Formica surfaced furniture is still basic for all types of institutional use. But a newer Formica development is causing architects, decorators, contractors and operators to take a long look. It's the dollars and sense story of how attractive Formica wall surfaces cut maintenance, increase economy.

Every inch of wall area in this picture is Formica that was applied on-the-job with our new Fast Dry contact adhesive. There are many ways Formica can be applied to walls in full sheets, random width strips or pieces of all shapes and sizes.

Formica has a new Custom Design Service for providing suggestions for layout of any sizable wall area. Your local Formica representative will be glad to discuss this new service with you.

Full “how-to-do-it” information on applying Formica to walls is included in a new booklet “Vertical Surfaces.” It's yours for the asking. Write for form #670.

FORMICA CORPORATION, Subsidiary of 4602-7 Spring Grove Avenue, Cincinnati 32, Ohio.

In Canada: Arnold Banfield & Co., Ltd., Oakville, Ontario

Customers buy Formica because it is a brand name they know and trust.

DEMAND THIS CERTIFICATION

We protect this faith in our product by certifying every sheet with a wash-off Formica marking. It is for your protection and guarantee that you are getting genuine Beauty Bonded Formica.

Seeing is believing. If this wash-off identification is not on the surface, it’s not FORMICA.
112 Insurance sets a pattern
In a monumental experience in togetherness, Connecticut General and its architects, builders and consultants have produced one of the most carefully planned buildings of the age.

128 Architecture at a profit
A look at the business end of a highly successful architectural practice—the office of Perkins & Will.

132 Rotterdam's beehive
A handsome department store by Breuer and a heroic sculpture by Gabo complete the new pedestrian shopping center at the heart of the rebuilt city.

136 Chapel of the air
A color preview of the daring structure that will tower 150' above the new Air Force Academy in Colorado.

138 Two kinds of campus coherence
How can the free form of Lake Erie College's master plan be so unlike Santa Barbara's geometric pattern, and both be right?

148 Newark wakes up
After submitting to the suburbs for 25 years, a typical older city begins to fight back with new government, new spirit and new building.

154 American in Thailand
A gallery of the glittering palaces and temples that inspired the design of a new US Embassy building for Bangkok.

160 FHA in suburbia
Home mortgage insurance has helped remake the face of America, but its very success raises questions of the federal housing program's ability to meet the future's challenge.

162 Concrete battles its weight
Lightweight aggregates are beginning to influence structural concrete, trimming the weight of buildings by as much as a third.

166 Air flow around buildings
Wind tunnel tests predict the climatology of a building from its shape. (For brief accounts of other developments in technology, see p. 173.)
1. EXPOSED CEILINGS

In warehouses and factories, high-tensile Tufcor® galvanized steel deck provides a strong, permanent base for insulating concrete, makes possible a lightweight, economical roof system with positive vapor barrier and maximum fire safety. Tufcor weighs up to 6 lbs. per square foot less than other decking, is easy to handle and place. Sheets span up to 7', are easily plug-welded to beams. Tufcor provides a safe working platform for trades, saves on the high cost of structural framing and fill. Granco Steel Roof Deck may also be used with exposed ceilings.

CHOOSE THE PRODUCT DESIGNED TO

4. UP TO 30" SPANS OVER STEEL JOISTS

Granco Corruform® (100,000 psi and stronger) is a simple, economical means of forming concrete floor slabs over open web steel joists. Corruform retains the cement paste, speeds finishing, combines placing and finishing of concrete in one operation, offers rigidity that assures true and level finish. High-strength sheet won't sag, saves up to 20% on concrete with no sacrifice in slab design. Corruform is easy to handle and place, easy to clip or weld to supports, withstands denting, gives added stiffening to joists or beams.
2. ACOUSTICAL CEILINGS

New idea for schools, offices, plants: Granco's Structur-Acoustic makes possible a 5-inch roof system that combines structural deck, lightweight insulation and acoustic ceiling. Galvanized corrugated steel sheet with acoustic underside, Structur-Acoustic is strong, economical, attractive, won't rip or dent... provides a firesafe base for acoustic board, concrete slab and built-up roof... saves 11" to 15" in wall height... offers one-third more roof for your dollar! All materials assembled at job site by local labor.

3. SUSPENDED CEILINGS

Strong Granco Roof Deck (or Tufcor) with suspended ceiling makes possible low-cost roof system, permits easy installation of air-conditioning ducts, electrical conduits, recessed lighting. Granco Steel Roof Deck covers up to 35 sq. ft. per sheet, provides a smooth, flat base for insulation and built-up roof. Low dead weight (10-12 psf) saves up to 10¢ a sq. ft. over heavier types of roof deck! Deep, open rib design offers maximum strength, permits fast plug welding from above. Granco Roof Deck is rotary press formed for uniformity—no sheet "crawl"!

SAVE YOU TIME, WORK AND MONEY ON SCHOOLS, STORES, PLANTS, ETC.

5. 30"—8' SPANS OVER BEAMS

Tufcor is tough-temper, high-strength steel designed to fit wider spacing and accommodate heavier loads in flat slab construction where conventional forming costs are high. In floors, Tufcor serves as a permanent stay-in-place form for structural-grade concrete, provides a good platform for workers. Tufcor arrives pre-cut to fit framing members, speeds concrete placement by eliminating form stripping, provides a tight, solid base for concrete. Permanent slab form construction is incinibustible, eliminates fire hazard during the construction period.

6. 8'—14' SPANS OVER BEAMS

High-strength, deep-corrugated Cofar® steel units—with transverse wires welded across corrugations—combine form and reinforcement in one operation! Cofar offers in one product all the positive and temperature steel needed in the reinforced concrete slab... eliminates cutting, fitting, removal, repair and storing of wood forms. Cofar construction is equally suited to steel or concrete frame. After concrete slab is placed, a fire-resistant, high-strength reinforced concrete floor results. Attractive Cofar underside may be painted for a finished ceiling.
THE VAST MAJORITY OF THE NATION'S FINE BUILDINGS ARE SLOAN EQUIPPED

MIES VAN DER ROHE, architect
FRIEDMAN, ALSCHEULER & SINCERE, associated architects
WILLIAM GOODMAN, mechanical engineer
HERBERT S. GREENWALD, general contractor
ECONOMY PLUMBING & HEATING CO., plumbing contractor
AMSTAN SUPPLY DIVISION, AMERICAN RADIATOR & STANDARD SANITARY CORP., plumbing wholesaler

Facing Chicago's north shoreline parkway and the lake beyond, two new groups of luxurious skyscraper apartments will soon be completed. Pictured at top left is 900 ESPLANADE and below it is COMMONWEALTH PROMENADE.

NEW GLAMOUR ON CHICAGO'S GOLD COAST

• On the two largest unoccupied building sites on Chicago's "Gold Coast," overlooking Lake Michigan, a $25-million, 6-building apartment enterprise is rapidly nearing completion. These 28 and 29 story towers will be the tallest flat-slab reinforced concrete structures in the U.S. and possibly the world. Prefabricated skin frames of aluminum, each a story high, will hold crystal walls of gray tinted, heat retarding plate glass. All of the 1238 apartments (6108 rooms) will be summer and winter air-conditioned and equipped with individual room controls. All will feature maximum soundproofing for quiet privacy. All will be served by high speed, electronically teamed elevators and all corridors will be pressurized. In a project of such fabulous designing nothing less than the best would suffice, hence all towers are to be equipped throughout with SLOAN Quiet Flush VALVES and SLOAN Act-O-Matic SHOWER HEADS.

SLOAN Flush VALVES
FAMOUS FOR EFFICIENCY, DURABILITY, ECONOMY

SLOAN VALVE COMPANY • CHICAGO • ILLINOIS

Another achievement in efficiency, endurance and economy is the SLOAN Act-O-Matic SHOWER HEAD, which is automatically self-cleaning each time it is used! No clogging. No dripping. Architects specify, and Wholesalers and Master Plumbers recommend the Act-O-Matic—the better shower head for better bathing.

Write for completely descriptive folder
Urban renewal allotted $250 million this year; closer ties between public housing and urban renewal may be required

Urban renewal won a victory for at least the current fiscal year, which started July 1, over officials of the Budget Bureau, the Treasury and the President's Council of Economic Advisers, who would have drastically trimmed and eventually terminated federal aid to slum-wrecked cities.

HHF Administrator Cole disclosed that the Urban Renewal Administration will be allowed to make new capital grants reservations this year for up to $250 million out of the $350 million additional authorization in the new housing law. And if this turns out to be insufficient to maintain vigorous progress, he added, the administration will consider releasing more of the extra $100 million authorization.

The $250 million for this year is the rate President Eisenhower originally recommended in his January budget message, although Cole himself, in support of a subsequent White House economy drive, had requested only $175 million from Congress for this year. (At that time he had said that $175 million would be enough "to support a vigorous campaign.")

The American Municipal Assn. had a large hand in winning the release of this year's $250 million. Its executive committee, headed by Nashville Mayor Ben West, sent the President a telegram urging him to reassert his "repeated expressions of support" for a strong renewal program.

Just two weeks later, Cole wrote to Mayor West:

"The President has asked that I reply to your telegram. . . . As you know, the present broadened concept of urban renewal was one of the first major recommendations of President Eisenhower in the broad field of housing and urban affairs. . . . I want you to know that it has and will have the firm support of this Administration."

Although there is need for over-all economizing in national spending, Cole added, "there is no conflict between this general necessity and our recognition of the specific necessity for pressing forward with a vigorous and effective renewal program."

But if the renewal aid battle for the current year was won, there were still many other problems that would also need to be solved to assure continuation and improvement of the program in the years beyond. Under White House directives, in fact, the housing and renewal agencies in Washington are already broadly restudying all their various programs and policies.

What recommendations may be expected?

"It is no secret," reports one qualified Capital observer, "that Eisenhower does not like the way housing has been limping along. White House aides are particularly miffed at all the criticism public housing has been getting."

"One good hint is that any revamped housing program will tie public housing and urban redevelopment operations closer together."

"It is a good guess that any further public housing, to the extent the Administration may be willing to stand for any more of it at all, might be restricted to urban renewal areas, and possibly even limited solely to 'displacese' who were compelled to move to make way for various public works improvements."

PUBLIC HOUSING

Vinton leaves PHA, will work to better program

US Public Housing Chief Charles E. Slusser let go last month one of PHA's ablest executives and policy advisers.

He formally accepted the resignation of Assistant Commissioner Warren Jay Vinton "after a distinguished career of nearly 23 years in the federal government's housing activities." One of Vinton's unusual distinctions: because of his broad, special experience he was kept as a "holdover" in his high PHA position for more
than 4½ years after the Republican administration came into office. His resignation was not voluntary.

Soft-spoken Phi Beta Kappa Vinton, now 67, has been known best in recent years for his success in directing the PHA financing program. More than anyone else he is credited with putting over the plan for private, rather than Treasury financing of public housing projects—by means of the US guaran­tee on local housing agency bonds, sold conventionally. Since 1963, PHA borrowing from the Treasury has been reduced $899 million (down from $940 million to $41 million) by this type of refinancing, with corresponding reduc­tion in the national debt. This conver­sion was not something that “just hap­pened.” Winning the confidence and acceptance of the nation’s top banking and investment offices for this new type of local agency bonds took considerable education or “selling” before they caught on—largely a personal achieve­ment by Vinton.

Recently elected a councilman in Somerset, Md., Vinton feels “public housing is at the crossroads,” and he expects to remain in the Washington area—help frame legislation for an improved program from outside of the agency in which he held office so long.

Other housing developments:

• Because of difficulty in finding suit­able sites for new projects, the National Capital Housing Authority asked Washington, D.C. commissioners for permission to buy an existing 100-unit FHA-608 project. Builders and prop­erty owners have protested, claiming that reductions in real estate taxes and failure to clear slums would make this a bad precedent. At month’s end the commissioners still mulled the problem.

(The only other instance of the pur­chase of an existing structure by a local housing authority occurred in Montgomery, Ala., and involved a fore­closed 608 project sold off by FHA.)

• In San Diego, the PHA turned over the management of a 500-unit Lanham Act (war housing) project to a private real estate organization, which prompt­ly put its former government-employee managers on the firm’s private payroll.

Technically, PHA had insufficient funds it was legally authorized to spend for managing the project, and there was no local agency to take it off its hands. But lawyers found that under the circumstances it would be legal to con­tract for private management, with fees deductible from rent collections—a procedure PHA itself could not use.

GSA left high and dry on lease-purchase

When Congress quit and went home it left the GSA in a first-rate mess on its lease-purchase construction program, and gave it no substitute for any pro­gram of public buildings construction by any other method. Bluntly stated, Congress allowed the lease-purchase law to expire in July, and enacted no alternative. Technically, 96 GSA projects, and 59 Post Office jobs that already have congressional sanction could proceed. But the hitch on these is that increased costs would now make virtually any bids on them exceed authorized ceiling prices. Nor does GSA consider it feasible to try to trim existing plans for individual proj­ects—all of them already checked, re­checked and squeezed to the limit half a dozen times.

Here’s a summary of the Congres­sional byplay that frustrated GSA and left the nation with no effective federal public buildings program—and no sub­stantial volume of new facilities erected since 1940:

• In vain, the Senate adopted a bill to continue lease-purchase and allow GSA to accept bids that were no more than 7% higher than original cost limits set for each building already approved.

• But the House public works com­mittee would approve no comparable measure. In fact it unanimously recom­mended a bill that would even kill lease-purchase projects previously ap­proved but not yet started (except for District of Columbia projects). Com­mittee Chairman Robert E. Jones (D, Ala.) cited a General Accounting Office report that estimated that the first 148 pending projects would cost an extra $170 million by being bought “on time” rather than by direct appropri­ations.

• Under the (unenacted) bill fathered by Jones, an appropriation of $1.5 bil­lion would have been authorized to pay cash on the barrelhead to erect all previously sanctioned lease-purchase buildings and other needed structures.

But to seasoned Washington observers, getting any such appropriation adopted (instead of merely “authorized”) during the current and prospective 1958 budget crises was strictly a legislative pipe dream.

GSA has awarded architectural con­tracts for 52 of its first 98 approved lease-purchase projects, but last month was debating whether it was even worth letting design contracts for any of the others at present.

Pentagon rapped on frills for affluent soldiers

Air-conditioned housing for military families, and “a creeping tendency to­ward increased use of higher quality and costlier materials and refinements of architectural treatment” for other military construction, drew sharp fire last month from the House appropri­ations committee.

A committee report criticized the De­fense Dept. for issuing too many waivers to its general prohibition against air conditioning for so-called Capehart housing at military bases—to date 16 instances for the Air Force, two for the Navy, none for the Army. Balancing initial costs and operating expenses, it also specifically hit the Air Force for buying a heat pump system instead of a combination gas and elec­tric cooling system at one base.

Answering the criticisms, Brig. Gen. Joseph E. Gill explained that air con­ditioning often saves money in the long run: if the airman buys his own unit the Air Force has to pay not only for its electricity but the cost of shipping it for him when he is transferred. “For 10¢ a day they will buy an air condi­tioner,” added Gill. “If we do not provide air conditioning for these houses we take on a much bigger bill.”

In rapping the Defense Dept. for fancy construction, instead of the “relatively austere concept” that mem­bers felt more appropriate and more traditional for military buildings, the committee report included these raps:

“Many clubs are provided with brick fireplaces and chimneys, the cost of which ranges up to $1,500. In some clubs, the dance-floor areas have maple rather than asphalt tile floors.

“Many of the barracks and bachelor officers’ quarters are being provided with concrete canopies over the win­dows. . . . The Engineer Corps esti­mates that these cost about $2.75 per lin. ft., $6,476 for a typical barracks.
**Rental Housing**

**Windfall case compromise lifts tenants' rents**

There was a wry twist for the tenants of the 2,596-unit Farragut Gardens apartments in Brooklyn, N. Y., last month, after the Justice Dept. victoriously announced a $2 million settlement on its efforts to recover an alleged $3,158,000 "windfall" profit from the builder-owners.

One of the conditions for settling all the cross litigation on this FHA 608 project provided for a readjustment "review" of the rents. But because of increased operating expenses since the job was finished in 1949, this readjustment turned out to be a rent hike for everyone averaging about 8%—rather than a reduction. Another condition was full payment of recent mortgage default amounts with part of the $2 million returned to the project's treasury.

Both sides had compromised a bit for their mutual advantage. The owners yielded some, and got their rent increase; the government yielded some, and avoided the threat of eventually having to take over the project, raise the rents, manage and dispose of it as a distress property—if greater defaults had accrued.

**Box score**

Altogether the Justice Dept. was handed 32 large "windfall" cases. In addition to Farragut Gardens, it settled out of court for $400,000 on a $550,000 claim against a Wilmington, Del. project. It also won in court a full $762,000 judgment against the Beverly Manor development in Columbus, Ohio. The remaining 29 cases total about $17 million, but optimistic Justice sources say they have settlement offers from most, and doubt if more than six more wind- fall cases will ever be brought to trial.

FHA on its own has settled about 500 cases for a total of "more than $20 million," or an average of about $40,000 each, and has about 100 more lesser cases still outstanding.

**Community Planning**

**Mayor, Council unite on Cleveland civic center plan:**

**Zeckendorf interest in it stirs frenzy**

Last month two Cleveland political factions composed their differences after a public fight over the merits of two rival civic center redevelopment plans.

While the squabble lasted, until both sides made peace and joined forces to promote the so-called Outcalt Plan for a comprehensive lake-front project including a large new hotel and an office tower, the city's newspapers overflowed with redevelopment news and editorials. Headlines were as hot as the August weather.

As the city ran a high fever over the need to revitalize its downtown core, smiling Realtor-Developer William Zeckendorf made a flying visit with a staff of his Webb & Knapp redevelopment experts. An apprehensive, unhealthy middle-aged widow never welcomed a visit from a millionaire bachelor more fervently, nor hung more attentively on his every word that was not a rebuff. But before consummation of any Cleveland-Zeckendorf wedding, several practical matters would still have to be settled: 1) City Planning Commission approval of the site and plan favored by Zeckendorf and the political faction headed by his Sponsor-host Mayor Anthony J. Celebrezze, and 2) approval, in bleak November, of a $15 million bond issue for the city's portion of the project by an economy-minded citizenry that might prefer some more civic services and amenities for itself before providing more glittering attractions for convention trade visitors. (Only last January the Urban Renewal Administration was threatening to withhold further assistance from Cleveland until city finances and certain community services in some areas were improved.)

**The background**

After a steady decline for some 20 years in the influence and importance of Cleveland's downtown core, its City Hall caught "revitalization fever" last year. At the request of Mayor Celebrezze, Architect R. Franklin Outcalt, of Outcalt, Guenther & Assoc., prepared some speculative, schematic sketches of a vast, bold "Mall Center" development that would enlarge and supplement the 30-year-old Public Auditorium facilities that now bring the city an estimated $20 million-a-year convention and exhibition trade. (Recently it has lost 

continued on p. 9
Trinity is the whitest white cement judged by any standard. It is whitest in the bag... whitest in the mix... whitest in the finished job! You can see the extra whiteness with the naked eye! Trinity White is a true portland cement. It meets all Federal and ASTM specifications. Use it for architectural concrete units; stucco, terrazzo; cement paint; light-reflecting surfaces; mass or contrast; or wherever the purity of white and the purity of color tints is desirable in concrete or masonry. Trinity Division, General Portland Cement Co.

A Product of GENERAL PORTLAND CEMENT CO. • Chicago • Dallas • Chattanooga • Tampa • Los Angeles
some conventions to cities with more modern auditorium and exhibition facilities. Up-to-date, more flexible facilities, coupled with extensive parking, a new, modern hotel, etc., presumably could halt this loss, create a $10 million annual increase in convention spending in Cleveland.)

Presentation of Outcalt's rough plans last fall to a selected group of top civic and business leaders won enthusiastic approval. The upshot was a $500,000 City Council appropriation to have him make further studies and more detailed plans. These (see cut) were unveiled a month ago to another blue chip audience. Also present were invited representatives of Zeckendorf, the Hilton Hotels organization, Realtor-Developer John Galbreath of Columbus, Ohio and other potential redevelopers.

As now conceived, the Outcalt plan would cost roughly $100 million and would create a Rockefeller Center plaza type development off the end of the city's well-known mall, between the City Hall and Court House, and south and east of Cleveland Stadium, overlooking Lake Erie. Mostly it would be erected over the Pennsylvania and New York Central railroad tracks from about E. 3d to W. 9th Sts., where these tracks are at the foot of a 50' bluff. In addition to an extra $20,000 sq. ft. of convention-exhibition space, and a 5,300-car garage the Outcalt center would include at the 9th St. end a 12- or 14-story T-shaped hotel, a 34-story office tower, shops, restaurants, and a science and industry center.

Without signing any formal or binding agreements with anyone, Zeckendorf during a gallant, whirlwind visit to the city last month, said he would consider his plan built something different to handle the broader metropolitan problems.

**Design**

Quake hits Mexico City; architect hangs self

Mexico City's severe July earthquake (rated between 7 and 8 on the Mercalli scale of 12) demonstrated once more that properly designed and constructed buildings can withstand major seismic shock without difficulty—while inadequate ones invite damage and disaster.

The 44-story Latino-Americana Tower, the city's tallest, swayed 12" at its peak, but suffered not even one cracked pane of glass. Mexican Architect-Engineer Felix Candela reported that not one of his structures with their concrete hyperbolic paraboloid roofs and other unusual design features suffered continued on p. 12

**Metropolitan Problems**

Miami begins to organize metropolitan rule

Miami and the rest of Dade County were settling down to the long task of setting up the metropolitan (county) government they approved by referendum last May.

Selected for the key post of County Manager at a salary of $55,000 a year: O. W. Campbell, city manager of San Diego since 1949. Campbell knows he has a long, tough assignment ahead, points out that mere adoption of the charter did not bring full-fledged metropolitan government into being. Asked why he accepted the appointment after a divided three-to-two vote by the present five-man board of county commissioners that forms the nucleus of the new area-wide government, Campbell said: "The experimental nature of the job. It's an opportunity to create and build something different to handle the broader metropolitan problems."

**News**

cont'd
the new VERTICAL look in window treatments

Flexalum® Draw Draperies with aluminum louvers that rotate! Both inside and outside, Flexalum Draw Draperies carry out the clean linear look that is so much a part of modern design. And they offer important functional advantages: a complete range of light control from full sunlight to complete privacy... no cleaning or maintenance problems because dust can't cling to their smooth vertical surfaces... and they won't rust, chip, peel or fade because of Flexalum's exclusive baked enamel finish.

A single cord opens or closes the draperies and smoothly rotates the aluminum louvers to any angle desired.

Look for your nearest Flexalum manufacturer on the facing page. Or write:

Hunter Douglas Aluminum Division
of Bridgeport Brass Company
405 Lexington Ave., New York 17, New York
These Flexalum® Draw Draperies Manufacturers will give you full information and cost estimates:

| ALABAMA | ARKANSAS | CALIFORNIA | COLORADO | CONNECTICUT | FLORIDA | GEORGIA | ILLINOIS | INDIANA | IOWA | KANSAS | LOUISIANA | massachusetts | new hampshire | new jersey | new mexico | new york | north carolina | ohio | PENNSYLVANIA | TENNESSEE | TEXAS | UTAH | VIRGINIA | WISCONSIN | WASHINGTON | WEST VIRGINIA | WISCONSIN |
|---------|----------|------------|----------|-------------|---------|---------|---------|---------|------|-------|---------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|-----|-------------|-----------|-------|-------|----------|-----------|-------------|------------|---------|
so much as a crack.

In a nonprofessional but informative report to FORUM, Los Angeles Architectural Photographer Julius Shulman, who was in Mexico City during the quake, said most press reports of damage were greatly exaggerated—although a number of sizeable structures did collapse, and nearly 100 of all different types had to be condemned or closed as unsafe. [First reports referred to "a huge crack" that "split open" the side of the 15-story Continental Hilton from street to penthouse. Actually this "crack" occurred where a section of Architect Fernando Parra Hernandez' building had been added to the existing structure, and an expansion joint was provided to allow for possible settling.]

"The afternoon after the quake, I spent several hours at the University of Mexico, and on close inspection could find no damage," wrote Shulman.

Of Mexico City's 71 quake deaths, 33 occurred in the collapse of a single six-story apartment. The builder and owner of this were both jailed, and charged with the victims' deaths because of alleged use of poor concrete and negligence in construction. Later the architect, Teodoro Vega Garnica, 49, architectural teacher in a vocational school, surrendered himself to the authorities, after first sending them a statement that he had signed blueprints presented to him by the builder without looking at them. He also said he knew the builder had added an extra story not included in the original plans. Four days later, using his belt, Architect Garnica hanged himself in his jail cell.

FHA helps convert hotel into housing for aged

HFA Administrator Albert M. Cole journeyed to Detroit last month to give a personal boost to FHA's new program for housing for the elderly, authorized in the 1956 housing law.

At a ceremony in the 12-story former Hotel Detroiter, scarcely five blocks from the downtown center, Cole gave the Catholic Carmelite Sisters the FHA commitment to insure a $4 million loan for the conversion of the structure into a home for the aging. This is the largest loan to date under the program, and the first covering the rehabilitation and redesign of an existing structure for this purpose. Under this program loans as high as 90% of cost can be obtained for projects sponsored by nonprofit, religious fraternal or labor groups.

Most of the extensive renovation of the hotel, now called Carmel Hall, has already been completed, and the proceeds of the FHA-insured loan will replenish working funds of the owners, allow them to carry out additional projects. Acquisition and conversion, planned by Leo M. Bauer & Associates, architects, cost a total of $5 million, including alterations to provide a new chapel, infirmary, theater, recreation rooms, rewiring, modernized plumbing and heating. Bishop John A. Donovan called the project a bargain, because erection of comparable new facilities would have cost about one-third more. Cole declared he was "immensely impressed" by the project, and hoped it would stimulate and encourage many similar projects in all parts of the country.

Newly Published Catalog

features complete information

- Explains what this colorful, infinitely durable glass-hard surfacing is composed of, and how it is used for New and Existing walls—interior or exterior, bare or painted, concrete, masonry units, stucco, plaster or hardboard.
- Details the many cost-saving, space-saving advantages: reasons why architects prefer CEMENT ENAMEL over synthetics or "laminated" finishes.
- Illustrates application techniques in complete detail.
- Shows how CEMENT ENAMEL saves up to two full inches of floor area as compared with ordinary wall surfacing materials.
- Added Feature: page of recommended Architect's Specifications. Complete and detailed—just clip it and use it.

SEND FOR YOUR FREE COPY TODAY!

CEMENT ENAMEL SALES CORP. OF THE AMERICAS, DEPT. F, 787 UNITED NATIONS PLAZA, NEW YORK 17, N. Y.

Please send, without cost or obligation, your newly published catalog CEMENT ENAMEL.

NAME:________________________
TITLE:________________________
COMPANY:____________________
ADDRESS:_____________________
CITY:_______________________
ZONE:________________________
STATE:_______________________
BROWN & GRISt
WINDOW WALLS

Million dollar Simmons Plant put to bed in only seven months!

Custom Design at Stock Prices
Uses any Panel Material
Simple, Speedy Erection
Prompt Shipment
Light Weight—high strength
Ideal for schools, churches,
small office buildings, general
commercial structures

The Simmons Company, Jacksonville Plant
Fuller & Beckett-A. G. Smith, Architects, Atlanta
Flagler & Co., Engineers and Builders, Atlanta
Brown & Grist Representatives:
George C. Griffin Co., Jacksonville
Industrial Equipment Co., Atlanta

130,000 square feet of manufacturing plant completed seven months after ground-breaking!
And Brown & Grist played an important part in this fast-moving project.

With Sagebrush Green Mirawal panels installed at the factory, the Brown & Grist aluminum window walls were delivered as complete units exactly on schedule. Their simple construction features assured fast erection without special crews. Let our engineers work with you to solve your problems—at no obligation to you. And write for Brown & Grist's Sweets Catalogs today!

BROWN & GRIST, INC.
25 TYLER AVENUE, WARWICK, VIRGINIA
Striking design
New Penncrest Senior High School at Lima, Pennsylvania, matches bold design with maximum light and air.

A brilliant illustration of the harmony of fresh and forceful design with functional need is shown in the modern Penncrest Senior High School at Lima, Pennsylvania. The use of LUPTON Master Projected Aluminum Windows helped make this "dream school" a practical reality. The strong horizontal lines and narrow mullions of these windows integrate exactly with the design intention. Their unobstructed areas, all-weather ventilation, lower initial cost, and lower maintenance costs make them a perfect choice for practical function.

For more than 75 years, LUPTON has been providing the finest metal windows to the country's leading architects for use in schools, hospitals, and other modern buildings. You'll find complete information in the Flynn catalogs in Sweet's Architectural File. To locate your nearest representative, look for the name LUPTON in the Yellow Pages under "Windows—Metal." Or write or wire.

LUPTON
METAL WINDOWS • CURTAIN WALLS
MICHAEL FLYNN MANUFACTURING COMPANY
MAIN OFFICE AND PLANT: 700 E. GODFREY AVE., PHILA. 24, PA.
With **Vulcan** Fin-Tube Radiation

Set in the green, rolling hills of suburban Hartford, the new Connecticut General Life Insurance Company building is truly a modern classic — a marvel of planned efficiency dedicated to the working comfort of its employees.

Continuous glass areas, such as the walk-through shown above, called for positive, invisible warmth. Vulcan Fin-tube Radiation (installed between floor levels) was selected.

Standard of the industry, Vulcan continues to provide quality heating at lowest cost for commercial and industrial structures throughout America.

---

The **VULCAN** Radiator Co.
775 Capitol Avenue
Hartford 6, Conn.

---

Write for FREE 32-page catalog.

The Vulcan Radiator Co.
775 Capitol Ave., Hartford 6, Conn.

Gentlemen: Please forward your FREE 32-page catalog "VULCAN Linevector".

Name ____________________________
Address __________________________
City ____________________________ State __________________________
I am:  □ Contractor  □ Architect  □ Engineer
You can brighten up school interiors with colorful and decorative floor patterns achieved with Johns-Manville Terraflex Vinyl Asbestos Tile. At the same time, you can radically reduce maintenance costs.

Actual on-the-job figures show Terraflex Tile cuts floor maintenance as much as 50%, when compared with the next-best resilient type flooring. No expensive treatments are necessary to preserve its original beauty. An occasional sweeping or mopping is virtually the only attention this remarkable flooring requires throughout its long, trouble-free life.

Terraflex Tile flooring resists muddy tracks, chalk dust, greases, oils and alkaline moisture. It possesses a toughness and resistance to wear which assures service year after year. Terraflex Tile will outwear other types of resilient floorings of the same thickness two to one.

Made of plastics, reinforced and strengthened with indestructible asbestos, it is fire- and wear-resistant. It has a mineral composition which does not dry out or undergo chemical change. J-M Terraflex Tile is extensively used in school buildings both new and old.

For complete information and color charts, write to: Johns-Manville, Box 158, New York 16, N. Y.

Johns-Manville
check list for men who are building

- **timely planning**... awareness of possible shortages prevents delays and added costs. By building with load-bearing clay masonry all schedules are met, regardless of a pinch in structural steel supply.

- **lastling beauty**... inspiring brick and structural tile give freedom of design, encourage imaginative modern concepts. Colors are ageless, textures richly varied, and material deterioration won't destroy your structure's character.

- **fire safety**... guard against tragedy and save on insurance. You hold lives, investments, and the future in your hands.

- **proved materials**... brick and structural tile are time tested in residential, commercial, school and hospital buildings; eliminate dangers from materials still in the "experimental" stage. Sound construction is testimony to management's judgment and architect's talents.

- **low first cost**... no strained budgets or unrealistic long-term debt. Brick and structural tile cost less per sq. ft. than other wall materials!

- **low maintenance cost**... Total cost equals Original Outlay plus Maintenance Expense. Durable brick and structural tile eliminate painting, refinishing, and replacement costs.


all OK if it's BRICK and TILE

BRICK
your best buy for building
TILE
Reg. T.M., SPI


Bishop Clarkson Memorial Hospital, Omaha, Nebraska. Architect: The Leo A. Daly Architectural Engineering Co.

Structural Clay Products Institute • 1520 18th Street, N. W., Washington 6, D. C.
On behalf of architects working with civic building committees...

The advertisement on the opposite page appears in the August issue of Fortune magazine. It is part of a continuing program to inform your clients about the benefits of Alcoa® Aluminum curtain walls in color, and many other uses of aluminum in architecture. In this instance we are particularly concerned with reaching those business executives who participate on building committees for civic, educational and community structures.

Data for you

The new dimension of color added to the many practical and esthetic values of Alcoa Aluminum in architecture continues to make its mark across the skylines of America. And there is available for you at your nearest Alcoa sales office complete data and details to assist in the use of this versatile building material. Write ALUMINUM COMPANY OF AMERICA, 1887-J Alcoa Building, Pittsburgh 19, Pennsylvania.

Clip this aluminum classic for your building committee

A classic in clean-lined architecture. That's the exciting new Central YMCA, Milwaukee. As a civic, cultural and spiritual center, it has brought new inspiration and vision to Milwaukee's skyline and community life. In keeping with this spirit, the most modern of building materials, Alcoa Aluminum, played a predominant role.

Here colorful aluminum curtain walls (tastefully complemented by draperies), windows, doors and handrails, and aluminum coping and gravel stops for the roof did for this building what so many owners have found aluminum can do.
Saved space, reduced erection time and cost, and virtually eliminated maintenance for years to come... all within the realm of modern, distinctive architectural beauty.

These and other uses of aluminum are worth knowing about for your church or school, club or hospital, for any structure coming soon before your building committee. At that critical point when you need help, call your nearest Alcoa sales office. All we have learned about aluminum as a building material, we will gladly share with you. ALUMINUM COMPANY OF AMERICA, 1887-J Alcoa Building, Pittsburgh 19, Pennsylvania.
Versatile indoor-outdoor striped and solid Naugahyde, an exclusive development by Knoll Textiles with the U.S. Rubber Co. Wide range of handsome colors. Washable, durable, breathable and elastic. Vinyl and cotton, 54” wide. Coordinated in color with Eero Saarinen’s plastic back side chair in red, yellow, blue, black and grey. Write for information.

KNOLL ASSOCIATES, INC.
575 MADISON AVENUE, NEW YORK 22

KNOLL TEXTILES, INC.
BOSTON, CHICAGO, DALLAS, DETROIT, MIAMI, SAN FRANCISCO, WASHINGTON, TORONTO
Since the turn of the century POMEROY custom-built products have been recognized by the leaders in this industry for quality and dependability. Rely on POMEROY to serve you as it does the builders of today’s modern structures designed to be money-makers for years to come.

COMPLETE ENGINEERING SERVICE AVAILABLE FOR ANY SIZE PROJECT.

S. H. POMEROY COMPANY, 25 BRUCKNER BOULEVARD, NEW YORK 54, N. Y.
The advanced thinking of our architectural designers, their skillful blending of modern and traditional material, and their utilization of new building techniques are providing America with the world's finest school buildings.

In this program, ceramic tile is playing an important part. New setting methods offer new opportunities to use tile where cost or weight is a factor. And Romany•Spartan offers a complete line to fill every functional and design need. Little wonder that more and more architects the country over are specifying Romany•Spartan.

If you'd like design help or more information, contact your nearby Romany•Spartan representative or write United States Ceramic Tile Company, Department A-14, Canton 2, Ohio.
A SUCCESS STORY—UNPARALLELED IN THE HISTORY OF STEEL CONSTRUCTION

GREATER RESERVE STRENGTH
INCREASED LATERAL RIGIDITY
WEIGHT AND COST REDUCTION

MACOMBER
STOCK LENGTH
V-BEAMS

ARE NOW PROCESSED LOCALLY FOR YOU BY 17 STEEL FABRICATORS

From Massachusetts to California, Alaska to Texas, you can now get fast delivery on the floor and roof framing member that out-distanced all rivals in less than one year.

Each of these well known Fabricators stock the 8, 10, 12, 16, 18, 20, 22 and 24 inch depth V-BEAMS in lengths to 60 feet for immediate processing and delivery to your job site.

Here — within easy trucking distance to the metropolitan building centers of the country — is the one and only floor and roof support that delivers more for the money — more reserve strength with a load carrying capacity TWICE its published loadings. Contact these suppliers for unprecedented deliveries on your needs.

MACOMBER DETROIT SALES
13035 Hillview Ave.
Detroit, Michigan

HUGH LEE IRON WORKS, INC.
925 South Water St.
Saginaw, Michigan

WEST BRANCH STEEL CO.
West Branch, Michigan

MIDWEST STEEL, INC.
5000 Wayszota Blvd.
Minneapolis, Minnesota

MIDWEST STEEL, INC.
Luverne, Minnesota

EDGAR D. OTTO & SONS, INC.
2700 2nd St. S. W.
Albuquerque, New Mexico

A. P. B. M.
P. O. Box 329
Lubbock, Texas

TAFT STRUCTURAL PRODUCTS, INC.
P. O. Box 147
Seattle, Washington

THIS LIST IS GROWING FAST
Fir plywood roof deck helps save $3,3000

ALTERNATE COST DATA
Summary of installed costs per M sq. ft.
Based on actual suppliers' quotations and time records where available and on Walker's Estimator's Handbook where not:
1. As built, with clips, eliminating blocking at panel edges. Includes cost of new plywood and 50% of initial cost of exterior plywood salvaged from forms. $169
2. Estimated cost as built but using all new sheathing with no salvage from concrete forms. $187
3. Estimated cost all new sheathing with 2 x 4 blocking at panel edges. $206
4. Estimated cost 2 x 6 T & G decking. $291
1100.00 per M "as built" cost represents $1100.00 per M savings over estimated cost of 2 x 6 T & G decking. On this basis, savings on entire job total $2,300.00.

To eliminate 2 x 4 blocking, metal "H" clips were used at unsupported panel edges. Two clips were used for each span. (Clips were responsible for approx. $20 per M of savings; see table above).
AN EXCELLENT EXAMPLE of how fir plywood roof decking sharply cuts costs as well as provides markedly superior construction is this new U-shaped, 1-story reinforced concrete school.

The contractor estimates ¾" fir plywood saved a total of $3,300.00 on the job; $2,800.00 in actual installed cost, plus an additional $500.00 by amortizing costs of some of the panels previously used for forms. A total of 27,000 sq. ft. were used on the job. Design calculations by the architects show plywood superior in resisting racking forces such as wind loads and earthquakes.

Although many home builders have found thick plywood over wide rafter spacing saves money, this is one of the first detailed cost analyses for a larger building. The idea points the way to new opportunities for reducing costs on commercial and industrial buildings as well as schools.

Fir Plywood means quality construction

"SCHOOLS OF THE FUTURE" ... a new portfolio collection of design ideas embodying the thinking of six of the nation's leading architects. A stimulating and imaginative approach to what tomorrow's schools can and should be. Separate folio devoted to each architect's work. Fully illustrated and detailed in brilliant color.

Also included: "Fir Plywood in Schools for Quality Construction at Lower Cost," a new 8-page design and specification guide.

FOR YOUR FREE COPY of this new portfolio write Douglas Fir Plywood Association, Dept. 113, Tacoma 2, Washington (Offer good USA only)
How to Handle GRID TYPE CEILINGS

... and Handle Them Well ... with LITECONTROL Lighting

Pleasant place to make a deposit or withdrawal, don't you think? It's the People's National Bank & Trust Company, Levittown, Pennsylvania. Two of our newer type fixtures were used for illumination.

The public or main area utilizes Litecontrol No. 6142TS-66 fixtures on 8-foot spacing, in a grid type ceiling. Note the even quality of the lighting — only a suggestion of a shadow appears under the checkwriting desks. (Note, especially the long, right-hand desk, designed by the architect. It has no visible support except the lally columns.)

The adaptability or flexibility of this system is apparent. Note how the inverted aluminum T-bars run across the main ceiling down the side of the soffit over the Tellers' counters, and continue to the wall as an integral part of the Luminous Ceiling. This is a bank installation, but the concept makes a good, modern system for almost any interior.

The Luminous Ceiling over the Tellers' Area is illuminated by a corrugated vinyl plastic diffusing medium. If you have a similar installation, we may suggest or you may prefer Holophane #6024 acrylic low brightness lenses, corrugated Plexiglas, plastic grid louvers or Honeylite louvers. None of these are high cost "specials". ... all can be used to obtain various correct lighting levels by different spacing of lighting strip fixtures, or by different switching of the fixtures. We have many fixtures especially designed for these ceilings — and for plaster and tile ceilings. Let us know your needs — for good lighting at sensible cost.

INSTALLATION:
The People's National Bank & Trust Co.,
Levittown, Pa.
AREA SHOWN:
Public Area and Tellers' Counters.
INTERIOR DESIGN:
BUILDER:
John Brennan, Trevose, Pa.
MANUFACTURER OF BANKING FIXTURES:
John Brennan, Trevose, Pa.
FIXTURES:
Public Area, Litecontrol No. 6142TS-66
4 lamp 20 watt trigger start, recessed fixture with Coming '65 Alba-Lite gloss.
Tellers' Area, Litecontrol Luminous Ceiling, with corrugated vinyl plastic lighting strip, using 40 watt Rapid Start lamps, on 36" centers.
INTENSITIES:
Public Area, average 30 foot-candles in service. Tellers' Area, average 75 foot-candles in service.

LITECONTROL FIXTURES
KEEP UP KEEP DOWN
LITECONTROL CORPORATION,
38 Pleasant Street, Watertown 72, Massachusetts
DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALEERS
DFPA grade-trademarks mean quality Fir Plywood

you know you're right when you specify by DFPA grade-trademarks

factory-inspected, laboratory-tested

To qualify for DFPA grade-trademarks, manufacturers must pass rigid and continuous inspection of current plywood production. In addition to these on-the-spot mill checks by DFPA quality supervisors, thousands of samples undergo scientific testing in DFPA laboratories. Use of grade-trademarks may be withdrawn if quality is not satisfactory.

right grade, right quality for every job

DFPA grade-trademarks are specification guides to the right grade for a specific job. Only genuine DFPA quality-tested panels bear DFPA registered grade-trademarks. There are imitations. Don't be misled!

Be sure you can tell the difference.

Send for the DFPA Quality Story—a portfolio of grade-use data and a step-by-step description of the DFPA quality control program. Write Douglas Fir Plywood Association, Tacoma 2, Washington. (Offer good USA only)

*DFPA stands for Douglas Fir Plywood Association, Tacoma 2, Washington—a non-profit industry organization devoted to product research, promotion and quality maintenance.
Put these "IDEAS IN MOTION" to work for you

**IMPROVE BUILDING DESIGN**...

**INCREASE CLIENT SATISFACTION**

WHEREVER PEOPLE, MATERIALS AND EQUIPMENT ARE ON THE MOVE STANLEY AUTOMATIC DOOR OPENINGS CAN
DRIVE-IN SERVICE DOORS

PRIVATE OFFICE DOOR

SHOW ROOM DOORS

PLANT DOORS BIFOLDING

HOSPITAL DOORS

CAN BE SPECIFIED FOR ANY NEW OR EXISTING DOORS THAT SWING, SLIDE, OR FOLD. FOR COMPLETE INFORMATION, SEE SWEET'S ARCHITECTURAL FILE and write to Magic Door Sales, Stanley Hardware, Division of The Stanley Works, Dept. I, 1005 Lake Street, New Britain, Conn., for your copy of AIA. FILE No. 16-D.

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • metal parts • coatings • steel and steel strapping—made in 24 Stanley plants in the United States, Canada, England and Germany.
New Jersey Bell Telephone Company uses rugged "Sequin" in its busy new office in Glen Ridge. This beautiful floor provides quiet comfort underfoot and outstanding wear resistance.

Telephone Company uses Gold Seal
1/8" Sequin® inlaid linoleum in its new office in Glen Ridge, N. J.

Any busy telephone office needs a long-wearing floor that's easy and inexpensive to maintain. New Jersey Bell Telephone Company has installed Gold Seal 1/8" "Sequin" Inlaid Linoleum.

"Sequin" gives your busiest industrial or institutional clients modern, textured floor beauty plus the traditionally low maintenance of Gold Seal Inlaid Linoleum. Stains, grease, grime wipe easily away. And tough, resilient "Sequin" provides quiet comfort underfoot...resists indentation...defies years of punishing traffic.

In addition to "Sequin," Gold Seal offers you a whole family of inlaid linoleum and resilient tile flooring materials—each with its own special uses and advantages. All are designed to please the most exacting client.

SPECIFICATIONS—3/8" "Sequin" linoleum 6' wide yard goods, 9" x 9" tile 3/8" gauge, burlap-backed. Install over suspended wood or suspended concrete subfloors (even over radiant heat). Available in:
grey, green, dark brown, white multi, grey mix, taupe, beige and white with black. Also made in standard gauge for residential use—in 18 colors.
DOOR PRODUCTS AND LITERATURE

Weatherproof flush
overhead doors

Flush-type overhead doors with guaranteed weather resistance and high insulation value are available for the first time with the new Weather-King Flush Barcol OVERdoor Sections, featuring honeycomb core sandwich construction, hardboard facings. Weather-King Flush Barcol OVERdoors, with patented Cam Action tight closing, offer weathering and insulation values comparable to the outside walls in which they are installed.

The manufacturer, Barber-Colman Company, Rockford, Illinois, was also first to use hardboard panels in garage and industrial doors. Nationwide distributors install and guarantee Barcol OVERdoors.

The illustration above shows how weatherproof hardboard facing is applied to a honeycomb core in the construction of Weather-King Flush Barcol OVERdoor Sections. Facing is guaranteed not to split, crack, delaminate, or weather-chip. Small captive air cells of resin-impregnated honeycomb core eliminate convection currents and provide insulation equal to that of a 5-in. house wall—U factor .259. Redwood closures withstand severe weathering conditions, bonding adhesive is impervious to moisture. For booklet write Barber-Colman Company, Dept. U279, Rockford, Illinois.

The new Barcol OVERdoors Design and Specification Guide is the most extensive manual on overhead doors and operators ever produced. Prepared with assistance of the American Institute of Architects. Contains extensive application photos, detail drawings, data, and informative copy for a wide range of applications of the entire Barcol OVERdoors line of overhead doors and electric and radio operation equipment, for industrial, commercial, and residential use. The book will be serviced with informational sheets by Barcol OVERdoors distributors throughout the country. For architect's complimentary copy write Barber-Colman Company, Dept. U379, Rockford, Illinois.
FIGURED GLASS MAKES...

Used on all sides of these cheery offices of W. P. Fuller & Co., San Francisco, lustrous Mississippi Brocodile glass wraps them in a wall of living light... floods adjoining areas with richer, softer illumination. Sliding doors of Brocodile complete the bright, modern look.

Contractor: Cooper Smith Bros., Inc.
Glazier: Pittsburgh Plate Glass Co.

Even the students farthest from the windows enjoy the benefits of conditioned daylight in the Quakerstown High School, Quakerstown, Pennsylvania. Installed in the upper two rows of sash, figured glass transmits eye-easy, natural illumination deep within the rooms. Note absence of sharp, harsh contrasts.

MISSISSIPPI
NEW YORK • CHICAGO • FULLERTON, CALIF.
WORLD'S LARGEST MANUFACTURER OF
The property of light diffusion in figured glass is one of the most useful tools available to the architect and engineer. By its means rooms can be adequately daylighted far from windows, small skylight areas can cover a large expanse of floor with shadowless daylight, privacy can be secured, light can be controlled. Achieve better daylighting with translucent, light diffusing glass by Mississippi. Available through leading distributors in a wide variety of patterns and surface finishes to meet every requirement.

Smoke Box Photos Prove Light Distribution Qualities of MISSISSIPPI GLASS

CLEAR GLASS — Actual photograph of “smoke box room” with its window glazed with clear glass. Note high concentration of light near window.

DIFFUSING GLASS — Smoke box photo — window glazed with diffusing glass. Note uniformity of lighting and its distribution to far side of room.

In these photographs the box is built to a scale of 1" = 1' to represent a room 12' high, 12' wide and 24' deep. The “window”, centered in one end, is 4' square, 3' above the floor.
Another new development using

B.F.Goodrich Chemical raw materials

blades of Geon keep air dry...end replacement problems

THERE moisture eliminator blades for industrial air conditioners are now made of Geon rigid polyvinyl chloride compound — to end frequent replacement of formed sheet metal blades.

Parts made of Geon rigid vinyl won't corrode. They are economical, easy to clean and extremely durable... meet flameproof requirements. Air-carried corrosive materials have no destructive effects on these blades because Geon has exceptional resistance to acids, alkalies and other chemicals.

Geon polyvinyl resins and plastics are unique raw materials. Their outstanding physical, chemical and electrical properties have opened markets for many new products — rigid piping, wire insulation, flexible wall covering, foam padding, coatings for textiles, metal and paper.

For further information on Geon write Dept. FM-5, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors
INSPECTED
all along the line...to help make it the finest vinyl tile ever

TILE-TEX FLEXACHROME!

"Round-the-clock inspection" by eagle-eyed Tile-Tex laboratory and "line" inspectors quickly nabs any imperfect tile trying to impersonate a piece of Flexachrome. And there's no reprieve for a tile found guilty of a single flaw.

During and after its run, Flexachrome is checked visually, chemically, and with scientifically designed instruments to assure perfection in coloring...marbling...flexibility...impact resistance...grease resistance...chemical resistance...sizing...lay-up...and cleanness of cut.

No wonder you can be sure of long-lasting beauty and fine all-around performance with Flexachrome Vinyl-Asbestos Tile.

THE TILE-TEX DIVISION, THE FLINTKOTE COMPANY
1234 McKinley Avenue, Chicago Heights, Illinois.
In the 11 Western states: Pioneer Division, The Flintkote Company, P.O. Box 2218, Terminal Annex, Los Angeles, Calif.
In Canada: The Flintkote Co. of Canada, Ltd., 30th Street, Long Branch, Toronto.

TILE-TEX...Floors of Lasting Beauty

MANUFACTURERS OF FLEXACHROME® • TILE-TEX® • TUFF-TEX® • VITACHROME® • HOLIDAY® • MARK-TEX®
HOLIDAY FLEXACHROME® • KORKOLOR® • SKYTRAIL® AND MODNAR® (THE PLANK-SHAPED ASPHALT TILE)

architectural FORUM / September 1967
"Keywall exclusively!" That's the decision of Victor DeSantis (right), vice president of The R. S. Ursprung Company, Vito DeSantis (left), job superintendent on the new Retread Plant of Firestone Tire & Rubber Company, agrees, as they inspect the job with Bob Scheurer, president, Lakewood Supply Company, local distributor of Keywall.

Keywall preferred by The Sam W. Emerson Co., Cleveland, for the Museum of Natural History, Cleveland. Approved by Garfield, Harris, Flynn & Williams, architects.

Cleveland goes "all out" for

**KEYWALL**

**GALVANIZED MASONRY REINFORCEMENT**

On this Warner & Swasey Co. warehouse, Keywall was used in alternate courses. Pilasters were on 16 ft. centers with expansion joints. Walls—18'-0" high. Joseph Cerulli and Associates, architect. The Leonard H. Krill Co., general contractor.


Keywall takes over. On the Lamson & Sessions Factory, Keywall was tested against another masonry reinforcement. On the office addition, Keywall is being used. The George S. Rider Co., engineers. The Sam W. Emerson Co., general contractor.

Keywall was used in every course in the Continental Transportation Warehouse. Arnold A. Peterson, architect. Industrial Construction Co., Inc., general contractor.

Contractors prefer... architects approve... new type masonry reinforcement

Visit the better masonry jobs around Cleveland. Go on the scaffolds. Talk to the bricklayers. Talk to the superintendents. Never before a reinforcement like Keywall, these men agree. Architects like it because they know that when masons like a product, they'll use it, and use it right.

Here are a few of the current jobs where Keywall is adding strength, reducing shrinkage cracks and giving greater value.

KEystone Steel & Wire Company
Peoria 7, Illinois


Stimulating the civic pride of a mining area in the mountainous panhandle of Idaho, this soundly planned and spectacular DELANY installation has been widely publicized . . . and justly so. A difficult 70 acre site, known as Jacob’s Gulch, offered little level land but a solution was neatly achieved by bridging Jackass Creek with the two story classroom wing.

This same flair for the dramatic coupled with the practical is shown in the detailing of the structure. Among the worthwhile decisions here was the sensible selection of DELANY diaphragm type flush valves . . . as rugged and durable as the rocky hills that surround the project.

In schools of prominence, throughout all forty eight states, the trend is to DELANY—"the fastest growing name in flush valves!"

This new "HAND BOOK and CATALOG No. 53" is the most comprehensive of its kind—designed for everyday reference . . . 19 pages of installation details for exposed, concealed and special FLUSH VALVE installations . . . over 75 blue prints . . . cut away views . . . many pages of charts, formulas, piping details . . . sent free, if requested on firm letterhead.

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

Since 1879
A roundup of recent and significant proposals

EXURBAN SHOPPING CENTER
Nestling between the new Connecticut Turnpike (top of cut) and the Boston Post Road: Conn-Post Shopping Center, a $25 to $30 million project designed by Lathrop Douglass. Owner Sol G. Atlas plans 85 stores, 5,500 parking spaces.

WASHINGTON GIANT
Realtor Morris Cafritz plans an $8 million office building (above) with a surprising space ratio—two-thirds for cars, one-third for people. Designer of this park-at-your-desk building: LeRoy Werner.

COOL CUMMERBUND
Directors of the Harris Trust & Savings Bank, Chicago, will lunch where the air conditioning might have been. Skidmore, Owings & Merrill centered mechanical equipment on middle floors of this skyscraper.
SUBURBAN NEIGHBOR

On a 28-acre site in Montgomery County, Maryland (just outside Washington), the Government Employees Insurance Co. will build a $5 million operations office close to residential and shopping areas. Philadelphia Architect Vincent G. Kling designed the four-story building of reinforced concrete.

SEATTLE NEWCOMER

Rising from a four-story base on a sloping site, Seattle's first new office building in 25 years will have a landscaped plaza at the entrance level. The base itself will have space to park 200 cars. Tinted gray glass set in vertical aluminum frames will enclose 16 office floors. Architects: Jones & Bindon of Seattle; Skidmore, Owings & Merrill, San Francisco office.

ANN ARBOR APARTMENTS: BALCONIES OVER FOUNTAINS

Three rectangular apartment houses in Ann Arbor will be faced with glass sandwich panels and rimmed with 7' balconies on each floor. Between the ten-story buildings by Architects King & Lewis: terraced courts, fountain gardens.

FLORIDA STATE OFFICE BUILDING

Fourteen state agencies in Winter Park, Fla., will be under one X-shaped roof designed by Brolemann & Rapp of Orlando. Overhanging second story makes a covered walk.

SOAP AND FOOD PRODUCTS TECHNICAL CENTER

For a hilly site north of Cincinnati, Architects Schmidt, Garden & Erikson of Chicago have planned a campus technical center for Procter & Gamble, to be completed in 1959.

CHANGING NEW YORK—NEW VISTA IN "THE VILLAGE"

Finished in yellow, lavender and blue, these three apartment buildings for 2,804 families will add a dash of color to a rather drab section of New York City. They were designed by S. J. Kessler & Son for a Greenwich Village Title I site covering six blocks just south of Washington Square. Strips of landscaped area will separate the housing towers.
DOCTORS' CO-OP

About 55 doctors and dentists will share ownership of this $1.25 million professional building in Tulsa. Architects Murray-Jones-Murray, also of Tulsa, spent a year researching and developing plans to insure their professional clients the latest and most practical building design. Special features: basement for radiology, air conditioning and mechanical equipment; ground-floor pharmacy; specially engineered plumbing, electrical and acoustical systems.

COMMUNITY CHURCH IN CLUSTERS

For the White Plains (N.Y.) Community Church, Architect Jules Gregory drew tangent prisms (1), then geometric shapes for the Sunday school classrooms and fellowship hall. The resulting cluster, Gregory says, gives a sense of individuality and eliminates the expense and inconvenience of walkways. Construction: laminated wood trusses and frames.

PHILADELPHIA COLLEGE OF OSTEOPATHY

Architects Nolen & Swinburne and George M. Ewing Co. drew plans for a $12 to $15 million College of Osteopathy in Philadelphia. At right in drawing are two hospitals for 600 patients, connected by ancillary - outpatient - admission building. At left: dormitory, faculty and nurses' residences.

CITY BLOCK MOTEL

A triple-threat motel—close to the airport, downtown, and a new expressway—will be built on a full city block of redeveloped land in Kansas City. Planned for 132 guests, the $1 million Prom Motel (below) was designed by Architects Windrum, Haglund & Venable of Memphis; Manuel Morris of Kansas City, associate.

RED-AND-GOLD CHECKS

Music-lovers returning to Manhattan in 1960 may be in for a shock. Replacing Carnegie Hall, they may find a 44-story tower rising out of landscaped sunken plaza. Vermilion porcelain steel panels and gold-tinted windows would create a checkerboard. Architects: Pomerance & Breines.
NOW IT CAN BE TOLD!

For over two years Robbins has been auditing colors in a vast program of color research. This master plan has been a well-kept secret. It was directed by New York’s foremost color consultants, Colorhelm, Inc., and American Color Trends, Inc., whose experts broke down the spectrum as never before. They lived color, analyzed color from every aspect of modern life, directed running of thousands of experimental samples, plotted color trends far into the future.

What is the result?

A completely re-styled color line of vinyl. Nothing like this has ever been done before.

We call these new colors Career Colors.

These are colors pre-tested, to satisfy America’s color hunger for years to come.

Better client relations

CAREER COLORS strike a psychological balance in color preferences. They were selected and created with contemporary paints, wallpapers, fabrics, fixtures and furniture in mind. Wider color range than ever before . . . yet simpler and easier to handle . . . faster shipment from the factory . . . better stocking at the distributors . . . Career Colors are statistically proved by professional color analysts.


But OPERATION COLOR is still going on! Soon all Robbins lines will be available in pre-tested Career Colors. Watch OPERATION COLOR work for YOU!
announces...

COLOR!

the boldest step
in floor tile
programs ever taken!
Robbins
re-styles all
lines in color!

ARCHITECTS: WRITE FOR YOUR
COMPLETE FILE OF CAREER COLORS!
NOW READY!

Robbins
FLOOR PRODUCTS, INC.
Tuscumbia, Alabama
bright future

Buildings constructed and decorated with Stainless Steel are cleaner, more attractive places to work and live. When you’re planning a building . . . design it, improve it and protect it with McLOUTH STAINLESS STEEL.

specify

McLOUTH STAINLESS STEEL
H I G H  Q U A L I T Y  S H E E T  A N D  S T R I P
for architecture

McLOUTH STEEL CORPORATION  DETROIT, MICHIGAN
MANUFACTURERS OF STAINLESS AND CARBON STEELS
Construction up 8.2%—except for home building; cement strike causes $150 million setback

With the exception of private home building, which has greatly distorted the over-all picture, construction has enjoyed a banner growth this year.

If this distortion is taken out of the picture, by excluding homebuilding from the data compiled by the Commerce and Labor Depts., the rest of the construction field shows a substantial 8.2% increase in spending through July this year, compared with 1956 (see comparative charts).

Total outlays for public construction, including highway work, have been running 9% ahead of 1956 (see table), while total private construction spending for the first seven months is down 1%. But when homebuilding is excluded, private construction shows an over-all 7.1% gain for this period, instead of a loss. Private expenditures for nonresidential buildings (excluding public utility, farm and other projects that are not classified as buildings) have increased 6% in the January-July period.

Government construction officials delayed almost three weeks in releasing their July spending estimates, while they made a special survey of some 900 general contractors to gauge how much work was curtailed by the cement shortages caused by the month-long production workers' strikes in 71 plants.

Their estimate that actual volume of work put in place totaled $4,403,000,000 in July indicated loss of work costing almost $150,000,000, or a 3.2% drop from normal expectation. These loss figures are based on the assumption that a continuation of the average 3% increase in total construction recorded through the first six months of the year would have resulted in a volume of roughly $4,553,000,000 in July—3% above July 1956. Instead, the $4,403,000,000 estimate represented: 1) a slight contraseasonal slide from the $4,347,000,000 in June; 2) a slight dip below the $4,420,000,000 in comparable July, 1956, and 3) a missed opportunity for beating the all-time monthly record of $4,474,000,000 set in Aug., 1956.

The decline seemed to be only temporary, however. Observers felt that almost all setbacks from the cement strikes would be made up before the end of the year.

SpendiNg by building types

<table>
<thead>
<tr>
<th>Time</th>
<th>First 7 months</th>
<th>July '57</th>
<th>1956</th>
<th>%±</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential (nonfarm)</td>
<td>1,356</td>
<td>9,144</td>
<td>9,857</td>
<td>-7</td>
</tr>
<tr>
<td>Nonresidential</td>
<td>774</td>
<td>5,155</td>
<td>4,671</td>
<td>+11</td>
</tr>
<tr>
<td>Industrial</td>
<td>262</td>
<td>1,881</td>
<td>1,701</td>
<td>+11</td>
</tr>
<tr>
<td>Commercial</td>
<td>307</td>
<td>1,856</td>
<td>1,988</td>
<td>-4</td>
</tr>
<tr>
<td>Offices; lofts; warehouses</td>
<td>152</td>
<td>997</td>
<td>903</td>
<td>+10</td>
</tr>
<tr>
<td>Stores; restaurants; garages</td>
<td>155</td>
<td>959</td>
<td>1,145</td>
<td>-16</td>
</tr>
<tr>
<td>Religious</td>
<td>75</td>
<td>475</td>
<td>494</td>
<td>+18</td>
</tr>
<tr>
<td>Educational</td>
<td>42</td>
<td>288</td>
<td>296</td>
<td>-3</td>
</tr>
<tr>
<td>Hospital; institutions</td>
<td>41</td>
<td>265</td>
<td>175</td>
<td>+51</td>
</tr>
<tr>
<td>Military</td>
<td>117</td>
<td>681</td>
<td>750</td>
<td>-9</td>
</tr>
<tr>
<td>Highways</td>
<td>342</td>
<td>2,520</td>
<td>2,230</td>
<td>+10</td>
</tr>
<tr>
<td>Sewer; water</td>
<td>120</td>
<td>767</td>
<td>699</td>
<td>+10</td>
</tr>
<tr>
<td>Private Total</td>
<td>3,047</td>
<td>18,386</td>
<td>18,468</td>
<td>+2</td>
</tr>
</tbody>
</table>

*Private Total*: 3,047

TRENDS continued on p. 49
New HORIZONS in Contemporary Architecture

STONE is the "KEY-STONE"
for NEW HORIZONS in Contemporary Architecture

Cut to any dimensions or split "as your imagination demands it"...natural stones possess limitless ranges of color and texture—lasting beauty! Permanent, no maintenance, easily available everywhere!

NATURAL STONE is NATURALLY COMPATIBLE with OTHER MATERIALS.

The Building Stone Institute gladly answers all queries about Natural Stone...its uses, varieties, characteristics...and mails booklets on specific types. See samples of stones in our offices.
Rates still upward; FHA OK's participations

Interest rates—the charges for building, or buying, or running a business with someone else's money—kept going up for everyone.

Occasionally there was a touch of irony. Under pressure from the homebuilding industry, the administration's inflation-fighting fiscal managers yielded to FHA, and, coupled with a 1/2% boost in the interest rate (to 5 1/2%) they allowed the promulgation of the lower FHA home-purchase down payment schedules authorized in the new housing act. But before the week was over, commercial banks throughout the nation had raised the "prime rate" (their charge for loans to very top credit corporations) from 4 to 4 1/2%, and most of the district Federal Reserve Banks had boosted their discount rates (the charges on their loans to member banks) from 3 to 3 1/2%.

There were other rate hikes as the widespread scramble for credit for all types of commercial and business operations continued apace:

- To refinance $24 billion of maturing securities, the US Treasury, the nation's biggest borrower, paid the highest rates in a quarter of a century: 3 3/4% on four-month certificates; 4% on one-year certificates (compared with only 2 1/4% just a year earlier), and also 4% on four-year certificates that can be redeemed at the buyer's option after two years.
- The Dow-Jones index of municipal bond yields, covering 20 representative tax exempt 20-year securities, rose to 3.58%, the highest since 1935.
- To sell a $165 million debenture issue, to cover its secondary market purchases of FHA and VA mortgages, Fanny May last month paid a record 4 1/4%, compared with 4% in June.

FHA participations

Optimistically, Commissioner Norman P. Mason revised FHA's regulations so owners of FHA-insured mortgages will now be permitted to sell partial interests in them by the issuance of notes or certificates backed by the mortgages (but without any FHA or other government backing for the participation securities).

The first organization to operate under the new regulations will be Instlcorp, Inc., of New York, which is owned jointly by all the New York mutual savings banks through their Institutional Securities Corp. Instlcorp expects to sell collateral notes, backed by FHA mortgages placed in a trust, to pension trust funds (or others), which will thus be able to obtain the bulk of the earnings possible from such mortgages without having to service them, or have the unpopular role of a participating investor in the event of foreclosure.

Apartments and home builders and FHA officials are hopeful of tapping a much bigger share of the estimated $40 billion to $60 billion held by large pension funds through this kind of mortgage "participation" operation. Last spring Mason also suggested that certificates might be issued in denominations as low as $1,000, which would also allow thousands of small individual investors, as well as other types of investment organizations, to share indirectly in making FHA-insured loans—and earning more on their savings.

Remembering the mortgage certificate collapses and scandals of the thirties—which stemmed from abuses in administration, rather than from any defects in the participation system—FHA acted with the utmost caution before approving the new plan. Two of its greatest concerns: to make sure certificate buyers will not be led to believe that participation certificates have any government guarantee; also to make sure there can be no abuses in the issuance of certificates that might reflect unfavorably in any way on FHA programs.

Higher prices likely for cement, aluminum items; heavy glass sheets reduced 7 to 16%

Building material prices were being affected last month by marked cross currents causing both increases and decreases.

After seven months in which it had varied only 0.2 points, however, the BLS index of composite average wholesale prices jumped 0.7 points, or 0.5%, in July (see chart). At its new mark of 131.4 it was only a whisper below its all-time record of 131.5 in Aug. 1956, before its subsequent decline to 130.5 last December.

The July increase over June in the composite index reflected a 4.9% boost in average prices for structural steel, a 3.4% increase for metal doors, sash and trim, and other increases for concrete ingredients and prepared paints. Collectively, these more than offset a continued decline in average prices for lumber and wood products.

Among the forces that might push the composite BLS index to a new high in the months ahead:

- Another round of 15c per barrel increases for cement—to cover the wage increases that were granted to end the production workers' strikes at 71 plants that halted supplies and seriously delayed thousands of construction jobs in many areas throughout July and early August (p. 47). This would be
"Built-In" look...
Surface-Mounted Cost

GARCY Ultra-Lux...
shallow, plastic enclosed fixture...
ideal for low ceiling lighting

Minimum depth consistent with good light
distribution and brightness control
With curved shield, unit is only 3/4" at its deepest point
...yet surface brightness is virtually uniform at all viewing
angles and well within acceptable limits for glare-free
comfort.

Improved light-stable extruded plastic
guaranteed not to warp or discolor
Shield is of Koppers improved EVENGLO*, a premium-
grade polystyrene with built-in resistance to discoloration
caused by ultra-violet radiation of fluorescent lamps.

*EVENGLO is a registered trade mark of Koppers Company, Inc.

Easy to install...
only two basic parts
Completely assembled chassis with
integral end plates is light-weight,
sturdy, easy to handle.
Separately cartoned one-piece
shield hooks on
after installation.

Easily cleaned...no need
to remove shield from fixture
Curved shield is invisibly framed
and hinged...lets down at a
touch, wipes clean in seconds.

Garcy offers a complete line of lighting fixtures for
commercial, institutional and display lighting.

GARCY Preferred for Performance
COMPLETE COMMERCIAL LIGHTING

Garden City Plating and Mfg. Co.
1736 N. Ashland Ave. • Chicago 22, Illinois
In Canada: Garco of Canada, Ltd., 1224 Dufferin Street, Toronto 4

the fourth 15¢ hike for cement in a
little more than a year.

A 4% increase last month in the price
for primary aluminum (raised from
25¢ to 26¢ per lb.). In July, aluminum
sheets in the BLS building materials
index stood at 158.6, or 4.6% higher
than July 1956, just before a 1956 in-
crease in primary aluminum prices
from 24¢ to 25¢ per lb.

The new railroad freight rate in-
creases (4% in the South, 7% else-
where) approved last month by ICC.

Among the factors that may help
hold average composite prices in check:

A reduction last month in prices for
heavy sheet glass. Libbey-Owens-Ford
announced it was cutting its prices
about 7%. Next, Pittsburgh Plate
and American Window Glass said they
were reducing their prices between 7% and
16%. (Announcements to distribu-
tors from American Window Glass
called these competitive price changes
both "uneconomic" and "unrealistic," be-
cause they "will not stimulate glass
consumption, nor accomplish their an-
nounced objective" of meeting im-
ported-glass competition. Earlier, AWG
President Otto G. Schwenk had de-
clared that a price increase for flat
glass was "urgent," to offset higher
raw material costs and impending wage
boosts.)

Continued softening in the prices for
primary copper, and consequent reduc-
tions in prices for brass and wire mill
products. Last month refined copper
had slipped to 271/4¢ per lb., compared
with a postwar peak of 46¢ at the start
of 1956.

STRUCTURAL STEEL unfilled orders on July
1 were 197,000 tons below the June 1 backlog,
mainly because of a decline in orders during
June, while shipments continued at a peak
rate. The American Institute of Steel Con-
struction said the 3,220,000 tons in the July 1
backlog included 1,277,000 tons scheduled for
fabrication by Oct. 31.
First new decorative patterns in years!

"Roundel Glass" and "Lozenge Antique" are both Decorative and Functional!

Decorative—because the exclusive patterns in clear or gold colors set a new style in building entrances.

Functional—because they allow light in but assure the privacy needed in churches, schools, and other public buildings.

"Roundel Glass"—approximately 1/2 size

"Lozenge Antique"—approximately 1/2 size

About Mondial... one of America's leading dealers of functional, structural, and decorative glass.

We will be glad to tell you of other "ideas-in-glass" that are adding freshness to architectural ideas.
WHY DESIGNERS SPECIFY JUNIOR

1. AVAILABILITY

Identified projects, designed for JUNIOR BEAM construction, are assured of a reliable source of supply by Jones & Laughlin. JUNIOR BEAMS, in 6", 8", 10" and 12" sizes, are produced to fit your needs . . . with delivery when you need them. When you build with JUNIOR BEAMS you eliminate costly delays in procurement and fabrication.

2. VERSATILITY

The versatility of JUNIOR BEAMS is illustrated in this grandstand where they are used as floor beams, purlins, stair risers and in built-up columns by Holston Steel Structures, Inc., Bristol, Tennessee. JUNIOR BEAMS can be used in a wide range of cost-cutting applications, such as floor and roof construction, shipbuilding, truck and trailer frames.

JUNIOR BEAMS offer extreme versatility for use in residential and industrial construction, schools, hospitals, commercial buildings. JUNIOR CHANNELS, for stairway construction, and JUNIOR BEAMS are available from the mill and from principal fabricators and warehouses. Investigate the many advantages of these two hot-rolled structurals today.
3. ECONOMY
Contractor on this job saved 56 man-hours using JUNIOR BEAMS as floor joists. Floor construction was completed in 19 man-hours as compared to 75 man-hours for conventional wood joist construction by Steinkamp & Company, Batesville, Indiana. JUNIOR BEAMS are low in cost, light in weight, and easy to erect by welding or bolting for all types of construction.

4. MODERN APPEARANCE
Exposed JUNIOR BEAMS permit added height in this modern home of J. Leonard Rush, Detroit architect. These JUNIOR BEAMS were used on a 30-foot span, allowing for unusual design features. The roof is supported by the JUNIOR BEAMS on three-inch diameter steel pipe columns. Costs for this type of roof were only half the cost of wood-frame construction.

Simply mail this coupon for additional information...

Jones & Laughlin
...a great name in steel

Jones & Laughlin Steel Corporation
Dept. 491, 3 Gateway Center
Pittsburgh 30, Pennsylvania

☐ Have representative call
☐ Send information on JUNIOR BEAMS and JUNIOR CHANNELS

Name: ___________________________
Title: ___________________________
Company: _______________________
Street: __________________________
City: ____________________________
State: ___________________________
Consult an engineering firm
Designing and building hundreds of heating and power installations a year, qualified engineering firms can bring you the latest knowledge of fuel costs and equipment. If you are planning the construction of new heating or power facilities—or the remodeling of an existing installation—one of these concerns will work closely with your own engineering department to effect substantial savings not only in efficiency but in fuel economy over the years.

**facts you should know about coal**
In most industrial areas, bituminous coal is the lowest-cost fuel available. • Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar. • Automatic coal and ash handling systems can cut your labor cost to a minimum. Coal is the safest fuel to store and use. • No smoke or dust problems when coal is burned with modern equipment • Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

Bucyrus-Erie Company, South Milwaukee, Wis., had a steam generation problem. Not only was original equipment deteriorating but capacity proved inadequate for expanding plant facilities. Working with consultants Gates, Weiss and Kramer, of Milwaukee the company decided to modernize its power system.

Today Bucyrus-Erie's power plant is almost completely automatic and utilizes the newest coal-burning and handling equipment. In addition to increasing steam generating capacity 85%, this modernization program has lowered annual steam production costs 10% and labor costs 35%. Burning coal the modern way has increased steam quality, improving production processes and heating throughout the plant.

For additional case histories on burning coal the modern way or for technical advisory service, write to the address below.

BITUMINOUS COAL INSTITUTE
Southern Building • Washington 5, D.C.

Smooth as concrete . . . harder than granite . . . ready for use the day it is laid . . . here is the simple, durable answer for all who seek the kind of flooring that can take the most punishing daily wear-and-tear in commercial and industrial installations and come up smiling.

It is another of the many ways CIBA's Araldite Epoxy Resins bring to new construction, rehabilitation and maintenance a basic combination of properties that are of exceptional value to achieve superior . . . even unique . . . results at great savings in time, labor and overall costs.

CIBA
"FIRST IN EPOXIES"
WHEN QUALITY IS FIRST IN IMPORTANCE...

(as in the new Chemical Corn Exchange Bank in New York)

THE FAST GROWING TREND IS TO

Bolta-Floor offers interior designers a rugged resilient homogeneous-vinyl floor tile...in an exceptionally wide range of colors...with greater authenticity of pattern. That's why it is fast becoming the favorite of the institutional field.

Bolta-Floor has dimensional stability...will not chip, crack, peel or shrink...retains its rich original lustre and beauty year after year, even in busy traffic areas. When the demand is for finest quality, the specifications read—BOLTA-FLOOR.

THE GENERAL TIRE & RUBBER COMPANY
FLOORING DIVISION • AKRON 9, OHIO
Ingenious air-conditioning system
of Socony-Mobil Building
makes liberal use of
NATIONAL PIPE

This gleaming, 45-story, stainless-steel-sheathed building is the largest air-conditioned office building structure ever erected. Its remarkable air-conditioning system is powered by purchased steam, which is actually used twice. In the basement there is a refrigeration plant, consisting of 3 centrifugal steam turbine driven compressors of 2600-ton capacity. These 3 units are driven by steam turbines operating full condensing, with the exception of one which is a partial condensing and exhaust. This exhaust steam, by means of a 10-inch steam main, is tied in with the building's steam distribution system. This 10-inch main serves, during summer operation, all the steam requirements for the tempering coils in the air-conditioning system, as well as the steam required for three 500-ton Lithium Bromide Absorption Machines. In other words, the three 500-ton units act as a surface condenser for the exhaust steam—the building enjoying the economics of this ingenious piping layout.

Approximately 470 tons of USS NATIONAL Pipe—most of it Seamless—were used in the construction of the air-conditioning and heating systems. And at least 350 tons of National Seamless were used in the huge building's plumbing system.

As is so often the case in designing complex plumbing and heating systems, the engineers selected NATIONAL PIPE. They knew from past experience that, no matter how rigorous the conditions, National would do the job, and do it well.

If you'd like more information on the use of NATIONAL Pipe in plumbing and heating, air-conditioning and power installations—large or small, simple or complex—get in touch with us. Our experienced engineering staff is at your service.
Your New Source of Aluminum—Coming to Life

Imaginative, energetic, experienced men... capably bringing to life a major new source of Aluminum—one with an initial annual capacity of 340 million pounds!

Their tools: vision, the benefit of more than 40 years of Olin Mathieson experience in producing non-ferrous metals, and an investment of $300 million.

Their goal: Quality and Service standards unique in the Aluminum industry.

What do these new standards mean? Custom-Tailored Aluminum... with finishes and tolerances tailored specifically for you, to meet your individual production needs. Competitively superior Aluminum that will simplify your manufacturing operations and give you maximum output for each pound consumed. And with it: Outstanding Technical and Sales Service—the kind that values your continuing satisfaction as the most important criterion of success.

This is Olin Aluminum—growing and expanding to meet your needs.

For more information about Olin Aluminum, write: Aluminum Division—Sales, Olin Mathieson Chemical Corporation, 460 Park Avenue, New York 22, N. Y.
FROM INDIANA-
"the strength of Gibraltar"

Like the famous landmark of their slogan, the crisp new Chicago office building of the Prudential Insurance Company of America will owe much of its durability to limestone — limestone from the quarries of Indiana.

And there's more than new buildings coming from the Hoosier state's bustling limestone pits. Watch the skyline for new developments, too. Like the new insulated curtain wall panels — all are now gaining popularity because of their relatively light weight, speed and simplicity of erection.

Both the Indiana Limestone industry and members of the architectural profession are today discovering new potentials in this time proven, building material.

Architects Naess & Murphy
Chicago, Illinois

Full specifications on all Indiana Limestone products available.

INDIANA LIMESTONE INSTITUTE
Founded 1932 as a service organization for the architect and contractor.
BEDFORD, INDIANA
More than a book about painting, more than a book about painters, here is a book about America, seen fresh and whole. It is a book which you and your family will want to read, treasure, spend hours with—and go back to again and again.

Its 300 pages are thronged with more than 250 superb color reproductions of American masterpieces...more pages of brilliant color than any art book has ever brought to its readers. The text, in preparation for the past two years, summons up three centuries of America's history as background for the masterpieces of American painting—and brings the artists, their works, and their times to life with wit, warmth, and fascinating anecdote.

With the publication of AMERICAN PAINTING, American art comes into its own. This is a big book in both size and scope...beautifully printed on fine, heavy paper...handsomely bound. Only through TIME's vast editorial and technical resources can such a magnificent book be published at a price within reach of every home in America.

Use the coupon below to reserve your copies of AMERICAN PAINTING at the special pre-publication price.

TIME BOOK DEPARTMENT
540 North Michigan Ave., Chicago 11, Ill.

Please send me THREE HUNDRED YEARS OF AMERICAN PAINTING at the limited pre-publication price:

☐ Bill me after publication date  ☐ Enclosed is my check for $

NAME

ADDRESS

CITY   ZONE   STATE

$3.85, regular edition  $11.85, deluxe edition

A new book unlike any you have ever seen—soon to be published by TIME.
Client provided ideal creative climate:
When Connecticut General commissioned Skidmore, Owings & Merrill to design their new home, they laid down a basic principle: Everything was to be examined from a fresh approach. In the course of this work, S-O-M designed a partition to accomplish several objectives. It had to be handsome; it had to assure low maintenance cost; it had to be flexible; and it had to integrate with the total design of the building. This was accomplished through the use of aluminum framed panels of plastic and translucent glass on a true six-foot module throughout the building.

Mass production economy secured:
After the principle was worked out with hand-made samples in a full-sized mock-up, the system was turned over to The E. F. Hauserman Company, originator and leading manufacturer of movable walls. During this stage, Hauserman engineers worked closely with S-O-M to bring the design to an economical and practical production stage.

New wall system planned for other buildings:
The movable walls are in at the Connecticut General Building and both client and architect take just pride in the results achieved. From this system, which has been modified by Hauserman and Reynolds Metals, innumerable variations have been developed; for example, the one planned for the Inland Steel Building in Chicago and the one shown on the facing page. Facts about this new movable wall can be secured from The E. F. Hauserman Company, 6702 Grant Avenue, Cleveland 5, Ohio.
When Hauserman and Reynolds, together, offer you the versatility of aluminum for interior walls, design scope is almost limitless. You choose from any number of embossed textures...multiplied by innumerable colors and countless panel arrangements. Aluminum extrusions provide still another multiplier...joining wall sections with hairlines or narrow beads or wide posts in any profile and in any finish, including brilliant anodizing.

Total possibilities...astronomical!

And all this beauty is combined with the basic advantages of Hauserman Movable Walls...earliest occupancy, lowest maintenance, lifetime service. Write for literature. Or consult the Yellow Pages (under Partitions) and call your nearby Hauserman representative.

The E. F. HAUSERMAN COMPANY, 6702 Grant Ave., Cleveland 5, Ohio. Hauserman of Canada, Ltd., Toronto, Ontario.

stands out...stands up...
it's genuine

STRUCTURAL CLAY FACING TILE

There is no "substitute." Only Clay Facing Tile does true justice to your designs and your clients' dollars.

The most economical and durable walls in the world. Rich, permanent colors and smooth surfaces clean sparkling new with soap and water.

First cost is low. Modular sizes lay up fast. A single material and a single trade. Elimination of maintenance insures tremendous savings over the years.

Now—with increased production and faster deliveries, it's professional to remember—there is no substitute for genuine Structural Clay Facing Tile.

FACING TILE INSTITUTE
2556 Clearview Avenue, N. W., Glendale 3-3329, Canton 8, Ohio
1526 18th Street, N. W., Hudson 3-4200, Washington 6, D. C.
1940 Grand Central Terminal, Murray Hill 9-0270, N.Y. 17, N.Y.
228 N. LaSalle Street, Randolph 6-0578, Chicago 1, Ill.

In the interest of better Facing Tile construction these companies have contributed to this advertisement: CHARLESTON CLAY PRODUCTS CO., Charleston 22, W. Va. • THE CLAYCRAFT CO., Columbus 10, Ohio • MAPLETON CLAY PRODUCTS CO., Canton, Ohio • METROPOLITAN BRICK, INC., Canton 2, Ohio • McNEES-KITTANNING CO., Kittanning, Pa. • NATCO CORPORATION, Pittsburgh 22, Pa. • STARK CERAMICS, INC., Canton 1, Ohio • WEST VIRGINIA BRICK CO., Charleston 24, W. Va.
Thousands of NEW MODERN SCHOOLS have VAMPCO Aluminum Windows!

The trend in modern school construction is definitely to aluminum windows and curtain walls. This is typified in the overall construction pattern at Ferris Institute, Big Rapids, Michigan. Roger Allen & Associates, prominent Grand Rapids, Michigan, Architectural firm, has used Vampco Aluminum Curtain Walls, Intermediate Projected, and Monumental Custom Windows to tie the buildings together in a pleasing architectural theme.

For comfort and convenience . . . durability and beauty . . . low installation and upkeep costs, architects and contractors everywhere are turning to VAMPCO. Nearly 12,000 schools in the United States alone now have VAMPCO Aluminum Window construction of one type or another. Find out how VAMPCO's special designing service can help you solve your unusual building problems most economically and efficiently . . . mail coupon below, today!
LEMLAR adjustable louvers (type VI-24) were chosen to dramatize this new home of the Raleigh (N. Carolina) NEWS and OBSERVER and The Raleigh TIMES.

NO ADDED COST
for SOLAR CONTROL LOUVERS...

Operating, Maintenance Expense
Reduced Annually
More Than 25 Percent!

AIR CONDITIONING equipment cut $15,000 and a $2,000 saving on interior blinds made "first costs" exactly even. Important, too, is the "from now on" operating economy. Operating expense of the air conditioning system is reduced by 25% and maintenance of interior blinds eliminated altogether!

GLARE CONTROL is a cost-free benefit for the maximum comfort and improved productivity of workers.
See Sweet's Architectural File, 19e/Le; Industrial File, 7f/Le. Or write for product Catalog and further data. Sun Angle Charts for your locality also available on request.

LEMLAR MANUFACTURING COMPANY
P.O. BOX 352-F9, GARDENA, CALIFORNIA
No Rim! One Piece! In Color!

COMPLETE DECK-TOP, RECEPTOR AND FOUNTAIN ...IN Fiberglass!

No rims! No complex forming! Screws easily onto prepared frame or cabinet! Here is modern construction simplicity at its finest — furnishing greater sanitation and maintenance ease, too. There are no cracks, joints or crevices to interrupt water-flow from smooth deck-top into receptor, or to retain dirt and grime. The complete integral unit is smooth, rounded, one-piece molded fiberglass—in specially selected decorator colors!

A great new idea for schools! Ideal for classroom and laboratory installation, HAWS Series 2500 units are ACID RESISTANT and impervious to stains. They may be equipped with any combination of HAWS pantry and drinking faucets for versatile applications.

4 and 6 foot lengths are available, 24" deep. Any combination of backsplashes and/or endsplashes will be provided. Models are available to meet New York State or Detroit Code requirement of drinking fountain separate from receptor.

HAWS Model 2546-4 — Reinforced fiberglass, one-piece deck-top and receptor in color.
HAWS Model 4144 aerated gooseneck faucet at left, and Model 2NZ sanitary drinking faucet at right — both VANDAL PROOF mounted.

Color AT NO EXTRA COST;
choose from a selection of five decorator colors and white: Coral Accent, Yellow Mist, Pistachio (green), Cerulean (blue), and Gray Satin. A "spider-web" finish of a complementary color is available if specified. All colors are permanently bonded to fiberglass.

GET DETAILED SPEC SHEETS on HAWS Series 2500 fiberglass units. Mail the coupon today! Ask for HAWS new Catalog, too.

HAWS DRINKING FAUCET COMPANY
Fourth and Page Streets, Berkeley 10, California

Please send me detailed specs on Series 2500 fiberglass units.
I would also like a copy of the complete HAWS Catalog.

NAME.
FIRM.
ADDRESS.
CITY ZONE STATE.

architectural FORUM / September 1957
Only TILE looks so well... so permanently

Ceramic tile by American-Olean, from bottom to bleachers, provides lasting beauty for this swimming pool. Neither the tile markings nor the richly-colorful tiled walls and floor will ever need repainting or touch-up.

In shower rooms and locker rooms, as well as in and around the pool itself, ceramic tile is easiest and most economical to keep sanitary, and least likely to cause dangerous skin abrasions. The more American-Olean Tile you specify, the more money and trouble you will save in the long run.

FREE SWIMMING POOL BOOKLET gives complete standards and specifications for indoor pools, including YMCA and NCAA requirements. Send for your copy today.

American-Olean Tile Company
Executive Offices: Lansdale, Pennsylvania
Factories: Lansdale, Pennsylvania • Olean, New York
Member, Tile Council of America

American-Olean Tile Company
1237 Cannon Avenue, Lansdale, Pennsylvania

☐ Please send me my free copies of your Booklet 800, "Tile for Swimming Pools", and Booklet 600, "Tile for Schools".
☐ Please send the name of my American-Olean tile contractor.

Name ____________________________________________
Address _____________________________________________
City ____________________________ Zone _____ State ________

(Please Print)
MIRRORS AND GLIDING DOORS
with hardware by Kennatrack

Popular, space-saving "Mr. and Mrs." closet: sliding doors make best use of room ... and mirror is always in view.

Gliding doors with Kennatrack hardware make this attractive and unusual "Mr. and Mrs." closet possible. A full-length mirror makes a design feature of the usual "written-off" wall space between two wardrobes. When either closet is used, fingertip pressure slides the door behind the mirror; afterwards, it's easily—and quietly—returned to its original position.

The "Mr. and Mrs." is only one of the many space-saving ideas now being developed by a full-time staff of designers and engineers at Kennatrack, the world's largest exclusive manufacturer of hardware for sliding doors. For quiet, free-moving hardware, always specify Kennatrack Gliding Door Hardware—the complete line that is guaranteed to give trouble-free performance for a house-time!

Write today for your FREE Kennatrack catalog. See why more architects specify Kennatrack Gliding Door Hardware!
Where cost and comfort count...

choose MODINE
CABINET UNITS

And you can cut space needs 27%

VERSATILITY and low-cost performance make Modine cabinet units ideal for heating and ventilating commercial, institutional and public buildings. They provide fast, quiet, positive air distribution. And where space is limited, size of units can be reduced more than 25% by using Modine Type W coils and operating on hot water instead of steam.

They can be installed upright or inverted . . . fully exposed, recessed or concealed . . . on walls, floors or ceilings. Some models are for steam or hot water heating—others heat with hot water, cool with chilled water. Some can be installed with ducts.

Easily attached accessories permit ventilating with fresh outside air. When so equipped, cabinet units meet many requirements where the expense of unit ventilators is not warranted.

Series of Type BF units provide quiet, uniform heat distribution in this spacious, modern church.

Adaptability to ceiling mounting makes Modine cabinet units ideal where wall space is limited.

Here's how the use of Type W coils with hot water can reduce unit size. Dotted lines indicate space steam-coil units of equal capacity would need.

Choose from seven distinct cabinet types


In Canada: Sarco, Ltd., Toronto
New curtain wall sealer resists hurricane fury!

Wind hits a screaming 130 m.p.h.
Rain whips out in a 12-inch-per-hour deluge. The curtain wall unit shudders, bends under this man-made blast... but doesn't leak. WEATHERBAN Brand Curtain Wall Sealer seals its seams.

The purpose of this torturing, simulated weather test? To prove the weather-tightness of this WEATHERBAN sealed curtain wall, even under the lash of hurricane fury.

This new curtain wall sealer is a two-part polysulfide rubber-based compound. It cures chemically without shrinkage into a durable, solid rubber seal. It stretches, compresses with wall movement, adheres strongly to glass, stone and metal.

Here's why WEATHERBAN Sealer is being picked to seal new buildings... why it's being chosen also to repair leaks in older buildings originally sealed with conventional sealers.

MINNESOTA MINING AND MANUFACTURING COMPANY • ADHESIVES AND COATINGS DIVISION
417 PIQUETTE AVE., DETROIT 2, MICH. • GENERAL SALES OFFICES: ST. PAUL 6, MINN. • EXPORT: 51 PARK AVE., NEW YORK 14, N.Y. • CANADA: P. O. BOX 777, LONDON, ONT.
HOW Tectum DECKS CUT BUILDING COSTS

In three relatively simple steps, deck and interior ceiling are completed when Tectum decks are specified. Exposed beam construction—the open concept—makes real savings possible for all types of building construction. And it makes sense: Tectum insulates, is acoustical, structural and non-combustible. Here in one operation, deck insulation and acoustical sound control system are installed, and the finished underside eliminates painting in the majority of cases. The beautifully textured surface created by the compressed wood fibers lends an attractive note to both private and public buildings.

Now, when rising costs are often causing the postponement of vital expansion plans, savings like this can mean the difference of continuing plans or shelving the project. The examples on the opposite page are typical case studies from our files. Making the most of the multiple advantages Tectum offers can cut costs for you, too. Ask your Tectum distributor for an estimate on the job you are planning and see how costs can be kept in line without sacrificing quality in any way.

First, structural system is installed which may be wood, prestressed concrete or steel. (Lightweight Tectum makes economical spans practical.)

Next Tectum is laid, quickly and economically over spans that are normally lighter due to Tectum's light weight composition.

Roofing felt is mopped into position. Built up roofing completes the deck and ceiling construction. Three operations and the job's completed.
TYPICAL COST REDUCTION REPORTS FROM TECTUM USERS

Example 1  "The use of Tectum in lieu of the base specifications and having the same insulating and acoustical properties, resulted in savings of $6694.00 on the new Grandview High School Gymnasium. This is a savings of 38c per square foot."

Example 2  "In order to assure our client an economical design, we asked for alternate bids. Through use of Tectum, the savings to the Board of Education was $7400.00 or a unit savings of 34c per square foot."

More and more architects are finding that the exclusive advantages of Tectum on prestressed concrete, steel joists, I beam, laminated wood or bulb-tee sub-purlin results in greater satisfaction, lower costs, less weight in the structural system and a general improvement in time, cost and appearance.

Send today for this informative booklet, "Raising The Roof Costs Less Than Ever" and see how hundreds of plants, schools, churches and other types of buildings have incorporated Tectum type decks and sidewall construction. Write today for the complete facts.
in this contemporary interior...

which doors have RIXSON closers?

Entrance door, left, has Rixson no. 20 concealed floor type closer. Communicating office door, right, is equipped with a Rixson Uni-check concealed floor type closer. Inactive wardrobe doors, center, have no closers; but are hung on Rixson no. 117 offset pivot sets. All doors have identical hanging style, achieving a pleasing simplicity.

No exposed mechanisms or unsightly arms mar the appearance of these beautiful modern doorways, even when doors are open. Extra-length spindles are provided to clear thick rug installations.

Matched hanging styles can also be achieved with Rixson center hung installations.

write for condensed catalog 18c

THE OSCAR C. RIXSON COMPANY
9100 west belmont avenue • franklin park, illinois

canadian plant: 45 racine road • rexdale, ontario
these are the manufacturers who offer RLM-labeled units...

The power of over 1,000 words of highest-in-history RLM lighting specifications is behind every RLM-labeled unit. Each word is in accord with basic, nationally-accepted, minimum standards for industrial lighting equipment efficiency, design and performance. RLM-labeled units conforming to these specifications are available from the leading manufacturers shown in the chart above. While each RLM Unit meets certain minimum RLM Standards, other special features, such as construction refinements or operating advancements, vary from unit to unit according to the ideas and skill of the individual manufacturer. For example, the RLM Label may be affixed to as many as 960 different types of RLM Dome Reflectors!

Send for your complimentary copy of the 1957 RLM Specifications Book, containing a complete set of RLM Specifications.

RLM STANDARDS INSTITUTE, Suite 830, 326 W. Madison St., Chicago 6, Ill.
These Republic Steel Lockers were installed in the new student building, Case Institute of Technology, Cleveland, Ohio.
In schools, colleges, institutions everywhere, Republic Steel Lockers are on guard protecting the valuables and personal belongings of students and faculty at study, work, and play.

Republic Steel Lockers are strong, sturdy, rigid. They combine smart styling and design with simple construction for fast, easy installation. They last a lifetime—provide full inside-locker roominess, sanitation, safety.

Republic Steel Lockers are Bonderized to provide a superior base for anchoring the enamel finish to the steel surface. That means every Republic Steel Locker is protected with an especially hard finish that resists rust, moisture, bumps, and scratches . . . offers additional advantages in economies and savings in minimum maintenance and care.

And Republic Steel Lockers can take it! The handsome finish will not peel, chip or flake. Republic Standard Steel Lockers offer three locking systems—are available in many types and sizes for every conceivable storage requirement.

Republic’s Berger Division, locker manufacturers for more than 65 years, offers school administrators and architects a complete planning and installation service. This service supplies technical planning and engineering service, then assumes full responsibility for complete installation. Get all the facts from your Berger representative, or send for detailed booklet today.

Send for free literature.

STEEL and Steel Products

Send for free literature.

TRUSCON "O-T" STEEL JOISTS were used throughout the two-story addition to Brush High School, Lyndhurst, Ohio. Every Truscon "O-T" Joist—Short-Span Series—is quality protected and backed by the Steel Joist Institute Seal of Approval. Send for design data today.

VISION-VENT® WINDOW WALLS, made by the Truscon Division of Republic Steel, are fast becoming standard specifications in school construction. They are installed fast, reducing costs and giving maximum of daylight and ventilation. Above, Campbell Hill Elementary School, Seattle, Wash.

REPUBLIC STEEL CORPORATION
DEPT. C-4278
3108 EAST 45TH STREET • CLEVELAND 27, OHIO

Please send information on the checked Republic products.

☐ Republic Steel Lockers ☐ Republic Steel Shelving
☐ Truscon "O-T" Joists ☐ Truscon Vision-Vent Window Walls

Name __________________________ Title __________________________
Company __________________________
Address __________________________
City __________________ Zone ______ State ______
for smart, business-like entrances

You're sure to please cost-conscious clients — and simplify your own job — when you include Steelcraft all-steel doors in your building plans.

Steelcraft doors are standard doors — mass-produced for low first cost and low maintenance . . . factory-stocked for immediate delivery.

Steelcraft standard steel doors also eliminate costly detail in planning and specifying. Each door is shipped complete with frame and all hardware prepared for fast installation. And they are available in a wide variety of standard and heavy-duty styles for any commercial, institutional or industrial application. See Sweets' Catalog or write for details.

standard steel doors by STEELCRAFT

The Steelcraft Manufacturing Company • Rossmoyne, Ohio

THE INDUSTRY'S MOST COMPLETE LINE OF STANDARD STEEL DOORS
prove weathertightness of
curtain walls and windows
by GENERAL BRONZE

From a steady drizzle to a driving rain with quick changing squalls of from 40 to 80 miles per hour...yes, even to the full force of a 120 m.p.h. hurricane—that's the weathertightness test all new curtain walls and windows are subjected to by General Bronze.

Here at General Bronze, nothing is left to chance. Every new design, every new product must prove its engineering soundness and its weathertightness under the most severe weather conditions imaginable. Not only are windows and wall panels tested for air and water infiltration but their deflection under varying wind pressures is also carefully measured and recorded.

Our static and dynamic weather-testing facilities at Garden City are considered by many architects, engineers and contractors to be the finest and most complete available anywhere. And that's why they all feel so confident when the specs call for “curtain walls and windows by General Bronze.”

General Bronze has prepared a new booklet, “Static and Dynamic Weather Testing of Architectural Products,” that explains with photos and diagrams how these tests are conducted. It is free, without obligation, to architects, engineers and contractors who write on their business letterhead. Address your request to Dept. AF-579.
for sixty years,
for nearly every use,
for every good reason

Today's public preference for cheerful brightness emphasizes anew the tough, enduring, ageless beauty of Northern Hard Maple floors. What other floor, natural or synthetic, serves so many varied needs so well and so long? In the six typical areas pictured, MAPMA Maple, you'll agree, is an eminently sound specification. It will serve for years with routine maintenance. Easy refinishing will bring out the "new floor" that's always waiting underneath. Available in wide variety of block patterns as well as the familiar strip. See Sweet's (Arch. 13j-MA) for full facts.

NORTHERN HARD MAPLE
BEECH AND BIRCH

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Suite 564
Pure Oil Building
35 E. Wacker Drive
Chicago 1, Illinois
Look at the design advantages you get in truss-type Armco Steel Buildings

You can meet client needs and save time for yourself by designing with Armco Steel Buildings. Armco Buildings are designed in accordance with AISI and AISC Specifications. You save the time and cost of designing each individual beam and column yet you retain complete freedom of treatment.

Unique Truss Design

1. The truss components have sloped surfaces making them self-cleaning. In addition, all surfaces are accessible to maintenance painting.

2. You can meet your client's specific needs from a selection of six different wall heights, from 12 to 30 feet.

3. Total floor area is unlimited, with clear span widths from 60 to 100 feet and any lengths in increments of 20 feet.

4. All space in truss-type Armco Steel Buildings is usable up to the bottom chord of the truss. The traditional knee brace has been eliminated. There are no obstructions to craneways or other facilities.

5. Walls are made of flat interlocking STEELOX® Panels that are readily integrated with brick, stone, glass and other materials.

6. Roof and wall covering can be any one of three different types of Armco Steel: Armco ZINGRIP® Steel, with a durable galvanized coating; Armco ZINC GRIP PAINTGRIP® Steel for best paint adherence; or Armco ALUMINIZED STEEL®, aluminum-coated steel which combines the surface characteristics of aluminum with the strength of steel.

The wide spans, economical design and freedom of treatment make these truss-type Armco Buildings ideal for applications such as auditoriums, gymnasiums, manufacturing plants, warehouses and wherever else you need clear, unobstructed floor space. Write us for details including facts about smaller Armco Steel Buildings, featuring frameless and rigid frame design. Armco Drainage & Metal Products, Inc., 5277 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.
For better sound control, and appearance—install acoustical ceilings with Securitee Mechanical Suspension Systems.

Acoustical ceilings are as important as electrical fixtures, plumbing or heating in any building. Here’s why:

- They control the noise level . . . making quieter working conditions and more efficient workers.

- They are pre-finished in a wide selection of fissured, perforated or textured patterns (eliminating ceiling painting or decorating).

- They eliminate ceiling plastering—meaning less moisture to dry out during construction . . . saving time and money.

- Securitee offers six systems of installation for acoustical ceilings—no need to "shop around"—there’s a Securitee System for every type of installation—and it is the finest.

Write for complete information, or see Sweets Architectural File.

W. J. HAERTEL & CO. The largest and most complete line of Mechanical Suspension Systems •
832 WEST EASTMAN STREET • CHICAGO, ILLINOIS

West Coast Distributors FREY & HAERTEL, INC. 560 Ninth Street, San Francisco, Calif.
remodeling consider
and the eye*

*for the best in Appearance and
the finest in Quality—specify
and insist on Securitee Systems

Leaders since 1946
COOL ANY BUILDING...OLD OR NEW...

THE LOW-COST AIRTEMP WAY

Planning to air condition? Save on installation, save on operating costs with Airtemp cooling. You get these three advantages—

1 Broadest choice in the industry—287 models! There's an Airtemp model exactly right for your cooling needs and installation problems.

2 Engineered by Chrysler for low monthly operating costs...plus quick, easy, low-cost installation.

3 Installation help! Airtemp will recommend a reliable local engineer and contractor...and work with them in planning your installation.

For a free survey, phone your nearest Airtemp outlet. Or write to Airtemp Division, Chrysler Corp., Dayton 1, Ohio.
FROM BEETHOVEN TO BASKETBALL . . .
FROM CHAUCER TO CARPENTRY . . .

Architectural harmony is achieved throughout four buildings of an award winning school with variety of Ceco Window and Curtainwall treatments

Sprawling Dunbar Vocational High stands as a testimonial to the happy marriage of function and design. Challenge facing the architects was how to achieve exterior harmony throughout four separate buildings having dissimilar functions: classrooms . . . administrative offices . . . library . . . cafeteria . . . music rooms . . . gymnasiums . . . auditorium . . . industrial shops. Objective was accomplished in a major way through the tasteful blending of Ceco Aluminum Curtainwalls and Aluminum and Steel Windows. Dunbar was given an honor award by the Chicago chapter of the American Institute of Architects and the Chicago Association of Commerce & Industry.

The Ceco Curtainwalls, with specially anodized gunmetal-gray aluminum panels, ideally complement the gray-and-black pressed brick endwalls. Ceco Aluminum and Steel Windows of various types are designed harmoniously into dissimilar facades to provide required light and ventilation.

Every architect has the problem of relating design to function. Simplify your work—consult Ceco for the biggest selection—the world’s widest line of quality Aluminum and Steel Curtainwalls and Windows: Ceco Steel Products Corporation—general offices, 5601 West 26th Street, Chicago 50, Illinois—offices, warehouses and fabricating plants in principal cities.

IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE

Windows, Screens / Hollow-Metal Doors / Ceco-Meyer Steelforms / Concrete Reinforcing / Steel Joists / Metal Roof Deck / Metal Lath

architectural FORUM / September 1957
the skydome that does all 3
reduces heat ... eliminates glare ... controls daylight

After years of development and research Wasco Products, the company that originated Skydomes, now offers you a revolutionary new overhead daylighting unit. It's Reflectadome, the one dome that reduces objectionable solar heat gain, eliminates glare and controls daylight — without supplementary light control fixtures.

Reflectadome's secret is Solatex Silver, a special material embedded (not laminated) right into the acrylic dome. Reflectadome produces a remarkably level lighting curve to keep interiors evenly illuminated throughout the daylight hours for top visual performance.

Naturally, Wascolite Reflectadome features all the improved functional advantages of the Wascolite Skydome. Solatex Silver embedments are available only from Wasco, so specify Wascolite Reflectadome by name.

Write immediately for full details on exciting new Reflectadome, the one Skydome that does all 3! — reduces heat ... eliminates glare ... controls daylight.

*Trademark of Wasco Products, Inc.
SUPERVISORY DATACENTER*

First step toward centralized automation in buildings

New ideas of major significance to building design are rare indeed. The Supervisory DataCenter panel is perhaps one of these. For by completely centralizing air conditioning control, it points the way to similar economies in the integration of many other mechanical functions. Conception, placement and installation of the DataCenter involve creative design factors that are of first concern to the architect. Your local Honeywell man has full details.

Minneapolis-Honeywell Regulator Company

Rendering at right shows how a non-technical receptionist, even while taking calls and receiving visitors, can oversee comfort in a building when Supervisory DataCenter is installed. A similar installation is in operation at the Hillyard Chemical Co., St. Joseph, Mo. DataCenter there designed by Turnbull-Novak, Inc., Consulting Engineers. Project supervised by Harlen E. Rathbun, AIA, Architect.
New Doors of LIFETIME ALUMINUM for Commercial and Industrial Buildings

Almost Maintenance-Free—Aluminum Designs Blend with Modern Planning

Now . . . magnificent doors of lifetime aluminum, built to your own specifications, can add functional beauty to the buildings that take shape from your plans! Constructed in the same time-saving, money-saving way* as the new Panoramic Door that has taken industry by storm, The “OVERHEAD Door” in lifetime aluminum has narrower stiles and rails, yet is far stronger than ever before. These doors weigh approximately the same as wood doors. Slightly greater initial cost is offset by the savings in maintenance! The gleaming anodized finish, inside and out, is permanent—never needs paint. Keyway construction permits easy replacement of components if damaged. For details of construction, sizes, special features, see pages 38-39, Sweet’s Architectural Catalog or write us for 56-page hard-bound catalog with traceable drawings.

*Patents Pending

OVERHEAD DOOR CORPORATION, Hartford City, Indiana
Manufacturing Divisions: Hillside, N. J.; Nashua, N. H.; Cortland, N. Y.; Lewistown, Pennsylvania; Dallas, Texas; Portland, Oregon.

For 36 Years . . . Architects Have Specified The ‘‘OVERHEAD Door’’ More Than Any Other Brand!

** Architectural

New Panoramic Aluminum Door—handsome, maintenance-free, weather-tight—blends beautifully with modern design—was an instant hit with the oil industry. Gives attendants full vision of traffic, parking areas and pumps.

1957 A. I. A. Prize-Winning Design—Middlesex Mutual Trust Building at Waltham, Massachusetts, uses this special flush aluminum OVERHEAD Door. Door shown opens into the receiving room of the insurance company’s office building. Another door is in the basement garage.
Merchants National Bank at Mobile, Alabama, provides drive-in facilities with the addition of a new Motor Branch and Parking Building. Two aluminum "OVERHEAD DOORS," with bottom sections louvered to permit escape of exhaust fumes, give an attractive "store front" appearance to the building. The larger door, 26'9" wide, is matched by a door of the same size and design on the entrance side of the building.
Demonstrating with a large sample section, Pennsylvania Bell Telephone Company School instructor explains to technician-students the basic principles of Q-Floor wiring. (Right) Members of the Q-Floor class become familiar with the product's advantages by wiring an actual installation in the classroom.

Q-Floor... a Required Subject at this School

Every year, an estimated 1,600 Bell Telephone Company of Pennsylvania technicians attend a special school near Harrisburg, Pa. to learn the latest practice in line and equipment installation. Bell feels that cellular steel subfloors are so important that an entire classroom is devoted to the subject of Q-Floor wiring. Here the students learn by working with an actual Q-Floor installation that wires can be pulled and telephone or electrical outlets established often in a matter of minutes, and that every six-inch area of the entire floor is available for outlet use. This flexibility, so graphically pointed out to Bell students, plus substantial savings in construction time and money has influenced owners and architects all over America to provide for the future by building with Q-Floor today. Use the coupon to write for literature.

Today's finest buildings are built with Robertson

Q-Floor

The STANDARD sub-floor construction for modern buildings

H. H. Robertson Company

2403 Farmers Bank Building, Pittsburgh 22, Pa.

In England—Robertson Thain Ltd., Ellesmere, Cheshire

In Canada—Robertson-Irwin Ltd., Hamilton, Ontario • Edmonton, Alberta

Please send 44-page Q-Floor Manual.

NAME

TITLE

COMPANY

ADDRESS

CITY

STATE
Three Rust-Oleum DIFFERENCES
that save you time, money and metal!

GOES ON FASTER
No tedious surface preparations usually required—just scrape and wirebrush to remove rust scale and loose rust—then brush Rust-Oleum 769
Damp-Proof Red Primer right over the remaining rust.

STOPS RUST
Rust-Oleum’s specially-processed fish oil vehicle works down through the rust into the tiny, microscopic pits in the bare metal where it drives out air and moisture to stop rust.

CHART shows results of tracing radio-activated Rust-Oleum through rust to bare metal by Geiger Counter.

LASTS LONGER
Applied over rust, Rust-Oleum lasts longer for the over-the-years protection you need. It resists sun, salt water, salt air, fumes, heat, humidity, moisture, weathering.

These are just a few of many important differences that separate Rust-Oleum from ordinary coatings. When you consider that Rust-Oleum covers approximately 30% more area, depending upon surface condition and porosity... and the fact that Rust-Oleum finish coatings, with the same fish oil vehicle, are available in nearly every color for double protection... it’s just good, common sense to use Rust-Oleum. Prompt delivery from Industrial Distributor stocks. Write for illustrated literature with color charts.
exactly what Solar Aircraft Company
the Herman Nelson department store of
ventilating equipment!

From the vast Herman Nelson line, it was easy for Solar Aircraft Company to choose just the right units, in the right capacities, needed to solve all heating problems at its huge Des Moines plant. Solar, with headquarters at San Diego, California, is a major supplier of heat resistant alloys to the aircraft industry. It is typical of the many top-flight manufacturers that look to Herman Nelson for precision performance, guaranteed results in heating and ventilating.

Herman Nelson Vertical Unit Heaters are mounted on high ceiling locations at Solar’s Des Moines Plant to direct warm air vertically downward or at an angle near loading docks, doorways, other areas to guard against heat loss.

Architects & Engineers—Brooks-Borg, Des Moines;
Mech. Contractor—M. A. Wolin Plumbing & Heating, Des Moines;

Herman Nelson Industrial Heaters are used throughout Solar Aircraft Company’s Des Moines plant for basic heating needs, providing quiet operation with even heat distribution over large areas. Units are mounted in cluster arrangements on various “pent house” locations.
needed from heating and

American Air Filter
Company, Inc.
427 Central Avenue, Louisville 8, Kentucky

BETTER AIR IS OUR BUSINESS
M-DECKS Open the Way

Provide an Effective Acoustical Ceiling with Recessed Troffer Lighting—Serve as Permanent Forms in Concrete joist and slab construction of floors and roofs.

This Cross Sectional View shows another application of Mahon Long Span M-Deck in which the M-Deck Section provides the Structural Unit, the Roof Deck, and the finished Acoustical Ceiling—all in one package. Mahon Troffer Sections are included here for Recessed Lighting.

Above is One Type of Application of Mahon Long Span M-Deck in the Construction of an Unusual Roof on the New Practice Session Field House for Ohio State University, Columbus, Ohio. Howard Dwight Smith, Architect, State of Ohio, Barber & Magee, Structural Engineers. Joseph Skillen & Co., Gen. Contrs.

ELECTRIFIED M-FLOORS
Mahon M-Floors provide electrical availability in every square foot of floor surface—safeguard buildings against electrical obsolescence in years to come.

CONCRETE FLOOR FORMS
Mahon Permanent Concrete Floor Forms in various types meet virtually any requirement in concrete floor slab construction over structural steel framing.

ACOUSTICAL and TROFFER FORMS
Provide an Effective Acoustical Ceiling with Recessed Troffer Lighting—Serve as Permanent Forms in Concrete Joist and Slab Construction of Floors and Roofs.
to New Concepts in both Structural Design and Function of a Modern Roof!

In M-Decks the architect is given a versatile building product that permits him to design a simple roof in which the structural supporting members, the roof deck, the finished ceiling material, and the acoustical treatment can all be contained in one lightweight, quickly erected unit.

In auditoriums, armories, sports arenas, field houses, churches, or any type of building where rigid frame or exposed truss construction is employed, Mahon Cellular Steel M-Decks provide the structural roof and the finished ceiling material combined. Many arrangements are possible and many ceiling effects are obtainable.

The long span structural M-Deck Sections span from wall to wall or from truss to truss. This eliminates roof beams and the cluttered effect of roof purlins, and produces a neat, continuous beamed or flat metal ceiling surface which is virtually indestructible. If recessed lighting is desired, Mahon Troffer Sections can be included in this type of roof-ceiling construction in any ratio to meet specific lighting requirements. Exposed metal surfaces of both M-Deck and Troffer Sections, which form the ceiling, can be readily painted to harmonize with any interior decor.

All Mahon cellular, Long Span M-Deck Sections can be furnished with bottom metal perforated and sound absorbing material inserted to provide a highly effective acoustical ceiling...Noise Reduction Coefficients range up to .85 in ceilings constructed with Mahon Sections recommended for this use.

Some of the newer Mahon Sections do not appear in the current Sweet's Files. Why not have a Mahon sales engineer call and bring you up to date on new Mahon Sections now available for Electrified Sub-Floor, Roof, and Combined Roof-Ceiling Construction.

THE R. C. MAHON COMPANY • Detroit 34, Michigan
Sales-Engineering Offices in Detroit, New York and Chicago
Representatives in all Principal Cities
Von Duprin quality is the best assurance of "the safe way out"! For Von Duprin fire and panic exit devices are virtually timeless in their ability to protect lives against that "once-in-a-lifetime emergency" or defy the rough wear of daily traffic. Superior Von Duprin design, close inspections, the use of only quality materials, insure unfailing dependability. Result: Von Duprin devices are trusted by architects, hardware consultants and safety-minded officials . . . used in outstanding buildings of all types.

VONNEGUT HARDWARE CO. • VON DUPRIN DIVISION • INDIANAPOLIS 9, INDIANA
Suburban Park Elementary School, Norfolk, Virginia. Architects — Oliver and Smith

The School Board Demanded Modern Design

— But Insisted on Economy...

Ceramic Tile Gave Both

Tremendous progress in creative school design has kept pace with rapid advances in educational theories and practices. School boards are demanding physical designs which fulfill these theories—and fit their budgets. Here's how ceramic tile is contributing to modern school design and budget needs.

Take the Suburban Park Elementary School in Norfolk, Virginia. Designed by Oliver and Smith, it was built at a cost of $10.62 a square foot—a figure at the lower end of the national square foot school building cost scale.

Fitting in with the need for economy, Oliver and Smith used a new, approved method of ceramic tile installation. They specified tile installed by the newly developed thin-set method—directly on cinder block. The resulting economies permitted extensive use of tile in corridors, washrooms, cafeteria and the gymnasium.

Besides the obvious benefits of durability, beauty and design scope (aided by a size gamut from one-inch to foot-square and larger units), tile gave this school a lifetime of maintenance-free economy in key areas. Just how much this means is brought home graphically in the chart based on statistics from Modern Sanitation Magazine.

Whether your next project is institutional, commercial or residential, be sure to consider the durability, design and economy factors of modern ceramic tile installations.

Cost of Cleaning A Square Yard of Surface

<table>
<thead>
<tr>
<th>Surface Type</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glazed Ceramic Tile</td>
<td>6¢</td>
</tr>
<tr>
<td>Marble Shower Partitions</td>
<td>7¢</td>
</tr>
<tr>
<td>Metal Partitions</td>
<td>9¢</td>
</tr>
<tr>
<td>Seamless Painted Wall-Smooth</td>
<td>11¢</td>
</tr>
<tr>
<td>Painted Concrete</td>
<td>12¢</td>
</tr>
<tr>
<td>Glazed Structural Tile With Struck Joints</td>
<td>13¢</td>
</tr>
</tbody>
</table>

SOURCE: Modern Sanitation Magazine
New personality for hard-working labs
...

J-M Colorlith

handsome, tough, colorful

Here's the new look in labs that's just as practical as it is attractive. It's Johns-Manville's chemical-resistant work-surface material—Colorlith—and it's ready to help you bring new color and design into the school and industrial laboratory.

Made of asbestos and cement—Colorlith offers all these important advantages: COLOR—makes any lab a showplace. WORKABILITY—offers new design freedom. (Large 4' x 8' sheets can be cut in any shape with standard tools.) HIGH UNIFORM STRENGTH—resists years of strenuous service—can be used in thicknesses as low as ¼" for resurfacing and fume hoods. And Colorlith offers unusually good chemical resistance, plus a smooth-writing surface that lab workers consider so important.

For free Colorlith specification sheet plus a coast-to-coast list of J-M Colorlith laboratory furniture manufacturers, see your local J-M representative. Or write Johns-Manville, Box 14, New York 16, N.Y. In Canada: Port Credit, Ontario.

JOHNS-MANVILLE
GOOD SOLUTION

Forum:
Thank you very much for your editorial on the “Capitol Solution” (AF, July ’57). I thought it was excellent!

PRESCOTT BUSH
US Senate
Washington, D.C.

Forum:
... Unfortunately, I find that we members of Congress have little to say about the improvement of the Capitol and the construction of the House Office Building. This we discovered this year when we tried to stop some of the work to which the government (by parliamentary maneuver) had already committed some $100 million.

J. ARTHUR YOUNGER
House of Representatives
Washington, D.C.

BAFFLING PROGRAM

Forum:
My compliments for the excellent article in the July Forum, “FHA in the City.” Unfortunately, however, the story ends simply by emphasizing the need for imagination in creating a new rental housing program. As is almost invariably the case in discussions of this baffling subject, there are no suggestions.

Here’s my suggestion: look into the tax impact upon the individual or corporate investors in rental housing.

HERBERT S. COLTON
Colton & Osgood
Washington, D.C.

MASSIVE CAMPAIGN

Forum:
Reading your editorial “Art for Engineers” (AF, June ’57), I seem to see for the first time in a prominent place a most cogent thought: high school and college students are taught to read but they are not taught, through visual arts, to see.

There is no more time to lose in instituting a massive campaign to make integral in all our educational systems throughout the nation an appreciation of the visual world and of the things man can do to it. This appreciation should be no less broad and deep than that which the system offers to every growing American in connection with letters and numbers and words and ideas. And I would wish not only FORUM and Trans Inc., not only the AIA, but each and every instrument and medium of culture worthy of that name, would join in thus filling this vacuum in our total education.

LANDIS GORES, architect
New Canaan, Conn.

SPEECH

Forum:
I have received a copy of Mr. Henry R. Luce’s speech to the centennial convention of the AIA. I certainly enjoyed reading it. Particularly admirable is Mr. Luce’s success in correlating modern-day architecture with democracy, economics, government, art, politics, and other important phases of our twentieth-century living. I heartily agree with him that government should set a high standard toward effecting this Architectural Revolution.

ORYVAL E. FAUBUS, governor
State of Arkansas

Forum:
... I would certainly agree with Mr. Luce that there is a significance in architecture that has been largely missing from the common planning we have undertaken in either public or private projects. I would also hope that the “conviction that architecture is essential to the physical and spiritual health of this nation” will grow.

ALBERT D. ROSSELLINI, governor
State of Washington

Forum:
... I had it reprinted in the Congressional Record on May 27.

HENRY S. REISS
House of Representatives
Washington, D.C.

BANISHING AUTOMOBILES

Forum:
Your “Crisis in City Transit” (AF, June ’57) presents a timely discussion of the nationwide problem posed by the automobile. Your study deals with traffic congestion—one of the two major problems caused by the automobile. The other—and greater—problem is automobile accidents, which are currently bringing death to 40,000 Americans and injury to 2.3 million a year.

If the auto industry is to keep on pouring out millions of huge cars, with the emphasis on “larger,” “longer,” “wider,” continued on p. 96

NOW! A SKYLIGHT that can’t leak, costs little to install

More free daylight is needed in this day of broad, flat roofs. The trouble-free skylight that fills this need is CONSOLITE. It can’t leak because it is molded of fiberglass in ONE PIECE. Because it is self-flashing, easy, fast installation is made in minutes.

Consolites are available in self-flashing, curb and bond types and in squares, rectangles and rounds. Where prevention of condensation is not important, single-dome models are also available.

Please write for complete information.

RESOLITE CORPORATION
Zelienople, Pa.

CHICAGO • HOUSTON • TORONTO

* We will.—ED.

Consolite Skylights fastened down over first layer of roofing membrane, ready for felt stripping and pitch.

Because of its molded one-piece fiberglass construction, Consolite eliminates the need for sash, painting and costly replacement due to breakage. They are approved for use in bonded roofs by major roofing manufacturers. They are ideal for use in metal deck or pre-stressed concrete roofs.

Consolite installation amounts to mere fastening and stripping with pitch and roofing felt.
it is indeed doubtful if roads can be built fast enough, or cities rebuilt speedily enough to prevent traffic strangulation, to say nothing of automobile accidents.

ARTHUR W. STEVENS, president
Automobile Safety Assn.
Boston, Mass.

FIGHTING PLANNERS

Forum:
The articles in the June issue of the FORUM on City Transit and Public Housing get to the heart of the matter.

Problems of city planning and renewal will be solved effectively only when city planners throughout the country realize that they must fight for the legislation which affects planning and renewal. While the American Institute of Architects, The National Association of Housing and Renewal Officials and others have given positive and effective support to such legislation, the planners, for the most part, have been silent.

I hope that the planners throughout the country will soon wake up to the fact that they must take the leadership in the efforts to secure the legislation necessary for the building and renewing of our nation.

T. BROOKS BRADEMAS, senior city planner
City of Detroit
City Plan Commission
Detroit, Mich.

SUBSEQUENT HOUSING

Forum:
To continue the housing debate (AF, June '57 and subsequent issues): Public housing, as now practiced, is not in the public interest—not in the real sense of eradicating slums. But it could be. We need a political showdown to locate sites according to a sensible plan (dispersion to employment sources and to low cost land); we need design for protective coloration on small sites evolving to private ownership under a revolving fund concept; and we need a broadened program to include higher income families.

We should subsidize conversion and rehabilitation, to extend the life of declining areas for use by lowest income families. Then we should make prime slum sites available for highest and best use.

Public housing should be used as an instrument of urban renewal. It might be well if its name were changed and it were merged into renewal.

HARRY WEESE
Chicago, III.

Forum:
I thought it highly irregular that Forum, consulting all those people on public housing in the June issue, did not get the continued on p. 38
To help you shape the face of the future...

BRIDGEPORT ALUMINUM

You don’t have to look far to see changes—revolutionary changes—in the architectural scene today. From striking new ideas and concepts and remarkable new building materials, the architectural face of the future is already taking shape.

Today, curtain wall construction, for example, is proving its utility all over America. Tomorrow it will be in even greater use. Curtain walls are only one of the new architectural developments that employ versatile extruded aluminum structural and decorative members that will retain their beauty and color for generations. Bridgeport Aluminum Extrusions are helping to make these new, modern structures a practical reality today . . . and tomorrow.

Whether you’re an architect, fabricator or construction engineer, it will pay you to consider using Bridgeport Aluminum Extrusions in your plans for today. They are available in a wide range of standard architectural shapes and can be furnished in “made-to-order” shapes to meet special requirements.

For full information, call your Bridgeport Sales Office today—there’s one near you.

NEW BRIDGEPORT EXTRUSIONS BOOK

Write on your firm’s letterhead for a copy of this 130-page handbook on aluminum extrusions. It has complete sections on aluminum extrusions in architecture—suggested construction, helpful data, etc., plus full-size drawings of Bridgeport’s complete line of standard architectural shapes.

For the very newest in

BRIDGEPORT ALUMINUM

Aluminum Extrusion and Forging Facilities at Adrian, Michigan
Bridgeport Brass Company, Aluminum Division, Bridgeport 2, Connecticut
Offices in Principal Cities
NEW Anchor Hinge

won't pull loose from door or jamb

When door holders or door closers plus heavy traffic impose extra strain on doors, jambs, and hinges, specify new McKinney Anchor Hinges. On schools, hospitals, stores, on all public buildings . . . for wood or metal, McKinney Anchor Hinges and screws stay put—permanently—because jamb leaf mortises into the header and door leaf into the top of the door. These extra mortises, extra arms and screws hold fast no matter how much strain is imposed by other hardware, heavy wind, or careless door operation.

Made in 5" x 4½" size, extra heavy with four oilite or ball bearings, for all doors 1¾" to 2¾" thick. In types for use with concealed or surface holders and closers. Wrought steel, solid brass or bronze in complete line of finishes. Sold only in sets with one pair of 5" x 4½" extra heavy mortise butts.

With surface holders and closers, specify T4A3790 with reinforcing arms for door and jambs.

WRITE NOW FOR CATALOG 92 AND TEMPLATES

MCKINNEY
MANUFACTURING COMPANY

PITTSBURGH 33, PA.

In Canada—MCKINNEY-SKILLCRAFT LTD., St. Catharines, Ontario

letters

cont’d

views of at least one homebuilder. But after I read all the opinions included, I was highly gratified by the conclusions.

It is high time that we all worked together to do something about the slums. It seems to me that the whole housing industry and everyone concerned with it should be racing to make those slum houses economically unsound for their owners.

In contrast, one of the worst effects of public housing has been to support property values and population densities in central cities. Many slum buildings are long-lived, lucrative investments until they are finally bought at inflated values for high rise public housing. “High rise” is necessary because the slum ground is too valuable for anything else.

I submit that one of the quickest ways to get out of the slums is to encourage new construction. Why do we assume that the city as we know it today must be saved or is even worthy of saving and that population densities must be maintained?

EDWARD F. FISCHER, homebuilder
St. Louis, Mo.

Will the homebuilders please tell us what to provide, other than public housing, for those social groups for whom they never or almost never built?—ED.

ERRATA

• FORUM, red-faced, must report that an impressive number of readers spotted the misspelling of Stanford University’s fair name in the July issue.—ED.

• FORUM’S printer, similarly reddened, regrets the error in the August issue (p. 139) suffered by Wurdfman & Becket.—ED.

ARCHITECTURAL FORUM is published monthly by TIME Inc., Time & Life building, 9 Rockefeller Plaza, New York 20, N.Y.

SUBSCRIPTION SERVICE: Address all subscriptions and correspondence concerning them to: ARCHITECTURAL FORUM Subscription Dept., 540 N. Michigan Ave., Chicago 11, Ill. Subscription rates: in US, US Possessions and Canada, one year $5.50; elsewhere one year $10; Single copies, if available, $1.

CHANGE OF ADDRESS: Four weeks are required for change of address. When ordering a change please name magazine and furnish a label from a recent wrapper. If no label is available, please state as exactly as possible the address to which magazine has been sent. Changes cannot be made without old as well as new address.

EDITORIAL CORRESPONDENCE should be addressed to ARCHITECTURAL FORUM, 9 Rockefeller Plaza, New York 20, N.Y. FORUM will not be responsible for unsolicited manuscripts or illustrations submitted, and it will not return such material unless accompanied by postage.

ADVERTISING CORRESPONDENCE should be addressed to the advertising director, ARCHITECTURAL FORUM, 9 Rockefeller Plaza, New York 20, N.Y.

TIME Inc. also publishes TIME, LIFE, FORUM, SPORTS ILLUSTRATED and HOUSE & HOME. Chairman Maurice T. Moore; President, Roy E. Larsen; Executive Vice President, for Publishing, Howard Black; Executive Vice President and Treasurer, Charles L. Stillman; Vice President and Secretary, D. W. Brumbaugh; Vice Presidents, Edgar R. Baker, Bernard Barnes, Clay Buckbost, Arnold W. Carlson, Allen Grover, Andrew Heiskell, C. D. Jackson, J. Stuart King, James A. Larson, Ralph D. Palmis Jr., P. J. Prentice, Weston C. Pullen Jr.; Comptroller and Assistant Secretary, John F. Harvey.
How to flash the intersection of structural expansion joints

Flashing the intersection of structural expansion joints requires a design that will permit freedom of movement during the expansion or contraction of the structure—and yet will provide a weatherproof covering at these intersections.

Cornice temper copper in 16-oz. or 20-oz. weight is recommended for expansion-joint flashing, and the drawing above suggests a method for flashing at intersections. Note that the flashing for each of the 4 expansion joints is cut back on the center line of the expansion fold for a distance of about 18" to form a tapered opening. This break in the long, straight run of metal limits the effect of expansion and contraction on the flashing to the distance between intersections.

The ½"x½" angles formed from 20-oz. copper are soldered to the upstanding legs of the expansion fold. The one-piece cap is clinch-locked to the angles and forms a free-moving, weather-tight cover.

Send today for your free copy of "Modern Sheet Copper Practices." This 104-page book issued by The American Brass Company shows suggested construction details and specifications which reflect the use of copper in current architectural design. It is a practical, easy-to-use guide for developing specifications or installing sheet metal work. Ask for Anaconda Publication C-1. The American Brass Company, Waterbury 20, Connecticut.
Topping the wonders of modern architecture, Barrett Roofs remain the first choice among prominent architects and builders everywhere. On the new Central Staff Office Building of the Ford Motor Company, in Dearborn, Michigan, a Barrett Roof keeps company with the very latest construction techniques and materials—such as sandwich walls, luminous ceilings, heat-absorbing glass. The reputation of the Barrett Specification® Roof...its quality materials...careful application and inspection...bonding against maintenance expenses for up to 20 years—these are the vital reasons why one built-up roof is so widely preferred above all others. Barrett Division, Allied Chemical & Dye Corporation, 40 Rector St., New York 6, N.Y. In Canada: The Barrett Co., Ltd., 5551 St. Hubert St., Montreal, Que.

HHFA Administrator Albert M. Cole appointed a new general counsel for HHFA last month. He is tall, 40-year-old Julian H. Zimmerman, of Wichita, Kan., who joined the agency last April as deputy general counsel. Lawyer Zimmerman served in Army Intelligence during World War II (reaching the rank of Lt. Col.) and later was executive secretary to former Kansas Governor Edward F. Arn. He succeeds A. Oakley Hunter, 41, former FBI agent (1940-44), and two-term member of the House of Representatives from California (1950-54), who lame-ducked into the job in January, 1955, after he was defeated for a third term. Hunter resigned because of poor health, and will return to his former home in Fresno, Calif., where he will resume private law practice.

**REGIONAL SELF-HELP PLANS**

The Committee for Economic Development, originally formed to help relieve unemployment difficulties in the transition from a wartime to a peacetime economy, has embarked on a new nationwide “area development” program to help communities and regions endeavoring to strengthen their economic and industrial positions.

Mainly, the new program hopes to demonstrate methods that free enterprise could utilize to solve problems like urban blight and a loss of local industries through economic growth, rather than federal aid programs, says CED Board Chairman Donald K. David, former dean of the Harvard School of Business Administration.

Director of the new program: Realtor Robert H. Ryan, until recently vice president of Cabot, Cabot & Forbes, Boston industrial development specialists. In 1952 Ryan was executive director of the committee that recruited 28 new plants for the industrially debilitated Lawrence, Mass., area, and in 1954 was appointed head of the Massachusetts Business Development Corp., established to help business that could not obtain financing through ordinary channels.

**PARKING VS. OFFICES**

Last spring a group of New York civic leaders established The Committee on Lower Manhattan “to foster, promote and support the physical improvement and sound redevelopment of lower Manhattan south of Chambers St.,” including provision for adequate transportation, parking facilities and preservation of historic sites. Elected as board chairman of the group: David Rockefeller, vice-chairman of the Chase Manhattan Bank. Named as its president last month: Manhattan-born Vice Admiral John B. Moss (ret.), who served four three-year tours of duty assigned to the Bureau of Yards and Docks or otherwise connected with the planning, construction, and reconstruction of shore facilities. One disappointing setback in the program to provide more parking facilities for this area that the committee would have to offset: plans for a new 38-story, 950,000 sq. ft. office building on the full block bounded by Maiden Lane and Pine, Pearl and Water Sts. announced a month ago by Builder Samuel Rudin, from plans by Emery Roth & Sons. This was the block on which the Chase Manhattan Bank originally announced it was going to erect a 1,000-car garage to be coordinated with its huge new $100 million headquarters tower now under construction one block farther west (AF, Jan. ’56).

**BUILDING PHILANTHROPISTS**

As an expression of his “respect and gratitude” for Dutch aid to the victims of Nazi terror, Nathan Straus, former US Housing Authority Administrator (1937-42), housing author, philanthropist, and now president of N.Y. radio station WMCA, gave $10,000 this summer to a student housing foundation for the Technical High School of Delft, Holland. With the funds, the foundation has restored a nearby three-story building that has been named Nathan Straus Huis. Straus disclosed that one reason for his gift was his close personal friendship with Otto Frank, his Heidelberg
USF Metal Doors Exceed All Normal Requirements

When an explosion occurred here

Yet this adjoining building housing thousands of dollars worth of parts and tools and all company records escaped undamaged.

the resulting fire "melted" this trucking company garage

USF Plain "FP" Non-labeled 1 1/4" Metal Doors connecting the two structures withstood both flame and heat and prevented a total loss.

UNITED STEEL FABRICATORS, INC. Wooster, Ohio

Manufacturers of a complete line of hollow metal doors available with Underwriters' "B", "C", "D" or "E" Labels and to meet 1 1/2 hours New York City Code requirements.
University classmate in 1907 and 1908 and the father of the teen-age girl whose Diary of Anne Frank became that noted drama detailing the Nazi minority persecutions.

With the formal filing of estate documents recently, it was disclosed that the late Albert P. Greensfelder, for many years head of Fruin-Colnon Co., large St. Louis construction firm, left trust and endowment funds in excess of $1.5 million for educational and civic purposes. Civil Engineer Greensfelder, national AGC president in 1907, died in April, '55. For years he was a leader in city and county park and recreation work, and one of the trusts he established, currently valued at $350,000, is known as the St. Louis Regional Recreation and Conservation Foundation. A second, with current assets of about $928,000, is the St. Louis Regional Planning and Construction Foundation. Income and principal from this will be available to expedite development or construction of civic projects within a 100 mi. radius of St. Louis City Hall, and to aid professional and industrial programs for education, planning or research in engineering, construction, or planning. A third endowment of about $300,000 went to the civic engineering department of Washington University, St. Louis.

NAMED: William Demarest, formerly with NAHB and modular coordinator for the AIA in Washington, as director, plastics in construction, by the Manufacturing Chemists’ Assn., Inc.; Robert C. Turner, who had been eastern representative of the Facing Tile Institute, Washington, D.C., as the institute’s director; Richard J. O’Heir, promoted from technical director to secretary-treasurer of the Perlite Institute, New York; Architect E. Todd Wheeler, as an architectural and engineering hospital, medical and health education facilities consultant associated with Perkins & Will, Chicago, in which he was formerly a partner (Perkins, Wheeler & Will) from 1936 to 1944; Associate Editor Walter McQuade, on leave from Architectural Forum, as editor of a special book on school buildings to be published next year under grants from Aleo.

ELECTED: Fred O. Rippel, president of Rippel Architectural Metals, Chicago, as first president of the newly organized Metal Curtain Wall Division of the National Association of Architectural Metal Manufacturers, and Louis F. Fontana, re-elected president of the parent organization; redevelopment Builder James H. Scherer, as president of Citizens’ Housing and Planning Council of New York.

ARThUR BROWN JR. DIES
San Francisco Architect Arthur Brown Jr., 83, one of the three consultants reviewing the plans for the proposed rebuilding of the east front of the Capitol in Washington, died July 7 in Burlingame, Calif. He had suffered a heart attack six weeks earlier, on returning from a trip to Washington on the Capitol assignment.

A dean of the Bay Area architects, Brown’s work included San Francisco’s Coit Tower, its War Memorial Opera House, and with his partner John Bake­well, its huge domed City Hall that topped the Capitol itself by almost 17’. For Wash­
EVERYONE knows that there is more than one grade of architectural porcelain. The thing is, how do you tell them apart? We think you are entitled to know. For that reason, we've gathered together the important facts about good porcelain.

As an introduction, there are five classes or grades of porcelain, starting with "AA" and "A"—obviously the best grades. (Davidson Architectural Porcelain meets specifications for these grades—never less.) The remaining grades, proceeding down the scale, are "B", "C", and "D". How the distinction is made can be seen in the flow-chart opposite—but be sure also to read the facts about other qualities that mean good architectural porcelain.

Save these pages as a reference — so as to be sure that the porcelain you get is the quality you specify.

Two methods of testing architectural porcelain are recommended by the Quality Development Committee of the Porcelain Enamel Institute — the "commercial" test, most easily applied and most commonly used, is described below. The "umpire" test is the second method and is a laboratory-type test, used to decide borderline cases. Both require that the panels pass a series of etching and marking tests, as indicated in the "Classification Table" below.

Visual Examination

- No visible effect
  - Dry-rubbing test
    - No visible stain, and Pass dry-rubbing test
  - Wet-rubbing test
    - No visible stain, and Pass dry-rubbing test

- Visible effect
  - Blurring-highlight test
    - Pass blurring-highlight test, and Pass wet-rubbing test
    - Fail wet-rubbing test
  - Disappearing-highlight test
    - Pass blurring-highlight test, and Pass wet-rubbing test
    - Fail wet-rubbing test

- Class AA (Davidson Panels are)
  - Pass blurring-highlight test, and Pass wet-rubbing test
  - Fail wet-rubbing test

- Class A
  - Pass blurring-highlight test, and Pass wet-rubbing test
  - Fail wet-rubbing test

- Class B
  - Pass blurring-highlight test, and Pass wet-rubbing test
  - Fail wet-rubbing test

- Class C
  - Fail blurring-highlight test, and Pass disappearing-highlight test

- Class D
  - Fail disappearing-highlight test

"AA" and "A" PORCELAIN: Reports on observations during a 15-year exposure test conducted by the National Bureau of Standards state: "No noticeable fading of enamels of Class AA or Class A acid resistance occurred." Davidson Architectural Porcelain meets or exceeds specifications for these classes.

**TYPE 1 AT RIGHT...**

Facing Panel, with double return flanges — furnished with stainless steel screws and clips.

**TYPE 2 AT FAR RIGHT...**

Facing Panel, with double return flanges — furnished with exclusive Davidson Vitrock backing. Furnished with stainless steel screws and clips.
it's good porcelain

QUALITY FEATURES OF GOOD ARCHITECTURAL PORCELAIN

METAL—HOW THICK? Just as there is an optimum thickness for porcelain enamel coating, there is an ideal thickness for the steel, (a special grade, called "enameling iron") that forms the panel. Investigation and long experience has shown this to be 16-gage, (or .0625", U.S.S. gage) and this is the thickness dimension of all Davidson Panels. Advantages: strength, to stay flat and support formed shapes — excellent response to enameling heat, to assure complete fusion of enameling materials with the metal.

ENAMEL—HOW THICK? Extra thick coating is no criterion of quality—and may actually bring risk of chipping, cracking, and crazing. Optimum thickness is .003" per coat — and laboratory control assures this coverage on all Davidson Panels, not only on panel faces, but on all critical edges, corners, and curves.

SMOOTH, SEALED CORNERS: Panel quality shows up in such details as smoothly formed panel edges and perfectly squared corners — which, in Davidson Panels are welded closed and ground to a smooth finish before enameling.

ENAMELING: Materials with the metal.

ENAMELING HEAT, to assure complete fusion of forms before enameling.

PROCESS QUALITY CONTROL AND INSPECTION: Every Davidson Panel is subjected to four major inspections: by the engineering department, to establish production sequence and technique according to specified design —by production quality control, after fabrication, to assure correct size and shape—before enameling, to group specific orders for simultaneous processing — and by color specialists, for color match and coverage before shipment. Each inspection is a 100% inspection—every panel!

ENAMEL QUALITY AND COLOR: Laboratory control and formula-compounding of porcelain enamel "frit" assures absolute uniformity of Davidson Panel colors and finishes. Application of "frit"—a precise mixture of glass and coloring in minute particles—is carefully controlled for complete, uniform coverage. On re-orders, exact match is made from a permanent "actual sample" file.

MECHANICAL FASTENING: Stainless steel clips used for mechanical fastening of Davidson Panels to building structure are attached to the panels with stainless steel screws — not welded. This is an important advantage, inasmuch as bending of the clip, either for purposes of fitting or by accident, does not cause the porcelain panel to be chipped. Where clips are welded to panels, bending of the clip inevitably results in cracking or chipping of the porcelain, thereby exposing area to corrosion.

HOW FLAT IS IT? A flat panel should be ruler-flat... and extreme care is taken in Davidson Panel production to assure this. Where panel size is so large that metal naturally billows or "oil-cans", panels are placed on an electromagnetic table which holds them ruler-flat, while Davidson's exclusive Vitrock backing is cast integral with the panel. Clips previously welded to the back of the panel become imbedded in the backing and lock it in position, insuring a permanently flat panel.

DAVIDSON DISTRIBUTORS — LARGEST FIELD SERVICE ORGANIZATION: Davidson service includes responsibility for the architectural porcelain and its erection. Davidson Distributors at key points throughout the country offer factory supervised engineers for consultation on plans and engineering, plus permanent, skilled erection crews... every facility to assure efficient, economical construction.

DAVIDSON ENAMEL PRODUCTS, INC.
1105 E. KIBBY STREET, LIMA, OHIO

WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF ARCHITECTURAL PORCELAIN
UNIFORMITY, WORKABILITY AND DURABILITY of Atlas Mortar cement are the characteristics that appeal to contractors Joseph E. Short & Sons, Donora, Pa., who report that they "use nothing but Atlas Mortar" in building $50,000-class homes like this one.

Insuring the beauty of modern structures—superior masonry of **ATLAS® MORTAR** cement

- Mortar workability characteristics are a basis for good masonry.
- Field reports confirm that Atlas Mortar contributes to high yields, excellent workability and weather-resistant masonry.
- Quality-controlled manufacture of Atlas Mortar promotes uniformly good performance and appearance. (Complies with ASTM and Federal Specifications.)

For your copy of "Build Better Masonry," write Universal Atlas, 100 Park Avenue, New York 17, N. Y.
Lexsuco with Koroseal gives added protection against fire at Power Plant

Protection against fire was a key point of consideration when roofing was installed on Ohio Power's new Muskingum River Plant in Southeastern Ohio. That's one reason why a Lexsuco Roof Construction with Koroseal Vapor Barrier was specified.

Lexsuco Roofing with Koroseal Vapor Barrier reduces fire danger by eliminating flammable asphaltic materials. These flammable materials are replaced with flame-resistant Koroseal Vapor Barrier secured with either Non-flammable Lexsuco Adhesive R907T or the Lexsuco Insulation Clip.

Because Lexsuco Roof Constructions are fire-retardant with a Factory Mutual Class 1 rating, they can often influence insurance rates and reduce sprinkler requirements, depending on building contents. Installation is simple, fast and economical.

To protect building investment against fire disaster as well as moisture damage, always specify Lexsuco Roof Constructions with Koroseal Vapor Barrier. There is no "or equal". Lexsuco is the only roof construction that will not feed a fire. So why take chances on inferior construction? Insist on Lexsuco with Koroseal Vapor Barrier—a specially compounded, fire retarding material made by B.F. Goodrich Industrial Products Company, Marietta, O.
on the lighting horizon with PRISMATIC LIGHT CONTROL

PRISMOID GRATELITE BY GUTH

THE PRISMATIC LOUVER-LENS employs thousands of plastic prisms to create functional, beautiful lighting patterns. Up to an amazing 86% efficiency with low brightness control comparable to accepted standards. Plus, BREATHING ACTION—for better maintenance and cooler operation.

HERE'S A HEAD-ON VIEW:

HERE'S A CROSS-SECTION:

Add this new touch of charm plus Guth's traditional lighting efficiency to your installations.

WRITE FOR ALL THE DETAILS OF THE EXCITING PRISMOID GRATELITE STORY

THE EDWIN F. Guth COMPANY

TRUSTED NAME IN LIGHTING SINCE 1902

ST. LOUIS 3, MISSOURI
Signs appear on every hand that federal policies toward housing, and toward city renewal, are due for major overhaul, probably in the congressional session of 1958.

Momentarily the cities of America are the helpless victims of the drive against inflation. President Eisenhower last month wished their problem off on the governors (AF, Aug., p. 5). Nobody thinks Eisenhower liked to do this. He had come out for urban renewal himself earlier; but retrenchment in budget spending was the great drive running everything. The cities happened to be still in the way. The automobile industry had already received its $33 billion gift of the highway program. Nobody dreamt of slowing down FHA aid to suburban homebuilding, which had been liberalized in the expectation that it would cost the government no cash but only credit within the foreseeable future. So this new suburban building, competitive to the cities, continued to be federally supported. But the cities, with no concentrated single interest backing them, were easier to drop.

To be sure, funds for urban renewal were not simply cut off completely. Congress passed a bill, and the President signed it, allowing $350 millions in capital grant authorizations, to be made within the fiscal year 1957-58 and limited to that year. This was of course far from appropriating the actual money. How fast the authorized funds would be allocated or disbursed was going to be up to the administration, i.e. up to the President. And signs were many that the administration would go slow. This was the kind of bill that Congress could pass and the White House could in effect nullify if it so decided.

For that matter, there were already $900 million in "authorizations" even before the $350 million were added. Practically none of this has been spent yet, though nearly all is allocated. Apparently only two urban renewal projects have been closed out entirely in all these years—one in Baltimore and one in Philadelphia. If he wishes, the President can delay further allocations and disbursements indefinitely.

Does this mean that the cities have been sent to the dogs? Is America resigned to letting five million families (nearly 25 million people) keep on living in slums that are growing faster than we remove them? Are 175,000 city families to be thrown into the street by highway programs, federally aided, that tear down their homes?

Not necessarily. There are three avenues of action open. One is the speeding of existing machinery as the pressure for a more balanced living program offsets the single-minded economy drive. One is a concerted exploration of what can be done locally without federal aid. And one is the speeding of study how to overhaul the federal govern-
SNAP*ON makes a measurable difference in heat loss... and initial cost...

... because this one-piece pipe insulation molded of fine glass fibers has no equal in thermal efficiency for cold and heated piping and no equal for low applied costs.

With Snap*On you can actually measure the difference in . . .

1. **Lower operating costs** due to greater insulating efficiency.

2. **Lower material cost** because less wall thickness is required to do an equal or better thermal insulation job than other pipe insulations.

3. **Labor savings** in installation range from 10 to 50% compared to other insulations.

One-piece sections of Snap*On are also lightweight, won't break and they snap on the pipe with one easy step. Available in single cylinders with one seam for all pipe sizes to 33", plain, for field application of jacket, or with factory applied canvas, vapor barrier or weatherproofing jackets.

Let one of our sales engineers make a *Thermo-Economic Value Analysis* of your next job to show how Snap*On will make a "measurable" difference in initial investment and operating costs. Write today.

**GUSTIN-BACON**

Manufacturing Company

Thermal and acoustic insulations • Molded glass fiber pipe insulation

Pipe couplings and fittings

258 W. 10th St., Kansas City, Mo.
ment's whole complicated, messed-up, and misfiring machinery for housing and urban renewal. Indeed one reason why certain Congressmen and Senators were so ready to accept the one-year limitation on URA authorizations was that they confidently expected to propose a complete overhaul in the 1958 session. Representative Albert Rains (D., Ala.) just about said so.

If this happens, there will be no time for lengthy researches on America's comprehensive need in housing and city rebuilding. But in expectation that the drive for major revisions might rapidly accumulate, FORUM early this year started a series of objective reports on the elements of the current confusion. (See p. 160 for FHA in the Suburbs.) We hope these reports will stimulate some fresh thinking.

Chicago's chance

The Chicago business community has the chance of a century to do something big for America, charitable, generous, and virtually without cost—if not indeed at a profit—and that is to save the Robie House. In Chicago are the headquarters of some of the most powerful corporations in the US, and any such corporation in modern times works closely with university people. The Robie House stands in the midst of the University of Chicago, its site unexcelled and surrounded by growing beauty. Here the people of industry and those of learning could confer in small productive groups in the most beautiful surroundings. Chicago's leaders need only lease or purchase the Robie House from its harassed owner, the Chicago Seminary, and help the Seminary find another land solution for its own needs. We don't ask Chicago to do this for the editors of papers from Switzerland to Finland who have asked preservation of a world masterpiece by Chicago's own world-leading architect, Frank Lloyd Wright. We ask it for America. Now is the last chance. Ask the AIA chapter for details.

Virgins & Hussies

"I see," said Professor Thrugg, "that lots of clients don't know how to find the right architect, just because architects don't advertise; but it's at least as easy as finding a wife. Any architect studying how to get a job has probably studied how a woman gets a husband. Here he stands, a pure professional man in the great roaring world of business. But the job has to propose to the architect, not the architect to the job. So, like the gal in a 'pursuit,' the architect is better off if he seems to be running away from the job all the time but is being miraculously overtaken.

"This is why architects are always talking about their public relations. Loud cries of 'hussy' arise when the great majority of architects in a town, whose work is of course sober and practical and unnoticed, catch one of the brotherhood decked out one of his jobs in war paint and lowering the neckline to get her picture in the paper.

"I see that the AIA has lately been getting out elaborate rules governing how an architect may send around tear sheets of a magazine that has just surprised him no end by coming out with a 'presentation' of an achievement he was connected with. The etiquette is complicated. The gist is that the architect must not let it be his fault if the material chances into the hands of some client who has been dating with another architect."

"What will the better architects do?" asked a student.

"I'm sure they'll obey," said Thrugg.

"But won't it hurt them a lot if they do good work and can't call it to the attention of anybody?" persisted the student.

"Did you ever see a successful effort to keep a pretty girl hidden behind the curtains?" asked the Professor. "Can you stop a determined woman bent on marriage? And was it not the social code that made such devilish clever creatures of our pure young women also?"
Connecticut General in Hartford unveils its correlation of business planning, realty acumen, building technology and, not least, gracious architecture.

Insurance sets a pattern

Hartford used to be the insurance city, but the last two decades have changed that. Today 41 insurance companies still live there, employing 22,000 people, but a single airplane plant, Pratt & Whitney, carries a payroll of 32,000. This shift in Hartford's economy, however, has been fogged recently by a purely physical move; Connecticut General, one of the city's oldest underwriters, has walked out of its fluorescent-flooded, Colonial-trimmed, filing case on Elm St. Its new headquarters site is a hilltop farm out in the rural beauty of Bloomfield, surrounded by the aura of real age, the English kind of countryside that Constable painted and Thomas Hardy wrote about: ancient, thrilling oaks, meadows, rows of ridge lines rising like wave crests from shallow misty valleys.

And in the middle of it all is a building for the completely insured air age. Large, beautifully crafted in design, new, with new dignity, it is grasped by the eye complete only from the air. Below, on the ground, as you approach and enter, it glitters but evades—giving way before you as architecture, opening up its walls amiably but elusively to become series of receptive geometrical spaces, each one merging into the next. The main block, one end of which is shown (left), contains 400,000 sq. ft. of floor space unbroken by a structural column. From one end juts a cafeteria, cantilevered out 15' over a pool. At the other end of this long stretch of loft space is a special department wing, across a glass bridge. Inside the inside of the great central block, you are surprisingly outside again, contemplating the building's navel, a set of big interior courtyards as oriental in spirit as the countryside is English.

Glass-walled, the building is a trap for daylight, but its details can stand inspection in any kind of illumination. Architects Skidmore, Owings & Merrill have again demonstrated that given time, money, and full-size mock-ups they still can discover facets to be newly ground
in forming the hard gem that is modern industrial architecture. Connecticut General, in detail as well as in immensity, is a highly original building, a masterpiece of sumptuousness, out of an aesthetic system whose historical purpose was financial and artistic economy.

It is significant that an insurance company lives here, for insurance companies—second only to royalty—are the world's biggest dealers in symbols. They have to be: their product is an intangible, security. How do you go about looking secure? The usual way is through masonry, heaviness—a stolid, firm, rock-of-ages air. But Connecticut General is the least masonry building in its neighborhood, perhaps in the world; its steel even disdains the usual shell fireproofing (Conn. General picked up its own $15 million mortgage). On the desk of the president is an Indian relic found on the site, but the desk is a Knoll desk, and the window panes are 8’ x 11’-6”, impressive dimensions. For American families, security may have become the ability to borrow from the bank and live well, surrounded by things and children. In architecture security is symbolized no longer by a massive arch, but by a long free span.

Connecticut General's own employees are living incredibly well at work, swaddled in space, surrounded by art and conveniences: bowling alleys, tennis courts, a shop, a magnificent eating place. This has its business point too. The population of workers is mostly young girls eagerly courted by many companies in the area, and the building already has begun to weigh well as an added attraction. Director of Personnel Henry Dawes expects to save $500,000 a year in hiring and turnover costs. Important in this allure is the new building's unexpected lack of giantism. A high executive who participated deeply in the long, actuarial planning of the move says: "I see people now I haven't seen for years. I drop in on meetings. The thing that amazed me was that this turned out to be a really intimate building. The separations are melted."
Rounded art, edged architecture

Visual transition from 280 acres of softly rolling landscape to the perfectly linear building itself is not stark, but gradual.

At some distance from the building, on a knoll beside a curved swan pond, Noguchi’s sculpture of the family (left: child, father, and mother), projects the agricultural reticence of the landscape itself in its druidlike expression. (Incidentally, this pond is not purely ornamental. With its 3.8 million-gallon water capacity, it receives water hotter than 90° from the air-conditioning system and cools it again without even disturbing the wild life of the pond.)

Close to the building, a carefully designed terrace is the moat between technology and nature. Here the diffuse expression of the fields is gathered and put into an abstract pattern, in precise beds of gravel and carefully placed trees, with smaller sculptures preserving the curves.

The building is ultimately organized, born and bred in a factory. Its wall of glass and aluminum panels and stainless steel trim is self-effacing, serving as a frame for reflections of nature. But the quality of precision is never effaced.
Inside, complete control

Daylight pervades Connecticut General except in such secluded areas as the theater buried beneath the main block.

Smaller office (left), in administration wing, is 12' x 12' (module throughout entire buildings is 6'). View is along main block and looks across one of the two canopies to the bus stop and parking space. Electric lighting throughout the building is from an overhead grid; the newly designed movable partition system locks into it.

Theater is a glowing switch from the generally cool daylight quality in the coloring of the building and its furnishing (abetted by green glare-killing glazing). Ceiling is cherry panels, installed, as is all woodwork, with skill worthy of cabinet-making.

Open office area (left) is organized and partitioned by trim, bright partitions. To the right of this photograph is one of the four interior courts. Nobody sits more than 30' from a courtyard or exterior wall; spans are 60' clear. (For further notes on ceiling, partitions, and vertical blinds, see pp. 124 and 125.)
A monumental experience in togetherness:
in more than 500 conferences with their client,
the architects, builders and consultants
planned a building easy to use and easy to look at

“There are two kinds of clients,”
said one of the SOM men who
worked on Connecticut General,
“the kind who signs a contract and
then goes abroad and the kind who
signs a contract, takes off his coat,
and sits down.” Frazer Wilde, presi­
dent of Connecticut General, and his
associates are decidedly the second
kind. One way of trying to convey
some idea of how thoroughly this
building was analyzed, studied, de­
tailed, and developed is to say it took
4½ years of intensive planning; an­
other way is to say it required more
than 500 hard-working conferences
(not counting innumerable more
casual exchanges) between Connec­
tic和平 people and the team of
architects, builders, and consultants.

This monumental experience in to­
getherness was a success: 1) the re­
sulting building is superlative; 2) the
people involved still respect each
other. How the process worked, and
what was important in its workings,
can be much better explained by pic­
tures of people working together
than by detailed accounts of what
was decided when after who said
what.

In the first picture we have Gor­
don Bunshaft, partner in charge of
design at SOM, expounding the
scheme to the assembled executive
building committee, consisting of the
president and vice presidents of Con­
necticut General. Next comes the
subsequent cogitation. Wilde, the
plump man at left, has probably al­
ready made up his mind, because he
has all the decisiveness you expect of
a man who became president of his
company at 41 and has presided over
a growth in assets from $200 million
to $1.6 billion. Wilde’s decisions kept
the conferences from running too
long. Three hours was typical.

Before these scheme scenes, how­
ever, SOM had spent half a year
working out a program and concur­
rently analyzing a dozen possible
sites. The best was a 280-acre tract
Connecticut General had already
bought a year before—for investment
if it didn’t prove best for build­
ing. Then SOM spent three months
translating the program into pro­
posed schemes. During these two
steps, their closest companions were
the members of the building sub­
committee, whom we observe in the
picture debating the lay of the land.
The chairman, the only full-time

Inside
the inside

The large bulk of office space is
perforated by courtyards care­
fully composed by Sculptor
Noguchi in gravel, grass,
water, stone, and trees. This
one was photographed from the
wide passage in the central
part of the ground floor, look­
ing across to the social rooms
adjacent the cafeteria. A
closer view in the same direc­
tion, photographed from this
same court, is on the cover.
building-committee man in the company, was a real estate expert, Bruce Hayden (center). He was also secretary to the executive building committee: good, tight organization. Hayden's committee was part and parcel of the process from beginning to end; everything got threshed out with it first, and it was splendid at supplying information to SOM. The architects had two other main helpers from the start: Turner Construction Co., who got the job on a cost-plus contract at the same time SOM was chosen in Nov. 1952; and Walter Voss, MIT professor emeritus, who was consultant on materials. The Voss appointment—made even before an architect was picked—shows how dead serious Wilde was when he said he wanted a building with the nearest thing to no maintenance costs for 50 years and preferably 75.

The important early information was about company operations and personnel. This was distilled down from complex tabulations to less complicated graphs, and finally into an essence: a bar chart that showed the company needed just two main kinds of working space, a large amount for operations that expand in fairly direct ratio to the growth of company business, and a small amount for operations (mostly management) that expand little or none as the company grows. The bar chart is lost now, but it looked something like this:

```
<table>
<thead>
<tr>
<th>Non-Expanding</th>
<th>Expanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Facilities</td>
<td>Building Services</td>
</tr>
</tbody>
</table>
```

The top two bars, in fact, are almost a diagram of the finished building: little wing for the nonexpanding

Precision in pastorale; the vast plan avoids permanent partitions, which involve commitments—and mistakes
Cafeteria (right) stems out from the three-story office pool. Projecting from the other end of the building is the special departments wing—in the background of the photo below. The partner-in-charge of this big job for Skidmore, Owings & Merrill was William S. Brown. The other general partners on it were Gordon Bunshaft (SOM's design chief) and Edward J. Matthews. Project manager was Allan Labie; Joanna C. Diman was landscape designer.
Horizontals, long ones

**Penthouse** is given over to a suite for the board of directors of the insurance company. The lounge windows command an almost total coverage of the Connecticut countryside. All the delicacies of the design, such as the mullions, are made even more precise up here in the rare corporate air.

**Employees' view** is more personal, but just as serene. Their cafeteria (right) gazes out over wide lawns, pools, trees. Its supporting columns are pulled back into the building to keep the view complete.

**Escalator banks** at both ends of the central building fill and empty the building fast, unfuriously. This great central block can be expanded by simply extending its east end horizontally.

**Employees' lounge,** with built-in refreshment dispensers and games, is on the path to and from lunch in the cafeteria (visible through the window walls).
How the facets were cut

Structural mullions are used (detail above) without fire-proofing to frame the upper floors. Designers also took on the problem of butting a partition into glass: a filler strip (left) takes the partition up to the window head, and makes steady contact with the glass by means of a plastic strip. The night photo (right) shows the effect from the outside in upper right window.
Blinds are vertical and made of aluminum sheet to avoid rippling in the updraft from air-conditioning outlets under the windows. The blinds adjust easily, stack slimly, and handle the daylight so beautifully that an order of fabric hangings has been canceled.

Open grid seen directly overhead reveals the fascinating play of ducts and services up above, but on a long view produces a simple-looking ribbed ceiling. The ballasts of the exposed fluorescents were modified to reduce their output from 80 to 50 foot-candles and eliminate glare. The grid acts as acoustical absorber, air-conditioning plenum, and terminal for movable partitions.

Neat expansion joint in the canopy is one of the very few in the entire construction. The designers say that the courts which penetrate the big office block act as a "chest cavity" to control the give-and-take of the structural frame.

Flexible partition system, custom-designed by SOM and tailor-made for the Connecticut General building, has been put into mass production under the name C.G. Partition. The blinds and ceiling grid will also be repeated on a wide scale.
Connecticut General:
an architectural summing up

Form has been following function for so many years in architecture that, inevitably, formalism is not far behind. When you drive up to Connecticut General for the first time, and see it sitting temple-like on its hilltop in all its compact, controlled hugeness, this thought crosses your mind.

It is when you go inside the metal and glass walls, and look closely at two things—the detail, and the creation and joining of three-dimensional spaces—that the architecture comes alive and begins to breathe. In detailing, the designers refused to be satisfied with what went before as refinement and perfection; they still pushed forward. In space, there is a denial of barriers that is unique in this type of building.

For this reason the transparent façades are not of major importance, nor are they the best part of the design. They sometimes don’t seem a deep enough architectural statement to match the softly insidious force of the surrounding countryside. The green cast of their glare-reducing glass is trivial in contrast with nature’s green; this may have a lot to do with it. But façades are not the building, because you look into and beyond them as soon as you come up within comprehending distance. Then, inside the walls, no one office, not even the president’s office, really contains you finally; you always have long landscapes or floorscapes opening up before you, or interior courtyards diverting you. The gleam and stylishness of the inte-
riors have made the young girls doing clerical work—the building's main population—dress up, their superiors say. On the long open floors, men are occasional, angular figures, sternly silhouetted, against the petticoated skirts.

The entire building is designed, and there are no cracks showing between the approach to the over-all plan and the corners of the wood paneling. It is pervasively complete; the patterns of rectangles—everything is rectangles—range from the minute to the mammoth, but they are all so subtly related that the architect renders himself almost invisible. When you look to find him, or his mark, in one particular spot, you find instead a view of the countryside, neatly framed; or if you stare down the long run of the large general office block, you don't see him there, but instead, diversions—a tree in a court, a bright foil wall set for your gaze to bounce from, but not fasten upon. Like the upstairs servants in an old manor house, this architect does not let himself get caught doing the job; if necessary he hides behind the door until the guest passes. The beds seem to make themselves.

There is one evident flaw, but it is beyond the building, not of it: the parking spaces. The nicely proportioned, precise metal and glass walls of this architecture are embarrassed by the big lots crammed with Detroit's suave, bulbous auto bodies. They are incongruous for any metal worker to stand up to, from Bunshaft back to Cellini. A new car makes an old barn look good; a parking lot full of tractors would be fairer to Connecticut General.

But the flashy cars are what the careful people who use the building come in, and it is significant that they drive over and show it to their friends and families even after working hours. The building's lean gleam will outlast the car's fat shine.
Perkins & Will, whose school fees top $2 million a year, are now preparing for a bigger general practice—a look at the business end of a professional office

—by FRANK FOGARTY

Architecture at a profit

This could be an eventful year for Chicago's Perkins & Will, a year when possibly the biggest and best known school architects in the country stop being thought of as just school architects. Long the contented specialist, Perkins & Will in its middle age is showing a decided restlessness for new fields. In past months, it has begun expanding into hospitals, office buildings and shopping centers; it has enlarged its partnership, added to its space and staff and today is weighing a move that may carry its name to the West Coast. All told, it has worked a considerable change on itself, and this year it is really beginning to show. For the first time since the thirties, Perkins & Will is becoming in fact what it has always been in theory, a general architectural practice.

Surprisingly, until a year or so ago, P&W seemed to have little taste for expansion. To be sure, its fees kept rising—from $1.1 million in fiscal 1951-52 to $2.2 million in 1955-56. But almost all of this business was in schools, and, for the moment, schools seemed about all it wanted. ("The noblest work of God," says Cofounder Lawrence B. Perkins, quoting Mark Twain, "is the bird in hand.") In 1952, Perkins had proclaimed a five-year plan, to grow "architecturally not volumetrically," and the preoccupation of the partners from then on was not new fields and expansion, but "the improving of our design and the proving to ourselves and..."
to the world that we are good architects as well as big ones." However this era was labeled—and the partners' word for it was consolidation—it was unquestionably one of conflict, of the age-old clash between bigness and virtuosity.

What ended it, ahead of schedule, is not completely clear. Probably, it was a combination of forces—a realization that too much consolidation could also mean atrophy; a fear that its competitors were catching up, which they were; or simply a resignation to the fact that in an economy of bigness and technological complexity, bigness in architecture is almost essential to do the challenging jobs. Whatever the cause, Perkins & Will in early 1955 began to stir again, mainly at the prodding of Philip Will Jr. It started talks with Hospital Consultant E. Todd Wheeler, one of the original partners in the firm, which led this June to Wheeler's return (though not as partner) to develop hospital commissions. In 1956, it added six new "operating" partners, decided to take more office space and gradually began to court, though not aggressively, jobs in nonschool fields. And though it would be naive to assume that it shook all its doubts about bigness—Perkins & Will, if it is nothing else, is a peculiarly introspective operation—it apparently arrived at a conclusion that what it really wanted for the future was what it sought in its school designs, a skillful blending of the advantages of both bigness and smallness.

Actually, Perkins & Will, in its internal structure, is a good bit like a school today. Its design teams are its classrooms, and these small work units are grouped around a core of staff and management in an arrangement which, if not unique, is nevertheless highly effective. Staff provides services—structural, mechanical and electrical; landscaping; interior design and furnishings. Management is the partners, and they supply the supervision.

All told, there are 11 partners in the firm, five of whom are the general, or senior, partners, and six who are "operating" partners (the six, admitted last year in what was frankly an incentive move for the younger second string, get only 20% of the profits). Of the five at the top, three partners are architects: Perkins, aged 50, who until recently was the main front man for the firm (he is now concentrating more on market development, particularly in the college field); Will, 51, whose area is long-range policy, design, and relations with the American Institute of Architects (he is now AIA's second vice president); and F. Lee Cochran, 41, the last of the general partners to be admitted (1951) and now the overseer of programming and production. John C. Goodall, 55, who manages the financial and administrative side of the firm, is a lawyer and one-time real estate executive for Marshall Field. John E. Starrett, 50, in charge of field supervision, is a structural and mechanical engineer, the son of one of the late, big-building Starrett Brothers. Both came in in 1946.

Except for Goodall, all 11 partners act, at one time or another, as project managers in charge of a particular job (often one they lined up). Thus the line from the core to the individual design team is direct. The partner who has made the initial contact on the job will almost always handle its programming—i.e., the establishing of the over-all design requirements, size, and cost limitations, manpower needs—and will direct the making of preliminary drawings, usually working with one designer. Once the preliminaries are out of the way, the design team comes into being, with the partner normally staying on as project manager, and the designer taking over as job captain. This is the beginning of the basic design phase, in which the team will draw on the structural and mechanical services of the central core. Later come the working

with Cofounder Philip Will Jr. and other partners on West Coast expansion.
PERKINS & WILL

Construction chief John Starrett had 19 years in building before becoming partner.

Youngest of general partners, Lee Coch­ran, 41, heads design production.

Financial manager is partner John Good­all, a lawyer and ex-Marshall Field man.

drawings, or blueprints, the opening of the job to bid by contractors and, finally, construction supervision by John Starrett and crew.

Though the number of design teams will vary depending on the work load, the Chicago office will normally have about 18 in operation throughout the year. And out of a total of 137 employees in Chicago (another 52 staff a White Plains, N.Y., branch) about 80% will be directly involved in production.

Counting all production hands, Perkins & Will's gross fees of $2.9 million last year figured out to about $19,000 per production head. Just how much profit this resulted in no one but the partners can say (and they'd rather not). However, Will has mentioned in speeches that ratio of overhead, partners' draw and profit to gross fees has been about 55%. Unless overhead is badly out of line, and there is no sign that it is, this would suggest a comfortable return, indeed. Possibly, it has been better than comfortable, since a total of $890,000 in invested capital, and another $861,000 in cash and outside investments, had been plowed back into the business as of last March.

Obviously, no firm could have acquired so neat a financial tan as this by being so tentative about growth as Perkins & Will was in its middle years. They would have to be an aggressive youth, and for P&W there was. For the first ten years of its existence, it worked for one thing only—to build a name. When it had the name, it turned the next five years into an intensive campaign to build volume.

Perkins & Will began, in fact, as a practice in 1935. But in every other sense, it did not begin to exist until 1939 when it designed with Eliel and Eero Saarinen the famed Crow Island School in Winnetka, a building that was destined to revolutionize school planning.

Lawrence Perkins had met Philip Will in the late twenties when they were both studying architecture at Cornell University. Perkins, who was the son of a renowned architect, Dwight Heald Perkins, and Author Lucy Fitch Perkins (she wrote the best-selling Twins series of juveniles), thinks that even then he expected to have his own practice some time. Will, very early, became a part of his planning, for the two, in many ways, seemed an ideal combination to each other. While Perkins had a definite forte for seizing the broad design concept of a project, and was a gifted and persuasive mixer, he was not a particularly adroit executor or analyst of detail. Will, on the other hand, was both a skillful designer, an excellent executor, and a perfectionist. ("He would rearrange the sunset" Perkins says.) Perhaps more important, though, the two shared a humanistic approach to design (good architecture is not mathematics and algebra, "but a concern for people's emotional as well as physical needs"), and were, and still are, intimate friends.

Together with E. Todd Wheeler, a high school chum of Perkins who had a degree in architectural engineering, Perkins, Wheeler & Will opened for business behind a fire exit door on North Michigan Ave. because, Will says, "if we couldn't work for anybody else at the time, we could at least work for ourselves." Given Perkins' family connections in education, and his father's name, which was carried on the letterhead as a consultant, schools naturally seemed the field to cultivate, and Perkins was picked to do it.

The buildup

"Most of our investment in those days went into Larry," Will says. "He was going to be the animated flag for the firm. He was sent to school conventions, pushed onto platforms, made to write, and we gave everything to try and establish in the eyes of the world that Perkins knew something." But until Crow Island, the world seemed unimpressed: the best the firm could do was to limp along on the residential commissions it could find—and to hope. Had it not been for Eliel Saarinen, P&W might have had to hope for a long, long time.

The Perkins name was well known in Winnetka—Dwight Perkins had done three schools there; Perkins, Wheeler & Will some houses. But the firm was
not one of the 18 that were asked for ideas on how to carry out in a new elementary school the then startlingly progressive concepts about education that were making Winnetka nationally famous. "So," Perkins says, "we asked them. But all I got from Superintendent Carlton Washburne was that they wanted an architect 'who could see what we are doing here and not only build around it, but bring design to it,' and that they wanted a name. Saarinen was one of the ones mentioned. When I heard that, I couldn't resist. I said I could deliver Saarinen, and that the two of us could do the job together."

Perkins confesses now, that for all his seeming assurance at the time, he hadn't the slightest idea of whether he could produce Eliel Saarinen. He knew him, he had worked on plans for a church with him, and that was all. But Saarinen, though he at first seemed doubtful about a public school commission, agreed when he heard what Winnetka wanted to do and that he would have a free rein in doing it. The two shook hands, agreed on a 50-50 split of the fee, and after the job was theirs, Perkins & Will both knew full well what they had in Crow Island. Whatever else it was, it was a house to fit modern elementary education, and the ideas, large and small, that have been borrowed from it since simply attest to how good a fit it was.

Perkins and Will both knew full well what they had in Crow Island. Not only was it the first olive out of the bottle for the firm, but it was a nearly perfect specimen at that. To see that it got the attention they felt it deserved, they set about publicizing and promoting it just as hard as ethics would allow. They hired public relations counsel, then a relatively radical step in the profession; traipsed to meetings of the National Education Assn. and the American Association of School Administrators; talked to PTA and community groups; rang schoolboard doorbells. And it paid off—but not until five years later.

The war just about killed off school building, and it just about killed Perkins & Will, too. Between 1941 and 1946, it did less than $1.5 million worth of building, and about the only work it succeeded in getting was a collection of houses and small commercial jobs. In 1943, the firm came perilously close to breaking up altogether, and Wheeler eventually did leave for a job at the University of Illinois.

Will remembers driving home with Perkins one night late in 1945, musing about the future and carrying on what had been a weeks-long discussion about what the firm should do. "Somewhere, we stopped for a light," he recalls, "and then Larry said it: 'Phil, if we want to be big, let's be.'" Strangely, Will says today, that seemed to do it. "From then on, we shook off the depression of the war years and started to move. We borrowed $25,000 from the bank; asked Booz, Allen & Hamilton, the management consultants, to give us some help on organization; moved to a bigger office and, in the spring, expanded the partnership. And then, of course, the country, and fortunately we, started to build schools."

Actually, the help that P&W got from Booz, Allen & Hamilton was mainly in the form of a catalyst. With an almost nonexistent bank account, Perkins & Will could hardly have afforded the cost of a full-dress management survey. What it did get, though, was a list of 25 questions—What are the responsibilities assigned to each person or position in your organization? What volume of business would you like to do? What capital, staff and space

continued on p. 214
Marked by a monumental sculpture this new department store is the climax of a city's reconstruction

Rotterdam's beehive

The sculptured construction of taut-stretched steel which stands building high in front of Rotterdam's new De Bijenkorf department store seems to express the resurgent strength of the city itself. Although nearly 60% of the central city was destroyed in the Nazi incendiary raids of 1940, it is almost completely rebuilt today.

One of the unique features of the reconstruction is the Lijnbaan (AF, Sept. '56)—a district of small shops organized around a pedestrian mall. Since developments of this kind are usually built only in outlying areas, the district has been looked on as a laboratory for testing the feasibility of pedestrian centers in central areas. But until the completion of the new De Bijenkorf on an adjoining plot (map left), the district lacked a department store—consistently considered an essential ingredient for shopping-center success.

It was appropriate that the owners of De Bijenkorf should accept the challenge of this pioneering situation. Their prewar store (by Architect Willem Dudok) was the most advanced department store in Europe on its completion in 1930. However, the new situation required pioneering without precedent in Europe. So, advised by A. Elzas, their Dutch architect, the owners turned
Exhibition pavilion is one-story structure reaching toward shopping district. The catenary-curved roof is hung from cantilever beams exposed topside and resting on four central columns. Long stripe of glass on top floor marks the store's executive offices.

Suave interiors are in teak against gray, white and some blue, and have exposed concrete columns spaced 40' apart. Schwartzman, an over-all consultant with store experience, was codesigner of teak and aluminum fixturing. Floor space: 385,000 sq. ft.

to America and famed Architect Marcel Breuer.

Breuer's solution was a simple prism, sheathed in travertine and set on a rim of granite columns. (The hexagonal shape of the marble slabs used on the façade produces a honeycomb pattern that may seem symbolic—De Bijenkorf means "The Beehive.") The travertine is opened in the third-floor restaurant and the fifth-floor offices to reveal a sense of the wide-bayed structure within.

On the boulevard side, Naum Gabo's sculpture marks the building from far down the avenue. On the Lijnbaan side, a glassy exhibition gallery ties the solid block of the store to the buildings of the center.
Cityscape of rebuilt central Rotterdam sets a lively scene for the perforated prism of the store (at center). Mass and shape of buildings was prescribed in the over-all city plan. Gabo's treelike sculpture (placed at right corner of store after photo was taken) substituted for a projection in the building at the corner which was prescribed in the city plan.
Here, in drawings and a color photo of the model, is the much-discussed design for the US Air Force Academy chapel at Colorado Springs. Planned as a tall, cathedral-like structure to echo the sharp silhouette of its Rocky Mountain backdrop, the chapel will stand on high ground, its 19 spires rising 150' above grade in contrast to the low, flat-roofed buildings around it. The tent shape, poised on pointed concrete buttresses sheathed in granite, is actually much like the aluminum-skinned air frames the Academy's cadets will some day fly. Its sloping sides are folded into tetrahedral forms made of steel pipes covered with insulated panels of anodized aluminum. Glass set in between these tetrahedrons will emphasize their shapes and admit a play of colored light to the tall interior. The upper floor, a thin, prestressed cantilevered slab, will stand free of the walls within the big tent form and a half level above ground (see sections above). Nine hundred can be seated here for Protestant worship, another 100 in a gallery above. A half level below grade, between the handsome buttresses, will be a Catholic chapel for 500, and a circular room seating 100 for Jewish worship (plan, right). According to the Air Force's architectural consultants, unanimous in their enthusiasm, such a public building could mark "a milestone in our architectural development." Designers for Skidmore, Owings & Merrill are Gordon Bunshaft and Walter Netsch; structural designer, Kenneth Nashlund.
At Lake Erie College:
Two kinds of
a free-form plan
for adding contemporary
buildings to an existing
campus-in-a-park

Two colleges, one a century-old Ohio girls' school, the other the youngest unit in the far-flung University of California system, are currently engaged in building programs based on thorough-going master plans. But, judging by appearances, the similarity between Ohio's Lake Erie College and California's Santa Barbara College ends right there:

- Lake Erie's buildings are separately set in a rangy way on the grass and amid the trees. Santa Barbara's are interconnected by a geometric arrangement of courts and malls.
- Lake Erie's buildings are varied in form and without obvious relationship in material and detail—either between old buildings and new or new buildings among one another. Santa Barbara's are closely related by a standard vocabulary of materials and details.
- Lake Erie's buildings are not pre-planned in the master plan, nor are they scheduled for construction on a definite time table. Santa Barbara's are carefully "blocked out" in advance, and all construction is definitely staged and budgeted in the initial master plan itself.

Actually, these apparent differences are matched by a pattern of similarities that makes them both typical of American colleges and makes a general interest in their two stories. Both building programs, for example, share today's characteristic aim—that of campus coherence. This is much more than a simple matter of buildings that look well together. In both cases the physical plan and form is the logical outgrowth of the development program and educational goals of the college. The wide difference in appearance springs from different programs and goals which create different plans.

Consider the difference in pre-planning and staged development: Santa Barbara, as part of a state institution depending on public funds for its building program, has to provide a close schedule and a fitting budget for legislative scrutiny. Lake Erie, on the other hand, as a privately endowed college, has to keep its program flexible to meet the vagaries of private fund raising.

Or consider the contrast in overall form: Lake Erie is the kind of
campus coherence

college with an existing collection of sound campus buildings widely varied in style and a "settled" site holding a tall stand of trees and a gently rolling terrain. To impose a geometric pattern or repeated materials and details on the new buildings would destroy the natural character of the campus and make the old buildings stand out like "sore thumbs."

The Santa Barbara campus (notwithstanding a beautifully situated ocean site) was devoid of any natural features save a few tree-rows on the flat plateau of the peninsula itself. Although existing wood-frame buildings were useful as temporary housing while the new buildings were being built, they were of no permanent value. So once the tree-rows were considered (all planted to an earlier geometric pattern), the slate was clean. And like the trees, the new buildings were logically "planted" in rows to act as man-made windbreaks.

A close look at the plans reveals other similarities. Basically, both plans are a careful allocation of a site into functional zones of residence, academic, and nonacademic categories. Logically for a small girl's college, the focus of these zones at Lake Erie is a single commons building. At Santa Barbara, expressing the diversity of a coeducational state college, the focus is the library.

At Lake Erie, "breathing room" for changes or unanticipated expansion is found in the informal plan itself, which sets up a dynamic diversity of relationships among the buildings so that another building would simply mean another creative opportunity. At Santa Barbara, the density of building in the mazelike geometry can always be increased or new groups of buildings can be located around the periphery off of "open-ends" in the plan.

However, each plan carries dangers as well as opportunities in its augmentation. In either case, if creative imagination fails, the plan fails—Lake Erie's campus would collapse in formlessness, Santa Barbara's in stultifying rigidity. But at each college, the continuing service of competent architects is solid protection against such a failure.

At Santa Barbara College: a geometric plan of courts and malls with buildings built to a consistent theme
Master plan for Santa Barbara is organized around a large central court. Buildings are arranged in areas by general type. Academic buildings are grouped close to the library; student housing is close to the lagoon and ocean. Non-academic buildings (auditorium, union, and athletic) are to one side.

Interior court of the music building is designed for use as a small outdoor theater. The two-story section contains class and rehearsal rooms; the low wing (right) encloses a court and provides a bank of faculty offices. All rooms in the building are entered from outdoor corridors.

Maximum density plan illustrates possibilities for campus expansion beyond the contemplated growth. Each section of the campus can expand into peripheral open space.

Dining commons with future union wing on the left will face the lagoon. The rendering shows how design elements and materials are repeated throughout the campus.
One of the problems Pereira & Luckman had to resolve at Santa Barbara was purely emotional: the local predilection for Spanish Mission architecture. But instead of adopting the substantive look of the style, the architects chose to employ the general attributes of low-pitched tile roofs, courts, and open colonnades. The site itself carried two additional problems. For one, the Santa Barbara airport was right next door, and avigational easements sliced off much of the periphery of the site from the buildable area. For the other, heady winds swept over the site from the ocean, requiring careful placement of the buildings. The wind problem affected all planning, from the location of perforated wind screens along the colonnades to the orientation of the courts.
Patterned block wall in the dormitory lounge extends the design coherence to interior space.

Piers, wide-spaced at the dormitory porch, are a repeated device in the unified campus design.

Wind screen in the music building passage is an essential feature of the wind-swept ocean campus.

Spandrel and pier treatment pictured in the classroom building help unify the campus buildings.

Vocabulary of Santa Barbara's campus design sets up a pattern of repeated materials and elements. Vocabulary "book," started by Periera & Luckman, is being expanded by new elements as added buildings are designed by several participating architects. Materials like 12" square block, concrete spandrels, tile roofs are used consistently.
Lake Erie: a free-form campus-in-a-park

When Victor Christ-Janer looked over the "bones of unrealized rigid plans" for Lake Erie and calculated their effect on the college, he resolved he would not leave his successors a similar package. Working closely with the college program of President Paul Weaver, Christ-Janer plans his buildings step by step, controlled only by over-all objectives. Unconcerned about architectural unity, he banks on a continuity of good architecture to hold the campus together. As for geometric plans, Christ-Janer believes they always hamper the expression of college needs: "College needs develop naturally and spontaneously out of their own dynamic processes. An administration needs economic flexibility and programming freedom reflected in its physical plans."

Contrast of Lake Erie's venerable College Hall (left) and the new dormitory building is pleasing in the context of an informal campus plan. Unlike the all-new Santa Barbara campus, Lake Erie's campus will develop more slowly and retain the sound older buildings.
Master plan for Lake Erie had to include heterogeneous buildings done under earlier master plans (or none). The first building was College Hall. By 1909 an unplanned group of buildings had started a "campus." In 1925, '27, and '48, new master plans were started with single buildings and then abandoned. The commons building, soon to go up, will be the fourth building based on the master plan, which has already been modified—as was anticipated. It is intended as the focus of the campus (see the new dormitories to its left and the academic building group to its right in the plan below).

LAKE ERIE COLLEGE: Painesville, Ohio
ARCHITECTS: Victor Christ-Janer Associates
ASSOCIATE ARCHITECTS: Green & Smith
ENGINEERS: Ipel (structural: dormitories)
    Henry Pfisterer (structural: commons)
    Fred Dubin Associates (mechanical)
GENERAL CONTRACTOR: George Payne
Dormitories accommodate 70 girls each in double rooms. The center core (below) contains stair, lounges and baths, reduces the building’s expensive perimeter. Balconies connected by stairs (above) make the open interior well and single center stair (below) possible. Terraced bank lowers the buildings to the ground, provides simplified foundations and allows easy escape from the balcony in case of fire.
Commons building will be the central focus of the campus. A multifaceted glass curtain wall will impart a feminine character suitable for a girl's college and a nondirectional character befitting the nongeometric campus layout.

Corner detail (above) shows the two-story glass curtain wall. Steel tube framing 3" x 8" is made up by shop-welding on a jig. Two sizes will outfit the entire building. The glass is set with neoprene gaskets. The composite section (right above) shows the clerestory in the center of top floor dining room, an open interior stair well, and "lily pad" entrances to second and third floors projected off the retaining wall. Building will be steel framed in 18' square bays. The window frames are hung from cantilevered beams before the slabs and angled spandrels are poured, thus providing a jig and support for concrete formwork.

Ground floor (plan, left) will be shaped by free curved walls into intimate rooms for music activities, TV watching, and "dates." Outside, circular brick-paved terraces under the trees (sketch, left) will link the interior space to natural landscape.
A typical older city suddenly gives birth to a litter of new buildings, an energetic slum campaign, and plans for a whole new downtown center. And now it is beginning to think about broader problems.

Newark wakes up

The story of Newark, N.J., is hardly the story of a master-stroke in city planning. Newark, so far, has no Fort Worth Plan, no sweeping transit proposal, no Golden Triangle or Penn Center or Courthouse Square. But it does have a whole miscellany of planning and building projects that begin to add up to a city on the move again.

For an old city like Newark, this much is big news. Five years ago the city felt, and looked, on the skids. Nothing worth talking about had been built downtown for 25 years. On all sides the business district fell off into a collar of slums, among the most medieval in the country. Business and leadership were packing up and heading for the greener suburban pastures of Orange, Maplewood, Millburn, Short Hills. Government rivaled Jersey City in its prime—only Newark had five bosses instead of one.

Today, Newarkers have several new reasons for confidence. The town's two big insurance companies, Prudential and Mutual Benefit Life, have canceled options on suburban sites and are building downtown. Newark's first middle-income "walk to work" housing and its first neighborhood renewal project are starting, supplementing an older and active public housing program. There is talk of new hotel facilities, and there are detailed plans for a 1,000-car municipal garage under Military Park. Businessmen are pushing the commercial redevelopment of 70 acres between Broad St. and the Pennsylvania Railroad Station, a slum at the city's front door that has already been partially cleared for interim duty as parking lots. Committees are beating drums to lure new office tenants and industry. Newark, long in the shadow of New York 10 mi. away, now realizes that it has something of its own to sell: one of the broadest webs of transportation in the world (map, left).

Civic leaders are also aware that, in percentages, Newark is the least lived-in, most commuted-to major municipality in the US. Every day its population jumps from under 500,000 residents to nearly a million—100%, compared to an increase within Pittsburgh of 49% and only 13% in New York. To have homes near its jobs and shoppers for its stores, Newark is trying to get still more middle-income housing. Cut off politically and financially from the towns that constitute its suburbs, it is also asking for some kind of regional plan to deal with long-range problems of land use and transportation.

First move: new government

Newark's slow, painful downward spiral showed its first signs of reversing in 1953, when the city finally threw out the archaic commission form of government that had plagued it for 36 years and put in another, more modern form available to it under state law: a mayor, business administrator, and council. The new mayor, Leo Carlin, an ex-labor leader who had backed the citizens' charter study as one of the five former commissioners, made a second move forward by appointing a committee of 18 business and labor leaders to work with him. The city got, at last, a full-time professional planner to work with Newark's volunteer planning board and the new business administrator. In the days of the "five mayors," any comprehensive or effective planning had been virtually impossible, and little had
Insurance center for Mutual Benefit Life includes a new home office beside an old church (left), two rental office buildings (above), a three-level, 1,000-car garage in back (see photo below). Architects are Eggers & Higgins, Frank Grad & Sons. Across Washington Park a new Rutgers law library will be built on a vacant lot next to the city museum. View down Broad St. (right) shows older downtown buildings behind a church in nearby Military Park.
been done about the 1947 report the city had received from Harland Bartholomew & Associates. The city’s new planning officer, Robert Hoover, is now tackling a five-year capital expenditures budget.

Heartened by the change in government and the open-door policy at city hall, business is investing again downtown. The first big move was made by Mutual Benefit Life, whose solid-looking, $10 million headquarters of white limestone and blue-green glass is scheduled to open this month on north Broad St. and Washington Park (see photos, left). Mutual Benefit, which first opened for business in 1845 in the back of Ben Miller’s grocery store on Market St., had been occupying a vast neoclassic temple on the northern outskirts near the former president’s home. It was thinking of moving all the way out to a golf course in Orange, when it took stock of the new political climate and the traditional advantages of the city (which for Mutual Benefit also meant a big clerical pool of high school graduates and a more predictable tax picture). Besides its own headquarters building, the company has invested in two rental office buildings and an adjacent 1,000-car garage, and is working on further investments in the area.

Next to break ground downtown was Newark’s giant, the Prudential, which had built five new regional headquarters around the country (AF, Dec. ’55) and was threatening to move part of its vast home office out to suburban Millburn. The Pru is now excavating for a $20 million office center for itself and Fidelity Union Trust, on the site of its original fortress (photo, right).

The biggest news of all, however, has yet to be made. Behind the whole Broad St. business center lies what city leaders call the “core of the city’s future,” a former skid row of flophouses and saloons which they visualize as “Newark Plaza”—a big new downtown addition of office buildings, hotels, department stores, parking garages, and restaurants. An attempt to make this nonresidential project eligible for federal aid ran into trouble from housing-minded House conference, but the mayor and his new committee plan to resubmit their proposal in the future. In the meantime they are studying ways to clear and sell property at an attractive write down through city bonds or state aid. Among the come-ons listed by the project’s boosters are a 3-minute walk to the present center of town, a 10-minute drive to Newark Airport, a 15-minute train ride to midtown Manhattan. Architectural observers only hope that Newark Plaza will realize its potential through bold architectural concepts and coordinated planning.

Newark’s machinery

The catalyst for Newark Plaza, and for other coordinated efforts in renewal, is the mayor’s Economic Development Committee, headed by H. Bruce Palmer, youngish president of Mutual Benefit Life, assisted by Prudential Vice President and Secretary Frederick H. Groel. The members, who include active executives of the city’s major banks, department stores, utilities, labor unions, real estate and legal firms, made their first major outing a trip to Pittsburgh to study redevelopment methods and results. Meeting with the mayor once a month at city hall, the committee hears reports from subcommittees on transportation, highways, parking, industrial sites, finance, taxation, promotion, and Newark Plaza. Interlocking with this group in membership and function is business’ own Greater Newark Development Council, a group of 18 senior executives who consult on Newark’s over-all business and cultural problems. A third component is Newark’s Bureau of Municipal Research, set up by business in 1932 and available for fact-finding to these and other civic groups and institutions.

Business has also lent the city occasional staff services. Prudential has surveyed the city’s purchasing department. Public Service Electric & Gas has studied the efficiency of city motor pools. Mutual Benefit has analyzed the city’s building maintenance, finance, and accounting. A five-man finance subcommittee headed by Prudential President Carrol Shanks advises the city on when to sell its bonds and at what rates. (Since the new regime, Moody’s has raised Newark to an “A” rating.)

The Economic Development Committee, as its energetic young legman, Paul Busse, points out, has been successful in bringing business, government, and labor together, and in applying corporate techniques to the financing, building, and selling of a community. All have agreed to discuss problems on the basis of three common goals for Newark: to get rid of obsolescent plant, to bring in new ratables, to create employment.

The new neighborhoods

Only a few blocks out from the problems of downtown business, other leaders are taking on the city’s blue collar in bigger and bigger bites. Per capita, Newark’s public housing program, costing some $75 million since 1941, is among the largest of any major city. Twelve projects totaling 7,385 apartments

Prudential tower, on Broad St. at the other end of Military Park, will front the company’s older structures, between Bamberger’s and Kresge department stores. Architects: Voorhees, Walker, Smith & Smith.
have replaced 150 slum acres, yet Newark's blighted dwellings still outnumber its modern low-rent housing three to one.

Sites for needed middle-income housing within the city's built-up limits had been almost nonexistent until the Newark Housing Authority, doubling as the city's redevelopment agency, cleared acreage on either side of its newest public housing project and sold it to private developers (photos, right). Here Newark will get apartments at a little over $35 a room within easy walking distance of downtown. And from both projects it will get taxes of close to $600,000 annually, compared with $178,000 before redevelopment.

As its next big job, the housing authority is tackling the blighted "100-block" area of the Central Ward. First move is to clear four blocks for 1,206 public housing units to accommodate families displaced by redevelopment. Eventually Newark plans to turn 40 blocks to light industrial use, rehabilitate or spot-clear and rebuild 60 into middle- and low-income housing, schools, playgrounds, stores, parks, and parking.

Newark also has a militant slum prevention program, which centers around a Commission for Neighborhood Conservation and Rehabilitation, set up by Mayor Carlin at the suggestion of the Real Estate Board under its president, Agnes Coleman. This group, grown to 17 members with staff and budget now supplied by the city, has helped consolidate the city's housing courts, centralization of city inspection services, condemnation legislation, some 17 new city housing ordinances, and helped spread its gospel by sponsoring the ACTION-LIFE magazine show, "Our Living Future," attended by 800-old citizen leaders last fall.

The Commission's first pilot demonstration, and one of the first of its kind in the country, is the $500,000 upgrading of a 14-block area in Clinton Hill, just south of the blighted 100-block section. With the cooperation of a new Clinton Hill Council and voluntary street and block associations, the Commission has bought up a vacant, weedy lot running down the center of one wider-than-average block and plans to turn it into a city park and playground linked by a new landscaped walkway to a nearby school, which will use and supervise it. Through traffic will be eliminated and new off-street parking for 340 cars will be created for neighborhood shoppers during the day, residents at night. Property owners will be urged to fix up their homes with FHA "220" loans. Forty Clinton Hill leaders have already traveled to Philadelphia to inspect rehabilitation projects, their trip paid for out of funds collected at the ACTION show.

The highway headache

Newark's great asset—its transportation web—is also becoming one of its greatest headaches as it moves in on the city itself. At present, surveys show that three of every four cars downtown are going through the city. Because Market St. is the only east-west street that cuts straight through Newark without jogs, almost all through traffic is forced to the intersection of Market and Broad, making it one of the busiest corners in the world. Some 40,000 vehicles (and 125,000 pedestrians) pass this one spot every day.

In its struggle with traffic, Newark has turned more and more of its narrower streets one way and has banned standing at the curb on main arteries during rush hours. On some streets, traffic is reversed according to rush-hour demands, and all-important buses (in which about half of Newarkers commute) are given sole use of two center lanes.

For the future, Newark is pinning hopes on a system of loop freeways around the city core (map, p. 149), but routes and effects on over-all redevelopment are still up in the air. The state, for instance, proposes a straight-line freeway across one of Newark's better southern sections to relieve old Route No. 22, one of the most heavily traveled roads in the country. Newark argues that the state's marksmanship would 1) destroy one of its few remaining good neighborhoods and considerable tax ratables, 2) deposit commuters' and shoppers' cars so far from downtown that they would overload already congested streets to reach their destination, 3) completely ignore what Newark plans to do under its big slum clearance program.

Says Newark's Mayor Carlin, echoing sentiment in other cities: "Why should one federal agency aid cities in urban renewal while another, through the states, spends money for highways not tied in with urban renewal?" Says another municipal observer: "The state highwaymen are still back in the days when they were getting the farmers out of the mud. But they are beginning to realize the havoc they can create when they get to cities."

Newark has asked the state to develop a master plan on a truly metropolitan scale, embracing not only highways, but land use, urban renewal and all other aspects of planning for northern New Jersey. Says Ross Nichols, one of the Development Committee's experts on transportation: "The major determinant of all future planning will be the highway system. Unless this is controlled by over-all planning objectives, the remainder of the planning effort could be largely in vain."
A big chunk of 46 acres is being cut out of one of Newark's worst tenement slums in the North Ward near Branch Brook Park (photo, below). Finished last year were the clean, airy, yet slightly formidable towers of Christopher Columbus Homes, a 1,556-unit public housing project (photo, right). Flanking these are sites cleared by the Newark Housing Authority and sold at writedown to private developers who plan 14-story middle-income apartments for 1,166 more families, plus stores, parking and offices. Farther north is the white temple of Mutual Benefit Life, built in 1927 near officers' homes but far from the downtown stimulus Mutual now desires. At lower left, across the Lackawanna tracks and new east-west freeway link, are low garden apartments of 1941 public housing, built before high costs forced housing up.
An architect with a camera explores Thailand's rich traditions, designs a US Embassy worthy of its neighbors.

American in Thailand

When Architect John Warnecke went to Thailand to undertake a new US Embassy building, happily, he packed a camera. Photographing with an architect's eye, he discovered not only the glittering riches of native palaces and temples, but also the later and less beautiful fashions of the Colonial Renaissance, the International Style, and native-modern public architecture. Warnecke and his project assistant, Denis Beatty, also found, hidden away here and there, some lesser-known buildings that seemed to hold more sensible answers. From these, and from the hot, rich, watery climate itself, he conjured the main elements of his design (pp. 158-9).

A demon in dazzling native dress guards the temples of Wat Phra Keo in Bangkok's royal compound. Above lesser spires rises the great shrine tiled in glowing gold. As the breeze blows, the eaves of the colored roofs come alive with little bells. At the summer palace of Bang Pa-In, 40 mi. upriver from the city, a royal pavilion rises from the water like the headdress of a Siamese dancer. The steeply overlapping, almost Gothic, roofs also reminded Warnecke of Norway's stave churches.
Colors brilliant and refined adorn Bangkok's Chapel of the Emerald Buddha. Serpentine gargoyles, gilded carvings, delicate inlays all proclaim the full flowering of the ancient Siamese arts.
The Marble Palace, which many Thai architects consider the most beautiful building in the city, is almost Japanese in its simple sweep. The octagonal pattern of the marble courtyard, polished to mirror smoothness, suggested the floors, screens, and railings for the embassy.

Invasions of foreign styles offered valuable lessons. First Colonialism imposed its Renaissance forms on Siam’s royal palace. Then the revolt of the International Style brought a plain severity which slowly blotched with mildew. Public architecture now calls for a blend of old and new; in Bangkok’s police building, this resulted in precast concrete— with a stripped-down temple roof.
Thailand’s new embassy: a white pavilion on the water

In embarking on his embassy design, Warnecke rejected foreign-born styles as impractical and inappropriate, felt he could use only small elements of sacred native architecture. But in backtracking to some of Bangkok’s lesser-known buildings of 25 to 50 years ago, he came across structures like the old hospital shown below, where the ground floor had been raised above moisture and opened up to the cooling breeze, where deep balconies decorated with grillwork rails sheltered the interiors from sun and rain, and the wall surfaces from mildew. Blending these sensible ideas with the spreading roofs, the graceful white columns and the marble floors he had admired in older temples, Warnecke visualized a white, wide, open pavilion on a small new lake or klong carved from the typical waterways that wander through the embassy compound. The earth moved will be used as fill for a future embassy annex, medical-commissary build-

ing warehouse and needed parking lots. (In Bangkok, a city almost afloat, you literally have to dredge up building sites out of bottom mud.) The chancery building itself (model opposite) will be reached from either side of the klong by vehicular causeways, and from the annex in back by a covered walk. An open ground floor provides a large covered area for loading and unloading automobiles in hot or rainy weather. Behind a gold mosaic screen, at the rear of an entrance hall paved in marble octagons, two octagonal elevators rise to three floors of air-conditioned offices which are partitioned on a 1-meter grid system (plan, right). The tapered, slightly curving floor slabs, decorated with precast concrete railings, again in an octagonal pattern, shade the offices and reduce air-conditioning loads with deep overhangs.
Side-view section shows offices on tapered, deeply overhanging floor slabs, and a central well lighted by clerestory windows. Visitors enter by car bridges from either side (model below), can stroll out on open pier at right. Arched pilings echo the royal water pavilion Warnecke admired (p. 155).
FHA's home mortgage insurance has helped remake the face of America. But its very success raises questions about the federal housing program's balance and its ability to meet the future's challenge.

FHA in suburbia

Try to imagine an invention in government that would create a new private-enterprise industry, that would change the whole pattern of cities, and that would create major change in American habits of living. It need not be imagined, it exists already in the FHA. So spectacular have been the "side effects" of this governmental adventure that many people have been confused by it altogether. They have thought of FHA-land as a new paradise, blight-proof, slumproof, entirely invulnerable. They have thought that we need only extend the FHA a little further to solve any and every home-building problem America may have. Only a very sober review can place the brilliant achievement of FHA in proper perspective.

A new mortgage market

The idea of FHA developed out of the President's Conference on Homebuilding and Home Ownership called by Hoover in 1931. FHA was created two years later in the National Housing Act, which was a bill to "improve housing standards," as well as to establish a mutual mortgage insurance system. The emphasis of the 1931 conference had been on the inadequate flow of mortgage capital and on poor building standards, and these were key considerations in setting up FHA. It was a curious mixture of short- and long-term thinking, with the New Deal most anxious to get mortgage credits flowing again—and incidentally boost construction employment—but still hopeful that better houses could be built for more people.

Under Section 203 of the NHA, the new agency developed an extremely efficient mortgage insurance system for home mortgages. It established a proficient staff of underwriters and appraisers in offices throughout the country, and drummed up business with builders and lenders who had been moribund for three years or more.

Through this gradual pickup in FHA-insured activity, a really new phase of American homebuilding began. The industry not only revived, it took on a new look. What FHA insurance had actually achieved was to establish a national mortgage market. This seems simple now; but at the time, mortgages, unlike stocks or bonds, were a purely local commodity bound to the vicissitudes of local markets. The FHA-insured mortgage was the first such instrument that was marketable, transferable on a nationwide scale. Such a mortgage, whether insured in New York or Oshkosh, had certain characteristics that would be the same no matter where it was sold—and it had the all-important backing of the federal government. After 1938, when the Federal National Mortgage Assn. ("Fanny May") was created to provide a formal secondary mortgage market for FHA mortgages, mortgage capital became more fluid than ever before, and it was to become even more so after the war.

A new process

Again, the new nationwide financing market was coupled with something else: a simpler mortgage process. This helped create the vast new market for homes. Before FHA, few middle-income families could afford to buy a new home without two or three mortgages. The depression, with defaults running into the billions, proved the unsoundness of this elaborate system. FHA, with its concepts of low down payments, high loan-to-value ratios on single-paper mortgages, and terms longer than ever seen before, vir-
tually killed the junior liens on low- and middle-priced housing. It pointed ed its arsenal of new home-buying inducements squarely where it would have the greatest impact—at the middle-income mass market that had barely been tapped.

A new industry

This was what got the humble carpenter builder out of his blue jeans into a business suit and this development. The dispute between carpenter builder out of his blue jeans into a business suit and this was what converted the citizen who had been a house-renter into a wholly new kind of a "home owner" who was actually a lessee taking title to his dwelling at the end of his lease, if he stayed that long. Being in debt for your house lost all its lease, if he stayed that long. Being in debt for your house lost all its sting. The builders became national figures, so that a "Levittown" could become a new city of 80,000 in itself. New kinds of quantity production developed. The dispute between prefabricators who had set up factories for complete unit houses and big builders who had set up standardized fabrication at the site was resolved when builders used both. Neither one had existed or could have existed before FHA. From a sporadic, halt-and-start speculation, homebuilding developed into a bulwark of the national economy.

All this is well known. FHA has generated over 3.5 million houses in the last 23 years, enough housing to equal three new cities of Chicago; and its younger partner, the Veterans' Administration, came in as an emergency agency in the postwar years since 1945 to guarantee 2.2 million more homes. The difference is that VA (still thought of as an emergency system) was never set up with the same elaborate divisions for maintaining housing standards, land planning, and evaluation that characterized FHA.

A new class

Quite suddenly, sociologists and journalists alike discovered that the new FHA-land had something beyond volume; it had a new pattern too. It was the New Suburbia. Whatever else they said, observers agreed that it was mammoth, that it spread over vast areas formerly in farms, it was occupied by people who looked alike in being young married couples with young children, people who were from the same income group, had pretty much the same tastes, the same ambitions, the same favorite games. There was virtually a new class in America—the FHA class.

A new pattern

Not quite so noticeable at first were certain negative characteristics of FHA Suburbia—things missing. Harper's Magazine came out in 1954 with a posthumous article by its brilliant editor, Frederick Lewis Allen (known as author of Only Yesterday). The suburbs, Allen darkly hinted, were potentially our new slums: they often had fewer schools than the big cities; they possessed no parks and no place to put them; they were in many ways poorer places for children, who had always been considered their chief beneficiaries. And they were beginning to be tough places in which to park cars (cynics have declared that parking space might be the chief lure drawing people to the "country").

Allen's discovery of missing things did not in any way slow FHA construction. To this day, FHA's friends can point proudly to a foreclosure rate of only 7/10 of 1%. Nevertheless, Allen's criticisms have penetrated by now into the consciousness of builders, among whom the most advanced are already aware that the success of big undertakings will depend increasingly on creating rounded communities.

This carries remembrance back to the early days, when Seward H. Mott assembled some of the top land-planning talent of the country to serve FHA, and his division had final say whether a plan was desirable—and therefore a good long-run risk. Those were the days when FHA set the highest standard yet known for the new surroundings of millions of Americans.

With time, the appraisal and underwriting division won an internal battle, and since 1940, when Mott quit, land planning has been advisory only. Appraisers could pay heed to their land-planning advisers or not. Result: ever lower standards, great developments underwritten regardless whether they carried in them the possibility of full community life, or not.

This planning deficiency is one that FHA can correct, under the prodging of intelligent builders and citizen leaders, just as with time it overcame the objections of appraisers against contemporary architecture. With time FHA must back planning, or the profit of builders and lenders will be jeopardized. No longer is housing built against a deficit caused by depression and war; and as some shrewd FHA people are aware, the bulk of what they have insured is far from having yet run its 30-year course. It could still come down on their heads.

Meanwhile there are other minuses in the homebuilding program that FHA can scarcely cure of itself. FHA home building is kept from being the one all-inclusive answer to middle-income housing by the fact that it is still almost all in suburbs, not in town; it is still nearly all for one race, not others; it is still attractive mainly to one age, that of the young family, and not many others; it is still all in a single homogenized income group devoid of the richness of contrast needed for democratic life. A fantastically successful achievement, it has its limits, and failure to recognize them keeps the total housing picture, as seen in Washington, confused.
Concrete battles its weight

LIGHTWEIGHT CONCRETE

STONE CONCRETE

27% LIGHTER
A whole family of lightweight aggregates is just beginning to invade structural concrete, trimming building weights by as much as a third

Within the past ten years, a diverse family of materials called the lightweight aggregates, used in lightweight plaster and concrete, has spurred an important development in building design. The Statler Hilton Hotel (opposite) in Dallas, by Architect William Tabler, points out the significance of the change: lighter-weight structural members, new economies in use of structural materials. If the hotel had been designed with conventional materials, it would have weighed an additional 14,500 tons. It is one of the lowest-cost hotels built in the US in recent years ($9,350 per room, as compared to the national average of $15,500).

Other buildings have begun to arise, too, using some of these new materials. Another example: Eero Saarinen's new War Memorial in Milwaukee, designed in collaboration with Ammann & Whitney, which uses lightweight concrete in large cantilevered sections, saving nearly 40% in weight and 12% in structural volume.

Savings like these have created such a demand for lightweight aggregates that the industry turning them out is currently in one of the greatest booms of the era. More than half of all concrete block produced in the US today contains one or another of the lightweight aggregates, instead of heavier sand and gravel. More than half of all base-coat plaster contains one of the nonstructural, ultra-lightweight aggregates, such as vermiculite or perlite.

Yet this boom is only at a beginning, for so far it has barely touched structural concrete. Such buildings as the Dallas Statler Hilton or the Chicago Prudential building, which trimmed its dead load about 30% by using lightweight concrete, are still the exception rather than the rule. Of the estimated 50 million cu. yd. of cast-in-place concrete poured in the US this year, less than 5% will be lightweight. In part this lag is caused by the fact that all the new materials cost more than sand and gravel, and only recently have designers begun to see that it is not always economical to reach for the cheapest material, that savings in weight can often make deep savings in total cost. In part, too, it is caused by the aggregate industry's inability to expand fast enough to meet sudden demand. And in part it is caused by the fact that, up to two or three years ago, very little precise knowledge or engineering data was available.

The basic types

What are the lightweight aggregates? They are a broad range of materials, some found in the earth, others in the hot wastes of the steel industry's blast furnaces, some with little more weight or strength than popcorn, others with ten times the weight and easily 100 times the strength. Their only common denominator is their ability to take the place of heavier materials without sacrificing strength. There are five basic types:

- Expanded shales, clays, and slates: These are products of the earth which are crushed, then heated at high temperatures (around 2,000° F.) until they bloat to several times their original size. The product is a pellet with a strong outer shell, encasing a gas which caused the expansion. Aggregates of this type are capable of forming structural concrete (3,000 lb. per sq. in. compressive strength) which weighs only 85 to 110 lb. per cu. ft. as against ordinary concrete's 146 lb. per cu. ft.

- Expanded slags: These are by-products of the blast furnace, produced when small amounts of water are shot at molten slag as it comes from the furnace. The resulting aggregates are harsher than most of the above, requiring more air in the concrete mix to achieve proper workability. Also, a slag concrete requires more cement in the mix to reach equal strength. But slag is cheaper: about $2.35 per cu. yd., f.o.b. plant, as compared with $4 to $5 for the shales, clays, and slates. (Sand and gravel costs only $2 per cu. yd.)

- Pumice: This is a lower-strength material, a volcanic glass, used principally in insulation concrete, masonry block and roof fill, rather than as aggregate in structural concrete. Pumice concrete weighs only about 70 lb. per cu. ft.

- Perlite: This is an ultra-lightweight aggregate, with insufficient strength for columns, beams, or floor slabs. The strongest perlite concrete has a compressive strength of only about 1,000 lb. per sq. in. It is used chiefly as in-
CONCRETE BATTLES ITS WEIGHT cont'd.

Lightweight aggregates will be in more plentiful supply is the industry's own rising interest in the cast-in-place field. In earlier years, instead of trying for this market, most aggregate producers turned instead to making lightweight block. It was a natural preference. There was a ready market for block, but none for lightweight aggregate in structural concrete. Further, so little research had been done on structural applications that producers would have faced the futile prospect of attempting to promote untested materials.

In the past two or three years, considerable study has gone into these structural applications by producers, industry associations, and a number of universities. The result is that the engineer now has reliable property data on many of the lightweight concretes, which makes it possible for him to use these new materials with the same assurance as he does conventional concrete. Says Frank Erskine, director of the Expanded Shale, Clay and Slate Institute: "Five years ago we were 20 or 30 years behind conventional reinforced concrete in what we knew about our materials. Today, we have about caught up."

Data catches up

Erskine's organization, set up by a group of 12 aggregate producers only five years ago, has spent much of its time learning the structural properties of the many aggregates produced in the US, i.e., how the products of the various manufacturers behave in concrete, covering such data as compressive strength, modulus of elasticity, bond strength. A counterpart organization, the National Slag Assn., has done similar work on slag, beginning five years ago, has spent much of its time learning the structural properties of slag. The heaviest concretes, an expanded slag and an expanded shale, weighed about 107 lb. per cu. ft.; the lightest, two expanded shales, weighed a fraction more than 88 lb. per cu. ft. Shideler found, as have others before him, that the various lightweight aggregates require a wide range of cement contents to produce concretes of similar strength; from 4.4 sacks per cu. yd. of concrete for the expanded clay, to 6.7 sacks for the expanded slag and 6.4 sacks for the 107 lb. shale. (This particular shale is produced by a sintering process; the others were produced in a rotary kiln.)

In field applications, experiences such as Shideler encountered have often caused difficulties for the engineer. Mix proportioning, as the University of Florida's Ralph W. Kluge points out, "is strictly a trial and error procedure with a few guides to assist in the process." It is not uncommon for the engineer to find that his lightweight concrete must weigh 110 lb. per cu. ft., rather than the 100 lb. he had originally hoped for, because an extra 10 lb. in sand must be added at the site to bring it up to required strength.

Even among aggregates of a similar type, wide differences in characteristics can exist, depending on the source of raw material and its manufacture. Thus, it is risky to generalize: A new, untired aggregate whose unit weight, crushing strength, and physical appearance compare identically with another aggregate of known performance will not necessarily perform identically in concrete. Sometimes such performance differences necessitate last-minute modifications in structural design. This design problem is due largely to the lack of standard test procedure. Lightweight concretes have been used in structural design for such a relatively short time that standard testing is still to be worked out. Kluge traces the "unfortunate" lack of information to the fact that certain tests are costly to perform.

In his report on the PCA tests,
Properties of lightweight aggregate concrete

<table>
<thead>
<tr>
<th>Uses</th>
<th>Aggregate</th>
<th>Cement content/ cu. yd.</th>
<th>Compressive strength, psi</th>
<th>Unit weight lb./cu. ft.</th>
<th>Modulus of elasticity psi (millions)</th>
<th>Shrinkage %</th>
<th>Conductivity BTU/ Hr. F.° (Deg. F./in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural concrete:</td>
<td></td>
<td>4 2500-3500</td>
<td>143-153</td>
<td>133-143</td>
<td>2.5-3.5</td>
<td>0.04-0.08</td>
<td>8.0-12.0</td>
</tr>
<tr>
<td>In dams, buildings.</td>
<td>Sand and gravel</td>
<td>6 4000-6000</td>
<td>143-153</td>
<td>133-143</td>
<td>3.5-5.0</td>
<td>0.04-0.08</td>
<td>8.0-12.0</td>
</tr>
<tr>
<td>highways, where</td>
<td>or</td>
<td>8 5000-6000+</td>
<td>143-153</td>
<td>133-143</td>
<td>4.0-6.0</td>
<td>0.04-0.08</td>
<td>8.0-12.0</td>
</tr>
<tr>
<td>light weight is not necessary</td>
<td>crushed stone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Exp. shale, slate and clay</td>
<td>4 1000-3000</td>
<td>75-100</td>
<td>65-80</td>
<td>1.4-2.0</td>
<td>0.02-0.08</td>
<td>2.0-3.3</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>6 3000-5000</td>
<td>80-110</td>
<td>70-100</td>
<td>1.7-2.4</td>
<td>0.02-0.08</td>
<td>2.0-4.0</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>8 4000-6500-</td>
<td>85-112</td>
<td>85-102</td>
<td>2.1-3.0</td>
<td>0.02-0.08</td>
<td>2.5-4.0</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>4 750-1000</td>
<td>75-100</td>
<td>65-80</td>
<td>0.5-1.5</td>
<td>0.04-0.10</td>
<td>3.0-4.6</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>6 1500-2500</td>
<td>80-110</td>
<td>70-100</td>
<td>1.5-3.0</td>
<td>0.04-0.40</td>
<td>3.6-4.6</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>8 3000-4000-</td>
<td>85-115</td>
<td>75-100</td>
<td>1.5-3.0</td>
<td>0.04-0.40</td>
<td>2.5-5.0</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>4 500-1500</td>
<td>70-95</td>
<td>55-80</td>
<td>0.5-1.6</td>
<td>0.1+</td>
<td>1.5-2.5</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>6 1500-2500</td>
<td>75-98</td>
<td>60-83</td>
<td>0.5-1.6</td>
<td>0.1+</td>
<td>1.1+</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>8 2000-3000</td>
<td>83-100</td>
<td>68-85</td>
<td>0.8-2.0</td>
<td>0.1+</td>
<td>2.0-2.8</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>4 75-150</td>
<td>35-40</td>
<td>20-25</td>
<td>0.07-0.1</td>
<td>0.1+</td>
<td>0.7-0.8</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>6 150-300</td>
<td>45-55</td>
<td>25-40</td>
<td>0.10-0.3</td>
<td>0.1+</td>
<td>1.0-1.7</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>8 250-1000</td>
<td>50-75</td>
<td>35-40</td>
<td>0.10-0.3</td>
<td>0.1+</td>
<td>1.0-1.7</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>4 50-200</td>
<td>35-50</td>
<td>20-30</td>
<td>0.04-0.15</td>
<td>0.2+</td>
<td>0.4-0.9</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>6 200-300</td>
<td>50-60</td>
<td>25-35</td>
<td>0.10-0.20</td>
<td>0.2+</td>
<td>0.6-1.3</td>
</tr>
<tr>
<td>Structural and insulating concrete:</td>
<td>Insulation aggregate</td>
<td>8 300-500</td>
<td>60-70</td>
<td>30-45</td>
<td>0.10-0.20</td>
<td>0.2+</td>
<td>0.6-1.3</td>
</tr>
</tbody>
</table>

1At 2" to 4" slump
2Lower unit weights and compressive strength are commonly used for roof fill.

Shideler says that of the lightweight aggregates he studied, "rather wide variations were obtained in structural properties." He recommends that producers of structural lightweight aggregates conduct investigations to provide reliable design data on performance characteristics.

Research ahead

This culpable data lag reflects the rather unscientific history of the industry. The expanded clay industry, for example, had a kind of back-yard business genesis, beginning more than 40 years ago, when a Kansas City ceramic engineer named Stephen Hayde discovered that certain clays will bloom under intense heat. Years later, manufacturers of concrete masonry products, anxious to produce lighter-weight components, discovered by trial and error that they could produce lightweight aggregate by Hayde's method and thereby reduce the weight of their products. Of course, since then a great amount of work has gone into evaluating those aggregates which have become commercially available, including a notable study sponsored by the Housing and Home Finance Agency some eight years ago. But against this type of research, there has been only a mild and rather academic interest in the very nature of the phenomenon of expansion itself. What is it that occurs within a heated particle which causes it to bloom like popcorn? Why do certain particles bloom while others do not?

Far from being merely an interesting, though abstract exercise, such questions, a few scientists believe, must be answered before the lightweight aggregate industry will realize its ultimate potential in building. One organization which is currently probing into such questions, following work done in the past by the Bureau of Mines and others, is the Engineering Experiment Station of Ohio State University. To date, Mineralogist Ernest Ehlers has analyzed just six samples of bloated clay. In future analysis—altogether, he will examine some 60 different aggregates—Ehlers will study other factors in the bloating process, possibly find the chemical basis for certain minerals' superiority over others and a way to make better use of available but so far unpromising clay deposits in the state. To many cities of Ohio this would be a boon, for there is a short supply of expanded shale, clay, and slate in certain parts of the state. Expanded slag helps to take up the slack, with four Ohio plants.

Indeed, there is a growing recognition that the lightweight aggregate industry must make two immediate advances. The supply of good aggregate must be increased; and the wide gap must be filled between the ultra-lightweight aggregates, perlite and vermiculite, and the middleweight types, such as the clays, shales, slates, and slags. This means that entirely new aggregates must be developed to fill the gap between the featherweights, at about 10 lb. a cu. ft. (and 60 lb to $75 a ton), and the middlesweights, at 45 to 70 lb a cu. ft. (and 8$ to $7 a ton). A number of research groups are working on this problem, including the scientists at Ohio State, who hope to develop an expanded clay aggregate which will perform like perlite or vermiculite as insulation material, but cost less to produce. In England, Marcel Gallai-Hatchard has recently developed a process for producing an ultra-lightweight slag aggregate (about 15 lb. per cu. ft.) which could be used in base-coat plaster. So far, his problem is high production costs—higher than either perlite or vermiculite.

One possibility which has just begun to be considered as a way to fill the gap is a blend of middleweight and featherweight aggregates in a single mix. The slag industry is investigating this, considering a blend of expanded slag and vermiculite, to make possible a new insulation concrete which would be heavier (and stronger) than vermiculite or perlite by themselves, yet lighter than expanded slag concrete. For too long, all of these aggregates have been considered as independent, competitive materials, when actually they are a family, albeit a diverse heterogeneous family, capable of supplementing one another to meet the broad demands of building.

architectural FORUM / September 1987
In wind tunnel tests it is discovered that architectural shapes can have large effects on the climatology of structures.

Air flow around buildings

Primitive builders used many devices to take advantage of or protect themselves from prevailing winds. Eskimos placed igloo entrances downwind to keep out arctic drafts. Southerners oriented breezeways and courts to make the most of cooling air currents. And from time immemorial farmers have planted dense rows of trees as windbreakers. Until recently, there was little or no scientific study of these matters in relation to modern buildings.

Now, however, natural air flow around buildings is the subject of a research report by Ben H. Evans, assistant research architect at the Texas Engineering Experiment Station, based upon extensive wind-tunnel model studies. Evans, a graduate of Texas A & M's Division of Architecture, is here extending the pioneer studies of William W. Caudill, under whom he has worked, on natural air flow inside buildings (AF, May 1951). Some studies of air flow around buildings have been made elsewhere, both on scale...
HEIGHT of basic building block increases low-pressure, turbulent downwind eddy, as shown in test above. The larger this low-pressure eddy area is, the less air swirls around the building's walls, and vice versa.

DEPTH of building block even more sharply affects size of eddy area, as shown in this test in which height remains constant. Largest eddy area and greatest protection from wind is afforded by the thinnest mass.

LENGTH of building block, height and depth remaining constant, also deeply affects size of eddy area. As length increases, length and depth of eddy grows. Tall, thin slab is not ideal where maximum breeze is desirable.

For these studies, air movement was made visible by the introduction of a chemical smoke in the air stream of a low-speed wind tunnel, and measurements were made by pressure gages. To simplify the tests, seven basic building shapes were selected, including flat, gable, and shed roof types, all based on a cube module. Over 200 variations of the basic shapes were tested and measured. Measurements were directed at finding: 1) the general air pattern around a building; 2) the general distribution of air pressure; and 3) the dimensions of the eddy area built up on the downwind side of the building by the difference in pressure between the side getting the brunt of the wind and its opposite.

The size and shape of the downwind eddy was the principle concern, for this comparatively still, low-pressure area is a major key to the climatology of a building. The larger the eddy, the lower the volume of air around the building as a whole, and vice versa. Thus in cold climates, building shapes and orientations that maximize eddy areas offer the greatest protection from wind: while in hot, humid climates, configurations that give the smallest eddy area possible allow a maximum of cooling air to flow around and through the structure.
It was found that some large variables in building shapes, such as height, have almost no effect on air pattern over a building, though height considerably increases eddy area. At the same time, many minor variations, such as the direction and pitch of shed roofs, resulted in very large changes in air flow. As a generalization, it might be observed that the tall, thin slab building, whose large eddy area makes it quite efficient in the north for protection from winds, does not appear to be ideal for hot climates, where the maximum of breezes around a building is desirable.

Only tests which resulted in considerable changes in air flow—a few of which are shown on these pages—are considered in the report. The conclusion is inescapable that in the design of building shapes, orientations, openings, overhangs, and other architectural features there are many subtle variables that can have profound effects on the air flow around buildings and by simple extension on the interior environment. Since that environment is being more and more closely controlled for comfort and health, and awareness of microclimatology in building is growing, a more thorough knowledge of the principles of air flow around buildings is needed. Small design changes in the shape of the building itself may well effect heating and air-conditioning costs, by changing thermal conditions in outer walls, as well as increasing comfort in non-air-conditioned buildings.

The report recognizes that tests on standard, single building shapes can give no more than an indication of general principles. Evans is currently working on a more significant follow-up which will show air patterns around several buildings simultaneously, of interest to planners of building groups. But specific single buildings or groups will still present individual problems in which site variations, landscape features, and local climate idiosyncrasies will have to be taken into account. Wind-tunnel model studies can help toward more precise answers. The Texas program so far is unique in providing such studies for architects by architects in the three elements of air, light, and sound simultaneously.
"I got 5 years of service from a valve I expected to last only 90 days"

Mr. C. L. Worthington, Chief Engineer for E. L. Bruce Co., plant at Little Rock, Arkansas, was having valve trouble on some newly installed boilers. The first boiler to go in service generated 600 hp operating at 200-pounds pressure. The water was so bad that a hot lime and soda ash water softener treatment had to be used, and it was necessary to add other chemicals to this solution from time to time. Mr. Worthington wanted to use a continuous blowdown to skim off the worst part of the scum on the water. He installed a small blow pipe about an inch below the normal water level in the boiler. This worked well, except that the one-inch valve on the line could only be partially opened and let a small part of the scum be blown off at one time. If the valve was widely opened, it would not take long to lower the water level in the boiler and run the steam pressure down. This service gave Mr. Worthington lots of valve trouble, as can well be imagined, because of the extreme wire drawing that occurred.

One day the Walworth representatives in that area, called upon Mr. Worthington and demonstrated the outstanding features of the Walworth No. 225P Bronze Globe Valve. This valve, which has a working steam pressure rating of 350-pounds at 550°F, has a plug-type stainless seat and disc which has been heat treated to a minimum hardness of 500 Brinell. After listening to the Walworth men and examining a 225P valve, Mr. Worthington agreed that he would try one in the severe service described. He said if it lasted 90 days, he would consider that it had done a good job.

The valve went into service and came out within three days of being in service five years under very severe operating conditions. The valve was used 24 hours a day from early in the morning on Monday until Saturday night, when it was closed until the following Monday morning. It was never opened more than three-quarters of a turn, and most of the time it was opened only one-half to one-quarter of a turn. For the life of the valve, nearly five years, it never failed to give a 100% closure when shut on Saturday night until opened Monday morning.

When another 600 hp 200-pound pressure boiler went into service, it also was equipped with a one-inch Walworth No. 225P Bronze Globe Valve on the same service.

In view of the severe service and the wire drawing to which this valve was subjected, it is interesting to note that the original valve (which was taken out of service almost five years after it had been installed) was removed—not because the seat and disc were wire drawn—but because the turbulence of the steam had finally caused a small hole to occur in the wall of the body of the valve. Needless to say, the valve that was taken out of service was replaced immediately by another one-inch Walworth No. 225P Bronze Globe Valve, positive assurance that Mr. Worthington is satisfied that this valve has "done a good job."

Other Walworth products include complete lines of Gate, Globe, Angle, Check and Lubricated Plug Valves in bronze, iron, steel, stainless steel and special alloys. Complete information and literature will be furnished upon request.
If you’re filtering baseballs
this filter will meet all needs

...but air filtering isn’t so simple!

When you come right down to it, a catcher’s mask is a filter. Unlike air filters, the masks can be standardized because the game is standardized. Clean air needs of business and industry are not! Different requirements call for different filters. No matter how diverse these requirements are, the air filter must do the cleaning job, without interfering with the maintenance program. There is no one type of air filter that can do it.

AAF—and only AAF—makes all kinds of filters with all kinds of maintenance characteristics. Result: the right filter installation for you.
for perfect flowing floor plans
room dividers on curved track...

by Curtition...

Makers of Quality Folding Doors Covered in TOLEX®

Flexible folding doors permit quick, practical partitioning of any area. To be sure these smart modern room dividers will withstand years of flexing without cracking or peeling, be sure they’re made of TOLEX... the finest quality supported vinyl covering material. There are TOLEX colors, patterns and effects to fit any interior decorative scheme... all easily cleaned with a damp cloth.

When specifying folding doors and room dividers, be sure they are covered in TOLEX... like this famous Royalfold door by CURTITION Corporation, Los Angeles, California.

REMEMBER! MAJOR MAKERS OF FOLDING DOORS USE TOLEX...

for their names, write:

THE GENERAL TIRE & RUBBER COMPANY

TEXTILEATHER DIVISION

Toledo 3, Ohio

Cleveland’s Parkland, $50,000,000 residential and shopping community, gets its good looks with ribbed decking. Project developer: Don Loftus. Architect: W. E. Harris.

Large modern warehouse, Oakland, California, is completely enclosed and insulated with curtain wall panel. Owner: Bigge Drayage Co. Engineers: D. Y. Long Co.


Now a complete structural system—
Stran-Steel joists, columns, decking and curtain wall

Stran-Steel now offers a complete structural system with fully integrated components—nailable joists and studs, structural columns and beams, new wide flange structural shapes in eight sizes, roof decking and the beautiful new metal curtain wall panels with Stran-Satin finish.

Stran-Steel’s complete structural system offers these advantages to the architect and owner:
VERSATILITY—Many structural variations are possible with this versatile system in the design of walls, roofs, partitions, canopies, floors, even entire buildings.

ECONOMY—Savings in the use of steel architectural products mean more economical construction, resulting in lower bids to fit budget limitations.

STRENGTH—Stran-Steel nailable joists, for example, have a yield point of 40,000 p.s.i., approximately 20% higher than that of most commercial mild steel. This extra-strength weight advantage prevails throughout the range of these products.

Stran-Steel products are ideal for schools, apartments, shopping centers and industrial plants.

Stran-Steel Corporation, Detroit 29, Michigan
Please send me the Industrial Buildings Catalog.
Please have your representative contact me.
Name: ____________________________ Title: ____________________________
Company: ____________________________
Address: ____________________________
City: ____________________________ Zone: State: ____________
172
Brief accounts of noteworthy developments

WOOD CANTILEVER

In this unusual field house and gymnasium for the San Francisco Park Dept., glue-laminated timber beams 96' and 35' long form a double-cantilevered roof unconnected at the top except by a long clerestory window. The long beams are anchored by steel rods (protected by "boy catchers" to keep small fry off the roof) to a 200-ton concrete deadman underground. Architect: Donald B. Kirby.

SOLAR POWER AND LIGHT

At a recent conference of the Illuminating Engineering Society, Dr. Samuel G. Hibben, past president, one-time associate of Thomas Edison and long-time consultant to the Holophane Co., lighting engineers, predicted: "Twenty percent more people in the US will be using lighting three times brighter than today's illumination by 1967, and they'll be using it 10% longer than we do now. As a result, the nation will be using four times as much light as we are using today."

As to where this vast increase in illumination is coming from, Dr. Hibben had a further prediction: "Soon we shall see another and perhaps greater miracle than did Edison when he created electric light by heating a filament in a vacuum. This will be the twin process of extracting or transforming sunlight into electricity and then converting that electricity directly into light through a magic dance of electrons known as electroluminescence."

The references here are to the silicon solar battery, discovered in the Bell Telephone Laboratories, which converts sunlight directly into electric current by means of an electronic transistor effect, and to the electroluminescent light panel (AF, Jan. '57), which creates a continuous light source in a thin layer of phosphors sandwiched between conductive films. Both devices are in active development.

Coincidentally, a recent comprehensive survey of solar energy by the General Electric Research Laboratory found that of all possible ways of getting electricity from sunlight the solar-battery type of conversion is technically the most feasible and nearest to practical use. But it is still some distance off: storage batteries needed to hold power overnight and on sunless days will first have to be reduced to 1/6th of present costs, solar cells to one 1/100th. The latter will be easier to do than the former because solar cells are only at the beginning of development. In detail, the study figures that a south-wall solar plant, making maximum use of glass, mirrors, and lenses to produce about 5 kw-h a sq. ft. per year at 4¢ a kw-h, will become feasible when it can be built for about $2 a sq. ft. It will first be feasible for individual houses and buildings because there are no presently foreseeable advantages in central-station solar plants, many possible cost advantages in eliminating power transmission entirely.

The survey concludes that there is enough solar energy available to buildings in nearly all parts of the US to supply all of their power needs without excessive equipment.

SOLION

A new electronic device is predicted by its developers to bring new speed and accuracy to the operation of heat controls, furnace regulators, fire and burglar alarms and other electrical building controls. This is a tiny transistor-like device, called a "solion," developed by the US Naval Ordnance Laboratory. Like the transistor, the solion operates by controlling the movement of electrons through a material, but in this instance through a liquid solution (potassium iodide) rather than a solid metal, and hundreds of times faster than the transistor. Solions can be made so sensitive that the faintest ray of light or the approach of a burning cigarette causes them to pass a current. They are one of a growing number of new devices that may supplant the vacuum tube and even the transistor in simplifying electronic circuits, all operating on microscopic amounts of power. Thus they may fit into the development of solar energy (see above).

PARKING BELT

As symptom of the fierce parking problem, even in Europe these days, a big highlight of the Hanover Fair this summer was a huge mechanical "parking belt" developed and offered for sale by Krupp of Essen. With typical German ponderousness, it consists of a long chain-and-sprocket endless conveyor or on which are mounted free-rolling trays large enough for each to accommodate a single car. The car drives into the lower side of the conveyor on one of the crosswise trays: a push button moves the contraption along until eventually the cars are swung up on the top belt somewhat like ferris-wheel gondolas. In effect, the machine allows double-stacked parking, with any car available at the push of a button. This machine parks 60 cars, but there is no limit to which it may go.

STEEL CANTILEVER

In this sports arena for Evansville, Ind., eight arched and center-pinned 80-ton steel trusses are anchored to 14-ton triangular base members to give a free span of 267'. The whole structure, including trusses to triangles, is welded. Architect: Ralph Legeman.
It's Adlake again!

America's Finest Aluminum Windows

Only Adlake combines these 6 basic advantages:

- No warp, no rot
- Minimum air infiltration
- No painting, no maintenance
- Finger tip control
- No rattle, stick or swell
- Guaranteed non-metallic weather stripping

Also, Double-hung Windows with Patented Serrated Guides

THE
Adams & Westlake COMPANY  Elkhart, Indiana
Glowing walls . . . ceramic panels . . . wide-span deck . . .

**TRANSLUCENT SANDWICH**

*used as wall or load-bearing roof*

Kalwall plastic-faced panels literally throw some light into prefabricated sandwich construction. Comprised of two flat translucent skins of fiber-reinforced polyester resin over a grid of aluminum I-shaped extrusions, the lightweight insulating building units transmit soft, glarefree daylight. The 4' x 8' x 2%" thick units have been used as wall panels on buildings in New Hampshire for five years, but within the next few months a very notable installation will take advantage of the load-bearing potential of the plastic-aluminum sandwich. The US pavilion by Architect Edward D. Stone for the 1958 World's Fair in Brussels, Belgium will sport 2,100 Kalwall units in its unique 341' diameter circular roof. Weighing about 1½ lb. a sq. ft., the light-transmitting panels will be part of a tension structure similar to a spoked bicycle wheel. The building's outer rim of reinforced concrete is tied to an inner metal ring by concentric steel cables. These are tightened by turnbuckles and held in tension by the weight of an inner ring which frames the open air dome in the center of the roof. The joining system worked out by the architect and the manufacturer is made up of H beam purlins crossing the cables at 10' intervals. Aluminum T's between the plastic panels are connected by clips and bolted to the purlins (see drawing, left). Sponge neoprene and mastic are used to waterproof the connections and allow for any movements over the enormous pinwheel.

Now in mass production, Kalwall panels will be available this fall for wall and roof construction in this country. They are made in four sizes up to 4' x 20' and in six colors. One man can handle a 4' x 10' panel which weighs only 64 lb., and the aluminum extrusions comprising the grid also act as a solid edge banding for window and door frames. The polyester skins have an established reputation for weather, impact, and chemical resistance. Price is about $3.90 to $4.90 a sq. ft.

*Manufacturer: Kalwall Corp., Manchester, N.H.*

**CERAMIC TILE PANELS**

*prefabricated for exterior walls*

Probably the oldest man-made building material, ceramic has been initiated into the growing fraternity of factory-made curtain walls. Romany-Spartan RS panels take on a variety of colorful faces. The manufacturer carries a standard tile line

continued on p. 176
44 Kinnear Steel Rolling Doors

Speed Service at S&W Fine Foods —

The huge new San Francisco warehouse of S&W Fine Foods, Inc., is a monument to functional efficiency. And here are some of the ways in which 44 Kinnear Rolling Doors play an important part in this up-to-the-minute operation:

They open straight upward... coil smoothly out of the way above the opening... clear the entire doorway quickly—from jamb to jamb and from floor to lintel.

They stay out of reach of damage by wind or vehicles.

All floor and wall areas around the doorway are always fully usable.

Ceiling space around openings remains clear at all times. There's never any interference with cranes, hoists, conveyors, lighting, or other overhead equipment. Goods can be stacked "clear to the rafters" inside or outside the opening.

The tough, flexible, all-steel curtain of interlocking slats assures long service, low maintenance costs, and extra protection against fire, wind, intrusion, and vandalism.

Heavy galvanizing—1.25 ounces of pure zinc per square foot of metal (ASTM Standards)—gives added resistance to weather, wear, and corrosion.

Kinnear Rolling Doors are built any size, for old or new buildings, with motor or manual control. Write for information, or for recommendations on your door needs.

*33 Kinnear Steel Rolling Doors 18'9" wide by 10' high, ten doors 10' wide and 10' high, and one door 6' wide by 7' high.

The KINNEAR Mfg. Co.

FACTORIES:
1640-60 Fields Ave., Columbus, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.

Offices and Agents in All Principal Cities

Products

cont'd
walls have been weather-tested extensively by independent laboratories and in actual installations. To compensate for building movement and the expansions and contractions caused by temperature changes, the tile facings are grouted with flexible waterproof latex. The ceramic itself is classed as "vitreous, frostproof" and its moisture absorption is less than 1/4%.

Manufacturer: Ceramic Tile Panels, Inc., 217 Fourth St., N. E., Canton 2, Ohio

BIG ACRYLIC SHEETS
ecast high, wide, and corrugated

Panels of colored and clear Plexiglas RL acrylic are now being produced in sizes up to 8'-6" x 10'. Developed primarily for the illuminated sign market, the large flat and corrugated plastic sheets also have a wide-open field in commercial interior partitioning, which seems to be outgrowing the 4' girdle put on it by most building materials. Decorative exterior fencing might be another use for the chemical- and weather-resistant sheet. Resin-Producer Rohm & Haas makes the RL acrylic sheet in thicknesses of .187 and .250" in flat form in any color and degree of translucency. In orders of 3,000 sq. ft. or more, price runs from $1.27 to $1.80 per sq. ft. Amplex, a fabricating company, has installed a large oven and press to corrugate RL acrylic. The Amplex panels are formed with ripples "1/2" deep and 1" apart, 1" deep, 2 1/2" on center, and cost $4.20 to $6.60 a sq. ft. Wasco continued on p. 178

At last, authoritative research shows the way to Predict and Reduce Fan Noise!

DeBothezat now offers this new 50 page book on noise control... anyone can use it to predict and reduce ventilating fan noise in every installation.

YOU NEED this new book, "Controlling Ventilation Noises," if you ever have anything to do with specifying or installing fans. This book simplifies the unfamiliar, specialized terminology of the acoustical engineer—as well as the methods for solving noise problems—so that the entire data can be put to practical use in the plant. It covers installations indoors as well as outdoors.

This data is entirely new. Nothing like it has ever before been available to the industry. The book is a result of noise control research recently completed by the acoustics staff of the Armour Research Foundation of Illinois Institute of Technology.

To supplement the research performed at Armour Research Foundation, which was sponsored by the DeBothezat Fans Division, DeBothezat has constructed its own noise-evaluation laboratories. These include reverberation rooms designed and calibrated for DeBothezat by Armour.

The entire noise evaluation project was sponsored by DeBothezat as a contribution to industry. It was accomplished at a cost of over $20,000 including the research at Armour and the facilities installed in DeBothezat's laboratories.

DeBothezat's facilities are now being used (1) to obtain accurate sound-output data on fan units, (2) to develop new fans with lower noise levels, and (3) to allow publishing of reliable sound-output data. In fact, DeBothezat fans are now rated for noise on both the inlet and outlet sides. These ratings are expressed in decibels and give the average sound pressure levels in each of 8 octave bands of frequencies, measured separately. This information is available on all DeBothezat fan units. They are the only fan units in the industry so rated.

The helpful 50-page book "Controlling Ventilation Noises," is available for just $2.00 prepaid to help defray costs of printing and handling. With it, anyone can predict and reduce ventilating fan noise in every installation. Request your copy of this 50-page book on your business letterhead and attach check or two one-dollar bills.

DeBothezat FANS
A DIVISION OF American Machine and Metals, Inc.
Dept. AF-97, East Moline, Ill.

IN CANADA: Represented by DOUGLAS ENGINEERING CO., Ltd., Toronto • Montreal
No outside power source required—

Anchor conduit clips to concrete or steel in seconds with the Remington Stud Driver

Now you can fasten conduit without hammering or drilling—thanks to the cartridge-powered Stud Driver! Just squeeze the trigger, and a metal stud anchors conduit with Remington Clip—thin or heavy wall, available in three sizes. The Stud Driver sets either 1/4" or 5/8" diameter studs . . . up to six a minute. And barred change-over takes just 90 seconds, right on the job. Over 40 studs to choose from, plus a selection of scientifically graded 22 and 32 caliber Power Loads give the flexibility you need for all light, medium or heavy-duty work.

SAVE TIME, CUT COSTS on every job with this modern tool. Coupon brings free booklet that shows how and where to use the Stud Driver.

Industrial Sales Div., Dept. AF-9
Remington Arms Company, Inc.
Bridgeport 2, Conn.

Please send me your free booklet which shows how I can speed the job and save with the Stud Driver.

Name________________________ Position________________________
Firm________________________________________________________
Address________________________ City________________________ State__

SIX-WAY FITTING

cast of aluminum in one piece

Serving as a crisscross and up-and-down connector for tubing or pipe, the aluminum alloy Hosking 300 is a strong convenient fitting for building scaffolding towers, catwalks, racks and other permanent or demountable tubular structures. Cast in one piece, the inexpensive supporting joint is reported to be stronger than steel pipe. Without any additional bracing, four of the 300's will support 20,000 lb. The fitting is simply slipped on the pipe or tubing and its tapered diamond-set screw tightened with a turn of a hex wrench. It also can be detached easily for reuse. By eliminating welding or threading, the new fitting is said to cut about 30% off labor time. Prices to the building trade run from $1.98 a fitting to accommodate 1/4" standard iron pipe up to $4.64 for the size designed for 1" aluminum and steel tubing.

Manufacturer: John H. Hosking Co., 1704 Howland Ave., Cincinnati 23, Ohio

NONPIERCING CLIPS

attach insulation to roof deck

Because every tiny break made by a fastener in a roof is an invitation to water and vapor trouble, Tinnerman developed these winged grippers to attach insulation board securely without piercing through the metal deck. Tested in laboratories and on actual jobs in Canada, these GAT-Dek clips have sharp serrations at each end which bite into the sides of the deck flute when hammered into place with a simple accessory tool. Once in place, the clip will resist a pull-out pressure of over 200 lb. Each GAT-Dek fastener has opposing tabs so that sections of insulation

is another firm which will cast large flat sheets of acrylic resin up to 8'-6" x 10' on custom orders. The Wasco Acrylicite panels have attractive embedments of woven materials, flora and fauna such as those used in smaller pane's introduced last year (AF, June '56). Price: $1.50 to $4 a sq. ft.

board can be butted one against the other with the clip acting as common anchor. 

GAT-Deks are designed for a nominal 2½"-deep flute. For a roof engineered for a 30 lb. per sq. ft. uplift, 25 fasteners are recommended per square; and 50 per square for a 60 lb. pressure. The clips sell through roof deck manufacturers for about 10¢ each.

Manufacturer: Geo. A. Timmerman Corp., 19900 off Detroit Rd., Cleveland 16, Ohio

VINYL WALL COVERING

has precious look of woven silk

Japanese silk's delicate mien is faithfully reproduced in VicHex, a wall covering tough enough to slough off hard wear and grime. The surface of the attractive material is a layer of vinyl imprinted with the woven texture and fused electronically to a cloth backing. VicHex comes 54" wide in 14 colors pigmented through the thickness of the plastic. Its resilient topcoat resists snags and scuffs and can be kept clean with an occasional wiping. The Imperial Silk pattern sells to architects for about $4 a running yd., or 13½¢ a sq. ft. Another wall covering introduced recently

continued on p. 180

High bay lighting with Abolite is easier on the eyes

- In high bay lighting, Abolite open-top units eliminate uncomfortable contrast of bright lamps against dark background. 18% of the light is directed upward through Abolite's open top, washes out the deep shadows, gives lamps a soft background. 35° shielding of the lamp practically eliminates glare.

Open-top design also gives Abolite high bay units a self-cleaning action. Air circulates through the fixture, sweeps the reflecting surface clean, reduces lamp operating temperatures. As a result, lighting efficiency remains high, lamps last longer.

There are three Abolite upright units for high bay lighting: 18" and 24" diameter Alzak fixtures for use with 400 and 1000 watt mercury lamps and 18" Alzak fixtures for 500 watt incandescent lamps (ideal for gymnasium lighting). For full details, write Abolite Lighting Division, The Jones Metal Products Co., West Lafayette, Ohio.
Stromberg's new
Electronic Time System
tops the field with...

- Jewelled Master Clock movement with automatically wound 72-hour spring power reserve.
- Secondary Clocks standard with hourly and 12-hour supervision — correction cycles completed in only 60 seconds.
- Program Unit, capable of 1440 signals daily on each circuit, immediately resets following power interruption.
- Manual signals sound instantly on depressing program key.
- Seven-channel transmitter — one for clock supervision, six for program signals.
- Installation and maintenance service available throughout U.S.A. and Canada.

A product of the laboratories of one of the largest clock manufacturers in the world—YOUR GUARANTEE of performance, quality and dependability.

For complete details, write.

Stromberg

TIME CORPORATION
Thomaston, Connecticut

SUBSIDIARY OF GENERAL TIME CORPORATION

by the same manufacturer is a vinyl sheet on which flat patterns are translated into what appears to be deeply sculpted bas-relief but are actually shallow textures. Company trademarks, crests, and original designs can be engraved to order on the sheeting by means of this unique process. Manufacturer: L. E. Carpenter & Co., Inc., Empire State building, New York 1, N.Y.

SHALLOW ARC DECK
spans 150' without trusses

Wonder never ceases making wider and wider trussless roofs. The latest model engineered by the Chicago manufacturer of industrial steel buildings spans 150' without any purlin, post, or pillar. Tests conducted at the firm's plant site indicate that the big curve of cross-corrugated 14-ga. steel sheets can withstand hurricane winds of over 120 mph and can support loads of 32 lb. per sq. ft. The new wide-span roof is practical for hangars, arenas, and convention halls and other structures requiring an obstruction-free interior. Wonder's steel deck is reported to cost about 30% less than conventional site-built roofs. Manufacturer: Wonder Building Corp. of America, Chicago, Ill.

MUGWUMP AIR CONDITIONER
Installs through wall like room unit

A complete heating and cooling system for small construction developed experimentally by Frigidaire may shift thinking on utility core layouts from center to perimeter. All components in this year-round package are factory assembled in a single group. The gas furnace and cooling coil are located on a plenum along an outside wall with the preconnected condensing unit left outdoors. The costly and complicated installation of refrigerant connections between a centralized coil and outside condenser is unnecessary, and the
entire conditioning system can be shipped with all the wiring except final connections complete and the condenser sealed, clean and tested.

The experimental system will be used first in a six-room NAHR Research house with a gas furnace having a 105,000 BTU input capacity, a 2 T. air-cooled condenser and 2 T. cooling coil. 

Manufacturer: Frigidaire Div., General Motors Corp., Dayton 1, Ohio

PAINT ROLLER wraps itself around pipe

Pipe, poles, and other cylindrical objects that usually consume considerable painting time can be coated quickly with the contoured E Z Paintr. A slight squeeze on the spring-fitted handle of the applicator pulls its five rollers together on a U frame to fit against a large area of pipe or column surface. When the pressure is released the rollers realign for easy loading in a paint tray. Price of the large pipe painter with five rollers is $7.95; extra set of roller covers, $2.95. A small two-roller tool costs $2.95; additional covers are $1.29.

Manufacturer: E Z Paintr Corp., 4061 S. Iowa, Milwaukee, Wis.

continued on p. 182

WHY SUFFER FROM “STANDARD CATALOG UNIT” HEADACHES?

“SATISFABRICATED” AIR CONDITIONING UNITS

BY GOVERNAIR

WILL FIT YOUR JOB!

When ordering packaged air conditioners, why should you inherit the headaches of fitting other manufacturers’ unalterable “standard catalog” units to your needs?

Not when it’s so easy to order “Satisfabricated” Governair units . . . completely self contained . . . completely flexible in design, to suit any particular load conditions or unusual space requirements. Governair “Satisfabricated” units operate with simple water, electrical and duct connections. Important, too, is the fact that Governair units are engineered better . . . and built better to operate better, at minimum maintenance cost.

For more details, write the home office or refer to your classified directory for Governair’s nearest representative.

GOVERNAIR CORPORATION
4840 NORTH SEWELL
OKLAHOMA CITY, OKLAHOMA
Now...NEW!

An “INDEX TO SPECS!” on asphalt and asphalyclic products

A condensed library of facts for ready reference whenever you need information on the use of asphalt, Bitumuls® (emulsified asphalt), or Laykold® specialty products.

Use the handy coupon, below, to order your copies of these index cards. No obligation, of course.

---

Ornamental Glass imported in two geometric patterns

Reminiscent of old European windows, these two rolled glass patterns with their large circles and diamonds have a neat softness appropriate for many modern restaurants, shops, and churches. Imported from Germany in amber and pale green tints as well as clear, the textured glass lights install for about 85¢ to $1.20 a sq. ft., depending on the type of caulk or bead used. The circular motif measures 2" in diameter; the diamond is 3" high. Both the Roundel and Lozenge patterns are rolled into one face only, leaving one side flat for easy cutting. Maximum sheet
CONCEALED LATCH dresses off toilet compartment

Hardware conscious and conscientious, Sanymetal has replaced the loud slide bolt familiar on most toilet compartments with a simple quiet latch. Joining the manufacturer’s other recent design improvements (flush pilasters, ceiling mountings, U wall brackets) the $800 latch is mounted flush with the door with all mechanism concealed except for the diamond shaped handle. The new hardware is said to be fitted in a fraction of the time required for slide-type latches and to be tamper-proof. Its bolt is stainless steel and exposed parts are chromium plated. The latch requires no lubrication. Manufacturer: Sanymetal Products Co., Inc., 1687 Urbana Rd., Cleveland 12, Ohio.

BUTTERFLY JOINT seals block and concrete walls

Extruded of durable synthetic rubber, X-shaped Titewall sealer affords excellent protection against water leaks at joints in concrete and masonry block construction. To apply the resilient strip between block, the wings on one side are pinched together and inserted in the groove to expand snugly against the sides. Servicised, Titewall’s manufacturer, also produces a molded joint filler Kork-Pak and a cold sealing compound pigmented a neutral gray, both suitable for use with the new butterfly control joint. Titewall is available in 8", 2', 4', and 10' lengths at prices ranging from $65 to $75 a lin. ft. Manufacturer: Servicised Products Corp., 6651 W. 66 St., Chicago, III.

PLANNED HEATING DEPENDABILITY
FOR THE MODERN SCHOOL

Enterprise distributors, backed by extensive factory experience and facilities, offer complete assistance in planning, designing and engineering your burner installation.

Architects
Mallis, DeHart and Hopkins
Consulting Engineer
Marius Anderson
Heating Contractor
W. E. Beggs, Inc.
Installed by
A. Wilcox Company

Two Enterprise Burners have provided 6 years of reliable service for this school with minimum maintenance. Enterprise Burners are available in sizes from 4 to 200 gph.

ENTERPRISE ENGINE & MACHINERY CO.
Subsidiary of General Metals Corporation
18th and Florida Sts., San Francisco 10, California
Send me the free Flexalarm Fire Alarm System Planning Guide, F249.

Name: __________________________ Title: __________________________

Firm: __________________________

Address: __________________________

City: __________________________ Zone: __________ State: __________

Send Coupon or write for Flexalarm F249 TODAY! And, we’ll keep you informed on new developments and systems.

Mail to: The Gamewell Co., Dept. BB
Newton Upper Falls 64, Massachusetts

New Catalog for Architects and Engineers

Here's an advanced, easy-to-use technical digest on the design, application and specification of interior fire alarm systems. It features a new building-block concept based on Gamewell experience in signaling and communications. F249 includes suggested systems and layouts, gives you a complete one-source reference for planning the best possible protection against the hazards of fire.

THE GAMEWELL COMPANY
Newton Upper Falls 64, Mass.
Here's a "wall" that rolls up electrically for big-truck access to a fully sheltered loading platform . . . closes tight—electrically—in seconds.

It's a popular, efficiency-boosting design for buildings with heavy traffic. A design that calls for the rugged construction, smooth performance and appealing lines of Ro-Way overhead type doors.

Ro-way commercial doors are built to last with seasoned lumber and Masonite® Dorlux® panels. Mortise and tenon joints both glued and steel doweled for extra strength. Seal-A-Matic hinges, Taper-Tite track and ball bearing rollers to assure smooth, trouble-free operation and snug fit. Big, properly tensioned Power-Metered springs for easy action. Electric operators for fast, efficient service. Heavy gauge hardware both Parkerized and painted to prevent rust and the corrosion of salt air and industrial fumes.

Check into the Ro-Way line . . . you'll like their wonderful features. Models for commercial, industrial and residential buildings . . . standard and special sizes to meet any design problem.

COMMERCIAL • INDUSTRIAL • RESIDENTIAL

there's a Ro-Way for every Doorway!

ROWE MANUFACTURING COMPANY
985 HOLTON STREET • GALESBURG, ILLINOIS
A lesson in beauty and efficiency with economy

Reynoside
Reynolds Aluminum
Ribbed Embossed Siding

How to achieve efficiency and beauty economically is a lesson well taught by this magnificent high school...a lesson that applies to all modern industrial building. Economy starts with the rapid, low-cost erection of the wall. Not merely beautiful, its two highly heat-reflective aluminum surfaces combine with glass fiber insulation between to assure significant winter fuel savings as well as cooler classrooms in hot weather. Aluminum slashes maintenance costs, too. Rustproof and highly corrosion-resistant, it withstands weather and time without painting...ever. Thus low applied cost is paired with low upkeep for all-around economy!

A complete installation service is available. For name of your nearest Jobber-Erector, call the Reynolds Office listed under "Building Materials" in classified phone books of principal cities. For literature, write Reynolds Metals Company, Building Products Division, Louisville 1, Kentucky.


*Reynoside standard types are 4" rib, .032" thick; 8" rib, .032" and .040" thick. Embossed finish. Lengths from 5' to 22'5" in 6" increments. Nominal width coverage is 40". 
NOW—a great new development for WALL-HUNG FIXTURES

UNITRON
CHAIR CARRIERS and CLOSET FITTINGS
"Best by Every Comparison Test"

From JOSAM, leader and pioneer of plumbing drainage products, comes a great new development — Josam UNITRON Chair Carriers and Closet Fittings.

The Josam UNITRON Closet Carrier is so designed that ONE CARRIER fits all wall-hung water closet bowls and women's urinals. This eliminates using a different carrier for every blow-out or syphon jet closet bowl or women's urinal, or a different carrier for each manufacturer of such fixtures.

Architects and engineers will find UNITRON Closet Carriers enable them to meet all requirements with a minimum number of units which require one-third less pipe chase width, thereby reducing costs and providing additional rental space.

Here is today's carrier assembly for today's installation and construction requirements. Get complete data on the new Josam UNITRON line by sending coupon below.

ADAPTABILITY
ADJUSTABILITY
SAVINGS

REVERSIBLE CARRIER BODY — Reversing carrier body from top to bottom position permits connection for blow-out or syphon jet bowls of any manufacturer.

ADJUSTABLE EXTENSION — The Adjustable Extension on the close connection assembly, permits an adjustment of 4" between the face of the fixture carrier and the finished wall line. Adjustment can be made from the front of the unit at any time before or after the wall has been built.

COMMON VENT — A single or common vent provided for the double closet fitting is so located that it will afford more effective air circulation for the fixture and branch. With the single vent a group or row of water closets can also be loop or circuit vented.

REVERSIBLE FOOT — The Reversible Foot on the Carrier provides vertical adjustment from 1/8" minimum to 4 1/2" maximum. This is accomplished by reversing the foot support.

A Complete Line of Josam UNITRON Carriers and Fittings for Closets, Urinals, Lavatories, Sinks and Slabs and Hospital Fixtures

JOSAM MANUFACTURING COMPANY
General Offices and Manufacturing Division
MICHIGAN CITY, INDIANA

REPRESENTATIVES IN ALL PRINCIPAL CITIES
West Coast Distributors
JOSAM PACIFIC COMPANY
San Francisco, Calif.

Canadian Manufacturers
JOSAM CANADA LIMITED
Toronto, Canada

Josom products are sold through plumbing supply wholesalers

JOSAM MANUFACTURING COMPANY
Dept. AF-9, Michigan City, Indiana

Please send copy of Manual F 8 on UNITRON

Firm

By

Address

City

Zone

State

architectural FORUM / September 1957
Here's an intriguing entrance design for a recently-built midwestern structure. Stone and stainless steel and glass . . . a planter that continues inside . . . two sweeping curves in opposed planes.

If there's any other material that can match the ageless, everlasting qualities of stone, it's stainless steel. Use it for its hardy, perennial beauty, that neither smoke, fumes nor weather can impair. Use it for its remarkable strength, greatest of all the structural metals. But above all, use stainless steel because it wears so well and lasts so long that it's actually the most economical metal you can use . . . the least expensive in the long run.

Keep it in mind, too, that A-L Stainless Steel is versatile—you can employ it in your structures in everything from building hardware to an entire curtain wall design. • If we can help you with any data or engineering assistance, call on us. Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.

For Stainless Steel in All Forms—call

Allegheny Ludlum

Warehouse stocks carried by all Ryerson Steel plants
AMERICAN MODERN at its best
in architecture...in door closers

A continuing series of outstanding office buildings, churches, schools, hospitals and industrial structures using NORTON DOOR CLOSERS

Serving as headquarters for a chain of operations that extends from the Gulf of Mexico to the Canadian Border, the structure above is considered to be one of the most modern buildings in the Southwest. Genuinely modern it is, too, not only in appearance but in every detail right down to the door closers—a Norton Inador Closer on every interior door.

The compact, powerful INADOR mechanism is fully concealed in a mortise in the top rail of each door so there is no conflict with the architect’s design. Their mechanism, moreover, is of the rack and pinion structure designed and built to provide the same rugged dependability that has kept so many Norton Door Closers in continuous, trouble-free service for periods up to 30 years and more.

For complete information about these and other Norton models, consult the current NORTON catalog. Write for a copy today if you don’t already have one.

A complete line of Norton Surface-type Closers is available for installations where concealment is not essential.

ARCHITECTURAL FORUM / September 1957
Here steel pipe snow melting makes the "big thaw" start with the first snow!

Only Steel Pipe gives all these advantages!

- Low cost with durability
- Strength unexcelled for safety
- Formable—bends readily
- Weldable—easily, strongly
- Threads smoothly, cleanly
- Sound joints, welded or coupled
- Grades, finishes for all purposes
- Available everywhere from stock

They have real winters in St. Paul! But no matter how heavy the snowfall, the sidewalks at the Minnesota Mutual Life Insurance Company's home office building will be automatically cleared by a Steel Pipe Snow Melting System.

This insurance company knows that a snow and ice melting system will "pay off" by eliminating costly manual removal, minimizing accident hazards, reducing interior floor cleaning expense and adding the final touch of convenience and attractiveness to an ultra-modern building.

Steel Pipe was first choice, again, (almost two miles of it!) for this typical snow melting installation. Steel Pipe, too, was used for the interior hot water heating system. Yes, the proved economy and suitability of steel pipe for snow melting, heating, sprinkler systems, plumbing, power, steam, and air lines make it the most widely used pipe in the world.

Ask for the attractive free booklet "Steel Pipe Snow Melting and Ice Removal Systems."

Committee on STEEL PIPE RESEARCH
AMERICAN IRON AND STEEL INSTITUTE
150 East Forty-Second Street, New York 17, N. Y.
...sun control...functionalism...Corbu

ORIGINS OF FUNCTIONALIST THEORY.
By Edward Robert De Zurko. Published by Columbia University Press, 2960 Broadway, New York 27, N.Y. 265 pp. 6¼" x 9⅜". $5

Architectural freshmen and a confused public have long shared the desire for a well-told history of functionalism. They're not quite satisfied with the belief that someone (was it Frank Lloyd Wright?) one day decreed: "Form follows function!" and suddenly, unexpectedly, a totally new kind of architecture was off to the races. Reports of anyone who thought "functionally" or "organically" before the Civil War tend to be completely obscure.

Author De Zurko, associate professor of architecture at the Rice Institute, has sought to clear up this obscurity by subjecting a roster of historical figures (from Socrates to Horatio Greenough) to a kind of litmus paper test. Functionalist or no?

His method might work if it were not for his overabundant quality of mercy. The author admits that he has not the heart to proceed with his investigation, saying: "It is not my intention to add to the hostility between advocates of functionalism and those persons who may be described as anti-functionalists." The book therefore turns into a kind of pleasant journey through the artistic nether-world in which the shades of almost every artist worth meeting come forward to repeat their most functional utterances.

Entertaining, but not as edifying as it might be.


This sixth volume in "The Complete Works" includes, among other recent accomplishments, the Ronchamp chapel and much of the building at Chandigarh. It is therefore enormously valuable, even to laggards who did not begin to collect these well-illustrated volumes some years ago.

It also contains a fair share of Corbu's present, ill-humored tone. Witness his introduction: "Thus is the harvest in the autumn of one's life—to be abused more than necessary, particularly by the Gentlemen of Art, and even by ever fresh youth, here and there, who find such a course already too complicated."

Despite the occasional appearance of manias and phantoms, it is a privilege to observe the master in his workshop.

continued on p. 192
TECHNICAL PUBLICATIONS
A selection of new handbooks, textbooks, technical reports, brochures and commercial leaflets, noteworthy for their information content or pictorial format or both.


A technical bulletin (F 8031) on a new centralized automatic control system for heating and air conditioning, with details of functions, uses, and advantages of central electronic control with visual dial supervision.


The 38th edition of this Bible of the climatic environment control industry and profession contains a larger Technical Data Section than ever before and many revised chapters and rewritten passages to keep abreast of a fast-moving field. Among the new features: a complete revision and enlargement of U-value tables for building construction, a rewritten chapter on sound control, a new chapter on the industrial environment, a new step-by-step procedure for designing panel heating systems.

ALUMINUM IN SCHOOL CONSTRUCTION. Published by Kaiser Aluminum & Chemical Sales, Inc., 919 N. Michigan Ave., Chicago 11, Ill. 64 pp. Illus.

A generously illustrated review, based on a national survey of school architects and building supply manufacturers, of recent architectural advances in the use of aluminum in school construction. Free only to school officials, architects, manufacturers.

POWDER ACTUATED TOOLS. Uniform State Code Relating to. Published by Powder Actuated Tool Manufacturers' Institute, 250 E. 43rd St., New York 17, N.Y. 8 pp.

An industry-suggested code for insuring greater safety in the increasing use of explosive operating tools for setting studs, pins and fasteners.

MASONITE PRODUCTS. Published by Masonite Corp., Illi W. Washington St., Chicago 2, Ill. 19 pp. Illus.

Complete, compactly organized catalog of this company's line of Presdwood panels, with many diagrams and specifications for proper use.


A tasteful brochure, with many architectural detail drawings, showing ten recent curtain-wall projects engineered and fabricated by this company in association with architects on the job.

RCA SOUND IN INDUSTRY. Published by the Radio Corp. of America, Camden, N.J. 12 pp. Illus.

This booklet details central sound reinforcing, public address and music distribution systems in industrial plants, with illustrations of typical equipment locations and installations.

helping Bethesda Hospital improve service . . . . cut costs

★ Bethesda Hospital patients have better food service . . . hotter, more attractive food at the bedside . . . since the recent food service reorganization in which Van assisted. Two kitchens were consolidated into one. Centralizing tray service and installing the conveyor effected amazing economy.

★ Superintendent Brett estimates conservatively that personnel savings have cut overall food service costs 25%! All new equipment is shining stainless, assuring savings in upkeep for years. It is understandable why Bethesda Hospital has been a steady Van customer for more than quarter of a century. In fact, repeat customers have been a Van tradition for more than a century.

★ If you have food service equipment needs . . . new, expansion or modernization such as Bethesda's . . . it will pay you to call Van.

The John Van Range Co.
EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD
BRANCHES IN PRINCIPAL CITIES
328 EGGLESTON AVENUE CINCINNATI 2, OHIO
2 ideal specifications for efficient CLASSROOM DOOR CONTROL

These ideal GJ specifications for classroom doors are used in such outstanding schools as:

- Chicago Public Schools, Chicago, Illinois
- Sinclair Lane Elem. School, Baltimore, Maryland. Edward J. Hofstetter — architect
- Algonquin School, Des Plaines, Illinois. Childs and Smith, Chicago, Ill. — architects

Also GJ shock absorbing door holders for entrance and other heavy duty doors.

"shall have GLYNN·JOHNSON . . .

GJ 500 series CONCEALED (or surface mounted) OVERHEAD DOOR HOLDERS." (Most efficient shock absorbing device for holding door open at any specified degree up to 110°. Resilient spring cushion absorbs force of violent openings. Holds door conveniently open for continuous "through" traffic. Overhead, they present no stumbling hazard, are tamper-proof and cannot interfere with cleaning.)

"GJ F 40 FLOOR TYPE (or GJ W 40 wall mounted) COMBINATION DOOR STOP AND HOLDER." (This simple, foolproof device engages silently and automatically to hold door open. Releases with a firm pull. Rounded surfaces prevent children from "riding" bumper or damaging floor plate. Especially recommended for doors opening more than 110°.)

"THREE GJ 64 for metal frame (or GJ 65 for wood frame) RUBBER SILENCERS." (Form pneumatic air pockets to absorb shock or noise of closing and create constant latch tension . . . no door rattling.)

write for SCHOOL DOOR CONTROL brochure B-9/GL

GLYNN·JOHNSON CORPORATION
4422 n. ravenswood ave. chicago 40, illinois
Will The School You Are Planning Ever Need AIR
Plan with the new HerNel-Cool II
INSTALL IT NOW—AIR CONDITION LATER

Nearly every school would benefit from air conditioning now—as have offices, theaters, hospitals and homes. Unfortunately, the money to provide it isn't always in the current school budget. The HerNel-Cool II year 'round unit ventilator solves that problem.

These units can be installed now so that the school enjoys all the usual benefits of the famous Herman Nelson DRAFT|STOP system—heating, ventilating, natural cooling (with outside air), and control of window down drafts. Only the addition of a chiller in the boiler room is needed for complete hot weather air conditioning.

It can be provided initially or at any future time. When it is wanted, air conditioning can be secured without disruption . . . and without expensive alteration and installation charges.

HOW THE SYSTEM WORKS
HerNel-Cool II units provide individual temperature control for each room, automatically. Most of the year they provide heat, ventilation, or natural cooling (with outside air) as the room requires. When a chiller is installed in the boiler room, HerNel-Cool II units also function as air conditioners.

In hot weather, the units switch automatically to mechanical cooling, with chilled water circulating in the same piping that carries hot water during cold weather. The cost is far less than separate heating and air conditioning systems—both for installation and operation.

Would you like more information? Just write to Herman Nelson Unit Ventilator Products, American Air Filter Company, Inc., Louisville 8, Kentucky.
This module helps more people afford architectural services

Imagine the basic building itself available as an economic module. Imagine that module furnished in such a comprehensive range of widths, bay lengths, side-wall heights, code specifications — even roof pitch ratios — that you can incorporate the module in almost any single-story plan. That would relieve you of a vast amount of routine engineering on basic structures.

There is such a module — the Butler Building System. It offers an entire metal structural and roof system engineered to carry the building load. Components are economically mass-manufactured to high quality standards and precise dimensions. Construction becomes a quick assembly job. The end product is uniformly high in quality. And cost is low. You work with economical curtain walls and partitions, column-free and truss-free interiors.

This system gives you two important opportunities. You can invest a larger share of the budget in design elements and finer finishing materials. And — you can provide professional services to a new class of clients who otherwise could not afford an architect.

For the full story on the cost advantages of designing around the Butler module consult with your Butler Builder. Ask to see the sound-slide film, "Distinctive, Modern Buildings." Your Butler Builder is listed under "Buildings" or "Steel Buildings" in the Yellow Pages. Or write us direct.

Pittsburgh offices of Davey Tree Experts Company illustrates unusual "flying buttress" application of Butler rigid frames.

Design utilizing Butler functional forms and materials creates a dramatic facade. State Fair Building at Oklahoma City.
Excerpts

What other people are saying

Tax oppression

No friend of the Administration’s current right money policy, New York State Comptroller Arthur Levitt pointed out some of the policy’s effects for a June issue of the Commercial and Financial Chronicle.

It is clear the scarcity and high cost of credit is creating an undue hardship. Many municipalities, particularly school districts, have encountered great difficulty in obtaining temporary financing. Others have rejected bids on bond issues because the cost was excessive. Some even have deferred their construction plans. The Investment Bankers Assn., in its Oct. ‘56 statistical bulletin, reported that a minimum of $350 million of municipal issues were postponed or withdrawn from the market in the third quarter of 1956 because of credit conditions.

I believe that a considerable body of evidence exists to suggest that the Federal Reserve’s policy of general credit restraint is imposing its most severe burden on state and local units of government.

Certainly it will cause undue pressure on the already high burden of local taxes. In New York, we are now experiencing a quiet but effective taxpayer revolt against the continued rise in local taxes. Since the first of this year more than 35% of the school bond issues submitted to the voters have been rejected. Last year less than 10% were voted down. School budgets are also being rejected with recommendations for curtailment of expenditures.

In the last ten years local tax levies in New York State, including property taxes, nonproperty taxes and assessments, have increased 125%. Local taxes for the support of schools alone have risen 152%. Yet, we must continue to build schools. We cannot afford to wait for a more favorable investment climate—not when we expect school enrollment in the state to increase by over 200,000 in the next two years.

In view of this situation, I question whether our reliance on monetary policy to curb inflation is not raising serious obstacles to the maintenance of economic growth by ignoring the serious nature of individual situations.

Design for greatness

Conservative Washingtonians came away as shocked as ever by William Zeckendorf’s new-old proposal, delivered at the annual meeting of the Washington Housing Assn. This was the perennial shocker:

I am suggesting a new look for Washington. We should find out if there isn’t some means by which we can have more open space and less lot coverage without losing intensity of use. And we shouldn’t worry too much about the fact that perhaps the height limitation which was fine when it was conceived is no longer a 1957 solution for the nation’s capital. This city has become the capital of the greatest nation in the world.

Architecture and freedom

The architect as a sort of personal and civic psychiatrist was pictured by August Heckscher, director of the 20th Century Fund, at the AIA centennial dinner in New York last April.

The architect in an era of change such as our own enters from the beginning into a unique relationship with his client. “You want a house, my friend? Very well then; tell me what you believe. I shall design you a house if you can state the first and last things of your life.” Few men or women know what they believe, but the process of trying to sort out the relevant from the irrelevant can be a highly educative one, and can contribute mightily to a happy architectural result. When we go beyond the individual, into those areas where the architect touches the common life of the community, we see essentially the same questions being posed. What does the city hold dear? Such contrasting values as privacy and neighborliness, serenity and tension, spaciousness and bounded distances, are among those which the architect must bring into harmony and to which he must give a scope that accords with the community’s deep sense of right.

The architect cannot dictate to his client; he certainly would be unwise to try

continued on p. 198
to dictate to the community. This process of evoking buried strains of belief and value, of constantly reshaping the outward design so as to avoid doing violence to the inner life, is the essence of democracy. It is my own belief, indeed, that an age of great building can be an age of true freedom—that the next stage of liberalism in America will be the liberalism born of common efforts to manifest in architectural forms the quality of life which the people treasures for its own.

The architect will have to be infinitely patient, he will have to listen for those signs and voices that are not yet in the fashion, and he will have to maintain while he works his own clear sense of taste and style. We shall have beauty, but not beauty in the abstract; beauty, rather, that springs from the strivings of a self-confident and diverse people, from their life together, their dreams and their hopes.

### Economics of prefabrication

The European Productivity Agency took a look at the world-wide building picture last spring. A particularly significant report was turned in by two Danish builders, R. A. Larsen and Vagn Ussine.

#### Does prefabrication pay?

Here is the crucial question and there are many ways of answering it. One pointer is that prefabrication is expanding everywhere and new industrial plants are springing up all over the world. It seems here to stay and will expand as quickly as capital becomes available.

There is, too, the interesting trend in the building costs of Danish flats. During 1955 to '56, in spite of rising labor and material costs, prices fell 5%, due to extensive re-thinking and the gradual industrialization of part, at least, of the production process.

More than 50% of the industrial construction jobs in Denmark today contain a certain amount of prefabrication in the design.

These points, however, only indicate a trend—let us look at housing. Costs of traditionally built houses in Denmark are divided as follows:

- **Materials** ................................................... 57%
- **Labor** ....................................................... 29%
- **General expenditure, risk and profit** ........... 14%

Where building is based on prefabrication, the costs are divided as follows:

- **Materials** ................................................... 50%
- **Labor** ....................................................... 20%
- **General expenditure, risk and profit** ........... 30%

Thus a reduction in labor demand is the first result of an industrialized approach. This does not necessarily lead to higher productivity; the investment needed to obtain the saving may be so heavy and the demand for investments so great that there is a reduction in over-all productivity. The facts, however, point to a necessary investment of 2½ times the yearly wage of the workers; and with a turnover of five times the wages paid, the capital must be turned over twice a year. Hence the labor needed to offset depreciation of plant, machines, etc., comes to 10% of the yearly wages, or the total labor consumption becomes 22%, instead of 20%, on present traditional methods. The saving of 7%, or the increase in production of 7% with the same labor force, is highly significant at this early stage in development, when mechanization is still slight and industrial organization only in its infancy.
Steel knee braces along exterior walls and in elevator walls carry a substantial share of the wind loads on the 27-story Canada House, a new office building in New York City.

Limited by architectural and mechanical considerations to shallow 14-in. steel floor beams which were incapable of carrying the load through ordinary wind connections, designers turned to knee braces to stiffen the walls. The braces were angled steeply at the lower junctions of spandrel beams and columns to prevent interference with windows.

The building has setbacks at two levels. Shear from the upper portions of the building is transferred to the outer columns of the lower portion by horizontal bracing in the floors at these levels.

American Bridge fabricated and erected 2,300 tons of structural steel for the framework of this modern building which measures 100' x 120'. Field connections were made with high-strength and ordinary bolts.

Canada House is the most recent of many outstanding steel frame buildings erected in the heart of New York City by American Bridge. If your plans call for new construction in congested areas, let us put our specialized experience to work for you.
Hospital personnel, patients and visitors ride with complete confidence and safety in Westinghouse Operatorless Elevators in Truett Memorial Unit of Baylor University Hospital. That’s because these elevators are equipped with Westinghouse Traffic Sentinel Doors. Once the doors open, Traffic Sentinel keeps them wide open until all are inside the car. No threats of premature closing. No frightening “snapping action” as if doors were about to close. Yet an instant after the last passenger is safe inside the car, these magic Westinghouse doors close quietly, surely and safely. These elevators save time, lower the over-all cost of vertical transportation, provide the ultimate in passenger convenience and service. Ask your nearest Westinghouse Elevator Representative for details.

**You can be SURE...If it's**

Westinghouse

**WESTINGHOUSE TRAFFIC SENTINEL ELEVATOR DOORS ARE SAFE AND CONVENIENT**
A dynamic new silhouette on Toronto’s skyline is the Anglo-Canada Fire and Insurance Company office—a building whose drama stems from the interplay of colors and textures.

The solid shaft of green Hanley Duramic Brick No. 718 balances and complements the glass-and-steel column and contrasts with the plane of black Hanley Duramic Brick No. 702, laid in a fretwork design. Another blending component of this spectacular building is the neutral expanse of that long-time favorite, Hanley buff face brick.

Brick—one of man’s oldest building materials, yet compatible with all other elements—again proves itself timeless in feeling, beauty, strength.
COLORADO SPRINGS, COLO. The sanitary sewer installation at the new "West Point of the Air" calls for nearly 10 miles of pipe—and Vitrified Clay is in the specifications for the entire system.

When building for the future, quality and permanence are the top considerations. That's why large important projects call for Clay Pipe. When Vitrified Clay goes in, it is a well accepted fact the pipe will last. It is the only pipe that's absolutely safe against all forms of chemical deterioration. It does not rust; sewer gases do not corrode it; acids and alkalies do not soften it. And for final proof of quality, Clay Pipe is sold with a written guarantee—a vote of confidence matched by no other pipe manufacturers. The next time you plan and install new sewerage lines, specify Vitrified Clay. It never wears out.
Area-lighting system of many moods welcomes office visitors at the New England Mutual Life Insurance Company

New Sylva-Lume wall-to-wall illumination

by Sylvania

Subtle dashes of color. A warm and pleasant mood. Ceiling décor that almost seems to extend a friendly, "Welcome."

In its own quiet way, new Sylvania Sylva-Lume brings all this mood, and good lighting too, to these Boston (Mass.) reception rooms of the New England Mutual Life Insurance Co. It helps also to separate various functional sections of the large room area.

Here New England Mutual uses only one of many possible ceiling designs. Actually, one in over 100,000 . . . custom-created from a few standardized components . . . using a track grid system based on 36-inch modules. The existing designs can be changed overnight, if desired, by simply shifting the vinyl plastic panels and perforated metal baffles.

New Sylva-Lume is a lighting system of unlimited designs and moods, for the designing man of many moods. Developed by a creative group for a creative profession, it allows unlimited freedom of design. By organizing its elements of color, light and form, you can create desired pattern, texture, and style. Write direct for folder of complete information.

SYLVANIA ELECTRIC PRODUCTS INC.
Department H 107
Lighting Division—Fixtures
One 48th Street, Wheeling, W. Va.

SYLVANIA . . . fastest growing name in sight

Lighting • Radio • Electronics

Television

Deep panels • 4 types.
In pink, yellow tints, or white

Drumhead panels • 8 types.
White, pink, yellow . . .
in several pleasing combinations

Shallow panels • 4 types.
In some two tints, or white

Acoustic baffles—White, yellow or blue—define and accent

Perimeter panels—Interesting treatment for borders
End the noise menace...
quickly, economically—with a Johns-Manville Fibretone Ceiling

In clubs, offices, schools, hospitals and auditoriums. In almost any enclosed traffic area having a noise-quieting problem, J-M Fibretone Ceilings are attractive and decorative, as well as providing very high sound-absorbing efficiency.

Johns-Manville Fibretone Acoustical Units are scientifically designed to absorb noise. Hundreds of small holes act as “noise traps” where sound energy is dissipated. Because an average ceiling, 15' x 15', contains 108,900 of these holes, Fibretone is called the “ceiling with 100,000 noise traps.”

Fibretone Acoustical Units are furnished uniform drilled, variety drilled and random drilled. They make possible a wide range of architectural design possibilities to create ceiling interest. Fibretone units can be quickly and easily installed over present ceilings.

Take advantage of the services of J-M’s staff of acoustical engineers, located in the principal cities. They will gladly make analyses and give specific recommendations on your acoustical problems.

Before you decide about acoustical ceilings, get the facts about Johns-Manville. For a free copy of booklet “Sound Control,” write Johns-Manville, Box 158, New York 16, N. Y. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario.

Johns-Manville congratulates the American Institute of Architects on its 100th Anniversary.

Consult an architect—use quality materials.
In about October 1958, the new $20 million Supreme Court Building in Brooklyn, N. Y., will be completed. In it you will find more than 365 tons of air conditioning, heating and ventilating ducts made of Wheeling sofTite Cop-R-Loy Galvanized Sheets.

In addition to meeting the strict requirements of New York City’s Dept. of Public Works, sofTite Cop-R-Loy permitted the fabricators to quickly form the duct work without preliminary cutting and joined easily without shearing waste. And by choosing sofTite Cop-R-Loy, the builders were assured of the ultimate in long lasting galvanized air conditioning ducts.

The full line of Wheeling building materials includes Steelcrete Reinforcing Mesh, Ex M Gratings and Angle Frame Partitions, Tri-Rib Steel Roof Deck, Metal Lath and Lath Accessories, and sofTite Cop-R-Loy Galvanized Sheets.

For full details contact the Wheeling warehouse or sales office nearest you.

WHEELING CORRUGATING COMPANY, WHEELING, W. VA.

IT’S WHEELING STEEL
the final touch
in good design...

CHALLENGER
LOCKS

900 Series—Heavy duty for hospitals, schools, office buildings and finer residences.

The instantly obvious quality, and clean contemporary styling of Challenger locks complement good building design. Compact construction of heavy steel, solid brass and bronze, plus exacting engineering and single unit assembly, put a solid durability into Challenger locks that add extra years of dependable duty under any type of handling.


Write for Complete Literature.

...ask any owner, architect or consultant who has used Challenger locks.

CHALLenger LOCK CO., INC. / 4865 Exposition Blvd., Los Angeles 16, Calif.
IN PORCELAIN ENAMEL...

THE FACILITIES AND EXPERIENCE

ARE AT ING-RICH

Here are the two largest porcelain enamel panels used in architecture. In addition to having the industry's broadest experience and finest facilities for big-panel construction, Ing-Rich can provide much data useful in planning for panel flatness, moisture control, proper joint design and related subjects.

Write for design data on Porcelpanels.


PORCELANELS

are made by

INGRAM-RICHARDSON MANUFACTURING COMPANY

BEAVER FALLS, PA.

Member, Architectural Division, Porcelain Enamel Institute
ARCHITECT ACHIEVED DISTINGUISHED EFFECT BY USING SPECIAL MULLIONS AND BAND COURSES IN THIS
ALUMINUM CURTAIN WALL BY

This 20-story luxury office building is enclosed in a distinctive curtain wall, fabricated and erected by Cupples. Vertical mullions, in aluminite finish, are only 3 inches wide and project a mere 1 3/4 inches from the face of the building. A 12-inch horizontal aluminum bond accentuates each floor level. Double-weatherstripped projected windows, also by Cupples, can be cleaned from the inside. Spandrels are structural glass.

This is another example of how Cupples' aluminum curtain walls can be adapted to fit the requirements of any structure, regardless of size. And it is further proof of Cupples' leadership in sound, economical skin construction. Cupples is also a foremost manufacturer of aluminum windows, doors, Alumi-Coustic grid systems and special ornamental products. Our catalogs are filed in Sweet's.

Cupples PRODUCTS CORPORATION
2659 South Hanley Road • St. Louis 17, Missouri
Brings the teller's or cashier's counter to the sidewalk...

HERRING • HALL • MARVIN'S
NEW "5-STAR"
PEDESTRIAN WINDOW

Here is the latest in modern, efficient convenience for banks, savings and loans, public utilities, etc. . . . a pedestrian window that extends a friendly invitation to customers to step up and transact their business in a hurry.

Check these fine features

- Spacious full width writing shelf gives two customers adequate elbow room. Pens and deposit slips are provided directly above shelf.
- Outside writing shelf raised by teller from inside; pens and other writing materials concealed when window is closed.
- Writing shelf has shielded, fluorescent lighting for customer's eye comfort.
- Distortion-free, two-way speaker system permits easy, private communication conversation with teller.
- Clear glass depository cover permits customer's observation of his deposit at all times.
- Extended canopy at top (optional) protects customer from rain or sun.
- Work counter, 60" wide by 18" deep, covered with black linoleum.
- Two convenient-height drawers, one a cash drawer.
- Work surface illuminated with fluorescent light.
- Bullet-resistive glass.
- All exposed surfaces are stainless steel.
- Underwriters' Laboratories approved.

HERRING • HALL • MARVIN SAFE COMPANY
Hamilton, Ohio • BUILDERS OF THE U. S. SILVER STORAGE VAULTS AT WEST POINT
It's time for a Change! to the newest concept in heating—comfort

Insure your reputation by specifying the Burgess-Manning Radiant Panel Ceiling. Here your heat source is logically located for greatest efficiency for heat radiation into the room—for uniform heat, ceiling to floor—for most efficient acoustic control—for the new, ideal, natural comfort that no other system can equal. In the Burgess-Manning Radiant Panel Ceiling you recommend the more technically correct method in both function and final results of any known means of heating for human comfort, and, think of these advantages:

- The ideal comfort thru radiation
- Lower operation cost fuel-wise
- Lower power consumption
- Lower building height
- Increase floor space
- Smaller ducts and air handling equipment
- Lower maintenance costs
- Greatly reduced redecorating costs
- Elimination of standing radiators, convectors and other types of heat distribution equipment

Read the story of The Burgess-Manning Radiant Panel Ceiling which is the first noteworthy advance in heating for human comfort in many years.

Architectural Products Division of BURGESS-MANNING COMPANY

5970 Northwest Highway, Chicago 31, Ill.

Manufacturers of 3-Way Functional Ceilings and Acousti-Booths for Telephoning
Finest complement to modern building design...

THIS PERFECT DOOR-TRIM COMBINATION!

The perfect blending of both beauty and performance has made Corbin Door Trim the first choice in finishing hardware. Corbin's advanced styling, faultless precision, and smooth, luxurious operation speak quality throughout your new buildings... meet every requirement for the architect's creative designs... minimize installation costs and maintenance.

Ask your dealer for full information about Perfect Door Trim by Corbin. Also, about other finishing hardware from Corbin's complete line—the world's most widely used builders' hardware!

“400” Door Closer

World-famous for compactness, trouble-free, long life, and low cost per year of service. The Corbin “400” is recognized as the strongest, most versatile door closer ever made. Modern streamlined design projects but 1 3/4” from door face. One size housing in 5 spring sizes effectively handles any door closer installation. Multiple speed and “silence” adjustments provide any combination of latching and closing — with no audible contact between door and stop. Available with hold-open attachment and fusible link arms.

Heavy Duty UNIT Locks

Time-tested in many of America's largest buildings. Striking simplicity of the Melody Design is distinctive of the solidity and strength of all Corbin UNIT Locks. Locksets are pre-assembled for easy, fast one-piece application — fine, accurate lockmaker's adjustments are never disturbed. No mortise required. Available in 20 functions. Cast brass, bronze or aluminum metals in all popular finishes. Also, Corbin “900 Series” UNIT Locks... a smaller UNIT lock designed for schools, hospitals, commercial, industrial, and public buildings.

Pivot Hinges (Adjustable Ball Bearing)

The finishing hardware touch for perfect door performance. Corbin Pivot Hinges are truly anti-friction — thrust and radial loads are absorbed by separate bearings. Adjustment is provided for equal distribution of load on the pivots. Top, Intermediate, and Bottom hinges may be used in various combinations to meet all door requirements.

Good buildings deserve CORBIN Hardware

architectural FORUM / September 1957
How to simplify and cut costs of Your wall construction with

BAYLEY CURTAIN WALL SYSTEMS

After Curtain-Wall is installed.  Before Curtain-Wall is installed.

— incorporating BAYLEY Projected Windows and Decorative Panels

Bayley Curtain Wall Systems—in either aluminum or steel—offer you the maximum economies to be realized from modern curtain-wall construction. Incorporating standard time-proved Bayley Projected Window Units, and a Bayley system of sub-frame assembly, a designer’s preference can be met without the costliness of special window designing. Also, as illustrated, installation is reduced to the simplest procedure. Other advantages accruing are:

✓ Permits a choice of decorative panels and individualized arrangements
✓ Provides an insulated wall treatment to suit the building’s appropriation
✓ Designed to accommodate a building’s movement—expansion and contraction
✓ Provision against condensation annoyance or damage
✓ A wall with any desired degree of air, light or vision
✓ Centralized responsibility for the complete wall system—including sub-frames, windows and panels

For further information write; or call your local Bayley Representative; or see Sweets.

THE WILLIAM BAYLEY COMPANY

Springfield, Ohio
District Sales Offices:  Springfield  Chicago 2  New York 17  Washington 16

The Bayley Series A-450 Aluminum Curtain-Wall Unit.

Write Today for this Curtain-Wall Idea File.
The HUSH-HUSH story of INSULROCK
or, How Architects Specify "Hush"

One big reason why modern architects specify Insulrock is that Insulrock helps hush up noises.

The underside of Insulrock Building Slabs—which have been used as a weather-resistant, easily laid, sturdy, strong roof decking—provides a good-looking, off-white exposed acoustical ceiling that absorbs up to 85% of the incident noise in an Insulrock-ceilinged area. This helps kill clatter, calm nerves, increase everybody's efficiency.

Insulrock can absorb so much sound because Insulrock Building Slabs are made of long, chemically treated, pressure-bonded, portland-cemented wood fibers arranged at random, honeycombed with thousands of sound-deadening air spaces.

Other Insulrock economies especially appeal to architects:

- Incombustibility (listed by Underwriters' Laboratories) . . .
- Good-Looks, with attractive off-white random texture . . .
- Easy Application, as roof decking to wood or steel framing . . .
- Long, Long Service, with excellent resistance to weather, moisture, fungi, insects . . .
- Notable Savings, in application and labor time, in heating and air-conditioning insulation costs, in upkeep costs, in lighting costs.

Send for the new Insulrock folder

INSULROCK COMPANY
Sales Office: EAST RUTHERFORD, NEW JERSEY
Plants: LINDEN, NEW JERSEY • RICHMOND, VIRGINIA • NORTH JUDSON, INDIANA
Performance Proves it...

the modern method to more heat per fuel dollar...

...fuel saving 25%!

Will-Burt Stokers
Orrville, Ohio

This Will-Burt Hopper Stoker Model is used in a large apartment in Chicago. Installed approximately one year ago it has already produced fuel savings of 25%!

Added benefits... more uniform temperature control, less custodian supervision.

Write for literature. Engineering and advisory services available.
Stark Ceramic Glazed Facing Tile makes the ideal wall in any building.

No other product offers so many advantages such as:
(1) Easy to build wall-and-finish-in-one. (2) Beautiful permanent colors. (3) Adaptable to any architectural style. (4) Modular measures. (5) Minimum maintenance. (6) A high degree of quality backed by 47 years experience. In addition to these features, quick deliveries are now possible because of greatly increased production facilities.

It's no wonder that this modern ceramic unit is specified in building after building with the assurance that the first cost is the last cost.

Full information and samples are available from your local Stark distributor or write direct to...
spaces, big wing for the expanding ones. SOM turned out six alternate preliminary schemes and presented them all at once, along with their bar chart. The scheme they recommended was remarkably like the finished building, something that speaks well for the basic analysis because never was a "preliminary" more thoroughly dissected. One of the alternates—a vertical scheme—was carried along for months, mostly as a control for evaluating the horizontal scheme.

Up in the august reaches of the company, beyond the executive building committee, there was, of course, a board of directors. Its powers of decision were ultimate, but they were never appealed to until everything had been analyzed and ironed out in the executive committee, just as the executive committee was never asked for decisions until subcommittee and building team had a meeting of minds. Aside from questions of budget, four presentations were made to the board of directors: one each on the basic program, on the basic design, on materials and on furnishings. The directors liked what they saw.

A few months after the directors' approval in June 1954 of the basic scheme, a two-story, 60' x 72' mock-up of a section of the building went into construction alongside the foundation excavations of the big building, and SOM brought in Knoll Associates as interior consultants. Henceforth the building conferences moved into the mock-up, quite a change from the old conference room. The meetings got more mobile too, because everybody was scrutinizing things, like the sample of flooring being scrutinized in this picture. Particularly, they scrutinized the ceiling, whose reflectorless fluorescent tubes in an open grid kept making people uneasy, but not uneasy enough to want to junk its advantages. This problem was finally solved by reducing the brightness from 80 foot-candles to 55. Wonderful. Everybody saw just as well, but there was no longer any glare. Shows how useful a mock-up is. All the exterior and interior materials were tried out on the mock-up too, along with partitions and other details. Experiments with rooms showed that some could be scaled down, a fact which helped pay the cost of the mock-up. Mediocre furnishings looked so crass in the nice mock-up that much argument was dispensed with. The mock-up stayed useful all through construction.

Eventually, with those great flexible floors abuilding, equipped with utterly flexible partitioning systems, there arose a new planning problem: where to draw the fine line between flexibility and anarchy. Can you put enclosed offices anywhere in a flexible floor? Can you put screen dividers anywhere? Do you just spread current personnel loosely through space intended for ten-year expansion? No, not unless you want vast, flexible confusion. To get this point across, among others, Florence Knoll made a model of a portion of the floor and Connecticut General found this such a help that it ordered for itself ¼"-scale models of the two main working floors and thousands of little wood desks and other miniature accoutrements. This is where the layout planning was done, and somebody in the picture is now thinking about shifting a planting box. In the future, too, all rearrangements of departments will be worked out in advance on these durable models.

SOM and Knoll followed the tried and true recipe for togetherness at Connecticut General; they came to a meeting of minds before their ideas went further. And if, in the next picture, Florence Knoll gives the impression that she has the matter of executive office furnishings well in hand, that is accurate. It is also quite an achievement because nearly all the executives, including Wilde, dearly love Georgian and Colonial furniture.

From beginning to end of this 4½-year process, one gradual, inexorable change affected the meetings. Everybody got educated. Everybody got insights and opinions on fields of knowledge that had once been terra incognita. So at the end, any old question—say, what kind of ropes for the window blinds—got very talky treatment.

But neither this nor anything else interfered with a time schedule which had been set back in 1947 when Wilde had a study made of the company's long-term space requirements. That study showed the company could eke out in its old offices in downtown Hartford, by dint of renting supplementary nearby space, for a maximum of ten years. Ten years later, on the button, it had its new quarters, with space for ten more years of healthy growth built in, and an expansion plan to take care of another half-century. "Most clients are very impatient," remarks SOM's Balsbaugh. "But these Connecticut General people love planning. They go at it with the actuarial approach."
How to Electrify Precast Concrete Floors

This manual on Flexicore Electrified Floors is for architects, engineers and contractors. It gives the architect the overall picture on the use of this system in a one-story, two-story or multiple-story office building, including savings in fireproofing, construction time and materials. It gives the structural engineer design information on the framing for Flexicore long-span construction, plus typical structural details. It gives the general contractor information he needs to handle a Flexicore electrified job. It gives the electrical engineer detailed electrical information about this system and includes typical distribution layouts. It shows the electrical contractor the step-by-step installation of Conduflor electrical fittings with photos. These fittings are obtained by the electrical contractor from the Conduflor Corp., 3338-G Warren Road, Cleveland 11, Ohio.

For a copy of this manual, write or phone your nearest Flexicore manufacturer or The Flexicore Co., Inc., Dayton 1, Ohio.
do you need to treble your present volume?—and some help, mainly over the lunch table, in answering them. Out of this came its first clear realization of what it was, what it could be and what would have to be done, structurally, to get it there.

Most of what was done was the doing of John Goodall. As manager of the Merchandise Mart, Goodall had been P&W's landlord before they moved on to bigger space. When, after their self-analysis, the partners became painfully aware that one of the firm's glaring deficiencies was administration and cost control (the other, field supervision, was solved by bringing in John Starrett), they offered Goodall a partnership. The idea then was that he would function both as a sort of executive officer—overseeing the economic side of the operation and making some order out of it—and through his contacts, do some selling for Perkins & Will in the commercial field.

Internal revolution

Though, as it turned out, Goodall cornered few clients, he did work a financial revolution in the firm. Proceeding on the assumption that "the business can make more net profit than has been its experience," and that the staff needed to understand "the relation of architectural skills to the operation of a business venture," he managed over a period of two years to 1) set up the firm's first real cost accounting system; 2) fix a minimum draw against profits of $7,500 a year for the partners; 3) establish a time budget for all jobs based on a subtraction of profit and overhead from the gross fee to arrive at, in dollars, and then in hours, the amount of time that could be spent on drawings; 4) write a manual of office organization; 5) put into effect a new cost-estimating system for bidding on jobs; and 6) build up the first substantial cash cushion the firm had ever had (between 1946 and 1948, cash increased from $5,210 to $40,595).

Of course, not all of it worked, and almost none of it did at once. Goodall felt that the first year of the new regime was "a failure in relating architectural efforts to the over-all goal of operating a successful enterprise," and he cited, particularly, overdesign, indecision and waste. Several years later, Will, too, was complaining about "too much overlapping of responsibility, too much time spent on preliminary work." But these were small points; the overriding fact was that the practice was booming, and whatever fears there had been about expansion had all but vanished. Between 1946 and 1952, gross fees shot up from $125,285 to just over $1 million. By the end of 1952, the firm could point to a total of 85 completed school projects. With Barrington, Ill., High School, finished in 1949, it had successfully moved into the bigger, more lucrative secondary classroom field; it had branched out to an eastern office which, though off to a faltering start, showed promise; and it had achieved not just volume, but a creditable amount of design distinction. Blythe Park School, Riverside, Ill., was a notable success, combining a West Coast use of light with an East Coast feeling of warmth and intimacy; the Clyde L. Lyon School in Glenview, Ill., was a truly superior effort; so were Heathcote in Scarsdale, N.Y., a fresh and imaginative departure, and Keokuk Senior High School in Keokuk, Iowa, which rejuvenated the old four-story school plan and combined it with a highly imaginative use of site.

Yet at exactly this point, Perkins & Will decided to back off, to shift from expansion to consolidation. Why did it do it?

There is undoubtedly a pendulum that swings through man's attitudes, and it is just possible that the change reflected no more than a natural urge to move in the opposite direction after moving so consistently in the other. Or it may have been the result of a genuine fear about further growth or that design was slipping. Whatever the precise cause, its manifestation was a heightened concern for quality at the expense of quantity, a definite softening of the hard effort to get jobs, and an almost nostalgic yearning for the virtues of a small office as opposed to the riches of a big one. Perkins himself set the key when he confessed to the partners that, "more and bigger, of themselves, do not . . . represent my current ambitions," and that he doubted seriously whether building the firm to a gross of $3 million would be "much more fun, if as much, as it was to get it up to $1 million."

To Perkins, "the next frontier" was quality—the winning and holding of good young designers ("Phil and I are more apt to recognize great design than we are ever apt to be able to do it ourselves"), the recapturing of the firm's position as "idea boys," and a better physical system for design and production. Volume could wait, or at least he felt it could, and it was not until 1955 when Will proposed a rethinkening—"do we go ahead, or stagnate"—that the consolidation temper began to wane, and the pendulum started to swing back in its old direction.

Early returns

Up till now, the results of the new expansion policy have been mainly preliminary. Even so, it has already produced a marked upswing in the volume of commercial building projects on the firm's books. The first big office building, for the Lutheran Brotherhood in Minneapolis, has led to commissions for International Minerals & Chemical Corp. and Pure Oil Co; the firm has done a substantial part of the Mayfair Shopping Center in Milwaukee, and all told has put into production or finished about $35 million worth of commercial and office work during 1956-1957. Meanwhile, the weighing of the West Coast expansion has reached the stage of choosing methods—merger, purchase of an existing firm, or a new branch.

And there is some air of assurance. Perkins today, though he is not without reservations, seems to have dispelled many of his qualms about quality. "Even our ordinary stuff," he says, "where we have been repeating parts of ourselves, has been better than most." And as for bigness? "Well," he says, "we will be just as big as we have to be to get the interesting jobs we want."
STAINLESS STEEL MAKES THE DIFFERENCE

...its effect on modern living

Modern living means easy, graceful living. That's why so many new homes feature so much stainless steel.

Long ago, stainless steel set kitchens free. Made them easy to clean, brighter and more cheerful.

Now, stainless steel is doing the same thing all over the house. It's in furniture, lighting, windows and doors ... in house gutters, flashing and roofs. All will stay "new looking" because the beauty of stainless steel is protected by superior strength and corrosion resistance.

It is because consumers know and trust the quality of stainless steel that products of stainless get better acceptance for value at the point-of-sale.

For more facts about stainless steel and the contribution it can make to your product or marketing problems, see your stainless steel supplier or write ELECTROMET—leading producer of more than 100 alloys for the metal industries, including chromium and manganese used for making stainless steels.

ELECTROMETALLURGICAL COMPANY, Division of Union Carbide Corporation, 30 E. 42nd Street, New York 17, N. Y.

METALS DO MORE ALL THE TIME ... THANKS TO ALLOYS

Stainless steel is always in style and always in growing demand because it adds distinction, lasts a lifetime and saves work.
Balconies and canopies of molded reinforced plastic

Balconies, arcades, decorative and functional overhangs of striking beauty and simplicity . . . each in a single piece quickly fixed to the building as a pre-built unit. The material? The same used for military landing craft, punishment-taking truck bodies, and for 40,000 pleasure boats in 1956: fibrous glass reinforced plastic. Lighter than aluminum; higher tensile strength than steel; shatter-proof; weather-resistant. Qualified molders can make reinforced plastic balconies and canopies for you today—to your specification, in your choice of color. Even if you use as few as 24 units, the in-place cost of a molded roof or balcony should be less than any built-on-the-job construction. Here's an opportunity to pioneer . . . in design, in building.

MONSANTO CHEMICAL COMPANY
Organic Chemicals Division, Dept. RI-2B, St. Louis 1, Mo.
You may not have a million square foot job, such as the new Douglas Aircraft DC-8 Jetliner plant on your boards, but you will want to know that McQuay “HC” heating and ventilating units can handle and can produce balanced comfort over a large area—economically and practically. In the case of this Douglas plant, there are 124 McQuay HC-323 units.

The units are designed for use with high-pressure, high-temperature water, the temperature ranging from 210° F. to 400° F. with corresponding pressures.

The units are mounted at 56 foot elevation and strategically located to insure a 25 f.p.m. air motion at a 6 foot elevation.

Universal nozzles helped considerably in balancing the job by giving the desired air distribution over the entire floor area.

These versatile and flexible McQuay units can do the same for you on any job. Call in the McQuay representative near you.
PITTICO® SASH NO. 15-C

This sash has the cleanly defined profiles typical of all sash, mouldings and bars that make up the PITTICO Metal Products line, including both rolled and extruded members. See your PITTICO Store Front Metal Representative for complete details.

PITTSBURGH PLATE GLASS COMPANY
IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED
Where the keynote is **Luxury**

Whether studio suite, 5 bedroom apartment or penthouse, gracious living keynotes beautiful, new Palm Beach Towers. Covering eleven tropical Florida acres, the Towers are outfitted with the finest in modern equipment...including high-styled Olsonite No. 56 seats.

Because of their *natural*, deep-tone luster that lasts a lifetime, Olsonite seats belong where luxury must be foremost...where only the finest is good enough. Solid Olsonite seats never crack, chip, peel or discolor.

Why not look into the complete line of these extraordinary seats? A note on your letterhead will bring a catalog.

**SWEDISH CRUCIBLE STEEL COMPANY**
Plastics Division, 8801 Conant Ave., Detroit 11, Michigan
**ORIGINATORS OF THE SOLID PLASTIC SEAT**

---

**THE NEW SOLID OLSONITE NO. 40**
Designed and sculptured by Olsonite craftsmen, the new No. 40 is also ideal for all private bathroom installations. Available in more than 35 plain or pearlescent colors. Specify No. 44 for elongated bowls.
Showcase of everything that's modern in the home supply and building products field, the National Housing Center in Washington, D.C. is a meeting ground for architects, builders and home buyers.

The Grinnell Automatic Sprinkler System fits the modern design of this building most ideally. For example, the ceiling-type Grinnell Sprinklers employed are hardly noticeable. Extending but a scant inch and a quarter below the ceiling, they blend smoothly with interiors. More important, they are ready to stop fire anytime, any place... wherever or whenever it may strike, night or day... automatically.

Would you like assistance in selecting the proper fire protection system for buildings now on your drawing boards? If so, call in a Grinnell engineer. He is expert in all phases of fire protection design and engineering. Bear in mind, too, that a Grinnell System can make possible impressive economies through reductions in fire insurance. Write Grinnell Company, Inc., 292 W. Exchange St., Providence, R.I.
The demands of today's architecture have brought about radical changes in the design and construction of doors for horizontal access. To serve the architect in his practical approach to access problems, the Bilco Company has pioneered the application of built-in springs for effortless operation and the use of new materials for life-long, trouble-free service. Wherever horizontal access is required, a Bilco product will do the job better.

See our catalog in Sweet's or write for catalog A.I.A. File 12P

AMERICA'S FINEST DOORS FOR SPECIAL SERVICES

THE BILCO COMPANY • Dept. 766, New Haven, Connecticut
In the Milner Office Building and Annex, Jackson, Mississippi, a system of Johnson Pneumatic Temperature Control assures efficient year-round operation of the building's air conditioning systems and provides maximum comfort for all occupants. The building consists of a ten-story main section and a five-story annex with two floors devoted to parking garages. The Johnson Pneumatic Control System coordinates the operation of 32 central fan systems and two multi-zone air conditioning units as well as the primary supplies of hot and chilled water.

From a central control panel in his office, the building engineer can observe the temperature in each of 31 comfort zones and remotely adjust thermostat settings when necessary. To further simplify the system’s operation, he can, without leaving his desk, place the various zones on heating or cooling operation as required. Results are uninterrupted comfort for occupants, ease of operation and important savings in both heating and cooling costs.

Johnson Pneumatic Control Systems have solved the temperature regulation problems of the nation’s leading buildings of all types and sizes. For immediate expert help with your temperature and humidity control problems, call an engineer from a nearby Johnson branch. Johnson Service Company, Milwaukee 1, Wisconsin. Direct Branch Offices in Principal Cities.
SHEET METAL WORK:

a. Sheet metal duct work. Contractor shall provide all heat, vent and exhaust ductwork, registers, grilles, diffusers, screens, exhausters, ventilators, etc., shown on drawings or as may be required. All supply and exhaust sheet metal ducts shall be constructed of "WEIRKOTE" zinc-coated steel, and not less than 26 gage . . .

FOR GREATER DURABILITY AND ECONOMY--

SPECIFY WEIRKOTE® ZINC-COATED STEEL

You see it more and more: building specifications sheets that insist on Weirkote zinc-coated steel.

And no wonder. For Weirkote assures longer life and less maintenance in such building components as ductwork, window and door casings, paneling, decking, roofing and siding, and rain drainage items. And Weirkote is so economical compared with other materials.

Weirkote is produced by a continuous galvanizing process that gives it a skin-tight zinc coating that won't flake or peel during toughest fabricating operations. Weirkote fights corrosion to a standstill. It will take plenty of knocking around on the job, because it's tough steel.

In every way, Weirkote provides the fine finishing touch that architect, contractor and building owner can always be proud of.

FREE WEIRKOTE BOOKLET

Send for the new Weirkote booklet today. Write Weirton Steel Company, Department 8-P, Weirton, W. Virginia
The new, six building luxury apartment project to be known as 900 Explanade and Commonwealth Promenade will have FIAT PreCast Shower Floors in every shower. Added proof that products by FIAT set the standards of shower quality.

Only the best is good enough on Chicago's fabulous "Gold Coast"

FIAT Shower Floors permanently answer the problem of shower floor leakage and high costs. Less product cost, less labor cost and less maintenance costs are the benefits of FIAT'S one-piece unit cast in a solid, monolithic slab with genuine marble chips. The FIAT PreCast Shower Floor is simply placed into position and lead caulked to the drain outlet. Once this simple, fast, inexpensive job is completed, the shower wall may then be built of any type material desired; plastic or ceramic tile, marble, plaster or structural glass.

Send for specifications on the complete range of styles and sizes.

FIAT METAL MANUFACTURING CO.
9329 W. Belmont Ave. • Franklin Park, Illinois
Since 1922... First in Showers • Packaged Showers • Doors • Floors
Toilet Room Partitions
OTHER COMPLETE PLANTS: Long Island City 1, N. Y.; Los Angeles 63, Calif.; Orillia, Ontario, Canada.
THIS "FIREFIGHTER"

IS ON THE JOB FOR

Sylvania

ALL THESE COMPANIES!

"FIREFIGHTER" ROOF DECK

National Gypsum Company
SYLVANIA ELECTRIC PRODUCTS, INC. Headquarters, Radio and Television Division, Batavia, N.Y. World's largest television production plant under one roof. Architect: Office of J. Fruchtbaum, Buffalo, N.Y.

$20,167,000
Gold

THE CARBORUNDUM COMPANY. Resinoid abrasive wheels are manufactured in this Logan, Ohio, plant. Plant designed by Carborundum Company engineers.

SUNSHINE BISCUITS, INC. This Columbus, Ga., plant manufactures full line of cookies and crackers for the Southeast territory. Designed by company’s architectural engineers.

in buildings protected by
Bond “Firefighter” Roof Deck!

Each of these eight plants has a poured-in-place Gold Bond FIREFIGHTER Roof Deck. There are three main reasons why:

1. **FIREFIGHTER is incombustible.** Gypsum, the rock with a "locked-in" water supply, is the natural firefighter. FIREFIGHTER Roof Deck, poured over Gold Bond Gypsum Formboard, is customarily rated as incombustible because gypsum won’t burn.

2. **FIREFIGHTER goes on fast.** Up to 20,000 square feet of Gold Bond FIREFIGHTER Roof Deck can be applied in a single day—twice as fast as steel...ten times faster than reinforced concrete, precast slabs or tile. FIREFIGHTER’s quick setting action normally means that built-up roofing can be applied 30 minutes after pouring.

3. **FIREFIGHTER means low cost.** Original building costs are lower because construction is faster and because FIREFIGHTER’s low dead loads permit lighter structural supports. Maintenance expense is low because gypsum is chemically inert—will not rot, burn or decay. Alterations are easy because gypsum can be cut, nailed or patched economically.

Features like these sold 100 million square feet of Poured Gypsum Roof Decks last year on pitched, barrelled and flat roofs. For more information, call your Gold Bond® representative or write to Dept. AF-97, National Gypsum Company, Buffalo 2, New York.

NEW YORK LIFE INSURANCE COMPANY. Records, storage and service building, New Providence, N.J. Architects: Frank Grud & Sons, Newark, N.J.

DOW CORNING CORPORATION. Manufacturing facilities for Silicone Specialties Division, Greensboro, N.C. Architect: Charles C. Harmen of Greensboro, N.C.
Pleasing window proportions create rhythmic design here

Here, the architect selected PELLA CASEMENTS with 24" x 36" glass size and combined them into proportions that contribute to the over-all design pattern. The vertical shapes of the individual window units...the horizontals of the window groups...both are pleasing rectangles repeated within the rectangle of the elevation itself.

And, speaking of sizes and proportions, it's PELLA alone that offers wood casements in glass sizes as large as 24" wide x 60" high. How? Butt plates of the sash hinges are riveted to the inner rigid steel jacket that reinforces the sturdy wood lining. And extra long hinge wings give additional bracing to sash.

What's more, PELLA WOOD CASEMENTS are equipped with ROLSCREENS...the inside screens that roll up and down like window shades. Specify either PELLA dual glazing panels or insulating glass. See our catalog in Sweet's or fill in and mail coupon today.

<table>
<thead>
<tr>
<th>FIRM NAME</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS</td>
<td></td>
</tr>
<tr>
<td>CITY</td>
<td>ZONE</td>
</tr>
<tr>
<td>ATTENTION MR.</td>
<td>TEL. NO.</td>
</tr>
</tbody>
</table>
IN NEW METAL STAMPING PLANT

UNBEARABLE NOISE SILENCED BY SOUNDex PARTITIONS

The thunder of presses was walled out of this office area by calling high application of Soundex Partitions. Office area was then divided by regular 8-foot Soundex Partitions thus avoiding the expense of changing heating, lighting or air conditioning services. Results: Quiet, modern, low cost offices. You can save and silence too . . . write for free catalog today.

also in Sweet's AF 220 00

GR PRODUCTS INC.
2417 Eastern Avenue, Grand Rapids, Michigan

---

There are many drafting desks but only One stands out

WORK FLOW

by HASKELL

The first and only drafting desk adjustable for both height and tilt.

Work-Flow brings the new handsome look and greater efficiency to drafting departments everywhere. Architects, engineers, draftsmen and others who know the difference—insist upon Work-Flow—the ONE that stands out!

Write for full details, today.

303 E. Carson Street, Pittsburgh 19, Pa.

---

THE ORIGINAL CARPET WITH THE BUILT-IN SPONGE RUBBER BACKING

Underfoot, the comfortable soft feel of new spring turf, light and springy. It's yours always with Loma Loom, because the sponge rubber backing is built right into the rich nylon and wool carpeting. Yes, Loma Loom is more comfortable and wears lots longer, but that's not all. It can be swatch matched to the decor you want, and it can be laid directly on concrete or sub-flooring.

Why not contact our selling agent today for samples and prices. See for yourself how economical the best can be.

SELLING AGENT: Weil Bros. Textiles, Inc., Box F2, 1 Park Ave., N.Y.
SIDNEY BLUMENTHAL & COMPANY, Inc. 1 Park Ave., N. Y. 16, N. Y.
Presenting... SOLARGRAY
Pittsburgh's latest contribution

- This Plate Glass has excellent brightness and glare control.
- It offers complete freedom from color problems in daylight.

Ideally suited to all types of buildings

SOLARGRAY keeps interiors cooler
- It reduces eyestrain and fatigue among the building's occupants.
- It protects delicate electronic instruments.
- It reduces sun-bleaching of fabrics.
- It cuts air-conditioning costs.
PLATE GLASS
to the building field

- It has a high degree of solar heat control, with a pleasing neutral color.
- It is a new approach to environment-controlling glass.

SOLARGRAY is a neutral gray Plate Glass, possessing exceptional resistance to sun glare, with great heat-absorbing properties. It was especially developed by Pittsburgh Plate Glass Company to fill the need for a Plate Glass which would reduce the annoying heat and brightness of the sun, and at the same time permit maximum entrance of comfortable, relaxing daylight into the building’s interior.

Architects have found Pittsburgh’s SOLARGRAY Plate Glass to be a high-quality, utterly dependable structural material in literally every kind of building. Moreover, SOLARGRAY has proved its ability to reduce the load on air-conditioning systems, thereby producing sizable savings both in the operation of the system and in the initial cost of the equipment. It is available up to a maximum size of 120" x 220", and in 1/8" and 3/16" thicknesses.

For complete information on SOLARGRAY, contact your nearest Pittsburgh branch or distributor. Meanwhile, fill in and return the coupon for our free booklet which gives further details on this new heat-absorbing, glare-reducing Plate Glass.

SOLARGRAY
...the heat-absorbing, glare-reducing Plate Glass

Pittsburgh Plate Glass Company
Room 7368, 632 Fort Duquesne Blvd., Pittsburgh 22, Pa.

Without obligation, please send me your free folder on Pittsburgh’s new SOLARGRAY heat-absorbing, glare-reducing Plate Glass.

Name ____________________________
Address ____________________________
City ____________________ State ________

Write for free folder

architectural FORUM / September 1957
In the World's Largest Industrial Center, near the sites of Chicago's famous World's Fairs of 1933 and 1893, the $8,000,000 Dunbar School provides an efficient modern plant with the best equipment and instruction obtainable. It is coeducational and accommodates some 2300 day students. Night classes for adults are almost as large.

Students May Major in One of 27 Courses ranging from architectural and mechanical drafting, building trades and electronics to cosmetology (beauty culture), millinery and welding. All students are required to complete courses in English, science, mathematics, history and civics...the core of the curriculum.

Diverse Activities In This Outstanding School require different levels of thermal comfort for optimum efficiency of teachers and students.

Flexibility of a POWERS pneumatic control system provides each room with its proper temperature.

Photos: Hube Henry, Hedrich-Blessing

Dunbar Vocational High School
Chicago, Illinois
Entrance 3000 South Parkway

BENJAMIN C. WILLIS, General Supt. of Schools
EDWIN A. LEDERER, Associate Supt.
In Charge of Operation Services
JOHN C. CHRISTENSEN
Asst. Supt. In Charge of Architecture
HOLABIRD & ROOT & BURGEE
Associate Architects and Engineers
THOMAS J. BRETT
Asst. Supt. in Charge of Plant Engineering
JOSEPH J. DUFFY, General Contractor
WILLIAM ADAMS ENGINEERS, INC.
Heating Contractor
HUNTER CLARK VENTILATING SYSTEMS CO.
Ventilating Contractor
Chicago's new Dunbar Vocational High School
...offers students a bright future in the career of their choice

Another Important School Helping to Build a Greater Chicago

POWERS
QUALITY System of
Individual Room
TEMPERATURE CONTROL

Provides Proper Thermal Environment for Learning

Dunbar is the Largest Chicago Public School built in the past decade. It consists of three buildings — a one story shop section; a three story classroom section; and a two story wing for auditorium, two gymnasiums, swimming pool and cafeteria. The latter section can be isolated for community use...Classrooms have unit ventilators. Central fan systems supply heating, ventilating and humidified air to auditorium, gymnasiums, natatorium and cafeteria. Eighteen boys shops are heated by unit heaters. These areas are also supplied with tempered fresh air to compensate for the exhaust systems. Interior shops are supplied by central fan systems... all are Powers controlled.

Are You Planning a New School? — Ask your architect or engineer to include a Powers engineered QUALITY system of pneumatic control. You'll insure utmost comfort at lowest upkeep cost.

For further information contact our nearest office
THE POWERS REGULATOR COMPANY
SKOKIE, ILL. Offices in Chief Cities in U.S.A., Canada and Mexico
65 YEARS OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL

Powers Pneumatic Thermostats maintain set temperature day after day. They need no frequent checking or re-adjusting.

Powers PACKLESS Valves prevent water leakage, banish packing maintenance and give better control due to reduced valve stem friction.

Office Practice Classroom Shoe Rebuilding Automotive Mechanics
Smithcraft fluorescent lighting units are installed in thousands of offices, factories, stores, schools and diversified interiors from coast to coast. Wherever good lighting is important, you'll find . . .

SMITHCRAFT — "AMERICA'S FINEST FLUORESCENT LIGHTING"

*George Kolbe, manager of Smithcraft's New York City team of Kolbe, Goren and Smith . . . part of the nationwide Smithcraft sales organization
He's the man whose experience and knowledge of lighting is backed by Smithcraft's highly diversified line of fluorescent lighting units. The "Man from Smithcraft" can suggest the new CIVIC, for example, for interiors requiring the very finest in "prestige lighting". Or he can turn to the brand new top value TWOSOME for general office, store or school lighting. Ask the man from Smithcraft to show you Smithcraft's "4 GOOD NEW IDEAS IN LIGHTING."

...4 good NEW ideas in lighting

In addition to the CIVIC and the TWOSOME, Smithcraft's new developments include the EXECUTIVE and the FREEWAY. You'll find all four units useful to you in the planning of lighting for today's interiors.

Smitkemjt LIGHTING
CHELSEA 50, MASSACHUSETTS

PLEASE ATTACH TO YOUR BUSINESS LETTERHEAD and mail to

Smitkemjt LIGHTING, CHELSEA 50, MASS.

NAME ______________________________ TITLE ______________________________

ADDRESS ______________________________ CO. ______________________________

CITY ______________________________ STATE ______________________________

☐ Please send me the monthly publication, "Light Side of the News", so that I can keep in touch with the latest trends in lighting.

☐ Please send me folders and catalog sheets on the "4 Good New Ideas in Lighting".

☐ Please send me the complete SMITHCRAFT CATALOG, containing data on America's Finest Fluorescent Equipment.
How modular planning helps Trumbull, Conn., schools

HOLD DOWN CONSTRUCTION COSTS

As in so many communities today, the Trumbull, Connecticut, school system is literally bursting its britches.

Fortunately, however, the farsighted school board selected a modular concept of design easily adaptable to various sites. This permits economical construction and expansion of school buildings, despite constantly increasing building costs.

The building system includes a basic school unit, Module No. 1, consisting of six classrooms, administrative offices and a large multipurpose room (with kitchen) which can be used as a cafeteria, recreation and assembly area. To this basic unit can be added other modules of six classrooms each as the need arises, at a minimum of expense.

The secret of the system is in the use of standard building material components. For instance, the roof and ceiling construction of each module classroom unit is built of modular Fenestra* Acoustical-Structural Building Panels.

These lightweight, high-strength steel panels combine structural roof and finished interior ceiling with built-in acoustical treatment in one compact easy-to-handle package. They replace five different materials—usually requiring extra labor and cost—with one metal building unit, erected in one operation, by one trade.

In addition, the Trumbull, Connecticut, schools are designed to utilize the panel cells as ducts for ventilation, with exhaust fans mounted on the roof. Another Fenestra plus!

The flat bottom surface of the panels is perforated for the acoustical ceiling. An exclusive Fenestra preformed, arched, sound-absorbing batt† is enclosed inside the panels to provide noise reduction coefficients up to 80%. And because the ceiling plate is a part of the structural panel, it is made of 16-gauge steel—4 times thicker than usual metal-pan ceilings. This assures extra resistance to damage by objects thrown against the ceiling or other impacts—an especially important feature for gymnasiums, corridors, etc.

The compact construction, \(7\frac{1}{2}\) inches in depth, provides a reduced height in the building—thereby eliminating several brick courses throughout.

Cellular in design, Fenestra Building Panels combine light weight with great strength. Under normal roof loads they span up to 31 feet. Their width, 24 inches, fits perfectly with modular design techniques. This speeds up construction and eliminates cutting and fitting of panels and other materials on the job.

If you are now planning a new school building or addition, you should get complete details on Fenestra Acoustical-Structural Building Panels. Mail coupon at right for your FREE copy, or call your Fenestra representative.

*Trademark  †Patent Pending
Fenestra Acoustical Building Panels provide a platform for workmen, speed roofing operation, get classrooms under cover fast for quicker starting of interior work. Contractor: (Module No. 3) The Monaco Construction Co., Bridgeport, Conn.

The Fenestra Acoustical “D” Panels, which span the classroom below, can be washed or painted whenever needed without affecting the acoustical qualities of the ceiling. Width — 24”, Depths — 11/2”, 3”, 4 1/2”, 6”, and 7 1/2”.

Fenestra Incororated
Dept. AP-9, 2296 East Grand Blvd.
Detroit 11, Michigan

Please send me FREE copy of 1957 Fenestra Building Panel Catalog including details on Fenestra Acoustical-Structural Building Panels for schools.

NAME.
FIRM.
ADDRESS.
CITY _______ ZONE _______ STATE _______
New Fenestra 13/8" Hollow Metal Flush Doors outlast all others in torture tests!

Beneath the sleek "seamless" beauty of the new 13/8" Fenestra Hollow Metal Flush Door is a rigid, rugged strength that withstood the toughest torture tests shown here.

This strength comes from Fenestra's exclusive multi-rib reinforcement.

And here are three other important extras:
1. You buy a complete package: door, frame, hardware. All fitted at the factory for fast, economical erection.
2. Fenestra's famous Lock Miter joint frames provide extra strength and smooth finished appearance.
3. You buy these custom-quality doors at stock prices. Fast delivery when you need it is standard. Mail the coupon for complete information.

Fenestra Incorporated
Dept. AF-9, 2296 East Grand Boulevard, Detroit 11, Michigan
Please send me complete information on New Fenestra 13/8" Hollow Metal Flush Door-Frame-Hardware Units.

NAME ____________________________
FIRM ____________________________
ADDRESS ____________________________
CITY ____________________________ STATE __________

Fenestra Incorporated
YOUR SINGLE SOURCE OF SUPPLY FOR DOORS • WINDOWS • BUILDING PANELS

Incorporated

architectural FORUM / August 1957

239
THE BIG CHANGE IN FLUORESCENT LIGHTING

A NEW DIRECT—INDIRECT LUMINAIRE

for 4 ft. 430 M.A. Rapid Start and 4 & 8 ft. Slimline Lamps

Now Lighting Products Inc., pacesetter to the lighting industry, presents DAYSTAR a revolutionary new luminaire designed for better lighting in class rooms, offices, commercial and industrial areas . . . wherever high levels of quality illumination are desired.

The New DAYSTAR is available in 48 and 96 inch length with 33° crosswise and 25° or 45° lengthwise shielding. 62% of the light is directed down and 38% up.

The side panels are of steel or plastic. The steel panels are permanently attached. The polystyrene plastic panels are readily removable without the use of tools. Eight foot units utilize both side panels and louvers that give an uninterrupted continuity of design. Louvers have a special snap-in catch and are suspended from the channel by safety chains for ease of relamping and maintenance. All metal parts are finished in high reflectance baked white enamel over a phosphatized surface.

The New DAYSTAR is completely described and illustrated in color bulletin No. 1503.

MAIL COUPON TODAY!

LIGHTING PRODUCTS INC., Highland Park, Ill.

Name ___________________________ Address ___________________________

City ______ State ______

No. 1503

LIGHTING PRODUCTS INC., Highland Park, Illinois
Short-span concrete slabs

COST LESS

—with new

Milcor Ribform

Save construction dollars with high-tensile steel Ribform, as permanent centering for concrete on spans up to five feet:

Goes down fast. One man easily handles a sheet. It is quickly and inexpensively placed and welded to joists.

Needs no temporary bracing of joists. Ribform is a rigid type of centering; it exerts no side-pull on the joists.

Eliminates scaffolding. Once down, Ribform becomes a safe, non-flexible working platform for all trades.

Uses as much as 20% less concrete than flexible types of centering.

Slab is poured and finished in one operation. The rigidity of Ribform permits monolithic finishing — eliminates costly topping.

Easy to install over pipe trenches or other inaccessible locations where it is impractical and expensive to strip wood forms.

Write for Milcor Catalog No. 245, or refer to Sweet’s — Section 2F/In.

INLAND STEEL PRODUCTS COMPANY

Dept. V, 4031 W. Burnham St • Milwaukee 1, Wis.

ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • KANSAS CITY

KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS.
How high velocity provides maximum comfort for schools

The Anemostat All-Air High Velocity system of draftless air distribution offers many important advantages for heating and ventilating schools. • High velocity units, used with smaller than conventional ducts, save space and money. They substantially reduce sheet metal required, can be installed faster, at less cost. Since there are no coils in All-Air HV units, clogging and odors are eliminated. • Anemostat All-Air HV operate entirely with air processed in the main equipment room; there is, therefore, no need to break through the walls of the building for prime air make-up. The Anemostat All-Air HV units eliminate fans, filters, and electric motors in the school rooms. Units are quiet, need a minimum of maintenance from custodians. • On these pages are typical installations in which the Anemostat All-Air High Velocity system has been used successfully. Application data on your specific school heating, ventilating or air conditioning problem is available from Anemostat representatives or from the home office.

Architects—attention please:

Anemostat round, square and straight line diffusers with high velocity units are adaptable to a wide variety of architectural designs.
In this schoolroom Anemostat Type E Square Air Diffusers are installed in the ceiling.

Here Anemostat SLW Straightline Air Diffusers on the high sidewall provide draftless comfort.

Note the Anemostat UTW Straightline Air Diffuser located under the window in this classroom.

Anemostat UTW Straightline Air Diffusers are placed under the windows in this school laboratory.

Write on your business letterhead for your copy of

New Anemostat Selection Manual 60

to Anemostat Corporation of America,
10 East 39th Street, New York 16, N.Y.

ANEMOSTAT: The Pioneer of All-Air High Velocity Systems
This luminous ceiling solved many problems. The room was made to seem larger by the curved shape. Outlets for concealed air conditioning system were provided in the wide dividing strips, while return air plenums are located at the sides. Note evenness of lighting. Designed by Eleanor LeMaire for Manufacturers Trust Company, both of New York City. Manufactured by Luminous Ceilings, Inc., Chicago 47, Ill.

Made easy with BAKELITE Rigid Vinyl Sheet...

A "floating" umbrella of light

Striking solution for a modernization problem! Irregularity of walls and windows would have required an elaborate fitting job. By "floating" a luminous ceiling between the walls, standard units in a standard module could be used.

The ceiling is constructed with panels made of BAKELITE Brand Rigid Vinyl Sheet, their light weight being of great importance in the installation of this high ceiling. In themselves, the panels require little attention, being resistant to moisture, corrosion, cracking and warping.

Now... find out more about illuminated ceilings with translucent panels of BAKELITE Rigid Vinyl Sheet. In new construction or remodeling, it throws new light on lighting problems. Write Dept. ZM-2.

BAKELITE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.

The terms BAKELITE, UNION CARBIDE and the Trefoil Symbol are registered trade-marks of UCC.
Hufcor Accordion Doors

Prepare for rough treatment. Specify Hufcor accordion doors, partitions, room dividers. By actual test the special laminated cover construction withstands excessive abuse—absorbs over twice as much impact as other types of closures.

**Superior Strength**

by actual test

Hufcor effectively resists sound transmission, tearing, flame, moisture, dryness, rust—all these as well as impact. Let specially trained men help engineer Hufcor to your job requirements. Write Dept. AF, Hough Manufacturing Corporation, Janesville, Wis.

Exclusive decorator and closure products for 60 years.

HOUGH MANUFACTURING CORPORATION

Janesville, Wisconsin

Interior Fire Protection involves more than most people see...

that’s why Engineers and Contractors prefer

**ALLENCO**

Flush-type Siamese—one of many models

This time-proved line more than meets specifications. It meets the highest standards of safety plus design, practicality and economy.

Write for Allen 150 (A.I.A. file 29e2) and nearby counsel...

**W. D. ALLEN MFG. CO.**

Room 700 Allenco Bldg. 566 W. Lake St. Chicago 6

when

**CARPET**

takes the floor-front...

**DOWNNS**

takes the floor!

Floor treatment is no longer just an “accommodation item.” And with Downs nationally-advertised, quality all-wool wilton carpeting, it can be the profitable finishing touch to your every project. Downs offers scores of basic colors and designs for immediate delivery; will match existing designs; or custom-weave carpeting to your specification. Competitive prices allow an excellent mark-up; and nation-wide installations pay tribute to those, like yourself, who select Downs to take the floor-front.

write for our new brochure, Dept. AF957

Commercial Carpet Division

**DOWNS CARPET COMPANY, INC.**

“A” Street & Indiana Avenue Philadelphia 34, Penna.

Quality Wiltons for over a Century
To the architect working with both Celotex Acoustical Products and an Acousti-Celotex Distributor . . . comes a steadily broadening range of design potential. And not just in the ceilings alone. Entire area layouts take on remarkable new flexibility, allowing the architect new opportunities to exercise design initiative.

Consult your Acousti-Celotex Distributor in the planning stage of your next project . . . and see how his new products, plus his service and experience, can aid you.

FOR INFORMATION and specification data on Celotex Acoustical Products and translucent panels, write The Celotex Corporation, 120 S. LaSalle St., Dept. A-97, Chicago 3, Illinois.

Design Unrestricted with this complete ceiling line

Products to Meet Every Sound Conditioning Problem . . . Every Building Code—The Celotex Corporation, 120 S. LaSalle St., Chicago 3, Ill. - In Canada: Dominion Sound Equipments, Ltd., Montreal, Quebec.

Acousti-Celotex Contractor: Strauss-Frank Company.
It's a Beautiful Bridge

Built 100% of Ideal Cement Concrete

...Lake Pontchartrain Causeway in Louisiana...World's Longest Highway Bridge...Completed in Record Time

Through the mass production of precast, prestressed concrete bridge units prefabricated on shore, the 24-mile Lake Pontchartrain Causeway was completed in one-fourth the time and at a much lower cost than ordinary bridge construction techniques would have required! Even the tough 19-month schedule which was set up was beaten by four months!

Ideal's plants at Baton Rouge, Mobile, and Houston, and cement terminal at New Orleans just across Lake Pontchartrain from the construction site assured a uniform flow of cement to keep the project going regardless of the severe cement shortage.

High praise is due the contractor—Louisiana Bridge Company, a joint venture of Brown & Root, Inc. of Houston, and T. L. James & Company, Inc. of Ruston, Louisiana—and Palmer and Baker, Inc. of Mobile, consulting engineers.

The Lake Pontchartrain Causeway and its use of precast, prestressed concrete demonstrates a practical solution to all similar bridge construction problems where beauty, completion schedules, freedom from maintenance, economy, and the ready availability of materials are important.

IDEAL CEMENT COMPANY

14 Plants and 2 Cement Terminals Serving Some of the Most Rapidly Growing Areas of the Nation
Berlin's Interbau: cheerful, colorful, and chaotic

The biggest architectural free-for-all of the century opened in West Berlin on July 6th. Name: Interbau (for International Building Exposition). Scope: some 75 buildings, big and small, designed by more than 60 architects and landscape architects from a dozen countries, and constructed in Berlin's bomb-flattened Hansa section. Result: a charming, thoroughly uninhibited fun-fair of modern architecture, colorful but almost completely devoid of any major design innovations. City planning significance: zero.

Interbau's biggest asset is also its greatest shortcoming. In permitting the participating architects a democratic free hand (which makes Interbau a welcome change from Hitler's and Stalin's grim monuments), the organizers of the exhibition produced an almost totally unrelated hodgepodge of architectural self-expressions, sadly failed to cope with one of our time's most pressing problems — i.e., how to combine separate buildings into coherent groups. Still, Interbau is plenty of good, clean fun — including chair lifts and similar high jinks for visitors (right), and excellent special pavilions constructed of demountable space-frames (below) made with Germany's new MERO tinker-toy system.
TALL APARTMENTS dominate Interbau area, include slightly curved structure by America's Walter Gropius (above, left; and right), abstractly painted buildings on stilts by France's Pierre Vago, gridlike slab by Sweden's Jaenecke and Samuelson (above, right). These buildings and about half the others planned for the Hansa section are now finished, contain some apartments specially furnished by top designers. The rest of the Interbau area is still under construction, thus giving visitors a behind-the-scenes peek at Germany's latest building methods.

Vago's façades (above, center), with their arbitrary subdivision into fields of bright color, are one of the few deviations from the modern norm. As compositions they are not so successful as those of a good painter.

SWEDISH BUILDING (left and below) is most graceful Interbau structure completed to date, uses long access balconies on every floor to give each apartment its cross-ventilation and private front door. Blue and red color accents in balconies are cheerful, and detailing of stair-towers is elegant. Sole failing: balconies are too shallow, and circulation pattern along access balconies was complicated by Berlin's code. Nonetheless, this building is the favorite of the show.

GROPIUS & T.A.C. apartments (left) have balcony soffits painted in bright colors, flower boxes behind curved sheet-metal balustrades. Floor plan is flexible, includes apartments of different sizes. Four free-standing stair-and-elevator towers in rear of building serve two apartments on each floor. In layout, detail and overall execution, this is Interbau's most self-assured, mature building yet.
ALVAR AALTO'S apartment building (left) is oddly monumental, yet informal in its sawtooth plan. Carried by its walls (not columns) this structure contains six different apartment types, all of them delightful. Most of them would be impossible by conventional planning standards (some living rooms have as many as six doors leading into them), seem better suited to Finnish bathing than to US living—however relaxed.

BACHELOR APARTMENTS (right) are contained in 17-story tower by Berlin Architects Mueller-Rehm and Siegman. Typical of some of the heavier postwar German architecture, the building is one of Interbau's tallest—topped only by the cross of the Protestant Church, whose congregation demanded the highest structure.

WALK-UP APARTMENT building by Prof. Guenther Gottwald of Berlin (right) is among most elegantly detailed structures in Interbau, uses vertical louvers and asbestos-panel railings to create façade in depth. Several similar walk-ups are now under construction nearby.

INTERBAU SITE PLAN (above) shows traces of original city planning discipline which was lost in execution. Part of Interbau exposition are Le Corbusier's apartment house, similar to his Nantes project, and Hugh Stubbins' Congress Hall. The "Corbu" stands on a spacious site three miles to the west, and Stubbins' building challenges the Soviet Sector one mile to the east.

THE CONGRESS HALL* (right) is a gift from the German-American Benjamin Franklin Foundation to the City of Berlin. Beautifully sited on an elevated platform overlooking the River Spree, it is by far the most striking and imaginative Interbau structure. The Congress Hall will be opened formally on Sept. 19th.

*Berlin sobriquet: "pregnant oyster."
adds incomparable distinction to any commercial interior

The imaginative use of decorative lighting is an all-important element in today's most widely acclaimed hotels, motels, stores, offices and institutions. By specifying the superb IL* fixtures shown in Moe Light's exciting new Commercial Lighting Catalog, you can add beauty and originality to your commercial installations. They combine functional lighting with a dramatic individuality that results from the creative use of well-designed decorative appointments.

FREE! A manual of creative lighting for the discriminating professional

MOE LIGHT'S NEW IL* COMMERCIAL CATALOG

dramatic lighting helps set your "theme"
Famous Cordette Casuals by Moe Light can create many moods— in this interior, they add a gracious look to the dining area, while lending an air of informality to the bar.

(Fixtures shown: M-1427 3-Lite cluster in main dining area; M-1437 "3-in-one" accents the wall; M-1421 cones over bar.)

Dozens of interior sketches; plus Moe Light's commercial IL* fixtures. Free to members of the profession ONLY. Write to:

THOMAS INDUSTRIES INC.
MOE LIGHT DIVISION, Dept. AF-9
410 So. Third St., Louisville 2, Ky.
Leader in Creative Lighting
Adjustable header duct junction units move up or down to screed level
...cut installation time, assure a level finished floor

National Electric has developed an easily adjustable junction unit ring for its Header Duct Steel Underfloor Raceways.

The new Header Duct junction unit ring is designed to eliminate the raised spots and depressions that occur when underfloor raceway junction boxes protrude above or become recessed in the floor due to minor variations in the level of the concrete. Adjustment of three easily accessible flush screws in the cover of the unit is all that’s required to level the ring with the concrete surface...assures a smooth, level, attractive finished floor.

National Electric junction unit rings can be moved down as well as up after the concrete has set. A galvanized steel collar around the junction unit ring keeps concrete from bonding to the ring and preventing a downward adjustment.

The newest Header Duct improvement is typical of how every detail in NE Header Duct is engineered to help you give the owners and tenants complete flexible electrical distribution for power, light, communication or telephone—where and when it’s needed.

When the plans call for cellular steel floors with feeder raceways from distribution panels make sure NE Header Duct, with adjustable junction units, are specified.

Where you plan cellular steel floors with underfloor electrical distribution always specify

NE HEADER DUCT
Installing Met-L-Wood riser enclosures, air ducts, convecto covers and paneling benefits everyone connected with the job:

Architects and contractors plan on substantial installation time savings and know that smooth, uniform Met-L-Wood needs only paint to finish after installation.

Building management not only gets a clean, durable installation, fast; but is also assured of low-cost accessibility to pipes and other equipment without enclosure replacement expense.

Met-L-Wood units are pre-formed, ready to install with minimum labor. When finished, Met-L-Wood sections match perfectly with conventional walls and ceilings.

Whether you plan new construction or remodeling, write for literature now and learn all the advantages and economies you gain with Met-L-Wood.
Building for the birds—
an eager crew of starlings swoops in
to man the late shift
POTPOURRI... BY PAUL LÁSZLÓ

Pomona Tile introduces the third ceramic tile design in its “Distinguished Designer Series”... Paul László’s Potpourri, a delightful medley of colorful kitchenware. "Ceramic tile is, by nature, lively and bright," says Mr. László. "These inherent qualities are emphasized even more by good design... which adds new appeal to any interior decor." For additional information about Potpourri, consult your contractor or visit one of Pomona’s convenient showrooms: Los Angeles • San Francisco • Sacramento • Seattle • Salt Lake City • Long Beach • North Hollywood • Pomona • Phoenix • Denver • Dallas • Fort Worth • Kansas City • Arkansas City • St. Louis • Chicago • Memphis • Nashville. Executive Offices: 629 North La Brea Ave., Los Angeles 36, California.
This is KENTILE® vinyl asbestos tile

So much easier to care for!
So much longer-wearing!
And grease-proof, too!

KENTILE FLOORS
available in Vinyl Asbestos, Solid Vinyl, Cushion-back Vinyl, Rubber, Cork and Asphalt tile...over 150 decorator colors.

SPECIFICATIONS

SIZES AND THICKNESSES:
- Marbleized 9"x9" 1/16", 1/8"
- Carnival 9"x9" 1/16" 1/32"
- Corktone 7"x7" 1/16", 1/8"

COLORS:
- Marbleized 19
- Carnival 16
- Corktone 3

INSTALLATION
Kenton vinyl asbestos tile (Kontile®) may be installed over any smooth interior surface, including concrete in contact with the earth.