architectural forum

January 1952

Apartments — high vs. low  18 pages of divergent ideas and opposite examples (p. 100)
Baby skyscraper  What air conditioning and modern lighting have done to office building economics (p. 121)
Community hospital  Some new ideas on quality and economy (p. 126)
Engineering  Steel frame does double duty as air conditioning ducts; saving steel with prestressed concrete or continuous welding; sprayed plastic for low cost waterproofing and durable surfacing (p. 130)
Suburban store  Neiman-Marcus combines luxury and informality (below and p. 136)
Three schools  New ways to control daylighting and ventilation (p. 144)
Low cost factories  Wartime Quonset adapted to 1952 industrial expansion (p. 154)
softly-shaded and functionally correct . . .

the new, beautiful Suntile colors

increase the efficiency of any HOSPITAL INTERIOR!

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

Can color help hospital interiors fulfill their functions better?
Color authorities say “yes.”
There’s a right color—a most suitable, most beneficial color—for surgeries, wardrooms, corridors, and cafeterias . . .
The right color can relieve eye strain of doctors—impair visual and emotional benefits—provide a restful and cheerful environment for both patients and staff.

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

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


Suntile SEA GREEN, LIGHT SEA GREEN
Recommended for hospital surgery

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

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millions
of homes
secured by
kwikset
LOCKSETS
kwikset
sales and service company
anaheim, california
Saved: $144 PER CU. YD. OF CONCRETE

92 Floors and Roof Slabs Concreted in 98 Working Days

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

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

Well-engineered forms, designed in the office and built to closest tolerances, were a key factor in streamlined efficiency—erection speed equal to or exceeding that of any other type of frame erection.

First floor poured June 19, 1950; last roof slab of twelfth building on November 1, 1950. 80 floors and 12 roof slabs, 15,000 cu. yds. of concrete, in 98 working days—completed before cold weather!

Dependable "Incor" early stripping strength kept the job on rapid schedule, saved over 60 days. Result, $1.44 NET saving per cu. yd., over and above the 73c a yard extra cost of "Incor". Cold-weather saving was another big plus.

"Incor" economy knows no season. Right around the calendar, "Incor" promotes smooth-running, time-saving efficiency on which today's close-margin profits depend. Send for illustrated booklet, "Cutting Concrete Costs"—write Lone Star Cement Corporation, 100 Park Avenue, New York 17.


NEW YORK CITY HOUSING AUTHORITY
ASTORIA HOUSES—SECTION TWO
(12 Buildings), Astoria, Queens, New York City

Architects: HARRISON, ABRAMOVITZ & WIGGINS, New York
Engineers: SEELY STEVENSON & VALUE, New York

Ready-Mix "Incor" Concrete: COLONIAL SAND & STONE CO., INC., New York

General Contractors: WILLCOX CONSTRUCTION COMPANY, Inc.
MAURICE L. BEIN, Inc. NATHAN FISH, Inc.
JAMES McHUGH SONS, Inc., Long Island City

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architectural forum

JANUARY 1952

NEWS

LETTERS

GERMAN BUILDING TECHNIQUES

Some are worth importing—A report from Frankfurt.

EDITORIAL

HIGH VS. LOW APARTMENTS

A portfolio of opposing ideas and buildings: People should live near the ground, says Elizabeth Wood of the Chicago Housing Authority (p. 103). . . . City people must live in the air, says Editorial Chairman Doug Haskell (p. 103) . . . . In Chicago, the open gallery is the dominant solution to the problem (p. 104) . . . . In Greenwich, Conn., ingenious walk-ups (p. 107) . . . . In Philadelphia, an algebraic solution to the problem of giving apartments in a "thick" building through ventilation (p. 108) . . . . In Boston, subtle skipstep design (p. 109) . . . . in St. Louis, the answer is balconies (p. 110) . . . . In last year's NAHB-FORUM House Design Competition: an entry that broke the rules (p. 111) . . . . New highrise project that takes the open gallery into the apartments (p. 112) . . . . In Wellesley, Mass., an architect exploits the advantages of row housing (p. 115).

LOBBY OF LIGHT

Real Estate Tycoon William Zeckendorf puts an old Manhattan building back in competition, installs a colorful lobby to attract attention and tenants.

OFFICE BUILDING

New York's newest baby skyscraper, the Sinclair Building next door to Rockefeller Center, uses air conditioning and high-intensity lighting to render its deep office space useful, a handsome side-street entry to make rooms for attractive commercial space on the ground floor. Architects: Carson & Lundin.

HOSPITAL

Community hospital of the year in Flemington, N. J. combines all rural health services in an outstanding building of inviting design, compact plan and economical construction. Architects: Vincent K. Riling; William W. Eshbach, Associates.

BUILDING REPORTER

Technical reports on newsworthy engineering developments in various new buildings: hollow columns and beams do double duty as library air conditioning ducts; 60' prestressed concrete beams of new design produce 65% saving of steel; the Navy's moshballing "cocoon" is finding a wide range of uses as a surfacing material for buildings; precast concrete joists hold warehouse costs to $4 per sq. ft.; the U. N. Secretariat's leaky windows are made watertight; continuous welded steel frame saves metal, reduces girdler depth, simplifies assembly.

STATION WAGON STORE

Neiman-Marcus' new department store in suburban Dallas is designed to attract sophisticated customers and persuade them to buy. The means: light, color and an unusual use of space. Architects: DeWitt & Swank. Designer: Eleanor Le Maire.

THREE SCHOOLS

New ways to give children space, light and air developed by William Caudill at the Texas Engineering Experiment Station are demonstrated in three new schools for the Southwest. Architects: Caudill, Rowlett, Scott and Philip A. Wilber.

SCHOOLROOM VENTILATION

Wind tunnel tests reveal the effect of exterior sunshade design on the ventilation of schoolrooms whose exterior walls combine glass block with vision strip.

INDUSTRIAL QUONSETS

Modification of the last war's arched rib steel hut adapts it to today's need for the quick, economical expansion of factories.

IS HOUSING INFLATIONARY?

Economist Miles Colean details his negative answer to a timely and controversial question.

REVIEWS

PRODUCT NEWS

TECHNICAL PUBLICATIONS

Cover: Neiman-Marcus department store; photo by Ezra Stoller—Fischer
Never have cost comparisons been so favorable to this permanently beautiful wall material

Today's dollars invested in walls of Roddiscraft Hardwood Plywood yield a substantial return—enduring beauty and value—service that often outlives the building—walls requiring the least in maintenance man-hours to keep always attractive.

Ask to see the Roddiscraft Veneer Sample Book . . . 51 different veneers from Ash to Zebrawood. Available on loan from your nearest Roddiscraft warehouse whenever you need it for client consultation.

Roddiscraft Plywood is manufactured from the best veneers. It is available in a wide variety of native and foreign hardwoods—fabricated to exacting standards by expert workmen who take pride in an established tradition of craftsmanship.

NATIONWIDE Roddiscraft WAREHOUSE SERVICE
Cambridge, Mass. • Charlotte, N. C. • Chicago, Ill. • Cincinnati, Ohio • Dallas, Texas • Detroit, Michigan • Houston, Texas • Kansas City, Kan. • New Hyde Park, L. I., N. Y. • Las Angeles, Calif. • Louisville, Ky. • Marshfield, Wis. • Milwaukee, Wis. • New York, N. Y. • Port Newark, N. J. • Philadelphia, Pa. • St. Louis, Mo. • San Antonio, Texas • San Francisco, Calif.
please send for your samples

of our new Texture
SEAPORCEL ENAMEL

Leathorcel*  
(simulated leather)  
Available in Any Color or Shade  
(excepting the Metallics)


FOR THE FIRST TIME! Porcelain enamel architectural parts with a textured finish, so soft, so leather-like in appearance and "feel", it opens even wider vistas for architectural inspiration and application.

LEATHORCEL, like other Seaporcel Ceramic Finishes, is fused to steel at 1550°F and can be fabricated to any shape, form or section.

Another Seaporcel First!  
Flush Type Handrails  

Streamlined appearance * No maintenance * Permanent fused-in porcelain coating in any color * Concealed fastening * Prefit with simplified connection * Rigid * For speed and ease of assembly * No crevices for dirt accumulation * No costly welding on job * Vermin proof

Detailed information upon request.

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METHODIST HOSPITAL
NURSES' HOME

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

---

FREIGHT—Oildraulic operation makes it practical and economical to design Rotary Elevators to carry loads up to 80,000 lbs. Power is applied directly to the load; there is no lost motion. The car will not move downward as heavy loads are rolled in, because the elevator is supported on a solid column of oil. Rotary Elevator cars have extra-rugged construction essential for tough, rough freight service and power truck loading.

PASSENGER—The velvet-smooth fluid operation of the Oildraulic system is ideal for passenger elevator service. Gentle starts, cushioned stops and accurate landings please users. Rotary Passenger Elevators are furnished with any desired type of cabs, doors and controls.

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Doors left open for photograph to show platform and jack.
for modern 2,3 and 4-story buildings

Smooth, dependable elevator service at minimum cost

A tremendous advantage of the Rotary Oildraulic Elevator is that the car and its load are supported by the hydraulic system—not by the building structure. This permits a substantial lightening of the shaftway structure. There's no need for heavy, load-bearing sidewalls, supporting columns and footings ordinarily required to carry the overhead machinery, the car, and the load.

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Rota-Flow power system gives smooth, quiet, low-cost service

A revolutionary oil hydraulic power system moves Rotary Oildraulic Elevators on a smooth, continuous column of oil. Combined with the efficient Rota-Flow power unit to give perfect operation is the Oildraulic Controller, a remarkable device that handles the functions of seven separate control valves... simplifies adjustments and maintenance.

Smooth starts and stops are a feature of Rotary Elevators. Oildraulic automatic floor leveling positions the car to each landing with exactness... 1/16" accuracy guaranteed!

Write for complete data

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Engineered and built by Rotary, the world's oldest and largest maker of oil hydraulic elevators.

SEE OUR CATALOG IN SWEET'S FILES
**Smart Decision!**

### Air Conditioning Coils

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER COIL</td>
<td>For Cooling and Heating, 1 to 10 rows deep.</td>
</tr>
<tr>
<td>CLEANABLE TUBE WATER COIL</td>
<td>Removable Plug Type, 1 to 10 rows deep.</td>
</tr>
<tr>
<td>DIRECT EXPANSION COIL</td>
<td>For Cooling, 1 to 8 rows deep.</td>
</tr>
</tbody>
</table>

### Air Conditioning Units

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEASONMAKER—(FLOOR)</td>
<td>Also available in basic or ceiling types, 3 sizes 200 cfm, 400 cfm and 600 cfm.</td>
</tr>
<tr>
<td>&quot;RH&quot; AIR CONDITIONER</td>
<td>2 to 10 Ton Models—For use with hot or cold water, steam or direct expansion in small commercial applications</td>
</tr>
<tr>
<td>(SUSPENDED MODEL) AIR CONDITIONER</td>
<td>Type &quot;A&quot; Central Station Air Conditioners for large industrial and commercial applications.</td>
</tr>
</tbody>
</table>

### Unit Heaters

<table>
<thead>
<tr>
<th>Type</th>
<th>Nominal Capacity Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORIZONTAL UNIT HEATER</td>
<td>20,300 to 360,000 Btu's.</td>
</tr>
<tr>
<td>DOWN FLOW UNIT HEATER</td>
<td>25,400 to 500,000 Btu's.</td>
</tr>
<tr>
<td>BLOWER TYPE UNIT HEATER</td>
<td>20,600 to 1,600,000 Btu's.</td>
</tr>
</tbody>
</table>
TO INSURE CUSTOMER SATISFACTION

Proved and Preferred!
You, and your customers too, are money ahead when you specify McQuay... because McQuay products are proved and preferred—for their efficiency, economy of operation, and the way they stand up under long hard use.

Join the growing list of architects, engineers and contractors who depend upon McQuay to satisfy all of their heating and air conditioning requirements. Quality and price comparisons will convince you that it pays to specify from McQuay's complete line—pays in profits from the job and in customer satisfaction.

NEW RIPPLE-FIN COIL CONSTRUCTION
Only McQuay gives you Ripple-Fin surface—the product of years of research aimed at producing the ultimate in heat transfer for any weight of metal. High efficiency is assured by forcing the air to follow an ever-changing direction of flow in passing through the coil. Thus air repeatedly contacts coil surface to give maximum contact time, maximum contact velocity, and a resultant optimum heat transfer.

With this advance in design, McQuay retains the staggered tube and the McQuay rippled edge features so well known in the industry, and which contribute greatly to higher heat transfer, construction ruggedness, and eye appeal.

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HEATING AIR CONDITIONING REFRIGERATION
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- in concrete walls and floors below grade (AS-1)?
- in block walls and concrete floors below grade on exterior surfaces (AS-3)?
- in masonry block walls below grade on interior surfaces (AS-4)?
- in brick and stone mortar (AS-5)?
- in concrete floors for industrial use (AS-2)?
- in all exterior stucco finishes (AS-6)?
- in masonry paint on masonry surfaces (AS-7)?
- in restoring existing concrete (AS-8)?

We invite you to write for Specification Data Sheets designed to meet any or all of the above conditions. We offer products and methods which have effected quick, economical and lasting results—on many different types of applications—over a period of years. (Obviously, we do not guarantee results—site unseen.) Let us send you—without obligation—as many of these Specification Data Sheets as apply to your current problems. If they prove interesting, we invite the opportunity to present applicable case histories and to work with you on your current problems.

NOVA SALES Co. TRENTON 3, N. J.

A wholly owned subsidiary of Homasote Company—manufacturers of the oldest and strongest insulating-building board; wood-textured and striated panels; 1/4" underlayment for 1/4" linoleum and wall-to-wall carpeting.

Another group of NOVASCO PRODUCTS

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Without obligation—send Specification Data Sheets checked below.

□ AS-1  □ AS-2  □ AS-3  □ AS-4
□ AS-5  □ AS-6  □ AS-7  □ AS-8

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ADDRESS............................................................
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My lumber dealer is............................................
CONSTRUCTION'S MOST INTERESTING TREND TODAY

The application of Light Steel Framing members seems unlimited if the diversified uses we have engineered and fabricated to date are any criterion of 1952.

These nailable steel framing members work as well in the high pitched roof of a church as they do in the low and rambling plan of the modern elementary school building.

As each project is individually engineered to the load and dimensions of a particular need, we invite your contact on any specific project for cost analysis.

TO BUILD FIRE-SAFETY INTO SCHOOLS, APARTMENTS, HOSPITALS, STATE AND FEDERAL FACILITIES, ETC.

STANDARDIZED STEEL BUILDING PRODUCTS
MACOMBER • INCORPORATED
CANTON, OHIO

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

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

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

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

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

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

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

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

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WALSEAL*
FOR MAKING
SILBRAZ® JOINTS

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

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

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

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

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

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


Recommended for
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DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD
SELECTING ACOUSTICAL MATERIALS

A RECREATION CENTER: Bronx, N. Y.

Architects: Brown, Lawford, & Forbes
General Contractor: Rubin Construction Co.
Acoustical Contractors: Hannam & Schede, Inc.

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

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

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

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

ARMSTRONG'S ACOUSTICAL MATERIALS

| PERFORATED ASBESTOS BOARD |
| CORKOSTIC® |
| TRAVERTONE |
| CUSHIONTONE® |
Note Accurate Control in House and Senate Chambers

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

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

1,000,000 CUBIC YARDS
OF WAYLITE AGGREGATE
FOR THE CONSTRUCTION INDUSTRY IN 1952

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

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

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

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

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

ADULTS, TOO, ARE GROWIN’ UP...

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

more SLOAN Flush VALVES
are sold than all other makes combined

SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

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

In air conditioning, Anemostat air diffusers provide complete coverage. They "blanket" the room with conditioned air.

These diffusers distribute air in many diverse planes. The unit creates a series of counter currents which siphon room air into the diffuser up to 35% of supply air, depending on type and size of unit. Room and supply air are then mixed within the Anemostat air diffuser before being discharged.

This aspiration results in a uniform "blanket" of gently moving air. There is no risk of uncomfortable drafts, no stale air pockets... temperature and humidity are equalized.

These Anemostat advantages are good "insurance", for they provide true conditioned comfort in your heating, ventilating and air conditioning installations.

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DRAFTLESS Aspirating AIR DIFFUSERS
ANEMOSTAT CORPORATION OF AMERICA
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REPRESENTATIVES IN PRINCIPAL CITIES

“No Air Conditioning System Is Better Than Its Air Distribution”
First Step to Better Daylighting:

A Wasco Daylight Engineering Study

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

Prefabricated Wascolite Skydomes transmit 62 1/2% more daylight than conventional skylights . . . are weather-proof, shatter-resistant and maintenance-free . . . come in three basic shapes and with clear colorless or white translucent acrylic domes.
TRINITY WHITE
PORTLAND CEMENT

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

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

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

as white
as snow

the whitest white cement...
you can always be sure

Von Duprin
puts QUALITY first of all!

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

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

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

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

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

FOR ACCIDENT HAZARD

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

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

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

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

Tri-Rib Roof Deck is but one of many Building Materials for which Architects and Builders turn to Wheeling. The Wheeling line of building materials includes:

- Steelcrete Reinforcing Mesh
- Expanded Metal
- Metal Lath and Metal Lath Accessories
- Tri-Rib Steel Roof Deck
- ExM Angle Frame Partitions
- ExM Vault Reinforcing to meet #10 Insurance Classification

Wheeling Corrugating Company - Building Material Division

Atlanta Boston Buffalo Chicago Columbus Detroit Kansas City Louisville Minneapolis New Orleans
In this Minneapolis super-market, Sebco Construction Company achieves an unusually "wide-open" interior, made possible through use of Wheeling Tri-Rib Roof Deck. Because of its lightness, Tri-Rib allowed use of longer span joists, lighter roof structure and lighter supporting members—a saving of 25 lbs. of supports for each 100 square feet of deck! Taking advantage of Tri-Rib's pleasing appearance, the designers omitted underfinish, permitting the deck sheets themselves to form the "ceiling." The long parallel lines of the ribs thus add to the perspective and sense of space.
Announcing the FIRST 12-INCH light-directing glass block!

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

... same light-directing and light-controlling qualities
... same face coating from which even hardest, dried-on mortar rolls off easily and quickly. Virtually eliminates post-construction cleaning expense
... same 3½" thickness
... same identifying gold stripe that gives instant identification of top inside of block

In addition, panels of the larger 12" x 12" size may be laid faster... The larger size gives architects freedom to create an entirely new scale in panels, and the new 12" size may be combined with the 8" size in the same panel.

Important as all these features are, they're only incidental when compared to the lifelong advantages an Insulux Fenestration System installed on Daylight Engineering principles gives to any building. Supplies of the new Insulux Glass Block® and all of the materials needed for fast installation are noncritical and immediately available.

The knowledge and experience of a Daylight Engineer is at your service. Just write Insulux, Dept. MB - 1, Box 1035, Toledo 1, Ohio.
EXTRUDED ALUMILITED ALUMINUM PRODUCTS

Specified by Leading Architects

for

HOSPITALS - SCHOOLS
RELIGIOUS BUILDINGS
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OFFICE BUILDINGS
HOUSING PROJECTS
SHOPPING CENTERS
INDUSTRIAL PLANTS

- Extruded Aluminum Store Front Construction
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Sold and installed by Glass Distributors and Dealers throughout the U. S., Canada and other Countries.

The natural beauty of Alumlilite designs is enhanced and preserved by our corrosion-resistant Alumlilite all-weather finish, electrolytically applied at the factory . . . helps protect from scratches and marring.

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Includes detailed specifications and sectional drawings of Sash, Division Bars, Corner Bars and Reinforcements, Sills, Transom Bars and Adaptors, Glass and Metal Settings, Sills and Awning Hood, and Store Front Construction Details. A very practical and useful working manual.

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City ........................................... State ....................................
You Can Use Stainless in Architecture — TODAY

Armco 17, Type 430 chromium stainless steel is available for architectural uses.

N.P.A. Order M-80, reserving nickel for defense-rated applications, affects only the nickel-bearing stainless steels such as the well known 18-8, Type 302.

Armco 17, with 14 to 18 per cent chromium and no nickel content, is one of the oldest of the standard stainless steels and has a long record of successful service. It is produced in the same gages, sizes and finishes as 18-8 and lends itself to substantially the same designs. Well suited for many architectural requirements not subjected to seacoast or unusually severe industrial atmospheres, this chromium grade serves as an excellent alternate in many applications.

Armco 17 is sold by Armco Distributors from coast to coast. Ask your sheet metal contractors about it.

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Now you can get 25% More Light with DURALUX*

At last... and first with Corrulux Corp. ... a corrugated, glass-fiber-reinforced structural panel with 25% more light transmission than any other reinforced shatterproof panel on the market today ... new DURALUX.

Each panel of DURALUX is reinforced with many miles of tough glass fibers, imbedded in extremely weather resistant resin... making DURALUX:

- Shatterproof
- Resistant to impact, vibration and shock
- Resistant to weather extremes
- Resistant to industrial fumes
- Easily sawed, nailed, drilled
- Uses standard purlin spacing
- No flashing or framing required
- Nest with standard corrugated metal or asbestos

DURALUX is particularly recommended for industrial skylighting in northern climates, where maximum light transmission is essential ... and costs up to 50% less, installed, than conventional skylighting.

**COMPARISON OF VISUAL LIGHT TRANSMISSION**

<table>
<thead>
<tr>
<th>Material</th>
<th>Light Transmission</th>
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<tr>
<td>Duralux (Max-lite color)</td>
<td>80</td>
</tr>
<tr>
<td>Corrulux (Skylight Green)</td>
<td>60</td>
</tr>
<tr>
<td>Competitive Product &quot;A&quot;</td>
<td>60</td>
</tr>
<tr>
<td>Competitive Product &quot;B&quot;</td>
<td>52</td>
</tr>
</tbody>
</table>

*Patent on product and trademark applied for.
**Test data and methods on request.

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Dept. G P. O. Box 20026, Houston 25, Texas
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THE MAGAZINE OF BUILDING • JANUARY 1952 29
For a non-combustible, noise-quieting ceiling of unrivalled architectural appeal

UNUSUAL BEAUTY—The attractive fissured surface of J-M Permacoustic avoids mechanical monotony. Distinctive and pleasing in appearance, Permacoustic is ideal for hospitals, schools, offices, dining rooms, lobbies, etc.

NON-COMBUSTIBLE FIRE RATING—Made of fireproof rock wool, Permacoustic meets building codes which specify the use of non-combustible acoustical materials to minimize fire hazard in critical areas and in certain types of buildings.

HIGH ACOUSTICAL EFFICIENCY—Permacoustic consists of 12" square panels of moulded and baked rock wool fibers. The fissured surface adds additional acoustical efficiency to a material which is in itself inherently sound absorbent. Noise reduction coefficient is 65% to 70% depending on method of application.

READILY AVAILABLE—Because Permacoustic is made of non-critical materials, you can plan present and future construction without fear of shortages. Stocks are carried in all the principal cities of the United States.

EASILY APPLIED—Permacoustic is easily installed by application to existing ceiling slabs or it can be suspended using a spline system of erection.

For a new free brochure about Permacoustic, write Johns-Manville, Box 158, New York 16, N. Y. In Canada write 199 Bay Street, Toronto 1, Ontario.

FOR domestic hot and cold water lines you can still use copper — non-rusting, highly resistant to corrosion!

LOW

The use of copper for underground service lines — another place where you need this hardy metal — is not prohibited by government regulations!

...Chase Copper Water Tube is best!

Made from commercially pure copper, Chase Copper Water Tube is ideal for hot and cold water lines and underground piping.

Chase Copper Water Tube, Type L, hard temper, in 20 ft. lengths and solder-joint fittings are especially adapted for use in new construction. For replacing old rusted-out piping, Chase Copper Water Tube, Type K, soft temper, comes in long 40 and 60 ft. coils that can be snaked behind walls and under flooring.

For underground installations use Type K, soft temper, Chase Copper Water Tube. It is ductile; can be bent around obstructions; moves with the earth until the fill settles. Long lengths up to 100 ft. in coils reduce the number of flared fitting connections to a minimum.
Every Mengel Flush Door—Hollow-Core or Solid-Core—has dove-tail wedged-locked joints at all four corners! This fine, exclusive, cabinet-maker's construction is found only in Mengel Flush Doors—requires more lumber, extra machining and labor, but you get stronger and more stable doors.

Mengel Flush Doors also provide many other advantages. They are designed and built to the highest standards of quality for extra durability, extra eye-appeal. Get all the facts. Write today for our new full-color descriptive A.I.A. catalog, including specifications.

Plywood Division, THE MENGEL COMPANY, Louisville 1, Kentucky
Mobilizers Tighten Squeeze On Building; Factories, Housing Hit

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

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

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

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

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

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

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

IN THE NEWS

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

- Building industry protests CMP . . . p. 40
- Scandal hinted in overseas contracts . . . p. 41
- New England, South struggle for industry p. 41
- New Orleans gets louvred office . . . p. 41
- What a steel strike would cost building . . . p. 45
- Public housing row in Los Angeles . . . p. 45
- Is the West ready for tower apartments? . . . p. 56

NEWS continued on p. 40
MULTI-VENT
Low Velocity Air Diffusion
CEILING PANELS

in Pittsburgh's GATEWAY CENTER BUILDINGS

Multi-Vent panels have been specified throughout for diffusing both cooled and heated air in all the interior bays of the first three office buildings, now under construction.

Selected for...

TRULY DRAFTLESS, NOISELESS AIR CONDITIONED COMFORT...
for over 8000 office workers, summer and winter.

Plus these great advantages possible only with Multi-Vent...

COMPLETE FREEDOM IN LOCATING MOVABLE PARTITIONS
Partitions may even bisect a diffusing panel without disturbing in any way Multi-Vent's incomparable over-all uniformity of room air movement, temperature, and humidity.

COMPLETE FREEDOM IN LOCATION OF LIGHTING FIXTURES...
for Multi-Vent panels are completely concealed in standard acoustical ceilings, and in no way interfere with interior design.

RADIANT PANEL HEATING AND COOLING EFFECT ADDS TO THE COMFORT FACTOR
The large areas of the ceiling which function as distribution plates for the Multi-Vent panels are heated or cooled to the temperature of the supply air.

MULTI-VENT DIVISION
THE PYLÉ-NATIONAL COMPANY
1375 North Kostner Avenue
Chicago 51, Illinois

See SWEET's Arch. & Eng. files or write for detailed literature.
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Write for Catalog 1935-I

NORTON COMPANY
Worcester 6, Massachusetts

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A complete standardized line of entrance doors for industrial buildings also available.
Architects, engineers and contractors appreciate the importance of concentrating responsibility for a variety of related products. Also appreciated is Peelle-Richmond's proved performance in handling, from start to finish, specification jobs that must meet unusual or exacting conditions. Those engaged in the solution of defense plant construction problems will find the Peelle-Richmond engineering staff most helpful. Write for further information.

"it's PEELLE engineered"

PEELLE-RICHMOND

The Peelle Company
47 Stewart Avenue, Brooklyn 37, N. Y.

The Richmond Fireproof Door Co.
Richmond, Indiana

OFFICES IN PRINCIPAL CITIES

Manufacturers of the famous Peelle Motorstair
Prevent conversion slow-down with J-M Movable Walls

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

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

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

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

TRANSITONE Movable Walls—A recent and unique development of the Johns-Manville laboratories is the Transitone Movable Wall, with asbestos panels integrally colored. Non-fading pigments are blended into the asbestos fibres, thus eliminate the cost of periodic decorative treatment. The color goes all the way through each panel.

For details about J-M Movable Walls, consult your Sweet's Architectural File, or write Johns-Manville, Box 158, Dept. MB, New York 16, N. Y. In Canada, write 199 Bay Street, Toronto 1, Ontario.
A dry foundation for Swifton Village

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

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

THOROSEAL

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

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

WATERPLUG

Stops leaks

THOROSEAL

Seals surface

QUICKSEAL

Beautiful finish

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

STANDARD DRY WALL PRODUCTS

NEW EAGLE, PENNSYLVANIA  •  U. S. A.

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Get our 20-page brochure, pictorially described in detail; also, architect's chart for your wall.
To encourage advance planning, NPA is considering issuing construction authorizations with no allotment of materials until they become available—but, frankly, NPA wonders if this will work.

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

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

Proposed changes:

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

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

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

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

**INDUSTRY PROTESTS mount against absurdities of controls**

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

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

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

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

---

**NEW CONSTRUCTION ACTIVITY** (expenditures in millions of dollars)

<table>
<thead>
<tr>
<th>Type</th>
<th>December '50</th>
<th>Annual Total '50</th>
<th>%</th>
<th>January '51</th>
<th>Annual Total '51</th>
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<tr>
<td>(nonfarm)</td>
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</table>

**1951 CONSTRUCTION dollar volume rose 7% above 1950 to $293.9 billion, all-time U. S. record. But while private construction gained less than 1%, public soared 27%.**
ing. 3. Dilatory mailing results in “extreme delays” in advising the industry of regulations and amendments. 4. Controllers haven’t learned that construction requires a tremendous lead time for planning, financing, materials ordering. 5. “NPA regulations . . . conserve little critical material” while “crippling” the industry. 6. NPA indulges in extreme delays processing applications.

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

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

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

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

Senate Committee Sniffs Scandal in Hiring Methods of Overseas Contractors

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

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

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

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

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

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

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

WOONING INDUSTRY: New England states vie with the South

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

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

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

This lightweight, fireproof gypsum plank—reinforced by electrically welded, galvanized steel wire and frame—isle tongued and grooved to assure speedy, easy installation. The size of Gypsteel Plank is 2" x 15" x 10'.
Special Kentile (greaseproof) is ideal for power rooms, machine shops, restaurants . . . wherever greases, oils, alcohol, alcohols, most acid solutions, or extra heavy traffic present a maintenance problem.

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

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

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KENTILE INC.
This office was planned for lifetime adaptability

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

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

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

Phone your nearby Hauserman Representative... or write today to The E. F. Hauserman Company, 7116 Grant Ave., Cleveland 5, Ohio.
capita), proposed to woo industries with the juiciest New England bait of all. He asked his legislature to create a state-owned development corporation with $1 million of state funds as capital to buy land, build new plants and lease them to private industry. The corporation would be empowered to meet construction costs by a bank loan secured by a mortgage on both land and building, plus a lien on the state's $1 million. After the building is built, the state would assign the lease to the lender bank as mortgage security. Lease deals would include a fee in lieu of local taxes. If lenders balked, the state corporation could issue bonds.

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

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

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

<table>
<thead>
<tr>
<th>City</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Danbury</td>
<td>$234,000</td>
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<tr>
<td>Westport</td>
<td>$176,000</td>
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<tr>
<td>Southington</td>
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<tr>
<td>Torrington</td>
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<tr>
<td>Killingly</td>
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<tr>
<td>Seymour</td>
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<tr>
<td>Bristol</td>
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<td>Norwalk</td>
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<td>Naugatuck</td>
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<td>Sprague</td>
<td>$207,000</td>
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<td>Groton</td>
<td>$177,000</td>
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Explained James Sheekie, engineer and acting manager of Manchester: "We can't afford it. The town figured out that cost of extending sewer and water lines, building a new school and giving police and fire protection would be too much. We are going to take it easy for a few years." Observed Editor Alan H. Olmstead of the Manchester Daily Herald: "For a community like Manchester, every million in credit backing for housing carries with it an obligation to provide perhaps another $100,000 to $150,000 in new schools immediately. The war and postwar period has forced many Connecticut towns to evaluate more soberly what used to be considered the happy prospect of growth. The typical chamber of commerce outlook boosting a community... has undergone an almost complete reversal in which the influx of new population is regarded almost with dread and in which the highest community ambition becomes one of remaining the same size at least for a breathing spell." Connecticut officials earmarked the spurned $10 million for other cities, including Bridgeport and Hartford.

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

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

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

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

If Philip Murray's CIO steelworkers walk off the job after their 45-day truce expires Feb. 18 (closing 95% of U. S. steel production facilities), the construction industry will lose some 10,000 tons of heavy structural shapes per day. That is as much as...
New buildings completed in recent Trane construction program. Arrows indicate: 1) Tool Building, a separate unit immediately north of the Main Plant, 2) a complete plant for assembly of standard heat transfer surface, 3) Brazed Aluminum Plant, 4) Special Heat Transfer Products Assembly Building.

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

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

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

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

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

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

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

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

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

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

TRANE

MANUFACTURING ENGINEERS
OF HEATING, VENTILATING AND
AIR CONDITIONING EQUIPMENT

THE TRANE COMPANY, LA CROSSE, WIS.
Trane Company of Canada, Ltd., Toronto
OFFICES IN 80 U. S. AND
14 CANADIAN CITIES

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

More Refrigeration Units—More and more centrifugal and reciprocating compressors will be made in extra space furnished by the Trane expansion program.
The component parts of any Securitee System*, mechanical attachments for erecting acoustical tile, are made from the finest quality materials obtainable.

This rigid policing of suppliers, combined with high standards in the manufacture of the finished product make Securitee the outstanding suspension system on the market today.

Quality in appearance and durability in construction are two vitally important factors to any architect, designer or contractor—you get both with Securitee Systems.

See Sweet's Architectural File or write direct for complete technical data.

W. J. HAERTEL & COMPANY
832 West Eastman Street • Chicago 22, Illinois

West Coast Distributor FREY & HAERTEL, Inc., 125 Barneveld Ave., San Francisco 24, Calif.
This remodeled furniture store utilized a Pittsburgh Free-Standing Doorway. Architect: Charles Kendall, High Point, N. C.

Why it's wise to specify
precision-built Pittsburgh Doorways

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

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

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

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

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

Pittsburgh Doorways

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

THE MAGAZINE OF BUILDING • JANUARY 1952
The Name
HOPE'S
Guarantees
HOSPITAL WINDOWS

Bon Secours Hospital, Methuen, Mass.
Curtin & Riley, Architects, Boston
Charles LeGue Building Co., Inc., Contractor

HOPE'S WINDOWS, INC., Jamestown, N.Y.
THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS
NEW DOUBLE-FLOW AQUATOWER

revolutionizes water cooling in
air conditioning and refrigeration

Conventional COMPARATIVE HEIGHTS

Double-Flow Aquatower goes tower height...UP goes cooling efficiency!

Here, at last, is the "architect's cooling tower"! The low contour Double-Flow Aquatower is as unobtrusive as it is efficient. It will harmonize with any architectural style, and on many buildings parapet walls will completely conceal the tower. If a masonry enclosure is desired, it can be built most economically for this new, lowest cooling tower, since a 150-ton unit is only 71/2 feet high.

The Double-Flow Aquatower too offers many practical economies; load concentration is minimized, so cost of grillage and support is reduced; installation is fast and piping is simple; operation and maintenance require no technical skill.

High efficiency performance is assured by the design which combines Aquatower simplicity and the patented Double-Flow principle of one fan utilizing air from two completely open sides. This is the same design used in Marley Double-Flow towers that cool more gpm the world over than towers of any other design.

If your plans call for 50 or more tons of refrigeration, you will want complete information on this tower that is a new concept in water cooling. The coupon below will bring it.

Send me your 8-page brochure on the new Marley DOUBLE-FLOW AQUATOWER.

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CITY
STATE

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

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

WAGE STABILIZATION: first big crackdown hits VA contractor

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

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

SCHOOL REPORT urges standardized plans for classrooms

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

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

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

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

AGC ASKS LAW overturning ruling on gov’t contracts

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

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

STUDENT ARCHITECTS to launch magazine with AIA assistance

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

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

BANNED BUILDING ALREADY UP

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

From Miami’s beautiful Biscayne Boulevard to swank Sunset Strip in Hollywood... in buildings that line magnificent thoroughfares everywhere, you’ll see all-aluminum Miami Awning Windows.

Constructed from extra-heavy aluminum alloy sections (63-ST5), the Miami Awning Window is available with or without plastic weather-stripping.

For fine installations in schools, hospitals, office buildings and small homes, specify the all-aluminum Miami Awning Window. Available for immediate shipment.

For further information, see Sweet’s Architectural File 17A or—write, wire or phone Miami Window Corp.

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

As the architects state, "The clean lines of the exposed aluminum surfaces give a straight forward appearance to the entire structure, which seems appropriate in view of the function of the building. Aluminum seemed the natural choice for its lightweight construction, ease of maintenance and regional climatic considerations."

In the planning stages of this, and nearly every other outstanding architectural use of aluminum, Alcoa sales engineers worked with the architects and engineers. They are at your service. For information on any form of aluminum and its availability under present limitations, call your nearby Alcoa sales office or write:

ALUMINUM COMPANY OF AMERICA
1887A GULF BLDG. PITTSBURGH 19, PA.
Is the West Ready for Tower Apartments?

Metropolitan Life Finds Vacancies High

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

Insurance Tycoon Ecker blazed ahead with concrete monoliths—18 of them on Metropolitan's Parklabrea tract in Los Angeles and 11 of the same design by the late Manhattan Architect Leonard Schultze in its Parkmerced tract in the southwestern corner of San Francisco (above). But so far Metropolitan had not won its gamble that over-population and rising land values had opened the way in the West for its clusters of tall dwellings. Parklabrea's 1,316 apartments in two-story colonial buildings, built during the war, were rented solid, with a long waiting list. But of the 927 apartments in the nine tower units completed (rentals $115 to $180 a month), one was fully occupied, three more were 30 to 50% vacant, the rest empty. Parkmerced's 1,667 two-story apartments were likewise fully occupied. Six tower apartments were finished. They were about ½ vacant.

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

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

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

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

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

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

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

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

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

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

Among the critics of Le Corbusier's "vertical city" (the 7th and 8th floors house stores, restaurant, barber, hotel, post office; roof has a 120-meter track, pool, solarium), the most successful turned out to be Le Société pour L'Esthétique Générale de la France, a private organization whose aim is to keep the country free of ugliness. Two years ago, the society asked the French Council of State (supreme court) to prevent Le Corbusier from continuing work on his building. Argued the society: radiant city is an outrage and spoils the Marseilles landscape (no other building is over 9 stories high). Moreover, the appeal pointed out, Le Corbusier didn't have a building license (having claimed the project was experimental and thus didn't require one). The Council of State took two years to make up its mind. Last month, it made one ruling that work must stop, then quickly negated it by deciding Le Corbusier was right, radiant city was experimental. The Reconstruction Ministry put in a good word by declaring the detractors were largely

SCHOOL DESIGN: contest reflects trend away from monumental

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

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

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

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

While the Air Force built with steel for $1,508 per man housed, Contractor Barry Richards of North Hollywood was low bidder at $1,198,000 for the Navy's project, or $2,396 per man. Design by Kewell, Kocher & Benedict of Los Angeles calls for heat resisting light-weight masonry walls, two layers of 4" mineral wool insulation under the roof, terrazzo-floorod showers with tile walls and ceiling, large reception lounge on the first floor. Inner court will give maximum protection from the desert area's fierce wind and dust storms.
CONVENIENCE AND GOOD LOOKS are combined to give utmost guest-appeal to this Hotel Roosevelt bathroom. A genuine vitreous china lavatory, set in a counter-top cabinet, is an outstanding feature of the room. The Tribor Water Closet, with siphon jet flushing action and extra large waterways, is also made of permanently non-absorbent, genuine vitreous china. The Master Pembroke Bath is made of rigid cast iron, finished with a smooth coating of easy-to-clean, hard-to-mar enamel and features low sides, wide front rim, and a flat bottom for greater comfort and convenience and added safety.

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

When the luxurious Resort Wing recently was added to the Hotel Roosevelt of Hollywood, California, American-Standard Heating Equipment and Plumbing Fixtures were installed . . . assuring an added measure of comfort and convenience for guests of the hotel—Hollywood's largest.

Handsomely-styled American-Standard products have proved their durability, ease of maintenance, dependability in service, and economy of operation in all types of installations. Whatever your building or remodeling plans call for, you'll find the right products for the job in the complete American-Standard line.

ABUNDANT, AUTOMATIC HEAT is supplied the new wing of the Hotel Roosevelt by this Standard Gas Boiler. The heavily insulated jacket of the Standard Boiler prevents excessive heat loss. And the carefully machined cast iron sections of the boiler are gas-tight, safe. Heating surfaces, burners, controls and other essential features are coordinated for high heat output with low operating and maintenance cost.

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...New Curved ALBA-LITE

New curved panels of popular ALBA-LITE enhance the clean-lined styling of modern interiors. Their long lengths minimize the number of visible joints in continuous runs—give rooms that smooth new look and freshness.

Made in open and closed end pieces in lengths up to 48", they are adapted to standard fixture construction of both the hinged door frame and continuous open trough types. Unlike other materials, ALBA-LITE will not sag, warp, discolor or scratch. Maintenance costs are minimized...cleaning is a matter of seconds.

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

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

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

1. Fastening wood sleepers to concrete floor slab.
2. Hanging steel sash and door bucks to concrete and brick.
3. Anchoring stadium, theatre and church seats to concrete or brick.
4. Fastening wood furring strips to concrete for attachment of metal lath.
5. Anchoring wood plates to concrete floors and ceilings for setting partitions.
6. Hanging radiator housings to concrete or brick.

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

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

THE RIGHT STUD FOR EVERY JOB

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

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

External Thread

Only Remington studs are identified by this target trademark on the head—it's your assurance of safe, dependable fastening.
Studs up to 100 Times Faster than Conventional Methods ...and Does it Safely!

REMINGTON STUD DRIVER

New Cartridge-Powered Model 450

Look at All These Features

Compact and Portable—Weighs only 5½ pounds, ideal for scaffold, ladder, overhead work, inaccessible places. Comfortable to use in any position.

Speed—One man can set up to 5 studs per minute, as much as 100 times faster than other methods. Sets studs at whatever depth is required up to 2 ½ inches, depending on material.

Eliminates Investment in outside power—Self-powered. Especially useful in isolated places.

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

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

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

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

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

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

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

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

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

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

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

1. Use Functional Lighting Layouts, Requiring Minimum of Luminaires.
   - Saves 1½ rows of luminaires—Minimum plan to supplement daylight. Utilizes 1½ rows of fixtures; corrects for body shadow cast by daylight from window-wall.
   - Saves 1 row of luminaires—Requires two rows of luminaires on the side away from window-wall. Supplementary light is completely adequate for daytime use.
   - Full functional 3-row layout—When a classroom is to be used at night. Circuits provide for 1½ rows with daylight; 3 full rows at night.

2. Use Wakefield luminous-indirect fixtures that require a minimum of steel.
   - The Star (fluorescent)
   - The Commodore (incandescent)

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

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

Write for your copy of our 20-page booklet, "Supplementary Lighting for the Co-ordinated Classroom." Address The F. W. Wakefield Brass Company, Vermilion, Ohio.

Wakefield Over-ALL Lighting
BASIC FOR CO-ORDINATED CLASSROOMS

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

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

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

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

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

Died: Joel D. Barber, 75, one of the first ten architects licensed in New York State and consultant for the New York Daily News building, the McGraw-Hill building and early units of Rockefeller Center, Jan. 3 in Wilton, Conn.; Wharton Clay, 72, secretary-treasurer of the building material industry's Perlite Institute, Jan. 2 in Pittsburgh, Pa.; Max Gruber, 69, one of Long Island's biggest real estate brokers, Dec. 28 following an automobile accident in Lordsville, N. M.; G. Harvey Leach, 50, Ohio and Kentucky contractor, Dec. 22 in Bellefontaine, O.; Frank H. Bowerman, 74, former president of the Associated General Contractors of America's New England branch, Dec. 21 in Providence, R. I.; Maj. Gen. David McCooch, Jr., 64, Army veteran, former District of Columbia commissioner and, since 1946, vice president of the Charles H. Tompkins Construction Co., Dec. 15 in Washington's Walter Reed Hospital; Camille E. Grapin, 64, former Carnegie Institute of Technology professor of architecture, Nov. 27 in Pittsburgh, Pa.
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See Pella Venetian Blind Catalog in Sweet's Architectural File 194/ROL.

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LETTERS

GM's Technical Center

Sirs:

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

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

Sirs:

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

Arnold Broot
Gladstone, Mass.

Sirs:

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

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

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

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

Sirs:

. . . an excellent article . . .

Eero Saarinen, Architect
Bloomfield Hills, Mich.

(Continued on page 74)
FREE portfolio of detailed drawings shows NEW designs for SHEET METAL work

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Anaconda building specialists are frequently called upon to aid in the designing of sheet metal work which requires a minimum use of sheet copper for maximum protection of buildings from weather. The problems which we help to solve are commonly encountered—so we feel that our suggested solutions will be of interest to everyone connected with the building industry. Therefore we have prepared a portfolio of drawings which show suggested details of new or improved methods of sheet metal work. Its size permits handy filing. A set is waiting for you. Fill in and mail the coupon now.

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SIMPLICITY is the keynote of this newest Benjamin Lighting System. Ultra-modern "Grid-Lite" provides the high lighting efficiency, quality diffusion and proper shielding so needed for schoolrooms, stores, drafting rooms, offices and similar workspace. With "Grid-Lite" you get that wanted "ceiling of light" effect economically. This is made possible by a simply-constructed, pre-wired grid arrangement of lamps and channels, with light-diffusing, easy-to-clean shields of translucent plastic.

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Get complete details by writing for FREE "Grid-Lite" DATA BULLETIN. Address: Benjamin Electric Co., Dept. YY, Des Plaines, Illinois.

CHOICE OF LAMPS and BALLASTS! "Grid-Lite" is available for 96", 72" and 48" T12 Slimline Lamps, with 425MA or 200MA ballasts for low-brightness lamp operation.

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LETTERS

Sirs:

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

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

GM's Dual-Purpose Plant

Sirs:

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

Charles E. Wilson, President
General Motors Corp.
Detroit, Mich.

Room Size and Speech

Sirs:

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

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

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

Bernard S. Lee
Signal Corps Engineering Laboratories
Fort Monmouth, N. J.

Prefab School

Sirs:

All of us at the University of Michigan are very pleased with the presentation you gave the... (Continued on page 78)
NEW micarta TRUGRAINS
ARE TOUGH! ATTRACTIVE! SANITARY!

Now you can get all Micarta's charm and utility in wonderful new and authentic printed woods. Oak, walnut and mahogany beauty surfaces, of this top-quality high-pressure laminate, are locked for life beneath an incredibly tough glaze of clear Melamine plastic.

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THE MAGAZINE OF BUILDING • JANUARY 1952
In 1918 Herman Nelson pioneered the first of a new type combined heating and ventilating unit for schoolroom use—UNIVENT. In 1930 Herman Nelson Engineers produced the first unit ventilator which recirculated a portion of the air in the room as well as bringing in fresh air from the outside. In 1950 Herman Nelson introduced the radically improved DRAFTSTOP system to solve the problem of drafts created by the larger window areas of modern schools.

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

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

If you are responsible for the building or remodeling of school buildings you should have full information about this newest Herman Nelson advance in schoolroom ventilation. Write Dept. B-1 today for complete information.
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NOW AVAILABLE IN
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THE MODERN
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UNIT FOR SCHOOLROOMS

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For Floors Where Beauty and Quietness are Desirable But Chemical-Resistance and Long Life Are a MUST

Every architect runs into the problem—maybe it's the chemical building of a college, or an industrial laboratory; it could be an ocean going ship, or a new defense plant; it might be a hospital.

"We want a floor that's acid-proof and durable, but it's got to be quiet, comfortable, and good to look at, too."

The best solution to that problem—in fact, just about the only solution—is PLASCOR.

PLASCOR is a flexible floor tile made from Tygon vinyl plastic and resin-dipped cork, 1/4" thick, in 8 1/2", 11", 17" and 34" squares, and companion top-set 4" high cove base. It's installed like asphalt or rubber tile.

PLASCOR laughs at most chemicals. It should. Vinyl plastic is known for its chemical-resistance. Oils, greases, most acids and alkalis, cleaning agents, etc. leave it unmarked.

It's a tough combination to beat—Tygon vinyl plastic and cork. There's long wear there . . . extra long wear. There's chemical-resistance no other resilient floor tile can match. There's beauty, too . . . gorgeous colors. And the cork content makes Plascor as quiet and comfortable to walk on as new grass.

No, Plascor's not as expensive as you might think. You'll be surprised how little this much better flooring costs, installed.

When your client says "the floor must be beautiful, quiet, comfortable, durable, and acid-resistant"—specify PLASCOR.

U. S. STONEWARE

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U. S. Stoneware has the answer to heavy duty acid-proof floors, too: "U. S." Acid-proof floors have built up performance records covering 20, 30, even 40 years of trouble-free service.

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LETTERS

Unistrut School research project in your November issue.

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

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

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

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

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

C. THEODORE LARSON
Professor of Architecture
College of Architecture and Design
University of Michigan
Ann Arbor, Mich.

Well Done Hospital

Sirs:

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

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

ROY F. LARSON, Architect
Harbeson, Hough, Livingston & Larson
and Harry Sternfeld
THE UPJOHN COMPANY'S new manufacturing building in Kalamazoo, Michigan. Auditorium, cafeteria, employee lounge and offices are air conditioned and use Kno-Draft Adjustable Air Diffusers throughout. The Austin Company, Engineers and Builders.

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THE MAGAZINE OF BUILDING • JANUARY 1952
Here's helpful data
that simplifies electrical planning
for Architects and Engineers

The completely new edition of the famous Westinghouse Data Book is ready now! Prepared especially for Architects and Engineers, it contains valuable planning help on everything electrical. A truly complete electrical reference source.

It aids in selecting and specifying . . . quickly and conveniently. It is accurate, up to date. The data will enable you to apply electrical equipment to the very best advantage. Here all in one place is the latest factual information on every electrical product made by Westinghouse for the Construction Industry. It is your authoritative guide on electrical application. The presentation is simple and slanted to your needs and methods.

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

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

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

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

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

- A lightweight building block made of wood shavings suitable for roof, wall and partition construction.
- A plastic material with a cellulose basis which has halved the cost of various items ranging from water closet seats to factory sash.
- A new tubular lock with a minimum of parts whose push-pull action makes it particularly suitable for the doors of kitchens, hospitals and cafeterias where people’s hands are frequently full and knob-turning is therefore inconvenient.
- A brush-applied wall finish that looks and behaves like tile.

Herewith the full report from Germany:

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

Mendelsohn's experience

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

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

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

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

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

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

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

Plastic substitute for wood and steel

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

Lt. Col. George G. Davies, Corps of Engineers, pointed out that local efficiency was rooted in cheapness of labor (20 to 30¢ an hour) and in the availability and handling know-how of labor-saving building machinery in the States. Davies has supervised the building of the U. S. High Commission project in Bonn, including a large office complex (520,000 sq. ft. of office space put up in seven months), a housing project for American High Commission personnel and families and two projects for HICOG's German employees. He said the unions here are not as intent on padding employment, making for economy of already cheap labor not known in the States. Nevertheless, he insisted the job could have been done as fast and as well or better in the U. S.

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

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

* * *

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

---

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Here is ARCHITECTURAL FORUM with its old name — Vol. 96, No. 1.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

---

*Executive Secretary of the Chicago Housing Authority, Elizabeth Wood has won wide recognition for the transfusions of imaginative design she has brought to municipal housing.
Children are the chief victims of our city-building. Woods and fields are open to children on the farm. Small-town children can play across wide lawns and in back yards. The 70' lot in the new subdivision still allows father to have a vegetable garden that son must hoe—to his grudging inconvenience and his lasting gain.

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

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

In the minds of housing idealists, row housing = grass. In point of fact, today's city densities mean that the best way for many a city child to get to the grass may be to live in the sky.

The classical demonstration has taken place in New Orleans. Land was limited, its cost was high ($1.93 per sq. ft.) and consequently the public housing project called "Magnolia" was set up on 16 acres at a density of 140 people per net acre. Last year the Housing Authority of New Orleans indignantly rejected a "high-rise" scheme by young architects Curtis & Davis which would have put these 38 families-per-acre into just four ten-story elevator buildings. 

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

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

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

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

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

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

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

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

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

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

All this reasoning is based on the fact of an increasing density of population and of building all around the world. Intrinsically, this is not the best thing for children. Intrinsically, the optimum is one stair or none, and plenty of ground of one's own. But until the complex reasons that lead to higher density are reversed—there is no sign of it—millions of children must live in densely built areas. There the row house is not a victory but a defeat. The high-rise buildings can do surprisingly handsome things for the kids if only the building is designed with imagination, if the ground is turned to use, if administration is attuned to the actualities. For many a city kid the best way to get to the grass is to live in the sky.—Douglas Haskell.
Not just one, but all four of the newest Chicago Housing Authority apartment projects have "sidewalks in the sky." These are simply outdoor hallways, widened, giving every apartment an exterior door. Besides performing the conventional hallway duty of connecting to the elevator, the gallery has these outstanding advantages: 1) It is an open air porch and playground on the apartment level. 2) It is a means of assuring every apartment through ventilation.

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

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

Some of the buildings are complete and newly occupied. The answers they provide: 1) no; 2) no; 3) no. If the rest of the projects, when completed, offer the same answers, there will soon be a lot of galleries in the U. S.
CANTED TWO-WING APARTMENT is served by same galleries (8' deep) bridged from one wing to the other. Gallery exposures are east and northwest. Elevator is at inner end of one wing. Total number of apartments in two of these buildings, 126; average number rooms, 3.83.

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

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

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

THE MAGAZINE OF BUILDING • JANUARY 1952
Prairie Avenue Courts, by George Fred Keck & William Keck, Architects, will be a combined highrise and row house project when finished—and will have two degrees to the high rise, as well. The highest is a 14-floor structure shown on page 107; there will also be a pair of seven-story elevator buildings on the site later on; these, like the first high building, will have galleries, but they will wear them on the north side, not on the south.

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

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

When age groups change

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

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

To meet this coming need, Archer Courts is planned so that apartments may be broken up into one-room units with very little structural work. Two-room units today can become two singles, with a shared bath and kitchen. Larger apartments too can be subdivided (see drawings). And very little lath and plaster is involved in either transition.
A steep, serried site predicted the variations in this standardized three-story walkup scheme in Greenwich, Conn. This is geographic architecture...the architects used just one basic design (with one, two and three-bedroom plan variations) and allowed the slope to dictate the massings, to produce an interesting, varied set of buildings.

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

The six buildings contain 144 units at an average cost of $11,113 per unit, including land. Twelve are one-bedroom units; 108 have two bedrooms; 24 have three. Density is low, ten families per acre.
Through ventilation is guaranteed even in the core apartments of this highrise design for Philadelphia’s Mill Creek area. It is done by means of a carefully studied interior private stairway scheme which sets living rooms on one side of the building and their accompanying bedrooms a full flight up on the other side of the building. The change in level is necessary to bridge the public halls that run from the elevator to the end apartments on each floor. The building is no lean slab; it remains economically “fat” by virtue of this duplex device. On first glance at the plans of typical floors (below) this central private stairway seems to eat a great deal of space; actually it does not because the private stairways are fitted ingeniously into the well of the fire stair (diagram below).

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

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

MILL CREEK APARTMENTS, Philadelphia, Pa.
KAHN, McALLISTER, BRAIK & DAY, Architects
DANIEL KILEY, Landscape Architect
CORNELIA HAHN, Associate
In the duplex apartments of this design, you need walk only $\frac{1}{2}$ flight up or down between bedrooms and living rooms. But this is also a skipstop apartment, an unusually subtle one, so the other $\frac{1}{2}$ flight of stairs which places all entrances on stop floors instead of skip floors must be accounted for.

Solution: the duplex apartments actually are entered on half levels $\frac{1}{2}$ flight above or below the regular stop floor planes (see section). The skipped floors are filled by the rest of the duplexes while straightforward single level "efficiency" apartments fill out the rest of the stop floors.

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

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

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

HOUSING PROJECT for St. Louis Housing Authority
LEINWEBER, YAMASAKI & HELLMUTH, Architects
...IN A COMPETITION: flouting the rules

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

EDWARD C. WEREN, WILLO VON MOLTKE, Designers

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

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

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

"There is nothing new about the 'court house' for it has appeared successfully in one form or another in places as widely separated as China and the Mediterranean. Couldn't the savings which it brings in cost of services in large-scale projects be used to pay for the additional expenses of enclosing the courtyards?"
Entire floors of bedrooms occupy every third level above ground floor (which is devoted to community space, and contains no apartments). At the other end of connecting stairways within the apartments are living room and traffic floors like the one below. Note generous size of terraces off gallery.
Here again is the gallery, the sidewalk in the sky. It appears on both sides of this building, alternating exposures, and something new has been added: In plan a room-sized terrace is notched off the gallery into the apartment wall for each family. Enclosed on three sides, this terrace is sheltered from winds; placed directly outside the kitchen window, it is an excellent supervised-play area for small children. Older children can take the elevator down to the park below, where playgrounds are insulated carefully from the street by parking areas. Another achievement of the site plan: no living room windows overlook parking lots.

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

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

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

Two elevations of apartment (model photo below and facing page) show how galleries occur on both faces of building on various levels. On both facades, long windows denote living rooms, entered from gallery on opposite side of structure. Smaller windows denote bedrooms.
A full flood of **community living** is in this imaginative design for a luxurious vertical neighborhood. All ground floor area is for use of all the tenants, including the enclosed first floor of the apartment units. In the plot for four of these apartment units (below), communal land is subtended into parks and play areas, and fenced by parking areas down the long sides of the rectangular plot. Short ends are fenced with tennis courts.

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

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

HUGH STUBBINS JR., Architect
WALTER L. CHAMBERS, PAUL MORIECE,
Landscape Architects
THOMAS WORCESTER INC., Engineers
S. & A. ALLEN CONSTRUCTION CO.,
General Contractors
All the opportunities of low density row housing are fulfilled in this double design by architect Hugh Stubbins for the Wellesley, Mass. Housing Authority. (One plan variation is shown above, the other below. Main difference: the larger—three bedroom—unit has an interior bathroom with kick-up skylight. See detail, below left.)

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

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

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

Larger apartment, street side (plan, opposite).

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

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

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

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

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

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

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

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

Hexcrate ceiling seen from below shows diffused lights filtering through.

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

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

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

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

The eye

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

(Continued on page 170)
NEW SKYSCRAPER profits by Rockefeller Center's experience to improve ground floor design, uses modern lighting and air conditioning to make deep space rentable

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

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

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

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

Open front and brightly lighted ceiling make the new Sinclair Oil Building's lobby an inviting entrance, give spaciousness to its small dimensions.
To light the ordinarily gloomy space between recessed elevator banks (right), cold cathode tubes shine from behind a translucent ceiling of plastic. Below: The sloped ceiling pattern of lights and simplified wall detailing give this lobby its character. Enamel metal light coves (detail above) are hung from the ceiling. Walls are of Swedish green marble and seriated bronze; floors, terrazzo.
Over-all lighting of elevator cab ceilings is possible with plastic panels (glass being illegal). Dark center panel is service-emergency door and ventilator. Heat flows in around the perimeter of the ceiling. Section through lobby (below) dramatizes downward slope of ceiling from front to rear, which exaggerates the lobby's apparent size.

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

High light: a creative lobby

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

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

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

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

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

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

Ground floor development

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

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

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

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

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

Pan-American ticket office

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

Swiss Center

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

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

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

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

The new building vs. Rockefeller Center

Rockefeller Center is a group of big office towers (the smallest
8,200 sq. ft., the biggest 17,000 net) surrounded by less than a
quarter of the additional lower floor cubage permitted inside New
York's antiquated zoning cake mold (except where that added cubage
could be developed for such nonoffice purposes as stores, theaters,
garages, or windowless soundproof broadcasting studios).
Open plan for Pan-American World Airways ticket office shows entrance, lounge, ticket counter, a tour planning department in the rear. Oblique walls shield service facilities without breaking up the office space.

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

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

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

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

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

For details of the Sinclair Oil Building's evaporative cooling air conditioning system, see p. 192.
COMMUNITY HOSPITAL OF THE YEAR
integrates all rural county health services in a cheerful, efficient structure

LOCATION
Flemington, N. J.

VINCENT G. KLING, Architect

WILLIAM W. ESHBACH, Associate Architect

A. ERNEST D'AMBLY, Mechanical Engineer

SEVERUD, ELSTAD & KRUEGER, Structural Engineers

NASON & CULLEN, General Contractors

DONALD C. SMELZER, Medical Consultant

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

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

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

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

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

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

Ambulatory wing combines treatment and health education

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

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

Compact planning of basic service areas in the main nursing wing helped to offset the cost of special health center facilities. Operating and delivery suites are economically stacked at the west end of the surgical and maternity units, reducing patients' elevator travel to a minimum. And to meet USPHS space standards they are cantilevered.
Toilets between rooms open on the corridor, permitting three doors to be assembled as a unit with a filler panel forming the transom. Though less desirable than individual toilets, this arrangement cut plumbing costs, saved corridor partitioning.

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

By opening toilets between pairs of two-bed rooms onto the corridor, Kling made them available to patients in four-bed rooms as well. This sacrificed some convenience but gained a pipe-saving tie-in to lavatory chases, and formed an economical three-door assembly which saved corridor partition block. Bucks for doors to rooms and toilet are made up as a unit with ceiling-high members at both ends and a transom panel on top (detail, above).

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

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

Structure provides design freedom, cuts cubage and costs

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

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

Metal shortages and the difficulty of weatherproofing exposed concrete led to the use of cavity walls of face brick and concrete block backing throughout most of the structure. Cost of cavity spandrels was cut by using a new type continuous metal convector enclosure which forms the interior sill and wall finish (detail, right).
Plan of second floor shows close integration of hospital and health center facilities. One half of the nursing section is given over to pediatrics, the other to an ambulatory hospitalized patients' nursing unit with its own lounge, library and outdoor terrace. Radiology facilities are in the connecting link between the two main wings, convenient to both and to the emergency operating room. People seeking diagnostic or preventive services enter on this level, go to a spacious, glass-walled waiting room, then to adjacent examining rooms.

Cavity walls with continuous convetor enclosures forming interior sills and spandrel finish proved more economical than other brick sections tested for most of the structure (detail, right).
Each month this department will present brief reports on newsworthy engineering techniques demonstrated in new buildings of all kinds.

1. DOUBLE-DUTY STEEL combines structural support with air conditioning in modular libraries

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

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

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

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

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

The frame of these library buildings consists basically of hollow box columns manufactured from structural steel plate, with hollow floor girders made up of two 16" channels placed between the columns to serve as floor ducts. The great advantage...
of this system lies in the elimination of separate duct work, which is a tremendous space-eater in most air conditioned buildings. Yet another advantage is that for an equivalent cross section of steel, a hollow box column has a far greater radius of gyration than the conventional H-column, and so is a more efficient structural support.

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

The hollow structural frame

In both the Fargo library of North Dakota Agricultural College and the Abilene library of Hardin-Simmons University the 16" and 18" square hollow columns are made of 3/16" to 7/16" thick steel. Plates 3' wide and as long as required are bent at right angles down the middle, and each pair of plates is machine-welded at the seams to form a strong and rigid box column. Hollow floor girders, running longitudinally between columns, are made up of twin 16" WF # channel members covered above and below with light steel plates to form the horizontal ducts. The comparatively light live load (115 lbs. per sq. ft.) allowed the use of ordinary 3/4" bolt connections instead of rivets or high-tensile steel bolts. The larger Athens library will be welded throughout.

Columns are spaced on 22 1/2" centers each way and the resulting bays are spanned transversely by 12" 16.5# beams at 4 1/2" intervals, topped by a 5" thick concrete slab. This 4 1/2" floor beam interval, based upon the optimum distance between bookstacks, is the basic small module on which the design is calculated, and five of these modules make up the 22 1/2" column spacing. This simple, standardized design was economical to erect; the frame of the Fargo building was put up in only 10 working days.

Air conditioning system

Alternate columns throughout the buildings act as supply and exhaust ducts. Fresh air is drawn in at the roof through large masonry duct to the air conditioning equipment in the basement, then driven into supply columns by a 6' fan. Damper controlled openings about 12" square allow the fresh air to flow from the columns into the girders-ducts on each floor. On either side of these channel girders, 5" diameter holes spaced on the same 4 1/2" module allow the air to enter ceiling plenums, and so down through egg-crate louvered ceilings into the room itself.

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

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

Modular layout—flexibility with economy

Modular design produced great savings in construction costs by allowing a complete standardization of column, girder and beam lengths. The 22 1/2" square column bay (known as unit module) was chosen as a convenient multiple of the 4 1/2" centers on which bookstacks are usually placed (to give adequate room for two people to pass one another between facing shelves). The vertical module of 8' 2" between floor and ceiling permits ventilation and light above the 7' high movable bookcases.

Thus, each floor of the Fargo library is 5 x 7 unit 22 1/2" modules in area (112 1/2' x 157 1/2'). Space is allocated in terms of unit modules—three for the student lounge, eight for the stack area, two for a classroom and so on. Each unit module will seat approximately 25 students for study purposes, or shelves from 7,500 to 8,000 volumes in the stack areas.

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

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

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

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

With headed wire anchorages span 60' in new industrial addition

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

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

Each prestressed beam contains 60 strands of \( \frac{1}{8} \)'' high-tensile steel wire (215,000 psi specified ultimate strength) in ten double cables of three wires each. To prevent bond during casting the cables are sheathed with waterproof asphalt paper. Stirrups of \( \frac{1}{8} \)'' diameter mild steel are placed 12'' apart in the body of the beam to withstand shear stresses and also to help align cables.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

5. WINDOW LEAKS OVERCOME in UN

Secretariat’s huge exposed curtain wall

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Part of the answer is light. A two-story, heat-resistant glass wall on three sides of the patio floods much of the store with sunlight. Glass doors at the four entrances plus glass-backed
Earth colors, Indian theme characterize store. Beige and dark brown brick east wall (right) is broken by glass-walled patio. Below: Light from patio window plays over store interior. Calder mobile hung from ceiling in foreground decorates portion of women's wear section. Figures on these pages are part of glass-and-plaster mural on mezzanine wall by the Urbains.
Customer seating area and traffic aisle add informality to the design; changing ceiling heights add fluidity; planting boxes and central patio add outdoor atmosphere.

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

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

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

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

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

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

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

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

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

Space

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

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

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

Color

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

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

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

Draperies, rugs and wall decorations also carry out the extensive use of earth colors. Two major decorative elements point up the sophisticated handling of the primitive colors and Indian theme. A large colorful mobile hangs inside the north wall of the patio (formerly over the stairs to the second floor, it was moved lest a fascinated observer climbing or coming down the stairs should trip and fall). A mural of glass and plaster decorates the large mezzanine wall area in the center of the store. Its theme is Indian but its treatment, like all other decorations, is sophisticated.
Center accessory section (left, above) is close to main east and west entrances. Stairs go up to tea room and beauty salon, down to toy department (below), have the quality of a stage from which shoppers enjoy the store's many vistas. Feature here is a simulated orange tree (foreground) which dispenses free orange juice. Average consumption: 10 gals. a day.
Special lighting requirements in beauty salon call for precisely placed down lighting (attained through plastic panel in bottom of lighting cove) plus a high degree of indirect lighting near mirror. Dull-finished walls reflect light without glare.

Light

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

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

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

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

Special lighting in fitting room supplements natural light. Single light trough over staggered mirror arrangement (plan, below) gives detail down lighting for two rooms. Hung ceiling of two opposing planes which meet over light trough above partition reflects light to both corridor and fitting room (above).
Main light in the tea room (below) comes from a combination of two reflected light sources. Simple cove lights are supplemented by lights from steel channels (above) in a special hung fixture overlapping the cove (right, above).
"What's new in U.S. school design?" One answer is "whatever young architect Bill Caudill is doing."

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

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

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

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

- Daylighting is controlled by a combination of roof overhangs and interior window louvers of cement asbestos board which eliminate costly exterior shading devices and Venetian blinds or shades.
- A new type of window sill ventilation regulated by sliding panels permits fixed glass to be substituted for more expensive movable sash, provides draftless circulation even in driving rain.
- Big umbrella roofs (in two schools) not only integrate corridors and play areas with classrooms but give sun protection and improve light distribution.
- Classroom partitions of plywood panels topped with glass cut construction time, permit quick rearrangement of space for future needs, prevent youngsters from feeling “boxed-in.”
- A movable “teaching center” with tack and chalkboards on one side, closets on the other, allows flexible seating arrangements and frees perimeter space for built-in storage suits.

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

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

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

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

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

1. In the interior space gained over the slot, horizontal light baffles reduce sky glare.
Slot in roof of outdoor corridor and awning-type sash (above) trap prevailing southern breeze. Concrete curb serves as a seat for children and as protection from projecting sash.

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

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

2. Tie-rods carrying the load of the outdoor corridor roof to interior columns were also housed in the added clerestory space, eliminating Blackwell's exterior corridor columns and footings, providing greater safety for children and cutting costs 81/2%.

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

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

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

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

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

Lighting tests on this school show that a big overhang is an asset rather than a liability when classrooms are lighted from the sides. Says Caudill, "Readings near windows far exceed the minimum standards and the light should be cut down to improve distribution."

The overhang accomplishes this on the south, and on the north the light is reduced by using the same system of horizontal baffles that is employed in the Westwood School. The result is an almost level light distribution curve of good intensity (cross section, above).

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

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

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

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

This four-classroom wing cost $9.28 per sq. ft. as against Will Rogers' $9.12, mainly because it required just as large a heating plant as the six-room structure.
Free-standing "teaching centers" in classrooms combine closets and chalkboards, free perimeter for built-in storage units.

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

HIGHLAND PARK SCHOOL

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

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

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

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

Because glass block walls usually provide only a shallow vision strip of movable sash, modern schoolrooms of this kind require particularly careful window detailing to assure proper natural ventilation. To help meet this need, the biggest glass block manufacturer (American Structural Products Co.) asked the Texas Engineering Experiment Station to test glass block schoolroom walls of various designs to determine their effect on natural ventilation. The results indicate that a satisfactory flow of air in the lower part of the room—where it will do the most good on warm days—is easily obtained under these conditions:
- If movable sash can be adjusted to direct the breezes downward—as in the case of the typical casement window and the horizontally pivoted windows rotating more than 90°.
- If sun hoods over the vision strip are properly slotted to permit a downward flow of air into the windows.
- If big enough air outlets are provided in the wall opposite the windows. A continuous strip outlet is best, but the placement of outlets seems to have little effect on the rate and path of air flow within the room.

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

In the wind tunnel

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

Wanted: a better window

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

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

This, of course, is only one suggestion and the Texas team plans to study further the whole problem of ventilation vs. glare at the vision strip.
Sun hood was used with casement window in this test. Hood, 2'6", interrupted the downward flow of air on the outside of the glass block panel above the window. Result: an upward air flow inside.

SUN HOODS

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

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

WINDOW TYPES

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

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

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

AIR SPEEDS

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

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

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

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

VENTILATION BELOW WINDOW

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

MULTISTORY BUILDINGS

Schoolroom models have also made it possible to find out something about the effect of the building cube on the pattern of air flow. The Texas testers have been especially interested in this question. They could predict, of course, that there is some point on the surface of a building where the approaching wind separates, part of it becoming an updraft. The diagrams at left suggest that this point moves up with the height.
NEW INDUSTRIAL BUILDING TECHNIQUE modifies the light steel framework of the wartime Quonset to produce factories and warehouses in a hurry

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

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

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

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

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

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

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

The structure is designed for a minimum building two bays wide (71') by two bays long (80'). This minimum is easily expandable by adding modules of 35' 6" in one direction and 40' in the other for any desired dimensions. All parts are factory fabricated, prepunched for bolts and metal screws, packaged and shipped ready for erection.
Familiar arched ribs of Quonset, clipped one-third in length, are put together on the ground in subassemblies 20' long (above), then raised atop light steel structure with the aid of a crane (below). Side walls including door openings are also framed on the ground in bay sizes, then fitted between columns.

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

Structural frame consists of columns, shop-welded trusses, struts and knee braces. Knee braces are required only in outside bays. Trusses are prefabricated of small lightweight pieces. Truss chords are made of high tensile steel (50,000 psi. minimum yield with working stress of 27,000 psi).
Workmen on portable scaffold secure 20' arched rib roof subassemblies together after they have been positioned on the wall structure. Note light character of the completed framework, small size of the assembly crew.

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

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

Completed enclosure provides 18' clearance below struts, 28' clearance below top of vault, makes ample room for installation of big machinery or vertical warehousing of materials.
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Add to that fact, most days in most of the country, are overcast in winter. Here again metal windows meet the need because only metal windows provide enough daylight for good vision on overcast days.

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IS HOUSING INFLATIONARY?

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

By Miles L. Colean

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

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

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

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

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

Let's look at the record

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

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

Effect of government policies

This price rise should have corrected itself by slowing down buying until supply could catch up. (Continued on page 166)
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How Honeywell Customized Temperature Control Helps Provide Year-Round Comfort in Bonwit Teller's New Chicago Store

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

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

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

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

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

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

The heating plant and air conditioning were installed by William Adams Engineers, Inc., Chicago; ventilating by R. B. Heyward Co., Chicago; George A. Fuller Company, Chicago, was the general contractor.
Stock rooms offer a real opportunity for important savings—if a store is equipped with Honeywell Customized Temperature Control. Take the room where hats are stored, for instance. Because no patrons and few employees enter here, it's unnecessary to maintain as high temperatures in winter as in other parts of the store. In summer the reverse is true. This saves fuel in winter—and refrigerated air in summer.

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

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

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

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

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

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

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

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SPECIFY KOPPERS FOR LONG-LIFE ROOFING
EXPANDING POWER REQUIREMENTS

demand modern circuit breaker panelboard protection

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

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

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

Westinghouse Panelboards provide maximum adaptability for future unpredictable load demands. Change-overs are rapid, economical.

When you modernize or build, Westinghouse Panelboard specification assures quality—Be Sure!

Ask for our new booklet "Panelboard Planning".

Write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.
get into balance; but this natural correction was prevented by various postwar government actions and policies which increased the swollen supply of money even further and made it still easier for people to use it. These actions included:

1. making it possible and profitable for insurance companies and other lending institutions to get funds for mortgage lending by selling their U. S. government bonds to the commercial and Federal Reserve Banks where, by the processes of central banking, they became new money;

2. keeping interest rates low, thus encouraging people to borrow heavily the money that did not represent actual savings;

3. lowering down payments on FHA and veterans’ loans so as greatly to increase the number of people who could bid for the excess money that was available for mortgage loans.

Why prices went up

Even though home building increased ten times its wartime low, it could not keep up with the demand suggested by these policies so prices moved steadily upward.

But it was not housebuilding or housebuilders that caused the almost continuous price rise. It was the combination of a war-created shortage of houses with the government’s recklessly easy money policy that did it. Housebuilders did all they could to correct the situation: they broke building record after building record to meet the souped-up demand. If they had not done so, the price rise in houses would have been even greater than it was, so long as demand remained high and the reckless money policy was followed.

What happened in 1951

With a brave show of spirit, the Federal Reserve Board in March of 1951 finally changed its bond buying policy, so that temporarily at least the money-making process was slowed down. The froth was taken off the market and house buying was restored to its true character of savings investment.

As long as the new FRB policy can be maintained, lending institutions will have to rely primarily on the funds that come to them in the form of savings, and the volume of the loans can be increased only as rapidly as net savings come in. The rate of expansion obviously cannot be as rapid as that made possible by the artificial methods of making money, but once the shock of the change is over, the rate probably would prove satisfactory. And the result would be no resulting inflation.

(Continued on page 172)
IMMEDIATE DELIVERY!

Truscon Residential Interior Steel Doors

Now you can design and build into your residential projects these newest and smartest of all interior doors... and get prompt delivery from warehouse stocks to coincide with your building schedule!

Greatly increased production facilities enable Truscon to set larger manufacturing schedules for these strong, beautiful swing and slide steel doors. They offer these exceptional advantages: STABLE DIMENSIONS. Won't ever warp, twist, shrink or swell.

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LOW COST. Compete very favorably with doors of other materials when all factors are considered.

See SWEET'S for complete details on the entire line of Truscon Residential Steel Doors (Swing and Slide Types) for every purpose; and write for detailed literature on all other Truscon Steel Building Products. Truscon® Steel Company, 1056 Albert Street, Youngstown 1, Ohio. Subsidiary of Republic Steel Corporation.

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Roof Insulation Made of Cement and Air Bubbles

This photograph is a four fold enlargement of the structure of Poretherm. It shows the unit cell composition which gives it the light weight and the high heat insulating value.

Its Advantages: Speedy application because the material is pumped through a hose to the roof; it dries quickly because of the small amount of water which is used to make Poretherm; it is light weight and rigid; fireproof, frost proof, vermin proof and rot-proof.

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CONTRIBUTING to the overall distinctive appearance of the new Drayton Arms Apartments in Savannah, Georgia, is the ample use of Pittsburgh Products. Windows are glazed with Solex Heat Absorbing Plate Glass—"the best glass under the sun"—to keep rooms ten to twenty degrees cooler. The soft greenish coloring of Solex, while almost unnoticeable when looking through the glass from inside, acts as a wonderful guard against eyestrain from glare of bright sunlight. Pittsburgh Doorways, Polished Plate Glass, Pittco De Luxe and Premier Metal help to create an open-vision lobby, and Pittsburgh Mirrors are used in every room. Architects: Cletus W. and W. P. Bergen, Savannah, Ga.

THIS STAIRWAY of a remodeled office building in Charlotte, N. C., shows the application of 1/4" Herculite Polished Plate Glass on the stair rails. The first floor of this building features large expanses of Pittsburgh Plate Glass. The second floor, which overhangs the first, is glazed with Solex Heat Absorbing Plate Glass. Other glass products used here include Herculite Doors, Pittco Premier Store Front Metal, Pittsburgh Mirrors in the washrooms. Architects: A. G. Odell, Jr. & Associates, Charlotte, N. C.

TWINDOW permits designing large window areas, without sacrificing heating or air-conditioning efficiency. That means abundant daylighting, with interior comfort. Twindow, as shown in the cutaway section here, consists of two panes of Pittsburgh Polished Plate Glass, with a sealed-in air space between. The stainless steel frame makes handling easy and safe, saves installation time on the job.

Design it better with Pittsburgh Glass

Your Sweet's Catalog File contains detailed information on Pittsburgh Plate Glass Company products.

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PITTSBURGH PLATE GLASS COMPANY

ARCHITECTS ARE UTILIZING PITTSBURGH GLASS IN HEAVY CONSTRUCTION

ALL EXTERIOR GLAZING at the new John Wanamaker department store at Wilmington, Del., with the exception of the display windows, utilizes Twindow, Pittsburgh's window with built-in insulation. Additionally, 2,700 sq. ft. of Pittsburgh Polished Plate Glass, ninety Herculite Doors and 1/4" Pittsburgh Copper-Back Mirrors are effectively used in this most appealing structure. Architects: Massena & du Pont, Wilmington, Del.
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...gives privacy and increased efficiency

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...adds profitable facilities in same floor area

FOR INSTITUTIONS
...brings economical flexibility of space

WHEN YOU NEED FOLDING DOORS, SPECIFY FOLDOOR

The smartest thing in doors!

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THE DOOR WITH THE CORNICE ON THE TOP

Always identify FOLDOOR by this exclusive, attractive cornice top.

IS HOUSING INFLATIONARY?

But how will things work out in 1952?

Our present difficulty is that we are again in a war and are getting ready for a still bigger one. Consequently, it is again necessary to pay billions of dollars for goods that have no economic value in the ordinary sense. So far these war goods have pretty well been paid for by taxation, but the outlook is that, before 1952 is out, taxes will not be enough. Then the government will have to go out and borrow — issuing new bonds that will come into direct competition for savings with houses and all the other things that people want to buy or to invest in. The big question will then be: Will the savings be enough to go around? Unless government spending is reduced, they almost certainly will not. So the government may be faced with the old dilemma of either making more money by an expansion of bank credit or else restricting the buying of normal goods.

Neither alternative is good. If the bonds are taken up by the banking system (instead of by individuals and savings institutions), an immediate inflationary impact will be felt. If goods are restricted, the influence on prices will be the same. And if the two are used together as they were during World War II, the lid will be off.

Priority for housebuilding

Another curtailment of private housebuilding can be seriously inflationary. Demand for houses is still strong — so strong that despite credit controls, material controls, and general confusion, the market has absorbed 1,000,000 new homes in 1951 on top of 1.4 million in 1950. The number of families is still increasing, and full employment makes new families seek houses sooner and older couples hold on to them longer. We are still far short of being replaced. The amount of deteriorated housing accumulated during depression and war.

Yet it is just such action that bemused prophets are now vigorously urging. Mr. Eric Johnston, the erstwhile economic stabilizer, has demanded that housebuilding be cut to a limit of 450,000 to 500,000 new units during 1952 as an "anti-inflationary" measure. The effect would obviously be just the opposite. It would be about the most unstabilizing move that an economic stabilizer might dream of making.

For the present, it would mean the bidding up of prices and rents of existing houses, with the attendant evils of rent control and danger.

(Continued on page 178)
Genuine Clay Tile takes the heavy toll of traffic over the years...in kitchens, utility rooms, foyers and recreation rooms...resisting alike the constant wearing action of footsteps or the scratching of a carelessly dragged toy. Clay tile is proof against water and fire and wages a lifetime battle against staining and fading. It cleans like a china dish, paying a constant maintenance dividend. This handsome, non-critical building material is worth a fresh appraisal every time you design or build any type of building. Remember—whether it is for modern or traditional styling—clay tile is one of the most versatile materials you can use in designing distinctive color schemes.

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THE MODERN STYLE IS CLAY TILE
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you should know about
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fact 1
Although ventilators have long been selected primarily on the basis of capacity ratings, those ratings usually are based on horizontal wind tests only. In actual use ventilators must perform with winds blowing at any angle.

fact 2
Capacity ratings of most ventilators are not certified. Performance does not equal ratings claimed in some cases.

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It takes fewer Breiderts to do the job as same size conventional ventilators.

You can use the same number of smaller size Breiderts to do the same job as conventional ventilators.

Get all the facts! Write today for complete Engineering Data Book, including certified capacity ratings. Address Dept. J.

Every businessman should read "Plain Facts and Simple Figures," written by G. C. Breidert. This thought-provoking article pertains to the problems of every American businessman. The first twenty lines will open your eyes! Write for a free copy.

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Directly and Permanently to Concrete

KiFS, shown here in actual size, are a durable, elastic rubber compound.

KiFS are nailed six inches apart on the concrete form boards. Then the concrete is poured. After concrete has hardened, the removal of form pulls the elastic KiFS out of the concrete, leaving clean undercut niches. The kifed ceilings, walls, beams, columns are now ready for plastering.

160,000 KiFS used in this 20-floor building, 60 Sutton Place South, New York, N.Y. Architect: Arthur Weiser, General Contractor: Paul Tishman Co.

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The Halesey Taylor line of Drinking Fountains and Coolers embraces types for every kind of structure ... public, educational, church, hospital, commercial and industrial. And you'll find types to suit your needs, each with typical Halesey Taylor advantages ... sanitary contamination proof, projector, contemporary design and a welcome freedom from servicing annoyances.

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This lightweight, low cost mineral-type acoustical material is easily and rapidly suspended on a grid system of T sections. Cost of materials and installation is about that of conventional non-acoustical ceilings.

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Across New Jersey as across the Nation, the first choice in quality hardware is YALE! What better recommendation can any hardware offer than this outstanding vote of approval by America's leading architects and contractors.

And, a well-earned endorsement it is! For, it is only by making maximum use of research, engineering skill and progressive design methods that YALE has been able to produce the quality products of today—products that mean greater security...rock-bottom maintenance costs and extra years of dependable service.

See for yourself how easy and inexpensive it is to apply these advantages to your next scheduled job. For complete details, write, today, to The Yale & Towne Manufacturing Company, Dept. S-61, Stamford, Connecticut.

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all 43 buildings of the

.. America's newest, safest speedway!

And, here's the Yale hardware specified...

YALE knobs and roses, #D35 and G222
A knob within a knob, the #D35 has a bronze finish spun over an inner shell of steel. Result: beauty with strength and resistance to indentation. The perfect companion, rose #G222 is finished in bronze as well.

YALE Compact door closers — series 90
Available in many sizes and models, these famous YALE door closers work quickly, quietly and firmly. Smart-looking, they combine low installation costs with minimum upkeep.

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With self-lubricating latchbolt and armored front, this Builder's lock offers extra years of service and top security. Bronze fronts.

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Running from Delaware to the approaches of Manhattan, the 118 mile New Jersey Turnpike was constructed at an estimated cost of 255 million dollars. It boasts six lanes and forty-three service buildings, all exclusively equipped with YALE hardware. The entire system is Grand Master-keyed!

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Associate Architects: Frank Grad & Son
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Contractors: A. A. LaFountaine & George Arace
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Hardware Supplier: New Jersey Hardware Company
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Base Map Copyright by Rand McNally & Company, Chicago 5155.
ANOTHER FAMOUS BUILDING DEPENDING ON

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Architect—SHREVE, LAMB & HARMON, NYC
Heating, Ventilating & Air Conditioning—Engineer:
EDWARD E. ASHLEY, NYC
Contractor:
ALVORD & SWIFT, NYC

A fine example of modern commercial America is the outstanding 5th Avenue, New York, store of Best & Co., world-famous apparel store. The forward-looking management of this store overlooked no detail in planning for the comfort of customers and employees. Small wonder "Buffalo" Fans and Air Conditioning Units were chosen— their reputation for long life, dependable and economical service has been proven for many years.

And comfort is just ONE of the important jobs being done by "Buffalo" Air Equipment! Its value in defense, for instance, was established in many ways during World War II. Let us show you how many of your problems can be solved or controlled by "Buffalo" Air Equipment!

"Buffalo" Type "H" Humidifier nearing completion. Note sturdy galvanized steel casing.

"Buffalo" VPC Cabinet, a complete, central air conditioning unit. Note compact filter section.

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FORCED DRAFT
AIR WASHING
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INDUCED DRAFT
PRESSURE BLOWING

EXHAUSTING

IS HOUSING INFLATIONARY?

of further corruption of the credit system. It would cause the disruption of efficient building organizations, with the loss of capacity later to overtake the shortage.

For the future, it could produce again the impatient clamor for houses which followed World War II and made it politically difficult to restore sound financing methods.

What to do

Every effort should be made to prevent a repetition of the policies which forced construction costs up to more than twice their pre-World War II levels. That experience indicates that the first objective should be to control the monetary system—rather than trying first to control everything else. The resort to bank financing of a federal deficit should be a very last resort. The way to avoid this is to keep the deficits to a minimum by reducing waste in military expenditures and by imposing a Spartan frugality on other government spending, and then to finance what must be borrowed directly from savings rather than from the banking system.

Saving, of course, should be encouraged, and home buying should be recognized as such an important form of saving that it could play an important part in economic stabilization. Money invested in houses is not available for spending on more volatile commodities. Consequently, the stabilizers might well consider giving housebuilding a priority next to defense itself, encouraging as large a volume of new housebuilding as may be financed out of savings (including, of course, the savings of lenders) and limited otherwise only by the amount of materials that can be made available.

Inflation vs. invasion

The requirements of national security plainly must come before everything else. But it is also well to bear in mind, as the insatiable appetite of the military appetite is more and more demonstrated, that national security means more than arms alone. Since there can be no such thing as absolute security, the several dangers to it and the several means of achieving it must be weighed together. Inflation can be as serious a threat—and is perhaps a more present threat—than invasion. Both must be guarded against, not one to the exclusion of the other.

One important way to guard against inflation is to put real savings into housebuilding. And considering all the risks ahead, we may well begin to ask, not is housing inflationary? but can we afford to run the risk of inflation by unduly restraining housing?
The architect has designed his building not only to be modern but to be constructed with modern methods.

This is something to consider—why put up temporary floors? A building under construction does not have temporary frame or temporary spandrels.

When Q-Floors are used, as in the handsome new Oil & Gas Building, a great deal of temporary material has been eliminated which is required by slower, old-fashioned construction. The steel subfloor, Q-Floor, goes up as fast as the frame. Welded permanently into position, it is used immediately as a working platform by all subcontractors. Clean, non-combustible, free from falsework and shoring, it is not slowed by inclement or freezing weather. Mechanics can work continuously throughout a Q-Floor job. Materials can be stored close to where needed, saving extra handlings and off-site storage space. By proper job organization, construction time can be cut 15 to 20% with Q-Floors.

On big jobs, this has saved a great deal of money. Furthermore, the earlier completion date brings revenue in sooner.

The electrical feature of Q-Floor, also, has construction and economic advantages. The steel cells of Q-Floor act as raceways for electrical systems. An outlet can be established on any six inch area of the finished floor, in a matter of minutes, by merely drilling a small hole and installing a fitting. Therefore, outlets and partitions can be located after tenants move in. This saves a lot of drafting room time.

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Write for the latest Q-FLOOR CATALOG and folder showing the new Q-Floor buildings with architect listings.
Magnificent Manhattan House, the remarkably modern residential apartment project recently completed in midtown New York, contains many notable advances that contribute to the comfort, pleasure and convenience of its occupants. It is not surprising, therefore, that the owners selected Kitchen Maid Flo-Line cabinets of warm, friendly wood. By their use in scores of modern apartment buildings and thousands of fine residences throughout the land, Kitchen Maid has proved their superiority time and again. Builders appreciate especially, the modern Flo-Line styling, the fine cabinet work, the flexibility and permanency of wood construction, and the skilled assistance provided by an old, experienced dealer organization. Decide now to choose Kitchen Maid cabinets for your next job. Write for catalog.

For really modern washrooms—
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For a detailed dimension and installation drawing of the No. 945 fixture or for the help of a trained Scott consultant, write Washroom Advisory Service, Dept. Al, Scott Paper Company, Chester, Penna.

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**Clear, flat glass,** because people like lots of daylight and clear glass transmits more light than glass in any other form...

**Wall to wall,** because this is economical, lightweight protection, especially economical for curtaining a multistory building...

**All the way to the ceiling,** because any non-transparent material above the window presents a barrier to vision and so sets up psychological limits to the room size; whereas, clear glass does not obscure vision but permits the lines of the ceiling to go on, apparently into the sky. Thus the feeling of bigness and freedom from the outdoors is linked with the room space.

Daylight Walls have now proved themselves in all orientations, in all types of buildings and in all regions of the country. They are economical—judged by first cost, by installation cost and by low maintenance cost. When made of *Thermopane* insulating glass, they increase the efficiency of air-conditioning and heating systems. But they also provide ventilating units close to the ceiling, when desired, for air circulation. Heat Absorbing plate glass is available to serve special needs.

So consider the value of view, a sense of spaciousness, lots of daylight and economy—these are the reasons why the Daylight Wall has become the facade of modern living in all its aspects.

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*Thermopane* insulating glass is widely and successfully used. *Thermopane* with $\frac{1}{8}$" of dry air hermetically sealed between two panes has twice the insulating value of single glass. This minimizes chilliness, drafts and heat loss at windows. *Thermopane* cuts air-conditioning costs by reducing the amount of heat entering during summer. Write for *Thermopane* literature.

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(Continued on page 186)
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**LOBBY OF LIGHT**

reduces brilliancy (by varying the amount of white mixed with the colors) according to changing daylight conditions.

To diffuse the lights and produce a well mixed color, a ceiling of hexagonal plastic sections was used. Called a hexcrate, it provides the screen through which the continuing drama of light is played.

**Behind the facade**

The lobby of light is the finishing touch on the renovation of a block-sized pair of buildings erected at minimum cost in 1922-23 to house furniture showrooms. When a builders' strike delayed opening a nearby buildings in the 1920's, the owners opportunistically converted the 383-385 Madison Ave. building into office space. During that booming decade, the buildings earned many times their preconstruction budget, but when the depression hit and millions of square feet of office space were brought on the market, the buildings were among the first to suffer. One of them went broke and was taken back by the New York Central Railroad whose tracks run underneath. Then Webb & Knapp bought the buildings at a bargain price.

When Zeckendorf joined Webb & Knapp, he had an inspiration that air conditioning and high-brightness artificial light would soon change the economics of office rentals. In addition, he had become convinced that big corporations can operate their offices more efficiently on big, square floors rather than on long floors stretched out to keep all offices close to windows. Square floors, he argued, reduce distances from office to office and provide large open spaces where clerical workers can be more easily supervised. Furthermore, the Webb & Knapp buildings on Madison Ave. had the big, square, compact floors and could have the lighting and air conditioning necessary to convert the dark, gloomy areas into highly desirable space.

**Back in competition**

Over the past six years, Zeckendorf has been backing his ideas with a renovation program which cost more than the original structures. Exterior sand blasting, interior redesigning, re-decorating and rewiring (for a.c.), plus complete air conditioning now are nearly finished. The renovation has put the former loft buildings into direct competition with not only the best prewar offices but the best postwar buildings as well.
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Absorptive air conditioning system sets record in size and flexibility

Air conditioning of Manhattan's new Sinclair Oil Building is noteworthy on two counts: 1) It is the biggest system of its kind in existence, and 2) Its design permits the most flexible operation possible today.

Decision to make a roof installation of direct absorption type air conditioning units was motivated by complicated basement conditions and economic considerations with regard to pumping costs.

What normally would be the basement was to be used for stores on the underground concourse connecting the building with Rockefeller Center. Normal sub-basement space was needed for services, which would have meant deeper excavation to place air conditioning equipment below the ground floor. Thus, 1,763 cu. yd. of excavating of solid Manhattan rock were eliminated (at an approximate saving of $12,000).

By placing these units on the roof no static head pressure is lost in the chilled water circuit. Proximity to the cooling tower also materially reduced friction drop in condensing circuit pressure. As a result, the decision for roof installation was made.

Four of the direct absorption type units were installed in parallel on the 27th floor. Though the installation cost of these refrigeration units ran 5 to 10% higher than that of other systems, the fact that piping to cooling tower was kept at a minimum and excavation for housing the units was eliminated more than offset this expenditure.

Two condensing water pumps (with a third on a stand-by basis) supply cooling water to the four refrigeration units which are the largest such machines commercially available: rated at 350 tons at 45° F. Steam at 60 psi is the source of energy.

Chilled water goes to 1) four high-pressure central station units which serve a typical high-pressure window unit system, 2) interchanger or mixing valve assembly for secondary coils in the window unit system and 3) low pressure central station units on each floor which serve interior zones from the second floor through the tenth, plus two additional low pressure central stations serving the relatively small interior zones in the tower.

The entire system provides for winter heating and summer cooling through the same central stations and window units. In line with the most advanced engineering practice, room to room control is available and one room can be heated while a room on the opposite side of the same floor can be cooled as the sun load shifts.

This is accomplished by varying the operation of the secondary (chilled or hot water) coil in the window unit system and the primary air source. One can produce heat while the other continues to cool and the resulting mixture is controlled by the room thermostat.

Water to water heat exchange is used for the window units up to the tenth floor. Room thermostats (controlled by the occupant) are arranged to provide maximum flexibility in any future redispersion of the wall partitions.
"We have to know that this new mine is going to do its job even after riding for hours under the belly of a plane or being stored long periods in sub-zero temperatures," said R. E. Hightower, chief of the Technical Evaluation Department, Naval Ordnance Laboratory, White Oak, Maryland. The desired temperature and humidity conditions are precisely provided by Worthington refrigeration. Contractor: Arthur E. Magher Co., N.Y., N.Y.

They're Checking Ordnance at 65° Below!

You see, that cylindrical object is a mine. The masks keep faces from freezing as the Navy studies icing effects to be certain that neither ice nor stiffened parts will affect its operation when dropped from a sub-zero atmosphere into the ocean.

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Mount Zion Hospital, San Francisco, Calif., Architects: Skidmore, Owings & Merrill, N.Y.

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TOWARDS AN ORGANIC ARCHITECTURE by Bruno Zevi. Faber & Faber, Ltd., London. 173 pp. 9½ x 6½. 25s.

In the current “Battle of the Styles” within modern architecture, some critics have drawn the line sharply between “organic” (or informal) and “inorganic” (or geometric) architecture. Bruno Zevi is one of these, and as an ardent partisan of Wright and, thus, of “organic architecture,” he is in as good a position as anyone to speak up for this direction. It is a direction best represented in the U. S. on the West Coast; but its followers have worked all over the world, notably in Switzerland and in the Scandinavian countries.

His definition of organic architecture—or, rather, that of Walter Behrendt, with whom Zevi seems to identify himself—is that its characteristics are close contact with nature, multifority, structure conceived of as a growing organism, intuitive design, dynamic forms free from geometry, and reasonable beauty—and that its buildings are a product of contact with reality. Against this, Zevi (and Behrendt) believe that inorganic, geometric architecture is contemptuous of nature, ruled by systems and laws, considers structure as a mechanism to produce absolute order, is based on stereometry and is the product of education and thought. If one were to name two living architects who most clearly exemplify these two directions as Zevi sees them, then Aalto and Mies van der Rohe would, probably, stand at the extreme opposite ends of his scale. In transferring the analogy to painting, Zevi sets up the free-form painter Hans Arp against the late geometric purist painter Piet Mondrian.

Now these differences are real enough—although they are, perhaps, less deep than they appear today. It should be remembered, for example, that both Mondrian and Arp belonged to the Stijl group of painters, sculptors and architects in the early '20's, and that the principles underlying their (apparently) very different abstractions were considered almost identical.

Where Zevi’s brief for informal, organic architecture breaks down is when he goes beyond the residential field: For in the field of tall structures, of monumental buildings of every type, the exponents of organic architecture (with the sole exception of Wright) have made no original contribution; where they have tried they have produced merely what one critic has dubbed “the biggest d---d cottages in the world.”

In residential architecture, however, the organic boys have made a real contribution. It may be that their deliberate opposition to structural order and formal discipline will some day be rejected; but even if it is, their work in “humanizing” the modern house is likely to leave its mark.

As a defense of this movement—so far as it concerns residential architecture—Zevi’s book, then, is valuable and interesting. However, in his attempt to extend the principles of organic architecture to large-scale structures, the author has failed to be very convincing. But so have the architects who have tried to do this in actual buildings; for most of their large-scale structures have ended up geometric and thus, in Zevi’s vocabulary, apparently inorganic.—P.B.

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PRODUCT NEWS

REINFORCED PLASTIC PANEL transmits up to 90% of the visible light

Although the same amount of glass filament reinforcement goes into each Duralux plastic panel as into its sister product Corrulux, the new sheeting is considerably more translucent. Processed in six pastel colors which transmit from 75 to 90% of the visible light (as compared with 55 to 70% for Corrulux), Duralux is suitable for skylighting where high utilization of daylight via a lightweight shatterproof glazing is desirable. The material’s light transmission has not been improved at the sacrifice of strength, however. In fact, the new panels have a flexural strength in excess of 15,000 psi and loading capacities of more than 100 lbs. on a 4’ span. Warp resistant, the reinforced plastic is said to be impervious to mildew, humidity, rot, most industrial fumes, and weather extremes, nor will it discolor or craze. It is made in flat sheets and in corrugations which correspond to standard asbestos and metal roofing and siding so that it can be integrated in construction by nesting without costly flashing. The panels may be sawed and can be nailed, bolted, or screwed to any surface. Selling for about $1.05 to $1.35 per sq. ft. (Corrulux is about $1.00 to $1.25), Duralux is reputed to be installed as skylighting for about 25 to 40% less than other materials because of the simplicity of application. Panels are 42” wide and come in lengths up to 12’. Two treatments are available: a smooth finish for glazing and a crinkle finish for decorative partitions. The most transparent color is a pale opalescent hue called “Max-Lite.”

Manufacturer: Corrulux Corp., Box 20026, Houston 26, Texas.

PLASTIC WEATHER STRIP made for glass doors

A clear plastic fitting with an extruded rubber inset, ABCO forms a neat weather stripping on glass doors. Designed for tempered ½” glass doors, the new device may be slipped on and off the edges quickly and easily without tools as seasonal needs change (or left on, where year-round air conditioning systems are in use). Not only does it reduce drafts and dust but it also eliminates the whirring noise sometimes caused by air passing through abutting glass doors. The strip is effective on either single or double action doors. A 7’ length sells for $12.50.

Manufacturer: Abbott Glass Co., 160 E. 120 St., New York 35, N. Y.

EMBOSSED ACOUSTICAL TILE creates decorative ceiling patterns

Armstrong Cork has added an embossed tile to its line of acoustical materials. Containing two delicately scored bands across its surface, the new product makes it possible to design many interesting geometric ceiling patterns: The embossed squares may be alternated with plain tile; they can be used in rectangles as a subtle overhead echo to the dimensions of an office bay or, arranged to form a simple border for the entire ceiling. Like standard Travertone, the embossed panels are made from mineral wool fibers (rated as incombustible material by U. S. Bureau of Standards). Offered in 1’ squares, the tile has (Continued on page 204)
Every feature you could ask for in

ASBESTONE WALLBOARDS
UTILITY OR FLEXIBLE ASBESTOS-CEMENT SHEETS

PRETTY AS A PICTURE
Perfect medium for modern exteriors. Big (4' x 8') sheets give simple, clean effect. Smooth, natural gray finish is beautiful and gives ideal surface for painting.

RUGGED AS A ROCK
Wears for life of building—under any climatic conditions. Fireproof and non-corrosive; needs no upkeep. Unexcelled for all around protection and long-range economy.

PRACTICAL AS A SLIDE RULE
Easy to install without special tools, using nails, screws, or adhesives. Can be sawn, scored and broken, or cut with shearing jig. Ideal for use over light framing.

VERSATILE AS A HANDY MAN
Specify with confidence for complete exteriors and interiors of residences and commercial buildings—plant interiors, shower stalls, air ducts, laboratory interiors, garages. Hundreds of other uses.

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Attractive Designs and Colors

ASBESTONE CORRUGATED
In two weights: "Standard 400" and lighter "Economy 250"

See Asbestone Section in Sweets Architectural File

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5387 Tchoupitoulas St., New Orleans 15, La.

Please send us free specification catalogue and literature on the following products:

☐ Roofing & Siding Shingles ☐ Corrugated Sheets ☐ Wallboard

Name
Street
City State
No longer is it necessary to expose personnel to "hot" buses or to sacrifice safety to gain accessibility to your control centers. Removal and replacement of Westinghouse Starter Units is safe and simple. "Magna-Grip" stab connectors simply "plug-in" to the power bus.

To work on the panel, starter unit may be withdrawn to a tilt-out disconnect position and locked. The unit is "dead"... completely disconnected from the power bus and self-supporting in this position. Protection is assured since it is impossible to reach around the starter unit and touch the bus.

For work on the bench, it is a simple matter to remove the complete starter unit. Note that the unit door remains on the panel so that it can be closed to guard the exposed bus. Rigid guide rails in the structure facilitate replacement of the starter unit. These rails align the starter and steer the "Magna-Grip" stab connectors into accurate contact with the power bus.

Westinghouse Control Centers offer still more points of safety.

For example:
- Complete baffling to localize unusual arcing if faults occur.
- Interrupting capacity of each starter not less than 15,000 rms amps.
- Self-cooling construction for foolproof ventilation.
- Sturdy structures that are self-supporting.

Get all the facts as presented in booklet B-4213 from Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna.
BRIXMENT exceeds the strength requirements for masonry cement (both Type I and II) of the American Society for Testing Materials' Specification C91-49 and the Federal Specification SS-C-181b. Type II is usually specified when high strength is required.

When Brixment mortar is tested in compression between two brick, at 28 days or later periods, the brick usually crack before the mortar fails.

*The strength of piers laid with Brixment mortar approaches the strength of piers laid with straight portland cement mortar.*

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY
a fissured surface painted cream-white. Its noise reduction coefficient is .65. Installed cost ranges from about 65 to 70 cents per sq. ft. in the 11/16" thickness.


**SQUEAKLESS CHALKBOARD** made of matte-finish porcelain enameled steel on plywood

Slate and stylus have characterized the young

The green enameled steel-on-plywood chalkboard is available with an integral recessed chalk tray.

The green enameled steel-on-plywood chalkboard is available with an integral recessed chalk tray.

student for centuries. But in recent years, as illuminating engineers and school architects have turned from the slate blackboard to muted green writing surfaces, several substitute materials for the weighty and hard-to-handle material have appeared. One of the more successful of these is a porcelain enameled chalkboard.

Utilizing U. S. Plywood's Armopoly process of pressure-bonding different materials together with strong adhesives, Bettinger Corp. applied a porcelain enamel 20-gauge steel sheet over plywood and backed it up with another metal sheet as insurance against warpage. Unlike most other chalkboard materials, this one may be installed without trim on any type of wall or adapted as a portable unit. For a completely flush installation, the board can be supplied with an integral recessed chalk tray (above). Bettinger's board also doubles as a bulletin board: Its steel face attracts small magnets which may be used to hold paper notices. Matte-finished in a restful green color, the surface may be washed or wiped clean. It is abrasion and chip resistant and is unaffected by temperature changes. Because of the plywood core, panels may be joined simply by butting and gluing them together. The raw paneling costs $1.50 per sq. ft.; installed price, depending on type of wall surface and whether moldings are used, ranges from about $2.30 to $3. Stock widths are 3', 4', and 4'. Although the material is supplied in any required length, 8' and 10' panels are said to be most practical. Desk tops of the same material are also available. On these, the porcelained-steel surface is extended and bent over the edges of the panel smoothly, and the corners are welded. Besides serving as a durable work surface, the matched color of chalkboard and desk top cuts the contrast in light intensity value to a minimum.

Manufacturer: Bettinger Corp., Waltham, Mass.

**GREEN PAINT** transforms any smooth hard surface to chalkboard

Although lacking the glamour and longevity of the porcelain enameled unit above, Sapolin's canned writing surface also lacks an uppity price tag. Easily brushed or sprayed over plywood hardboard or metal, Rite-On Green paint takes chalk and erasing well and may be washed many times without harming its finish. One coat is said to be sufficient coverage for most surfaces. The paint sells for $2.10 per qt.

Manufacturer: Sapolin Paints, Inc., 229 E. 42 St., New York, N. Y.

(Continued on page 208)
The NEW "Lo-Loss" Feeder Bus was designed for the transmission of electric current up to 4000 Amperes at 600 Volts or less. Ideal for welding and other low power factor loads.

Efficiency
Insulated copper bars mounted on close centers provide low reactance, low voltage drop, minimum temperature rise.

Toughness
No. 12 gauge channel frame supporting insulators makes it toughest in the business. Recent independent, unbiased tests prove "Lo-Loss" can take it—100,000 RMS Amperes at 440 Volts! Details on request.

Compactness
Composite drawings comparing size of "Lo-Loss" with other busways prove why it is ideal for remodeling jobs where space is at a premium.

Flexibility
Can be installed in any position with bars in vertical or horizontal position. Readily adaptable to industrial or commercial installations. Approved for vertical mounting when used for risers.

Installation Ease
Factory built, ready for installation.

Write for the new Busway Catalog and Sample Specifications

First on all counts!

National Electric's
New "LO-LOSS" FEEDER BUS

Phases A, B, C

All bar ends bent outward at 45° angles to facilitate joining. Vertical mounting supports assure perfect alignment.

National Electric PRODUCTS CORPORATION
1334 CHAMBER OF COMMERCE BLDG., PITTSBURGH 19, PA.
have you seen volume I number I of

The new light construction edition of

house + home
THE MAGAZINE OF BUILDING
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over 100,000 subscribers have already signed up
for this new professional magazine
devoted to all that is significant, practical and exciting
in America’s new houses
garden apartments and shopping centers.

“A great magazine
just what home building has needed,”
says builder Tom Coogan

“An excellent idea,” says Aubrey Costa
president of the Mortgage Bankers Assn. of America

“I'm glad—
there has been a great vacuum”
says architect Royal Barry Wills

you can still get the first issue
which brings you:

color in the $13,000 house
what a leading builder is doing to increase sales
with fresh dramatic color combinations inside and out
(a full color presentation)

wider lots
a dollar-and-cents study
on how to give the one-story house more ground
without cutting your profit

six custom-designed houses
by top architects from coast to coast
including special projects on remodeling and decoration

how much house for $10,000?
how midwest builder Andy Place
gives his customers perimeter heating and double glazing
plus other lively features

... and many other practical,
money-saving, idea-sparking studies

professional rate for a one year domestic subscription

$5.50

540 North Michigan Avenue, Chicago II, Illinois
Fixture-Bare Floors Reduce The Cost Of Cleanliness

Immaculate cleanliness is no problem in toilet rooms with fixture-bare floors—where plumbing fixtures are off the floor, because there is nothing to interrupt the sweep of the broom and the swish of the mop. Fixture-bare floors reduce the day-by-day dollar cost of maintenance of cleanliness to an all-time low while lifting sanitation to a new high. Specify wall type plumbing fixtures—they give toilet rooms a roominess that is otherwise unobtainable.

Toilet rooms are as necessary as are lobbies and corridors to make a building livable and usable. Fixture-bare floors and furredless ceilings distinguish the modern toilet room from the crowded closed-in environment that has been common where old fashioned floor type equipment is used. The desirable effect of an expanse of Fixture-Bare Floor can be obtained within the same area usually allotted to a toilet room by: (1) utilizing floor space that is usually required for floor supported equipment; (2) by avoiding exposed or furred-in drainage lines on the ceiling. This New Way of building utilizes wall type plumbing fixtures throughout installed the Zurn Way—the simple, fast, safe way to install wall type closets, lavatories, sinks and other fixtures. This New Way reduces the use of building material; eliminates the necessity of suspended ceiling constructions; saves time and labor and protects toilet rooms against premature obsolescence. Wall type plumbing fixtures lift sanitation to a new high. Insist on wall type plumbing fixtures installed with Zurn Wall Closet Fittings and Carriers for toilet rooms in old and new buildings of every type. Write for booklet entitled “You Can Build It (Cubic Foot of Building Space) For Less A New Way”.

J. A. ZURN MFG. CO. PLUMBING DIVISION • ERIE, PA., U.S.A.
Sales Offices in All Principal Cities
Pre-eminent Manufacturer of Sanitary Products for the Protection of Human Health and Modern Structures
ALUMINUM FLUSH DOOR. Its installed price is competitive with wood

Truline, a packaged aluminum flush panel interior door and frame, can add a neat decorative note to the contemporary office or apartment. In initial cost the new door compares favorably with finished wood units: F.o.b. factory prices run from $33 for the 2' x 6'8" to $47.12 for the 3'6" x 6'8". Frames, of rolled aluminum sheet, list at $20.83 to $27.43, and lock sets sell for $2.31 to $7.18. (Builders' discounts are allowed on all components for quantity orders.) A real saving is reflected in the labor-time-saving in installation. Once a workman is familiar with the setup, he can affix the frame and hang the door in 15 minutes, using a screwdriver as his only tool. The clamp-type frame makes up for wall deviations up to 1/2" and opening irregularities up to 3/8". No paint or other finish is required— the doors are factory-sprayed with durable aluminum lacquer (said to be corrosive-proof for 6 years) and maintenance is negligible. The door's construction consists of flat 24-gauge aluminum sheets over a phenolic-impregnated paper honeycomb. Its stiles are solid extruded aluminum alloy sections and have provisions for interlocking hinges. The doors are fire and warp resistant and have low sound and thermal transmission. Swinging and sliding models are also available.

Manufacturer: Truline Developments, 9155 Sunset Blvd. West Hollywood 46, Calif.

ADJUSTABLE CLOSET SHELF slips into place over nailheads, eliminates fancy carpentry

No hook strips, cleats, poles or sockets are needed to install the Titan storage shelf. Made of telescoping 22-gauge steel sections, the shelf slips over four nail or screw heads placed in the wardrobe or linen closet walls. Sizes range from 10" to 24" deep and up to 8' wide. (Units over 4' wide have center brackets for bracing.)

1' x 3' shelf sells for about $2.50; the 18" 4' costs approximately $3.50. Hanging rods, integral with the shelf, cost 23¢ per lin. ft. Co hooks, too, will be supplied in place at 10¢ each. (On a recent large apartment project the saving realized through factory attachment of the low bent wire device was estimated by the architect at 21c per hook!) The shelves receive a baked aluminum enamel finish at the factory.

Manufacturer: Titan Tool Works, 7 S. Dearborn St., Chicago 3, III.

(Continued on page 212)
Now, concrete blocks get really lasting resistance to moisture and water seepage—with an easily applied coating system based on VINYLITE Brand Resins.

In basements that once leaked water to the floor in every rain, these remarkable paints have kept walls dry and gleaming white for more than a year. Applied to the exterior of a Cincinnati warehouse that was half inundated for nine days during a flood, there was no evidence of blistering, chalking, erosion, flaking, or map cracking.

Coatings based on VINYLITE Brand Resins are tops in their field for resisting weather, salt and corrosive atmospheres, oils, greases, alkalis, most strong acids.

Available in a wide range of colors, they cut maintenance costs by staying on the job far longer than older materials. They’re highly recommended for concrete floors, bricks, stucco, cinder block and asbestos siding—for homes, apartments, factories, chemical plants.

They’re the last word in providing dry, clean, attractive walls.

Ask us for a list of representative suppliers of concrete coatings based on VINYLITE Brand Resins. Write Dept. LG-14.

Data on concrete block coatings courtesy Perry & Derrick Co., 109 Corwine, Cincinnati, Ohio

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They’re the last word in providing dry, clean, attractive walls.
Kawneer Entrances fulfill every modern architectural requirement in performance, appearance, and installation. They are precision-manufactured for effortless, trouble-free service through the years. The Kawneer Entrance Line is the most complete in the industry. Consult your portfolio of Kawneer details, Sweet's Catalog, or write The Kawneer Company, Dept. MB-82, 1105 N. Front St., Niles, Mich., or Dept. MB-82, 930 Dwight Way, Berkeley, Calif.
**PRODUCT NEWS**

**SPIRAL-LOUVERED DIFFUSER utilizes its directional vanes as integral damper**

Whether set for low or full delivery, the Flexiflo maintains a uniform air flow pattern. Instead of the familiar concentric rings, this diffuser employs a conical spiral to regulate the amount of air distribution as well as its pattern. Connected to the main cross bar by a threaded center rod, the flexible blade is raised or lowered by turning the center rod knob. The pitch of the continuous louver remains unaltered so that the effective area served by the unit may be controlled without changing the pattern of diffusion. Deflector vanes, behind the cone, may be moved individually from the outside. Adjusted after the unit is in place, this built-in deflector is said to compensate for unequal air distribution in the supply duct and to block off air in the direction of a nearby obstruction, such as a beam. Very rapid mixing with room air is claimed for the jet-like action of the Flexiflo. The model is available in 11 sizes, the largest of which is capable of handling up to 9,000 cfm with a throw of 48°. Prices range from $16 for the 6" neck size equipped with equalized vanes up to $105.50 for the 30". All are finished with a baked aluminum lacquer, but special colors will be supplied on order.

**Manufacturer:** Universal Diffuser Corp., 891 Whittier St., New York 59, N. Y.

**ADJUSTABLE CEILING SPOTLIGHTS made in moderate price range**

The new Controlite ceiling fixtures provide flexible spot lighting for showrooms, theaters, display windows, and restaurants. Made in semi and fully recessed ceiling models, with and without concentric louvers, the models sell for about $25. The light source, an R-40 reflector lamp, may be rotated in a full circle and tilted at 42° angle. Regulated by friction, the globe is merely swiveled to the desired position; there are no nuts or bolts to play with. The fixture housing is of 20-gauge steel with satin-finish chromium trim, and is equipped with bar hangers for easy installation.

**Manufacturer:** Marvin Mfg. Co., 3071 E. 12 St., Los Angeles 23, Calif.

( source: *ARCHITECTURAL FORUM*, page 214)
Benjamin K. Wyatt, architect, specified Stran-Steel Framing in the construction of Robstown High School Gym, Robstown, Texas.

Stran-Steel Framing was used in walls, roof and partitions in the St. Elizabeth School, Alice, Texas. Wade, Gibson & Martin, architects.

In San Antonio, the Esther Perez Carvajal School is constructed of Stran-Steel Framing. Percy W. and J. Clyde Williams, architects.

The James Madison Elementary School, San Antonio, Texas, is built around Stran-Steel Framing. Phelps, Dewees & Simmons, architects.

Roof of the George West School, George West, Texas, is constructed of Stran-Steel Framing. Wade, Gibson & Martin, architects.

The W. J. Knox Elementary School, San Antonio, is another example of widespread use of Stran-Steel Framing. Benjamin K. Wyatt, architect.

For Texas schools, too, architects are specifying STRAN-STEEL FRAMING

What school architects like about Stran-Steel floor joists and framing members can be summed up briefly: adaptability to modern design, rigidity, nailability, economy in application of collateral materials and erection time, incombustibility.

The Texas school buildings pictured here are typical of the successful use of Stran-Steel Framing in schools, factories and multiple-type dwellings throughout the country. You owe it to your client to thoroughly investigate this dollar-saving, time-saving method of construction.

Complete literature and specifications data available on request; or see Sweet's catalog service, architectural and building files.

GREAT LAKES STEEL CORPORATION
Stran-Steel Division
Ecorse, Detroit 29, Mich.

NATIONAL STEEL CORPORATION
A small but handsome road show of building products is now circulating among architectural schools. Bridging part of the hiatus which exists for most incumbent designers between classroom theory and utilization of current materials, the exhibits might also be well received by local architectural groups interested in keeping up with manufacturers' offerings. Technical information, brochures, and actual samples are shown on neatly designed 3' x 6' display boards and natural wood counters which give a welcome continuity to the exhibit. There is no charge for looking; contributors foot the bill. The firms taking part at present include: Otis Elevator, Pittsburgh Plate Glass, Structural Clay Products Institute, Gate City Sash and Door, American Iron and Steel Institute, Lead Industries Associations, H. R. Fletcher Co., R.O.W. Windows, and U. S. Plywood Corp.

EXPANDED METAL. Penmetal Expanded Metal Meshes. Penn Metal Co., Inc., 205 E. 42nd St., New York 17, N. Y. 26 pp. 8 1/2 x 11".

Based on the theme "how to make a little metal go a long way," this new catalogue shows several architectural and decorative applications of expanded metal and suggests other uses. The publication emphasizes savings made possible in steel and other critical metals, pointing out that a foot of sheet metal becomes five or more feet of expanded metal.

INDUSTRIAL COATINGS. Flintkote Industrial Products Digest. The Flintkote Co., Industrial Products Div., 30 Rockefeller Plaza, New York 20, N. Y. 24 pp. 5 x 7".

Written in the style of a magazine digest, this illustrated booklet briefly tells how Flintkote's products are used in industrial construction. It discusses "custom formulated" asphalt emulsions and cutbacks, asphalt, rubber and resin adhesives, coatings and sealers. Some of the fields it covers are: protective coatings, flooring binders and cements, underlayments for decorative floors, sound deadener and insulating compounds, and laminants for fiber board.

HEATING. Torridor Unit Heaters. The Trane Co., La Crosse, Wis. 56 pp. 8 1/2 x 11".

Selection and application of Trane's blower-type unit heaters are explained in this recently revised catalogue. Providing complete performance data on Torridors with capacities ranging from 100,000 to 1,500,000 Btu, the publication illustrates various models which deliver heat directly or through ducts from floor, wall or ceiling. Used most frequently to heat large spaces such as factories and warehouses, the heating-ventilating units also may be used for industrial processing and purposes such as fog removal and maintaining proper conditions for dry storage.
Mobilized interiors solve your layout problems today and tomorrow... this Book of Facts shows you how

- No matter how perfectly your layout meets present needs, it will be truly efficient only if it can be quickly, easily and economically adapted to changes in space requirements. Such changes are inevitable—and they occur far sooner and much more frequently than is generally realized.

Mills Movable Metal Walls, for over thirty years the demonstrably superior system of flexible interiors, are today's efficient answer to this problem. Attractively modern in design and finish, of all-welded steel construction, they are structurally strong, completely incombustible, fully insulated and thoroughly soundproofed. Yet they are easily installed and can be quickly moved to fit new layouts—frequently in a matter of only a few hours—at very low cost.

THE MILLS COMPANY, 976 WAYSIDE ROAD, CLEVELAND 10, OHIO

MILLS Movable METAL WALLS

A PRACTICAL BOOK for BUSINESS EXECUTIVES

We'll be glad to send you a free copy of this 48-page book. Just ask for Mills Movable Metal Walls Catalog No. 52.

...You'll also find this catalog in Sweet's File, Architectural, for 1952.
This ad is one of a series telling industrial and commercial Management the story of Coolair Breeze Conditioning.

When the weather's hot...

Is employee morale shot?

Does production take a drop?

HERE’S THE LOW-COST WAY TO COOL PLANTS & OFFICES!

It’s the breeze that cools you and your car after you’ve been parked in the hot summer sun. With Coolair Breeze Conditioning Fans you can introduce cooling, healthful breezes into plants and offices at low cost, without major installation expense and at a minimum outlay for operation and upkeep. No water required! Result—more comfort, better summertime production.

Coolair Breeze Conditioning can solve your cooling problem! The Coolair line ranges from window fans up to 9' industrial giants. Remember, it takes a real breeze to keep you cool. And your Coolair representative will be glad to plan the installation with the capacity to provide you with cooling breezes all summer long.

NO WONDER THEY ARE SO GOOD!

THOMASON
FLUSH DOORS
(ALL WOOD)

Are Top Quality Throughout

In addition to the fact that all face veneers used in the construction of a THOMASON Flush Door meet or exceed U.S. Commercial Standard CS-35-47, the high production standards of the THOMASON PLYWOOD CORPORATION are absolute assurance of top quality throughout. Among other things, this means that the face veneer on every THOMASON Flush Door has been carefully matched for color of wood, figure of grain, and for similarity of color and figure on both sides of the door.

AVAILABLE WITH THESE FACE VENEERS

In addition to the Gumwood faced door, the THOMASON Flush Door comes faced with veneers of Mahogany, Walnut, Oak, Birch, Knotty Pine, Cattivo, or in any face veneer desired.

Also Made For Exterior Use

Available either plain or with any one of five standard patterns of light opening. Or you may have the THOMASON Flush Door with a solid all-wood core, faced with any type of veneer desired.

Sold Only Through Distributors

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PLYWOOD CORPORATION
FAYETTEVILLE • NORTH CAROLINA

Interested also in cooling homes, apartments and other non-commercial and industrial buildings? Read this!
NEW IDEAS IN LIGHTING

from Guth . . . 50 years young and still pioneering

Year after year since 1902 the industry has looked to Guth for new and improved lighting fixtures. It's looking again in 1952.

Guth is preparing some pleasant surprises for you. Can't tell you much about them yet...some are still on the drawing board, others are being readied for production. But you can be sure all of them will mean better, more efficient lighting.

be looking for:

1. An extraordinary new Louvre
2. A Telescope Fixture that stretches your warehouse space...and your dollar
3. New and revised Fluorescent designs
4. An Incandescent line years ahead

Guth is now in R-L-M N.E.M.A. Fleurorier

GUTH LIGHTING

THE EDWIN F. GUTH COMPANY / ST. LOUIS 3, MISSOURI

Leaders in Lighting Since 1902
For environmental room lighting, the whole field of view must be in brightness balance . . . as in this drafting room with its PLEXIGLAS luminous ceiling.

The surface brightnesses of the ceiling, the walls, and the window areas of this room are less than three times as bright as the paper on the drawing boards. Note how these surfaces produce a field of uniform brightness in which there are no eye-fatiguing light-to-dark contrasts.

An average illumination of 118 footcandles is provided through the PLEXIGLAS diffusing panels, without objectionable direct glare from the large-area ceiling surface.

PLEXIGLAS acrylic plastic offers other advantages as a diffusing medium. Because it is rigid, light in weight, and strong, PLEXIGLAS can be handled easily and safely during installation, cleaning, and relamping operations. And because it is highly resistant to breakage and discoloration, it gives long, low-maintenance service.

If you have a lighting problem, investigate environmental lighting with a PLEXIGLAS luminous ceiling. We'll be glad to send you full technical details about the installation shown above. Write for them.
TECHNICAL PUBLICATIONS

WINDOWS. Industrial Pivoted Steel Windows.
The Steelcraft Mfg. Co., Rossmoyne, Ohio. 4 pp. 8½ x 11".
Printed in two colors, the folder describes Steelcraft's pivoted windows for commercial and industrial installations. It gives dimensional data, specifications, and illustrates various window types. Fabricated of hot rolled steel in all standard sizes (as adopted by the Metal Window Institute), the new windows are available with either a push bar, spring latch or cam latch type operator.

WOOD STRUCTURAL MEMBERS. Rilco Arches, Beams and Trusses. Rilco Laminated Products, Inc., St. Paul 1, Minn. 16 pp. 8½ x 11".
Practical construction information on glued laminated wood arches, trusses and beams is presented in this new booklet. The photographs of churches, gyms, hangars, warehouses, factories and schools, and diagrams of various types of arches and beams which illustrate the text, are excellent.

Although the text on electrical stairways is basically technical, it is written so that the proper application and features of this means of vertical transportation may be understood easily by the businessman who buys as well as the architect who plans the layout. The function of each important part in the stairway is discussed (close-up cutaway views help explain the mechanics); available sizes are listed, and price data is given on a budget line. The publication also includes a valuable section on arrangement of stairways, and tells how the units may be utilized advantageously in remodeling jobs.

The fundamentals of planning vertical transportation systems for many kinds of multistory buildings are discussed in this publication. Covering such factors as building layout and structural requirements, elevator arrangement, operating and supervisory systems, the booklet outlines the elevator needs of office buildings, retail stores, apartments, hospitals, hotels and industrial buildings. Traffic flow graphs which plot the number of passengers carried during the day show various patterns of hour-by-hour traffic in different types of buildings. Full-page line drawings illustrate typical freight and passenger elevator layouts, and schematic drawings show the use of crisscross and parallel escalator arrangements in retail stores.

MATERIALS HANDLING. Mathews Conveyors. Mathews Conveyor Co., Ellwood City, Pa. 4 pp. 8½ x 11".
Presenting useful data on the manufacturer's conveyors for brick, lumber and other building materials, the brochure includes dimensioned drawings and photos of various models.

STEEL GRATINGS. Klemp Open Steel Gratings. Wm. F. Klemp Co., 6660 S. Melvina Ave., Chicago 38, Ill. 4 pp. 8½ x 11".
The brochure explains concisely the construction and uses of the manufacturer's structural steel footwalks, riveted open steel grating and stair treads, flexible floor armor and conveyor belt, and open steel and aluminum bridge decking.

A steel boiler is a lifetime investment
—sell "the best in steel boiler heat"
THE FITZGIBBONS BOILER

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The Magazine of Building is compiling a new list of Dealers, Distributors and Manufacturers’ Agents who are interested in adding new lines (building products, materials, specialties, household appliances, etc.). This list, when completed, will be available on request to interested manufacturers.

If you would like to be listed please write and be sure to tell us what territory you cover and what types of products you would like to handle.

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Fleur-O-Lier is not the name of an individual manufacturer, but of a group of fixtures made by leading manufacturers. Participation in the Fleur-O-Lier program is open to any manufacturer who complies with Fleur-O-Lier requirements.
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Millions of messages over the Council's emblem have helped conserve scarce metals... helped prevent costly forest fires and save vast stores of timber... helped unite public opinion behind the drive for better schools... helped promote highway safety, just as they are helping today to collect blood for wounded soldiers in Korea.

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THE MAGAZINE OF BUILDING

as a public service
Elevators are like race horses. The only way to tell which one is best is to “time” them under pressure.

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All over the country, in new-building and modernization jobs, the wise money is riding on Selectomatic. So, if you’re thinking about an elevator investment . . . test ride Selectomatic before you decide. Notice how you speed from floor to floor. See how Selectomatic always stops exactly level with each floor . . . never wastes time releveling.

Write us today for the names of Selectomatic installations you can “test-ride” in your locality. Westinghouse Electric Corporation, Elevator Division, Dept. F-1 Jersey City, N.J.

*Facts given on request.

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- Impervious to petroleum solvents, oils, greases, turpentine, alkalis and household acids.
- Extremely resilient. Good sound absorption.
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- Available in 9" x 9" standard gauge and 1½" tiles.

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THE ARISTOCRAT OF RESILIENT FLOORING

PLASTIC—ASBESTOS ... NO FELT BACKING

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Aristoflex may be laid direct on concrete...over terrazzo or ceramic...or wood over 15-pound saturated felt...and over magnesite (above grade).

Installation is unusually easy, and less costly. No special cements are required, ordinary asphalt tile adhesive does the job. It lays in tightly, immediately, due to square corners and clean edges.

Write for free Aristoflex samples and specification data.
Dept. 61

MASTIC TILE CORPORATION OF AMERICA
Member Asphalt Tile Institute
Joliet, Ill. Long Beach, Calif. Newburgh, N.Y.
World's largest producer of asphalt tile
Milcor self-supporting window stools with removable fascia panels installed in Boston University School of Theology by Dillaby Fireproofing Co., Cambridge, Mass.

Architect: Cram and Ferguson, Boston, Mass.
Metal Trim Sub-contractor: Dillaby Fireproofing Co., Cambridge, Mass.

The complete Milcor Window Stool line gives you an attractive selection, too—in a full range of styles, types and sizes to suit your specific interior design.

Milcor Steel Window Stools are practical—because they are economical to install, easy to clean and maintain...permanent because they are wear-resistant—can’t warp, rot, shrink, or crack...and firesafe because they are made of steel!

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These handsome window stools may be used separately or together with Milcor Metal Window Trim, corner fittings, and other accessories. Look for full details in Sweet’s, or write for a copy of the latest Milcor Manual.
America is growing. The pioneer spirit is as bright today as it was when covered wagons moved along the Oregon Trail. Today, our nation continues to grow vertically as well as horizontally... and architects and builders of big buildings continue to pioneer new appearance, utility and investment values in every project they create.

Eljer has been active in the American construction scene since 1904, and every year more and more Eljer Plumbing Fixtures are being installed in new commercial, industrial, institutional and government buildings.

Eljer's Line covers the complete range of vitreous china and enameled cast iron fixtures, as well as brass trim. Quality is rigidly controlled and second to none. New design features for style, trouble-free service and ease of cleaning, give Eljer extra values you should know about. There is an Eljer Distributor near you.

Eljer Renewable Brass Fittings
Eljer Fixtures are available with quality renewable brass fittings... featuring the exclusive Eljer Swivel-Disc that virtually eliminates dripping and corrosion. Faucets operate smoothly at the touch of a finger and wear on moving parts is reduced to a minimum.

See Sweet's File, Architectural, and Sweet's File for Builders
There is an Eljer Fixture for every need. Sweet's Files contain Eljer's Condensed Catalog of popular plumbing fixtures. For complete data write: Eljer Co., Specifications Department, Box 192, Ford City, Pennsylvania.
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MIRACLE WEDGE* SALT SPRAY STEEL* TRADE MARK

OVERHEAD DOOR CORPORATION
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