


**W. S. TYLER** elevator cars and entrances in the lobby of the new La Salle Jackson Building, Chicago. Architects: A. Epstein & Sons, Inc. General Contractors: George A. Fuller Company. Building Managers: Collins, Tuttle & Company, Inc. Elevators by Westinghouse. The W. S. Tyler Company  Cleveland, Ohio; St. Catharines, Ontario. Offices in principal cities.



**PUBLISHER'S NOTE**

Devoted largely to college building, this issue will be of particular interest to that large block of subscribers who are on college management and academic staffs or are college architectural students—to say nothing of FORUM's 26,700 architect, engineer, and contractor subscribers, many of whom are active in the booming college building field. Among FORUM's 62,300 subscribers there are 9,400 in the educational category, which, of course, includes those interested in primary and secondary school building as well as those in the college group. This is three to six times more than the number served by other architectural magazines and reflects an essential difference in FORUM's editorial and circulation policy: it seeks to inform the owners and operators of buildings as well as the designers of buildings.

FORUM's editors also have a particular interest in the subject of this issue and are eminently qualified to report on it. In the first place, all of them are college



graduates. Represented on the editorial staff are 20 different alma maters and 17 different classes ranging from '60 back to '23. They include loyal sons of Columbia, Cornell, Harvard, Oberlin, North Dakota, Pennsylvania, Pratt, Princeton, Stuttgart Institute of Technology, University of London, and Yale. And, on the distaff side, Albany Business, Cedar Crest, Columbia, Linden Hall, Mt. Holyoke, Mt. Mercy, Pratt, Radcliffe, Sweetbriar, Regis, and the University of Vermont.

More important, several members of the editorial staff are presently affiliated with colleges:

■ Editor Douglas Haskell has lectured at a number of colleges and

is now an adjunct professor at Columbia, conducting a course in the economics of building at the School of Architecture, which brings to students what FORUM brings to its audience each month: the relationship between financing and the art of architecture.

■ Managing Editor Peter Blake has served the Cooper Union, Cornell, Pratt, and Yale schools of architecture as a visiting critic and has been a lecturer at Bennington, Columbia, Harvard, Illinois Institute of Technology, Rensselaer, and Syracuse.

■ Senior Editor Richard Miller last year taught architecture at Ohio State (while on leave of absence from FORUM) and is now an associate professor at Columbia's School of Architecture.

■ Senior Editor Walter McQuade is now serving at the Yale School of Architecture as a critic.

■ Associate Editor Allan Temko reverses the usual pattern. His primary work is that of assistant professor at the University of California at Berkeley, and he devotes the balance of his time to covering the West Coast for FORUM's editorial department.

FORUM's photographers also cast a keen eye on college building, as is obvious from the quality of the photographs in this issue—particularly those of the University of Virginia by George Cserna (see page 74). The editors had planned to devote only six pages to this subject, but they were so impressed with Cserna's brilliant record of Thomas Jefferson's great architecture that they expanded the article to nine pages and printed it by gravure on special paper to do justice to the photographs. Intended mainly as a pleasant break in each month's fare of factual and informative articles, the picture portfolio this month is certainly that—and then some.—J.C.H. JR., p. 35.

**COLLEGES: THE EDUCATION EXPLOSION**

51

*California's Foothill campus sets the pace (p. 52)*

*Bold art building at the University of Georgia (p. 58)*

*Serene meditation center for Mount Holyoke, Mass. (p. 62)*

*A critical appraisal of Cornell's new library (p. 64)*

**DORMITORIES: DESIGNS FOR STUDENT LIFE**

70

*Four projects aimed at economy, variety, and scale.*

**THE MOOD OF A GREAT CAMPUS**

74

*A fresh look at Jefferson's University of Virginia.*

**FOREIGN MONEY BOOSTS U.S. BUILDING**

83

*How European capital flows into American real estate.*

**HIGH-STYLE FACTORY**

*An unusual precast wall encloses a handsome Ohio plant.*

**NEW TOWNS FROM SMALL TOWNS**

92

*Three demonstrations in planning for future growth.*

**SEALANTS: KEEPING THE WEATHER OUT**

96

*Materials and methods have come a long way.*

**REBUILDING**

102

*Church addition . . . double-decked clinic . . . agency front.*

5	<b>NEWS</b>	Cover:	Thomas Jefferson's drawing of the Rotunda, courtesy University of Virginia (page 74).
19	<b>LETTERS</b>	14	Editorial, subscription, and advertising data.
31	<b>PROJECTS</b>	152	Advertising index.
37	<b>PRODUCTS</b>		Published monthly by TIME INC., Time and Life Building, Rockefeller Center, New York 20, N.Y. This issue is published in national and separate editions. Additional pages of separate editions numbered or allowed for as follows: Western edition W-1, W-2. Regional—Northeast, Southeast, Central, and Southwest R-1, R-2. Entered as second class matter at New York, N.Y. and at additional mailing offices. Subscription price \$6.50 a year. ©1962 TIME INC. All rights reserved. Member of ABP and ABC.
51	<b>EDITORIAL</b>		
110	<b>ABROAD</b>		
141	<b>BOOKS</b>		
154	<b>EDITOR'S NOTE</b>		



Washington's esthetic problems (below)

The year's construction (below)

The urban discrimination issue simmers (pp. 7, 9)

State architecture in the doghouse (p. 11)

## THE PERMANENT "TEMPOS" OF WASHINGTON

At the end of World War II, Washington contained 77 temporary government buildings. In the 15 years since, 30 have been removed. At this rate of progress, it will take another quarter century to dispose of the rest, half of which deface the Mall and its associated parklands and are an eyesore



regularly complained about. A recent resolution passed by the Fine Arts Commission urges the General Services Administration to get on with the demolition job and reminds it that Congress, in 1955, directed GSA to demolish all "tempos" as soon as the new CIA building at Langley, Va. could be occupied. The CIA headquarters is nearing completion, and plans for demolishing the tempos are still a problem owing, says GSA, to increases in defense employment and shortage of alternate, privately built office space in Washington; but GSA is pushing.

### A brave try on D. C. freeways—and memorials

Meanwhile, an esthetic tempest has blown up over the E Street Expressway which is to link the Theodore Roosevelt Bridge and the Inner Loop Freeway. A team of three architects, named to advise the District Highway Direc-

tor, early in January turned down a proposal by fellow-Architect Chloethiel W. Smith as over-designed and unnecessarily expensive. Two weeks later after a second meeting, Mrs. Smith seemed to be winning her critics over.

"We're very close on her basic concepts," said the highway chief. "I didn't have to compromise very much," said Mrs. Smith.

Mrs. Smith's design for the depressed highway avoids a "big cut" in the city with the usual wide, sloping expanses of highway-bordering greenery, by use instead of an open trench, more limited in width, flanked by decorative masonry walls, and enhanced with carefully designed lighting, parapets, and other details.

Mrs. Smith's design is "a brave try," commented Frederick Guthcim, architectural critic, in the *Washington Post*. "Her major objective was to tame the wild engineering form of high speed

expressways, and give them a more architectural and urban character. But... the basic trouble with the Expressway plan is that it is not an urban highway at all but a wild and woolly thing brought in from the transcontinental open spaces."

Another esthetic recommendation for Washington was made last month when the Franklin Delano Roosevelt Memorial Commission voted eight to one to approve the winning design for a Potomac Park Memorial, consisting of eight marble faced, lettered slabs (*FORUM*, Feb., '61). However, the approval included the proviso that either a statue or bas-relief of Roosevelt be added to give the memorial "warmth."

## NONRESIDENTIAL BUILDING UP IN 1961

The large construction gains of 1961 were made by nonresidential facilities and apartment buildings—an average of 8 per cent over 1960. In contrast with apartment building, which was up 13 per cent, construction of one- and two-family houses dropped 3 per cent below 1960, even though there was a 10 per cent increase

in the small quantity of public housing in this category.

Gains in the nonresidential field were shared unevenly, with one category, religious buildings, actually off as much as house building. The biggest advances were made by hotels, motels, and dormitories; hospital and institutional buildings;

*continued on page 7*

### NEW CONSTRUCTION EXPENDITURES, ANNUAL TOTALS 1960 AND 1961

(millions of dollars)

	1961		1960		Change
	Private	Public	Total	Total in Totals	
<b>BUILDING CONSTRUCTION</b>					
Industrial	\$2,759	\$444	\$3,203	\$3,258	-1.7
Offices and warehouses	2,350	....	2,350	2,121	10.8
Stores, restaurants, and garages	2,313	....	2,313	2,059	12.3
Religious	984	....	984	1,013	-2.9
Educational	592	3,053	3,645	3,384	7.7
Hospital and institutional	787	370	1,157	1,005	15.1
Social and recreational	701	132	833	838	-0.6
Public administrative and service	....	677	677	598	13.2
Apartments	2,872	422	3,322	2,937	13.1
Hotels, motels, and dormitories	1,500	100	1,572	1,285	22.3
All other building construction	719	1,347	2,066	1,968	5.0
<b>TOTAL</b>					
BUILDING CONSTRUCTION	\$15,577	\$6,545	\$22,122	\$20,466	8.1
TOTAL HOUSE CONSTRUCTION	18,194	320	18,514	19,040	-2.8
TOTAL OTHER CONSTRUCTION	6,668	10,188	16,856	16,050	5.0
<b>TOTAL CONSTRUCTION</b>	<b>\$40,439</b>	<b>\$17,053</b>	<b>\$57,492</b>	<b>\$55,556</b>	<b>3.5</b>

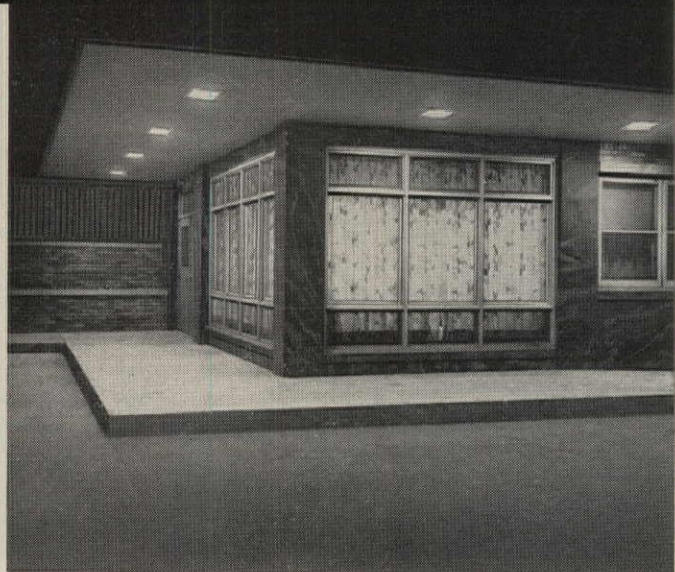
SOURCE: BUREAU OF THE CENSUS AND MILES L. COLEMAN ESTIMATES BASED ON CENSUS DATA.

*When price is not the main consideration*  
**It Costs So Little More**  
**To Have Good Lighting**



**DOWN LIGHT—TOO CONCENTRATED**

Low-brightness on the *object* you are looking at  
 No brightness on the *vertical* surfaces



**KIRLIN—WIDE SPREAD—GLARE-FREE**

All objects to be seen are well lighted  
 Wide distribution lights the vertical surfaces

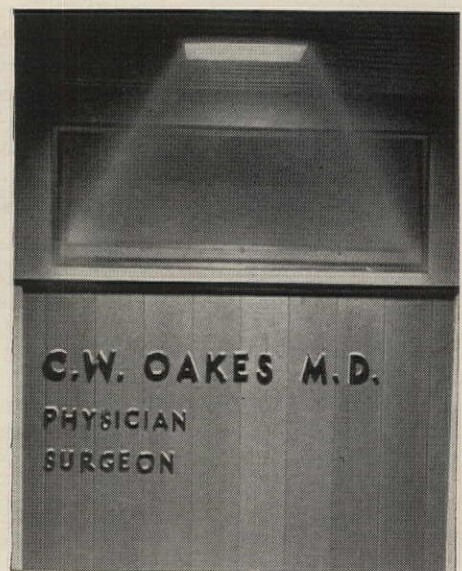
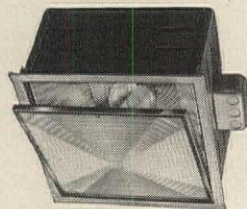
*No "Hot Spot" with Kirlin Lenses*



Down lights are intended for spot lighting—not for area lighting  
 (shown are three 150 W. units)

**Kirlin**  
 SYSTEM

BUILT-IN  
*Lighting*



Kirlin louver glass directs the light at an angle—uniformly  
 (shown is one 150 W. unit)

SALES ENGINEERS IN PRINCIPAL CITIES

**The KIRLIN CO.** 3435 E. JEFFERSON AVE.  
 DETROIT 7, MICHIGAN

- Available in many types and sizes
- In stock at leading wholesalers
- Underwriters Laboratory and I.B.E.W. labels

public administrative and service buildings; stores, restaurants, and garages; and offices, in that order. Educational facilities were ahead of 1960 construction, but showed less than the average gain; social, recreational and industrial buildings ran slightly behind 1960.

At the year's end, construction expenditures were running at an annual rate of \$60 billion, well above the year's average of \$57.5 billion but down from November's record rate of \$61.2 billion. If forecasts of slightly more than \$60 billion for 1962 are correct, the outlook is for present levels of activity to be maintained—but little more than that.

Economist Miles Colean forecasts a rise in mortgage interest

rates for 1962, with the comment that how soon and how much they may rise are the only questions. As a result of a Federal Reserve change in regulations, there will be new competition for savings between thrift institutions and commercial banks, and in turn this may also affect the quantity of mortgage money available, Colean points out. If the banks edge ahead at the expense of thrift institutions, the consequence may be a net loss in the available supply of mortgage money even though the banks increase their mortgage lending somewhat. But if the competition stimulates an over-all increase in savings, the mortgage market will probably benefit.

## URBAN DISCRIMINATION A GROWING ISSUE

Among the conspicuous omissions in President Kennedy's State of the Union message was any mention of his campaign-promised executive order banning racial or religious discrimination in federal housing programs. Such an order has been drawn up and was ready for signature in December.

Instead, the President came out strongly for a new cabinet Department of Urban Affairs and Housing, a measure that southern legislators had warned they would oppose if the President issued the antidiscrimination executive order. In a telegram to the President before his message, the National Committee Against Discrimination in Housing, a federation of 35 civil rights, religious, minority, and other groups, issued another kind of warning: that disappointment, concern, and resentment about housing discrimination were mounting, and that failure by the President to issue the order "can bring great embarrassment to Housing Administrator Robert Weaver." Weaver, who formerly headed the NAACP, is the official commonly expected to head the new cabinet department if it is established.

Washington housing officials are speculating about a "compromise" approach to antidiscrimination: Since an executive order would be a statement of intent, why not skip it and "quietly" tell the enforcing agencies, FHA, PHA, HHFA, and HLBB (Home Loan Bank Board) to do what they can

with "promptness and thoroughness" to enforce their programs against racial discrimination? The President in mid-January gave point to this speculation by indicating that his delay stems from a belief that he should not get too far ahead of public opinion. *The New York Times* thereupon reminded the President, editorially, that during his campaign he had said, "If the President does not himself wage the struggle for equal rights—if he stands above the battle—then the battle will inevitably be lost."

### Migration north

As the new year began, census figures analyzing out-migration of Negroes from the south, mainly to cities of the north and west, pointed up the fact that "discrimination problems" and "urban affairs" grow steadily more synonymous. Net migration of non-whites from the South during the 1950-60 decade was about 1,457,000, the Bureau of the Census estimated, with the largest net out-migrations from Mississippi, Alabama, South Carolina, North Carolina, Georgia, and Arkansas, in that order. The largest net nonwhite in-migrations were to California, New York, Illinois, Ohio, Michigan, New Jersey, Florida, Pennsylvania, Indiana, and Connecticut, in that order.

### Segregation north

The New York City Board of Education has glumly reported

*continued on page 9*



### HELICOID

*This object in Caracas, Venezuela, designed by Architect Jorge Romero Gutiérrez, is called a Helicoid Shopping Center. It consists of two spiral ramps, one ascending, the other descending, coiled around a hill into which huge shelves were bulldozed. Along the spirals, offices, shops, a hotel, an owners' club, and a baby-sitting park for children were planned, the idea being that a driver could move along the spirals,*

*stopping and parking wherever it suited his convenience. The summit is planned as a huge round exhibit hall and a television center for advertising goods sold in the Helicoid. Financed hand to mouth, the enterprise has come to a halt during construction, but its backers are confident that they will get sufficient money eventually, from the oil-rich government if from nowhere else.*



PHOTOS: WALLACE LITWIN



## ... IN A *Donley* INCINERATOR

Once it was a delicious red apple; now it's a garbage problem! But garbage and rubbish can be deposited any time and destroyed almost immediately in a Donley Incinerator. To eliminate large accumulations of garbage and rubbish, Donley Automatic Safety Burners provide frequent small fires at regular intervals. This Donley principle of frequent burning minimizes smoke, odor and fly-ash. It also avoids the destructive heat of large fires that damages incinerators and flues.

Donley incinerator designs and equipment meet operating standards established by leading fire insurance companies, testing laboratories and most municipal building codes. Write today for your Donley Incinerator Catalog or see it in Sweet's.



Trouble-free Donley Incinerators were specified for this large residential development in Philadelphia.



THE *Donley* BROTHERS COMPANY

13945 MILES AVE., CLEVELAND 5, OHIO

8239-DB

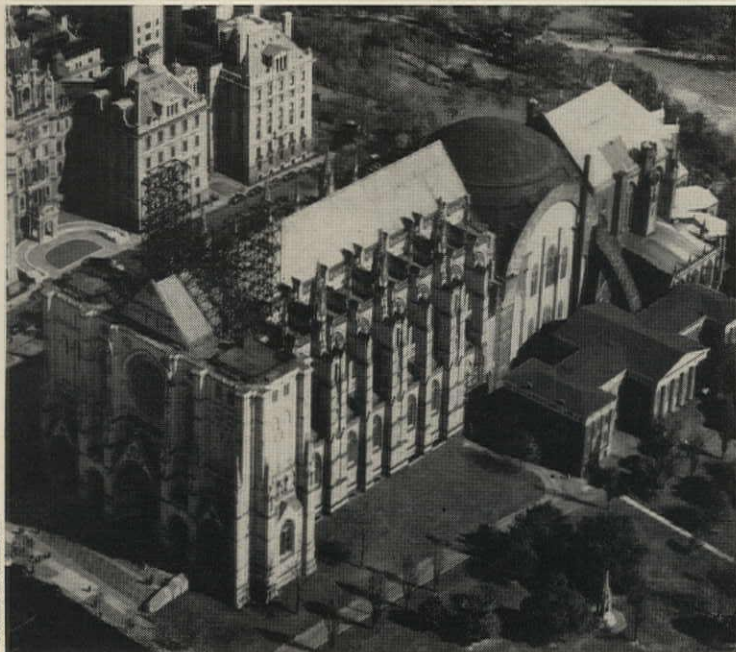


that the number of "segregated" schools in the city has continued to increase, in spite of the transfer last year of nearly 15,000 Negro and Puerto Rican pupils under "open enrollment" and zoning programs. Between 1958 and 1959, the number of schools with 90 per cent or more Negro and Puerto Rican pupils increased from 52 to 67. It was conceded that the 1961 figures, not yet issued, would show a continuation of this trend. The increase of school segregation in New York directly reflects increases in *de facto* residential segregation.

### Gains in Philadelphia

Philadelphia, which now has no housing shortage (vacancies have doubled in ten years), was able to congratulate itself on a dramatic rise of Negro home owners who

numbered 64,028 in 1960 as against 29,439 in 1950 and 6,694 in 1940. A current rate of 43 per cent ownership among Negro households equals the Philadelphia rate for whites 20 years ago. Only one Negro family in eight is now living in substandard housing in Philadelphia, compared to one in three in 1950. Among whites, one family in 33 now occupies a substandard unit. In the Philadelphia suburbs and satellite cities, 1960 quality differentials in housing were greater, with one Negro family in four inhabiting a substandard unit, against one in 26 among whites. The Philadelphia Housing Assn. concluded that discrimination in the *quality* of housing is now not affecting Negroes as severely in the city proper as it is in the suburbs and in the satellite towns and cities.



ROBERT A. DAMORA

### GUARANTEE FULFILLED

Back in 1909, a dome was put over the crossing of the Cathedral of St. John the Divine in New York to buy time during what was believed to be a very temporary design impasse. The impasse has still not been overcome; in the course of describing the building's jinxed architectural history in his new book, *Architecture and the Esthetics of Plenty* (see page 141), Author James Marston Fitch drew attention to the temporary dome, "a remarkable structure in itself." He noted that a brilliant Italian mason, Rafael Guastavino, who had a patented system of terracotta tile construction, was called in to enclose the crossing. He

guaranteed his work for only ten years, but the dome has now outlived its guarantee by five times. Fitch added, "it cannot last much longer; it is this fact which gives urgency to the completion of the church." Last month, Fitch's remarks stimulated reinspection of the dome—which had been resurfaced and waterproofed in 1960. It was reported safe and in excellent condition. Fitch pointed out that "temporary" does not mean "unsafe," but that it does mean "not permanent." Finishing the cathedral will cost millions, which the cathedral authorities seem unwilling or unable to spend at present for this purpose.

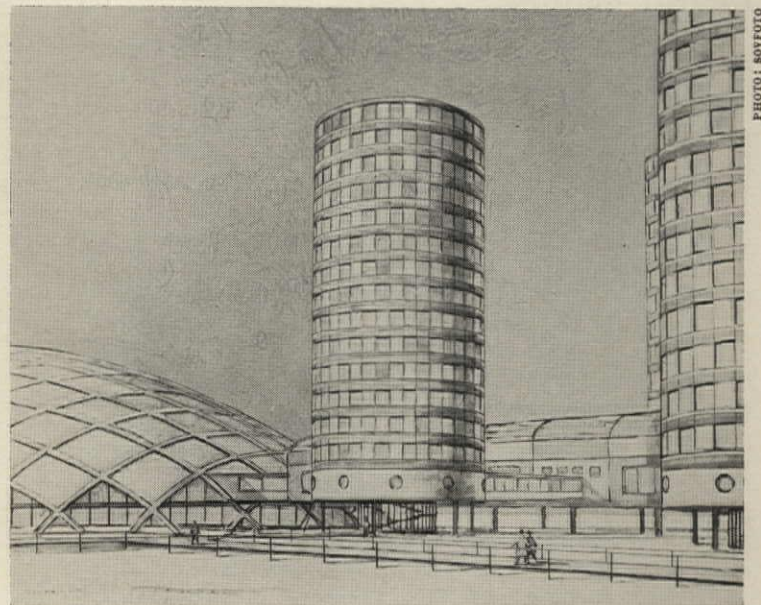


PHOTO: SOVPHOTO

### PLANS IN RUSSIA

The three men standing inside the big glass screen at the right are not nature copying art, but Russians inspecting the first of a new style in plastic houses being built near Leningrad. Beneath the raised house is its hot-air heating system. The Russians have also announced that they propose to build a city of enclosed streets converging on an enclosed, circular park, in the Soviet arctic; the enclosures are to keep temperatures up to a relatively mild 20 degrees above zero, when they are 40 below outside. But some more mundane planning problems have been neglected and are now causing trouble: the Soviet public health journal reports that because of industrial wastes from oil refineries, chemical, rubber, and metallurgical indus-



tries, mining and paper manufacturing, "water-basin pollution constitutes a threat not only to human health but to animal life, to fish, to farm animals and farm crops, in other words to the entire national economy." Up to the present, the report goes on, "there have been formulated . . . no plans or policies for the protection of [water] resources."

### TOKYO TRANSPORT

Construction of Japan's first major passenger monorail has been authorized by the Transportation Ministry, to link Tokyo's downtown with its International Airport. The 9-mile distance is to be covered in 15 minutes, in comparison with the 90 minutes now frequently required.

### SPREADING THE AGED

A decentralized housing program to permit the retired elderly to remain in their own communities has been announced by the United Church of Christ. Arrangements with FHA, expected by the church to be completed in June, will make possible the new program in place of the centralized, more institutional programs pursued in

the past by most such groups.

The church plans to build in downtowns, in rural settlements and in resort areas. The proposal is to include many types of dwellings in each location (renting from \$60 to \$90 per month), and to make no requirements for admission charges, life tenancy agreements, assignment of assets or contracts for support. Tenancy will not be sectarian. The only centralized facilities are to be "core units" for those who can no longer keep house; these will serve several different but nearby communities.

The church organization plans to build in ten states, beginning with the Lorain County area in Ohio, and hopes that its demonstration of decentralized projects will catch on elsewhere.

continued on page 10

## GRAND DESIGN BY STATE BUREAUCRACY

For years, many Californians have grumbled about the ugliness and "sterility" of the buildings that are produced by the state's department of architecture for construction in almost every community. Now it appears that the work is not only "sterile" but, in at least some cases, otherwise incompetent.

The concrete floors of a million-dollar, state-designed library for San Jose College, for example, failed structurally, drawing the attention of a state Assembly Interim Committee on Government Organization. The Committee was shocked by the look of things at San Jose. "Cold as a prison," said one member. A "botched job," said another observer. Still others questioned the rudimentary panic and fire safety of narrow corridors and halls.

The man at the center of the dissatisfaction, State Architect An-

son Boyd, rules a department of more than a thousand employees. He is due to retire March 31 after 21 years in his present eminence. During his tenure his department has grown from a handful of employees responsible for less than \$3 million construction a year to an empire which has produced a total of almost \$1 billion worth of facilities under Boyd's supervision—the largest construction program ever undertaken by any single state in a comparable period. Boyd's standard reply to criticisms has been that his budget does not allow modern, attractive buildings.

California may now undertake a nationwide search for Boyd's successor, according to Robert B. Bradford, state director of public works. But the proposed method of conducting this hunt—an examination by the state personnel board—sounds less promising.

## LUNDY SCHOOL REOPENS

Hillspoint Elementary School in Westport, Conn., which was closed after a pane of glass fell into a classroom—see last month's "News"—is open again; among the pupils who have returned are the children of John C. Gilmore, the citizen who led the fight to close the school. A temporary injunction, in force during the holidays, was thrown out of court on January 3. A permanent injunction is pending but will probably not be pressed because the school board has requested \$32,000 to complete work which has not been given its final OK by Architect Victor Lundy.

## LUXURIOUS HARDSHIPS

Detroit's celebrated Lafayette Park downtown luxury urban renewal project (FORUM May '60), consisting thus far of high-rise apartments that were snapped up and town houses that were not, is under fire from residents of both. The tenants complain, in their association news letter, about soundproofing, heating, cooling, condensation, leaks, backed-up sewer, unclean hot water, neglect in making repairs, smeared corridors, littered elevators, dirty lobbies, inadequate police protection and "will-o-the-wisp" promises of

covered parking, . . . gracious living."

Looking into the complaints with respect to the town houses, the Detroit Department of Buildings and Safety Engineering submitted a list of recommended repairs. Robert C. Weaver, HHF-Administrator, who also received the tenants' complaints, passed the buck to management but promised that FHA inspections on new additions would be "exact, searching, and attentive to the smallest detail."

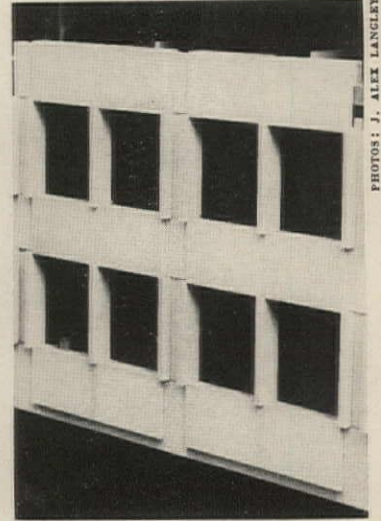
## PRINCETON PERKS UP

In recent years, Princeton University has added much new construction to its campus, but little, if any, distinguished architecture. Last month, the University gave indications that it was at last seeking excellence in design. Architects Hugh Stubbins of Cambridge, Mass., Minoru Yamasaki of Birmingham, Mich., and Edward L. Barnes of New York were commissioned to do three projects in the \$30 million building program that got under way three years ago. Stubbins will design a group of dormitories to cost \$2 million, Yamasaki is to design a \$2.5 million expansion of the school of public and international affairs, and Barnes is to do a \$1.5 million administrative building.



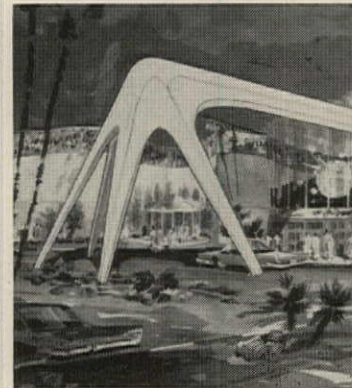
## CONCRETE CURTAIN

The 59-story Pan Am building is going up rapidly on a portion of the Grand Central Terminal site in New York. Here the first curtain-wall units are being installed. They are precast concrete, eggshell in color, and with an exposed quartz-aggregate. On the broad base section of the building, from the third through the seventh floor, the material is installed in individual sections of spandrel and mul-



PHOTOS: J. ALEX LANGLEY

lion pieces. On the eight-sided tower, beginning with the tenth floor (the eighth and ninth floors will be sheathed in aluminum), complete floor-to-floor panel units, weighing 3,500 pounds each, are being installed in a checkerboard pattern. The units are guided into position along a monorail system. Emery Roth & Sons, architects; Walter Gropius and Pietro Belluschi, consultants.



## GOOGIE GETS GAY IN L.A.

Southern California has a well-deserved reputation for the far-out and bizarre. Over the holidays, the latest bauble was added to an already garish collection: Located in Los Angeles (at La Cienega and San Vicente Blvd.) it is something called a penta-cabaret (above, left), the nation's first, it is believed, and not inconceivably, the last. The penta-cabaret is owned and designed by Architect Lee Linton, a pace-setter in what has sometimes been called the "Southern California googie" style. The \$1.1 million "Millionaire Club," as the penta-cabaret is named, features a huge, straddle-legged can-



opy over its entrance, and will have five night clubs inside, each one some variation on "a major entertainment era of the past century." For instance, there is the Speak of the Devil Room (right), reflecting the 1920s jazz age, with such embellishments as a grotto-like interior with a bar hewn from rock, and glass elevators which will convey waitresses to the main floor. The entrance to the three-level building is highlighted by "a huge rotating mirrored ball 8 feet in diameter," and the landscaping "will be in a contemporary desert motif." Finally, a private key club will have baths and steam room.

## PEOPLE



## TRAFFIC SWITCH

Manhattan finally came to a stop a month ago, when truck, cab, and bus traffic choked and came to a halt for hours. The long-awaited day was December 27, when a combination of out-of-town tourists, holiday traffic, and a bit of snow did the trick. The mammoth snarl gave dramatic point to the Mayor's announcement that the city was to have a new traffic commissioner: HENRY A. BARNES from Baltimore (which got him from Denver) to replace T. T. WILEY, whose previous reputation had been made in Detroit.

## ANTI-UGLIES

Interviewed by newsmen after he accepted the Kaufmann International Design Award last month, Architect WALTER GROPIUS suggested that Americans emulate the Anti-ugly movement of young British students who, equipped with funeral trappings, hold wakes before new buildings they deplore. Ironically, one of the buildings currently under severe esthetic criticism is the Pan American structure now going up over New York's Grand Central Terminal (see page 10), on which Gropius, along with PIETRO BELLUSCHI, served as consultant. In a recent symposium, Professor VINCENT SCULLY of Yale called the building "the death blow to Park Avenue.... Except for brute expediency, it shouldn't be there at all." On the subject of expediency, Gropius

commented: "There is no lack of good planners and designers who really know what could be done... but they have no power."

## LAND RESCUE

A quick timetable for public purchase of open land was announced last month by H. MAT ADAMS, New Jersey's commissioner of Conservation and Economic Development. Using \$20 million as matching funds to help counties and municipalities buy open land, Adams plans to spend it within three years in a race against rising costs. Meantime, Governor GAYLORD NELSON of Wisconsin announced his state has begun a comprehensive planning and development program that is to include purchase of scenic, access, and drainage easements on open land. Purchase of easement rights only in such cases will save the state about \$7.5 million over outright purchase, he estimates.

## WRIGHT RETROSPECT

A major survey of the work of FRANK LLOYD WRIGHT from 1895 to his death in 1959 will go on exhibition in mid-March at New York's Museum of Modern Art. The 250 drawings, selected by the Museum's ARTHUR DREXLER and WILDER GREEN, will include not only Wright's buildings, but also studies for decoration and designs for automobiles, helicopters, and coffee cups.

## BRIDGE WINNINGS

The successful newspaper campaign led by FORUM's West Coast editor, ALLAN TEMKO, reported in last month's "News," to junk a "crass, outmoded" design for San Francisco's new San Mateo-Hayward bridge, continued with good omens. The California Toll Bridge Authority engineers speedily produced an advanced "ribbon bridge" design. In addition the governor appointed Architect WILLIAM STEPHEN ALLEN, partner in the lively firm of Anshen & Allen, as architectural consultant. "The appointment caps a very substantial victory," said Temko happily.

## GRAVEL PARLAY

Chicago Financier HENRY CROWN, 65, who runs Material Service Corp., one of the country's largest construction supply firms, appeared last month to be taking over direction of General Dynamics, the sprawling colossus into which he merged Material Service two years ago. General Dynamics has become the 15th largest U.S. industrial corporation in less than 15 years, but it has lately been losing money on an equally colossal scale because of a jet aircraft manufacturing fiasco. Crown is the outstanding member of an emergency committee of five directors who are taking over from Chairman FRANK PACE, formerly Secretary of the Army.

Although Crown has figured in the control or ownership of numerous large corporations, Material Service has been the big company in his life. The son of a Lithuanian peddler, Crown got into the sand and gravel business 43 years ago and, gradually, built this enterprise into a firm dominating the building supply industry of Chicago. During the war he was commissioned a colonel and put in charge of procurement for Army engineers in the Chicago area, a job in which he spent about \$1 billion a year. At the war's end he branched out into

*Financier Crown*



railroads, hotels, coal, and philanthropy. He also went after big real estate (he is reputed to have cleared \$600,000 on the United Nations site). Last December 27, in a transaction so complex that it required more than a hundred lawyers, a 400-page contract, and eight dress rehearsals, he sold the Empire State Building to the Prudential Insurance Co. He had bought an interest in the Empire State ten years ago as one of a group of investors, subsequently becoming sole owner.

## TOPPING-OUT TOPS

After carefully researching the history of ancient building rites, HERMAN G. MASER, vice president and head of the real estate department of Bankers Trust in New York City, came up with a fairly spectacular ceremony to celebrate the topping-out of his company's new Park Avenue skyscraper. Rejecting human sacrifice (used for the spiritual protection of a Tiber bridge built in 621 B.C.) as impractical, Maser had a basket of eggs, three handker-

*Maser & Builder David Rose*



chiefs, a small fir tree, sheaves of corn, other unnamed vegetables, ribbons, garlands of flowers, a pair of handcuffs, and a dash of chicken blood raised to the roof of his building instead. The resulting spiritual benefit was publicity—although perhaps not so much as would have accrued from the immolation of a banker.

## FERRERO AT FHA

Architect PAUL E. FERRERO, who served on the staff of FHA and HHFA from 1936 to 1955, has returned to FHA as Deputy Commissioner. He had spent the intervening years as a house builder with his own construction company in suburban Montgomery County, Maryland.

*continued on page 14*



+

**INSULROCK®**

With its Outstanding Roof Deck Features



+

America's Finest Roof Deck

**DISTRIBUTORS**

---

**FORMULA FOR YOUR  
MOST SUCCESSFUL JOBS**

Specify **FLINTKOTE**

**INSULROCK**



*To Get The Foremost  
Team In Modern  
Roof Deck Construction*

Your reputation stands up . . . your buildings stand out . . . when you specify the best *backed* by the best.

Flintkote Insulrock reliability goes hand in glove with the special skill and competence of every Insulrock architectural representative. Some are the biggest . . . all are the finest in the business—firms strong on experience and integrity, ready to help with the right answers and follow-through on Insulrock Roof Deck applications.

*That's A Big Reason for Steadily Growing Use of Insulrock Roof Decks!* Your recognition of structural wood-fiber products as modern building components has brought up a new industry, now substantial in size and stature. Through constant research and development, coupled with strict control of uniformly high quality and unsurpassed nation-wide service, Flintkote Insulrock has established itself as the leading single-unit wood-fiber roof deck.

**For Beauty That Stands Up Through The Years . . .**

**Specify INSULROCK  
Architectural Representatives in Principal Cities**

**THE FLINTKOTE COMPANY  
INSULROCK DIVISION**



EXECUTIVE OFFICES: New York, N. Y.  
GENERAL SALES OFFICE: Richmond, Virginia  
PLANTS: North Judson, Indiana; Richmond, Virginia  
DISTRICT SALES OFFICES: Chicago, Ill.; Cleveland, Ohio;  
Dallas, Texas; Greensboro, N. C.; Los Angeles, Calif.;  
Philadelphia, Pa.; Seattle, Wash.

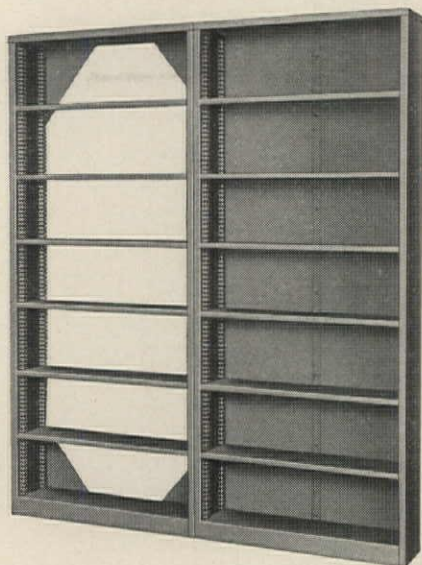
**Manufacturer of  
America's Broadest Line  
of Building Products**

(continued from page 11)

for a single office or a  
complete library installation

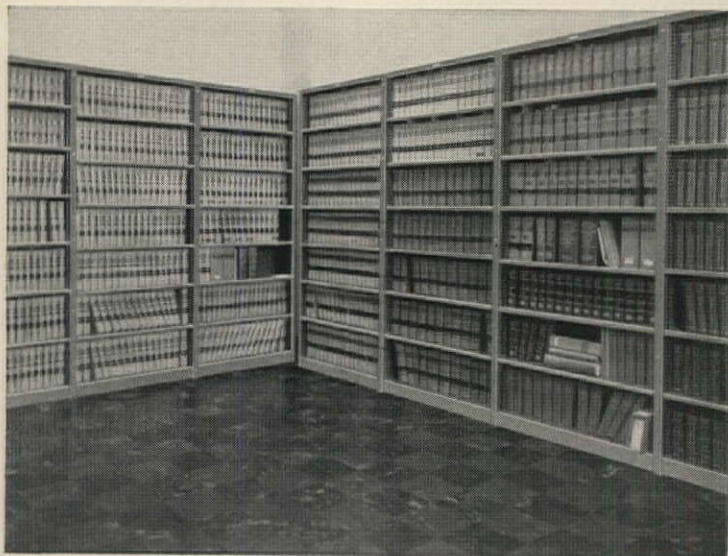
## BORROUGHS Library Shelving

merits your consideration



send for furniture catalog

YOU can "round out" a very successful project with the specification of Borroughs Library Shelving. In all America there is no better looking, better built or better functionalized library shelving than Borroughs. Sliding shelves require no bolting.  $\frac{3}{4}$ " vertical shelf adjustment eliminates waste space. And there's a choice of heights, in single or double face, with open or closed backs. Write today for a list of Borroughs library shelving installations. Seeing is believing.



**BORROUGHS MANUFACTURING COMPANY**  
A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT  
3093 NORTH BURDICK ST. **amp** KALAMAZOO, MICHIGAN

### HONORED TEACHERS

Last month the Great Teacher Award of Columbia University's Society of Older Graduates was given to MARIO G. SALVADORI, professor of civil engineering and architecture, who is noted (in addition to his gifts as a teacher) for his mathematical work on advanced concrete structures. Coincidentally, Salvadori, and 176 other professors who had soberly protested the government fallout shelter program, were being attacked by a Navy captain who told a Columbia class for Naval Reserve Officer Training that the professors were "unwittingly lining up with Russian propaganda." Salvadori promptly protested to the Navy and to Columbia that this was resort "to smear technique used by those who cannot argue from a position of intellectual strength." The University announced it would re-evaluate the Navy course offered on its campus and strongly urge that faculty members lecture on Communism to the trainees.



COURTESY "HOUSE & HOME"

Teacher Salvadori

The American Institute of Planners recently honored, with its Distinguished Service Award, another outstanding teacher, CHARLES WILLIAM ELIOT II, professor of city and regional planning in the Harvard Graduate School of Design. Eliot, long a crusader for preservation of open spaces, some 30 years ago planned the District of Columbia's system of parks, parkways, and playgrounds. In his private practice as planner and landscape architect, Eliot has prepared plans for numerous towns and cities in California and New England.

### OBITUARIES

Architect ROYAL BARRY WILLS, 65, designer of more than 2,500 homes, most of them traditional, died last month in Winchester, Mass. Wills's numerous books on domestic architecture have been enormously popular and even included a work on tree houses for children.

HENRY HOFMEISTER, 71, noted for his work as coordinating architect of huge and complex projects, died last month in Bronxville, N.Y. Although he completed only two years of high school and was a self-taught professional, his firm, Reinhard & Hofmeister, were general architects for Rockefeller Center. Among his other commissions were the Chrysler Building, New York Medical College, and the Federal Building at Idlewild Airport. Until his last illness he was working as planning consultant on the Lincoln Center urban renewal project in New York. /END

ARCHITECTURAL FORUM is published monthly by TIME INC., Time & Life Building, Rockefeller Center, 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 U.S., U.S. Possessions and Canada, one year \$6.50; elsewhere, one year, \$12. Single copies, if available, \$1.

CHANGE OF ADDRESS: Four weeks is 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, Time & Life Building, Rockefeller Center, 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, Time & Life Building, Rockefeller Center, New York 20, N. Y.

TIME INC. also publishes TIME, LIFE, FORTUNE, SPORTS ILLUSTRATED, and HOUSE & HOME and with its subsidiaries the international editions of TIME and LIFE. Chairman of the Board, Andrew Heiskell; Chairman, Executive Committee, Roy E. Larsen; Chairman, Finance Committee, Charles L. Stillman; President, James A. Linen; Executive Vice President and Treasurer, D. W. Brumbaugh; Senior Vice President, Howard Black; Vice President and Secretary, Bernard Barnes; Vice Presidents, Edgar R. Baker, Clay Buckhout, Arnold W. Carlson, Allen Grover, C. D. Jackson, Arthur R. Murphy, Ralph D. Paine, Jr., P. I. Prentice, Weston C. Pullen, Jr.; Comptroller and Assistant Secretary, John F. Harvey; Assistant Treasurer, W. G. Davis; Assistant Comptroller and Assistant Secretary, Charles L. Gleason, Jr.



SERIES  
7000W  
—WOOD  
COVERED  
FOR  
WOODEN  
DOORS

SERIES  
P-7000  
—WITH  
METAL  
COVER  
FOR  
METAL  
DOORS

## Norton® Series 7000 Closers..... The Custom Look for every door

Only Norton's Series 7000 can assure you of a perfect match between door and closer throughout your entire building. Available with metal covers painted to match or contrast with the finish of metal doors. Available chrome plated to match other door hardware. Available covered with wood to assure a perfect match between door and room panelling.

Get complete details from your Norton representative today or mail coupon.

**NORTON DOOR CLOSERS**  
*for complete Architectural Compatibility*

1021

Norton Door Closers, Dept. AF-22  
372 Meyer Road, Bensenville, Illinois

Please send Manual N-1   
Have my representative call

Name \_\_\_\_\_

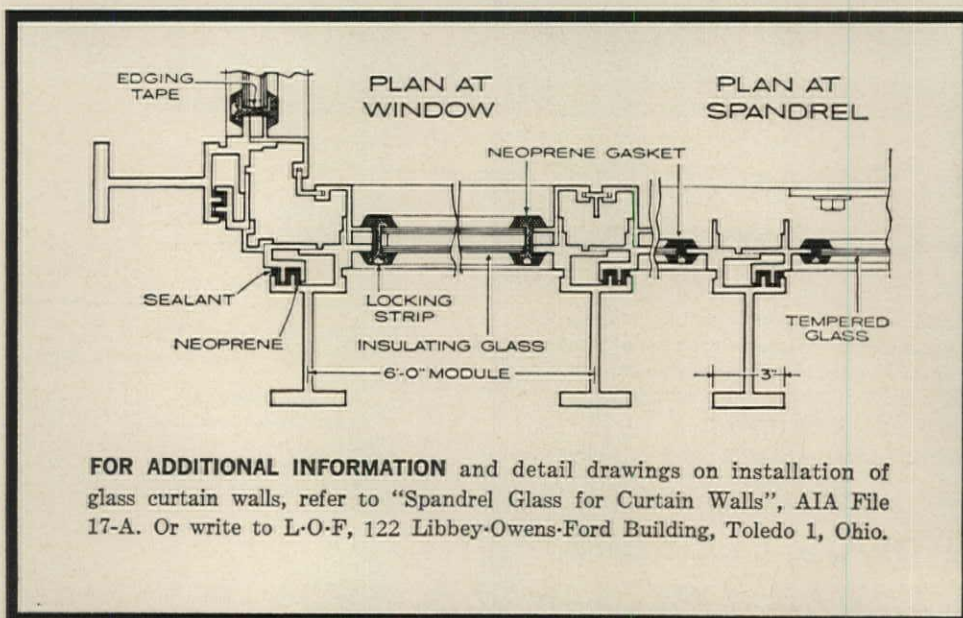
Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



Libbey-Owens-Ford Building, Toledo 1, Ohio — Architects: Skidmore, Owings & Merrill, New York City



1. Neoprene structural gaskets are inserted in aluminum frames.





# "Zipper-glazed" curtain wall

This glass façade in the Libbey-Owens-Ford Building, Toledo, Ohio, was literally "zipped" into place with neoprene gaskets.

The *Thermopane*® insulating glass windows and the *Vitrolux*® glass spandrels were glazed in a continuous gasket, similar to the method used for installing automotive windshields.

Although the 15-story L·O·F Building is the first high-rise office building to be glazed by this method, it has been tried and tested and proved over a six-year period in three 2-story buildings of a large Detroit manufacturer.

## ADVANTAGES

This type of setting is resilient, and eliminates need of glazing compounds. The element of human error (such as creation of caulking voids) is greatly reduced. The curtain wall goes up faster, saving on-site labor costs. And since the neoprene gasket is factory made to close tolerances, the system provides an almost fool-proof weather seal, whether used with sheet, plate or insulating glass. Or glass spandrels. No clean-up, painting or other finishing is required.

**Method used:** The gasket is factory assembled into a one-piece, continuous setting member to fit the extruded-aluminum, curtain-wall frame and the glass. The gasket used in the L·O·F Building is essentially an H section (see diagram). The outside channel of the gasket fits over the sash, and the inside channel fits over the edges of the glass.

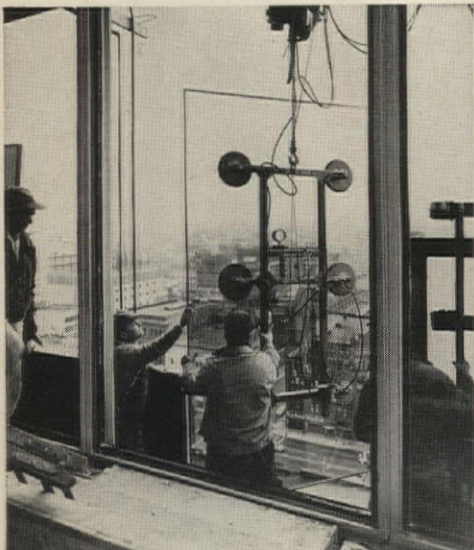
The neoprene gasket is first installed at all four sides of the sash (illustration 1). The glass is lifted into place (in this case with a sucker frame as in illustration 2) and inserted into the bottom of the gasket. A hand tool with a flat spatula-shaped blade is used to complete the setting of the glass in the gasket (illustration 3).

A separate, wedge-shaped, pressure filler strip is then fed or "zipped" into the locking channel in one end of the gasket with a simple hand tool, shown in illustration 4. This creates a powerful compression, effecting a tight, leakproof seal between both the sash and the glass. Replacement of damaged glass or panel sections can be done easily and quickly merely by removing this filler strip to unlock the gasket.

Libbey · Owens · Ford  
Toledo 1, Ohio



2. Power-vacuum equipment on window-cleaning platform lifts *Thermopane* to opening.



3. Glass unit is worked into gasket with special tool.



4. Neoprene strip, "zipped" into gasket, serves as locking device.



**Eliminate this Problem  
in YOUR New School**



**Install a  
SPENCER  
Vacuslot<sup>®</sup> System**



Dirty mops mean a messy building. Yet mops can't be properly cleaned except by **vacuum**.

For faster cleaning and superior sanitation, specify Spencer Vacuslot . . . the **built-in** vacuum system that handles **all** these maintenance chores:

- Dry mop cleaning.
- Carry-off of dirt and litter.
- Conventional vacuum cleaning.
- Wet pick-up.
- Boiler tube cleaning (with significant savings on fuel).



**Request  
Bulletin No. 153C**



**The SPENCER  
TURBINE COMPANY  
HARTFORD 6, CONNECTICUT**

**THE PROBLEM OF CODES**

Forum: Your December issue was most interesting and enlightening, particularly the timely article, "Local building codes—a national problem."

One of our committees is going to be looking at the local building code. We would like to provide each member with a copy of Mr. Brown's article.

ROGER F. RUPNOW  
Madison, Wis. Executive director  
Redevelopment Authority

Forum: Any city would do well to follow your advice in modernizing their building code.

The author might have gone one step further and warned local committees against local modifications of the "standard" codes. Frequently the values inherent in adopting one of the codes mentioned are lost through ill-advised emasculation.

There is one other facet of the code situation often overlooked. That is the need to upgrade the position of building officials. Under performance-type codes, skills on a professional level are needed to assure competent enforcement.

CALVIN H. YUILL  
San Antonio, Tex.  
Southwest Research Institute

**WASHINGTON'S PLAN**

Forum: Mrs. Moholy-Nagy's careful critique of the Year 2000 Plan for Washington (FORUM, Dec. '61) deserves attention by all who are concerned with the future of our capital city. This article should stimulate good discussion of the development policies that are proposed or implied.

In due time, this agency will be proposing a Transit Development Program that will stand an excellent chance of being constructed, getting the planners off their "hypothesis" kick and giving actual shape to the region.

JOHN RANNELLS  
Washington, D.C.  
National Capital  
Transportation Agency

Forum: I liked your comments on the Washington plan very much. However, I am convinced that the Reuss proposal simply is not practicable. I say this as one who has worked both in and with government and who has seen the failure of almost every effort at decentralization. If you want to contain

the size of Washington, you have to reduce government rather than spread it.

MILES L. COLEMAN  
Washington, D.C.

**CUTTING SCHOOL COSTS**

Forum: We have noted with great interest the various articles in your November issue, particularly those which can prove valuable to our firm's present research work on school construction costs.

ROLAND H. LANE  
Anchorage, Alaska Architect

Forum: Discussion by your select panel of "Schools and prefabrication" was read with interest.

Saving of site labor seemed to be indicated in your discussions. Shouldn't we try to channel some of the human effort released by mass production and automation into creative, on-site labor in order to produce more varied and beautiful schools?

HUBERT BEBB  
Gatlinburg, Tenn. Architect

Forum: "New proposals to cut school costs" was very informative. Please forward 15 copies.

NORMAN C. OLMSTEAD  
Southfield, Mich. Asst. supt.  
Southfield Public Schools

Forum: I was particularly interested in the article covering prefabricated classrooms.

EDGAR H. HALDEMAN  
Phoenixville, Pa. Superintendent  
Phoenixville Joint School System

Forum: Looking over the drawings of the conference, I've suddenly realized that we had more high-level people there than I had noticed at the time. Third from the left on page 112 is Harry Truman and on the left on page 120 is James Madison. You certainly can't say that Forum doesn't do these things right.

JONATHAN KING  
New York City  
Educational Facilities Labs.

**FALLOUT FANTASY**

Forum: I am shocked that you condone the deceit of the fallout shelter fantasy (FORUM, Dec. '61). Aside from the physical impossibility of saving people from an attack, what of the psychological consequences of hiding underground?

Shelters resign people to the in-

evitability of war and preclude any strong efforts to negotiate for peace through the United Nations, the only real shelter available to all people in the world.

STEVEN LICHTENSTEIN  
Philadelphia architectural designer

Forum: Shelters are not the answer. The only answer is peace!

NANCY NEWMAN  
Los Angeles

■ Of course the only real answer is peace, but against the danger of miscalculated war, FORUM continues to support the present national policy of converting suitable space into group shelters and building new ones while research and national policies evolve.—ED.

**ARCHITECTURAL GLASS**

Forum: We greatly enjoyed "New facts and figures on architectural glass" in the December issue and would like to obtain 20 reprints. It is high time that the most visible material in modern building be given the careful study evidenced in your erudite report.

Although we do not agree with your cost quotations of \$1.25 per square foot for plate glass (in Baltimore, our prices are approximately 20 per cent higher), we are happy to see that you arrived at the same conclusions as we with regard to insulating glass.

STANLEY E. ARONOFF  
Baltimore  
Executive vice president  
The Southern Plate Glass Co.

**POLARIZED LIGHT**

Forum: Re "Another boost for polarized lighting" (FORUM, Dec. '61): not only is percentage polarization important, but the peculiar shape of the polarizing curve is equally important, as indicated by a polarizing index developed by Dr. Blackwell which interprets the Visual Efficiency Factor. In tests conducted by Dr. Blackwell at Ohio State University's Institute for Research on Vision, curve and percentages were superior in the products of our company.

MYRON KAHN  
Sherman Oaks, Calif. President  
Polrized Panel Corp.

**PLEA FOR "PARKLETS"**

Forum: Jane Jacobs' explanation of what kills city parks (FORUM, Oct. '61) was extremely interest-

ing and valid, but if she implies that parks have no place in midtown because they are taken over by "bums and perverts," then I do object.

There can't be too many parks in our cities and commercial areas need them every bit as badly as balanced neighborhoods. They don't have to be Central or Fairmont Parks with meadows and rambles. The leveled site of an old brownstone, cobbled and jam-packed with plane trees, is good enough. A system of such "parklets" throughout commercial areas would be welcome, indeed.

New York City ROBERT L. ZION  
Landscape architect

**SELF-RENEWAL**

Forum: Your November editorial, "Down with the 20th century!" calls for an answer.

San Leandro started off on federal urban redevelopment, but the City Council turned it down after more than \$1 million was allocated, in favor of a "do-it-yourself" revitalization project which has approximately \$750,000 of local money earmarked for public improvements to encourage private enterprise.

When you imply that city building practices of the nineteenth century will bankrupt the building industry and our cities, you are showing evidence that you do not understand what local enterprise can accomplish when it makes up its mind.

FRANK M. KING  
San Leandro, Calif.  
Chamber of Commerce

Forum: We are proud of our nonfederal, all-city-cash, downtown redevelopment project.

We are also aware that thousands of acres of abject slums in cities across the nation need subsidy for their cure and that all local governments just don't have the resources.

Thank goodness there is more than one set of tools available to tackle the job.

WESLEY MCCLURE  
City manager  
San Leandro, Calif. KING COLE  
Community development director

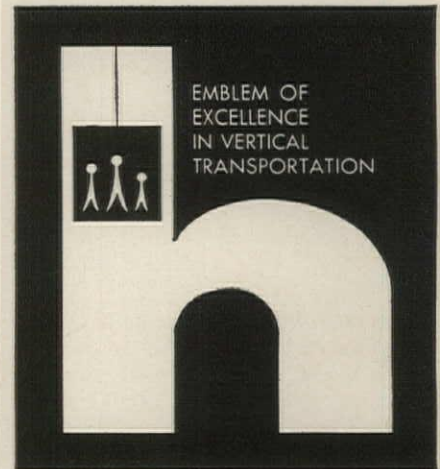
■ EDITOR'S NOTE: Planners of the Twin Parks highway "new town" mentioned in "Editor's note" (FORUM, Nov. '61) are Marshall Miller Associates of New York.



Howard Barnaby  
and S. G. Schimenti,  
Builders

Henry G. Greene, A.I.A.  
Architect

Julien J. Studley, Inc.  
Rental Agent



## **Haughton Automatic Elevators with Dynaflite Control**

**CHOSEN FOR  
66 BEAVER STREET  
NEW YORK**

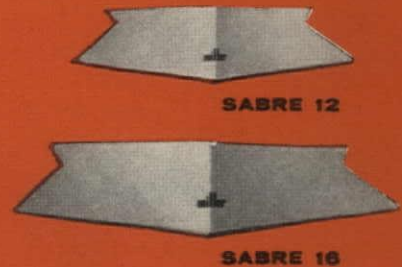
Passengers will travel at 800 feet per minute, yet they'll scarcely feel any motion at all! ■ With Dynaflite, the higher speeds required for efficient handling of heavy traffic can be achieved with incredible smoothness. ■ Both acceleration and slow-down are so subtle, so finely controlled, that passengers experience comfort and security no conventional controls can provide. ■ Three elevators will serve all floors at 66 Beaver Street. Three more will operate to the 12th floor. ■ An automatic, electronic computer will constantly receive and analyze data pertaining to the amount and character of traffic, and make adjustments to match traffic needs exactly. ■ Dynaflite is a development of Haughton Elevonics\*. Include its exclusive advantages in your building or modernization plans. Your local Haughton sales office will give you full information. ■ Haughton Elevator Co., Div. of Toledo Scale Corporation, Toledo 9, Ohio. ■ Passenger and Freight Elevators, Escalators, Dumbwaiters.

*\*Haughton's advanced program in elevator systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Registered in U.S. Patent Office.*

The Pace-Setting Sabre by miller...

... now in **TWO NEW SIZES** at **LOWER PRICES**

# SABRE



- Two new sizes meet virtually any requirement
- 2, 3 and 4 LP. units in 4 ft. and 8 ft. lengths
- New, self-hinging closures of prismatic plastic

## FOR LIGHTING SCHOOLS, OFFICES, STORES

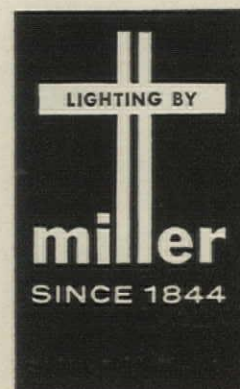
Now, you can choose a SABRE to satisfy practically any of your general lighting needs. Sabre, the *original*, prismatic plastic wrap-around fixture has been completely redesigned to provide you with full flexibility for today's and tomorrow's lighting requirements. Performance and quality are high as ever; prices are so low you'll find them pleasantly surprising. The end result is the most fixture-per-dollar yet!

**TWO NEW SIZES**—Sabre 12—2 lp. unit, with a generous 13 $\frac{3}{8}$ " width. Sabre 16—2, 3 & 4 lp. units 17 $\frac{3}{8}$ " wide.

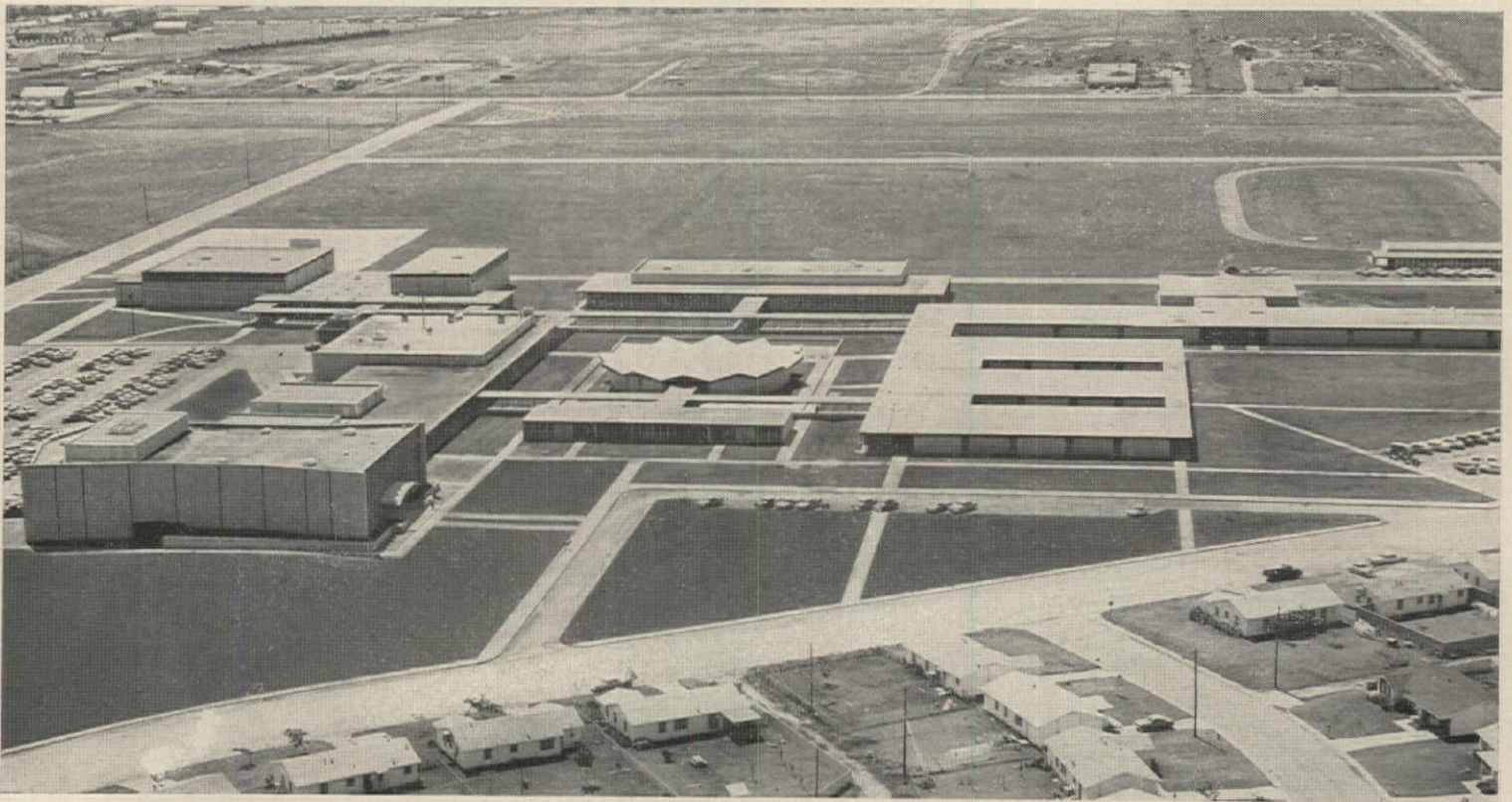
Both of these new SABRES are now available in 4 ft. and 8 ft. channels.

**NEW, SELF-HINGING CLOSURES** in convenient 4 ft. length provide easy access from either side for relamping and cleaning. Closures are of crystal-clear, prismatic plastic offering excellent lighting *efficiency* and brightness control. Choice of light stable grade Polystyrene or Acrylic lenses.

For a *free four-page folder* describing these new Sabre fixtures in full, write Dept. 162 or contact your Miller Representative.



THE miller COMPANY • MERIDEN, CONN. • UTICA, OHIO



# *big school with a big future*

The new Cooper High School in Abilene, Texas, is an ultramodern complex of structures that lives up to Texas billing—not only in size but in scope of vision in planning. Equally impressive is the enduring quality of its construction! ¶ Designed to accommodate 2200 students, this massive \$2,700,000 educational project on a 46-acre site covers a total floor space of 219,000 square feet, including covered walkways. The campus-type layout with its nine interconnecting buildings is zoned into three classifications—a quiet study area, activity or noisy areas, and areas used by both students and the public. ¶ Construction of this big school was done in four separate contracts. Lone Star Masonry Cement—a uniform, ready-to-use material, scientifically formulated to provide maximum workability, permanence and economy—was used throughout the entire project. Lone Star Portland Cement was used for foundations and floors and Lone Star Air-Entraining Cement was used for all the “Featherlite” light weight concrete blocks.

**ARCHITECTS & ENGINEERS:** Tittle & Luther, Boone & Pope, David S. Castle. **STRUCTURAL ENGINEER:** Jerry Rosser. **GENERAL CONTRACTORS:** Rose Construction Company, Shiflet Bros., White & Everett Construction Company, C. B. Oates. **MASONRY CONTRACTOR FOR WAREHOUSE:** Thurman Head. **LONE STAR MASONRY DEALERS:** C-C Building Supply, Pecan Grove Lumber & Supply Company, Bowman Lumber Company, Harber-Patterson Lumber Company, South Texas Lumber Company. **READY-MIX CONCRETE:** Childs Ready-Mix Concrete Company. **CONCRETE BLOCKS:** Texas Concrete Block Company. **ALL OF ABILENE, TEXAS.**



⤴ Here's where Lone Star Masonry Cement pays off. A uniform, ready-to-use material, it spreads easily and stays plastic long enough for masons to bed units properly in long rows.

⤴ Hub of the Cooper High School is the circular library, which serves as a “buffer zone” between the activity area and the study area.



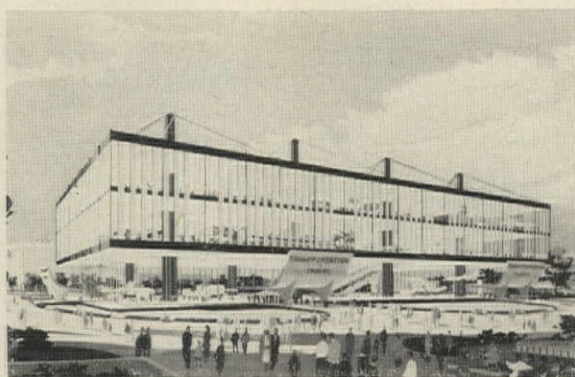
## **Lone Star Masonry Cement**



LONE STAR CEMENT CORPORATION  
100 PARK AVE., NEW YORK 17, N.Y.



1



3



4



6



2



5

#### 1. HOLLYWOOD SPECTACULAR.

A corner of Hollywood's famed Sunset and Vine was recently sold by NBC to Lionel Hayes Uhlmann Jr. for \$3.5 million. Developer Uhlmann plans to put up a 1,000-room hotel, two 31-story office buildings (seen in foreground, above), a third smaller office building, and a five-level underground garage for 5,000 cars, to cost a total of \$67 million. Associated architects: Paul R. Williams and David Jacobsen.

2. WASHINGTON ABBEY. Philip Johnson Associates' design for St.

Anselm's Abbey Church in Washington, D.C. is a graceful, 92-foot-high concrete vault supported by wedge-shaped columns, slightly splayed to create aisles on either side of the nave. Both ends will be giant windows of stained glass.

3. FAIR PAVILION. Cables from eight pylons will float a proposed Transportation & Travel Pavilion over Flushing Meadows for the 1964 New York World's Fair. Its three suspended floors will display modes of travel, resort exhibits, and industry products. Architect: Charles Luckman Associates.

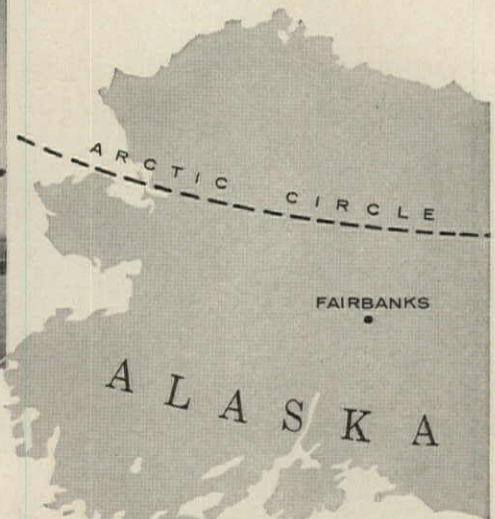
4. CHICAGO CENTER. On air rights leased from the Chicago Union Station Co., Developer Erwin Wolfson and an Anglo-American group plan to erect this \$20 million office center, part of a three-building complex. Designed by Skidmore, Owings & Merrill, the plan stacks 17 stories on a plaza above offices, shops, and parking.

5. RINGS FOR RESEARCH. Circles are William L. Pereira & Associates' theme for the General Telephone and Electronics Laboratories, Inc., under way in Palo Alto, Calif. Biggest will be

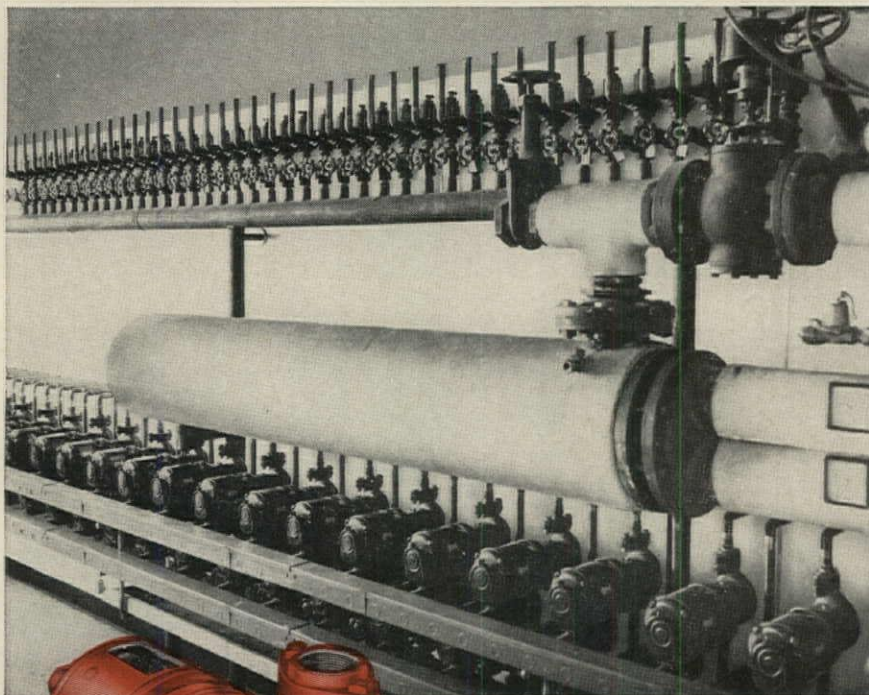
a laboratory-office structure. Satellite rings with peaked roofs will enclose a library, auditorium, cafeteria, and offices.

6. EQUITABLE TOWER. Another Equitable building by Skidmore, Owings & Merrill, this one on Chicago's Michigan Ave., will rise 35 stories from a wide plaza over three decks of shops and garages. The new tower will be owned and managed, but only partly occupied, by Equitable, whose total investment will be about \$30 million. Consulting architect: Alfred Shaw.

*continued on page 33*



**NEAR THE ARCTIC CIRCLE  
40 B&G BOOSTERS GIVE RESIDENTS  
INDIVIDUAL TEMPERATURE CONTROL**



**B&G BOOSTER**



**B&G  
FLO-CONTROL  
VALVE**

The B&G Booster is engineered for compactness, *silent operation* and years of service. It is built by precision manufacturing methods which translate good design into a superior product. Over 3,500,000 have been installed to date.

The B&G Flo-Control Valve is so designed that it can be easily cleaned without removing it from the pipe line.

At Fairbanks, Alaska, tenants in the Anderson Apartments enjoy all the comforts of *radiant Hydro-Flo* heating plus their own choice of temperature. Each apartment is on a separate heating zone and has an individual thermostat to control the operation of a B&G Booster pump. In each circuit, a B&G Flo-Control Valve prevents the possibility of an over-ride in heat.

A 2-pass B&G steam-to-water converter provides hot water for the heating system.

B&G Boosters are designed and built specifically to meet the exacting demands of circulated water heating and cooling systems. Their freedom from maintenance problems as well as quietness of operation explain why B&G Boosters are the preferred pumps.

**THE BUILDING:**  
Anderson Apartments, Fairbanks, Alaska

**ARCHITECT:**  
Philleo Engineering Co.

**HEATING ENGINEER:**  
Fairbanks Plumbing and Heating

**PLUMBING AND HEATING:**  
Fairbanks Plumbing and Heating

**GENERAL CONTRACTOR:**  
Kenneth P. Anderson, Contractor



**BELL & GOSSETT**  
C O M P A N Y  
Dept. GZ-62, Morton Grove, Illinois

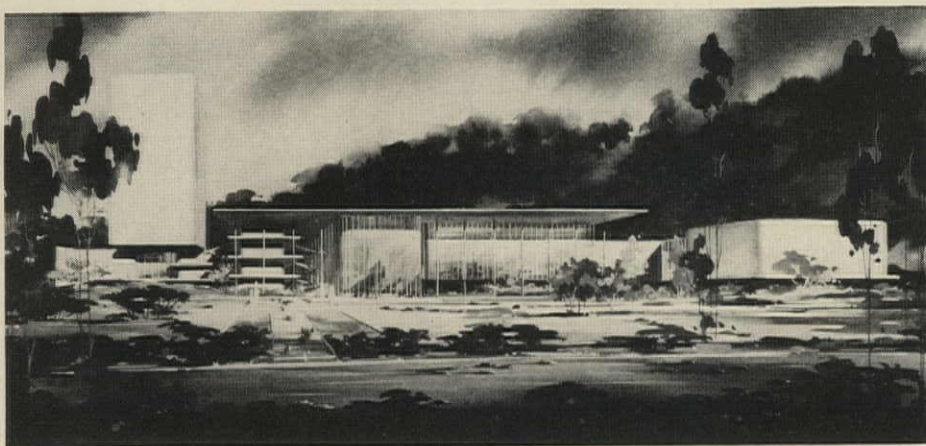




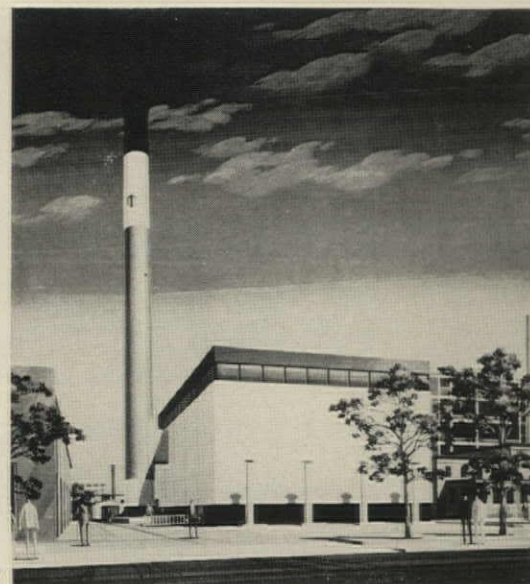
7



8



9



10



11

**7. DOCTORS' OFFICES.** A wide V is the shape of this small professional building in Chicago by Architect Walter H. Sobel & Associates. It will shelter its own parking under second-story wings. Both long façades will be of precast concrete and gray glass.

**8. TEXAS FEDERAL.** In Austin, Tex., plans are under way by two local firms, Architects Page, Southerland & Page and Brooks & Barr, for a Post Office and Federal Office Building, joined by an underground passage. Precast concrete will frame windows and

glass spandrels around the nine office stories; precast panels will alternate with slit windows on the post office's second story, standing over the street on stilts. Estimated cost: \$9.7 million.

**9. MOVIE AND TV MUSEUM.** Across the street from the Hollywood Bowl, engineers are making borings for an industry and county-sponsored Hollywood Motion Picture and Television Museum, designed by William L. Pereira & Associates. Across the front a great glass wall will reveal the main exhibit hall. Sound stages

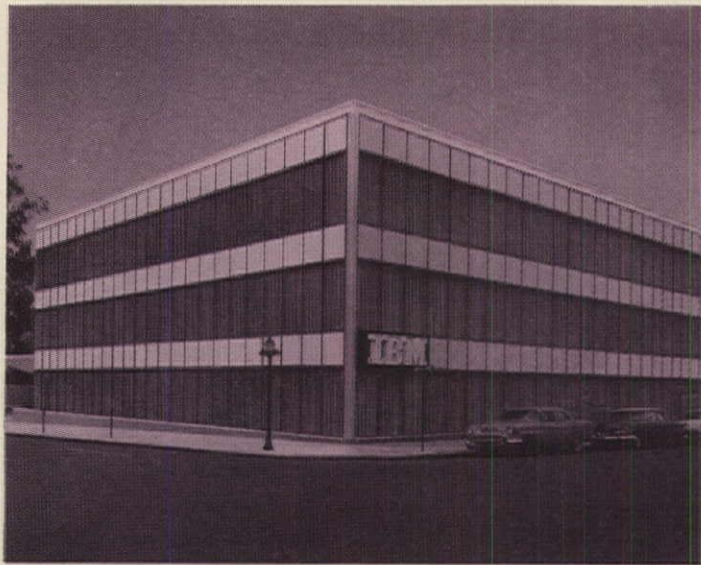
for both movie and TV productions will fill the low, windowless building at right; a tower (left) will house an office staff.

**10. COLLEGE BOILER.** A 150-foot chimney will mark Temple University's new heating plant, half shown here. Eventually, the chimney will be in the center of an expanded facility covering a full Philadelphia block. Four fill pipes for off-street oil delivery sprout from underground storage tanks. Architects: Nolen & Swinburne.

**11. ST. LOUIS APARTMENTS.** Shortly after announcing plans to

build the tallest office building in downtown St. Louis in some 30 years (FORUM, Jan. '62), the Siteman Organization unveiled this design for Lindell Terrace, an ultra-luxury apartment building, also in St. Louis. Architects Hellmuth, Obata & Kassabaum have provided all corner apartments in the 15 floors with long, narrow living-room terraces. The concrete exterior, sealed with sand-colored vinyl, will match a raised and landscaped plaza. Cost: \$4.5 million for 104 apartments, a garage for 120 cars.

*continued on page 35*



# STANLOCK\* ... gives you freedom in design

StanLock Neoprene structural gasket is the *proved* way to *permanently* seal curtainwall. And the many different StanLock sections that are available permit a wide range of curtainwall designs. They can be used in horizontal, vertical or grid applications — using panel materials of aluminum, steel, concrete, marble, or any combination. ■ Long-lasting weathertight seals are assured by StanLock's *tempered*, oversize locking-strip construction. And there are other advantages. The complete story, plus application drawings of 24 proven cross sections, are contained in the new StanLock catalog. Write for your copy today.

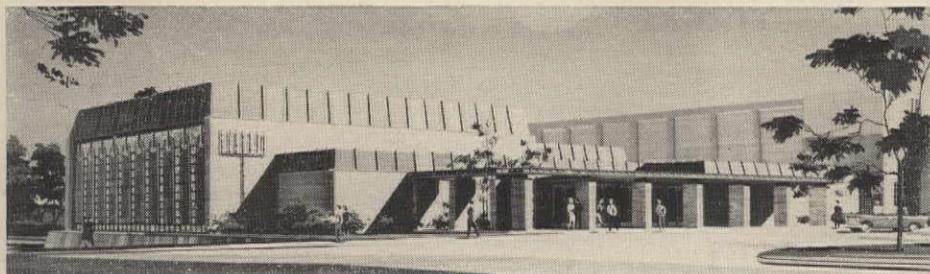
\*Trade-mark

Sweets Architectural file 3f  
St

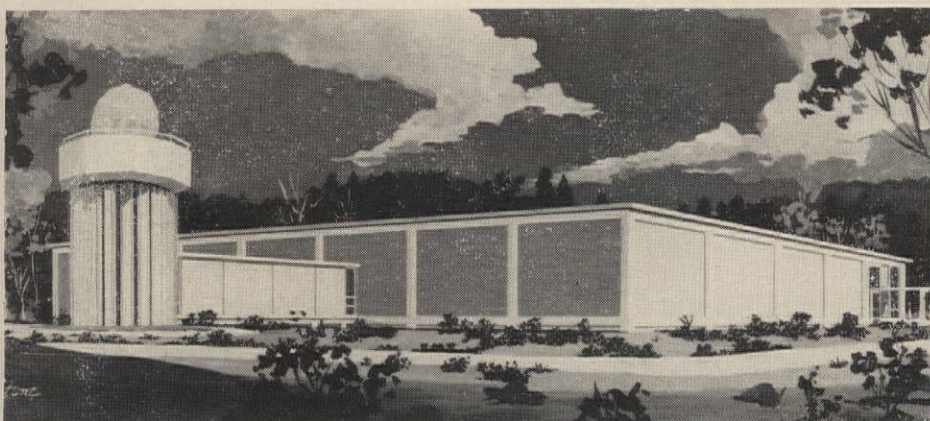
*The Standard Products Co.*

STRUCTURAL GASKET DIVISION  
2130 W. 110th Street • Cleveland 2, Ohio





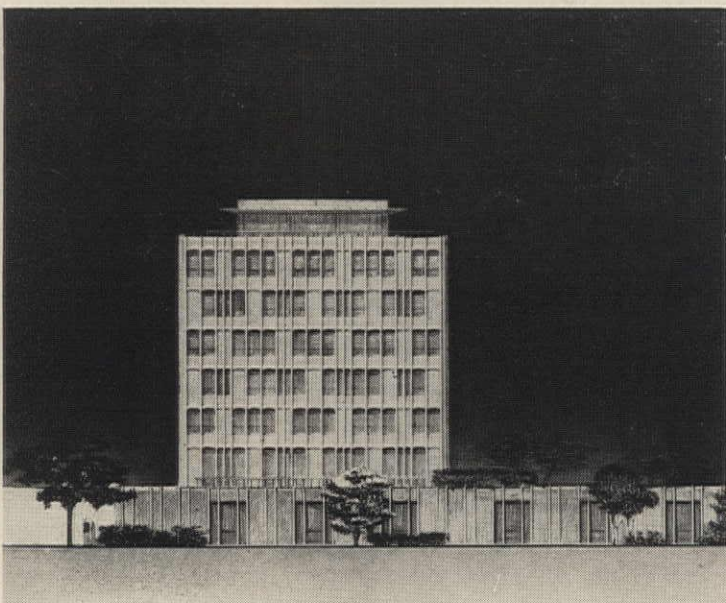
12



13



14



15



16

#### 12. NEW YORK SYNAGOGUE.

A recently demolished theater provided a ready-made foundation for the new Kneseth Israel Synagogue in Gloversville, N.Y., next to an existing Jewish Community Center (right). Though lucky with the foundation, Architect Edgar Tafel had to make his design compatible with an assortment of neighbors. His solution: a low, solid building of cavity-brick walls and lead cornices, with an entrance portico.

#### 13. MAINE SPACE TOWER.

Part of the AT&T-Bell Laboratories

experimental satellite communications station near Rumford, Me. is this tracking tower and adjacent communications center by Perkins & Will, to be ready when the first of the new horn-shaped antennae is built later this year. A free-standing sun screen of precast concrete sections shields the tower's inner concrete structure and stair. Both tower and screen are hexagons. The communications center is finished in concrete.

#### 14. PHILADELPHIA MOTEL.

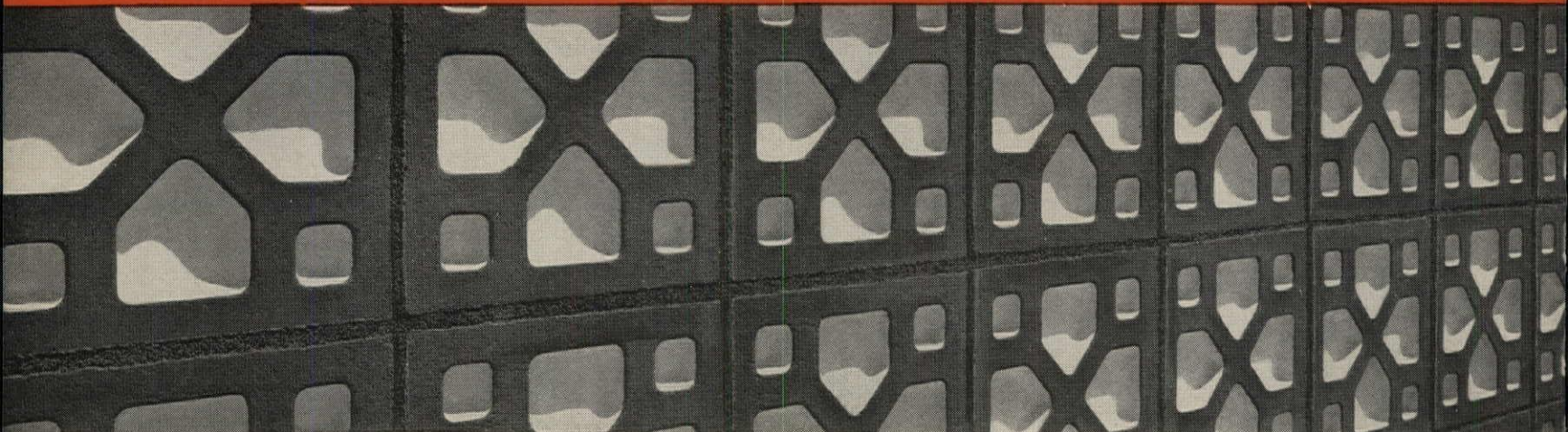
Zigzag façades will provide a bay window for every room in Charles

Luckman Associates' design for the 306-room Penn Center Inn in Philadelphia. Most of the square base under the 17 tower stories will conceal a 200-car garage behind an open honeycomb of terracotta flue tiles on four sides. Besides parking, the base will contain shops, restaurants, and other public spaces on the first floor, and a swimming pool on the roof. Stair wells at either end of the guest-room tower will be of glass set against concrete shear walls. Total investment: \$5 million; \$3 million for the building alone.

#### 15. & 16. M.I.T. DORMITORIES.

At least some of M.I.T.'s growing pains will be lessened by these two new dormitory groups in Cambridge, Mass. The one at left, by Anderson, Beckwith & Haible, will house all but a few of Tech's 168 women students behind façades of limestone and aluminum. The other, by Hugh A. Stubbins & Associates, will provide 210 apartments for married students: 90 efficiency units and 60 one-bedroom apartments in the 16-story tower, supplemented by three smaller apartment houses. END

Great new things  
are shaping up  
in concrete block



**Solid-back grille block:** This new concrete unit facilitates the installation of a screen-pattern facing over masonry walls. Ideal for remodeling. For dramatic interest, the screen web and the solid back may be painted different colors. Units are usually available to match pierced grille blocks so the same design can be used for solar screens or free-standing walls. Ask your local block manufacturer. ■ To lay up solid-back grille block, ATLAS MASONRY CEMENT provides the right mortar. It produces a smooth, workable mix...saves labor and waste...gives weather-tight joints that are uniform in color. Complies with ASTM and Federal Specifications. For information on masonry cement, write Universal Atlas, 100 Park Avenue, New York 17, N.Y.



**Universal Atlas Cement**  
Division of  
**United States Steel**

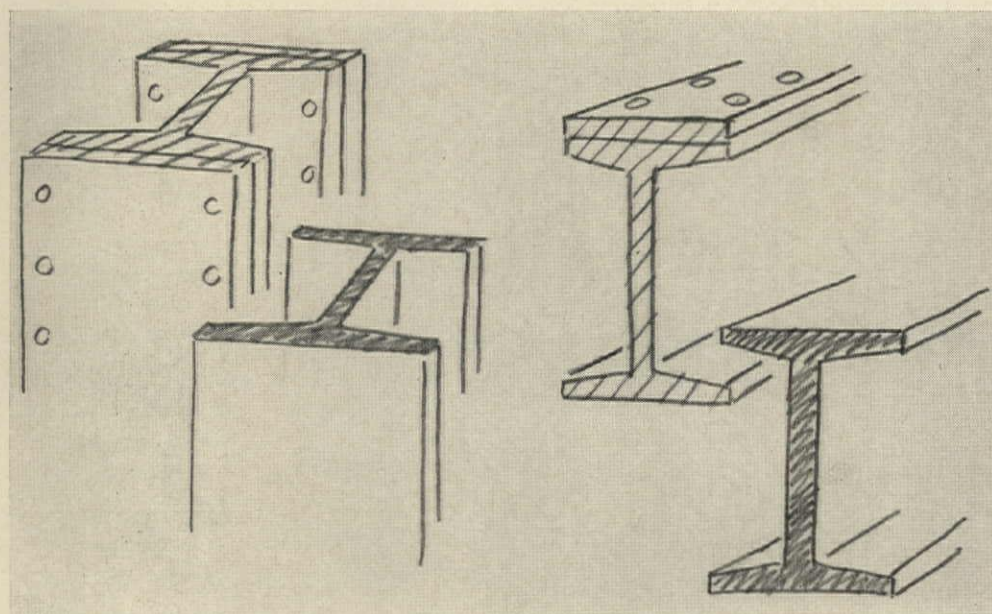
01-07

"USS" and "Atlas" are registered trademarks

High-strength steel saves cost, weight, space (below)

Two thin partition systems (below and page 39)

Two Eames chairs, cushioned and comfortable (page 39)



**BIG STEEL**

Improved *Cor-Ten* high-strength low-alloy steel promises cost and weight savings to the construction and machinery industries. First introduced by U.S. Steel in 1933 and widely used since then, *Cor-Ten* in its new version has the same high strength and full weldability that it had before, but in thicknesses three times as great. It now has a minimum yield point of 50,000 p.s.i. in thicknesses up to a full 1½ inches, a strength previously available only in *Cor-Ten* products up to ½ inch thick. Plates, bars, structural shapes, and wide-flange sections, all of which U.S. Steel is rolling now from improved *Cor-Ten*, save cost, weight, and space; reduced fabrication costs account for the biggest savings. In many instances, the elimination of cover plates (as shown on the slim girder and column) will also cut manufacturing costs and weight.

Manufacturer: U.S. Steel Corp., 525 William Penn Pl., Pittsburgh 30.

**MOVABLE WALL**

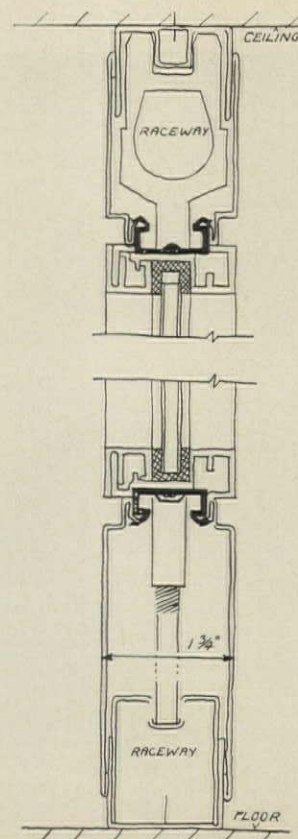
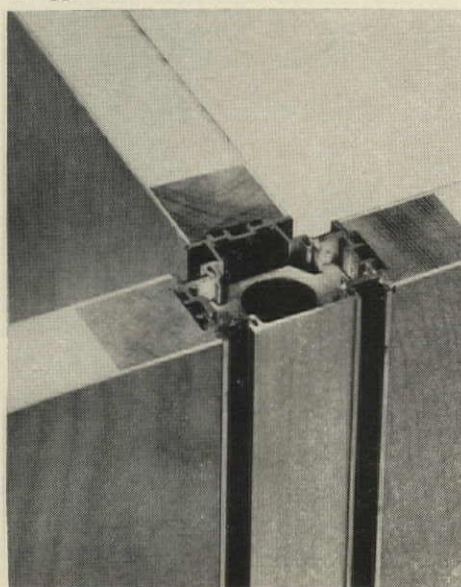
A new movable partition, U.S. Plywood's *Design 104*, is uniformly thin (1¾ inches) through the panel and post, yet roomy enough inside its base, post, and head to take 7/8-inch conduit (outside dimension). It is the first thin wall to take wiring of this size.

Like previous Weldwood movable walls, this one can be had in a host of panel finishes—hardwood veneers, enamel on steel, or porcelain on asbestos cement—and the new panels fit into any of the older systems. The only difference in *Design 104*'s panel is a vertical aluminum strip down the side, part of which is recessed and filled with black vinyl. With the black vinyl-on-steel header and base and the black edge strip down each panel, the panel surface stands out from a black frame. A brushed aluminum cap on the universal post (face dimension, 1¾ inches), slotted into a channel, may be covered with a slice of veneer to match the panel faces, or matched to any other finish, in which case the expanse of matching walls is broken only by pairs of narrow aluminum lines on each module. These edge extrusions snap into the post (see photo). With modification, they will support lighting fixtures, shelves, or cabinets. Cores may be any of U.S. Ply-

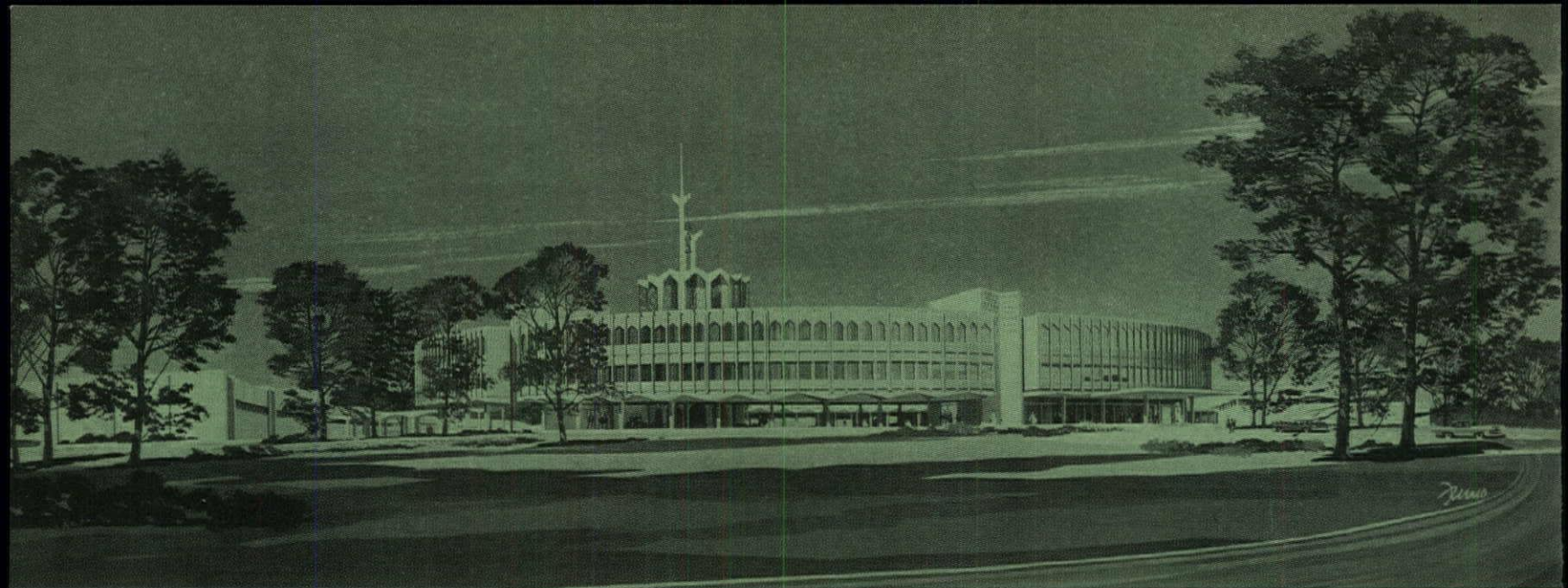
wood's standard choices: incombustible mineral, chip board, foam, or honeycomb.

Panel sizes run up to a maximum of 6 by 20 feet. Average cost on a relatively small job would be about \$5 per square foot, installed, for a wall with an incombustible mineral core (Weldrok).

Manufacturer: U.S. Plywood Corp., 55 W. 44th St., New York 36.



continued on page 39



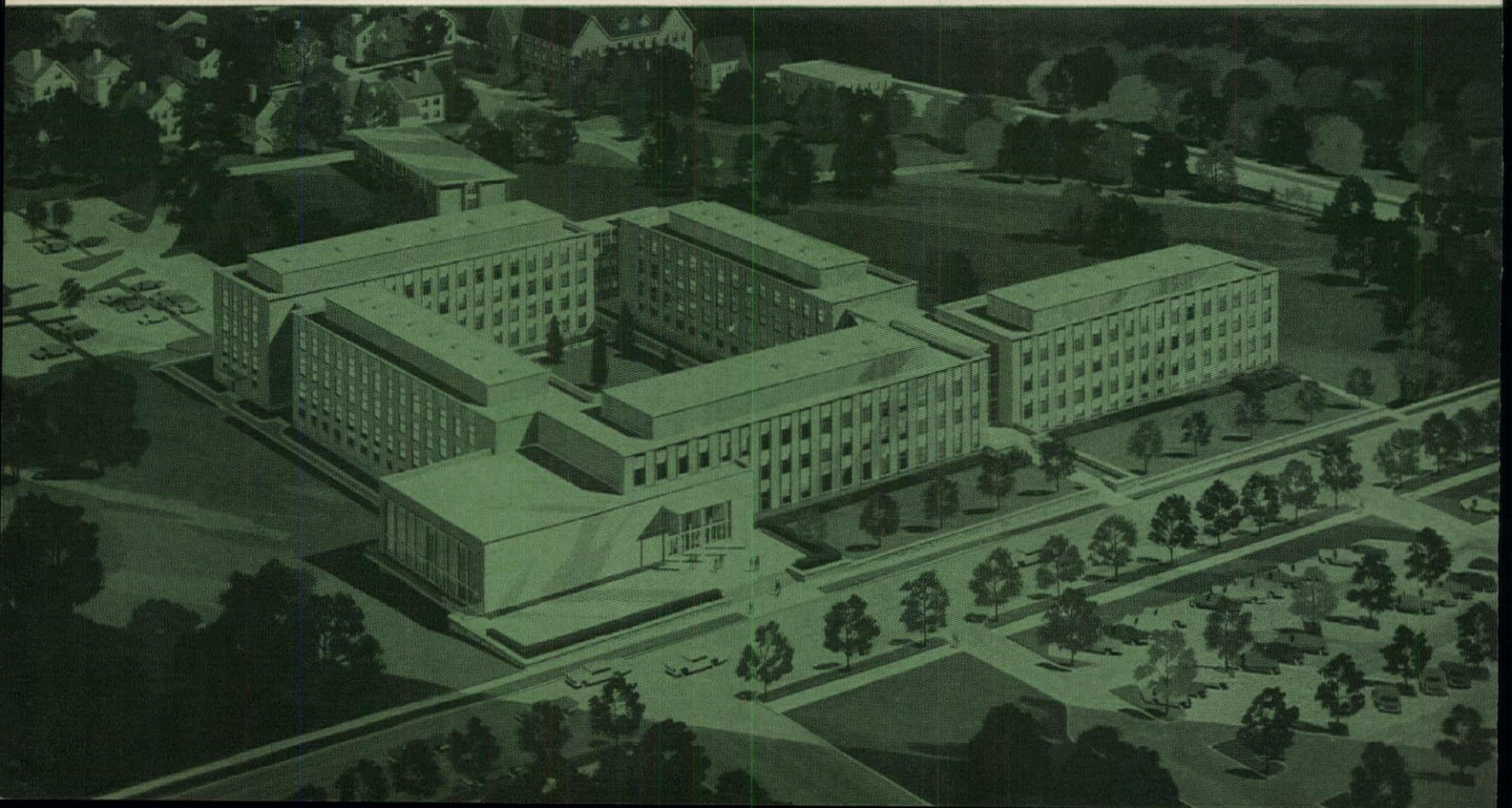
The offices and publishing facilities of the American Baptist Convention's new national center are combined in an enormous—yet graceful—circular building. Architect—Vincent G. Kling, FAIA; Contractor—Turner Construction Company. Windows by General Bronze have been skillfully detailed to enhance the design's serenity. GB has long been recognized for its ability to translate architectural needs into efficient, trouble-free window systems.

# For America's finest buildings... PERMATITE WINDOWS by General Bronze



PERMATITE DIVISION—  
Custom-built Windows, Curtain  
Walls, Architectural Metal Work  
and Revolving Doors. ALWINTITE  
DIVISION—Stock-size Aluminum  
Windows and Doors. BRACH MFG.  
CO. DIVISION—Radio, Television  
and Electronic Equipment.  
STEEL WELDMENTS, INC.  
DIVISION—Custom fabrication in  
Steel and Iron.

Princeton University's Engineering Quadrangle dictated an entirely different window architecture. Here, General Bronze worked with Architects Voorhees, Walker, Smith, Smith & Haines and Contractor William L. Crow Construction Company. For custom-engineered windows—and for curtain walls, architectural metal work, entrances, revolving doors, call on General Bronze Corporation, Garden City, N. Y. Sales Office: 100 Park Avenue, New York, N. Y.

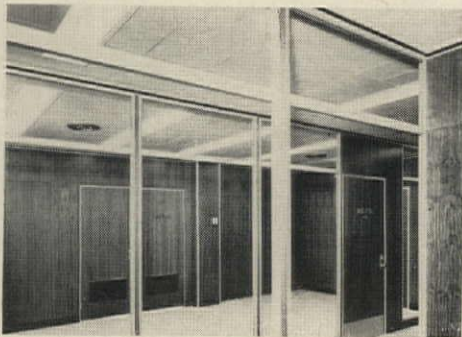


**THREE PARTITION SYSTEMS**

Along with the assets of Architectural Systems, Inc., Westinghouse has acquired a line of movable partitions. In the line are two ceiling-height partitions and a low divider. Engineered for simple erection, strength, and durability, all three are 1 3/4 inches thick and modular, and may be specified in a wide variety of facing materials and cores:

*Electro Line*, a flush wall, has no post; panels clip together and fasten also to the floor and ceiling (solid panels in photo below). The joint batten is flush with the panel, matched to it to cover up the joint, or of contrasting material to express the module (top drawing). As the name indicates, *Electro Line* is intended for installations where a lot of conduit or cable may be needed. Room for extra wiring is provided in the head, base, panel joints, and jambs.

*Custom Line* panels fasten to a post between modules, a black vinyl strip running down the middle of the post to point up the

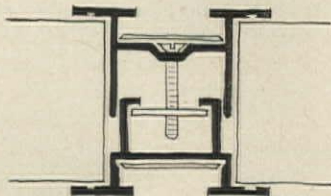
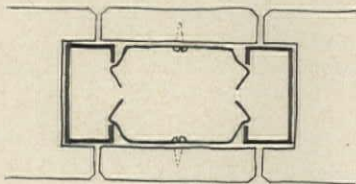


modular division. This strip may be flush with the panel or recessed (bottom drawing).

*Low Line* panels match *Custom Line's* appearance and may be combined with it for short segments in a complete wall.

Finishes for all three systems are Westinghouse's Micarta, hardwood veneers, painted hardboard, and gypsum. Best for sound resistance is ASI's SounDrop-40 core, but calcium silicate, chipwood, asbestos, or kraft paper honeycomb are other core materials. Cost: \$2 to \$3 per square foot installed.

Manufacturer: Architectural Systems, Inc., 4300 36th St. S.E., Grand Rapids 8, Mich.



**EAMES CHAIRS**

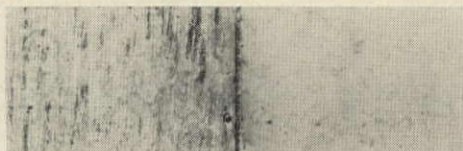
Counterparts of the cushiony chairs Charles Eames designed for *La Fonda del Sol* restaurant in New York City are now part of the Herman Miller Collection. Available in two models—with and without arms—they are based on a gray-beige reinforced glass-fiber shell, and softened inside with foam rubber pads, joined to the shell by a dark vinyl band. The chair base is cast aluminum with a protective finish of gray epoxy. A variation of the armless chair has a counter-stool base, a column finished in black enamel or polished chrome.

In hot colors like *La Fonda del Sol's* or in cooler shades, the upholstery may be wool, nylon, or Naugahyde. Sample list prices: \$92 for the side chair, plus whatever fabric is needed; \$98 for the same style in Naugahyde, complete.

Manufacturer: Herman Miller Inc., Zeeland, Mich.

**STRONGER FORMS**

The first product to come out of Georgia-Pacific's giant new automated plywood plant in Springfield, Ore. (FORUM, May '61) is a concrete forming panel which gives a smoother surface than ordinary plywood (see comparison below). The panel's *Fiber-Ply* surface, which grows stronger with use, is a thick resin-impregnated wood-fiber blanket, compressed under extremes of heat and pressure into an exceptionally hard, smooth surface that resists fracture, splitting, and checking. Because the panel absorbs very little moisture and does not need to be dried before reuse, the same form can be put to work again right away. Its hard sur-



continued on page 40

**CASINGS**  
INCORPORATED

MANUFACTURING

**EXPERTS**  
AND SPECIALISTS

ROLL | FORMED

**METAL**  
**PRODUCTS**

STANDARD & SPECIAL REQUIREMENTS



CASING AND CORNER BEADS  
BASE SCREEDS

Regular and Expanded

Immediate Shipments  
Coast to Coast Warehouse Stocks

Write for Catalog of Complete Line

**CASINGS INC.**

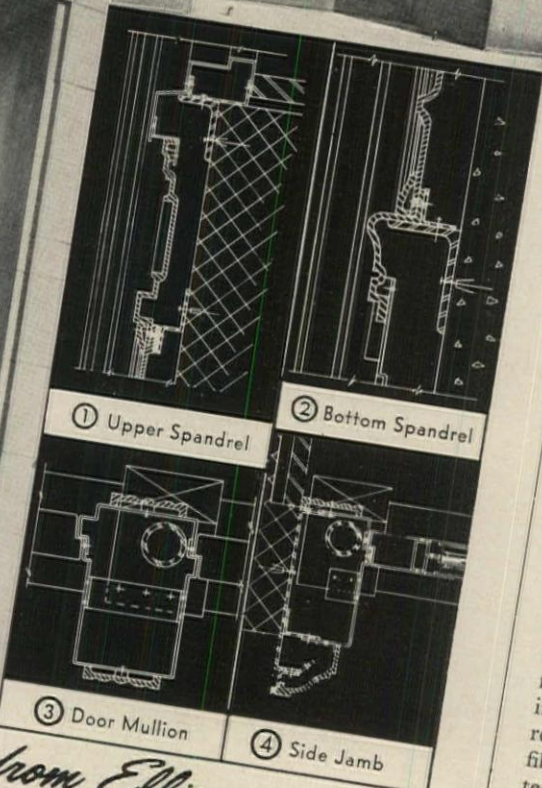
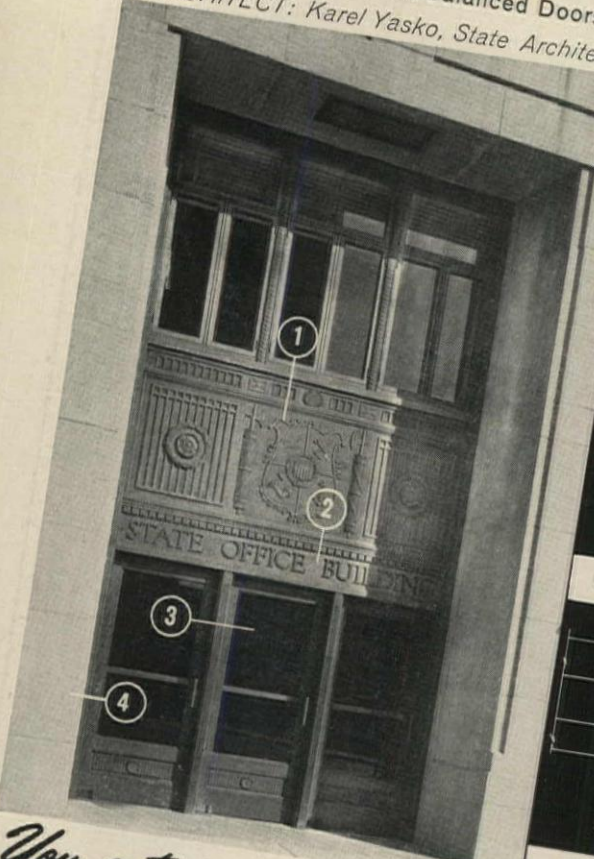
2408 N. FARWELL AVE., MILWAUKEE 11, WIS.

# Engineered BEAUTY and PERMANENCE ORNAMENTAL BRONZE

by Ellison



STATE OFFICE BUILDING, Madison, Wisc.  
Ellison Ornamental Bronze entrance enclosures including 6 Ellison Balanced Doors.\*  
ARCHITECT: Karel Yasko, State Architect



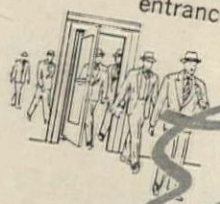
face requires less oil between pour  
form stripping is cleaner and quicker  
below were used for ten pours, sl  
deflection.  
Fiber-Ply panels, edge-sealed and o  
the factory, are 4 by 8 feet and 3/4 inch  
Forms cost about 25 per cent less than  
ard overlaid fir plywood forms, G-P  
and give about the same amount of ser  
Manufacturer: Georgia-Pacific C  
Equitable Bldg., Portland 4, Ore.

### TEST-TUBE AWNING

In the last decade or two, a bewildering array of new fibers has spun out of test tubes, and man-made fabrics have become very much a part of everyday living. Now even awnings are being made of the new fibers. Recently a North Carolina textile manufacturer put on the market the first awning fabric made of 100 per cent Acrilan, Chemstrand Corp.'s trade name for its acrylic fiber. Called *Sunbrella*, the awning material is a tightly woven, bright colored, matte-finished fabric that is soft to the touch. More important over the long run are *Sunbrella's* resistance to fading (dye is added when the fiber is in a liquid state, becoming an integral part of the fiber), light weight, and resistance to mildew, spotting, sagging, puckering, shrinking, and air-borne chemicals. It dries quickly after rain, does not leak, and is porous so that air passes through. Sixteen colors—solid, striped, and tweedy—are available, all 31 inches wide, for \$1.80 a yard.  
Manufacturer: Glen Raven Cotton Mills, Inc., Glen Raven, N.C.

You get more than doors from Ellison

Complete Bronze entrances within the marble enclosures of the State Office Building, Madison, Wisconsin, were engineered and built by Ellison including the seals and ornaments. \*ELLISON ENGINEERING is available to assist in planning integral entrance units including doors and custom ornamental framing.



the door that lets  
TRAFFIC through QUICKLY

## Ellison the BALANCED DOOR

Ellison Engineers are at your service to help solve any entrance problems — call Jamestown, N. Y., 61-594

representatives in 72 principal cities in U. S., Canada and Puerto Rico  
ELLISON BRONZE CO., INC. • Jamestown, N. Y.

### DEEP DARK ALUMINUM

Dark aluminum colors—gray, black, and bronze, for mullions, panels, doors, and hardware—are a refinement of Alcoa's Duranodic finish, an integral color process. The new deep tones, called collectively *Duranodic 300*, will be produced by Alcoa licensees in several sections of the country.  
Manufacturer: Aluminum Company of America, 1501 Alcoa Bldg., Pittsburgh 19.





### FOAM ROOFING

Rigid urethane foam insulation for roofs, sliced into big rectangles and sandwiched between asphalt-impregnated felt topped with mica, is a new product from the Barrett Division of Allied Chemical. Barrett claims that it is twice as efficient as any insulation ever developed for flat built-up roofs, packing into 1 inch the same insulation value as 2 inches of polystyrene or glass fiber or 2½ inches of fiberboard. It can be applied directly in hot roofing bitumen, and the membrane faces are so tough that workmen can walk and work right on top of the panels as soon as they are in place (see picture). Square edges, uniform size, and dimensional stability make it easy to butt panels close together.

Manufactured in one panel size, 3 by 4 feet, *Barrett Urethane Roof Insulation* is produced in several thicknesses: 0.8, 1.0, 1.2, 1.4, and 2 inches. In the 1-inch size, 1,000 square feet of insulation costs \$215.

*Manufacturer:* Barrett Div., Allied Chemical Corp., 40 Rector St., New York 6.

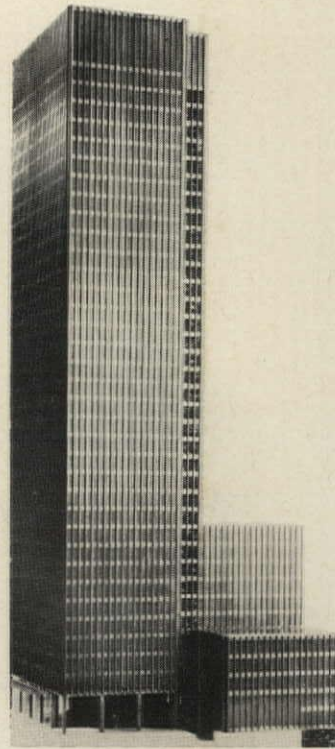
### PREVIEW

Experiments in lightweight concrete made with wood shavings seem to indicate that it has potential for tilt-up walls in small buildings and for nonloadbearing block walls in larger structures. "Wood concrete" cannot compete structurally with regular concrete—its strength is only one-fourth as great—but researchers at Washington State University's Division of Industrial Research in Pullman find that it has some advantages of its own. For example, the high proportion of wood shavings in the mixture (eight parts of shavings to one part Portland cement and one and one-half parts diatomite, all by volume) make it an excellent insulator, a 6-inch wall being equivalent to a concrete block wall with 2 inches of batting. Blocks of wood concrete handle easily, can be nailed into, and take a number of finishes, such as plaster, brick facing, or stucco. During their investigation, researchers discovered that several wood species work satisfactorily but that hemlock, spruce, and white fir shavings were best of all.

END

# DEL

the ORIGINAL  
sealant for the  
Curtain Wall  
building industry  
based on  
liquid  
polysulfides



The Seagram Building  
375 Park Ave., N.Y., N.Y.

Architects—Mies van der Rohe  
Philip Johnson  
Assoc. Arch.—Kahn & Jacobs

Builder—George A. Fuller Co.  
Curtain Wall—General Bronze Corp.  
Glazing—Pittsburgh Plate Glass Co.  
Caulking—Munro Waterproofing, Inc.

All 5,000 windows; the metal panels; and granite, marble, and concrete joints sealed with DEL Synthetic Rubber Compound.

The outstanding qualities of DEL have made it the natural choice for sealing curtain wall construction in buildings throughout the nation.

Easily applied in a paste form, DEL sets without shrinkage to a resilient rubber seal. It provides tenacious adhesion under rigorous conditions such as extreme expansion and contraction, vibration, and wide temperature changes.

Specify and use DEL Synthetic Rubber Compound to assure weather-tight protection.

Write today for descriptive literature on DEL Synthetic Rubber Compound and DEL Protective Coatings . . . epoxies, acrylics, vinyls, synthetic rubber and other plastic coatings designed to solve industrial corrosion problems.



### DEL Synthetic Rubber Compound

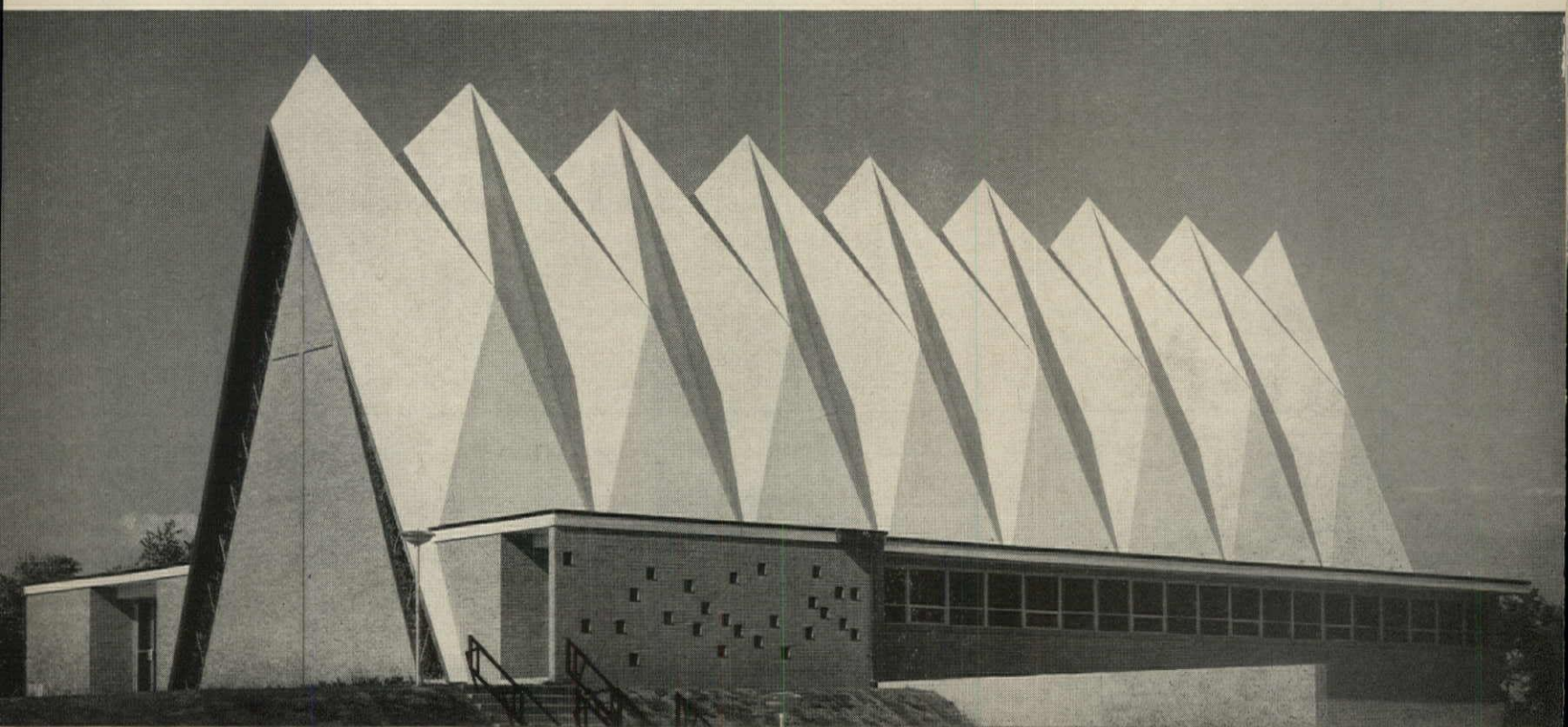
### DEL Protective Coatings

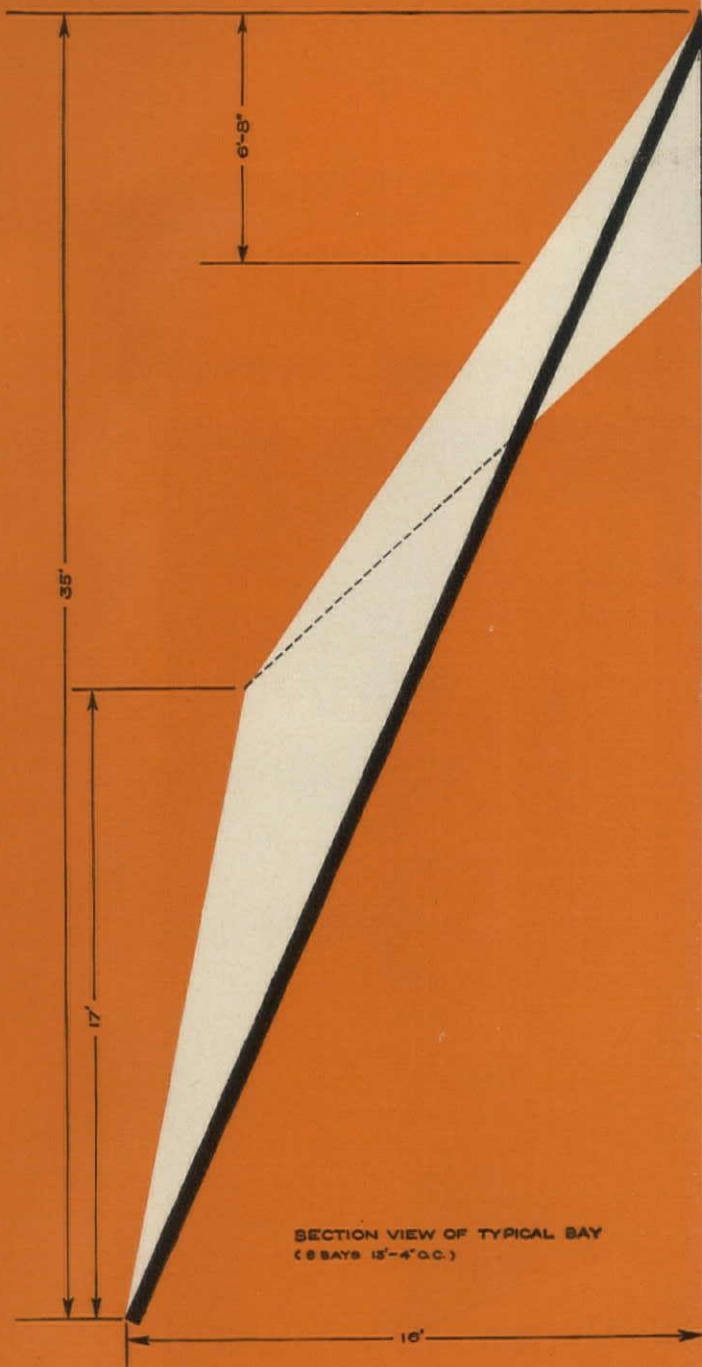
Performance proved on thousands of jobs since 1950

## David E. Long Corp.

133-20 91st Ave., Jamaica 18, New York.

**the most exciting ideas take shape in fir plywood**



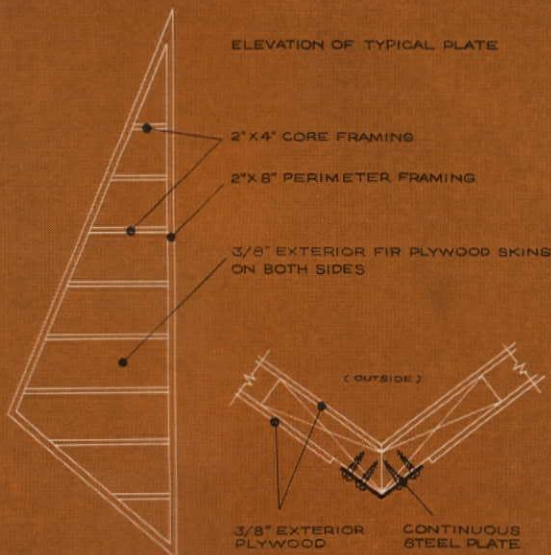


THE NINE SOARING PINNACLES of this church, recalling the boldness of Gothic arches, are a vigorous expression of advancing plywood technology. The roof is a space plane, a step beyond the folded plate with more versatility than any other clear-span technique using wood.

Like all folded plates, the space plane acquires strength and rigidity from interaction of inclined plywood diaphragms. But its components may take shapes other than rectangular, to create more complex designs. Here they are triangular stressed skin panels. Forces are transferred from one to another, and the entire multi-faceted roof becomes a lid-like shell, supported only at edges. Steel buttresses anchored to foundations absorb lateral thrusts. Clear-span area is 32' x 110'.

The absence of framework or posts is only one of several advantages this roof shares with space planes in general. It went up fast (15 days); huge plywood components were precisely fabricated to insure exact fit. Prefabrication also guaranteed close cost control and quality of workmanship and materials. In-place cost compared well with other means of obtaining a similar span.

For basic fir plywood design data, write (USA only) Douglas Fir Plywood Assn., Tacoma 2, Wash.



**INDEPENDENT CONGREGATIONAL CHURCH**

LOCATION: St. Louis  
 ARCHITECTS: Manske & Dieckmann, St. Louis  
 COMPONENTS: Roof Structures, Inc.,  
 Webster Groves, Mo.  
 BUILDER: A. H. Haeseler, St. Louis



ALWAYS SPECIFY BY  
 DFPA TRADEMARKS

**lasting**  
**low-cost**  
**moisture**  
**barriers**

## "ELECTRO-SHEET"

### Copper-bonded products

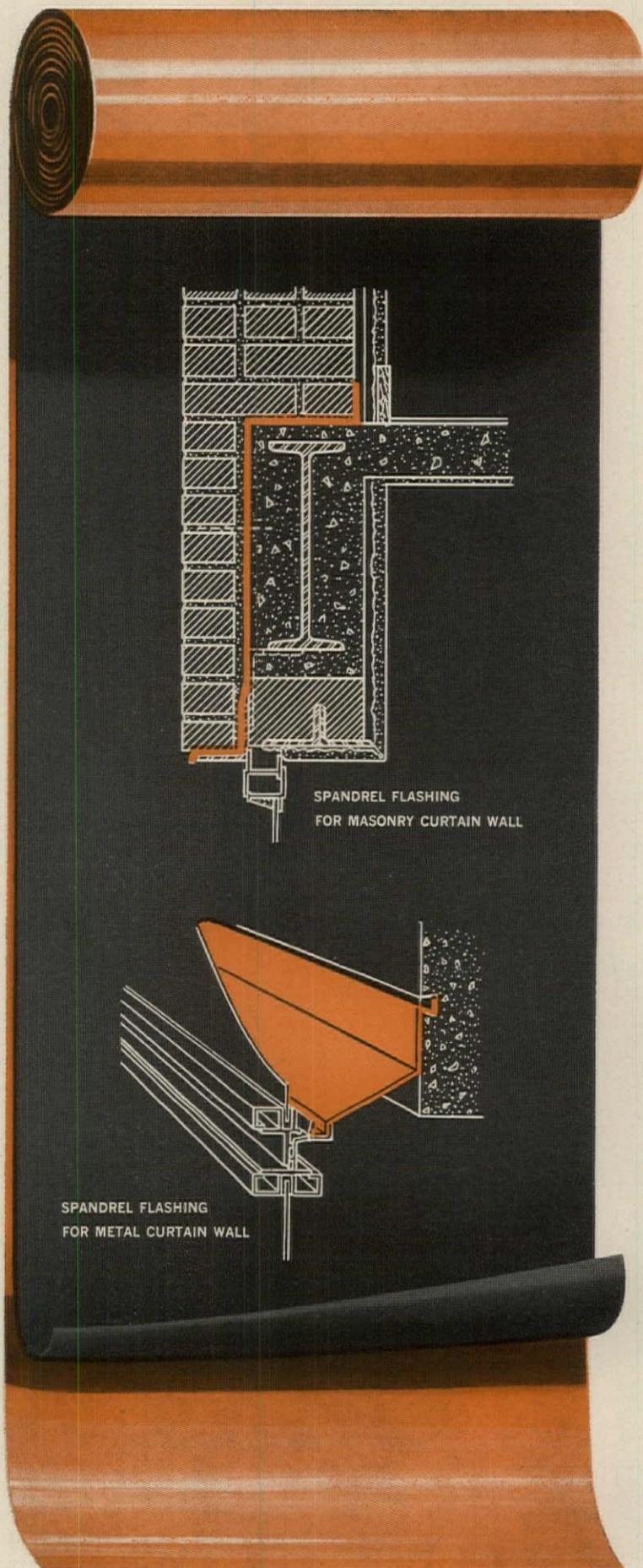
"Electro-Sheet" is pure, thin copper produced in long, wide rolls by electrodeposition. It won't rust and resists most forms of deterioration. Bonded to high-grade building papers or fabrics . . . or to asphaltic compounds . . . it makes concealed flashings you can trust.

"Electro-Sheet" Copper-bonded products are widely used in the hidden trouble spots of buildings: spandrel beams, door and window heads and sills, shower rooms and stalls, parapet walls, etc. They are flexible, easy to handle, and available in rolls up to 60" wide from building supply dealers throughout the United States and Canada.

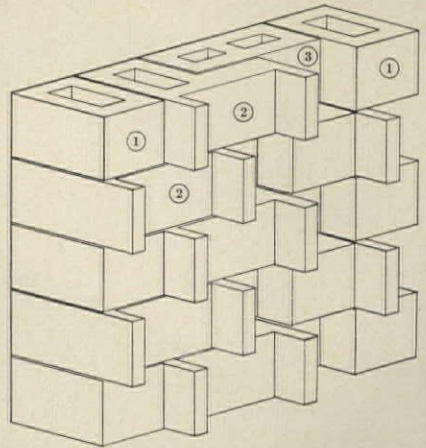
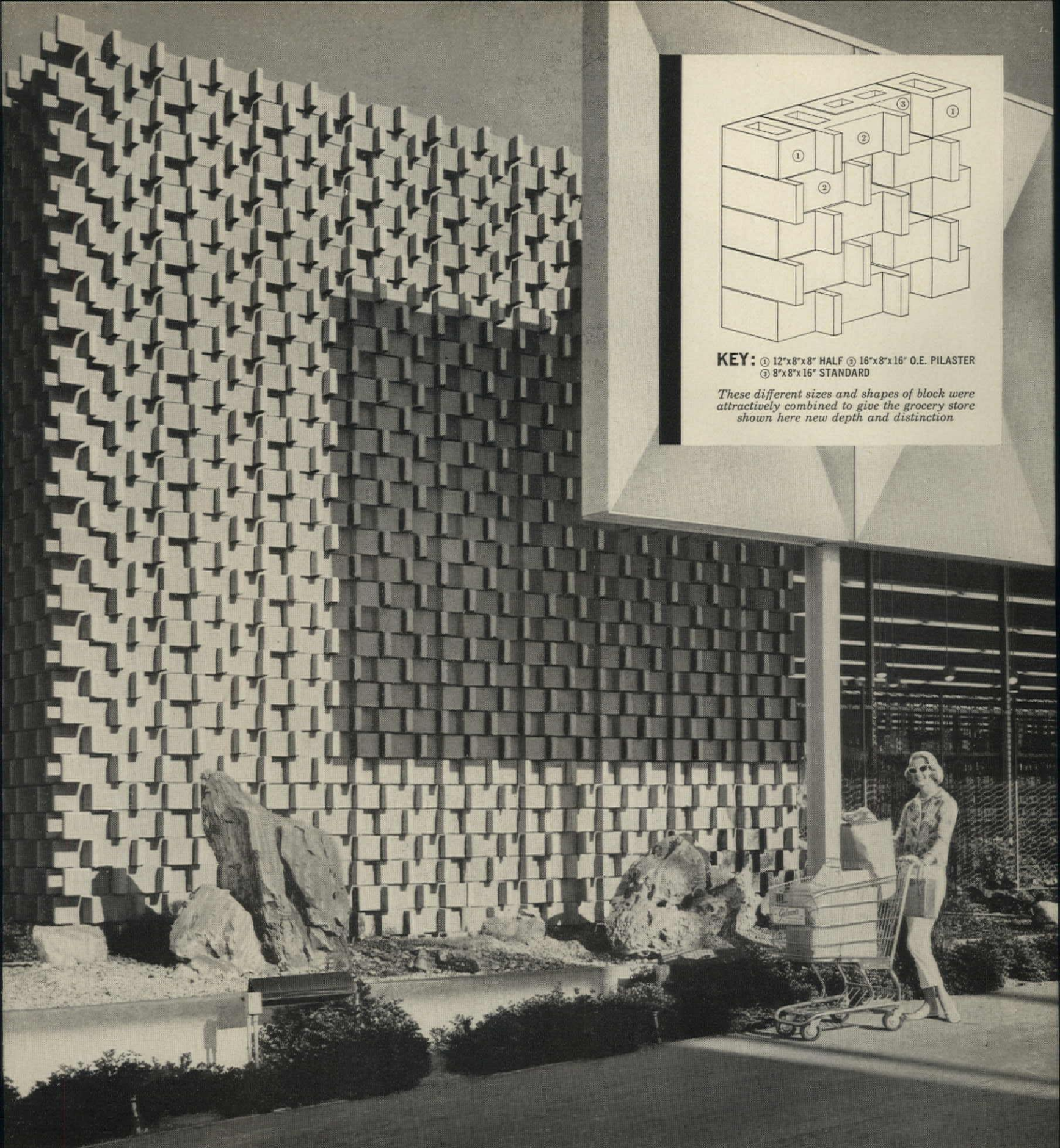
For more information about Anaconda "Electro-Sheet" and a list of manufacturers of the flashing products, write: Anaconda American Brass Company, Ansonia Division, Ansonia, Connecticut.

61-1026A

**ANACONDA**<sup>®</sup>  
AMERICAN BRASS COMPANY



"Electro-Sheet" Copper is available bonded on one or both sides.



**KEY:** ① 12"x8"x8" HALF ② 16"x8"x16" O.E. PILASTER  
 ③ 8"x8"x16" STANDARD

*These different sizes and shapes of block were attractively combined to give the grocery store shown here new depth and distinction.*

# block becomes

**YOUR WONDERFUL WIZARD OF WALLS** Concrete Masonry puts its properties to work and play in the most handsome buildings seen anywhere. Choose from a countless array of block sizes and shapes; select from thousands of design possibilities; and get more decorative business area per dollar than any other building material available today. In addition to beauty and versatility, block provides fire-safety, high sound absorption, self-insulation—and timeless walls of fashion which require almost no maintenance. Contact your local NCMA block producer or write us for a free copy of "Pattern Personalities Created with Concrete Block."

*Architect: R. Leon Edgar & Associates  
 Contractor: E. W. Hahn Incorporated*



NATIONAL CONCRETE MASONRY ASSOCIATION • 1015 WISCONSIN AVENUE, N.W. • WASHINGTON 7, D.C.



6051, one of the Goodform 600 Chairs selected by The Chase Manhattan Bank for their new offices.

**chair with the architectural flair...** IT'S THE GOODFORM 600 BY GF, styled to complement today's smart business interiors. Here's proof that office chairs needn't sacrifice comfort for beauty. The complete line, including side chairs, is available in a variety of fabrics and finishes to carry out any decorative theme. See Goodform 600 at your nearby GF branch or dealer. Or write Dept. AF-17 for descriptive literature. The General Fireproofing Company, Youngstown 1, Ohio.

**GF**  
BUSINESS FURNITURE

# FORUM

EDITOR-IN-CHIEF: Henry R. Luce  
 CHAIRMAN, EXEC. COMM.: Roy E. Larsen  
 CHAIRMAN OF THE BOARD: Andrew Heiskell  
 PRESIDENT: James A. Linen  
 EDITORIAL DIRECTOR: Hedley Donovan  
 ASSISTANT DIRECTOR: Albert L. Furth

---

## EDITOR

Douglas Haskell, AIA

## MANAGING EDITOR

Peter Blake, AIA

## ART DIRECTOR

Paul Grotz

## SENIOR EDITORS

David B. Carlson, Jane Jacobs  
 Walter McQuade, AIA  
 Richard A. Miller, AIA  
 Ogden Tanner, AIA  
 (assistant managing editor)

## ASSOCIATE EDITORS

Marshall Burchard, Warren Cox  
 Hugh Nash, Mary Elizabeth Young  
 Richard Saunders (Washington)  
 Allan Temko (West Coast)

## ASSISTANT TO THE EDITOR

Mary Jane Lightbown

## RESEARCH STAFF

Benita G. Jones, Anne Peyton

## ART STAFF

Martha Blake  
 Charlotte Winter

## EDITORIAL ASSISTANTS

Anne Le Crenier  
 Henry Martin Ottmann, Ann Wilson

## CONSULTANTS

Miles L. Colean, FAIA, Lawrence Lessing

---

## PUBLISHER

Ralph Delahaye Paine Jr.

## ASSOCIATE PUBLISHER

Joseph C. Hazen Jr., AIA

## GENERAL MANAGER

John J. Frey

## ADVERTISING DIRECTOR

S. C. Lawson

## ADVERTISING MANAGER

John Beard

## PRODUCTION MANAGER

John R. Wheeler

---

ARCHITECTURAL FORUM published by TIME INC.

**And now—the education explosion . . .** There has never been anything quite like it before: during the present decade, somewhere between \$9 billion and \$15 billion will be spent on new buildings devoted to higher education in the U.S.

All of us are aware of the population explosion at the root of this; but the population increase alone is by no means responsible for the great need of additional college and university facilities. While the population of the U.S. grew by only 20 per cent between 1950 and 1960, the college population of our country, during the same period, grew from 2.2 million to 3.6 million—an increase of more than 60 per cent. And the Census Bureau estimates that our college population may reach 7 million by 1970, and over 9 million by 1980.

At present, there are some 2,000 institutions of higher learning in the U.S., and almost every single one of them has plans for future expansion. In addition, some 200 entirely new campuses are currently either planned or under construction. Some of these are extensions of existing universities: the University of California, for example, now teaches about 50,000 students on seven campuses; by 1975, this same university expects to educate almost 120,000 students annually—and to do this, the university will have to add three entirely new campuses, and to spend \$700 million to build three times as much physical plant in these next 15 years as it has built during its entire 90-year existence.

To those responsible for the provision of all these vast facilities, the prospect of this great college building boom may seem just a little terrifying. For the challenges implied in it are unusually complex: first of all, there is the fundamental question—will mass education become a sort of assembly-line brainwash? And what can good architecture do to prevent this from happening? When Thomas Jefferson built his University of Virginia (page 74), his chief concern was to provide education in enough quantity to make our democracy work; the problem, today and tomorrow, seems to be one of quality in the face of overwhelming quantity.

And the second question is how to build educational facilities now of the kind that will work with the radical new teaching techniques being developed for use in education tomorrow. Given the gigantic education explosion of the next few years, and given the shortage of teachers, it is obvious that methods of teaching will have to undergo some startling changes. So the teaching facility of tomorrow is sure to be a very different sort of building from Jefferson's delightful teacher-student pavilion.

A major part of this issue of FORUM is devoted to the problems posed by the education explosion—to the problem of the newest kind of facility, the Junior College (overleaf), to the problem of how to encourage essential individualism and nonconformity through architecture (pages 58-63), to the problem of how to house students (pages 70-73), and, finally, to the finest of our campus traditions in Jefferson's Virginia. Still to come in a future issue of FORUM: a report on the relationships between colleges and the communities which they inhabit.



# COLLEGES





RONDAL PARTRIDGE

***On a gently rolling mesa south of San Francisco, the new Foothill College campus (above) confirms FORUM's prediction that it would "set a new high standard of design for junior colleges across the U.S."***

## FOOTHILL'S CAMPUS IS A COMMUNITY IN ITSELF

On a splendid 122-acre site in Los Altos, Calif., have risen—in a single stroke—some 40 strongly unified buildings, all built of the same humble materials: redwood, brick, and concrete. All share the same basic structural concept and spatial organization; all reveal, in an age of bulldozed chaos, their designers' sensitive respect for the natural terrain.

Indeed, Foothill's chief significance may not reside in its architecture, excellent as it is, but in its underlying social premise. For this hilltop with its boldly massed, broadly roofed buildings is in the true sense an Acropolis: a high place consecrated to the highest values of its young community.

Although Foothill is called a "junior" college (as are most institutions of this kind which offer a two-year curriculum), it is in fact a community college which goes far beyond academic and vocational instruction in its functions. The San Francisco Symphony, for example, gives rousing performances before sellout crowds in the big men's gymnasium. The handsome theater is frequently filled by playgoers who would not ordinarily travel to San Francisco for a show. The library, when better stocked, should meet virtually every local need for books. So Foothill is really a multipurpose cultural resource, receiving heavy use by day and night, serving not only 3,500 students but an entire area of the Bay Region.

Because of the college's regional, still half-rural character, and also because the \$10.4 million budget was not really generous for a campus of this size, Architect Ernest J. Kump and Associates Masten & Hurd relied on the indigenous redwood tradition as the basis for a highly economical design.

Unity and diversity, order and freedom, simplicity and richness, appreciation of the past and confrontation of the future—all desirable ingredients of education as well as of architecture—have been combined by Kump in this remarkably harmonious yet remarkably lively design. At the crown of the hill the strongly modeled buildings, varying greatly in size and purpose, come into sight one after the other in a solidly organized but visually free sequence. Everywhere there is a welcome absence of pretension. But there is also a quiet force and, in the larger buildings such as the library and the auditorium, a certain monumental power.

Such excellence is due mainly to the fine consistency with which site, structure, and materials have been handled.

Even for the Bay Region, Foothill is situated in exceptionally lovely country, and the land has been treated with tact and restraint. Not only have the natural outlines of the hill and outcroppings of rock been conserved, but the hill itself has been made a pedestrian's world inviolate to the automo-


bile. The extensive parking facilities (students live at home and commute by car) have been adroitly distributed around the base of the hill. The approach road bends through the little valley which separates the main portion of the campus from the adjoining knoll; on this knoll, the gymnasiums flank the swimming pool with deliberate monumentality.

On the summit of the hill Landscape Architects Sasaki, Walker & Associates have sculptured flatter portions of the terrain into mounds and sinuous paths, but otherwise earth-moving has been held to a minimum. The several formal clusters of buildings actually appear anything but formal as they rise one behind the other on natural grades.

Nevertheless, Foothill's structures are clearly and handsomely linked by a carefully considered series of outdoor spaces, some of them outdoor "rooms" where classes can be conducted in the balmy climate. These range from intimate planted patios and sunken brick courts to a spacious assembly area before the library which has the mood and dimensions of a village square. When the birches, elms, and sycamores have grown and the ivy comes in beside the paved walks, the total effect should be extremely rich.

Yet in the midst of this natural diversity and richness, there is impressive unity, achieved by a searching use of basic structure to create harmonious volumes of space. Whether these buildings are large or small, they share a related system of proportions and a clear similarity of form that is the direct outcome of their interior organization. Ever since the 1930s, when he built the first "cluster" schools in California, Architect Kump has been experimenting with what he calls the "space-module" theory of architecture, in which the basic unit of design is not a two-dimensional measure of plan or elevation, but a three-dimensional volume or "bay" of space—and a rather large, columnfree bay at that.

At Foothill, Kump has made the most of his first opportunity to try this concept on a grand scale. Except for the three octagonal lecture halls which act as foils for the other structures, and the low faculty office blocks of brick, each of the buildings was designed on a space module of 60 by 68 feet, which is large enough to accommodate four classrooms or a variety of other facilities such as labs. Some buildings consist

  
*Foothill's gymnasiums (foreground in aerial photo, right) are linked by footbridge to a campus center-cafeteria. Administration building is at center; fine arts focus on auditorium at left. Beyond the library at upper right, science and engineering are grouped around a major court.*



of a single module; in places two or three modules, separated by covered passageways, are strung together in a departmental cluster. Large structures such as the student center and library are planned on as many as 9 or 12 modules; the resultant spaces, when several volumes flow into one another as in the tall library, are lordly. Even in the gyms, where the need for long spans prompted the architects to use steel trusswork, an analogous spatial system was retained.

What gives the design still more unity is the way the hipped roofs, culminating in neat parapets, cover these single and multiple spaces, rising on tapering, V-shaped concrete piers which do not vary in basic form, although their dimensions grow considerably in the larger buildings. The roofs also conceal vents and other mechanical clutter within their generous attics, further contributing to the ensemble's harmony and calm.

Siting and structure are further enhanced by a deliberately sparse palette of materials. The roofs are uniformly shingled with redwood shakes—even the aluminum shell of the tiny planetarium and the big steel trusses of the gym. The walls are of rough-sawn redwood except for low faculty blocks of clinker brick. The piers are all of the same pebbled concrete aggregate.

At the risk of being accused of nostalgia, Architect Kump and his associates have been able to create an environment in which an entire community has instantly felt at home—there are ample tinges of regional "style" at Foothill, and, especially when there is mist on the landscape, hints of the Orient. But above all there is a genuine warmth.

ALLAN TEMKO

#### FACTS AND FIGURES

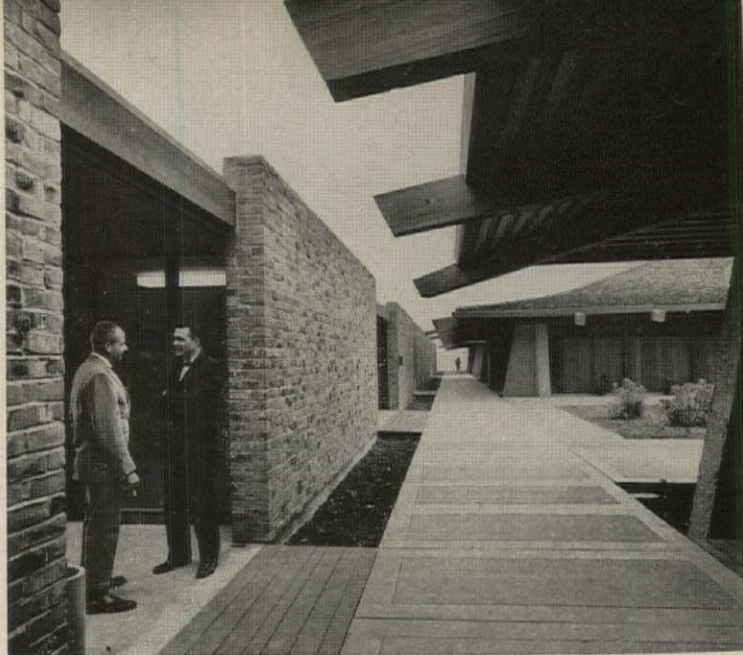
Foothill Junior College, Los Altos Hills, Calif.

Associated architects: The Office of Ernest J. Kump and Masten & Hurd. Engineers: Huber & Knapik, Earl & Wright (structural); Keller & Gannon (mechanical, electrical). Landscape architects: Sasaki, Walker & Associates, Inc. Consultants: Daniel Fitzroy (acoustical); Flambert & Flambert (kitchen). General contractors: Williams & Burrows and O. E. Anderson; Carl N. Swenson Co.

Cost: \$6,780,000. Building area: 353,738 square feet. Cost per square foot: \$17.13 (calculated on California State Department of Education standards). Financing: bond issue by Foothill Junior College District.

Construction details: Exposed con-

crete aggregate piers, glued laminated columns, prefabricated wall panels of 1 by 8 inch resawn redwood siding, reinforced laminated waterproof sheathing paper, and  $\frac{3}{8}$  inch by 8 inch resawn redwood siding as interior finish. Panels have horizontal sliding aluminum sash, fixed glass, and projecting aluminum casement windows. Interior walls finished in vertical grain Douglas Fir plywood, gypsum board,  $\frac{3}{8}$  inch resawn redwood, resawn siding, plaster, or vegetable cork board. Office units: grouted brick masonry walls with brick left exposed on interior. Ceilings: acoustical plaster,  $\frac{3}{8}$  inch redwood, resawn siding, and gypsum board. Roof: structural glued laminated beams, wood purlins, plywood sheathing, redwood shakes.



Backing up classroom groups are long, low faculty offices of brick



Octagonal lecture halls (background) front three academic groups

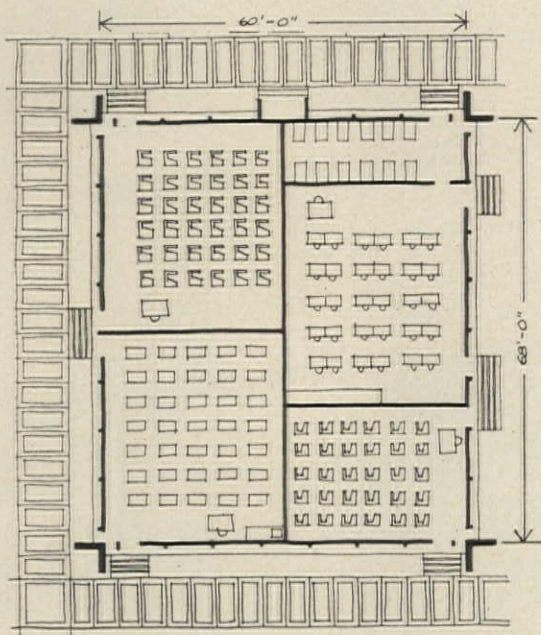
Scale and simplicity are carried inside in this science study room



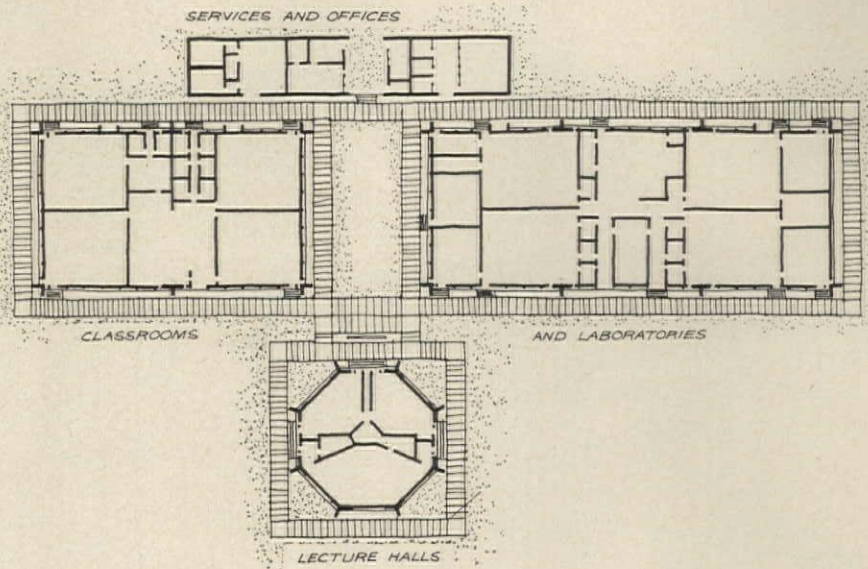
PHOTOS: RONALD FAIRBRIDGE



Auditorium rises along the campus' south side. Plans below show how the "space module" is multiplied, combined with office and lecture units.



TYPICAL CLASSROOM UNIT (SPACE MODULE)



Typical massive piers of pebbled concrete rise here in the library. Space under hipped roofs is revealed only in octagonal lecture halls.







*The entrance of the long building is elaborated as a future background for sculpture; inside, the lobby-corridor is widened into a small gallery*

**Georgia's new visual arts center both fulfills its students' needs and stimulates their imagination**

## A STAGE IS SET FOR ART

The new art building for the University of Georgia is an architectural hybrid, and an interesting illustration of today's drift away from functionalism.

The sizable new building (47,000 square feet in floor area) is as efficient, as direct, and as shrewd with its space and budget as an old auto plant by Albert Kahn. In plan it is basically a loft space, much of which can be rearranged in years to come to form different kinds of interiors as requirements evolve.

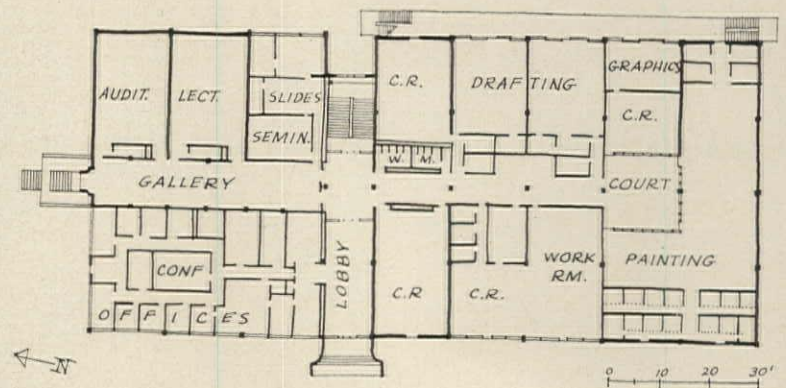
But atop this shrewdness of no-pattern is imposed a decorative feeling as deliberate as one of Jo Mielziner's stage sets, emphasizing roofs and entrances "as sculpture." Actually the roofs and entrances are more than emphasized; they are extended. The dominant feature of the building is a triple bat-

wing roof which hovers out over the sides of the structure beyond the skylights which shape it. Then, at the main entrance, which might have been only a minor incident in the long side of the building, Designer Joseph Amisano (of Toombs, Amisano & Wells, the architects) decided to build what amounts to a proscenium projecting up over the roof line, for emphasis and characterization.

What is the point and purpose of these architectural dramatics? The fact that this is a building in which to instruct imaginative artists, not today's onrushing army of sure young scientists. At that, the building's gestures are made by a strong utilitarian arm. Much more than a gesture, for example, is the kind of cubage provided the fledgling artists (and their instructors). It is professional studio space of a sort all practicing painters and sculptors covet, but few can find any more. There are high ceilings, angled and made



*With one long wall kept completely free of doorways, and the ceiling barreled, the central corridor becomes the large art gallery for the school*



interesting by skylights slanted to the north, a vast space in which to reach for expression. Another, even older, architectural grace has been included: an interior court, glass-roofed.

There are very modern studios too: large rooms that have no daylighting at all, but instead, formidable batteries of various kinds of lights which come and go very rapidly, to jar and push the subconscious of the students in a teaching technique nicknamed "art in the dark." A more leisurely space is the central barrel-vaulted gallery which doubles as an entrance hall to the large lecture rooms, student study rooms, slide library, and processing rooms.

Most of the building looks single-story, but the sloping site was used to stack levels downward. A cantilevered balcony, fine for outdoor art, extends along the back. The street near the building will be eliminated when further buildings are added for music, drama, and landscape architecture.

#### FACTS AND FIGURES

Department of Art Building, University of Georgia, Athens, Ga. Architect: Toombs, Amisano & Wells. Engineers: Chastain & Tindel (structural), J. E. Guerrero (mechanical, electrical). Acoustical consultant: Bolt, Beranek & Newman. General contractor: Mathis Construction Co. Cost: \$874,867. Building area: 51,569 square feet. Cost per square foot: \$17. Size of lot: 254 by 364 feet. Financing: sale of bonds by State Building Authority. Construction details: poured concrete frame finished in stucco, tile and compound of plastic and marble dust. Walls: 9½-inch-thick

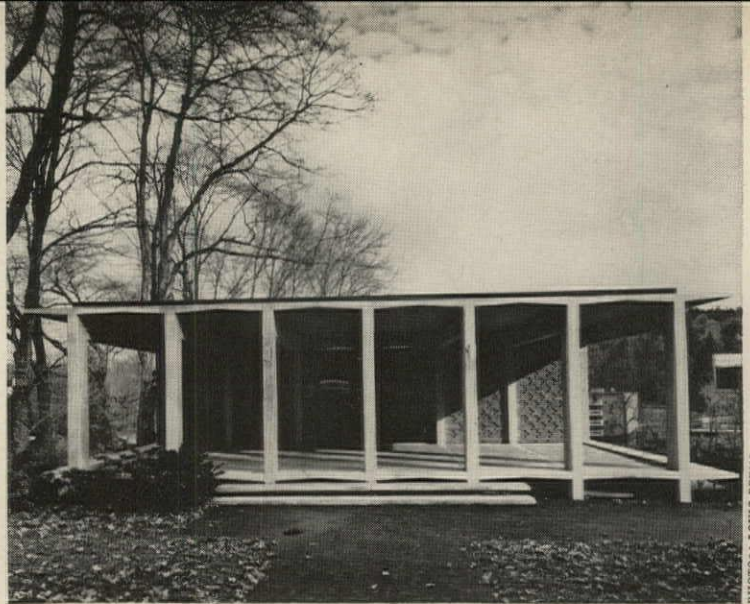
concrete block and clay partition tile cavity wall with 1 inch of stucco on outside and concrete block exposed on inside. Reinforced concrete waffle slabs and concrete joist and beam. Roof: built-up tar and felt with gravel finish. Partitions: concrete block and panel on wood studs. Sash: aluminum projected, aluminum sliding glass door units, and fixed glass in storefront sections. Heating: campus steam system supplies energy to heat exchangers for radiant panels set in floors, and for an air-distribution system. Air conditioning: 78.8-ton central water chiller supplies five air-handling units.





*Studio space indoors (above), exterior (below). Beam 10 feet above floor level is hung from frame of building by panels over doors.*





PHOTOS: LOUIS REENS

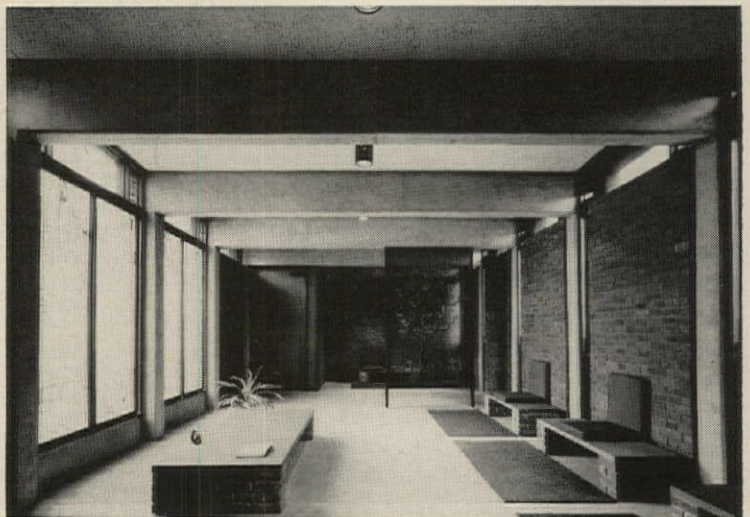
## SHRINE SET ON A SLOPE

On the campus of Mount Holyoke College in western Massachusetts is a new building whose primary purpose is contemplation. Here Holyoke girls can come singly or in groups to think things over in a restrained religious environment. The design of the structure is "interdenominational," but the derivation of mood is quite clear: this is the transcendentalism native to Emerson's Massachusetts, but cast in forms first seen by clipper-ship captains in the East. The new building has the removed air and the polite deference to nature of a Hindu shrine—formal, delicate white masonry, enclosing serenity.

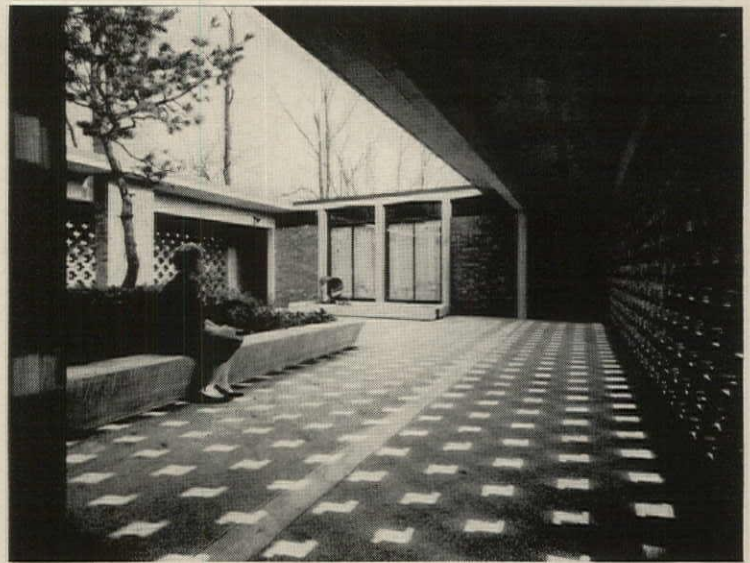
Eliot House, as the meditation center is called, sits on a hillside, looking very small, but actually it is three stories deep, set down into the hill's slope, and it has as a back yard an outdoor amphitheater which seats up to 2,500 people at graduation exercises. The verticality of the building seen from downhill helps to express its innate religious character (photo, opposite). Other distinct activities are housed: fellowship, study, and discussion are on the middle floor; administration and counseling are on the lowest floor. Designed to be put together of precast concrete sections, the building was finally poured in place to solve delivery and erection problems, but it retains the diagrammatic quality of a true precast design.

The top floor has, first, a generous porch, then an indoor exhibition space, then, behind solid doors, a garden court for contemplation, and finally, beyond the court, a meditation room (photos, right). In the middle floor of the building are a fellowship hall, complete with kitchen, and a library and conference room. The bottom floor houses offices, washrooms, and dressing rooms.

This is a strangely mannered building to come across at the core of a New England campus, but its owners find it a very satisfying one. Says the wife of Mount Holyoke's president, Mrs. Richard G. Gettell: "Eliot House is less than a year old—and already it looks inevitable."



The meditation room looks out on the meditation garden shown below



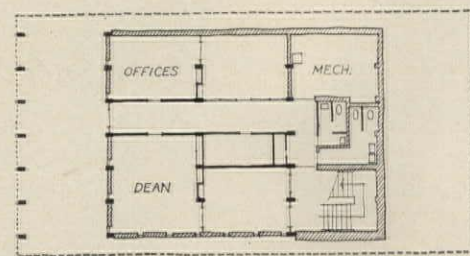
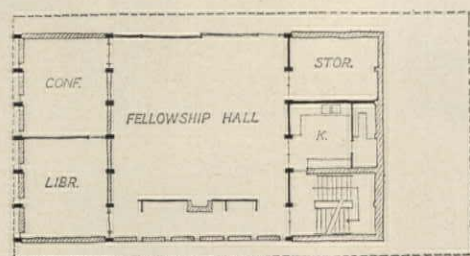
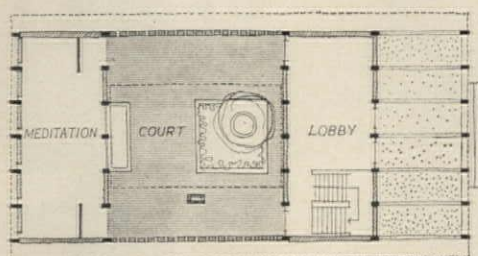
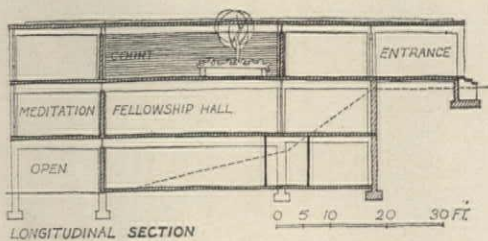
Fellowship hall (below) is on the middle floor, near its own kitchen

### FACTS AND FIGURES

Eliot House, Mount Holyoke College, South Hadley, Mass.  
 Architects: Carl Koch & Associates, Inc.; Frederic L. Day Jr., associate in charge. Consulting architect: Pietro Belluschi. Landscape architects: Shurcliffe & Merrill. Engineers: Sousa & True (structural), Van Zelm, Heywood & Shadford (mechanical, electrical). General contractor: George B. H. Macomber Co. Consultants: Bolt, Beranek

& Newman (acoustical), William Lam (lighting).  
 Cost: \$233,256. Building area: 6,328 square feet. Cost per square foot: \$37. Financing: by Mount Holyoke College.  
 Construction details: reinforced concrete columns and T beams, 10 inch brick cavity walls with 2 inch insulation, brick (or concrete block) painted inside, built-up roof, steel-casement sash.





*Delicate concrete skeleton seen from downhill (right) and drawings (above) indicate how little Eliot House disturbs the natural slope of its site. Screen walls of water-struck brick are lightly inserted in the elegant frame and emphasized with narrow strips of glass.*





**A critical appraisal of Cornell's new graduate library—and of what it may do to help save one of the country's most ill-treated campuses.**

## CORNELL REDISCOVERS ARCHITECTURE

BY WALTER McQUADE

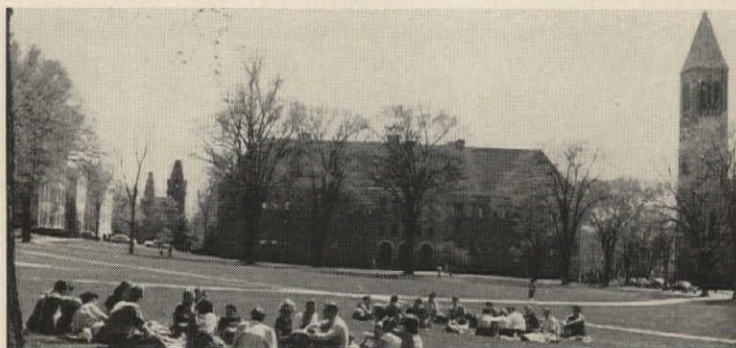
Directly across the vast, grassy central quadrangle from the College of Architecture at Cornell University is a new neighbor, and a good teacher of architecture in its own right: the University's proud new library building.

In form the building is two slabs, a vertical one placed atop one which is laid on its side, as a podium. The tall slab contains mostly stack and individual work space; the slab on its side accommodates mostly such big areas as reading and reference rooms. At night, with the lights on, silhouetting the narrow vertical slot windows of the tall slab, and pouring out of the continuous glass walls of the reading rooms in the base, the building is a vigorous architectural sketch—a quick, clean diagram of its functions. If, in daylight, seen in detail, it loses some of that clarity, and reveals some of the pressures that can weaken the work of a good designer, this might well be a part of architectural education, too.

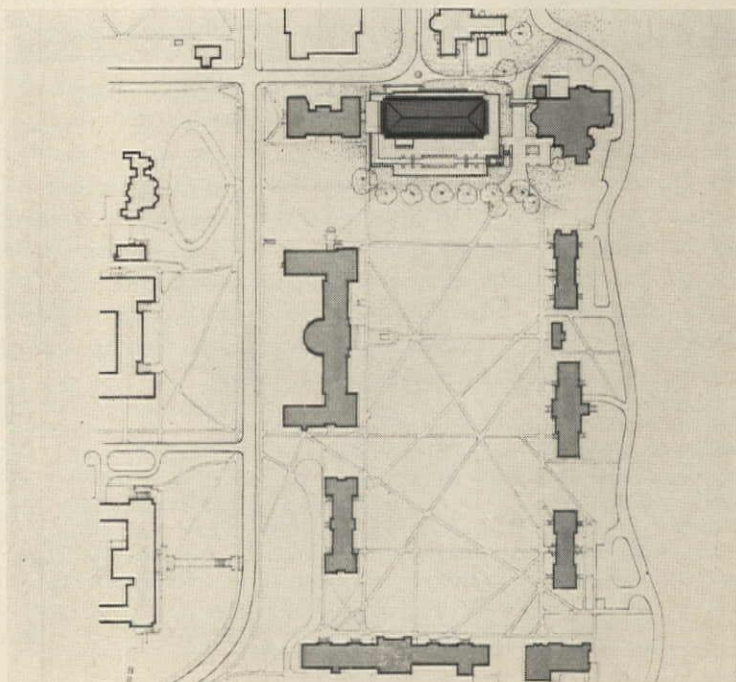
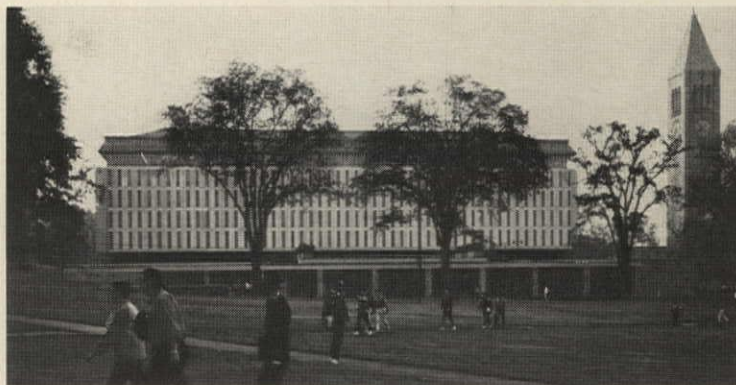
Fortunately, none of the small weaknesses in the new building will count strongly with the clients, Cornell's thousands of possessive alumni, including John M. Olin, of the immense Olin-Mathieson Corp., who paid for most of the \$4.3 million building, and for whom the library is named. In fact, Olin Library's strength carries it through the most difficult test for most new college buildings today: It fits into an old campus with consummate grace and ease, without selling out its basic seriousness as an efficient answer to the demands of up-to-date librarians.

At that, the Olin library not only had to fit into an old campus, but to replace a beloved old building as well. For generations the south end of Cornell's sacred lawn had been occupied by burly old Boardman Hall (above, right), a structure once intended to have been linked by a flying bridge to the most memorable of Cornell's buildings, the old library and bell tower which occupy the southwest corner of the quadrangle (site plan, right). Both these buildings were designed by Architect William Henry Miller, the first student in architecture at Cornell, and later a professional who could work in the styles of several of his most famous contemporaries—and do it well, producing forceful buildings, not copies, or caricatures. H. H. Richardson was the evident source for both Boardman and the old library.

When it was suggested that Boardman be torn down, many prominent Cornell alumni dissented vigorously, fearing not only the loss of the charming old building, but the intrusion of an unknown new quality on one of the only sections of the big campus not yet invaded by postwar construction projects. They had a right to be fearful. Like too many other U.S. campuses,



PHOTOS: (ABOVE) PHOTO SCIENCE STUDIOS; (BELOW & OPP. P.) BARRETT GALLAGHER



Cornell is discouraging proof that the past 15 years, perhaps the greatest period for raising money in college history, have not been the greatest for spending it on good architecture.

Before World War II the campus at Ithaca was at least an amusing conglomerate of architectural types, with pockets of collegiate gothic, traces of Ruskin, Richardson, classic revival, Colonial, and good old Ulysses S. Grant Victorian.

But the past two decades can fairly be said to have added a new variant, nondescript economic realism—university buildings with the charm and presence of a stripped-down chain store\*.

Everyone, however, agreed to be careful in the approach to the old quadrangle. The height of the new library building



was limited to that of its neighbors (see above); moreover, the architects were forbidden to compete with the antique charm of the quadrangle. To make things even more difficult, two ambitious demands were included in the physical program for the building: first, it should contain 260,000 square feet of floor area; and, second, most of the readers' and technical services should be arranged on a single level.

The architects, Warner Burns Toan Lunde, have actually succeeded in balancing this set of seemingly irreconcilable requirements beyond the hopes of anyone.

\* In the 1950s a group of Cornell's architectural alumni, who were worried about the course of building events, and the planlessness of their campus, offered to help establish a voluntary advisory council to the administration. These alumni included men as prominent as Robert E. Alexander, Nathaniel Owings, Lawrence B. Perkins, and Philip Will.

The reply received from Cornell's president, Deane W. Malott, had kindly language in it, but its kernel was curt. "It is the considered judgment of the administrative officers, backed and approved by the trustees of Cornell who give hours and hours of devoted service, that the Architectural Advisory Committee which the architectural alumni have been urging for several years would not serve any purpose. . . ."

### **Scale and site**

They started by scaling down the inevitable bulk of the building in several ways. The first way was by playing the slope of the quadrangle as carefully as any professional golfer. The single entrance to the new library was placed on axis with the main entrance of the old library (which has now been gutted and is undergoing a \$1½ million remodeling by the same architects). At the high side of the quadrangle, the underlying horizontal slab of the library virtually runs into the slope, and is absorbed by it. To get into the library from this level, students walk outdoors across the roof of the horizontal slab on a pleasantly formal platform, then down an outdoor stairway (which helps distract attention from the bulk of building—photo, above right).

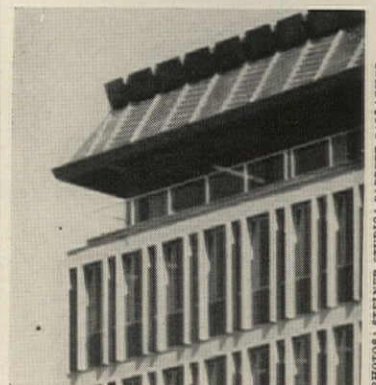
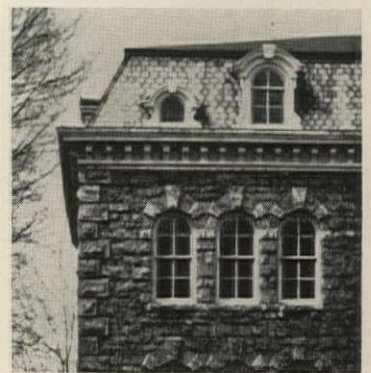
### **Fenestration and form**

Above the bulk of the horizontal slab, the vertical slab got a very studied fenestration pattern. The second-floor wall is set back and largely glass. Above this the pattern narrows to sets of vertical slit windows set between floor-height slabs of limestone; on the very top floor this narrowness is expanded again into continuous glazing, and is again set back. This variation in glazing counts considerably in paring down the apparent bulk of the vertical slab. Cutting the corners back to the column lines also helps in the visual subtraction, until in the end, Olin Library is probably a better building with which to end the quadrangle than was Boardman—better, perhaps, because it matches the scale of the quadrangle (400 by 900 feet), although it does not appear immense.

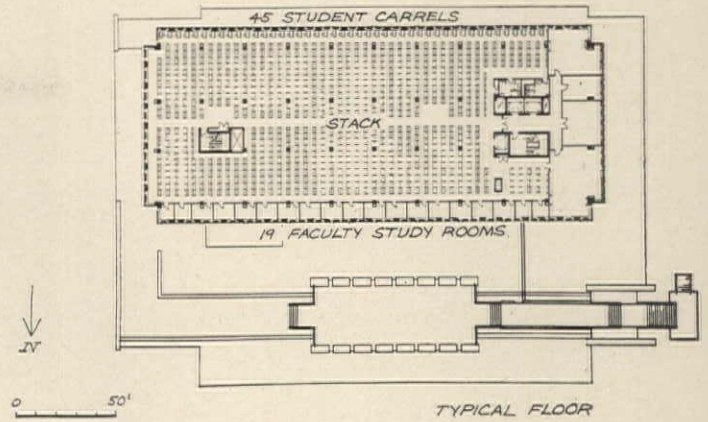
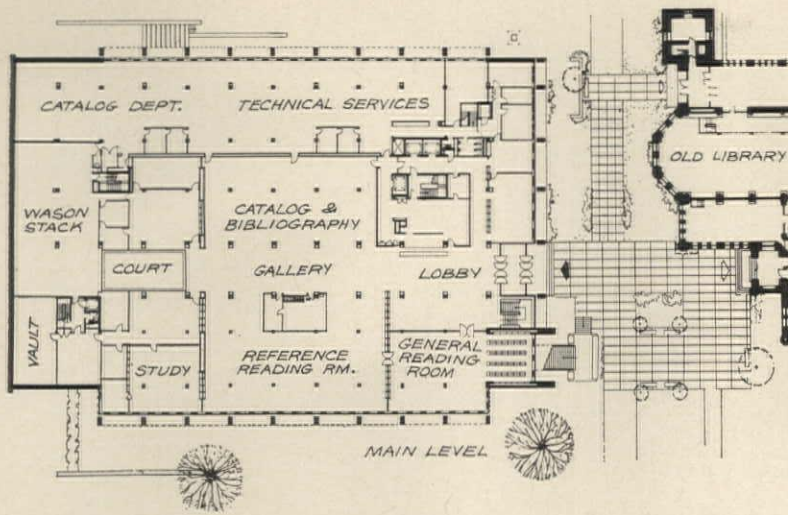
Scale was not the only problem solved to make this building



live easily with the rest of the quadrangle. The roof of the library was also worked hard to make it match the old mansards on the quadrangle's west side (see below) and to show a spurious but pleasant kinship to the roof of the old library tower. On top Olin is what appears to be a mansard, which picks up the pattern and material (lead coated



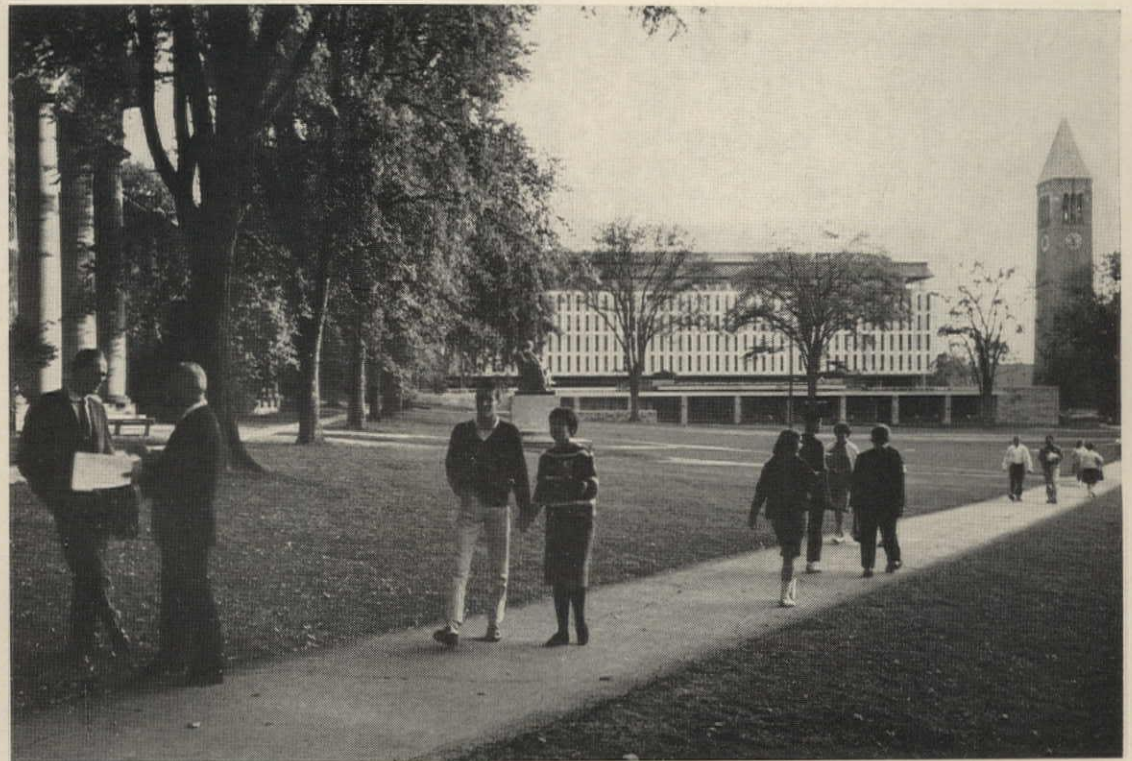
PHOTOS: STEINER STUDIO; HARRITT CALLAGHER



copper) of the old bell tower to the west. But much of this roof on Olin has no top; it is a fence around a nest of exposed air-conditioning cooling towers, etc. Only the students who climb the old library tower (right) to ring the bells can discern this, however.

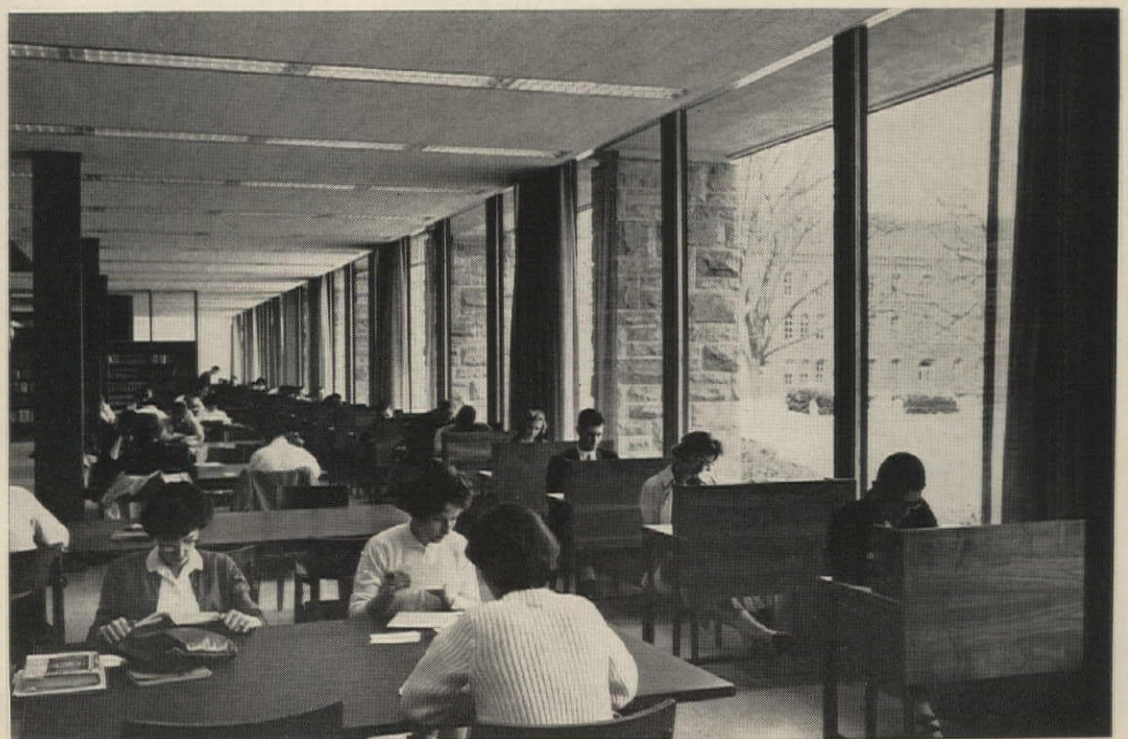
**Reading and storage**

The interior of the new library works well, even in its present use by undergraduates. (When alterations to the old library have been completed, Olin will become that grand University status symbol, a spacious graduate library.) The single entrance to Olin makes control simple, of course, and a



broad central corridor without walls leads gracefully past reading rooms (photo, right) and various reader services to the catalogs. This hall is terminated by a glass-walled sculpture court whose roof is open to the sky (above). To one side of the court is the rare book library; to the other, a prized Oriental collection. Downstairs are more reading rooms, stack space, a map library, and a tunnel to the old library.

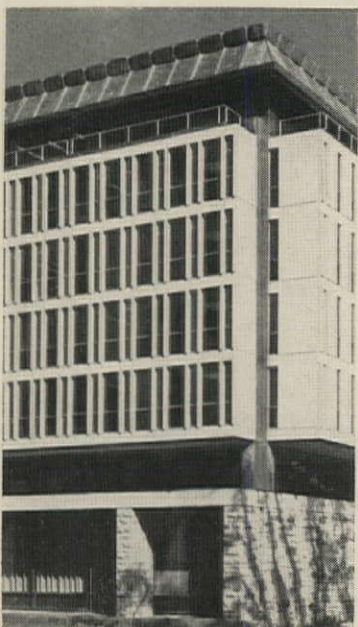
Upstairs, in the tall slab, the plan is simple. Books occupy the cores. At the west end of the building are study rooms, typing rooms, and conference rooms. Along the north wall are indi-





vidual faculty studies (19 to a row) or individual student carrels (45 to a row, photo above). On the south side are more carrels.

The rhythm of the stack shelves (52 inches on centers) is registered on the long exterior walls in the spacing of the tall slot windows, but to vary this pattern, the architects cut each fifth slot down to floor level. They also carried the same window system around the inset corner to the narrow east end of the building—where it is much less significant, if equally handsome. On the west end of the slab a similar spacing of mullions

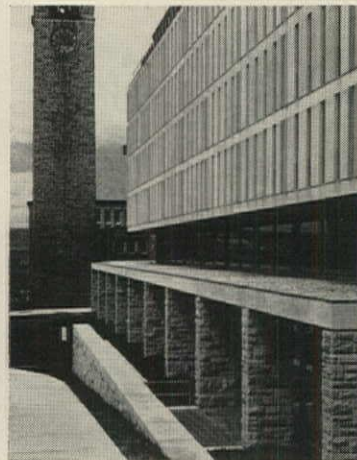


prevails, but there is much more glass (bottom, left) because the rooms are larger there. There are some slot windows in the cut-out corners too, but the extra light thus admitted to the little corner studies appears of small significance from indoors, and the windows are an odd event from outdoors. The corner is uneven in depth and is awkward in detail (bottom, left). The architectural focus begins to soften.

#### Expression or decoration?

A more unsettling aspect of the design, however, occurs at ground level. Here the design is weakened by the addition of a row of stone

PHOTOS: BARRETT GALLAGHER



piers almost all around the periphery (above). These are worn unconvincingly, like a Shriner's hat by a statesman. The piers appear to hold up little for their bulk, especially as compared with the easy strength demonstrated by the cantilevered limestone walls overhead. The design is embarrassed acutely at the southwest corner of the main floor by a pier which patently carries little more than itself (photo, left). This application of masonry may have been inevitable, emotionally (some of it came from the old Board-

man, the rest from the University quarry) but if so it comes out less well than intended.

The building is not a very expensive one (\$16.70 per square foot) and was pinched a little at the end. This shows in the lack of landscaping along the outdoor platform walk (potted trees were planned), and in the outdoor space between the new and old libraries—a very important area because it is the entrance to the quadrangle. This plaza, however, is presently under redesign. When finished it will have as an occupant a large Lipchitz sculpture,

one of an exceptionally handsome pair donated by builder Harold Uris of New York. (The other Lipchitz will live in the sculpture court.) A surprising economy in the fenestration was the use of wood mullions which saved \$50,000 over metal. One aspect of the building's immediate neighborhood could stand much improvement: one of the roads across the campus, which formerly cut through between new and old libraries, has now been slung around the west side of the old library, scarring a long, grassy slope with unnecessary violence.

#### A good building for a campus that needs it

Summing up, the new library is a very good design with some obvious things wrong with it. But the positive importance of the building to Cornell is even larger than its mass on the campus. It may even reach out to mean something to other colleges buffeted by the recent building boom.

Cornell has been luckier than most in that it inhabits an overpowering natural environment. Although large (12,000 students) it is a real country college. It has immense acreage. It has gorges, and waterfalls, and a forest of trees. It has the lake down the hill, with the sky in it. It has somber but strong weather. All these things combine to help bandage the ruthlessly bad architecture inflicted since World War II.

But how long can buildings simply be allowed to happen to a campus?

The answer may be: only as long as there is enough grassy lawn left between the unfortunate architectural episodes. Time runs out even for a university that has 500 acres of central campus, and thousands more to expand on, as Cornell does. Walking distances among scattered buildings simply get too long for students changing classes. Finally, mediocre buildings, crowded together, overload nature's tolerant spell and shatter it—and this is what has happened to most of Cornell. The new library may signal a long overdue reaction.

John M. Olin Library, Cornell University, Ithaca, N. Y. Architects: Warner Burns Toan Lund. Engineers: Ammann & Whitney (structural), Zumwalt & Vinther (mechanical, electrical), Bolt, Beranek & Newman (acoustical). Consultants to Cornell: Frederick W. Edmondson (landscape), Keyes D. Metcalf (library planning), Frederick C. Wood (space utilization). General contractor: Perini Corp.





## DORMITORIES: DESIGNS FOR CAMPUS LIFE

Although dormitories are not, in the strictest sense, tools of formal education, a lot of learning does take place within them on U.S. campuses today. A student's living quarters provide a substantial part of his college environment, and they are bound to have an effect on the kind of total education he gets. Yet, curiously, the importance of this effect seems often to be undervalued, if not ignored altogether, by college administrators and architects alike. Many of the dormitories which have sprouted on campuses in recent years appear to be the sterile growths of a square-foot-figurer's mind, with no apparent regard for the kind of domestic scale and spatial variety which can make dormitory living an enriching part of the educational experience.

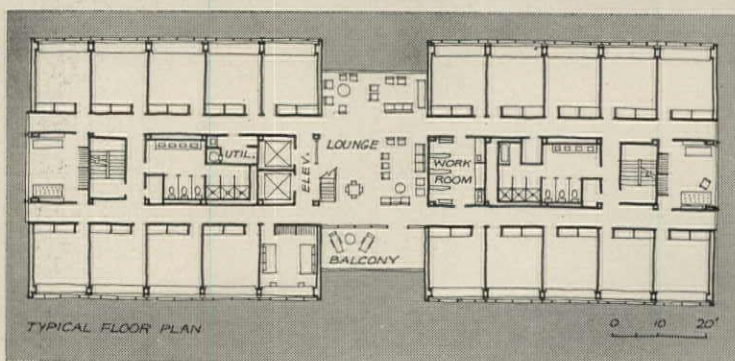
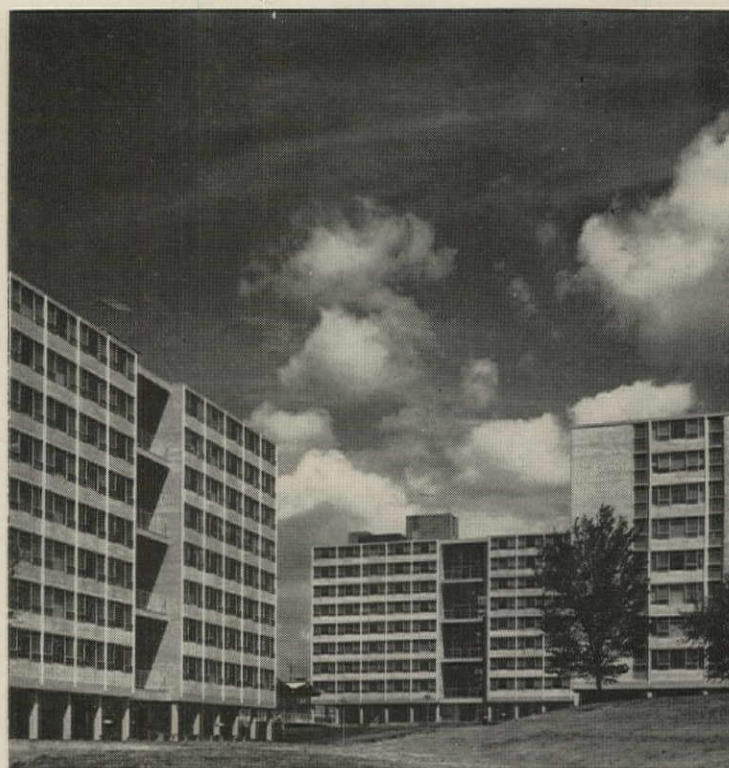
In the next 20 years, American colleges and universities face the awesome task of building living accommodations for almost 1.5 million new students simply to keep abreast of surging enrollments (see "Editorial," page 51). Sheer quantity of housing, then, is the first problem that college administrators and architects must face.

Obviously, this quantity must be achieved at reasonable cost. To be sure, the federal government has an active program of low-interest loans to help colleges meet the growing need. But, however favorable the terms, these are loans, not gifts, and must some day be repaid.

### AN ARCHITECTURE OF NECESSITY

Thus, a double necessity emerges: to produce the maximum number of units at the minimum cost, and, at the same time, to endow them with the sort of human scale and individuality which fosters development of the independent intellect. The first means big buildings with economically repetitive methods and parts; the second means a search for systems of spaces that offer efficiency along with variety of choice, privacy as well as sociability, and a visual taste and interest that can be both instructive and pleasant to live with.

One architectural firm which has come to grips with this problem of late is Hellmuth, Obata & Kassabaum of St. Louis. Four of their recent projects shown on these pages illustrate a variety of possible approaches. All are buildings of good size. And all but the most recent one employ the same basic repetitive unit: the two-man (or woman) bedroom-study. The merits of this double unit can be questioned: it is a compromise, affording less privacy than a single room, and less chance for shared experience than a suite. Of course, it can also afford more privacy than a suite, without the isolation



*Horizontal house system in women's dormitories at the University of Missouri slices each of three high-rise buildings into four two-story houses. Each house attaches two floors of double bedroom-studies to a balconied, two-story living room. Skip-stop elevators save money and speed up service. The buildings cost \$16 per square foot, \$3,256 per student.*

of a single. In any event, the double-bedroom unit is being built all across the U.S.

With distressing frequency in new dormitory building, however, these cellular units are strewn along both sides of endlessly bleak corridors with a "common room" thrown in for each floor, the floors then stacked one on top of another, and the final dismal result erroneously labeled a dormitory. Lacking domestic scale, such "dormitories" have all the warmth and amenity of a prison wing.

Recognizing the liabilities, as well as the necessities, of building big, Hellmuth, Obata & Kassabaum have tried in all their projects "to humanize the large residence hall by decentralizing the spaces into smaller groupings."

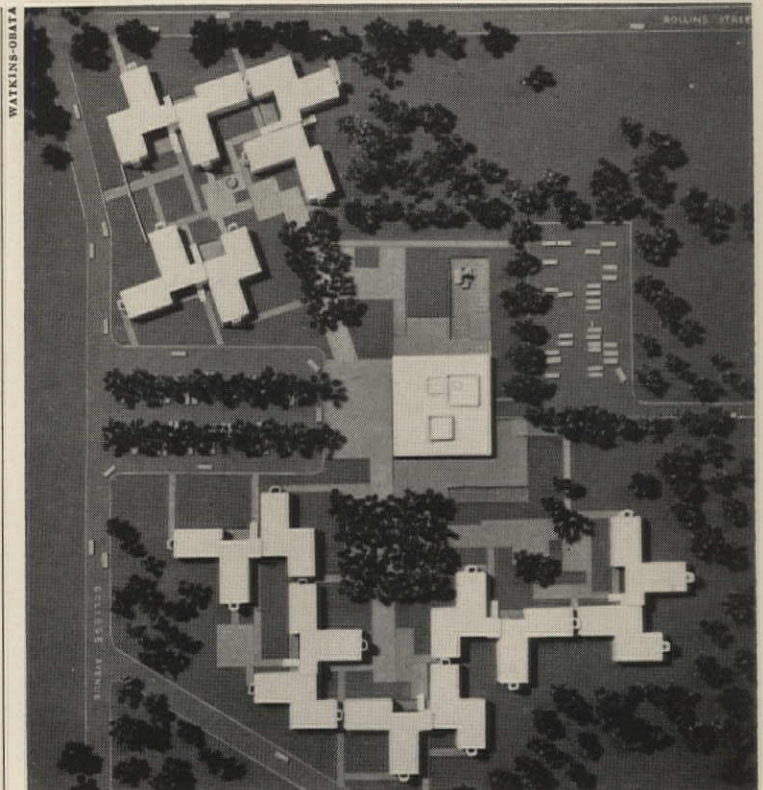
#### THE HORIZONTAL HOUSE

Limited site conditions and the desire for better control of circulation prompted HOK to develop a high-rise scheme for the women's dormitories at the University of Missouri (opposite page). In an earlier project at Missouri, the architects had produced long horizontal buildings of four stories which they had then divided into vertical "houses," a development of the entry system familiar in many older colleges. Here, however, they provided a "horizontal house" system in a vertical building.

Each of the three nine-story buildings is divided into four two-story "houses" above the ground-floor entrance. Each house has a two-story living room, balconied on both sides, with two floors of double bedrooms at each end, joined at the upper level by bridges. For views and light, bedrooms are placed at the periphery surrounding service areas in the center. Elevators stop only at the first level of each house unit, reducing elevator costs and speeding up service. A stair from the living room leads to the second level. The contrast between the lower ceiling height of the bedrooms and the two-story space introduces an element of surprise and a strong focus around which the social life of the "house" can build. Tunnels walkways, protected from bad weather, connect the dormitories to a common dining hall. Cost of the dormitories alone: \$16.26 per square foot. Cost per student (for 200 square feet): \$3,236.

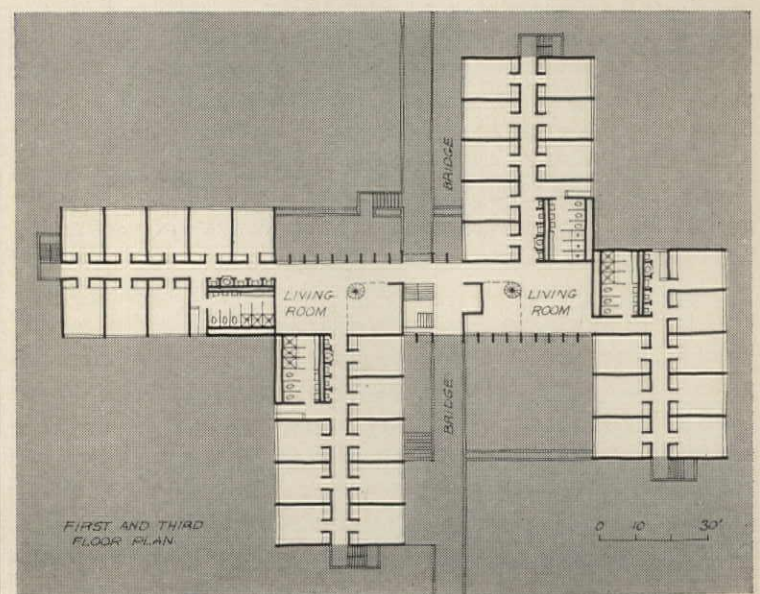
One drawback of a large rectangular dormitory is that it rarely contributes charm to a campus plan, particularly when it is repeated in brooding rows and spaced at such great intervals that it defines space in only the crudest way.

HOK's latest design for Missouri (right) suggests one solution. The area in which these buildings will be located is programmed for 750 women and 1,250 men. HOK's designer, Gyo Obata, says: "I wanted to design a unit that could be



*Pinwheel arrangement of HOK's latest design for Missouri links repetitive units in a varied chain to form interesting outdoor spaces and building masses. Horizontal*

*house division is a development on the women's high-rise scheme. Early estimates place cost of the dormitories at \$20 per square foot, \$4,100 for each student.*



attached to form visually interesting outdoor spaces. I also wanted to introduce vertical height into the living room as we had done in the high-rise women's scheme."

Obata's "pinwheel" solution involves a modular unit of eight double rooms with toilets and showers. As in the women's dormitories, four of these units, two per floor, are attached to a two-story living room to form a house group of 48 students. The double rooms are still at the periphery but, unlike the women's scheme, a single corridor connects them with the living room. The toilets, no longer in the center of the wings, now act as buffers between the bedrooms and living room.

The resulting four-story pinwheel shapes can be attached in countless combinations at the ends of wings to form a lively chain of building masses (see plot plan, preceding page). With this arrangement, outdoor space is no longer a formless void between massive and isolated solids but is given intimate shape in a varied series of partially enclosed courts. Before completion of intermediate drawings, the architect's preliminary estimate placed the unit cost at approximately \$20 per square foot, or about \$4,100 per student.

### THREE-LEVEL SCHEME

A new dormitory at Christian College in Columbia, Mo. (right) presented different problems than those HOK encountered at the big state university. Christian is a small private college for 400 girls, and officials wanted the building kept as low as possible to conform to the scale of their campus. They also desired semiprivate bath arrangements for the double bedroom-studies.

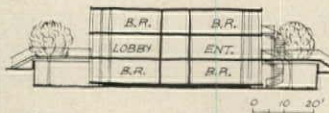
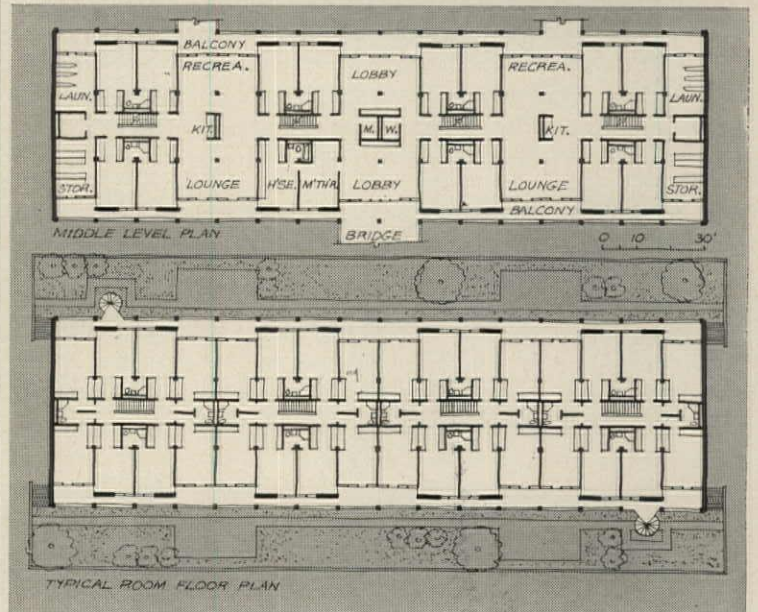
In response, HOK designed a three-story building, placing the entrance level in the middle. The combination of two double rooms to a bath makes it possible to enter in the center of an eight-room group. Circulation corridors, which figure prominently in both the women's high-rise scheme and the pinwheel solution, are thereby held to a minimum; and, even in so small a dormitory, space is divided up into more intimate houselike living units.

The lower level is surrounded by a walled garden (sketch, right), just as effective as a moat in controlling access to the building, and a great deal pleasanter. The upper floor is provided with balconies. Entrance is by bridge over the walled garden to the middle level (section, right). Cost of the dormitory: \$18.30 per square foot. Cost per student (based on 224 square feet each): \$4,090.

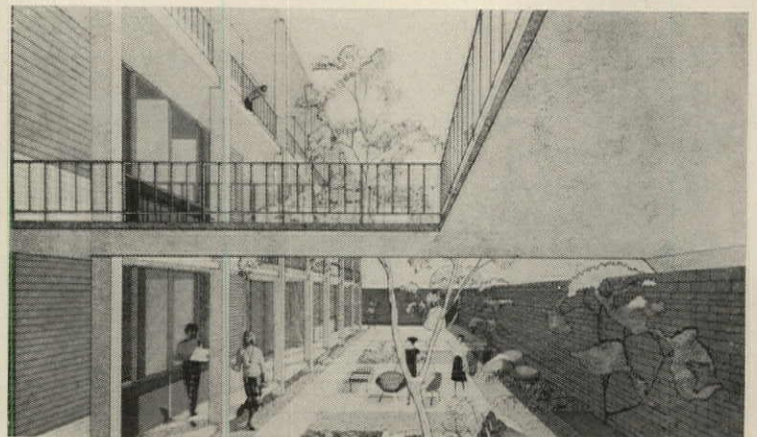
These three projects by HOK, however they may differ in form, all evolved from the same basic unit: the two-man bedroom-study. The underlying premise which justifies this



MAC MIZUKI



Three-level scheme keeps building in scale with campus at Christian College. Entrance is by bridge over walled garden to middle level. Space is broken into intimate, houselike units. Cost of the dormitory was \$18.30 per square foot. Cost per student: \$4,090.



unit is that today's student lacks the self-discipline to make rooming in larger groups a successful, constructive experience, yet is also too social to bear the isolation of living alone. But since HOK designed its first group of dormitories for Washington University of St. Louis (a vertical house system with series of cell-like double rooms), University officials concluded that some of their students were mature enough to benefit from a less monastic, more stimulating environment in which to live and study.

#### THE SIX-MAN SUITE

Accordingly, HOK designed a group of buildings providing six-student suites. Each suite will consist of a living room, two double bedroom-studies, and two singles, with a shower and toilets (plan, right). This arrangement, it was hoped, would provide spaces for study and discussion leading to a fuller social and intellectual life. In an age of increasing specialization, there are ample arguments for any system which induces students to widen their horizons through free interchange with others who have different interests. A suite system such as this one does promote natural cross-fertilization of ideas more readily than any arrangement of cellular units no matter how well they may be designed.

The problem confronting HOK in developing its suite system was that the University wanted the more generous scheme at a minimum increase in cost over the previous house-scheme project. To achieve this, nonproductive spaces were reduced to a minimum. The architects turned to a scissor stair in the center, with four suites on each floor grouped in a cluster plan around the central vertical circulation core. As in the dormitory for Christian College, circulation corridors are virtually nonexistent. Now in production, the dormitories are expected to cost \$16.50 per square foot, or about \$4,110 for each student.

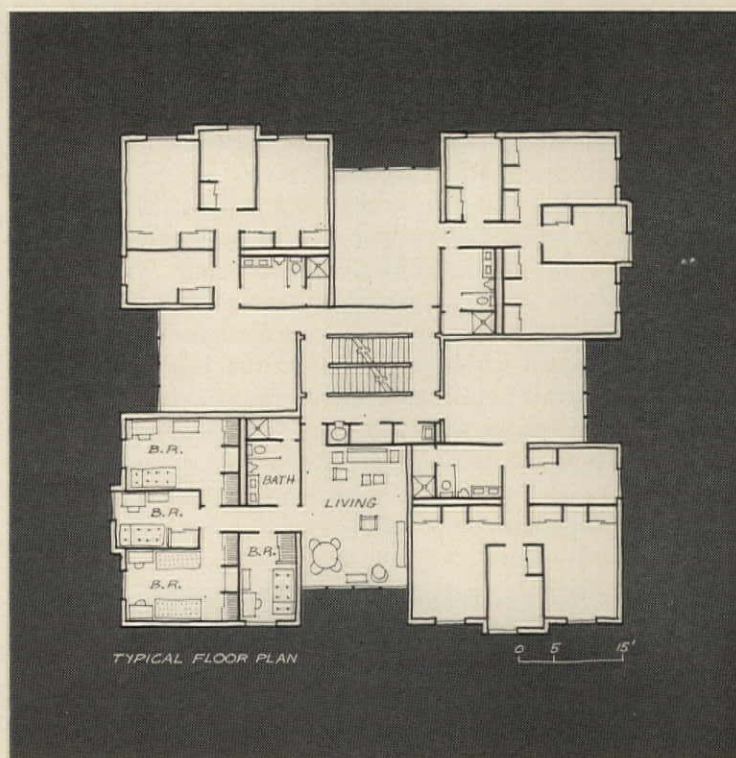
The argument between private spaces for study versus suite living for fuller social and intellectual life will probably go on as long as dormitories are designed. On one side the University of Missouri, for example, is so satisfied with HOK's system of grouping semiprivate double rooms into "houses" that it has adopted it for all its residence halls.

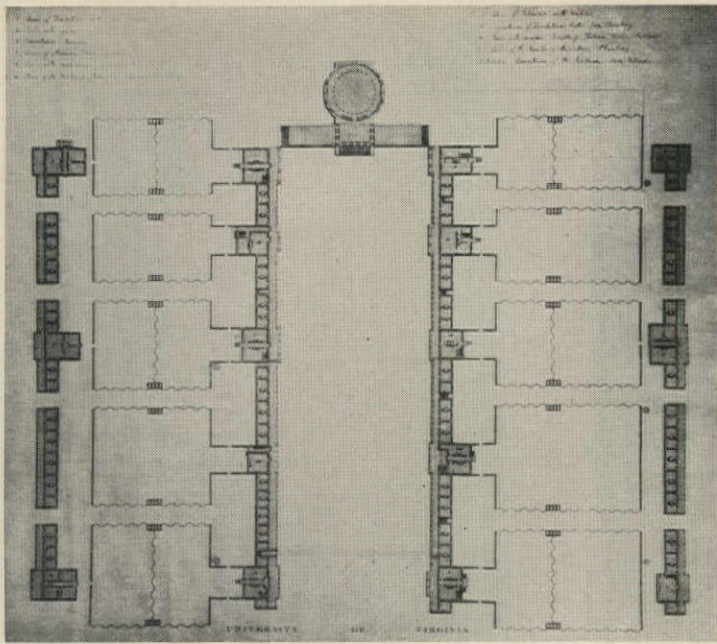
Gyo Obata, however, thinks the trend in dormitory design is toward group living. "In the future," says Obata, "I think the direction is going to be toward bringing a more intellectual climate into the residence hall. The new Washington University suite plan has great potentials. With proper direction, each of these suites can become a real center for study and discussion. This kind of dormitory planning makes the assumption that students are adults." END



Six-man suite system at Washington University was developed to give students a fuller intellectual experience than that possible in the double bedroom-study arrange-

ment. Each suite has a living room, two double and two single bedrooms, toilets, and shower. Estimated cost is \$16.50 per square foot, \$4,110 per student.





PHOTOGRAPHED FOR FORUM BY GEORGE CSERNA

## THE MOOD OF A GREAT CAMPUS

This is the first time in over 30 years that a major article on Thomas Jefferson's buildings at the University of Virginia has appeared in a magazine concerned with architecture. There would seem to be two reasons for this oversight: first, "classicism" has been so out of vogue that anyone daring to look at the University has felt somewhat embarrassed; and, second, Thomas Jefferson's accomplishments as a statesman have long overshadowed his architectural achievements. Indeed, most biographers treat his interest in architecture as a gentleman's hobby, if they mention it at all. Jefferson himself, however, left little doubt as to which of his endeavors he thought would be of enduring value. At his specific request, his tombstone carries this inscription:

HERE WAS BURIED  
THOMAS JEFFERSON  
AUTHOR OF

THE DECLARATION OF AMERICAN INDEPENDENCE  
OF THE STATUTE OF VIRGINIA FOR RELIGIOUS FREEDOM  
AND THE FATHER OF THE UNIVERSITY OF VIRGINIA

As a statesman, Jefferson was part patrician idealist and part political pragmatist. He understood clearly that the ideals of the American democratic "experiment," as he called it, must become solidified by laws and institutions if they were not to vanish like the morning fog. This ability to carry an ideal into reality carried over into his architecture as well.

Jefferson believed that only an educated people was capable of enlightened self-government and that a comprehensive system of general public education—from grammar school at the bottom to university at the top—was the only means of ensuring such an educated people. Returning to Virginia after his two terms as President, Jefferson worked to initiate such a system. The University of Virginia stands as tangible evidence of his success.

Jefferson not only pushed through the necessary legislation to found the University; he selected the site, designed, contracted, and supervised the construction of the buildings, planned the curriculum, and chose the faculty as well.

The architectural character of the University had to be "an expression of the American mind." A continuation of English

Georgian would equal Royalism and was, therefore, out of the question. Classical architecture with its austerity and overtones of democratic Athens seemed more appropriate for the new society. His Virginia State Capitol was the first modern use of the classical temple form and there was no reason not to continue the classical idiom at the University.

The end result is a remarkable blend of tough practicality and pure architecture. The plan, in spite of its Palladianism, did not spring full-blown, but grew in stages. The generating idea was that of an academic village of professors' houses and classrooms, dormitories, and dining rooms or "hotels," all connected by covered walks—as opposed to the single-building colleges of the time. Jefferson organized this "village" into four parallel rows, with "Lawns" inside and "Ranges" outside. Incredibly, the inclusion of the Rotunda, the unifying factor in the composition, was a suggestion of his friend, Architect Benjamin Latrobe. So, too, was the placement of the large porticoes of the Pavilions in front of the line of the colonnades. Jefferson probably based three Pavilions on Latrobe's designs: Pavilions V, VIII, and IX. Thornton, the designer of the Capitol, suggested colonnades instead of arcades for the Lawns, and Pavilion VII is based on a sketch of his (see page 80). The vast bulk of the campus is, however, Jefferson's.

It is remarkable that Jefferson, as an "amateur," could undertake an architectural venture as large and complex as the design and construction of the University. That it is also great architecture is even more remarkable. Problems are solved with a deftness which conceals their difficulty. Here is a complete unity of diverse buildings all within an orderly system that makes the functional relationship of the parts immediately apparent. This is an ideal campus—almost an ideal city—unique in America, if not in the world. Often called the greatest outdoor room in America, it is a microcosm of society and architecture as Jefferson knew it could be.

George Cserna's photographs have caught an intangible quality of the place: the almost electric mood, the feeling of overshadowing presence. It may be the spirit of the man who wrote: "Architecture is my delight, and putting up and pulling down one of my favorite amusements." WARREN COX

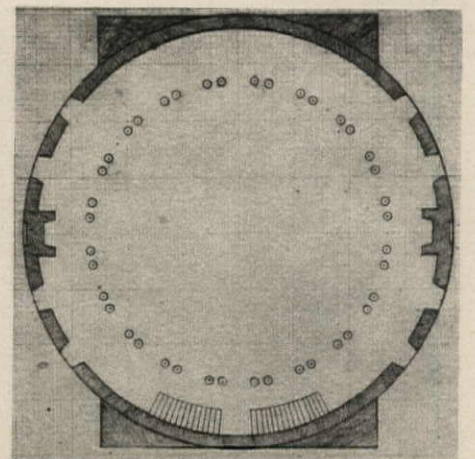
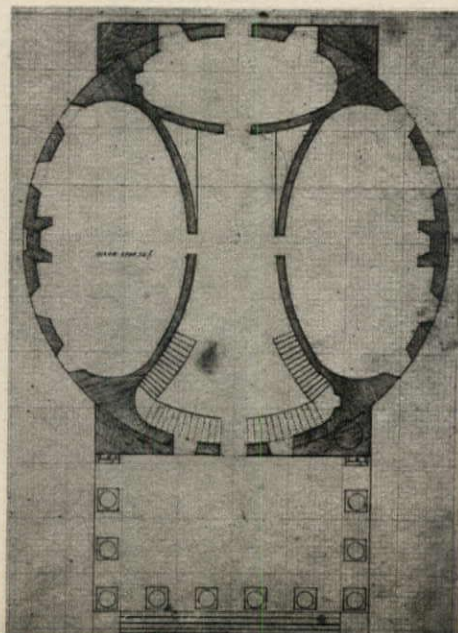
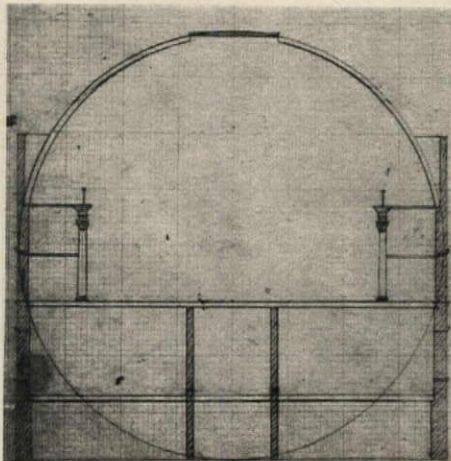


*“An academical village rather than one large building . . . ten distinct houses or pavilions containing each a lecturing room, with generally four other apartments and the accommodation of a professor and his family . . . joining these lodges by barracks for a certain portion of the students, opening into a covered way to give a dry communication between all the schools . . . the remaining building . . . [the Rotunda] to contain rooms for religious worship, for public examinations, for a library and . . . for instruction in drawing, music, or any other of the innocent and ornamental accomplishments of life . . . the whole of these arranged around an open square of grass or trees.” —THOMAS JEFFERSON*



*The Rotunda as it stands today. It was extensively rebuilt by Stanford White after almost complete destruction by fire in 1895.*

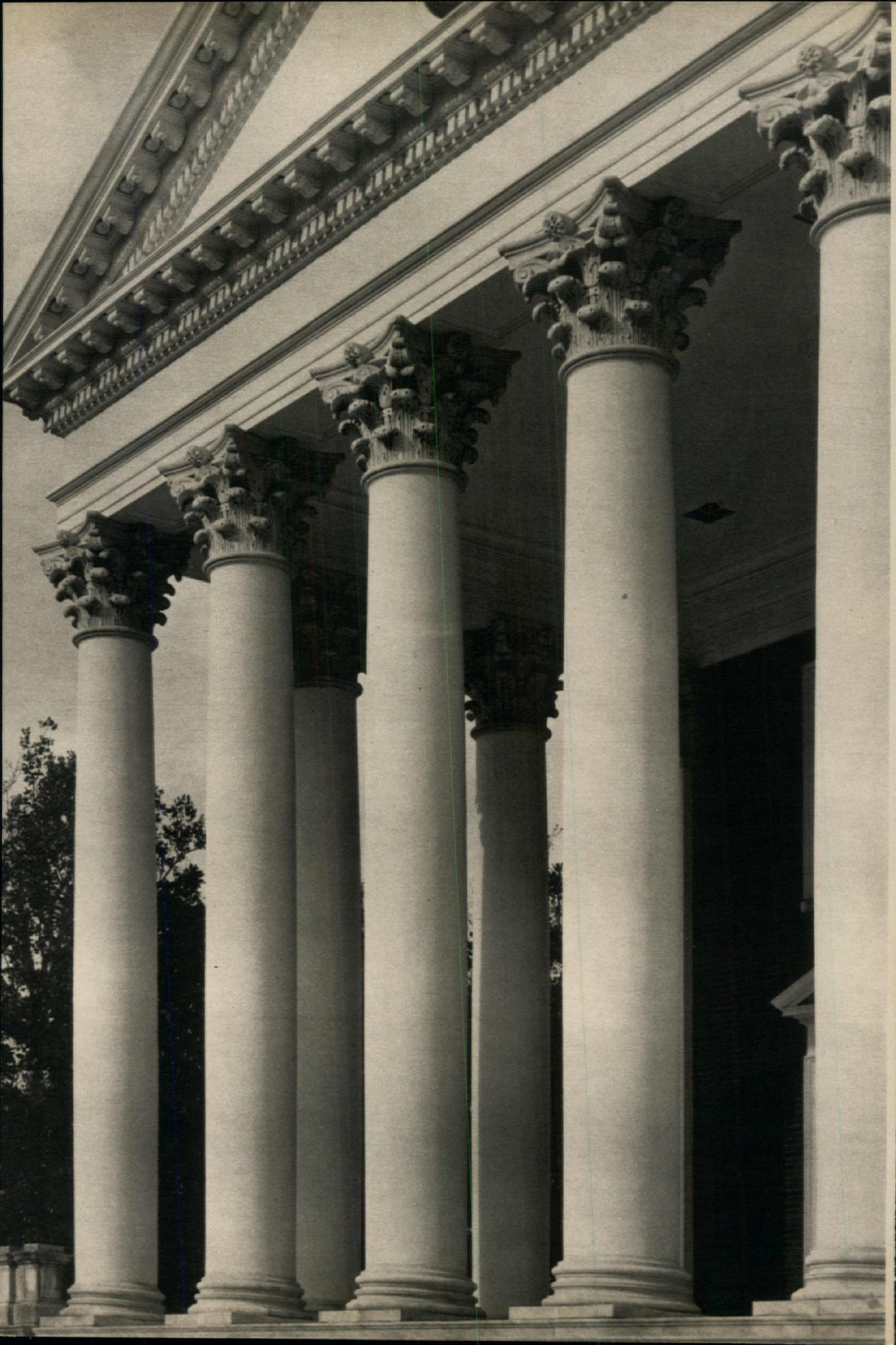
*Jefferson's drawings show the Rotunda as he had it built. White removed the entire second floor and added a new portico at the rear.*







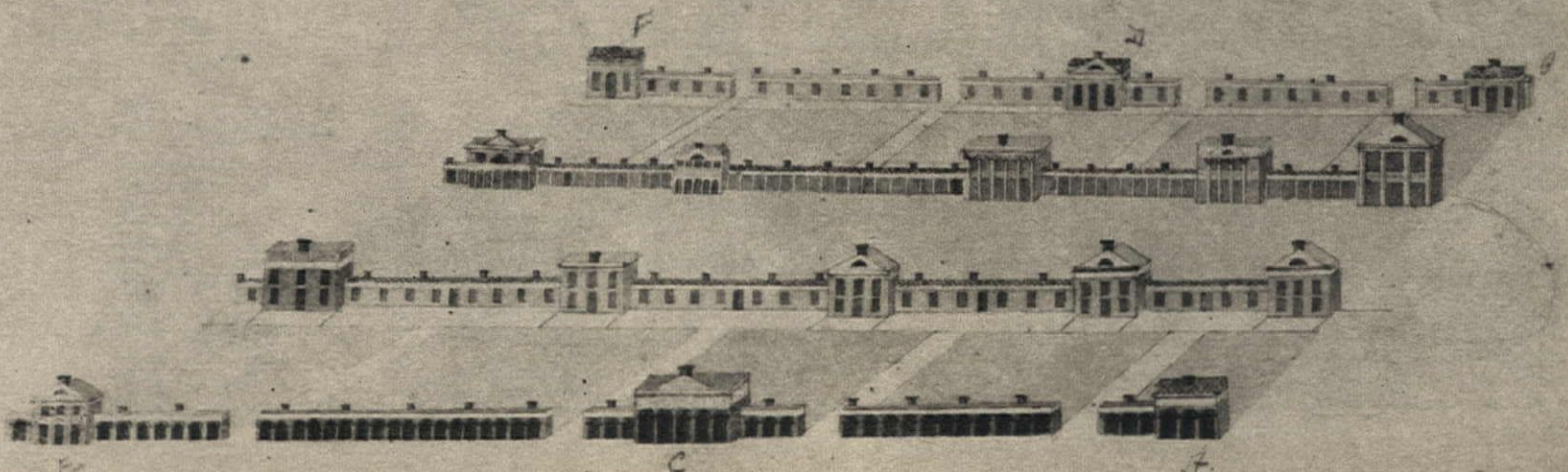
PHOTOGRAPHS BY GEORGE CSERNA





*A view from under the portico of one of the ten Pavilions. The Lawns and the colonnades step gently to follow the slight pitch of the hill.*

*Jefferson's preliminary sketch of the University before his friend Latrobe had suggested that he add a Rotunda as a focal point.*





*Each of the Lawns' ten Pavilions demonstrates a variation of a Roman order. Pavilion IX, last on the West Lawn, shows a simple Doric.*

*Pavilion VII, West Lawn, was the first building to be erected.*



*Note how colonnade and balcony join in Pavilion X.*

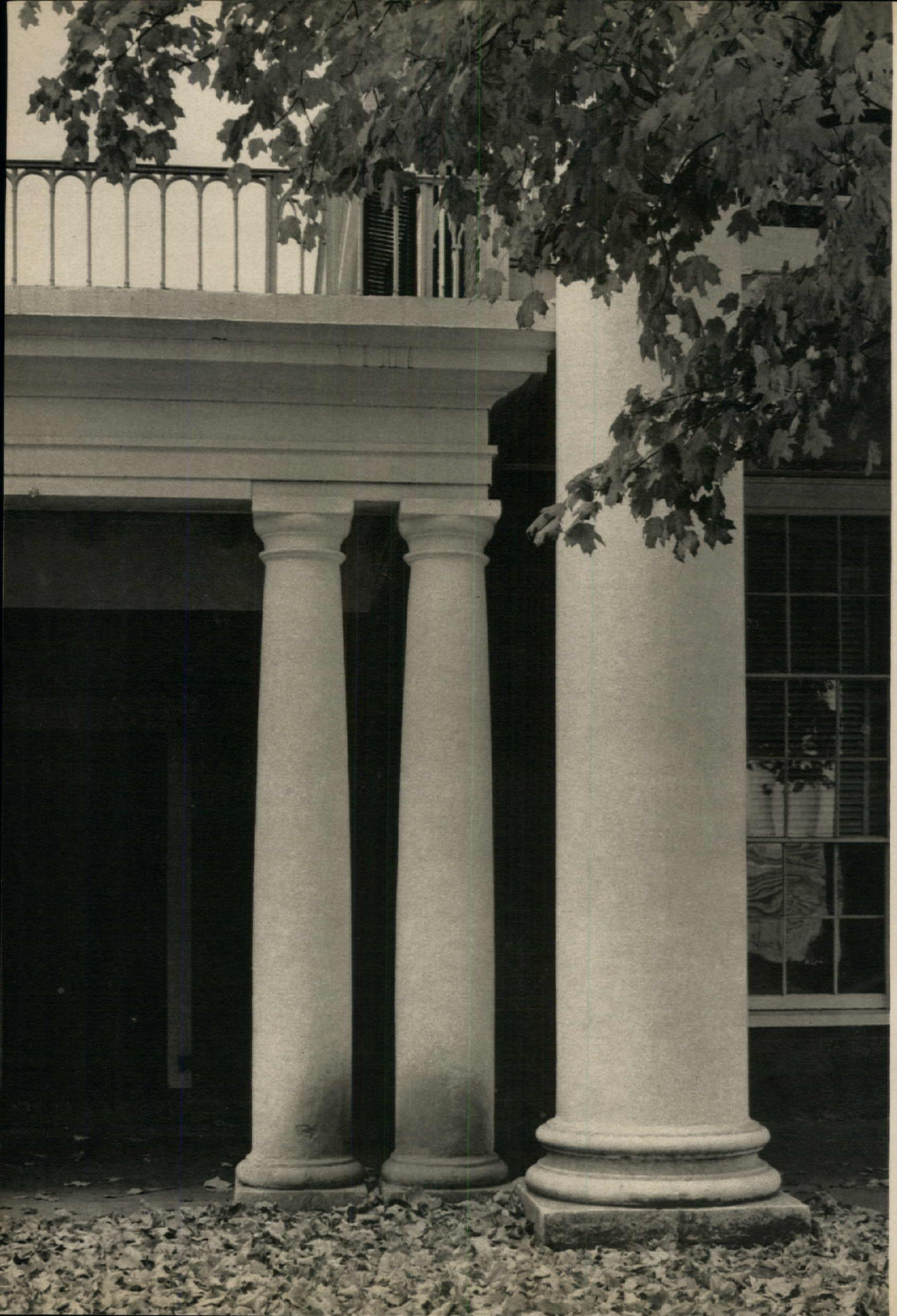




*Brick walls, serpentine for stability, wind between the Lawns and the Ranges. They enclose the gardens of the professors' houses.*

*Rear arcade of East Range marks the eastern boundary of Jefferson's campus. Like the Lawns, Ranges alternate houses with student rooms.*





**William Zeckendorf's recent \$43.7 million collaboration with British interests underscores a fast-growing trend of European investment capital in U.S. real estate.**

## **FOREIGN MONEY BOOSTS U.S. BUILDING**

BY DAVID B. CARLSON

Of all the fabulous deals of real estate magnate William Zeckendorf, none has fascinated the building world more than his recent formation of a new urban redevelopment corporation, backed principally by British capital.

The deal is significant not only for the future of the nation's biggest redeveloper, but also because this is only the latest—and not the largest—of a growing number of instances of Old World money seeking investment in New World real estate. One expert has estimated that over \$100 million was invested by western Europeans in U.S. real estate in 1961, and he expects that total to be exceeded this year.

Probably the biggest single infusion of foreign capital came in 1959 when British real estate developer Jack Cotton bought a 50 per cent equity in the Pan Am Building, now being erected over the New York Central tracks at New York's Grand Central Station. Cotton put \$25 million into this project which was initiated by developer Erwin Wolfson, and later joined Wolfson (for an unspecified amount) in an even bigger building deal (eventually to cost \$200 million) in Chicago. British developer Charles Clore, who now has formed a development corporation with former rival Cotton, last year bought from Zeckendorf the lease on New York's 40 Wall Street building. Another British group has bought for \$800,000 a Boston site where it plans to build the city's highest office tower—30 stories—for about \$20 million.

And the British are not the only European investors active in the U.S. market. A few months ago, one of the oldest names in European land development, Italy's Società Generale Immobiliare di Roma, announced it was backing a \$45 million commercial-residential project on the banks of the Potomac River in Washington, D.C. (FORUM, Nov. '61). The Società is also backing a \$90 million commercial development in Montreal, to compete with Zeckendorf and his British backers whose Place Ville Marie project (FORUM, Dec. '61) is already the most colossal.

### **INVESTMENT ATTITUDES AND OBJECTIVES**

The increasing flow of investment funds from Europe into land and buildings in the U.S. and Canada is of relatively recent origin. Only in the past five years, or since most European currencies were released from wartime restrictions, has it become anything more than a fad. And, while investor attitudes and objectives vary greatly not only between but within different parts of the world, there have been some discernible patterns in this investment which provide clues to the rationale behind it.

Roundly speaking, European investors are motivated by two great fears:

1. Fear of war, in which Europe might again be a chief battleground with still more of its capital destroyed, as in two previous world wars. To some, U.S. or Canadian investments seem relatively safer.

2. Fear of inflation, a dominant factor in all land investment today. Inflation in Europe has exceeded that of North America. In West Germany, for instance, land prices have been driven up to more than ten times their 1950 range in many instances, causing restiveness among European investors about the possible effects of an economic collapse on overinflated land values. There seems to be more confidence about the economic prospects in the U.S. and Canada, despite less-managed economies, than for most of western Europe.

Inflation has made European land relatively dearer than U.S. land. In prime areas of southern Spain, for instance, a square meter of good land (approximately 1¼ square yards) can cost as much as \$1,000. Relative to this, European investors see U.S. land at \$2,000 or \$3,000 per acre as a bargain.

Besides cheaper land, European investors, and particularly the British, are attracted by U.S. income tax features including real estate depreciation and capital gains tax advantages. Britain's tax system has neither of these provisions. British investors, depending on what their personal objectives may be, are undoubtedly influenced by either or both of these attractions although the larger, better known British investors in U.S. properties deny that these tax rules are ever overriding factors in their ultimate investment decisions.

Now that the economies of western Europe are generating vast new capital reservoirs, there are still other reasons besides war and inflation fears, and income tax advantages attracting investors to the U.S. and Canada. Some interests, particularly Swiss and German ones, are attracted by predictable (and generally higher) returns and, more important, by liquidity. They tend to buy shares of U.S. and Canadian land-development corporations, such as Webb & Knapp or Kern County Land, which they can get through stock exchanges. However, the U.S. has no very broad range of such companies, and therefore much of this so-called "banker investment" money has gone to Canada, which has more than 25 substantial land-development stock companies.

Another group of investors is interested chiefly in land itself, which Europeans still regard as the basis of real wealth. They buy raw land, farm or timberlands, but usually with one key

reservation—it must be “in the path of foreseeable urban growth,” as real estate expert John Tysen, of Previews, Inc., puts it. Tysen cites an example of an investor from Lichtenstein who had \$6.5 million to put into U.S. real estate. He did not care what returns he might get on his money—perhaps only enough to pay land taxes—but he wanted good land near a viable city. His expectation was to triple his money within 15 years, with no management problems. As Tysen says: “He just wanted to buy it, sit on it, and let the world go by.” As a kicker, this investor was ready to put \$750,000 of his kitty into cheap land, without regard to location. This was a form of investment roulette in which the investor was prepared either to gain nothing or perhaps to see his money be multiplied 20 or 30 times.

British investors are almost a breed apart, particularly those canny big-time operators who have recently appeared on the U.S. building scene, such as Clore and Cotton. Generally, these men represent vast interests which are chiefly engaged in the development of property. Cotton and Clore have recently merged their development concerns into a huge \$200 million complex rivaling anything in this country. They are chiefly builders, although they sometimes buy existing buildings. (Cotton calls himself “a creator” rather than a developer or builder.) In their U.S. dealings, they have thus far entered into ventures already started, or at least planned, by their U.S. associates. This is not only because the British are not so familiar with the U.S. scene, and with specific building situations, but also because they find it easier to obtain Bank of England and Treasury approval to make investments abroad if local interests are also represented. Moreover, such approval is mandatory for all British investments abroad, and British monetary authorities do not look with great favor on deals in which the sterling bloc stands to lose dollar reserves, or gain no income, or in which local capital is not represented.

#### SWEET DEALS FOR BRITISH INVESTORS

The British, in just about every case, have made extremely fortunate deals for themselves. In the deal with Wolfson and, to an even greater degree, the one with Zeckendorf, British capital happened along at critical times, and thus found extremely favorable circumstances. In early August 1959, Wolfson was approached by a Cotton representative about possible U.S. investments. Wolfson went to London to seal the Pan

Am Building deal, in which Cotton, for \$5 million of equity money and \$20 million in exchange for “senior securities,” received a 50 per cent participation in the building.

With Cotton's participation, Wolfson is also putting up the first building (a \$20 million office building) on air rights over Chicago's Union Station (see “Projects,” page 31).

Zeckendorf, too, approached

Cotton before finally making a deal with another British group last year. When the possibility of a joint venture with Cotton failed, Zeckendorf took advantage of a visit to America last summer by Kenneth Keith, vice chairman of Philip Hill Investment Trust, Ltd. Zeckendorf invited Keith to look over various Webb & Knapp properties. Keith huddled with other British colleagues, particu-



Builders Wolfson and Cotton

larly Henry R. Moore, vice chairman of Second Covent Garden Property Co., Ltd. (and a director of the Philip Hill bank), which is largely owned by the Philip Hill group, and decided to put \$22.5 million into a new corporation, Trizec Corp., Ltd. This corporation is owned about 48 per cent by Webb & Knapp, 48 per cent by the British group, the remainder of the equity being in public hands. Trizec then took over the construction of Zeckendorf's Place Ville Marie, a \$90 million project in the heart of Montreal. The British group participates, also through a joint corporation, in Webb & Knapp's Canadian shopping centers.

By last fall, the details of an even bigger deal, for Webb & Knapp's redevelopment projects, were nearly jelled. It was a sweet deal for the British, but Zeckendorf, with over \$100 million of

short-term debt burdening his venturesome spirit, was badly in need of cash, and had to give something away to get it. And he gave away plenty. The first sweetener came in the capitalization of the new Zeckendorf Property Corp., which initially will own 13 Webb & Knapp redevelopment projects, and eventually will be in charge of all future Zeckendorf redevelopment ventures. The British group paid \$12.5 million for a half-interest in the new corporation. But the British also got \$2.5 million in notes, paying 5¼ per cent and 5½ per cent, for repayment by 1968 or sooner. In one sense, it could be said that the British got \$12.5 million worth of equity for \$10 million, or that they were simply given the notes outright.

Besides this obvious attraction, the Philip Hill group can buy 4.5 million shares of Webb & Knapp common stock for \$6,250,000, or an average price of around \$1.40 per share. This is well below last month's price for the stock, which was around \$2.12 on the American Stock Exchange. More important, the same group got options for 500,000 additional Webb & Knapp shares, out of Zeckendorf's personal holdings, at “nominal cost.” Best-informed sources put this cost at about \$1 per share. The British also received an option for 270,000 shares of Gulf States Land & Industries, a Webb & Knapp subsidiary.

#### NOT ONE-SIDED

The deal was not completely one-sided, however. Zeckendorf's new corporation will be getting a total of \$43,750,000, most of which will be used to pay off pressing short-term debts, leaving working capital of around \$5 mil-



lion. Part of this total will come from two bank loans for \$25 million (which are guaranteed by the British). These loans probably would not have been possible without the British participation. And, even assuming that the book value of his personal stock will leave him with a loss when the British stock option on Webb & Knapp common is exercised, it could be a welcome tax loss.

MELJAY PHOTOGRAPHERS, INC.



Partners Moore and Zeckendorf

The British for their part will be riding close herd on Zeckendorf's future redevelopment operations. Although Zeckendorf and his son, William Jr., will have chief administrative responsibility, the British, because half of the board members are from their group, will be in a position to veto any Zeckendorf schemes that seem too far out. As Moore, who is on the board, says: "We have effective control of the board . . . anything we don't like won't happen. It couldn't be done any other way. We wouldn't have come to this arrangement if we didn't have this control." But Moore also says: "Most of the ideas will still come from Father Zeckendorf. He has an element of genius about him. We will, of course, propose to contribute as much as we can by way of investment ideas when they arise."

The British will also have a large measure of control on the newly constituted board of Webb & Knapp itself. When all options are exercised they will hold about 15 per cent of Webb & Knapp stock.

Zeckendorf split off nine prime projects to the new corporation: four Title I urban renewal projects (Kips Bay, Park West Village, and Lincoln Towers, all in New York City, and a huge project now under way in Southwest Washington, D.C.) plus two joint ventures with the Aluminum Company of America (United Nations Plaza, offices and apartments in New York City, and the 180-acre, multimillion-dollar Century City project in Los Angeles), plus the Russian Hill apartment project in San Francisco, and two strategically located pieces of land near New York. One of these land parcels is 50 acres near the huge Roosevelt Field shopping center, owned 74 per cent by Webb & Knapp, and the other is 255 acres adjacent to Freedomland, the vast amusement park in the Bronx, owned 48 per cent by Webb & Knapp.

Besides these projects, Zeckendorf Property Corp. will have four developments still in early stages. Two of these are again Title I projects (Lower Hill in Pittsburgh and Society Hill in Philadelphia); another is a proposed office building in Manhattan's Wall Street area. The fourth project, still unannounced, is in New York, too.

The British will also get most of the income from these projects, at least during the next few years. The shares in Zeckendorf Property Corp. held by Second Covent Garden will be paid 60 cents annual dividends per share, while those shares held by Webb &

Knapp will get only "nominal payments," that is to say, whatever is left. Since Park West Village is the only one of the projects that is finished (although parts of Kips Bay, Lincoln Towers, and the Washington apartments are being occupied also), income will probably not do much more for the next couple of years than cover the \$750,000 of annual dividend payments to Second Covent Garden.

#### WANTED: CITY DEALS

One thing is certain, judging by the Cotton and Second Covent Garden deals: British investors are interested primarily in developing city properties. And this is underscored by the British group, made up by Central and District Properties, Ltd. and E. Alec Colman Ltd. of London which is building the \$20 million office tower in Boston. The British combine bought the land from the city of Boston, and in a procedure differing from the Cotton-Wolfson and Zeckendorf deals, will develop the property without benefit of an American partner.

Like the big British groups currently on the U.S. scene, the venerable Società Generale Immobiliare di Roma is interested too in developing urban properties. Besides a huge commercial project not far from Zeckendorf's Place Ville Marie in Montreal, Immobiliare several months ago announced an ambitious scheme for developing a river-front site in Washington, D.C. adjacent to the planned U.S. Cultural Center.

Immobiliare is not interested in Title I projects, because, in the words of Nicholas Salgo, a former Webb & Knapp vice president and now an industrialist and Immobiliare's U.S. agent, "the directors feel it would not be ap-

propriate for a foreign corporation to get involved in federally aided projects." (One reason why none of Zeckendorf's British partners are officers of Zeckendorf Property Corp. is that under the laws of some states it is not certain whether noncitizens can control Title I projects.) After carefully looking over sites in New York and "a southeastern city," Immobiliare picked the Washington site for its major development in the U.S. (FORUM, Dec. '61).

Immobiliare, with 30,000 stockholders and a \$200 million valuation, is one of Europe's great building concerns, and its awakened interest in U.S. and Canadian properties should certainly be valuable. It has commissioned Architects Luigi Moretti and Pier Luigi Nervi (on the Montreal job) for its North American undertakings, and has shown an abiding interest in good design for its large urban jobs. The Washington project is being held up currently by the need for zoning variances, but once that problem is resolved, Immobiliare will have one of the largest single foreign investments in U.S. real estate. **END**

#### Immobiliare in Montreal





PHOTOS: GEORGE CSERNA

***A finned, precast concrete wall encloses nearly three acres of space in this handsome Ohio plant***

## **A HIGH - STYLE FACTORY FOR A HI-FI MAKER**

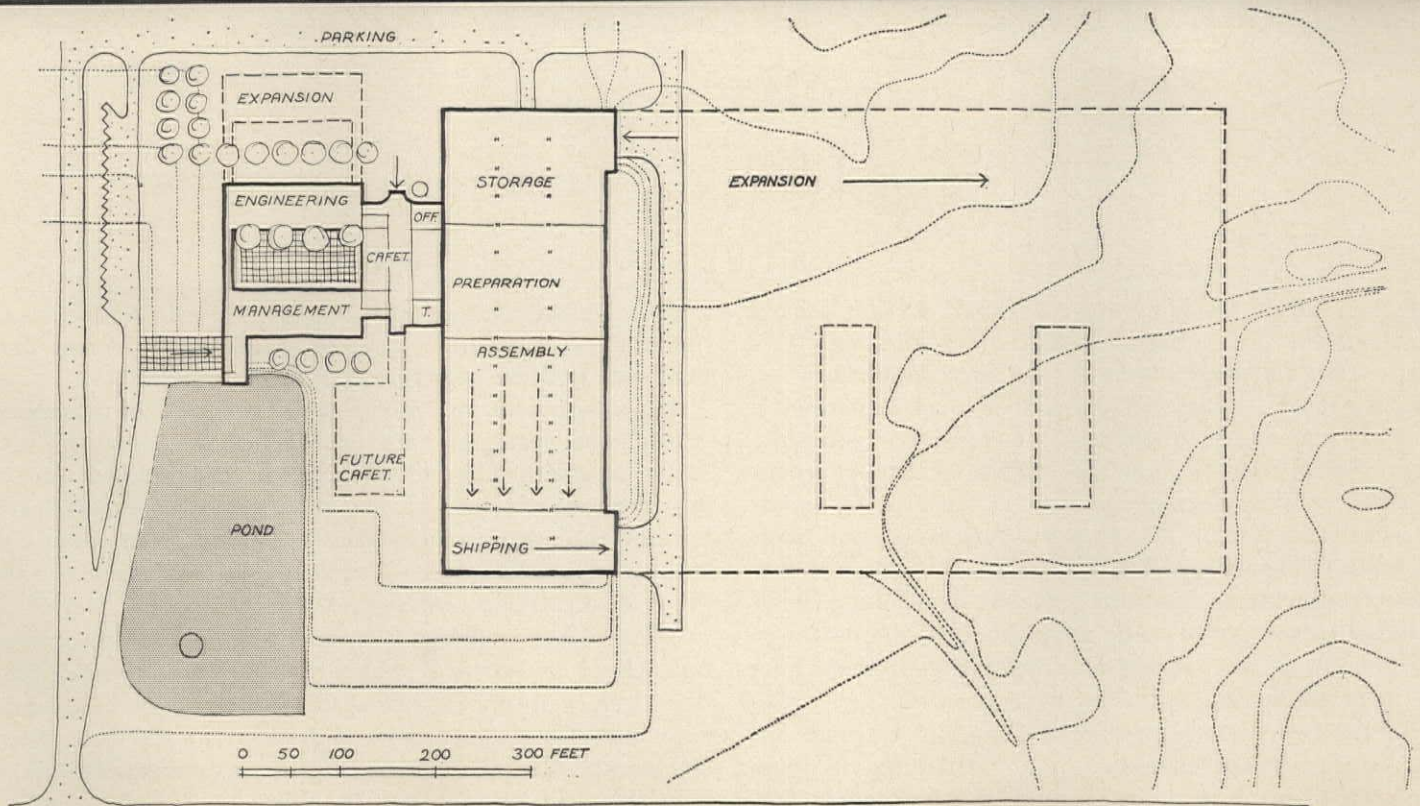
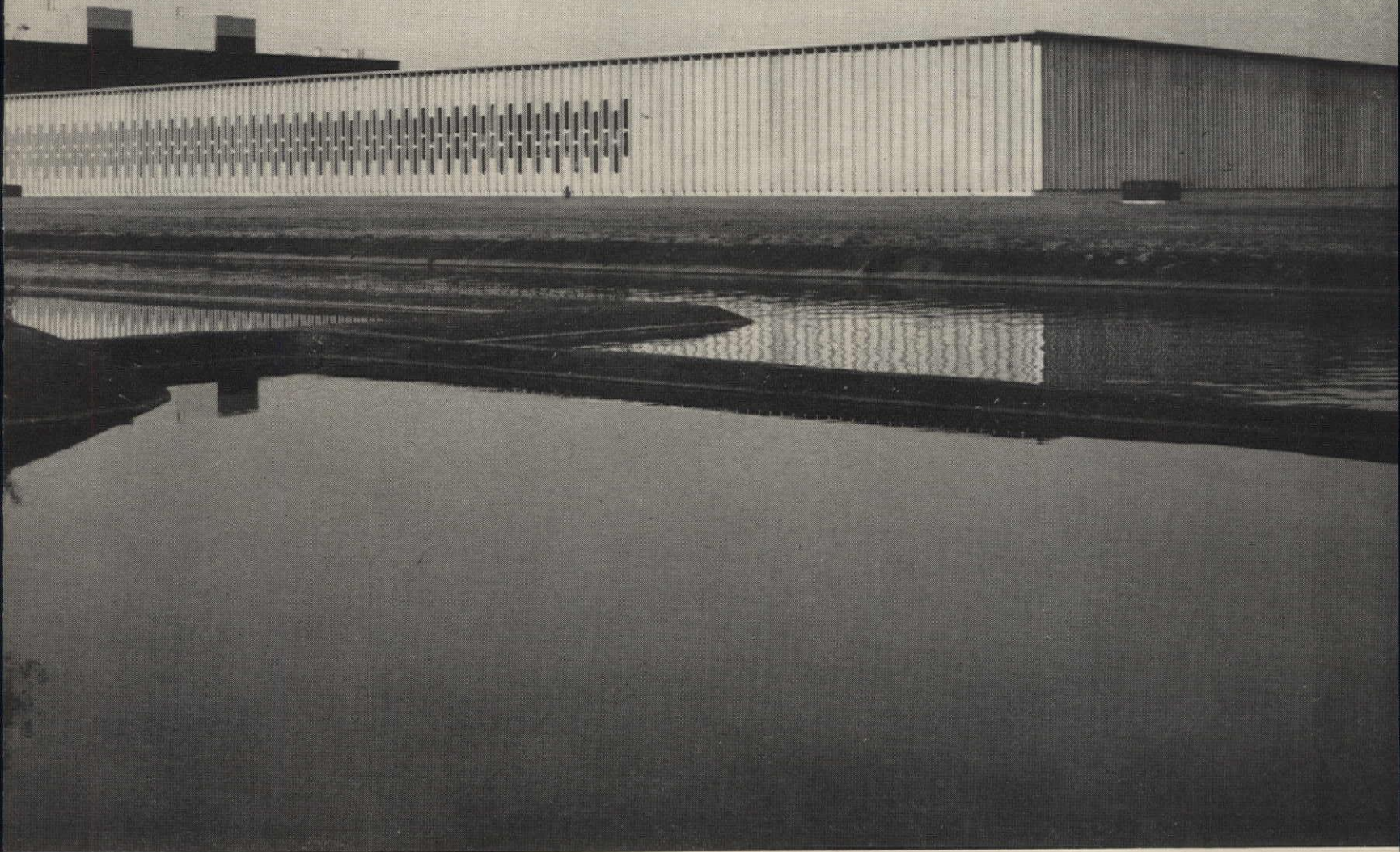
The strong, vertical ribs of the wall reflected in the pond above are, first, the solution to an architectural problem; but they also turned out to be simple and cheap to build.

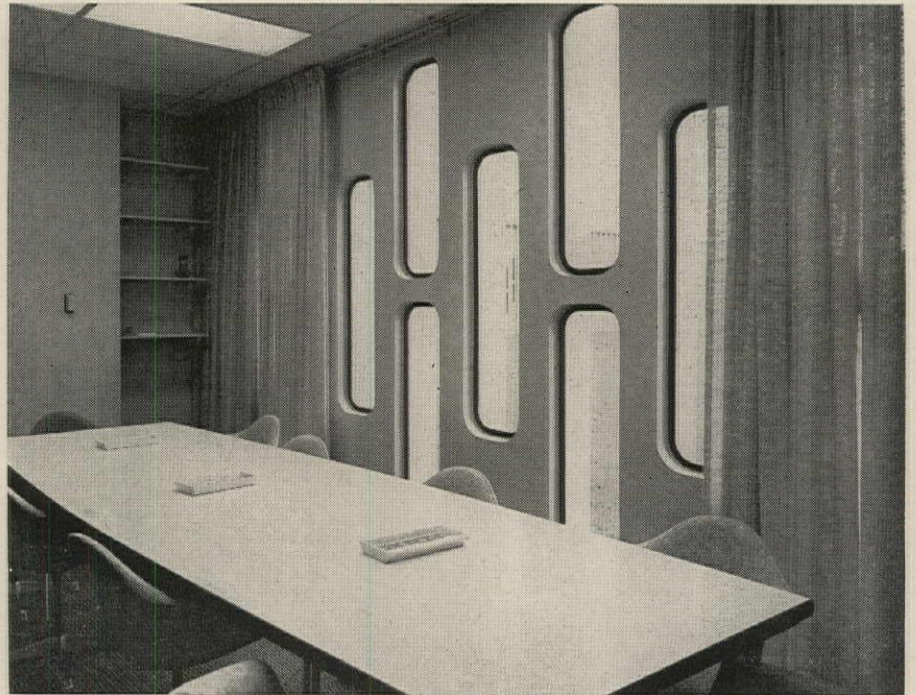
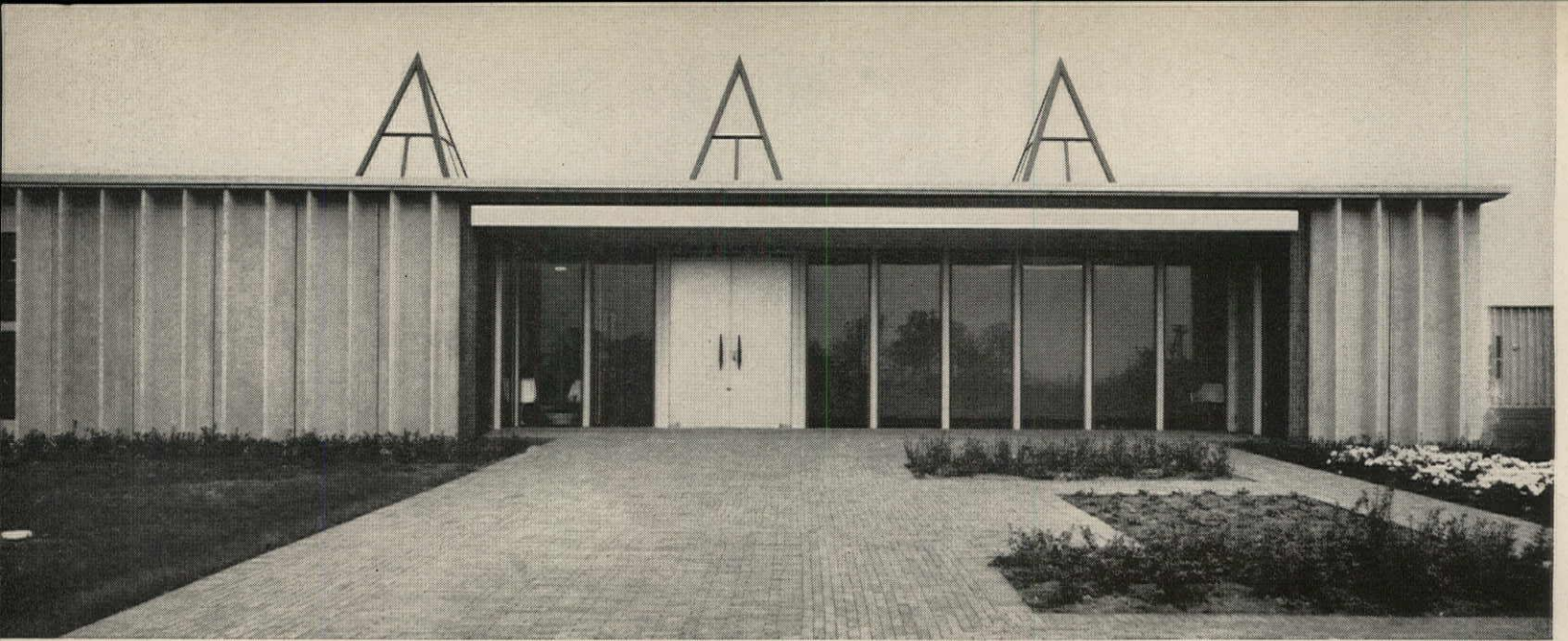
The architectural problem was how to construct a 3-acre, one-story building, and make it look like more than a mere sliver on the horizon. (A future expansion requirement will make the building 1,000 feet long!)

The solution was a wall of precast double-tee concrete units, 4 feet wide and 2 inches thick, which give a strong vertical "pull" to all exteriors. Between the ribs are holes with neoprene gaskets that hold panes of glass. Panels are finished and insulated inside to suit varying conditions.

In practical, economic terms, this architectural solution worked out well. Although the double-tee panels were designed originally to serve as structural floor or roof slabs, their use in a curtain wall proved to be extremely economical—only \$1.44 per square foot for the solid, unfinished panels, slightly more for glazed, plastered, and insulated units (detailed costs are given on page 90).

The individual character supplied by Columbus, Ohio Architects Brooks & Coddington was exactly what the clients ordered. But the clients, who manufacture several widely varied products in the high-fidelity field, also required a superclean, completely air-conditioned environment carefully organized to fit several manufacturing operations. On top of this, there was a need to provide for a fourfold expansion of the manufacturing operation, with commensurate enlargement of engineering and administration areas.





*High pyramidal skylights mark the reception area (above). A conference room and an office show the one-two rhythm of windows (below).*

The plan of the building was organized around a large pond (used for fire protection and air conditioning). The administration and engineering sections are contained in two rectangular blocks, separated by a garden court. Expansion of office and engineering functions can take place by forming a second garden court through the addition of another rectangular block. Still further blocks can be added in a similar manner when required. The 50-acre site leaves ample room for all kinds of expansion.

The manufacturing operation, placed in a large, high-ceilinged structure set at right angles to the administrative-engineering wing, can expand by repeating itself three more times, in blocks spaced again by garden courts.

Tying the two sections together is a spacious entrance and locker area for employees, who come from parking lots at the rear of the plant. The present first-stage development con-

tains a self-service cafeteria next to the lockers and facing the court, but a future cafeteria pavilion is planned for a pond-side location near the front of the building.

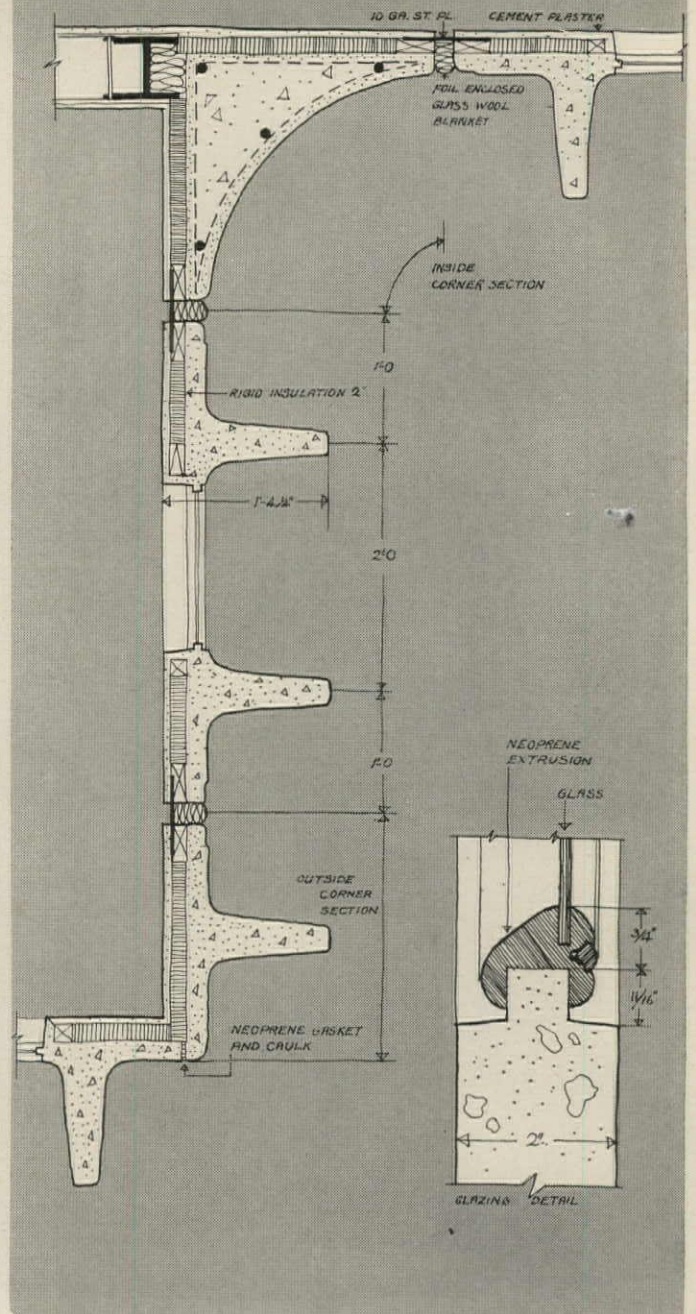
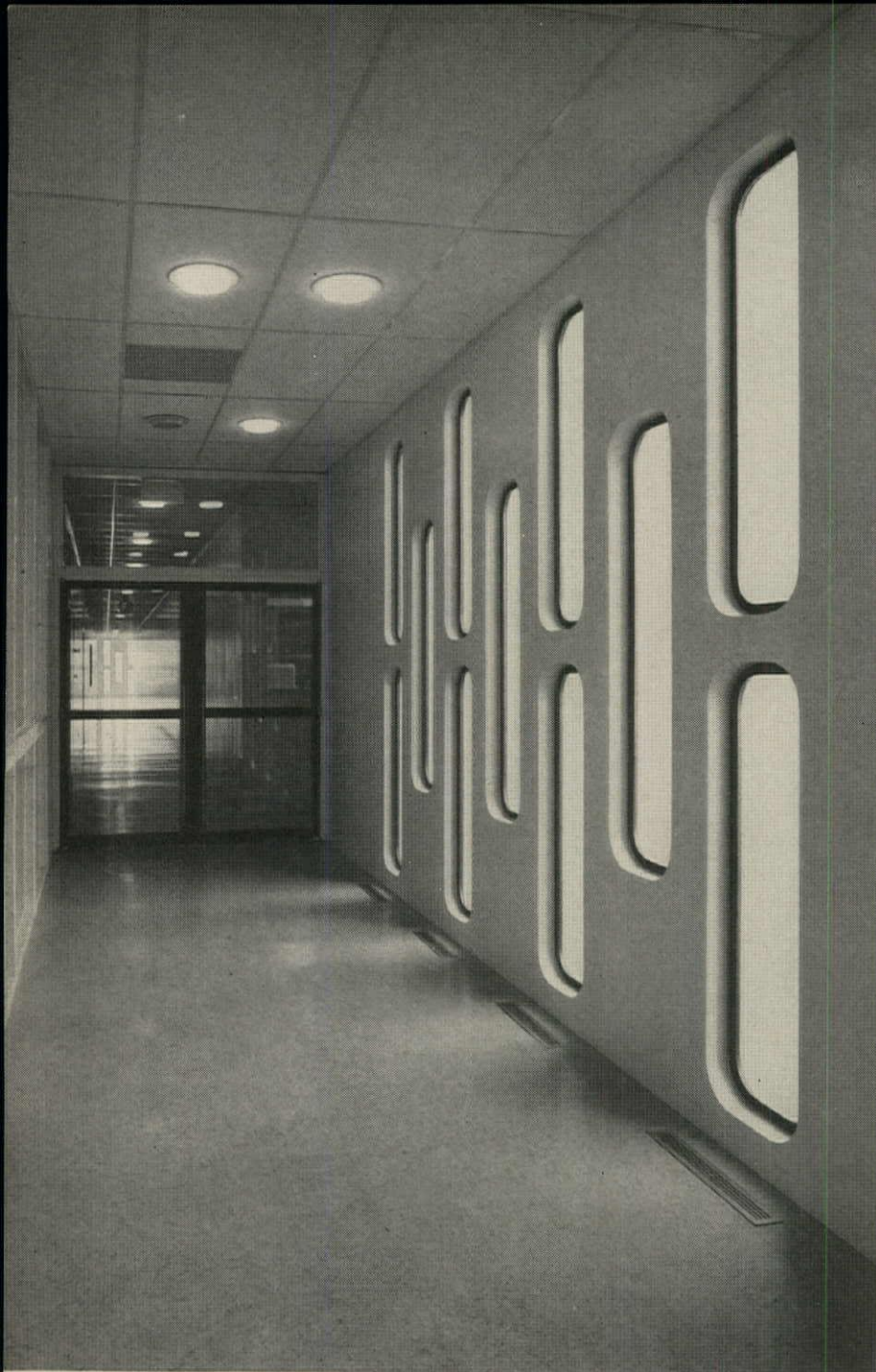
The manufacturing, which primarily involves assemblies, is conducted from the back to the front of the factory area. At the back is the "input" section where parts and components are received and stocked. At midsection is a staging area, heading the assembly lines. At the extreme front, in an area without windows, is the "output" section where finished products are stored and shipped.

While the warehouse is windowless, zippered-in glass is used elsewhere where it makes sense; in the assembly area, these windows were calculated only for view—to give outside vistas to workers at benches and desks. In no case is an assembly worker further than 100 feet from a window; this relationship will be preserved in future expansions, thanks to



*Assembly-line workers catch long vistas outside when they look up (above). The employees' entrance hall is fitted with neat coat racks (below).*





Wall section, shown insulated and plastered (as in corridor photo, left) was made in two heights, with glass openings and without

the planned courts separating the future sections.

The mechanical system is carried in a penthouse which straddles the midsection of the plant, housing two 200-horsepower high-pressure hot-water boilers and a 450-ton absorption refrigeration machine. Separate air-supply units (three for the office section and three for the factory section) and 26 thermostatic control zones allow optimum comfort.

These mechanical, planning, and functional features—the things behind the wall—testify to the care which went into the building of this plant. This care extends to the finned wall itself, which is clipped to the steel-framed structure. Painted, plastered, glazed, and insulated to fit various needs throughout the plant (see section above), the wall shapes a building of persuasive individuality. Moreover, its precast elements can be reused if and when the building is expanded—which weighed heavily in their favor with the clients.

#### FACTS AND FIGURES

Bell Sound Division, Thompson Ramo Wooldridge Inc., 6325 Huntley Rd., Worthington, Ohio.

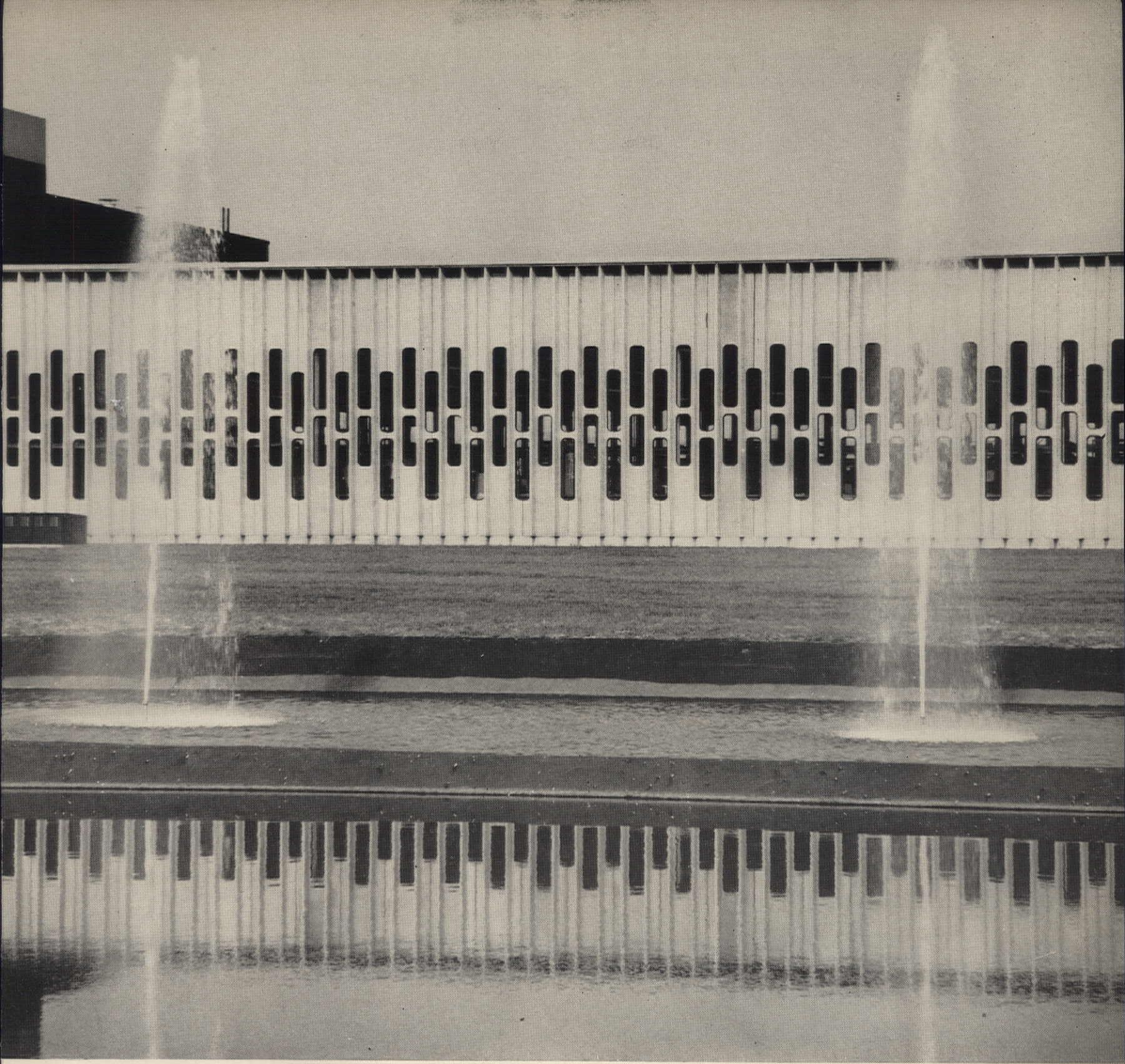
Architects: Brooks & Coddington. Engineers: Barber, Magee & Hoffman (structural); Ralph & Curl (mechanical); Gould H. Ayres & Associates (electrical).

General contractor: The Albert M. Higley Co.

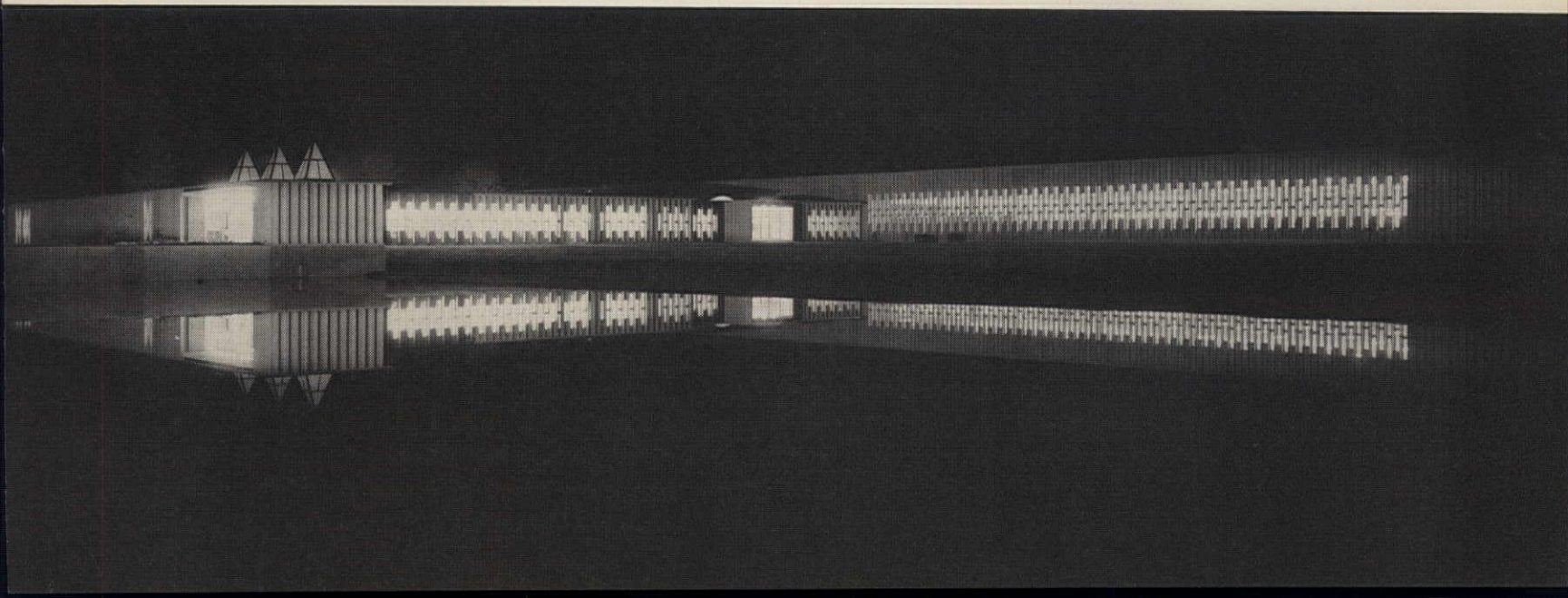
Construction cost (excluding land, site development, furnishing, and fees): \$1,512,700. Building area: 119,534 square feet. Cost per square foot: \$17.45.

Wall construction cost (precast concrete double tees): \$1.44 per square foot without windows, insulation, wainscoat, or painting;

\$2.25 per square foot for same wall insulated; \$2.00 per square foot with windows glazed and interior painted, but without insulation or wainscoat; \$2.92 per square foot for office wall, glazed, insulated, plastered, and painted. Precast concrete double-tee slabs 4 feet wide, 22 feet high, are held in place in the factory section by clips at top fastened to wide-flange beams spanning 32 feet; clips at bottom fit over an angle fastened to foundation wall. Office slabs 12 feet high act as a bearing wall for steel joists which rest on a continuous angle bolted to slabs near top. Bottom of slab is fastened to an angle on top of foundation.



*Jets in the pond spray high in the air, stir the reflections as they fall (above). At night (below) the pond doubles the play of brilliance from the windows.*



## TURNING SMALL TOWNS INTO NEW ONES

To say that the biggest growth in U.S. population in the next decade will occur in the suburbs is hardly news. Indeed, the statement conceals thought and boggles action. Just what are suburbs, and where? The answer depends on one's point of view. From the city, they seem like concentric waves of growth, washing the countryside with pale tints of urbanity. From lofty points of view, this varihued drift looks like something brand-new, subject even to discernment as pattern. But what pattern, and how can it be rationalized?

From Oxford, Ohio, an extremely urbane college town of 7,828 persons set just beyond the megalopolitan ranges of Dayton, Cincinnati, and Indianapolis, Professor Rudolph Frankel (who went there from Berlin, Bucharest, and London) views the megalopolitan drift as a backwash, drawing from places like Oxford, but without her college anchor, the vitality, amenity, and—yes—urbanity, of the small town.

"Due to technical development and economic change," says Frankel, "many small towns have lost their original function or the original base of their economic stability and prosperity. Retail and market centers in farming regions, slum towns near certain extractive industries, one-product manufacturing towns close to vanishing raw materials—all have experienced such a decline. And, in turn, the lack of attractive job opportunities cause a continuous loss of the resulting migrant young and aggressive population. Now, with dwindling income and tax levels, the city is less and less capable of providing and maintaining up-to-date public facilities. Thus, a stagnation sets in, which turns finally to decline, decay, and resigned despair, with all that ensues from it.

For ten years, Frankel, in his graduate program in city design at Miami University, has been using small towns as laboratory design problems. Out of this laboratory has emerged a method for analyzing small-town possibilities, establishing a framework for action, and projecting a vision of the future.

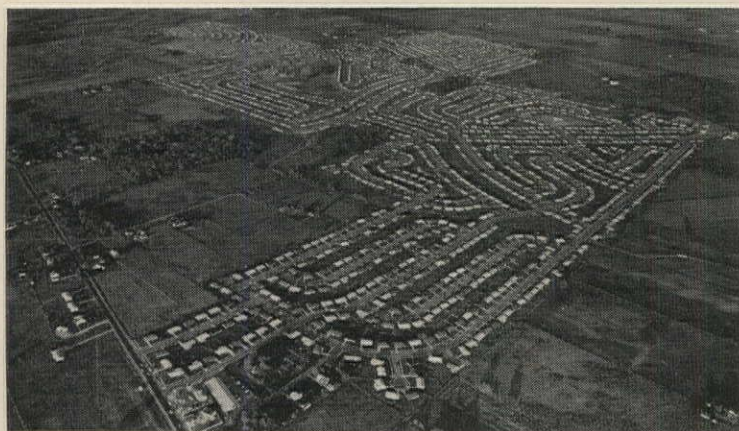
### BOOTSTRAP RENEWAL

Perhaps the classic case in Frankel's still growing collection is that of Wellston (population 5,728) in the hills of south-central Ohio. Once the retail and market center for the coal-mining country surrounding it, the town has declined from a population peak of near 8,500 in 1900. Frankel, and the graduate students who worked on the Wellston problem, foresee a slow return to that 1900 peak by 1980. But if—and the if is a big one—the town vigorously pursues the goals



COURTESY "WALLSTON SENTINEL"

1. Wellston, Ohio: small town to new town



2. Wayne Township, Ohio: builder's colony to new town



JIM WHITMORE—LIFE

3. Evansville, W. Va.: no town to new town



set in the master plan, Frankel thinks the population could reach 12,000 by 1980.

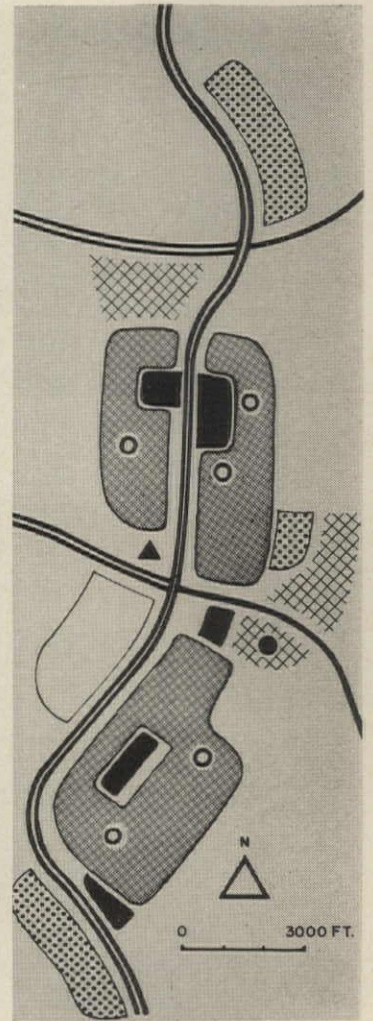
The reason for this confidence is the cold and simple logic he presents to the community. If a town like Wellston, with an improving position as an industrial location in the Ohio Valley equidistant from Pittsburgh and Cincinnati, could obtain new industry, the growth and redevelopment of the town could be spurred. First step, then, after the acceptance of the plan and the enactment of recommended zoning and planning statutes (action which was taken last November), is to annex land Frankel staked out for industrial parks in the flat valleys north and south of town (see plan, right). At the same time, Frankel proposes annexation of other territories needed at later stages.

Then, with industry building in the new parks, a new residential sector would be undertaken on new land south of town, between the industrial park and the old city. This new sector would consist of some 20 superblocs, each containing, say, 80 single-family houses on cul-de-sac streets. Through the center of each superbloc would run a finger park, following contours and stream beds in many cases. This new sector would have two new elementary schools and, at its heart, a commercial district.

The next step would involve the use of urban renewal to establish a civic and cultural center at the worn southern fringe of the existing town. Here, adjacent to the county fairground, a new hospital, a new high school, and a central cluster of civic buildings would be built, linked by a run of green park and edged by two garden-apartment areas containing some 14 dwelling units per acre.

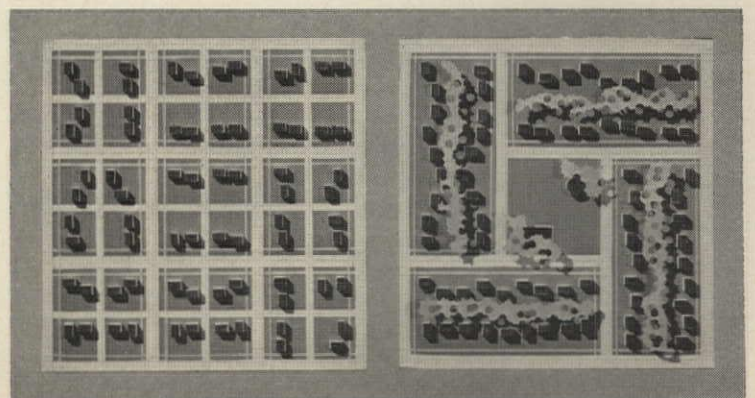
The final step in Wellston's rejuvenation involves the redevelopment of the northern sector, covering the heart of the old built-up area. The basic reorganization of this area is obtained by abandoning the useless streets and alleys which now chew up nearly 40 per cent of the area (before and after plans, lower right). In some of these abandoned street rights of way, good houses from the central block could be relocated, or new houses could be built. The central block would then become a neighborhood park providing much of the amenity of the new sector for the old.

Obviously such a logical development of a town's growth presents an appealing vision. But just as obviously, this vision cannot be attained unless communities have a singular will, which is not very likely. *If* a town had such a will, *if* it had enough control over its perimeter to keep growth from edging the roads into town, and *if* it exercised control rigorous enough (through zoning, platting, land acquisition, and utility extensions within its territory) to allow the plan to



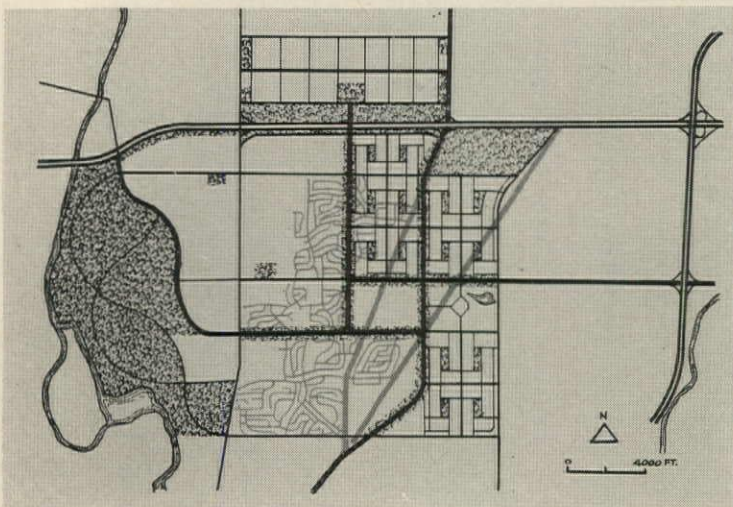
Wellston: New development brackets rehabilitated older sections

Nine town blocks are turned into a superbloc with a center park

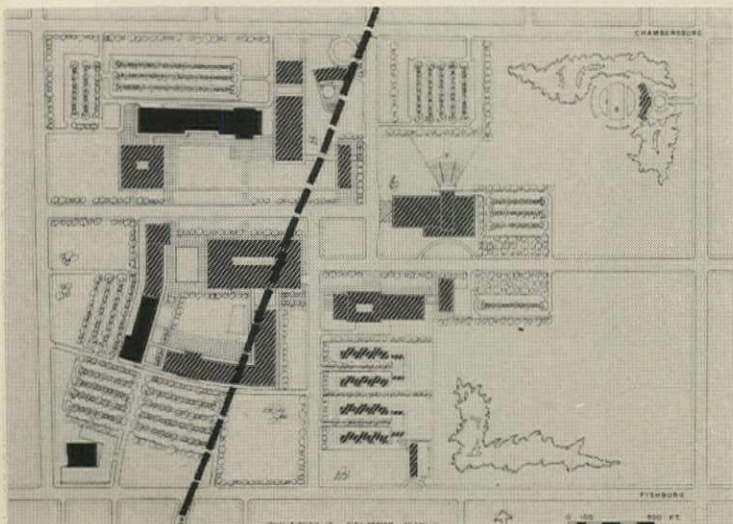




Wayne Township: A supergrid is laid over existing streets



New center is made from old roadside shopping centers (black)



unfold, there is no doubt that it would be the better for it.

**A CURE FOR SPRAWL**

For Wellston, which is sufficiently beyond megalopolitan sprawl, the conditions for local control of development, particularly at the edges of the town, are at least possible. But for fast-growing communities like Wayne Township on the edge of Dayton, Ohio these conditions cannot be obtained by the community itself. Here, a larger regional control must accompany local planning to set greenbelts and protect farm territory between developing communities.

Unlike Wellston, Wayne Township's problem is not to increase the pace of population growth but to catch up with a pace running way out ahead. In 1950, the township's population was 1,921. In 1960, it was 11,958, an increase of 522 per cent, compared with 5.9 per cent in Dayton proper and 30.6 per cent over the metropolitan area.

The major contributor to this growth is Huber Heights, a spreading colony of one-story brick houses on 75 by 100 foot lots and selling between \$12,500 and \$16,900 (typical street photo, left). Although Frankel and his students came on the scene as consultants to the Township Trustees, Frankel is now advising Huber Homes on its next neighborhood extensions, a notable effort to augment the plan.

This plan, on its own terms, is just as logical a development of Wayne Township's situation as is Wellston's plan of its own situation. And the pattern, again, could be extended to countless other territories besieged by burgeoning builder's colonies. The superbloc or supergrid (see plan, left) is the organizing theme. Instead of depending for main circulation on existing country roads and then snaking intricate webs of curved streets in between, Frankel overlays a clear rectangular organization on the land and then reaches in, generally on cul-de-sac streets, to settle the land between.

Where the snaky street pattern of Huber Heights has already been constructed, the grid is laid in along development edges or uses existing streets, but where land still lies fallow, the grid can be set down relentlessly as an over-all order.

Around the edges of the Township, Frankel's plan leaves a ribbon of green which, properly protected, could keep the Township's development from merging into the sprawl from beyond. An industrial park, plus housing estate areas and recreation reserves, are marked out in this territory.

The supergrid, however ingenious, does not solve the problem of a town center, for which action taken is more specific. In Wayne Township, the Frankel plan uses two adjacent shopping centers as a nucleus (plan, page 94). By providing an organizing framework carefully interposed between the

two existing shopping centers, the plan leaves room for each to grow toward the other and provides adjacent space for civic and government centers.

These two basic steps, then, suggest general procedures for unifying and organizing the customary American builder's sprawl, and they could be applied anywhere, provided it is not too late. At Wayne Township, the plan can still be built, and, indeed, at the present rate of growth, the Huber organization and the Township Trustees between them can achieve its main framework within the next few years.

#### NEW TOWNS FROM SCRATCH

The plan for Wellston and the plan for Wayne Township are, in fact, new towns for America, and the broad principles they involve can be used to build from scratch, as Frankel and another group of students have demonstrated in their plan for Evansville, W. Va. The Evansville plan (right) was proposed to the Kaiser Aluminum Corp. as a solution to the housing problem generated by the construction of the world's largest aluminum smelter.

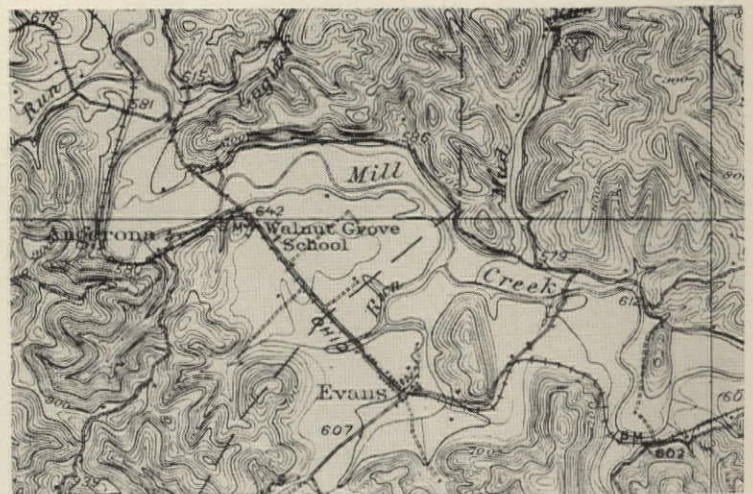
The town is set carefully on flat valley plains found by aerial reconnaissance conducted over the steep West Virginia terrain south of Charlestown (see contour map, top right). Like industrial new towns projected during the last 30 years, this one looked good on paper, but was not built.

In Frankel's case, the failure does not seem so tragic, for his new town plans are prodigious, if plans like Wellston's and Wayne Township's are considered. These new towns formed out of small towns may, in fact, be much more portentous than the Evansville type, interesting as it may be. Frankel eloquently explains why: "It is generally predicted that the population of the U.S. will increase by nearly 100 million people in the next three decades or so, and that the overwhelming preference will continue to be an urban way of life. Our large cities will, of course, be unable to absorb such a dramatic influx alone."

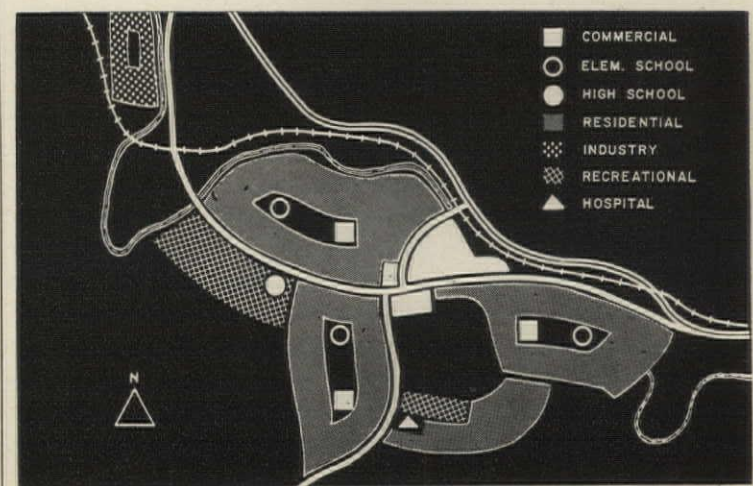
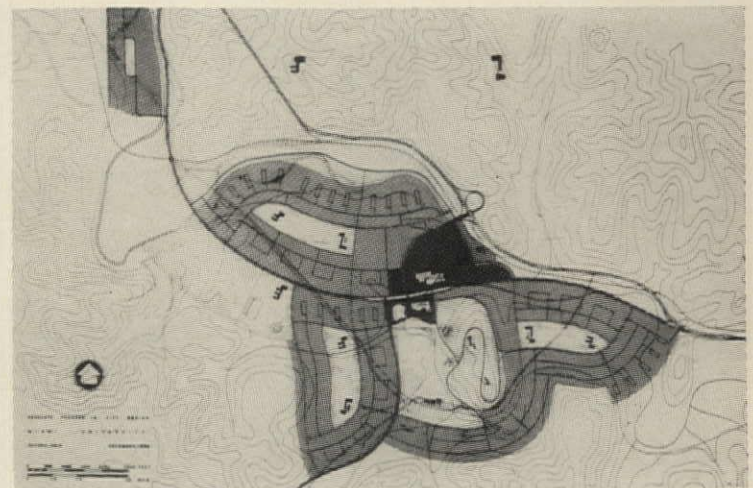
Frankel continues: "It is my belief that an over-all strategy will not only have to provide for the opening up of new areas for new urban settlements, but will also have to concentrate equally on the reactivation of the innumerable, most valuable, nuclei created by many of our smaller cities."

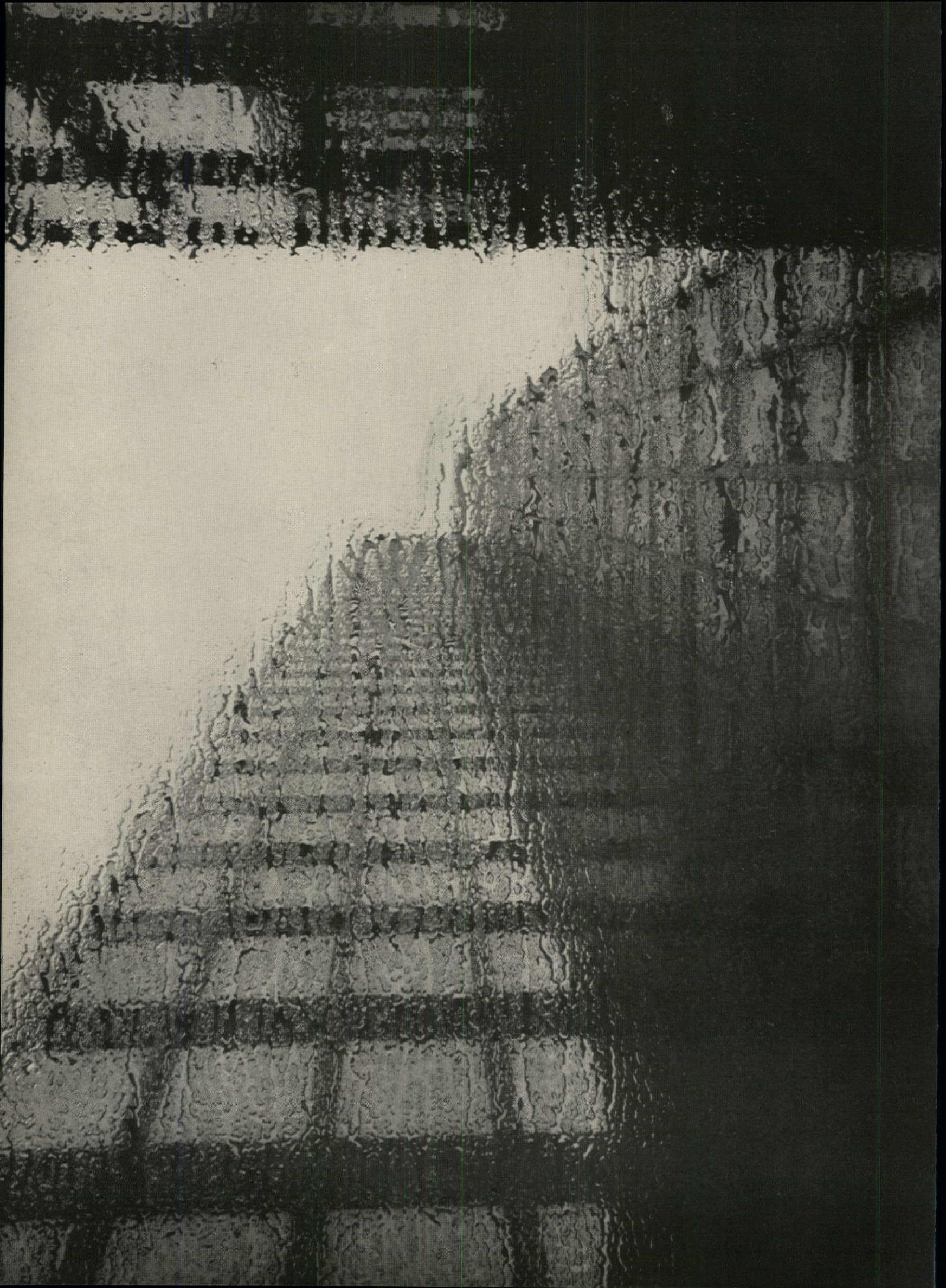
Against those who see in these plans merely a pipe dream for small towns, the obvious and ever increasing need for such a strategy is a convincing rebuttal. Admittedly, the response at all levels of government—from the small town to the federal agencies—is inadequate to the challenge of Frankel's plans. Yet it is equally inadequate to the challenge facing the nation as a whole.

END



Evansville: New town plan follows the pattern of the valleys





## SEALANTS: HOW TO KEEP THE WEATHER OUT

Not so long ago, when buildings had thick walls of porous materials, keeping water out was a relatively easy job: for one thing, water had to travel some distance before it would show up on the inside of a building; for another, it stood a good chance of being absorbed along the way by the structure itself.

All this has changed with the advent of today's thin walls of metal, glass, precast concrete, and other sheet materials. Nowadays, any drop of water which does enter through a joint in the wall is very likely to show up immediately on the inside.

Movement is a prime cause of joint failure and resulting leaks. Small buildings with heavy walls built of many small pieces tend to be stiff, and absorb what little movement they have over a large number of joints. A large, light structure with relatively few pieces may actually move a great deal due to wind, settlement, or expansion and contraction, and the fewer the pieces, the greater the strain on individual joints.

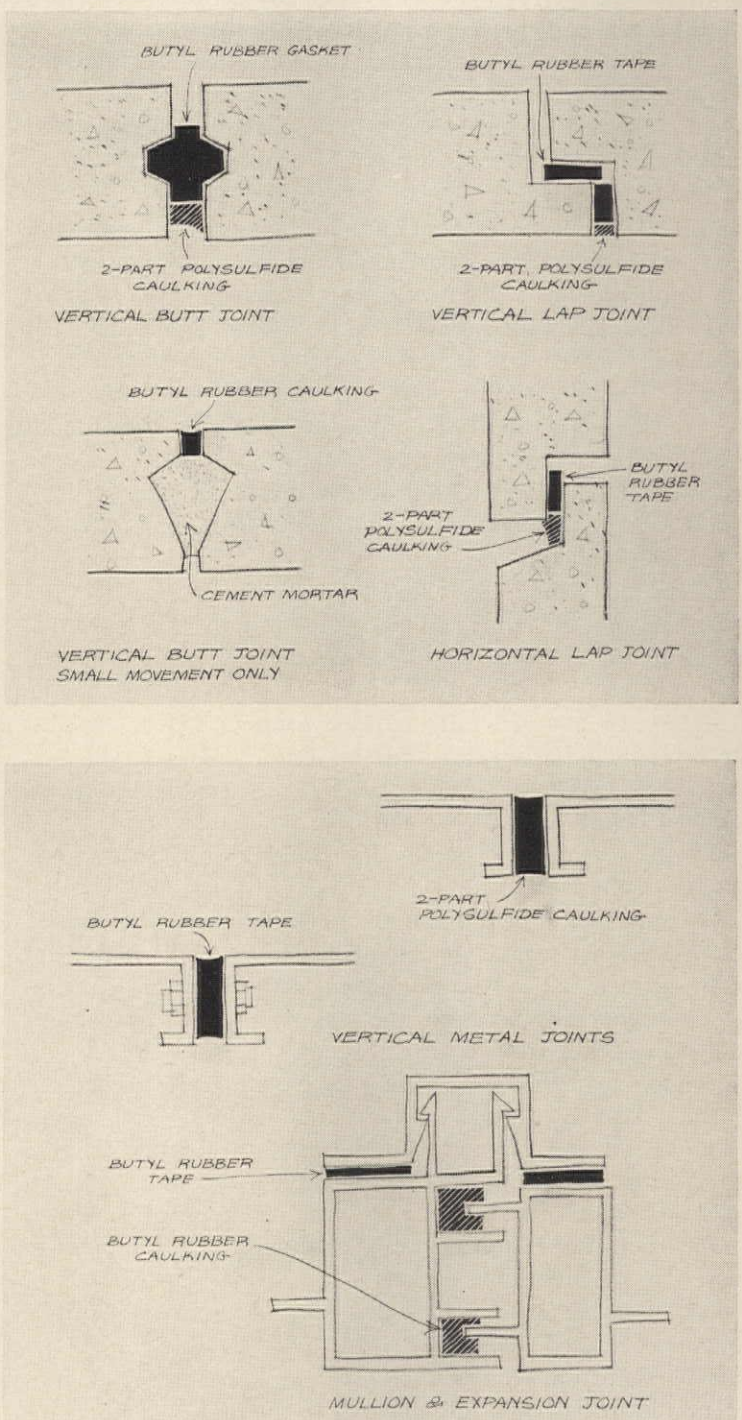
During a heavy rain storm water may flow down the face of a building at the rate of one gallon per minute per 100 square feet. This veritable torrent flows over, around, and even under myriad joints, each of which is a potential leaking point. One recent survey showed that of a random group of new buildings some 42 per cent leaked; informed guesses have put the figure closer to 80 per cent.

To make the many joints in today's buildings watertight is the job of sealants—and they have had to come a long way from the traditional glazier's putty.\*

There are three basic types of sealants: preformed gaskets, tapes, and calking compounds. Each type is available in varying degrees of rigidity. (Rigidity or hardness is expressed in terms of durometer scale; the higher the number, the stiffer the sealant. Elasticity, on the other hand, varies from material to material.)

Gaskets—strips of sealant extruded or molded to a particular shape—in particular require careful design and precise manufacture. Joints must always be in compression. Since they may require that separate pieces be joined in a watertight bond, corners can be troublesome with tapes and gaskets, which are generally fitted into position by hand. Calking compounds, soft and pliable, are applied by gun, knife, or trowel.

Joint size is determined by the coefficients of expansion of



**JOINTS** in concrete (top) and metal (bottom) show uses of tapes, gaskets, and calking. Tapes act as both sealants and resilient fillers; all shown are in compression. Gaskets are tailored to joints. Calking acts as final seal; polysulfides bond to materials involved.

\* Some of the information contained in this article first appeared in the British magazine *Architectural Design* and in publications of The Building Research Institute. FORUM gratefully acknowledges its debt.

the materials, the temperature range anticipated, the dimensional tolerances of the parts involved, and the working thickness and characteristics of each sealant being used. Insufficient clearance may result in the cracking or chipping of the materials to be joined, or it may result in the sealant being squeezed from the joint. On the other hand, if a clearance is too great, the sealant may not be able to bridge the gap.

Since the ability to expand and contract varies a great deal from sealant to sealant, it is generally the percentage of expansion required which determines the particular sealant to be used. It is therefore necessary to calculate the anticipated expansion and contraction of the joint due to temperature change. The temperature of an exterior wall may drop as low as -40 degrees Fahrenheit on a winter night or rise as high as 160 degrees Fahrenheit in the summer sun if it is of a dark colored metal. Although this represents a temperature spread of 200 degrees, a range of 160 degrees or less is generally used in actual practice.

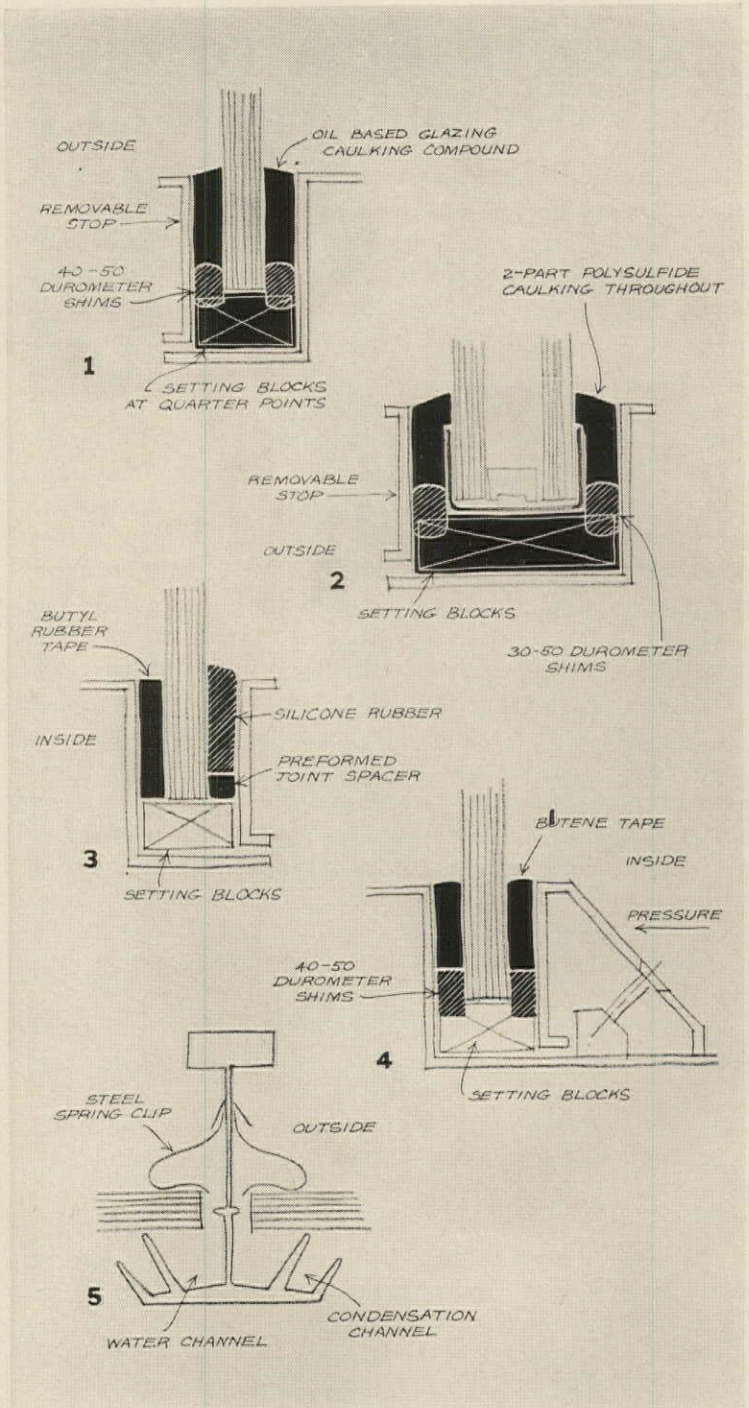
*Metals*, in some cases, have high coefficients of thermal expansion, and these must be taken into account. For example, an aluminum section 10 feet long will expand 5/32 of an inch in length with a 100-degree Fahrenheit temperature change.

Metals do not generally require priming before sealants can be applied, but surfaces must be clean, and, in some cases, roughed up for better adhesion. Lacquer coatings must be removed before applying an adhesive sealant, as the bond of sealant to coating is generally far stronger than that of the coating to the metal.

*Concrete* should be cured and, as with all masonry, cleaned before joints are sealed. If sealants are to be used which bond to the surface, it is advisable that masonry be primed. Priming is not generally necessary for gaskets, but the surface must be clean and free from pits and bumps. (Some architects and contractors are reluctant to use gaskets with concrete because of the relatively uneven contact between the two.) Some sealants tend to stain certain types of natural stone, so it is advisable to check with the manufacturer if there is any doubt. Tolerances to be considered vary with the type of masonry.

*Glass* does not require priming, although it is necessary to seam glass to give some gaskets a firm grip. The surface, of course, must be clean, especially when two-part polysulfide polymers are used (see below).

Deflection from wind load and thermal expansion and contraction must be taken into account in the design of joints for large panes. Thermal movement will be even greater if the glass is colored or heat-absorbent, as its temperature will run higher in the sun than that of ordinary glass. A sealed double unit with colored or heat-absorbent glass on one face is an



**GLAZING DETAILS.** Some details using two-part polysulfide polymers (2) resemble those using conventional glazing putty (1). Not all two-part polysulfides, however, can be used behind glass (see text). Polybutene tape (4) is sticky but requires constant pressure to seal. Dry glazing (5) relies on weep holes and pitch to prevent leaks.

extreme example: not only must the joint cope with movement along its length, but movement in cross section as well. Soft sealants and large clearances are therefore particularly important with insulating glass. If the insulating glass is edged with a metal channel, the seal should be made to the glass above the channel rather than to the channel itself (see detail 2, page 98). Manufacturing or cutting tolerances vary with the type of glass.

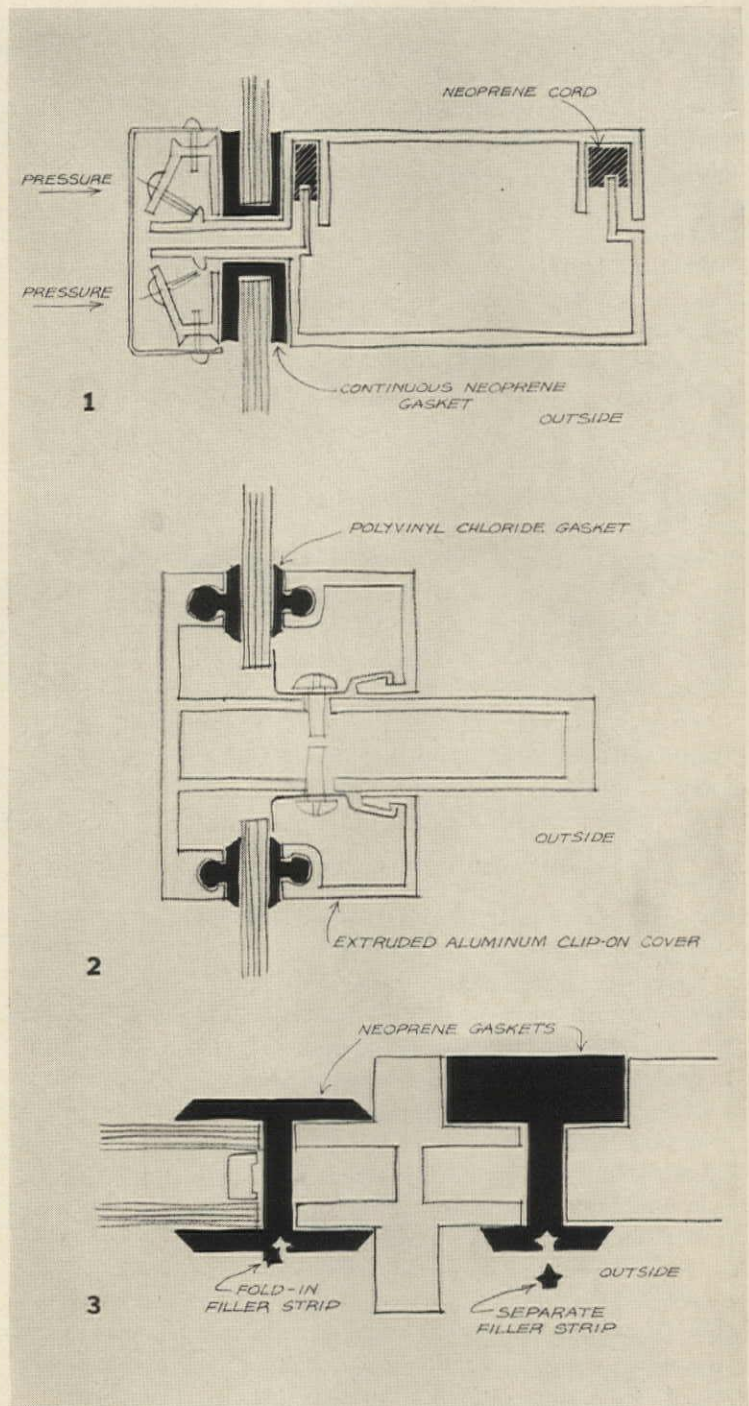
Some sealants—such as neoprene gaskets—can be used to hold glass (or a panel) in position, but most cannot. Those which cannot require the use of setting blocks (of soft lead, neoprene, etc.) under the glass, and shims or cord (of polyvinyl chloride, neoprene, etc.) at the sides and top, to protect the glass from damage due to contact with sash or surrounding materials.

The following materials are employed as sealants:

**Conventional calking compounds.** Glazier's putties, the traditional sealants, were used almost exclusively until the advent of newer types. Many are oil-based with asbestos fillers. These conventional calking compounds are inexpensive and adequate where there is little movement to be expected, i.e., in housing and other buildings up to five floors high. One major disadvantage: they tend to become hard and brittle with time and must be replaced every 20 years or less. Maximum working elongation is about 10 per cent. Sash must be primed before applying, and sash and sealant painted regularly thereafter. Within these limitations, conventional compounds are still satisfactory sealants.

**Two-part polysulfide polymers.** These generally consist of a liquid polymer (a syrupy liquid) and an accelerator or curing compound. As soon as the two parts are mixed, polymerization or hardening begins and a soft, tough, rubbery substance is produced. The speed with which this takes place is directly proportional to temperature and humidity: the higher the temperature, the faster the hardening. The permissible working time may vary from one-half hour to about eight hours. Mixed two-part polysulfides may be frozen (usually with dry ice) to slow the setting process down to days and even months.

Two-part polysulfide polymers are able to elongate up to 100 per cent (working percentage) to take up differential movement and are therefore suitable for use in multistory buildings with lightweight wall systems. As polysulfide polymers are soft, flowing, and 100 per cent nonvolatile, they will not only completely fill an irregular opening but will also bond to glass and metal. They do not shrink or crack after curing. As the flow can be controlled, polysulfide polymers can be used in vertical joints up to  $\frac{3}{4}$  inch wide. They should



**GASKETS.** Most gaskets must be kept in compression to ensure sealing. In detail 1 a pressure stop can be seen. Detail 3 shows two types of neoprene gaskets using filler

strips. When the strips are pushed into place, they deform the gasket, pressing against the material to be sealed. Vinyl gaskets in detail 2 are under minimal pressure.

not, however, be used in openings less than 1/8 inch wide. Several colors are available.

Life expectancy, if joints are properly designed and workmanship is good, may be upward of 30 years, but certain precautions must be taken. Some two-part polysulfide polymers tend to be damaged by ultraviolet light which has passed through glass and, thus, if used inside, should be placed out of direct sunlight. Any form of surface contamination will interfere with their adhesive properties, so that if used in conjunction with conventional oil-based mastics, it is imperative that the polysulfide be applied first.

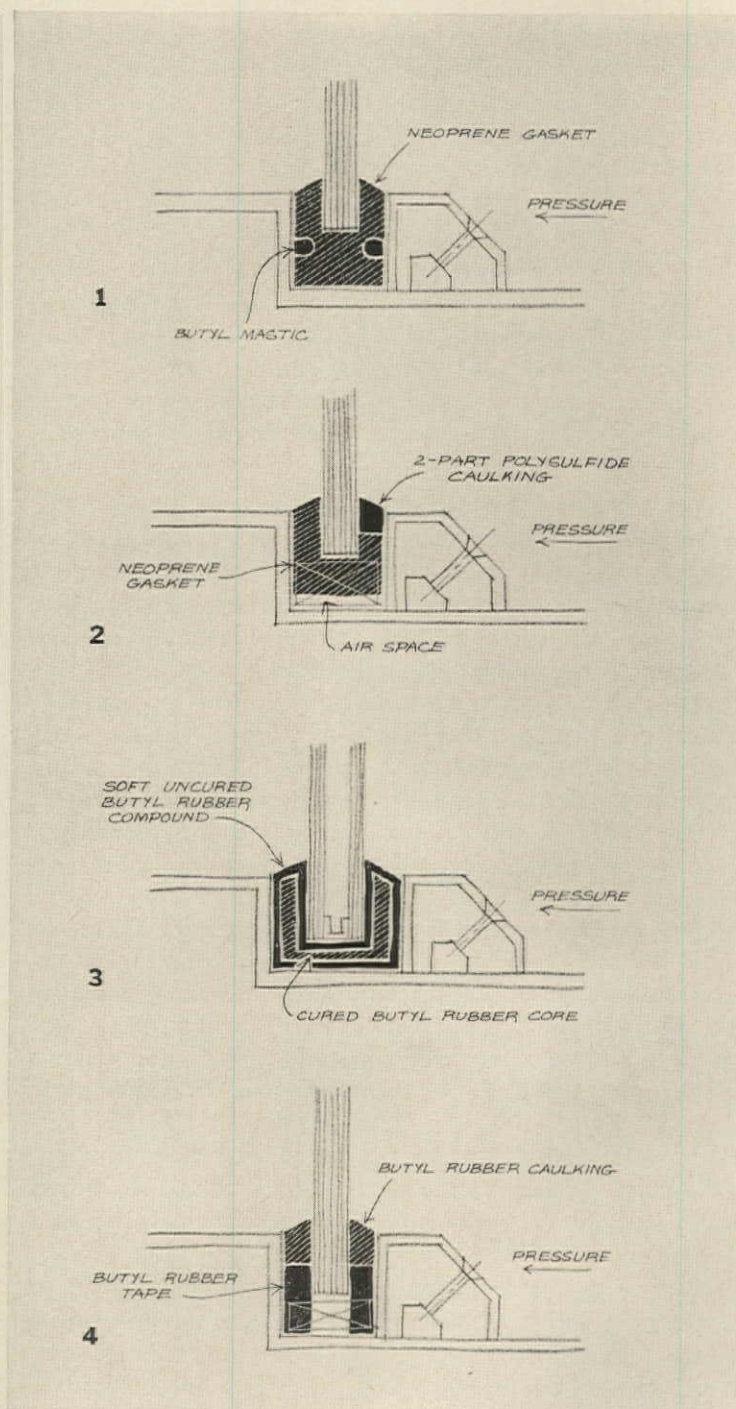
Polysulfide polymers are expensive in first cost (\$15 to \$20 per gallon), but their long life makes them economical in terms of maintenance costs.

**One-part polysulfides.** The principal advantage of the one-part polysulfides is that they require no mixing. There are two different types. One is a mastic type, which never hardens or cures. It is commonly used for sealing metal-to-metal joints where little elasticity is required. The other is essentially the same as the two-part compounds, except that it is premixed. Performance is reputed to be as good as, if not better than, the two-part compounds. Cost: \$35 to \$45 per gallon.

**Silicone rubbers.** A recent development, these are man-made rubber compounds comparable in performance to the two-part polymers, but with a number of advantages: among them are longer pot-life and workability, a greater resistance to heat and cold, and no mixing. They are available in caulking compounds, extrusions, and a variety of colors. They are expensive—between \$35 to \$40 per gallon—and as a result, they have been little used to date.

**Polybutene,** although available in various forms and consistencies, is the most common tape material. It has fairly good adhesion, and extremely good resistance to ultraviolet light and weather, but its stickiness tends to attract and hold dirt, so it is best used in concealed joints.

Butyl rubber is a type of polybutene. Qualities are much the same as the simple polybutenes but with somewhat better adhesion. It is, however, necessary to specify the particular characteristics desired, since no one butyl compound solves a broad range of problems. Like polybutene, it is available in gaskets, tapes, and caulking compounds. In this case, however, the most common usage is as a caulking compound. As such, it is easier to handle than the two-part polysulfides (no mixing), but lacks their bond and elasticity. One type of butyl gasket consists of a hard core of cured butyl-rubber coated with a soft uncoated butyl for better adhesion (see detail 3, right). The principal advantage of polybutenes over polysulfides is cost: about \$7 per gallon in compound form.



**COMBINATIONS OF SEALANTS**

Some of the most effective sealing details are those which stop the entry of air and water two ways. Details 1, 2, and 4 show pressure

seals reinforced with soft caulking compounds. In detail 3 the hard inner core holds the glass in position while the soft outer surface ensures that a positive seal is made.



Field connection of joints in butyl gaskets requires the use of a special adhesive. Colors are available.

**Neoprene** possesses the best combination of positive qualities available at present in a relatively inexpensive gasket material (see details 1, page 99, and 3, page 99). Its advantages include weathertightness, durability, resiliency, and ease of handling. It is available in colors, but only black is recommended for outside use. Like butyl rubber, field-welding of joints requires the use of a special adhesive. A neoprene putty is under development. Cost of gaskets: slightly more than for polybutene gaskets.

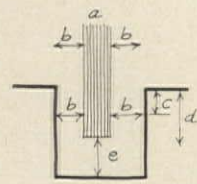
**Vinyls** lend themselves to particularly accurate extrusions (see detail 2, page 99). A low temperature range (-20 degrees Fahrenheit to +150 degrees Fahrenheit) allows joints to be field-welded with heat, but it also prevents vinyl from being used where high heat is to be encountered. Cost: roughly comparable to butyls and neoprenes.

**Polyurethanes, polyethylenes, acrylics, and epoxies.** Sealants have recently been made available in polyurethane, polyethylene, and acrylics. All are very promising, but none is in widespread use as yet. Epoxies have found their principal usage so far in adhesives, but may move into sealants.

There are a number of other materials with as yet restricted applications as sealants, but the above are those most important at present.

A sealant can work only as well as its adhesion, and its adhesion depends to a large extent upon the care with which the sealant is placed. Poor workmanship or faulty application can cause the best-designed joint to fail. Some sealants are more difficult to handle than others, and, unfortunately, some of the best sealants are the most difficult to handle. A greasy fingerprint can, for example, keep a two-part polysulfide polymer from obtaining its proper grip. On the other hand, stretched or loose gaskets contribute their share of failures; even the old-fashioned calking compounds can fail if carelessly placed and left unpainted. Shop fabrication would seem to offer a way of minimizing some of these problems, but until it is more widespread, availability of skilled labor or the lack of it, and ease of access to a joint will be serious considerations in the choice of a sealant.

In conclusion, several points should be reiterated. "The right sealant for the right joint" may seem a platitude, but the many different sealants have many different characteristics to be considered. Few are interchangeable. To specify one sealant for use in a joint designed for another is to invite leakage. Poor application or workmanship can be equally disastrous. The careful manipulation of a large number of variables is required for a proper job. END

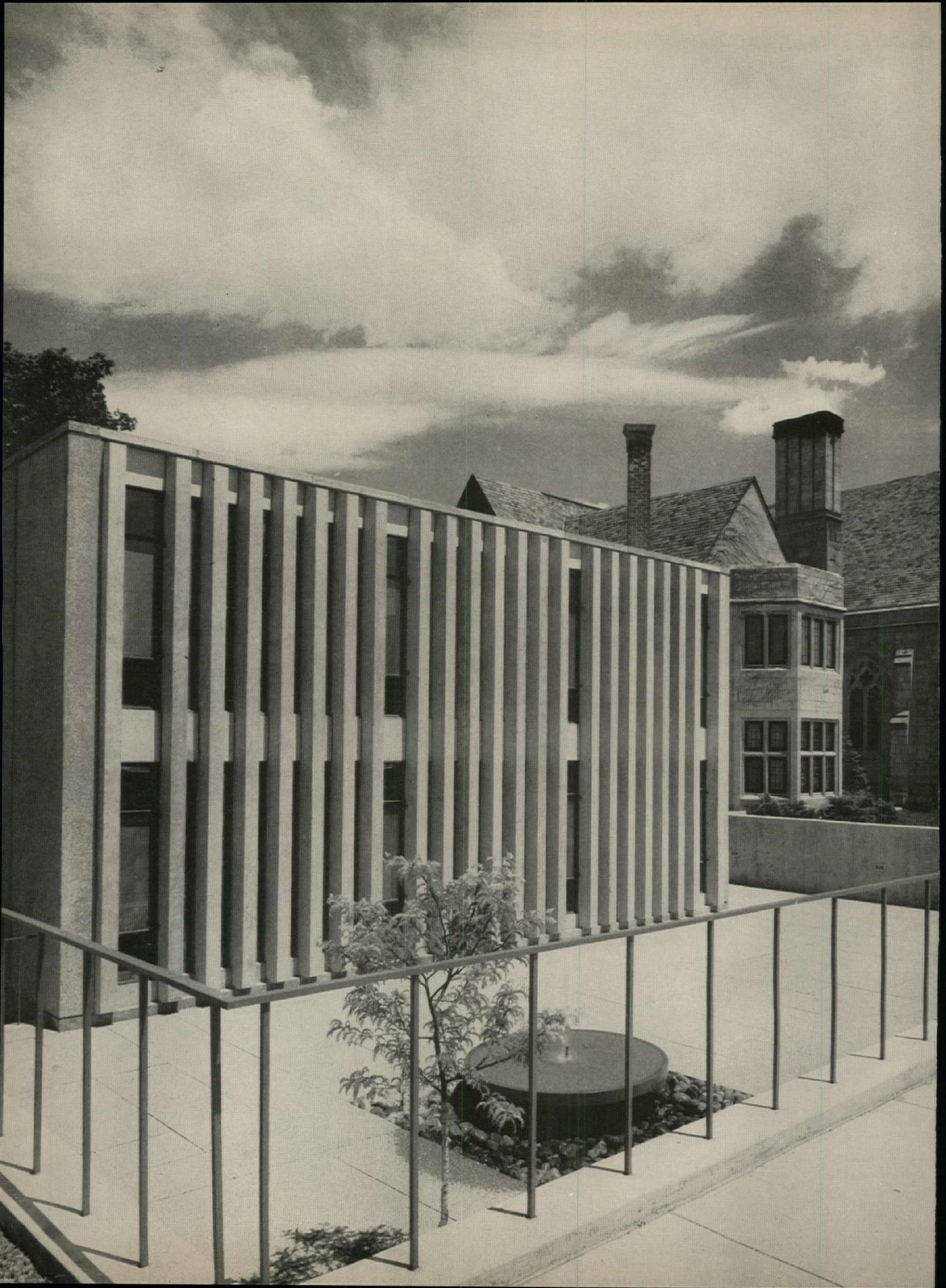


**RABBET DIMENSIONS**  
in inches

	ELASTIC GLAZING COMPOUND OR BUTYL MASTIC	TWO PART POLYSULFIDE POLYMER	POLYBUTENE TAPE	"DRY" GLAZING	SILICONE RUBBER
Nominal glass thickness (a)	a	a	a	a	a
Nominal sealer thickness (b)	$\frac{3}{16}+g$	$\frac{1}{8}+g$	$\frac{1}{16}+g$	$\frac{5}{2}$	$\frac{3}{16}+g$
Nominal shim thickness (b)	$b+\frac{1}{64}$	$b+\frac{1}{64}$	$b+\frac{1}{64}$	none	$b+\frac{1}{64}$
Minimum sealer depth (c)	$\frac{5}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{16}$	$\frac{1}{8}$
Nominal bite (d)	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{8}$
Setting block height (e)	$a+\frac{r}{2}$	$a+\frac{r}{2}$	$a+\frac{r}{2}$	$a+\frac{r}{2}$	$a+\frac{r}{2}$
Minimum head and jamb clearance (e)	a+h	a+h	a+h	a+h	a+h
Maximum sill deflection (f)	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{16}$	$\frac{1}{8}$
Glass thickness tolerance (g)	Daylight opening tolerance (h)				

Rabbet dimensions for various sealants are shown in chart above. Chart below gives glass thickness (g), daylight opening (h), and other basic tolerances for  $\frac{1}{4}$ -inch and  $\frac{3}{8}$ -inch plate glass and typical window sash. Material for charts courtesy Building Research Institute.

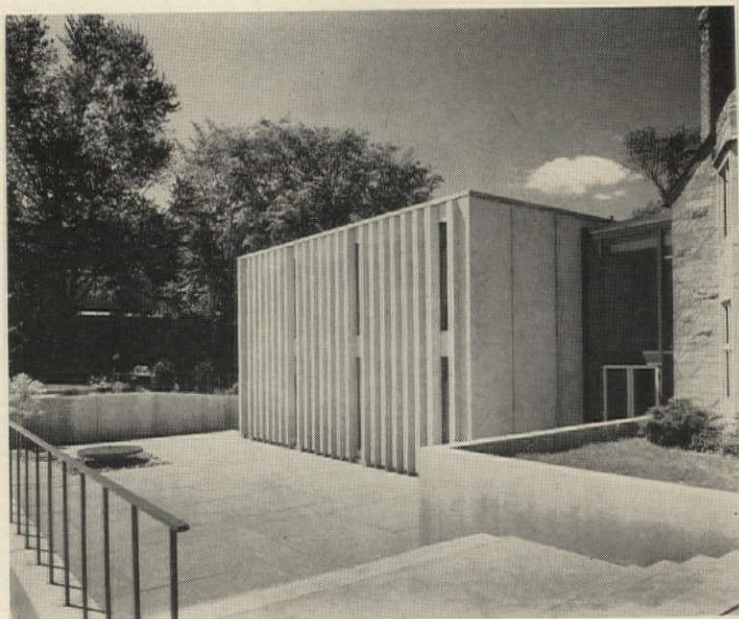
PLATE GLASS		
LENGTH, WIDTH	OUT OF SQUARE	THICKNESS
$\frac{1}{4}$ " $\pm \frac{1}{16}$ "	$\pm \frac{1}{8}$ "	$\pm \frac{1}{32}$ "
$\frac{3}{8}$ " $\pm \frac{3}{32}$ "	$\pm \frac{1}{4}$ "	$\pm \frac{1}{16}$ "
SASH		
OUT OF PLUMB OR OUT OF FLAT $\pm \frac{1}{16}$ "	OUT OF SQUARE $\pm \frac{1}{8}$ "	RABBET DEPTH AND WIDTH $\pm \frac{1}{32}$ "
		DAYLIGHT OPENING $\pm \frac{1}{8}$ "
TYPICAL DIMENSIONAL TOLERANCES		



## ADDING ONTO A CHURCH

One of rebuilding's more sensitive problems—relating new and old—has been solved with vigor, and some grace, in this school addition to the First Baptist Church of Birmingham, Mich.

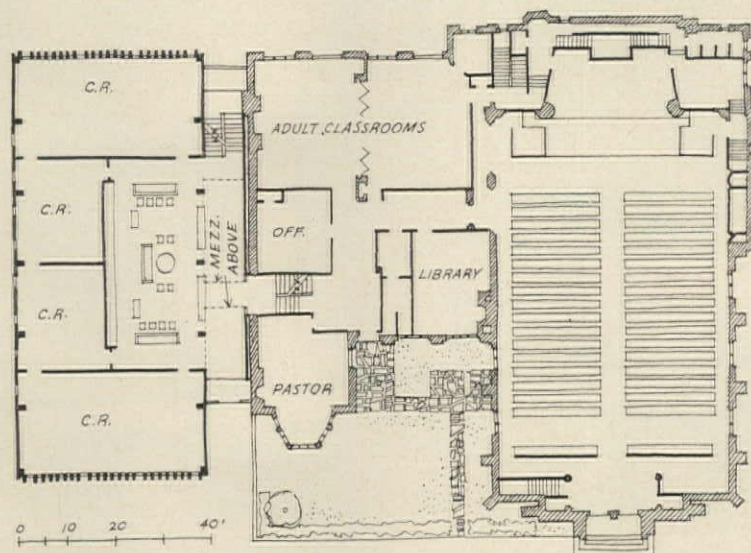
By facing the building narrow end to the street, pushing it down into the sloping site, and capping it with a simple flat roof line, Architect Glen Paulsen kept his new three-story mass respectfully unpretentious. Precast panels on the side and precast mullions on the ends echo the vertical Gothic lines of the parent building, and their plain concrete surfaces very nearly match the older, weathered limestone, erected in 1928. Between the mullions are translucent strips of textured white "cathedral" glass, yielding privacy with light; both mullions and side-wall panels are spaced with wider windows of clear gray glass for ventilation and view (photo, right). In front, Paulsen has added a sunken, sheltered court for socializing in pleasant weather; the simple fountain here is a cast-aggregate dish spilling onto a bed of stones.



PHOTOS: BALTAZAR KORAB ©

Youth Center addition to First Baptist Church, Birmingham, Mich. Architects: Glen Paulsen & Associates. Engineers: Theodore Letsche (structural), Edwin Siegel & Associates (mechanical). General contractor: J. A. Utley Co.

Cost: \$240,000 for 12,175 square foot addition, including \$50,000 in alterations to existing church, and \$10,000 in sitework; excluding fees and furnishings. One-third financed by church fund drive, two-thirds by outside bank loan.



Inside its courtyard entrance, the new wing opens up surprisingly into a lounge off new high-school classrooms, with a mezzanine and

bridge above linking junior rooms to the old building (plan above, photo right). Primary grades are on the floor below.





PHOTOS: (BELOW & OPP. PAGE) MALCOLM SMITH, ARCHITECTURAL GRAPHICS ASSOCS.



## CLINIC DOUBLE-DECKED

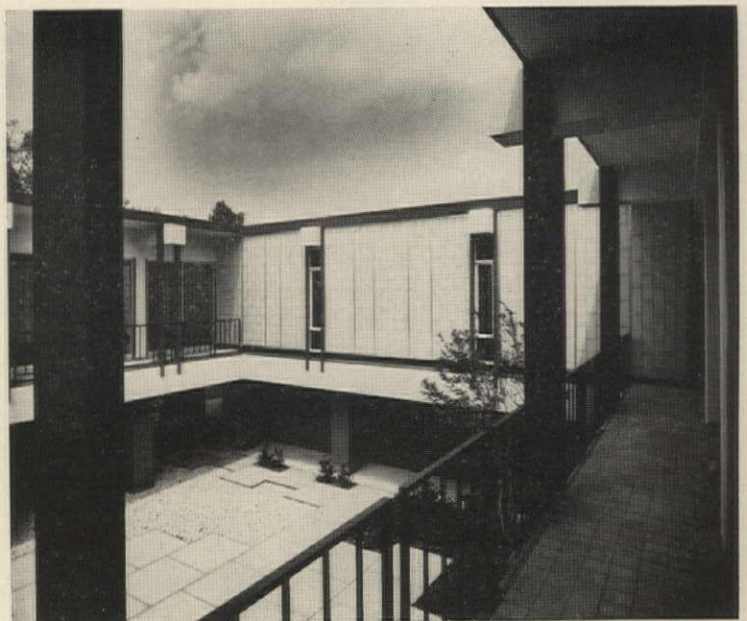
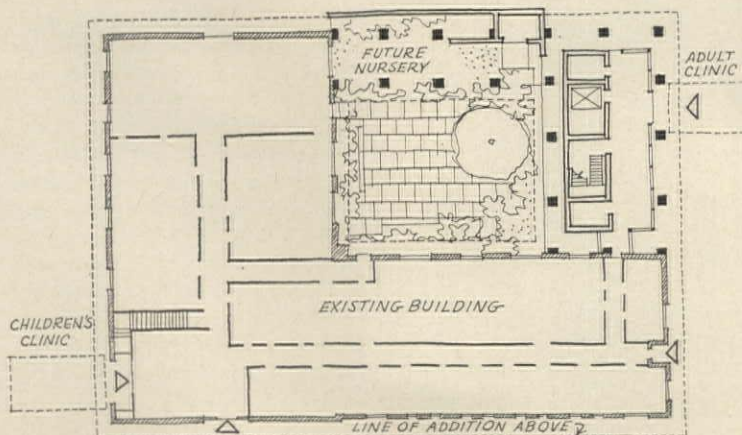
In this rather remarkable transformation in Memphis, Tenn., Architects Mann & Harrover managed to add a complete adult rehabilitation center atop an existing children's clinic, without disturbing its operation, and produce out of two disparate modern styles an architecturally coherent result.

Les Passees Rehabilitation Center originally had been built along somewhat dated "moderne" lines, to carry two additional stories. It was decided, however, to limit the new adult center to a single level so that disabled patients could get about more easily. To provide the required 20,000 square feet, the architects raised the new floor on 2 by 10 inch blocking above the existing roof slab to allow new utility runs, and cantilevered it out from existing columns spaced at random intervals. With the addition of a ground-floor elevator lobby for the adult center, the L-shaped building was filled out to a hollow rectangle sheltering an existing play court (photo right, plan below). Except for the removal of stone trim and the addition of automatic entrance doors, the existing structure was unchanged—though its features now fall happily in the shadow of a very handsome new hat.

Les Passees Rehabilitation Center addition, 49 N. Dunlap St., Memphis, Tenn.

Architects: Mann & Harrover. Interiors: Peggy Land Leppert & Associates. Engineers S. S. Kenworthy & Associates (structural), Allen & Hoshall (electrical). Contractor: Southern Builders, Inc.

Total cost: \$409,565, including alterations to lower floor, parking lot, excluding fees. Addition alone cost \$24 per square foot, including fixed furnishings and major medical equipment. Financing: Federal (Hill-Burton) funds, 48 per cent; State of Tennessee matching funds, 52 per cent.



Existing children's play yard (top photo) is enclosed by new adult wings rounding out the old L-shaped building (whose own new second floor is seen in foreground). Sun-deck walkways are cantilevered out from the existing column line. Lower photo shows part of the hydrotherapy area. To give interi-

ors a sunny unhospital-like feeling without loss of privacy, walls are translucent sandwich panels of glass-fiber plastic, doing away with curtains and cutting the air-conditioning load (as well as the weight to be supported structurally). Small gray-glass windows are provided at column points for view.

## IMAGE FOR AN AGENCY

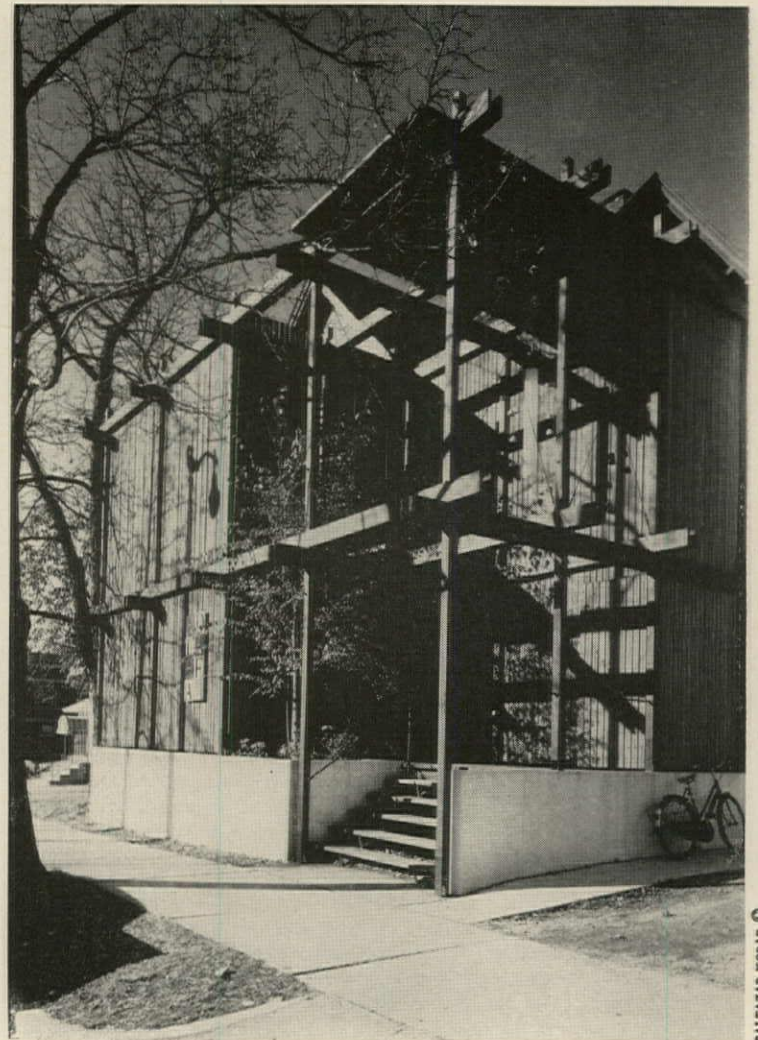
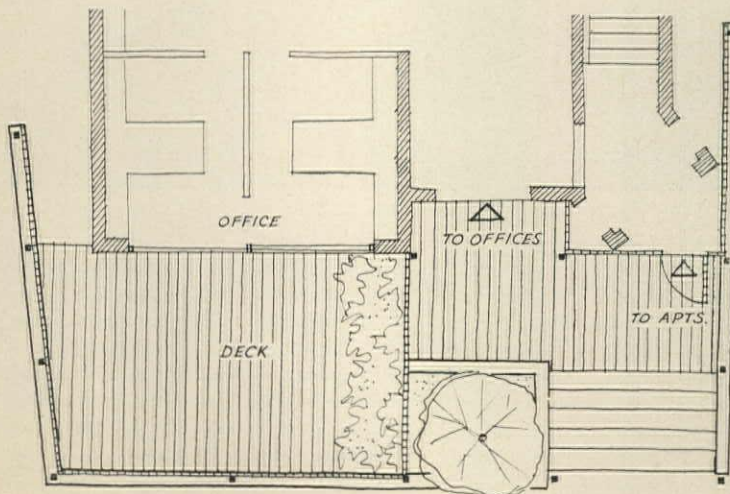
By concealing an old house (below, right) behind a bold new wooden framework, Architect David Osler created this sophisticated front for the advertising firm of Drury, Lacy & Ferguson in Ann Arbor, Mich.

At the left, offices for a staff of eight have been visually extended through sliding glass doors to a new deck completely screened from the street and open two stories to the sky (see plan, below). At the right, the structural cage continues exposed, carrying a canopy high above the new entrance steps. To gain separate access to the apartments on the second floor, which was not remodeled, a door was cut through the diagonal corner window of the old house, and hidden behind another gate cut out of the wooden slats of the new façade. All vertical planking is of rough cedar stained a muddy green; the structural members are of construction-grade lumber colored a chocolate brown. Setting off the entrance is a clump of birches and low shrubbery in an L-shaped planting bed formed by a new retaining wall along the sidewalk; a dogwood adorns the private deck behind the big wood screen, which carries the firm's new "crest" in a colorful design.

Total cost of this tight-budget job, including office interiors (not shown), was kept to \$8,000. The clients are quite happy with the result: a physical appearance that helps suggest to customers that this firm can provide imaginative advertising services every bit as effective as its big-city competitors.

Offices of Drury, Lacy & Ferguson, Inc., 311 E. Liberty St., Ann Arbor, Mich.  
Architect: David W. Osler. Gen-

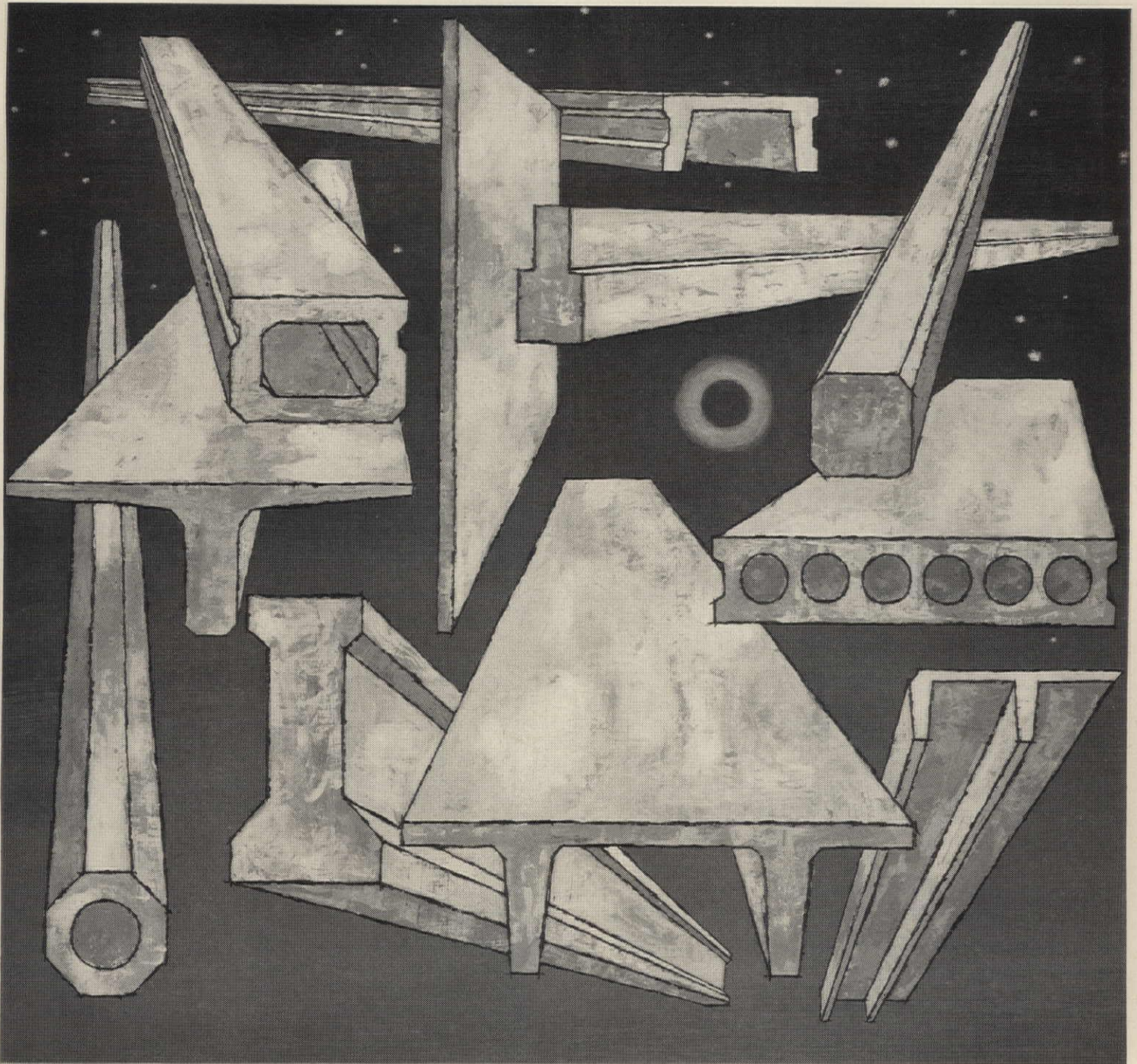
eral contractor: Richard Wagner. Total cost: \$8,000 (estimate when completed). Financed out of owners' working capital.



BALTASAR KORAS ©



A change in the original plan became necessary when city requirements called for a complete separation of the entrances to the apartments and offices. This was done by having a new door cut leading to the apartment stairs, and concealing it behind a gate in the exterior wood screen (plan, left). The oak decking was continued into the office entrance, further emphasizing the business area as a separate entity. The economy, however, of having entrances side by side using the same steps was retained. The entrance porch is nicely set off by a planting bed containing birches and shrubbery.



In one form or another, **PRESTRESSED CONCRETE** is used to obtain faster completion, lower finished cost, for virtually every type of permanent quality structure. Plant manufactured units, delivered to the site, need no fireproofing, finishing or painting, maintenance is eliminated, insurance rates reduced.

Send for "PRESTRESSED CONCRETE—applications and advantages."

PRESTRESSED CONCRETE INSTITUTE, 205 W. Wacker Drive, Chicago 6, Illinois





Dramatically lighted from inside and out, this church's vertical grillwork exterior of wood reaches up into the night. The large wood-framed windows topped by the overhanging planked roof create an uncluttered setting for the Cross. Architect: Oliver W. Olson & Associates, A.I.A.



*For dignity with warmth in church design*

## use WOOD... and your imagination



Massive laminated members supporting a planked ceiling uphold wood's strength and versatility. From pews to peak, wood's warmth is at work. Architects: Bergstadt, Hirsch, Wahlberg & Wold, Inc., A.I.A.

Wood for worship is tradition. Yet it is never bound by tradition in working wondrous new forms in construction, beautifully different shapes in design. Laminated members that create expansive interiors tell well of wood's inherent strength. Wood-paneled walls and ceilings are physically comforting, naturally inspiring.

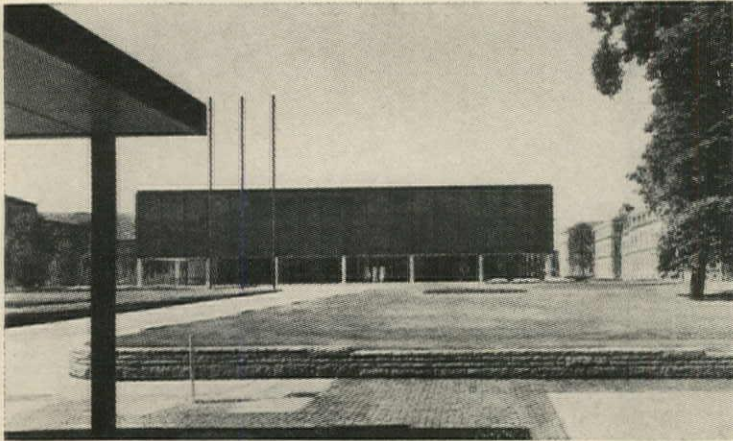
Abetted by wood's unique acoustical qualities, hymns and sermons carry with reverent authority to all corners of a church. Wood's many grains and tones are at perfect ease with all other materials, too. It becomes a part of any site or situation with incomparable stability, enviable economy . . . lasting compatibility and dignity. For more information on designing with wood, write:

**NATIONAL LUMBER MANUFACTURERS ASSOCIATION**  
*Wood Information Center, 1619 Massachusetts Ave., N. W., Washington 6, D. C.*



Sweeping laminated arches, tongue-and-groove walls, narrow-planked ceiling join to effect an invitation to worship. The simplicity of design suggests many of wood's economies; the variety of applications shows some of wood's countless advantages. Architects: Grant, Copeland, Charvenak & Associates, A.I.A.

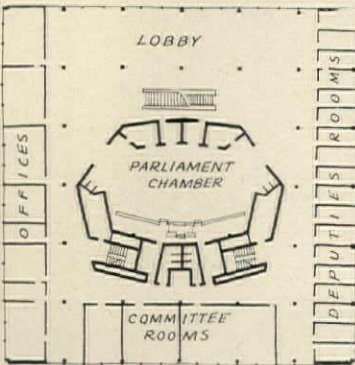
COURTESY "BAUWELT"



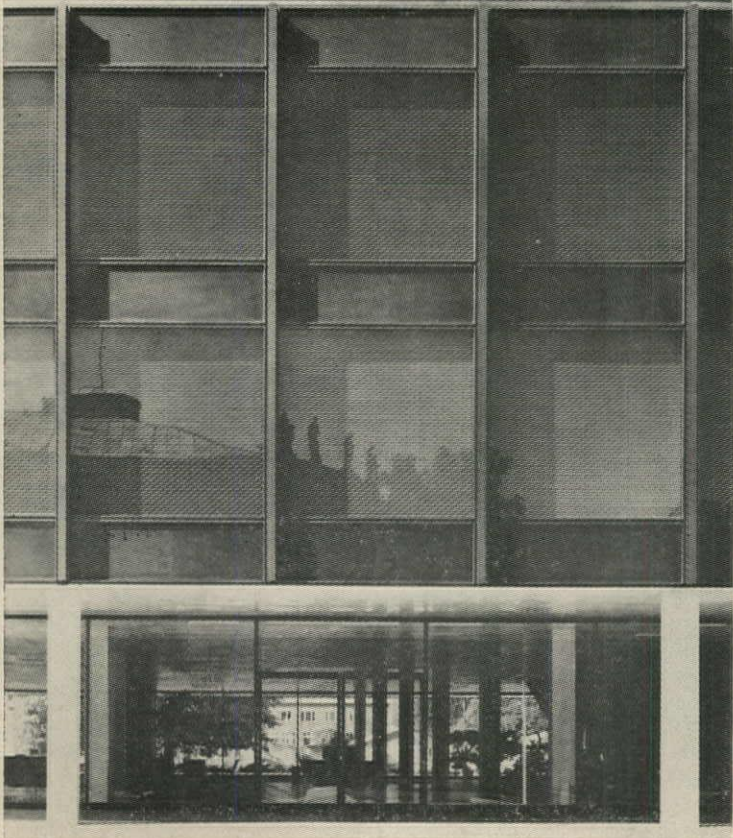
**GERMAN PARLIAMENT.** The new Parliament building for Baden-Wuerttemberg—the result of two competitions and a collaboration between Erwin Heinle, A. Kies-

sling, H. Schmidberger, B. Winkler, and Horst Linde—stands in a formal park in Stuttgart surrounded by a clutch of historic buildings of various styles.

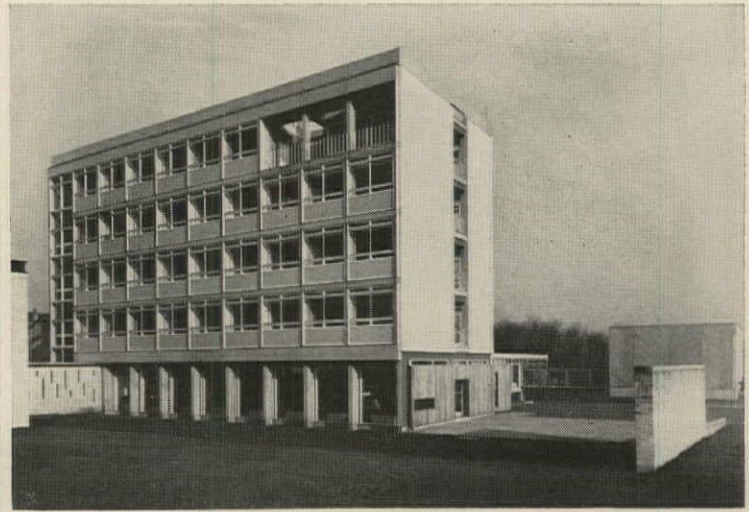
Built of reinforced concrete, the three-story structure is clad in a handsome bronze curtain wall above a recessed ground floor of clear glass. The architects have chosen to hide the main function of the building; there is no hint that the upper two floors contain a polygonal Parliament Chamber, or that the regular framing system so precisely expressed on the façades was broken within to accommodate the polygonal form to the square.



COURTESY "ARCHITECTURAL RECORD"



**SCOTTISH ENGINEERING.** In planning additions to an existing engineering building at the University of Edinburgh, Architect Robert Gardner-Medwin, in association with Stephenson, Young & Partners, linked a five-story library and a classroom building to a separate lecture theater rising out of a pool. The lecture theater (right), reached by a glazed bridge, is cantilevered from a pedestal which contains air-conditioning equipment. Its walls display a bold herringbone pattern left by the concrete forms.

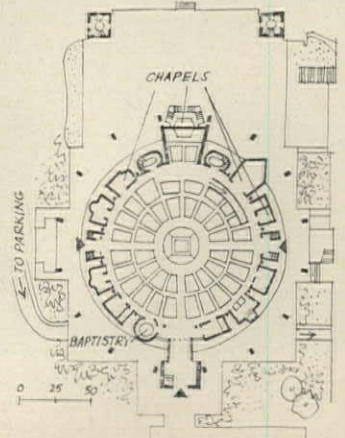


PHOTOS: WM. J. TOOMEY



HANK SNOEK

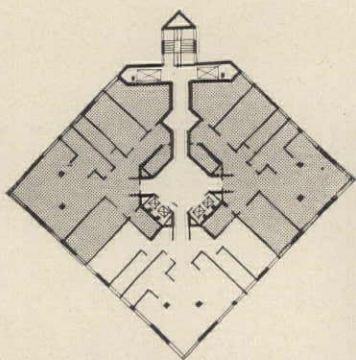
**ENGLISH CATHEDRAL.** Architect Frederick Gibberd's revised design for the Metropolitan Cathedral of Christ the King in Liverpool is unusual not only for its striking shape, but also in its provision for roughly 100 parking spaces directly under the nave. The circular building, which places 3,000 people within 70 feet of a central altar, has a conical roof and a tower of colored glass. Chapels, baptistry, and entrance porches are in a series of enclosures forming the cathedral's exterior walls (plan, right).





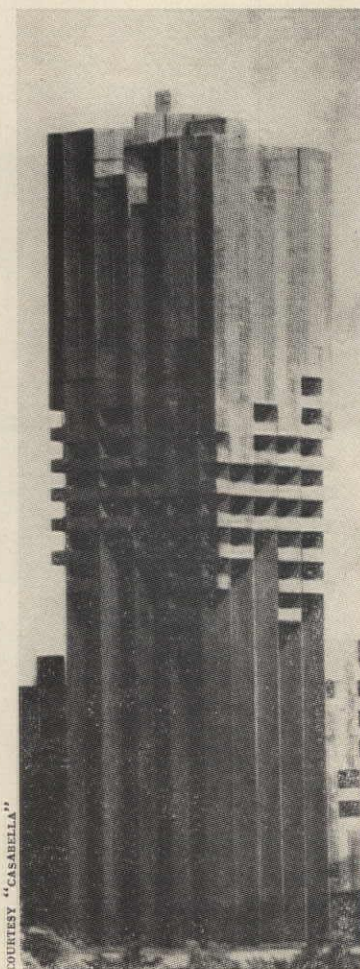
**ROMAN SHOWROOM.** The ceramics showroom above, designed by Architects Hilda Selem and the Studio Passarelli for the Pozzi Company in the Via Condotti in Rome, may call to mind the ancient catacombs or even the interior of a submarine. Actually it is a bold demonstration of what can be done to mold and dramatize a basically linear space.

Walls, ceiling, and floor, all of brick, flow together in graceful stepped curves, emphasizing their continuity with one another rather than their separateness. To heighten the sense of being completely surrounded by space, the architects varied ceiling heights and display pedestals, and set walkways of metal grillwork at varying levels off the floor.



**MILANESE TOWER.** Behind an exciting sculptural play of façades, each floor of Gian Paolo Valenti's projected Scarampo tower for Milan contains three apartments (plan, above). The square building is set diagonally on its site at the end of a narrow courtyard near the grounds of the Milan Trade Fair.

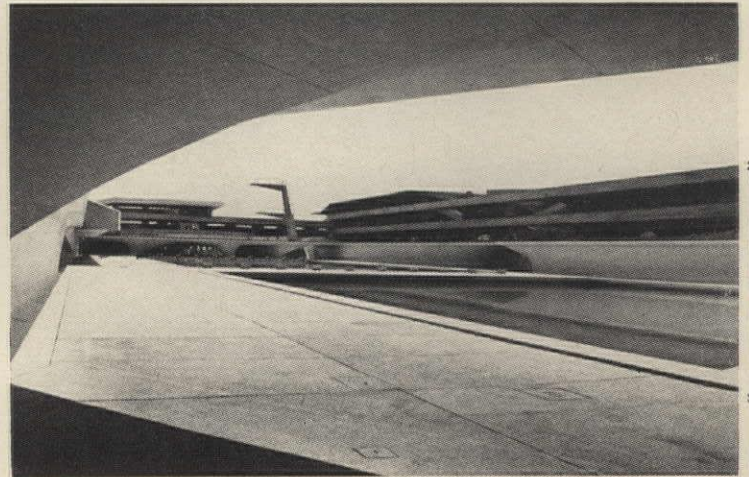
Just over 260 feet high, the tower is divided into three sections which read clearly even though the transitions are gradual. The lower section, with faceted walls, merges with the middle section, whose side balconies establish a strong contrast of solids and voids. In the upper section the walls become flat planes. At the very top of the building are duplex apartments with multilevel terraces.



COURTESY "CASABELLA"

**ITALIAN POOL.** Gracefully sweeping decks of reinforced concrete surround the pools of this huge new swimming stadium in Milan, designed by Architects Gino Bozzetti and Egizio Nichelli. The complex, which includes a spec-

tator's gallery, entrance building, and bathhouse (left to right in photo), was designed for a capacity of 6,000 and will ultimately have a restaurant pavilion overlooking the pools on the landscaped grounds.



COURTESY "ARCHITEKTUR UND WOHNFORM"



**PHILIPPINE OFFICES.** This seven-story home office building for the Philippine-American Life Insurance Co. in Manila had to be designed to resist earthquakes and typhoon winds of 150 miles per hour, and to protect its office workers from intense sky brightness as well as solar gain.

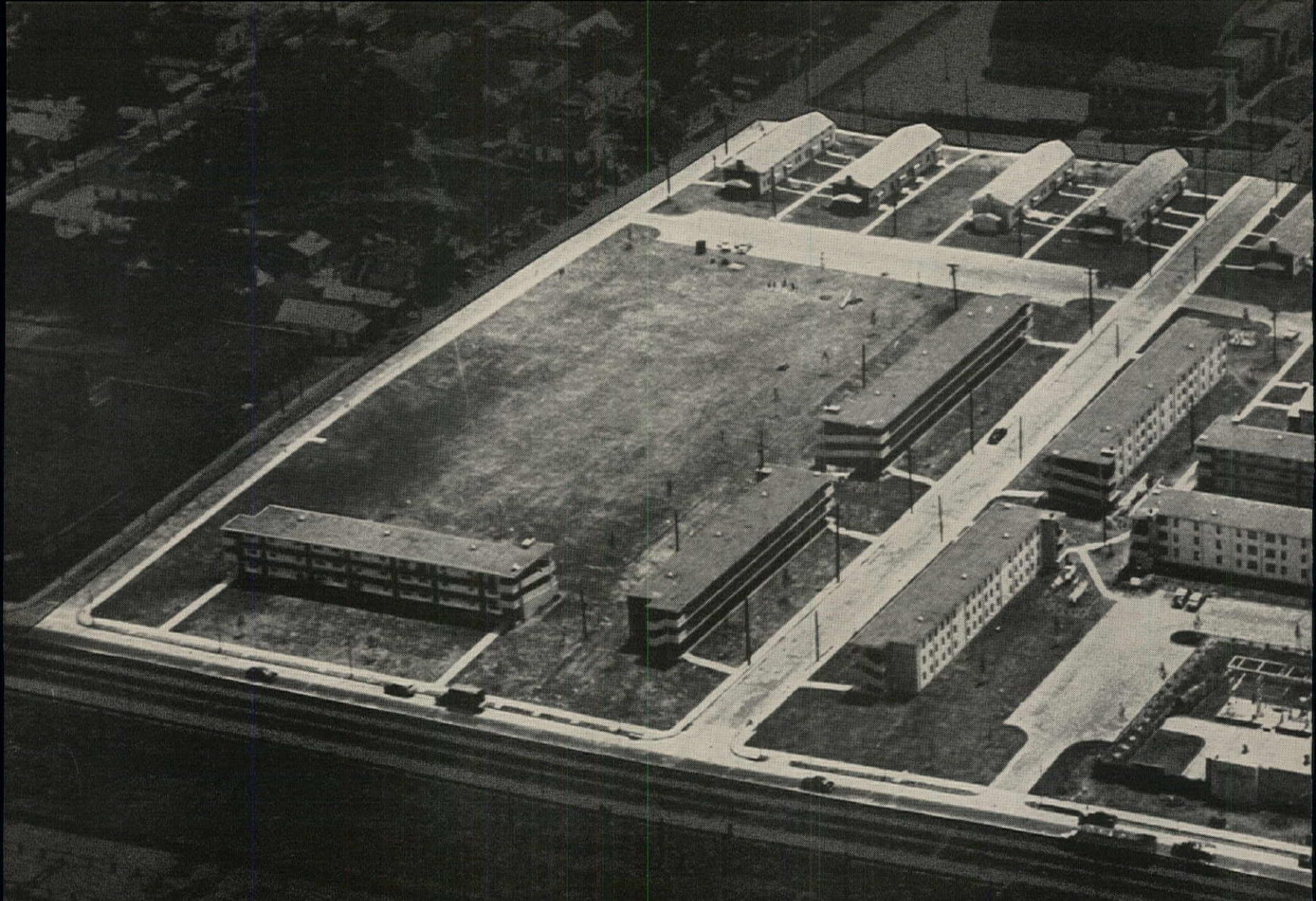
Architects Carlos D. Arguelles and Anderson, Beckwith & Haible (with Severud-Elstad-Krueger Associates as structural engineers) solved the first two problems with a beefed-up concrete frame. For sun shelter, they used gray glass to reduce glare, and clothed the building on all four sides with horizontal fins of gleaming alumi-

num, built like tapering airfoils and hung from the roof slab by vertical aluminum tubes. As an added amenity, the building is set in a lavish landscape of gardens and pools.

END



PHOTOS: CHAS. W. MILLER & SON

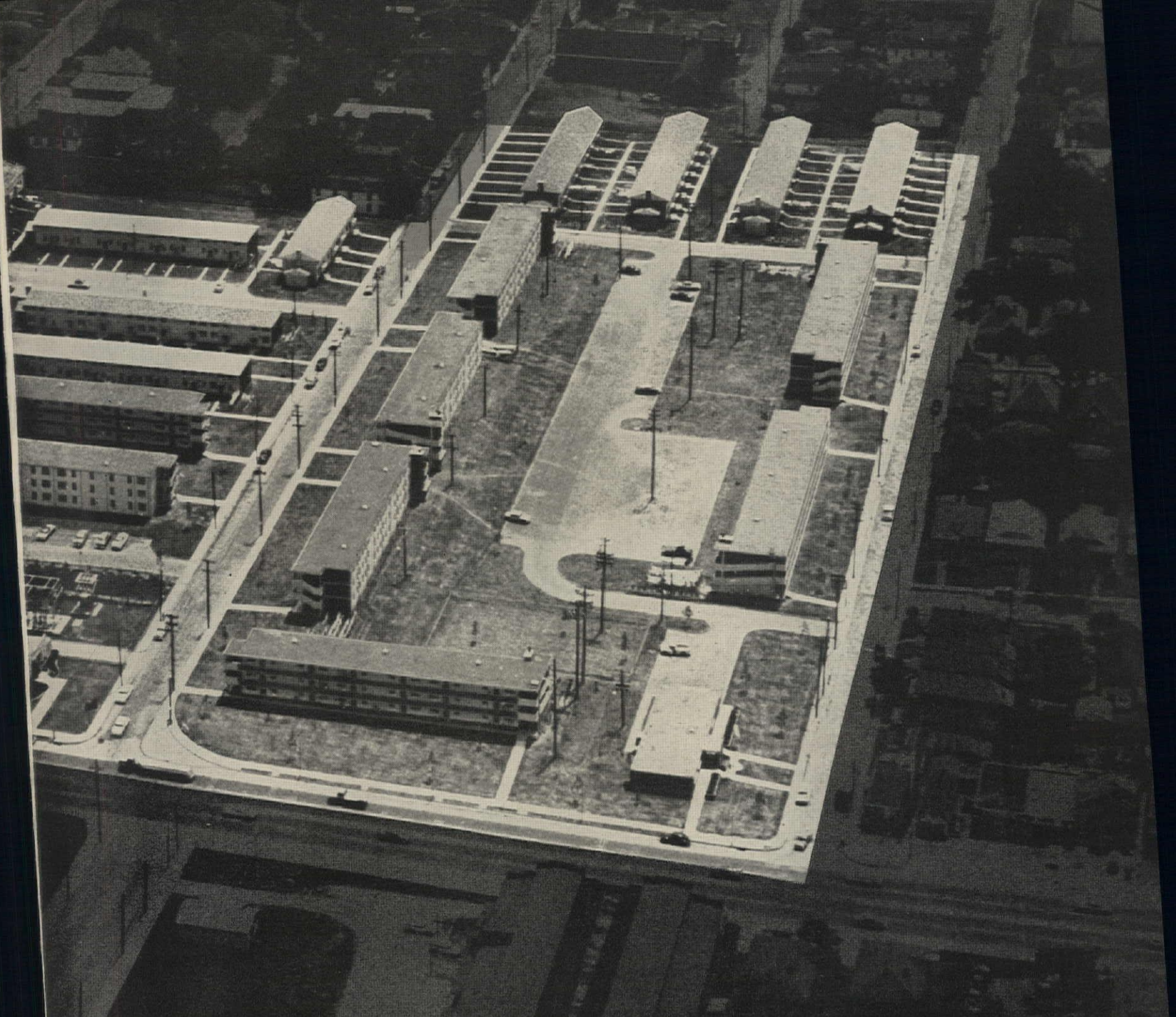


There are 27 buildings in the public housing project, Joseph A. Fowler Homes, Memphis, Tennessee. One is an administration building; the rest residential buildings containing 320 apartments. Walls are of brick veneer concrete block with Keywall in alternate courses, used to control thermal movement and to serve as a brick tie. Interior walls are of rock lath plaster utilizing Keycorner and Keystrip as reinforcement.

**ARCHITECT:**  
Charles S. Peele & Associates, Memphis  
**GENERAL CONTRACTOR:**  
McDonough Construction Co.  
of Atlanta, Georgia  
**MASONRY CONTRACTOR:**  
Memphis Masonry Company, Memphis  
**PLASTERING CONTRACTOR:**  
F. M. Gravier Plastering Co., Atlanta

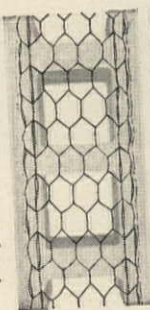
**WHAT  
HOLDS  
THE  
WALLS  
OF THE  
JOSEPH A. FOWLER  
HOMES  
TOGETHER?**

**KEYSTONE STEEL & WIRE COMPANY • Peoria, Illinois**



**mortar  
and  
Keywall**  
(what else?)

It's a coincidence you should ask about the advantages of Keywall. You can see from the tight pattern that it gives you more mortar locks with block (and/or brick). Which in turn controls shrinkage and thermal movement better, resulting in greater crack resistance. And because Keywall comes in rolls, masons lay Keywall in place more easily and quickly. You might think that you would have to pay more for a masonry reinforcement with such advantages. Not so.



**MORE LOCKS TO THE BLOCK** with Keywall . . . because of the tight-woven pattern, it is impossible for any one strand of Keywall to be subject to the strain of more than two square inches of a block's thermal movement or shrinkage. By dividing the strain into such small segments, Keywall provides greater crack resistance.

# the light in their lives

The decorator's ability to place light into the home, rests ultimately with your architectural foresight in planning outlets — and preferably more outlets. For as the decorator and consumer become increasingly concerned with portable light and area illumination through the use of lamps, an even greater need for electrical outlets becomes evident. With this in mind, plan to put more light into their lives.

Through careful study, the LAMP AND SHADE INSTITUTE OF AMERICA has arrived at these minimum lighting requirements:

5 LAMPS	living room	4 LAMPS	bedroom
5 LAMPS	play room	4 LAMPS	child's room
5 LAMPS	library—or den	1 LAMP	foyer or hall

No. 1 in a series of striking national ads designed to make consumers lamp conscious. Appearing in HOUSE BEAUTIFUL and HOUSE & GARDEN.

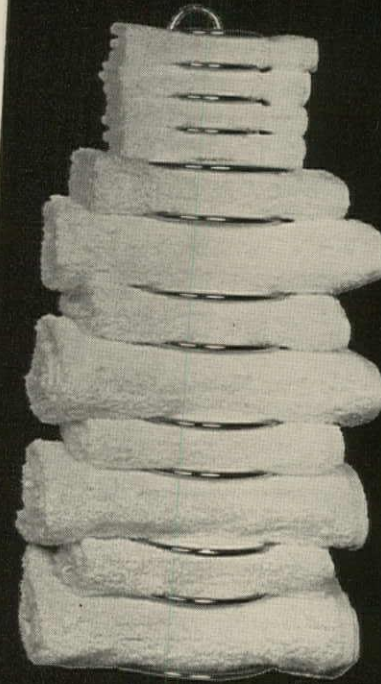


## THE LIGHT OF YOUR LIFE

The light of his life begins by the light of a lamp. Through portable lamps, you give your family healthful, properly placed light...correct illumination when and where it is needed. In decorating your home, choose the beauty of lamps...for tasteful design...for portable light that changes with your family's needs. Select a minimum of five tasteful lamps for your living room and study. Put more light into your life.



Look for the label signifying membership by merit of the  
**LAMP AND SHADE INSTITUTE OF AMERICA**



HOTEL - MOTEL OWNERS  
SAVE UP TO 50% WITH

## PLAZA TOWEL HOLDERS!

After an owner takes possession, he is still interested in cost-saving efficiency... more than 100,000 Plaza Towel Holders now in use in hotels and motels across the country testify to the positive savings they guarantee!

Designed by a motel owner, Plaza Towel Holders hold each towel separately... eliminate spilling and handling... save laundry, space, and labor. Guests are guaranteed clean towels... use towels only as needed. Present users report savings even up to 50% on towel costs!

WRITE US DIRECT for illustrated literature and full details... 3 sizes available—or see our Sweet's Architectural File listing.

# PLAZA

PLAZA TOWEL HOLDER CO., 2016 North Broadway, Wichita, Kansas



architects agree:  
**RECODIZED® ALUMINUM  
LASTS LONGER!**

- NON-ELECTRIC
  - HIGH CORROSION RESISTANCE
  - UNAFFECTED BY SOLVENTS, MILD ALKALIES, ACIDS or PLASTER BURNS
  - WELD WITH NO DISCOLORATION
  - PROVIDES EXCELLENT PAINT BOND ABILITY (without priming, high impact and abrasion resistance)
  - UNAFFECTED BY RAPID or SLOW TEMPERATURE CHANGES
  - SURFACE ELECTRICALLY CONDUCTIVE
- Recodized surfaces can be refinished after years of exterior exposure without removal from installation!

©REG.  
T.M.

Send For Free Descriptive Brochure  
Distributor Inquiries Invited

**REPUBLIC CHEMICAL CO.**  
13068 Saticoy St., North Hollywood, Calif.





*Gracious.* WTIC Broadcast House lobby, The Travelers Broadcasting Service Corp., Hartford, Conn., paneled in Weldwood Algoma-made Architectural Blueprint-Matched Brazilian rosewood. *Architect:* Raymond Bowers, Fulmer & Bowers, Princeton, N. J. *Designer:* Alice Fenner, Inc.

## Murals sliced from rosewood flitches

*Festive.* Brazilian rosewood in a more spectacular mood on the Weldwood Algoma-made Custom-Built paneling at the Arthur Murray School of Dancing Headquarters in New York. *Architect:* Morris Lapidus, New York.



Veneer men are artists. They size up a log segment (a flitch) and decide which of 5 slicing methods will yield the best figure and grain pattern. Brazilian rosewood is often "half-round" sliced — a rotary cut slightly across the growth rings. The results range from bold to spectacular.

The slices of each flitch are numbered and stacked in sequence. A "live" flitch sample goes to a Weldwood® showroom. Here you can select the exact graining and color you want. You can also decide how veneer sheets are to be matched on the manufactured panel. There are 10 standard methods. The paneling shown on this page gives you some idea of the range of effects possible with rosewood—only one of 56 different woods available for Weldwood Architectural Blueprint-

Matched Custom-Made paneling. For more details, check the booklet in the coupon below. Better yet, talk to a Weldwood Architects' Service representative.

SEND FOR NEW DATA BOOKLETS AF 2-62  
 United States Plywood, 55 West 44th Street, N. Y. 36, N. Y.  
 Please send me illustrated booklets and technical data on:  
 Weldwood Architectural Grade Paneling, #2227, 28 pages  
 Weldwood Glasweld®, #2246, 8 pages  
 Please have a Weldwood Architects' Service Representative call on me  
 Name .....  
 Firm .....  
 Address .....  
 City ..... Zone ..... State .....

**WELDWOOD**  
 REAL WOOD PANELING  
 Product of United States Plywood



Design conditions in Monterey Elementary School, Roanoke, Va., required the use of two types of Glasweld panel—relatively small insulated sandwich units finished both sides and large uninsulated panels. See detail below right. *Architects:* Frantz & Addkison-Caudill, Rowlett & Scott, Roanoke, Va.

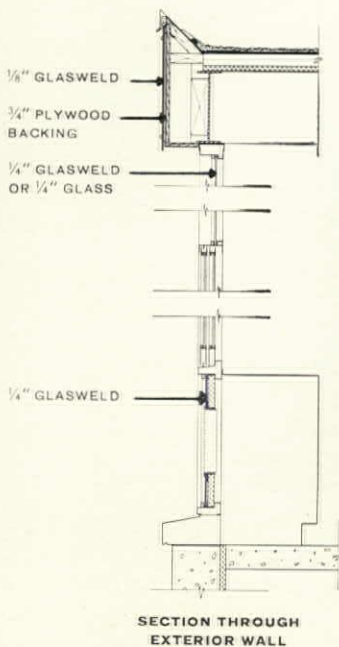
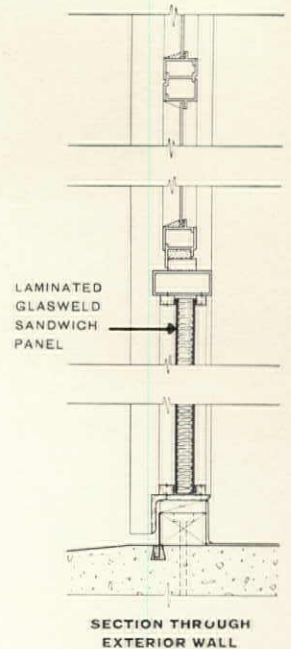
## Glasweld makes . . . and keeps . . . a school bright looking—is easy on the budget, too

Permanent-color all-mineral panels have a low installed cost—need no maintenance except an occasional washing.

When you need permanent color on exterior walls, select from Glasweld's 30 non-fading colors. The panels look flat and stay flat because of Glasweld's unusual dimensional stability. Glasweld is fully weather-

proof, unaffected by moisture and heat, 100% incombustible (UL Label, 0-0-0). In addition, Glasweld has the strength and easy workability to keep installed costs low for all design conditions.

## WELDWOOD® GLASWELD



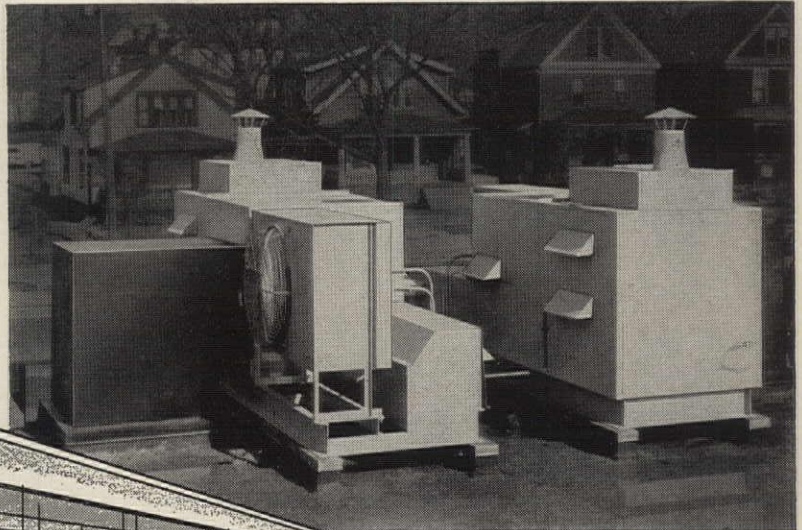
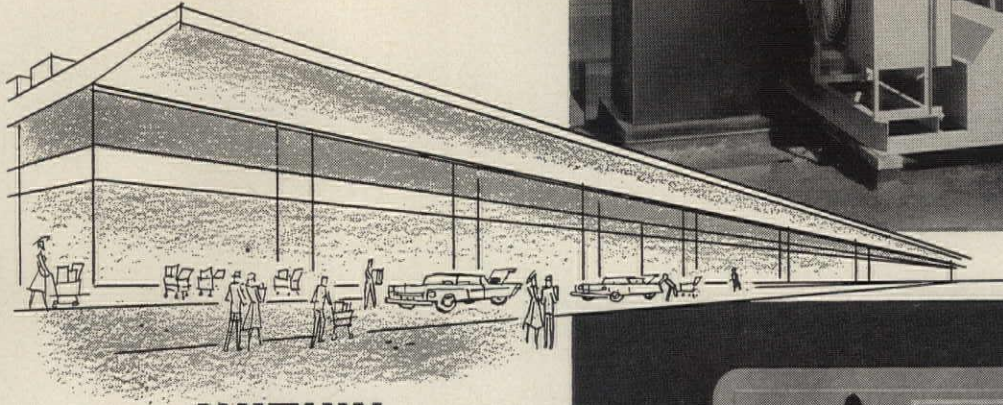
Glasweld® colors selected for Beecher Road Elementary School, town of Woodbridge, Conn., harmonize with large areas of fieldstone. Detail at left. *Architects:* Davis, Cochran & Miller, New Haven, Conn.





# NOW...

## Complete Control of Comfort from



### WITHIN THE CONDITIONED AREA with



## ROOF MOUNTED AIR CONDITIONERS by DUNHAM-BUSH

Dunham-Bush 'RMC' roof mounted conditioners, developed to meet the ever increasing need to save floor space in conditioned areas, are now available with a central control station which permits "direct dialing" comfort control from within the conditioned area.

Panel control provides for easy heating or cooling adjustment and automatic push button reset . . . prevents tampering . . . saves time . . . reduces maintenance. Pilot lights provide complete visual indication of system's operation: indicator light advises when filter needs replacing.

Central control station can be used to govern operation of several units serving a single zone, or to control a single unit serving several zones.

'RMC' units are available in 5, 7½, 10 and 12½ ton models and are easily installed atop any single story building. Heating or cooling is immediate at the flick of a switch. Air cooled, 'RMC' units require no plumbing or piping connections, are furnished completely factory wired, with all interior plumbing assembled. Units can be furnished for use with remote diffuser applications.

It will pay you to investigate this modern, economical air conditioning-heating system. Form No. 6023A, free on request, contains complete details.



### DUNHAM-BUSH, INC.

WEST HARTFORD 10, CONNECTICUT, U. S. A.

SALES OFFICES LOCATED IN PRINCIPAL CITIES



After Styrotac™ bonding cement is applied to either the wall or to Styrofoam, the insulation is pressed in place (center). After overnight setting, gypsum wallboard is either spot-coated or notch-trowelled with Styrotac and pressed in place over the Styrofoam insulation (right).

# STYROFOAM®

Here's a new step-saving, cost-saving method using Styrofoam insulation for insulating masonry structures which produces permanently high insulating values, provides a solid base for wallboard, and eliminates the problem of nail-popping . . . all in a single operation.

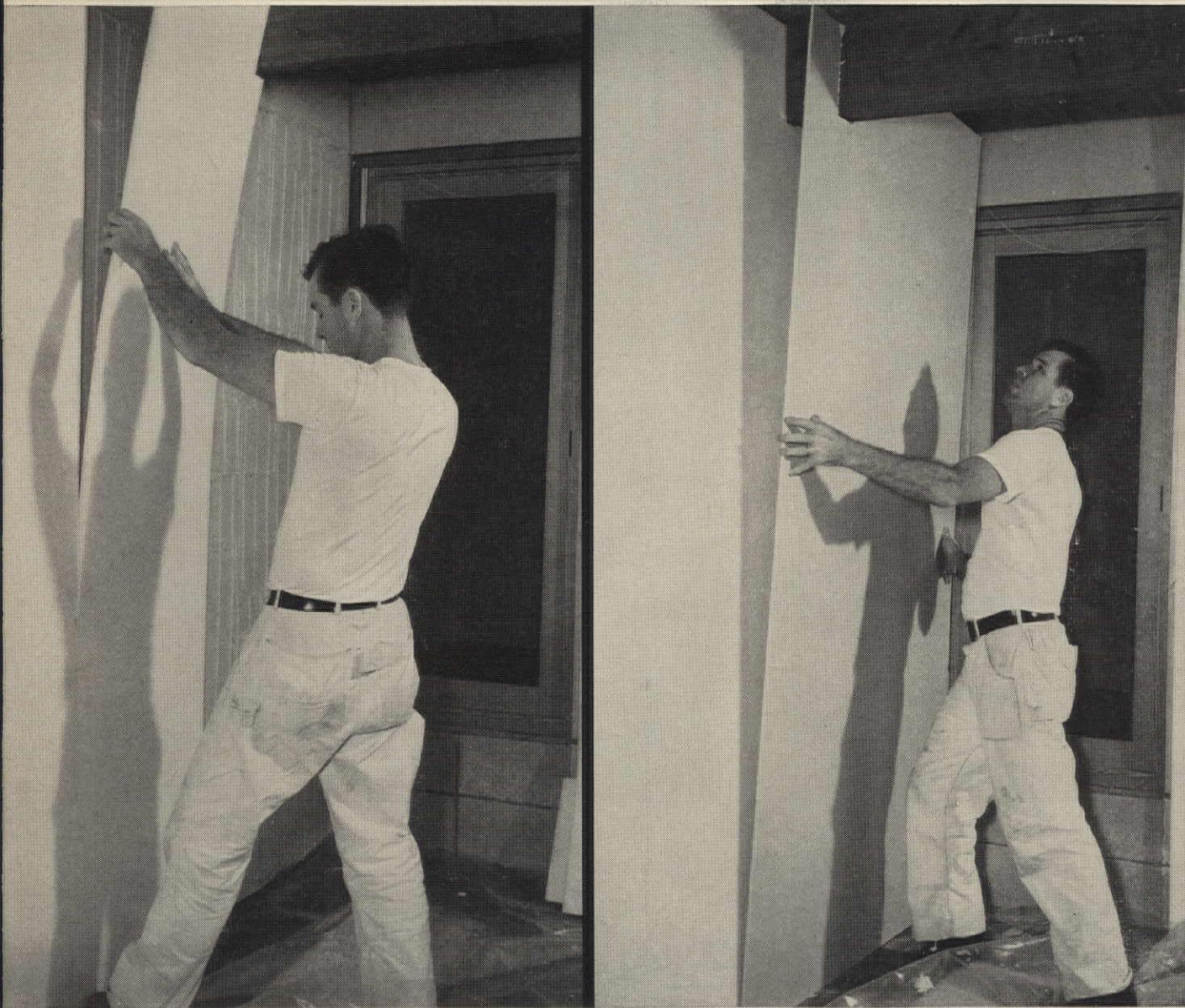
This new method makes use of Styrotac to bond Styrofoam brand insulation board directly to the inside face of the masonry wall, as illustrated. After the bonding cement has set overnight, gypsum wallboard is then adhered to the Styrofoam insulation using the same material.

Using this method, furring and lathing are eliminated, producing a solid insulated wall with no hollows. There is no wood present for insects to feed on, no nail holes to fill and "pop," and the completely-supported wallboard will

not bow in or warp. This new insulating method, developed by Dow, offers architects a means of building-in the quality of double-laminate walls, using only a single thickness of wallboard.

Styrotac can be applied to dry absorbent masonry surfaces without first wetting the surface, or it can be applied to the Styrofoam. Either spot application or full coverage using a notched trowel is recommended. Only firm hand pressure against the boards of Styrofoam is required to bond them solidly to the wall.

For wet plaster installations, Styrofoam insulation is first bonded to the masonry wall with Styrocrete® or portland cement mortar. Wet plaster is then applied directly to the face of the Styrofoam. The cellular structure of Styrofoam



## New insulating method saves money, saves steps in masonry construction

insulation provides positive keying action to the plaster, producing maximum bond strength.

STYROFOAM insulation board provides permanent insulating values for masonry buildings because of its high resistance to moisture, and its low "K" factor. Styrofoam rigid foam insulation contains millions of tiny non-interconnecting air cells which don't soak up water or moisture, don't rot or mildew. *No separate vapor barrier is needed!* And because Styrofoam insulation has no food value, it doesn't attract insects or vermin. In addition, the high insulating efficiency of this insulation keeps heating and cooling costs to a

minimum, year in, year out.

For more information on the time-saving, cost-saving advantages of using Styrofoam insulation and this new insulating method for masonry construction, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Dept. 1301LH2.

*Styrofoam is a registered trademark of The Dow Chemical Company. It is applied only to the homogeneous expanded polystyrene made according to an exclusive Dow process. Styrofoam brand insulation board is available only from Dow and its authorized representatives.*

**THE DOW CHEMICAL COMPANY**



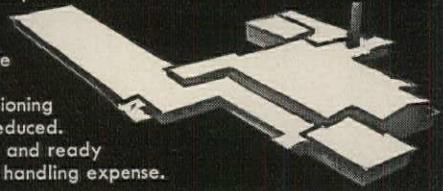
Midland, Michigan

**LOW COST, WHITE  
ROOFING AGGREGATE**

**CRYSTALITE**

**Bondable, Whitest White  
Highly Reflective Marble**  
(cuts air conditioning expense)

Sparkling white Crystalite makes a beautiful built-up roof—yet costs very little more than the cheapest aggregates. Crystalite is approved for bonding by leading roofing material manufacturers. Crystalite is a hard, nonporous limestone marble. It will not crumble, deteriorate or change color. Because of its heat reflective properties, air conditioning expense is greatly reduced. Crystalite, clean, dry and ready to use, also saves on handling expense.



Write for Complete Information, Samples and Prices  
**BLACK WHITE LIMESTONE CO.**  
Front and Eighth Streets, Quincy, Illinois

*CONTRACTING  
IN-THE-CRAFTS  
UNDER ONE ROOF—  
ONE MANAGEMENT*

MURALS, SCULPTURE

STAINED GLASS

DESIGNING ROOM

CONFERENCE ROOMS  
ESTIMATING

WOOD CABINET SHOP

ART METAL SHOP

LIGHTING FIXTURE SHOP

**RAMBUSCH**  
NEW YORK CITY

40  
WEST 13TH STREET

DESIGNERS • CRAFTSMEN • LIGHTING ENGINEERS

Telephone: ORegon 5-0400

*AGITAIR® Decoraire*

EXTRUDED ALUMINUM  
REGISTERS... GRILLES

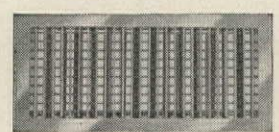


**FOR SHEER ARCHITECTURAL BEAUTY AND EFFICIENCY**

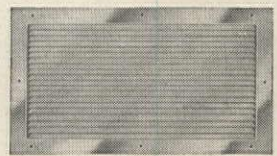
Whether you use one foot of DECORAIRE or a thousand foot run or more, you can be sure that these extruded aluminum grilles or registers will give maximum performance to assure complete users satisfaction.

DECORAIRE incorporates desirable practical features... APPEARANCE... PERFORMANCE... VERSATILITY to meet the exacting requirements of architects, engineers and contractors.

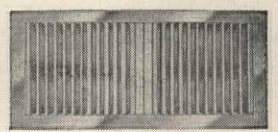
**ALSO A COMPLETE LINE OF REGISTERS - GRILLES**



REGISTERS



SIGHT TIGHT GRILLES



GRILLES

To meet every requirement of the architect and designer, there is also available AGITAIR Registers and Grilles in a wide range of sizes and styles.

Ask for catalog R-G-100.

**AIR DEVICES INC., 185 MADISON AVE., NEW YORK 16, N. Y.**  
BETTER PRODUCTS FOR AIR DISTRIBUTION • AIR CLEANING • AIR EXHAUST

**ELJER...  
FIRST  
IN NEW  
IDEAS**

### *Introducing Eljer's new "Triangle"*

Fit a toilet in a corner? Eljer did it and look what a smart idea it is. Looks dramatically new. Saves valuable space.

Whether you are designing new homes or modernizing older ones, this new toilet gives you greater design freedom. Now you can more

easily create new bathroom designs using the built-in flexibility of the *Triangle* toilet by Eljer.

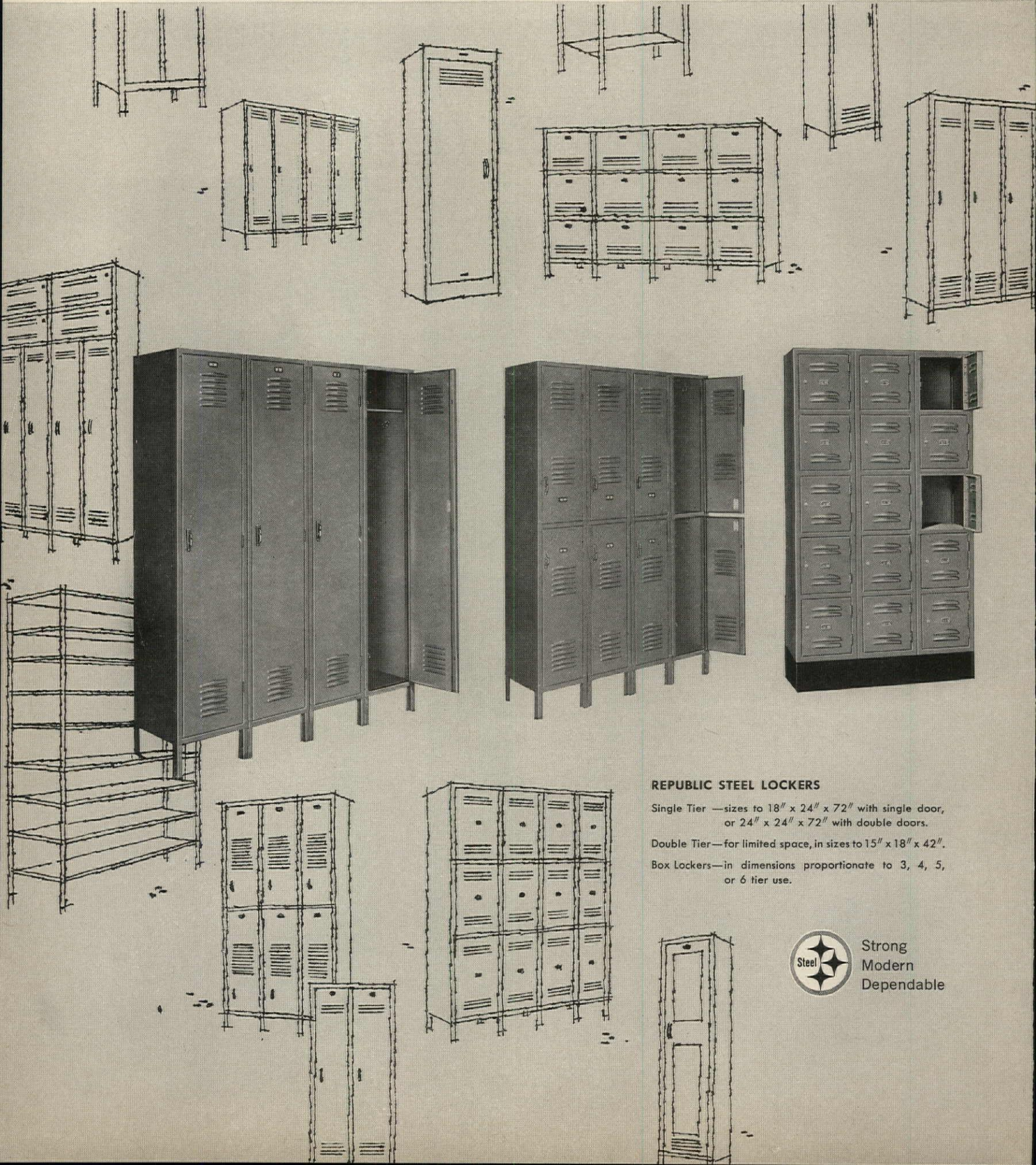
Available in six beautiful colors plus snowy white. The Murray Corporation of America, Eljer Plumbingware Division, 3 Gateway Center, Pittsburgh 22, Pennsylvania.

**ELJER**  
FINE PLUMBING FIXTURES



Agreed, most lockers look alike

The difference? **YEARS FROM NOW REPUBLIC**



**REPUBLIC STEEL LOCKERS**

Single Tier — sizes to 18" x 24" x 72" with single door, or 24" x 24" x 72" with double doors.

Double Tier — for limited space, in sizes to 15" x 18" x 42".

Box Lockers — in dimensions proportionate to 3, 4, 5, or 6 tier use.



Strong  
Modern  
Dependable

# LOCKERS WILL STILL LOOK NEW!

There's really no reason why lockers shouldn't look alike. A single tier locker, for example, *should* be a tall rectangular shape, to accommodate a coat and

provide a shelf space above. And it should have a door with a locking handle and ventilating slots. *There is a difference, though. In Republic Steel Lockers, it is:*

**CONSTRUCTION DESIGNED TO STAND HARDER USE**—Heavy, fully flanged doors, door frames, and body parts. The extra steel used in Republic-Berger Lockers means longer, trouble-free product life.

**FIVE-LOOP PIN TYPE HINGES**—Doors strongly supported on 2" wide double leaf hinges, welded to the door frame, bolted to the door.

**POSITIVE, QUIET LATCHING AND LOCKING**—Pre-locking door design that permits locked door to be closed without raising latching bar. The largest live rubber silencers found in any locker insure quiet operation. (Door handles are attached with tamper-proof Gulmite screws and lock washers. Your choice of popular locking systems.)

**FIVE-STEP BONDERIZING**—As contrasted to usual three-step method. Resultant coating seals out corrosion, assures permanent adherence of baked enamel finish, and provides maximum resistance to chipping and scratching. (Chrome-plated door handles with integral padlock strike provide an additional guarantee of lasting "new" appearance.)

**COMPLETE DESIGN FLEXIBILITY**—Available in every style and proportion, Republic Steel Lockers are made on the unit principle—every part interchangeable for complete adaptability in original installation, or in future re-arrangement.

To sum up, we can agree that all lockers *look* alike—but a closer look reveals, Republic-Berger Lockers offer a vital difference in *extra* quality. Ask for a demonstration to prove this fact. We're sure you'll be convinced

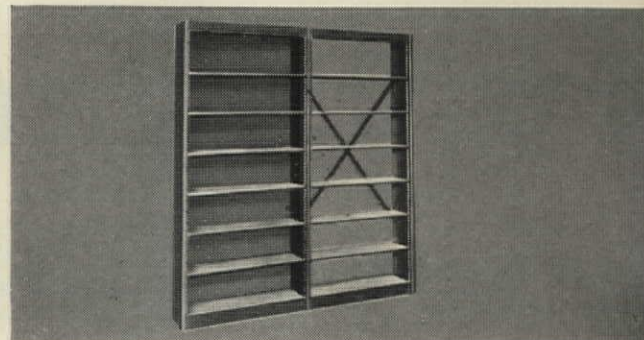
the difference means lower maintenance costs. You can get more information, and locker planning help, and catalogs for your file, by calling your Republic Locker Distributor, or by mailing the coupon below.



**OPEN SHELF FILING**—The latest innovation in the housing of modern, efficient filing systems. Open Shelf Filing speeds file procedures, increases file room efficiency, yet the initial equipment cost can be as much as 70% lower.



**MATERIAL OF A THOUSAND USES**—Republic METAL LUMBER® answers needs for supplementary shelving, racks, and framing of every kind. Cuts like lumber, assembles with bolts and nuts furnished. Ask for "idea" book.



**ADJUSTABLE TO ANY BOOK SIZE**—Republic Book Shelf Units adapt quickly to any book storage need. Choice of decorator colors, open or closed styles, 84" or 90" height. Counter-high Book Shelf Units available, too.



**REPUBLIC STEEL**  
REPUBLIC HAS THE FEEL FOR MODERN STEEL

See Republic's NEW TAMPER-PROOF LOCKER HANDLE at Booths K-20 and K-22. American Association of School Administrators Show, Atlantic City, February 17 to 21.

**REPUBLIC STEEL CORPORATION**  
DEPT. AF-3373  
1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Information, please!

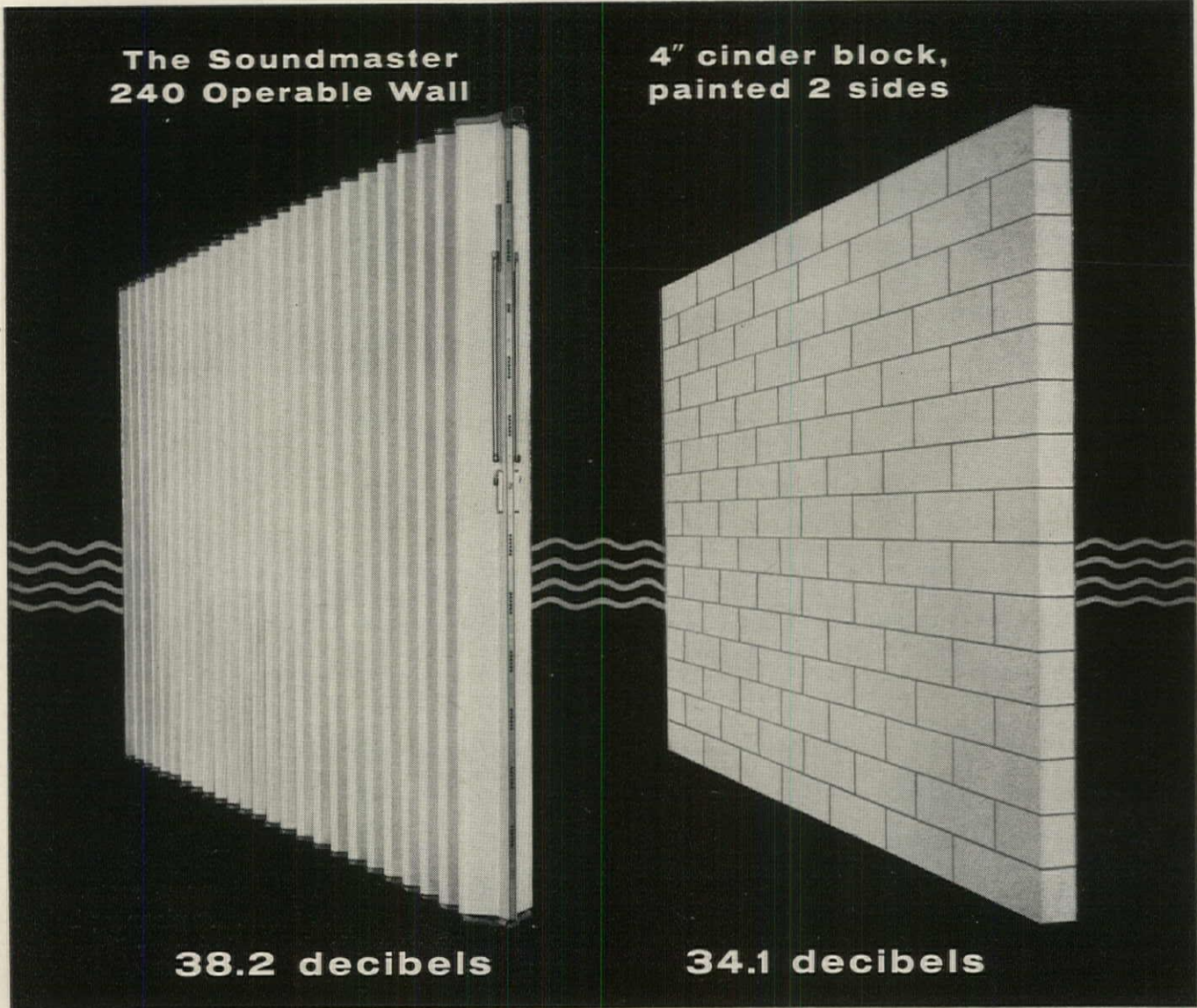
- Have Republic Locker Specialist call.  
 Send literature on: Republic Steel Lockers  
 Metal Lumber       Vertical Files       Book Shelf Units

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



# NO CONTEST

● This is no mere laboratory comparison of samples . . . but a full-scale test under field conditions with walls 14 feet wide by 9 feet high. And notice. The Soundmaster 240 not only is the better sound barrier by four full decibels . . . but it gives you space flexibility that no permanent wall can offer. With this

new Modernfold operable wall, you can design any area in any building for instant division, expansion or consolidation. Let us give you the details . . . show you how twin walls of steel panels and effective perimeter sealing can produce such superior sound privacy. Just fill out the coupon below.

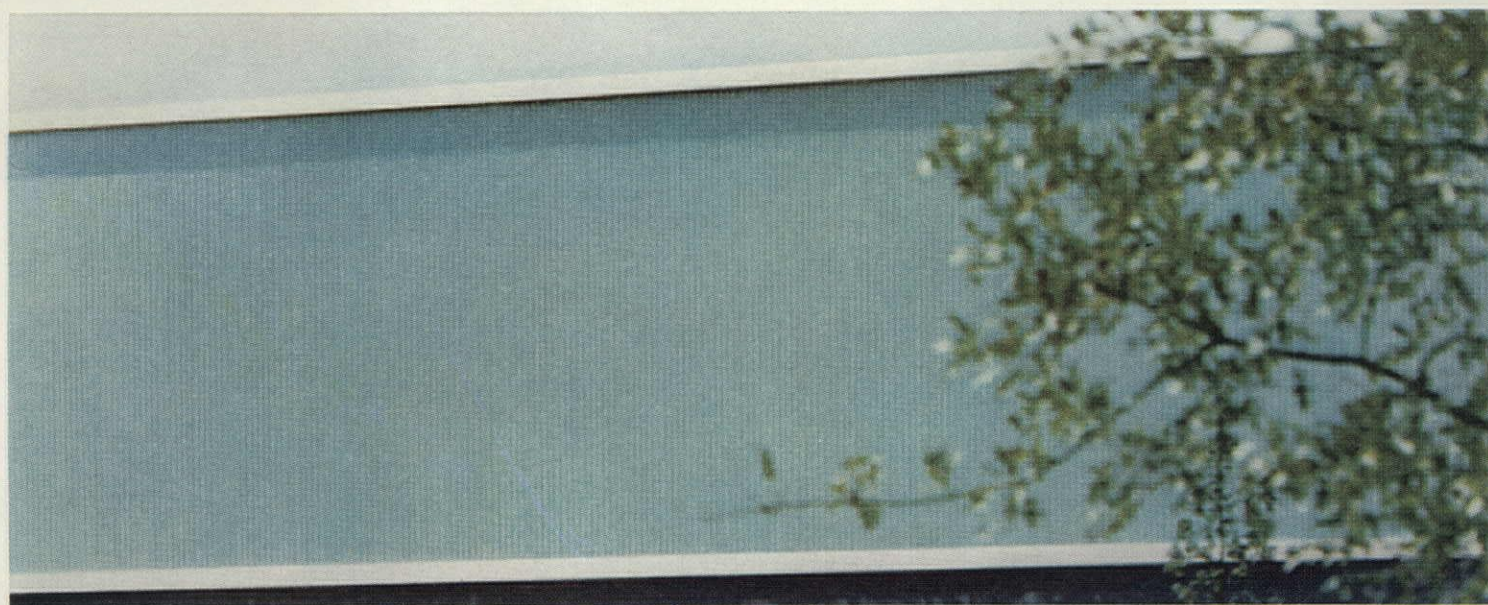
NEW CASTLE PRODUCTS, INC.  
 Dept. A122; New Castle, Indiana  
*Gentlemen:* Please send full information on your Soundmaster 240.

NAME \_\_\_\_\_  
 FIRM \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_



**NEW CASTLE PRODUCTS, INC. • NEW CASTLE, INDIANA**  
 In Canada: New Castle Products Canada, Ltd., St. Lambert, Que. Manufacturers of "Modernfold" Operable Walls, Partitions and Doors; "Air Doors"; "Modern-Cote" Wall Coverings; "Peabody" School Furniture; and "Pyrox" Sheathed Thermocouples.





Corning Glass Works, Martinsburg, W. Va.

## Hard-working building keeps its luxury look with Alcoa Alumalure finish

This building works hard for a living. But you can be sure that it will keep its fresh, trim beauty for a good many years to come.

This Corning Glass Works plant is smartly turned out in Alcoa® Aluminum Siding with a Polar Blue Alumalure® finish. Plain-finish aluminum fascia gives sparkle and high light to the color areas.

Alcoa Alumalure finish has already passed a 16-year exposure test that proves its unusual durability. It's tough enamel, baked onto lightweight aluminum sheets

that go up fast to save you construction dollars. The cost is low, too. Maintenance is something you can almost forget. A rainy day takes care of most of the upkeep.

You can pick from 12 Alcoa Alumalure colors on ribbed, corrugated or V-beam aluminum roofing and siding. Order it through any Alcoa jobber or your nearest Alcoa office. For specifications, design details or a brochure with color swatches, write: Aluminum Company of America, 818-B Alcoa Building, Pittsburgh 19, Pennsylvania.

Entertainment at Its Best . . . **ALCOA PREMIERE**  
with Fred Astaire as Host . . . Tuesday Evenings, **ABC-TV**

ARCHITECT AND ENGINEER: Day and Zimmerman, Inc., Philadelphia, Pa.  
GENERAL CONTRACTOR: George A. Fuller Co.  
ALUMINUM SUBCONTRACTOR: Elwin G. Smith & Co., Inc.

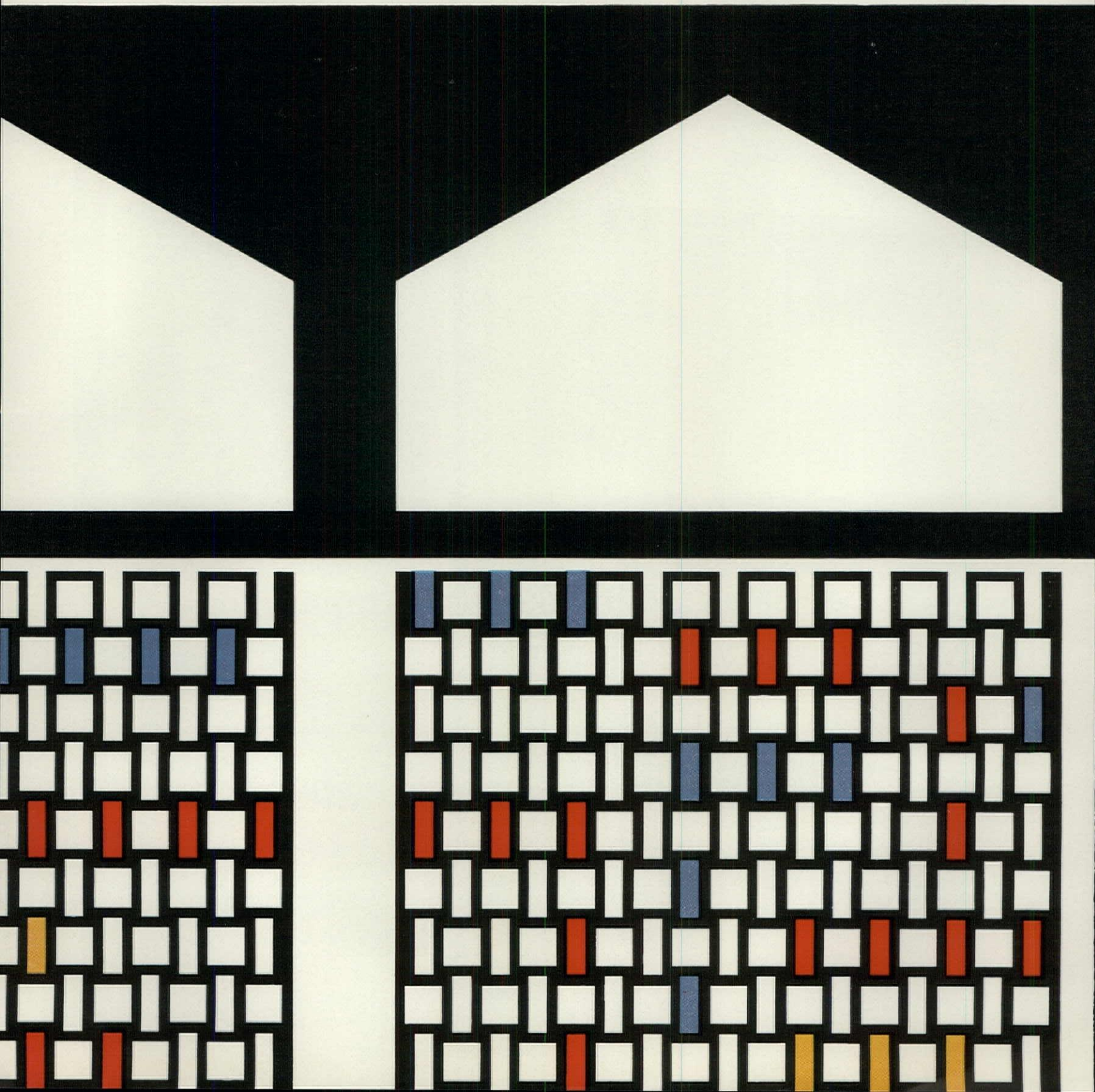


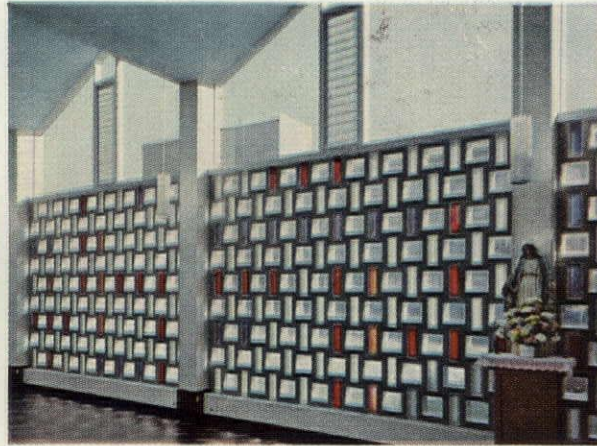
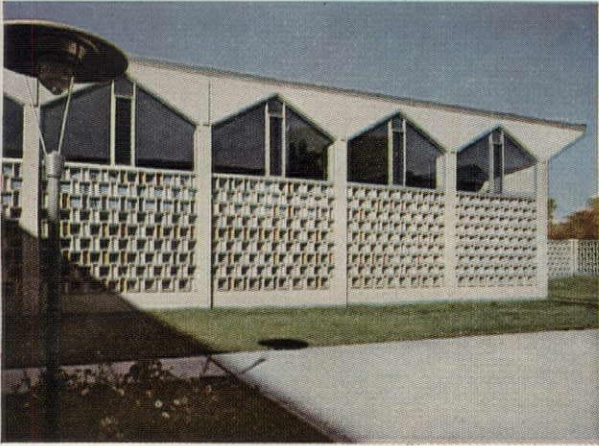
## PC Glass Blocks . . . grace and color, wall and solar screen in one

Durable, weathertight wall and delicate solar screen have been combined in this graceful design for a new chapel at St. Gabriel's Hospital, Little Falls, Minnesota. For their materials, St. Paul Architects Bettenburg, Townsend, Stolte and Comb chose 8" PC Glass Blocks, 4" x 12" PC Color Glass Blocks and 12" x 12" x 8" concrete block.

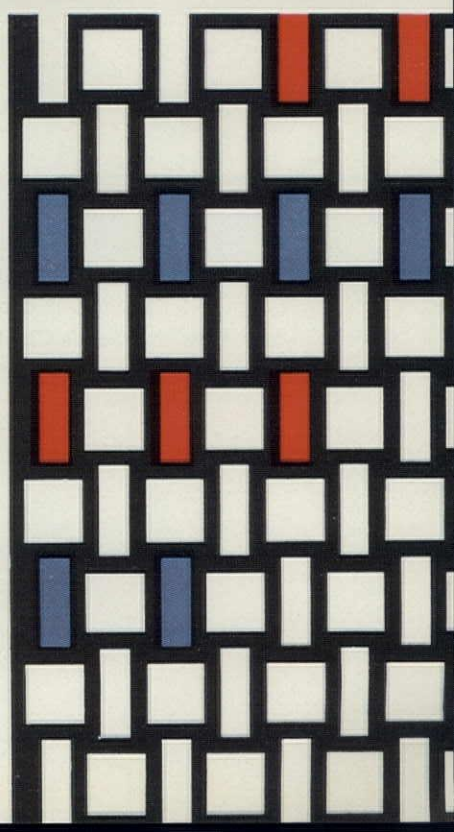
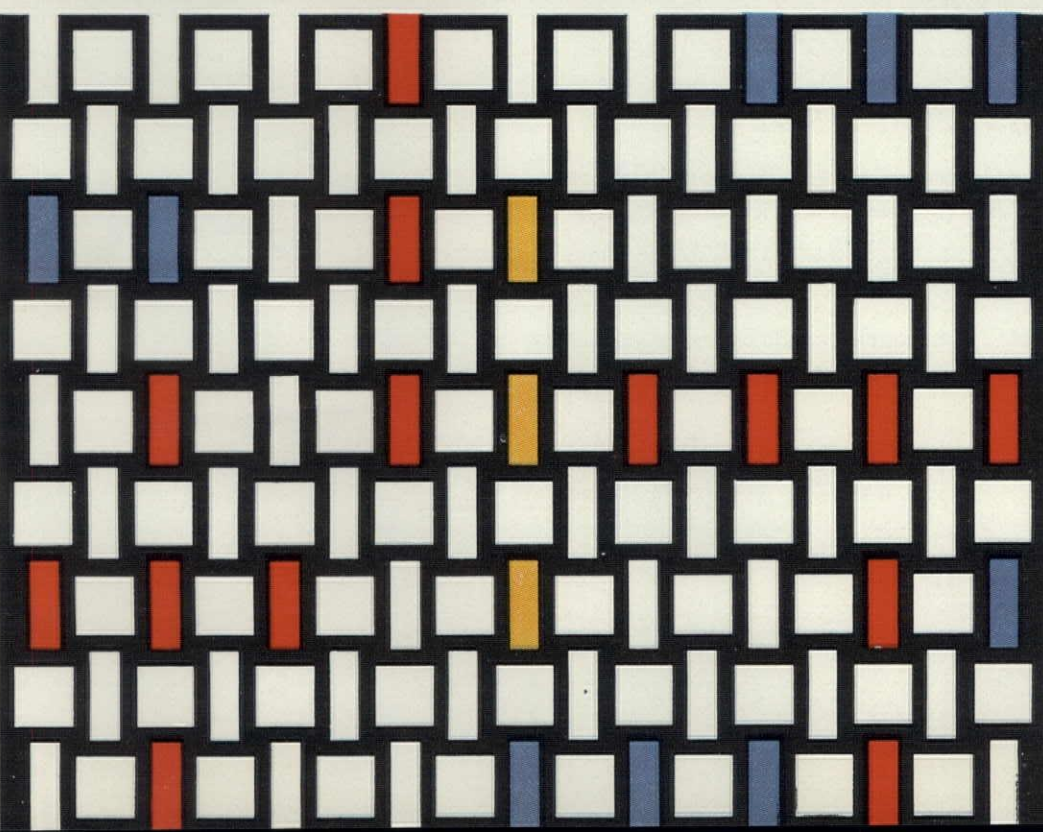
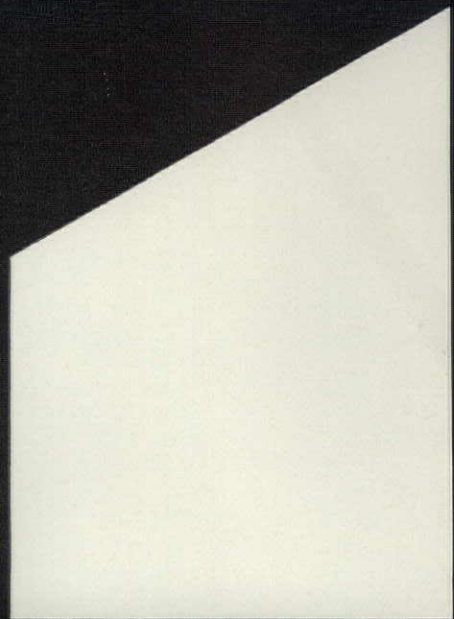
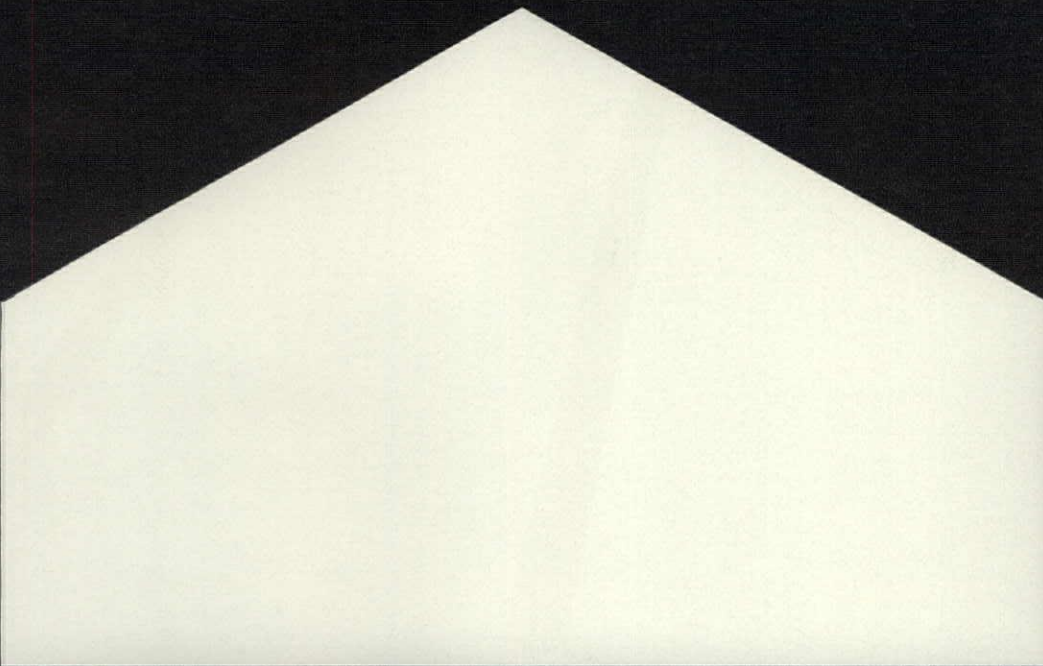
Clear 8" glass blocks were mortared into the silicon-coated concrete block at the job site and the resulting units were then mortared into the wall. The 4 x 12 Color Glass Blocks were laid up in pre-selected spots to create a moving color rhythm. The result: an extremely strong wall with the insulating value of 8" masonry block into which have been designed pattern, texture and stimulating color harmony . . . all at a cost of less than \$6 per square foot.

Once more the art and imagination of the architect have created a thoughtful new approach to wall design inspired by the exciting line of PC Glass Blocks, Color Glass Blocks and Sculptured Modules. Our new catalog contains complete details. For a copy, write Pittsburgh Corning Corporation, Dept. AF-22, One Gateway Center, Pittsburgh 22, Pa.





PITTSBURGH





Colors: V-421 Antique Lace, V-426 Castilian Gray with black feature strip

## *Vina-Lux*® PREMIERE *Series*

*elegant floor beauty that won't "walk off"*

...because the travertine patterning is distributed through the full thickness of the tile. Premiere Series in Vina-Lux vinyl asbestos tile is a unique combination of subtle styling and rugged resistance to maximum traffic loads...delivers so much more value and performance than surface patterns...yet costs no more. Specify Vina-Lux Premiere Series, for installation over concrete — above, on or below grade, or over wood or plywood subfloors. Consult Sweet's Catalog — or let us send you samples, color charts and detailed architectural specifications. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 501A Frost Building, San Antonio, Texas.

Magnified view shows pattern distribution through full thickness of tile. Available in 1/8" 3/32", 1/16" gauges.

another fine floor by **AZROCK**®

# *emphasis*

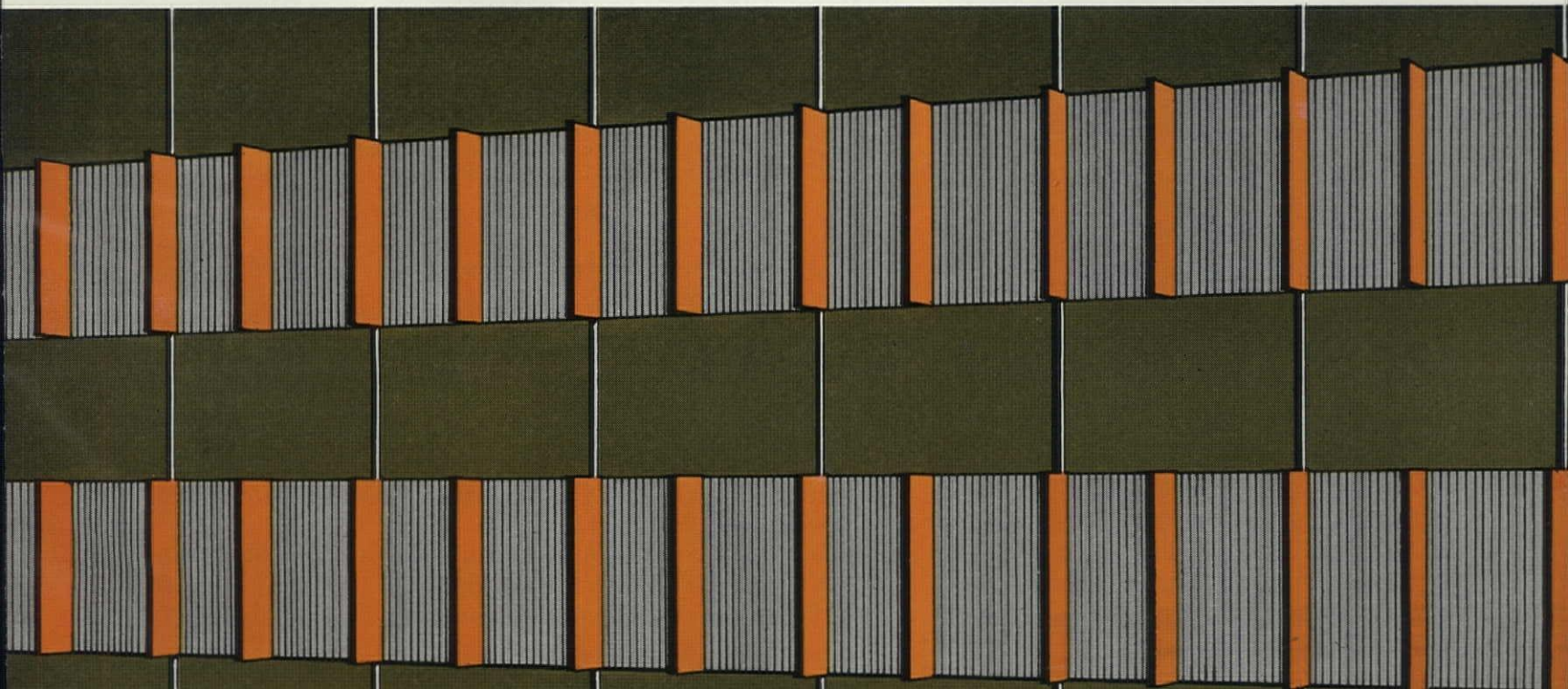
"...The curtain wall has become monotonous. To offer a solution to the problem...we have undertaken a number of design studies ...of the untapped possibilities.

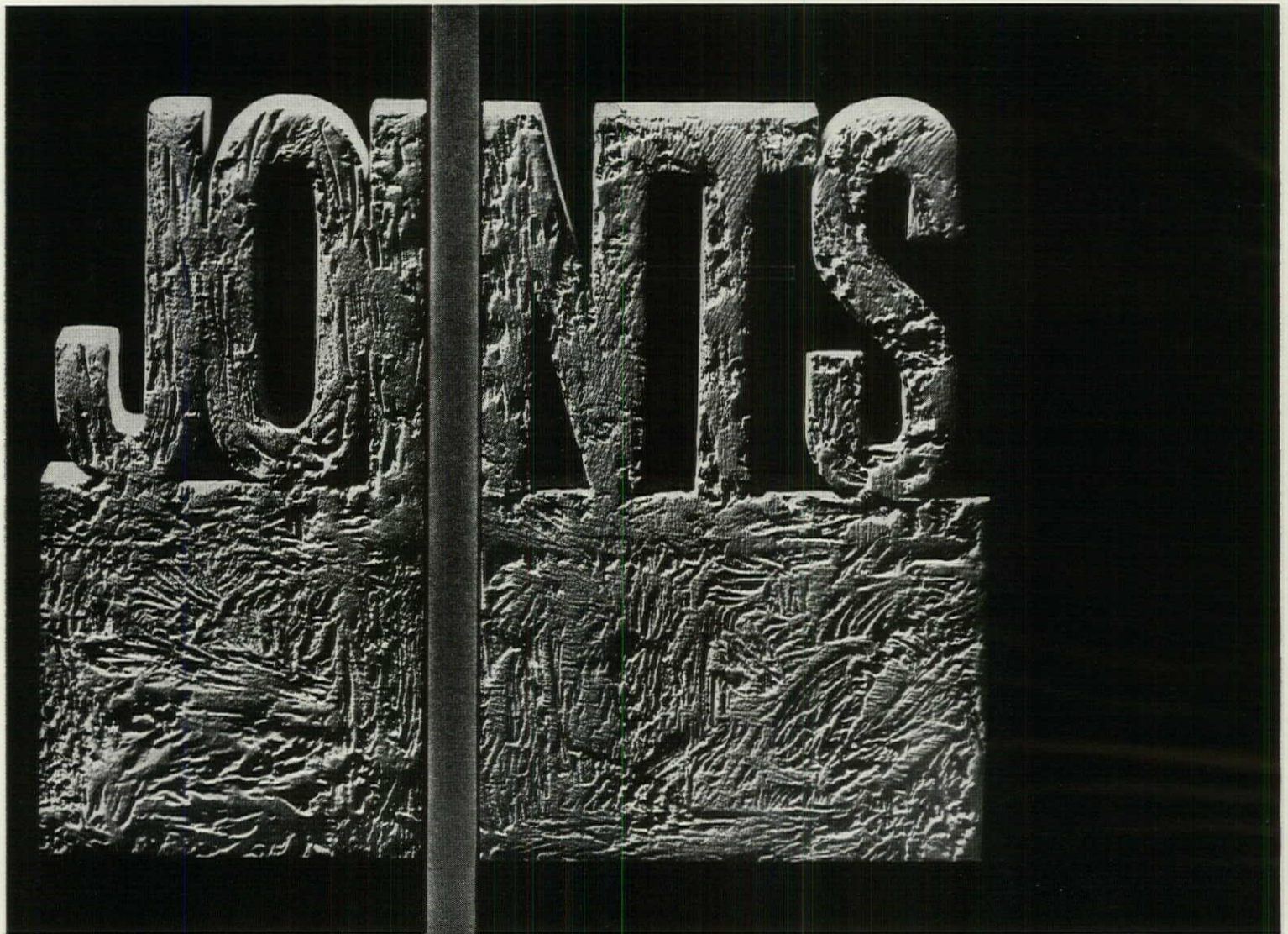
"This is a study made specifically for a horizontal building. The essential design element is the emphasis on horizontality; short, deeply projecting, vertical mullions are applied to the ribbon windows. As a result, the horizontal ribbon-window pattern is given added texture and emphasis."\*

Mullions, short or long, any color or many colors, permanent unchanging colors...spandrels, uniformly flat and color matched... all are possible and practical with quality porcelain enamel. The infinite selection of colors, patterns and textures now available in porcelain enamel gives the architect the materials he needs to create a new—and more emphatic—architecture.

\*From "**Expression in Curtain Wall Design**" by Peter Blake, A.I.A. Write for the complete illustrated study.

**PORCELAIN ENAMEL INSTITUTE** 1145 19TH STREET, N. W.  
WASHINGTON 6, D. C.





## TYPE OF SEALANTS

### 1. POLYSULFIDE BASE SEALANTS

### 2. OLEO-RESINOUS COMPOUNDS

### 3. VULCANIZED GASKETS

### 4. MASTIC TAPES

### 5. SILICONE TYPE SEALANTS

### 6. ACRYLIC TYPE SEALANTS

## EXPECTED LIFE

Twenty years or more. Will not harden appreciably, crack or lose adhesion with outdoor exposure; remain flexible and adhesive.

Two to five years. Compounds harden rapidly. Lose adhesion with any movement.

Some types to 20 years. Although most remain flexible, satisfactory performance becomes a problem with continual deformity under pressure.

Some types to 20 years. Will flow and deform under pressure, reducing effectiveness.

Expected performance up to 20 years. Case history performance is about 4 years.

Expected life unknown. Case history performance is less than 4 years.

## ADHESION PROPERTIES

Excellent to most materials, including glass, steel, aluminum, cement, stone, etc. The bond is chemical and occurs in place.

Good when restricted to less than 5% extension for the expected life. Seal fails as compound hardens and cracks.

None. Requires tight fitting and constant compression to maintain seal.

Adhesion generally good, but requires constant compression to maintain seal.

Generally good. Evidence indicates that some types lost adhesion when immersed. Evidence that material will not adhere to itself.

Exhibits excellent chewing-gum type of adhesion to most materials.

\*THIOKOL TECHNICAL LABORATORIES.

**ACTUAL COST OF SEALING**— In structural sealing, the installed cost of sealant based on THIOKOL® polysulfide liquid polymer will be more than that of some materials, less than others. Actual cost must be

weighed against acceptable results. If leakage due to sealant failure will present no problem, cause no property damage, or demand no recaulking with attendant labor costs, selection of a sealant compound

# You can seal fast, seal once, seal for good with compounds based on polysulfide liquid polymer

Properly applied, polysulfide base sealants — measuring up to or exceeding American Standard Specification A116.1 — produce watertight joints that stay watertight for time unmeasured under extreme and varying weather conditions.

It was about 10 years ago that polysulfide base sealants were "discovered" as a practical solution to dynamic structural sealing. Previously, they had been used to seal fuel tanks in the wings of aircraft—from China Clipper days. Since then, they have been applied extensively and have performed successfully in the monumental curtain walls and other skyline-changing structures of modern architecture.

Polysulfide-base sealants combine steel-grip bonding with rubbery elasticity. They chem-

ically weld themselves to all building materials in any combination, expand at least to 100% without adhesive failure. Sealants with THIOKOL® polysulfide polymer add structural strength, while outstanding resistance to sun, frost, moisture, ozone, chemicals and aging assure long-lived, trouble-free weatherproofing.

Chart below compares properties and performance characteristics of various sealant types.\* The time-proven advantages of polysulfide base sealants—and resultant economies—are self-evident. There is only one polysulfide polymer. And it's made by Thiokol.

*Thiokol makes raw material only. Names of processors of finished sealants will be provided on request.*

# Thiokol

**CHEMICAL CORPORATION**

**780 N. Clinton Ave., Trenton 7, N.J.**

IN CANADA: NAUGATUCK CHEMICALS DIVISION  
DOMINION RUBBER COMPANY, ELMIRA, ONTARIO

## COHESIVE PROPERTIES

Exhibits good resilience and cohesive properties during expected life.

## EXTENSION LIMITATIONS

Expected to exhibit minimum of 150% extension for American Standard Specification A116.1 requirements, and Federal Specification TT-S 00227 (GSA-FSS) July 17, 1961.

## OVER-ALL PERFORMANCE

Satisfactory performance in many buildings already exceeds nine years in dynamic and static seals. Can be applied at any temperature at which a man can work.

Is not resilient.

Approximately 5%.

Fair to good when used within limitations of shore life and very low extension limitations.

Exhibits good resilience and cohesive properties during expected life.

Gaskets exhibit high extension but are limited in performance to compression limitations generally around 35%.

Generally good providing properly fitted and provided that there is positive pressure on gaskets. Failures generally result with deformation, loss of pressures to maintain seals.

Generally exhibit fair to good resilience and cohesion during expected life.

Same as above.

Same as above.

Most compounds exhibit high resilience and cohesion.

Extension limitations presently limited to approximately 50% to 75%.

Present performance record is about 4 years, but expected to be good providing extension limitations are not exceeded.

Generally very low to low resilience with low cohesion properties.

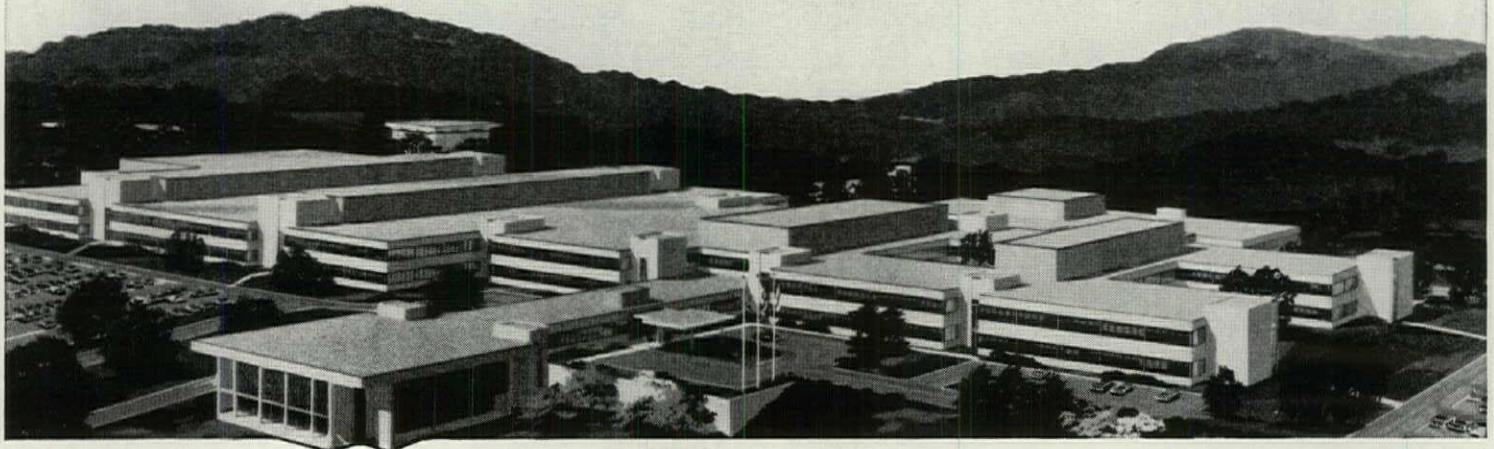
Would exceed 150% but do not exhibit any recovery properties.

Present performance is less than 4 years. Not recommended for dynamic seals due to very low cohesive properties and very low recovery.

can be based on the most for the least expense. However, if leakage is intolerable, selection of a sealant requires careful consideration. ■ In terms of leak-proof performance, established longevity and main-

tenance-free benefits, sealants based on THIOKOL® polysulfide liquid polymer have proved a wise investment for architects, contractors and building owners. They can be the same for you.

America's Most Advanced Space Research Facility  
**COMPLETED IN LESS THAN ONE YEAR  
BY HUBER, HUNT & NICHOLS**



General Electric's New  
**SPACE TECHNOLOGY CENTER**  
Valley Forge, Pennsylvania

General Electric's Valley Forge complex, over 900,000 square feet, was completed in November, 1961 . . . less than one year from start of construction.

Savings worked out by Huber, Hunt & Nichols helped General Electric build the Space Center at a cost substantially *lower* than the original estimate, without sacrificing area, quality, or architectural aesthetics.

HH&N completed the first unit, and GE took occupancy, in 6 months. At this time, GE added a new space environment test building and a structures laboratory to HH&N's contract *with no extension of the over-all completion date.*

HH&N's close coordination of manpower and material resources, and full responsibility for all phases of construction and installation can help solve *your* time and cost problems. *Write for full information and brochure of recent completions.*



NATIONWIDE BUILDERS

The October issue of the HH&N REPORTER features GE's Valley Forge Space Center. Be sure you receive your copy. Drop us a note on your letterhead.



**HUBER, HUNT & NICHOLS, INC.**  
GENERAL CONTRACTORS

Box 128 • Indianapolis, Indiana

INDUSTRIAL CONSTRUCTION • COMMERCIAL BUILDING • INSTITUTIONAL BUILDING  
MACHINERY INSTALLATION • PAVING





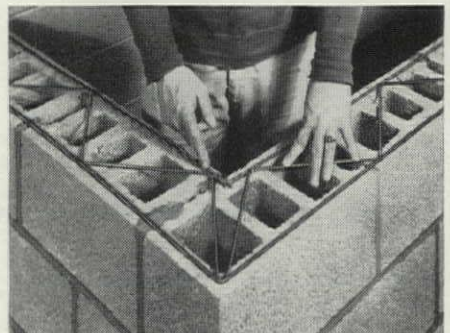
# This is Dur-o-wal

*the masonry wall reinforcement  
with the butt-welded construction*

Together with the trussed design, Dur-o-wal is distinguished from other metal-rod reinforcement by the electrically butt-welded contact between cross rods and side rods. All rods are held securely straight and level in a single plane, for bonding and structural efficiency.

This makes for reinforcement that exceeds accepted standards. Dur-o-wal increases the flexural strength of a masonry wall 71 to 261 per cent, depending on weight Dur-o-wal used, type of mortar, number of courses.

An independent new research study shows that Dur-o-wal tied walls outfunction brick-header tied walls. Write to any Dur-o-wal address below for 44-page test report.



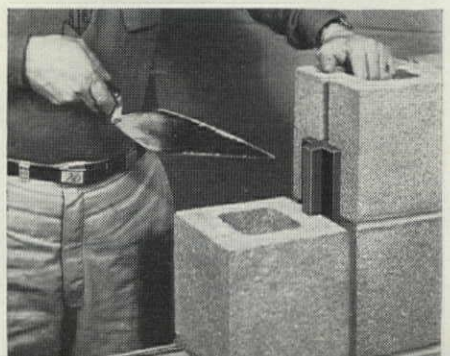
*STRENGTH WITH FLEXIBILITY—this basic masonry wall requirement is met for sure (and economically!) when Dur-o-wal, above, is used with the ready-made, self-flexing Rapid Control Joint, below, made by the makers of Dur-o-wal.*

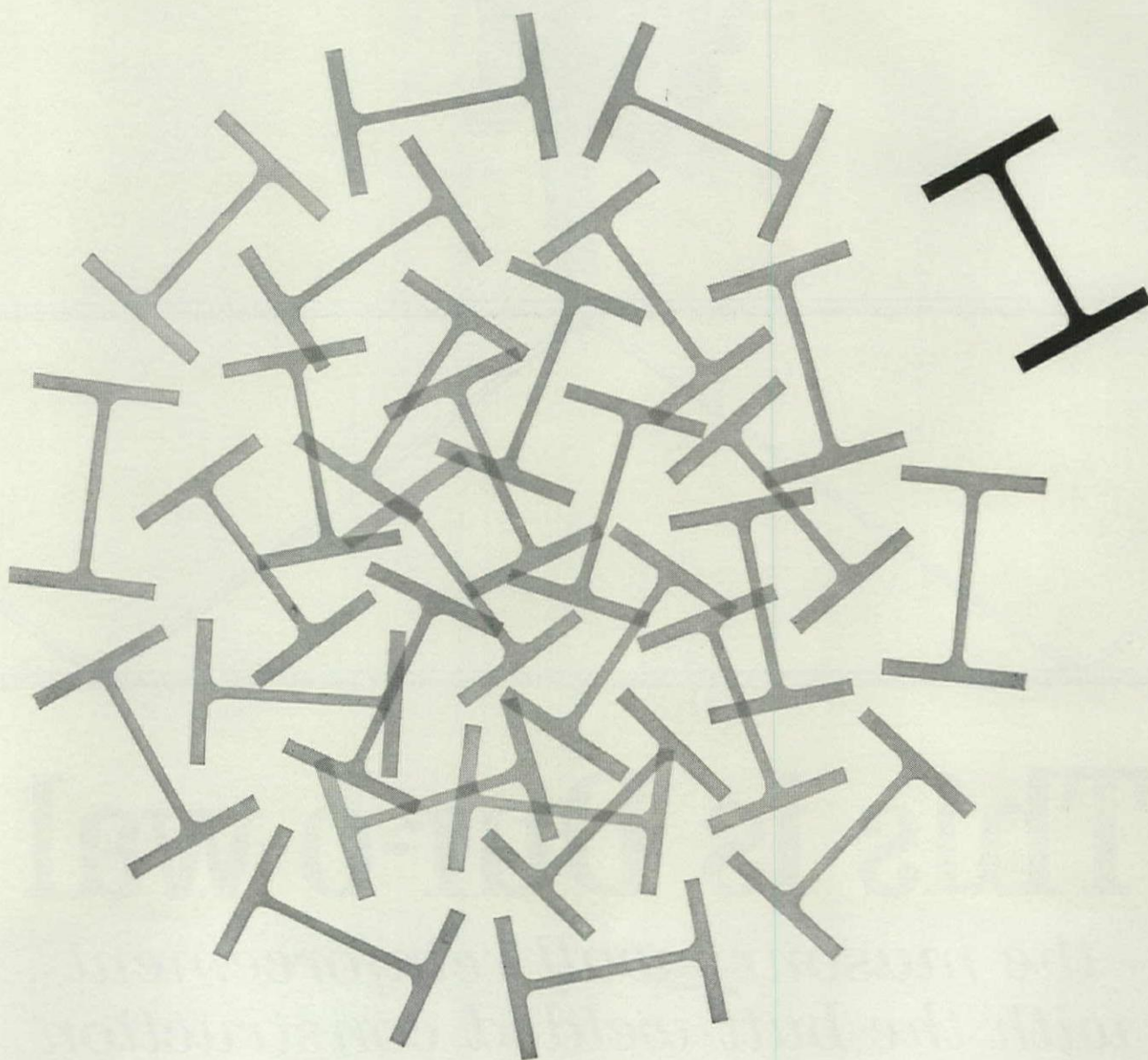
**DUR-O-WAL®**  
Masonry Wall Reinforcement and Rapid Control Joint

**RIGID BACKBONE OF STEEL FOR EVERY MASONRY WALL**

DUR-O-WAL MANUFACTURING PLANTS

- Dur-O-wal Div., Cedar Rapids Block Co., CEDAR RAPIDS, IA.
- Dur-O-wal of Ill., 260 S. Highland Ave., AURORA, ILL.
- Dur-O-wal Prod., Inc., Box 628, SYRACUSE, N. Y.
- Dur-O-wal Prod. of Ala., Inc., Box 5446, BIRMINGHAM, ALA.
- Dur-O-wal Div., Frontier Mfg. Co., Box 49, PHOENIX, ARIZ.
- Dur-O-wal of Colorado, 29th and Court St., PUEBLO, COLO.
- Dur-O-wal Prod., Inc., 4500 E. Lombard St., BALTIMORE, MD.
- Dur-O-wal Northwest Co., 3310 Wallingford Ave., SEATTLE, WASH.
- Dur-O-wal Inc., 1678 Norwood Ave., TOLEDO, OHIO
- Dur-O-wal of Minn., 2653 - 37th Ave., So., MINNEAPOLIS 6, MINN.
- Dur-O-wal Ltd., 789 Woodward Avenue, HAMILTON, ONTARIO, CANADA





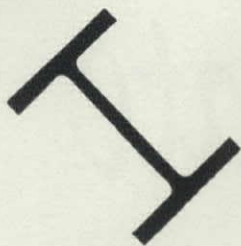
## **NEW AISC SPECIFICATION POINTS THE WAY TO EVEN GREATER DESIGN FREEDOM IN STEEL!**

For the architect and engineer, the new AISC Specification opens wide exciting new uses of steel—new opportunities for imaginative design with no sacrifice of strength or safety. Through plastic design, greater spans than ever are now possible. Utilizing the properties of composite action, smaller and fewer beams can be used, freeing large areas for uncluttered work space or for eye-pleasing vistas. What's more, the new Specification clearly points the way to the reduc-

tion of steel tonnage with consequent increased dollar savings.

Use  for Modern Construction

For a copy of the new Specification, write to the American Institute of Steel Construction, Inc., 101 Park Avenue, New York 17, New York; or Inland Steel Company, Dept. S, 30 West Monroe Street, Chicago 3, Illinois.



## NEW AISC SPECIFICATION GOES HAND-IN-HAND WITH LOWER BUILDING COSTS!

The new AISC Specification recognizes the many advances in metallurgical research. New insight into the behavior of steel under various conditions of load and stress, has led to the production of many new steels now available to the architect and engineer. New high strength steels permit the designer to select steels on the basis of appropriate tensile strength for the load, thus reducing the tonnage required and resulting in substantial cost savings. For example, using the new steels and taking advantage of composite design, plastic design, or new plate girder specifications, economies can run as high as 20%.



For your personal copy of the New AISC Specification, simply mail this coupon . . .

INLAND STEEL COMPANY  
DEPT. S  
30 WEST MONROE STREET  
CHICAGO 3, ILLINOIS

Please send my free copy of the New AISC Specification.

NAME \_\_\_\_\_  
COMPANY NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

**ARCHITECTURE AND THE ESTHETICS OF PLENTY.** By James Marston Fitch. Columbia University Press, New York, N.Y. 294 pp. 6¼" x 9½". Illus. \$7.50.

*Reviewed by Jane Jacobs*

James Fitch, professor of history at Columbia University's School of Architecture, ranges widely over the subject of American architecture in 18 discriminatingly illustrated and handsomely presented critical essays. Whether Fitch is discussing the functionalist philosophy of Sculptor Horatio Greenough, the relationship of Frank Lloyd Wright to the fine arts, the prodigies of earth-moving engineers, or the baffled emptiness of the Fermi Memorial competition designs, he has fresh things to say, and they are said with wit and wisdom. Most of the essays appeared first as lectures or articles. They gain by collection; Fitch's writing, as a body of work, has a built-in coherence and sustained perspective so that both the information and the point of view in each essay gathers force from its companions.

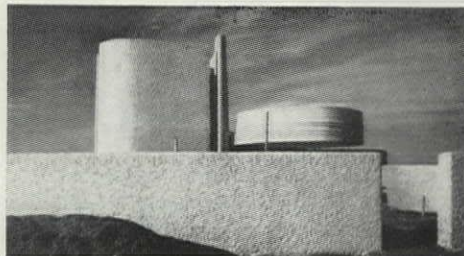
The author states his main concern immediately: "What is American about American architecture?" He replies that, among other things, American architecture possesses "a tendency not merely to respond to change but to respond in *depth*, from top to bottom, throughout the nation's whole structure. Its genius seems to lie, not so much in invention as in application." And no matter what his ostensible subject, Fitch is continuously describing the application, in depth, of ideas and objects.

Curiously, in his generalizations about American architecture, Fitch omits mention of a theme that constantly crops up in the essays that follow: the American tendency to design for the purpose of *concealing* the processes of work as activities which are unpleasant to see. His descriptions of Jefferson's devices to this end are brilliant and explicit; in many of the other essays the theme is implicit, and as a purpose it appears to arouse Fitch's almost unqualified admiration. But where this theme, or thread, in American architecture reaches its logical and natural conclusions—concealment and neglect of *how* life works—he is suddenly dismayed. He calls upon a relatively abstract reason to explain what he describes as the tyranny of "geometry" over "life, and movement, and time." American architecture, he says, while "exposed to the full blast of technology . . . has been only obliquely touched by the sciences which lay behind it. . . . Modern science teaches us the danger of formalism."

Fitch is both most interesting and most illuminating when he deals with the specific work or philosophy of specific persons. For example, a remarkable pair of essays—that on similarities between the architectural work of Jefferson and Wright, and that on

*Mrs. Jacobs is a senior editor of FORUM.*

the "domesticated Utopians" who sought to reform housewifery—contain more insight into the development of American house architecture than any number of volumes purporting to describe the American house, past or present.



**RECENT ITALIAN ARCHITECTURE.** By Agnol-domenico Pica. Published by Edizioni del Milione, Milan, Italy. Distributed by W. S. Heinman, 400 E. 72nd St., New York 21, N.Y. 139 pp. 7½" x 9½". Illus. Paper bound. \$5.50.

The attempt here is to cover a tremendous amount of work within the confines of a rather small volume. Hundreds of illustrations (323), but the photographs are generally small and plans and sections are infrequent. As a result, there is seldom more than an impression given of any one building or project. The selection of buildings shows a somewhat personal touch. Present: several Roman apartment developments often seen as backgrounds in Italian films, but seldom identified. Absent: Most of the "Neo-Liberty" buildings, presumably because of "stylistically reminiscent elegance" and "revivalistic tendencies," to extract some phrases from the equally personal text. An astonishing house, however, bobs to the surface: The Home of the Princes Pignatelli Cortez d'Aragona at Santa Marinella, Rome, by Luigi Moretti (see cut).—w.c.

**SHELTER DESIGNS FOR PROTECTION AGAINST RADIOACTIVE FALLOUT.** Prepared by Voorhees, Walker, Smith, Smith & Haines. Reprinted by the New York State Civil Defense Commission, 162 Washington Ave., Albany 10, N.Y. 96 pp. 9¼" x 12". Illus. Free.

**YOU CAN SURVIVE THE BOMB.** By Colonel Mel Mawrence with John Clark Kimball. Quadrangle Books, Inc., 119 W. Lake St., Chicago 1, Ill. 194 pp. 5¾" x 8½". Illus. \$3.95.

**PLANNING ATOMIC SHELTERS: A Guidebook for Architects and Engineers.** Edited by Gifford H. Albright. Pennsylvania State University Press, University Park, Pa. 196 pp. 8½" x 11". Illus. \$10.

If the fallout doesn't get you, the fallout shelter books must. They keep coming in. The Voorhees, Walker booklet has been around for a while, but the ink is still damp on the other two.

*Shelter Designs* is essentially a good paper

*continued on page 144*

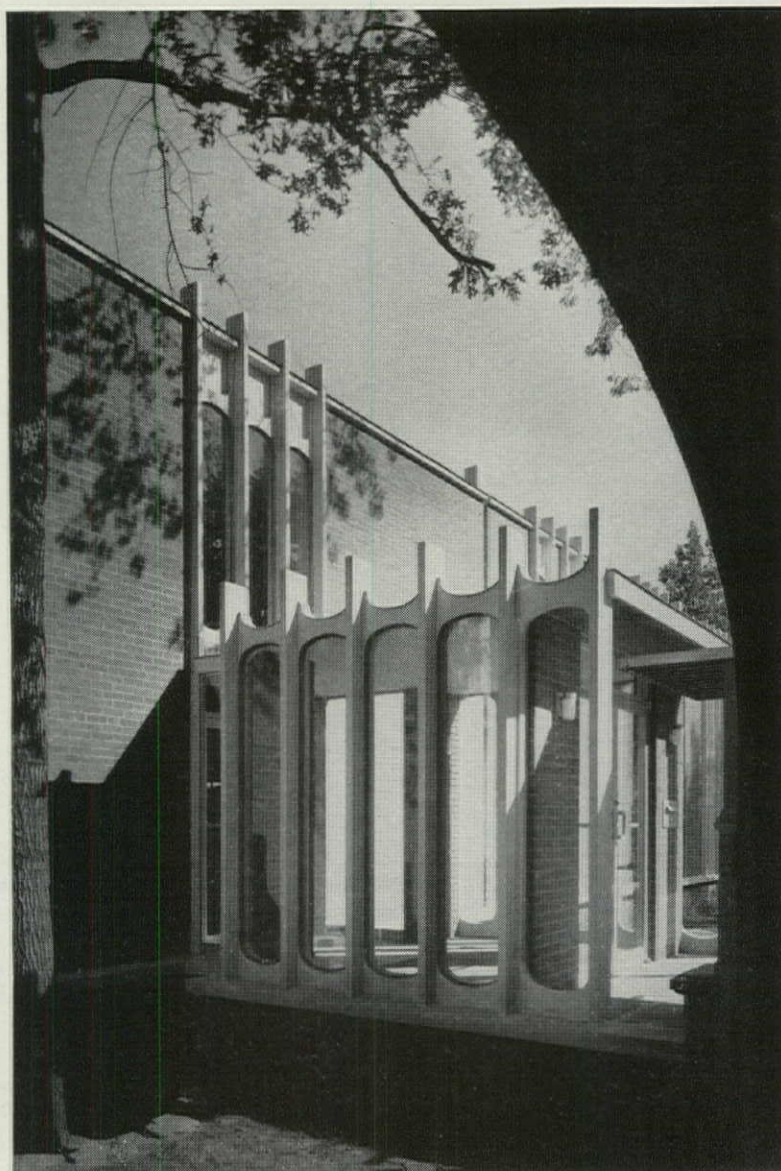
*new ideas  
in  
Indiana  
Limestone*

# Accentuate the Entrance!

Indiana Limestone provides the architect with an excellent permanent material for sensitive, delicate treatments. Genuine limestone affords a choice of textures and finishes ranging from very smooth surfaces to rustic, informal applications. Indiana Limestone blends handsomely with other building materials. A wide choice of fabrication techniques is available to the interpretive architect.



**ARCHITECTS ARE INVITED  
TO WRITE THE INSTITUTE  
FOR THE NEWLY PUBLISHED  
HANDBOOK ON LIMESTONE,  
A COMPREHENSIVE TEXT  
ON  
LIMESTONE APPLICATIONS.**



Music Library, Washington University, St. Louis, Missouri  
Architects: Smith and Entzeroth  
Clayton, Missouri

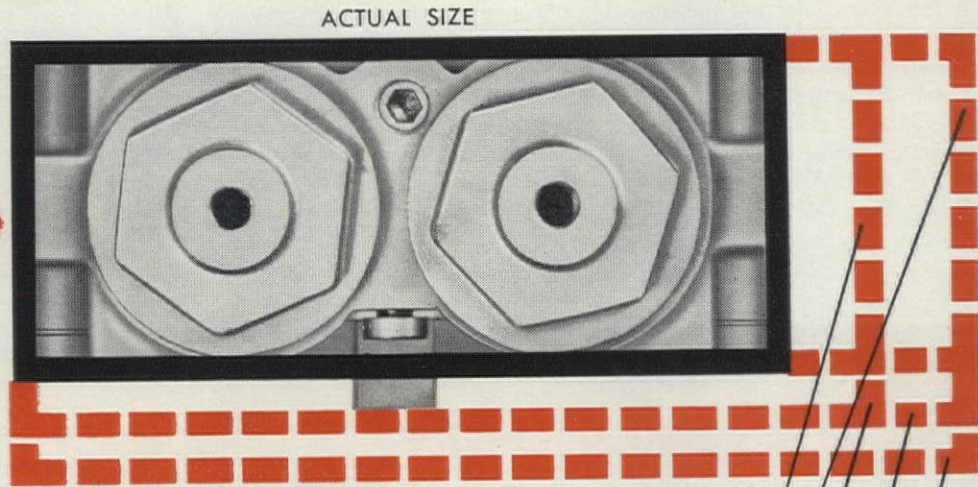
**INDIANA LIMESTONE INSTITUTE**

**BOX 757 • BLOOMINGTON INDIANA**



# Why Pay For Unnecessary Surroundings?

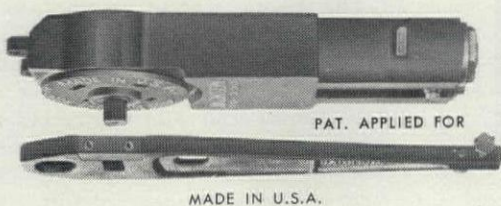
**THIS  
HEADER  
CONTAINS  
A FULL  
SIZE  
JACKSON  
20-330  
CONCEALED  
CLOSER**



## Size of Header Needed for:

**CLOSER A-12.5% MORE PER FT.**  
**CLOSER B-25% MORE PER FT.**  
**CLOSER C-28.5% MORE PER FT.**  
**CLOSER D-42.8% MORE PER FT.**  
**CLOSER E-60.7% MORE PER FT.**

**the Jackson 20-330 was engineered for rugged durability ...  
yet ...conceals in a 1 $\frac{3}{4}$ " x 4" x  $\frac{1}{8}$ " header!**



Cutting labor costs and keeping pace with modern design in building is no longer a major undertaking when you specify the Jackson 20-330 concealed overhead closer. The 20-330 concealed closer requires no large oversized headers, or additional charges for unnecessary surroundings (it can actually be concealed in a 1 $\frac{3}{4}$ " x 4" x  $\frac{1}{8}$ " header).

Equally important is the fact that the Jackson 20-330 requires no tailored threshold assemblies. Blocking out of the floor or jack-hammering a cutout for a cement box is eliminated, thus saving the contractor time and money.

The Jackson 20-330 concealed overhead closer is non-handed and adaptable for single or double acting doors, therefore your inventories can be reduced with the all-purpose Jackson concealed overhead closer.

Consult your entrance door manufacturer for pre-prepared closers in the header.

**ALL JACKSON CLOSERS ARE UNCONDITIONALLY GUARANTEED FOR 2 YEARS.**



3457A Union Pacific Ave. • Los Angeles 23, Calif.

SOLD BY ALL LEADING STORE FRONT MANUFACTURERS • WRITE FOR FREE CATALOG

edition of the OCDM Guide for Architects and Engineers. The authors of *You Can Survive the Bomb*, Messrs. Mawrence and Kimball, must feel that cliché and pseudo-information are the formula for reader sedation. If you want to build and stock a family shelter, you are better off looking at LIFE Magazine. Sample chapter headings, which are homilies in themselves: "Attack—Move Quickly"; "Air and Water—Vital Ingredients"; "Food—Top Morale Builder."

Hard covers add substance and prevent this book from becoming air-borne, like radioactive dust.

*Planning Atomic Shelters* deals with the incorporation of fallout shelters in conventional buildings, probably the most sensible approach to public fallout shelter space at this time. No special-purpose or single-use shelters are included; this is a book of fundamentals and suggestions, rather than detail drawings.—One of the best yet.—w.c.

**MATERIALS FOR ARCHITECTURE.** By Caleb Hornbostel. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 610 pp. 8½" x 10½". Illus. \$20.

An encyclopedic guide, says the subtitle, and it seems to be. Does the reader know, for example, the architectural uses of Zirconium? Or, to be more mundane, what 25 different paint brushes look like? A complete run-down is given on every material used in architecture: history, chemical properties, various architectural applications, available products using the material, and practical construction, specifying and detailing advice. There are ample illustrations. The emphasis is more on practical knowledge and informed choice than on how to put things together.

Mr. Hornbostel, whose father, incidentally, designed the Hell Gate Bridge, has managed to organize, condense, and combine into one volume what has heretofore been scattered to the winds. He has made life easier for the architect and architectural student, and he deserves everyone's thanks.—w.c.

**THE PLANNING OF A NEW TOWN.** Published by The London County Council. Available from: London County Council, Information Bureau, The County Hall, London, S.E. 1. 182 pp. 8¾" x 11½". Illus. \$7.

If this fine book leaves a single impact it is of regret. For this page-by-page development of a new town plan for 100,000 at Hook in Hampshire, England convinces the disinterested reader that here, at last, the British showed signs of knowing how to do it; and just then, the decision to expand existing centers in Hampshire was taken, thus canceling out the plan.

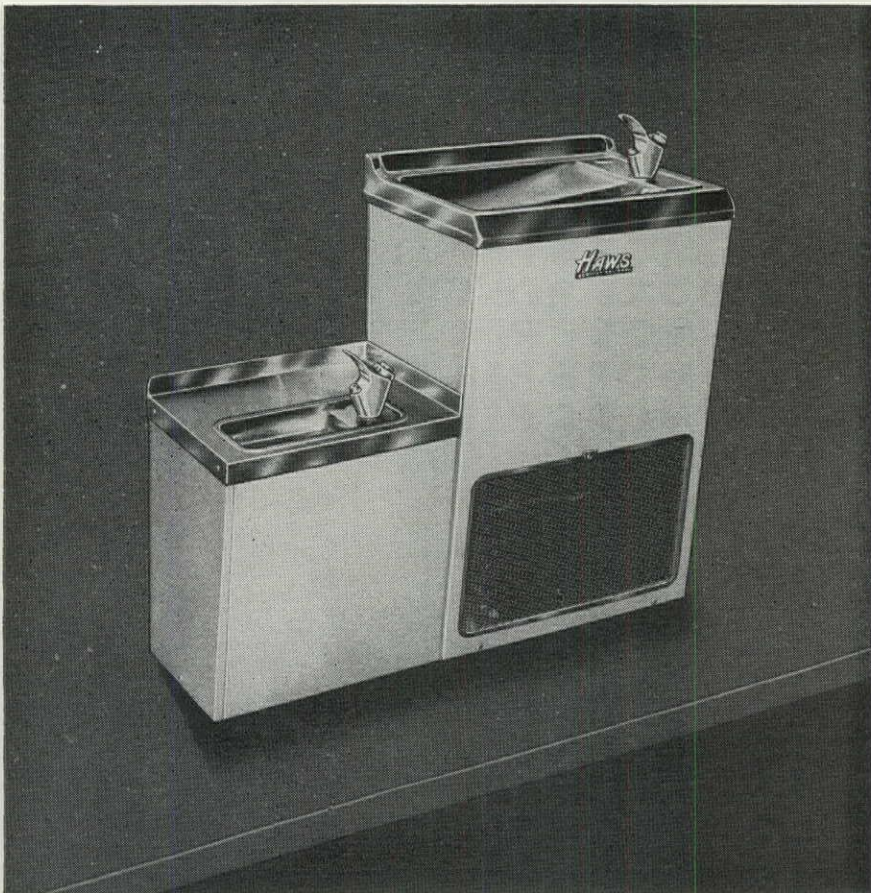
The abortive scheme was linear in nature, built up in close-knit courts and quads edged with housing groups somewhat brutalist in nature. The center of the town was a multi-decked town center, directly accessible from the close-in residential sectors. Major recreation was pushed to the edge of the town, in green-belt territory scattered with lakes and reservoirs.

This book, with its handsome sketches and maps, is likely to be one of those classics in the planning field like Clarence Stein's pioneering *New Towns for America*, with broad impact despite the fact that the plans themselves were never built.—R.A.M.

**A BOOK OF CURVES.** By E. H. Lockwood. Published by Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W. 1, and 32 E. 57th St., New York 22, N.Y. 199 pp. 7¼" x 9¾". 115 diagrams. \$4.95.

Primarily for geometry buffs, this book is loaded with elegant curves. In the first section the discussion is begun in each case with methods of drawing the curves. In the second section methods for finding new curves are discussed.

END



## WALL MOUNTED DUAL HEIGHT WATER COOLER

THE HAWS HI-LO, with convenient bubblers at both child and adult levels, combines an off-the-floor cooler with low level fountain attachment, serving all ages. Stainless steel tops on Cool Mist Gray baked enamel steel cabinets. Various capacities available.

Write for detailed specifications and copy of Haws Catalog.



### ELECTRIC WATER COOLERS

Manufactured by  
**HAWS DRINKING FAUCET COMPANY**  
1441 Fourth Street, Berkeley 10, California  
Export Dept.: 19 Columbus Avenue, San Francisco 11, California



## BARRINGTON PLAZA WILL STAY SEALED

Although time and the elements may affect spandrel and window joints in Barrington Plaza, Compriband (15 miles of it) with its unflinching memory will always fill and waterproof any resulting void.

### *compriband*

An exclusive process (world-wide patents\*) for impregnating polyurethane foam with asphalt bitumen endows Compriband with the four characteristics most wanted in a sealant ■ when compressed it becomes an impenetrable waterproof mass ■ compressible for insertion into pre-formed or existing joints ■ bonds positively to contact surfaces when under compression ■ total memory and recovery create constant pressure to fill joint and maintain bond to contact surfaces.

Your inquiry will bring a sample of Compriband and complete information.

\*United States: 2,964,424 / Canada: 547,141

### **Asbiton Western Incorporated**

1491 Daisy Avenue / Long Beach 13, California

In Canada: Asbiton (Canada) Limited, 1200 West Pender St., Vancouver 1, B.C., Canada.

In the West: Pacific Sealants, 1491 Daisy Ave., Long Beach 13, California.

East of The Rockies: Secoa, Inc., 8020 North Monticello, Skokie, Illinois.

In the State of Hawaii: Lewers & Cooke, Ltd., 404 Piikoi Parkway, Honolulu 14.

Compriband is exclusively custom fabricated for Asbiton Western, Inc. by Norair Division of Northrop Corporation.

**BARRINGTON PLAZA** — high rise complex of luxury apartments now under construction in West Los Angeles. Architects & Engineers — Daniel, Mann, Johnson & Mendenhall / Spandrel wall sub-contractors — Sheet Metal Aluminum Division; Apex Steel Corporation / Window wall sub-contractors — W. P. Fisher & Co., Contract Division; Construction is a joint venture of Johnson, Drake & Piper, Inc. and M. J. Brock & Sons, Inc. / Project sponsor — Louis Lesser Enterprises, Ltd. Sealant consultant and supplier of Compriband — Pacific Sealants.

Throughout the centuries of Christendom, the church spire and the cross have served as an inspiration and an invitation to worship. Modern forms of architectural design, however, invite religious symbolism to adopt new shapes and still retain its traditional spiritual meaning. Overly has pioneered new fabrication techniques for spires and crosses, artfully combining the symbolic "welcome to worship" with the church's architecture—in effect, crafting an inspiration.

## How to craft an inspiration

Creative craftsmanship has been the basis of Overly's 70 years of cooperation with the architect. Overly has pre-fabricated and erected spires and crosses in every State of the Union, each built to precise architectural specifications in order to harmonize with the church architecture. For assistance with your next church or church-related structure, you'll want to talk to Overly—*The Architect's Craftsman*.

**Overly**

**Manufacturing Company**

Greensburg, Pennsylvania

St. Louis 19, Missouri

Los Angeles 39, California

For complete references on Christian symbolism, send for the 36-page booklet, "The Cross, A Symbol of Faith," and a 28-page brochure on spires, "Pointing to God."





**Overly**

Crosses and Spires



Unretouched photos of strips of sealants removed from joints after 1 year field tests (unrelated to independent laboratory survey) show: Sonolastic Sealant (above) with no deterioration, whereas competitive sealant (below) has definite signs of deterioration indicated by "alligatoring." Note Sonolastic Sealant's uneven edges due to greater adhesion when torn from the joint.

## Independent tests reveal: **SONOLASTIC SEALANT** for active joints including curtain

The fact that sealants contain Thiokol LP does not mean they are equal. Tests show they are different in performance characteristics. Sonolastic Sealant (Gun Grade), because of its *unique* formulation, gives:

**Longer Service Life** — Sonolastic retains its desired range of elastomeric properties after weathering and aging.

**Superior Ability to Absorb Joint Movement** — Sonolastic more readily absorbs structural stress.

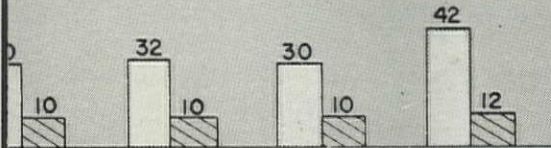
**LABORATORY SURVEY  
OF 7 LEADING BRANDS  
OF THIOKOL LP BASE SEALANTS**

conducted by

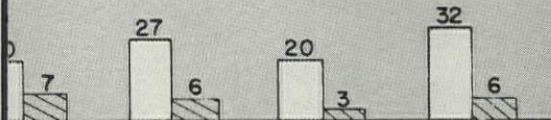


**ELASTIC RECOVERY VS TEMPERATURE  
OF ORIGINAL AND AGED SEALANTS**

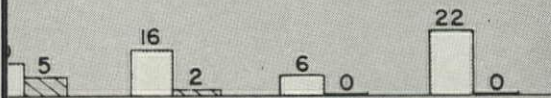
**TEST TEMPERATURE (32°F)**



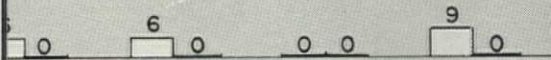
**TEST TEMPERATURE (0°F)**



**TEST TEMPERATURE (-25°F)**



**TEST TEMPERATURE (-50°F)**



B-I C-I D-I E-I  
Test Samples

372 Hours Accelerated Aging

# has outstanding qualities wall construction

**Superior Performance at Low Temperature** — Sonolastic possesses the highest degree of elastic recovery at freezing and sub-freezing temperatures.

**Mail this coupon today for your copy of the independent survey.**



**SONNEBORN CHEMICAL AND REFINING CORP.**

Building Products Division, Dept. AF 22  
300 Park Avenue South, New York 10, New York

Gentlemen:

Please send me a copy of the 20-page report "Laboratory Survey of 7 Leading Brands of Thiokol LP Base Sealants," and literature on Sonolastic Sealant.

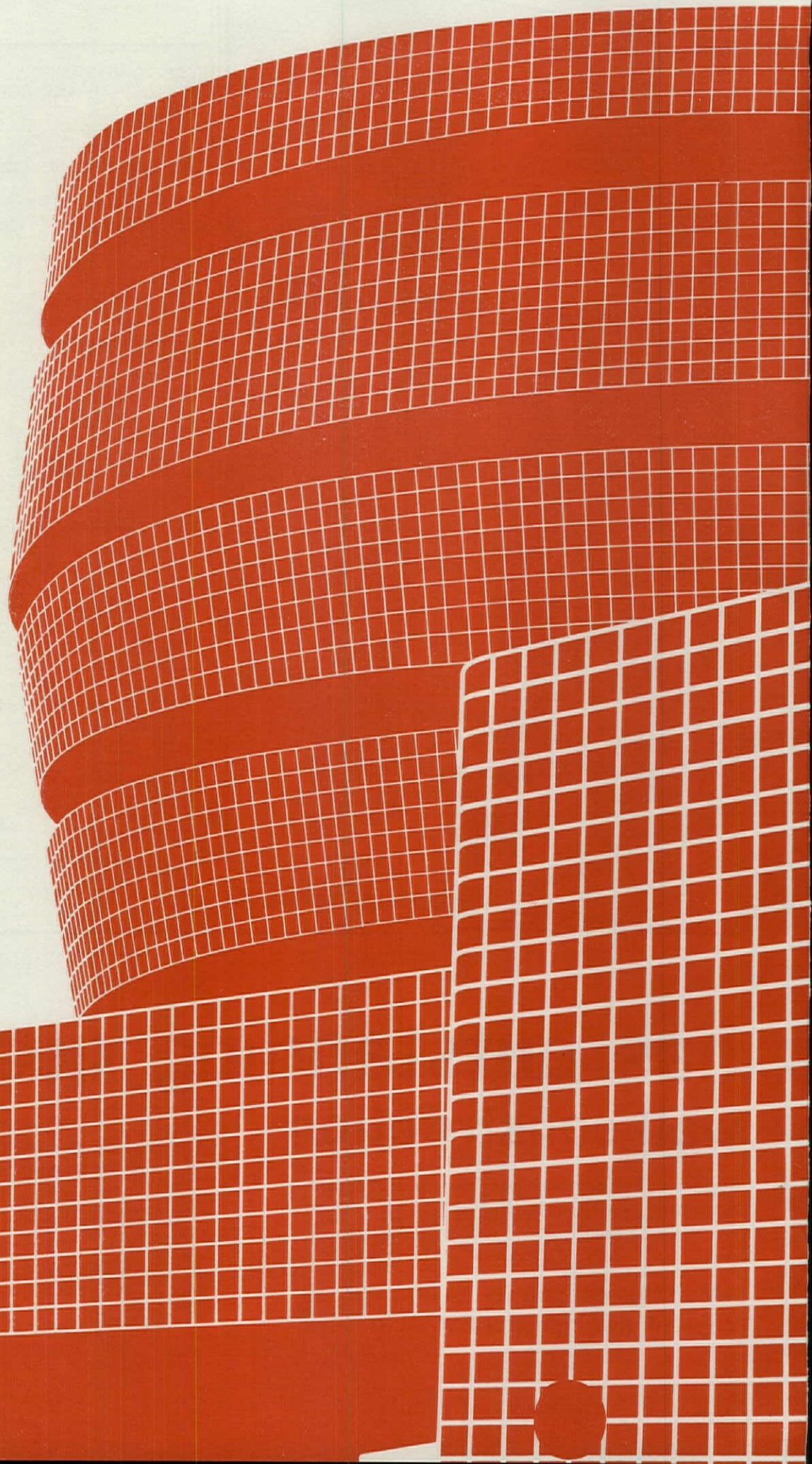
NAME \_\_\_\_\_  
TITLE \_\_\_\_\_  
FIRM \_\_\_\_\_  
STREET \_\_\_\_\_  
CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

**for innovators in  
reinforced concrete . . .  
new 1/2" dia. structural  
wire fabric goes in place  
1/3 faster than bars**

New Structural Wire Fabric will speed up and improve multistory building construction. Just consider these advantages: ■ Structural Wire Fabric mats go in place at least 1/3 faster. ■ Structural Wire Fabric eliminates thousands of time-consuming spacing and tying operations. ■ Structural Wire Fabric mats are prefabricated to your exact specifications of size and design requirements. ■ Structural Wire Fabric mats are "stiffer," your assurance that the steel will remain in the proper position in the concrete slab. ■ Structural Wire Fabric is made from high-tensile, high-yield cold drawn wire up to 1/2" diameter, permitting increased working stresses with a greater factor of safety. ■ Structural Wire Fabric is electrically welded at all intersections, assuring positive mechanical anchorage in the concrete. ■ For designs that call for innovations in concrete, look into Structural Wire Fabric. We'll be glad to assist you or your structural consultant with technical recommendations. Just contact our nearest sales office or write American Steel and Wire, Dept. 2119, Rockefeller Building, Cleveland 13, Ohio.

**Innovators in wire**

**American Steel and Wire  
Division of  
United States Steel**





## WHAT IS MEASURED-DEMAND ELEVATOR SERVICE?

"MEASURED-DEMAND" is a combination of two words both readily found in any standard High School Dictionary. The term is not a contraction of, nor a deliberate combination of parts or syllables of technical words suitably arranged to coin a new word or phrase.

The simple meaning of the word 'measured' is to *regulate*, to *calculate*, to *deliberate*. The word 'demand' means to *summon*, to *require* or to *call*. Using all six definitions in relation to the caption above might result in the following — car CALLS are CALCULATED with DELIBERATION and cars SUMMONED to meet REQUIREMENTS for well REGULATED service. And the truth of the matter is, the above clearly describes MONTGOMERY'S "MEASURED-DEMAND" GROUP SUPERVISORY CONTROL SYSTEM.

An important segment of the Montgomery "MEASURED-DEMAND" GROUP SUPERVISORY CONTROL SYSTEM is the 'TRAFFIC REGULATOR.' Here again are two everyday words in common use that completely describe this intricate mechanism that continually CALCULATES the number of car CALLS registered, DELIBERATELY selects the proper program and SUMMONS the necessary cars to meet the REQUIREMENTS.



MONTGOMERY'S "MEASURED-DEMAND" GROUP SUPERVISORY CONTROL SYSTEM is nothing new to Montgomery. It is not now being field tested, since this was successfully accomplished many years ago. Its dependability and efficiency has been proven by its satisfactory operation in numerous installations over a period of many years. The long standing conservative policy of the Montgomery Elevator Company is well known in the Elevator Industry as is its reputation for DEPENDABLE ELEVATOR EQUIPMENT.

*A call to any of our branches or representatives listed in the yellow pages will bring you complete information on how Montgomery's "Measured-Demand" Elevator System works.*



**montgomery ELEVATOR COMPANY**

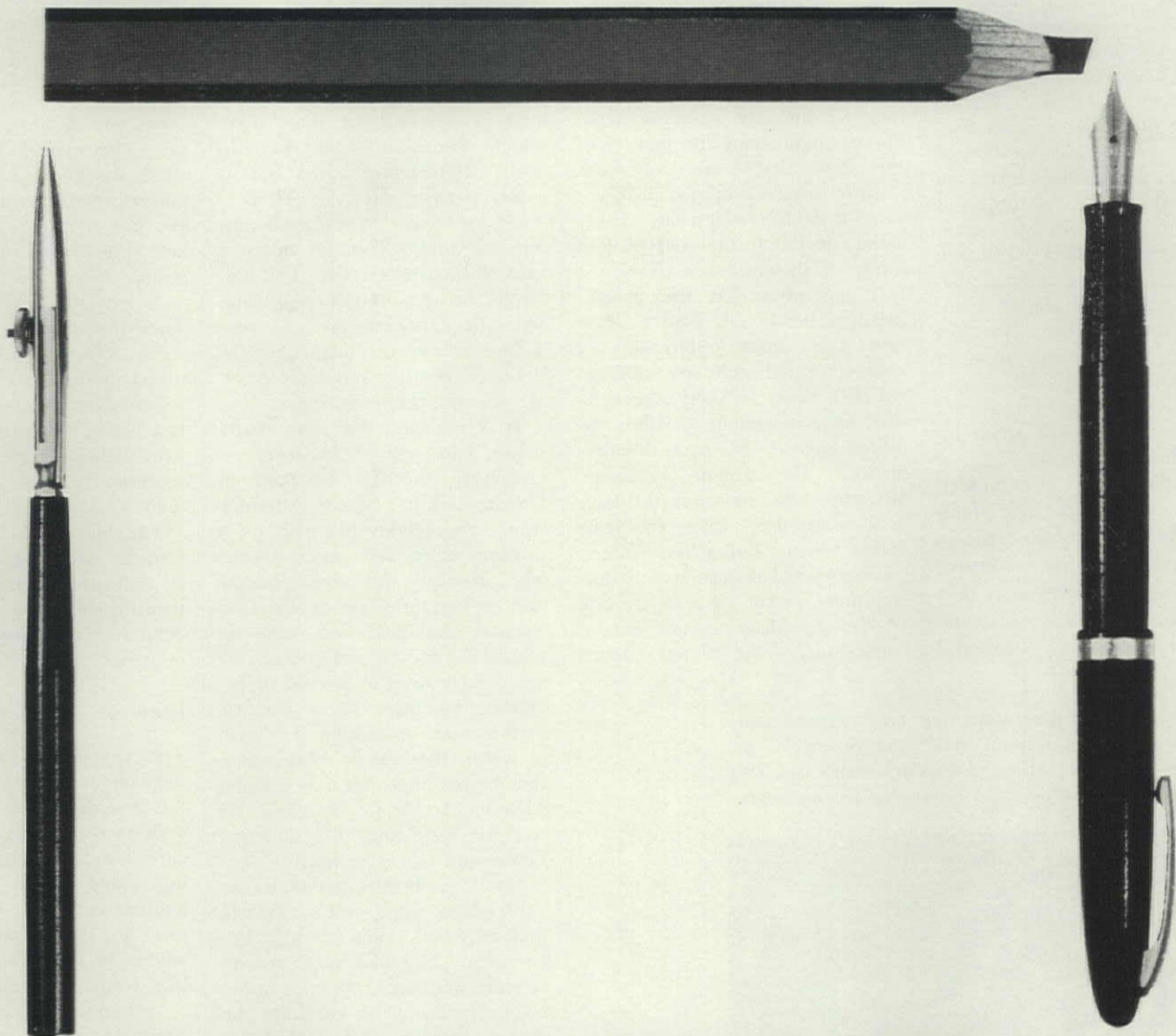
MOLINE, ILLINOIS

*Exclusive Manufacturers of Elevator Equipment Since 1892*

**ELEVATORS • ESCALATORS • MOVING WALKS AND RAMPS**

*Italic line indicates advertising agency*

<b>A</b> <b>Acme Industries, Inc.</b> ..... 129 <i>Gray &amp; Kilgore, Inc.</i>	<b>G</b> <b>General Bronze Corp.</b> ..... 38 <i>G. M. Basford Co.</i>	<b>N</b> <b>Norton Door Closer Co.</b> ..... 15 <i>Erwin Wasey, Ruthrauff &amp; Ryan, Inc.</i>
<b>A</b> <b>Air Devices, Inc.</b> ..... 120 <i>The Powerad Company</i>	<b>G</b> <b>General Fireproofing Co.</b> ..... 48 <i>The Griswold-Eshleman Co.</i>	<b>O</b> <b>Overly Manufacturing Co.</b> ..... 146, 147 <i>Marsteller, Rickard, Gebhardt &amp; Reed, Inc.</i>
<b>A</b> <b>Aluminum Company of America</b> ..... 125 <i>Fuller &amp; Smith &amp; Ross, Inc.</i>	<b>G</b> <b>Glynn-Johnson Corp.</b> ..... 22 <i>Edwin E. Geiger Advertising</i>	<b>P</b> <b>Pittsburgh Corning Corporation</b> ..... 126, 127 <i>Ketchum, Macleod &amp; Grove, Inc.</i>
<b>A</b> <b>American Olean Tile Co.</b> ..... <b>Cover III</b> <i>Arndt, Preston, Chapin, Lamb &amp; Keen, Inc.</i>	<b>G</b> <b>Goss &amp; Goss</b> ..... <b>Western Edition W-1</b> <i>Agency (Direct)</i>	<b>P</b> <b>Plaza Towel Holder Co.</b> ..... 114 <i>Lago and Whitehead, Inc.</i>
<b>A</b> <b>American-St. Gobain Corp.</b> ..... 21 <i>G. M. Basford Co.</i>	<b>H</b> <b>Hastings Aluminum Products, Inc.</b> ..... 28 <i>Aves Advertising, Inc.</i>	<b>P</b> <b>Porcelain Enamel Institute</b> ..... 133 <i>T. N. Palmer Co., Inc.</i>
<b>A</b> <b>American Steel &amp; Wire Division</b> <b>(United States Steel Corp.)</b> ..... 150 <i>Batten, Barton, Durstine &amp; Osborn, Inc.</i>	<b>H</b> <b>Haughton Elevator Co.</b> ..... 20 <i>Beeson-Reichert, Inc.</i>	<b>P</b> <b>Portland Cement Association</b> ..... 24 <i>J. Walter Thompson Co.</i>
<b>A</b> <b>Anaconda American Brass Company</b> ..... 46 <i>Wilson, Haight &amp; Welch, Inc.</i>	<b>H</b> <b>Haws Drinking Faucet Co.</b> ..... 144 <i>Pacific Advertising Staff</i>	<b>P</b> <b>Prestressed Concrete Institute</b> ..... 107 <i>Albert Frank-Guenther Law, Inc.</i>
<b>A</b> <b>Armstrong Cork Company</b> ..... 2, 3 <i>Batten, Barton, Durstine &amp; Osborn, Inc.</i>	<b>H</b> <b>Huber Hunt &amp; Nichols, Inc.</b> ..... 136 <i>La Grange &amp; Garrison, Inc.</i>	<b>R</b> <b>Rambusch Decorating Co.</b> ..... 120 <i>Roeding &amp; Arnold, Inc.</i>
<b>A</b> <b>Asbiton Western, Inc.</b> ..... 145 <i>David Shulgoid Agency</i>	<b>I</b> <b>Indiana Limestone Institute</b> ..... 142 <i>Madison Advertising Agency, Inc.</i>	<b>R</b> <b>Republic Chemical Corp.</b> ..... 114 <i>Gero, Bierstein and Levy, Inc.</i>
<b>A</b> <b>Automated Building Components, Inc.</b> ..... 132 <i>E. J. Scheaffer &amp; Assocs. Adv. Agency, Inc.</i>	<b>I</b> <b>Inland Steel Company</b> ..... 140, 141 <i>Edward H. Weiss &amp; Co.</i>	<b>R</b> <b>Republic Steel Corp.</b> ..... 122, 123 <i>Meldrum &amp; Fewsmith, Inc.</i>
<b>B</b> <b>Bell &amp; Gossett Company</b> ..... 32 <i>Donald L. Paus Advertising</i>	<b>I</b> <b>Insulrock Co.</b> <b>(Div. of The Flintkote Co.)</b> ..... 12, 13 <i>Fred Gardner Company, Inc.</i>	<b>S</b> <b>Sloan Valve Company</b> ..... 4 <i>Reincke, Meyer &amp; Finn, Inc.</i>
<b>B</b> <b>Black White Limestone Co.</b> ..... 120 <i>Halbach Advertising</i>	<b>J</b> <b>Jackson Exit Device Corp.</b> ..... 143 <i>Nelson Newark Advertising</i>	<b>S</b> <b>Smoot-Holman Company</b> ..... <b>Western Edition W-1</b> <i>Neale Advertising Associates</i>
<b>B</b> <b>Borroughs Mfg. Co.</b> ..... 14 <i>Roland G. Spedden Adv.</i>	<b>K</b> <b>Kentile, Inc.</b> ..... <b>Cover IV</b> <i>Benton &amp; Bowles, Inc.</i>	<b>S</b> <b>Sonneborn Chemical &amp; Refining Corp.</b> 148, 149 <i>C. J. Herrick Assoc.</i>
<b>B</b> <b>Bostik—</b> <b>BB Chemical Co.</b> .. <b>Regional Edition R-1, 2</b> <i>Sutherland-Abbott</i>	<b>K</b> <b>Keystone Steel &amp; Wire Co.</b> ..... 112, 113 <i>Fuller &amp; Smith &amp; Ross, Inc.</i>	<b>S</b> <b>Sonoco Products Company</b> ..... 28 <i>Bennett-Advertising, Inc.</i>
<b>C</b> <b>Caram Manufacturing Co.</b> ..... <b>Western Edition W-1</b> <i>M. Keith Molsberry Adv.</i>	<b>K</b> <b>Kirin Company, The</b> ..... 6 <i>Forrest U. Webster</i>	<b>S</b> <b>Spencer Turbine Co.</b> ..... 18 <i>William Schaller Co., Inc.</i>
<b>C</b> <b>Casings, Inc.</b> ..... 39 <i>Grabin-Shaw Advertising, Inc.</i>	<b>L</b> <b>Lamp &amp; Shade Institute of America</b> ..... 114 <i>Arndt, Preston, Chapin, Lamb &amp; Keen, Inc.</i>	<b>S</b> <b>Standard Products Company</b> <b>(Structural Gasket Division)</b> ..... 34 <i>Fuller &amp; Smith &amp; Ross, Inc.</i>
<b>C</b> <b>Chicago Hardware Foundry Co.</b> ..... 132 <i>Wilson Advertising Service</i>	<b>L</b> <b>Libbey-Owens-Ford Glass Co.</b> ..... 16, 17 <i>Fuller &amp; Smith &amp; Ross, Inc.</i>	<b>T</b> <b>Thiokol Chemical Corp.</b> ..... 134, 135 <i>Hicks &amp; Greist, Incorporated</i>
<b>D</b> <b>Donley Brothers Co., The</b> ..... 8 <i>Penn &amp; Hamaker, Inc.</i>	<b>L</b> <b>Lone Star Cement Corporation</b> ..... 30 <i>Hazard Advertising Company, Inc.</i>	<b>T</b> <b>Tyler, W. S., Co., The</b> ..... <b>Cover II</b> <i>The Griswold-Eshleman Co.</i>
<b>D</b> <b>Douglas Fir Plywood Assn.</b> ..... 44, 45 <i>Cole and Weber, Inc.</i>	<b>L</b> <b>Long, David E., Co.</b> ..... 43 <i>Marshall &amp; Coch, Inc.</i>	<b>U</b> <b>United States Ceramic Tile Co.</b> ..... 23 <i>The Griswold-Eshleman Co.</i>
<b>D</b> <b>Dow Chemical Company</b> ..... 118, 119 <i>MacManus, John &amp; Adams, Inc.</i>	<b>M</b> <b>Miller Company, The</b> ..... 29 <i>Harrison House</i>	<b>U</b> <b>United States Plywood Corp.</b> ..... 115, 116 <i>Kenyon &amp; Eckhardt, Inc.</i>
<b>D</b> <b>Dow Corning Corp.</b> ..... 26, 27 <i>Church and Guisewite Advertising, Inc.</i>	<b>M</b> <b>Montgomery Elevator Co.</b> ..... 151 <i>The L. W. Ramsey Advertising Agency</i>	<b>U</b> <b>United States Steel Corp.</b> <b>(American Steel &amp; Wire Division)</b> ..... 150 <i>Batten, Barton, Durstine &amp; Osborn, Inc.</i>
<b>D</b> <b>Dunham-Bush, Inc.</b> ..... 117 <i>William Schaller Co., Inc.</i>	<b>M</b> <b>Mosaic Tile Company, The</b> ..... 137, 138 <i>Parson, Huff &amp; Northlich, Inc.</i>	<b>U</b> <b>Universal Atlas Cement Co.</b> <b>(United States Steel Corp.)</b> ..... 36 <i>Batten, Barton, Durstine &amp; Osborn, Inc.</i>
<b>D</b> <b>Dur-O-Wal</b> ..... 139 <i>Roche, Rickerd &amp; Cleary, Inc.</i>	<b>N</b> <b>National Concrete Masonry Association</b> .. 47 <i>Roche, Rickerd &amp; Cleary, Inc.</i>	<b>U</b> <b>Uvalde Rock Asphalt Co.</b> ..... 128 <i>Glenn Advertising, Inc.</i>
<b>E</b> <b>Eljer Division</b> <b>The Murray Corp. of America</b> ..... 121 <i>Fuller &amp; Smith &amp; Ross, Inc.</i>	<b>N</b> <b>National Lumber Manufacturers Assn.</b> 108, 109 <i>Van Sant, Dugdale &amp; Co., Inc.</i>	<b>W</b> <b>Washington Steel Corp.</b> ..... 25 <i>Cabbot &amp; Coffman, Inc.</i>
<b>E</b> <b>Ellison Bronze Co.</b> ..... 40 <i>Griffith &amp; Rowland</i>	<b>N</b> <b>New Castle Products Co.</b> ..... 124 <i>Caldwell, Larkin &amp; Sidener-Van Riper, Inc.</i>	
<b>F</b> <b>Fiat Metal Mfg., Co.</b> ..... 130, 131 <i>Christopher Advertising Counsel</i>		



## WANTED: A FOURTH FOR BUILDING

It takes three to convert an idea into a building: an architect, a contractor and a client.

And all three of them rely on a fourth—perhaps your company—for the materials and equipment they need to turn their project into reality.

Where do you all get together?

The one place you can expect all three to see your advertising is Architectural FORUM, the magazine that deals editorially with the interests of all three: the art of architecture, the technology of construction, the economics of building.\* For

FORUM is the one magazine that relates these various viewpoints to the common interest of all: getting the building built.

Sell FORUM's 62,000 subscribers and you have gone a long way toward selling just about everyone in the building construction market.

\*FORUM's readers are solidly interested in the magazine's editorial content. Surveys of reader interest made by Readex, Inc. indicate that, not only does FORUM's editorial content interest an extraordinarily high percentage of readers (a typical issue averages 62% per page), but that it is of almost equal interest to architects, contractors and clients.

**FORUM:** *essentially different - for readers... and for advertisers*

WASHINGTON

In the Federal City a business community composed mainly of quite small businessmen has achieved the laudable result of gathering \$400,000 for central-city planning studies being conducted under the direction of Knox Banner. Last month I was privileged to attend the second Board of Trade workshop on the subject of Community Appearance, organized by Ralph E. Becker, diligent attorney. The admonition that outward appearance should manifest an inward grace was not needed in this meeting; most of the discussion, hotly social and economic, was not about outward appearances at all but about inward truths of planning.

The talks were a reminder, however, that virtue and profits get interlaced; for commerce in the Federal City is like commerce in no other, depending as it does on the citizen coming to his capital in order to feel wonderful

about being American. Thus an inspiring architectural vision of government can increase the tourist trade. Is this statement cynical? Not cynical enough. For, even in Washington, merchants have been encouraged to think more about city planning techniques than about the quality of the show that their city gives.

In federal Washington in recent years there has been a remarkably steady decline in the more exalted kinds of showmanship. Not in a full generation has the government of the U.S.A. used a single one of its finest, internationally most respected architects on Capitol Hill. Where is there a recently erected government building by which anybody has been thunderstruck? Government buildings, whatever else they may do, have a show to give. In recent years it has become duller and duller.

Confusion has been spread during these recent decades by talk of "functionalism" versus "monumentalism," the latter much

looked down on. The debate has rested, however, upon a rather ghastly error.

Truly grand or "monumental" buildings are not those upon which some architect set out to be impressive by means of some style or rule but are those upon which somebody who was supremely gifted had a great opportunity to carry out grand ideas.

On its fringes Washington now has the first revival in many a year of such superiority. The new Dulles Airport promises to be majestically "monumental" because a fine architect thought greatly, designed greatly, and built greatly: the late Eero Saarinen.

It is not probable that Washington can achieve inspiring architecture through any act of Congress or fiat of the Administration. Somebody has to be in a position of power and influence who deeply cares about beauty and architecture—personally. Had Speaker Rayburn had taste to match his energy and concern he could have been *it* instead of becoming the dupe for a pathetic architectural promotion. The man of whom they say in Washington that he may become *it* is Cabinet Member Arthur C. Goldberg. He has the taste and the influence. Grace and power to him!

Local architects have meanwhile done right well for Washington when allowed to. The energetic Chloethiel Smith recently underwent an experience rather tragically funny. A carefully designed underpass for Highway Director Harold L. Aitken employed vertical walls to save as much as possible of a small park the roads were decimating. This was turned down when Aitken employed further advisers to advise him whether to accept the advice of his first adviser. Everybody tried hard, meant well.

BOCA RATON

Way back in November the Association of Florida Architects discussed at Boca Raton how architecture might best "express the construction" of building. Bob Little allowed a last-minute guest to express skepticism on the importance of this.

Why fasten on that element of architecture which is steadily losing, not gaining, in relative importance?—so ran the argument. Even if costs are accepted as an index of importance, each year

the structural factor costs less compared to mechanical factors and equipment. Structure in most cases is becoming much more easy, and Felix Candela of Mexico even announced that he can now furnish out of stock, in all spans and heights, like brick out of a brickyard, those concrete parasols you see everywhere. Engineers are becoming able to give you just about any structural span and structural form that you are willing to pay for.

Is not the day approaching when the structure of any building will be regarded as serving primarily just two uses: to put a boundary around a space, and to position the controls that regulate lighting, temperature, air conditioning, and interior operations?

The Florida architects did not seem to think that this shift was of immediate importance, and spent considerable time on nice definitions of honesty and appropriateness in structural expression.

LONDON

The projected "dismantling" of the London County Council is like the destruction of an old friend, even to Americans. A visitor, Architect Betty Cadbury Brown, being asked about it, said that housing and other schemes would now go simply to the borough offices. In the U.S. this would be like sending building plans over to a building department in the Bronx: no imagination, no power, no concern.

Several years ago, it may be recalled, the British architectural press complained of LCC housing schemes because of their dullness. Thereupon Robert H. Matthew was appointed chief architect and effected a renaissance; he was followed by Leslie Martin. After that, Americans contemplating the orphan asylums built as "housing" in cities like New York could look across the ocean at the bright imaginative work of the LCC and hope for a parallel achievement. Now all that Americans can do is to roll up their sleeves and go it on their own. For the time being, and for reasons of political expediency, so it would appear, London's light will be put out.

Douglas Haskell

Washington: "In a generation, not one internationally famous architect on Capitol Hill." As to the temporaries, they will stay forever, under Parkinson's Law that demand for federal office space = infinity + temporaries.



FAIRCHILD AERIAL SURVEYS, INC.