors upstairs, enjoy the flexibility of operation ensured by uniform lighting, by underfloor wiring, by folding and demountable partitions. The bank utilizes all upper floors. Here planning was freed by decreasing columns from four rows to three, increasing bents from 16' to 33' (at slight cost). Framing is sized to support four more floors if needed. The building cost \$3,600,000.

Officers' area in older building has same treatment as in new annex.

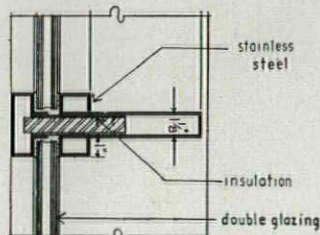




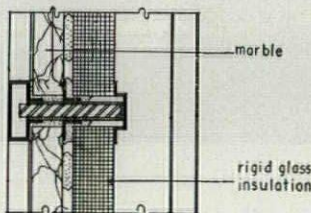
Photos: Ezra Stoller



VERTICAL SECTION



MULLION - PLANS

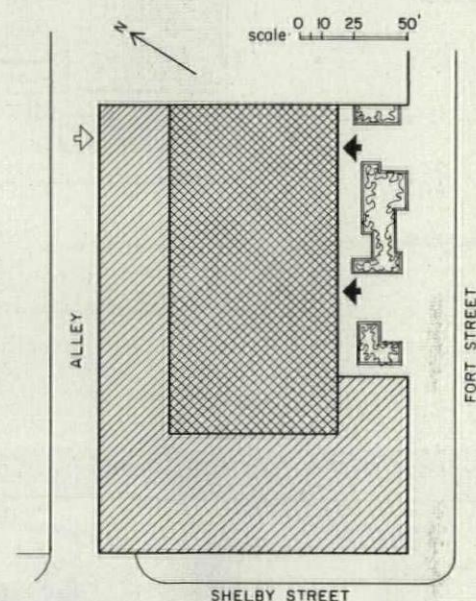


Steel grid holds 1 1/2" marble skin

Backed with 2" rigid foam-glass insulation, instead of the customary 8" brick, this thin marble-grid wall makes room for thousands of square feet of extra floor space. Behind the insulation are reflective aluminum sheets and heat convectors, chosen for better heat control in individual offices.

Panels of fixed, glare-reducing double glass are anchored to the same stainless-steel-covered grid, sealing the fully air-conditioned interior. The architects consulted three window-washing firms, found that washers would rather work outside from a scaffold, than climb in and out to wash double-hung sash.

Higher construction costs were offset by indirect economies of the wall. Averaged out, the cost was beyond conventional construction. But much of this was the price of pioneering. The stainless steel grid will escape maintenance charges for painting or refinishing, and the architects estimate that their thin 2" wall saved 1,200 sq. ft. of usable space that a conventional wall would have occupied, besides taking tons off the steel frame.

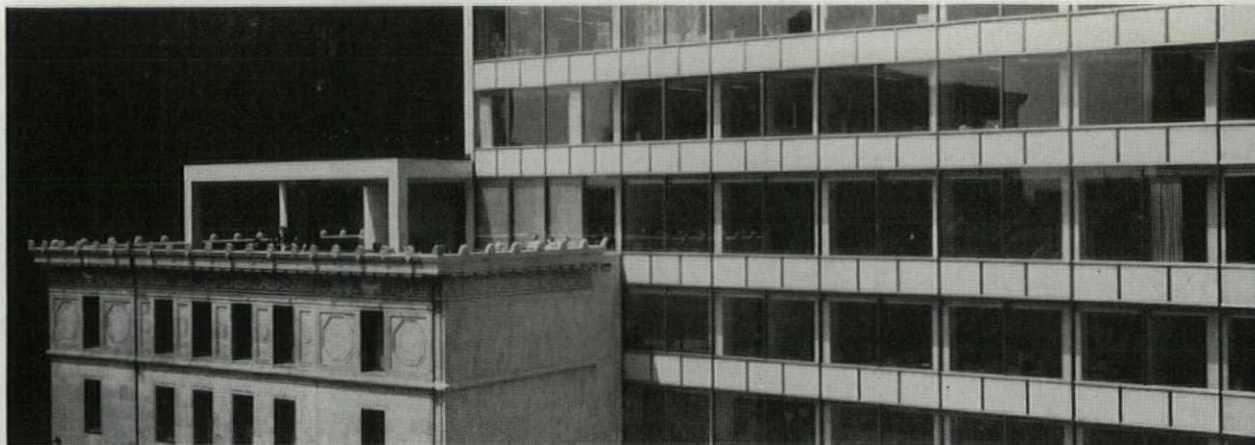


30' setback creates entrance plaza

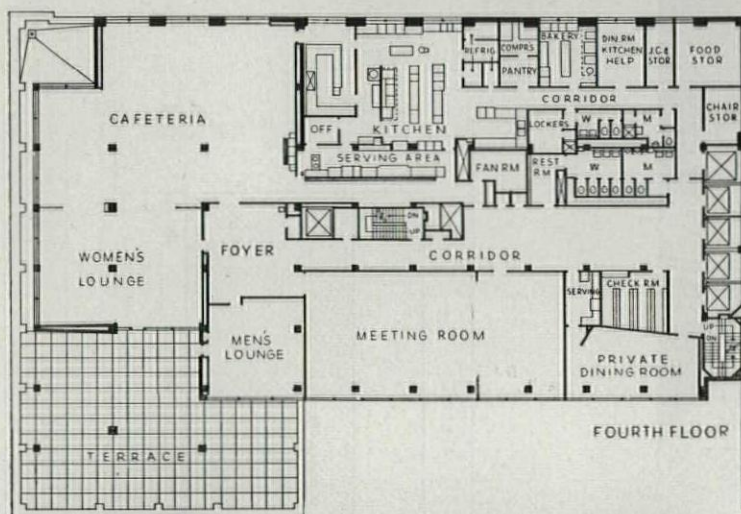
This setback is an improvement in siting. To cut this notch in the building line, the Federal Reserve paid voluntarily for new marble facing on the exposed party-line flanks of its own bank on one side (see p. 128) and the Dime Building on the other. Here are the compensations:

The setback saved a heavy remodeling job on the Greco-Roman bank front; if the annex had been sited alongside on the building line, it would have been necessary to correlate exteriors, instead of contrasting them. Since a building 95' deep instead of 125' was fully adequate, it was easy to back from the street.

The setback opens up the street view in a district where the tallest skyscrapers arise from the sidewalk without setbacks. And this was self-service too, the kind that Realty Potentate William Zeckendorf described by commenting that "there is more profit through esthetics than any other phase of real estate."



Tellers and tabulators relax on a rooftop



Employee terrace-lounges make use of the existing roof, proving you can have a penthouse at only the fourth story. Employee lounges, which help the bank attract better help, have taken flight from the overstuffed Union League atmosphere into an airy atmosphere filled with bright-colored, handsome materials.

THE OWNER'S REPRESENTATIVE:

"A traditional man" who looked forward

Banker Ernest C. Harris, who was vice president in charge of the Detroit office when the annex was built, is a man who has lived always in surroundings of "traditional" taste. Yet as the planning developed, over a long period of time (watched closely by Mr. Young, president of the Chicago home office, by the directors, by H. J. Chalfont, now retired, who was Harris' associate) joint decisions made the exterior contemporary, the interior simple.

Vice president Harris is big and blunt (he stands 6'-1½", weighs 225 lbs.) but approachable, and has never been one to be content with things as they already are. Starting life the son of a well digger, he worked his way through two years of college, learned to sell cars (Studebakers), switched to banking in 1922 as a clerk for Security Trust Co. Still facing forward, within 16 years he was president of Union Guardian Trust, became branch manager of the Detroit Federal Reserve in 1943.

Banker Harris explains that Smith, Hinchman & Grylls were selected because they had done the Penobscot and the Guardian Buildings, were known to be prominent in the field. "The fact that they were local also had a bearing."

The designer in charge was Minoru Yamasaki, who convinced the directors that "modern treatment would provide us maximum efficiency at lowest cost. It's expensive to build old buildings."

"Then, too," adds Harris, "as Yama said, 'who would buy a suit of clothes 30 years out of date?'"

Harris declares his fellow officials were all agreed, made decisions mutually. "I suppose I'm especially proud of that building because of the misgivings we had at first. We stuck it out, though, and I'm glad. Usually after finishing a building one thinks of several things he wishes he had done. This has not happened in Detroit."

Banker Harris never had the chance to enjoy occupying his new building. Four years ago he moved forward again, to serve as vice president of the Federal Reserve Bank in Chicago.



Vice president's office has window at left looking out on garden, and hung acoustic plaster ceiling bounded by a lighting cove which washes the walls with light. A rectangular louvered panel of recessed lighting gives 100 foot-candles to the desk.

Directors' room (below) sticks to traditional English oak but in straight matched panels floor to ceiling.





Photos: © Ezra Stoller

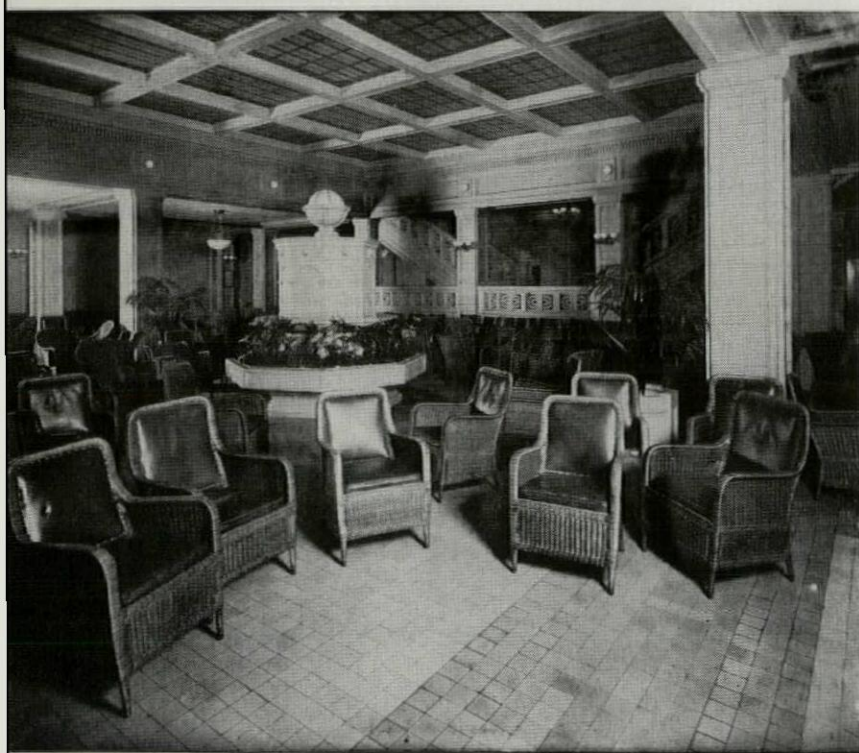
Women's lounge has drape at left of bright red color, echoed on chair upholstery; the door at right is blue, echoed on other chair upholstery; window drapes, cheerful yellow.

Cafeteria has light gray rubber tile floor, bright red chairs, a yellow and blue line slim fluorescent light baffle, and peach colored ceiling canopy.





Photos: (above & p. 137) Warren Reynolds • Photography Inc.



1914

1928

Same architects...same client...same problem

ELLERBE AND COMPANY

MAYO CLINIC

DIAGNOSTIC CENTER

Three times, pressed by the need for space,
doctors of the Mayo Clinic have built themselves a new diagnostic center

LOCATION, Rochester, Minn.

O. A. STOCKE & CO., INC., general contractor



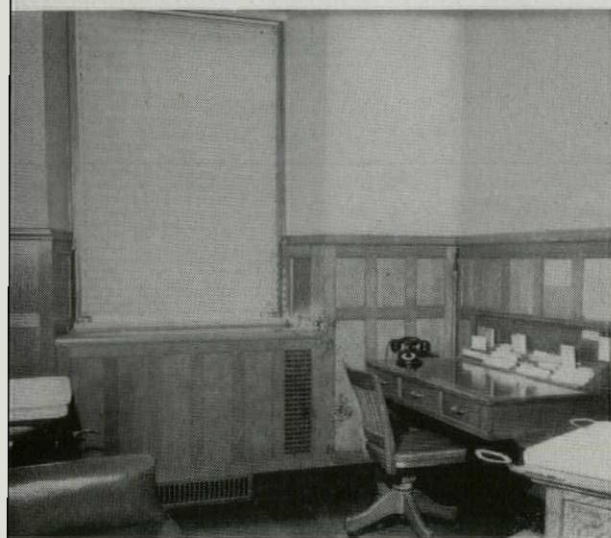
1954

These three buildings are a fascinating study in architectural evolution because underneath their differences is a solid continuity of philosophy, function and planners.

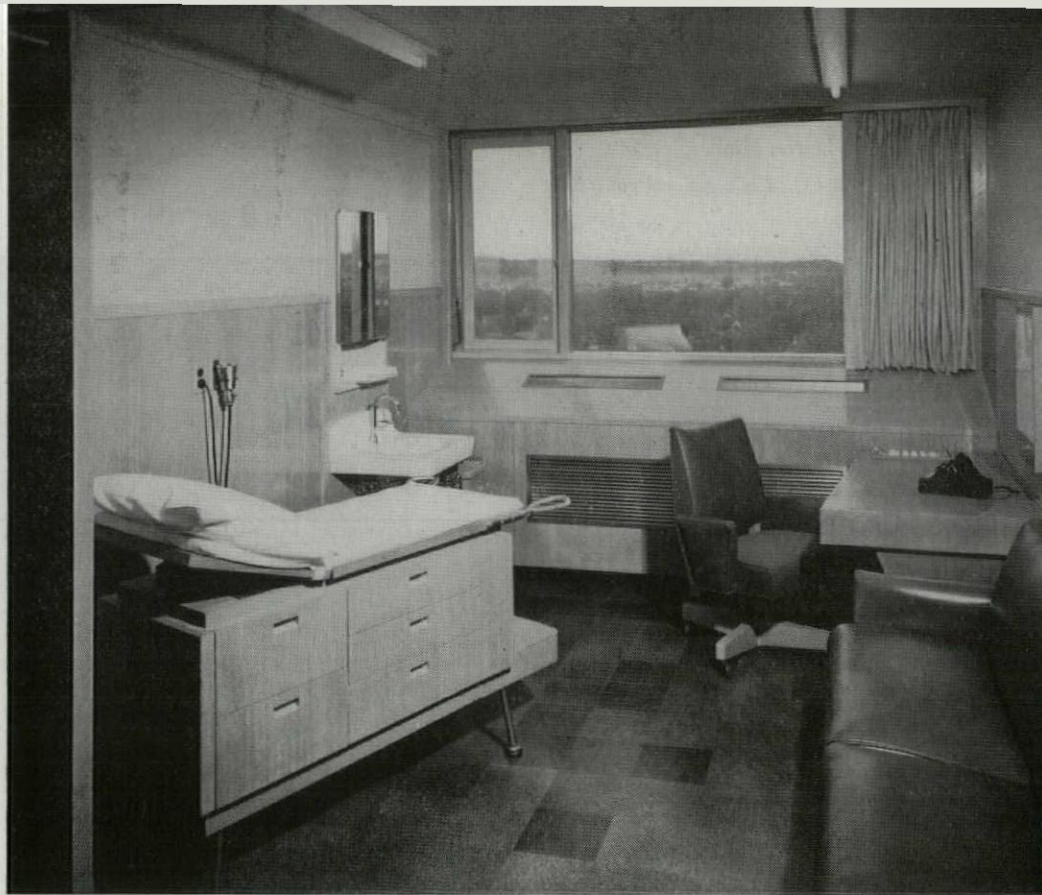
The handsome marble and aluminum 1954 building is itself a fascinating study in office and medical planning, in the mechanics of moving people and papers, in ingenious detailing. These matters of great importance to all kinds of buildings and their occupants are explored on the next eight pages.



Doctor's office makes interesting comparison with same room in 1928 building (below)—which was same as office in 1914 building. Only 1954 plan change is switch of couch to desk side. Old idea: patient would see what doctor was writing. New idea: unnecessary precaution and bad for conversation between physician and patient.



1928



1954

Photos: (above & p. 139) Warren Reynolds • Photography Inc.

After 40 years of use, the basic unit—the doctor's office—remains almost unchanged . . .

It is precisely the same size as the consulting and examining office in the 1914 and 1928 buildings. It has precisely the same items of furniture, arranged in almost precisely the same way.

This is not from lack of trying to improve it. For the 1954 building, this basic room was thoroughly restudied; three successive full-size mock-ups were built, tested and dismantled. The more the room was tested and studied, the closer it returned to its original form.

Undoubtedly the reason for this room's incredible staying qualities is the genius of its original planner, the late Dr. Henry S. Plummer.

Dr. Plummer, an early associate of the Drs. Mayo and one of the clinic's founders, had an architectural sophistication far in advance of his time. Whether or not he had heard that form follows function, he completely understood that function follows form. In 1910 he deliberately set out to create a building that would be a tool for practicing medicine in a particular way—so it could hardly be practiced any other way. There was no previous building type to guide him or the architects because the idea of integrated medical practice was itself brand new.

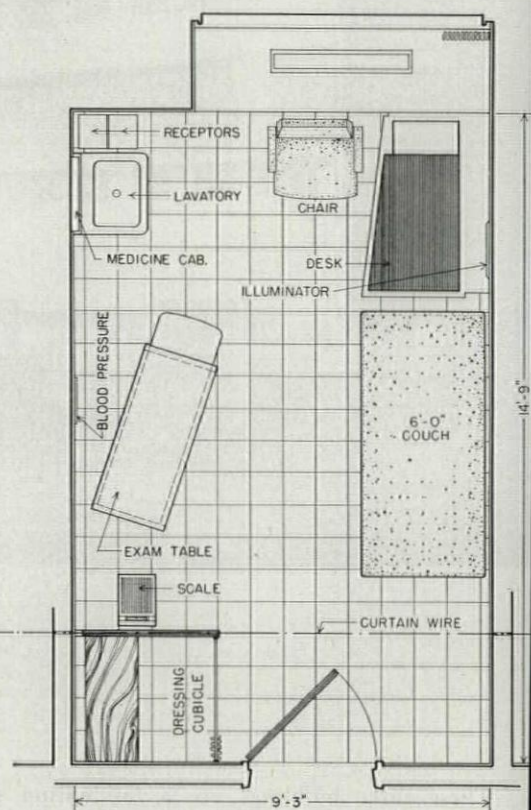
Here are some of the function-follows-form principles which Dr. Plummer and the Ellerbe office built into the 1914 building and which still hold:

► All physicians under one roof, for ease and freedom of consultation and continuous cross-learning. Although the staff has grown to 300, plus several hundred post-graduate resident "fellows," and the number of patient admissions to 150,000 a year, this is still a primary principle. It accounts for the sheer massiveness of the new building and for the fact that eight stories can be added to the present ten.

► No place for bosses, no "corner offices," a suite arrangement to express and maintain the idea of a cooperative community. Offices are grouped in "sections" and any physician uses any consulting and examining room in his section.

► "Build the routine procedures in" instead of sending out administrative orders on how things should be done. Dr. Plummer and Ellerbe built in wonderfully complicated signal systems of all kinds (they worked beautifully). Even the janitor's closets which Dr. Plummer also master-minded according to his "make the right way the easy way" thesis, have a place for everything and look permanently as if a Scandinavian housewife had just been through them.

So perhaps it is no wonder that a later generation has found so little other than style to change in the basic and most important unit, the place where the individual doctor works with the individual patient.

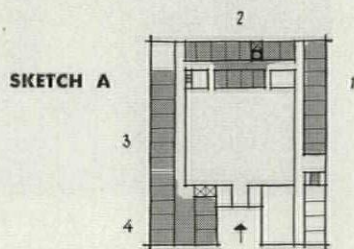


... the big change is in the way the units are linked together

Architect Tom Ellerbe (who did drafting for the 1914 building which his father built, and then built the 1928 building), says his "building module" is the general medical section. This is now a group of 11 identical examining and consulting offices plus staff room, for five staff physicians and three or four assistant "fellows."

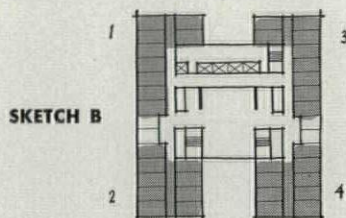
Observe the progressive cleverness with which the architects have arranged these sections:

► In the 1914 building, the four sections per floor ran around a U, with a reception desk at each corner (sketch A).

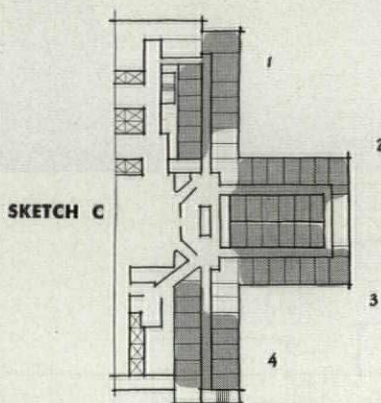


Floor desk points prong into each right-angle corridor intersection. Control is so good, direct view down one corridor gives peripheral view down other.

► The 1928 building was an H, with waiting room in the center and two sections, joined at one reception desk, on either side (sketch B).

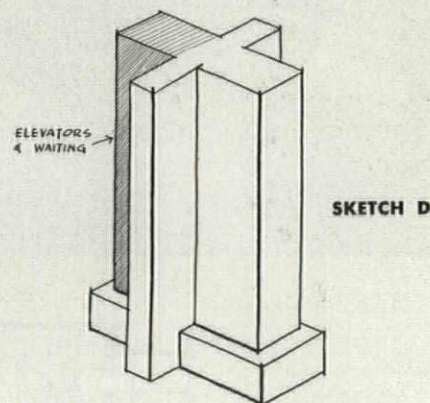


► The 1954 building joins four sections at one reception desk (sketch C), an accomplishment made possible by air conditioning.



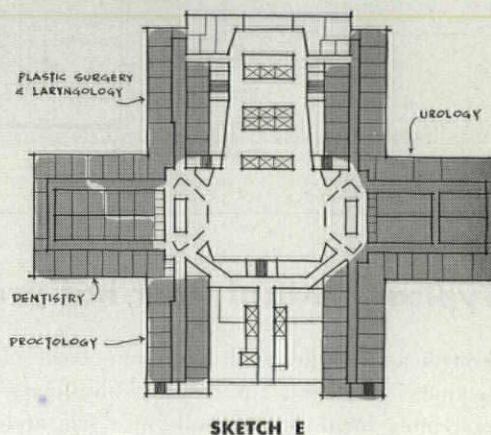
Chief advantage is the flexibility this gives on specialty floors, where departments can run from section to section without physical interruptions (sketch E).

Ellerbe's first idea was to stack 4-section floors atop one another for an initial height of 18 stories, an ultimate height of 33. But the elevator study (p. 142) showed that to service such a building, elevators and lobbies would occupy more space than all the rest of the building. A preliminary



design (sketch D) provided for less than a third of the elevators actually needed!

Solution: the floors were simply doubled (sketch E). These big floors have 49,000 sq. ft.; the 1954 building has 122% greater capacity than the taller 1928 building. To see how well the doubled floor plan works—the way separate vertical staff circulation feeds into the sections on both sides, the way its size permits decentralized common staff facilities, the way its layout helps patients find their destinations—turn the page.



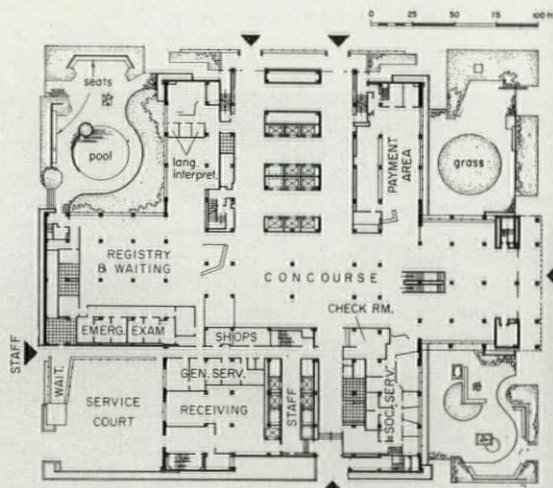
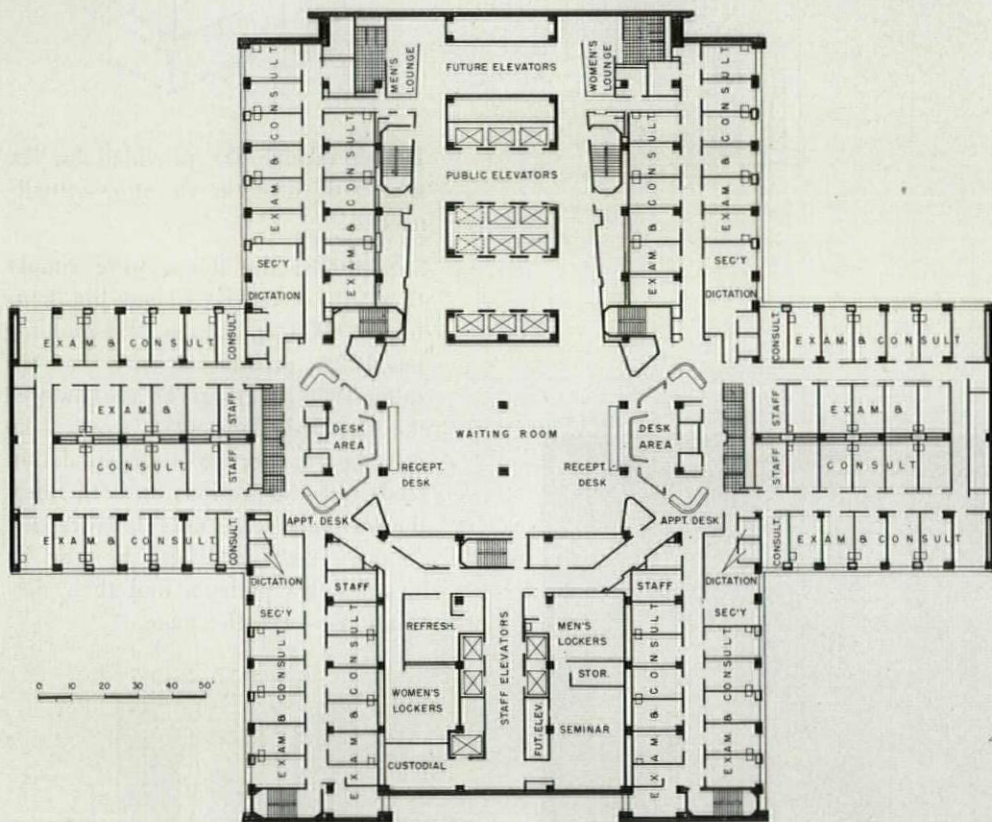
Photos: (above & p. 139) Warren Reynolds • Photography Inc.



Photos: Warren Reynolds • Photography Inc.



Reception desk (left, above) handles half a floor, is screened from work area. Lounge (top) for women patients is on each typical floor. Secretarial area (above) is at juncture of two sections.

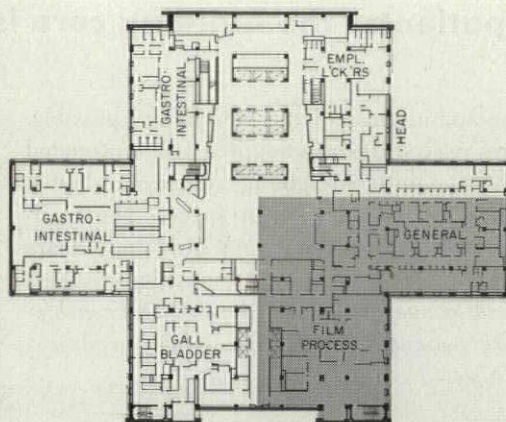


Typical medical floor has precise circulation control . . .

Fourth to tenth floors all have same basic plan with top three devoted to general medical sections (analogous to "family physicians"), other four for specialties. Circulation is extremely lucid despite building's size and complication. Staff vertical circulation and floor facilities make separate closed unit, nicely linked to office corridors. Patient traffic feeds through flared corridors only into central waiting-reception area.

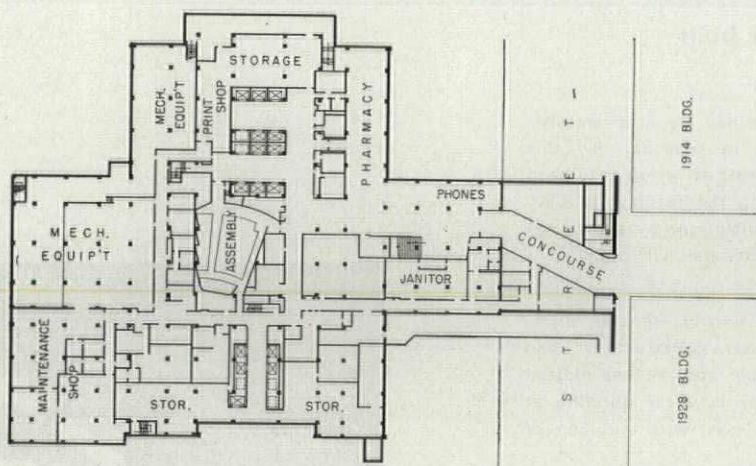
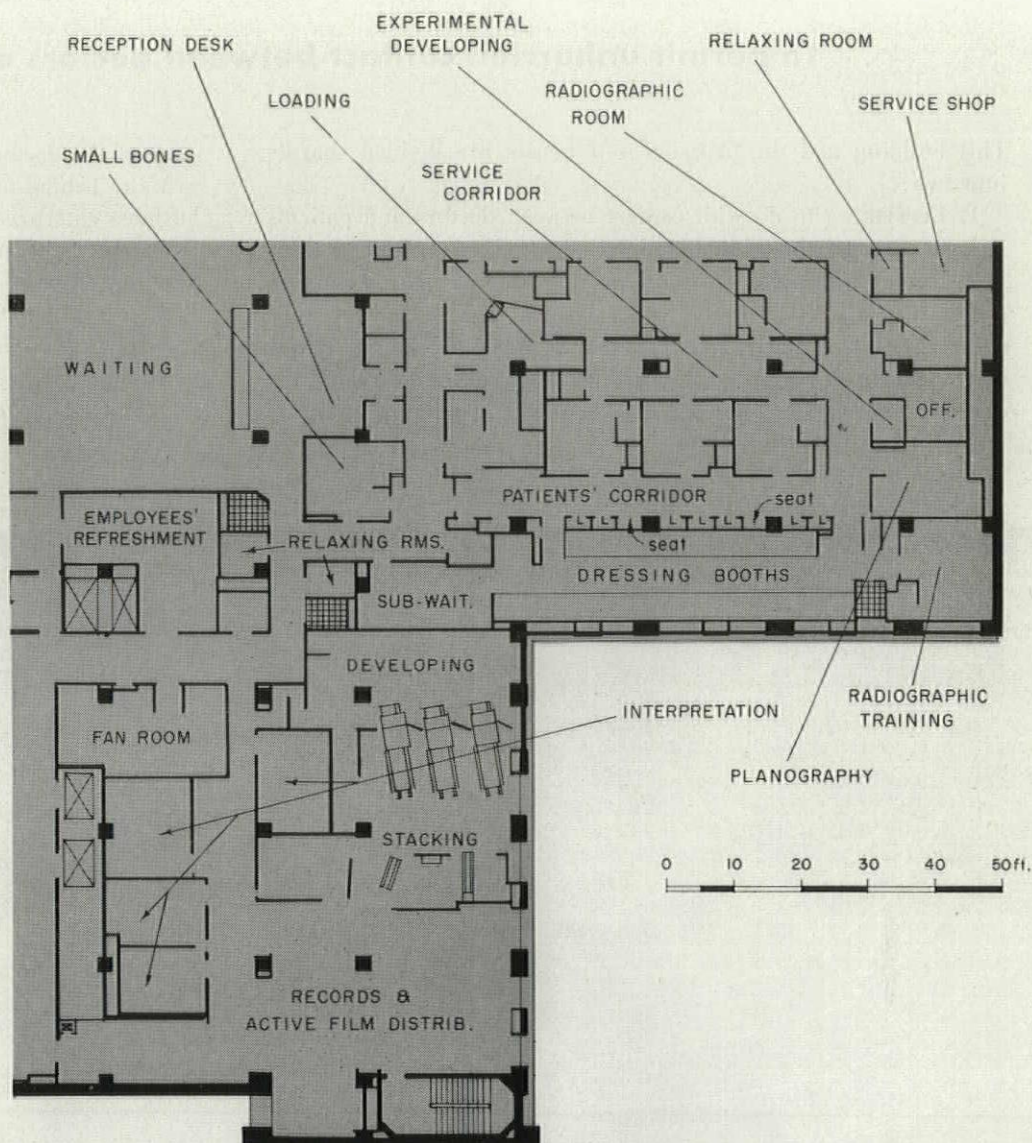
first floor has gardens . . .

Cross-shape gave architects opportunity to incorporate three gardens beside glass-walled public areas. This portion of building, and the extensive mural sculpture program, are not yet completed.



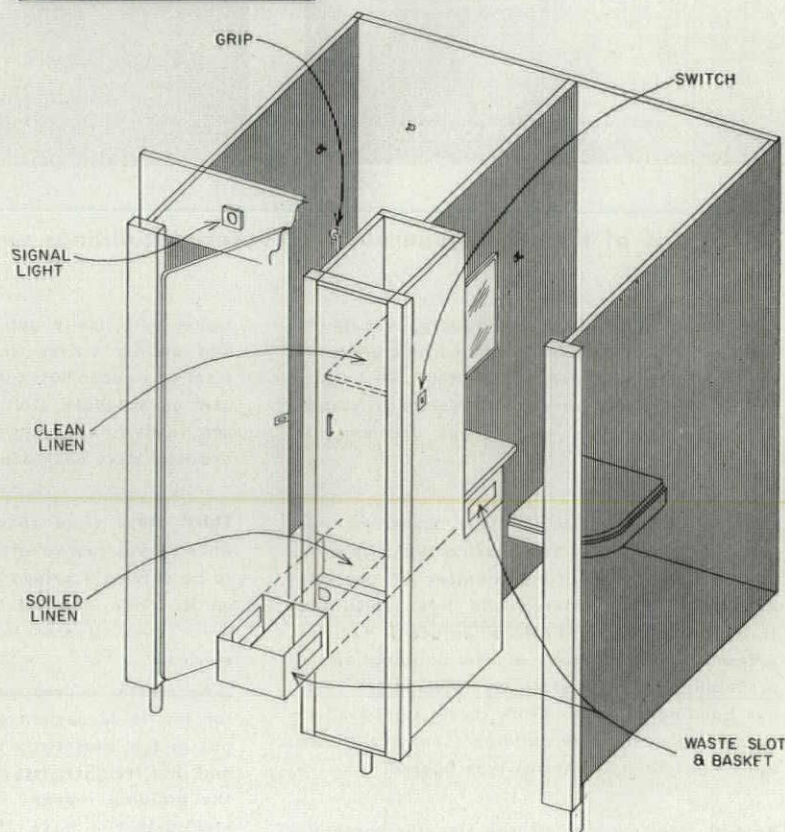
Third floor has elaborate X-ray department

Entire third floor is X-ray; volume permits high degree of departmentalization and special equipment. Enlarged portion of plan shows women's side of general unit (men's side is identical) and film processing for whole floor. Unidentified rooms alongside patients' corridor are, left to right, chest room and three general radiographic rooms. X-ray department offices, study and seminar rooms are on first-floor mezzanine (not shown)



basement has access to other buildings

Public and service areas are neatly separated. Public concourse links with 1914 and 1928 buildings which will house clinical laboratories, therapy, inactive histories, and such general facilities as library.



Dressing booths for X-ray were entirely redesigned, proved excellent during testing. Each has waste drawer, shares linen unit with neighbor; door remains closed only if locked, key withdraws only when locked from outside. Thus status is instantly seen. Light shows readiness for new occupant.

To permit unhurried contact between doctors and patients, the building core is is

This building and the procedures it houses are divided sharply into two:

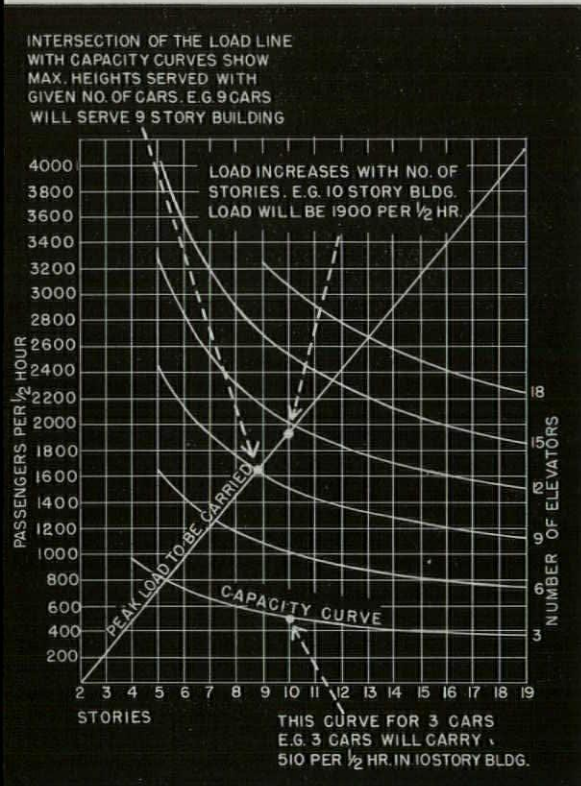
1. Everything to do with contact between doctors and patients is kept personal, individual, unhurried.
2. But everything to do with the logistics of getting patient, doctor and history into the same place at the same time runs clickity-clickity-clickity. For instance, to cancel the human desire of clerks to wait for a "worth-while handful" of cards or files, the clinic uses conveyor belts as short as 7'. The point is to waste

none of the doctor's time and as little of the patient's as possible.

Many behind-the-scenes procedures are adapted from unrelated business enterprises. The appointment-making system is adapted from the Pullman method of assigning train space. The mail-handling system comes from Montgomery Ward and Sears Roebuck. The files are derived from insurance companies' systems.

In turn, the clinic's new conveyor system, devised to keep histories fast on the heels of patients, should interest any organization that has to move papers accurately, fast and often.

Photos: Warren Reynolds • Photography Inc.



This is one of the most generously elevatored buildings ever built

Only serious fault in the 1928 building was its insufficient elevator capacity when traffic grew far beyond what had been anticipated. This time, instead of relying on elevator company standards, the architects worked the problem out themselves.

First step: high school student observers rode every elevator, every trip, during typically busy day, noted starting time, number of patients and where they entered and left. Resulting traffic-pattern curves were adjusted for increased patient capacity of new building, and a probability curve of stops was plotted for various building heights. From these, total load to be carried in the new building (capacity known but height then unknown) was figured.

Second step: capacity of one elevator per half-hour in a 6-, 10-, 15- or 20-story building was calculated by figuring—for each height—estimated number of stops per round trip (multiplied by 11 sec. each); adding standard load of passengers (multiplied by 2 sec. each, a mul-

tiplier empirically determined by stop watch); and adding travel time in seconds. To this total was added 10% for wait at terminal to keep cars on schedule. Dividing the result into 1,800 sec. (a half hour) and multiplying by the standard load gave peak capacity per half hour.

Third step: from these figures, master guidance curves (above left) were constructed. Load to be carried (derived from step 1) was plotted on it. Note that elevator load for building of given over-all size increases with number of stories.

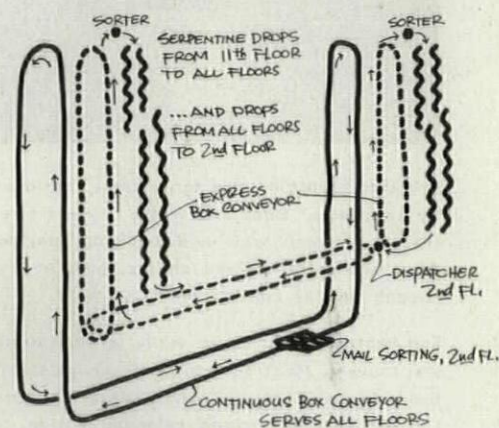
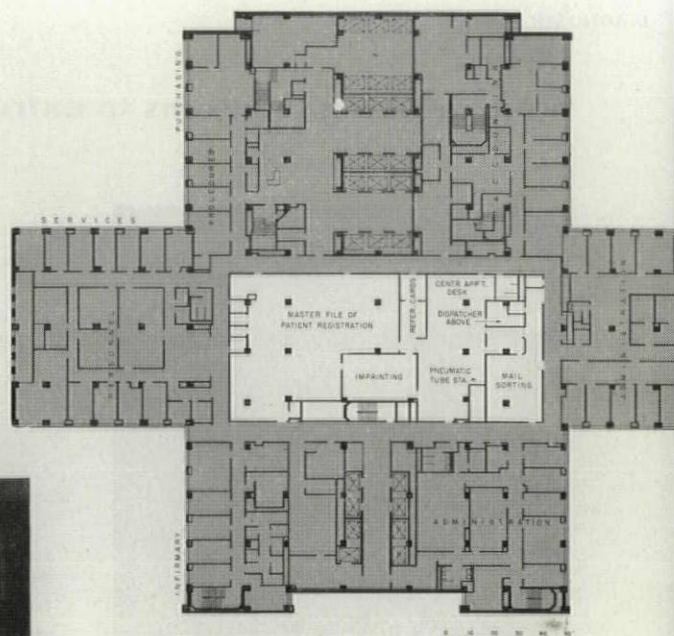
As master curves indicate, ten stories called for ten to 12 patient elevators. The architects put in ten, plus two shafts (plus four staff cars and one freight), left additional space so when the building reaches its ultimate height of 18 stories it will have 25 passenger cars (18 patient, 7 staff).

The clinic has an unusually high ratio of inter-floor travel, also of strangers—the 2 sec. stop-watch figure of step 2 would be less in a building full of regular denizens.



**Rivers of paper pour through
the two medical desks on each floor**

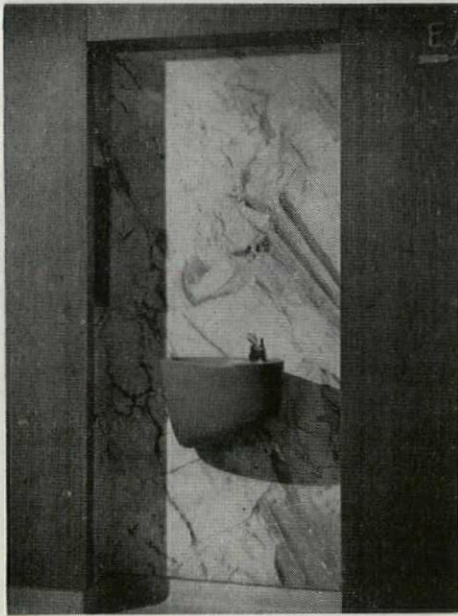
Floor desk area is fed by vertical arteries described at right, linking it to other medical floors and master facilities. Each floor has two such "desks."



143

From drinking fountains to extruded spandrels, detailing is handsome

Photos: Warren Reynolds • Photography Inc.

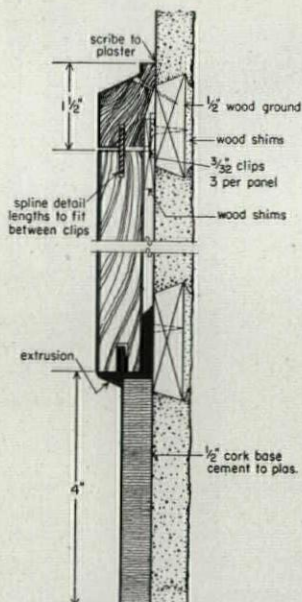


Drinking fountains are terra cotta, designed by architects. Cups and waste chute are recessed between wall and back-up marble. Trial and error showed chutes must be big enough to take cups crushed out wide.

Sun protection on south walls is aluminum-slat louvers. Heat-absorbing glass was sacrificed—in spite of air conditioning—because tint hampers physicians' color perception.

Tiled janitors' closets have no slop sinks; instead, tiled floor pit with metal stop rail. Mop carts roll in, empty into pit, are filled by short hose.

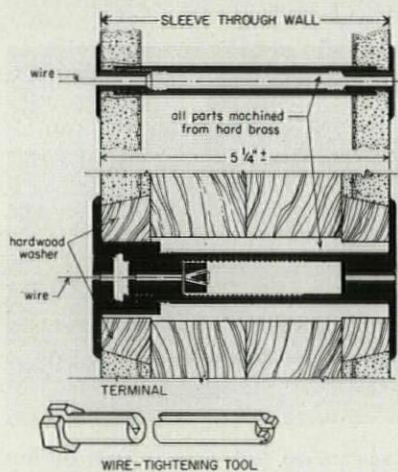
Vinyl flooring and wainscoting were tested first in machine shop, stood up impeccably under grease and filings, are used in corridors and service areas.



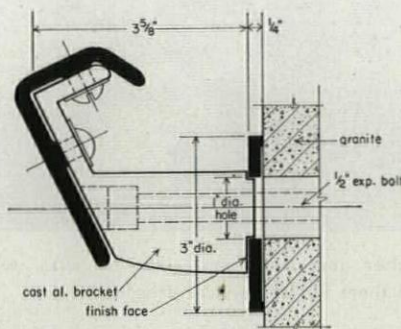
Wood wainscoting used throughout medical offices is carried on aluminum extrusions over recessed baseboards (see above); baseboards are cork, like floor, get automatic maintenance when waxing machine does floor edge. This was maintenance-department suggestion.

Door kick plates are eliminated. Instead, 8" from floor is groove $\frac{1}{8}$ " wide, $\frac{1}{16}$ " deep, as a stop for refinishing. On light doors, portion below groove is stained darker. Cost about 60¢ against \$6 for kick plate installed.

Lights in doctors' offices—two unobtrusive 8' tubes over desk and examining table—have ballasts removed and placed above hung ceiling. Reason: ballasted fixtures would have hung lower and played havoc with room's flow of conditioned air (as would desk lamp).

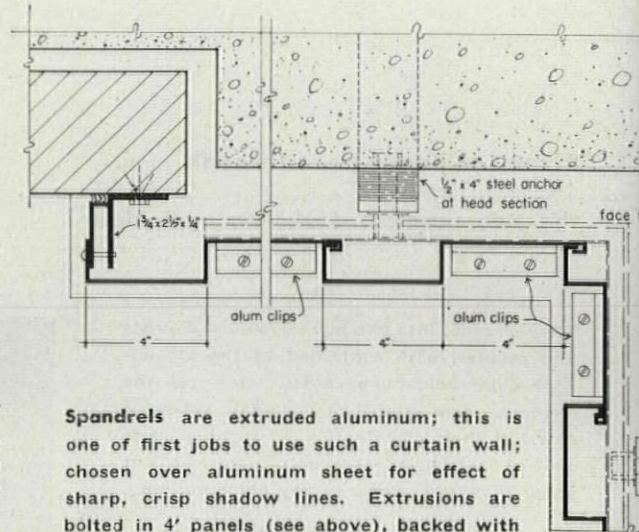


Wire for privacy curtains inside doctors' offices (see plan, p. 138) runs right through walls for continuous 60', has tightening device at end (see above). Note that wire is supported at intervals by top of dressing-booth dwarf partition.

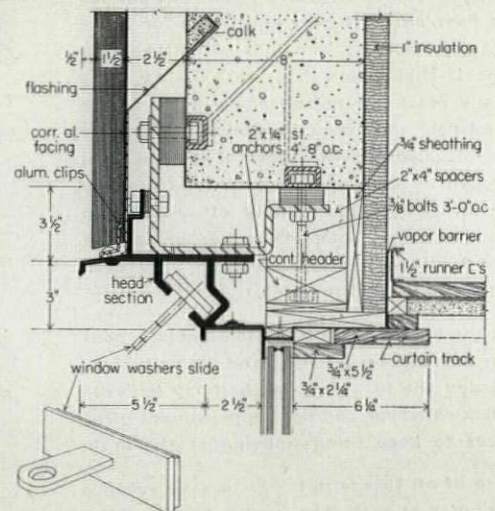


Handrail at entrances is unusually nice, has hidden brackets (detail above).

Entrance doors (38 of them) act like those on crack railroad trains; slight push on handle activates hydraulic mechanism. In addition doorman can work doors by remote control when necessary. To insure that he will be at proper station during winter: sidewalk under his control panel has electric foot warmer.



Spandrels are extruded aluminum; this is one of first jobs to use such a curtain wall; chosen over aluminum sheet for effect of sharp, crisp shadow lines. Extrusions are bolted in 4' panels (see above), backed with lightweight concrete block. Anodizing gave unexpected variegated streaking (which manufacturer has now overcome) but this proved fortunate because play of light and dark metal goes beautifully with marble end walls, aids in relieving enormous mass of building. Final effect of metal variations was not accidental: architect separated panels into five gradations, did elevation study, keyed each actual panel into elevation. Protective lacquer was matte finish—not usual—and contained ordinary flattening agent of rock dust. In a few weeks, as lacquer wore, extrusions and aluminum sheet-column covers took on alarming aspect of "roquefort cheese." Solved by eliminating lacquer on 80% of wall not yet up (only danger point was at marble, where tarpaulins were used for protection), and by unearthing US Government specification for removing finish from airplanes.



Track for window washer holds two bronze slides (see above). Man goes out small operating window at end of floor, fastens sling to slides, washes complete row of windows, re-enters at other end of floor.

Construction cost excluding fees: \$15,800,000; \$27.80 per sq. ft.

Marble is stunning backdrop for joyful figures by Sculptor William Zorach.





Jefferson: classrooms, viewed from north. School shares four-acre site with old building (housing library, kindergarten) which occupies ground of future diagonal wing.

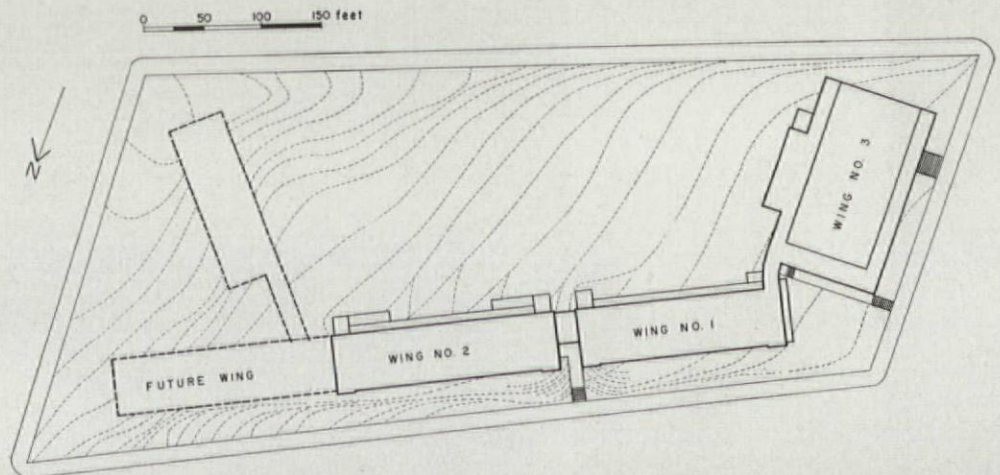
KUMP ASSOCIATES, architects
MOORE & ROBERTS, general contractor

FRANKLIN AND JEFFERSON ELEMENTARY SCHOOLS. ▲ Berkeley, Calif.
▲ 21 and 13 classrooms. ▲ 750 and 455 pupils.

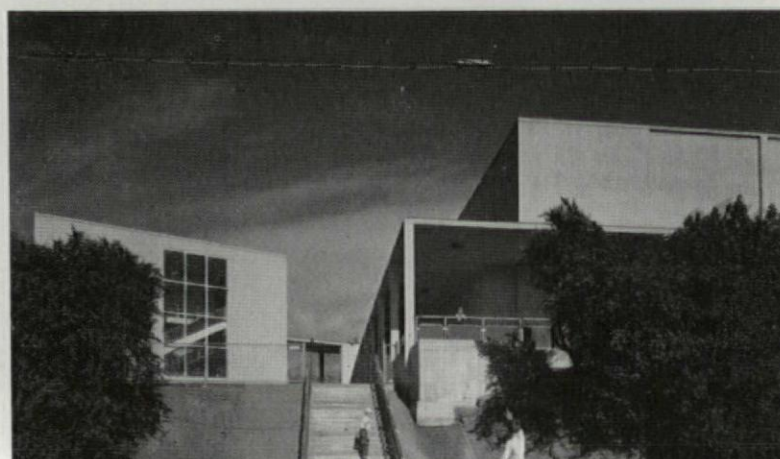
Features: similar requirements and similarities in sites exploited for economical duplication.
▲ Step-down of wings conforming to step-down of topography.
▲ Glazed side corridors. ▲ Handsome concrete work. ▲ Glass and stair panels yield color accents.

Construction: reinforced concrete pile foundations. ▲ Reinforced concrete classroom wings. ▲ Steel framing in multiuse wings. ▲ Ribbed slabs for floors with ribbed steel panels in roof. ▲ Steel sash. ▲ Interior partitions of steel studs, metal lath and plaster. ▲ Radiant heating for classrooms; forced air for multiuse buildings.

Cost (excluding fee): ▲ Franklin, \$922,038; \$13.50 per sq. ft.; \$43,900 per classroom; \$1,230 per pupil. ▲ Jefferson, \$641,962; \$13.40 per sq. ft.; \$49,380 per classroom; \$1,410 per pupil.



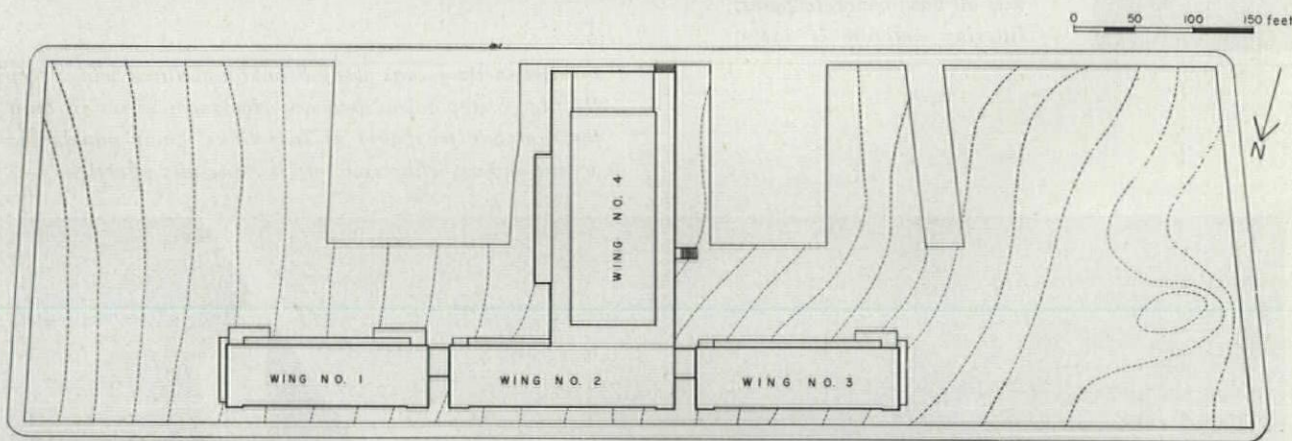
For tight city lots—two



Multiuse wing, No. 3 in site plan (above), joins classrooms at angle, conforming to street. Note how almost identical basic plans for two schools are adapted to site differences.



Franklin: three classroom wings step down with topography. Old school buildings on five-acre site were all demolished.



Multiuse wing (No. 4) is sandwiched between private lots, runs through to south boundary of site, zones yard into two play courts. Photo (below) shows south, community entrance.

standardized schools

These California schools have four features that are interesting regardless of geographic location:

1. Structure and detailing on the two schools are identical; they were built under one contract. Here is an example of an important economy idea recommended by FORUM's panel of school experts (AF, Oct. '53).
2. Exterior concrete is delivered from the all-too-common curse of disagreeable weathering, by use of a fine "reeded" texture.
3. Light control is reduced to simple, economical measures.
4. Floor plans are compact, for city lots, but "relaxed." These are city schools that have learned from the suburbs.

Photos: Roger Sturtevant



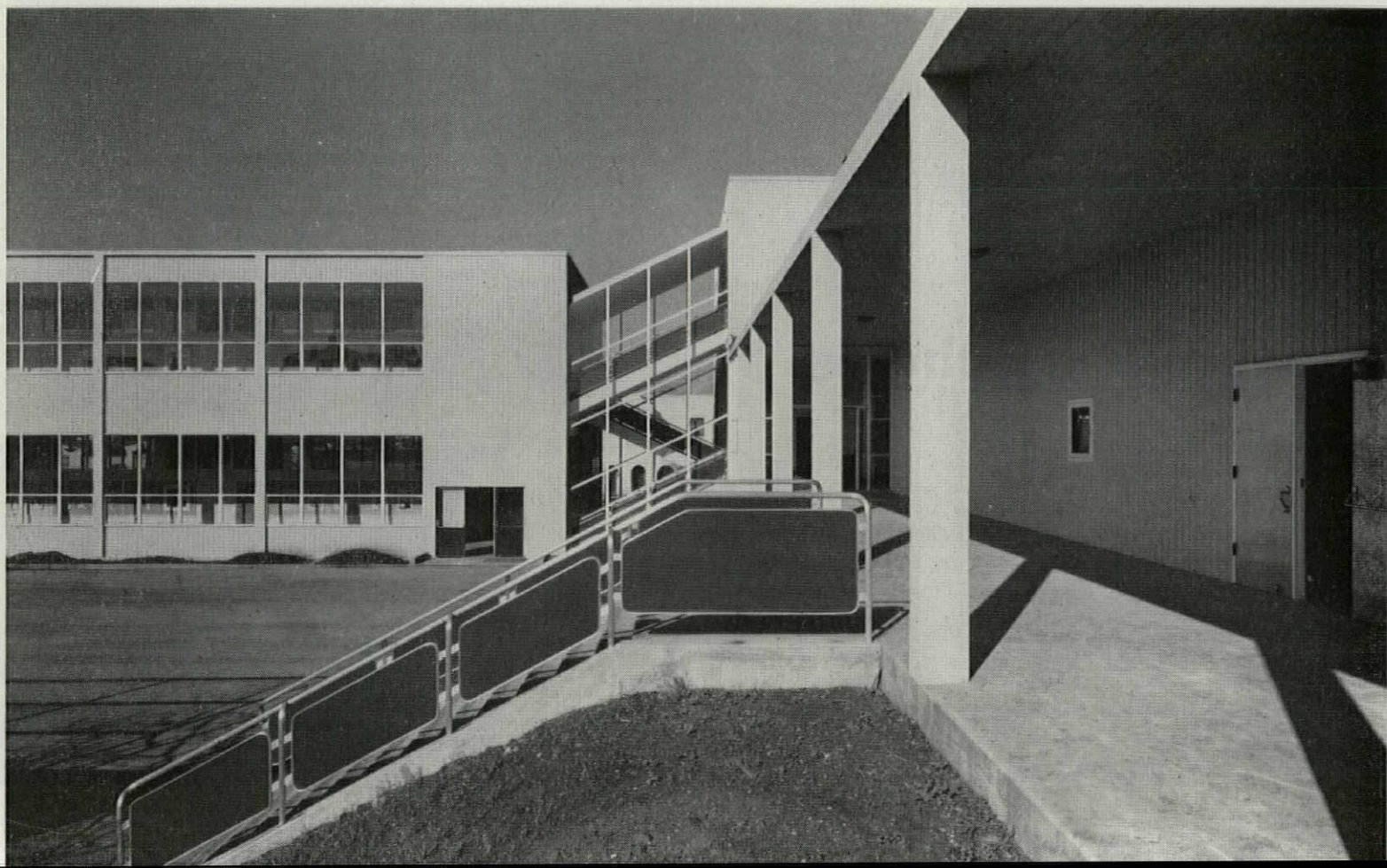
Reeded concrete surface is formed with V-joint board marks. Apex of reed is precisely related to 4' modular grid; reeds are exactly 6" o.c. and where module line occurs are spaced 3" each side. Butt-end joints between vertical form boards (allowed only when height of concrete plane exceeded standard 16' lumber length) were carefully aligned. Architects provided, in working drawings, full-size details of reeded surface, also complete details of form boards themselves. Size of job permitted specially run boards instead of standard yard widths. After forms were removed, flaws in surface, pocks at form ties and irregularities in reeds were packed with grout and whole surface was wiped with burlap sacking dipped in slurry of cement, sand and water, an inexpensive way of getting dense, smooth surface. Final finish was oil-base concrete paint. Interior concrete is same.



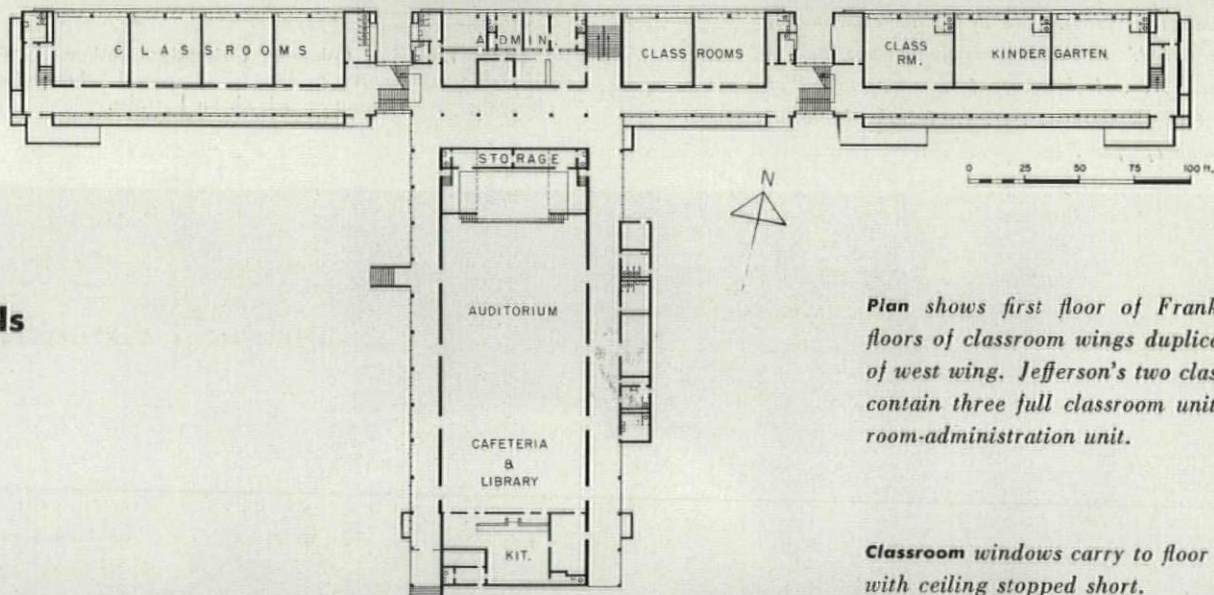
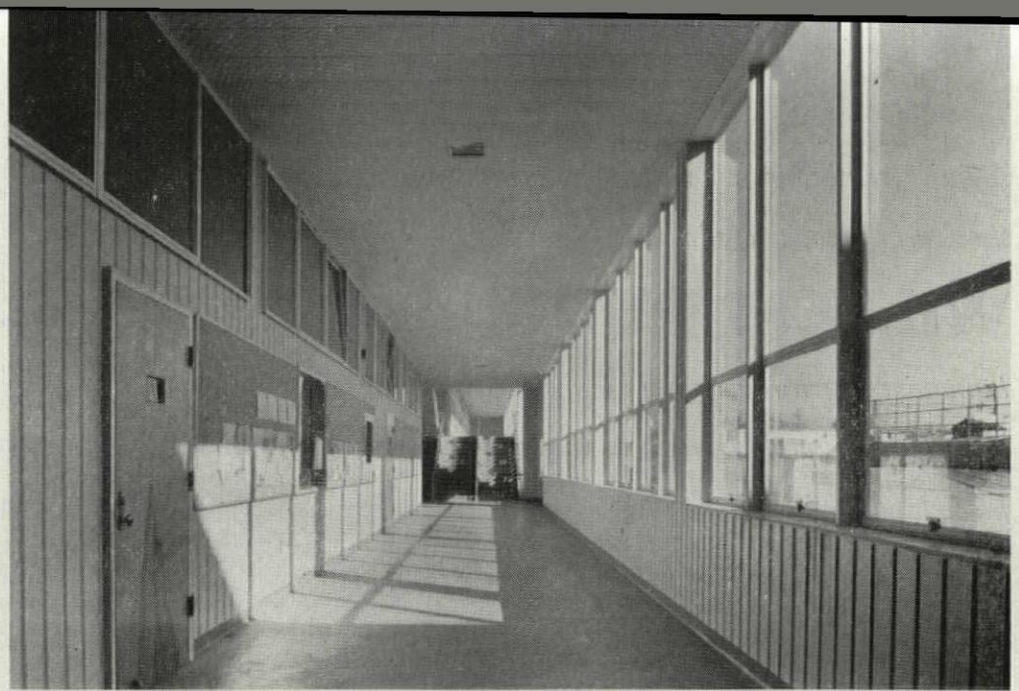
Glazed lobby between multiuse wing and offices was possible at Franklin because of T plan. Skylights are frosted glass. Note reeding on interior concrete; it also turns up on interior end walls in classroom wings (photo right, below). Only concrete on which reeding is omitted is base of building and playground ramps.

For architectural distinction—"architectu

Exterior corridor runs along Franklin multiuse wing; steps lead to west playground. Half-level step-downs between classroom wings in both schools gave opportunity for dramatic treatment of stair links. Stair panels are bright red enamel steel; accent against white concrete is especially effective in diagonals of stair links.



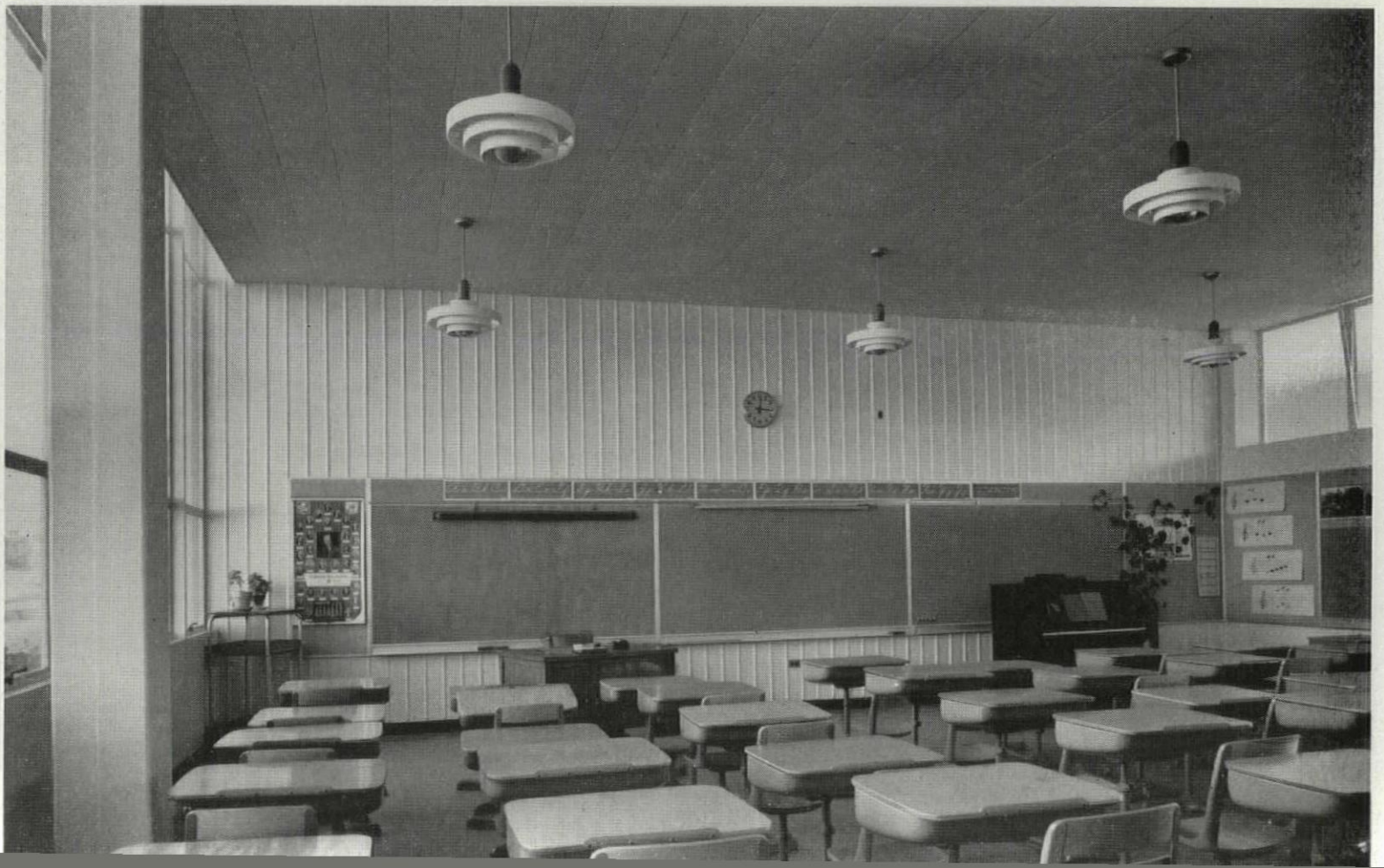
Classroom corridor (glazed with heat-absorbing blue glass) eliminates direct sun and cuts to minimum direct south sky glare in classrooms, but yields generous borrowed light. Antiglare provisions on north are blue glass plus maximum window area to cut contrast between interior and exterior brightness. Kump believes that if interiors are light enough, visible outside brightness is less significant; he also believes that physiological benefits of close brightness control can be offset by psychological effect of monotonous dullness, and he is consequently not ready to spend large extra sums for construction and maintenance necessary to screen out sky exposure altogether.



concrete" walls

Plan shows first floor of Franklin. Second floors of classroom wings duplicate first floor of west wing. Jefferson's two classroom wings contain three full classroom units, one classroom-administration unit.

Classroom windows carry to floor or roof slab, with ceiling stopped short.



A quiet reminder from the Netherlands:

the warm, placid credo of

WILLEM DUDOK,

humanist . . . who has gone his own way within—

yet not within—the modern movement

he helped to found

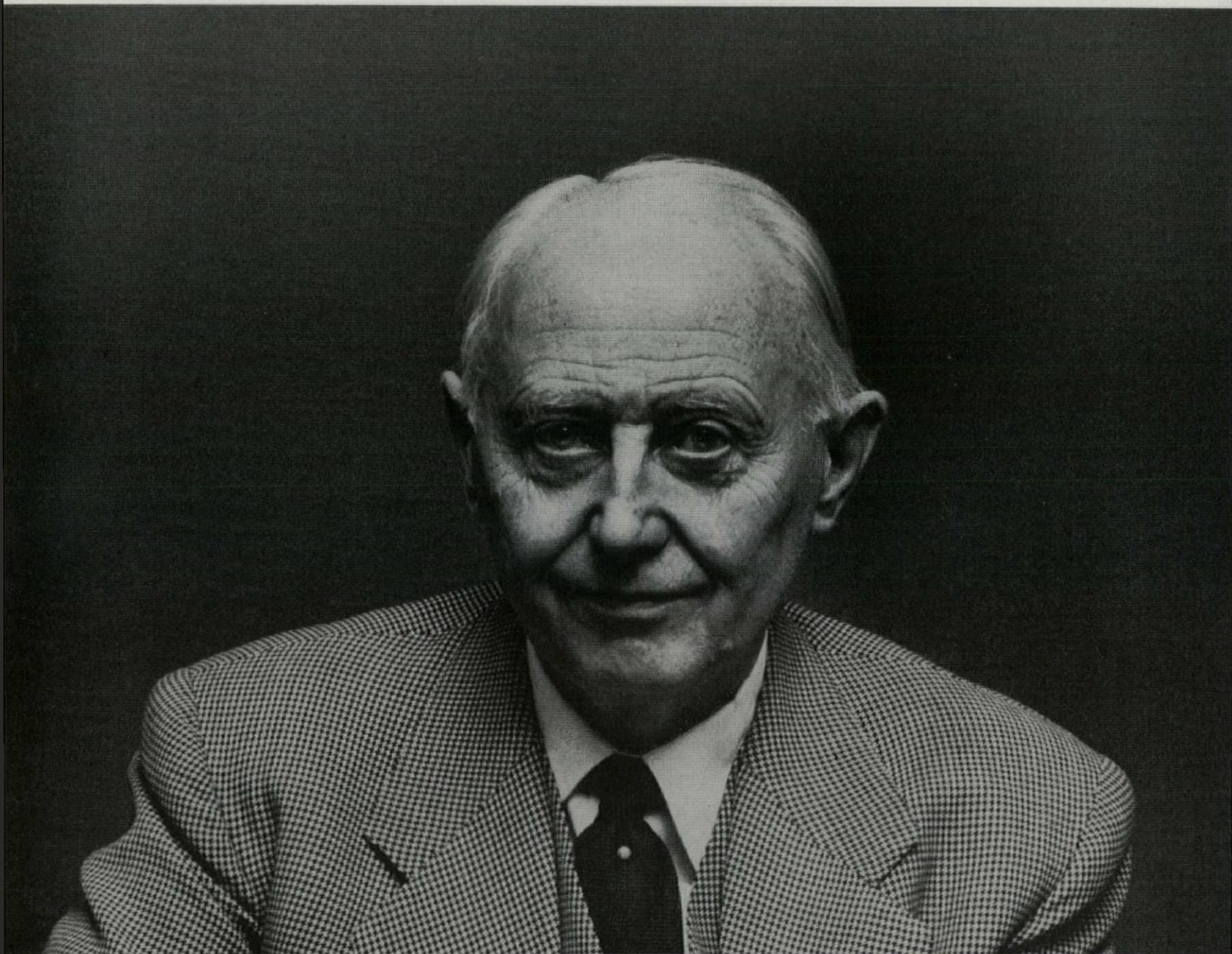
"I was once struck by a remark of Lao-tse's: 'From its hollowness arises the reality of the vessel; from its empty space arises the reality of the building. Therefore, by the existence of things we profit. And by the nonexistence of things we are served.' I think this is quite true: man is served by space. . . . Architecture is not a question of dimensions but of proportions. . . . [It is] the beautiful and serious game of space."

This is a peripheral contribution to the continuing discussion in these pages on the trends in architecture—a review of the architectural life-work of Willem M. Dudok, long hailed as one of Holland's and the world's most distinguished architects and town planners. (At 70, Dudok has just concluded his first visit to the US and an AIA-sponsored lecture tour of architectural schools.)

Critic Talbot Hamlin has made the following estimate of Dudok for FORUM:*

"For nearly 40 years, Willem Marinus Dudok has been working devotedly for the humanization and enrichment of the modern world. In his architecture and city planning, he has been keenly alert to the modern materials and structural methods, but to him these are merely means toward the production of towns and buildings that may become inspiring and delightful shelters and homes for the human spirit. Since this ideal has always controlled his work, it is natural that his insistence on rich colors, beautiful tactile qualities of surface, and use of occasionally 'arbitrary'

* Avery Librarian, Columbia University; author of "Forms and Functions of Twentieth-century Architecture," several other volumes of architectural history; now working on a book on Latrobe.



Richard Meek

modulations of form to give interesting patterns in light and shade should seem perhaps to some of his more austere contemporaries superficial or too playful for serious consideration. Yet, in any architecture that claims to be democratic in aims, the extraordinary way in which Dudok has designed for people is of the highest significance, as is his companion concept that visual beauty is something the people themselves demand.

"Thus it is no accident that Dudok was the first modern architect who designed and built schools primarily for children, and—because of the influence of these buildings on visiting educators—was the initiator of modern school design. The same quality interpreted in adult terms distinguishes all the best of his architectural work, like the Hilversum town hall (bottom). There is no architecture that suffers more in mere photographic representation than his. The buildings have to be seen under cloud or in sun or at night; they have to be walked around and through and even touched to savor this quality of both visual and tactile imagination. For us today, his work stands as magnificent affirmation of an architecture designed always to set human beings at the very center of the focus."

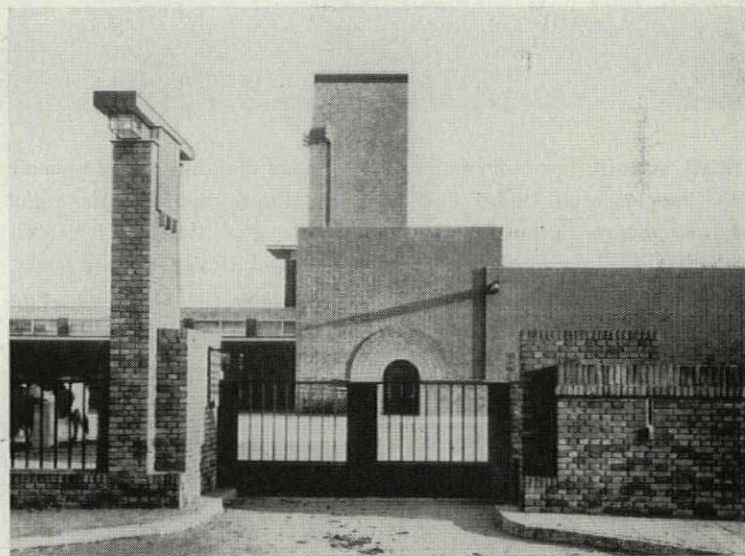
So speaks Hamlin, dealing with permanent values. As a con-

tributor to the development of architecture *in time*, Dudok is one who early pioneered, later consolidated. His early work brought the fresh form language of Wright to Europe, translated it into a light, acrobatic, home-grown cubism in civic monuments such as those on this page. The 1938 Amsterdam city hall is the strongest example of later consolidation—and pause. For Amsterdam's symmetrical scheme and enclosed court, although it gives a larger handling to its forms and contrasts than Hilversum, is also closer to traditional architecture, with its single perspective and closed scheme, than to more recent twentieth-century architecture, with its multiple viewpoints and its many break-throughs that make space seem always to flow on out and beyond any simple enclosure. In the same way the ornament of later projects tends to be self-enclosed like the over-all diamond pattern of the Beehive store or the spot features of the steelworks (p. 154), not so dynamic as the ever developing Wright.

This does not rob Dudok of the meaning Hamlin gives him. Indeed, it shows the rhythm that generally governs architectural development—some men are always refining earlier gains while others make new ones. Building forms that seem as wild today as Hilversum did *then* will in their turn be polished and civilized.



1921 high school, one of Dudok's many beautiful schools in Hilversum, is living proof of his claim that "while village construction is only chamber music, chamber music may also be orchestral." ("Village" of Hilversum now has 100,000 population.) Dudok was first to scale buildings down for children, fill them with color. Incidentally, Hamlin says Dudok was first to do "finger plan" schools.

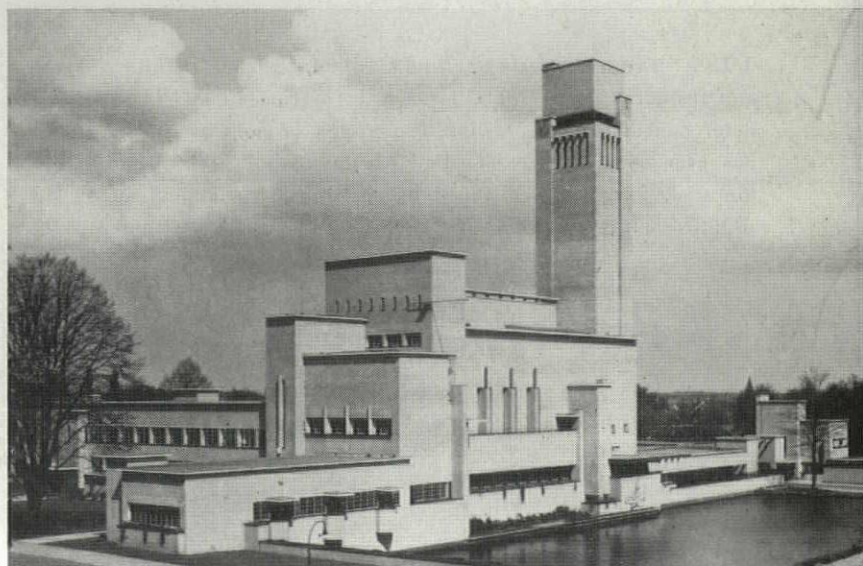


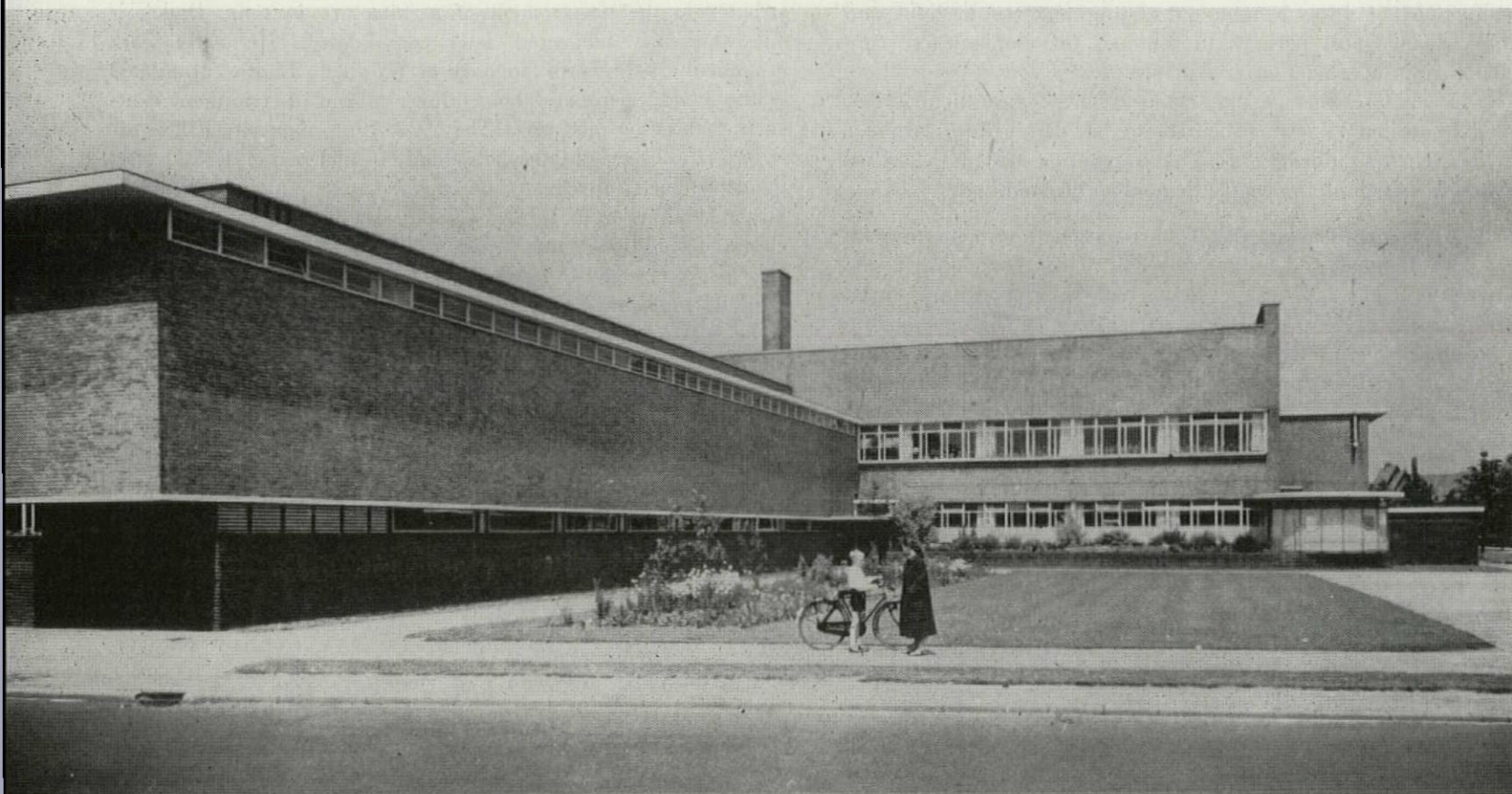
Photos: Netherlands Information Bureau

1923 slaughterhouse in Hilversum (like school at left) reflects influence of Richardson Romanesque, still more so of Frank Lloyd Wright's Unity Church (1906), Midway Gardens (1914), various suburban homes by Wright in same period. Dudok himself is first to acknowledge his early indebtedness to FLLW, to his own great countryman Hendrik Berlage, to Austrians Hofmann and Wagner.

Dudok's early work: home-grown cubism

1924 town hall for Hilversum (erected 1929-31), is thought by many to be Dudok's finest accomplishment. Photographs altogether fail to convey what Henry-Russell Hitchcock, for one, finds most effective: "... the high quality and bright, clear color of the brickwork, the crispness of the detailing, the happy relationship to the site. It has a lightness of which one could hardly guess." It also truly expresses Dudok's lifelong endeavor: "to aim for the characteristic proportion." Town offices have been arranged along a simple system of passages around an inner court, their entrances at the back of the building. Front entrance is for mayor, aldermen, councilors, bridal parties. (Dutch law requires all weddings to take place in town halls.) Bride, groom, attendants, guests walk festively around pond to entrance stairway, depart plainly through rear exists.





1930 school for Hilversum is "a special building on a special site," erected after Dudok had replanned the town. Off to the right of this picture: a long, slim pond, whose dual function it is "to embellish the environs" and provide extra drainage during heavy rainstorms. Of the flat roof, the designer says today: "I like this

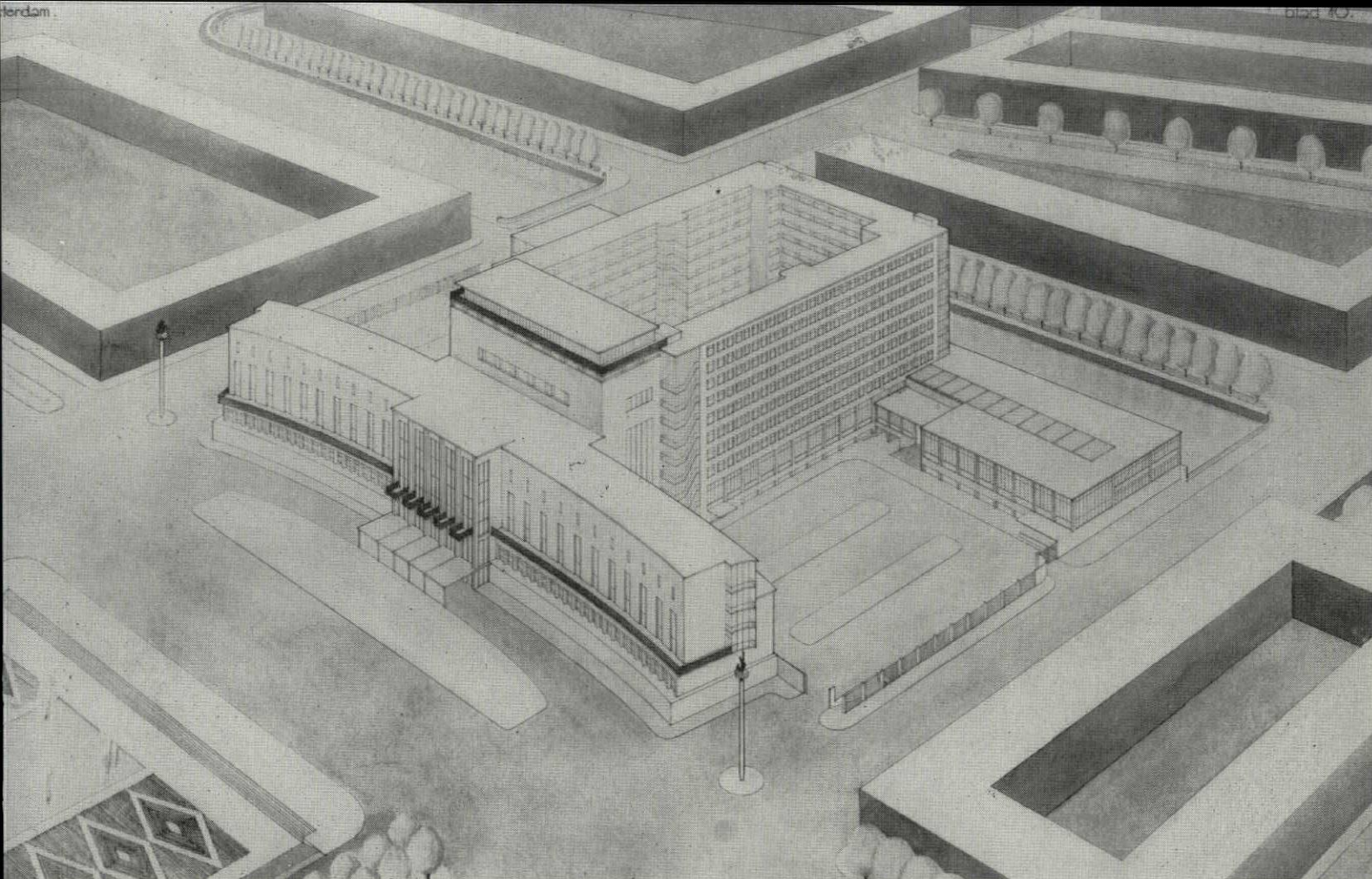
pure-space enclosure, and I certainly was one of the first architects to use it. But I did not make a dogma of it. I have often applied the excellent tile roof; I have even built a school with a thatched roof because I thought it harmonized well in rural surroundings." Dudok was also a pioneer of bilateral lighting of classrooms.

Dudok's prewar decade: calm, collected expression

IPO

1939 "Erasmus house," in a combined office building and restaurant, with space for a travel agency tucked in at outer end of restaurant wing, is perhaps as close as Dudok has ever come to the so-called "International Style," but the slick forms are enlivened by sculptural, dynamic handling of spiral stairs and fire escapes.





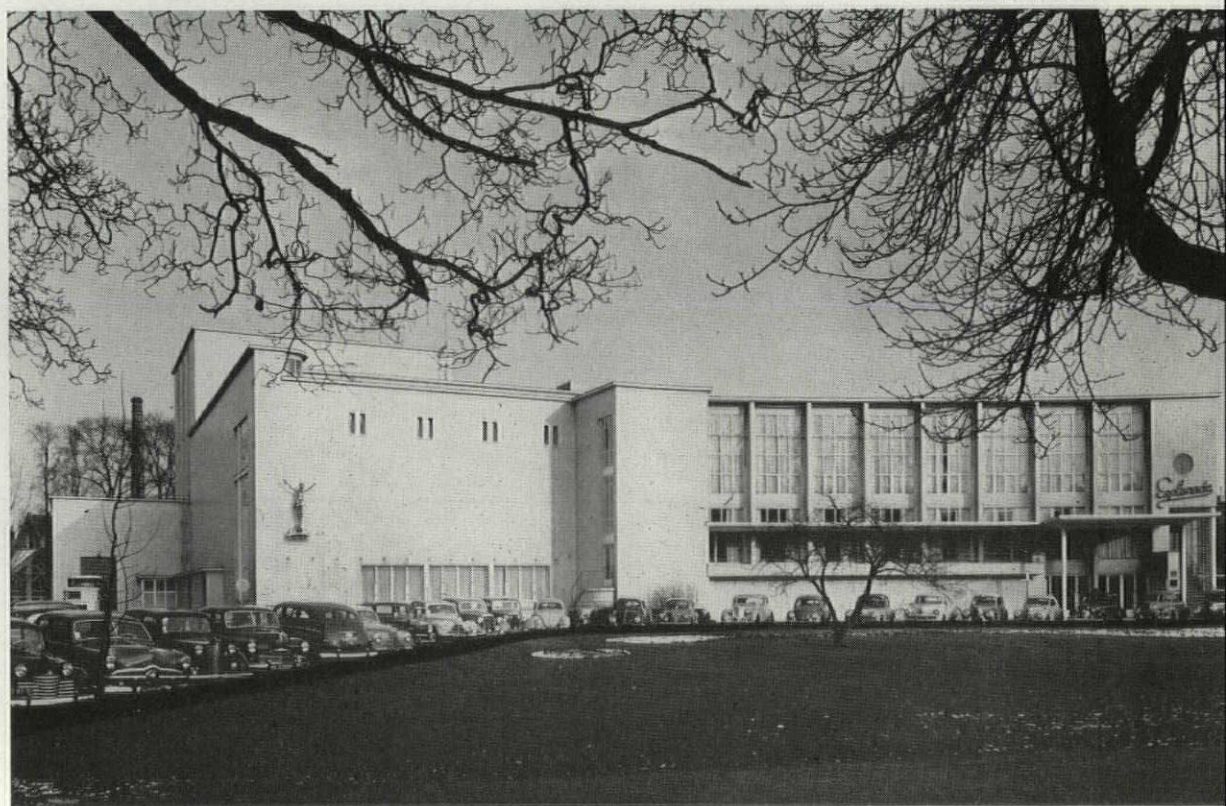
1938 city hall for Amsterdam is an unaccepted competition project. The plan backs the building against one of the town's principal canals, faces it toward public gardens. The clean, simple, stylized understatement of the drawing itself indicates the fine, thoughtful character of the building concept, with its play of low elements

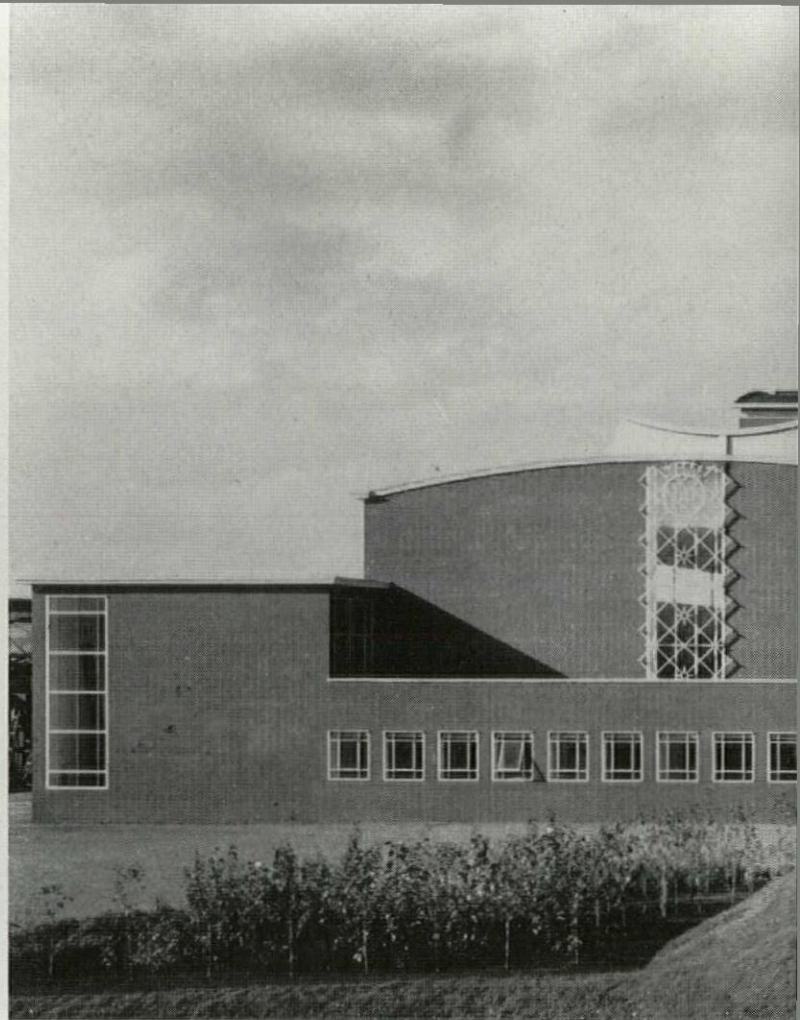
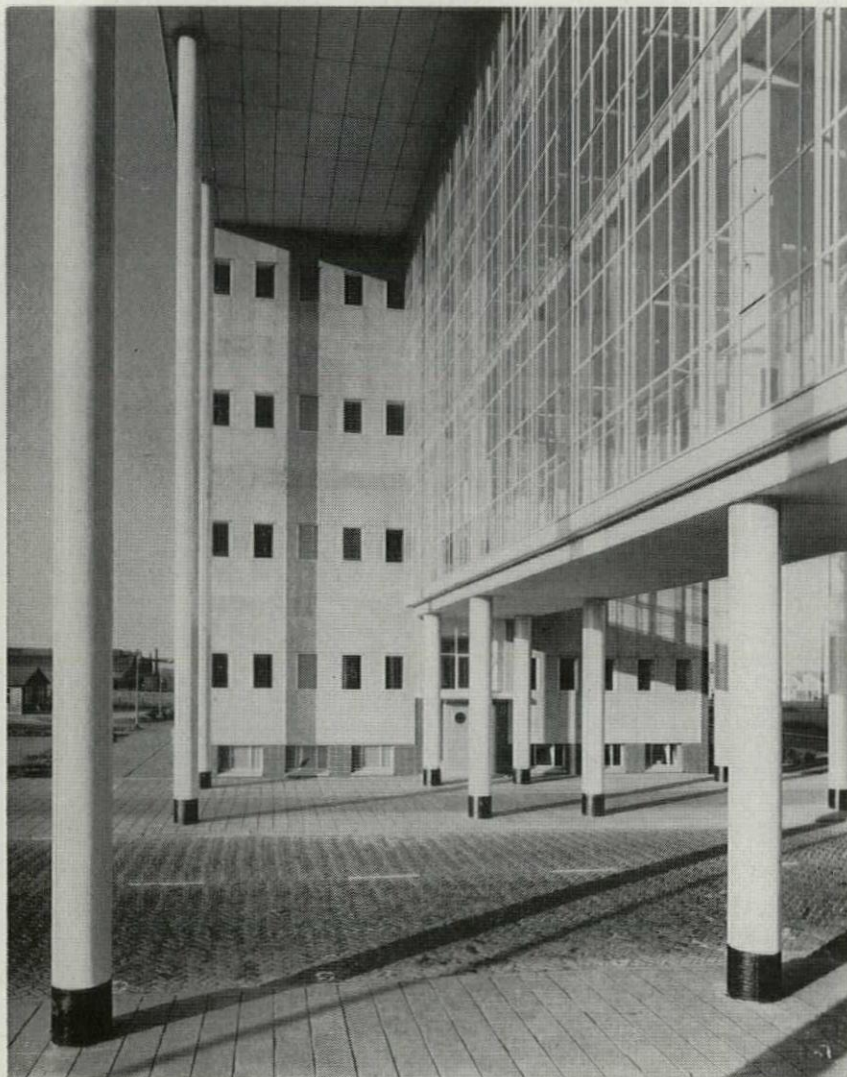
against high ones, of the inviting entrance are against the block behind it. The basic space concept is, however, perhaps less of the twentieth century than Dudok's earlier Hilversum buildings, more allied to classicism and the Renaissance. Dudok himself considers this one of his most successful designs.

of civic architecture

1941 municipal theater in Utrecht has facing of greenish-white tile, window drapes of cham- ois-colored velvet. Situated in what were once medieval fortifications ad- jacent to what was once a moat, it rises out of the water on two sides (not shown). Within its walls: a large auditorium (capacity 1,000), a smaller one (350) for chamber- music recitals, a number of smoking rooms, a restaurant (open daily), a capacious cloakroom. One delib- erate intention: to awaken in the playgoer—as he passes through “the rhythm of all these spaces”—an ever heightened sense of expectancy.

Photos: Jan Versnel

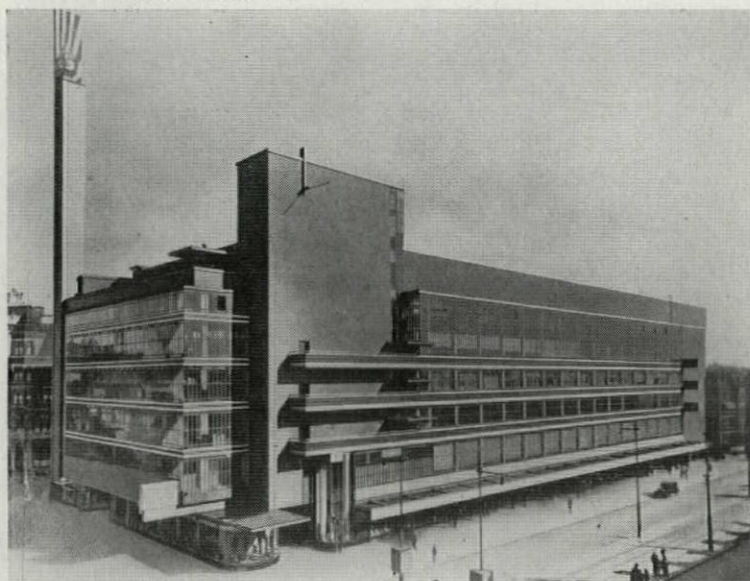




1951-52 head office for Royal Dutch Steelworks in Ijmuiden dominates main approach to a giant industrial complex, is so planned that interior and exterior traffic cross one another unimpeded. It illustrates also how Dudok as a fine city planner-architect interlinks the effects of indoor and outdoor space. The building is used as a

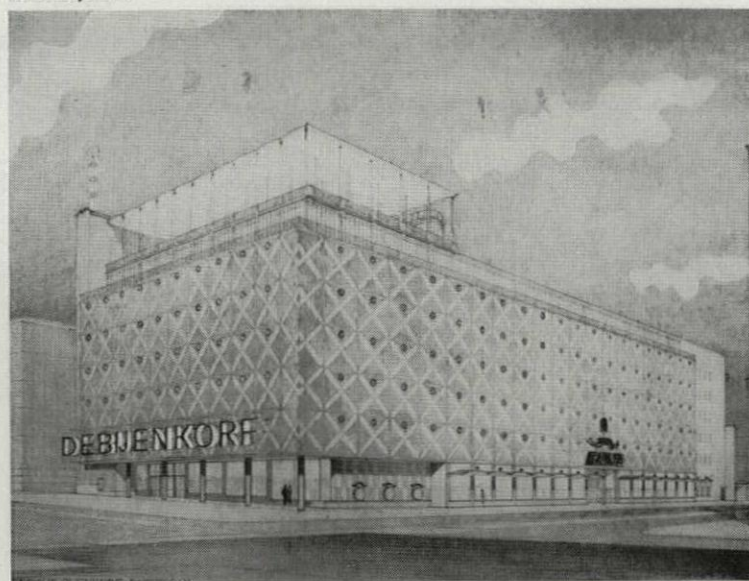
Dudok since the war: enchantment with detail

Netherlands Information Bureau

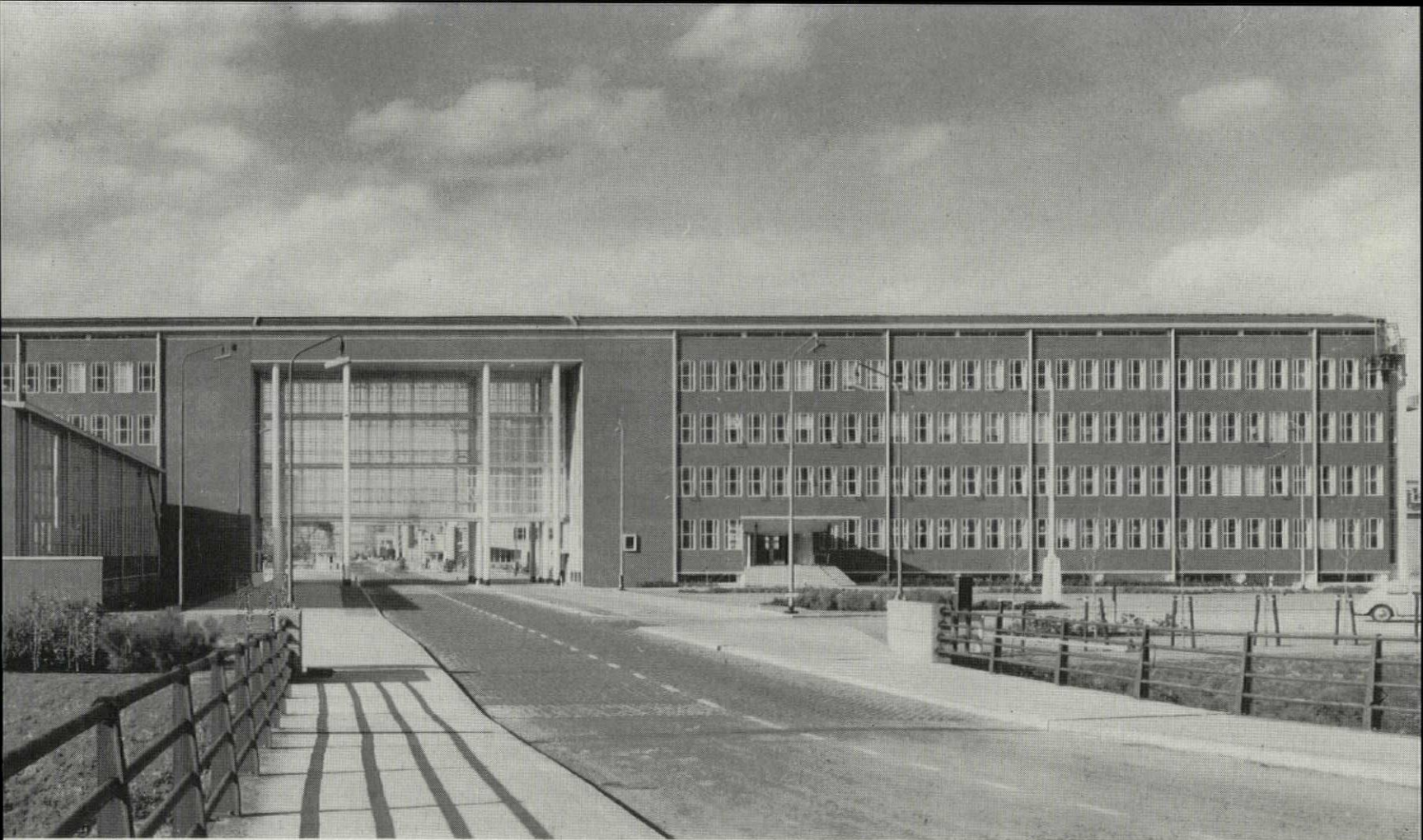


1929 and 1944 department store in Rotterdam. The two versions of this building demonstrate Dudok's readiness in later life to change his ideas when he thinks he can thereby improve his work. Actual building (left) was erected in 1929, was almost completely demolished by Nazi bombs in 1940; new building was projected in 1944 drawing (right), 15 years after original. "Experience

M. C. Meybloom



has taught me that to use a large glass surface as the point of departure is wrong. Even if your walls are *all* glass, the inside of the store is always much darker than daylight, so artificial light is necessary anyway. It is also more flattering if it doesn't have to compete with outside light." Small rosettes on walls encircle "port-hole" windows which could admit light during a power failure.



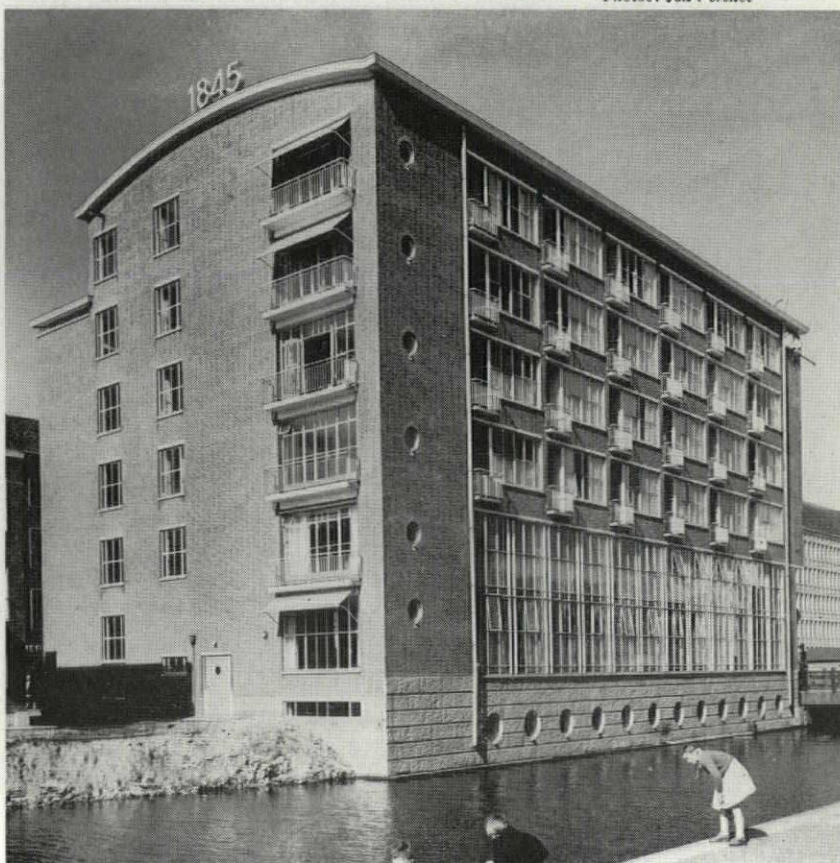
big portal through which to see the street, and conversely the street passing through has been used to give great dignity to a single structure where a routine solution would have produced two ordinary, separate buildings. Window openings and details have been kept "flat" to concentrate attention on the portal; the glass of galleries in

the portal and the drafting rooms (left) is justified for its advertising value. Decorative features are handled in traditional manner. The best of Willem Dudok's recent work, this building only faintly resembles his early work, yet it demonstrates his consistent theory that architecture is a "game of space," indoors and outdoors.

and applied ornament

1952 office-apartment building in Rotterdam is one that Willem Dudok himself is not too happy about. Client (an insurance firm) selected the site without asking the architect's advice, insisted on having that site filled up to the last square inch. End result may well provide food for thought about the connection between current economic and artistic stringencies the world around. Color note: what appear to be bricks in the photograph are actually yellow-green tiles. Structural note: like many Dutch buildings, this one had to be supported by caissons (made of linked reinforced-concrete sewer sections), some as deep as 50'.

Photos: Jan Versnel

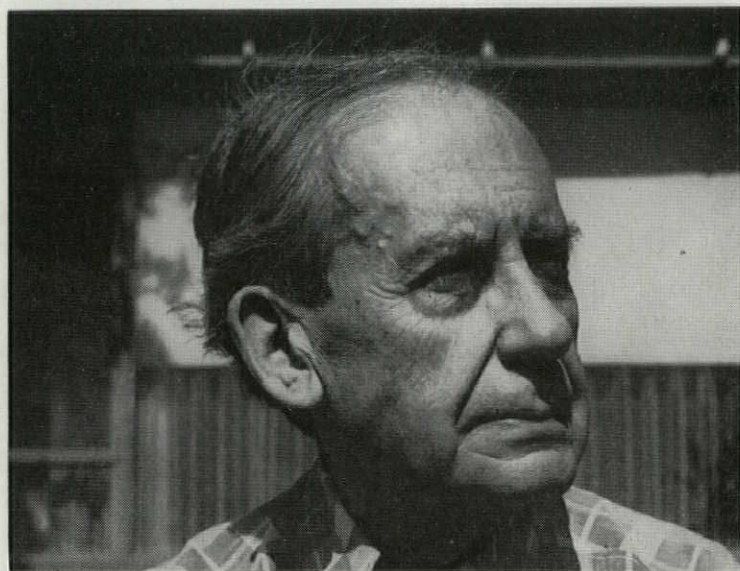


A great architect looks beyond today's design stunts, personal monuments and style labels, suggests how the US can have better architects and better buildings

EIGHT STEPS TOWARD A SOLID ARCHITECTURE

by Walter Gropius

Erstwhile director of Harvard's Graduate School of Design, now a practicing architect in Boston, Dr. Walter Gropius was recently awarded the first São Paulo prize (architecture's "Nobel Prize") for his "outstanding contributions in the field of creative architecture and architectural education." In this article he declares that the International "school" of architecture, of which he is an important part, never intended to develop a style, much less an international style; it was an effort to discover 1) what kind of buildings today's society needs, and 2) what are the most efficient, happiest ways of producing those buildings. Among the eight answers to these questions, Dr. Gropius emphasizes the need for teamwork in the building operation, and the architect's responsibility to become a qualified leader as well as a servant of society.



Larry Burrows

1 *Forget the battle of the styles and get to work on the development of architecture for better living*

Modern architecture is not a few branches of an old tree—it is new growth coming right from the roots. This does not mean, however, that we are witness to the sudden advent of a "new style." What we see and experience is a movement in flux which has created a fundamentally different outlook on architecture. Its underlying philosophy knits well with the big trends in today's science and art, steadying it against those forces which try to block its advance and retard the growing power of its ideas.

The irrepressible urge of critics to classify contemporary movements which are still in flux by putting them neatly in a coffin with a style label on it has increased the widespread confusion in understanding the dynamic forces of the new movement in architecture and planning. A style is a successive repetition of an expression which has become settled already as a common denominator for a whole period. But the attempt to classify and interpret living art and architecture, while it is still in the formative stage, as a "style" or "ism" is more likely to stifle than to stimulate creative activity. We live in a period of reshuffling our entire life: the old society went to pieces under the impact of the machine; the new one is still in the making. The flow of continuous growth, the change in expression in accordance with the changes of our life, is what matters in our design work, not the characteristics of a potential style.

And how deceiving a precipitate terminology can be! Let us analyze, for instance, that most unfortunate designation, "The International Style." It is not a style because it is still in flux, nor is it international because its tendency is the opposite—namely, to find regional, indigenous expression derived from the environment, the climate, the landscape, the habits of the people.

Styles in my opinion should be named and outlined by the historian only for *past* periods. In the present we lack the dispassionate attitude necessary for impersonal judgment of what is going on. As humans we are vain and jealous and that distorts objective vision. Why not leave it, then, to

future historians to settle the history of today's growth in architecture, and go to work and let it grow?

Let us also leave to historians the question of one architect's influence on another. In a period when the leading spirits of mankind try to see the human problems on earth as interdependent, as *one world*, any chauvinistic national prejudice regarding the shares claimed in the development of modern architecture must result in narrowing limitation. Why split hairs about who influenced whom when all that really matters is whether the results achieved improved our life? I daresay that we all are much more influenced today by each other than architects of former centuries because of the rapid development of interchange and intercommunication. This should be welcome as it enriches us and promotes a common denominator of understanding so badly needed. (I tried to encourage my students to let themselves be influenced by ideas of others, as long as they felt able to absorb and digest them and to give them new life in a context that represented their *own* approach to design.)

2 *Design buildings to accommodate the flexible, dynamic features of modern life—not to serve as monuments to the designer's genius*

If we look back to see what has been achieved during the last 30 or 40 years, we find that we have almost done away with that artistic gentleman-architect who turned out charming Tudor mansions with all modern conveniences. This type of applied archaeology is melting in the fire of our convictions 1) that the architect should conceive buildings not as monuments but as receptacles for the flow of life which they have to serve, and 2) that his conception should be flexible enough to create a background fit to absorb the dynamic features of our modern life.

We know that a period piece of architecture could never satisfy such a demand, but we sometimes forget that it is just as easy to create a modern strait-jacket as a Tudor one—particularly if the architect approaches his task solely with the intention of creating a memorial to his own genius. This arrogant misapprehension of what a good architect should be often prevailed, even after the revolution against eclecticism had already set in. Designers who were searching for new expression in design would even outdo the eclecticist by striving to be “different,” to seek the unique, the unheard of, the stunt.

This cult of the ego has delayed the general acceptance of the sound trends in modern architecture. Remnants of this mentality must be eliminated before the true spirit of the architectural revolution can take root among the people everywhere and produce a common form expression of our time after almost half a century of trial and error. This will presuppose a determined attitude of the new architect to direct his efforts toward finding the best common denominator instead of toward the provocative stunt. Preconceived ideas of form, whether the outcome of personal whims or fashionable styles, tend to force the stream of life in a building into rigid channels and to hamper the natural activities of the people for whom the buildings were built.

3 *Diagnose the client's real needs and give him a consistent building*

The pioneers of the new movement in architecture developed methodically a new approach to the whole problem of “design for living.” Interested in relating their work to the life of the people, they tried to see the individual unit as part of a greater whole. This social idea contrasts strongly with the work of the egocentric prima-donna architect who forces his personal fancy on an intimidated client, creating solitary monuments of individual esthetic significance.

I do not mean that we architects should docily accept the client's views. We have to lead him into a conception which *we* must form to fit *his* needs. If he calls on us to fulfill some whims and fancies of his which do not make sense, we have to find out what real need may be behind these vague dreams of his and try to lead him in a consistent, over-all approach. We must spare no effort on our part to convince him conclusively and without conceit. We have to make the diagnosis of what the client needs on the strength of our competence.

4 *Gain competence in all fields of building to earn the client's confidence and the right to captain the team*

When a man is ill he certainly wouldn't tell his physician how to treat him. Architects are rarely treated with such respect. If we have not been competent enough to deserve being trusted, we had better make sure that we are in the future—in design, in construction and in economy, as well as in the social conception, which embraces the three other components of our work. If we do not make ourselves highly competent in all these fields, or if we shun responsibility in leading the way, we resign ourselves to the level of minor technicians.

Architecture needs leadership and conviction, if necessary, even in defiance of the client. It cannot be decided upon by clients, or by Gallup Polls, which would most often reveal only a wish to continue what everybody knows best.

5 *Make better use of science and the machine to serve human life*

There is an argument going on which distorts the aims of modern architecture and therefore needs clarification. We hear: “The modern accent is on living, not on the machine,” and Le Corbusier's slogan, “The house is a machine for living,” is old hat. With it goes a portrait of the early pioneers in the modern movement as men of rigid, mechanistic conceptions, addicted to the glorification of the machine and quite indifferent to intimate human values. Being one of these monsters myself, I wonder how we managed to survive on such meager fare. The truth is that the problem of how to humanize the machine was in the foreground of our early discussions and that a new way of living was the focus of our thoughts.

To devise new means to serve human ends, the Bauhaus, for instance, made an intense attempt to live what it
continued on p. 178

BUILDING ENGINEERING

1. Fire tests for better factory roofing
2. Welded connections for two-way rigid framing
3. Sensible locations for expansion joints
4. Economical prestressed girders for school gymnasium
5. Semirigid design for efficient high-strength bolted framing
6. Discontinuous compression structure for 40' sphere
7. "Box-frame" concrete for ten-story column-free apartments

LIFE—John Zimmerman



Transmission plant fire at Livonia, Mich., Aug. 12, '53

1. FIRE TESTS OF FACTORY ROOFS —a report by the plant engineering office, Ford Motor Co.

Ford Motor Co. tests asphalt vapor seals, sprinklers, fire-retardant paints and deck joints for factory roofs

The biggest factory fire disaster in history occurred last August at Livonia, Mich., in a plant that had been constructed to meet all known requirements for fire safety. Most frequently listed factors contributing to the fire were 1) the insulated metal roof deck and unprotected steel frame whose asphalt and saturated rag-felt vapor seal contributed fuel to the fire as melted asphalt dripped from the joints and end laps of the deck, and 2) the lack of sprinkler protection.

Ford Motor Co.'s tests (reported here) establish that asphalt vapor seal, while not supporting its own combustion, does contribute considerable fuel to a fire; further, that water sprinklers do extinguish an oil fire before it can take hold.—ED.

The plant engineering office of Ford Motor Co. has completed a series of con-

trolled test fires on special structures to determine:

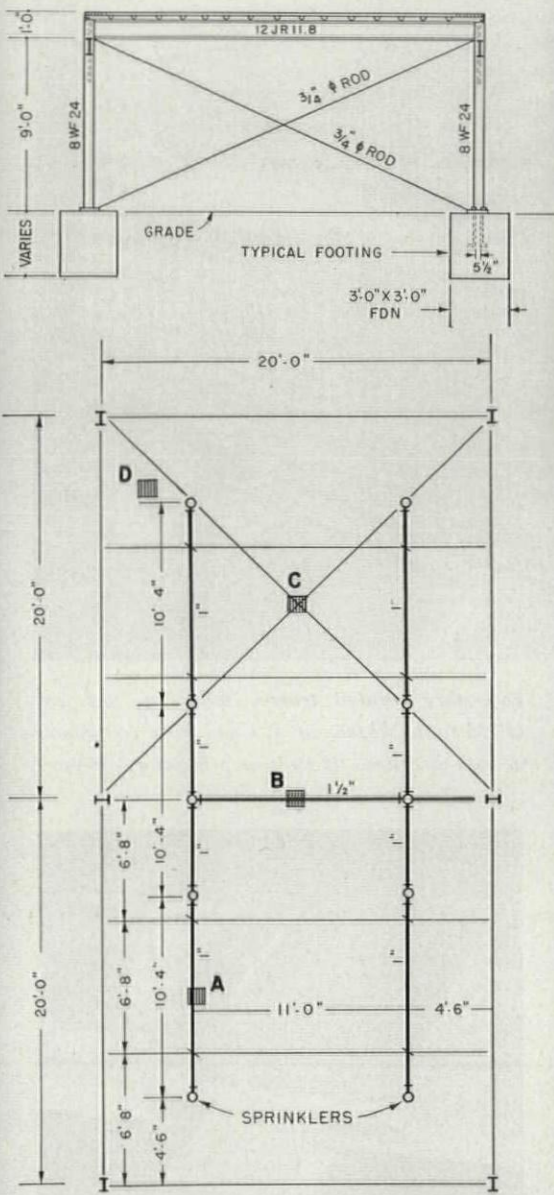
- ▶ the action of standard asphalt-pitch vapor seal under exposure to high temperatures;
- ▶ the relative performance under fire of roofs with and without vapor seals;
- ▶ the effect of a spray-head sprinkler system on roof temperatures, on oil fires, and on pools of oil at floor level; and
- ▶ the performance of fire-retardant paints, two types of insulation, and tack-welded metal deck under fire conditions.

The test fires were conducted on two roof units, each consisting of two 20' x 20' bays of typical beam-and-purlin construction (see diagram). Sides were closed with 18-ga. steel deck panels down to ground on south and west sides, down to 4' on north and east sides. Roof construc-

tion, shown in the accompanying diagrams, comprised several types of standard built-up roofing: Test I with asphalt vapor seal; Test II without asphalt vapor seal; and Test III with two types of fibrous insulation materials both with and without underlying vapor seal.

Fire-test procedures. No. 2 oil, under pressure, was atomized by compressed air through two burners located to avoid direct contact of the flame with the roof.

Fire-retardant paint, the pigment of which expands at elevated temperatures to form an insulating coating, was applied to the center column on the south side of each building, and to an area 5' x 5' in the southwest corner of each building. The paint was applied only one coat thick, rather than the usual two coats.

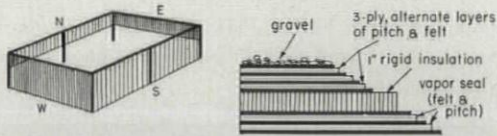


Typical test bays with oil burners at end just ignited. Framing and sprinkler layout shown on left, where lettered squares indicate cut-out samples removed for examination after each test. Eight thermocouples are strategically placed to supply temperature-time readings throughout tests.



End of Test I, burning vapor seal dripped through roof, side panels collapsed

A spray-head sprinkler system was installed for Test III, comprising eight automatic 165° spray-heads (located as indicated to supply 25 psi at the heads and installed with head fuses intact).



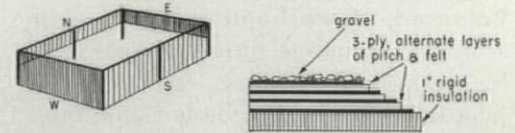
TEST I: asphalt vapor seal. Four minutes after lighting the first burner, vapor-seal asphalt appeared on the underside of the deck in the east bays, at a temperature of 360° F. After 5½ minutes this vapor flashed and started burning at a temperature of 420° F. After 9 minutes flames were observed around the east, north and south sides of the structure, and jets of flame were visible coming out between the center purlin and the deck.

After 10 minutes dense black smoke began to obscure details inside the unit; dripping and burning asphalt could be seen in the west bay. After 11:20 minutes, the

north-side panel of the east bay came off; all the remaining panels were loose when the oil supply was shut off after 12:30 minutes. In the west bay burning continued under the deck for another 5 minutes; in the east bay the fire subsided rapidly.

Examination of the roof structure after cooling showed the metal deck to be devoid of paint in all cases. The built-up roofing (above the insulation) was intact with no evidence of penetration of the insulation by the asphalt pitch above it. A cut-away sample of roof panel A (see roof diagram) showed the vapor-seal felt still containing sufficient asphalt to retain flexibility; the deck ribs contained asphalt up to ½" deep and the fiberboard was intact. Panel B showed oxidation of the upper surface and failure of the end lap tack-weld, with no remnant of the vapor-seal materials and approximately 25% loss in thickness of the fiberboard. Panel C showed some warping, complete disappearance of the vapor seal, and approximately 30% loss in insulation thickness. Panel D showed no dis-

turbance of the tack-weld, and no damage above the vapor-seal felt, but appreciable loss of asphalt from the felt, with no residue of asphalt.

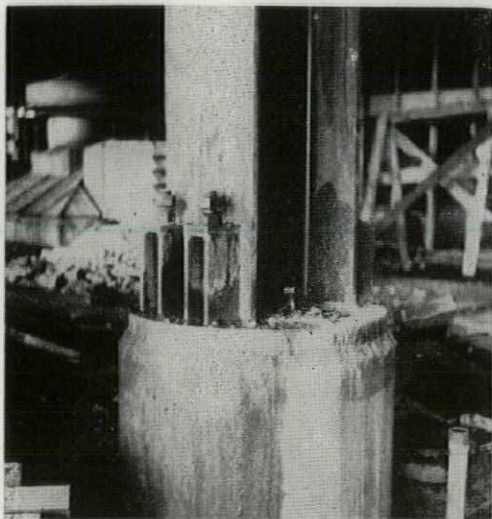


Test II: no vapor seal. After 5 minutes small flames were noted under the deck, primarily at the east end near the burners; after 6 minutes these flames had spread throughout the structure and were of a greater intensity than would be attributed to burning of paint on the steel. After 7:20 minutes, temperatures as high as those of Test I having been reached, the oil and air were shut off. Some burning continued under the deck, but was neither so intense nor so lasting as in Test I.

At no time during this test was there any appreciable amount of the dense black smoke, which had been a prominent feature

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Existing concrete columns support welded addition. New steel, welded to 2" base plate, is firmly held by four 2" bolts grouted 2'-8" deep into concrete. Welded side plates strengthen bolts.



Five-story welded frame, weighing 10.9 psf (1,756 tons, 321,000 sq. ft.) and fully continuous in both directions, is built atop five-story, 38-year-old reinforced concrete structure.

2. WELDED RIGID FRAME FOR STORE ADDITION

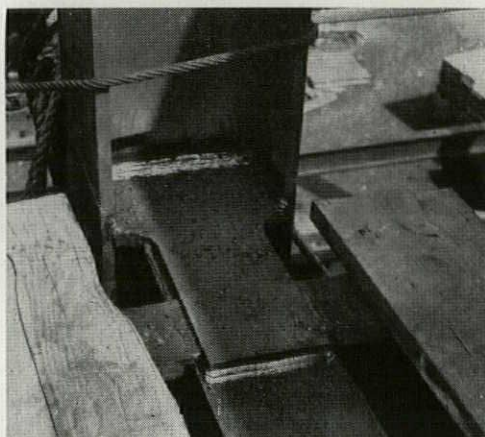
Simple techniques in fully continuous welded structure save 12% steel

Full continuity with welded connections replaced a riveted design to save 12% steel in the five-story addition atop the Frederick and Nelson department store in Seattle. The structural steel went up quickly at a total cost of \$190 per ton, thanks to repetitive steel framing and simple welding techniques.

A simple framing layout—main girders (21" w.f., 96 lb.) run N-S between columns 26'-7" o.c. and are joined by E-W intermediate floor beams (12" w.f., 27 lb.) spanning 23'-4" and placed 6'-2" o.c. throughout the structure irrespective of column location.

Balanced, down-hand welding — to avoid the shrinkage distortion caused by high-temperature welding, each side of a joint is welded simultaneously and in three separate operations to dissipate heat from the weld. For ease of erection each joint is designed to permit down-hand welding, in which gravity helps keep the molten weld metal in position until it solidifies.

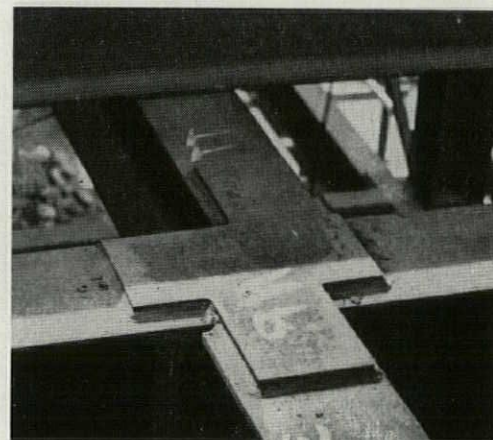
To transfer bending moments between main girders through column joints, steel plates are welded to the top and bottom flanges of all girders and the plates are welded to the columns, which are strengthened by stiffener plates between the flanges. Tops of the floor beams are flush with the tops of the main girders and carry-over plates are welded above the joints to transfer moments across them; lower flanges of the beams are butt-welded to girder webs.



Typical column framing is to N-S main girders only, not to E-W beams, shown framed into girder this side of column. Joint is designed for rapid down-hand welding.

The addition is designed for seismic loading. Horizontal stability is supplied by concrete floor slabs acting as diaphragms to transfer shear forces to the E-W concrete stiffening walls. Floor slabs of 3½" poured concrete are cast atop floor beams and girders using expandable metal forms that require no additional shoring. Spanning 6'-2" between floor beams, the forms are installed and stripped for 15¢ per sq. ft.

This vertical addition to a 28-year-old building was designed by John Graham & Co., architects and engineers; Skidmore, Owings & Merrill are responsible for interior design and planning.



Carry-over plate visible in photograph transfers moments between floor beams across N-S girder. Floor slabs act as diaphragms to provide horizontal stability.

Expandable metal forms for concrete floor slabs are carried on temporary wooden joists laid on flanges of floor beams, thus require no shoring. Steel is fireproofed with 1" vermiculite plaster on a suspended ceiling.



3. WHERE TO PUT EXPANSION JOINTS

Trend toward longer, lower buildings requires closer attention to prevention of cracks

By Harold S. Woodward, M. ASCE.

Seelye, Stevenson, Value & Knecht

Where are the best locations for expansion joints in today's long, single-story factories and schools that are more than ever subject to horizontal temperature movement? This is perhaps one of the most controversial problems of modern building construction.

In any long building there are five major areas of potential cracking:

1. **At abutting roofs**—caused by irregular plan and elevation;
2. **At wall and roof joints**—caused by poor wall and foundation construction;
3. **At partition and wall joints**—caused by long external walls;
4. **At plastered ceilings**—caused by movement of the supporting roof;
5. **At foundation wall joints**—caused by lack of integration with the joints in the main structure, especially where long concrete foundations are exposed to the elements.

Causes of movement

A 60° F. rise in temperature will cause an expansion of 0.396" per 100' of con-

crete. However, in highway studies the trend is to eliminate expansion joints as distinct from contraction joints; in a 5,260'-long section of concrete pavement, the compressive stress due to an 83° rise in temperature was only 628 psi.

Other factors besides temperature cause structural movement. In concrete, for instance, moisture variation might cause a seasonal contraction of 0.142" in 100'. As the concrete hardens it will shrink 0.120" in 100', plus a further 0.135" from plastic flow. These movements will be permanent contractions (fig. 1). If all these factors act simultaneously with a 60° temperature expansion, the result would be negligible and no compressive stresses would develop. Experience shows that the greatest movement in an expansion joint takes place in the first year and that the recovery is relatively small.

Expansion cracks are most likely to occur in masonry walls over 200' or 250' long in one-story buildings. In such buildings there are usually many wall openings separated by relatively narrow piers. Walls under the windows are restrained by the foundations but the masonry above the

windows is unrestrained and will be subject to thermal movement. Consequently cracks are likely to develop at the upper corners of the wall openings and in the masonry piers.

Case histories

In a factory of load-bearing masonry construction inspected by the author about five or six years after it had been built, the thermal problem had been thought out in a logical manner but fouled up through lack of attention to detail. There were comparatively few cracks, proving that the basic thermal solution was sound. This solution was to provide vertical expansion joints with double columns every 200' through the 800'-long building, and also to place a horizontal expansion joint above the window heads around the entire structure. The masonry above this joint was carried upon shelf angles separated from the supporting beams by a mastic joint so that the upper part of the wall would be free to move independently. The columns were kept clear of the walls on the interior so as not to weaken the walls by joints at the columns. *continued on p. 198*

contraction —

+ expansion

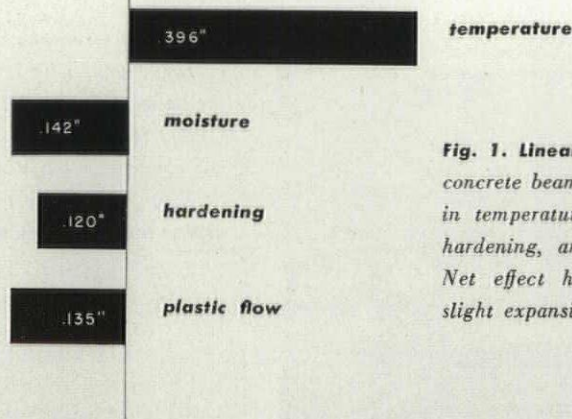
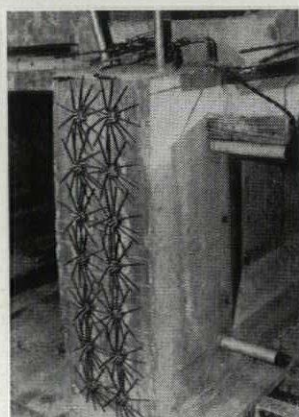


Fig. 1. Lineal variations in 100' concrete beam due to 1) 50° rise in temperature, 2) moisture, 3) hardening, and 4) plastic flow. Net effect here is small, only slight expansion of 0.001".

4. ECONOMICAL PRESTRESSED GIRDERS

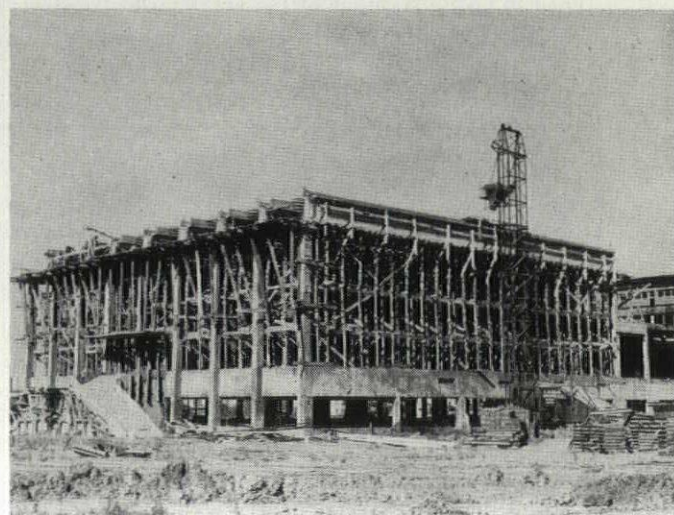
Heavy concrete members save \$11,516 in high school gym

Nine prestressed concrete girders, 94' long and 13'-3" o.c., saved \$11,516 over an alternate structural steel bid in framing the sky-lights over a gymnasium at the Bishop Du-bourg High School in St. Louis, Mo. (AF, Apr. '52). Most, but not all of this saving, \$9,000, represents the cost of metal lath and plaster which would have been required to fireproof the steel trusses to obtain the desired Class I fire rating; the remaining \$2,500 represents the economy of prestressed concrete over exposed steel for such long spans.



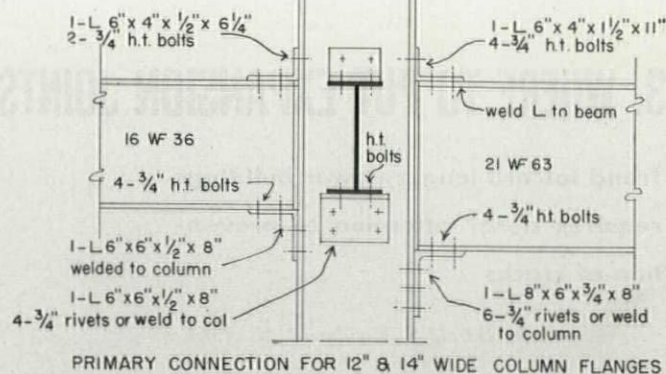
Prestressing cables are flattened against 5'-deep girders after tensioning. Anchorage is by the Freyssinet system.

Concrete girders atop gymnasium are cast and prestressed in place. Gymnasium is built over cafeteria which would have meant high lift if contractor had decided to precast the girders on ground. School is designed by Murphy & Mackey, architects; and Fred N. Severud, consulting engineer.





Air-impact wrenches tighten bolted connections with less than half the noise of riveting. Typical joint (right) is designed as semicontinuous connection following specifications of AISC Report No. 206 to exploit high efficiency of bolting.



Maurice Hodge

5. BOLTED FRAME FOR CONTINUITY

High-strength bolts frame 14-story hospital to reduce noise, speed erection, save 21¢ per bolt over rivets and cut weight of steel by 7% through semirigid framing

After comparative analysis with simple end-riveted and fully continuous all-welded framing, a semirigid steel frame with high-tensile steel bolts was selected for the 14-story University of Oregon General Hospital in Portland, Ore. The advantages:

1. Cost of the 1,150-ton bolted frame came to \$220 per ton of erected steel or 99¢ per sq. ft. of the 254,555 sq. ft. building. A fully continuous, welded frame would have weighed 1,070 tons but cost \$252 per ton erected—i.e. \$1.06 per sq. ft.; while a riveted frame would have weighed 1,230 tons at \$222 per ton—\$1.07 per sq. ft.

2. Semirigid framing (developing up to 47% of full continuity) cut the framing weight by 7% to save 80 tons of steel while adding useful rigidity to the structure. Although some 60 steel frames up to 14 stories high have been erected with high-tensile steel bolts, this is one of the first actually designed to take advantage of the greater efficiency of these bolts over rivets; on most bolted frames the bolts simply replace rivets on a one-for-one basis (see "No more riveting," AF, Mar. '52).

3. Speedy erection of the bolted frame saved a whole month. The steel erectors report that each two-story tier was assembled, lined up and the bolts tightened in only two days, while riveting or welding would have taken a week. An easily trained bolting crew of only two men place and secure an average of 20 bolts an hour while a good

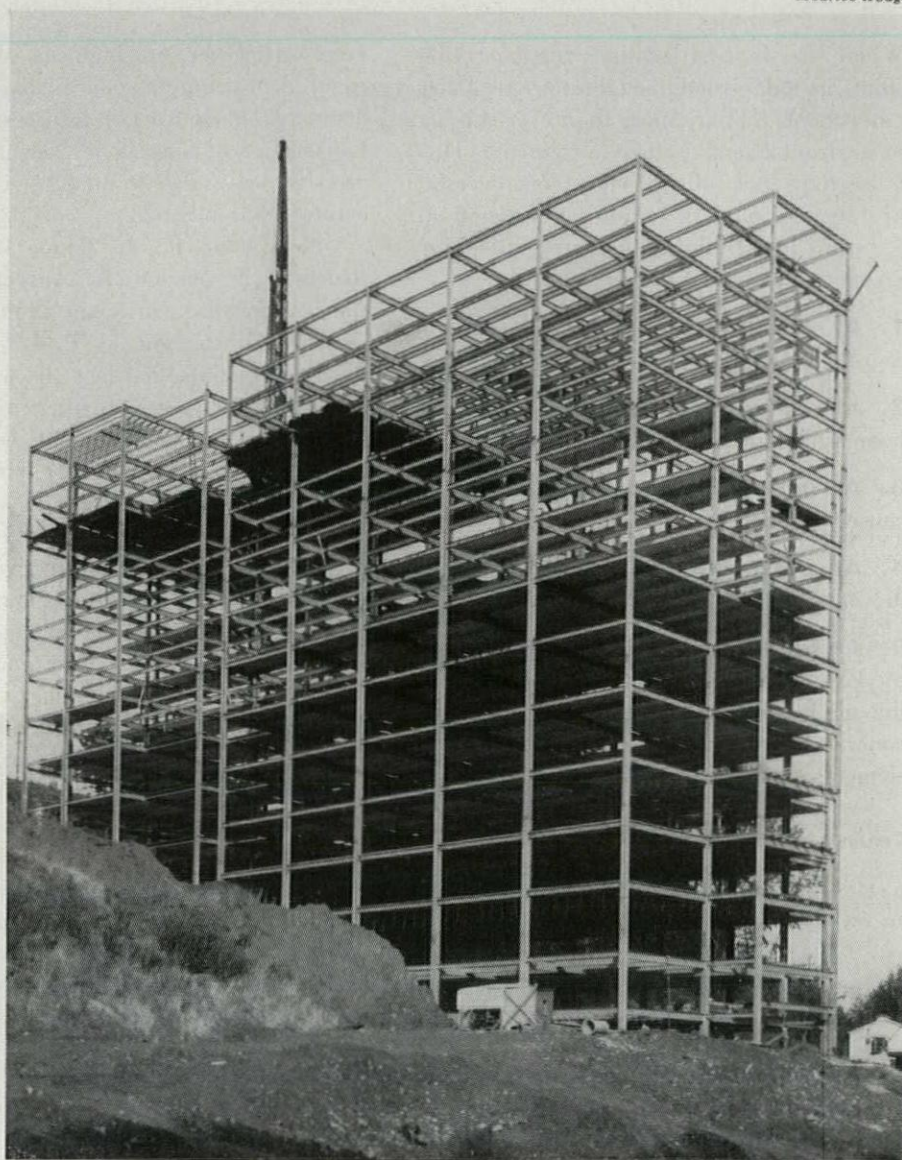
riveting crew, four men strong, average 27 rivets an hour. Thus the total installed cost per bolt came to 21¢ less than the cost of rivets, although the initial cost of each bolt is considerably greater: 30¢ vs. 7¢.

4. Erection noise is considerably reduced. The air-impact wrenches employed make less than half the noise of a rivet gun and for less than half the time, an important factor in hospital construction.

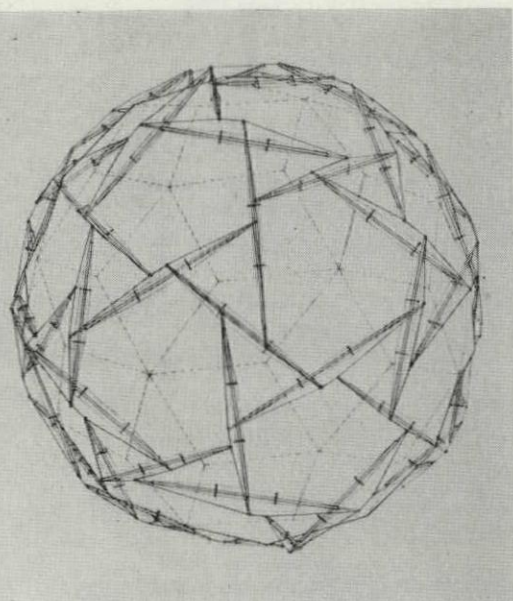
High-tensile bolts clamp adjoining members under high pressure (70,000 psi) creating a frictional force between contact surfaces to resist shear. The result is a connec-

tion better able to resist fatigue than ordinary rivets or bolts. The 3/4" bolts used throughout this hospital frame are driven to refusal by wrenches that are calibrated each morning to control bolt tension.

Designed for both medical care and teaching, this 277-bed, air-conditioned hospital is being built for a bid price of \$18.19 per sq. ft. Lawrence, Tucker & Wallman are the architects; Cooper & Rose, the structural engineers. The general contractors were Donald N. Drake Co.; the bolted steel frame was erected by Bethlehem Pacific Coast Steel Corp.



Hospital frame, 14 stories high, is tallest bolted structure yet. Lightweight expanded-shale concrete floor slabs act as diaphragms for seismic loadings.



In design, surface of sphere is divided into 180 triangular faces (dotted lines on diagram). On these faces are superimposed 60 triangles bordered by one short (12') and two long (15') struts, 12 pentagons bordered by five long struts and 20 hexagons bordered by three long and three short struts, all connected in discontinuous compression. The triangular aluminum spreaders and binding wires add rigidity to each strut.

6. BALL OF WIRE AND TUBES TESTS STRENGTH OF TENSION DESIGN

Design loading: 40 psf
Weight: 715 lb.
Volume: 33,500 cu. ft.
Structural efficiency: 1 lb. contains 46.9 cu. ft.
Designer: R. Buckminster Fuller

Because of the stimulating effect he has upon students, Richard Buckminster Fuller is one of the most sought-after lecturers on the architectural school circuit.

Sparked by Fuller, 15 architectural students at Princeton University designed, fabricated and built this 40' "tension-integrity" sphere as a practical exercise in *discontinuous compression*, which exploits the great strength in tension design as compared with compression design. (Maximum available tensile strength is 400,000 psi, in some glass fibers, while the best available compressive strength is only 50,000 psi, found in granite.)

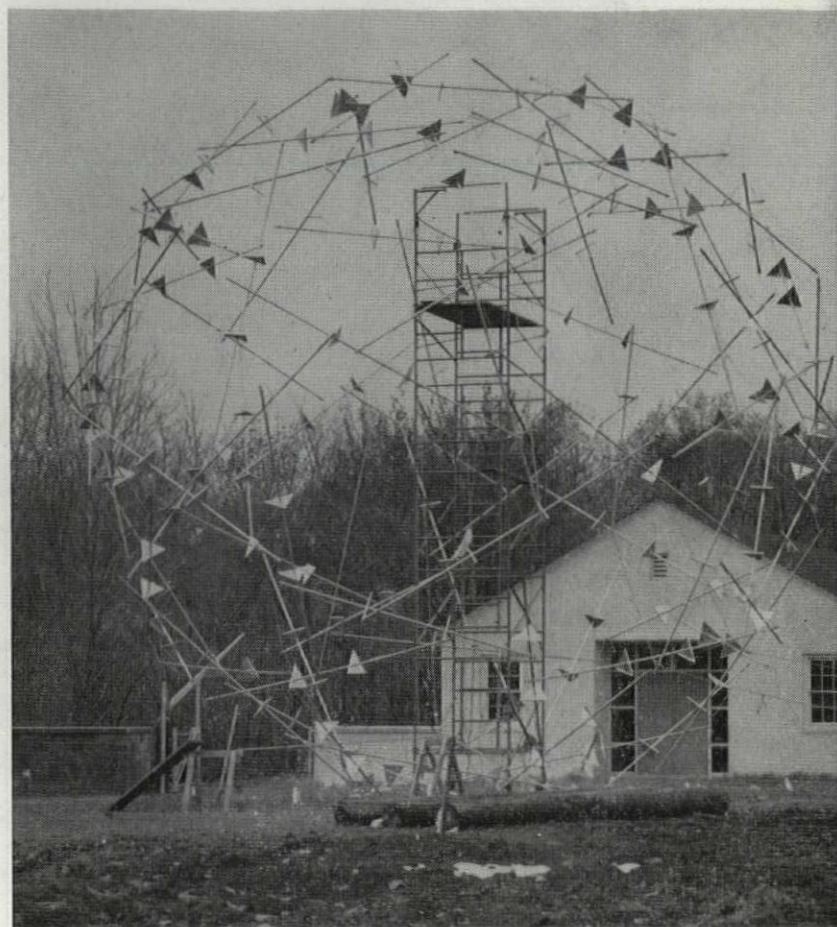
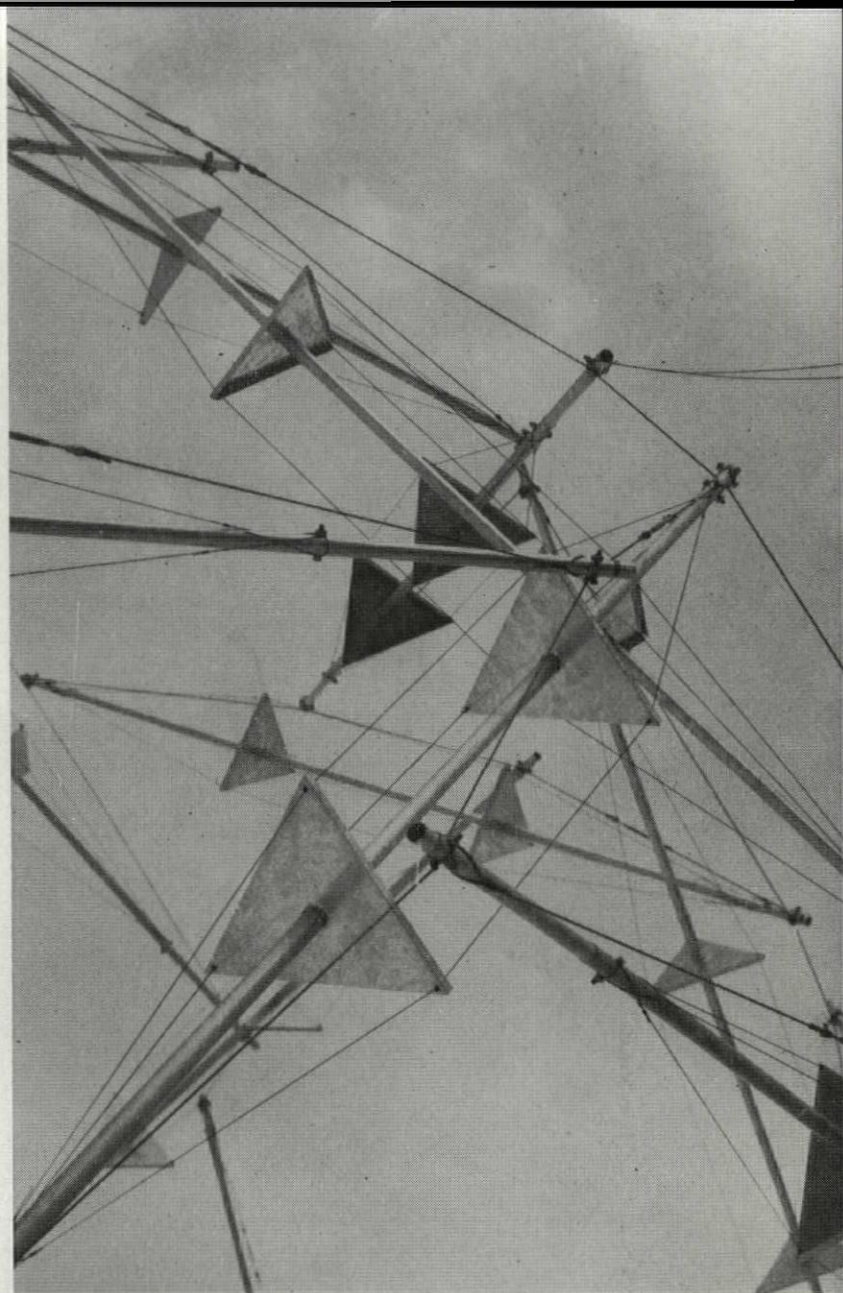
This unique sphere is composed of 12' and 15' compression struts totally isolated from one another, yet mutually self-supporting through a web of tension cables. A true space frame, the structure acts in perfect synergy—any point load is immediately resisted by every member; actual stresses in members are inversely proportional to their distance from the point load and consequently stresses are distributed in concentric circles.

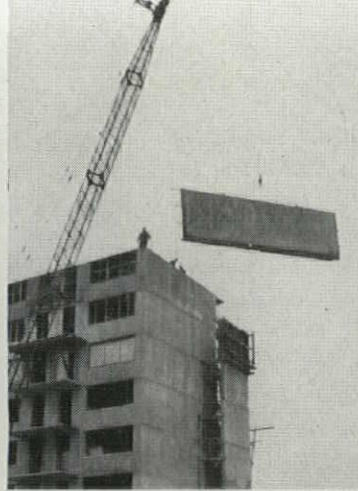
Assembly was from the top down; the sphere was raised on a light scaffold as successive "rings" of members were attached and finally supported on five 8' stakes and the scaffold removed.

Components:

1½" 61ST6 aluminum tubing
 —sixty 15.215' struts.
 1⅝" aluminum tubing
 —thirty 12.157' struts.
 5/32" steel cable—1,500'.
 1/16" steel cable—4,500'.
 20-ga. sheet aluminum—264 sq. ft.
 92 turnbuckles, 200 connectors, screws and bolts.

Completed sphere near Princeton stadium stands ready to be mounted on five stakes in foreground.






Prefabricated plywood forms are prepared in 24'-wide, 8'-high panels (left), and hoisted into position by crane (center). Story-height formwork is shown in place for two of the four ten-story buildings (above, right). Concrete is left exposed; construction joints are clearly visible. Two- and four-story row houses are built between the tall buildings (far right).

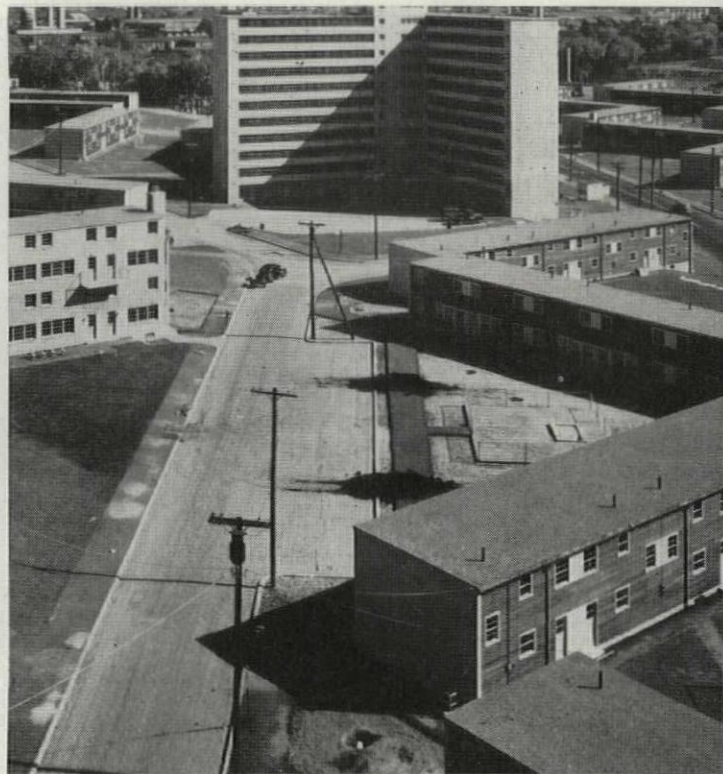
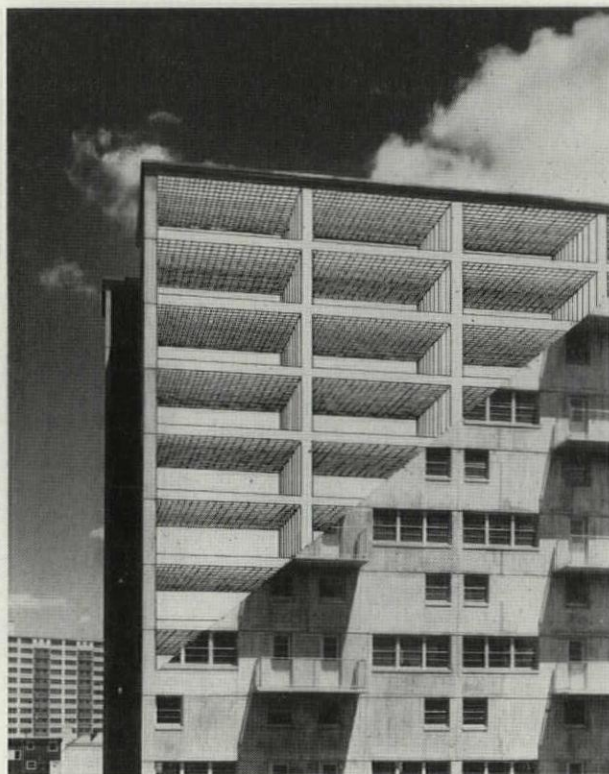
Access balconies (left, below) give access to living-room floors only. Small balconies (right) connect apartments to aid fire escape

Photos (left and p. 165): Richard Garrison





Box-frame construction combines floor slabs and monolithic transverse wall slabs, permits use of repetitive, story-height forms.



7. HIGH-RISE APARTMENTS OF "BOX-FRAME" CONSTRUCTION

Transverse wall slabs replace columns to hold construction costs to \$10.40 per sq. ft. Combination of high and low buildings varies sky line and site plan of Providence's notable public housing development

Architecturally, the Hartford Park public housing development in Providence is noteworthy for its "neighborhood" site plan, its open corridors and cross-ventilation for all duplex apartments, its skip-stop elevators and its middle-of-the-road stand in the argument about high-rise vs. low-rise apartment living (see next page).

But, from the engineering viewpoint, the project is most significant for the unusual construction of the four ten-story buildings:

They are built without columns. Each 25'-wide reinforced concrete structure is composed of 6" floor slabs framed directly into 9" transverse wall slabs to form a series of boxes 19'-3" wide and 8'-3" high. Previously used in Copenhagen in the late thirties and in England since World War II, this is the first time box-frame construction has been adapted to US building. However, in Hartford Park the longitudinal walls, which could have been lightweight curtain walls, are also of concrete, economically cast-in-place at the same time as the transverse walls.

Construction sequence. Since these balcony-access buildings are only one apartment deep and party walls are equally spaced, they lend themselves readily to cellular, box-frame construction. The load-bearing wall slabs between duplex apartments give excellent sound insulation (60 db. for a 9" wall) and avoid the ugly projections of post-and-beam construction. They are easy to build, too, for the large, flat slabs, both vertical and horizontal, permit maximum reuse of formwork.

In plan, the elevator buildings are "T" shaped with an expansion joint at the intersection of the stem and head of the "T." Each story was cast in two operations: floor slabs and wall slabs. Horizontal construction joints in exterior walls are at window and door heads. Each floor of each 240'-long "T" head section is monolithic, cast in three pours to minimize shrinkage: first the two flanking sections and two days later the center section. Cantilevered access balconies, tapering to 4" thick at the extremities, are poured at the same time as the floor slabs, as are the small rear balconies which connect apartments for fire-escape purposes.

Living-room floors are 6"-thick, two-way slabs; bedroom floors are also 6" thick, except where stair openings occur. They are strengthened by an 8"-thick, 5'-wide band through the center of the structure.

Plywood forms in 8' x 24' panel sections are erected by cranes. The exposed concrete is unfinished, and forms are reused only five times to ensure the best natural finish at low cost. Exterior walls consist of 8" concrete with a 3" cinder block back-up separated by a 2" air gap. Partitions are of 3" cinder block. Floors, wall slabs and partitions are finished with paint. Electrical conduits are cast in the wall and floor slabs.

Single-pipe heating. Heating is by a single-pipe differential vacuum system, with all 41 buildings (four ten-story, nine four-story and 28 two-story) supplied from a central boilerhouse. In this system steam is supplied to risers at steam pressures varying from 2 psi in the coldest weather to 25" or more vacuum in the mildest weather. Steam is forced to the top of each riser and is circulated with practically equal steam temperature in every radiator, whether it is first or last on the main (maximum pressure drop in the longest riser is under 1/2 lb.). The usual radiator valves and traps are replaced by only one trap in the basement of each building, thus saving equipment, installation and maintenance cost. This one-pipe system cost \$536,998 installed, about 3% less (\$16,000) than a conventional two-pipe system, and is expected to be considerably easier to control and to maintain.

Photos: (top) Richard Garrison; (bottom p. 167) Joseph Marcello



Typical square shows generous space in front of buildings available for sitting and parking; playgrounds and drying yards are placed in back. Building in foreground contains 4½-room apartments; building in background, 5½-room apartments (plans, right).

Site plan achieves 27 families per acre with only 11.8% land coverage

The buildings at Hartford Park are designed on the principle that no child under ten shall live above ground level, hence the four elevator blocks are boldly set in a sea of lesser structures, a useful device rarely used in a large housing project.* Visually the device proves highly successful; the free-standing tall blocks add urban character by serving as stimulating focuses around which the neighborhood "squares" are clustered.

Accommodation is provided for families with up to eight children; the 632 dwelling units contain 120 one-bedroom units, 288 two-bedroom, 156 three-bedroom, 48 four-bedroom and 20 five-bedroom units, based upon analysis of 7,500 applications for accommodation.

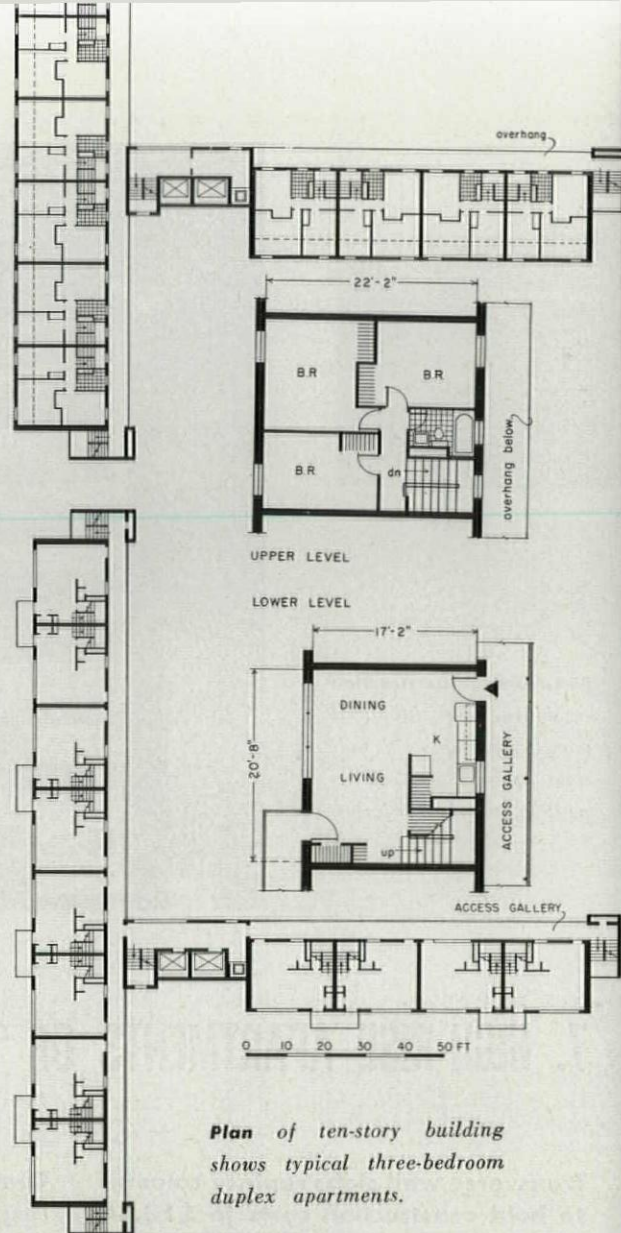
In laying out the buildings the designers enclosed neighborhood squares with parking space and lawns in front of the buildings, playgrounds and drying yards behind. Since the buildings are sited almost diagonally end to end, each structure

complements its neighbor, substituting a diamond pattern of open-air courts, replacing the monotonous squares of most large-scale housing.

Visually, the contrasting roof lines produce a stimulating urban pattern that continually changes as one moves through the 2,000'-long project. The road layout, too, is unusual, for the designers were free to limit roads to a service function only. (The main Route 6 to New York does split the project into two halves temporarily, but this route will be relegated to a minor service function once the projected expressway system is completed.)

With 2,500 occupants, Hartford Park is not quite large enough to justify new community buildings (a population of 3,000 is normally required to justify an elementary school on the basis of 14 children of each age group per thousand population). There are six schools within a quarter of a mile, two shopping centers within half a mile, a public library is half a mile away and a large state park adjoins the development to the north.

Located only 2 mi. from the center of Providence, Hartford Park has reclaimed an area of arrested development (once covered with automobile graveyards, an



Plan of ten-story building shows typical three-bedroom duplex apartments.

abandoned gravel pit, old law tenements and some decrepit boarding houses), an area that had sunk so low in blight that no real estate developer would venture into it. The 26-acre tract was assessed at \$65,000 for the land plus \$88,000 for the buildings and was supposed to be paying the city \$4,437 annually in taxes (some were tax delinquent). The property cost the Providence Housing Authority \$359,400, or \$13,800 per acre. In lieu of taxes the Providence Housing Authority will pay the city \$18,960 annually (an estimated 10% of the shelter rents).

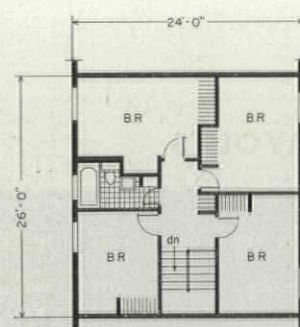
Construction costs. Cost of the high-quality, low-maintenance elevator buildings came to \$2,968 per room (bid June '51) and for the two-story frame housing, \$1,154 per room, giving a room cost of \$2,136 (or \$10,253 per average 4.8-room unit). Square-foot construction costs: \$10.40 for the concrete structures and \$6.08 for the frame dwellings.

The Hartford Park housing development was built under the Public Housing Act of 1949 and designed by Creer, Kent, Cruise & Aldrich, architects and engineers; James D. Graham, landscape architect; and Edwin W. Colby, consulting engineer. Construction was by the E. Turgeon Construction Co.

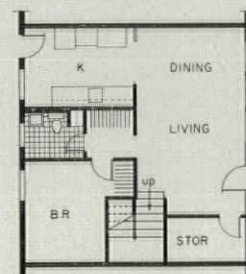
* High-rise and row-house living has been combined once before at New York Life's "Fresh Meadows" in Long Island, N.Y., which contains two 14-story apartment blocks set amid two- and three-story row houses and apartments having a population density of 17 families per acre with a gross land coverage of 11.7%.



Small buildings at center rear of project form square around parking space

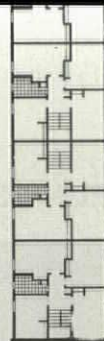


UPPER LEVEL

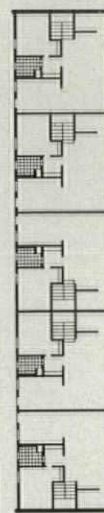


LOWER LEVEL

Plan of four-story row houses shows five-bedroom units with extra washroom and toilet.



UPPER LEVEL



LOWER LEVEL

0 10 20 30 40 50 FT

Unusual site plan aims at series of residential squares. Building in right foreground is a prewar high school



MOTELS—SITE LAYOUTS

The following diagrams show various site layouts for typical motel schemes. These vary with site requirements, desired land-use density, and possibilities of expansion.

Site should be located according to study of traffic volume and distance of average day's drive: 200-400 miles. Size of site will depend on land values and volume of anticipated business.

HIGHWAY FRONTAGE WIDTH

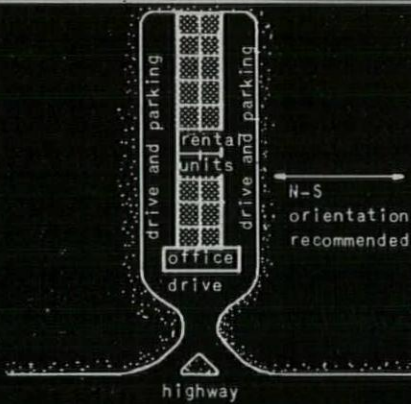
minimum	100'
average	300' - 500'
good	800' - 1000'

When minimum frontage is used, depth of site must allow for ample parking. Frontage width governs turnoffs from highway.

Sign placement:

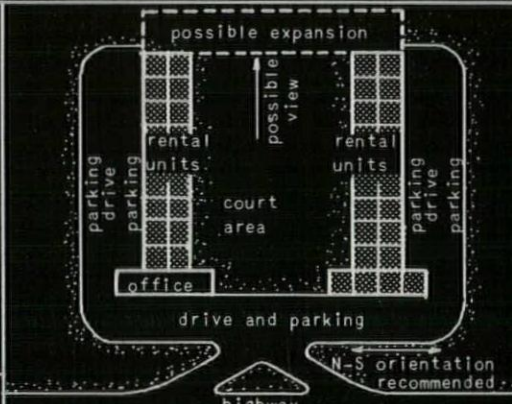
1. Advance signs begin 1 to 100 miles from motel.
2. Approach signs placed at 1/2 to 3/4 miles from motel.
3. Major sign at entrance or sign on building should have name of motel legible 400' from turnoff. Major sign includes vacancy - no vacancy sign and any recommendations, such as American Automobile Association, etc.

* For such legibility, sign letters must be 18" high. Orientation may not matter if guests are only overnight. Use of overhangs may give adequate sun-protection in moderate climates. Avoid large E-W glass exposures, especially in warm-hot climates. With air-conditioning this increases initial and operating costs.



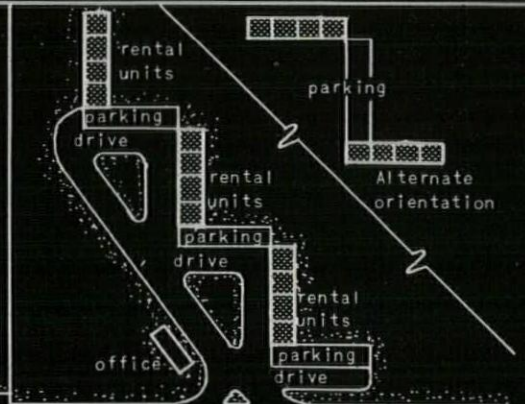
Economical land use. May be 1 or 2 stories high, 1 or 2 units deep. May be expanded into "court" scheme. Long, narrow site.

ONE-BUILDING SCHEME



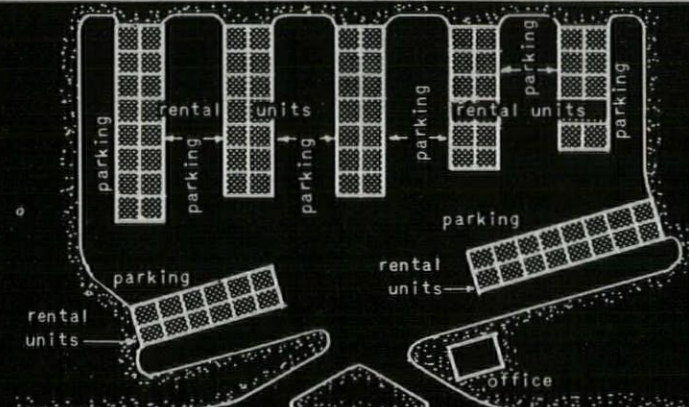
Court may be used for recreation area, or for parking if surrounding view is good. Motel may be 1 or 2 units deep, 1 or 2 stories high. Flat, regular site.

COURT SCHEME



Less noise, good privacy. Opposite orientation may be used on same site. May be 1 or 2 units deep. Sloping or deep site.

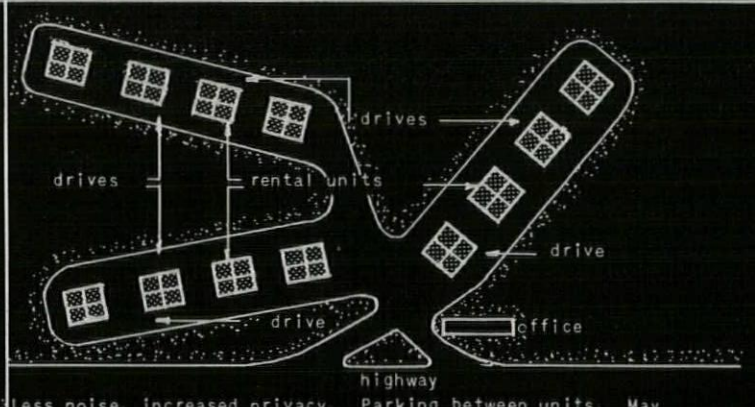
STEPPED-ROW SCHEME



Noisy, little privacy. Expansion requires only addition of rental unit rows. Wide, irregular site.

IRREGULAR SCHEME #1:

2 units deep.



Less noise, increased privacy. Parking between units. May take advantage of any possible views. Low land-use density may prohibit use where land values are high. Wide, irregular site.

IRREGULAR SCHEME #2:

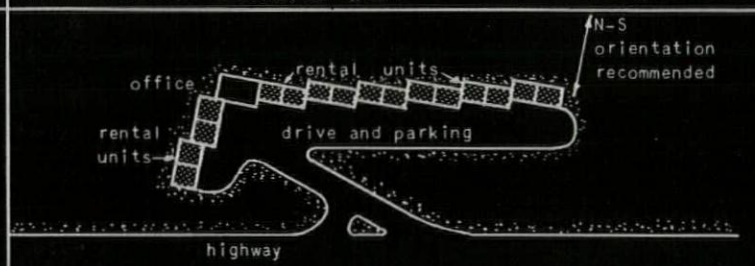
4 unit buildings



Quiet, privacy. Adaptable to view. Narrow, irregular site. Irregular schemes may give more pleasant effect than rigid, on axis schemes.

IRREGULAR SCHEME #3:

1 unit deep.



Privacy, good for view. Possible recreation area at rear. Obtains some variety in appearance in spite of limitations of wide, shallow site

STAGGERED-UNIT SCHEME

MOTELS—ROOM LAYOUTS

The following diagrams are examples of typical rental units. One unit deep: preferred because of quiet, cross-ventilation, and parking on one side only. However, it is more expensive and requires more land. Two units deep: more economical in construction and use of core baths; gives higher land-use density.

The three basic types of units are:

- A. Bedrooms: primarily for transient (overnight) guests only.
- B. Living room: has kitchenette. Will accommodate guests for a stay of one night or a few weeks.

C. Flexible: livingroom with kitchenette adjoins a bedroom unit with two doors between them. May be rented as separate units for transient guests or combined as a small "apartment" to serve several guests traveling together or those guests who intend to stay a few weeks.

The furniture arrangements shown may be varied with different room types.

NOTE: It is preferable to furnish two double beds per room, or a minimum of one double and one single bed.

KEY TO FURNITURE

DB- double bed

SB- single or folding bed

C- chair

T- table

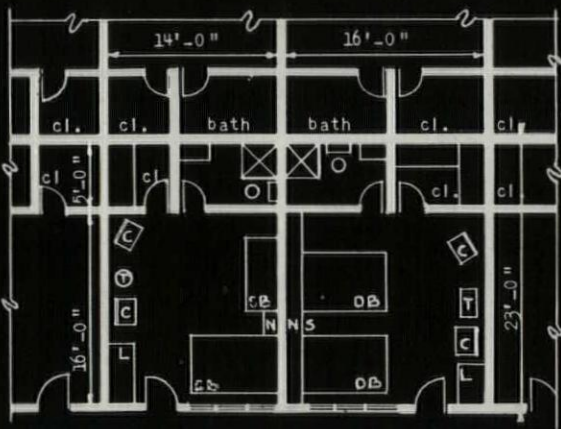
N- night stand

NS- night stand-shelves

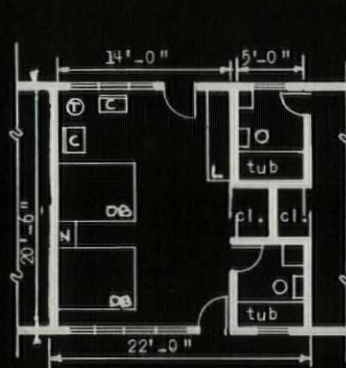
L- luggage stand

DC- desk and chair

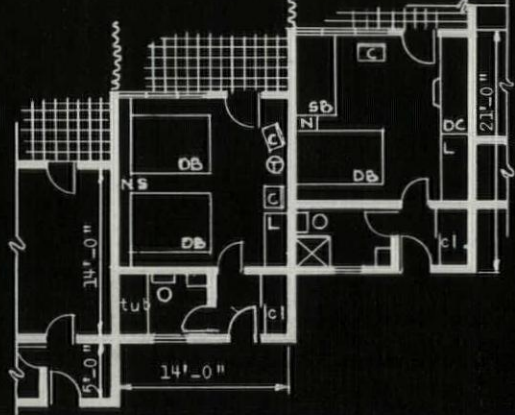
K- kitchenette unit



Two units deep. Core baths. Economical

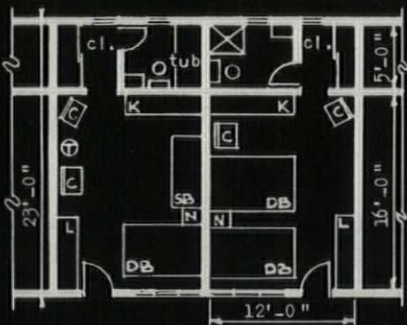


One unit deep. Adjacent baths.

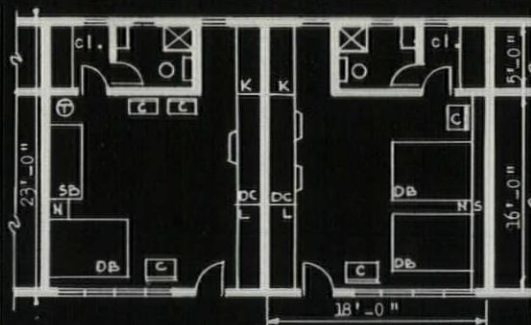


One unit deep only. Bath, closet at entrance baffle parking lights, noise. More privacy. Terrace possible. Luxury type.

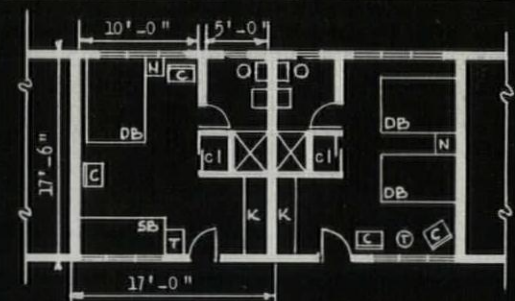
A. BEDROOM UNITS



May be two units deep. Adapted from a plan by Carlos B. Schoeppl, Miami, Florida

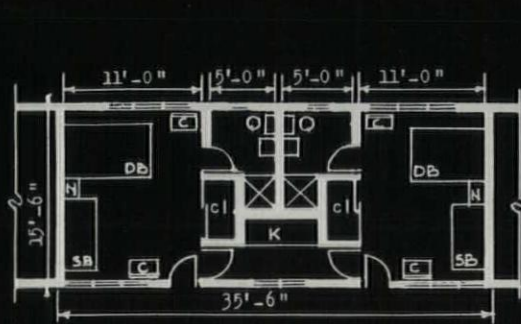


Requires extra width. May be two units deep.

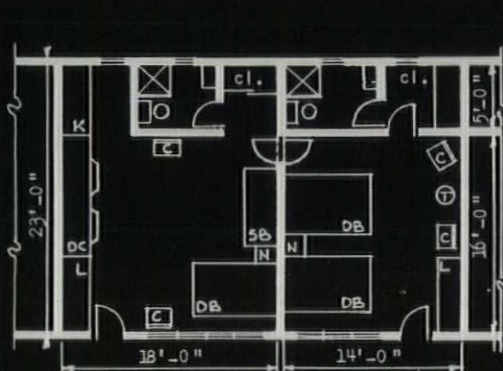


One unit deep preferred.

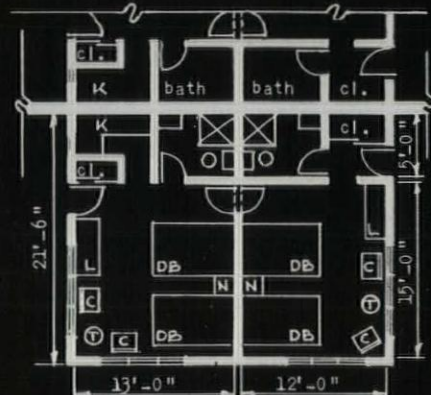
B. LIVINGROOM UNITS



May be two units deep but one unit deep preferred. Adapted from a plan by Norman M. Giller, Miami Beach, Florida.



May be two units deep.



Four unit building.

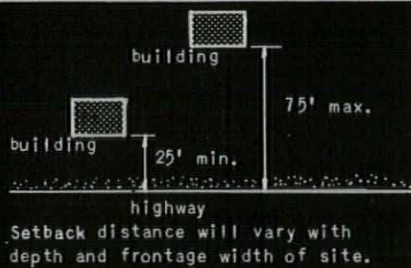
C. FLEXIBLE UNITS

MOTELS—DRIVES AND PARKING

The following diagrams show recommended dimensions for drives, parking, and other related details. Diagonal and straight-in parking are preferred to parking parallel to curb since more parking spaces are thus possible. Straight-in parking allows more parking spaces per row of rental units. Diagonal park-

ing is most convenient, lessens road width, allows fewer parking spaces per row of rental units.

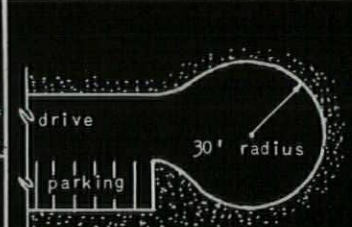
Parking shown is for use in connection with rental units and is more ample than for usual parking areas.



SETBACK FROM HIGHWAY



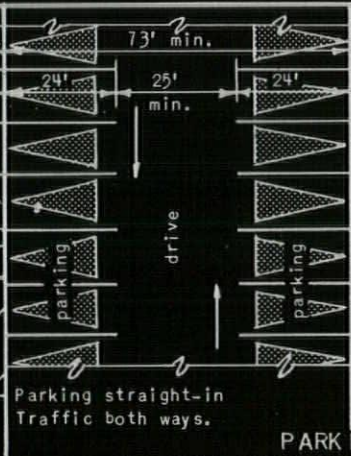
TURNOFF FROM HIGHWAY



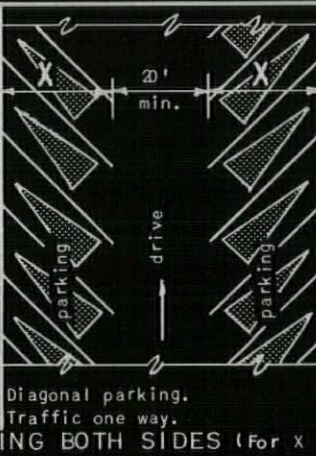
TURNAROUND



NO PARKING PARKING ONE SIDE



PARKING BOTH SIDES (For X values see below.)

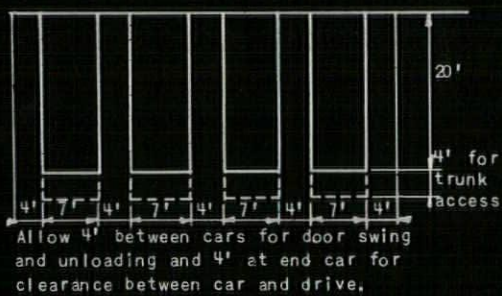


PARKING BOTH SIDES (For X values see below.)

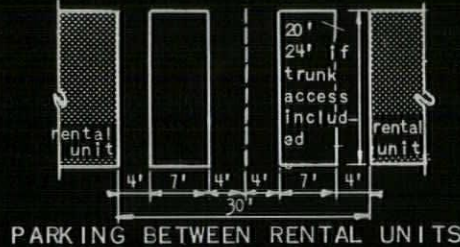


PARKING BOTH SIDES (For X values see below.)

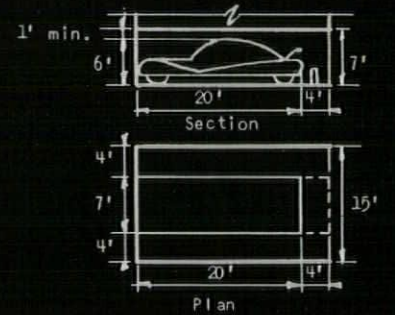
DRIVE WIDTHS (for use with rental units)



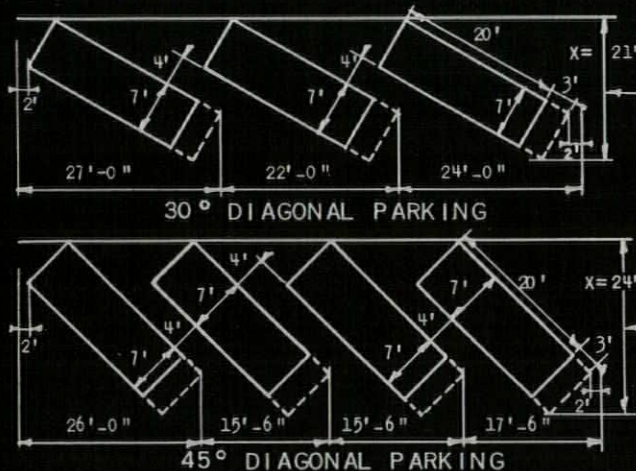
STRAIGHT-IN PARKING



PARKING BETWEEN RENTAL UNITS



PARKING UNDER RENTAL UNITS



STRAIGHT-IN PARKING

Straight-in parking, area per car, average sq. ft.: 273.



PARKING UNDER RENTAL UNITS

Diagonal parking, area per car, average sq. ft.:
30° = 476
45° = 400
60° = 350

With diagonal parking:
Allow 3' for access to trunk.
Allow an additional 2' beyond end cars for clearance between car and drive.
Allow 4' between cars for door swing and unloading.

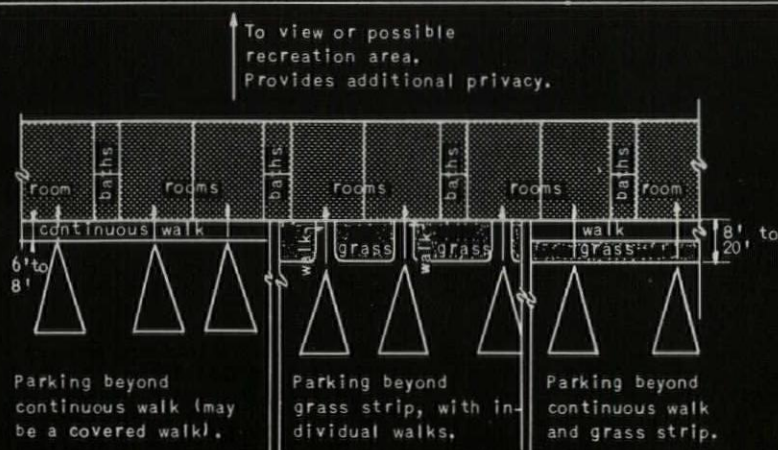
PARKING AREAS (for use with rental units)

MOTELS—PARKING ADJACENT TO ROOMS

Parking-to-room relationship is of primary importance to guests. Transients, arriving late or departing early, want easy, quick parking-to-room access. The following diagrams give basic solutions to this problem. Variations, depending on desired room type, required land-use density, and site, may easily be achieved.

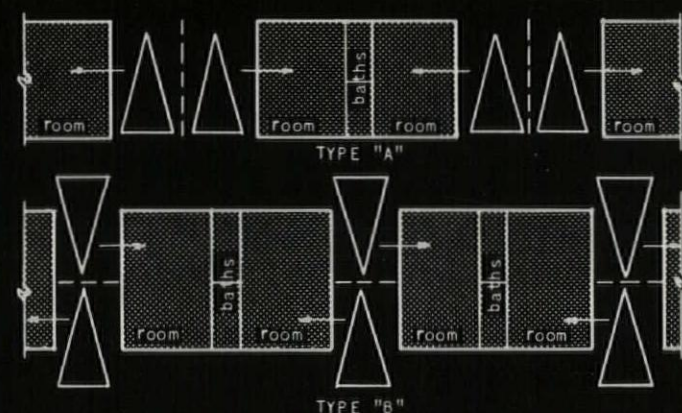
Units may be separated from parking by either a continuous walk or a grass strip with individual walk or a combination of both.

In cold climates garages or carports are desirable if allowed by budget and plan type.



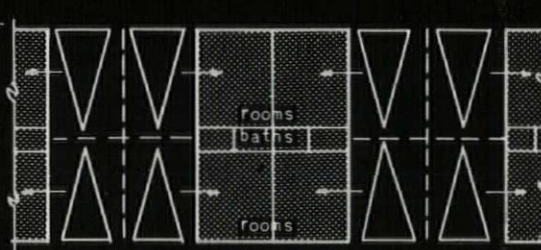
Parking in front detracts from appearance of rental units. May be diagonal or straight-in parking. Continuous row of rental units allows economies in construction and use of side-by-side or core baths.

PARKING IN FRONT OF UNITS



Drive required on one side only. Other side open to view or recreation area. Increases length of row of rental units.

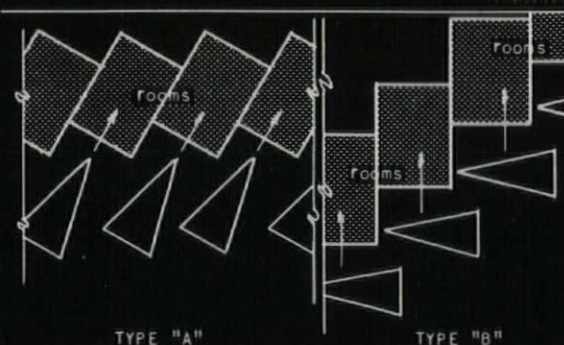
Exposes each room to drive on both sides. Decreases length of rows of rental units but uses additional depth.



Somewhat more economical in land-use,
construction, and use of core baths. Drive
required on both sides.

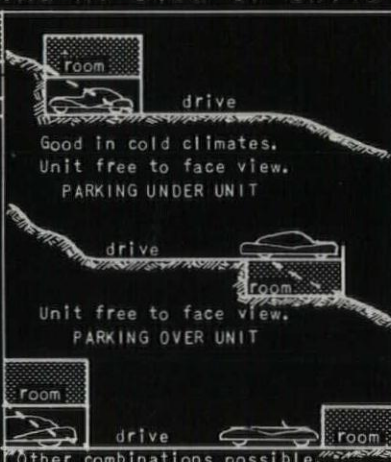
Car parked at side increases room length but gives better appearance and does not obstruct possible view past drive. Gives direct and more private access to each rental unit. Easy to build as carport or garage rather than open parking.

PARKING AT SIDE OF UNITS



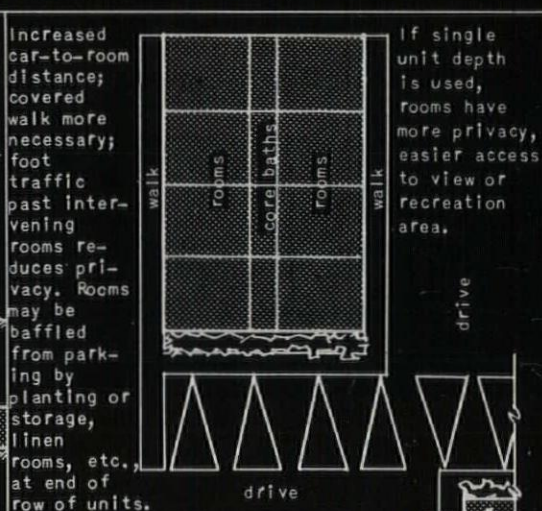
Parking noises may be baffled by placing bath and closet at entrance side. Parking one side only. Provides additional privacy and may take advantage of view.

PARKING FOR STAGGERED UNITS



PARKING UNDER AND
BEHIND UNITS

PARKING FOR SLOPING SITES



If single unit depth is used, rooms have more privacy, easier access to view or recreation area.

PARKING AT END OF ROW OF UNITS

for architects only

Wherever architects assemble, they can scarcely wait for the day's work to end so the real event can start, usually over drinks—the bull session.

This page, whenever it appears, will be the one chance the editors have for a little private conversation of this sort with their architect readers. Most everything else in FORUM is intended to be understandable to clients as well, but judging by results, clients don't always understand it—otherwise how could so many of our biggest client readers build such ugly buildings after looking at some of the beautiful ones in FORUM?

Leaders of the blind

Incidentally, how do you teach a blind man to see, anyway?

That's the \$64 question in all this talk about public relations, and a little later on perhaps we'll tell you about some of the editors' own behind-the-scenes adventures.

Ray Hood, who was a genius at producing handsome buildings for blind men and getting them to like them, used to duck the question altogether—anyway that's how I understood him, and Wally Harrison can correct this if it's wrong. Ray used to flatter common businessmen into not looking while he gave them better than they deserved. He would talk about the wonderful beauties to be had from simply following the best tables of rental profit, and would say, "What's wrong with a dollar?" and the businessmen would say fondly, "Now there at last is an architect who knows his stuff and no nonsense," and would go ahead trusting Ray, who would then be allowed to pull forth the stripes of the Daily News, or the great green McGraw, or the chasm of Rockefeller Center, just because the blind trusted him. But though they liked their buildings when they got them, did they see any better after than before?

Ray flattered them into momentarily useful nonobservation. I note that is the technique of a more recent New York operator, whom we shall simply call Q—Q—, and highly successful he is in getting buildings. It's basically the same line of talk about "the new technologies" and "let's not listen to any nonarchitect fool who wouldn't know how many elevators or what about the law." Only in this case no wonderful rabbits come out of the magician's hat. The unhappy feature about encouraging nonobservation is that it can feed architecture or nonarchitecture, equally well.

Wright of course uses the opposite of flattery, saying that the American people love to be spanked and he is ever ready to spank them. But he also makes his client feel like one of the very few elite who are saved; and maybe indeed he is!

Caryatids to the rescue

There are perhaps more constructive ways than Ray's of teaching the blind not to look now: one way is to get them to look when they don't notice they are looking. Years ago Hugh Stubbins told of a banker who was opposed to loaning on such "advanced" houses as he had heard that Hugh designs. When Hugh invited him, socially, to his own house for an evening the banker relaxed, enjoyed the new experience quite immensely; then he realized suddenly that the house on which he was asked to lend would be nothing else but just another such experience. He saw. Yet the experiment was not wholly pure, for not every architect would be able to supply such a vision within the house as the beautiful Diana Stubbins.

Another way to get blind men to see without looking is to hide the unfamiliar totality of the new building while showing it part by part, all the parts being so familiar that one need not undergo the fright of actually looking hard at them. This was done with great mastery (and I thought some fine rascality) by Lubetkin and his associates some years ago in England. In gaining acceptance for the unfamiliar new kind of beauty of Highpoint Apartments from those blindest of all blind men, the members of an art commission, these architects went at it piece by piece, with archaic illustrations. The balconies were shown alongside some Gothic balconies, and the ribbon windows beside Gothic windows. The caryatids that bore up the entrance canopy (see below) came from Greece. The smooth wall surfaces were obviously akin to stucco Georgian (or whatever). The flat roof—good heavens how many flat roofs could be found among any number of purely classical neo-Roman structures! Since anything made of so many noble parts must of necessity be noble, the case was won and the necessary permission was granted.

This I said was somewhat rascally, because as you have already noted the blind men were being taught to see through their ears. It was when every new building part got a name that the fright went out of it. And yet, since fright is the main reason for not looking, and the soothing names removed the fright, who can say this was not a legitimate way of getting blind folk to open their eyes?

Like all good schemes it can go too far. There are critics, I think, who see architecture too much


through their mouths. Lewis Mumford, for example, became such a past master at frightening himself (and others) by his talk about the horrible fate being prepared by machines, that when Le Corbusier made an innocent remark about a house being something of a "machine for living in," this threw Mumford into a 30-year dither during which he "saw" poor Corbu's work as "mechanistic." Happily somebody more recently seems to have called Mumford's attention to the fact that Corbu is really quite a "sculptor" and his work is "plastic" (all true)—and I was almost going to say he's a "painter" but that just happens to be another wrong-sounding word for Mumford! For although he knows that architecture is a "visual art" yet the belief has grown up in his school that it's o.k. to learn vision from "nature" but wholly wrong to learn from canvas, because canvas is "two dimensional." Someone will have to tell him that ever since Cézanne (and long before) canvas too has dealt in "three-dimensional" suggestion.


Pictures plus words



Enough of that! I shall never get to those behind-the-scenes editorial revelations. Hoist with my own petard I must confess that FORUM as a magazine risks going after the blind men with a combination of pictures — *and words about the visual meaning of the pictures*. Generally, US arch magazines are more prudent, relying on pictures for the eye and saving words for practical information. But these sheets are generally edited just for the profession, where ours is basically a public relations job aimed also at the client. In our experience, using some words, giving things names, takes some of the fright out of vision and helps the guy to start looking.


There are architects who find heresy in this and can build a strong case against the risks in it. For example, we can make mistaken interpretations. But we'll listen more reverently when these friends stop telling *one another* what they like or don't like about the work of this one or that, in endless bull sessions full of words and fury. —D. H.





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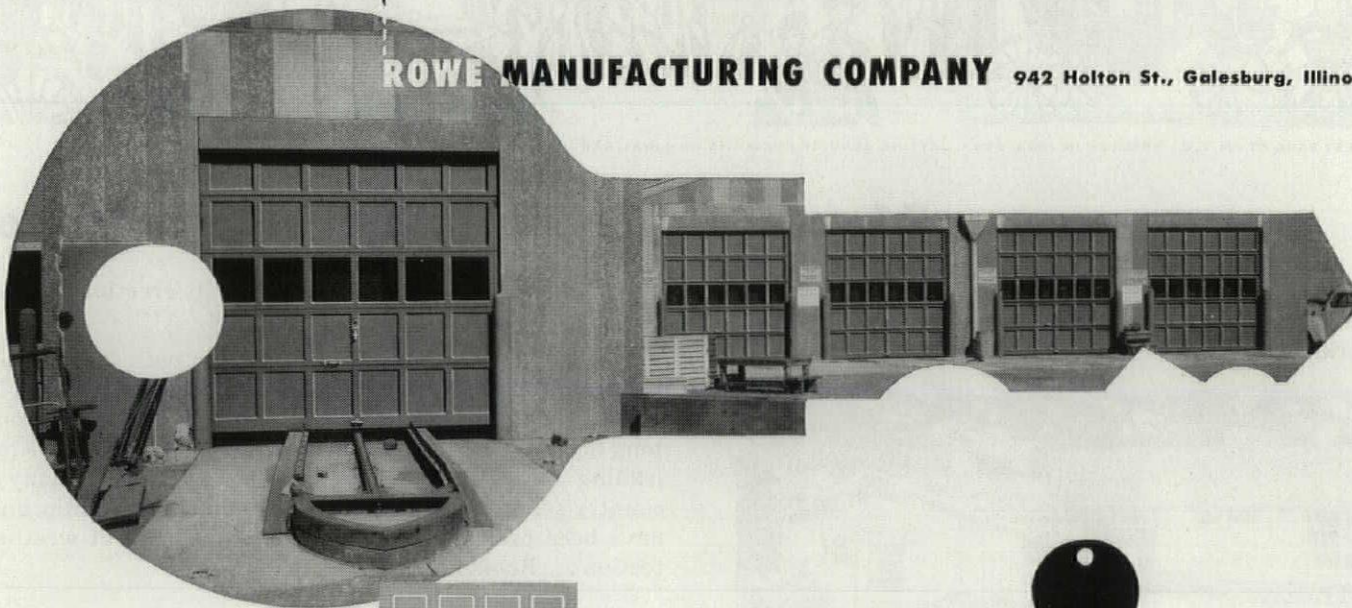
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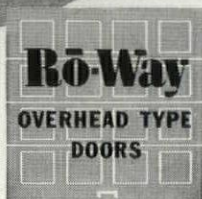
Standard  Special sizes  designs meet practically every commercial, industrial  residential need.


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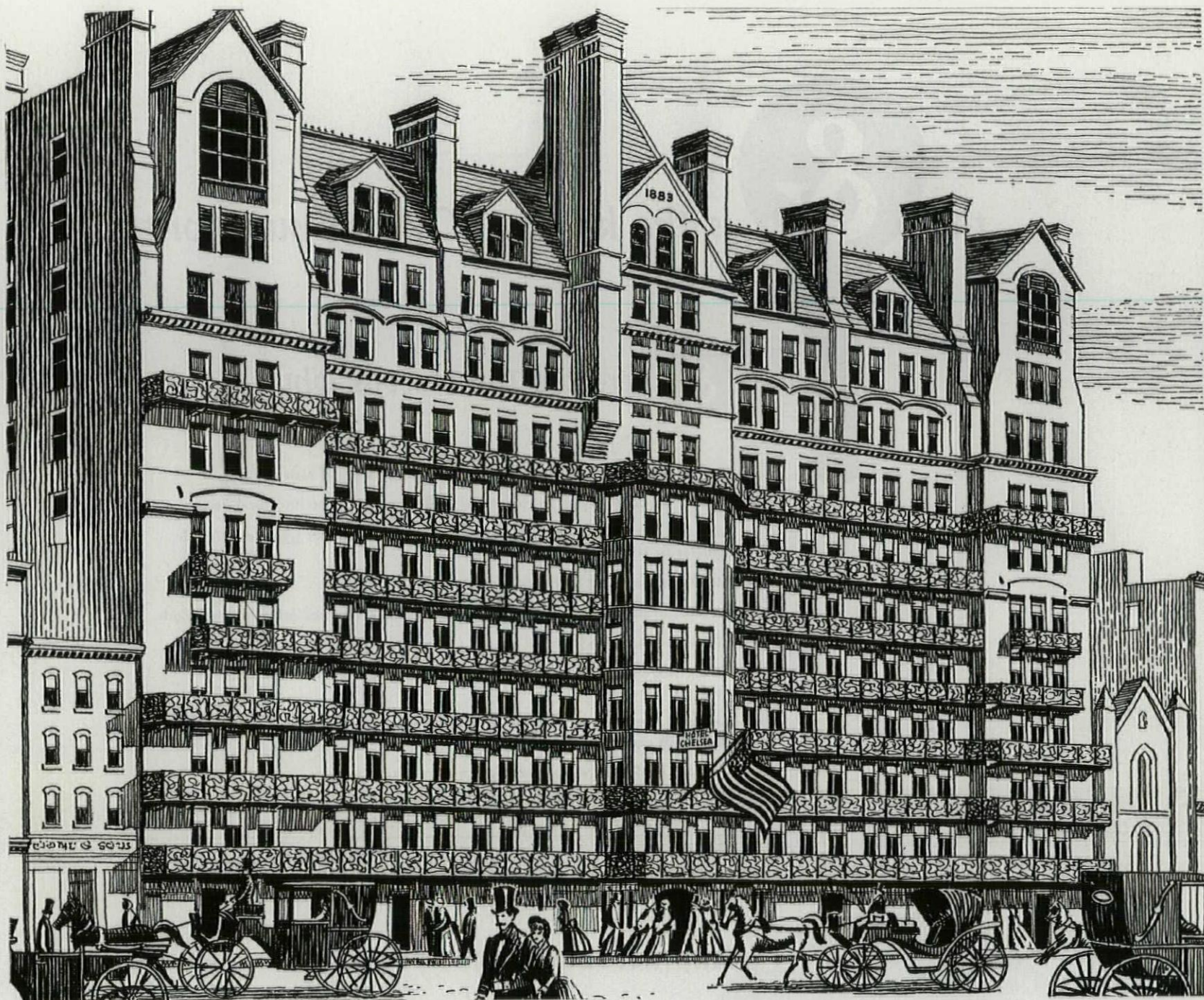
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**Architect specifies lightweight,
poured-in-place system for modern
Pearl River, N. Y. school!**



HERE'S another fine example of the *structural* and *economic* advantages that a Gold Bond Roof Deck gives you on just about every type of job.

This schoolhouse roof deck is naturally fire-proof...the poured gypsum concrete core *can't* burn! Installation is fast. Quick setting action allows full load capacity in less than 60 minutes! And the formboards used in this job—sound-absorbing Gold Bond Econacoustic—provide a clean-looking, highly light-reflective ceiling. Needs no further ceiling treatment.

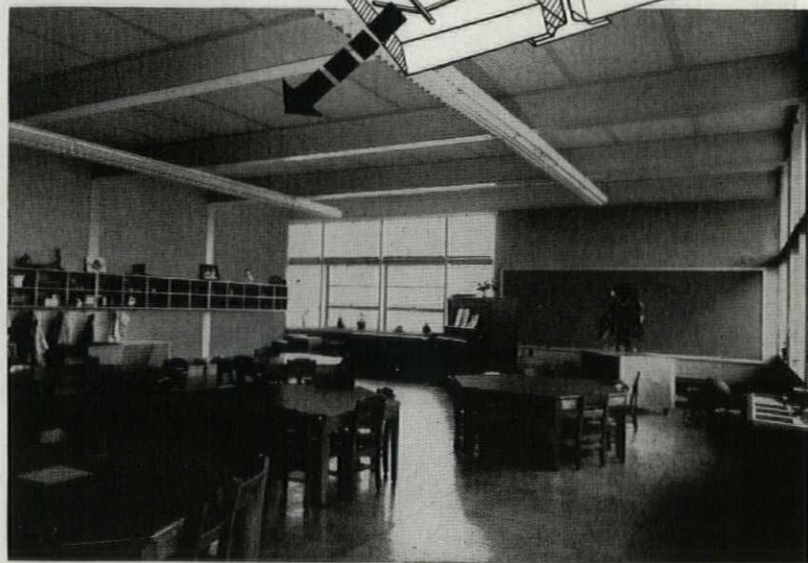
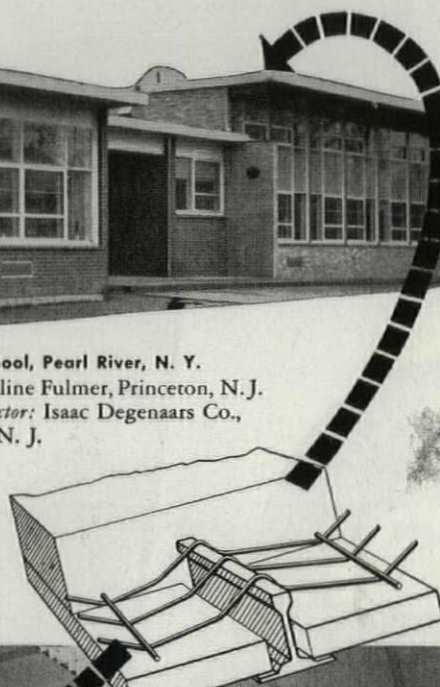
Gold Bond Gypsum Roof Deck has an extremely *low dead load*...permits lighter supporting structures and reduces overall construction costs.

Adaptable to any design

You can specify a Gold Bond Gypsum Roof Deck for pitched, barrelled or flat roofs. And you can get fire protection, insulation, or a combination of insulation and sound-conditioning simply by varying Gold Bond formboards.

Gold Bond "Poured-In-Place" Gypsum Roof Decks are installed only by experienced, approved contractors. Write our Architect Service Department for drawings and load tables.

Fireproof Gypsum
concrete slab—reinforced
by electrically welded wire
mesh—poured in place
on Gold Bond Formboards
and resting on sub-purlins.



**For complete details, call or write the Gold Bond Roof Deck
Specialist at the following National Gypsum Sales Offices:**

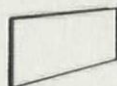
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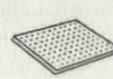
Insulation Plank
and Tile



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Wool



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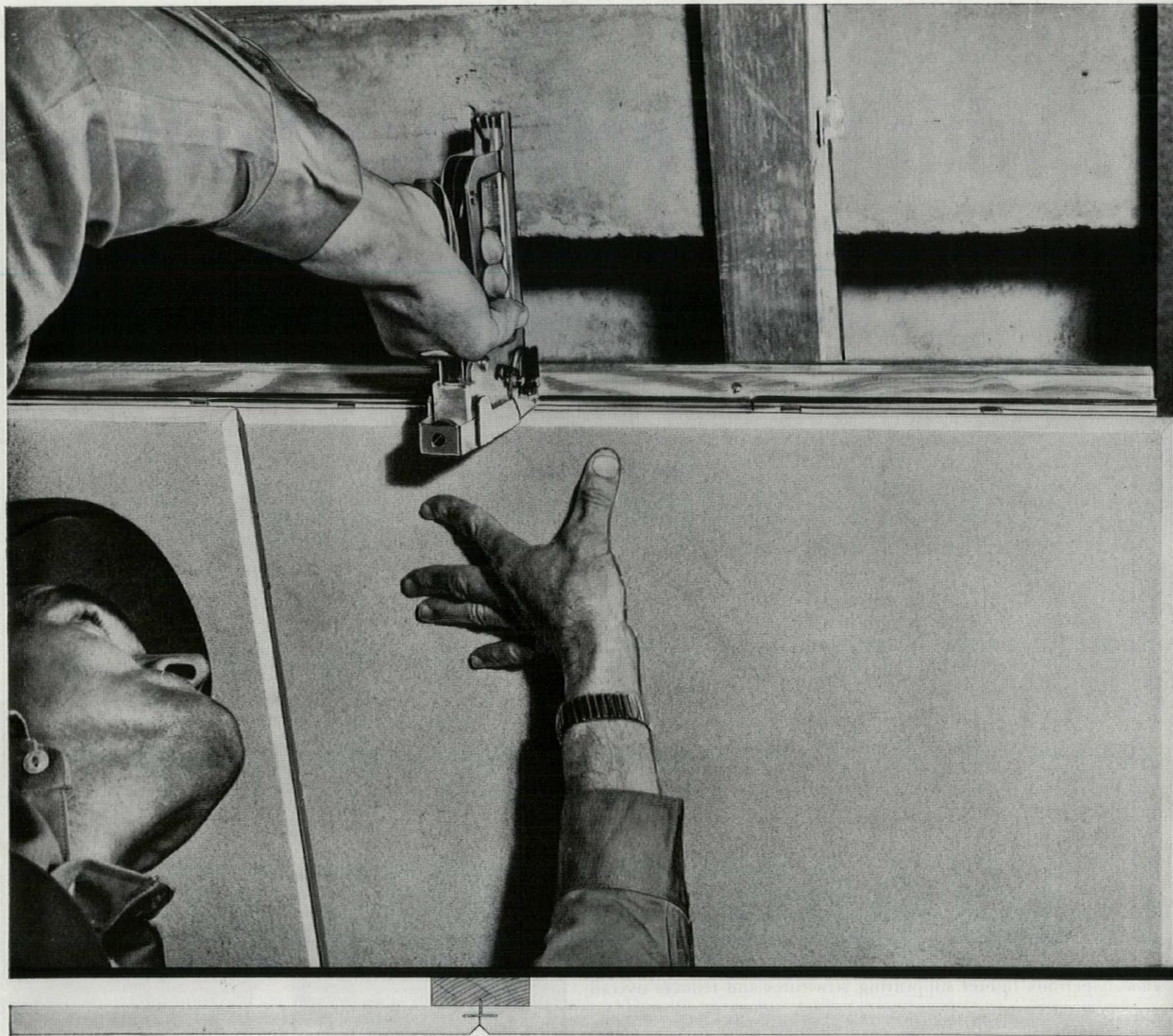


Acoustical
Tiles



Asbestos-Cement
Products

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK



If you've ever been bound by a budget limited to ordinary tile nailed or screwed to wood furring, this is important news for you. It's the "Ful-Spline" System for Fiberglas tile—the installation method that makes Fiberglas Acoustical Tile your *lowest cost non-combustible ceiling!*

FIBERGLAS BEAUTY ON LIMITED BUDGETS

By slashing installation costs as much as 53%, the "Ful-Spline" System for Fiberglas tile brings the finished cost of beautifully textured Fiberglas ceilings down to the ordinary tile level and, in many cases, even lower! It allows you, even with the most limited budget, to specify ceilings of Fiberglas Acoustical Tile—rated "incombustible" under Federal Specification SS-A-118a, dimensionally stable as a window pane (will not sag, warp, or buckle), acoustically equal or superior to fiberboard tile... and the perfect complement to fine design.

A COMPLETE METHOD

With Fiberglas tile applied by the "Ful-Spline" System, no building paper is required, no nails, no screws. Instead,

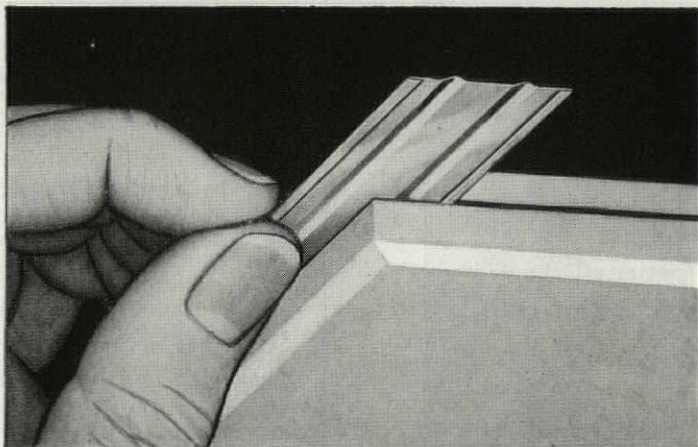
aluminum splines are inserted in the kerfed edges of $\frac{3}{4}$ ", 24" x 24" Fiberglas TXW Tile. The splines are then stapled to the wood furring strips. Staples are not driven into the tile, so the finished job reveals no fasteners or supports. Application is fast and foolproof, even in hard furring such as long leaf yellow pine. Of course, 12 x 12 or 12 x 24 tile may be used, but the 24 x 24 size is preferred. First, because it increases the economy of the system by reducing application cost. Second, it overcomes slight irregularities in level of furring strips. And third, it has better scale in classrooms, corridors and other large areas.

FACTS FOR YOUR FILE

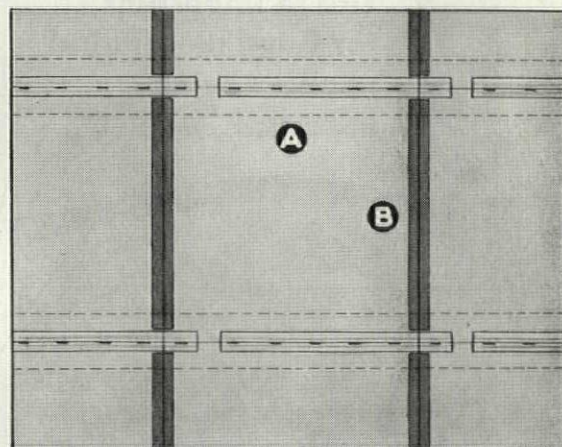
Learn more about Fiberglas tile applied by the economical "Ful-Spline" System. We will be glad to supply you with further information on this revolutionary new installation method. Simply contact your nearest Fiberglas Branch Office, or write: Owens-Corning Fiberglas Corporation, Sound Control Products Division, Toledo 1, Ohio.

NEW FIBERGLAS* INSTALLATION METHOD

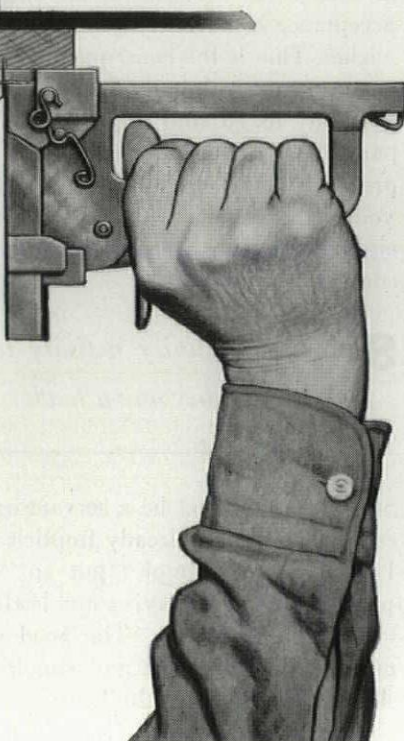
gives non-combustible acoustical ceilings
at the low cost of ordinary tile
nailed or screwed to wood furring



① Aluminum spline is inserted in kerfed edge of Fiberglas Acoustical Tile, 24" x 24" x $\frac{3}{4}$ ".



③ Supporting splines (A) are parallel to furring, and continue through tile joints. Fiber cross splines (B) are used for leveling. They are not stapled, making installation still more economical.



② Modified hand or air tacker with special attachment holds spline away from furring strip, drives 9/16" staples flush with face of spline, and into furring strip. Staples do not pierce tile!

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preached and to find the balance in the struggle for utilitarian, esthetic and psychological demands. The machine and the new potentialities of science were of greatest interest to us, but the emphasis was not so much on the machine itself as on better use of the machine and science in the service of human life. Looking back, I find that our period has dealt too little with the machine, not too much.

6 Seek genuine regional expression —but not by relying on old emblems and local fancies

Another confusing factor in the development of modern architecture is the appearance now and then of deserters from our cause who fall back on nineteenth-century eclecticism for lack of strength to go con-

sistently through with a rejuvenation from the roots up. Designers turn back to features and fancies of the past to be mixed into the modern design, fondly believing this will create greater popularity for modern architecture. They are too impatient to reach their goal by legitimate means and so they only conjure up a new "ism" instead of a new genuine regional expression. True regional character cannot be found through sentimental or imitative approach by incorporating either old emblems or the newest local fashions which disappear as fast as they appear. But if you take the basic difference imposed on architectural design by the climatic conditions of California, say, as against Massachusetts, you will realize what diversity of expression can result from this fact alone if the architect will use the utterly contrasting indoor-outdoor relations of these two regions as the focus for his design conception.

7 Extend architectural education into the field to obtain a better balance between knowledge and experience

One problem that all architectural schools have in common is this: as long as our teaching centers around the platonic drafting board, we are perpetually in danger of raising the "precocious designer." For it is almost unavoidable that the lack of practical experience in the field, in the crafts and industrial processes of building, leads at least some students to an all-too-ready acceptance of current style ideas, fads and clichés. This is the consequence for an all-too-academic training. Therefore, any opportunity to go into the field and to take part in all or any phases of the building process should be readily grasped by the young designer as a most essential discipline to establish balance between knowledge and experience.

8 Add community activity to office activity to become a leader as well as a servant

Should an architect be a servant or a leader? The answer, already implicit in what I have said, is simple: put an "and" in place of the "or." Serving and leading seem to be interdependent. The good architect must serve the people and simultaneously show real leadership built upon a real

continued on p. 182

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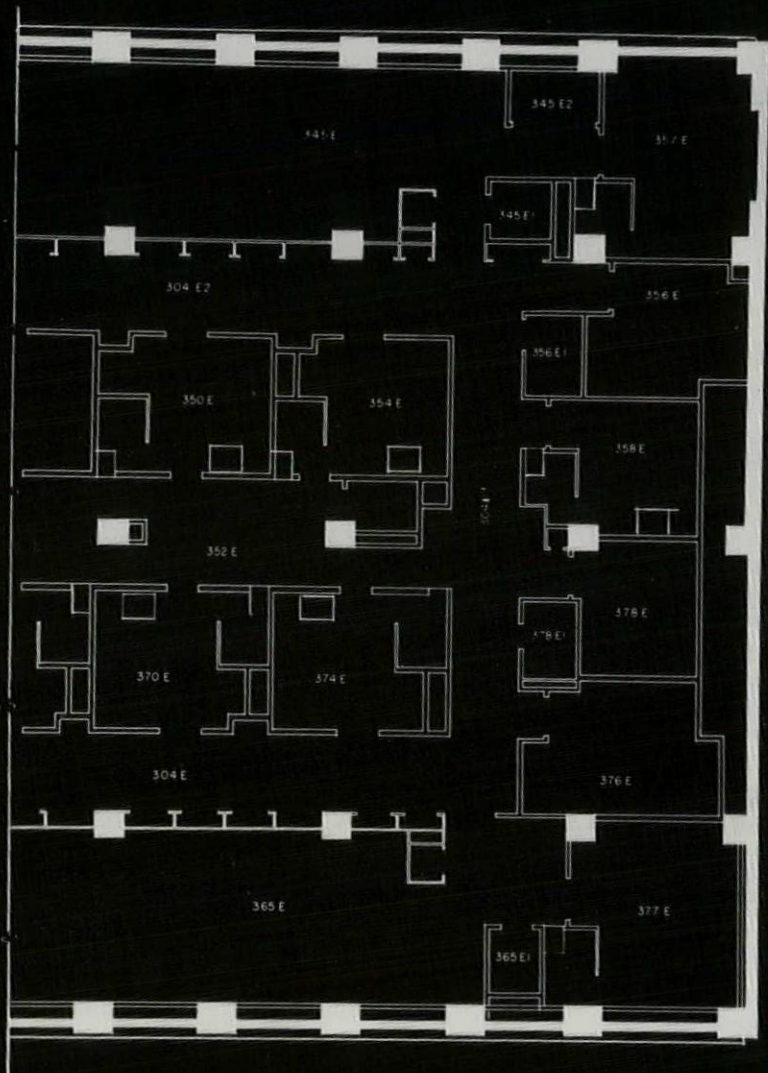
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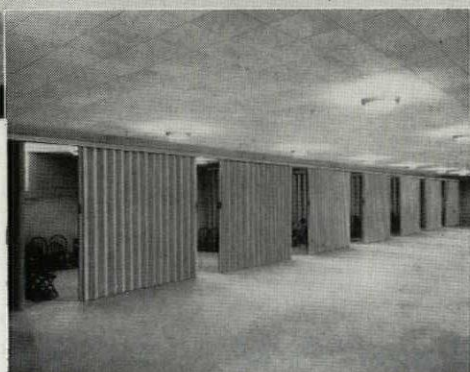
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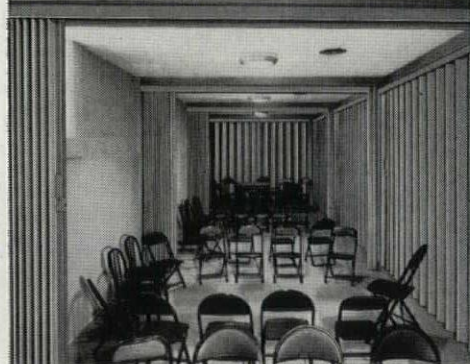


Richard Stahl, Architect • Johnson Construction Co., Builder



FOLDOOR played an important part in the plans of Trinity Lutheran Church—plans that provide an excellent example of getting the most construction for the least money. Authorities estimate a more conventional church with equal facilities would have cost an additional \$100,000!

Among the many money-saving innovations are 30 fabric-covered folding doors in the basement. These FOLDOORS give complete flexibility to the entire space—form classrooms, conference rooms or fold to the side to accommodate large meetings. Every foot of floor space is accessible, usable, efficient.



● FOLDOOR was chosen for Trinity Lutheran Church, Springfield, Mo., to give the best folding door appearance and performance. Savings on actual construction costs were considered, too—FOLDOOR saved on the cost of walls and partitions, the cost of painting, trimming and hardware.

other reasons why architects and builders everywhere are selecting FOLDOOR to solve their space problems.

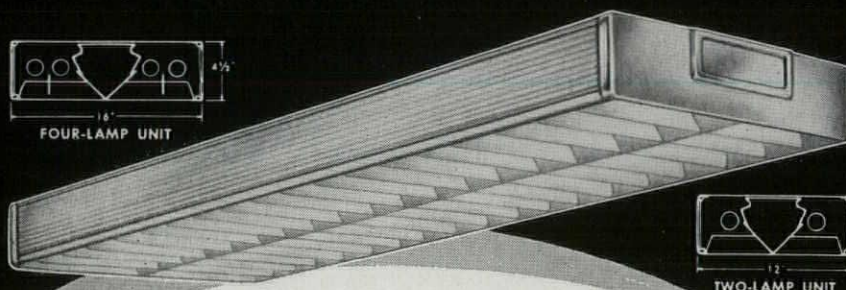
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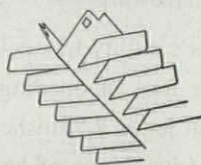
The Starliner is superbly made . . . note the round edges on end plates and side rails. Economically installed, easily maintained. Available as two-lamp or four-lamp units in 4 ft. or 8 ft. lengths for standard fluorescent, rapid start or slimline lamps. Write for Bulletin L-134.



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TOWARD A SOLID ARCHITECTURE

(continued)

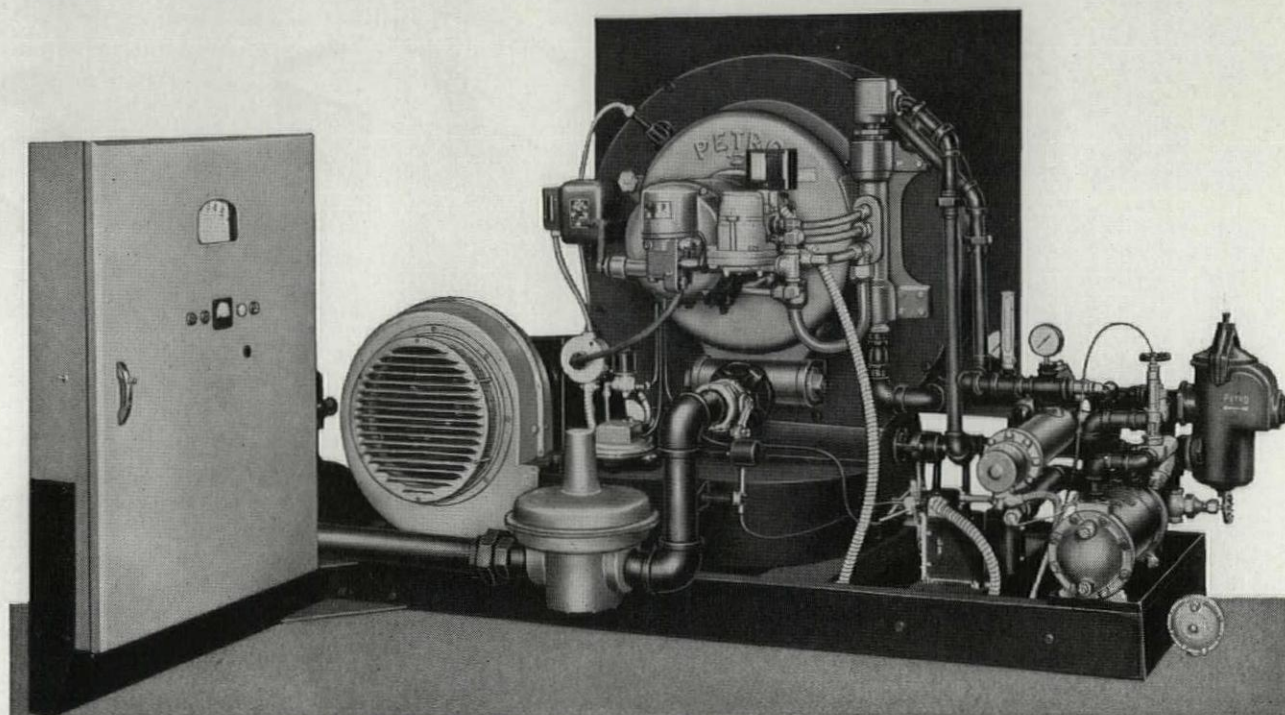
conviction: leadership to guide his client as well as the working team entrusted with the job. Leadership does not depend on innate talent only, but very much also on one's intensity of conviction and willingness to serve. How can he reach this status? I have often been asked by students what I could advise them to do to become independent architects after leaving school and how they could avoid selling out their conviction to a society still pretty ignorant of the new ideas in architecture and planning. My answer is this:

Making a living cannot be the only aim of a young man who should want above all to realize his ideas. Your problem is, therefore, how to keep the integrity of your conviction intact, how to live what you preach, and still find your pay. You may not succeed in finding a position with an architect who shares your approach in design and who could give you further guidance. Then I would suggest you take a paying job wherever you can sell your skill, but keep your interests alive by a consistent effort carried on in leisure hours. Try to build up a working team with one or two friends in your neighborhood, choose a vital topic within your community, and try to solve it, step by step, in group work. Put ceaseless effort into it, then some day you will be able to offer the public, together with your group, a well-substantiated solution for this problem, for which you have become an expert. Meanwhile, publish it, exhibit it, and you may succeed in becoming an adviser to your community authorities. Create strategic centers where people are confronted with a new reality and then try to weather the inevitable stage of violent criticism until people have learned to redevelop their atrophied physical and mental capacities to make the proper use of the proffered new setup. We have to discern between the vital needs of the people and the pattern of inertia and habit that is so often advanced as "the will of the people."

The stark and frightening realities of our world will not be softened by dressing them up with the "new look," and it will be equally futile to try to humanize our mechanized civilization by adding sentimental fripperies to our homes. But if the human factor is becoming more and more dominant in our work, architecture will reveal the emotional qualities of the designer in the very bones of the buildings, not in the trimmings only; it will be the result of both good service and good leadership.

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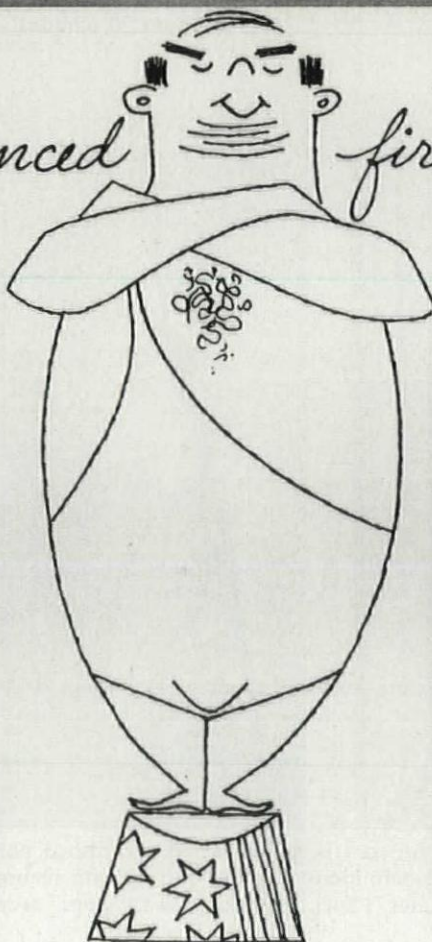
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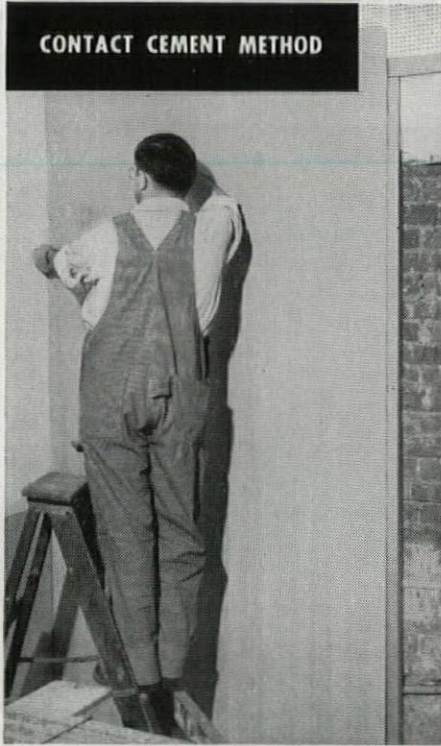
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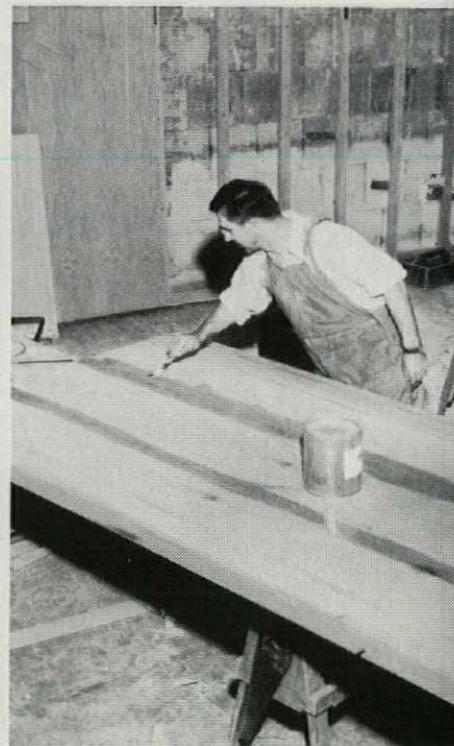
CONTACT CEMENT METHOD



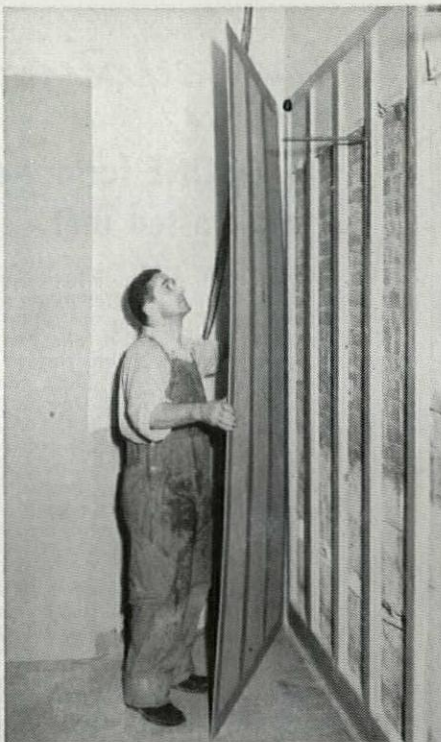
1 First Weldwood prefinished panel is scribed and fitted in corner. Furring should be spaced so panels butt at center of upright strips.



2 Weldwood Contact Cement is brushed on furring. No heating pot is required. Brushes on as easily as paint. Cement sets in about 30 minutes.



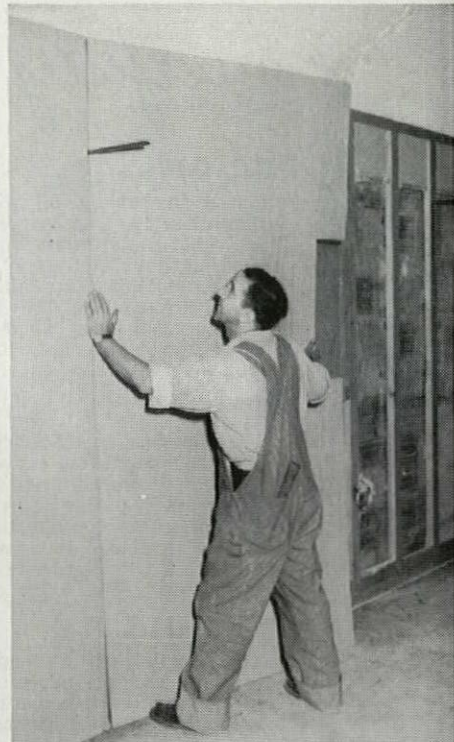
3 Weldwood Contact Cement is brushed on back of panel at points of contact with furring and allowed to dry. Allow same drying time as for furring.



4 After cement has set, a second coat is applied to both surfaces and permitted to dry for additional 30 minutes. Panel is then placed in position.



5 Weldwood prefinished panel is pressed against furring with hammer and wood block. This is done over all cement-coated areas.



6 Next panel, cemented the same way, is installed alongside of first one. The process continues until job is completed. Conventional edge treatments can be used.

plus new installation methods point way to lower costs

Now you can specify beautiful prefinished Weldwood Paneling and be well within your budget. Two new installation methods save finishing costs—speed up completion date.

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2. PLANKWELD® METHOD. Prefinished panels are edge grooved and 16¼" wide x 8' long. The panels are installed with special

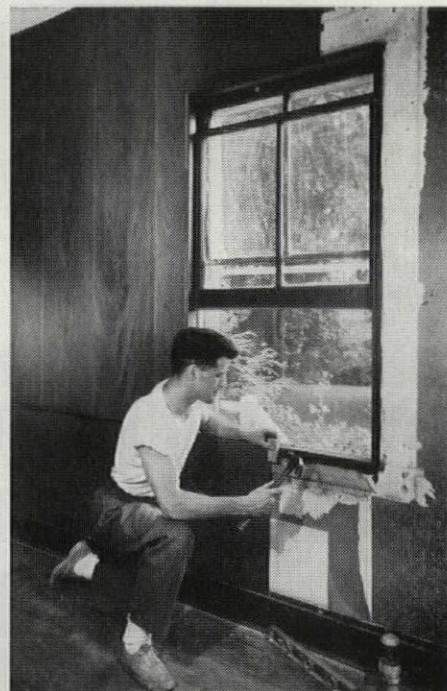
metal clips which hide nail heads. Plankweld panels can be applied to present wall (no furring is required) or directly to studs in new construction.

Plankweld is available in birch, Honduras and Philippine mahogany, American oak, and sliced walnut. Plankweld is factory prefinished and each package (about 108⅓ sq. ft.) includes special metal clips.

Whichever of these two new Weldwood installation methods you choose will result in a considerable saving because Weldwood prefinished panels require no on the job finishing. Weldwood prefinished hardwood panels are *guaranteed for the life of any building in which they are installed!*

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PLANKWELD METHOD



1 Plankweld panel is laid into position against wall, or Weldwood internal corner molding may be used. Panels are exceptionally easy to handle.

2 Special metal clips fit into grooved edges of panel, then clip is nailed to wall. Succeeding panel fits into groove of already attached panel.

3 Wall obstructions such as doors and windows present no problems. Note that no furring is necessary; Plankweld can be installed on any type dry wall.



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of Test I. Inspection of the deck at this time showed no apparent structural damage.

After an interval of about 20 minutes for inspection, the burners were relit and the fire test continued. After 11½ minutes the side panel dropped off the south side of the west bay; flames were seen beneath the east roof deck. After 2 minutes flames appeared through the center of the roof about 2'. After 3:30 minutes the flames sub-

sided for 20 seconds, reappeared and burned steadily until the end of the test, but without noticeably spreading.

As heating continued, flames were noted under the entire roof area; between 4:10 and 4:40 minutes the north and south side panels of the east bay came off. At 5:20 minutes a definite sagging of the roof deck was observed and at 5:50 minutes the oil was shut off. Burning continued under the

west bay roof for another 40-50 seconds.

Inspection of the building showed a deflection in the purlins of about 1½" and severe sagging of the decking. The panels showed loss of paint from the deck in all cases, with no evidence of penetration of the insulation by the asphalt of the built-up roofing. The built-up roofing showed no damage except for Panel B, where the mop coat of asphalt above the insulation was lost. Panel A showed no damage to the deck, and no loss of thickness in insulation, although the fiberboard was charred on the lower surface. Panel B also showed failure of the end-lap weld, with about 75% loss of insulation thickness. Panels B and C showed some deflection, and Panel C showed a 60% loss in insulation thickness. Panel D showed no damage other than loss of deck paint and charring of the lower surface of insulation, without loss of thickness.

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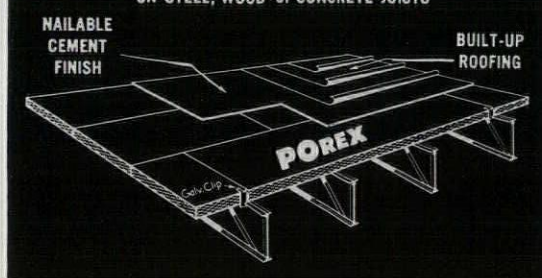
When roof decks must provide maximum quality at minimum cost, architect after architect chooses POREX... because POREX combines all these properties:

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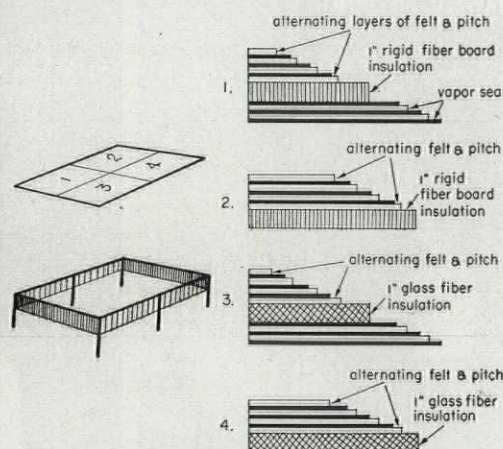
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Plain	1¾"	¼"	7	100	60	—	—	—
Plain	3"	¼"	10	—	100	50	—	—
Composite	3"	¼"	14	—	—	—	100	60



TEST III: sprinkler and insulation test. To evaluate the effects of various insulation methods the roof was divided into four sections by two angles, and rigid fiberboard insulation placed on one half, glass fiber on the other. One half (sections 1 and 3) had standard vapor-seal construction, but no vapor seal was placed on the other half. All four sides of the building were closed with roof-deck panels to a height of 4' down from the roof.

To investigate the possibility of ignited oil being floated by sprinkler water to start fresh fires elsewhere, a small pool was dug in the east end of the building and filled with fuel oil and kerosene. A shallow channel, with its bottom level with the oil in the pool, was dug to connect with a similar oil-filled pool outside the building.

Within 20 seconds after the first burner was ignited, one of the heads released; all but one had started operation in 45 seconds. The second burner was ignited at

continued on p. 190

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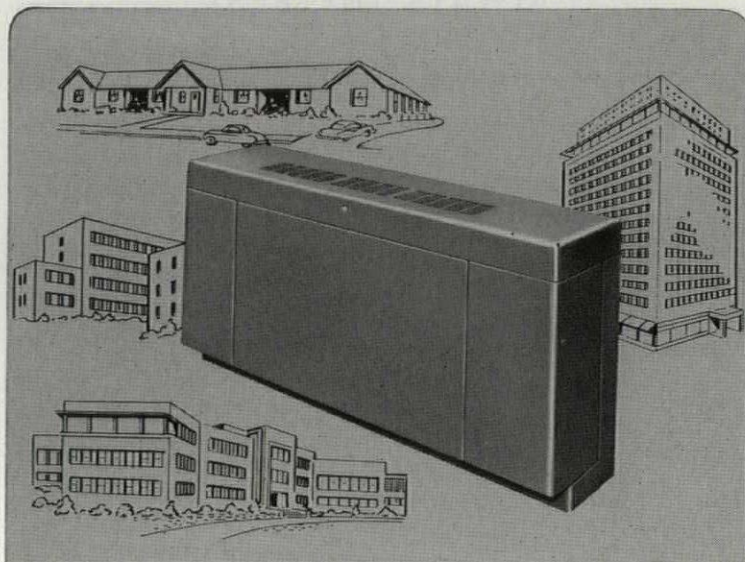
The Remotaire uses chilled water from a central water chiller for cooling and hot water from a central heating plant for heating. It is provided with an arrangement for introducing ventilation air through a wall aperture behind each unit, thus eliminating use of expensive, space-consuming ductwork. However, if desired, ventilation air may be supplied by several other methods.

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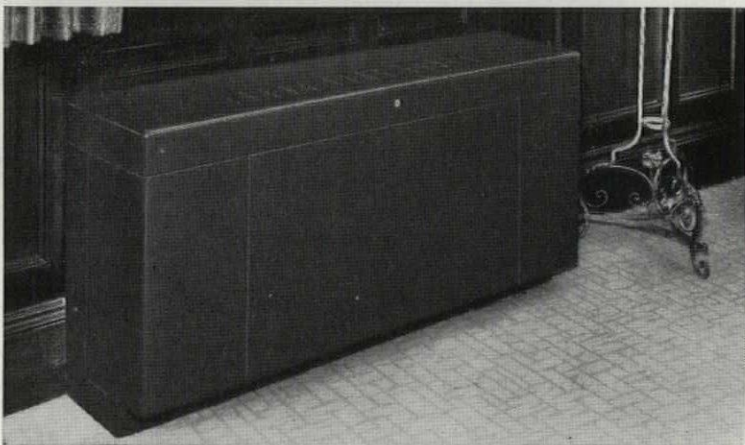
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FIRE TESTS *continued*

1:35 minutes. At 2:15 minutes the sprinklers extinguished both burners. Attempts to re-ignite them with the sprinklers in operation were unsuccessful, and the water was shut off. . . .

The oil-filled pool inside the building was never ignited by the applied heat, although Tests I and II had demonstrated the ability of the burners to ignite wood blocks on a dirt floor, without flame impingement, by radiant heat alone. The extremely rapid sprinkler action prevented ignition of the oil-pool and, although oil was floated out of the pool and dispersed through the buildings by the large volume of water, no burning oil was observed on the floor.

CONCLUSIONS OF TESTS

Vapor-seal performance. The asphalt pitch of the standard vapor seal penetrated the rib joints of metal decking at about 360° F. This pitch was ignited at 425° F, which led to a speedy increase in the temperature of the deck.

Rapid heating of the deck generated pressure between the deck and the insulation, great enough to expel combustible vapor and molten asphalt with appreciable velocity at the center purlin. Asphalt rattled against the metal flashing at the west end. This pressure was relieved by escape of material along the valleys formed by the deck ribs. Burning of the vapor-seal asphalt evolves black smoke and fumes that would seriously hamper fire-fighting efforts.

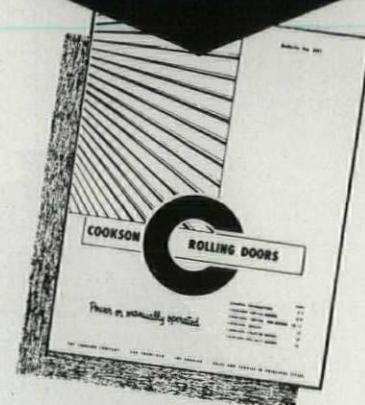
The asphalt appears to be a major source of the heat applied to the deck, since the rates of temperature increase after ignition of the vapor seem to be independent of the rates established under the applied heat, and to some extent independent of the applied heat.

Only certain components of the asphalt can be vaporized and burned, under the test conditions, by the heat generated by their own combustion, and the unsupported roof fire will die out when these components are exhausted.

Due to the relatively small area of the test unit, no definite conclusion could be reached as to the fire-spreading potential of the asphalt. However, since the fire applied consisted essentially of radiant and convection heat, with no direct flame impingement, and caused the vapor-seal material to burn, it is logical to assume that any comparable supply of heat beneath a roof, even at a great distance from the actual fire, could have similar results. The

continued on p. 194

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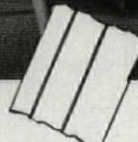
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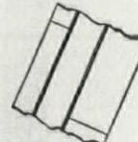
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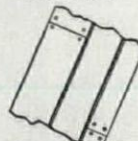
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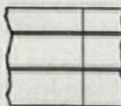
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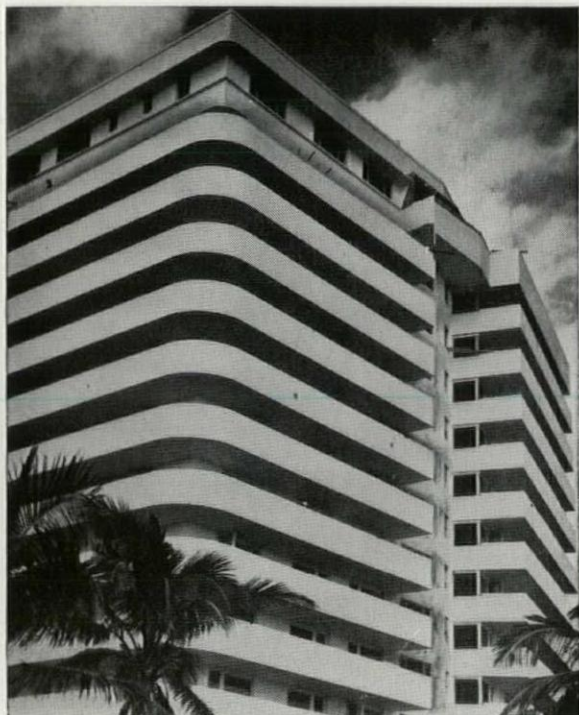
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The 300-room ocean front Sherry-Frontenac Hotel, Miami Beach, towers 13 stories, cost \$4 million. Steeltex throughout in floors and roof. Henry Hohauser & Associates, Architects. Cashay Corp., Contractors.



The 9-story Casa Blanca Hotel, Miami Beach, shown here while under construction, is now in operation, cost \$2.2 million, has 250 rooms. Steeltex used in all floors and roof. Roy F. France & Son, Architects. Gaines Construction Co., Contractors.



Biscayne Terrace Hotel in downtown Miami has 200 rooms, 10 stories, cost \$2 million. 250,000 square feet of Steeltex in floors and roof. Albert Anis and Melvin Grossman, Architects. Edward M. Fleming Construction Co., Contractors.

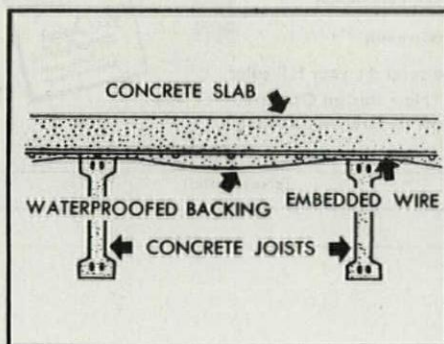
Why STEELTEX[®] has been the overwhelming concrete floors in Miami's

Southeast Florida is one of the fastest growing regions in the country and Miami Beach has the largest concentration of hotels, motels and apartments of any city in the world—more than 375 hotels containing more than 25,000 rooms and some 1,400 apartment buildings containing 36,000 rooms! Here unusual designs are commonplace, the architect is free to use ideas to his heart's content. People who come to Miami Beach are on vacation, they are free to pick and choose the most modern, most beautiful, most comfortable surroundings for their visit to this vacation paradise!

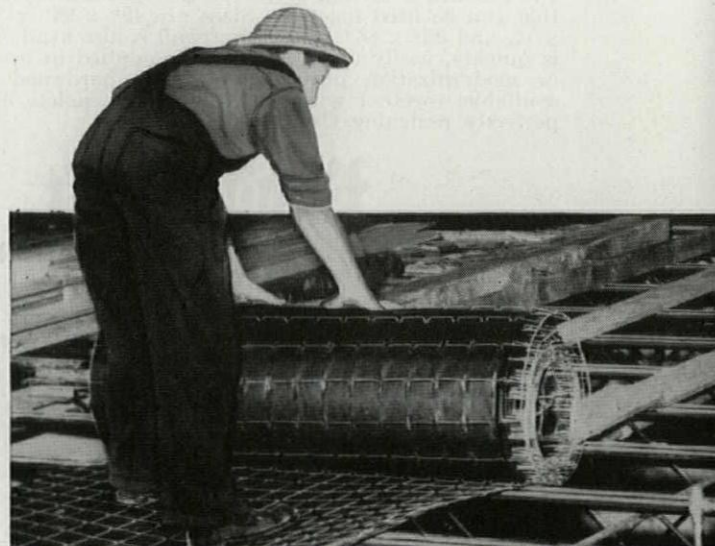
The men who invest their savings in these new buildings want modern design with economy, speed in construction and low maintenance costs in the finished building in order to get a maximum return on their investments.

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Why Steeltex? Steeltex requires no additional forms or reinforcing.



NOTE: In the cross section that the weight of the wet concrete forces the backing away, which permits the galvanized steel mesh to assume its proper position in the slab. Steeltex floor lath also performs two other functions: It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.





A complete vacation resort under one roof, the \$3.5 million DiLido Hotel, Miami Beach's newest, opened last Christmas Eve, has 329 rooms, 9 stories, 2 swimming pools, 300 feet of ocean beach, 120 cabanas. Steeltex used in floors and roof. Melvin Grossman and Morris Lapidus, Architects. Robert L. Turchin, Inc., Contractors.

favorite for reinforcing newest hotels and apartments!

ing. It costs less to install than other types of forms and reinforcement for concrete because Steeltex can be rolled out like a carpet by one man (see photo below). Steeltex also saves concrete by minimizing leakage in the freshly poured slab—craftsmen on the floor below can continue working without getting drenched. Steeltex insures a strong floor because embedment of steel reinforcing takes place automatically (see note below). Steeltex allows concrete to cure slowly and properly—guards against excessive cracking—can be installed over any type of joist—will support ample safe loads from 109 lbs. to 886 lbs. per square foot depending on spacing of joists and thickness of slab. No wonder Steeltex is the overwhelming favorite with building designers in America's favorite winter resort.

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See the Steeltex catalog in Sweet's or write for your free copy of a new 24-page, illustrated booklet "Pittsburgh Steeltex, Backbone of Concrete, Plaster, Mortar."



Algiers Hotel, Miami Beach, cost \$1 million, has 8 stories, 200 rooms. Steeltex used in all floors and roof. Henry Hohausser & Associates, Architects. Taylor Construction Co., Contractors.



Prize winning Lanai Apartments, Miami, contains 24 units, took top honors in apartment house class in judging at A.I.A. South Atlantic Regional Conference in Miami last spring. Steeltex used only in second and third floors. Wahl Snyder, Architect. Alonzo Riley, Contractor.

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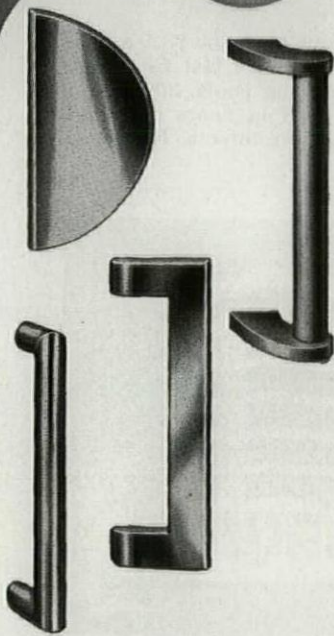
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FIRE TESTS *continued*

question remains as to whether this quantity of heat could be so contained at any great distance from the fire.

Elimination of the vapor seal, as in the Test II roofing, leaves the applied fire as the only heat source, at least for a short period. The sudden increase in rate of temperature rise after about 5 minutes in Test II shows that the fiberboard does contribute fuel to the fire. Apparently, above some critical temperature level, the resistance of the insulation to combustion is more directly a function of exposure time than of temperature.

In short, Tests I and II show that while either construction will furnish fuel to a fire which is sufficiently intense to reach that fuel, neither will support its own combustion for any appreciable period of time.

Spray-head sprinkler performance. The time-temperature curve for Test III and visual observations show that: 1) water, when properly used, can effectively extinguish an oil fire, and 2) roof temperatures are controllable by control of atmospheric temperatures beneath the roof, even after it has been ignited. The standing pool of oil in the test unit was prevented from igniting by the rapid action of the sprinklers, and there can be little doubt that, had it been ignited before the sprinklers came into play, the fire would have been extinguished. The oil from this pool, combined with oil from the burners during brief periods when they were shooting out oil after the flame was extinguished, floated in the flooded building without burning, even when exposed to burning asphalt.

Paint performance. It is felt that the fire-retardant paint showed significant insulating properties. Thermocouples in areas that were protected with fire-retardant paints gave readings up to 350° F. lower than those in equivalent unprotected areas.

Performance of tack-welded rib joints. Examination of the sample roof sections after Tests I and II showed the tack-welds to be intact, except where the end-lap weld had failed at the center purlin. There was no distinguishable difference in the manner of burning, nor were there any differences in the recorded temperatures, which could not be attributed to the lack of symmetry in heating and wall closures. Therefore, the tack-welding of nesting rib joints did not appear to offer advantages with regard to fire safety.

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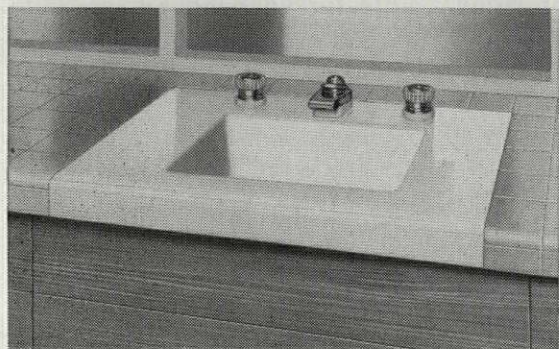
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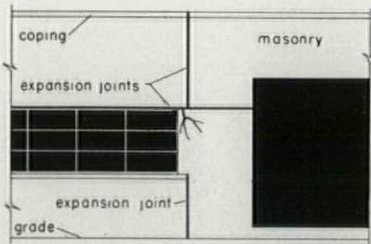


Fig. 2. Typical expansion cracks in masonry building when vertical joints are not continuous.

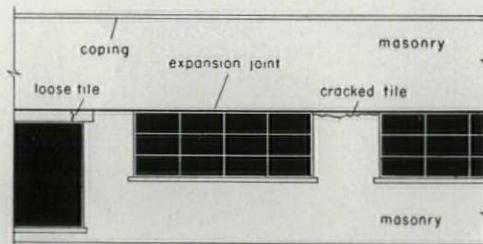


Fig. 3. Movement above door head cracks the joint above door jambs, also the tile between windows.

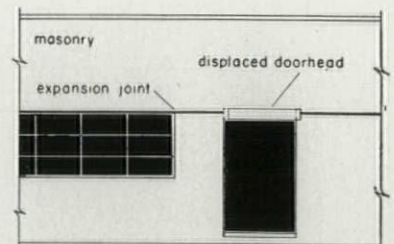


Fig. 4. Doorhead displaced through horizontal expansion joint which had been run into it.

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Because the vertical expansion joints were not continued through the horizontal joints, sufficient friction developed at the upper window corner to crack the tiles just beneath the horizontal expansion joint (fig. 2). Again, movement above the shallow door head cracked the joint above the door jamb (fig. 3). Several tiles also cracked at the top of the masonry piers between windows. At another point the horizontal expansion joint had been run into the door head, which was displaced toward an adjacent corner of the building (fig. 4). All these defects could have been eliminated if the vertical and horizontal expansion joints had been coordinated continuously throughout the structure.

Another building had concrete block exterior walls, stuccoed on the outside, with vertical joints at steel columns built into the wall 25' o.c. (fig. 5). All blocks were fully cured, so shrinkage was not critical. Cracks had developed in the long walls near the corners. In one case roof expansion had cracked the end wall horizontally for almost its entire length. Cracks had also developed where the interior partitions joined the long outside walls, which indicated a need for built-in joints to free the outside walls.

How to design joints

The Joint Committee on Standard Specifications for Reinforced Concrete reports that "Expansion joints are expensive and

continued on p. 202

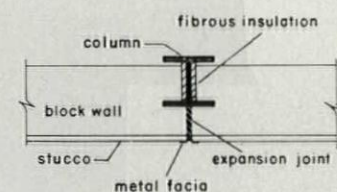


Fig. 5. Columns in outside wall joints cause cracks in long walls and in interior partition joints. Outside walls should preferably be free to move.

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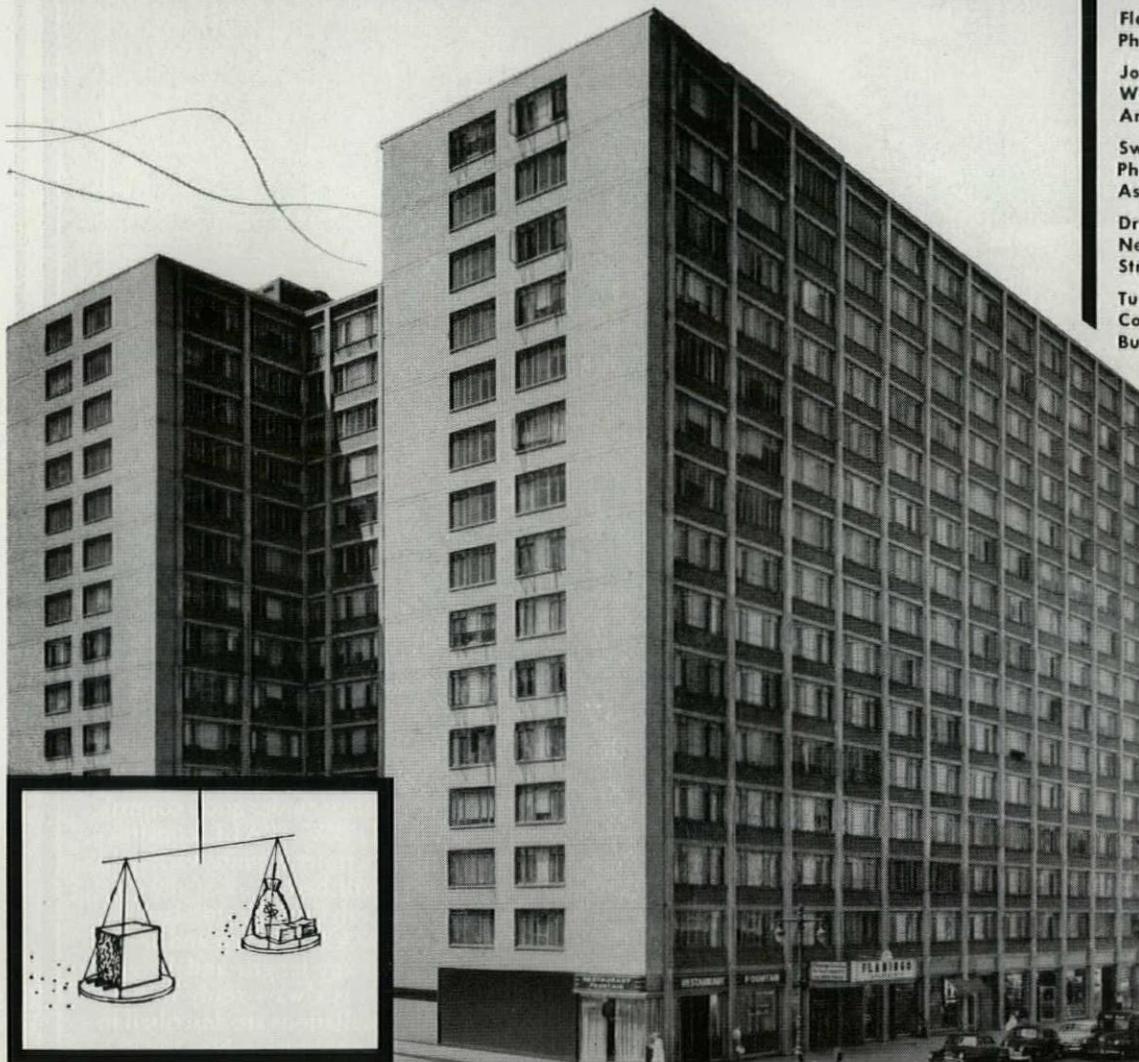
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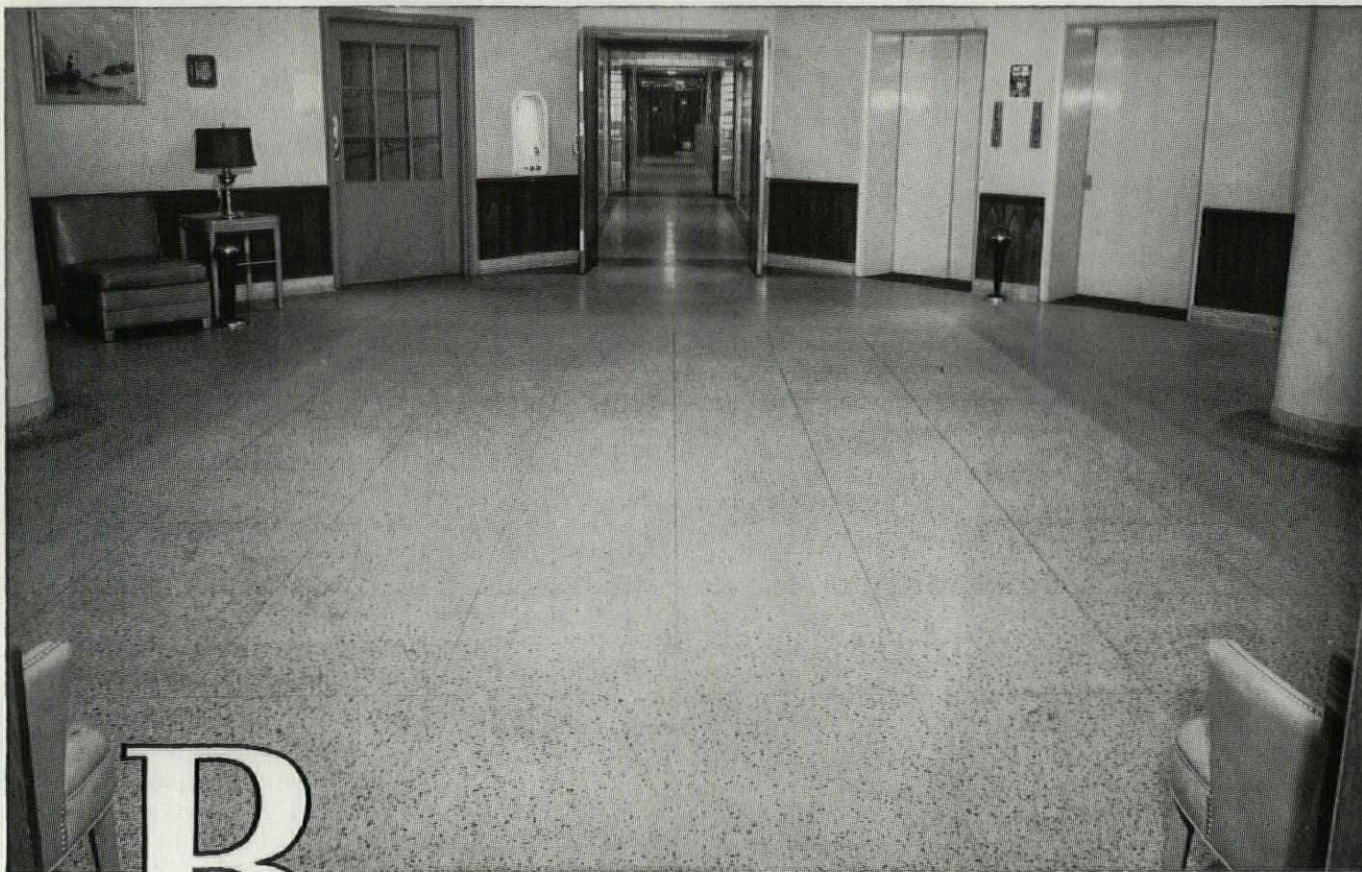
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Floors and corridors in the Medical and Surgical Building of the Pennsylvania State Hospital are due for years of heavy foot traffic, rolling equipment and constant scrubbing with disinfectants. To build in the kind of good looks and long life that will be able to stand up to such a future, the architect prescribed Terrazzo.

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For further information see SWEET's Catalog, Section 12g/Un and 3d/Un, or write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

Medical and Surgical Building,
Pennsylvania State Hospital,
Norristown, Pa.

Architect:
Baeder, Young and Schultz
General Contractor:
Wark & Co.

Terrazzo Contractor:
Italian Marble Mosaic Co.,
all of Philadelphia, Pa.



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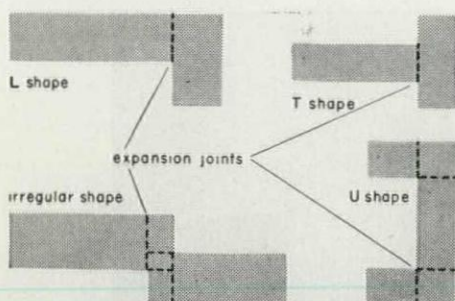


Fig. 6. Irregular plans require joints to relieve stresses.

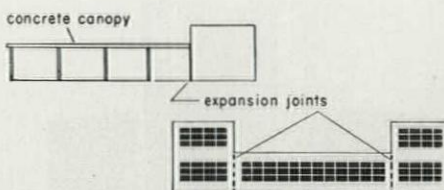
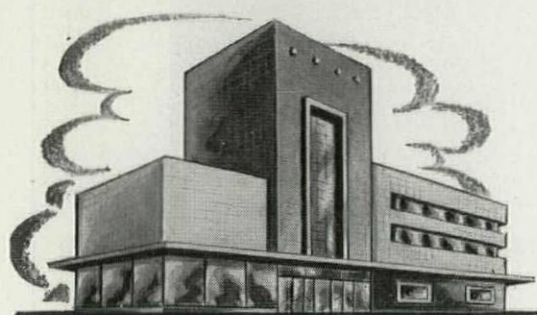


Fig. 7. Changes of roof line are danger spots and require special attention.



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in some cases difficult to maintain. No arbitrary spacing for joints in long buildings can be generally applicable. In heated buildings joints can be spaced farther apart than in unheated buildings. Also, where outside walls are of brick, or stone ashlar backed with brick, the joints can be farther apart than with exterior walls of lower insulating value. In localities with large temperature ranges, the spacing of joints for the most severe conditions of exposure (uninsulated walls and unheated buildings) should not exceed 200'. Under favorable conditions, buildings 400' to 500' long have been built without joints even in localities with large temperature ranges."

Selection of materials for the joints of a structure depends upon the size and shape of the building, and thus on the flexibility required in the expansion joints. The most critical factor is roof movement, which should be analyzed together with the spandrel wall immediately beneath the roof. In standard masonry construction, where cracks are likely to develop in the long narrow band of masonry between the window heads and the roof, a flexible joint should be used in this band, with the flexible material carried down to the window sills.

Expansion at roof lines

Locations of expansion joints depend upon the plan and elevation of each particular building. In a long, rectangular structure, joints may be as much as 300' apart in regular column bays. In an irregular structure, the joints should be placed to relieve stresses (fig. 6). Particular attention should be given such details as a long concrete canopy terminating in a wall, as is sometimes used in school construction (fig. 7); similar conditions occur where low central sections abut higher end sections.

It may sometimes be desirable to carry masonry facings below grade to eliminate the danger of cracks developing from exposed concrete walls. Although concrete foundation walls may be poured in alternate sections with V-joints between them, uncontrolled shrinkage cracks are still liable to occur.

A plastered ceiling attached to the roof construction is another danger point in a long building. If the ceiling is tight against the interior partitions, then roof movement may cause the ceiling to move far enough to crack adjacent partitions. Such movement may be controlled by flexible hangers in a hung ceiling.

ACOUSTICAL MATERIALS AT WORK

For added beauty, 6" x 12" Travertone has been installed in a herringbone pattern on the ceiling of the lobby. Regular 12" x 12" Travertone acoustical tile covers the ceiling beams and upper walls.



FIRST NATIONAL BANK, Lamesa, Texas

Architect: Howard C. Allen

General Contractor: Waller & Allen

Acoustical Contractor: Williams - Moore Co.

A quiet, dignified atmosphere — involving both sound and sight — is always a valuable asset to a bank. That's why two of Armstrong's acoustical materials were selected for the First National Bank in Lamesa, Texas.

Beautiful ceilings of Armstrong's Travertone contribute to this atmosphere in the lobby and vault areas of the building. Besides carrying out the bank's décor, Travertone is a highly efficient sound absorber, promoting comfortable quiet at all times. And Travertone's mineral wool composition fully meets all fire-safety codes. It's easily and economically maintained, too.

In the bank's general office areas, noise-absorbing ceilings of Armstrong's Cushiontone were used. A low-cost, perforated wood fiber material, Cushiontone is often the choice when large areas must be sound conditioned economically.

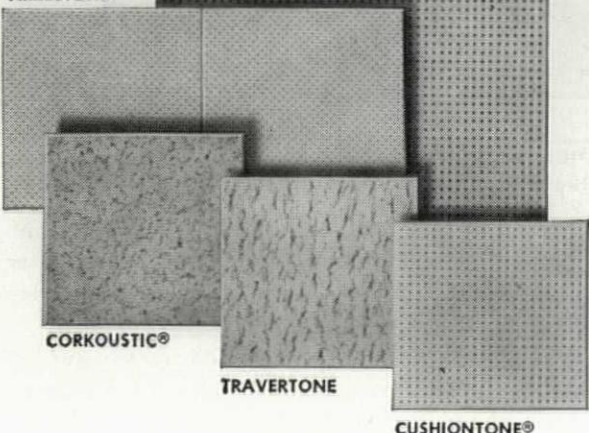
For detailed information on Travertone, Cushiontone, or any of Armstrong's other sound-conditioning materials, see your local Armstrong Acoustical Contractor. For your copy of the free booklet, "How to Select an Acoustical Material," write Armstrong Cork Company, 4202 Rooney Street, Lancaster, Pa.



Mistakes are reduced in this Cushiontone-treated typing room. Besides its high acoustical efficiency, Cushiontone's low cost and easy upkeep were prime factors in its choice.

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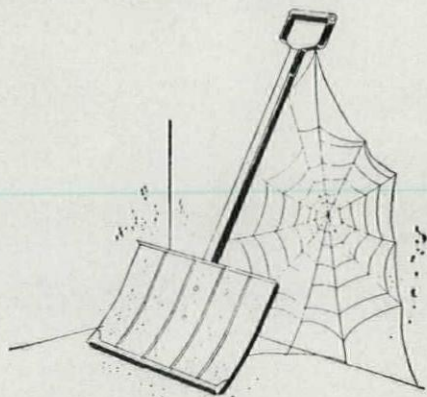
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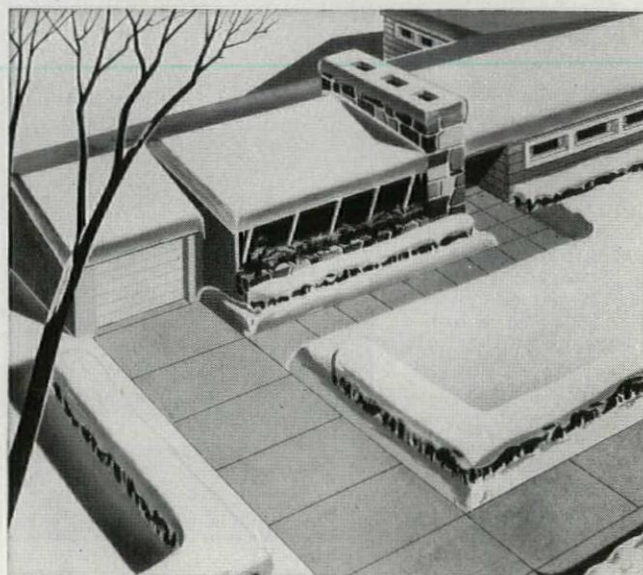
The old snow shovel's gathering dust



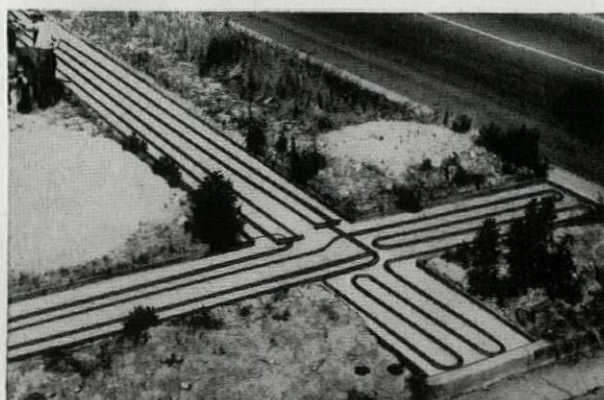
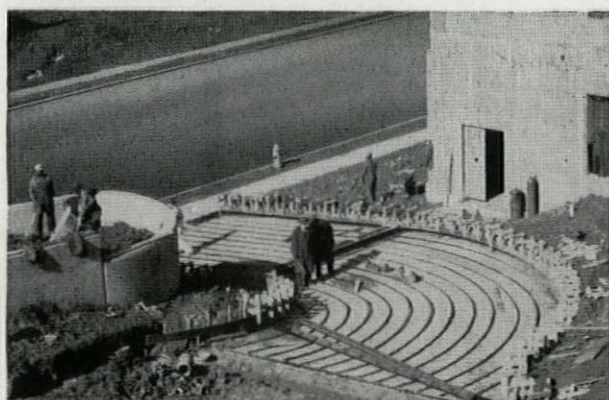
TODAY's modern snow melting installations have sent many a snow shovel into retirement. In addition to being used for residential sidewalks and driveways, hundreds of snow melting systems have been installed at hotels, office buildings, church entrances, theaters, train platforms, and bus terminals throughout the snowfall areas of the United States.

Besides taking the aching back out of a tiresome winter chore, snow melting systems take the accident and lawsuit hazard out of dangerous, icy sidewalks. Moreover, when used in front of theaters, around department stores and other business establishments, they offer a wonderful psychological advantage. People tend to congregate in these clear areas on bad winter days. Thus, the snow-free sidewalks before a place of business create good will, and the merchandise on display there is seen by large groups of people.

For over 50 years, architects, engineers and contractors have been specifying NATIONAL Steel Pipe for conventional plumbing and heating systems until it has



become the nation's standard for such applications. It is only natural, then, that they should turn to NATIONAL for this relatively new application—snow melting systems. They know that NATIONAL Pipe has the inherent characteristics necessary to meet the requirements of such applications—smooth, uniform bending; sound, strong welding properties; and long service life. Small wonder that such confidence has made NATIONAL Steel Pipe America's largest selling pipe for snow melting service.



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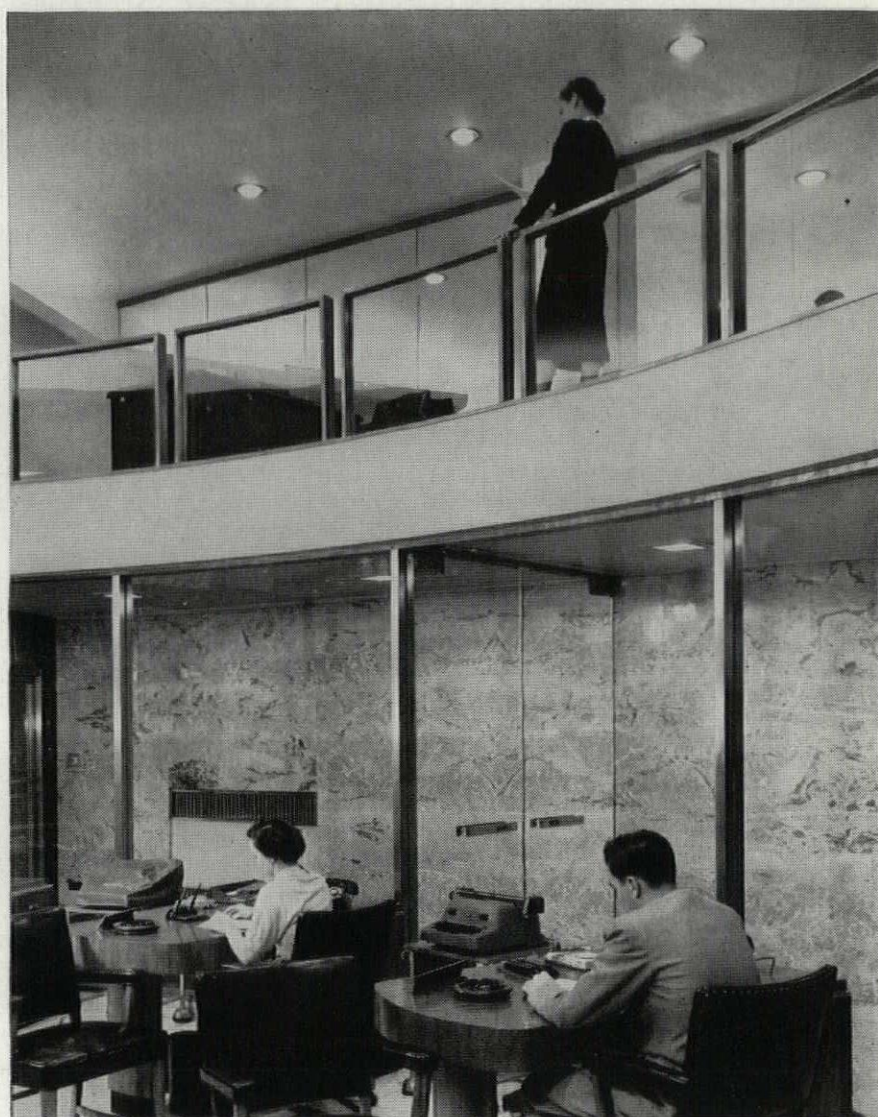
Bank entrance is open, spacious, inviting, in ENDURO and glass.



ENDURO frames with glass screens give circular stairway "open" effect.



Even bank vault entrance appears spacious, thanks to ENDURO with glass. Home Federal Savings and Loan Assoc. of Chicago. William Sevic, Architect.



ENDURO and glass separate lobby and banking floor, act as balcony rail and draft screen.

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combines with glass to create "Spacious" interior

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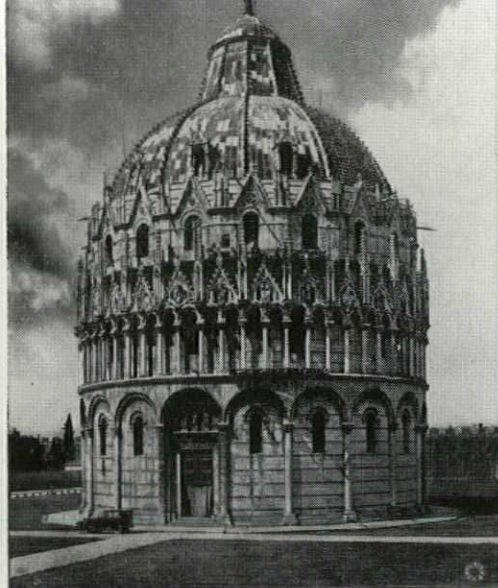
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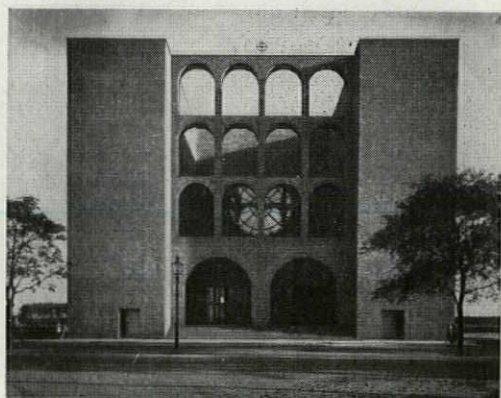


Synagogue
Newport, R.I.
Peter Harrison, designer

St. Joseph's Church
Hindenburg, Germany
Dominikus Böhm, architect

The Baptistry
Pisa, Italy

BOOK REVIEWS



CHURCHES AND TEMPLES. By Thiry, Bennett & Kamphoefner. Reinhold Publishing Corp., 330 W. 42nd St., New York 36, N.Y. 278 pp. 9" x 11 1/4". Illus. \$18

Reinhold (as guided by Book Editor Bill Atkin) chose well its three authorities on architecture for Catholic, Jewish and Protestant rituals. For any architect who must prepare himself to confront a church-building committee, the three separate sections contain factual material on physical requirements to accommodate the rituals of these three major religious classifications. But there is more. The authors are all architectural idealists, not just journeymen, and have brought together examples of what has been accomplished in religious architecture which should inspire the architect-reader. Perhaps even more important, these examples may help the architect convince the building committee that a living religion of today can have a living contemporary architecture.

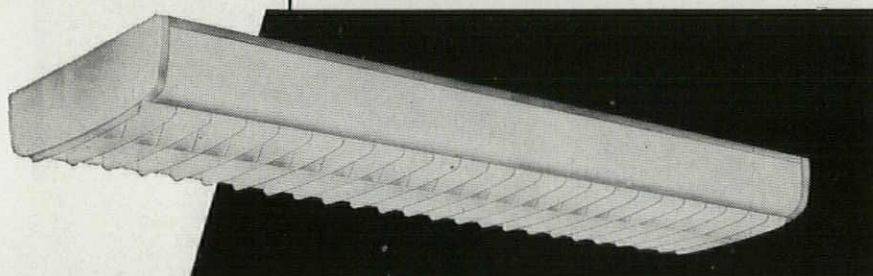
SPORTS BUILDINGS. By Rudolf Ortner. Distributed by Museum Books, Inc., 48 E. 43rd St., New York 17, N.Y. 312 pp. 8 1/2" x 12". Illus. \$13.50

GARAGES AND SERVICE STATIONS. By Rolf Vahlefeld and Friedrich Jacques. Distributed by Museum Books, Inc., 48 E. 43rd St., New York 17, N.Y. 250 pp. 8 1/2" x 12". Illus. \$12

Although the text will be meaningless to anyone who cannot speak German, the excellent drawings and photographs in these two companion books will be easily understood by anyone and will be very useful to the designer who frequently has design problems in the fields of sports buildings, garages and service stations. The first half of each book presents the standards and graphic details of the subject; the second half consists of high-quality photographs of examples selected from all over the world (with emphasis, of course, on German examples).

continued on p. 208

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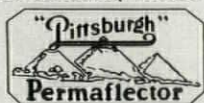
Write for Bulletin N

It gives complete specifications, dimensional drawings and engineering data for the Garfield.

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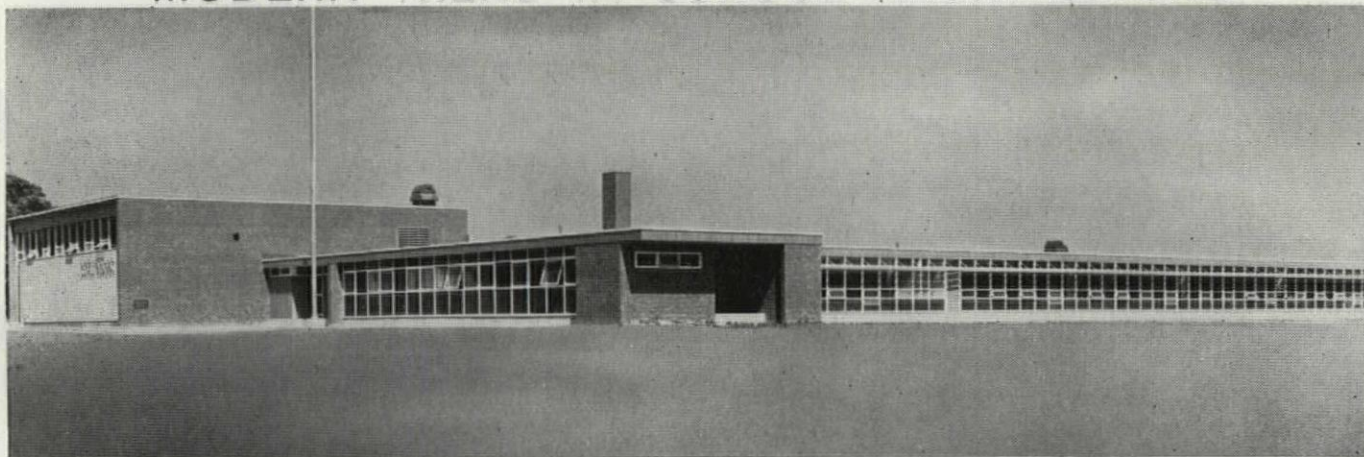


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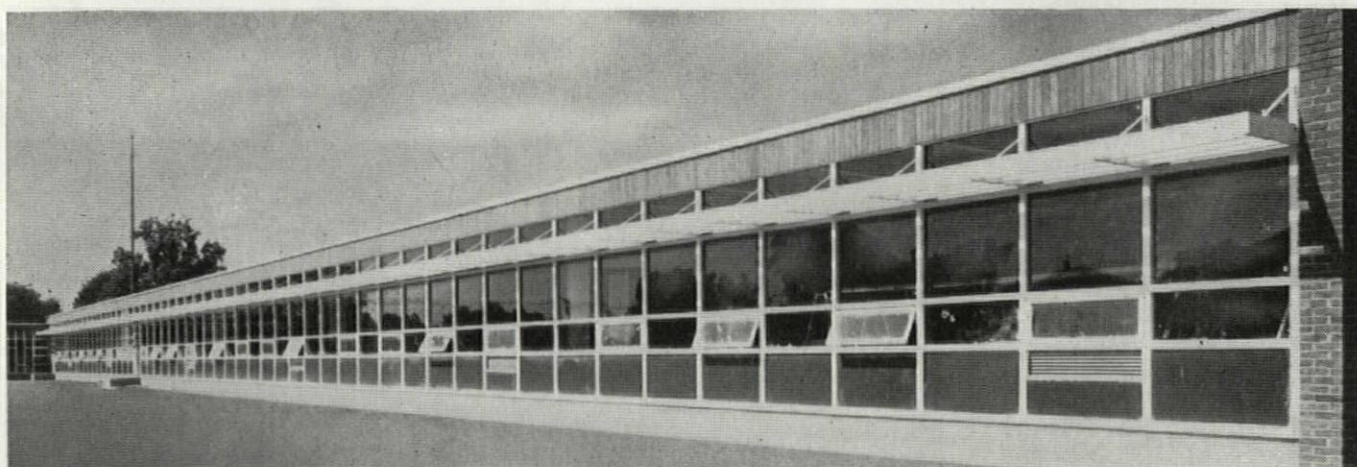
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BOOK REVIEWS *continued*

STATICS AND STRENGTH OF MATERIALS. By Roland H. Trathen. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York, N.Y. 506 pp. 6 1/4" x 9 1/4". \$7.50

This is a textbook written to meet these four objectives: 1) To present the principles of statics and strength of materials and indicate the general methods of applying them to engineering problems. 2) To develop analytical ability by setting the engineering application in such a way that it presents a challenge in analysis. 3) To correlate previous experiences in mathematics and physics with the discipline in mechanics. 4) To develop an appreciation of mechanics as a science. The author is professor of mechanics, Rensselaer Polytechnic Institute.

TABLES OF 10ⁿ. National Bureau of Standards Applied Mathematics Series 27.

Published by the Government Printing Office, Washington 25, D.C. 543 pp. 8" x 10 1/2". Buckram-bound, \$3.50

Although there are a number of handy logarithms to ten or more places, they require the use of inverse interpolation to get the antilogarithm. Thus, a table of antilogarithms is needed. This volume gives antilogarithms to the base 10, or 10ⁿ, in the form of two tables, a readily interpolable table for 10-dec. accuracy and a basic radix table for 15-figure accuracy. When used in conjunction with logarithmic tables in any extensive computations involving logarithms and antilogarithms, the *Tables of 10ⁿ* will prove much faster than logarithmic tables used alone.

WORLD FURNITURE TREASURES, Yesterday, Today and Tomorrow. By Lester Margon. Published by Rheinhold Publishing Corp., 330 W. 42nd St., New York 36, N.Y. 186 pp. 8 1/2" x 10 1/2". illus. \$7.50

From Egypt to Eames, furniture design has been a reflection of the social, historic and economic life of the civilization that produced it, according to the author of this book. He shows how the construction and the design of furniture as far back as the ancient Egyptian chairs were so good that their basic patterns survive today in a variety of forms. His commentaries bring into the open many of the controversial issues facing all those interested in furniture, and frankly analyze trends, virtues and shortcomings of modern design. Included with 200 or more photographs of history's furniture masterpieces are 53 of the author's own measured drawings. Several of the drawings are the only records we have of models lost in the ravages of war.

Lester Margon is the director of the Interior Design Shop in New York and an active member of the American Institute of Decorators.

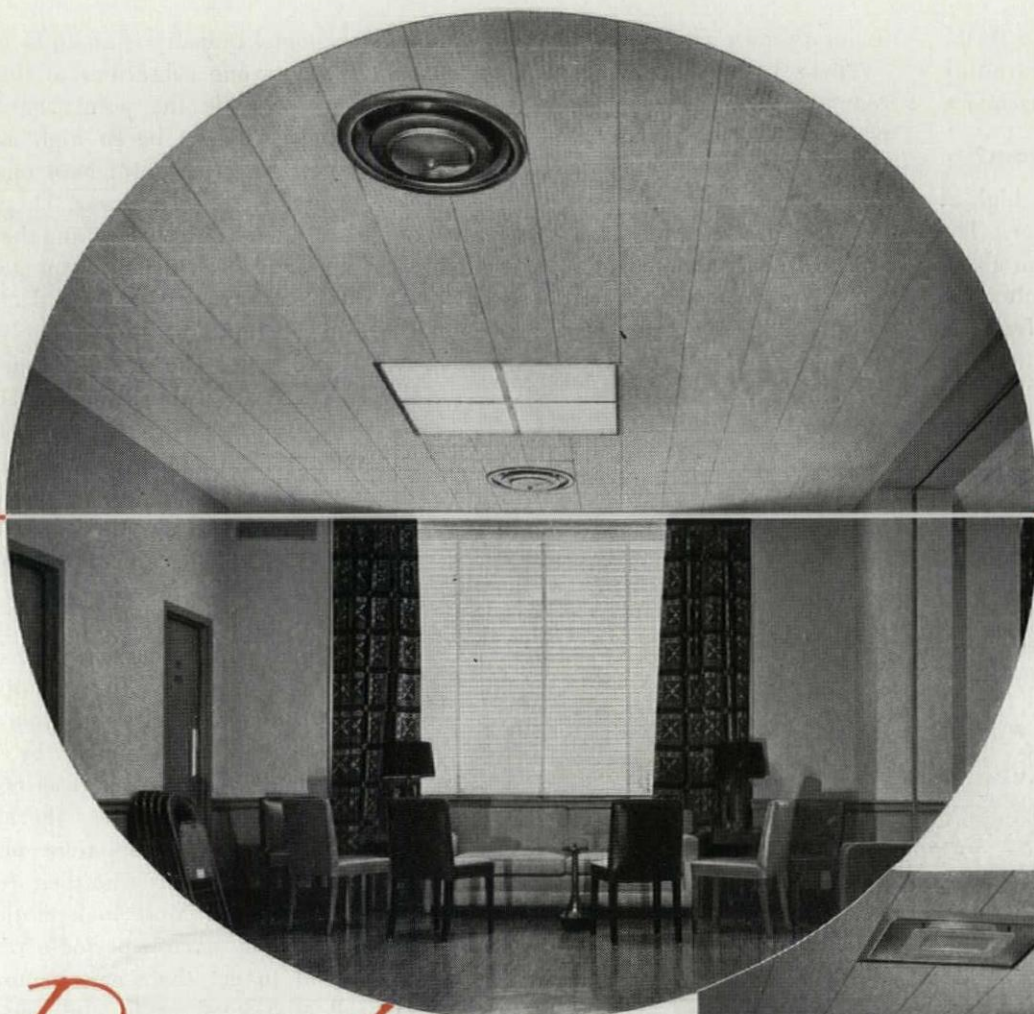
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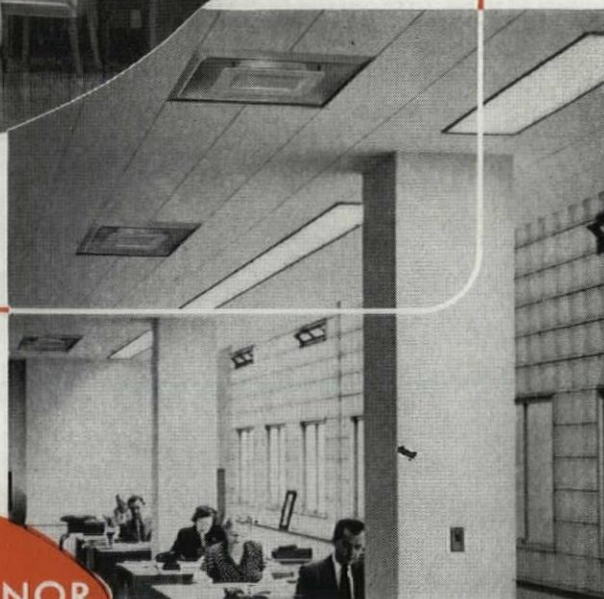
Position.....

Company.....

Street.....

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

see our catalog in
ARCHITECTURAL
FILE
or write for copy



positive ideas about the kind of motel, the prospective customers, and the furniture and equipment *before* engaging an architect.

Where will the money come from?

The days of mortgages running as high as 60 to 70% of motel cost are over. The investor should expect no more than about 45 to 50% including his land valuation. Cash over the mortgage must come from the

investor's own resources.

There is still plenty of money in the country. Savings accounts are at their all-time highs; banks and savings and loan associations are likely to continue to expand their mortgage-lending activities.

Respecting the mortgage money available, it is true that the lending agencies are more prudent than they were 5 years ago. This is natural in view of a feeling that

the motel industry is about to be overbuilt. Whether one subscribes to that belief or not is beside the point; mortgage loans simply will not be so high as they once were. Motels enjoy at least one very strategic advantage, however. They are individually small investments and thereby enable the lending agencies to spread their risk over more properties. Amortization periods will continue to be relatively narrow—10, 12, 15 or 18 years at the most.

There are two reasons for the willingness of operators to go high on their investment. A fairly sure rate formula calls for rates of \$1.20 per night for each \$1,000 of investment. But the \$1.20 per \$1,000 formula applies to a normal level of occupancy—70%—whereas the newer and fancier motels are getting virtually full occupancy for a sustained period of time. One owner in the Midwest was successful in raising his average rate from \$6 to \$8.70 in a few months simply by demanding more money during his peak occupancy.

The second reason for the high cost of investment is the apparent unwillingness of operators to forecast their future financial situation. Most look at things for a dangerously narrow period of time. Others intend to get their motel into operation, sell at a good profit and move along to another speculative investment. Ultimately, of course, all such speculators get "burned," but they can do a tremendous amount of damage to the industry before they are forced out.

The "other" side

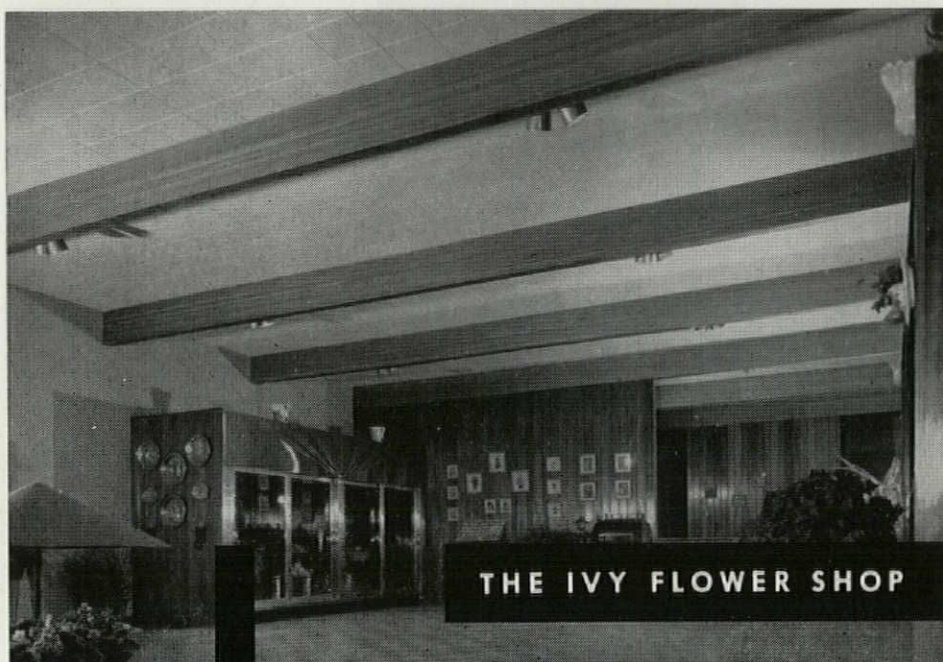
All is not prosperity in the motel industry. Hundreds of inept and ill-informed people have lost their life savings in poorly located and operated motels. What is worse, they have lost their savings at a time of life when there is no way to replace them. These are the people who have "retired into motels" in the mistaken idea that all that is needed is the ability to count the cash as it rolls in. Others have been forced out of business by superhighways that have diverted the lifeblood of dozens of motels—traffic—to new routes.

Overbuilding is a constant threat to the industry, not because the demand may be satisfied, but because untrained owners will have a tendency to cut rates in the face of temporarily declining occupancy. And rates once cut are very difficult to raise.

Hotel competition

In 1953, hotel and motel owners alike were inclined to discount the ability of the

continued on p. 214



THE IVY FLOWER SHOP

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Sessions Engineering Company used "Modernfold" doors to separate and combine this space to meet the day-to-day needs of the Powers Regulator Company, Skokie, Illinois . . . quickly . . . economically . . . beautifully.



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

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

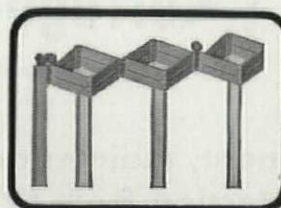
Specifying "Modernfold" doors keeps clients happy. For these steel-framed, vinyl-covered doors can't be equaled *anywhere* for quality of design . . . for quality and strength of materials.

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



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



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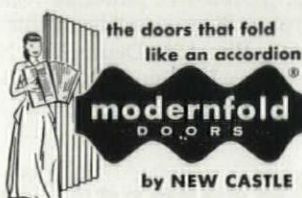
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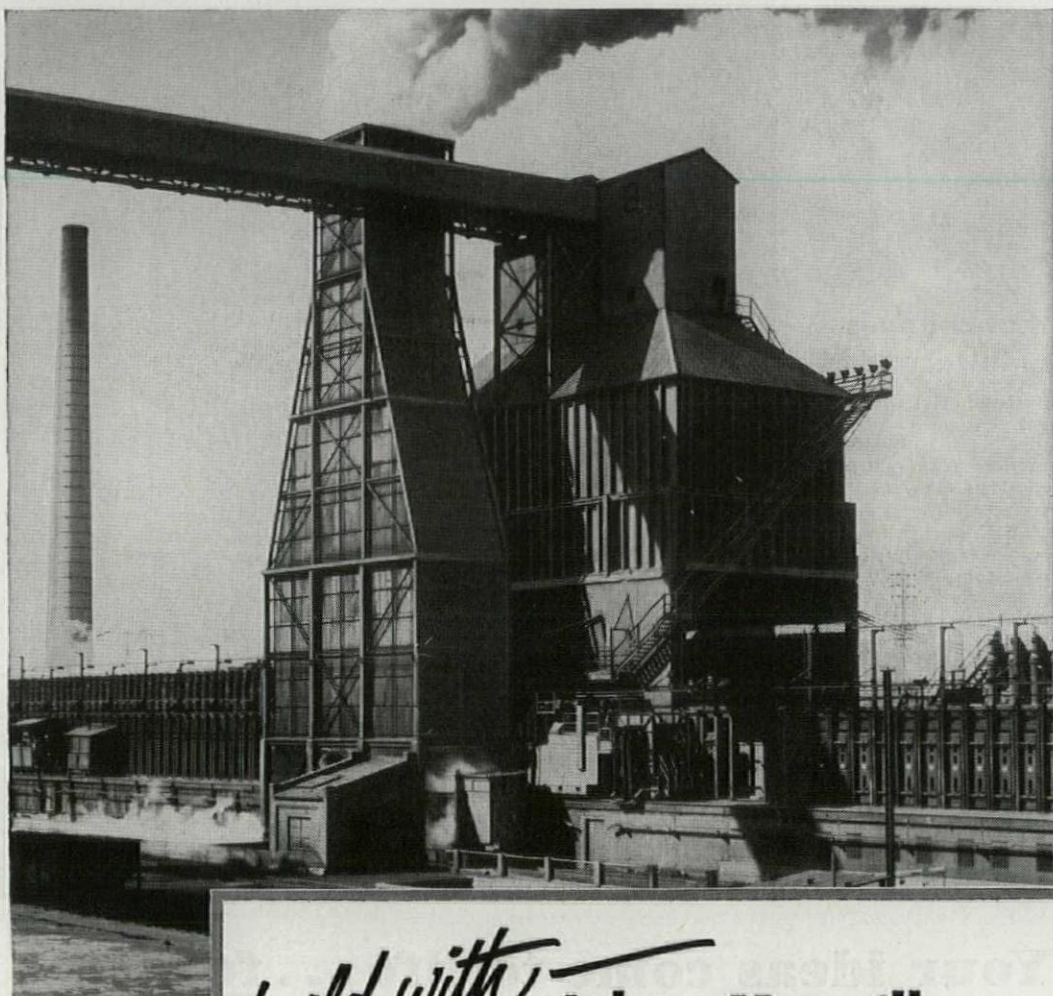
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No costly maintenance problem here



So severe are the steam and fume conditions in this coke quencher station, that the heavy structural steel framing is on the *outside*, protected by J-M Corrugated Transite

build with **Johns-Manville**
Corrugated Asbestos Transite

**For permanent, maintenance-free construction,
plus protection from fire, rot and weather**

YOU SAVE MONEY on construction and maintenance when you build with J-M Corrugated Transite®. Corrugated Transite comes in large sheets that require a minimum of framing . . . permit fast economical construction of maintenance-free industrial, commercial, institutional and agricultural buildings.

Made of asbestos and cement, Corrugated Transite is practically indestructible. It never needs paint or special treatment to preserve it . . . it's fireproof, rotproof and weatherproof. Corrugated Transite is also used increasingly

for smart interiors . . . the streamlined corrugations and attractive shadow lines that give it such unusual architectural appeal for exteriors offer unlimited interior design possibilities.

Investigate Johns-Manville Corrugated Asbestos Transite and learn how you can build quickly and easily . . . have an attractive, long-lasting, trouble-free structure regardless of size or purpose. For complete details write Johns-Manville, Box 158, Dept. AF, New York 16, New York. In Canada write 199 Bay St., Toronto, Ontario.

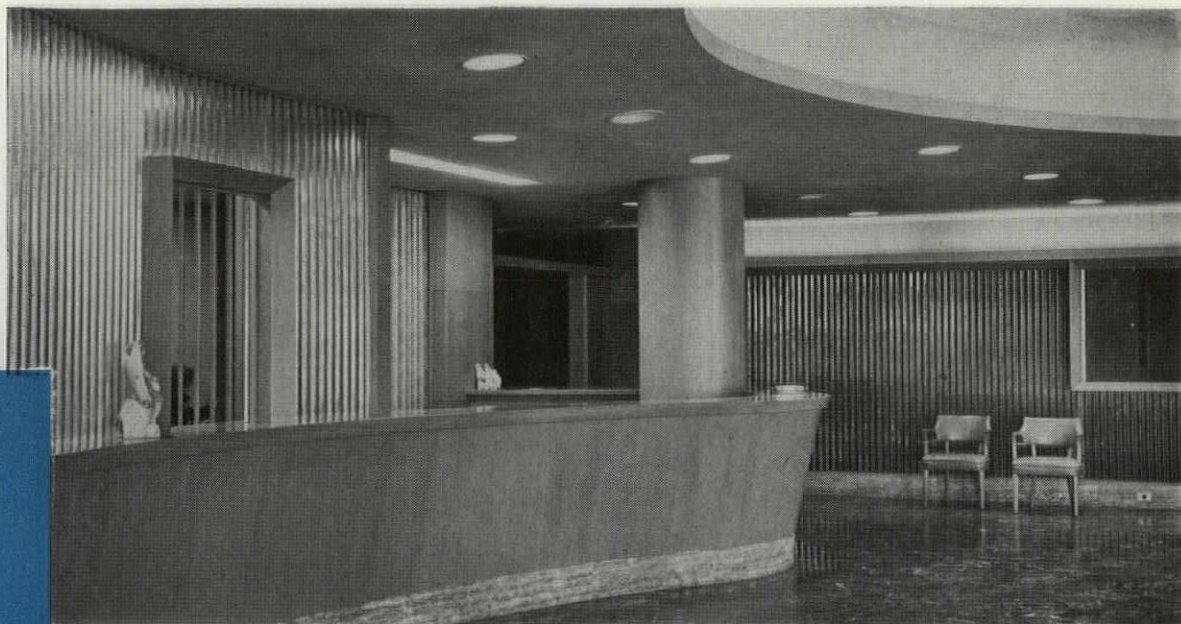


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- Easy to saw
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Johns-Manville

**Structural
Corrugated
Glass
for Lustrous,
Lasting Beauty**



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E. Steigerwald and Sons, General Contractor.



Beauty is combined with utility in this attractive installation of Mississippi Structural Corrugated Glass in this unusual hospital. Sparkling, translucent, light diffusing glass attains a lasting modern decor. Glass never requires painting, never wears out, always looks new. And interiors appear larger, brighter and friendlier with Mississippi's famous "borrowed light" that floods adjoining areas with copious quantities of softened illumination. Yet Structural Corrugated Glass by Mississippi protects privacy completely.

Cleanliness, so important in a hospital, is especially easy to maintain. Having no pores to hold and absorb dirt, glass walls wipe clean with a damp cloth. Beautiful figured glass by Mississippi is the modern material . . . so extremely practical for every type of interior.

Make light a part of your plans. Specify glass by Mississippi and add greater beauty plus utility. It is available in a wide variety of patterns and surface finishes "visioneered" to distribute light to best advantage.

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small-town hotel to recapture its prominence. Yet, the signs were becoming all too evident: the typical rates of hotels in direct competition with motels were at least 25-50% lower. Moreover, the slow-to-awaken hotel owners were beginning to provide motor lobbies, parking lots and to emphasize their more strategic location for business travellers and their lower rates. In a time of severe depression, many motels

will be unable to survive at rates that will still give a measure of profit to hotels.

High cost of motels

Also, by the end of 1953, it was all too apparent that motels cost too much. Construction costs of \$7,000 to \$10,000 per unit were becoming common. It is difficult to see how such motels can pay off. The motel at \$10,000 per unit seems doomed to ultimate

failure if it cannot secure an average rate of \$12.

Owner-operation

Assuming that the investor still is interested in a regular motel of 20 to 40 units, he should understand that the most successful of these are owner-operated. One of the requirements for success in any small business is that it is owner-operated. This applies as much to motels as to any other type of business. Some have been successful investments by individuals who have turned over the operations to hired management, but even these owners report that continual supervision is needed because the operation of a motel is very demanding and salaried people cannot be expected to have the same interest as someone who has his own money to look after.

In still another sense, the rewards of motel operation lie partly in having one's residence provided for him. Somewhat of a parallel can be drawn with the restaurant industry, which also has attracted many amateurs. A common justification of a restaurant investment used to be that, at least, the owner would be sure of getting his meals. In the same sense, the motel assures its owner of a place to live.

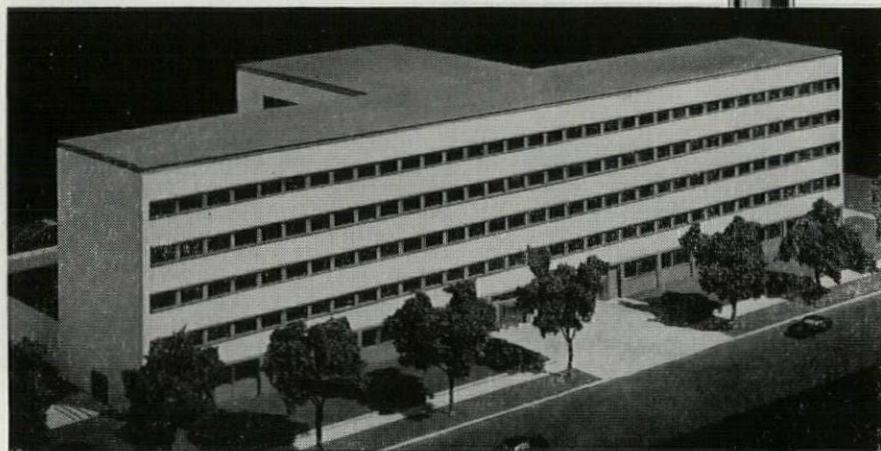
Highway motels

As if to anticipate the public's demand for wider services than motels normally give, there has appeared a so-called "marriage" of the hotel and motel. There have been several very notable examples of 75- to 150-unit motels that have coffee shops, bars, private room phones, etc. These have had eminent success because they fit the motorists' desire for parking space and at the same time provide most of the facilities of a small hotel.

Many more highway motels will be built in the future. A good reason for this is found in the fact that they are substituting for hotel construction in areas where too-high real estate values make it impractical to build centrally located hotels. The prospective investor in a motel, however, should not believe that it is a simple step to expand his plans from a small motel to one of these larger ventures. They require skilled management, if only to coordinate the supervision of the many more facilities of the typical highway hotel. Also, more cash investment is needed—although this is somewhat offset by the willingness of mortgagors to loan higher amounts and to extend the loan period beyond the 12 to 15 years frequently found in motel loans.

Modern Buildings Deserve Permanence

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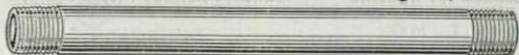
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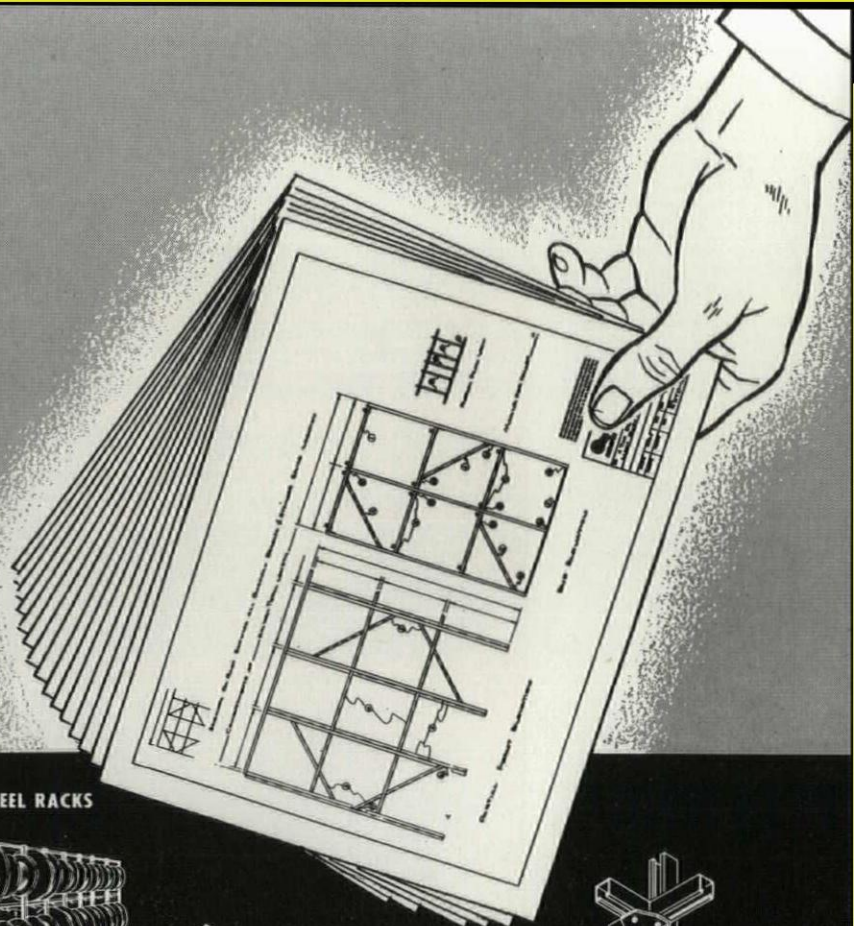


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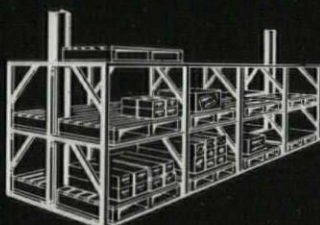
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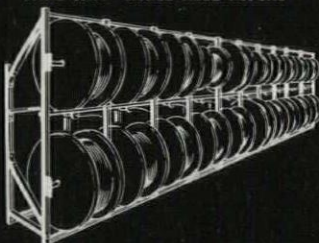
Easy-to-adapt standardized designs will
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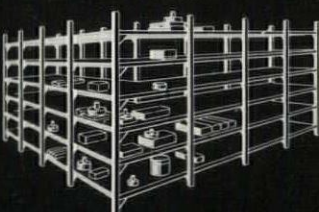
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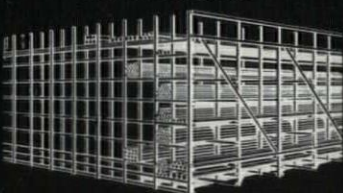
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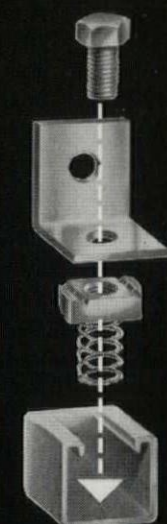
DIE RACKS



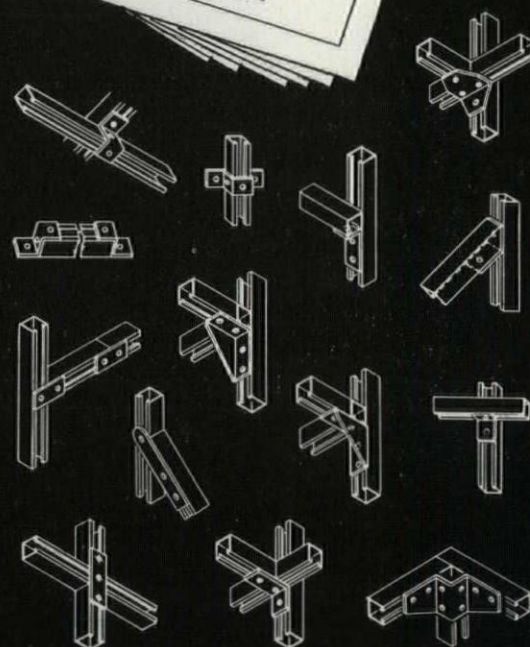
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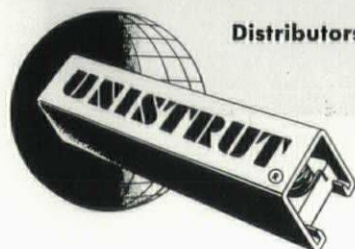
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Users of UNISTRUT framing well know its versatility—how easily it is assembled, without special tools or skilled help, without drilling or welding. They know its great load bearing capacity, that it is adjustable and re-usable, that it presents a neat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

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

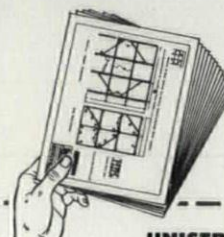


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U. S. Patent Numbers	2327587 2329815 2345650	2363382 2380379 Other Patents Pending	2405631 2541908
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FREE! 15 Standardized Rack Designs.
Light and heavy duty, multiple tier, single and double entry pallet, bar stock, reel and storage racks—contact your nearest UNISTRUT representative, or mail coupon below.



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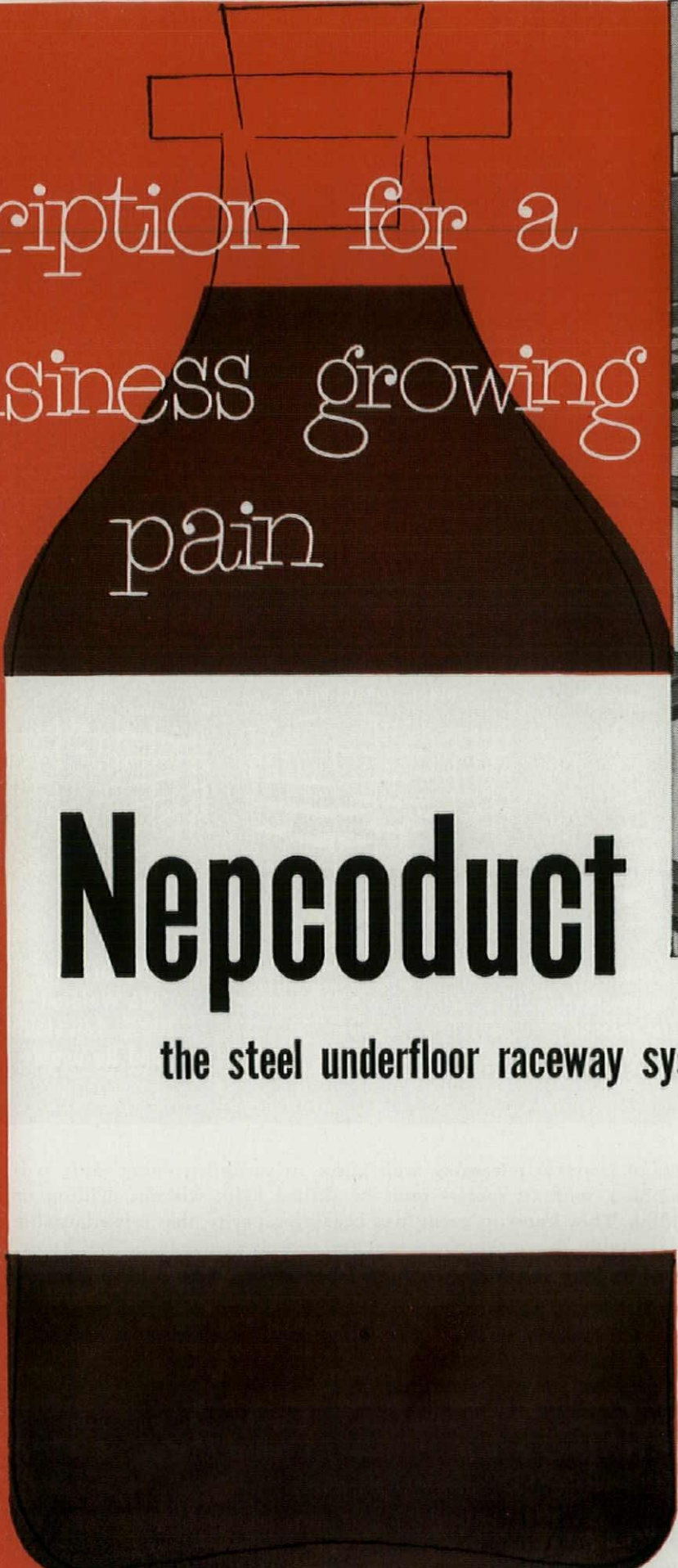
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Please send me the Standardized Rack Designs,
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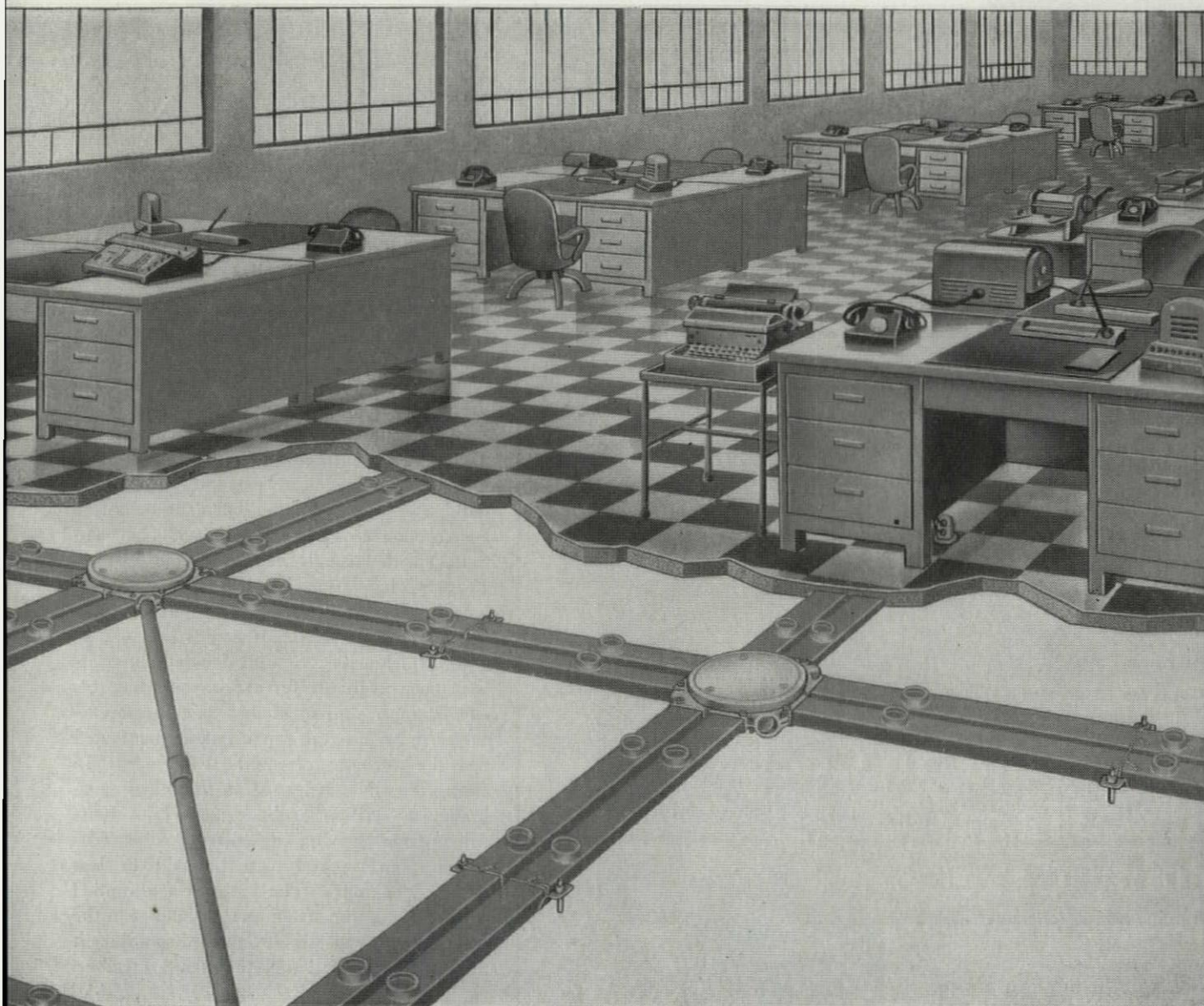


prescription for a
business growing
pain

Nepcoduct

the steel underfloor raceway system





that keeps wiring flexible . . . permits office changes

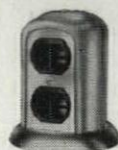
Why expose your clients to the "business growing pains" that come when their office layout is tied down to an old fashioned, inflexible wiring system. Give them the modern prescription for electrical convenience . . . NEPCODUCT, the simplified underfloor raceway system that provides electric outlets at the floor surface wherever they're needed.

A single, double or triple duct system, Nepcoduct provides separate wiring facilities for light and power, signal circuits, communication and telephone. In addition, Nepcoduct comes ready for use . . . can be installed quickly and economically in any type of floor construction.

Give tenants and building owners an electrical dis-

tribution system that will add to the economic life of their buildings. Specify NEPCODUCT to ensure complete outlet convenience regardless of office space or furniture arrangements.

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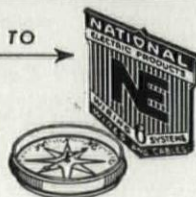
Easy, quick to install—Modern in design—Kick-proof—Accommodates buzzer system or terminal block—Screw threaded for perfect electrical and mechanical bonding to duct area.



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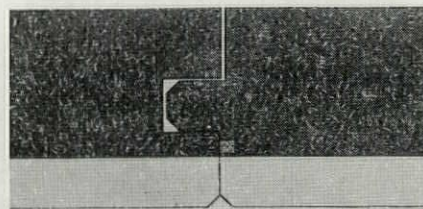
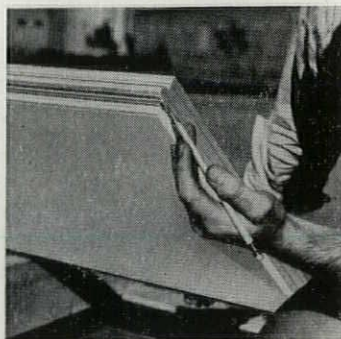
3 Plants • 8 Warehouses • 34 Sales Offices





Priced at 33¢ per sq. ft. in the 2" thickness (U value .15), the new deck is said to make possible savings of \$200 to \$400 per 1,000 sq. ft. over other beamed-ceiling construction materials.

NEW PRODUCTS—MOTELS



TRIPLE-THREAT INSULATING ROOF DECK has finished underside and continuous vapor barrier

Rigid decking, insulation and pre-painted ceiling all in one, *Insulite Roof Deck* is a practical building material for flat or low-pitch roof construction. Although marketed primarily for the home field, the new product should be an attractive material and effective money saver in many kinds of buildings—motels, schools, churches and commercial buildings—where exposed-beam or open-web construction is called for. Wood fiber saturated with asphalt comprises the 2' x 8' structural insulation. Laminated to its interior face is a textured board with a flame-resistant matte-white finish. It comes in 1½", 2" and 3" thicknesses. Similar decking materials have been available for a few years but this one is applicable to almost any climate because of its integral vapor barrier laminated near the finished surface (the warm side). To assure the effectiveness of an unbroken membrane, a resilient rubber gasket prevents vapor from moving up through the T&G joints. Ten squares can be laid in less than 7 man-hours. The sections are applied with the long dimension at right angles to the framing with end joints staggered so adjacent pieces do not fall on the same member.

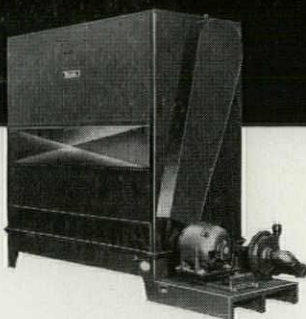


Marlo Helps to Cool Ford's Giant "Birthday Cake"

Thanks to the magic of modern air conditioning, visitors to the famous Ford Rotunda at Dearborn, Mich., enjoy complete comfort—a comfort that Marlo is proud to have a part in providing.

Two huge Marlo 100-ton cooling towers, concealed on the roof, play an important role in the air conditioning system which keeps this giant "birthday cake" cool and comfortable even in the hottest summer.


Water-saving, money-saving Marlo cooling towers are available in capacities from 20 tons to 100 tons or more. For residential and light commercial use, Marlo produces the 2-16 ton "Thrifty-Tower".



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WRITE to Marlo today for complete information on efficient, economical cooling towers for every application.

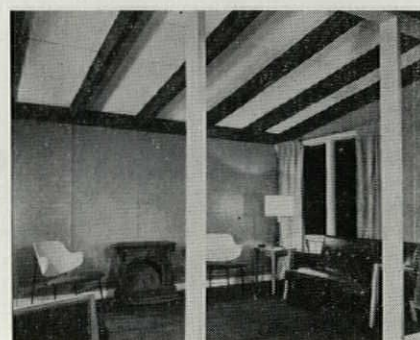
See our bulletin in Sweet's Catalog

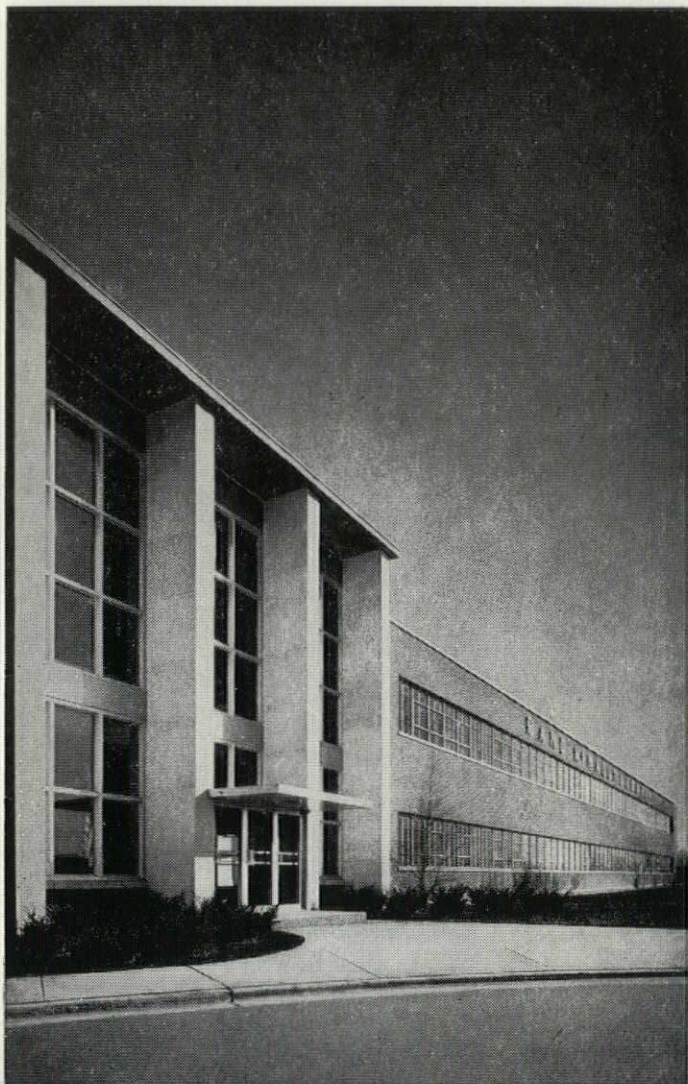
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	Saint Louis 10, Missouri



Economical pitch or asphalt built-up roofing with granule topping is applied over the deck. *Manufacturer: Insulite, 500 Baker Arcade Bldg., Minneapolis 2, Minn.*

continued on p. 222





how Ceko

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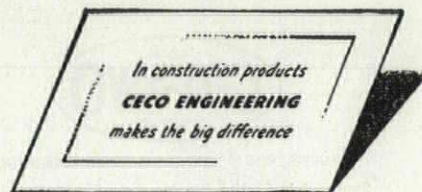
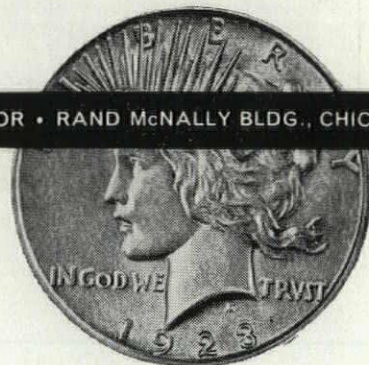
■ The cost of any structure depends partly on the way materials are handled on the job.

Here Ceko 1-Source Service offers special advantages to the architect-engineer-contractor team in helping make paper savings truly realistic by integrated delivery.

One responsibility for providing concrete joist steelform service and reinforcing steel, for delivering steel joists, roof deck and metal lath, assures their arrival on the job-site as desired by the architect, just as needed by the contractor. And when there are requirements for Ceko metal windows, screens, and hollow metal doors, these products also are scheduled for arrival when needed. Result: Costly storage is avoided, material handling reduced—and work goes ahead faster.

Look at any job where multiple Ceko Products are used and you'll see neat "ground keeping," a significant sign of low material handling costs. That's just one example of how Ceko 1-Source Service can save for you. If you consult our people in the pre-planning stage, product specialists will assist you in the application of Ceko Products so you can realize further savings.

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Fortunately, the particular type of information and assistance you need is within easy reach. An expert C-O-TWO Fire Protection Engineer is ready and willing

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

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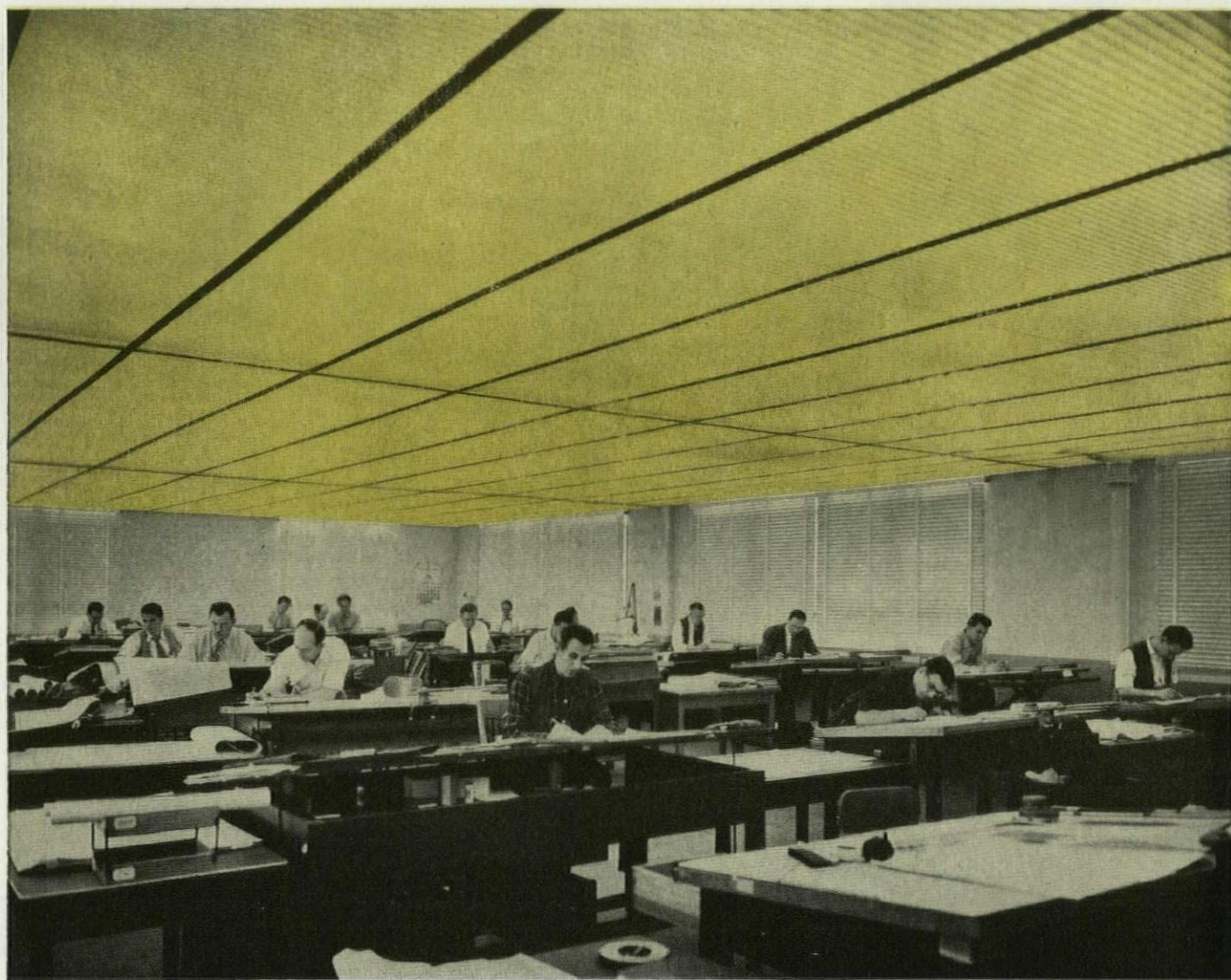
Squeeze-Grip Carbon Dioxide Type Fire Extinguishers
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The Ceiling Glows and Shadow Goes

From this ceiling glows a uniform, shadowless light that spreads glareless brilliance from wall to wall. It's made of BAKELITE Rigid Vinyl Sheet in corrugated sections.

These translucent panels conceal continuous strip units of 40 watt fluorescent lamps. Easily installed and maintained, BAKELITE Rigid Vinyl Sheet panels rest on a light metal frame, provide a clean modern appearance while concealing pipes, ducts, and other overhead projections.

The panels are instantly removable for easy cleaning, lamp re-

placement, or access to pipes. And sprinkler systems, though hidden, remain effective. This plastic ceiling softens and falls at 145 degrees F.

The beauty and lighting characteristics of the ceiling remain constant. BAKELITE Rigid Vinyl Sheet panels resist moisture, oil and combustion. They won't crack, warp, or discolor and are dimensionally stable. Superior acoustical conditioning can be achieved by applying sound absorbing pads to the support rails.

BAKELITE Rigid Vinyl Sheets are useful for dozens of similar

applications—screens, signs, lampshades. Learn what these modern materials can do for you. Write to Dept. TP-14.

Ceiling by **Luminous Ceilings Inc.**
2500 West North Ave., Chicago, Ill.

BAKELITE
TRADE-MARK
RIGID VINYL SHEETS

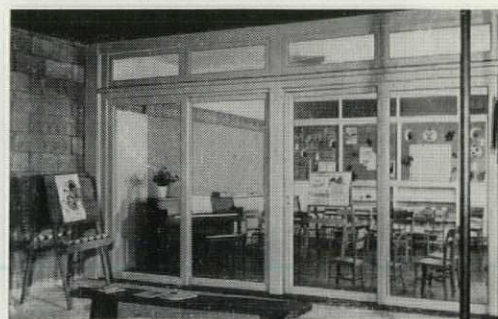
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NEW PRODUCTS—MOTELS

SLIDING GLASS DOOR framed in wood

These wood-framed sliding doors should be popular in motels and schools that strive for the home-away-from-home atmosphere. Besides having the warmth of natural wood, the *Westerner* boasts low cost: the 6' wide x 6'-8" high unit pictured in the classroom (right) costs \$70 unglazed, and the 16' four-light model is about \$150. Each comes complete with large brass pull and latch and glazing

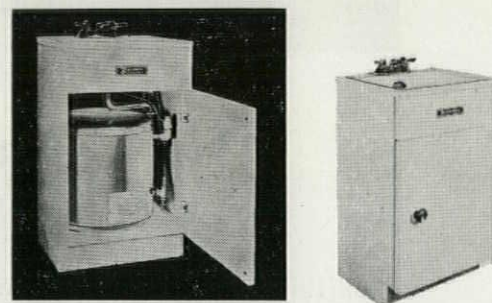


stops. Sills are clear kiln-dried oak; the 1 3/4"-thick door frames are vertical grain Douglas fir. The entire unit is chemically treated against vermin and rot, and fully weather-stripped. It can be painted or given a clear finish to bring out the grain of the wood. Concealed 2" ball-bearing rollers running on an aluminum track operate the door at finger touch. Screens to fit are available.

Manufacturer: T. V. Walker & Son, Inc., 217 N. Lake St., Box 547, Burbank, Calif.

LAVATORY nests water heater in neat cabinet

Compact and clean, this white porcelain sink rests on top of a 5-gal. water heater in a well-tailored jacket. Suitable for motels, shops, factories or wherever it is impractical to run hot water lines from a central source, the combination unit retails at only \$109.50. It stands 32" high, 18" wide and 16 1/4" deep. Its heater carries UL approval and is operated



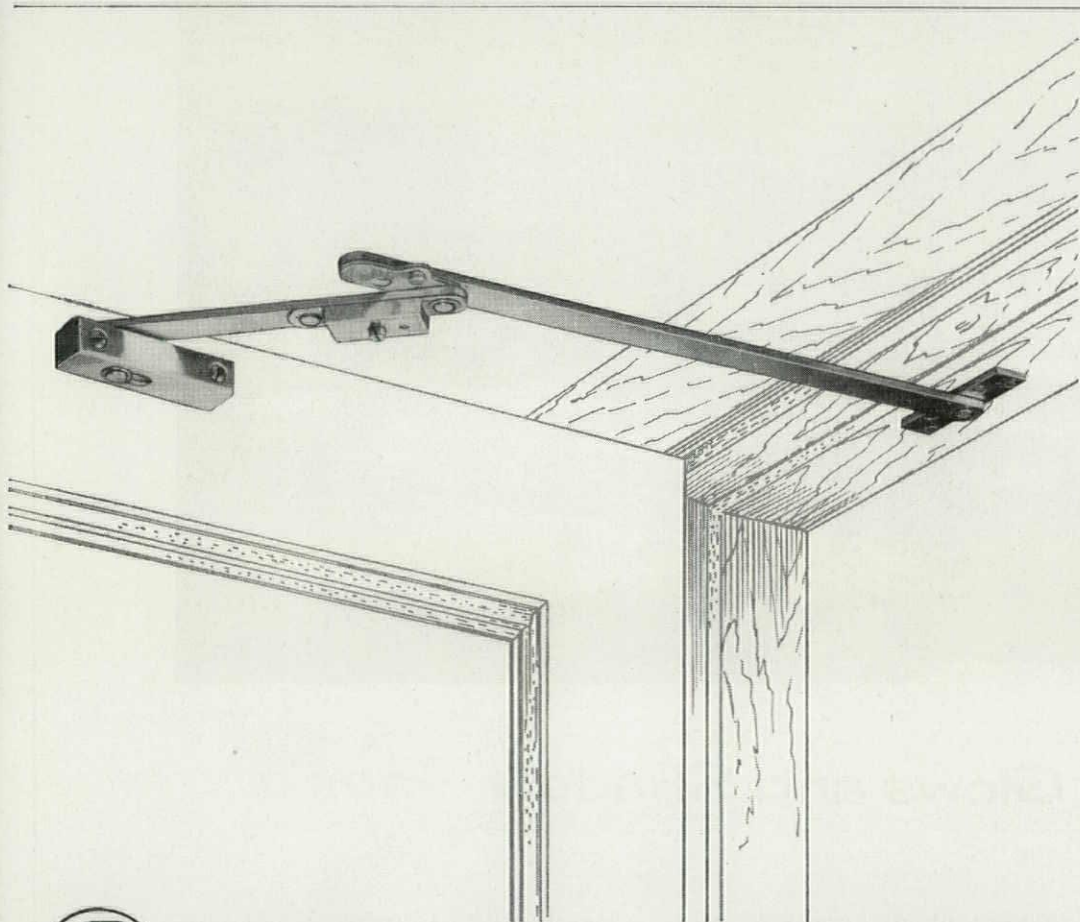
by a thermostat which turns on current only as hot water is used. All plumbing including relief valve and drain is on the inside. A 2" layer of glass-fiber insulation keeps the water hot for long periods.

Manufacturer: Bowen Water Heater Div., Handling Equipment Mfg. Corp., Wixom, Mich.

COMPLETE KITCHENS compressed into single appliances; take little floor space

Where full food-preparation facilities are needed in minimum space—in motels, small apartments, home-economics classrooms—these two units should fit right in. The 42"-wide combination unit by General Air Conditioning (p. 226) has a double sink, 6 cu. ft. refrigerator, broiler, oven and three-burner range. It retails for about \$350. The Acme-National kitchen unit (p. 226) is 3' high, 30" wide, and 23 1/2" deep and combines 5

continued on p. 226



NO. 1480 DOOR CONTROL



SASH AND DOOR CONTROLS

... Better Because

Extra large JAM PLATE bearings prevent sag of arm. Exclusive! Adjustable tension of hold open permits suiting holder to draft conditions.

Exclusive! Encased shock absorber bearing is of fine grained impregnated cherry to resist wear elements.



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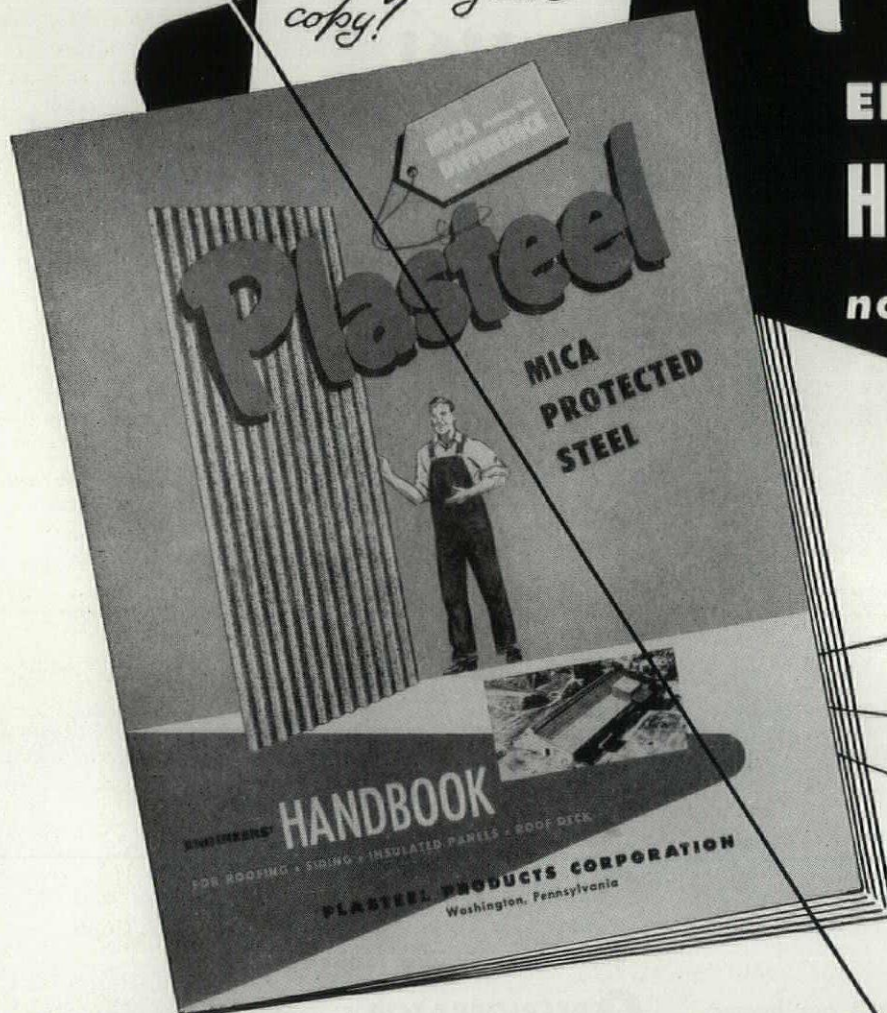


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General Chef

5-IN-1

Only 42 inches wide

**5 YEAR
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Financing available through
our easy 24-month payment plan



1 DOUBLE SINK One-piece porcelain top of heavy gauge steel. Faucet and all hardware triple-chrome plated.

2 BURNERS Unit comes with 3 gas burners (easily adjusted for bottled, natural or manufactured (L.P.) gas), or 3 electric burners (220 V.).

3 OVEN Large handy oven with broiler and Robertshaw Automatic Temperature Control. Completely insulated from refrigerator.

4 REFRIGERATOR Six cubic feet of space. Electric sealed, self-oiling Tecumseh unit. Owens-Corning Fiberglas insulation. Convenient bottle shelves in door.

5 FREEZER Holds 9 ice cube trays, or 12 standard frozen food packages.

General Chef

NATIONWIDE SALES AND SERVICE

LOS ANGELES: Dept. B-2, 4542 E. Dunham St.

BOSTON • CHICAGO • CLEVELAND

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SAN FRANCISCO • SEATTLE • TAMPA



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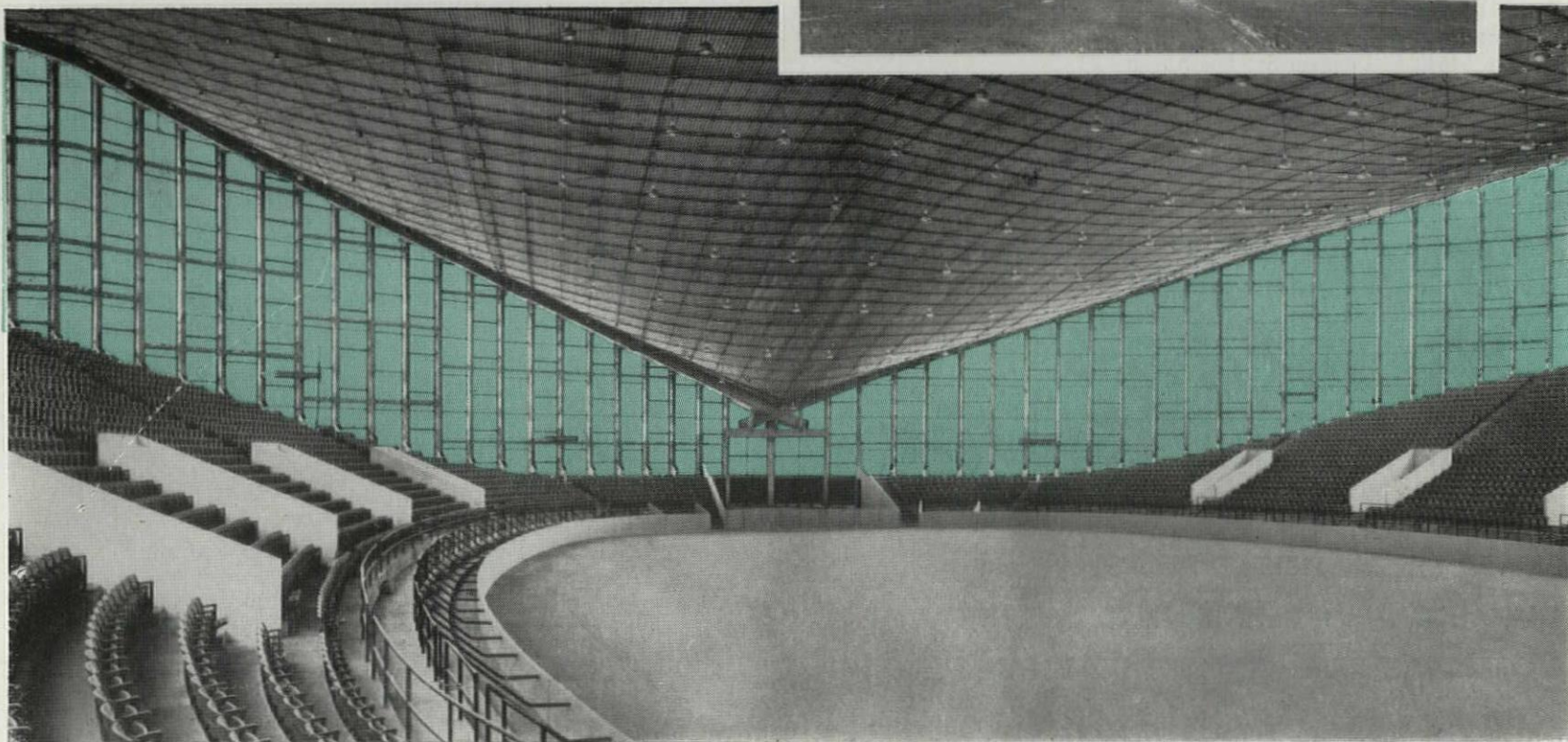
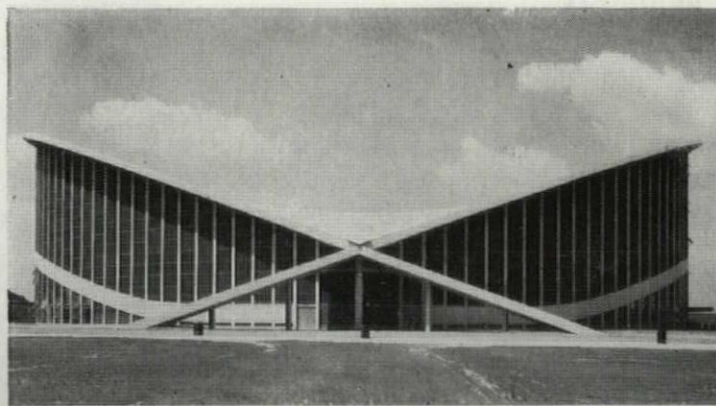
for complete details and specifications on General Chef 5-in-1. Other units without oven only 27½ inches wide — both gas and electric (either 110 V. or 220 V.).

GENERAL AIR CONDITIONING CORP. Dept. B-2, 4542 E. Dunham Street, Los Angeles 23, California

Please send me complete information and specifications on General Chef units, and name of nearest distributor.

NAME _____ OCCUPATION _____
STREET & NUMBER _____
CITY _____ ZONE _____ STATE _____

THE NORTH CAROLINA STATE FAIR ARENA, glazed with Blue Ridge Frosted Aklo Glass, has received wide acclaim for its architectural design. It was awarded the Gold Medal for Engineering by the Architectural League of New York, and First Honor Award by the American Institute of Architects. Wm. Henley Deitrick, architect; Matthew Nowicki, consultant; Severud-Elstad-Krueger, consulting engineer.



Spectators face the blinding sun ...in comfort!

The problem in this parabolic pavilion: to bring in daylight *all* the way around, but without blinding glare. The solution: filter the daylight through Blue Ridge Frosted Aklo® Glass.

Frosted Aklo Glass subdues distracting, irritating glare. It softens and diffuses direct sunlight and sky brightness, as well as the dazzling, reflected gleam of ice, snow and other bright surfaces. That's especially important to people who face large daylighted areas, as here.

Aklo's benefits for factories add up, too. People who work in Aklo daylight are more comfortable, happier, and can produce more. Frosted Aklo Glass makes it easier to work next to windows, giving a building more usable floor space.

HEAT-IN-MOTION TEST SHOWS AKLO'S BENEFITS!



Here's a test that gives you quick, conclusive understanding of the benefits that Aklo users enjoy. See HEAT IN MOTION right at your desk. Ask your L·O·F Distributor or Dealer for this radiometer demonstration. He's listed in phone book yellow pages in many cities. Or write directly to Patterned & Wire Glass Sales, Libbey-Owens-Ford Glass Company, B2824 Nicholas Building, Toledo 3, Ohio.

Ask for the booklet, "Filtered Daylight", too.

*®

**BLUE RIDGE
AKLO GLASS**



**FILTERS
DAYLIGHT**



NEW PRODUCTS—MOTELS

cu. ft. refrigerator, large sink and two-burner range. All its mechanical parts are located behind the front panel to make installation and upkeep easy. Its stainless steel top is another good maintenance feature since it can take abuse but will not show it. The Acme-National retails for about \$364. Both appliances are available for operation on gas, or 110-v. or 220-v. electricity.

Manufacturers: General Air Conditioning Corp., 4542 E. Dunham St., Los Angeles 23,

Acme-National



General Air Conditioning



Calif. Acme-National Refrigeration Co., Inc., 29-24 40th Ave., Long Island City, N.Y.

If it's CAST IRON It's FOREVER



SEWER LINES SHOULD BE AS DURABLE AND PERMANENT FOR PRIVATE HOMES AS FOR COMMERCIAL BUILDINGS

During a recent 6-year period, 78 per cent of all buildings over 19 stories high erected in the United States were equipped with Cast Iron soil pipe for plumbing drainage lines. Those who invest millions of dollars in great commercial buildings demand the durability, dependability and economy of Cast Iron—the pipe that lasts for centuries.

Home buyers should enjoy the advantages of Cast Iron Pipe, too. They want to avoid the risks of inconvenience and costly repairs of plumbing drainage failure. It is easy to do by using Cast Iron soil pipe in house construction for waste pipe lines and house sewers.

Substitutes are available at a lower price. But no home buyer wants substitute material when he realizes the "high cost of a low price." He wants Cast Iron—the pipe that lasts for centuries.

★ ★ ★ ★

Woodward Iron Company does not manufacture pipe, but we supply leading Cast Iron Pipe foundries with high grade foundry pig iron from which pipe is made.

WOODWARD IRON COMPANY
WOODWARD, ALABAMA



Above Left: Bouvier Apartments, Philadelphia, Pa.

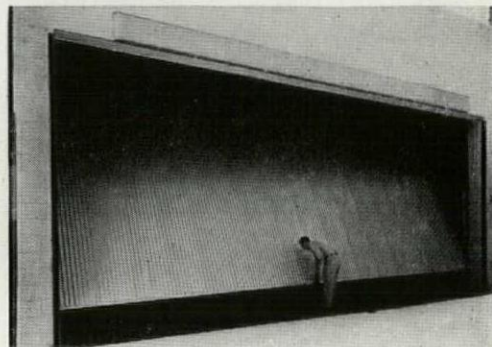
Above Right: Burt Building, Dallas, Texas.

Above: Industrial Trust Building, Providence, R. I.

Left: Tudor City—40th to 44th Streets—New York City.

ALUMINUM GARAGE DOOR spans 60' without posts or mullions

Borrowing its X-bracing system and riveting techniques from the aircraft industry, the *Alumi-Door* can span openings up to 60' wide without posts or mullions. Weighing only 1 lb. per sq. ft., the big units can be opened and shut manually whereas big doors of heavier materials usually require chain gear or motor



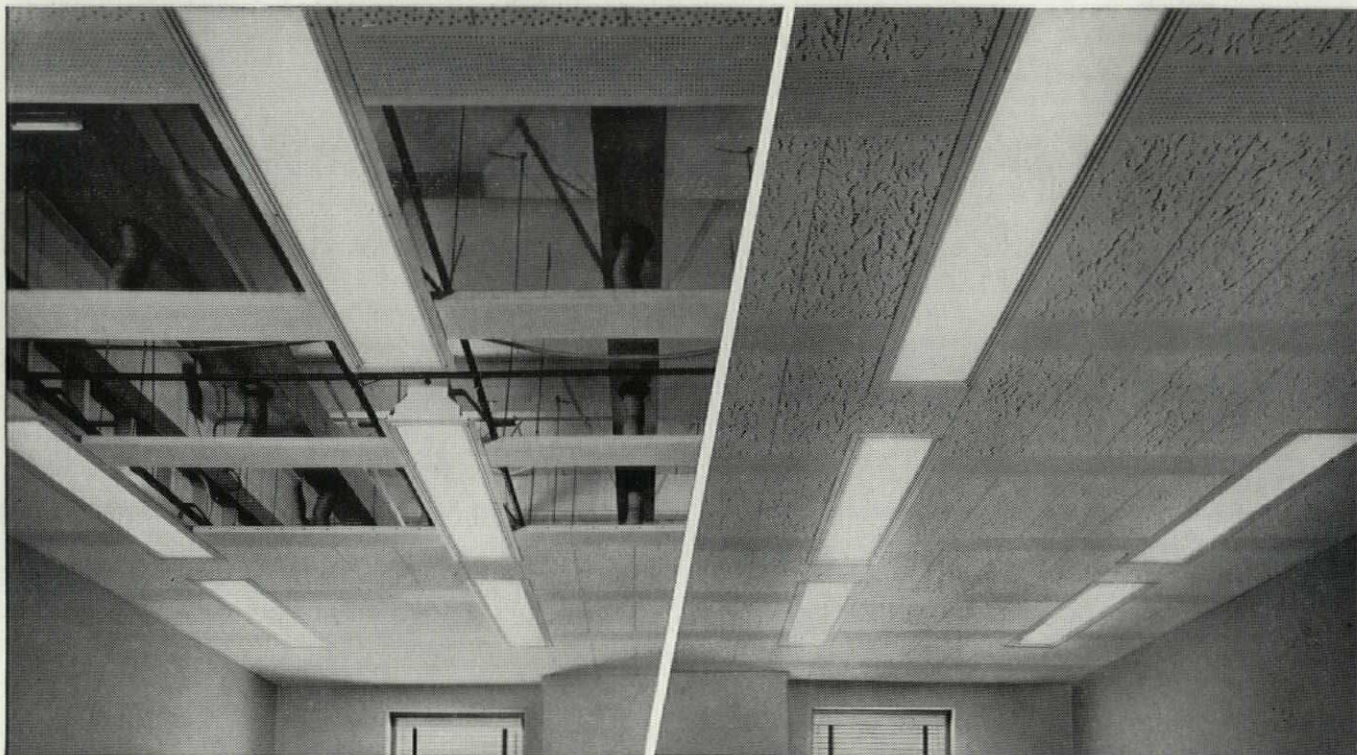
operation. Other advantages of the light weight: less wear on moving parts and fewer adjustments; also, no stresses are transmitted to the building. The unit can be obtained



with various operating mechanisms: full receding, roll-in; partial or full canopy, counter-weighted; split or full sliding. Without hardware and accessories, doors up to 20' wide cost about \$1.10 per sq. ft. F.O.B. Los Angeles; from 20' to 60' wide, \$2. Any competent construction mechanic can assemble the corrugated aluminum door from its knocked-down parts.

Manufacturer: Stevens-Thuet Co., 2165 Cowles St., Long Beach 13, Calif.

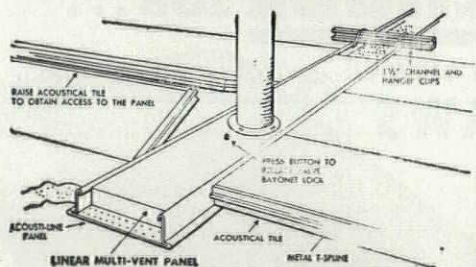
Technical Publications, p. 230



new! *Out-of-sight*

AIR DIFFUSERS for acoustical block ceilings!

Now Pyle-National Multi-Vent® air diffusing panels, adapted for concealed installation in Celotex Acousti-Line ceilings, provide advantages heretofore possible only with metal pan.



The perforated face of Acousti-Line metal suspension panels act as diffusing plates for Multi-Vent units. No special supports are needed. Flexible connection minimizes need for accurate alignment between duct opening and Acousti-Line panels.

Note ready access to Multi-Vent unit for cleaning or valve adjustment.

NEW SMUDGE-FREE OPERATION—Multi-Vent's low velocity air delivery eliminates the dirtying or discoloration of adjacent acoustical blocks, a costly maintenance problem with high velocity diffusion.

NEW BEAUTY—Out-of-sight installation eliminates all protruding outlets and unsightly grilles. Permits complete freedom of interior design and decoration.

NEW LOWER INSTALLATION COST—Multi-Vent units can be assembled, connected to the duct, and seated in the metal suspension panels in just a few seconds. No tools are required . . . no cutting of blocks necessary.

AND, MOST IMPORTANT OF ALL—Air distribution by Multi-Vent's gentle pressure displacement assures perfectly even air motion and exceptional uniformity and control of room temperatures. The total absence of strong air streams or blow eliminates all usual sources of draft complaints and permits complete freedom in relocating partitions.

For complete information about Multi-Vent installations for all types of ceilings consult the Pyle-National Sales Engineer in your vicinity, or write direct.

MULTI-VENT DIVISION

Sales and Engineering Representatives in Principal Cities of United States and Canada

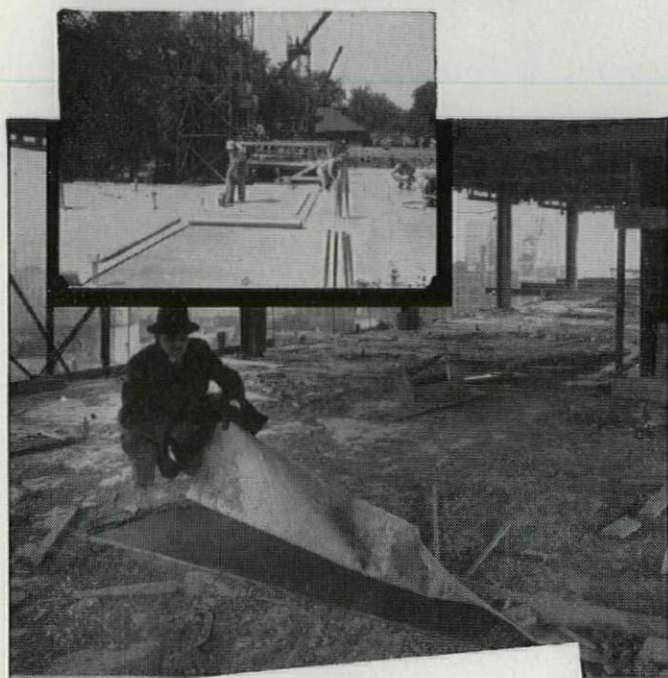
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—ON THOUSANDS OF JOBS!**

Sisalkraft can be applied fast, requires no special equipment, is low in cost—and produces absolutely the best results! At the same time, rugged, waterproof Sisalkraft protects floors from debris, construction stains, and marring.

And use Sisalkraft over fill to waterproof slabs on ground.

Available in rolls 3 to 8 feet wide and blankets in any width up to 26½ feet.

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Manhasset Public Library, Manhasset, Long Island. Extrud-A-Line Alumilited Aluminum was used. Architects: Gibbons and Heidtmann. Installed by Central Metal Store Front Co., Jamaica, N. Y.

ALUMILINE

EXTRUDED ALUMILITED ALUMINUM PRODUCTS

Specified by Leading Architects for:

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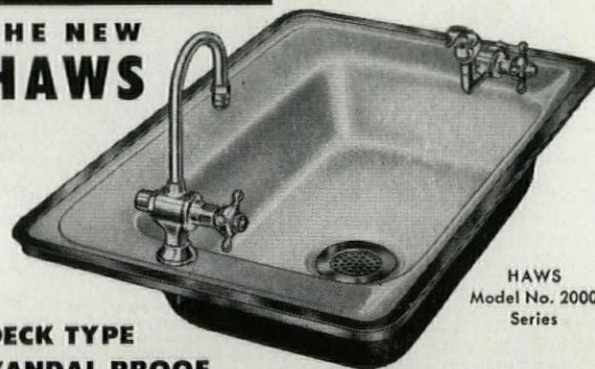
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DUNNELL LANE PAWTUCKET, R. I.

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ON EVERY SCHOOL JOB...

**THE NEW
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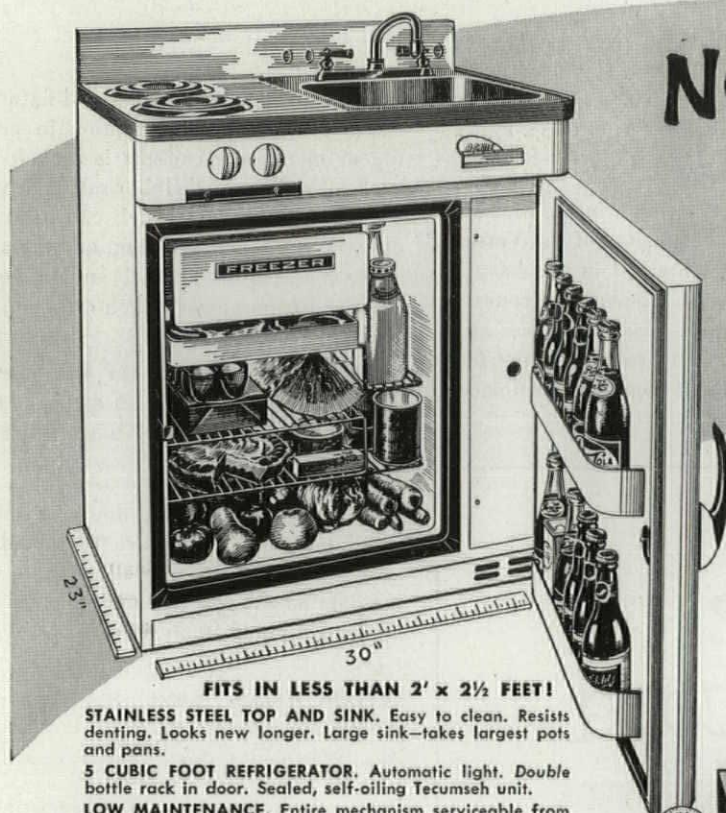
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DRINKING FOUNTAIN can be installed with practically any combination of HAWS Fixtures...Pantry Faucets...bubbler type Drinking Faucets...Fill Glass Faucets or HAWS Emergency Eye Wash Fountain! The ideal deck type drinking fountain for all school classroom and laboratory requirements. Adaptable for industry, too! Finished in acid resisting white enamel with stainless steel mounting rim.

• **WRITE TODAY** for brochure showing versatile applications and details!

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STAINLESS STEEL TOP AND SINK. Easy to clean. Resists denting. Looks new longer. Large sink—takes largest pots and pans.

5 CUBIC FOOT REFRIGERATOR. Automatic light. Double bottle rack in door. Sealed, self-oiling Tecumseh unit.

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RANGE. Available for use with natural, manufactured or bottled (LP) gases, or with electric burners for 220V. or 110V. "plug-in" use.

**NOW! The SMALLEST
Complete KITCHEN
in the WORLD
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COMPARE BEFORE YOU BUY!

When you want value, compare before you buy. Feature for feature you will find that ACME Kitchenettes give you more for your money. There's quality construction in ACME Kitchenettes that means years of satisfactory performance.

GUARANTEED FOR 5 YEARS!

All Acme Kitchenettes are guaranteed to give 5 years trouble-free service.

COMPLETE INFORMATION AND SPECIFICATIONS to assist in building, designing or remodeling plans to show you how you can save space and money.

ACME Space-Master

"THREE-IN-ONE" PACKAGED KITCHEN

ACME-NATIONAL REFRIGERATION CO., INC., 29-24 40th Ave., Long Island City 1, N.Y.

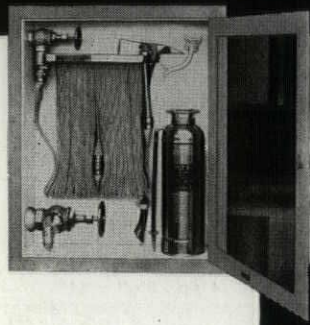
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CHICAGO 6 • NEW YORK 7
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HOLLOW CORE • SOLID CORE
FLUSH DOORS

GENERAL PLYWOOD CORP. • LOUISVILLE • 12 • KY.



LIGHTING. Kurt Versen Contemporary Lighting. Kurt Versen Co., Englewood, N.J. 60 pp. 8½" x 11"

Illuminating engineering data, installation information and excellent photos of the Versen lighting fixtures are contained in this beautifully arranged catalogue. Economical concentric ring ceiling lights, elegant globes and functional wall brackets are among the fixtures designed for institutional and commercial use.

A new line of recessed fixtures especially planned for installation in acoustical tile or metal pan ceilings is included in the book as well as such labor-saving features as a built-in splice box which can be connected directly to the house wiring, and the assembly of the recessed units which enable them to be relamped from above or below a hung ceiling.

ROOFING AND SIDING. Alcoa Aluminum Corrugated Industrial Roofing and Siding. Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa. 16 pp. 8½" x 11"

Explicit instructions for applying the corrugated roof and siding are presented in this attractive brochure, as well as some convincing data on the cost and maintenance features of the aluminum materials.

CURTAIN WALLS. GBW. Honeycombs. GBW Honeycomb Wall of Canada Ltd., 330 Victoria Ave., Westmount, Que., Canada. 6 pp. 8½" x 11"

Stressed-skin panels with incombustible paper honeycomb cores are described for roof decks, flooring, spandrels and removable partitions.

WINDOW MAINTENANCE. Longer Life for Metal Windows through Proper Care and Maintenance. Steel Sash Service, Inc., Dept. F-1, Chicago 25, Ill. 4 pp. 8½" x 11"

STOKERS. Detroit Rotostoker, Type C-C, Continuous Cleaning. Detroit Stoker Co., General Motors Bldg., Detroit, Mich. 14 pp. 8½" x 11"

CORROSIONPROOF DUCTWORK. Ampcoflex Rigid Polyvinyl Chloride Duct and Exhaust Systems, Bul. No. 9-1. 16 pp. 8½" x 11"

WATER HEATERS. Ruud Performance Rated Automatic Gas Water Heaters and Heating Boilers. Ruud Manufacturing Co., Pittsburgh 1, Pa. 40 pp. 8½" x 11"

OIL BURNERS. Preferred Heavy-Oil Burners, Belt Driven Horizontal Rotary Type, Bul. No. 175-G. Preferred Utilities Mfg. Corp., 1860 Broadway, New York 23, N.Y. 8 pp. 8½" x 11"

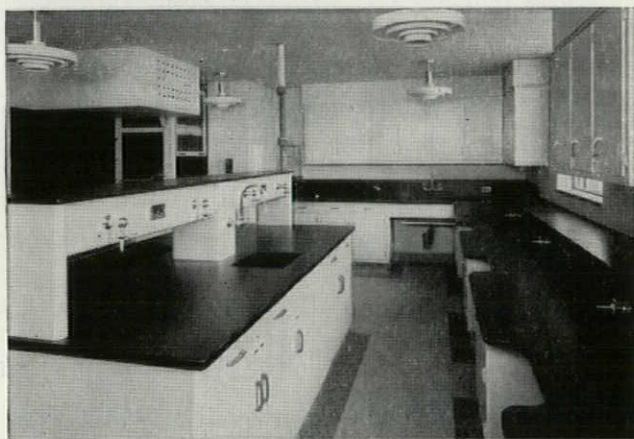
STEEL STUDS AND JOISTS. Lightsteel Structural Sections. Penn Metal Co., Inc., 205 E. 42 St., New York 17, N.Y. 12 pp. 8½" x 11"

PARTITION CONSTRUCTION. Metal Stud Non-Bearing Hollow Partitions, Technical Bul. No. 7. Metal Lath Manufacturers Assn., Engineers Bldg., Cleveland 14, Ohio. 4 pp. 8½" x 11"

HEATING. Kewanee Boilers for Heating, Power, and Process Steam, Catalogue 80. Kewanee-Ross Corp., Kewanee, Ill. 32 pp. 8½" x 11"

continued on p. 234

YOU TAKE THE *First* STEP WE'LL TAKE THE *Second*



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You send us your Hospital or Laboratory Floor Plans.

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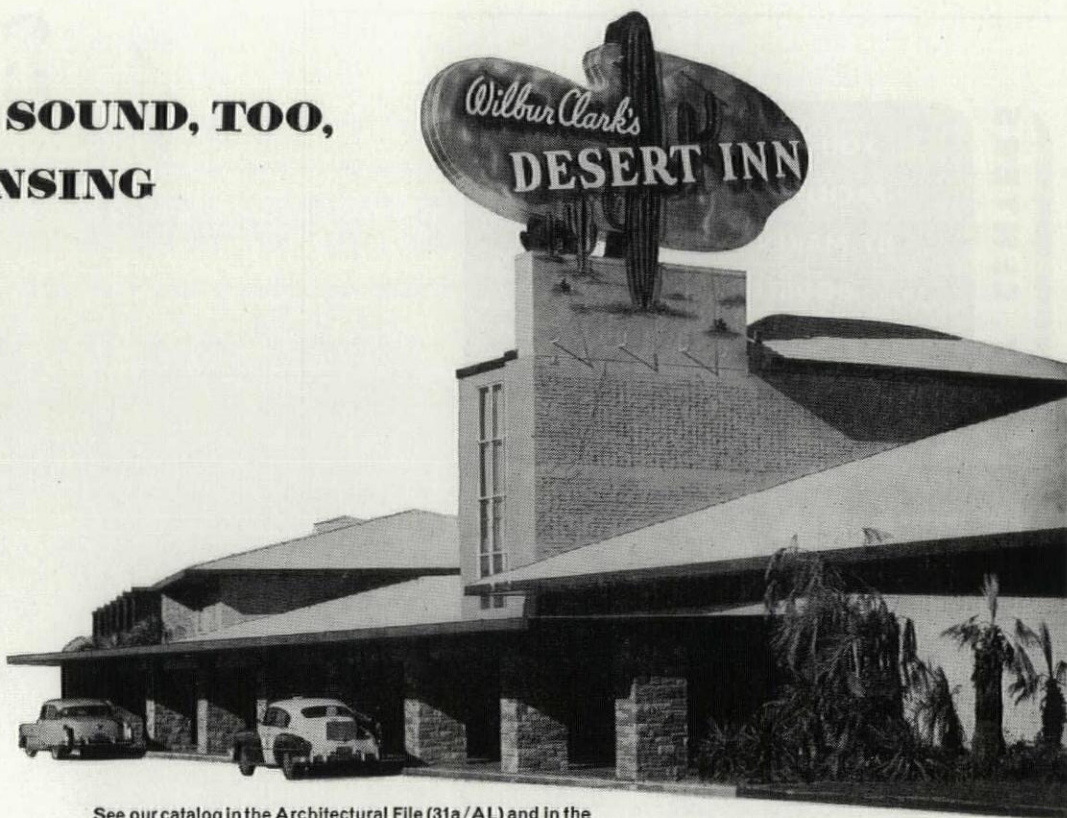


Wall Sink No. 210

THE ULTIMATE IN SOUND, TOO, BY ALTEC LANSING

One of the most beautiful resort hotels in the world, Wilbur Clark's Desert Inn in Las Vegas, Nevada, enjoys an enviable reputation for the ultimate in modern decor, fine food, and outstanding entertainment. The Desert Inn boasts the finest in sound, too, with Altec Lansing products playing a key role on the public address system.

Many other great American hotels use Altec Lansing equipment. The Blue Book of satisfied Altec Lansing customers lists many of the country's newest and finest department stores, schools, public buildings, and other structures where public address systems are used. The reason for this decided preference is **QUALITY**. Altec Lansing products are quality-engineered, quality-built.



See our catalog in the Architectural File (31a/AL) and in the Industrial Construction File (12j/AL) of Sweet's Catalog.



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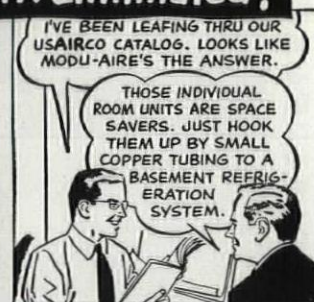
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Please send literature on Backwater Control

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Costly Ductwork Eliminated!



The Hamilton Hotel of Laredo, Texas installed Modu-aire, usAIRco's individual conditioning units of fan and coil design, in free standing cabinets. Three Freon-12 type compressors in the basement provide cooling to two water chillers when summer cooling is required. An instantaneous "flash" heater of shell and tube

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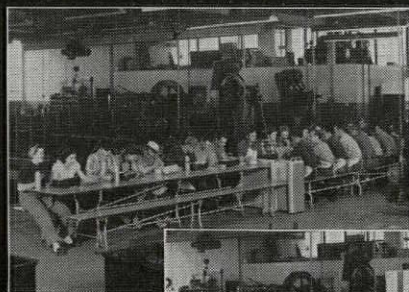
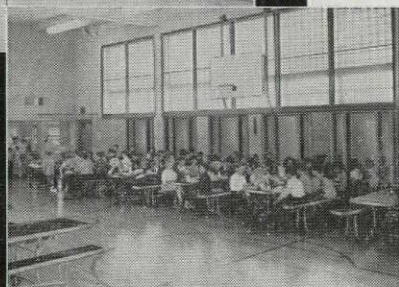
usAIRco

UNITED STATES AIR CONDITIONING CORP.
MINNEAPOLIS 14, MINNESOTA
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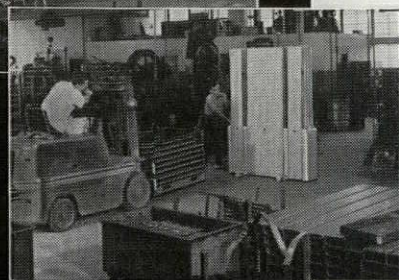
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FACILITIES AT LESS COST
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DOUBLE DUTY WITH
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area and
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Eliminate
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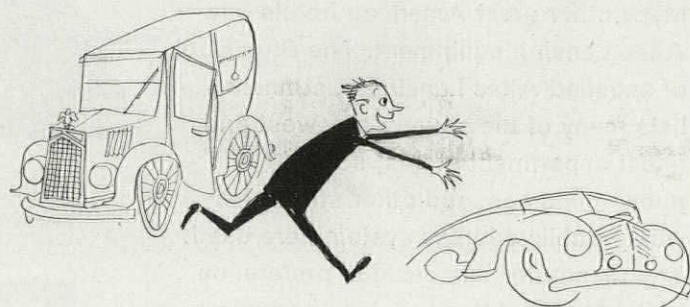
Schieber now builds 3 sturdy models—two that fold and roll into the wall and a mobile unit. Thousands of installations attest to the practicability of this equipment. Let us advise where you can observe it in use. Representatives in all areas.

Consult Sweet's or write for catalogs.

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... AND WHAT'S THE BIG CHANGE IN HOUSES

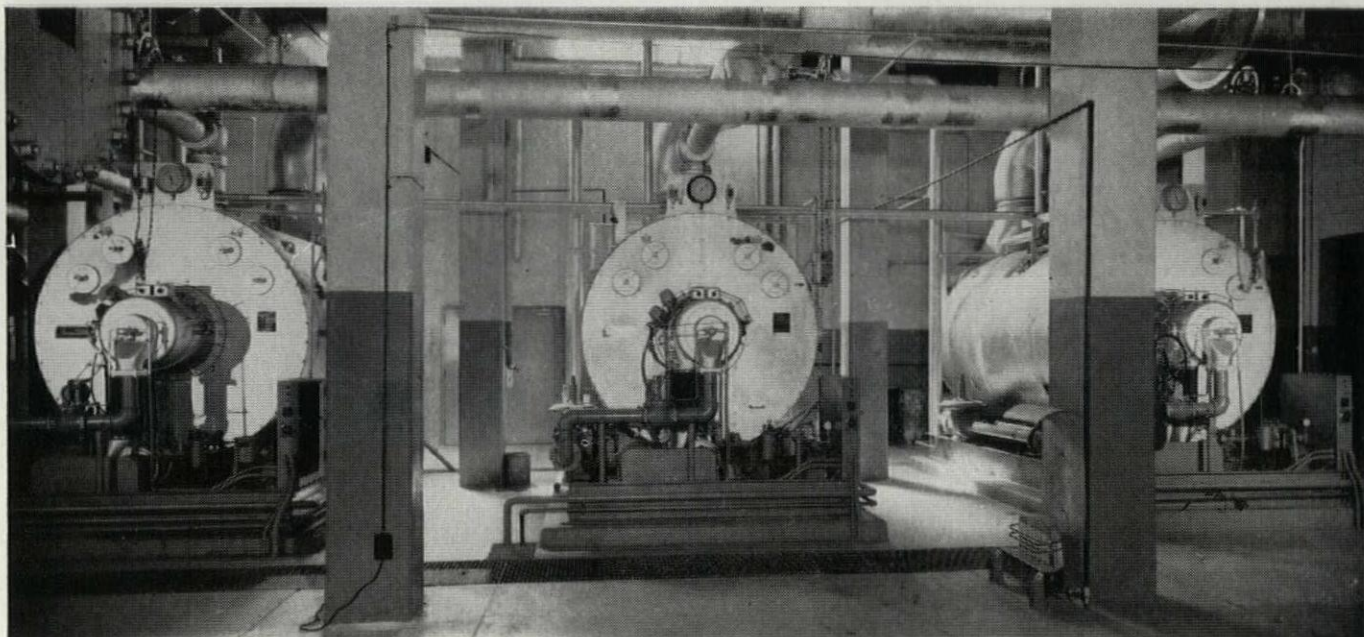
Once again, America is demanding—and getting a new and improved product! Home buyers are losing their zest for cozy Cape Cod antiquity . . . that postwar ranch house is losing its low-slung appeal . . . yesterday's big picture window somehow looks like just another hole in the wall . . . last year's floor plan has too many kinks for convenience.

To see what home hunters want in '54 . . . to see what they're getting and what they ought to be getting—mail the subscription form bound in this issue which brings you

house+home

540 North Michigan Avenue, Chicago 11, Illinois

IN ALL TYPES OF BUILDINGS



This installation was made by Continental Engineers, Inc., mechanical contractors, of Atlanta. Gas is supplied by Atlanta Gas Light Company.

Powermaster® Efficiency Pays Off

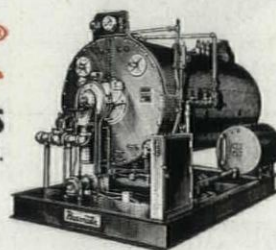


apartments in Howell House at Atlanta, Ga.

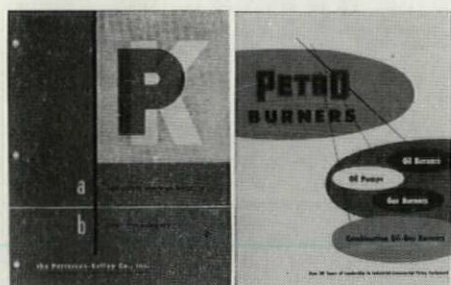
For example: Only \$1.15 per month per apartment average fuel costs the year around for Heating, Hot Water and Air Conditioning for 535 apartments in Howell House at Atlanta, Ga. These services in this new modern building are supplied by three *Powermaster* Packaged Automatic Boilers at this amazingly low cost for gas and oil fuel. Providing year-round services with the boilers result in maximum operating economy. Yet fuel saving is only one reason *Powermaster* is so popular with those who select, install and operate boilers for all types of buildings—offices, hotels, institutions, churches,

housing projects, etc. Cost-saving installation, space-saving compactness, fast steaming, hospital-clean operation, dependability, maintenance-saving accessibility, fully automatic operating and safety controls, and smokeless combustion are others. Compare *Powermaster* with any other packaged automatic boiler and you'll see why it is today's best buy for schools, industrial plants, laundries, and other requirements as well as for all types of buildings. Send for latest descriptive bulletin.

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PACKAGED AUTOMATIC BOILERS
In sizes to 500 HP; pressures to 250 psi.



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WATER HEATERS. PK Hot Water Storage Heaters Heat Exchangers. Patterson-Kelley Co., Inc., Warren St., E. Stroudsburg, Pa. 16 pp. 8½" x 11"

HEAT AND POWER. Petro Burners Oil Burners, Oil Pumps, Gas Burners, Combination Oil-Gas Burners, Form 3048. Petro, 3170 W. 106th St., Cleveland 11, Ohio. 20 pp. 8½" x 11"

HEATING. usAIRco Gas Fired Unit Heaters. Booklet No. 23-3. US Air Conditioning Corp., 33rd and Como Aves., S. E., Minneapolis 14, Minn. 12 pp. 8½" x 11"

GALVANIZING COMPOUND. Galvicon, a Process of Cold Galvanization by Brush, Spray or Dip Method, Pamphlet No. 652. Chemical Div., Galvicon Corp., 40 W. 29 St., New York 1, N.Y. 6" x 8½"

TOOLS. Machine and Tool Accessories, Catalogue No. 52. George F. Bub & Son, 7413 Lanier Dr., Cleveland 30, Ohio. 14 pp. 8½" x 11"

SUN CONTROL. Troy Awnings, Canopies. The Troy Sunshade Co., Troy, Ohio. 8 pp. 9½" x 12"

HEATING AND REFRIGERATION COILS. Blast Heat Coils, Bul. No. 65C. Steam Distributing Coils, Bul. No. 66C. Water Coils, Bul. No. 67C. Direct Expansion Coils, Bul. No. 69C. US Air Conditioning Corp., 33rd and Como Aves., S. E., Minneapolis 14, Minn.

HOSPITAL EQUIPMENT. Cyclo-flush, Aero-flush—Positive Decontamination for Bedpans, Urinals, Catalogue C-151. American Sterilizer, Erie 6, Pa. 8 pp. 8½" x 11"

CONCRETE FORMS. Uni-Form Panels, the Modern Way to Form Concrete. Universal Form Clamp Co., 1238 N. Kostner Ave., Chicago 51, Ill. 30 pp. 8½" x 11"

ESCALATORS. General Application Layout Data Installation Requirements, No. A-400. Otis Elevator Co., 260 Eleventh Ave., New York 1, N.Y. 16 pp. 8½" x 11"

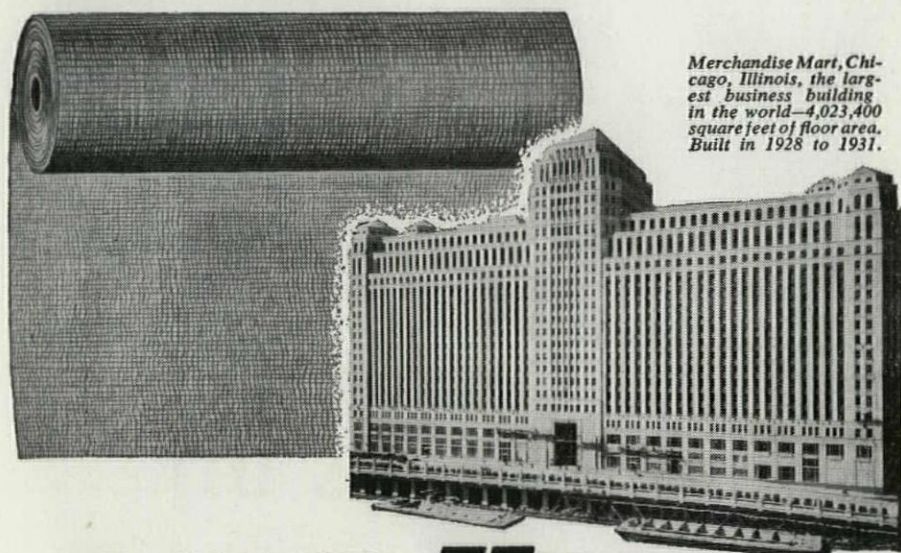
PATTERNED METAL SHEETING. Rigid-tex Metals Rigidized Metals Corp., 658 Ohio St., Buffalo 3, N.Y. 6 pp. 4" x 8"

ELEVATORS. Elevator Modernization—Investment in Earning Power. Otis Elevator Co., 260 Eleventh Ave., New York 1, N.Y. 23 pp. 8½" x 11"

LIGHTING. RLM Standard Specifications for Industrial Lighting Units. RLM Standards Institute, Inc., 326 W. Madison St., Chicago 6, Ill. 52 pp. 8½" x 11"

ALUMINUM. Aluminum Roll Formed Shapes by Reynolds. Reynolds Aluminum Fabricating Service, 2001 S. Ninth St., Louisville 1, Ky. 8 pp. 8½" x 11"

PIPE INSULATION. Gilsulate—the Triple-Zone Insulation. American Gilsolite Co., 134 W. Broadway, Salt Lake City 1, Utah. 4 pp. 8½" x 11"



Merchandise Mart, Chicago, Illinois, the largest business building in the world—4,023,400 square feet of floor area. Built in 1928 to 1931.

CHICAGO'S FAMOUS
MERCHANDISE MART
CALLED FOR

Karnak
WATERPROOFING PRODUCTS

Twenty-five years ago, the problem of protecting the foundation of the "Mart" from hydrostatic head was answered with Karnak. Even though the big Chicago River flows beside it, this Karnak job holds secure.

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

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

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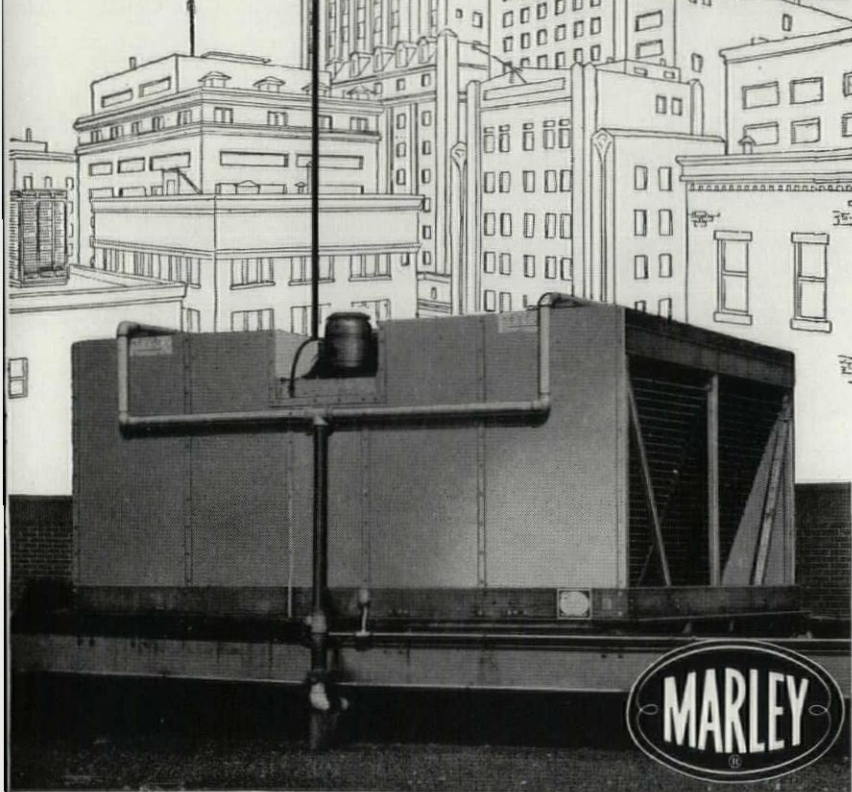
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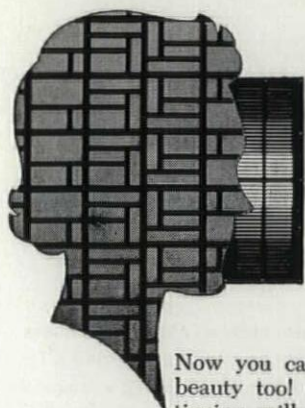
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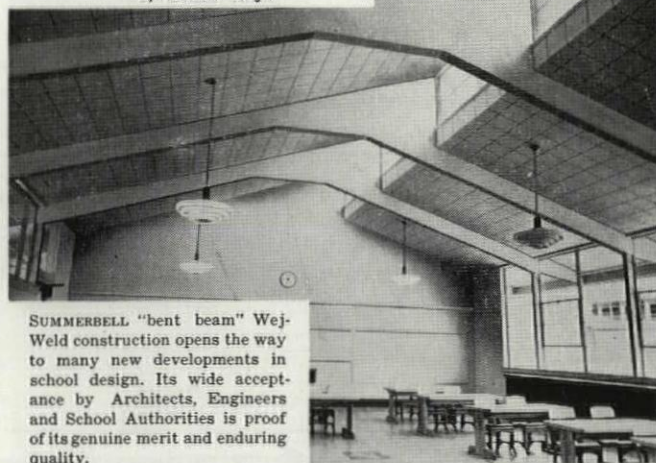


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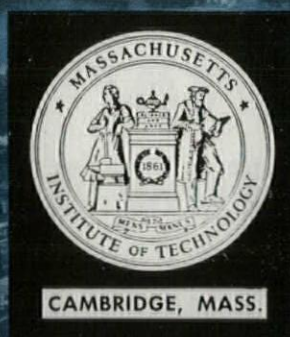
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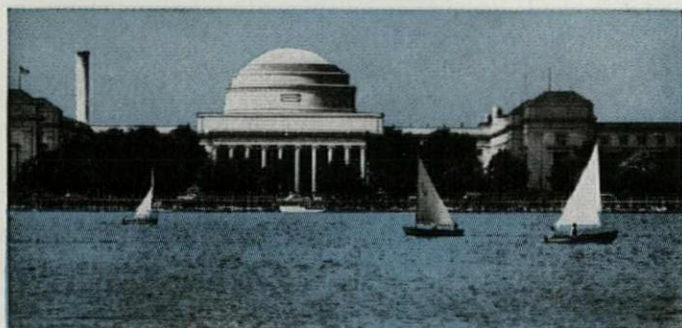
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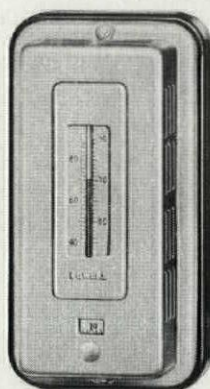
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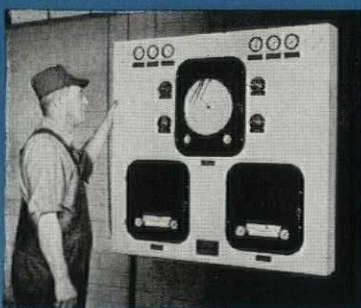
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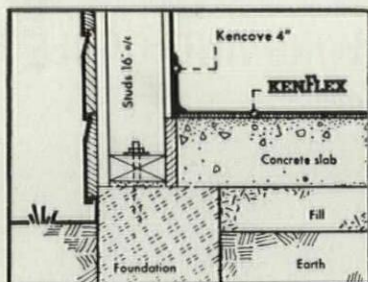
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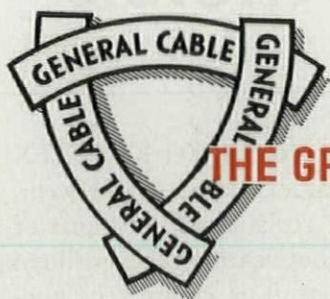


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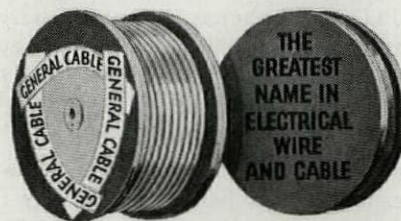
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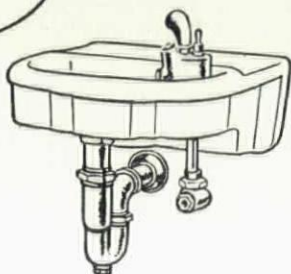
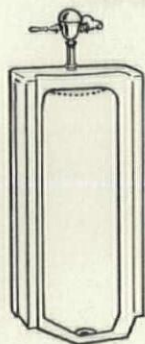
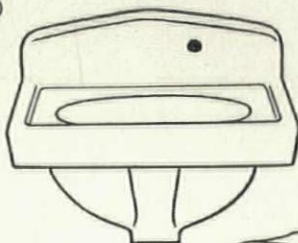
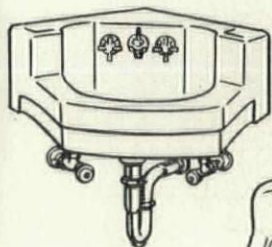
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