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EXCITING NEW PLASTIC FLOORS

Here's all the fresh styling and sparkling beauty you'd expect to find in the newest of plastic floors. Armstrong's Corlon®, latest product of Armstrong's research in plastics, now offers you the first pattern plastic, Decoresq Corlon. Made in six-foot widths by Armstrong's exclusive molded process, the distinctive modern Decoresq design comes in three-tone tan and three-tone green, as well as the distinguished black and white style shown here. An inlaid plastic Armstrong's Corlon is exceptionally tough and durable and wonderfully easy to keep clean. Sophisticated modern textures are also available in Granette Corlon. And there's Custom Corlon Tile too. For samples and specifications on the various types of Armstrong's Corlon Plastic Floors, call your Armstrong District Office or write to Armstrong Cork Company, Floor Division, 306 Roone Street, Lancaster, Pennsylvania.
 Equip a fast-changing business with versatile, fast-changing walls and substantial cost savings are inevitable. Proof! The six-year record of Hauserman Movable Walls at Smith, Kline & French Laboratories, Philadelphia pharmaceutical producer.

With the constant development and introduction of new pharmaceuticals, floor space requirements in offices, laboratories and production areas have changed drastically in the past six years. Numerous wall rearrangements have been made quickly and easily, without costly work interruptions. Savings in rearrangement construction costs alone have amounted to $63,343, using movable walls instead of the permanent masonry type.

Additional savings of $7,935 are attributed directly to the elimination of redecorating expense, made possible by the durable, long-lasting surface finish of Hauserman Movable Walls.

Result: More proof that it pays to invest in versatile Hauserman Movable Walls when you build or remodel offices, laboratories, production areas, hospitals or schools.

WRITE FOR FREE DATA MANUAL 53!

This 96-page comprehensive guide for architects contains complete technical details as well as stock sizes, general instructions and specifications on all types of Hauserman Movable Interiors. Write to The E. F. Hauserman Company, 7145 Grant Avenue, Cleveland 5, Ohio.
KENTILE asphalt tile floors meet shopping center requirements for durability...beauty...economy

Every unit in a modern shopping center has its own special, flooring problems! But, all floors must be long lasting, attractive, economical, easy-to-clean. When you specify Kentile you answer all these needs.

Kentile costs less to buy, install and maintain. And, it is one of the toughest, most durable floors made. Years of heaviest traffic can't harm it, discolor it or destroy the crisp, clear, tile-deep colors. The wide color selection offers limitless design opportunities...makes "custom" flooring easy and economical to achieve. Find out for yourself why Kentile is America's most-used commercial floor.

Specifications and Technical Data

INSTALLATION: Over any smooth, firm interior surface free from spring, oil, grease and foreign matter...over metal, wood, plywood, concrete, radiant heated concrete slab, concrete that is in direct contact with the earth; on or below grade.

THICKNESSES: Kentile is available in two gauges: 1/8" for residential and most commercial uses—3/16" for industrial use and where extra-heavy duty flooring is needed.

SIZES: Standard tile is 9" x 9".

SPECIAL KENTILE: Greaseproof asphalt tile for use around meat counters, in bakeries, beauty shops, in a wide range of marbleized colors—extremely resistant to fats and oils, alcohols, alkalis and most acid solutions.

Approximate Installed Prices (per sq. ft.)

<table>
<thead>
<tr>
<th>Thickness</th>
<th>Kentile: A Colors</th>
<th>Kentile: B Colors</th>
<th>Kentile: C Colors</th>
<th>Kentile: D Colors</th>
<th>Special Kentile</th>
</tr>
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<tbody>
<tr>
<td>1/8&quot; Gauge</td>
<td>20¢</td>
<td>25¢</td>
<td>30¢</td>
<td>35¢</td>
<td>50¢</td>
</tr>
<tr>
<td>3/16&quot; Gauge</td>
<td>25¢</td>
<td>30¢</td>
<td>40¢</td>
<td>45¢</td>
<td>55¢</td>
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These costs are based on a minimum area of 1,000 sq. ft. over concrete underfloor. Color groupings range from Group "A," the darkest solid colors...to Group "D," the lightest marbleized colors. Special Kentile is available in Regular and Deluxe Colors.

Samples and Technical Literature available to architects, builders and designers on request. Contact the Kentile Flooring Contractor listed under floors in the Classified Phone Book. Or, write the nearest Kentile, Inc. office listed below stating the samples and information desired. Be sure to request samples of ThemeTile die-cut inserts, Feature Strip and KenBase.

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ARCHITECTURAL FORUM, June 1954. Volume 100, Number 6. Published monthly by TIMB Inc., 6 Rockefeller Plaza, New York 20, N. Y. Re-entered as second-class matter at New York, N. Y. Professional Subscription price $5.00 a year, non-professional $7.00 a year.
For new trends in office buildings...

Pacific Boilers with Jet-action Circulation

Advertising agencies have unique space needs: studios for artists, single offices for writers and executives, large offices for clerical help.

To meet these special requirements, Detroit’s growing MacManus, John & Adams, Inc., decided to expand to the suburban hills... Bloomfield Hills, Michigan. Their functional office building shown above is a model of streamlined comfort and efficiency.

For top heating comfort and efficiency, MacManus, John & Adams use two Pacific Boilers with Jet-action Circulation. Here’s why:

When hot water and steam leave the water leg of a Pacific Boiler, they first pass through Pacific Circulating Connections. The design of these connections creates a jet stream of hot water and steam aimed directly at the boiler’s heating tubes.

This jet stream sweeps insulating steam bubbles from the tubes to bring maximum heat transfer between tubes and surrounding water. The result is continuous turbulence, more efficient use of fuel, instant response when changes in building temperature are desired.

Why not get the same results for your installations? Your local Pacific representative can give you complete details on Pacific Boilers with Jet-action Circulation for every use. Call him today!
Once again a roof of Revere Copper replaces one of rustable material. The State Architectural Department was finding that repairing the damage done due to recurring leaks was an expensive proposition. So when they re-roofed they selected enduring, non-rusting Revere Copper.

Since the enduring qualities of copper have been proved for centuries you don’t take chances when you use this “ageless” metal. Truly, “Trouble is more expensive than copper.” A good way to avoid trouble is to write “COPPER” into your specs. It’s the metal that makes itself at home in buildings of the most modern or the most formal design.

There’s a Revere Distributor near you who stocks Revere Sheet, Strip or Roll Copper for flashing and roofing. Write us about Revere Keystone Thru-Wall Flashing* and the new Revere-Keystone 2-Piece Cap Flashing.** And, if you have technical problems, we will put you in touch with Revere’s Technical Advisory Service.

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ON NBC TELEVISION,
SUNDAYS
How Honeywell Customized Temperature Control helps you

Give your clients better working weather

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

The importance of good "working weather" inside a building is coming to be appreciated by a growing number of people concerned with promoting efficiency and satisfaction in all types of buildings.

A good case in point, which tells how to insure proper control of indoor weather, is the Emmie U. Ellis Junior High School in Elgin, Illinois.

Today—as demonstrated by the Ellis school—the best way to provide proper temperature control is through the use of Honeywell Customized Temperature Control.

The key word here is "customized." It means that whatever your clients' control requirements, a Honeywell Customized Temperature Control installation designed to fit the needs of the building and its occupants is your answer. This applies not only to heating and cooling, ventilating and humidity control but to industrial control as well.

Only Honeywell can provide true "customized" control. Because only Honeywell manufactures all three types of controls—pneumatic, electric and electronic.

The story, in brief form, of the Honeywell Customized Temperature Control installation in the Ellis Junior High School is told here.

The techniques used, applied to your particular problems, can help you give your clients the indoor weather they've always wanted.

The Emmie U. Ellis Junior High School, Elgin, Illinois.
Architects and Engineers: Elmer Gylleck & Associates; Heating contractor: A. J. Ironside
Exposure and occupancy factors are the big control problems in the library. The room has large glass areas facing east which admit a good deal of solar heat on sunny mornings. And one minute the library may contain five students, the next—fifty. These problems are easily solved, however, by several Honeywell thermostats placed strategically around the room.

The "use" comfort factor is the biggest problem in the home economics room. When the ranges go on they go on all at once—adding a great amount of extra heat to the room. Ordinarily this would mean real discomfort. But with Honeywell thermostats on the job controlling the heating and ventilating system, home economics students remain comfortable all the time.

Still another "use" problem must be met in the woodworking shop. Students here are physically quite active, need lower room temperatures for comfort. This condition is met handily by the Honeywell Customized Temperature Control installation. Individual thermostats here control space heaters—giving just the right indoor weather for work.

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

Whether it's a school, shopping center, factory, office, motel, hospital—or any size building—new or existing, Honeywell Customized Temperature Control can help meet your clients' heating, ventilating, air conditioning and industrial control problems.

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

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

Orrin Thompson, superintendent of schools, Elgin, Illinois, says:

"The Ellis School, like most of the schools in Elgin, is a better place to work and learn because it's a comfortable school. Honeywell Customized Temperature Control certainly deserves credit for helping to make it that way."

ARCHITECTURAL FORUM • JUNE 1954
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J. L. Hudson Co. at New Northland Center Gets Full Sound Conditioning Treatment

As part of an all-inclusive plan to make interiors as inviting and comfortable for shoppers as possible, the J. L. Hudson Company has Acousti-Celotex sound conditioning throughout its new store at NORTHLAND CENTER in Detroit, Michigan.

Functional Beauty
Throughout 550,000 square feet of ceiling area, Acousti-Celotex Random Pattern® Cane Fiber Tile in 25 different color combinations has been installed. All of the tile has a unique multi-colored paint finish which was applied before installation in order to make the ceilings an integral part of overall store design.

Customers, Personnel Benefit
Application of this sound conditioning treatment within the entire store, in all sales areas, offices, beauty salon, stock rooms, employees' lounge, kitchens... as well as in the beautiful NORTHLAND Dining Room... is intended to benefit both patrons and store staff alike. Shopping and dining may be enjoyed in an atmosphere of quiet comfort. Personnel, too, will find increased ease and efficiency working in these noise-checked areas.

Here again is evidence of the important part Acousti-Celotex sound conditioning is playing in the design of today's new buildings.

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Any good architect, in love with his art, wants to see his creations come to life just as he plans them. And where else can creative architecture be spoiled more quickly than in glass areas? Waviness and distortion in the glass can ruin the appearance you planned so carefully!

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For details on any of the standard or special types of plate glass call your nearest L-O-F Glass Distributor or Dealer. Or write Libbey-Owens-Ford Glass Co., 608 Madison Avenue, Toledo 3, Ohio.

NO FINER GLASS THAN

LIBBEY • OWENS • FORD
Polished Plate Glass in these window walls assures full enjoyment of an undistorted view—and year-round comfort. Architect-Owner: Douglas D. Stone, Atherton, California.

Thermopane insulating glass in the Prescott (Arizona) Municipal Air Terminal Building helps insulate the building against both heat and cold... saves on heating costs.
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Here at low cost
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from overhead

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where lighting of the inner areas is a
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a trouble-free, low maintenance instal-
lalion.

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blocks are bonded into a weather-tight,
reinforced concrete panel — the same
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cess for many years in northern
Europe.

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$4.50 and $6.50 per square foot of
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lighting, you’ll do well to investigate
the Skytrol method. Compared with
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you’ll find Skytrol out-performs, yet
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formation. Pittsburgh Corning Cor-
poration, Dept. E-64, One Gateway
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- Sinclair Oil
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- Century Building
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Why are so many hundreds of thousands of feet of floor space in New York City air conditioned by Carrier? The Conduit Weathermaster™ System, perfected by years of unmatched experience, permits the occupants of each room to dial their own climate. Operation is quiet; there are no moving parts within the room. Maintenance is simplified; all operating equipment is centralized. And installation requires a minimum of space.

Carrier Corporation, Syracuse, New York.

Contractor who built his own motel says:

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Concrete block painted in pastel colors are featured on both exterior and interior walls at the Dallas (Pa.) Trav-L-Lodge. That's why mortar joints on this job were particularly important. For this special job, general contractor and owner, Donald Hughes, specified Atlas Mortar.

Says Hughes, "Atlas Mortar is excellent for any type of masonry unit. It's smooth under the trowel—lets us get the true, tight joints that we can count on every time. That's why I've used Atlas Mortar for the past four years."

Mr. Hughes' statement is typical of many we receive from contractors, masons and architects . . . on-the-job reports . . . that praise Atlas Mortar for workability, strength and good appearance.

**ATLAS MORTAR** has proved itself on large jobs and small and in the laboratory as well. It complies with ASTM and Federal Specifications for masonry cement. For further information write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

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UNISTRUT channel insures true alignment. It provides the utmost in safety because the entire row of fixtures forms a single integrated unit. Fewer hanger rods are needed and a neater, more attractive installation results. Stems or rods may be placed at any point along the channel, permitting installation on irregular ceilings. Fixtures can be fastened in a continuous row or intermittently as shown here.

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New building trend set by air-conditioned skyscraper

This 26-story structure at 99 Park Avenue is distinctly different from anything ever built in Manhattan.

It's completely sheathed in self-cleaning aluminum, with reversible windows set with heat-resistant glass.

99 Park is also going to set a new standard in comfort for its tenants. Dependable air conditioning is provided by a Worthington system made up of two 665-ton centrifugal refrigerating units, which supply chilled water to 38 Worthington-equipped interior fan rooms. These distribute cooled, dehumidified air to the interior offices on each floor. The centrifugal units also furnish chilled water for individually controllable room conditioners enabling tenants in the outer offices to select their own climate.

For more than fifty years, Worthington-engineered air conditioning installations have been serving business and industry. Whether large or small, Worthington systems are all Worthington-made, not just Worthington-assembled. For the full story, contact your nearest Worthington district office, or write to Worthington Corporation, Air Conditioning and Refrigeration Division, Harrison, N.J.

Tishman Realty & Construction Co., Inc., Owners and Builders; Emery Roth & Sons, Architects; W. R. Cassenti & Associates, Consulting Engineers; Raisler Corporation, Mechanical Contractor; Cushman & Wakefield, Inc., Agent.
"Electronic Politeness"

OTIS ELECTRONIC ELEVATOR DOORS
The Otis Electronic Door is the crowning achievement in the field of the Operatorless Elevator. Its unmatched "electronic politeness" is available only with AUTOTRONIC elevators. The successful development of this door insured the ability of operatorless elevators to move great masses of people in busy buildings with the greatest degree of safety.

The car and hoistway doors up to shoulder height. Naturally, it is invisible to the passengers. (See phantom drawing at the left.)

No time is lost. The doors close promptly after each stop. If the electronic zone detects a person's presence, the doors politely reverse—even before they can touch the passenger. But if there is no chance of passenger interference, the doors continue to close without unnecessary car delay.

This zone of detection politely helps to prevent passengers from delaying the elevator, too. If a talkative passenger lingers overlong in the doorway, a buzzer sounds and the doors slowly, firmly—but politely nudge the passenger out of the doorway so the car can proceed on its way.

And most important from a building manager's viewpoint, this zone of detection is on duty all of the time the elevators are in operation. Its electronic reflexes never tire or slow down. It is a most vital point of AUTOTRONIC elevatoring. Its unmatched superiority makes possible uniformly fast, regular service in Otis automatic passenger elevators.

Otis AUTOTRONIC elevatoring saves up to $7,000 a car, each year. It is suitable for office buildings, hotels, hospitals, banks, and department stores. Visit a new or modernized installation. Ask any of our 268 offices for details.

Otis Elevator Company
260 11th Ave., New York 1, N. Y.
Above: Over 51,000 Square Feet of Acusti-Luminus Ceiling are installed in the new modern plant of Davis & Geek, Inc., subsidiary of American Cyanamid Co., Danbury, Conn. This solid "ceiling of light" illuminates general and private offices, laboratories, and critical production areas.

Now You Can Specify Acusti-luminus ceilings...
An Architect's Dream... on a Builder's Budget!

Installed by Leading Firms Coast to Coast!
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- John Deere Co.
- Douglas Aircraft Co., Inc.
- Filene's of Boston
- General Motors Corp.
- National Broadcasting Co.
- Republic Aviation Corp.
- Trans World Airlines, Inc.
- Union Carbide and Carbon Corp.
- Zellerbach Paper Company

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It gives LIGHT superior to daylight! Evenly diffused by lightweight corrugated sheets of Lumi-Plastic. No shadow! No glare! Low brightness. Any intensity.

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Costs surprisingly little! Both initial cost and maintenance costs are less than for conventional ceilings with the same illumination and sound correction. Mail coupon for FREE booklet giving more information.

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Here's the Beauty of Vulcan TRIMLINE
Complete FLEXIBILITY for any plan...

**PRICE**
TRIMLINE radiation costs less. New TRIMLINE features save time and money. Fewer joints necessary, less fittings. All parts mount on one piece top and back. Front cover snaps on after installation.

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The answer is Risom... for the finest contemporary furniture

The Ambassador's office in the U.S. Embassy Office Building, Rio de Janeiro, (shown above)

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At Northland Shopping Center

GRINNELL SPRINKLERS

Inconspicuous
... until fire strikes!

Biggest of all the centers, Northland boasts not only the latest developments in shopping center design and construction, but the most efficient fire protection system. More than 5500 Grinnell Automatic Sprinklers provide positive protection for this super shopping center's 161 acres.

Note that the Grinnell Flush-Type Ceiling Sprinklers in the two areas illustrated extend a scant inch below the line of the ceiling, and are hardly noticeable. Wise planning on the part of the architects, Victor Gruen Associates, resulted in a fire protection system that harmonizes with Northland's attractive modern interiors.

The time to plan for fire protection is at the start. Call in the Grinnell engineer while your project is still in the blueprint stage. Let him show you how you can provide dependable protection against fire without detracting from the appearance of your carefully planned interiors. There is no obligation. Grinnell Company, Inc., 292 West Exchange St., Providence, R. I. Branch offices in principal cities.
How Ceco methods saved materials

When architect Victor Gruen developed the original concept of Northland Center, world's largest shopping district in suburban Detroit, he had an eye for beauty and function. Beauty that would make the center a pleasant and even inspiring place to shop. Function that would make shopping as convenient and effortless as possible.

J. L. Hudson Company's branch department store is the core of the development—and here one of the major requirements was providing the greatest amount of usable space by keeping interior columns few in number and small in size. Typical spans were 29'-1" each way, and a waffle design using 14" deep Ceco-Meyer Steelforms provided a ceiling clear of beams, and kept steel, concrete and dead weight to the minimum. The saving in steel alone was 16% when compared with solid flat slab construction.

In other areas of the Hudson store and in the tenant and the service group buildings, one-way Ceco-Meyer Steelform floor
construction accounted for similar steel savings, eliminated "lazy, non-working" concrete, and kept dead load low.

Overall result in all buildings: wide areas of uninterrupted space—clear ceilings—a pleasing effect—highly functional. Ceco Engineering Service detailed placing plans for Ceco-Meyer Steelforms and reinforcing bars. This was a big project—5,000 tons of Ceco reinforcing steel delivered by truck to the job site—1,000,000 square feet of steelforms placed and removed by Ceco—a job requiring the service of a company skilled in its field and geared to deliver as the need dictated.

Here is another example of Ceco performing on the architect-owner-contractor-supplier team. On your next project call Ceco Product Specialists. They will help you save through product engineering. Consult Sweet's File for address.

CECO STEEL PRODUCTS CORPORATION
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IMPORTANT:
Send Universal Engineers your preliminary drawings for study. They will be returned within three to seven days with worthwhile suggestions.

METAL-GLASS FACADES AGAIN SELECTED BY HOTELS STATLER

The new Hotel Statler in Dallas, Texas, is the second Sealuxe Metal-Glass Facade installation by Universal for Hotels Statler Company, Inc. The first is the beautiful new Hotel Statler in Hartford, Conn. These great buildings of tomorrow for use today are typical of Statler luxurious hospitality and customer comfort.

Sealuxe Engineered Metal-Glass Facades in this new Hotel Statler are extremely light in weight (approximately 5 lbs. per sq. ft.) and are particularly adaptable to the first wide-cantilevered building in the U. S. Completely insulated thin walls not only provide a maximum of usable floor space but allow efficient control of heating and cooling. The exterior of the facade is designed for easy cleaning from inside the building assuring minimum maintenance cost.
Gold Coast Cherry is an unusually beautiful, easy-finishing tropical wood, produced in Mengel's own timber concessions on the Gold Coast of Africa.

Gold Coast Cherry requires no stain, no filler! A two or three-coat finish of satin lacquer, alone, gives you almost unbelievable results! Best of all, Mengel economies — from forest to finished product — give you these luxurious furniture-quality doors at the price of Unselected Birch!

Write for a sample of Gold Coast Cherry, now! It's extraordinary — it's for you!

COMPARE THEIR BEAUTY—
COMPARE THEIR EASE OF FINISH—
COMPARE THEIR PRICES!
This view of the Memorial Mission Hospital above shows a portion of the large window wall areas made possible by the use of Hope’s Pressed Metal Subframes. The abundance of controlled natural light... the spaciousness created by these large glass areas... are beneficial to the convalescing patients and provide a pleasant working atmosphere for the hospital staff.

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FIRST NATIONAL BANK, SIX POINTS BRANCH Phoenix, Arizona

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Edward L. Varney & Associates

General Contractor:
Farmer & Godfrey Construction Co.

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Drive-in bank's up-to-date design includes sound conditioning

Drive-in facilities and striking architectural treatment are two of the bold departures from traditionally conservative bank design found in the Six Points Branch of Phoenix's First National Bank.

Architect Edward Varney's imaginative use of design and materials to provide the utmost in convenience, comfort, and beauty is also reflected in his choice of noise-absorbing Armstrong's Travertone for the acoustical ceilings.

Travertone is not only a highly efficient acoustical tile, it also provides a handsome finished ceiling. A mineral wool material, Travertone's attractive fissuring resembles that of travertine marble. A two-coat, white paint finish helps diffuse light evenly all over the room without glare.

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What the hydrogen bomb means to city and industrial planning

Some planners think urban dispersal is now hopeless but far more agree with government experts who say the big bomb only makes wide dispersal more urgent

When the hideous destructive power of the hydrogen bomb was first borne home to the public in April, one well-known planner remarked: "Well, that kills all this talk about urban dispersal. Now we can get back to the job of rebuilding our central cities."

Last month, even after reflection, a crew of fatalists had been bred by these awesome statistics of fusion: 1) one H-bomb (according to AEC Chairman Lewis Strauss) could incinerate a city of 12 million people; 2) 400 one-ton deuterium cobalt bombs (which Chicago Biophysicist Leo Szilard thinks the US could make if it wanted to) would wipe out all life on earth. Said Planner Harland Bartholomew of St. Louis: "Short of complete dispersal of our present cities, it appears impractical to establish any fixed planning standards in the fact of potential destruction of such vast and increasing scale... We might as well continue to apply modern city planning techniques in the hope that the future will vouchsafe a universal peace in place of the annihilation of cities that another war inevitably will bring."

But many another expert held quite different views. In a poll of 25 among the nation's leading city planners and men who have studied problems of urban dispersal and civil defense, Forum found preponderant support for the theory that the new bomb—instead of making reduction of population and industrial density futile—only makes it more important and more urgent.

It was, as one New York planner put it, "more a matter of saving the nation and its civilization than of saving the life of any singlebody in particular. Individual chances of surviving a hydrogen bomb as big as the one of March 1—with its 4.5-mi. circle of complete destruction, its 10-mi. circle of "moderate damage"—are probably raised only a little by dispersal around the hub of a great metropolis. But every bit of dispersion enhances the nation's chances of surviving. Moreover, the more dispersed the choice targets are, the less chance there is that an enemy would find them worth hydrogen attack. It is a military axiom that one shell from a Big Bertha gun is not as valuable in most situations as ten from a somewhat smaller cannon.

Bomb or no bomb. If the bombing threat were not enough, planners seemed in substantial agreement that city densities must be thinned down for better living. Los Angeles, with 4,370 people per sq. mi. (compared to New York's 25,046 and Manhattan's 88,000) already considers itself—in Planning Director Charles B. Bennett's words—"particularly fortunate" in that.

At figuring out how cities should alter their plans to fit the hydrogen age, many a planner and architect was looking to the federal government for guidance they felt was not forthcoming. Frederick Allen noted an "utter confusion" in planning circles over impact of the new weapons. From Gen. Otto L. Nelson, vice-chief of staff of the US Army, came the advice: "...the threat is such that the present-day metropolitan planning approach is no longer adequate for the needs of the future. The answer is more concentration or dispersal..." for the safety of the nation and its civilization than of saving the life of any singlebody in particular. "...it is the duty of the federal government to assume the lead and produce a coordinated policy for the guidance of local authorities on dispersal problems and methods."

"... Men will probably not act logically enough and fast enough to adjust properly to the new situation... regardless of whether the right answer is more concentration or dispersal..."

"...I do not think atomic warfare, as such, is worth bothering about as an urban planning factor. If our humanity has become so debased and degraded that it will allow an atomic war to happen, no physical measures can save us from the spiritual destruction that will be our just deserts."

Henry S. Churchill, FAIA
Philadelphia architect

"... We need to have greater faith in God as not to devote our energies to scattering our homes like scared rabbits."

—Evert Kincard, Chicago
—City planning & zoning consultant

"... Bomb or no bomb, increased concentration in our already over-congested, traffic-choked, slum-ridden cities is unthinkable."

—Frederick P. Clark, Rye (N.Y.)
—Community planning consultant

"... It is the duty of the federal government to assume the lead and produce a coordinated policy for the guidance of local authorities on dispersal problems and methods."
The Civil Defense Administration and others have made the possibility of an H-bomb into account. Its defense? Some local communities are almost sure to cry "invasion of local rights" if the federal government pursues behind dispersion or other steps to change the course of city planning and growth.

Most men in government agree the US has no business extending its powers over local areas—even on such a life or death question as this. But there is a difference between dictation and leadership. Says Gen. Nelson: "In general, the government has no business interfering with the localities, but in this situation it must give assistance."

Needed at the minimum: more top-level steam behind the government's efforts. Americans are not slow to respond to ideas well enough presented to convince them.

**FHA scandals lead Senate banking committee to ask crippling changes for rental housing**

Would FHA's scandals wreck the Eisenhower administration's housing bill? The House had passed its version of the 1954 legislation shortly before the ouster of Guy Hollyday as FHA commissioner started Congressional committees sniffing down the trail of mortgaging-out profits, gambling officials and repair loan gyps.

What the committee members had found, in the two months since, did not amount to much, as far as the homebuilding industry saw it. Even government prosecutors themselves admitted, in the test tax court case involving Sec. 608 windfalls, that such profits were perfectly legal. Nobody had seriously contradicted the viewpoint that high profit was the only way to get a lot of apartments built during rent control, as Sec. 608 did. Title I repair loan racketeers had indeed defrauded hundreds, or even thousands, of gullible home owners (most of them too stupid to check prices before signing on the dotted line). Nobody condoned that. But the preponderance of expert opinion was that FHA last fall had eliminated most if not all of the loopholes through which racketeers operated.

**Boffling changes.** But when the 1954 housing bill came out of the Senate banking committee late last month, after loophole closing, the building industry rubbed its eyes in amazement. The committee, led by Sen. Homer Capehart (R, Ind.), proposed to tighten things up so much the industry feared many an important FHA program could be wrecked. Some of the sharpest hatchetwork chopped at multi-family housing, redevelopment and rehabilitation. Items:

- For Sec. 207 rental housing, the senators would require that builders certify their actual costs (plus 10% profit) and then reduce the mortgage by the amount the loan exceeds the 80% allowable loan to value ratio. They would require land to be listed as its actual cost, not developed, value. This was far stiffer than the cost certifications proposed by Acting FHA Chief Norman Mason to prevent mortgaging out. He suggested the same provisions as now govern Title IX defense housing and Wherry Act (Title VIII) military housing. These require that any excess of the mortgage over cost be applied to reduce the loan. With the Senate's shackles, an FHA 207 loan would provide a builder with no more money than he could get conventionally, on a 60% of value basis. A conventional loan involves less red tape, no chance of Congressional investigation or being held up to public calumny. The suggestion for such tightening-up was given the Senate committee by witnesses representing big insurance companies. Whether by ignorance or intent, they planted an idea that would apparently cripple FHA in rental housing. Last year, FHA accounted for 35,460 of the nation's 93,900 new multifamily units, most of which are rental.

- For FHA Title I repair loans, the committee proposed to shift from full insurance up to 10% of each lender's portfolio to a straight 80% insurance on each loan. That would drive many lenders out of the program, even though FHA eased the blow by cutting its insurance premium (it makes big profits on Title I repair loan insurance). In the GOP plan for urban renewal and slum rehabilitation, Title I loans were supposed to play a big part. Said one veteran Washington housing expert: "Apparently, the senators want to make Title I so safe for the poor sap who hasn't enough sense to check his prices that the whole public will have to pay a higher price for repair credit."

- Another change that will hurt antislum drives: the committee dropped the House-approved change making the same FHA terms available for existing houses as for new ones. By knocking out the Eisenhower-sponsored provision for revamping the Federal National Mortgage Assn., the senators probably doomed to failure efforts to find an FHA-backed answer to public housing. For the proposed FHA Sec. 221, the committee also cut the term from 40 to 30 years, and (fearful of mortgaging out) cut the maximum loan from 100 to 95%.

This made the deal little better than Title I, Sec. 8, anyway.

Builders gloomily expected that the Senate would adopt the housing bill with most of the committee's restrictions. They pinned their hopes for a less restrictive law on what Rep. Jesse Wolcott (R, Mich.), chairman of the House banking committee, may be able to do in conference.

**$875 million construction funds asked by military**

Some important legislation affecting building made this progress in Congress last month:

**Hill-Burton—administration plans to expand Hill-Burton federal aid for hospital construction ran into a snag in the Senate labor committee. As passed by the House (AF, April '54, News), the GOP bill calls for adding a fresh $60 million a year to the regular program of grants and loans (which is budgeted for $75 million next fiscal year). The new funds would be split this way: $20 million for chronic disease hospitals, $20 million for diagnostic centers, $10 million for rehabilitation centers, $10 million for nursing homes. Some senators, while approving the idea of expanded aid, agree with the American Hospital Assn. that funds should not be earmarked according to building type. Reason: Hill-Burton funds are divvied up by states for obvious political reasons; some experts fear some states would not use their allotment for one kind of hospital, but would need more than their share of another.

**Military construction—the Defense Dept. won approval from the House armed services committee for a new $875-million building program. Involved were projects at nearly 200 installations in 43 states, the District of Columbia and overseas. In approving the measure (an authorization, not an appropriation), the committee cut out $350 million the Pentagon sought for family housing (mostly multi-unit) at military posts. Chairman Dewey Short (R, Mo.) said Congressmen wanted more time to study the military housing problem—which service brass insists is greatly to blame for dropping re-enlistment rates. The Defense Dept. wanted to spend $334 million for 25,000 new government-built family housing units (about $13,000 a unit), plus $16 million to rehabilitate existing military housing.**

**Wunderlich—President Eisenhower signed into law the Wunderlich bill permitting judicial review of disputes over government contracts. The legislation ended a 2½-year fight by general contractors. It is designed to offset the effect of a US Supreme Court decision in Nov. '51 that made the ruling of government contracting officers final except where fraud by the government was alleged.
States vote over $1 billion more for construction

Hospital and school appropriations head the list, plus bigger-than-ever housing boosts from N.Y. and California

Only 14 state legislatures met this spring, yet the total construction expenditures they approved were a round $400 million over what 17 legislatures had approved a year ago. There were factors that stole some of the thunder of the comparison. A couple of estimates in this year's crop were preliminary and had not been signed into law yet. And four states were prescribing for two-year programs this year as opposed to one last year. The message, however, was clearly that the states were out to give a mighty boost to building.

The big jump, broken down categorically, came under state buildings and housing (see table, right) and was attributable to action in two states: New York and California. The latter had voted that a whopping bond issue of $175 million for veterans farm and home loans be placed on the November ballot and passed a budgetary allowance of $48 million for state buildings. New York had earmarked $200 million—also subject to referendum vote—as an increase in the state debt for slum clearance and low-rent housing.

Hospitals and schools. The 14 states between them had voted over $400 million for hospital (and welfare and penal) buildings and again New York was way ahead of the pack. The state had spent $200 million on construction of mental hospital facilities in the past 11 years. Now it had authorized a bond issue for $350 million (to come up on referendum in October) for further construction. The program would be financed with 10% of the state's personal income tax receipts (hitherto reserved for the now-expired veterans' bonus fund) and a 1½ rise in the cigarette tax.

School and college plans lagged behind proposed hospital expenditures, for a total $224.9 million. Outstanding was the California legislature's approval of a school building bond issue of $100 million. California's program began in 1949 with a $250-million issue and it showed no sign of dying out. Another big issue was expected in two years. In other action, Gov. Goodwin Knight appointed a committee to study the state's over-all building needs. (California has spent almost $500 million on state buildings since the end of World War II.)

Southern activity. The school legislation differed by locale. South Carolina, for example, had not passed new legislation, but was (until the Supreme Court segregation decision) engaged in $175-million program to equalize white and Negro schools and had spent about $52 million since 1951. The state's educational finance committee had authorized the school districts to spend $99 million more—the ceiling at any one time is $100 million. Mississippi's lawmakers, on the other hand, had come away from a special session last winter, at which they were to provide a school equalization program, with-

University to group chapels of three faiths by a pool

Three chapels and a pool are basic components of this first-of-its-kind interfaith project on Brandeis University's 200-acre campus in Waltham, Mass., near Boston. Brandeis is a Jewish-founded, nonsectarian institution. It will be the first university to build clustered on-campus chapels for three faiths—Jewish, Protestant and Catholic. The buildings, linked by a pool, were designed by Harrison & Abramovitz, New York, are about equal in height and area. All will have brick exteriors and a roof lens slanting sunlight on the altar.
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aged. Preliminary studies of the first of the projects, to cost at least $600,000, were under way.

Other legislative action:
- President Eisenhower signed into law a $305-million public works program for the District of Columbia. The authorization is for a ten-year building program to improve the district's physical layout. It necessitates a $14.5-million local tax increase. Water rates, liquor and real estate are among items that will be affected.
- Kentucky passed a law, affecting Jefferson County, outlawing "wildcat" subdivisions—those hitherto beyond the control of local zoning authorities. Builders feared it would raise the cost of all subdivisions. Another controversial bill: granting the state's department of aeronautics power to regulate the height of buildings around airports. Mayor Andrew Broaddus of Louisville objected that it was an invasion of home rule.
- Michigan's Gov. Williams vetoed a bill requiring a referendum vote on public housing projects where the question of tax exemption was involved. He signed a bill removing a ruling that property sold in a slum clearance area must be sold at public auction.
- Louisiana was considering approval of $5.6 million for the state university, including $4.1 million for a new library on the main campus. (The issue had aroused much controversy a year ago when the university's board of supervisors approved nearly $2 million for enlargement of the football stadium instead of library construction.)
- New Jersey moved slowly—legislation had to be passed through a Republican-run legislature and signed by a Democratic governor—and few big issues had yet been tackled. Among prospects under discussion: increasing from $1,000 to $2,500 the ceiling on loans that savings and loan associations may make for repair and improvement of mortgaged property; a state minimum wage law; extension of the state rent control law, which expires Dec. 31 (applicable only to municipalities where governing bodies have adopted a resolution certifying that there is a housing shortage).

Spring wage deals show average 7½¢ hour boost

With most major spring wage negotiations in the building trades wrapped up, preliminary figures compiled by AGC put the average increase across the nation at 7½¢ an hour over last year. AGC also noted that unions seemed to be dropping demands for fringe benefits and concentrating on more money.

Meanwhile, AFL steam fitters in Philadelphia were on strike despite a temporary injunction from NRLB and despite a two-day strike the AFL Building and Construction Trades Council called for 25,000 workers to urge the steam fitters to go back to work and settle their jurisdictional differences through channels. The strike-against-strike delayed millions of dollars worth of building.

Sidelights

Savannah squares

Architect Richard Neutra joined a number of citizens of Savannah last month in protesting a civic proposal to round off the corners of the city's venerable squares—perhaps even lay concrete across them!—to improve the sticky traffic situation. "Savannah," Neutra told authorities, "is better than Williamsburg or Philadelphia, one of the most glorious cities of the United States." He felt, as did others, that a good part of the city's glory derived from its 23 historic squares, the first of which were laid out by Gen. James Oglethorpe in 1733. They are heavy with live oaks, azaleas and monuments; some contain playgrounds. Neutra said he thought the traffic problem could be worked out so that the "wonderful scheme" of the city was preserved, added for the record that not enough was being done with the scheme and that Savannah needed a planning commission to really capitalize on what Oglethorpe had started.

Can transit come back?

Some US mass transit systems have already died, many are moribund, nearly all are ailing financially. Many a thinker on the dynamics of cities fears that if mass transit perishes, cities will wither, too. It is clearly the most efficient means of moving mobs of people in and out of congested areas. But it is steadily losing patronage to the less efficient auto, which is jamming horse and buggy streets so full that buses and trolleys can hardly move, either.

The Urban Land Institute, as much aware of the problem as any US group, is moving to do something about it. First step: a contest (deadline Oct. 1) to think up ways to make riding public transportation more popular. ULI's aim: to relieve downtown traffic congestion "without spending large sums for construction of new freeways, widening of streets, or for building costly off-street parking facilities," thus freeing public funds for urban conservation and redevelopment.

Should engineers bid?

Last October, South Carolina's state highway department, confronted with more hurry-up bridge designing than its staff could handle, let engineering contracts for $500,000 worth of projects to the low bidder among 15 engineering firms. Winner: Smith & Reynolds of Jacksonville, Fl., who bid 2.8% of construction cost. The American Society of Civil Engineers, which considers competitive bidding as unethical for engineers as AIA regards it for architects, promptly protested. Chief Highway Engineer Claude R. McMillan replied he intended to continue the practice. Retaliating, ASCE began studying charges of unethical conduct against all member-engineers involved.

Last month, the controversy erupted again. Defying still louder ASCE protests, McMillan took competitive bids from seven engineer firms on six South Carolina bridge projects expected to cost $3.5 million. This time, ASCE issued a public warning: not only the bidders, but McMillan himself faced possible expulsion from ASCE. President Daniel V. Tere­rell, dean of the college of engineering at the University of Kentucky, wired Gov. James Byrnes: "South Carolina will obtain some quality engineering services through competitive bidding as it would legal services obtained in the same manner. High construction costs always follow cheap design." Executive Secre­tary William N. Carey of ASCE explained why: "The engineer who takes a design job on a price-competition basis is forced to cut corners in developing the design, while still producing a bridge which probably will carry the loadings required by the highway depart­ment. But to expect such a bridge . . . to carry the loads with the most economical use of steel and concrete is wishful thinking . . . Cheap design almost always results in . . . overdesign. A cheap-design engineering firm cannot afford to take the time to design a steel bridge with just the right amounts of steel in exactly the right places to take a specified loading and finish with a safe structure which can be built at the least construction cost. The same is true with a reinforced concrete bridge. . . . What the taxpayer saves on a cheap de­sign he pays out many times over to the con­tractor in the cost of construction."

In Nebraska, ASCE won a round of the same battle: a group of professional engineers persuaded the Douglas county board to return unopened two bids for engineering services for a bypass project.

New York 50 years hence

Manhattan was growing so fast as the nation's office center that President Saul Fromkes of City Title Insurance Co. predicted: "By the year 2000 we can expect Manhattan's 22 sq. mi. to be entirely occupied by skyscrapers offices, other com­mercial enterprises and hotels." Residents? Fromkes thought there might be a few, but these would be only "the very low-income group." Already, "middle class and swank Park Ave. residents are leaving to find homes in the suburbs and in Brooklyn, Bronx, Queens and Staten Island," he expanded. "Before long as business swallows up more and more build­ing sites, even the low-income wage earners will have to follow." The next-century Manhattan, by Fromkes' theory, will have enough commuters to tax the ingenuity of engineers. Even with helicopters taking part of the load, he said, "We are going to need a lot more subway lines, additional rail terminals, and sooner than you think our superhighways and main boulevards will have two, three and even four levels of traffic." Business taking over residential neighborhoods is nothing new, Fromkes noted. "What is strange is that opposition to [it] has all but ceased."
April sets record for dollar outlays; materials prices continue level

Steady materials prices, dependable flow of materials, cheap money, an encouraging tax picture and an unmeasured but recognized increase in labor productivity led the US Chamber of Commerce to recommend this to its members as "the year to buy construction . . . the best since before World War II." Lots of people were already acting on that advice.

New construction had the biggest April in recorded building history—in terms of dollar outlays. In setting the new mark, April topped the same month last year by 1.3%. For 1954 so far, expenditures ran 1.6% ahead of 1953.

Though private activity hit an impressive high of $1.9 billion this April, many an observer felt that 1954 would still wind up below 1953. As evidence, they pointed to the "continued narrowing margin of increase between this year and last." Expenditures for private housing rose from March to April of this year, but were 1% below 1953 for the first third of the year. For the first time in 1954, public activity inched ahead of the corresponding month of last year, though for the year to date, 1953 had a 2% edge. April increases in school and highway building more than offset declines in public residential, public industrial and military construction.

On the price front, BLS' wholesale building materials index remained calm in April, dropping back one tenth of a point to 119.2. Market conditions in fir lumber, plywood and pine were artificial due to threats, then postponements, of strikes. Mill price for index grade Douglas fir plywood regained its March loss, stabilized at $80 MSF for early June shipment. Average lumber price was $64 MSF, and as high as $67 in some instances. BLS' statisticians also measured an April decline in the cost of living. The 0.2% drop in the consumer price index was the third monthly dip in a row. Sliding prices should cool union wage demands in the steel and electrical manufacturing industries.

### NEW CONSTRUCTION ACTIVITY

<table>
<thead>
<tr>
<th>Type</th>
<th>April '54</th>
<th>% change</th>
<th>1st four months '54</th>
<th>% change</th>
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<tr>
<td><strong>PRIVATE</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Residential (nonfarm)</td>
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<td>-.8</td>
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<td>New dwelling units</td>
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<tr>
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<tr>
<td>Educational</td>
<td>31</td>
<td>39+25.8</td>
<td>124</td>
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<tr>
<td>Hospital</td>
<td>26</td>
<td>27+3.6</td>
<td>105</td>
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<tr>
<td>Public utilities</td>
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<td>362+2.8</td>
<td>1,222</td>
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<td>1,897+1.3</td>
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<td><strong>PUBLIC</strong></td>
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<td>Residential</td>
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<td>145-8.8</td>
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<td>139</td>
<td>166+19.4</td>
<td>535</td>
<td>-19.3</td>
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<tr>
<td>Hospital</td>
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<td>113</td>
<td>71-37.2</td>
<td>436</td>
<td>-57.4</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>886</td>
<td>898+1.4</td>
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<tr>
<td><strong>GRAND TOTAL</strong></td>
<td>2,758</td>
<td>2,795+1.3</td>
<td>9,933</td>
<td>1.6</td>
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*Minor components not shown, so total exceeds sum of parts. Data from Dept. of Commerce and Labor.

### MATERIALS PRICES

BLS' index of wholesale building materials prices for April was a whisper (a tenth of a point) below March, and 0.6% below April '53. All of the lumber and wood components dropped from the March level, with the biggest decline (2.1%) ascribed to plywood. Concrete ingredients dipped 0.1% below March. Plumbing and heating equipment and flat glass were almost unchanged.
Redevelopment rider dies; HHFA tells cities how to qualify for urban renewal funds

On the recommendation of its appropriations committee, the Senate deleted the much criticized Phillips rider from the $5.7-billion independent offices appropriation bill it passed last month. Urban redevelopment men breathed easier. HHFA Administrator Cole had himself spoken against the rider: "The proviso ... would put the local community on notice that, in preparing a redevelopment plan for predominantly residential uses, it may contemplate only such nonhousing uses as are 'normally essential,' whatever that may be held to mean, to the residential uses.... This language would inject the administrator ... into local planning determinations in a role ... or to a degree which the Congress, on reflection, might not deem wise."

Rep. John Phillips (R., Calif.) had attached the proviso to the bill when news of the curious reasoning which qualified Manhattan's Columbus Circle project for $6 million of federal aid reached Washington. (New York Construction Coordinator Robert Moses had persuaded HHFA that 19,000 sq. ft. of garage space under the proposed Coliseum, for use by tenants of the residential part of the project, gave him the necessary more-than-50% of residential space to make the development eligible for federal subsidy under Title I.) Rep. Phillips decided that in the future it would be better if no federal funds were granted for such a "residential" slum clearance project unless incidental uses of the development were restricted "to those normally essential for residential uses." There was a wave of protest. Although he was not overjoyed with the Coliseum contract he inherited from Truman-administration HHFA officials, Cole warned that passage of the rider would affect 85 other projects for which capital grants totaling close to $146 million had been requested. Incidentally, although originally inspired to righteous action by the Coliseum case, Phillips knew as well as anybody (except, seemingly, the New York newspapers) that his rider would not affect the already-scheduled Coliseum and he said as much. In reporting the Senate action, New York's Times and Herald Tribune were still plugging away at the dead horse with such headlines as "Senators Attack Peril to Coliseum" and "Senators Removes Rider Barring Coliseum Aid."

The Senate bill will go to conference, where the probability is that removal of Phillips' rider will be sustained.

The city's job. Meantime, the straight word on what a municipality should do if it wants to participate in the urban renewal program embodied in the 1954 housing bill was laid down by James Follin, HHFA's slum clearance and urban redevelopment director. Under urban renewal, cities would be barred from federal financial aid for redevelopment until they satisfy Follin they have a broad "workable program" for fighting blight with such tools as rehabilitation, housing code enforcement, city planning and zoning. "It should be clearly understood," said Follin in a New York talk, "that the federal government will not expect any community to have an accomplished workable program in full effect in the beginning. This is the present intention to have each city face squarely the total implications of the workable program and outline in detail the steps which will be necessary in order to develop a completely effective program." Once the city's schedule has been developed, he said, the government will consider requirements for an initial project fulfilled; but before it is given a green light for any further new projects, the schedule and the city's progress in meeting it will be re-evaluated.

Using a redevelopment plan in Somerville, Mass., as a springboard, Follin listed the following ten points for a "workable program":

1. General planning—including preparation of a revised zoning ordinance, a recreation plan, traffic studies, a public improvements program and a land use plan.
2. Detailed surveys—a selection of areas for clearance, rehabilitation and conservation; studies of housing needs, including housing for minority families.
3. Enabling legislation—action from the state capital "to extend the powers of cities ... with respect to urban renewal."
4. Local codes and ordinances—enforcement of same to gain compliance with minimum standards of health, sanitation and safety in dwelling.
5. Code enforcement machinery—development of a coordinated inspection program to carry out the above.
6. Renewal administrative machinery—further apportionment of the task of urban renewal, with proper budget allowances, among city departments.
7. Financing ability—establishment of a careful financial plan indicating the costs of the program and how the city will meet its share of these costs.
8. Relocation program—recognition of the responsibility involved in relocating families and a plan to meet the responsibility.
9. Citizen participation—efforts from key citizens to back the over-all plan, plus neighborhood committees working "at the sidewalk level."
10. A follow-up program—an integrated effort to sustain the upgrading of the area.

Big enabling act. The Arizona legislature came through with an enabling act of the sort Follin had in mind, a 20-page "slum clearance and redevelopment law" empowering cities to wage a full-fledged attack on their blighted areas. The permissive powers were broad: a municipality may exercise the powers granted in the act if 1) one or more slum or blighted areas exist in the municipality, and 2) the redevelopment of such area or areas is necessary in the interest of the public health, safety, morals or welfare of the residents of the municipality.

The city may then, within its area of operation, "purchase, lease, obtain options upon, acquire by gift, grant, bequest, devise, eminent domain or otherwise, any real or personal property ... necessary or incidental to a redevelopment project." Other powers: to invest redevelopment funds; to borrow money; to make surveys; to create a slum clearance and redevelopment commission; to issue bonds and to enter into agreements to secure federal aid or contributions and comply with conditions imposed in connection therewith.

Taft-Hartley revision killed by mixture of split interests

Administration hopes for revision of the Taft-Hartley Act this year were killed April 7 as a solid bloc of Democratic votes in the Senate swept the measure back to committee for more study. Back of the recommittal vote (50 to 42) was an odd mixture of partisan politics, labor apprehensions and reluctance on both sides of the political aile to risk a showdown on attempts to tack on a civil rights rider. Spokesmen for organized labor preferred to see no bill at all. They felt the odds were Congress would adopt amendments not asked by President Eisenhower to tighten instead of loosen the law. General contractors had supported Taft-Hartley revision, but home-builders opposed it, fearing the outcome would make it easier for AFL building unions to organize the nonunion half of housing. One provision in the Senate bill would have ended the ban on secondary boycotts on a construction job. Another would let employers and unions in construction (and others with intermittent or casual or temporary employment) to enter into prehire agreements requiring union membership within seven instead of 30 days.

St. Louis juries indict 37 building labor men in year

"The federal grand jury's new report is not only a blistering indictment of corrupt labor practices here, but a severe shock to civic pride.... St. Louis has become the capital of labor racketts in the construction industry."

The editors of the Post-Dispatch, who included the above in an editorial a year ago, were in a position to know. One of their veteran reporters, Carl R. Baldwin, 45, had two years before begun a painstaking research job on what made local labor unions tick. Some of the answers: assault and battery, threats, bombings and payoffs from contractors. Baldwin tried every way he knew (he has been on the staff 23 years) to persuade a contractor to testify for the record on the tactics of the local AFL. None would. It was almost as difficult to get a concerted effort for a grand jury inquiry under way. Finally, in the spring of last year, the crusading stories, backed by Post-Dispatch editorials and car-
Monsanto PENTA specified to protect wood against decay and insect attack

Gymnasium, State Teachers College
New Haven, Connecticut

Architect:
Douglas Orr, New Haven

General Contractor:
Fusco-Amatruda Co., New Haven

Wood Treater:

Specify Monsanto Penta for:
- Sills and Plates
- Joists and Girders
- Subflooring and Screeds
- Studding and Rafters
- Factory Flooring
- Roof Plank
- Millwork
- Stadiums and Grandstands
- Cooling Towers
- Bridge Timbers

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

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

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

You multiply the service life of exposed wood 5 to 7 times when you specify Monsanto Penta.
The web spreads. Among the first 16 indicted by the jury on charges of violations of the federal antiterrorism act were Leo Havye, business agent for the bricklayers union and former member of the city's housing authority, Lawrence Callanan, ex-convict and boss of the steamfitters local, and Paul H. Hulahan, business agent of the building laborers. Hulahan was the first to come to trial and got 12 years (AF, Feb., '54, News). Later, Carl J. (Dutch) Bianchi, William Foster and Lawrence A. Thompson were found guilty on extortion charges and sentenced to ten years in prison. (The contractor, who was indicted for perjury, was Owen L. Fenner of St. Charles, Mo., a former AFL leader.)

PEOPLE: P. A. Strobel new commissioner of public buildings:

AIA's Ditchy and Root in contest for presidency this month

Peter A. Strobel, Danish-born engineer who has worked on a number of projects for the AEC and armed services, was named commissioner of the public buildings service of the General Services Administration, effective July 1. He will take over from W. E. Reynolds, 66, who is retiring June 30 after 21 years with the government (AF, April '54, News). Strobel, 55, who is married and lives in New Rochelle, N.Y., came to this country shortly after he received his MS in civil engineering at the University of Copenhagen in 1925. (He is now a citizen.) He was a partner in Strobel & Salzman, New York consulting engineering firm, was chief structural engineer for the New York World's Fair and for many years chief engineer for James Steward & Co., supervised construction of heavy industrial plants. During the war he invented, designed and supervised construction of portable airplane hangars and designed insulated prefab A-frame barracks for use in field operations. He was a member of the committee reporting to the AEC on planning and construction of atomic energy plants and worked on the labs at Cornell and Brookhaven. Among his other projects: the 15-story print shop and office building of the New York Times; the Albert Einstein College of Medicine in the Bronx, N.Y. and Westgate Shopping Center in Fairview, Ohio.

Often, AIA presidents have been re-elected without opposition to a second one-year term. Last month, AIA President Clair W. Ditchy, FAIA, of Detroit found his re-election would be contested. His opponent: John W. Root, FAIA, of Chicago, senior partner of the big architectural firm of Holabird & Root & Burrell and chairman since 1951 of AIA's public relations committee, which has been trying to help architects cope better with one of their peskiest problems. Root was nominated by members of the Chicago, Cleveland, Dallas, St. Louis, New York and Washington chapters. The election will be at AIA's convention this month in Boston. Another contested office: treasurer, Leon Chatelain Jr. of Washington, D.C. vs. Edward L. Wilson of Ft. Worth. Howard Eichenbaum of Little Rock had at first been pitted against Earl T. Heitschmidt of Los Angeles for first vice president, but withdrew. He remained the lone nominee for second vice president.

Many experts on slum rehabilitation and redevelopment believe few cities can hope to mount successful fights against blight until their top businessmen and industrial leaders join the movement actively. As evidence, they point to the record in such cities as Chicago and New Orleans, where backing from top civic figures has given antilium drives an importance they rate in few US metropolises.

Last month, in Washington, D.C., there was important progress in the same direction. A group of 15 citizen leaders announced formation of an interim committee (prelude to a permanent committee) to make a broad attack on urban ills. Their first step was to hire as staff director G. Yates Cook, 44-year-old rehabilitation chief for the Natl. Assn. of Home Builders, and former sparkplug of Baltimore's widely known slum fix-up plan. Cook will leave NAHB on June 30. The new organization will set its sights on far more than rehabilitation; it will work with both official and existing volunteer groups to cope with the entire web of problems confronting the city. Said the announcement: "Our central purpose is to try to support intelligent efforts to improve traffic, parking, housing and . . . other problems which impede the city's progress."

Most impressive of all was the roster of committee men—a who's who of Washington business life:


Chicago Building Commissioner Roy T. Christiansen resigned his $12,996 job under fire after 6½ years in office. He was not forced out because of inefficiency on the job—he has been peppered in recent months with accusations of laxity in the enforcement of building inspection laws—but because of a sleeper in the municipal code. Four days before the resignation, the Chicago Daily News came up with a story that Christiansen was a partner in one of nine architectural firms drawing plans for the city's parking garage program and was sharing in the firm's profit. A city ordinance forbids any department employee from having outside employment. Christiansen at first stated he would not resign, changed his mind under increasing demands from aldermen. Richard Smykel, deputy building commissioner, was scheduled to take over as acting department head.

NAMED: James Lach, who was fired in March as director of the San Francisco Redevelopment Agency (amidst a storm of civic protest that the ouster was political wrecking of redevelopment), as resident manager of the new
San Francisco office of Harland Batholomew & Associates, St. Louis city planners and civil engineers; Gordon P. Larson, air pollution control director for Los Angeles County, as president of the national Air Pollution Control Assn.; Dean William W. Warster of the University of California's school of architecture, as a fellow of the Royal Academy of Fine Arts in Copenhagen for his "great contributions to architecture."

DIED: Harold W. Richardson, 53, editor of Construction Methods and Equipment and former editor of Engineering News-Record, after a heart attack May 12, at his home in New Providence, N. J.; William Van Alen, 71, New York architect who warred against skyscrapers "encrusted from top to bottom with heavy masonry" and designed the Chrysler building in a race for height with his ex-partner, May 24 in New York. After graduation from the Ecole des Beaux-Arts, he joined in partnership with H. Craig Severance, who was working on the Bank of Manhattan building on lower Broadway. When the partnership was dissolved, Van Alen sought to top the bank building's 925' and built the Chrysler building which, with its 185' lattice work vertex, reached 1,046' and until 1931 was the tallest in the world.

**NEW BUILDINGS**

**High rise offices**

Construction of what will be the tallest building in the southeast is expected to start in Nashville before the end of the year. The Life & Casualty Insurance Co. there will erect a 30-story building which will top the Sterick building in Memphis by one story. The Life & Casualty building will also win by a nose on square footage, 212,050 vs. 211,000. . . . A Canada House in New York, to cost between $8 and $10 million, is "assured," Con- sul General Ray Lawson announced. The project will be privately financed by a small group of Canadians, he said. A location had not yet been picked. . . . Travelers Insurance Co. in Hartford will increase its home office space by about 30% with construction of a new 11-story building for $6 million. It will be faced on two sides with Alabama limestone; the first floor with pink granite. Architects: Voorhees, Walker, Foley & Smith, George A. Fuller Co. is contractor. . . . Baton Rouge will get its first large office building in 25 years with completion of an eight-story, air-conditioned building expected by the summer of 1955. Wilbur Marvin, New York real estate man who has developed a number of properties in the South, handled negotiations. Cost will be a little over $2 million. Square footage: 165,000. Bodman & Murrell & Smith are architects; R. P. Farnsworth & Co., contractors.

**Air-conditioned inn-motel**

Oberlin College will replace its 120-year-old inn with a new 48-bedroom, two-story structure combining motel-type accommodations (guests can park cars directly outside first-floor bed-rooms and walk to dining and meeting rooms through indoor or outdoor passages) with traditional double bedrooms and baths up-stairs. Eldredge Snyder of New York is the architect; Knowlton Construction Co. of Bel- lefontaine, Ohio, is the contractor.

**Split-level church school**

St. Catherine Laboure Parish in St. Louis plans an L-shaped church and school with a main building barrel vault roof of thin shell concrete spanning 60' (see cut, below). The church will hold 500 people; the split-level school 450 students. Cost has been put at $280,000. Designer: Gyo Obata of Archi-
Gold Bond GYPSUM ROOF DECK GIVES BUILT-IN
FIRE RESISTANCE TO ANY DESIGN...PITCHED, BARRELLED OR FLAT

Get natural fire resistance into your designs by specifying versatile Gold Bond Gypsum Roof Decks. The solid gypsum concrete core cannot burn! Gold Bond Roof Decks can be poured-in-place on pitched, barrelled or flat roofs. Installation is fast...quick setting action allows full load capacity in less than 60 minutes.

The low dead load of Gold Bond allows lighter supporting structures...substantially reducing overall construction costs. If later construction changes are required, decks are easily cut, nailed or patched...an advantage that keeps maintenance costs down!

Architects find that Gold Bond Gypsum Roof Decks have unusual adaptability to specification requirements. You can provide for fire protection, insulation, or a combination of insulation and sound-conditioning by simply varying the Gold Bond Formboards.

Gold Bond "Poured-in-Place" Gypsum Roof Decks are installed only by approved contractors. For detailed drawings, load tables and full information, write Architect Service Department, National Gypsum Company.
NEW BUILDINGS (continued)

WIDER
Airtherm ROOF DECK

Airtherm Roof Deck provides a strong and economical roof for this well-lighted gymnasium
designed for a wide range of applications

Airtherm Steel Deck Sheets are furnished in 30" widths (the widest in the industry) with five ribs spaced on 6" centers. These ribs, 1 3/8" deep, have a bearing surface of 5/8" and a top opening of only 3/4" wide. These wider, self-aligning sheets mean fewer longitudinal laps with resultant savings in construction time and costs.

Airtherm Decking provides a strong, safe and durable steel roof in flat, pitched or arched construction. It has been proved in installations as side walls, partitions, canopies, and as a sub-base for concrete or aggregate flooring. This versatility, plus its attractive appearance, has led to many unique applications in a wide range of structures.

18-GAUGE AIRTHERM ROOF DECK

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<tr>
<th>PROPERTIES</th>
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<td></td>
<td>320</td>
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<td>679</td>
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</table>

To care for all contingencies relative to geographical areas and various purlin spacing, Airtherm Decking is also manufactured in No. 22 Gauge and No. 20 Gauge metal thicknesses.

FABRICATED PRODUCTS DIVISION
Airtherm MANUFACTURING COMPANY
745 South Spring Avenue
St. Louis 10, Missouri

Member: Metal Roof Deck Technical Institute

In this church the attractive appearance of painted Airtherm Roof Deck adds functional beauty to the clean design

New look for YMCAs

Plans for contemporary YMCAs showing a comfort and efficiency hitherto seldom found in such buildings came to light in Texas and Wisconsin. In Houston, Architect Milton McGinty produced a layout for a proposed Negro branch to serve Houston and Harris Counties that included a double gym (with wood laminated arches), lounges, crafts room, snack bar and dormitory space for 34. The project will cost $800,000, exclusive of site but including $85,000 for furnishings. An open court will divide clubrooms on the south from a closed-in swimming pool to the north. The south wall of the pool building will be sliding aluminum doors with translucent plastic glazing. These can be opened to allow swimmers the use of the courtyard. Fisher Construction Co. will do the job.

There is a reason for the rash of new branch YMCAs—each trying to outdo the other in up-to-date design—in Milwaukee. There have been no capital additions to YMCAs there since 1908. Now, a major fund campaign, under way for some time, has produced nearly $5 million in cash or pledges. The goal is $6.3 million (not counting a possible extra seven stories for the already-excavated new main building—AF, Jan. '54, News). With the funds YMCA officials will run a two-year building program also including four suburban branches, a winterized lodge 22 mi. from the city, an in-town building and a gymnasium addition.

Each branch of the central YMCA had its own building committee, was free to pick its own architect and style. Among the scheduled new projects is a two-story building for juniors and seniors on a sloping site in South Milwaukee (see cut, below) to cost...
They tried it...
✓ They liked it...
✓ They came back for more!

Top Illustration: Exterior of the Corona Branch of the Manufacturers Trust Company of New York
Bottom Illustration: Inside of the bank, showing officers platform.

of Joanna Vinylized WALL FABRIC
proved a profitable investment
for the
Manufacturers Trust Company
of New York

A bank is an institution specializing in sound investments. Their business is finding the safest, most profitable return for their money.

The materials which go into a building are an investment, too. Back in 1951, the Manufacturers Trust Company of New York made their first installation of Joanna Vinylized Wall Fabric. It has been paying dividends ever since.

You see, Joanna Vinylized Wall Fabric is made of tough, strong, long wearing cotton fabric, vinyl coated to make it highly resistant to bumps and scrapes, dirt and dust. It lasts for years, with a minimum of maintenance...dirt washes off with soap and water. And it's fire resistant, it is listed by the Underwriters' Laboratories.

Joanna Vinylized Wall Fabric provides a bright touch of decorating beauty, too. The wide variety of attractive colors makes it easy to choose just the right shade to blend with the decorating scheme. It's recommended and approved by the Wallpaper Research Bureau of the Painting and Decorating Contractors of America.

Yes, they tried it and they liked it. Since that first installation, three years ago, the Manufacturers Trust Company has installed more than 50,000 square feet of Joanna Vinylized Wall Fabric in many of their branches throughout the city.

Write today for Sample Folder S-22...the same investment guide that sold the Manufacturers Trust Company.
STEEL-CONCRETE PRINTING TRADES SCHOOL FOR NY BOARD OF EDUCATION

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SASH AND DOOR CONTROLS

...Better Because

Extra large JAM PLATE bearings prevent sag of arm.
Exclusive! Adjustable tension of hold open permits suiting holder to draft conditions.
To exclusive! Encased shock absorber bearing is of fine grained impregnated cherry to resist wear elements.

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NEW BUILDINGS (continued)

$135,000. Architect: Maynard W. Meyer & Associates. The average cost of the suburban branches and the lodge is about $200,000. Most expensive job scheduled is the first unit of the West Allis YMCA for $300,000, also designed by Meyer. This is to become a "comprehensive building," at a cost of $1.5 to $2 million. Other architects engaged in the YMCA boom in Milwaukee include Walter A. Domann and Fritz von Grossman.

Trade school in New York

New York’s Board of Education approved preliminary plans for a $5.1 million building on the city’s west side to house classrooms and equipment for printing trades students (see cut, above). The steel frame and concrete floor slab plant will occupy about half of a two-acre site, will include a 26,000 sq. ft. sunken play area and an auditorium and gymnasium. A two-story classroom will go on top of the five-story shop section. The latter’s facade will be sheathed with directional glass block (12 sq. in. size) except for a clear vision strip running horizontally at eye level. Architects Kelly & Gruzen put in two escalators in crisscrossed banks, after officials decided they would be less expensive to install and operate than elevators.

Municipal expansion plans

Plans for public buildings and corporate expansion were cropping up from Miami to Portland. In Miami, the city commission last month approved a huge program of public works ($6.7 million) to be financed through bond issues and sale of city property including three $1-million projects—an inter-American trade center, a police headquarters and property for off-street parking—and a $500,000 project for enlargement of the Orange Bowl... The Toronto (Canada) Board of Control heard for the first time of a scheme hatched by a US syndicate to invest $75 million in construction of a 50-story skyscraper there to house municipal and court offices. Norman Barnes of the Norman Barnes Co. of Chicago was spokesman for the group... Voters at a primary in Portland, Ore. approved $31.8 million for capital improvements. In addition, Horwath & Horwath, hotel accounting experts, gave a green light to a proposed 20-story downtown hotel sponsored by Leo Corrigan; two insurance companies were reported ready to negotiate for financing... Pacific Telephone & Telegraph Co. announced plans to spend $175 million for construction and expansion in southern California this year and next... Johns-Manville Corp., building materials and industrial products manufacturers, announced intended expenditures of about $18.5 million for expansion and improvement projects during this year.

(NEWS continued on p. 56)
Rolling Steel Doors

Manually, Mechanically, or Electrically Operated

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

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Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities
Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms.
two new window catalogs you’ll find helpful in new or modernizing work by specialists in

They show you the time-tested, service-proved way to save on window maintenance

Windows can make a big difference in your building maintenance budget—they account for such a large percentage of the building’s wall area. So the best window is your cheapest buy in the long run. That’s why Bayley metal windows—steel or aluminum—have enjoyed such regular specification preference from cost-minded buyers. By exceeding usual standards in depth, weight, design, workmanship, appearance and performance, Bayley Windows effect maximum ultimate economy. In these catalogs, that will be gladly sent upon request, you’ll find complete details on Bayley Windows to best meet every condition. Bayley is always glad to also consult with you on your specific window needs. No obligation.

*Visioneering—The science of coordinating vision, air and light in modern building walls with windows of advanced design.

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Investigate Johns-Manville Corrugated Asbestos Transite and learn how you can build quickly and easily...have an attractive, long-lasting, trouble-free structure regardless of size or purpose. For complete details write Johns-Manville, Box 158, Dept. AF, New York 16, New York. In Canada write 199 Bay St., Toronto, Ontario.
The "Test-Tube" Test Shows Why FERALUN TREADS Do Not Wear Smooth

This is the amount of abrasive in a 6" x 6" section of a Feralun Safety Tread.

This is the amount of abrasive in a 6" x 6" section of an "abrasive tread" offered as a substitute for Feralun.

The life and non-slip effectiveness of an abrasive tread depend on the amount of abrasive it contains and on the even distribution of the abrasive over the wearing surface. To many, the two treads above may look alike, but when the abrasive is removed and compared the difference between them becomes apparent.

For maximum safety and longest life, insist on Feralun for treads, nosings, thresholds, floor plates and elevator sills.

*After the pieces were photographed, sulphuric acid was used to dissolve the iron. The residue (abrasive) from each piece is shown in the test tubes.

The Test-Tube Test Shows Why FERALUN TREADS Do Not Wear Smooth

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See SWEET'S Catalog 1954
12b/Am

AMERICAN ABRASIVE METALS COMPANY • IRVINGTON 11, N. J.

Code officials told they face big role in urban renewal

The new broad concept of urban renewal making the work of building code officials across the nation heavier and more important than ever before.

In Philadelphia last month, at the 39th annual convention of the Building Officials Conference of America, James W. Pollin, head of the city's housing and urban development division, took note of this trend and some beneficial results. These were beginning to appear in 200-odd cities now starting to conform with requirements for "workable" housing codes and urban renewal help. Heed Pollin: "Some of these cities are adopting building, plumbing and electrical codes for the first time and creating building departments. Many other are revising and modernizing old building regulations."

Shuns US meddling. If Congress adopts the urban renewal features of the housing bill, HHFA could not avoid exerting more and more code enforcement influence in many large cities. But Pollin assured BOCA housing officials that the new agency "will not shun any role as the "super code enforcement agency" some people have advocated as the most effective tool for fighting urban housing blight. Code enforcement and other rehabilitation problems are "strictly a matter for local government and local determination," he said.

Pollin did offer advice on one vital item: "It simply does not make sense to enforce elaborate codes on the physical components of buildings and then permit their use in dwellings without regard to the adequacy of space in relation to number of occupants, sanitary facilities, equipment and other factors that distinguish good housing from bad . . ."

Code changes. Only one of 95 proposed changes in the basic and abridged BOCA codes caused much debate before its adoption. This authorized the use of "reinforced thermoplastic" in some kinds of glazing and roofing without being subject to the basic code's requirements covering structural characteristics, protection of wall openings and fire resistance. (Approval for the use of other plastics, subject to these requirements, was voted a year ago.) The code officially defined the newly approved specific use product as follows: "a thermoplastic plastic reinforced with a glass-fiber mat having not less than one and one-half ounces of glass fiber per square foot."

A. J. Steiner, protection department engineer of the National Laboratories, Inc. of Chicago opposed approval, argued that the material should be required to meet all regular structural and fire resistance standards of the code in any particular use. The code changes committee recommended approval, The affirmative vote, after more than an hour of floor debate: 18 to 6.
226 SAFE SHOWERS in The University of Oklahoma
Boys and Girls New Dormitories Are Regulated by
POWERS MIXERS

Above: 4 of the 8 Modern Dormitories All Equipped with—

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Double Safe

Thermostatic WATER MIXERS

They make showers SAFE against scalding and sudden shots of cold or hot water caused by

PRESSURE and TEMPERATURE fluctuations in water supply lines.

No Shower is Safe Without this Double Protection—Powers thermostatic water mixers always hold the shower temperature constant wherever the bather wants it. They are completely automatic. Failure of cold water instantly shuts off shower. Delivery temperature is thermostatically limited to 115° F.

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**MOBILEX®** ...less expensively...

than with any other recessed lighting fixture

How many times in your experience have you wanted to use the good design advantages of recessed lighting—only to see your plans go by the boards because over-all ceiling costs got out of line?

You have an answer to that bottleneck now. MOBILEX. It fits more types of ceilings—without the need of expensive custom made adapters than any other recessed lighting fixture on the market.

That means MOBILEX gives you a broader range of price, ceiling, and recessed lighting combinations than you've ever had to work with before. And that means a far greater opportunity for you to deliver good design and de luxe lighting—even to clients who must limit you to a modest budget.

Because we know you are always interested in new products that really help you do a better job, we think you'll want to see and hear more about MOBILEX. We'll be happy to arrange a MOBILEX demonstration any time you say. We promise you this: you'll find it well worth-while.

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**MOBILEX FITS GRID-TYPE SUSPENDED CEILINGS.** Fixture is inserted into grid opening, rests on "tee" rails, locks into place. Reduces installation costs up to 50%. Acoustical ceiling boards, MOBILEX units are interchangeable, permitting quick, low-cost revisions of lighting pattern whenever desirable. WRITE FOR BULLETIN OD-557.

**MOBILEX FITS EXPOSED SPLINE SUSPENDED CEILINGS.** Fixture hooks onto universal 1 1/2" ceiling carrying channels. Multiple use of same supporting members saves material and labor costs. Acoustical tiles, MOBILEX units may be rearranged any time after initial installation. WRITE FOR BULLETIN OD-606.

**MOBILEX FITS CONCEALED MECHANICAL SUSPENDED CEILINGS.** Flange type MOBILEX for acoustical ceilings using concealed metal spline, screw or adhesive methods of supporting mineral tile. This MOBILEX unit is listed with simple-to-install Day-Brite suspension straps which clamp to ceiling carrying channels.
This is MOBILEX with molded plastic panels. Also available with Ribbed Skytex glass panels and BOXCO® louvers, MOBILEX can be supplied in 2, 3 or 4 lamp arrangements for 2' x 2' fixtures or 2' x 4' fixtures. Enclosing element frames have separable hinges and can be hinged from either side or completely removed for quick maintenance.

LOOK AT MOBILEX...
FEEL THE DIFFERENCE...
BEFORE YOU SPECIFY.

MOBILEX FITS SNAP-IN TYPE ACOUSTICAL CEILINGS. Fixture snaps into the same "Tee-bar" rails that receive metal pan ceiling tiles. Day-Brite designed spring retaining clips snap "home" above the Tee-bars for added security.

MOBILEX FITS PLASTER CEILINGS. Simple, rugged Day-Brite plaster frames and suspension straps frame the opening and support the MOBILEX for plaster and acoustical tile-on-plaster installations. Extra long studs in suspension straps allow maximum adjustment for positioning fixture.

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YES, SAFETY IS OF VITAL IMPORTANCE WHEN YOU ARE PLANNING A SCHOOL-ROOM WARDROBE. THE FIRST ADVANTAGE OF ANY CLASSROOM WARDROBE, OF COURSE, IS THAT IT ELIMINATES THE DISORDERLY CLOAKROOM—WHERE CHILDREN'S PLAYFUL INSTINCTS OFTEN RESULT IN ACCIDENTS. INSTEAD THE CLASSROOM WARDROBE ALLOWS THE TEACHER TO SUPERVISE THE ORDERLY STORAGE OF WRAPS RIGHT IN THE CLASSROOM.

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LETTERS

DESIGN CRITICISM

Forum:
I congratulate you on the excellent art by Paul Rudolph on the Raleigh Livest Pavilion design (AF, April '54). I have long held that the architectural press is not too critical of the works by profession, and therefore we have not been able to establish any standards by which only practitioners but the youth of the country can be guided.

RALPH WALKER
Fourhers, Walker, Foley & Smith, architect
New York, N.Y.

Forum:
Everything that Mr. Rudolph says carries conviction. It is most appropriate that building so brilliant in basic concept with so many crudities in detail should have been subjected to serious and responsible criticism such as Mr. Rudolph so admirably provides.

It is not just that every building that might be worth publishing should be examined with such sharp an eye, but in the case of a structure of such special significance—alas, I believe the only executed work from the brilliant designs of Nowicki—it is most appropriate; one can almost say that only structures of potential greatness deserve so hard a study of their minor defects.

For the general public, such an article might perhaps be confusing; but in a professional journal I feel it is highly appropriate and significant of an increasing maturity of approach on the part of the American architectural press. Let us have more individual buildings of comparable significance and let us have them similarly studied in severe but just and sensitive architectural criticism.

H.-R. HITCHCOCK, director
Smith College Museum of Art
Northampton, Mass.

IMPACT

Forum:
I have recently received a communication from Mr. D. C. Spillman, supervisor of the Commercial Service Division of the Bee Aircraft Corp., regarding his company's distributorship improvement program.

The article called "Roadside USA" in the April Forum on the program of one of its clients, Republic Supply Co., seems to have had considerable impact on Mr. Spillman.

GEORGE VERNON RUSSELL, architect
Los Angeles, Calif.

BETTER PUBLIC RELATIONS

Forum:
Your "Pocket Guide for Better Public Relations" (AF, April '54) is one of the most informative pieces yet written on the subject continued on p.
**NEW ADJUSTABLE DOUBLE DUTY AIR VOLUME EXTRACTOR & CONTROLLER**

**11 TREMENDOUS ADVANTAGES:**

1. FACTORY ASSEMBLED
2. INSTALLS WITH 2 SCREWS
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**FACTORY ASSEMBLY SAVES UP TO 50% OVER SLOW HAND-MADE METHODS**

See adjustability of AG-45 from full open to full closed positions. Note how curved blades turn, to control air volume, bringing even distribution to entire grille face at all times.

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Slash unit costs with this amazing new Titus AG-45. Make it easy for yourself to keep bids low. Use this cost saver to beat competition. Eliminate the extra work of putting in volume controllers. Save time, labor. IMPROVE THE AIR CONTROL EFFICIENCY OF EVERY INSTALLATION. Get complete free information now. Order a sample AG-45 today. Remember, not until you have one of these AG-45s in your hand, can you see its amazing cost-saving value. IMMEDIATE DELIVERY.

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ARCHITECTURAL FORUM • JUNE 1954
New Walnut Grove School
has a maintenance-free roof of

The school board of West Mifflin Borough, Allegheny County, Pennsylvania, took care of roof maintenance almost permanently when the new Walnut Grove School was built. They did it by specifying a roof of long-lasting USS Stainless Steel.

The roof is approximately 385 feet long and 75 feet wide. The Stainless Steel roofing panels have a satin-type architectural finish. They are of 26-gage material fabricated into a standing seam panel 27\(\frac{3}{4}\) wide by 12 feet long.

Stainless Steel's superior corrosion resistance, combined with its almost complete freedom from maintenance, fits it for years and years of satisfactory service. It has excellent reflective properties, and features needed strength with light weight.

The Stainless Steel roofing sheets are laid on double-coated, 35 pound asbestos felt. Each cross seam is caulked and the roofing is locked into the Stainless Steel gutter. Gutters and downspouts are of 22-gage Stainless Steel, architectural finish.

In addition, all attachments, supports, hanger bars, bolts and screws are Stainless Steel.

Stainless Steel is finding wide favor with school architects, not only for roofing, but for exterior walls as well when used in the form of insulated panels. Of course, its wonderful possibilities for interior trim are also being used to advantage.

If you have a new school in the planning stage, now is the time to think in terms of Stainless Steel and its many benefits. And think in terms of perfected, service-tested USS Stainless Steel. For more information, mail the coupon below. If you like, we will be pleased to have one of our representatives call.
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Please send me information on architectural use of Stainless Steel.

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Brand new!...Bambino for small prints—

The small new Ozalid® machine will turn out a letter-size print in less than a minute, for less than two cents.

The Bambino can supply detail prints...also copies of specs, lists, records, handwritten memos—saves time and work, frees your print room from small jobs.

Little larger than a typewriter, the Bambino is a real Ozalid. It copies anything that is drawn, typed, printed or written on translucent paper, fabric, film, up to 9 inches wide, any length. Delivers clear, dry copies on coated Ozalid paper, cloth or film.

The Bambino is electrically operated, can be used by anybody. Economically priced at $410, it soon pays for itself.

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Or write for free brochure to 152 Ozaway, Johnson City, New York.

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OZALID Bambino—smallest, fastest, low-priced white print machine that makes up to 200 copies an hour—for less than two cents a copy.
Yes, one fluorescent lighting system for all three lengths of T12 Slimline Lamps! It's Benjamin "Magna-Flo"...so easily adapted to any size area, any type of location found in industry. No matter where you want fluorescent light...high ceilings or low ceilings, assembly lines or drafting rooms, lighting for inspection or mass production...whatever the seeing conditions and requirements of the task, there's a "Magna-Flo" System to fill the need exactly. As shown by the chart below, "Magna-Flo" is really complete...yet so simple to order and specify, because just three channel sizes and four basic reflectors form the backbone of over 300 different fluorescent lighting systems!

Write for Bulletin AD 5705 for complete specification data on Benjamin "Magna-Flo"...see how it goes to any length to suit your fluorescent lighting needs!

A Product of Benjamin Electric Mfg. Co., Dept. YY

BENJAMIN "Springlox"—the exclusive "easy-in easy-out" lampholder which reduces maintenance costs and re-lamping time with a patented spring design..."Springlox" is standard equipment with all "Magna-Flo" units.
“Glass Wall” Installation Dramatizes Advantages of Kinnear Rolling Doors

Light from a huge "glass wall" floods into the new engineering building at Howard University, Washington, D.C., shown above. The Kinnear Rolling Door centered in this glass wall can be operated or left open without blocking off a single inch of glass area. The rugged curtain of interlocking steel slats — originated by Kinnear — coils compactly above the opening. All surrounding floor, wall and ceiling space remains clear and usable all the time. Notice also how the straight lines of the Kinnear curtain add to the modern appeal of this building.

In addition to this space-saving "self-contained action", Kinnear Steel Rolling Doors offer durable, low cost, all-metal protection against intruders, vandals, wind, weather, and fire. Kinnear Rolling Doors are built in any size, with manual or motor operation. Write for full details.

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LETTERS continued

NEW BUILDINGS
Forum:
We commend Forum on the inclusion in the News department of the new section on new buildings. It is of interest to know, in capsule form, just what the monthly building picture is throughout the country.

WILLIAM K. DURYEAF
Duryea & Elkins, architect
Houston, Tex.

DESIGN STANDARDS
Forum:
Your Design Standards and Data has just settled an important question between architect and client during a recent conference held at our office. Both you and Harold Sleeper are to be congratulated.

SAMUEL Z. MOSKOWITZ, architect
Wilkes Barre, Pa.

ROTH'S MODERN
Forum:
"Modern Construction Trends" by Richard Roth (AF, March '54, Excerpts) is very commendable. In strong, straight-to-the-point language, a highly experienced man evaluates "modern design" and the prefabrication of skin units as dominating factors in the future planning and erection of multistory office and apartment building.

VICTOR FURTH, MIRBA—MAA
Professor of Architecture
Miami University
Oxford, Ohio

ART AND ARCHITECTURE
Forum:
April Forum contains an article on our new Temple Beth El. We are naturally thrilled with the art and architecture that Mr. Goodman has given us. I would like to point out one further ingredient necessary, in addition to the cooperation between architect and artist, and that is the complete harmonious concurrence of the owners and the contractor. The absolute integration evidenced in the new Temple Beth El has been carried to the extreme wherein even the furnishings were selected by Mr. Goodman. Within limits, our Congregation had the courage to give him complete carte blanche. We boast that from the inception of this project to its completion, there has been scarcely a harsh word spoken between our building committee, architect and contractor.

E. A. LEVI, rabbi
Congregation Beth El
Springfield, Mass.

Forum:
From p. 141 of the April Forum I lift the following out of text—"Architect Percival Goodman (himself an artist) . . . " Shades continued on p. 70
Simplify Planning... No Special Wiring Needed

- IBM Electronic Time and Program Signaling Systems eliminate need for special clock and signal wiring... synchronize clocks, recorders and audible signals... control utilities... all automatically.

- Easy, economical to install... clocks and signals connect with regular AC lighting lines... are supervised electronically.

- Self-regulating on 12-hour basis... master control automatically checks—and corrects as much as 12 hours, if necessary—all clocks twice daily. Automatic self-regulation assures coordination of all time units.

- Can be altered with little cost or effort... system may be expanded, units relocated, without expense of additional controls or special wiring.

Control Utilities Automatically

IBM Electronic Time and Program Signaling Systems can save costs, conserve natural resources by automatically scheduling utility functions...

- sound audible signals
- open and close ventilators
- turn heating and air conditioning systems on and off
- switch light circuits on and off
- open and close water flow valves.

You're RIGHT ON TIME... with

IBM Time EQUIPMENT

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Branch Offices located in principal cities
Truly modern, dignified, imperishable entrances are created by Overline design crafted in stainless steel. Note this superbly beautiful entrance of the Grace Evangelical Lutheran Church, Pottstown, Pennsylvania. The architect: T. Normal Mansell, Philadelphia. • Shown is one of the two identical three-door units. Each consists of stainless steel doors and pushbars, stainless steel entrance frames with transoms and mullions... all fabricated by Overly in Type 302 stainless with 4B finish. Glass, 1" thick, was sandblasted with ecclesiastical designs. • Overline hollow metal entrance doors feature narrow stiles. Stainless adds to their fine appearance, inherent strength, built-in durability, long life, and top performance. • Write us today for our Folder "O.D."

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ATTENTION! You are cordially invited to visit the Overline Door Display June 15-18 at the A.I.A. Convention in Boston, Massachusetts. Come to Booth Number 6.

THE MAGAZINE OF BUILDING
NEW "Small" boiler is a Big Quality package!

NO BOILER HAS EVER OFFERED SO MANY ADVANTAGES AND QUALITY FEATURES AT SUCH LOW INITIAL COST

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Get all the facts NOW on how the new CB can help you save dollars. Make it a point to see... and hear the most silent-running, biggest boiler value available anywhere!

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Originators of the Self-Contained Boiler
Saving space is an important element in washroom design. Modern, functional, Scott-designed Fixtures help eliminate traffic-jams—make for cleaner, easier maintenance.

A full-color booklet on functional washroom design and planning is now available. For your free copy, mail this coupon today.

LETTERS continued

of Architecture! What in Heaven’s name should an architect be other than an artist? Fundamentally, I mean.

Seriously, though, I know what you mean. There is plenty of evidence that plenty of architects aren’t artists. And seriously (also) I enjoyed the article which covers the present state of the integration of art and architecture. We need more artists who are architects and more architects who are artists.

CORMAC C. THOMPSON
Prosser, Wash.

FORUM AND REVIEW

Forum:

As one of the few in this country who once visited the Architectural Review’s office at Queen Anne’s Gate, I enjoyed tremendously your recent article “For Architects Only” (AF, March ’54). Nobody can appreciate more the FORUM’s vigorous, practical way of thinking than those who know also the European side of the story.

EUGENE PADANTI-GULYAS
Billings, Mont.

SUCCESSFUL SHOPPING CENTERS

Forum:

Forum, Real Estate Consultant Larry Smith and Architect Victor Gruen are to be commended on your most excellent article, “How to Plan Successful Shopping Centers” (AF, March ’54). I look forward to additional articles on the results of the continued research by Smith and Gruen.

WALTER L. NORRIS, architect
Midland, Tex.

Forum:

Messrs. Smith and Gruen’s thorough analysis is truly a recipe for a shopping center success (AF, March ’54). While I agree with most all they say, it occurs to me that when the menu of such a complicated diet is set forth so simply, many cooks, amateur and otherwise, may become intrigued with the apparent possibilities and plunge in. With this in mind, I would like to sound a warning.

As pointed out by Smith and Gruen, it takes about five years for a regional center to mature. During this time large sums of money are required to finance the project, not only during its construction phase but during the early years of its life. To bring this into focus, my experience indicates that somewhere between $1 and $3 million (depending on size and luck) are required in cold equity cash to provide adequate financial stability.

Sponsors who proceed with the development of a regional center with the understanding that the project will be leased so as to substantially finance out, as previously experienced with smaller neighborhood

continued on p. 74
Plan for future electrical requirements with General Electric Q-Floor Wiring

Architect's rendering of the front elevation of the Amarillo Medical Center Building, now under construction. General Electric Q-Floor wiring is used throughout the building to permit easy expansion of circuits.

Constantly changing electrical needs for X-ray machines, sterilizing equipment, operating room lighting, physician call systems, and telephone service can be taken in stride by the new Medical Center Building in Amarillo, Texas. The General Electric Q-Floor wiring system makes every square foot of floor space available for outlets. No costly alterations, no litter, no tie-up of space.

Q-Floor, a cellular steel subflooring, saves construction time, materials, and weight. Each cell is a raceway or conduit for present and future circuit requirements. New outlets can be installed any time, any place. A Q-Floor-equipped building is always ready for changes in service needs.

The General Electric Q-Floor wiring system can be used in industrial, institutional, or commercial buildings. For more information, call your G-E Construction Materials district office or write to Section C42-64, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

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Eero Saarinen and Associates, Architects

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Write for a copy of Bulletin 1-52

LETTERS continued

centers, are courting disaster. To a large extent the ills of the existing projects stem from a shortage of equity financing during the planning and construction period.

... And in my opinion, Messrs. Smith and Gruen’s recipe overlooks the No. 1 criterion: “The pedestrian is still King.”

JOHN GRAHAM JR.
John Graham & Co., architects & engineers
Seattle, Wash.

Forum:

The article on “How to Plan Successful Shopping Centers” is most informative and generous on the part of Larry Smith and Victor Gruen.

Analysis of the regional shopping centers thus far completed confirms the importance of the factors so ably set forth as requirements for a successful undertaking. The two extremes of high capital cost, the monumental type of development, in my opinion, are not justified on the basis of low maintenance cost. On the other extreme, the shoddy, skinned-down job certainly is not a good investment. To achieve the near-ideal of minimum maintenance cost, attractive appearance, top quality public conveniences and parking facilities, underground truck service, total air conditioning, and tenant services at a cost in balance with reasonable minimum rent is, of course, the objective of all developers.

Today’s high costs are such that to achieve this result requires highly inventive design.

I am convinced that in many instances regional shopping centers will become competitive with each other. Location is of first importance. Not only must there be ample purchasing power, but the location must be so accessible that it will always be preferred over any possible competitive location. It should be visible from the main arterial of traffic and ingress and egress, of course, must be adequate. For the same reason that merchandising requires good display, the shopping center itself should be visible to all traffic and, of course, attractive. I make this comment because of remarks I have heard that a location off of the main highway would be entirely satisfactory. I believe it has been demonstrated that such locations require tremendous promotion to attract traffic.

Another conclusion I have reached is that the center should not be so large that the parking, though unlimited, radiates beyond a comfortable walking distance to the main mall or cluster. This, of necessity, will limit the number of cars on one-level parking. There is, of course, no substitute for adequate parking.

DAVID D. BOHANNON
David D. Bohannon Organization
San Mateo, Calif.

continued on p. 78
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First Aid

Forum:

In the February Forum is a most excellent article on the Mayo Diagnostic Center. Since the University of California Medical Center is enlarging both its hospital and clinic facilities, we studied this article with much interest.

I compliment you on a most excellent magazine.

P. J. Gillette, clinic administrator
University of California
San Francisco, Calif.

Arch Rib vs. Lamella

Forum:

The description of the lamella roof in the March issue was of interest to me because we designed a comparable structure for the University of Wyoming field house (Goodrich & Vilking, architects) using the opposite approach to economy, i.e., large arch ribs spaced far apart. It is difficult to make an exact comparison because it is not indicated in the Forum article if the 8¾ psf includes the end-wall framing. Also, the field house quantities do not include a subpurlin to reduce the roof spacing to 6'.

Neglecting the above factors, but including the subpurlins and end-wall framing, the cost per square foot of the field house is $1.86 or about the same as the lamella design. The cost of the heavier steel members is offset by the lower cost of fabrication.

The field house appears to be designed for a heavier load than the other structure, but this may not have controlled the design. The depth of 24' for the arch ribs is rather small if it is necessary to consider buckling stresses.

It appears to me that the full advantages of lamella construction will be used only if advantage is taken of space-frame construction curved in three dimensions.

Milo S. Ketchum
Ketchum & Konkel, consulting engineers
Denver, Col.

continued on p. 80
Cut fastening costs up to 80% on heating and air conditioning installations...with the REMINGTON STUD DRIVER

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LETTERS continued

PLANS AND CITY PLANS
Forum:
Your magazine is a readable and all presented record of current work. However, I feel that pretty pictures, while importan and extremely useful as reference material, should not overwhelm well-presented plans. The taste and ability of the architect determine the final analysis what the building may develop as a work of art, but the plan brings out clearly the virtue of a solution good or bad, and without a thoroughly workable plan, a clever exterior is just so much decoration.

One other point is the urgent need of city planning in its broadest sense. There is much evidence of buildings being erected where the owner and architect restrict the vision to a specific piece of property and, as New York knows only too well, there is very little thought as to what damage is wrought by overproduction in one area and absolute no consideration of the effect on the character of a district, when buildings are thrust indiscriminately into already overcrowded spaces...

If the Forum can put additional spotlight on the problem, more attention may be given to the broader conception of building as it refers to the over-all aspect of our cities.

Ely Jacques Kahn
Kahn & Jacobs, Architects
New York, N. Y.

BUILDING ON SAND
Forum:
In introducing your article on "Consol dated Sand Foundations" (AF, March '54) you say "nobody recommends building on sand."

I am surprised to find Forum—always progressive in its attitude toward architecture—expressing so glibly a completely mistaken notion relative to foundation engineering.

David M. Greer
Greer & McClelland
Consulting foundation engineers
Montclair, N. J.

After the introduction referred to by Reader Greer, Forum's article reported a development which has taken the significance out of an oft quoted Biblical story (Matthew 7:26) by making it feasible and economical to build on sand.—Ed

MOTELS
Forum:
Your informative analysis of motel build ings in the February issue was quite thorough and provided me with an excellent picture of what the trends in this building type might be in the near future. . .

Forest A. Phillips, Architect
Peoria, Ill.

Forum:
Your article on motel operation and financing was excellent.

David H. Murdock, Building Contractor
Phoenix, Ariz.
Reinforced Concrete Construction
Withstands Destructive Waco, Texas Tornado

The tornado that struck Waco, Tex. on May 11, 1953 killed 115 persons and wrecked property worth millions of dollars. It ripped a path of destruction one mile wide and four miles long.

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LETTERS continued

OBERLIN'S AUDITORIUM
Forum:
It is an enlightening pleasure to read such articles as the one on Oberlin College's new auditorium (AF, Jan. '53). I appreciate the restraint with which you omit data on the details of a building when its greatest interest is in its broad conception. Your tracing its history and pulling in the comments of the owner and the press serve effectively to remind us that architecture cannot live without its consumers and without its fourth dimension.

I suppose, however, that a dynamic magazine like Forum would be more interested in what its readers don't like about the building and the article. Here are my contributions in this category:

1. I would have liked to see the relation of the building to its site—that is, to the entire campus and to the portion of it in its immediate vicinity...

2. Your reference to the expression of the massive forms of the building as being devoid of clichés is inexcusably inaccurate. Far from expressing its function the plastic forms of the stagehouse belie the forms of the spaces they enclose.

3. What accounts for the generally forbidding, austere and cold character of the building's design? It doesn't seem to be designed for human beings. Do the photographs belie the building's attractiveness and charm? Is the interior as undistinguished as it looks in the photograph? Can the lighting of the interior be as bad and spotty as the photographs indicate?

4. The sensational and exaggerated superlatives you use freely make me a little skeptical of the validity of your opinions.

SHERI PILAFIAN, architect
Detroit, Mich.

- FORUM is caught red-handed on point 1; is ready to debate point 2; will let the pictures speak for themselves on point 3; contends that the use of two superlatives ("most controversial building" and "optimum acoustics") was justified and not very sensational.—ED.

KUDOS
Forum:
As a subscriber to the Forum for less than a year, I feel I should let you know how pleased I am with the excellent job you do in every phase of your publication.

HENRY J. EVERETT
Abraham & Straus
Brooklyn, N. Y.

ERRATA
• On p. 129 of the May Forum Dan Khe should have been credited as landscape architect for Detroit's Federal Reserve Bank Building and Gilmore Clarke, for New York City's Bryant Park.
• On p. 155 of the same issue Forum failed to credit Edward E. Ashley as the mechanical and electrical engineer for the Metropolitan Museum remodeling.—ED.
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Its "QUARRIED STONE" CHARACTER
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ART AND ARCHITECTURE
Aline Saarinen proposes a new working relationship between artist and architect.

LOW-COST HOTEL
Statler exploits cantilevered floor, curtain walls and careful planning in adding an economical hotel to its fast-growing chain—the Dallas Statler by Architect William B. Tabler.

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California's capital, under expert guidance, shows medium-size cities how to put their downtown areas back in business.

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A three-level garage without ramps or elevators. . . . Prefabricated concrete arches with 130' span. . . . Three-hinged steel arches for 278' wide hangars. . . . Brief notes on seven other new developments.

NORTHLAND SHOPPING CENTER

CASTO SHOPPING CENTERS
Don M. Casto develops a formula for successful shopping centers for the independent developer, proves it in five big centers in Columbus.

SECOND-STORY MEDICAL CLINIC
Architect-Landlord George W. Stoddard puts his Seattle building on stilts to make space for parking and a first-floor office for himself.

DON MILLS—A NEW TOWN
Private enterprise builds a rounded community near Toronto for industry, commerce and 35,000 residents.

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NORTHLAND:
a new yardstick for shopping center planning

This is a classic in shopping center planning, in the sense that Rockefeller Center is a classic in urban skyscraper-group planning, or Radburn, N.J. in suburban residential planning.

Northland is a planning classic because it is the first modern pedestrian commercial center to use an urban "market town" plan, a compact form physically and psychologically suited to pedestrian shopping.

Up to now, pedestrian shopping centers have been based either on a vehicular tradition (the strip street) or on an unsuitably diffuse rural village tradition (the common).

Northland's plan will repay study by city planners too: its flexible market-town use of open spaces looks like a natural for coping with rehabilitation of blight-spotted decaying shopping districts. And although in the aggregate this is an enormous project, it is full of ideas for individual small-store owners and architects who have had great freedom here.

Other points about Northland will become yardsticks. For instance, its high standards in public signs; its uninhibited, generous and lighthearted use of art. Best guarantee that the force of Northland's example will be heeded: it is proving enormously successful for both its department store and other tenants, already exceeds sales estimates for five years hence.

The most frequent comment by Northland shoppers: "You wouldn't know you were in Detroit." Were Northland set in any other American city, the response would be the same simply because this shopping center adds up to a new thing in modern town planning. But the Northland scheme has old roots. It is a rediscovery rather than an invention.
NORTHLAND'S SCHEME: a compact market town for pedestrian shopping traffic has come full circle. It is right back where it started—with the pedestrian.

Two hundred (and more) years ago all shopping was based on the assumption that the shopper would be afoot; shopping centers—then called market towns—were compact and convoluted, like the market center in old Ludlow in Shropshire (see sketch).

Then, along came the carriage trade. (At least one New York merchant's success dated from his persuading a famed society leader to lend her coach and coachman to stand outside his store an hour a day.)

But now that the carriage trade includes most of the population and it is impossible to park in front of stores, the shopper is back on foot. So with Northland, we are back to the market town—an impossible layout for heavy vehicular traffic but the only shopping layout ever completely predicated on pedestrian shopping.

To understand roughly what a market-town layout means to walkers, here are a few comparisons: Northland's 1 1/4 mi. of store fronts equal all the building frontage of both sides of New York's Fifth Ave. from 34th to 51st St., plus one side of the Avenue to 52nd. If all four sides of Altman's block-filling department store at 34th are included, the remaining frontage encompassed by Northland would be equivalent to both sides of Fifth Ave, up to 49th St. In terms of Chicago, Northland's store frontage equals all the building frontage on both sides of State St. from Randolph (Marshall Field), past Sears Roebuck and beyond to 9th St. Northland's plan (opp. p.) shows vividly how compact a long frontage like this can be made.

Why has the urban-character market-town scheme not been obvious? Possibly because the use of irregular but connected open or pedestrian spaces has disappeared from living American tradition. With the exception of a few grand baroque plans, every time an American town or city drops an open space among its buildings, it harks back to the rural-character common. Many shopping center designers have been doing the same. Let them now pause and consider whether the commercial district of a New England village ever runs all around the common. Does anyone know of a courthouse square with prime shopping around its four sides?

A tincture of the village common idea is present in Northland, evident in the general scale of its open spaces—although it does have its lanes and a short arcade. Perhaps as this idea is carried further, still more intimacy of scale will be introduced, not throughout but as variety and contrast to make still more out of the townscape possibilities the market-town idea invites. Indeed, Gruen Associates have already moved in this direction with the "air-conditioned outdoors" plan for Southdale in Minneapolis (AF, March '53).
... and a central magnet for tenant stores

The J. L. Hudson department store, which developed Northland and is its big magnet, is unusually intelligent in its use of a big store's pull for the health of a whole center.

The schematic diagram shows how Hudson's is embedded so customers must walk past competing stores. The site plan shows that only 916 cars out of 7,500 have direct parking access to Hudson's—and even then not on main-floor level. (An alternate pedestrian route from this parking, by-passing Hudson's, is also provided!) The photograph shows how open-front areas of Hudson’s direct customers’ attention to the competition even from inside the department store. Signs and promotion reinforce this approach. Northland is played up; Hudson’s has only the most unobtrusive of signs next to its entrances.

As asked whether he was satisfied with his location, the proprietor of a women's apparel shop replied: “Today a lady came in and asked ‘Where is Hudson’s?’ Why shouldn’t I be satisfied with my location?”

How does all this affect the department store? Its sales are running 30% above pre-opening estimates of $25 to $30 million for the fifth year—largely because the center as a whole is so popular. Northland attendance is averaging 40,000 to 50,000 a day against an estimate of 30,000.

Parking plan gives each highway one principal and one alternate lot. Stalls are generous 8'-8". Two new highways are project-owned, others were widened. At upper center corner are utilities, at lower right is restaurant joined by planted walk.

STATISTICAL PROFILE
163 acres (15 in buildings and malls, 66 in parking, remainder in utilities, highway restaurant, reserve); 7,500-car parking, space for 4,500 additional cars; 80 stores and department store; 1,045,000 sq. ft. rentable area, expandable to 1,500,000 sq. ft.; cost (excluding fees and self-liquidating utilities*): $22,550,000; $21.50 per sq. ft. rentable area. Trade area: 550,000 population within 20 minutes. Sales: pre-opening estimate of $50 million by fifth year; this rate already exceeded. Construction began May '52; opened March '54.

* Central air-conditioning and electric distribution systems.
Tenant colonnades have downtown atmosphere because the store fronts and signs have the visual vigor of downtown variety.

There is not a sequence of "standard store fronts" in the center. Architect Gruen did not need to regiment to prevent "visual explosion" because he purposely made the common architecture strong enough to contain the whole range of merchants' individualized expression. In the same way, the frame is visually strong enough to contain crowds and looks best with lots of people in it. People do not upset the design. They complete it.

Although the store-front design average is remarkably high, not all the fronts are good looking. But even the few ugly ones have their own character and the total effect is vital and free.

Rules were few and simple: all signs limited to the store front itself, no sign more than 4' high, good workmanship and materials, no flashing lights, approval by shopping center owner. To give merchants a real chance to express themselves, store fronts were given generous height—14' beneath the colonnade roof. There is a 1' neutral concrete strip between stores. Northland's owners paid the full cost of tenant fronts, thus tenants were not financially penalized for individualism as they usually are in shopping centers. Chains in most cases used familiar "trade-mark" fronts.

Besides Gruen's firm, 26 architects, designers or chains' architectural departments and 14 fixture firms contributed to the store designs, their efforts coordinated by the project architects.
and freedom in store fronts

Tenant layout was carefully predetermined by store type; then leases were negotiated. As in good department-store plan, impulse goods are on routes to demand goods. Competing stores in same price range are close together. Building (at right foreground), appropriately on Peacock Terrace, has high-style grouping. Criteria for tenant selection: 1) effect on reputation of center as whole; 2) aggressiveness; 3) financial stability.
NORTHLAND'S OPEN SPACES: an outdoors planned as

... with gardens

Plan (above) shows location of sculptures (•) and directory stations (→). Landscape Architect Edward Eichstedt has given each open area own planting character. Fountain Court (see photo below) features redbud, rhododendron, azalea. North Mall (totem pole photo) features flowering cherry and tulips; East Mall, crab apple and tulips; South Mall, magnolias; Peacock Terrace, plane trees; Great Lakes Court, wildflowers and birches; garden terrace, evergreens; lanes, hanging vines. Great variety of additional planting is all labeled for garden-lovers.

... handsome signs

Signs make three important design points:
1. Designer Alvin Lustig uses clarendon type face in Mondrian-like frame to give texture and tension, rather than "modern" sans-serif face that merely echoes structure (see p. 116).
2. He uses many different but harmonious type faces for different purposes.
3. His good aesthetic judgment is reflected in size of lettering background, juxtaposition of signs, sign supports.
thoroughly as the buildings . . .

directories
Center has seven information points (see plan, opp. p.) with directories, phones, adult and child fountains, protected by canopy and louvers. Walls are sculpture backgrounds on reverse sides.

rendezvous points
"Meet me at the Totem Pole." Center's 13 sculptures (see plan, opp. p. and p. 118) have by-product function of providing plentiful, easily remembered meeting places, especially appreciated by family groups with children. Pole is by Gwen Lux. Department store is in background.
NORTHLAND'S BASEMENT: "side-street" activities are underground so the

**Basement level** is built around truck road. Each store has its own basement storage with access to docks. Large basement store areas include selling space or such facilities as restaurant-kitchens. Key to shading: Light, truck road; medium, concourse; heavy, service areas.

Lower-level elevation shows truck exit (left); stairs to terrace, department-store entrance, pick-up.
entire ground level can be "main street"

"Basements are to the large, regional shopping center what side streets are to the downtown area," says Gruen. Northland's basement has a great deal to do with its consistently lively, consistently high-rent, consistently front-door ground level.

These are the side-street functions of Northland's basement:

- It provides concourse space for enterprises such as shoe repair, photo studio, travel agency and post office—enterprises that cannot pay Main Street rents and would dilute Main Street atmosphere, although they are a distinct advantage in filling out the center's services.
- It provides indispensable sales space for store types having comparatively low sales results per square foot. Furniture stores are a prime example. Northland's two big furniture stores have a total of 54,951 sq. ft. but only 12,265 of this is at ground level. Without ample and flexible basement space, one of two things would have to happen: these stores would occupy show-window expanse of deadening and ridiculous proportions; or—more likely—the department store would be the only big furniture purveyor and the center would have to forego major, downtown-type furniture competition. Altogether, about 30% of total basement rentable area (in addition to department store) is used for sales. Most of the rest is individual tenant storage with some leeway for basement sales expansion.
- It yields space for traffic-pulling community facilities. Northland's are wisely chosen: meeting rooms (convertible to dining) for regular and special club events, a kitchen where any organization or ladies' auxiliary can do its own cooking. Only fee for these facilities is porter costs. Requests for use are pouring in.
- It houses centrally located public toilets. Note how well these are related to the community center, barber shop and the long corridor that will eventually be an art gallery. Attached to this same complex are offices for management.
- It is built around the vital supply ganglia: truck tunnel, tributary supply corridors, individual storage.

Entrance to Hudson's lower level: store has 189,000 sq. ft. on this level, including 45,000 sq. ft. in separately merchandised "basement store."

Stair in furniture store leads to big basement and basement-mezzanine selling levels. It is large, easy and impressive, successfully conveying impression main level is below.

Even stair enclosures are rented. Bookstore has kiosk at stair to concourse. Another stair has magazines, key maker.

Pickup station at Hudson's receives packages on underground conveyor, has them ready for customer car pickup 15 minutes after purchase. Ramped bus road is above. Supermarket has pickup at ground level, also serviced by an underground conveyor (see plan).
This branch of Hudson’s is not only the biggest branch department store ever built—with its 470,000 sq. ft., 370,000 in sales area—it is the biggest department store of any kind since the twenties.

It was designed by the Gruen office. Its outstanding features:

- A “concentric square” floor plan with mechanical core at the center. On the ground floor, the core is surrounded by little departmental shops under a work-and-locker mezzanine, then, by an open circulatory area with sales islands, and finally by bigger departmentalized shops at the perimeter. Richard Beaudet, head of Gruen’s merchandise design, says that besides having great mechanical efficiency, the central core scheme eliminates the feeling of confused vastness and establishes an easy circulation pattern.

- A charming 500’ x 7’ mural-directory enclosing the first-floor mezzanine and depicting the wares to be found beneath.

Mural cloaks mezzanine, stylishly pictures goods below. It is painted on linen by Hudson Display Artists Harold Gluckman and Alfonse Ratajczak.

Millinery department uses wood pylons with brass bolts for flexible cabinet-shelf-mirror display. Windows look out to competing tenant hat store.

Photos: Bin Schnall
Flexible main-floor show-window treatment. Some areas are almost entirely closed, with small display cases. Others are entirely open; sales and customer areas immediately inside are designed to make lively window shopping. The scheme gives a pleasant promenade variety to the enormous store frontage, keeps it in scale with the rest of the center.

Underground truck supply, with production-line merchandise-handling immediately off the loading docks.

Package pickup for customers with cars. Purchases go by five spiral chutes to basement central wrapping department, then by underground conveyor to the loading station, or by two chutes directly to the conveyor. This system gets packages to the station within 15 minutes of purchase.
Fixtureless gift shop uses merchandise elegantly for own furnishings: light fixtures, display and storage cabinets, chairs, tables and handsome fabric-swatch curtain are all merchandise or samples. Tenant's only nonreturnable interior expenses were $760 for glass shelving and frames, entry, wood screen, pegboard and grass cloth; $500 for lighting installation and few supplementary fixtures; $700 design fee; a total of $1,960. Del Gaudio gift shop: Architect Joseph Dworski and Designer Edward Elliott.
2. Indoor-outdoor garden shop belongs to department store but occupies separate location of its own. Indoor portion has airy, greenhouse atmosphere although ceiling is sprayed green acoustical material. Frames are Y-shaped rigid steel bents, 7'-8" at columns, 11' at tips of Y, designed as modified three-hinged arches. Secondary framing is I beams and channels supporting insulation-sprayed corrugated steel roofing. For easy erection and demounting, entire frame is bolted. Open outdoor portion has rolling canvas screens. A second outdoor portion, the "lath house," is permanently open, roofed with light aluminum slats. Hudson's Garden Center: Victor Gruen Associates, architects.

from a lively tenant group

3. "Underwater" fish store has corrugated plastic ceiling and rear wall, illuminated by sea-green light. Effect is fresh, cool and appetizing. Wire fish figures decorate lighted wall; window displays are aquaria. Great Lakes Fish and Poultry Co.: Sundberg-Ferar, designer.

4. Departmentalized shoe store gets three distinct departments into 2,000 sq. ft. Open stairway of oak inlaid with safety strips leads to men's section in mezzanine. Women's department occupies most of first floor, has decorative walnut display wall with concealed glass-shelf standards. Children's area at rear is set off by stylized animal mobile. The same modular lighting fixtures are used as strips or as squares in louvered ceiling. Exterior walls are entirely glazed with entrance recessed in corner. Movable window display units are glazed front and back. Phillip's Florsheim shop: Theodore Rogvay, architect; Jack Green, interior designer, assisted by William Heinl of Florsheim Shoe Co.

5. Illusory hung ceiling in furniture store is light steel gridwork on a 4' module, holding movable colored panels, inserted in geometrical patterns or dropped in where dramatic spot is wanted. Grid is painted stark white, camouflages almost to point of no-visibility the dark ductwork and ceiling 4' above. Scheme gives great lighting flexibility. Wall partitions are portable 4' panels fastening to ceiling grid and vertical light steel frame. Dramatic stairway to basement sales area has 8' terrazzo treads (no stringers or risers) supported from 3/4" steel rods, 20' to 30' long. Englander's furniture store: Victor Gruen Associates, architects.
NORTHLAND'S TECHNIQUES: innovations range from centralized air-conditioning refrigeration to asphalt traps for grass seed

Central utilities and service buildings are at corner of site, 1,000' from shopping center proper (see photo). Boilerhouse has central 900 hp steam plant and central 3,600-ton refrigeration plant, supplies metered steam and chilled water to department store and to 40 tenant air-handling units in basement. (Small tenants have group units.) Big landmark water tower has reserve water supply. Decision for central refrigeration instead of separate tenant or block units was based on operating cost advantages, architectural appearances, savings in merchandising space. Decision against central air handling was based on tenant preference for individual control and on difficulty of metering air. Chilled water rates are based on costs at sliding scale (bigger the space, smaller the charge per square foot) plus percentage for administrative costs and charge for amortization of central plant. Center makes no profit. Steam charges are on same basis except no amortization charge for central plant. Electric power is sold to center wholesale from electric company substation on site and metered to tenants.

Elevators in tenant buildings include "under-slung" type with machine room in basement, no penthouse required.

Construction is reinforced concrete. Tenant buildings are framed one way (girders span three 40' bays and cantilever 10' from exterior columns) for ease of revision during construction and in future. Floor and roof joints are cast in place concrete with a thin 2½" topping slab which also facilitates future changes. Two tenant buildings are designed for addition of second floor; three others have structural provision for steel frame mezzanines which can be added when required. Department store's principal framing is two-way ribbed slab on column spacing of approximately 30' both ways. Boiler-plant framing has concrete bents spanning 58' to columns, then cantilevering additional 27'-7½" beyond (see photo). Haunched beams of bents vary in depth. Slotted angle connections with compression springs allow for deflection of outer end of bents without damaging sash below, yet provide resistance to transverse wind loads.

Bus road in front of Hudson's (see p. 103) cantilevers 10'-5" from interior columns, is framed with 9" slabs supported on reinforced concrete cantilever beams which in turn are supported by flat girders, shallowest of which is 23" deep, 4" wide.

Exterior lighting poles are architect-designed. Ring at top supports ten floodlights on five yokes which may be dropped by cable to ground, 60' below, for servicing. (See top photo, left column.)

Gross seed on banks was held in place by spraying asphalt over the seeded slope. Says Landscape Architect Eichstedt: "The asphalt skin holds the seed until it germinates and breaks through, which it does, to the surprise of everyone."

West sun control is provided by vertical awnings of uniform design, with store name in medallion (see photo).
NORTHLAND’S CLIENT:

Hudson’s department store and
the five Webbers who run it

Northland’s thorough-going concern for the visual pleasure and physical comfort of the customer is simply an extension of the parent department store’s big stock-in-trade.

Hudson’s in downtown Detroit is famous for its interpretations of “the customer is always right.” For instance, it has one of the most liberal refund policies in the world; in 1953, $21,382,600 was accepted in return merchandise from its customers.

Hudson’s is also used to doing things in a big way. Its 25-story downtown store runs neck and neck with Macy’s in size, in a metropolitan area only a fourth as big as New York.

Hudson’s is also conservative, no believer in leaning on promotions and gimmicks. Thus Northland’s public opening was attended by no hoop-la, no advertisements, was discreetly heralded by polite mailed invitations to charge customers and neighborhood residents. The press preview was purposely held a week early to let the news fanfare die down. The really important pre-opening event was a preview for the downtown store’s 12,000 staff members.

This extraordinarily successful store is headed by four extraordinarily retiring brothers and the son of one of them. The four elder Webbers are nephews of Joseph Lothian Hudson, who founded the store in 1881 and died a bachelor in 1912.

For years the Webbers were adamant against building branch stores, but changed their minds when the 1950 census showed Detroit’s population growth was all on the edges. Once their minds were made up, they characteristically decided to do the thing boldly. They were not afraid to spend money for solid results, and so far as the first 2½ months’ operations indicate, this costliest of shopping centers promises also to be the most profitable.

For cynics who believe that “connections” count more than ability, the story of how Architect Victor Gruen got this job is instructive. In Detroit on a small architectural job in 1949, he took a look at Hudson’s, studied the city and its growth pattern, went home and wrote a ten-page letter to a Hudson executive (who had never heard of him), outlining the reasons why Hudson’s ought to build a branch store and shopping center. He received a reply by return mail, inviting him to drop in for a talk next time he was in the city. From exploration of the idea came exploration of sites and finally—with the census figures clinching it—the decision to do three centers, of which Northland is first and largest.

Preliminaries for Eastland, the second, are now being completed in the Gruen Detroit office and studies are under way for developing the 235 unused acres in the 400-acre Northland tract. The third center will be almost due south of Northland; thus the three centers will form the points of a wide, regular fan. As far as effect on the downtown store is concerned, the Webbers figure that the three new centers will simply give them their share of new business from the city’s growth.
"Mobile Pool" by Richard Hall Jennings is "water sculpture." Fountain jets move objects, then dissolve into mists and sprays.

"Noah," heroic-size terra-cotta fountain by Lily Saarinen, has ark and animals at waist.

Much of the best popular art in the US today is done for children's books. Northland's sculpture has the verve, the inventiveness and the simple joy in life of fine children's book illustration.

Part of the delight is the true-to-character way the pieces reveal themselves. Noah, the patriarch, benignly dominates a court. But the sly wire cat almost hides in the bushes; he must be discovered and then there is the fillip of discovering the swallowed bird. And there is no way to get as close as you wish to the birds in flight; they are tantalizing and unattainable.

NORTHLAND'S SCULPTURE: fun, fanciful and a little challenging
"Fish Mobile" by Malcolm Moran is nickel-plated copper against marble. When fountain plays, fish segments twist.

"Giraffe Family," also by Moran, is pure fantasy in glass and steel. Their long necks hook into bodies, are counterbalanced so creatures' lofty heads sway continually with gentle, gawky dignity. At night, lighting from below gives magical effect to moving, colored glass.

Additional sculptures not photographed here are: "Great Lakes Water Hole," ceramic map and animal group by Lily Saarinen; wood and painted steel "Totem Pole" by Gwen Lux (p. 109); copper and bronze "Fish Group" by Richard Hall Jennings; cast stone "Baby Elephant," and brass rod and enameled copper "Peacock" by Arthur Kraft.

"Cat that Swallowed the Canary" by Arthur Kraft is brass rod with glass eyes. Gwen Lux contributed brass canary mobile. In best folklore tradition of such mishaps, bird's heart, a prism, is still fluttering.
The big Northland Center on the preceding pages is owned by its big department store which therefore has the entire center’s welfare at heart. But what about the independent developer who cannot hope to make a dominating store pull wholeheartedly for the center-at-large?

Independent Developer-Builder-Owner Don Casto is making a great success of the BIG SHOPPING CENTER WITH NO “MR. BIG”

“This is the time to get into shopping centers—just as there was a strategic time to get into railroad building or automobile manufacturing,” says Builder Don M. Casto of Columbus.

So Casto has gone in for “mass production” of district-size centers—four ringing Columbus and another starting construction; two in Dayton; one starting construction in Toledo and another planned; one building in the Pittsburgh area, another located; and enough site explorations and negotiations under way (20 at present) so the law of averages will permit him to maintain his current rate of three centers completed a year. He expects a sales volume in his centers of a whopping $200 million this year.

Like any mass producer, Casto has a formula. Aside from minor differences in layout and variation in size, Casto’s centers all look alike and are alike.

The formula is no lucky accident. Casto, who began building neighborhood shopping blocks in 1923, worked at his formula for more than a decade before trying it. His test effort, opened in 1943 on the outskirts of Columbus, is officially named Town & Country but with good reason is better known as “Miracle Mile.” It has been so phenomenally successful that it has more than doubled its original size, soon will triple it. Casto says it does better than $35 million a year, in 265,000 sq. ft. And the formula—in Casto’s hands—has continued to click. His imitators have not done so well, possibly because they lack the advantage of having thought out exactly what they are doing and why.

Consistency is the secret of the Casto formula. The appeal of a Casto center as a whole is absolutely consistent with the appeal of the supermarkets and the mass-market national chains that are its base.

Most important—the Casto formula is also absolutely consistent with Casto’s own role as an independent developer and builder. He does not stack the cards against himself by depending on one or a pair of dominating stores. Perhaps this is his biggest lesson for other developers who do not own and operate stores.
Here is why this point is so important:
To work properly as a magnet—to pull for the whole center—a big department store must make many short-range concessions. For instance, it must be less handy to parking than smaller stores; it must gear its everyday merchandising—sales, policy on exclusives, promotions—so they do not produce anemia in the rest of the center.

This kind of "altruistic" cooperation is possible when the dominating store has an urgent financial interest in the success of the whole center—when it owns the center wholly or in part.

But what happens when the dominating store is just another tenant—or rather a tenant that knows full well it is the vital tenant? The developer is a lucky man if it happens that the department store does not demand concessions—instead of making them. It is apt to insist on the lion's share of choice parking, it will bargain to have a big department store with its biggest tenant, so theoretically the "Mr. Big" should not behave like this; but in real life he usually does. The developer is in a box: without "Mr. Big" he has no center. With it, he risks having a giant flourishing tenant paying scant return and a group of theoretically remunerative starvings.

Casta has side-stepped this trap by concentrating on another kind of pull entirely. His base is the cumulative attraction of half a dozen good-sized stores, fairly evenly matched in size and power, mostly chains, with a strong representation of powerful national chains among the smaller stores, too. Of Miracle Mile's 70 stores, national chains occupy 60.6% of space, local chains and independents 39.4%, a typical ratio. The major stores are three supermarkets (44,130 sq. ft.), three junior (soft-goods) department stores (77,350 sq. ft.) and two variety stores (43,300 sq. ft.).

This is the pull not of giants but of a crowd. Incredibly enough, it also seems to be partially a pull of sheer duplication. When Miracle Mile doubled itself, both Kresge and the drugstore put in second stores, almost identical with their existing places several hundred feet away. In the tripling process, Woolworth and another drug firm will get in. Does it work? The chains in Casta's centers are among the national record-breakers.

The "granddaddy" of this scheme, as Casta likes to call it, was a neighborhood center he built in 1929, containing four grocery stores, a drugstore and not much else. It pulled beautifully through the depression; never a vacancy when stores elsewhere were going begging. Casta was convinced the four grocery stores did it. He drew two conclusions: 1) concentrate on necessities; and 2) concentrate on multiples to get a "cumulative magnet." He saw no reason why these principles would not work on a big scale if all the other factors—location, layout, promotion, financing, management, were worked out properly.

### Columbus centers:

1. **Miracle Mile** (started '46, opened '48); 23 acres; 185,050 sq. ft.; 2,000 cars, 3-to-1 parking ratio.
2. **Central Point** (started '51, opened '52); 13½ acres; 130,260 sq. ft.; 1,000 cars, 3.5-to-1 parking ratio.
3. **Northern Lights** (started '53, opened '54); 50 acres; 301,150 sq. ft.; 3,000 cars, 5-to-1 parking ratio.
4. **Graceland** (started '53, first blocks opened May '54); 33 acres; 279,036 sq. ft.; 2,600 cars, 4-to-1 parking ratio.
5. **Great Eastern** (in construction); 14½ acres; 146,325 sq. ft.; 1,000 cars, 3-to-1 parking ratio.
6. **Office City** (ground being cleared); 60 acres. This is a new kind of project, a suburban office, light storage and light industry center between downtown and airport, to include tenant parking, shopping, motel, recreation facilities (see AF, Apr. '54, News).

### This is where Casta's own temperament enters in

He is a "sure thing" gambler, a man with that fortunate paradox of instincts—love of taking a chance, plus the will and patience to discipline all the elements in his gamble. He also genuinely likes people at large and is fascinated with all the details of their behavior. (Gruen, designer of Northland, is also conspicuous for this attribute; it may well be a vital quality for shopping center creators!)

Combining his drive for a sure thing with his outlook as an informal and affectionate scoiologist, Casta worked out the dovetailing ingredients of his formula.

### Location: in between town and county

Casta picks his sites on "the outskirts of town" just beyond the new suburban housing projects—as he calls it, "the place where town and county meet." He pulls his customers outward from the city, inward from the farms and retired-farmer towns. This, he figures, gives him two immediate good markets plus about 25 miles...
years of location in an expanding population area and another 25 years on the plateau of a mature residential district.

He pinpoints a location on the ring around the city by choosing a road local people like to travel. This is not necessarily the same as the road with the biggest traffic count. For instance, Miracle Mile is on East Broad St, although parallel to East Broad is the more highly traveled Main St. "People in Columbus love East Broad," says Casto. "Coming in or going out, they get on East Broad as soon as they can. Main St. has more traffic but those are the people who don’t know Columbus—the hooked-rug, motel, pottery crowd, not our customers. You find just this same situation in most towns on gentle land where there are plenty of roads in and out. People have path-habits, like ants, and the important thing is to understand the local path-habits."

Casto conceives of his centers as "terminals," analogous to the amusement-park terminals of the old open-air trolleys. "Families like to go for a short drive in the evenings," he says, "but they want the drive to arrive at some place. What kind of a terminal does the great 80% have now? The movies or a saloon. My centers fill that need in a way suitable for the whole family. The country people drive in to the bright lights; the townspeople drive out into the air; their path-habits take them to a well-located center just as surely as the old trolley tracks ended at the park."

So far, none of Casto's centers has been in competition with a department-store branch center, and probably will not be for a long time because he prefers cities too small to support suburban department-store branches. When he does sally into a big metropolitan area like Pittsburgh, he keeps to the countryfied edge. "The final big thing is to get there first. The first center in a district has a big competitive advantage."

**Layout: a strip of stores beyond a parking lot**

All Casto's centers are essentially plain, one-side-of-the-street strips—sometimes straight, sometimes in an L or wide arc, depending on site. Store strength is spread as evenly as possible along the whole strip. Almost all parking is between the strip and the road. The rear is a service alley with a modicum of overflow parking. (Miracle Mile—the test center—has generous rear parking but this does not pull its weight.)

Instead of pioneering a new era of pedestrian shopping, as Northland does, Casto's centers are the culmination of vehicular shopping. Parallel to the store fronts, alongside the pedestrian walk, is a cruising lane so people can window-shop by car before parking. This device requires a parking-lot layout that on the surface appears awkward but in context is sensible. Parking is at right angles to stores, which automatically reduces cross-traffic into the cruising lane (see plan). The layout also "clogs up" the lot so there is no clear stretch on which a car is apt to attain more than 10 mph. This inability to make any speed is a calculated safety device which Casto believes is worth any number of supplementary controls. So far, with more than five years of operation behind the oldest, none of the centers has had an accident more serious than a scraped fender.

**Appeal: night selling in a carnival atmosphere**

The visual come-on of these centers is simple, corny and all but universal. Anybody who has ever gone into a small town on Saturday night has felt a version of it. The long, bright, busy-looking strip, glittering behind the well-lighted parking lot, has a pull that must go back to the first campfire.

Casto has exploited this pull by insisting that every tenant must keep selling hours of noon to 9 P.M. six days a week and must have a lighted sign. Both these requirements were radical innovations for some of the chains and were accepted very reluctantly. But the open-every-evening policy, with its attraction for family shopping expeditions, has been so successful that some of the initially skeptical chains have adopted it nationally for their suburban stores. Three nights a week should statistically be at least half as good as six nights, but Casto thinks it is not because people just cannot remember which are the three nights. As for no morning hours—stores used to open early, he says, primarily to get the stock dusted off and arranged by noon; no need for that with air-conditioning.

The centers' civic appeal is folksy. Casto provides free selling space for church bake sales, firemen's rosebush sales—for any civic organization that wants to cut in on his crowds, and a gratifying number do. He uses promotion stunts during the time a center is becoming established and occasionally thereafter when he thinks some ginger is called for—square dances on the parking lot, wrestling matches, circus stunts, car raffles, but always after shopping hours. These affairs do not have the rather desperate, hang-dog quality of such doings in more "high-toned" establishments; they are in harmony with the general gusto and informality of the strips.

**Design and construction: no extras, all rentable space**

Casto's architect, C. Melvin Frank of Columbus, began his own shopping center pondering after observing Southern California drive-ins during a vacation trip. He threshed over his ideas with Casto, an old acquaintance; the two were in basic agreement and Frank has designed every Casto center.
Two centers now in construction: Great Eastern, fifth Casto center for Columbus; first Casto center in Pittsburgh area, at Monroeville about 12 mi. from city (below). Graceland now being completed in Columbus uses same L plan with blocks on long leg stepped gently down slope. C. Melvin Frank is Casto's architect.

The chief building economy is elimination of extras (Casto calls them "complications"). There are no service tunnels, no pickup stations, no central utilities, no center-run public amenities such as toilets or gardens. Aside from the parking lot and sidewalk canopy, virtually 100% of construction is rentable area. Costs run from $9.45 to $16.85 per sq. ft. of rental area, with the larger stores costing the higher figure, mainly because of differences in mechanical equipment.

What is built, is built well. Walls are masonry, faced with buff brick on sides and rear, with matte-finished glazed tile in light buff and green on the front. Roofs are framed with steel joists, interior partitions are block. Most expensively built portion is the 8'-wide continuous sidewalk canopy of cantilevered steel. Store fronts are mostly full glass with aluminum frame. Casto is adamant on no imitation materials. He calls the architecture "plain-modern" (others might call it "corny" or "restrained supermarket"). He thinks this style is most acceptable to the most people. ("If you Williamsburg it up, you scare off a lot of plain folk."). It is not stylish, but there is nothing drab or shoddy about it and the materials maintain easily and wear well. The older portion of Miracle Mile, finished in 1948, looks as clean and new as the first blocks of Graceland, opened last month.

Liveliest design element is the store signs—mostly big, bold, brilliantly colored three-dimensional block letters set at the canopy edge. Casto keeps close control of signs, insists they be well-done, and recognizes the value of variety. While this treatment is not architecturally handsome, it does convey exuberance and punch, more so from the road and parking lot than from close by.

Financing: a depressionproof rent-cost ratio

Casto buys his sites outright ("We believe in those sites and want to own them"), thus finances on fee ownership instead of leasehold. He gets his building money from insurance companies on first mortgages, amortized over 20 or 25 years, preferably 25. His own contracting division does the building. Because of his layout, with at least one important, top-credit store in each building block and no over-all services, he is able to finance his centers a block at a time or in a blanket deal, whichever is more advantageous at the moment. His guaranteed rents fully cover his financing and operating costs. Having been a store owner during the last depression, Casto is determined on a "depressionproof" setup. This is one reason for his heavy dependence on the mass-market chains; he thinks they are most flexible in their pricing policies.

Management: promotion without promises

Casto has worked out a management device calculated to keep him and the tenants out of each other's hair. It is a model of simplicity. Tenants in each center form a Merchants' Assn. with an executive secretary whose salary is paid half by Casto, half by the association, which levies dues of 10¢ per sq. ft. of selling area. Committees supervising publicity, decorations, promotions, etc., are elected among the tenants. All suggestions for action, whether from Casto or tenants, go to the secretary who refers them for approval to the proper committee. Then the secretary undertakes the job of getting an O.K. from all the chains' home offices, which has proved far more expeditious than leaving this responsibility with tenants, Casto commits himself to nothing but exterior building maintenance, but in practice he also cleans up the parking lot and takes care of most snow removal, using one maintenance crew for each city where he operates.

"People just naturally don't want to give any extra credit to the man who gets their rent check," says Casto. "If you promise anything, then they look at it as just part of what they are entitled to." Casto promises nothing, actually pays for a good deal of promotion. He always has the bill sent to the Merchants' Assn., followed by his own check. "If they don't see the transaction on their own books, they forget you did it."

Casto now has negotiations under way in a dozen cities from West Virginia to Missouri. When he considers an area, he first sends out two field men—separately. Each of them studies the city two weeks, prepares a report including site suggestions. Then Casto and his son Don Jr.—his chief assistant—visit the

continued on p. 220
MEDICAL CENTER TAKES TO AIR TO MAKE SPACE

Best site for a professional building is often in a congested apartment-house area where parking is almost impossible. This building is on such a site, but it has no parking problem. The ground floor is primarily a parking lot for the clients of the architect-owner and the patients of his seven doctor-tenants. It parks 41 cars.

High cost of the land suggested the second-story scheme. This design upped the cost of the office space (to $20 per sq. ft.) but not so much as the cost of an additional lot for parking, if one had been available. The F-shaped portion of the building which is in the air (the medical center) is cantilevered out 7’-6” from supporting 16’ round, reinforced concrete columns spaced about 17’ o.c. The concrete floor slab is insulated by 1 1/8” of cork, and all waste lines are concealed and weather-protected within the big round columns.

Other mechanical and electrical services are housed in utility channels beneath and at the edges of the slab where they also conceal the slabs’ framework from passers-by. These channels run the entire length of each wing on both sides and carry all heating and water pipes. Covered with cement asbestos board, the utility channels are easily accessible for maintenance and to accommodate future tenant changes. The water pipe is insulated against freezing.

The heating plant is in the basement beneath the ground-floor offices of the architect-owner. It supplies the two-zone forced hot-water radiant baseboard system. One zone serves the architect’s office, pharmacy and the doctors’ offices directly above; the other zone covers the elevated portion of the building. Baseboard radiators are restricted to exterior walls to simplify future partition changes.

Windows are big but are protected on the south and west by continuous rows of wood louvers set in metal T bars projecting...
Open first floor makes room for "in" and "out" driveways and parking space for 41 cars, half covered by wings of second-story medical building.

OR PARKING

3'-6" out from the building. These eyebrows are the building's chief design feature.

When Architect Stoddard decided to build his own offices, he chose this site for its ideal location: within 10 to 15 minutes of the smart residential area and within five minutes of Seattle's central business district. Convinced that a one-purpose building in such a highly specialized field as architecture is not a good investment, he was happy to find a big 120' x 180' lot which would make room for a "recessionproof" two-purpose professional building (most of the city's hospitals are nearby). With business recession, he can rent portions of his office space to more doctors or dentists, and if he wants to expand, he can extend his drafting-room wing into the parking area without interfering with the rest of the building.

Cost: $297,600 excluding land, landscaping and furnishings.

LOCATION: Seattle, Wash.
GEORGE W. STODDARD & ASSOCIATES, architects
NELS HEDIN, general contractor.

Ground floor of building consists only of architect-owner's office and small pharmacy (left), lobby for upstairs medical clinic and, at rear of lot, two small fire-stair enclosures.
UPSTAIRS: a variety of small rooms to

DOWNSTAIRS: a plush, spacious office for

Entry to architect's office on ground floor is at opposite (north) end of building from parking lot. Projection at center of west facade marks pharmacy.

Reception room features brick wall carried into building through glass front. Doors of painted fir are hung on heavy freestanding casing.

Doctor's corridor has painted plaster walls, natural-finished birch trim and doors, cork floors. Five suites open off corridor.
Examine the room partitions are painted plaster on studs with mineral wool blanket between suites for sound protection.

Recovery room has radiant baseboard which extends around entire building to make future partition changes easy.

Laboratory has built-in counters finished in vinyl plastic. Floors are asphalt tile; lighting, incandescent.

meet the needs of seven doctors

Upstairs rooms are many and small, tailored to the peculiar needs of doctor-tenants. In addition to five suites, the central hall serves a joint operating room for minor surgery and offices for several anesthetists.

Downstairs are the spacious and handsome offices of the architect-landlord: private and general offices to either side of an airy corridor (right), a drafting room for the designer and his mechanical and electrical assistants (photo below) and above that a duplicate room for architectural draftsmen. In the basement: a concrete vault for the "job morgue," blueprint equipment room, rest rooms and recreation room.

architect-owner of building

Drafting room, 17'-8" wide, 53' long, is daylighted from the south and has combination of incandescent and fluorescent electric light. Walls are painted concrete block. This room is on first floor.

Private offices are screened from corridor by panels of translucent corrugated glass; general office space is to left of cedar chipboard space dividers, which double as tack boards.
Four-room clusters, each with its own entry, locker room and toilet facilities, are arranged side by side and atop each other like garden apartments to form a new kind of two-story school.

Classrooms grouped in detached clusters have the small, child-scale advantage of the little red schoolhouse. Classrooms in a row have the advantages of economy and easy administration. Combining some of the advantages of both schemes, the unusual classroom block of this new school consists of four clusters of classrooms grouped like apartments in a two-story building with two split-level entries. The design won a top award in the recent competition sponsored by the American Association of School Administrators.

Because the local code requires fireproof construction for classrooms, it was economical to stack the clusters. Because the corridorless clusters can be framed in almost square (24'-6" x 26'-3") bays, the classroom block (like the administrative block) was easily engineered for lift-slab construction.

The other block is of mill construction; its laminated arches and pitched roof easily span the 45' width (not feasible with lift-slab construction) and give added height to the multi-purpose room and to the 200-seat assembly room.

**Four-room units are grouped like two-story apartments**

Classrooms grouped in detached clusters have the small, child-scale advantage of the little red schoolhouse. Classrooms in a row have the advantages of economy and easy administration. Combining some of the advantages of both schemes, the unusual classroom block of this new school consists of four clusters of classrooms grouped like apartments in a two-story building with two split-level entries. The design won a top award in the recent competition sponsored by the American Association of School Administrators.

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Three-part plan consists of 1) classroom block with its two 70' long corridor links, 2) wood-framed play and assembly block and 3) administrative block on other side of main entry vestibule.

Provision for expansion: future junior high school will connect with extended administrative block of present school, explaining off-center location of this block. Site contains about 40 acres.

in a prize-winning school designed for easy expansion

View from south shows flat roofs of lift-slab wings, low-pitched roof of mill-type multipurpose wing. Staggered wings fit uneven terrain.
Typical classroom is 32' deep, lighted by 26'-wide window wall and three 3' x 4' plastic roof domes. Corridor partition consists of coat and storage closets and display case.

Deep classrooms are arranged in pinwheel wings to produce

Daylighting curves show how level of light in rear half of classroom is raised from average of about 13 foot-candles (from side wall window) to average of about 37 foot-candles (from skylight). Roof projection of 4' shields classroom from direct sun, and top lighting is diffused by translucent plastic panels beneath skylight domes. Corridors are also top-lighted.

Because the town of Warwick, R. I., is committed to neighborhood-type schools with identical programs, it can profit by a high degree of design standardization.

Its two newest schools are identical and are a little less than twice as costly as one school—mainly because the two-site job was big enough to interest larger, better equipped contractors and because the architects were satisfied with less than two full fees.

Although one site is hilly and the other flat, the school works equally well on both. Reason: the plan is compact with 32' deep classrooms lined up in three rows radiating out from a central core of nonclassroom facilities. Thanks to diffused top-lighting and 4' overhangs, the classrooms can face in three directions without worrying about sunshading and daylighting. Because the deep classrooms are relatively narrow, they fit handily within the 26'-6" bays of the lift-slab construction.

ALBERT HARKNESS & PETER GEDDES, architects

THE ARCHITECTS COLLABORATIVE, associated

DIMEO CONSTRUCTION CO., general contractor

SEVERUD, ELSTAD, KRUEGER, structural engineers

BOLT, BERANEK & NEWMAN, acoustical consultants

WARREN A. SHERMAN and
CHRISTOPHER RHODES SCHOOLS
a Warwick, R. I. a 12 classrooms plus kindergarten a 390 pupils.

Features: One plan for two schools on widely different sites, built under one contract A Deep top-lighted classrooms to minimize perimeter and corridor length A Community-use rooms grouped for separate operation and maintenance A Classroom wings grouped around central nonclassroom facilities to create economical, compact building:

Construction: 9" lightweight concrete lift-slabs on concrete-filled columns A Precast concrete panels with integral color under central nonclassroom facilities A Under-window bookcases and cabinets carry piping to make trenches unnecessary and facilitate lift-slab construction.

Costs: $815,200 contract for two schools including landscaping but excluding furniture and fees A $94 per sq. ft.
compact school for two different sites

On flat site, Sherman School faces directly north, requires very little grading. Note U-shaped driveway.

On hilly site, identical school faces same direction but sits on graded platform.

Bird's-eye of school on level site shows how north facade is dominated by relatively high auditorium block. Rows of closely spaced skylights are over classrooms; widely spaced lights are over corridors.
Modern buildings need more than Jane-Russell-type murals and blown-up ash-tray sculpture. How to get it: a new working arrangement between architects and artists.

The flirtation between modern architecture and modern art—and I use the word “modern” to mean the progressive, alive, advancing work in both fields—seems to be ripening into a marriage. But if this is an obvious occasion for rejoicing, it is perhaps equally a moment for caution. For, although there are an increasing number of examples where art has been used with architecture, there have been very, very few good ones.

True, we have gotten away from the Neoclassical, rosy-clouded, nightgown-clad, figured allegorical murals; from the antiarchitectural overscale, overstated Mexican murals with Jane Russell-type Mother Earth figures; and from the socially conscious documentary and the Happy Farmer-type inflated calendar art (though the latter seems still to be running herd in Texas).

But we have not gotten away, or at least far enough, from art which substitutes stylization for style, from what we might call (and we meet it in architecture, too) the streamlined or slipcover stuff. These are the painted murals which flatten the figure to pancake thinness and put a Cubist gauze over a scene, refurbishing without revitalizing traditional forms. These are sculptures which shear and shave that inevitable eagle to be as sleek as an automobile radiator cap or stylize the Macfadden musculature of a figure so that it looks like a streamlined version of those embarrassing photos of male models. These are sculptures that simply enlarge what would be unpretentiously acceptable at ash-tray scale.

Nor have we gotten away from—in fact, we seem unfortunately perhaps just to be getting into—whimsical wire sculpture less organic and organized than the landscaping in which it is set.
Nor, again, with a few strategic exceptions, do we seem to have found a relationship of art to architecture which, in terms of space and architectural form, has particular vitality and meaning for our time and our architecture.

An architect who uses art is presumably motivated by two considerations:

- One is the esthetic or formal reason, in which the art is asked to enhance; to embellish; to establish or emphasize or set up new relationships of scale, proportion, form and space; to furnish color, texture, pattern, contrasts of light and shade.
- The other is the expressive motivation, in which the art is called upon to communicate.

Decoration for architecture

Ours is an architecture (as the Gothic was, and the Renaissance was not) in which, as Geoffrey Scott puts it, the requirements of constructive integrity in fact and constructive vividness in appearance are satisfied simultaneously and by the same means. Ours is an architecture which seeks its beauty and its meaning, as well as the satisfaction of its practical demands, through the honest, logical and revealed use of its architectural vocabulary. As it matures, modern architecture seems increasingly aware of the effect of structure on the human spirit: and by emphasis, by dramatization, by making vivid certain elements in its language, it is using the architectural vocabulary itself for expressive communication.

Now, since this expression derives from the honest use of the architectural vocabulary, rather than applique, or extraneous devices, or falsification, or allusions and associations, it seems obvious that modern architecture should want art to serve it as architectural decoration.

By that I mean that—whether it is a freestanding piece of sculpture which defines space by punctuating it or whether it is a mosaic mural incorporated into a facade—it must be accessory to and subordinate to the architecture in both form and expression.

There is much great art—such as Masaccio's frescoes in the Brancacci Chapel or Tamayo's recent painting for the Dallas Museum—which fails completely in its relationship to architecture. There is some esthetically questionable sculpture, such as that by Carl Milles, which is still admirably related to architecture. And, finally, there are such examples of perfect architectural adornment as the mosaics in the Basilica di S. Vitale or the carved figures on the west portal of Chartres, which are also great art. But in terms of their relation to architecture, that is not the primary requirement. I have purposely avoided the word "integration," for that implies an equality between art and architecture which may happily arrive as a result but in which I do not believe as a goal. I repeat that I believe we should think about and look for art which is no sense upper-case, exalted, self-sufficient expression, but art which is willing to be architectural decoration, something which will make the emphasis, the dramatization, the "vividization" of the architecture.

If we admit and accept the fact that art must be subordinate to architecture, I think we not only clarify the whole situation, but it follows logically that the responsibility is the architect's.

How can he best discharge it? I believe, by accepting the two basic responsibilities discussed on the next page.
Setting the artist's ground rules
The first is being willing to set the ground rules on both formal and expressive levels. This does not mean just nonchalantly leaving a wall or patronizingly providing an area or courtyard of space. It means thoughtfully deciding as part of his basic concept why and where he wants art. How is it to articulate his structure? Is it to emphasize the nonload-bearing character of a wall? Is it to emphasize the expression of an upward thrust? Is it to furnish color or texture, and is this to be counterpart or contrast? And so on and so forth.

I think he must have confident convictions about the scale, the general form—the so-called formal aspects of the art—completely worked out before the artist is summoned. He should go so far, I believe, as to make these concrete and visual on a model. He must, if you will, be himself a little more of an artist. To sum up, he must be totally responsible for the syntax, the formation and pattern of the sentence—though he needs the artist, because the artist is skilled and imaginative in the choice and use of words and phrases that will compose the sentence, that will, indeed, breathe life into it.

And having established the formal ground rules, the architect must also be convinced of how he wants the art to reinforce the emotional expression. He must, I believe, explain to the artist what effect he wants his building to have, what structural means he has employed to that end and where and in what spirit the art should reinforce and articulate that expression. Where is the mystery of a closed area to be enhanced? Where is the playfulness of a curved wall to be emphasized? And so on. It would obviously be ridiculous if he designed a building which in all its structural and architectural effects bespoke itself as a garage and then asked the artist, by supplying a statue of a Muse, to make it look like an art museum. But, if by his materials, his plan, his structure, his proportions he has achieved the expression of an art gallery as an harmonious, inviting, pleasurable, informal place, it would be equally ridiculous to allow a sculptor to make a grandiose, pompous expression at variance in means and manner with his own.

By asserting that the artist should be called in only after the architect is firmly convinced about how the art should articulate and reinforce his total architectural expression, I do not feel the artist's own talent will be stifled. The limitations of the sonnet form do not preclude great poetry or moving expression; the spirit and restrictions of the minuet do not prevent personal and imaginative creation. In fact, the disciplines and challenges of boundaries and limitations may even inspire the artist to great intensity and personal expression. Perhaps he will learn much from being a little more of an architect himself.

Selecting the qualified architect
The architect's second responsibility is, I believe, in the selection of the artist. Here, if I may be rude to a profession I respect, is where I think inertia, ignorance, prejudice and lack of imagination, with very, very few exceptions, are far too frequently the rule. Too often the architect takes one of the two ways that seem to offer the easy solution. Either he says, "Hell, I don't want my building loused up and I can't find anyone to do what should be done," or hesuccumbs to the pressures of leagues and localities, of societies and society.

The nicest guy, the most famous name, the most secure financial record of commissions are not guaranteed to lead him to the

Mosaic mural for Student Union building at Marquette University is an ingenious use of symbols to tell story of Father Brook's life—a timeless and dignified architectural decoration by Edward Lewandowski.

best man for the job. I think he must open his eyes wider and look farther. Many architects have grown and advanced in their own profession, but their awareness and taste in painting and sculpture have lagged years behind. They have learned to educate their clients to accept the modern idiom in architecture—but have not educated themselves to accept modern art.

I don't know why they should be so fearful of it. Stylistically modern art—and I mean avant-garde art from the cubists to the abstract expressionists—has a real compatibility with modern architecture. Concepts of organic space, of multiple views, of "truth to materials," of modern technology (the welder's torch is as sensitive as the painter's brush), of expression deriving from the visual elements (and structural elements) of form, color, line, space and their relationships, are common to both. Modern art has as true a potential stylistic compatibility with modern architecture as Gothic sculpture with Gothic architecture.

True, modern art frequently substitutes abstract or symbolic images for representational—but why not? Why does the architect fear them? Realistic, representational story telling is not only better taken care of by the comics, the camera, the movies and TV, but we live in an age that understands abstractions and signs and symbols. We accept them in their easiest forms in our daily life: we understand the Red Cross, X for US Steel, the twisting S-sign on the highway. On a higher level, we realize that abstract relations of colors and lines and forms and space—ordered and disciplined—can appeal to and lift the spirit.

But beyond opening his eyes to the modern idiom in art, the architect must have the courage to explore and insist on quality. He must distinguish between the sincere and the specious, the firm and the flashy. It is, in a sense, a case of "Buyer Beware."

He may feel noble with good intentions, but if the art is a failure, is it not his failure for were not the responsibilities for the ground rules, for the selection and for the working out of the project, his?

The practical difficulties are not insuperable

I realize that by charging the architect with these responsibilities I have disregarded practical difficulties. I am aware of the serious limitations on his time and understand he cannot browse on 57th St.; I know well the pressures that are exerted upon him to use the local favored son or daughter; I know that these commissions are expensive and that he legitimately hesitates to ask the client to gamble on someone who has never before used stained glass or aluminum or mosaic or whatever material seems right for that particular job; I know it is hard enough to get any budget allocation for art, much less one which allows a few trial sketches from various potential artists. And I know the slipshod, unbusinesslike, unarchitectural-like working methods of some artists—but not all by any means.

But, if there is a will, there is a way. I think the stakes are high enough. Architectural magazines could help by publishing work of artists potentially interesting to architects; museum people could be employed by architects as advisers; galleries could arrange exhibitions; manufacturers might sponsor competitions; and architectural schools could train architects for this awareness in the future.

If the architect will accept his basic responsibility and if the artist will concede that his art will function best as architectural decoration, I believe modern art and modern architecture can join in a happy and fruitful union.
LOCATION: Dallas, Tex.
HOTELS STATLER CO., INC., owner
WILLIAM B. TABLER, architect
SEELYE, STEVENSON, VALUE & KNECHT
structural engineers
JAROS, BAUM & BOLLES,
mechanical engineers
ROBERT E. McKEE GENERAL CONTRACTOR, INC., contractor

NEW SHAPE
AND STRUCTURE

Photos: Louis Checkman; model by Theodore Conrad
help Statler reduce hotel costs to $9,350 per room.

Two-column bay and cantilever floors add

simplicity to frame, flexibility to plan

There are some companies and some people who are never content with beating a record once. Statler hotels are like that. The Washington Statler, built back in 1940-42, was the “last word” in modern design, in structural efficiency, in compact use of space, as were the Los Angeles and Hartford Statlers. But today Washington, Los Angeles and Hartford must make a bow to the new Statler for Dallas. The bids are in.

In total cost Dallas will come to 40% less than the Washington figure adjusted to today’s cost index—$9,350 per room instead of $14,770—due largely to its unusual structural design.

In plan Dallas will have 200 more rooms and 15,000 sq. ft. more shop area (with roughly the same banquet facilities) in 700,000 cu. ft. less volume, due mostly to more efficient use of space.

So unexpected was the cumulative saving that an experienced building executive, H. B. Callis, Statler’s senior vice president for construction, lost a hat to Architect Tabler, betting the Dallas hotel would come in at over $11 ½ million; the bids were under $9½ million. Callis based his estimate on the $14,770 per room it would cost to reproduce the Washington Statler.

Architect Tabler was betting on his cantilevered construction. Each Dallas wing will have just two rows of columns, all flattened transversely to the building (see sketch), the flat plate floors carried out 8’ beyond the columns. This is the first time that a two-column-per-bay cantilever floor system has been used in a multistory building in the US. The effect was to throw the cost estimate on guest-room wings entirely out of the usual “hotel” class into the far cheaper “factory” class based on unvarying repetition of simple elements.

This simple structural system not only lets Architect Tabler take advantage of all the economies of wide cantilevering but also gives him greater flexibility in arranging his room plans than was possible amid the multitudinous columns in the Hartford Statler. (And the Hartford building was already a major milestone in American hotel planning—AF, April ’53.) The fact that there are no structural members within the walls explains the special appearance of the building as a vast porcelain-enamel and glass curtain, decorated with embossed porcelain-enamel panels.

Architecturally, in the Hartford building (photo, above right) the curtain wall expressed the skeleton of columns and spandrel girders, but in Dallas the curtain wall dramatizes the absence of columns and girders. The support is indicated at the base by the buttresslike columns recessed 8’ back from the face of the building. Less obvious is the shear wall used to provide wind bracing at the ends of the wings (see plan, facing page). The premium rental from corner rooms and luxury sites furnished the motive for the tier of rooms projecting beyond the shear wall at the near end of the building in the photo on the facing page.
Typical bay is based on Hartford scheme (at right) but with important improvements. Two column system for Dallas permits shifting curtain wall to increase variation in room sizes, without structural change or altering standard bath-hall-closet arrangement. Column shift permits 4" reduction in pipe shaft gaining 75 sq. ft. usable area per floor.

Guest-room floor plan gains flexibility by "mobility" of exterior wall

Structurally, the Dallas Statler's Y plan permits any two wings to brace the third at their meeting point, leaving the need for only a sheer wall at each wing end for complete windbracing.

Planwise, the wing lengths are adjusted to "maid-modules"—16 rooms per maid. The two front wings are three maid-modules long; the rear wing, one. As a small extra, the Y cuts by half the forbidding length of hall seen by guests in so many hotels.

Programwise, division of the bedroom floors into wings permits initial construction of two-thirds of the hotel, later addition of the final third with minimum disturbance.

But it is in the planning of the bedroom wings that the cantilevered construction offers its greatest advantage:

Three building elements that have hitherto always been interlinked are here disentangled from one another: the building frame, the outer wall, the plumbing stacks. The conventional way of handling them is seen in the smaller Hartford Statler plan at the top of page. At Hartford the windows had to fit between columns, and the plumbing stacks were run up tightly against the frame. But at Dallas the flattened columns are about midway between corridor and wall, and the plumbing stacks are close to the middle of each bay. This has yielded considerable plan freedom. Though bays are completely standard, window divisions need not align with them, and indeed the "back wall" is offset from the "front wall" (see room plan). By slight shifts in partitions, the architect was able to offer Statler five variations in room width and two in depth without ever departing from standard bays, standard curtain wall panels and the standard bath-hall-closet arrangement (see table, right).
Curtain-wall panels are stacked between vertical air ducts

The idea of an all-glass wall for the Dallas Statler was discarded because heat-resisting glass would have cost about the same as insulated porcelain-enamel panels, but the insulated panels would save about $266 per room on the cost of installing air conditioning. On top of this capital saving, the insulated panels will yield an operating saving of about 7¢ per sq. ft. per year in air conditioning.

The horizontal module for the wall is 7'-2". Each 23' bay has two panels containing windows and one blank wall panel all of this same width, plus a vertical air-conditioning chase 1'-6" wide (photo above). All these panels were designed to let partitions join at any modular point and, in the case of the blank wall units, the partitions would typically come at the half-module point. The 9' floor-to-floor height is roughly half window (4'-3") with blank panels of equal size (2'-4½") above and below. The blank panels flanking the windows are outwardly projecting tetrahedral pyramids which the architect chose as a strong decorative shape that would produce changing patterns in relation to the movement of the observer.

The air-conditioning duct (photo above) is the only strong vertical feature of the facade, and a decorative one. It carries 1,200 to 1,400 cfm. of cooled or heated air up from the fan room on the third floor to the first eight floors or down from the roof fans to the upper eight floors. Depending on room size and exposure, it delivers from 60 to 90 cu. ft. of tempered fresh air per minute. The guest can vary room temperature between 60°F to 80°F, by thermostat control of cooled or heated water to room heat exchangers in the enclosures adjacent to the main duct.
Second floor has largest ballroom in southwest (which will spend most of its life divided into smaller assembly units), smaller ballroom (divisible into three) and four private dining rooms. Second floor kitchen is directly over main kitchen.

Main floor (above) features off-street drive tucked into recess of Y-shaped plan. Elevators are only few steps from entry, further cutting down walking distances for guests and staff. Multiple use of supper-club coffee shop through movable partition will cut loss hotel generally expects from running good night-club. Note landscaped court off lounge.

Basement administrative area is directly below front office with which it has direct access by stairs. Employees' entry, receiving facilities and personnel department are grouped at left rear. In subbasement, laundry is adjacent to boiler room.
High efficiency of hotel's lower floors is based on step-saving plan

A straight line as the shortest distance between two points dominates much of the planning of the public areas. From taxi to elevators, the guest goes a few short, straight steps without crossing the lounge or passing the registration desk which is off center and to the rear. If he wants to lounge and look at the interior garden and pool, he may do so but they are not on his required route.

On the ballroom floor the two-way access to elevators and two sets of stairs will permit running several conventions at the same time. Outsiders attending conventions or social functions can reach the supper club or grand ballroom through the side entrance without crossing guest traffic lanes, ballroom spaces and exhibit rooms in the west wing are reached by open stairs at the left of the main guest entrance.

Being in Texas, it was of course necessary that the hotel have the largest ballroom in the entire southwest. The grand ballroom, 95' x 140', can seat 2,300 or be divided into two ballrooms by a movable partition consisting of two independent panels spaced 5' apart which give 45 db. of sound insulation. This is better than most plaster partitions.

The close coupling of service functions in this hotel are so obviously in line with efficient operation that one is inclined to accept them as the obvious solution. It is only after comparing the plans with other Statler Hotels that one realizes the progress that can be made from continuous study where service areas are studied as tools for production. Related work areas were grouped to cut unnecessary travel by employees and to permit more direct supervision by executives. It was found that close coupling of functions also resulted in cutting cost of installing equipment, piping and air-conditioning ducts. Features of special note in the service areas:

- Close coupling of all administrative offices by placing the accounting and sales offices directly below the front and executive offices, and the banquet captain directly above them, permits easy interdepartmental travel by stair.
- Consolidation of laundry, mending and housekeeping areas cuts washable uniforms required from three to two per employee. (In New York these rooms are separated by four floors.)
- Side-by-side position of laundry and boiler room cuts installation costs and heat loss in transit.
- Stacking of ammonia room, ice machines and refrigerators cuts cost of installing piping and reduces loss in transit.
- Direct fan connection to stores is made from two auxiliary fan rooms. Stores' needs differ from needs of the hotel.
- Direct entrance to employment offices keeps job applicants out of hotel, also out of the way of regular employees passing timekeeper's window.
- Grouping of receiving area, control desk, food storeroom permits the assistant steward in corner of receiving room to keep an eye on everything from his desk.
- Location of room-service checkers' station next to service elevators gives positive control at this exit from kitchen area.
Dual-purpose ballroom works day and night with aid of acoustical partition

One of Architect Tabler's smartest prestidigitations is his conversion of a daytime coffee shop into a spangdangle night club.

It is a hotel axiom that the twain never meet, that night club space is dreary and empty in daytime.

Tabler's first device for his magic trick is the curved "mural wall," which is solid at its focus behind the bandstand, with opaque colored panels; but it gradually opens up with translucent and ultimately clear glass panels, separated by bigger and bigger gaps through which to look in daytime at outer nature. The mural was designed by H. J. Stojowski, architectural designer.

Tabler's second device is two sets of dual movable partitions by means of which the room can be divided into five different sizes.

As evening comes and night clubbers begin to drift in, the partition nearest the orchestra can be closed, the drapes drawn, and activities started in a small, cozy space. By degrees as the coffee-shop business dwindles on the other side, section after section can be shifted from it to the night club, by successive repartitionings.

And the floor is convertible, too. The dance area mounted on lifts may be elevated 2' for a stage or lowered 1' to create a small ice skating rink.

The structure of supper room and ballroom is of special interest. The ballroom upstairs is wider and is cantilevered out beyond the supper room below. The whole weight of the ballroom's roof plus its wall and the projecting part of its floor is all carried on the cantilevered portion of its floor frame and this counterbalances the weight of its central floor span, permitting it to be much lighter construction.

The free span of the roof is wider than the free floor span but need carry only a 25-lb. live load. It has been framed with girders only 3' deep by welding a spiral reinforcing atop the girder (by the "Alpha" system used in bridges) so as to make a composite section of steel and roof slab.
Flexible partitions

Dallas cashed in on the Hartford research project which found that flexible space for public gatherings would give economy, provided satisfactory sound reduction could be obtained with movable partitions. Statler found that the only way of getting a movable partition sufficiently soundproofed to permit simultaneous use of the divided space for a musical and a party was by using twin partitions. The 45 db sound reduction obtained by the use of two completely independent partitions was entirely satisfactory. At Dallas, the twin partitions subdivide the grand ballroom into two ballrooms plus private dining and conference rooms; the large ballroom in another wing is subdivided into three auditoriums or ballrooms and the supper club can be divided at two points.

The 4" wide panels which make up the twin partitions are of door construction with the inside surfaces covered with insulation to absorb sound that gets by the first barrier into the 5" wide air gap. Each door has two strips of felt at both top and bottom to seal off edge leakage. Vertical meeting edges have felt gaskets that are made tight by pressing the assembled sections together from one end after the partition units are in place.

Analysis of the impact load from helicopter landing showed that the roof slab did not have to be thickened and very little additional steel was required for reinforcing. Since the building code required the fire stairs be carried to the roof in any case, access to the heliport did not add cost.

Heliport on roof

The Dallas Statler will be the first hotel to have a rooftop heliport, although at least one other hotel has its own ground heliport.

Conscious of the fact that in many cities a traveler has to allow an hour or more to get from his downtown hotel to an airport, the Statler believes that for midtown-to-midtown travel between cities less than 220 mi. apart, a 100-mi.-per-hour helicopter is faster than a 170-mi.-per-hour airliner used for short flights. The added cost of heliport was surprisingly low.
Supreme Court ban on segregation gives public housing a political jolt

Decision barring school segregation leads South Carolina to halt building program, but long-range effect on building is expected to be slight—perhaps a 5% drop

The US Supreme Court, through two decisions against racial segregation, appeared last month to have dealt a fatal blow to public housing, at least for this year and perhaps permanently.

The first decision was the court's unanimous verdict that school segregation is unconstitutional because—in Chief Justice Warren's words—"separate educational facilities are inherently unequal."

This set up the policy framework for the second ruling: the court refused without comment to hear an appeal from a lower court that had ruled unconstitutional the San Francisco Housing Authority's policy of segregating races in public housing projects according to existing neighborhood patterns.

Next day, public housing lost the political support of enough southern Congressmen to indicate that a quick but noisy burial was impending.

Said Sen. Burnet R. Maybank (D, S.C.), senior Democrat on the Senate banking committee and long a powerful advocate of public housing: "I regret that the Supreme Court decision [against the San Francisco Housing Authority] ... makes it impossible for me, believing in local government, to support any public housing.

I, therefore, oppose any public housing program." Fuming, Maybank charged the court "ignored several past votes in the Senate banking committee and one in the Senate itself, which flatly rejected anti-segregation amendments in public housing."

Dixie vs. public housing? Maybank, it was understood by Capitol Hill experts, was speaking for most, if not all, southern senators. Without support of southern senators, it was a pretty good bet that the Senate will vote to kill public housing at the end of this fiscal year. The House has already voted to do so. Ironically, it was Maybank himself who made the successful motion to reinstate a 135,-

000 to 200,000-a-year public housing program during consideration of the 1954 housing bill by the Senate banking committee. Now, he planned to move on the Senate floor to kill his own amendment.

Northern senators, including Illinois' Douglas, promised a fight. Top HHFA officials were worried. Said one: "This is going to be a civil rights rather than a housing fight."

In the process, they expected amendments to be proposed banning segregation in urban rehabilitation and redevelopment and a stiff open occupancy rider for all FHA titles. Either of these, experts thought, could be a staggering blow to the programs involved. The nation might be ready for integration in theory (its laws had leaned that way for 100 years), but was it ready to put it into practice? It seemed questionable, especially in housing.

Historic pattern. The San Francisco case involved three Negroes who were refused admission to the new North Beach project (designed by Architect Ernest Born) which lies in the city's traditional Italian district. This was in line with the authority's policy since 1942 of preserving as much as possible "the same racial composition which exists in a neighborhood where a project is located." Behind this lay much tradition. Ethnic neighborhoods have been the signature of much of San Francisco since gold rush days. Thus, Ping Yen, another new project, was plunked in the heart of Chinatown to provide public housing for Orientals without disrupting the city's pattern of life. The California Supreme Court held that this policy violated the 14th amendment by denying the three Negroes equal protection of the law.

Beneath the public debate—and a factor in the southern revolt against public housing—was the fear that unsegregated public housing could in many cities quickly become all Negro public housing. Two years ago, the San Francisco Housing Authority pointed out these facts:

- Whites, comprising 90.7% of the city's population, occupy 60% of its 13,263 public housing units.
- Negroes, comprising 5.7% of the population, occupy 37% of the units (4,859).
- Other races, representing 3% of the populace, occupy 9% of the units (434).

One-race housing? Said one official at the time: "Frankly, the whites move out about as fast as the Negroes move in. Abolish the pattern, and within two years virtually all public housing would be Negro-occupied. Public housing would thus become housing for one race, and I do not believe it could be justified as a public expenditure."

Privately, some HHFA aides were furious at San Francisco for fighting the case all the way to the Supreme Court, where the inevitable decision threatened to have such repercussions across the nation. They argued it would have been years more before such a case from a southern state would have reached the high tribunal—and that mean-
while a lot more public housing could have been built.

The high court ruling made it seem likely that Negroes soon would blast their way into white housing projects in the South—via the courts. Three days after the court's school segregation decision, 16 Negroes asked a Savannah federal court to enjoin the Public Housing Administration and the Housing Authority of Savannah against denying them admission to Fred Wessels Homes, a new apartment project. They also asked $90,000 damages. Their attorneys were led by NAACP's Thurgood Marshall of New York, the chief legal brain of the school segregation case.

School time bomb. If reaction to the court's public housing decision seemed violent, one reason was that its results could be immediate. The decision on school segregation, on the other hand, was a delayed-action bomb. By announcing that it will not formulate decrees to carry out integration until fall, the court allowed for a cooling-off period. Reaction was calmer.

The decision cast doubt over the future of some $800 million of planned school construction in the 17 states where racial segregation is required by law.* Most drastic action was taken by Gov. James Byrnes of South Carolina. He cut off state money for new public school construction contracts pending further studies. The effect was to halt the state's huge school building program intended to equalize facilities for whites and Negroes. In three years, South Carolina had spent or earmarked close to $100 million for some 400 school buildings—about two thirds of them for Negroes. Another $76 million of school construction, much of it for Negroes, was planned.

In Georgia, however, Gov. Herman E. Talmadge said the Supreme Court decision would not affect school building because the state needs the schools. The program totals some $300 million for 3,036 grammar and high schools. Contracts have been let for about 600.

Architect Marcelius Wright Jr., AIA regional director for the middle Atlantic area, forecast: "The aggressive school building program for the benefit of both races, operative since the war, will grind to a standstill. . . ."

Evasion devices. In most other states, the chances were that school building would be slowed while devices to get around the court's ruling are explored thoroughly and fervently. One of the likeliest: gerrymandering of school districts, which would work in spots where there is effective residential segregation (but would not work in rural areas, or, for example, in Charleston, S.C., where whites and Negroes often live in different parts of the same block). Mississippi was counting on a law enacted at the last session of the legislature, which says: "In making assignments of children to schools or attendance centers as provided by this act, the Board of Trustees shall take into consideration the emotional needs and welfare of the child involved, the welfare and best interests of the pupils attending the school or schools involved, health and moral factors at the school." It contains no mention of segregation, but gives trustees almost unlimited power to segregate just the same.

One leading school expert ventured the guess that while the decision would slow school building in the South, eventually almost all the schools planned will be built. Both white and Negro schools are overcrowded in many areas. Many Negro schools are obso­lete, even unfit. On balance, the biggest foreseeable drop in southern school building looked like about 5%.

In Congress, the antisegregation decision put more steam behind demands for increased federal aid for school construction. In the past, the two most serious roadblocks to more federal school aid have been objections by southern Congressmen that this would become a device to smash segregation and objections by religious groups—mostly Catholics who profess to see a threat to their parochial schools. Currently pending is a bill to spend $100 million a year for five years for federal aid to school building. The AFL executive council, scoffing at that as "abyssmally inadequate," demanded $1 billion to help the South build racially integrated schools.

Glass-towered synagogue, Frank Lloyd Wright's first

Rabbi Mortimer J. Cohen of Beth Sholom Congregation in Philadelphia made some sketches of what he thought a synagogue should embody and showed them to a friend. The friend said: "Only one man can do it—Frank Lloyd Wright." Wright did it (above). When he submitted the drawings, he wrote: "Herewith the promised hosannas, a temple that is truly a religious tribute to the living god." Said Rabbi Cohen: "It is Mt. Sinai wrought in modern materials."

The distorted-hexagon structure will have double outer walls, of wire glass and blue-tinted plastic, with about an inch of air space between. Stamped copper shells will be filled with reinforced concrete. It will be 17' at its widest, 100' tall and is expected to cost $175,000. Projections on outside (left) are symbolic of the menorah—candelabra—of the ancient tabernacle. Chapel (part of floor plan, lower left) seats 268, an auditorium 1,214, Atop the triangular glass tower will be a floodlit message in Hebrew: I am the Lord, Your God. "With the intuition that only genius mysteriously attains," said Rabbi Cohen, "Mr. Wright has created ... a Jewish symbol in and of itself."
BUSINESS BUILDS A CITY

On 3,000 acres of Canadian farmland grows a new town planned for industry, commerce and 35,000 residents

In the aerial view (at left) you see the first town of its kind in North America: a well-balanced satellite city, complete with its own industries, conceived and built entirely by a real estate developer.

Nestled between the two forks of the Don River 7 mi. northeast of downtown Toronto, the new town of Don Mills is a planner's dream coming true. In minimizing the risks of an investment that may eventually total $200 million, its industrialist-developers aim at a healthier balance of industry, housing and commerce than any US or Canadian-planned community has achieved to date.

Industry: the developers of Don Mills have supplied the missing link sought by so many new-town planners: a broad industrial base. Already eight factories are in operation and a dozen more are on the way, providing jobs within the community and lightening the tax load on residents (see next page).

Housing: the developers hope to lengthen the community's economic life through a natural variety of housing. Instead of bleak uniformity which ultimately lowers property values, they have planned 12,000 houses and apartments varied in price and design, built by many different architect-builder teams (17 are at work in Don Mills this year). To make sure housing will not be out of date in a few years, it must conform to design standards more contemporary than anything Toronto has yet seen (see p. 150).

Commerce: Don Mills Developments, Ltd. will cash in on the long-term prosperity thus created by expanding the convenience stores now abuilding into a full-fledged regional shopping center, which will be the developer's main source of long-term income (see p. 151).
For **INDUSTRY**: planned factory districts to provide jobs, help pay the taxes

- **By attracting factories first**, the developers of Don Mills avoid the disadvantages of a “bedroom town” whose residents must carry the full tax load of schools, streets and utilities, fire and police protection—plus the cost of commutation to distant jobs. (Park Forest, Ill., a speculatively built town of 35,000 which comes closest to Don Mills, set aside land for industry but put housing and shops first. Jobs and the potential industrial tax revenue are still 30 mi. away in Chicago.)

  At Don Mills, factories, stores, offices and other nonresidential buildings will cover only 17% of the land, yet will pay 40% of the taxes. This leaves the average resident with a low $200 annual property tax—and, incidentally, more pocket money to use at the developers’ shopping center.

- **By getting high-wage industries**, the developers further bolster their stores, which will depend for their biggest profits on the upper three-fifths of the local income bracket.

- **By balancing industry types**, they avoid the evils of a “company town.” A planned variety of employers reduces the impact of a strike or layoff in one plant, helps flatten out seasonal peaks and valleys of employment peculiar to individual industries, provides a common pool of labor which can shuttle back and forth between factories without having to leave the community. For still further balance, Don Mills welcomes companies employing women, balancing the plants that offer jobs almost exclusively to men. At present, 20% of the residents are employed by the town’s new factories; the developers do not expect this to go over the 50% figure they have set as a limit.

  Today eight factories are operating (three are expanding). A ninth is under construction, nine more will build this summer, four more hold options. Over one million square feet of plant space will be in use by year’s end.

**Don Mills location, ideal for Industry:**
- In greater Toronto, near center of North America’s industrial heartland and proposed St. Lawrence seaway (strategic location and cheap hydroelectric power).
- At an interswitch of Canada’s two major railroads (easy transshipping).
- Just south of Toronto’s main by-pass highway (trucking to major Canadian and US cities, direct access to Toronto’s Malton airport).
By keeping industries neat and clean, the developers can place them within a 15-minute walk of home, also use them as showpieces to attract more industries. Don Mills Developments, Ltd. sets high standards:

- No “nuisance” industries are allowed. Restrictions, based on performance instead of blanket refusal of certain industry types, prohibit the creation of “noise, odors, gases, fumes, smoke, dust, cinders, soot or waste.”
- Purchasers must start a building program within three years or the land reverts to the developers at the original price ($6,500 to $7,500 per acre including utilities) plus any taxes paid. If at any time during 20 years after purchase an industry must dispose of its land, it must first offer it back to the developers.
- Maximum setbacks are a generous 150’ in front, 50’ each side, with no employee parking permitted in front of the building line. No more than 50% of the land may be covered by buildings. Outside operations and storage are prohibited.
- Building designs and landscaping plans must meet the approval of the development company’s architectural board. Exterior materials are limited to glass, steel, four types of masonry. No signs or billboards may be erected without written consent.

By setting high requirements, Don Mills developers have kept out all but the quiet, clean, light industries that make good neighbors for everyone. They have stuck to their guns in spite of attractive “deals,” turning down a large automobile plant that would have dominated the town, a manufacturer who needed outside storage for unsightly equipment, a dusty grain-storage and milling plant, a lumber mill and yard. Said a company official of Ortho Pharmaceutical, now planning a 30,000 sq. ft. plant: “We’ve been looking for this kind of location for seven years.”
For **RESIDENTS:** 12,000 houses and apartments around schools and parks

In each of Don Mills’ four big quadrants, houses and apartments focus on their own elementary schools and churches, giving each neighborhood an identity and a central green space. Greenbelt fingers and underpasses provide traffic-safe pedestrian walkways for school children and shoppers. Curving and cul-de-sac streets with T intersections make for safety, quiet and visual interest; collector streets tie into a four-lane ring road linking neighborhoods with shopping center, high school and churches. On this master plan the developers sell improved 60’ lots at $2,750 to builders, require them to use architects, submit designs for approval. The first 561 houses, by 14 architect-builder teams, are priced at $11,200 to $17,000; local factory workers get first priority. To keep up future property values, housing is as contemporary in design as the market will permit, diversified in type and price class. Result: some of the best builder houses in Canada. Note how houses face away from thoroughfares and from northern industrial district, how park strips open up the tight, economical housing pattern.

*Typical apartment building is 24-family walk-up*
For **COMMERCE**: shops and offices

in a giant project at center of town

To serve Don Mills' growing population, estimated at 6,000 by the end of 1954, the developers have broken ground for a $2 million convenience goods center, first phase of the 44-acre, $15 million regional shopping center (shown at right). Opening this fall: a 20,000 sq. ft. supermarket (1), followed by smaller stores (2), service station (3), brewers retail store (4), variety store and post office (5), two banks and a restaurant (6). Second phase: a 200,000 sq. ft. department store at the southern end (7), 50 to 60 smaller shops along a central mall (8), a second, smaller department store (9), an office tower on stilts above a landscaped central plaza (10). Across the road to the west plans call for a medical building, theater, library and other community buildings.

The entire shopping center, including buildings and parking for 4,000 to 4,500 cars, is laid out on a 20' grid for flexibility. Based on the concentration of pedestrian purchasing power in the town, plus a trade area of 400,000 people within 20 minutes driving time, retail sales are expected to reach $50 million annually by completion in 1960. Architects and engineers: John B. Parkin Associates. Economic and planning consultant: Kenneth C. Welch. Traffic consultant: Wilbur Smith.

Main shopping building will have stores on two levels facing roofed, air-conditioned central mall. Across one end (background) is major department store.
Sacramento a century ago  

the fast-growing capitol of California fights its gold-flecked past

Sacramento today
Sacramento, Calif.'s capital, is one of the 38 US cities in what might be called their teens, climbing from the 125,000 population mark toward 200,000 (1950 Sacramento population: 136,000; predicted for 1960: 182,000). But it is one of 14 in this second echelon of American metropoli farsighted enough to have requested federal money for redevelopment under Title I of the 1949 Housing Act.

Recognizing that not only our biggest cities are running fevers, Sacramento registered a shrewd awareness of its sickness as long ago as 1947, when the first tentative stirrings toward redevelopment began. Now, in 1954, the first actual bite will be taken out of Sacramento's moldering West End section, initiating a program which will in time include 25% of the city's central business area—a redevelopment program proportionately larger than even Pittsburgh's Golden Triangle.

Sacramento's redevelopment project has lessons to teach big cities or small: how to recognize and approach a redevelopment area (p. 154), how to run development in block chunks rather than ripping out an entire section and imposing a costly master plan with new street patterns (p. 156); how to plan to reclaim a river front from what it is in most cities, a railroad right-of-way (p. 158); how to spread parking through a business district (p. 159).

But the biggest lesson in Sacramento's unique small-city redevelopment plans may be one which parallels one of modern medicine's axioms: medical attention in the years of greatest development is the best insurance for a healthy maturity. This should have happened to New York, Boston and Philadelphia a century ago.

Sacramento's capitol surmounts old area of city now sunk in blight
SUNLIT SLUM

In 1947, when the City Council of Sacramento looked at the West End, the stretch of choice land between the state capitol and California's greatest river, the slogan of their sovereign state of California, "Eureka—I have found it," rang very thin. There was little change from what had been built in this area 100 years back, and no improvement. The streets had been filled in up to the stilted second-story level, but many of the prefabricated houses shipped around the Horn by boat from the East Coast in the boom of the 1850's remained. In the previous 20 years, as the commercial center of the city had retreated from this antique decrepitude, the assessed valuation of the West End had fallen 50%. The tax scale was sliding every year, while the civic load was growing; containing 8% of the total city area and 7.5% of the population, the West End had 26% of the fires, 36% of the juvenile delinquency, 42% of the adult crime and 76% of the tuberculosis cases.

It was not that the area was a slum as vicious as Chicago's South Side, or New York's Harlem. It is not. The remaining growth of trees make it more of a Huckleberry Finn slum, except for Skid Row itself. And the presence of 27 different national groups, from Chinese to Mexican, gives the area a firm, interesting character. It has a function, too. The Sacramento West End is the biggest hiring hall for agricultural labor in northern California. It plays commercial host to thousands of migrant workers, especially in late summer harvest months; 15% of all California's agricultural hiring is done right here, some 60,000 jobs filled per year. But, from the view of the city, this does not help the situation of blight; it emphasizes it. It makes the greatest part of the population unattached men, floaters on the day-rate labor sea. Their age group is remarkably high; one fifth are over 65; another quarter are between 55 and 64. The female population averages 21, 21 years younger than the male average, but there are few women. Once a notorious red-light district and gambling hell, the region has been purified, but still one out of every three retail stores has an alcoholic license. In the 12 blocks proper of Skid Row there are 167 bars. They are about the only recreation left. There is hardly anywhere else to sit down.
Sacramento really started swinging against its blight late in 1948 when the city council appropriated $3,200 for a redevelopment survey. Then, after a year of establishing the need, Plan Commission Executive Glenn Hall brought in Richard Neutra and Robert Alexander to inspire a solution. Their brilliant view of what could be done (see drawings, above and p. 158) added imaginative momentum to the program; the city council asked HHFA to reserve $364,000 in federal funds under Title I, and hired Planner Joseph T. Bill to head a redevelopment authority. The goal was to rebuild the 62 blocks of the West End by 1960.

Bill recognized early that a major aid in the program was the presence of the state capitol. This century's proliferation of government had turned Sacramento into the government town, thinning the agricultural emphasis, and the blighted area was the front yard of the capitol buildings. Even more de-emphasis of agriculture was clearly on the way with manufacturers like Procter & Gamble eyeing the city for plant sites. A study by Catherine Bauer and Davis McEntire even recommended moving the labor market of the West End to the outskirts of the city to a hygienic campus, but this was clearly a long-range proposal. It also would involve more public money than available under Title I, while city redevelopment by blocks could be largely private commercial investment.

The first bite at the blight Bill proposed, was a two block area at the north edge of the West End. It would have been all commercial, and had a good basis. Chinese family and benevolent associations were ready to underwrite more than 30% of the proposed development. But then the city council indicated it was willing to up the ante, and the first proposal was quickly shelved in favor of a 15-block area centering on the Capitol Mall, including not only commercial, but also governmental and residential areas.
Second step: present the community with a detailed diagram for action

Redevelopment area and first 15-block project (shaded). Air view (above) shows how this 15-block project will look when completed. Capitol mall to river is axis, but high-rise apartments, off axis, unfortunately outweigh it.

Fifteen Sacramento blocks presently occupied by run-down hotels, bars, restaurants, gas stations, old frame dwellings and outright slums will become an integrated complex of high-rise residential, shopping, parking and office buildings, centered on state office buildings, to be set on the stem of a central mall, a green-bordered highway running from the capitol to the river.

Sustained at birth by Title I federal money, the redevelopment may shortly stand on its own feet by virtue of a law indigenous to California—a law which should be even more nourishing to redevelopment than the California sun is to oranges. This law permits the rise in tax income created by redeveloping an area to be routed into the city redevelopment fund. The estimated rise for this project will be $3 1/4 million per year (see chart), thus city money to be invested in the project could easily come from a bond issue based on this tax income. The city is not eager for one single giant insurance company to move in and take over, but will designate at least three blocks for disposition in small parcels.

Only 700 families reside in this area, so relocation will not be difficult. But relocation of the floating farm-labor population will be. Bill believes also there is a moral responsibility to assist, where possible, in the relocation of small businesses purchased by Japanese-American citizens in this area after they emerged from World War II relocation camps.
Land use: Acres
Parking 2.5
Residential 14.1
General commercial 8.0
Shopping convenience 2.5
Special commercial including public 12.5
Total net area 39.6
Street rights of way 18.7
Gross area 58.3

Maximum building coverage in the residential areas will be 30%; maximum population density, 140 persons per acre. Off-street parking will be required in both residential and commercial zones, ranging from one space per each 400 sq. ft. in public buildings up to one space for each dwelling unit in structures of four or fewer dwelling units.

High-rise apartments are not usual in Sacramento, but will have ready market in semi-transient government employees.

"The big problem is to secure a wide understanding of what you are trying to do and how you propose to do it..."

General differences between big-city and small-city redevelopment have emerged in the creation of this program. Says Bill: "I think large cities can push forward in an impersonal way with a program which is clearly needed more easily than in the small city, where, due to its size, personal acquaintance and accountability for one's actions are more important. This applies to legislative bodies as well as individuals... Like most cities of this size, Sacramento moves very slowly on a project that requires dramatic change. It must in truth be a grass-roots program... I have discovered that no high pressure is needed. The big problem is to secure a wide coverage of understanding of what you are trying to do and how you propose to do it... it is a problem of communication.

"A key difference may be that redevelopment in Sacramento (as in other small cities) is not based so strongly on the need for new family housing. Due to the downtown location and the fact that much of the project land is destined for commercial reuse, the write-off should be less than much eastern redevelopment... but it would be most difficult to develop a financial plan for this size project satisfactory to the citizens of Sacramento were it not for the tax-pledge method.

"Another point is the degree of blight. Most large cities are old cities. This age sometimes results in the accumulation of blight being greater than in our new cities. Although a small portion of Sacramento is older than Chicago, most of the city is relatively new. The people of Chicago and Philadelphia have been living with their blight a long time. The people of Sacramento have been able to avoid, for the most part, living with it, for the worst blight is confined to a concentrated area. (I use the word "confined" in a limited sense, because it has been moving into the central business district and the state capitol area at the rate of about one block every ten years.)

"In large eastern cities redevelopment has been proposed as a method of reclaiming the central core. That is true in Sacramento also, but because serious blight only exists in less than 8% of the land area in the city, and because Sacramento has a fast-growing population and an expanding economy, one might also say that an important function of redevelopment will be to set the stage for healthy future growth as an important tool of planning.

"An unusual amount of interest has been shown on the part of redevelopers in our program. There have been offers of commitment for more sites than could be provided in the project. More of this expression of interest has been from out of town, although interest has been shown to some degree in Sacramento itself. All redeveloper interest mentioned is based on the plans developed so far, including a nationally known chain of department stores, a corporation interested in multi-storyed apartments and several offers to build hotels. A federal building to be constructed under the recent lease-purchase legislation which has passed Congress is in the offing. Additional state construction and a convention hall are also projected."
The rest of the big redevelopment area of Sacramento's West End probably will be largely rehabilitation, under patterns being developed now. But the river front still is the big opportunity for architecture, and if the railroads which occupy it continue to cooperate, the architecture may get built. Architects Neutra and Alexander visualize a parklike complex of hotels, boathouses, etc., replacing the railroad right of way.

Restaurant cantilevered out over river would be on site now used by railroad tracks. Part of long-range plan would be to make park of opposite shore of Sacramento River.

Back from shore, beyond restaurant, would be motor hotel and, on either side of main avenue, two high-rise hotels.
Another of Neutra's and Alexander's schemes for this redevelopment area would use the low centers of some of the blocks whose surrounding streets have been filled in to the original stilt-high level of the old "floodproof" buildings. Neutra would leave the lower level intact, and ramp down to it for parking, to help cure what he has termed the automobile thrombosis of the heart of the city.

Sketches (at right) show 1) how low center of business block would be used for parking and delivering goods to stores above; 2) how ramps to street could connect with city traffic; 3) how lower level could also be used for display of wares.
1. SLOPING GARAGE HAS NEITHER RAMPS NOR ELEVATORS

Three decks tilted into ground provide street-level access for every floor

When the May Co. ordered a 1,200-car parking garage for its department-store shoppers, it set two requirements: 1) that it be a self-parking garage with a minimum of attendants, and 2) that it contain no tricky ramps that might discourage timid women customers. But the only land available in that particularly flat section of Los Angeles was an existing 230' x 500' parking lot, which only held 500 cars.

The solution: a three-level parking garage tilted 3% into the ground so that each deck is directly accessible from street level. The bottom deck is entered from one end, the middle deck from both sides and the top deck from the other end. The 364,500-sq. ft. structure was erected in 69 working days for a cost of $1,082,000, equal to $2.95 per sq. ft. or $917 per car. It holds 1,179 cars.

Since the decks themselves double as access ramps, about 9,600 sq. ft. of conventional floor-to-floor ramps are eliminated, which, at 315 sq. ft. per car, makes room for 30 more cars on the parking decks. To allow for concentrated drainage runoff (demanded by Los Angeles building codes), the decks actually tilt two ways: from one end the decks slope 3% downward for 380' to the upper-deck access and exit bridges; from there the decks slope 4% upward for 110' to the other end. There is 9' clearance between the flat-plate concrete floors. The structure contains 18,000 cu. yd. of concrete with an unusually low proportion of reinforcing steel, only 7.2 lb. per sq. ft.

Because of poor soil conditions, oily sand with water table only 9' below grade, the structure is freestanding in what is virtually a floating concrete box. The floor is an inverted flat slab, 16' to 30' thick and waterproofed, tied to waterproofed retaining walls, within which the two upper decks are built. Ten-inch deck slabs are carried on 16' and 18' diameter bell-topped columns averaging 30' o.c. each way. Edges of upper
Reinforced concrete parapets, 3\(\frac{1}{2}\)'
high, protect careless drivers, shield headlight glare from
surrounding buildings, also give lateral support to edges of slabs that are cantilevered out 13'.

Lower deck at one end is at street level. Only stairs and pedestrian ramps give access to upper
decks; there are no automobile ramps between decks.

decks are kept 5' to 17' away from the retaining walls to give adequate ventilation.
The upper decks are cast in two halves separated by a subway grating type of expansion joint that allows movement up to
3". Free-hanging drainage gutters are slung beneath the joints.
Twelve 15" thick, Z-shaped shear slabs built near the center of the structure provide
lateral rigidity against seismic forces. Their 12' stems and 8' wings are designed to fit
unobtrusively between parking stalls.

Albert C. Martin & Associates are the architects and engineers; T-S Construction
Engineers Inc., general contractors.
Completed frame (above) is roofed with ribbed galvanized steel sheeting and suspended glass-fiber insulation boards. Note longitudinal bracing.

The 278' truss (below) is 4' wide and 8' to 14' deep. It is assembled on ground in quarter sections, hoisted in place by cranes.
2. BOX-SHAPED STEEL TRUSSES SPAN 278’

Spanning 278’, these prefabricated box-shaped steel trusses are believed to be the longest three-hinged steel arches ever built. They frame two adjacent hangars at Allegheny County’s Greater Pittsburgh Airport with a dead load of 23 lb. per sq. ft. of area covered. Erection of the steel structure took 9,200 man-hours. Framing cost: $744,630, equivalent to $407 per ton or $7.45 per sq. ft.; cost of the entire project, $1,964,163 or $19.64 per sq. ft.

Each hangar is framed with six 42-ton arches spaced 25’ o.c. having a rise of 76’. Arch sections are composed of four chord angles connected with stiffeners to form an open box 4’ wide and varying in depth from 8’ at the base and crown to 14’ at the eaves.

Longitudinal bracing is by a knee-braced truss at every fourth purlin between arches. Diagonal wind bracing in both upper and lower chord systems of all except the center bays transmits forces to the foundations.

The hangar is designed for 234b. dead load, 30-lb. snow load and variable wind pressures following ASCE recommendations: 20 psf against vertical surfaces, 12 psf suction on the windward quarter of the roof arc, 13½ psf suction on center half and 9 psf suction on leeward quarter.

Components are prefabricated, with gusset plates shop-welded to the arch chords ready for bolted assembly into quarter-span sections at the site. Side arch sections are erected first, the base hinge pins driven home and each section supported on a temporary erection tower while adjacent sections are joined together with purlins, struts and diagonal bracing. Next, two cranes lift the two center arch sections into position where the chords are spliced and the crown hinge pins installed. Finally, before releasing the arch load, tie-bars below the hangar floor line carry arch thrust.

Displacement caisson foundations

Because the new Pittsburgh Airport hangars are built upon boulder-strewn fill of inadequate bearing capacity, it was necessary to carry the foundations down to a compact shale and rock strata some 8’ to 40’ below grade. Ordinary steel or cast-in-place piling would have been costly because of the need to remove boulders. The concrete displacement caissons finally selected saved $7,000 over drilled or open dug caissons. The 108 displacement caissons, each carrying 110 tons, cost $25,000, or $231 each.

Only recently introduced to the US, this displacement caisson technique involves first driving a 1½”-thick, 20”-dia. steel casing down to rock (in this case) by blows of a 3½-ton drop hammer on 2’ to 3’ of dry concrete at the base of the casing. Thus the casing is pulled down rather than driven. At a predetermined depth the casing is raised slightly and the concrete rammed out to form a bulb roughly 3’ in diameter. Then the casing is gradually withdrawn while more and more concrete is added, resulting in a column of dense, 1,000-psi concrete, from 22” to 24” dia., which has carried up to 250 tons in tests.

The arch structure of the new hangars was designed and fabricated by Dresser-Stacey Co., Ideco Div., in cooperation with Joseph Hoover, consulting architect and Leland W. Cook, consulting engineer. Foundations, by the Franki Foundation Co.
3. DEMOUNTABLE PRECAST HANGAR SPANS 130'

Ingenious hinges eliminate grouting, help cut cost to $5 a sq. ft.

To speed construction and to provide a fully fireproof structure that can be easily dismantled and rebuilt elsewhere, the Royal Canadian Air Force built this hangar entirely of precast units that are assembled dry. All critical joints are designed as hinges transmitting only normal and shear forces but no bending moments. With a span of 130' plus 18' side bays, the first 160'-long prototype hangar was precast by 18 men in 30 days and erected by 10 men in 28 days. Cost: $5 per sq. ft.

Entirely prefabricated, the unique structure is composed of a series of bents 10' o.c. Each bent is developed from six precast concrete members: a pair of three-hinged side frames carrying between them a 110' three-hinged arch (see diagram below). Thus the structure is statically determinate and is not affected by variations in temperature, shrinkage of concrete or uneven foundation settlements. Most of the load is concentrated on the external lean-to columns through which the horizontal thrust is also transmitted. Thus maximum friction is developed in the foundation to resist horizontal thrust and the foundations can be kept comparatively small.

To permit the use of standard truck cranes for erection, the maximum weight of precast members is kept below 12 tons each —outer lean-to members weigh 11 tons; inner cantilever columns, 7½ tons; and the 60'-long arch ribs, 6½ tons. Precast roof slabs span between bents. There are no purlins; lateral stability is assured by reinforced concrete stiffeners between the main bents and by adjustable diagonal cable bracing in the two center bays.

The hangar is designed for a snow load of 40 psf and a wind pressure of 30 psf using concrete of 4,250 psi for primary members and 3,000 psi for the roof slabs.

Before pouring the precast members, cast steel "ball-and-socket" hinges are anchored to the reinforcing steel in the forms. To permit both horizontal and vertical movement, these hinges have spherical contact surfaces (a convex surface of 8" radius supporting a concave surface of 9½" radius), with a tapered steel pin at the center of the hinge to handle shear.

Main hinges at the foot of the lean-to members are of concrete. The curved end of the lean-to member is seated on a small precast block of slightly larger curvature, with a cushion of sheet lead between the two concrete surfaces to prevent binding.

Erection sequence: 1) lean-to members are supported on adjustable struts; 2) inner columns are connected with the aid of temporary steel straps to form the side frames; 3) adjacent frames are joined by stiffeners and diagonally braced; 4) to avoid uneven stresses either in the arch ribs or in the cantilevered ends of the inner columns, a temporary raking strut is used atop an erection tower; 5) with the aid of a built-in screw jack on the tower, the angle of each raking strut is adjusted to develop a horizontal thrust equal to the vertical load in the completed structure; 6) when adjacent pairs of arch ribs are thus positioned and braced with stiffeners, they are lowered on the jacks until the crown hinges meet.

Erected cost of the 26,560 sq. ft. hangar is $134,000 excluding utilities. Designers: Safir Engineering Consultants Ltd.
Test loading of completed framing bents (above) is carried out with sandbags on suspended platforms. Loaded to 1½ times design load, deflection at crown was only ½" (114,000 span ratio) and recovery after 24 hours of applied load was 79%. Giant bents weigh 50 tons, but are made in six pieces to facilitate handling.

Clear span of 130' (below) was major RCAF requirement of this hangar. Other requirements: 20' clear height at sides, 30' minimum height for the center 60' of width and as much height at the crown as economically feasible. (Actual height: 38'.) Three hinged arches of 110' span and 18' rise are carried between cantilevered projections from inner columns.
4. ENGINEERING NOTES

Freestanding stairs make 500° turn

This freestanding reinforced concrete spiral staircase at the New Johannesburg Railway Station, South Africa, is claimed to be the first concrete spiral of more than one complete turn supported only at top and bottom. It contains 13/4 turns in 26' with a further 1/4 turn built into the bottom anchorage. The stair treads, 10' long, are cantilevered from a 16'-diameter inner spiral beam, having a helix of 11' internal diameter with a pitch of 16'. The staircase is designed by A. S. Joffe, consulting engineer for South African Railways.

Lightweight lift-slabs speed construction

A total of 250,000 sq. ft. of lightweight concrete slabs are being jacked up supporting columns to provide intermediate floors and roofs for five RCA-Victor laboratory and office buildings at Camden, N.J. This familiar Yountz-Slick technique is claimed to be 20% faster and 15% cheaper than cast-in-place construction—the structures are going up at an average rate of 2/12 slabs a week (about 22,500 sq. ft.) for an estimated cost of $1.83 per sq. ft.

The 80' x 110' slab (shown in photo) is lifted 6' per hour by reciprocating jacks atop 24 concrete-filled steel pipe columns, each 8" in diameter and spaced 18' to 24' apart. Expanded shale aggregate used in the slabs cuts weight down to 104pcf for a compressive strength of 3,000 psi. Slabs are 83/4" thick for a 50-lb. live load, 10" thick for 100-lb. The buildings are designed by Architect Vincent G. Kling and engineered by Severud-Elstad-Krueger, consulting engineers. Turner Construction Co. is general contractor.

Drive-in bank turns customers around

Because the lot adjoining the drive-in window of the Citizens & Manufacturers National Bank of Waterbury, Conn. is only 35' wide, a 25' diameter automatic turntable was installed to give motoring customers a 120° turn.

Control is by three sets of photoelectric cells and a three-color traffic light (mounted atop two posts on left). At the green signal, the customer drives onto the turntable, breaking the electric eye at the front of the table, which brings up a yellow light in the signal box. When his car breaks a second electric eye at the rear of the table, a red light appears telling the motorist to stop. Five seconds later the table is rotated 120° in about three seconds by an electric motor beneath the driveway.

When the table has come to a standstill, the motorist drives off, breaking a third electric eye across the far driveway, which allows the turntable to handle the next car. Rotation of the table is semicontinuous; it does not reverse back to its original position for each customer. Copper heating coils are laid in the driveway and turntable to eliminate snow and ice in winter. The turntable is designed by Mosler Safe Co.
Insulated aluminum wall for $1.11 per sq. ft.

A lightweight sandwich wall consisting of glass-fiber insulation between two sheets of corrugated aluminum is being used to enclose a heavy press plant for the US Air Force at Cleveland, Ohio. Having a “U” value of 0.155 (twice the insulating value of a 12” masonry wall), this new sandwich wall was selected from direct competitive bids with alternate wall constructions. The average material and installation bids: aluminum sandwich wall, $1.11 per sq. ft.; two sheets of painted galvanized steel with glass-fiber insulation, $1.45 per sq. ft.; and one sheet of cement asbestos siding with asbestos board insulation backup, $1.32 per sq. ft. Weight of wall: 11½ psf.

Weighing only 2½ lb. per sq. ft., this aluminum wall is simple to erect, needs no painting and very little subsequent maintenance. First, corrugated sheets of 0.024” aluminum siding are fixed to steel supporting girts with ¾” self-tapping screws, then 1” thick sections of glass-fiber insulation are temporarily bonded to the aluminum siding with a reclaimed-rubber adhesive and finally an exterior siding of 0.032” thick corrugated sheets aluminum is fastened to the steel girts with 2” self-tapping screws to hold the entire construction firmly in position. Cadmium-coated, stainless-steel screws are used for the connections, holes being drilled before the screws are tapped into place. Side and end laps on the exterior aluminum siding are secured with ¾” aluminum sheet-metal screws.

In all, 157,711 sq. ft. of aluminum sandwich wall is employed, plus 60,808 sq. ft. of corrugated translucent plastic for the fixed window areas. The plant is designed by McGeorge-Hargett & Associates, architects and engineers.

Reinforced brick panels for $1.25 per sq. ft.

Top and bottom walls shown being erected on an addition to the Schulze & Burch Biscuit Co. plant at Chicago, Ill., are prefabricated. Reinforced brick panels in sizes from 7¼” x 3”, to 8’ x 5’ and 21½” thick are attached by metal clips to a steel frame. Erection is rapid: four men with a light crane install 550 sq. ft. a day. Installed cost: $1.25 per sq. ft., including grouting, while conventional masonry on the same job cost $1.40 per sq. ft. Panel weight: 27 psf.

Designed to withstand a 20 psf wind load, panels are precast in special molds, reinforced horizontally and vertically with steel rods spaced 9” o.c. and backed with insulating board. The addition is designed by Architects West & Anderson: Silbrio Corp. designed and manufactured the reinforced brick panels.

Timber joints strengthened by gusset plates

Timber joints can be given 50% greater shear strength with less nailing by a new Swedish technique of placing sheet steel gusset plates between connecting members. Made of galvanized sheet steel only 1 mm. thick that can be penetrated by ordinary nails, each gusset plate has sharp projections to grip the wood. As the nails can be driven in at close spacing, no great accuracy is needed to give a rigid and safe joint. Such gusset plates have been used in 2,000 Swedish roof structures with spans up to 72’.

Vermiculite spandrel wall earns five-hour fire rating

A 10’ x 10’, 4”-thick vermiculite concrete spandrel wall successfully withstood a 5½-hour Underwriters Laboratories’ fire test and has been awarded a five-hour rating, highest of UL classifications. Temperatures ranged from 1,700° in the first hour of the test to 2,200° in the fifth. The wall also withstood a hose stream pressure of 45 lb. for five minutes on its fire-exposed side in the subsequent fire-hose test.

Made from a 1:4 mix of vermiculite concrete and designed for a 30 psf wind loading, the panel was framed by 2” x 2” x 3/16” angle irons top and bottom connected by 1½” x 1½” x 3/16” channels bolted 2” o.c. It was designed and constructed by the Vermiculite Institute.
New Products

Grouting machine forces mortar into stonework (p. 194)

Pushless revolving doors come packaged with swing doors

Offering complete entrances of revolving and swinging doors from a single source, International Steel Co. promises contractors—and the clients they represent—production-line savings in initial price as well as lower installation costs. This factory assembly does not tie design strings on the architects, however. Choice of metals, hardware, trim and various combinations of door groupings can be made among stock models. The manufacturer also fabricates custom packages of doors, jambs, side lights, transoms, pushbars, ornamentation and speed controls to specifications. One attractive to-order group is the entrance to the Sinclair Oil building in New York (AF, Jan. '52). It was, in fact, the success of the custom

continued on p. 194

Revolution door flanked by swing doors comprise the basic plant-assembled entrance unit. Doors can be ordered in various combinations, several metal finishes, and with choices of hardware.

Pre-engineered connections between swing and revolving sections make site assembly of stock entrance less costly than custom components.
The following pages show the various types of roof finishes available. For comparative purposes, many factors important in choosing a roof finish are listed. These factors include a description of material, the minimum and maximum slopes, method of application, guaranty available, and the cost of various finishes. The costs per square foot are based on normal quantity of the type of roofing used in the Eastern Area. Prices may vary 30% due to competition, size of job, and location. Costs are costs to owner, including installation, over-head and profit.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SLOPE MAX.</th>
<th>SLOPE MIN.</th>
<th>WGT.</th>
<th>SIZE</th>
<th>COVERS</th>
<th>UNDERLAY</th>
<th>FASTENER</th>
<th>APPLICATION</th>
<th>LAP</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPHALT SATURATED FELT WITH</td>
<td>Wood Non-Comb. Tiled Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td>a) SLAG</td>
<td>Non-Comb. Insulated Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td>b) GRAVEL</td>
<td>Non-Comb. Insulated Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td>c) MARBLE CHIPS</td>
<td>Wood Non-Comb. Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td>PITCH SATURATED FELT WITH</td>
<td>Wood Non-Comb. Insulated Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td>a) SLAG</td>
<td>Non-Comb. Insulated Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td>b) GRAVEL</td>
<td>Non-Comb. Insulated Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td>c) MARBLE CHIPS</td>
<td>Wood Non-Comb. Deck</td>
<td>3' to 4'</td>
<td>2½ in. to 3'</td>
<td>2½ sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 3-Layer</td>
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</table>

ADDITIONS TO BUILT-UP ROOFING

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SLOPE MAX.</th>
<th>SLOPE MIN.</th>
<th>WGT.</th>
<th>SIZE</th>
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<th>UNDERLAY</th>
<th>FASTENER</th>
<th>APPLICATION</th>
<th>LAP</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
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</thead>
<tbody>
<tr>
<td>ALUMINUM FOIL</td>
<td>Material over roof deck</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td></td>
<td>Aluminum foil</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td></td>
<td>Aluminum foil</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
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<th>APPLICATION</th>
<th>LAP</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
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<tbody>
<tr>
<td>ASPHALT ROLL ROOFING</td>
<td>Wood Surface 4-Inch</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td></td>
<td>Gun Metal</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td></td>
<td>Min. Surface</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td></td>
<td>Pattern Edge</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td></td>
<td>19&quot; Selvedge</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
</tr>
<tr>
<td></td>
<td>Smooth Roll</td>
<td>3' in.</td>
<td>2½ in.</td>
<td>2/3 sq.</td>
<td>900</td>
<td>30 sq.</td>
<td>1/2 in.</td>
<td>15 yr.</td>
<td>Galv. 2-Layer</td>
<td>24°</td>
<td>Various colors</td>
<td>Class A</td>
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## BUILT-UP ROOFING (cont.)

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SLOPE</th>
<th>WGT.</th>
<th>SIZE</th>
<th>COSTS</th>
<th>MF'R'S UNDERLAY</th>
<th>FASTENER</th>
<th>APPLICATION</th>
<th>LAP</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROMENADE ROOF</td>
<td>For use under Promenade Tile</td>
<td>1/2 in 12&quot;</td>
<td>275.5 sq. ft.</td>
<td>36&quot; wide</td>
<td>.20</td>
<td>None</td>
<td>Pritch</td>
<td>4 - 15 lb. P.S.F.</td>
<td>15&quot;</td>
<td>Black</td>
<td>Smooth</td>
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</table>

Asbestos felt may also be applied over a wood deck or over a non-combustible deck.

## PREPARED FELT

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SLOPE</th>
<th>WGT.</th>
<th>SIZE</th>
<th>COSTS</th>
<th>MF'R'S UNDERLAY</th>
<th>FASTENER</th>
<th>APPLICATION</th>
<th>LAP</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.S. A.F. Smooth Surface</td>
<td>2&quot; in 12&quot;</td>
<td>858 sq. ft.</td>
<td>52&quot; W.</td>
<td>40 7/8&quot; L.</td>
<td>.15</td>
<td>Normal 2 yr.</td>
<td>Galvanized Nails</td>
<td>Applied directly over 1 1/2 galv. wood sheathing cement Horizontal Laps</td>
<td>2&quot; Head lap</td>
<td>Various colors</td>
<td>Class C</td>
</tr>
<tr>
<td></td>
<td>Granule Surface</td>
<td>3&quot; in 12&quot;</td>
<td>858 sq. ft.</td>
<td>52&quot; W.</td>
<td>40 7/8&quot; L.</td>
<td>.15</td>
<td>Galvanized Nails</td>
<td>Asphalt Cement</td>
<td></td>
<td>Butt Sides</td>
<td>White</td>
</tr>
<tr>
<td></td>
<td>White Top</td>
<td>3&quot; in 12&quot;</td>
<td>858 sq. ft.</td>
<td>52&quot; W.</td>
<td>40 7/8&quot; L.</td>
<td>.15</td>
<td>Galvanized Nails</td>
<td>Asphalt Cement</td>
<td></td>
<td>Butt Sides</td>
<td>White</td>
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## ROOFING SHINGLES

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<th>SLOPE</th>
<th>WGT.</th>
<th>SIZE</th>
<th>BUTT.</th>
<th>COST</th>
<th>THICK.</th>
<th>GUAR.</th>
<th>ANTY</th>
<th>FASTENER</th>
<th>UNDERLAY</th>
<th>APPLICATION</th>
<th>LAP OR EXPOSURE</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASBESTOS</td>
<td>American Individual</td>
<td>4&quot; to 5&quot;</td>
<td>285 to 300 sq. ft.</td>
<td>8 to 9&quot; W.</td>
<td>16&quot; to 24&quot; L.</td>
<td>5.32&quot;</td>
<td>or 1/4&quot;</td>
<td>Various</td>
<td>Widely</td>
<td>Saturated Felt or Water Proof Paper</td>
<td>Galv. Iron or Rolled Saturated Felt</td>
<td>Laid on matched roofers' covered with waterproof paper or slater's felt.</td>
<td>2&quot; Head lap</td>
<td>Various Colors</td>
<td>Class B</td>
</tr>
<tr>
<td></td>
<td>American Duplex 10&quot; Shingles</td>
<td>do.</td>
<td>205</td>
<td>16 to 24&quot; W.</td>
<td>12 to 24&quot; L.</td>
<td>5.32&quot;</td>
<td>do</td>
<td>10 to 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
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<tr>
<td></td>
<td>Dutch or Scotch</td>
<td>5&quot; in 12&quot;</td>
<td>260 sq. ft.</td>
<td>16 to 24&quot; W.</td>
<td>12 to 24&quot; L.</td>
<td>5.32&quot;</td>
<td>do</td>
<td>10 to 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
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<tr>
<td></td>
<td>French or Hexagonal</td>
<td>6&quot; in 12&quot;</td>
<td>250 sq. ft.</td>
<td>16 x 24&quot; W.</td>
<td>12 to 24&quot; L.</td>
<td>5.32&quot;</td>
<td>do</td>
<td>10 to 15</td>
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<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
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<tr>
<td></td>
<td>American Strip (3 Shingles)</td>
<td>3&quot; in 12&quot;</td>
<td>300 sq. ft.</td>
<td>16&quot; to 24&quot; W.</td>
<td>12 to 24&quot; L.</td>
<td>5.32&quot;</td>
<td>do</td>
<td>10 to 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
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<tr>
<td></td>
<td>3-Tab Hexagonal Strip (3 Shingles)</td>
<td>3&quot; in 12&quot;</td>
<td>245 sq. ft.</td>
<td>16&quot; to 24&quot; W.</td>
<td>12 to 24&quot; L.</td>
<td>5.32&quot;</td>
<td>do</td>
<td>10 to 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>do.</td>
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## ASPHALT

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<th>DESCRIPTION</th>
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<th>WGT.</th>
<th>SIZE</th>
<th>BUTT.</th>
<th>COST</th>
<th>THICK.</th>
<th>GUAR.</th>
<th>ANTY</th>
<th>FASTENER</th>
<th>UNDERLAY</th>
<th>APPLICATION</th>
<th>LAP OR EXPOSURE</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Asbestos-Plastic Coating - 4 tabs</td>
<td>4&quot; in 12&quot;</td>
<td>325 sq. ft.</td>
<td>36&quot; W.</td>
<td>12&quot; L.</td>
<td>3.8&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
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<tr>
<td></td>
<td>Strip Shingle</td>
<td>3&quot; in 12&quot;</td>
<td>300 sq. ft.</td>
<td>36&quot; W.</td>
<td>Long</td>
<td>15&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>do.</td>
<td>do.</td>
</tr>
<tr>
<td></td>
<td>Individual Dutch Lap</td>
<td>3&quot; in 12&quot;</td>
<td>245 sq. ft.</td>
<td>16&quot; to 24&quot; W.</td>
<td>12&quot; L.</td>
<td>3.8&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
</tr>
<tr>
<td></td>
<td>American</td>
<td>3&quot; in 12&quot;</td>
<td>320 sq. ft.</td>
<td>16&quot; x 12&quot;</td>
<td>3.8&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
</tr>
<tr>
<td></td>
<td>Strip Shingles 2- Tabs</td>
<td>3&quot; in 12&quot;</td>
<td>275 sq. ft.</td>
<td>36&quot; Wide</td>
<td>12 Long</td>
<td>3.8&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
</tr>
<tr>
<td></td>
<td>Hexagonal Strip 2 or 3 Tabs</td>
<td>3&quot; in 12&quot;</td>
<td>250 sq. ft.</td>
<td>36&quot; Wide</td>
<td>11 1/2&quot; L.</td>
<td>3.8&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
</tr>
<tr>
<td></td>
<td>Interlocking Standard Double Coverage</td>
<td>3&quot; in 12&quot;</td>
<td>230 sq. ft.</td>
<td>192 x 3/8&quot;</td>
<td>18 x 20&quot;</td>
<td>3.8&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
</tr>
<tr>
<td></td>
<td>Lockdown</td>
<td>3&quot; in 12&quot;</td>
<td>250 sq. ft.</td>
<td>20 x 16&quot;</td>
<td>3.8&quot;</td>
<td>do</td>
<td>10 Yrs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
<td>do.</td>
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</table>

## ALUMINUM

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SLOPE</th>
<th>WGT.</th>
<th>SIZE</th>
<th>BUTT.</th>
<th>COST</th>
<th>THICK.</th>
<th>GUAR.</th>
<th>ANTY</th>
<th>FASTENER</th>
<th>UNDERLAY</th>
<th>APPLICATION</th>
<th>LAP OR EXPOSURE</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-Way Interlocking</td>
<td>8&quot; in 12&quot;</td>
<td>270 sq. ft.</td>
<td>8&quot; x 12&quot;</td>
<td>3.8&quot;</td>
<td>.60</td>
<td>None</td>
<td>#19 or #30</td>
<td>Aluminum Nails</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
</tr>
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</table>

## SLATE

<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SLOPE</th>
<th>WGT.</th>
<th>SIZE</th>
<th>BUTT.</th>
<th>COST</th>
<th>THICK.</th>
<th>GUAR.</th>
<th>ANTY</th>
<th>FASTENER</th>
<th>UNDERLAY</th>
<th>APPLICATION</th>
<th>LAP OR EXPOSURE</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Splaying Standard Textural Graduated</td>
<td>20 in 12&quot;</td>
<td>750 sq. ft.</td>
<td>10 x 26&quot;</td>
<td>3/16&quot;</td>
<td>.93</td>
<td>None</td>
<td>Copper or Galv. Rolled Nails</td>
<td>Applied to tight collar of Galv. Rolled Nails &amp; Guttering &amp; Slaters' Cement. nailing compound.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>do.</td>
</tr>
</tbody>
</table>

**PREPARED IN CONSULTATION WITH TURNER CONSTRUCTION COMPANY**
<table>
<thead>
<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>SLOPE MAX.</th>
<th>SLOPE MIN.</th>
<th>WGT.</th>
<th>SIZE</th>
<th>BUTT. THICK.</th>
<th>COST</th>
<th>GUAR.-UNDER. LAY.</th>
<th>FASTENER</th>
<th>APPLICATION</th>
<th>LAP OR EXPOSURE</th>
<th>COLOR &amp; TEXTURE</th>
<th>U.L.R.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLATE</td>
<td>Flat Promenade</td>
<td>5&quot; in 12&quot;</td>
<td>3&quot; in 12&quot;</td>
<td>3600#</td>
<td>sq. ft.</td>
<td>2 x 10&quot; x 10&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Roofs or Heavy Use Special Walks, Terraces, etc.</td>
<td>3&quot; to 6&quot;</td>
<td>2400#</td>
<td>sq. ft.</td>
<td>1/4&quot;</td>
<td>x 10&quot;</td>
<td>2&quot;</td>
<td>0.75</td>
<td>do</td>
<td>30 Yr</td>
<td>Cement Mortar</td>
<td>Over underlay apply roll roofing, 90% Set Tile In Mortar Bed.</td>
<td>13/8&quot; x 18&quot;</td>
</tr>
<tr>
<td>WOOD</td>
<td>Red Cedar</td>
<td>Vert.</td>
<td>3&quot; to 6&quot;</td>
<td>2400#</td>
<td>sq. ft.</td>
<td>1/4&quot; to 1/8&quot; x 10&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Redwood</td>
<td>3&quot; to 6&quot;</td>
<td>2400#</td>
<td>sq. ft.</td>
<td>1/4&quot; to 1/8&quot; x 10&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cypress</td>
<td>Vert.</td>
<td>3&quot; to 6&quot;</td>
<td>2400#</td>
<td>sq. ft.</td>
<td>1/4&quot; to 1/8&quot; x 10&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>White Cedar</td>
<td>3&quot; to 6&quot;</td>
<td>2400#</td>
<td>sq. ft.</td>
<td>1/4&quot; to 1/8&quot; x 10&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Southern Pine</td>
<td>3&quot; to 6&quot;</td>
<td>2400#</td>
<td>sq. ft.</td>
<td>1/4&quot; to 1/8&quot; x 10&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Handsplit &amp; pre-stained handsplit</td>
<td>do.</td>
<td>do.</td>
<td>200</td>
<td>to 250</td>
<td>sq. ft.</td>
<td>1/4&quot; to 1/8&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
</tr>
<tr>
<td>CLAY TILE</td>
<td>French</td>
<td>3&quot; to 6&quot;</td>
<td>1200#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spanish-rounded</td>
<td>3&quot; to 6&quot;</td>
<td>1200#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Barrel-Mission curved</td>
<td>3&quot; to 6&quot;</td>
<td>1200#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shingle-Flat</td>
<td>6&quot; to 12&quot;</td>
<td>1800#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interlocking Flat English</td>
<td>6&quot; to 12&quot;</td>
<td>1800#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interlocking Closed</td>
<td>6&quot; to 12&quot;</td>
<td>1800#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Roman</td>
<td>6&quot; to 12&quot;</td>
<td>1800#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Greek</td>
<td>6&quot; to 12&quot;</td>
<td>1800#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Promenade of Quarry Tile</td>
<td>2&quot; to 4&quot;</td>
<td>1/4&quot; to 1&quot;</td>
<td>1200#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEMENT TILE</td>
<td>Bermuda</td>
<td>2&quot; to 4&quot;</td>
<td>1050#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flat Shingle</td>
<td>2&quot; to 4&quot;</td>
<td>1050#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spanish</td>
<td>2&quot; to 4&quot;</td>
<td>1050#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONCRETE PANEL</td>
<td>Pre-Cast Panel</td>
<td>4 3/16&quot;</td>
<td>1600#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Panel</td>
<td>4 3/16&quot;</td>
<td>1600#</td>
<td>sq. ft.</td>
<td>9&quot; x 16&quot;</td>
<td>2.00</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PORCELAIN ENAMEL</td>
<td>Steel Base with enamel fused to it.</td>
<td>3&quot; to 4&quot;</td>
<td>225#</td>
<td>sq. ft.</td>
<td>1/4&quot;</td>
<td>x 1/2&quot;</td>
<td>1.70</td>
<td>Built-up Roofing Cement</td>
<td>Laid In 1&quot; Cement Bed</td>
<td>-</td>
<td>Various colors &amp; Textures</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*pre-dipping costs 1/â€ extra per sq. ft.

PREPARED IN CONSULTATION WITH TURNER CONSTRUCTION COMPANY.
A magnificent opportunity awaits the AIA convention to be held this month at Boston. It can turn the eye of the profession more toward the impact of architecture on the outer world.

In this outer world events are moving so fast that no merely habitual attitudes, inherited and held by unthinking custom from the days of patrons and princes, can cope with it. In a trice, since World War II, the homebuilding industry has been revolutionized and industrialized. Its impact is now collective, and the relationship of architecture to it is also a collective concern. In a trice the biggest building operations have come to be great bases of one kind or another, some of them military or naval, others industrial or commercial; and the relationship of architecture to them has to be worked out in a concerted way. The new materials and building methods that are sure to come with the fuller development of the atomic age are also sure to create new relationships among those who design these materials and methods and those who design the structures coming out of them.

In the face of all this, the profession is too small; it has to be bigger not only to render farther-looking service but to gain needed power in the midst of other groups.

The profession is not adequately regarded: by government and other big clients it is too often dealt with as a mere adjunct to builders and engineers. It has to make known what it does and can do for the big world of affairs, in addition to tending the Epicurean garden of a few choice clients.

The profession is inadequately paid: it must find allies who will agree that adequate planning, in this complex day, depends on greatly enlarged total planning budgets for the total building operation.

Already one critically important turning has been made, toward the "outward look," in the firm establishment of AIA's public relations program. The crux of this move lies in the abandonment of isolation.

"Allies are what we need," cries John Root, public relations chairman with the new outward orientation. "We make no headway battling by ourselves when we should be finding those who share our purposes." Adds Root, "I was shocked to find only two architects were members of the Building Trades Council of a major city." And he goes on to stress a new attitude, which will concentrate less on fighting opposition (when such things are at stake as adequate registration laws and enforcement) than on making friends among those leaders of other industry groups who are wise enough and big enough to share the architect's interest in safety and performance in the interest of the public.

To all of this Forum (which takes no part in AIA's internal politics) says amen and congratulates the profession's outward lookers. We share their outlook.

Three years have passed since this magazine took the first steps to initiate architect participation beyond the fine but small field of custom-house design, in the big mass movement that creates the new homes of a majority of Americans. Many are the setbacks and problems that attend the previously unaccustomed collaboration between architects and homebuilders. Yet few are those who can truthfully say they have given the problem their full creative imagination. Measured not against what might be but against what has been, the effect has been excellent because of a group of valiant and outward-looking architectural spirits.

In the matter of getting better acknowledgment and better pay for architecture on all sorts of buildings, a cardinal principle has been reiterated often by AIA's able public relations counsel Walter Megronigle. It is to let others put your case for you. In two AIA-sponsored round tables conducted by Forum, one in New York sponsored by AIA's national public relations committee, one in Coronado set up by the California Council, able clients spoke more forcefully than architects could with grace speak for themselves, about the value and worth of architects' services. And those individual architects who have used these documents can testify to the value of the outward look, finding friends and setting up alliances.

Magazines A, B, etc.

Polls of magazine readers are a favorite diversion of publishers, and Progressive Architecture in May published an interesting review of one which seemed to put at least two of three magazines dealing with architecture in a dead heat for their readers' affections. P/A obligingly furnished the full report, which interested us greatly in "Magazine A." It seemed to have a slight edge in the most important classifications, mainly the ones where the report showed paired votes and votes for all three and not only the single votes. Adding up all the votes (as we think you should) we found "A" leading as "most helpful in your work" with 103 votes (P/A 100, "B" 89), "read most thoroughly" ("A" 111, P/A 110, "B" 96), "significant editorial improvement" ("A" 50, P/A 48, "B" 17) and "clips and mark for attention" ("A" 86, P/A 82, "B" 81).

P/A came out ahead, also by small margins, on four other questions ("read regularly," "keep on file," "take home," "receive at home"), so there was plenty of honor for P/A too, as well as for "A," which P/A identified as the one "whose readers like its round tables."

What questions are asked and of whom? Is the most interesting aspect of such polls. Naturally Forum likes best the answers of some 880 of 2,000 AIA architects polled by another research organization. Of these 55.5% voted Forum "as having the most influence with the architectural profession" against 28.1% for the next in line and 24.9% for the third. Among influential groups outside the profession the same poll gave such results as: school superintendents voted Forum "No. 1 architectural magazine in their field" by 7.4 to 1 over the next mentioned; hospital administrators 7.2 to 1; contractors 3.6 to 1; building owners and managers 14.5 to 1—and others in the same range. This does not say Forum is vastly better than other magazines but it does say we have reached these people—the result of many years' editing with the outward look.

"The new brutalism" is a slogan coined in England for the kind of directness that leaves the studs and cross-bridging of a house exposed. It is a wide movement: witness Corbu's present addiction to concrete rough and reminiscent of the mountain it came from, or other examples of love for the homespun after the slick machine age. But these are basically sensitive designs—honey out of the rock. What will happen when the new brutalism spreads in earnest from our Senate chambers? D.H.
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2. PATIENTS BURNED TO DEATH in this tragic hospital fire. Immediate alarm, which Fenwal DETECT-A-FIRE units provide would have allowed sufficient time for removal of patients. DETECT-A-FIRE units assure permanent protection because electrical contacts are hermetically sealed in stainless steel. Will not corrode, or deteriorate with age.

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with clear, prismatic **AMCOLENS**

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- Shallow recessed lens lighting

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

THE **ART METAL COMPANY**

Manufacturers of Engineered Incandescent Lighting
How to acquire high acoustical value at low cost with Q-DECK

Without further treatment, the exposed fluted undersurface of Robertson's strong, long-span roof deck has a recognizable noise reduction effect. However, consistent demand for higher noise reduction in institutional, industrial and commercial applications has led Robertson engineers to develop a highly effective, low-cost acoustical treatment. Acoustical material (such as glass fiber) is placed in the cells of the Q-Deck and held in place by means of an adhesive. The ceiling may be repeatedly spray painted without impairing its value. The noise reduction coefficients shown in the table below were obtained through tests conducted by Dr. Paul H. Geiger at the University of Michigan, using accepted laboratory equipment and procedure.

<table>
<thead>
<tr>
<th>Type</th>
<th>Noise Reduction Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 3 or UK Deck with 1&quot; of sound absorbent material</td>
<td>.60</td>
</tr>
<tr>
<td>Type 12 or FK Deck with 2&quot; of sound absorbent material</td>
<td>.72</td>
</tr>
<tr>
<td>Type 12 or FK Deck with 4&quot; of sound absorbent material</td>
<td>.90</td>
</tr>
</tbody>
</table>

For areas where the more costly suspended ceiling is desired, any standard method of application can be used. For details concerning this or the new low-cost Robertson method of roof deck engineering data and structural details, use the coupon below.

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ADDRESS

EXCERPTS

How other people and other publications see the building industry—a digest of interesting remarks by public speakers and of pertinent articles in the nation's press

"Where'll Moses be when the lights go on?"

New York's controversial Coliseum is criticized for its hodgepodge proportions and disregard for site

Excerpts from an editorial in the April 1954 issue of Art News

...All visible building is in a sense public. What concerns us here, however, is the official type about which the public has something to say.

Such a structure, probably the largest and most important one in the US since the war, is the New York Coliseum. The huge exhibit and convention hall is being erected, along with a 20-story office building and two 14-story apartment houses, by the Triborough Bridge and Tunnel Authority...which is in fact hardly more than a pseudonym for Robert Moses, New York City's park commissioner and holder of some nine other state and municipal jobs (among them heading the TBTA). Bob Moses is no newcomer to controversy or polemics: the same dynamic qualities in him which have produced New York's superb system of parks, highways and bridges have often led him into curious and even outrageous stands on architecture, for his taste here is quaintly antiquarian....

As so often happens when somebody wants to be—as one newspaper report of the Coliseum plans puts it—"conservatively modern," the results here are tragic, not comical.... But nobody except the Architectural Forum...has stressed either the utterly pedestrian nature of the architectural design, the relatively great importance of the location or, above all, the completely dictatorial way in which Mr. Moses is imposing this design upon the public without anyone getting in a word of dissent....

One needs only a rudimentary training in the history of art to appreciate the weaknesses of this design. Its hybrid pseudo-modern detail and abbreviations are insignificant beside its total lack of relation to its site.... The Coliseum plan looks as if it really disdained, as well as ignored, the arc of the circus on which it is to stand...as if it merely faced another shoddy loft building instead of, diagonally across the axis of Columbus Circle, the matching concave double entry into Central Park.
But let us skip even that and the hodgepodge of masses and proportions for the moment. Who rules on these matters and says citizens must swallow them? Moses the Lawgiver alone? For once, not entirely. In this unprecedented gesture of spontaneous liberalism he announces, as he gives out the laws, that "because of the prominent location and the semipublic character of the facility," he has invited an architectural advisory committee to sit with him in august judgment — a unanimous roster of conservative, eclectic architects: it is as if the President appointed an advisory committee on foreign policy composed exclusively of isolationists.

A foreigner looks at US concrete

Justave Magnel says US engineers could save money by more careful design and construction

Guest of a recent talk before the Concrete Industry Board of New York

Again and again I have been told that US wages are too high to permit fine engineering design and quality concrete construction, his might have been true at one time but is no longer true. During a coast-to-coast trip I have seen examples of high-quality engineering comparable with anything we have in Europe. But they are exceptions. In general, restressed concrete construction techniques in the US lag behind those used in Europe. Here are several reasons for this: your restrictive building regulations, your satisfaction with poor concrete, your enthusiasm for saving labor and, perhaps, the fact that enthusiasm for new techniques exists mainly among younger engineers who often lack experience in economical design.

There is no doubt that the technique of restressing that allows Europeans and Canadians to build structures costing 15 to 20% less than equivalent reinforced concrete or steel structures will eventually become regular practice in the US whether you like it or not.

Saving labor can lose money

In this country you have a special religion, save labor—even to the extent of losing money—and therefore you make soup instead of
c

continued on p. 184
WILL YOUR BUILDING DIE OF ELECTRICAL STARVATION?

Will it be old electrically before it's completed?
Or will it be productive beyond its normal span because of its electrical flexibility? It can be—with Fenestra-Nepco Electrifloor—the structural floor system in which the sheet steel cells are used as electrical raceways.

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And this new floor system saves building time, labor, materials and money!
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On a rush job, it saved 6 months' building time—as many as 7 floors went in at once. As soon as a few of the cellular floor panels were laid and interlocked, they served as material storage space and working platform.

Fenestra-Nepco Electrifloor was developed jointly by Fenestra* (Detroit Steel Products Company) and Nepco (National Electric Products Corporation)—two great names in the construction field.

If you want to protect your building investment write to Detroit Steel Products Co., Dept. AF-6, 2296 E. Grand Blvd., Detroit 11, Michigan.

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*Your need for electrical flexibility for the present and future of your building encouraged Nepco and Fenestra to develop Electrifloor...a great advancement in building products.
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Furthermore, reinforced concrete offers lower over-all costs, rugged strength, rigidity, and flexibility of design found in no other method of construction. On your next job, design for reinforced concrete.

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big or small...old or new...
efficiency of operation prompts architects to specify usAIRco for air conditioning churches

Typical of recent usAIRco installations are these two Oklahoma churches...the internationally known Boston Avenue Methodist and the new Church of Madelene, excellent example of the modern type of building. usAIRco's packaged central station (Model RK), frequently used in church installations, is a compact unit containing all elements of a built-up system (blower section, compressor section and evaporative condenser). The built-in evaporative condenser continually recirculates water, saving 95% in water consumption costs.

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Steel guide rails and flexible steel traction cables for car and counterweight
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Reinforced steel car. Sturdy construction
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Momentary-pressure pushbutton ... fully automatic operation
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**EXCERPTS continued**

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Simple motor, brake and control, cut costs
Adjustable landing cam assures accurate stops
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Concrete. I don’t criticize this. For ordinary reinforced concrete, 3,000 psi is quite adequate. But for prestressed concrete, which uses only half the concrete and a fifth of the steel required for conventional reinforced concrete, you need better quality concrete.

I was associated very closely with one of the first prestressed bridges to be built in the US, a structure spanning 165’. I asked for no-slump concrete but was told, “In America that’s impossible. Labor is too expensive.” So, I let them use 2” slump concrete, which requires more cement. Construction of the first beam was supervised by a Belgian engineer. Then the Americans were left on their own and began saving labor. They saved about three hours of work for 20 men by not vibrating the concrete adequately. But when the forms were stripped, you could put your arms through the beam web and there were honeycombs on both sides. They telephoned me from New York to Ghent several times for my advice, and you know what that costs. They saved labor up to losing money. That job lasted twice as long as it should have, and any savings in design and supervision were lost in overhead charges.

After my round trip through the US and Canada, I am convinced that you can do proper prestressing because I have seen it done and have talked with the people who did it.
In Canada I saw a larger prestressed concrete flat roof than any in Europe, the roof of the Ordnance Stores in Coburg, Ont. And that job was obtained in direct competition with reinforced concrete and steel.
In Tacoma I saw a plant producing pre-tensioned beams up to 60’ long using no-slump concrete with a water-cement factor of 0.32. Their cube strength was 7,000 psi after three days, and it cost no more money. They use the proper tools—proper grading, good cement, a concrete mixer with a vertical axis, steel forms and high-frequency vibrators bolted directly to the forms.
There are three other important aspects of prestressed concrete practice that are sometimes neglected: 1) the value of bond to supplement mechanical anchorages; 2) the need to guard against stress corrosion; and 3) the use of both limit and elastic analysis for design.

Exploit bond for extra strength
In all my post-tensioned work, where the wires are anchored at each end, I develop full...
for you, Mr. Architect!

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EXCERPTS continued

bond between the wires and the concrete cause it gives me a supplementary factor safety at no extra cost. End anchorages of course, give sufficient strength by themselves, but the wires should be grouted to prevent corrosion. This grouting can be used to develop full bond, which will improve strength of a beam by 30 to 40%. In such bonded beam the end anchorages can be away and the beam still behaves like a full prestressed beam, provided that there is enough wires to provide adequate bond surface.

Guard against stress corrosion
Recently, in three bridges in Germany and one in Holland, engineers found that 20% of the tensioning wires broke spontaneously within four days after prestressing. In each case hot-rolled steel wire, cheaper than usual cold-drawn wire, was used. The hot-rolled wire is rougher, and so develops better bond than cold-drawn wire, but it is subject to stress corrosion, which becomes severe in hot-rolled wires that are tightly rolled for ease of transportation and storage. To avoid such failure, the German Ministry of Public Works recommends: 1) that wires be supplied in coils, at least 6" in diameter for 0.2 mm. wire; 2) that wires be not grouted until at least five days after prestressing; 3) that wires be spaced more than 5 mm. apart; and 4) that not more than two wires be anchored with one wedge, so if one wire breaks, only the one wedge is blown out.

Use limit plus elastic design
Limit design is often wrongly confused with elastic design. Limit design is simply this: in analyzing a beam, the engineer calculates stresses by the elastic theory, applying the out-dated Hooke's Law to determine stresses in the steel and concrete. As long as those stresses are within the limits set by the codes, the engineer is satisfied. But the beam does not follow Hooke's Law. Gauges on the beam report strains while the engineer has calculated in terms of stresses, and the two are only related by certain problematic models which only coincide within the range of the elastic theory. That means that if the loads go much above the working load, the theory becomes absolutely wrong.

In designing a reinforced concrete structure, limit design must be used to supplement elastic design. Suppose I want a beam to resist a working moment M. I can use limit design for the beam to withstand a breaking moment of 2M, giving it a safety factor of 2. But besides the breaking load I must also consider the cracking load, which will be smaller than the breaking load, and which can only be checked by applying the elastic theory. This procedure is doubly important with prestressed concrete.
Gymnasium addition to St. Patrick's Academy, Chicago, Ill., requiring rigid frame construction of unusual design. Belli & Belli, architects and engineers.

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The booklet, "Filtered Daylight", is yours for the asking, too.

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FILTERS DAYLIGHT
Sanymetal "Porcena" (Vitreous Porcelain on Steel) is a material, not merely a finish. It is in every aspect unlike paint enamel or lacquer finished steel because it is fused to steel at a temperature of $1350°$-$1550°$ F. This impregnates the steel with vitreous porcelain enamel to the extent that it cannot be hammered out. Sanymetal "Porcena" (Vitreous Porcelain on Steel) is incomparable with any other material commonly used for toilet compartments. It is a lifetime material that stays new two ways: (1) in appearance; (2) in structure! This newness is the result of a correct combination of the desirable qualities of the hardness of glass and the natural structural strength of steel. Sanymetal was first to utilize vitreous porcelain on steel for toilet compartments. Ask the Sanymetal Representative to demonstrate the unusual and exclusive features of Sanymetal Vitreous Porcelain on Steel Toilet Compartments.

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◊ RUSCO Hot-Dipped Galvanized Steel PRIME WINDOWS
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These windows offer exceptional characteristics of design flexibility, weather tightness and economy. Precision-manufactured in complete form — glazed, finish-painted with baked-on enamel, fully weatherstripped, complete with casing. Installation is extremely simple and fast. Units easily joined in series with streamlined non-load-bearing mullions. Available with insulating sash and Fiberglas screen, if desired.

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The first window unit designed to accommodate any type of window air conditioner. Completely replaces conventional window. All glass panels, including flankers, are removable from inside for washing, eliminating window cleaning problems. An extra lower glass panel replaces air conditioner unit and flankers when unit is removed for storage or servicing.

For illustrated literature and specifications, write

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Architects are designing school buildings today that are far more effective in answering the problems of education at costs that mean greater value to the school community. Many new and better building materials are contributing to these more efficient school plants.

Vina-Lux vinyl-asbestos tile has been designed to give the school architect a new type of flooring that performs better in this new type of school. Vina-Lux is easier to walk and work on, is made in new light-reflecting colors that harmonize with modern school décor, is much simpler to clean and keep clean, and has a much longer life. Over a period of years, Vina-Lux floors cost less per square foot per year and give greater satisfaction in every respect.

Why not investigate this better answer to your school floor problems? Ask us to have a qualified representative come in and discuss with you all the facts about Vina-Lux — America’s leading vinyl-asbestos tile. No obligation, of course.
How CRANE specialized plumbing helps modern hospital planning

Modern hospital equipment of all kinds is designed either to increase the effectiveness of hospital staffs or add to the comfort of patients, or both.

Crane specialized plumbing fixtures are an outstanding example of this. In size, shape and materials, Crane hospital fixtures are carefully designed for specific hospital uses. In fact, Crane offers the most complete line of such equipment available.

One of a growing number of modern, Crane-equipped hospitals is the impressive new Kaiser Foundation Medical Center.

New Kaiser Foundation Medical Center in Los Angeles takes advantage of the warm climate with outdoor balconies that serve as corridors for visitors, while indoor corridors are for sole use of hospital staff.

Other features with more general practicability for any climate include many individual nurse’s stations (instead of a few large ones) on each floor . . . and specialized hospital plumbing fixtures by Crane.

As in domestic plumbing, Crane hospital equipment is not only superior in itself . . . but enjoys a superior reputation as well.

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VALVES • FITTINGS • PIPE • PLUMBING AND HEATING
NEW PRODUCTS continued

Packaged entrance is available with swing doors facing front (above) or at angle (photo right).

combinations that prompted the firm to provide units based on stock components. The standard model (shown on left) is available in primed or lacquered mild steel, in satin-finish bronze or stainless steel, and in aluminum-laid aluminum. All stock doors are 6'-10" high; revolving sections are 6'-6" wide and the swing doors are 2'-8" or 3'. The group pictured sells for $5,900 installed—about $1,000 to $1,200 less than doors bought separately, says International. (Revolving door alone is $4,700.) Since the units will fit under or against transom bars (usually 7" to 7'-6") without tricky alterations, and connections between mullions of revolving doors and swing doors are already engineered, the packaged entrances are especially economical for remodeling work.

All International's revolving models are fitted with governors to prevent train-catchers, clock-punchers and bargain-shoppers from injuring themselves or others in the go-around. An additional control mechanism which should delight weary pushers and makes good sense for many kinds of buildings is a motor that propels the door by a lightly engaged friction drive at a constant, comfortable rate. If a person walking through prefers a slower rate it will respond or stop completely under little pressure. It also will speed up for the energetic occupant—within governed bounds. Extra cost for this convenience is $1,200, including installation.

Manufacturer: International Steel Co., Evansville, Ind.

AUTOMATIC GROUTER halves construction time for stone walls

Although Da Vinci did not have this machine in his sketchbook, he might not be ashamed to have it credited to him. Full credit for the Foam-O-Matic goes to young (27) Alan L. Robertson of Connecticut for its invention. Turning the usual method of setting masonry inside out, this unique device makes it possible to pour mortar in from the top of stonework and let a pressurized steel form faced with foam rubber do the work of forcing the grout in and around the stones or brick. Concave joints and stone faces need...
Ruby-Philite luminaires are installed in so many stores in Northland Center that it can serve as a Ruby-Philite showroom. This overwhelming preference was earned by an ability to supply required illumination with minimum luminaires ... without sacrifice of architectural design or comfort ... in sites ranging from high-fashion shops to work areas. You, too, will find it easier to gain better solutions to your lighting problems when you consult a Ruby-Philite catalog. Send for your copy today.
Robertson displays neat mortar joints and clean stone faces left by Foam-O-Matic.

NEW PRODUCTS

little or no touch-up; they are as clean and neat as any accomplished workman could make them. Test walls recently put up by unskilled laymen with the new equipment took half the time of conventional stonework done by pros. One man can set 50' of wall in two hours. This time-saving feature alone could put masonry costs for one-story jobs on a par with wood frame. Priced at $199.50, the professional version of the Foam-O-Matic (a consumer model is also available) consists of a 2' x 4' steel panel edged with 2" angle for rigidity and faced with a 2" thickness of foam rubber. The form, counter-weighted with 32-lb. sacks slides up and down 14'-high stabilizers. Rope and pulleys raise and lower the panel, and screw presses—adjustable into any position along the vertical stabilizers—force the rubber facing of the plate against the stone or brick. In its present design, it is primarily suited to one-story work, but a new unit engineered for multistory buildings is being tested which uses scaffolding for support and has levers instead of the screw press of the current model. The height it could serve would be limited only by the scaffolding.

According to the inventor-manufacturer, the chemical action of the grout has little effect on the foam rubber, and with proper cleaning it will hold up for about 100 small construction jobs (1,000 to 2,000 lin. ft. of 8' to 10' wall) before necessitating replacement. If dimensional quarried stone or brick is used, spacers are applied to aid the cement flow. The Foam-O-Matic has been used successfully for 8" solid walls as well as for standard 4" veneer. Mortar setting time runs, according to the absorptive characteristics of the masonry, from about 6 minutes for limestone, 15 minutes for fieldstone, to 30 minutes for granite and marble. After each setting, the machine is released, leaving stone and seams smooth and clean, and raised to the next level. Units can be interlocked in tandem around an entire building for really fast production. Walls built with the Foam-O-Matic have been found to conform to strict building codes.


continued on p. 198

A building a nest for giant skybirds with LACLEDE REINFORCING BARS

Laclede Reinforcing Bars provide a sturdy backbone for the giant new Trans World Airlines hangar taking form at Lambert Municipal Airport, St. Louis. Representing the perfect balance between high strength and maximum anchorage, these multi-rib steel bars are the first choice of more and more contractors throughout America.

**OTHER LACLEDE CONSTRUCTION PRODUCTS**

- Steel Joists
- Welded Wire Fabric
- Pipe
- Spirals
- Conduit
- Electric Welded and Gas Welded Tubing
- Form and Tie Wire
- Corrugated Steel Centering

**LACLEDE STEEL COMPANY**

St. Louis, Mo.

continued on p. 198
St. Ann's Catholic Church, Normandy, Mo.
Architect: Joseph D. Murphy, St. Louis
Roofing Contractor: Roofing Application Co., St. Louis

Magic Chef, Inc., General Office, St. Louis
Architect: Harris Armstrong, St. Louis
Roofing Contractor: Swift Roofing Co., St. Louis

Lutheran Church, Florissant, Mo.
Architect: Harris Armstrong, St. Louis
Roofing Contractor: Roofing Application Co., St. Louis

St. Louis University, School of Philosophy, St. Louis
Architect: Leo A. Daly Co., St. Louis
Roofing Contractor: Swift Roofing Co., St. Louis

St. Louis Chapter, A.I.A.—AWARDS

These handsome buildings were among the five St. Louis Gold Medal Award Winners. The awards were sponsored jointly by the St. Louis Chapter, A.I.A., and the St. Louis Chamber of Commerce for the most outstanding buildings erected in the St. Louis area since 1940.

All four shown here received this proud distinction properly attired in a Ruberoid built-up roof. We hope you'll pardon our modest glow of pride in mentioning that, but we like to think that those who lead the way in advanced design rely on Ruberoid Built-Up Roofing Specifications for the right roof every time.

If you have an award winning design on the boards, consult your Ruberoid Specification Book for any type, large or small—smooth-surfaced asbestos, coal tar pitch with gravel or slag surfacing, or gravel-and-slag surfaced Ruberoid Special Bitumen. It also contains practical working details for a wide variety of flashing and eave construction. If you don't have a copy, write for one to The Ruberoid Co., 500 Fifth Ave., N. Y. 36, N. Y.
NEW PRODUCTS continued

Domed rectangle of plastic comes framed with curb (below, right) or without (above). Integral gutters prevent leakage on both skylight types.

SHATTERPROOF SKYLIGHT shipped assembled in aluminum frame

An effective diffuser, Marco’s featherweight top light needs no special roof framing. Weighing 1 lb. psf, it arrives ready to attach over roof curbs with a screwdriver as the only tool. It is made up of a rectangular sheet of corrugated translucent plastic (domed in the middle for rain runoff) held in a simple extruded aluminum frame with mitered and welded corners. Any condensation which might form on the underside of the skylight collects in the frame’s integral gutter and is channeled to the outside via weep holes. Twelve standard skylight sizes range from 24" x 41" ($60) to 73" x 41½" ($123). Light green and off-white are standard colors of the plastic—the popular combination of polyester resin and glass fiber. Special sizes and colors can be had on order. Modified models to be introduced this month will have curb and roof flange as part of the extruded frame. Priced slightly higher than the standard units, these new skylights are merely set over openings in the roof—eliminating the need for building and flashing special curbs. Applications for three kinds of roof construction are shown in diagrams (below). The translucent panel, only 4" above the finished roof line, can distribute a wider pattern of diffused daylight than skylights perched higher above the roof on conventional curbs.

Another new product of the same weather-resistant materials developed by Marco is a prefab scuttle or hatch cover. Here the aluminum-framed plastic is put to work shedding light in the passageway as well as providing access to the roof.

Manufacturer: The Marco Co., 45 Greenwood Ave., East Orange, N.J.

continued on p. 202

WHEN WASTE LINES ARE PERMANENT CAST IRON Pipe

Today home buyers are “quality-conscious.” A family building or buying a new home realizes more than ever before that they are making an important, lifetime investment. Therefore whether it is a large house or a modest bungalow, home builders and buyers want quality materials throughout.

This is especially important for the waste pipe lines for house sewage. The accepted high quality material for plumbing waste lines is long-life Cast Iron Soil Pipe, which lasts for centuries. When you use Cast Iron, the home buyer is assured that he will be protected in the years to come against leakage and repairs that may be dangerous to his family’s health, and which always are expensive and a great inconvenience.

Cast Iron Pipe waste lines are a potent sales stimulant for 1954 housing contractors and architects.

WOODWARD IRON COMPANY
WOODWARD, ALABAMA
How to get more than 10 re-uses from plywood forms!

Coat them with formfilm

Protect your investment in plywood forms with FORMFILM. It's a tough, abrasion-resistant, alkali- and water-resistant coating (not an oil). Eliminates raising of wood grain and reduces honeycombing.

FREE INFORMATION!

A. C. Horn Co., Inc., Dept. H1-616
Long Island City 1, N.Y.

Please send Money-Saving Facts on FORMFILM.

Name ____________________________ Title ____________________________

From Name ____________________________

Address ____________________________

City ____________________________ State ____________________________

A Division of Sun Chemical Corporation

A. C. Horn Co., Inc.
Manufacturers of materials for building maintenance and construction since 1897.
CAST ALUMINUM SPANDRELS are lightweight yet sturdy. They are easily handled, quickly anchored in place. Maintenance costs are extremely low.

CAST ALUMINUM COLUMN COVERS which run the full height of the building are cast with recessed tracks for a traveling window cleaning platform.

STRIKING BEAUTY is achieved by casting spandrels and column covers with a special pattern, then anodizing a dark, rich gray to contrast with window frames.
Planning washrooms, after the decision is made to install wall-type plumbing fixtures, gives you greater flexibility—an unrestricted opportunity to exercise your imagination, skill and ingenuity. Off-the-floor plumbing fixtures installed with a Zurn System leave surfaces of washroom floors intact and free of obstructions and create a pleasing effect of spaciousness. Such an installation insures against untimely obsolescence of washrooms and reduces the maintenance of cleanliness to an all-time low. Off-the-floor plumbing fixtures installed with a Zurn System permit the use of any type of floor construction; any type of wall construction; eliminate the need of furring-in of drainage lines; simplify drainage and vent pipe layout, and reduce the over-all cost of washrooms.

WRITE FOR FREE BOOKLET entitled, "You Can Build It and Maintain It for Less A NEW WAY." It presents new ideas for washroom installations in new and existing buildings.

Over 700,000 wall-type plumbing fixtures installed with the Zurn System in buildings of every type from coast to coast. Your Zurn Representative has list of buildings which have washrooms with fixture-bare floors.

Name and Title

Company

Street

City and State

Please attach coupon to your business letterhead, Department AF-719.
NEW PRODUCTS

Basic fluorescent light fixture was designed by Architect-Engineer George Ainsworth.

Slim steel spoke hangers support fixtures at 6' intervals. Runs up to 60' can be fed from one electric outlet.

LORD & TAYLOR SUBURBAN STORE, WEST HARTFORD, CONN.
52,000 sq. ft. of 3½" COMPOSITE POREX PLANK
Designed by: Raymond Leowyr
Architect & Engineer: Irving W. Ruthrauff
General Contractor: Edward Packer Co.

For Lowest Cost HEAT INSULATION-SOUND CONTROL and FIRE PROTECTION—POREX

When roof decks must provide maximum quality at minimum cost, architect after architect chooses POREX ... because POREX combines all these properties:

- STRUCTURAL STRENGTH
- LIGHT WEIGHT
- NAILABILITY
- INCOMBUSTIBILITY
- HEAT INSULATION
- SOUND CONTROL

Plain POREX for short spans and Composite POREX for long spans are also ideal for Auditoriums, Gymnasiums, Schools, Armories and many other uses. For floors, precast lightweight concrete channel slabs and plank are available.

For Lowest Cost HEAT INSULATION-SOUND CONTROL and FIRE PROTECTION—POREX

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LIGHT FIXTURE is stripped to essentials for good design, easy care

Without the usual shields and bulbous casings, the new Budgetlite is probably the frankest fixture for fluorescents on the market. While many may choose it for its appearance alone, the fixture also performs well. Engineered to take two 5', 40-w. instant-start lamps, the Budgetlite is at its best hung in long runs in schoolrooms, offices, stores or factories. Comfortable illumination is provided by the type of lamp—low brightness, fat diameter (2½") bulbs — and by the spacing on the fixture and placement in relation to the ceiling. (Matte white is recommended for ceiling finish.) Ballasts and porcelain lampholders, in minimum jackets of acrylic plastic, are integrated in the two simple end pieces. No heavy spline connects the ends; instead, two slim aluminum tubes set above the lamps serve as spacers and as wireways. Hangers, delicate only in looks, are actually the same high-tensile-strength steel wire used for motorcycle wheel spokes. Maintenance is negligible since there is very little fixture to catch dust, no parts to remove for cleaning, and lamp life is long—6,000 hours or about two years' normal use. Approximate cost of Budgetlites not installed, and without lamps, is $23 each.

Manufacturer: Ainsworth Lighting Inc., 38-10 29th St., Long Island City, N.Y.

PEACH TONE FLUORESCENT complements faces and foodstuffs

Emitting warm, peach-tinted illumination, the Glo-tone fluorescent tube sheds soft light on people and merchandise in restaurants, fitting rooms, florist shops and beauty salons. Its spectrum range, far more intimate and cheerful than blue-white or white-white light, not only flatters complexions but also makes food—on supermarket counters or café tables—look inviting. Carrying a two-year, burning-life guarantee, Glo-tone lamps are available in all standard wattages.

Manufacturer: Lustra Corp. of America, Dept. GL, 36 Washington St., Brooklyn 1, N.Y.
The handsome, all-metal, safety handrail quickly identifies the Peelle Motorstair. This handrail is positively driven and synchronized with the steps to travel at the same speed. Favored by leading insurance companies.

Important and original engineering advances combined with crisp, contemporary styling are making the Peelle Motorstair the considered choice of architects, engineers and management. Write for descriptive literature.

**PARTIAL LIST OF PEELE MOTORSTAIR INSTALLATIONS**

**TRANSPORTATION**
- MUNICIPAL PARKING & BUS TERMINAL, Bridgeport, Conn.
  - Architect, Harry G. Lindsay, Bridgeport, Conn.
- TORONTO TRANSPORTATION COMMISSION, Toronto, Canada
  - Architects, DeLaurie, Cather & Company, Chicago, Ill.
- PORT OF NEW YORK AUTHORITY BUS TERMINAL, New York, N. Y.
  - Architects, Port of New York Authority Engineers
- UNION PACIFIC RAILROAD COMPANY, Seattle, Wash.
- WICHITA MUNICIPAL AIRPORT, Wichita, Kan.
  - Architects, Thomas-Harris-Calvin Associates
- HUDSON & MANHATTAN RAILROAD
- PENNSYLVANIA RAILROAD
- GREATHOUND BUS TERMINAL, Kansas City, Mo.
- NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 84
- NEW YORK CITY DEPT. OF MARINE & AVIATION, Pier Shed No. 57

**PUBLIC BUILDINGS**
- PENTAGON BUILDING, Arlington, Virginia
- CAPITOL ANNEX BUILDING, Frankfort, Ky.
- METROPOLITAN MUSEUM OF ART, New York, N. Y.
  - Architects, Yorhee, Walker, Foley & Smith
- AMERICAN NATIONAL BANK, Austin, Texas
  - Architects, Kuehn, Brooks and Barr, Austin, Texas

**INDUSTRIAL**
- FORD MOTOR COMPANY, Livonia, Mich.
  - Architects, Albert Kahn Associated Architects & Engineers, Inc.
- GENERAL MOTORS SAGINAW GEAR DIVISION, Saginaw, Mich.
  - Architects, Argonaut Realty Co.
- ROCHESTER PRODUCTS DIVISION GMC, Rochester, New York
  - Architects, Argonaut Realty Co.

**HOOTELS**
- STATLER
- HILTON

**RACE TRACKS**
- LOS ANGELES TURF CLUB, Arcadia, California
- THISTLEDOWN JOCKEY CLUB, Inc., North Randall, Ohio

**CHAIN STORES**
- C. R. ANTHONY COMPANY
- J. C. PENNEY COMPANY
- SEARS, ROEBUCK & COMPANY
- McCORY STORES
- W. T. GRANT CO.

**DEPARTMENT STORES**
- R. H. MACY & CO., INC.
- L. BAMBERGER & CO.
- CARSON PIRIE SCOTT & CO.
- THE FAIR
- HENRY C. LYTTON & SONS

**THE PEELLE COMPANY**

47 STEWART AVENUE, BROOKLYN 37, N. Y. — OFFICES IN PRINCIPAL CITIES
Randomwood is delivered in rolls like wallpaper.

**NEW PRODUCTS continued**

**WOOD VENEER. paste-applied like wallpaper, plays up grain irregularities**

For those who like natural materials treated naturally, US Plywood is introducing Randomwood, a flexible hardwood wall covering. Like its elder brother Flexwood, the gauze-backed 1/8"-thick veneer is applied with paste over any flat or curved, dry, smooth surface. There is, however, a difference in grain between the two veneer products. Shadings and markings vary from sheet to sheet (as they do from tree to tree and limb to limb) in the casual yet elegant Randomwood, while Flexwood offers the more formal floral or matched-grain effect.

Priced at 50¢ per sq. ft. in the roll, about 80¢ on the wall, Randomwood is no more costly than other quality wall coverings and much less expensive installed than some solid or veneered paneling. It also can be procured in walnut, mahogany, mountain tulip, English oak, red birch and tigerwood. Sheets run 8' and 10' long and 15" wide. All veneers can be given the same finish treatment accorded wood paneling: oil, stain, varnish or wax, or clear acrylic spray. Where applied to such incombustible materials as plaster or metal, the cloth-backed veneer meets federal specifications for incombustible wall covering.

*Manufacturer*: US Plywood Corp., Weldwood Bldg., 55 W. 44th St., New York 36, N.Y.

**ALUMINUM BUILDING TRIM. Interlocking strips resist ravages of rain and wind**

Desco's aluminum extrusions can be applied sideways or in up and down runs as complete facings for store fronts, or as trim on entrance doors, display cases and awning hoods. Four basic members comprise this concave series in the manufacturer's extensive line of storefront materials. Pictured (above), top to bottom: a top angle No. 797 listing at $1.10 per lin. ft.; a 2½" single flute No. 890 at $1; a 4½" double flute No. 820 at $2.20; and No. 810, a single flute with drip flange at $1.50. Designed to interlock in any multiple required, the series is anodized for complete weather protection.

*Manufacturer*: Desco Metals Co., 2264 Wilkins St., Detroit 7, Mich.

continued on p. 210
Used in the Most Prominent Buildings

Powers

Water Temperature Control

In Boston's Famous Landmark

John Hancock

Mutual Life Insurance Company Building

Water Heaters, six of which are shown below; 21 Shower Baths; 7 Dishwashers in the company cafeterias; Photostat Developing Baths for two large photostat machines . . . all are regulated by various types of Powers Thermostatic devices especially suited for their particular use.

When problems of temperature control arise phone or write Powers nearest office. With over 60 years' experience and a complete line of controls, some of which are shown below, we can help you find the right solution for your requirements.

Cram & Ferguson, Architects
McCarron & Sullivan Co., Plbg. Engineers; M. Ahern & Co., Contractor
Buerkel & Co., Heating Engineers & Contractors

Powers Accuitem Regulator

Compressed air or water operated for controlling all types of water heaters, and diesel engines.

Powers Flowrite Valve

Powers Easy to Read Dial Thermometer

Powers Thermostatic Water Mixer. Insures utmost comfort and safety in showers. Many other uses.

Powers No. 11 Self-Operating Temperature Regulator for water storage heaters, hot water converters, dishwashers, fuel oil preheaters, jacket water cooling for air compressors, and diesel engines, etc.

Established in 1891 • The Powers Regulator Company • Skokie, Ill. • Offices in Over 50 Cities
THE USE OF versatile Seaporclad building panels is finding increasing architectural recognition. A lamination of Seaporcel porcelain with thermal and sound insulating core, Seaporclad has been chosen for the 20,000 square feet of colorful panels for the Hartford Statler, the newest addition to the Statler Corporation's national chain of quality hotels.

MEASURING ONLY 1 3/8 inches in thickness, Seaporclad curtain wall panels for the Statler Hotel meet the most rigid requirements of the Hartford Building Department codes. Seaporclad provides a complete exterior and interior wall...of sandwich construction...weather, fire and corrosion-resistant...with maintenance costs at the vanishing point.

THE STATLER HOTEL panel consists of nationally recognized Seaporcel porcelain, laminated to a cement asbestos board and an insulating core to form a single sandwich unit.

SEAPORCLAD FACADES supplant heavy masonry walls, save space and weight, with resultant reductions in structural steel and foundation requirements. It is also easily and economically installed. Seaporclad is fabricated for a variety of uses in conventional sizes and in any thickness or shape...and is available in the fullest scope of textures and colors.

For Some Job...Somewhere...You Can Use SEAPORCEL*

Let Seaporclad's successful applications be your guide to future planning...write for brochure #66

There are a few areas in which Seaporcel Metals, Inc., is not represented. Inquiries from interested agents are invited.
...modern buildings of every type – everywhere

select GLYNN-JOHNSON

DOOR DEVICES

Refer to G-J Catalog for complete line of door holders, bumpers, and specialties... for all types of doors in public and commercial buildings.

GLYNN-JOHNSON CORPORATION
Builders' Hardware Specialties for over 30 Years
4422 NORTH RAVENSWOOD AVENUE • CHICAGO 40, ILLINOIS
The modern home is a DRY THOROSEALED home!

EXPERIENCE counts in getting quality materials.

PRODUCTION volume counts in getting the lowest cost to the ultimate consumer.

ORGANIZED DISTRIBUTION and SERVICE count in getting materials to contractor, when needed.

Distributors and dealers are located throughout United States, Cuba, Puerto Rico, Canada and Honolulu.

Get our pictorially-described literature, "HOW TO DO IT" and specification guide.

Standard Dry Wall Products, Inc.
NEW EAGLE, PENNSYLVANIA

... AND WHAT'S THE BIG CHANGE IN HOUSES

Once again, America is demanding—and getting a new and improved product! Home buyers are losing their zest for cozy Cape Cod antiquity . . . that postwar ranch house is losing its low-slung appeal . . . yesterday's big picture window somehow looks like just another hole in the wall . . . last year's floor plan has too many kinks for convenience.

To see what home hunters want . . . to see what they're getting in a new and finer domestic architecture—mail the subscription form bound in this issue which brings you

house + home
540 North Michigan Avenue, Chicago 11, Illinois

540 North Michigan Avenue, Chicago 11, Illinois
It's time to take a closer look at...

Completely new **CORBIN**
Cylindrical Locks

Newly improved **CORBIN**
Door Closers

Completely new **CORBIN**
Exit Fixtures

These new product features are important to you and your clients. Ask your nearest Corbin representative for complete details.

**P. & F. CORBIN** Division
The American Hardware Corporation
New Britain, Connecticut

The most modern lines in builders' hardware — backed by 104 years of experience!
NEW PRODUCTS continued

FLUORESCENT LAMP hikes output by 35%

General Electric's latest fluorescent tube produces more light than any previous fluorescent source—35% more, say GE engineers. Sure to find quick use in stores, offices, schools and industrial plants, the first of the new line is a standard cool white lamp, 8' long and 1½" through the middle, with a rating of 110 w. Its 6,800-lumen output is about three times that of regular 40-w. tubes, and its rated life is 7,500 hours.

The design, too, is new. Two contacts are recessed in a single element to make the lamp insertion in push-pull lamp holders easy and safe. The lamp is being marketed not as a replacement for but as a supplement to standard high-efficiency and low-brightness types. It will permit illumination engineers to provide higher lighting levels at no increase in cost or upkeep. Maintaining its bright output even in cold weather, the lamp is eligible for outdoor assignment in service stations and athletic-field floodlighting. Price for the 8' lamp is $3.85. A 6' tube will be made shortly, as well as de luxe cool and warm whites.

Manufacturer: General Electric, Nela Park, Cleveland 12, Ohio.

PREWIRED ASSEMBLY for recessed light fixtures put in place with four nails

Engineered to save materials and time on installations of the manufacturer's recessed incandescent lighting units, the Atlite factory-wired assembly is nailed in place in minutes. Special framing, asbestos insulation and slow-burning wires are all eliminated. Supply leads are brought directly to the fixture assembly box. Listing at $5 and approved by Underwriters' Laboratories, the assembly is made in 60-, 100-, 150-, 200- to 300-w. sizes for any of the Atlas incandescent boxes.

Manufacturer: Atlas Electric Products Co., 319 Ten Eyck St., Brooklyn 6, N. Y.

BX CONNECTORS are put outside knockout box after wiring in

Only a screwdriver—no wrench, washer or lock nut—is needed to install Harbor cast-aluminum connectors for armored cable. Designed on the cam-wedge principle, these continued on p. 212
This building is **LIFE** conditioned with **Plasteel**

**PROTECTED METAL INSULATED PANELS**

No other insulated panel can give you the protection and thermal properties of LIFE-conditioned Plasteel. Panels available in lengths up to 25 feet for field assembly—with interior wall-sheets of steel, a layer of glass fibre insulation and exterior wall of protected metal with Mica coating. Plasteel cuts heat loss, prevents harmful effects from condensation and effectively insulates against outside heat in summer. Result: closer temperature and humidity control.

**ROOFING • SIDING • ROOF DECK**

Tested and classified by Factory Mutual Laboratories and Underwriters' Laboratories. See Sweet's File.

**MICA makes the difference.**

PLASTEEL PRODUCTS CORPORATION
WASHINGTON, PENNSYLVANIA

□ Please send details on Insulated Panels.
□ Please send new Engineer's Handbook.

Company Name
Attention of ____________________________ Title ____________________________
Address ____________________________
City ____________________________ State ____________________________

Contact your nearest Plasteel representative before you specify your next Insulated Panels—Roof Deck—Roofing or Siding. Or mail coupon for details.
NEW PRODUCTS  

continued

simple $\frac{3}{8}''$, 45° connectors are applied after completion of the wiring, and so should simplify many installations of electrical switches, outlets, motors, junctions and fixtures. Each of the device's two parts has a grooved lip which grips the edge and inside surface of a standard $\frac{3}{8}''$ knockout opening. Two machine screws pulled up on the cable will fix it in any direction. Creating rigid fittings, the new connectors protect wiring at the point it enters the box—especially welcome in applications where vibration is a problem. They take up no precious room inside the box, thus making it easier for the electrician to do his job quickly. Harbot armored cable connectors carry the Underwriters' seal. Priced at about 11¢ to 14¢ each, depending

on quantity purchased, they are made in 90 models—threaded and long neck as well as the regular type (pictured). Manufacturer: Unimatic Corp., 52 E. Centre St., Nutley, N.J.

PREGLAZED AWNING WINDOWS have recessed hinges

Outfitted with screen and glazing at the factory, this Gate City aluminum awning window makes for crisp fenestration in institutions and factories. It is available in multiples up to five high. The unit's extruded aluminum glazing strips are not guilty of the wrinkling tendency of lighter strips, and also add to sash rigidity. All operating hardware retracts into the sash for trim appearance. Vinyl tubing is used for weatherstripping at jambs, sills and meeting rails. A three-light window for a modular 4' grid opening retails at $70. Manufacturer: Gate City Sash & Door Co., 15 S. W. Third Ave., Ft. Lauderdale, Fla. continued on p. 216

YOU GET

KEY ADVANTAGE! WITH...

FIR PLYWOOD CONCRETE FORMS

1 TIME AND LABOR SAVINGS

Fir plywood forms speed form construction, erection and stripping by up to 25%.

2 SMOOTH CONCRETE

Fir plywood formed concrete is smooth, fin-free. Requires less rubbing. Ceilings can be painted direct after a minimum of finishing—eliminating plastering.

3 MAXIMUM RE-USE

Interior PlyForm gives several re-uses; up to 12-15 not unusual...over twice as many re-uses with Exterior PlyForm and overlaid panels. Plan and build forms for long service.

SPECIFY BY DFPA GRADE-TRADEMARKS

These grade trademarks identify quality panels made expressly for form work: 1. Interior PlyForm (moisture-resistant glue) for multiple re-use; 2. Exterior PlyForm (100% waterproof glue) for maximum re-use; 3. Overlay (hardboard or hard, resin fiber surface) Exterior plywood for maximum re-use plus smoothed concrete.

Douglas Fir Plywood Assn., Tacoma, Wn.

YOU GET 3

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Douglas Fir Plywood Assn., Tacoma, Wn.
Functional! Adaptable! Beautiful! This window fits the needs of residential, commercial and institutional building.

Modern as tomorrow—with slim, horizontal lines of extra-heavy extruded aluminum. Stays beautiful through all the tomorrows because Ualco's exclusive finishing process preserves its satin-smooth beauty forever! Can't rust, rot, warp and never need painting! Will never require upkeep expenses!

**PRECISION-ENGINEERED**
- Exclusive Strip-Proof completely housed Operator has no separate locking device! *
- Integral fin takes brick fin and fin trim! *
- Jiffy-Quick sill Clips slide in channel from each side; locate as many as wanted. *
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Technical Publications, p. 22
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For initial and maintained economy plus longer, more dependable service, investigate Cookson Power Operated Steel Rolling Doors.

CASTO'S SHOPPING CENTERS

(continued from p. 123)

place, settle on a series of sites in order of desirability (not always sites discovered by the advance men), and begin negotiations.

When questions of zoning come up, Casto does not deal with city fathers or big wheels. Instead he concentrates on support from residents in his site area, is backed by a formidable collection of petitions and resolutions before he presents his case. He has lost many an initial battle with officials, only to win it finally with residential support.

"The only time you cannot get local residential support for your zoning is when the center is wrong for the area—for instance if you try to put one into a nice settled neighborhood which you will blight; and you ought to lose then."

Negotiations and zoning decisions are a long haul; two years is not unusual, and some never come through. This is why Casto keeps about 20 site deals going at once. He is becoming known as a "developer's developer," every week gets at least three or four visits or calls from promoters who have gotten part way through a shopping center deal and have run into trouble with leases or been unpleasantly astounded by building costs. Usually they want Casto to come in with them. If the site is excellent, Casto follows its fortunes (although he does not buy in), and if and when the original developer wants to sell, Casto is happy to pay him a profit for his work on negotiations.

Effect of centers on downtown

- J. C. Penney has four branches in Casto's Columbus centers and they are among the best percentage gainers in the whole Penney store chain. But the downtown Penney store has recently increased its volume by 12 or 14%, more than could normally have been expected.

- The Union, a local "better priced" large apparel store, added 1,800 new accounts downtown in the first eight months after it opened a center branch.

Casto's theory for these unusual gains is that downtown stores are patronized by separate classes but that shopping centers are classless. He is convinced that a great many "quality" customers discovered Penney for the first time in his centers, and then began buying in the downtown Penney, too. Similarly, a lot of "mass buyers" discovered the Union and became downtown customers.

Apparently the centers have made no dent on Lazarus, the big Columbus downtown department store. Casto's viewpoint: "Columbus has grown from 350,000 to 500,000 since the war. There is no space downtown for comparable commercial expansion and no way to handle the traffic if there were. We provide the expansion downtown has no room for."
"FLEXICORE SAVED US TWO MONTHS"

says J. H. Stonebraker, Superintendent

The new 300,000 sq. ft. plant of the Rex Manufacturing Company at Connorsville, Indiana has an unusual mezzanine floor of Flexicore precast concrete slabs.


"We didn't have to wait for pouring and curing of the mezzanine," he says. "We went right ahead on the main floor without interference from either formwork or shores."

The Rex plant was designed by Giffels & Vallet, Inc. and L. Rossetti, Detroit. It is 760' by 420', with a steel frame, corrugated metal curtain walls and channel slab roof.

The mezzanine runs the 760' length of the building on one side and varies in width from 60' to 240'. It is used for light assembly, stockrooms, and storage. Flexicore was selected to get flexibility for future changes.

The adjoining two-story office building has Flexicore slabs for second floor and roof.

Flexicore concrete slabs make hollow-core fire-resistant floors and roofs. Each slab is a monolithically cast unit with a clean, smooth undersurface that gives an attractive paneled ceiling without plaster. The joint between the slabs forms a grout lock that ties the slabs together in a flat, rigid unit.

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