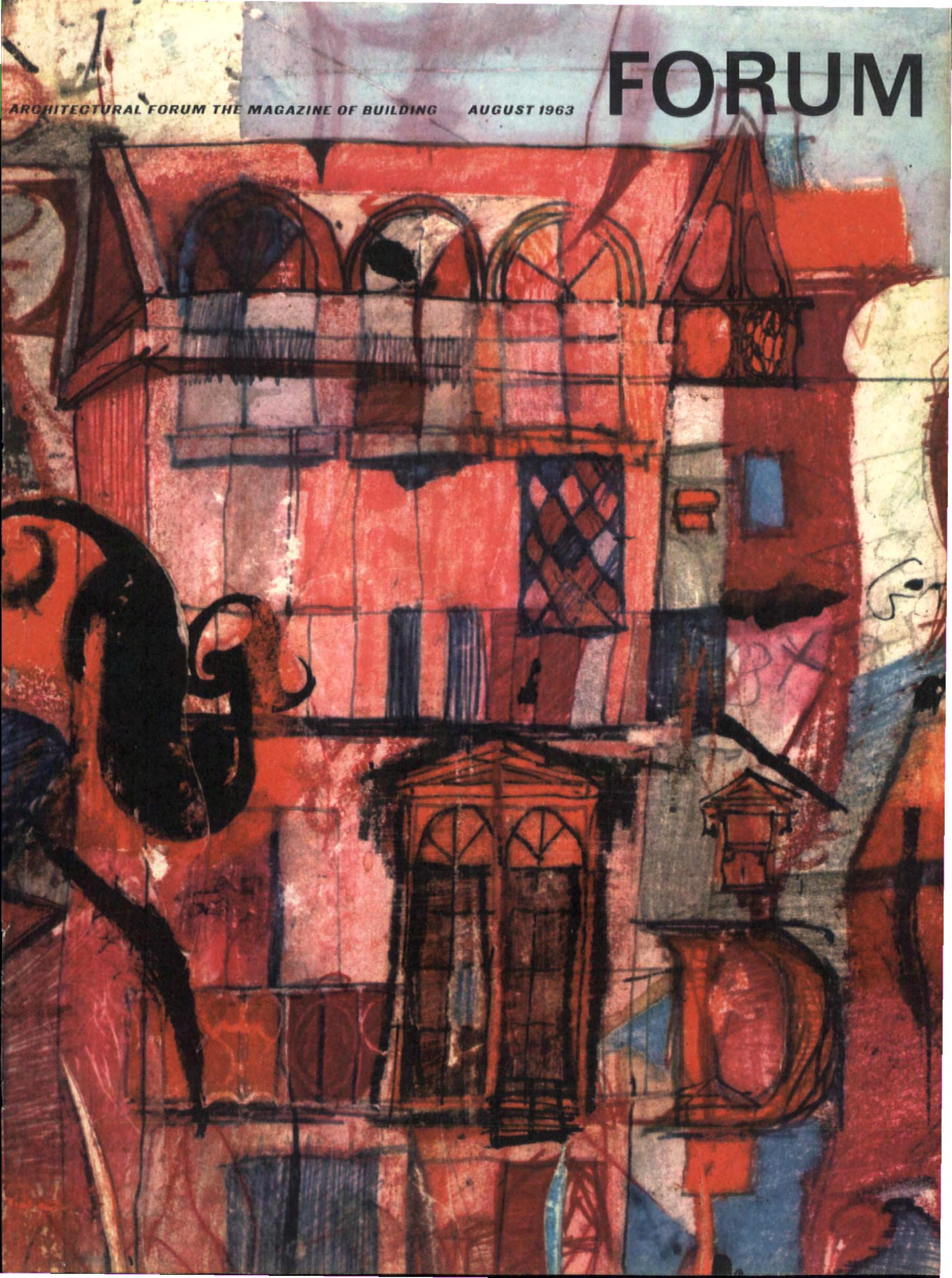



ARCHITECTURAL FORUM THE MAGAZINE OF BUILDING AUGUST 1963

FORUM





W.S.TYLER elevator cars and entrances equip the 500 Jefferson Building in Cullen Center, Houston, Texas.
Architect: Welton Becket and Associates. General Contractor: W. S. Bellows Construction Corporation.
Elevator Contractor: Westinghouse. The W. S. Tyler Company, Cleveland, Ohio; St. Catharines, Ontario.  Offices in principal cities.

PUBLISHER'S NOTE

In the next several months you may come across FORUM in some unusual places—in a show window at Altman's in New York, on a display rack at the New Orleans Public Library, on the wall of the Wichita Art Museum, or in the lobby of the First National Bank of Fort Worth. In hundreds of such locations FORUM will appear in the form of a poster exhibit entitled "Great Architecture for the Sixties."

Purpose of the exhibit is to project the appreciation of contemporary architecture beyond FORUM's covers and beyond its usual audience of 62,000 subscribers. To this end the editors have for the second successive year presented ten major architectural works in poster form for public display.

This year's ten posters—each 18½ x 24 inches and printed in two colors—cover these outstanding buildings: Seattle's U.S. Science Pavilion by Minoru Yamasaki, the Columbus, Ind. elementary school by John Carl Warnecke, the Neckermann Warehouse in Germany by Egon Eiermann, California's Foothill Junior College by Ernest J. Kump and Masten & Hurd, Montreal's Place Ville Marie by I. M. Pei, Chandigarh's Assembly Building by Le Corbusier, the Marin County Center in California by Frank Lloyd Wright, the New Haven garage by Paul Rudolph, the Dulles International Airport in Virginia by Eero Saarinen, and the Bacardi Building in Mexico by Mies van der Rohe.

It was the demand for last year's posters that prompted the encore. The entire print order of 1,000 sets was spoken for last year, and orders for 600 of the



Mannequins in Dayton's show windows in Minneapolis study FORUM's 1962 poster exhibit.

new series are now in hand.

Those who have already requested copies of this year's posters were asked about the use to be made of them. Here are excerpts from a few of the replies:

"... to exhibit in the public library and to make available to local art and engineering schools"—Newark Public Library

"... as a backdrop for three lectures by prominent architects"—St. Louis Public Library

"... to lend to 640 schools and groups using our loan service"—Boston Museum of Fine Arts.

"... to display in the city hall"—Chattanooga Chapter, AIA

"... for our course on modern architecture"—Wellesley College

"... for display in our offices"—R. A. Watt Construction Co., Gardena, Calif.

"... to study as a specimen of graphic design"—University of Nebraska

Thus FORUM's editors help promote the cause of great architecture among people who may some day be clients of architects, engineers, and contractors. If you would like to join the cause (or simply decorate your office), a set of the ten new posters will be sent to you upon receipt of a check for \$5.—J.C.H. JR.

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Five examples of what lures families from the city

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New, sophisticated systems promise basic changes in design

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His work moves toward greater unity through simpler forms

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Paint, and poverty, lead to brilliant architectural accents

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PROPERTIES OF HYPALON
ADVANTAGES OF VISTELLE



Hypalon: So tough and resilient, it's used for shoe soles and heels.

Vistelle: Long wear under heavy traffic. Outstanding resilience for comfort, quiet, recovery from indentation.



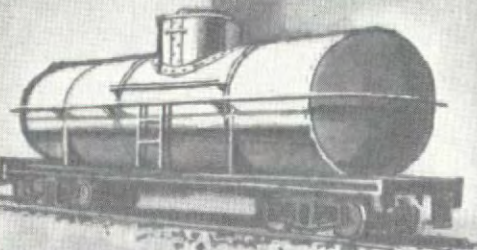
Hypalon: So resistant to heat, it's used for spark plug boots.

Vistelle: A lighted cigarette will not rupture its surface.



Hypalon: So colorfast it's used for white-walls . . . resists yellowing from sun and weather.

Vistelle: Extraordinary fade resistance. Richer, clearer colors.



Hypalon: So resistant to solvents, chemicals, acids, it's used to line tank cars, pipes, valves.

Vistelle: Superior resistance to staining compared to vinyl and rubber tiles. See text opposite.

NEW FROM ARMSTRONG:

VISTELLE CORLON TILE, made with Du Pont Hypalon.

Read how this new floor provides an unequalled combination of physical properties and functional advantages.

These illustrations show how Armstrong has utilized the remarkable physical properties of DuPont Hypalon to create an equally remarkable flooring product called Armstrong Vistelle Corlon Tile. Vistelle is the result of ten years of Armstrong research and field testing, a completely new kind of floor. It offers the best combination of physical properties and functional advantages ever incorporated in one flooring material.

RESISTANCE TO INDENTATION MARKS:

Most flooring materials resist indentation by virtue of their **hardness**. Vistelle's exceptional resistance to permanent indentation is a function of its extreme **resilience**. It has outstanding ability to recover from pressure. It springs back from the impact of stiletto heels, from the weight of desks and chairs, keeping the floor virtually free of permanent indentation marks, without sacrificing underfoot comfort and quiet.

COMFORT AND QUIET:

Because of its amazing resilience, Vistelle gives luxuriously underfoot. It's as comfortable as rubber tile, almost as quiet as cork tile. And unlike other resilient floors, the extraordinary resilience of Vistelle does not decrease with age.

RESISTANCE TO CIGARETTE BURNS:

Lab tests and actual installations have shown that cigarettes left burning on Vistelle tiles won't rupture or permanently scar Vistelle's surface and leave only a surface stain which can normally be removed with standard maintenance procedures.

COLOR CLARITY AND FADE RESISTANCE:

Compared to other resilient floors, the whites in Vistelle are whiter, the blacks blacker, the colors richer, the designs sharper. Test installations of Vistelle Corlon Tile have been exposed to sunlight for several years with remarkable color constancy.

RESISTANCE TO STAINING:

Tests have been made with more than 100 chemicals and a like number of common staining agents, such as

lipstick, grape juice, crayon, and ink. Compared to homogeneous vinyl, rubber, and unfilled vinyl tiles, Vistelle's over-all rating in resistance to staining was dominantly superior. Vistelle is also greaseproof.

DIMENSIONAL STABILITY:

Vistelle Corlon Tile has exceptional resistance to shrinkage or expansion, exceeding the requirements of Federal Specification (homogeneous vinyl tile) Interim L-F 00450 — (COM-NBS). Seams stay tight. Tiles won't cup. (Dimensional stability will be guaranteed in writing by Armstrong.)

ABRASION RESISTANCE:

Vistelle provides excellent abrasion resistance for long wear under heavy traffic. A test installation of Vistelle on the entrance ramp of the Disneyland House of Tomorrow was abraded for 2 years by sand and gravel tracked from paths leading to the house. Even after 4 million people had used this ramp, only 20% of the tile's thickness had been worn away.

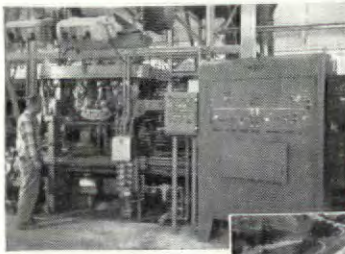
TECHNICAL DATA:

USES: Vistelle can be installed above, on, or below grade, over any kind of subfloor. Because of its versatility and good looks, Vistelle is ideal for use in hospitals, business interiors, institutional buildings, fine residential interiors. **MAINTENANCE:** Its tough, smooth surface makes Vistelle easy and economical to maintain. **GAUGE:** $\frac{1}{8}$ ". **SIZES:** 9" x 9", 12" x 12". **COLORS:** 10 colorings in 5 color-coordinated pairs, which can be used in combination or separately. **COST:** \$1.50 to \$2.00 per sq. ft., depending on the size of the installation and job conditions.

For complete information on Vistelle, including performance tests, specifications, and samples, contact the Architect-Builder Consultant at your nearest Armstrong District Office. Or write direct to Armstrong, 308 Rooney Street, Lancaster, Pennsylvania.

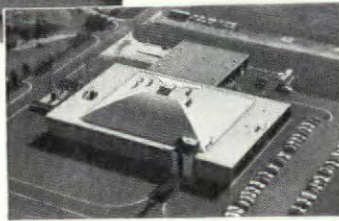
VISTELLE AND CORLON® ARE TRADEMARKS OF ARMSTRONG CORK CO.
HYPALON IS A REGISTERED TRADEMARK OF E. I. DU PONT DE NEMOURS & CO., INC.

 **Armstrong FLOORS**



**New Sloan Foundry
One of TOP TEN PLANTS of 1963**

The Osborn molding machine pictured here is just one part of an array of automatic equipment in Sloan's new Award-winning Foundry in Melrose Park, Illinois. This revolutionary push-button foundry is designed to produce highest quality castings for the World's finest flush valves.



**The Records Show
Most People Prefer Sloan Flush Valves**

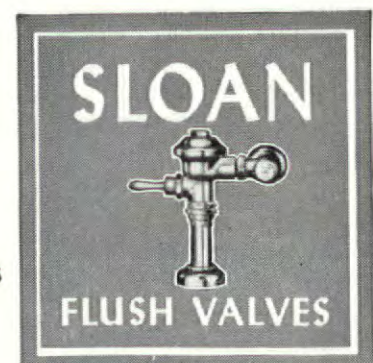
Are you one of this vast majority, and if so,
is your choice justified? Let us reaffirm your
confidence by stating a few important facts:

**Millions upon millions of Sloan Flush Valves
have written the records for leadership in:**

- . . . dependable service**
- . . . long life**
- . . . water economy**
- . . . lowest maintenance cost**

So whether you specify, buy, or sell flush valves,
WHY GAMBLE WITH SUBSTITUTES when you
can have the proven quality, performance and
reputation that is Sloan—today as always,
the finest flush valve ever made.

SLOAN VALVE COMPANY • 4300 WEST LAKE STREET • CHICAGO 24, ILLINOIS



U. S. construction booms (below)

Building faces more bias problems (page 8)

Steel designs honored (page 9)

Accountants scrutinize renewal (page 11)

BUILDING HEADS FOR A NEW RECORD YEAR

At midyear, the construction industry was performing far beyond all predictions. For the first half, total expenditures were up 4 per cent, and building construction had risen a phenomenal 5.7 per cent over the first half of 1962. June building volume, in fact, indicated a total for the year of \$63.8 billion, well above predictions and far and away the biggest year ever.

Apartments, offices, and hospital building set the pace

Once again, apartments and office construction lead the boom, despite earlier warnings of overbuilding (FORUM, Apr. '63). The rate of increase in apartments has slowed by almost half since 1962's second quarter (which was, to be sure, 44.5 per cent over 1961), but one sign of continuing demand came last month when the FHA released its figures on vacancies in apartments (page 9).

Also contributing to the boom is the easy mortgage-money situation. Reports one banker: "Money is coming out of our ears." Adds another: "Mortgage interest rates are close to bottom, if not already there."

Due to population expansion among the two groups which do the most renting—the elderly, and young couples—there still seems

to be an unsatisfied demand for apartments. But economists worry that too much of the recent apartment building is in the luxury category rather than in middle-income dwellings.

Office building was expected to slow down somewhat, but in the first half of the year, it actually gained a handsome 12 per cent over 1962, and continues to be strong despite some slowdown in several of the larger cities.

The other large gain in 1963's first half has come in hospital construction, which is up over 10 per cent and headed for a new record.

More modest gains appear in industrial building. While up only 2.2 per cent over last year's level—and below 1961's peak—industrial construction should continue

strong: a recent government survey of business' spending intentions indicates that expenditures on capital assets will rise by some 5 per cent in 1963.

Spiraling costs. While recent labor contract negotiations across the nation have raised wages by a moderate amount (an average of 14.1 cents per hour), settlements in New York City have resulted in package increases of 92 cents to \$1.14 per hour. Skilled labor in that city now earns well over \$5 per hour in most trades, and unskilled workers receive \$4.64 per hour. Highest paid are the structural iron workers with \$7.18 per hour in wages and benefits assured by July 1, 1965.

Construction materials prices

also rose in June, but only by two-tenths of 1 per cent over May. Slight increases in the prices of lumber, building paper and board, and structural clay products were sufficient to produce the small advance in the overall index, despite small decreases in the prices of plywood, concentrate products, and prepared asphalt roofing.

The construction-cost indexes, which measure all costs involved in building, showed an increase in May 1963 over May 1962. Undoubtedly, it is more expensive to build now than last year; according to the E. H. Boeckh indexes, the types of structures which have gone up the most (2.1 per cent) are apartments, hotels, and office buildings.

NEW CONSTRUCTION EXPENDITURES, FIRST HALF 1963 AND 1962

	(millions of dollars)			1962 Total	% Change in Totals
	Private	Public	Total		
BUILDING CONSTRUCTION					
Industrial	\$1,379	\$222	\$1,601	\$1,566	2.2
Office and warehouse	1,287	....	1,287	1,147	12.2
Store, restaurant, garage	953	....	953	1,076	-11.4
Religious	449	....	449	461	-2.6
Educational	249	1,425	1,719	1,717	0.1
Hospital and institutional	476	212	688	622	10.6
Social and recreational	295	91	386	423	-8.7
Public administrative and service	....	336	336	315	6.7
Apartments	2,770	190	2,960	2,420	22.3
Hotel, motel, dormitory	793	168	961	928	3.6
All other building	391	624	1,015	1,018	-0.2
TOTAL	\$9,087	\$3,268	\$12,355	\$11,693	5.7
HOUSE CONSTRUCTION	8,627	47	8,719	8,604	1.3
OTHER CONSTRUCTION	3,140	4,620	7,760	7,434	4.4
TOTAL CONSTRUCTION	\$20,899	\$7,935	\$28,834	\$27,731	4.0

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

\$ 7,500,000 SALE
 of William Zeckendorf, Chairman
WEBB & KNAPP, INC.
ABSOLUTE
AUCTION
 SUBJECT TO MINIMUM UPSET PRICES
JULY 10 1963 at 2 PM

ZECKENDORF: GOING ONCE, GOING TWICE . . .

It was just like the good old days. William Zeckendorf stood center stage, bathed in the floodlights of a gawking press and the attention of a thousand onlookers, and ob-

served forcefully that "the appetite of the American investor for his native soil is undiminished." The illusion was fleeting, however. For Zeckendorf, it was another

continued on page 7



Florida total-electric co-op over 50% sold out in 30 days



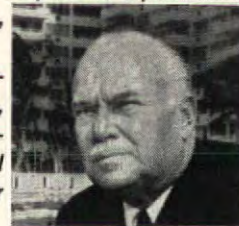
Coral Ridge Towers, latest project of Admiral J. S. Hunt, is total-electric from infrared ceiling heaters in baths to completely equipped General Electric kitchens.

Architect C. F. McKirahan, A.I.A., utilized General Electric's engineering and design assistance for all-electric construction in planning this high-rise Medallion apartment.

Sales results have been little short of sensational. The combination of top design, excellent living values and sound promotion resulted in the sale of more than half the units in only 4 weeks. The quick success prompted Adm. Hunt to start building two additional all-electric high-rise projects—both equipped by General Electric.

Find out how General Electric's engineering, design, technical assistance and customized promotional programs can be of service in your total-electric projects by writing: Residential Market Development Operation, General Electric Co., Appliance Park, 6-230, Louisville, Kentucky.

Admiral James S. Hunt, whose second co-op, Coral Ridge Towers North, will be completed this winter, is accepting rentals on his total-electric Royal Admiral and planning still another Medallion high-rise project.



GENERAL  ELECTRIC

continued from page 5

PHOTOS: GEORGE CHERN



Zeckendorf in a characteristic pose

bad, new day, and before it was over, he realized he was wrong again—the appetite of the American investor for that part of the U. S. soil owned by Zeckendorf has diminished considerably.

The occasion was a distress auction of nearly \$7.5 million worth of Zeckendorf properties in the New York area. The sale was important, for the big man is in serious trouble (*News*, July '63) and desperately needs cash to pay his most pressing debts. After three hours, only about one third of the amount (\$2.6 million) he sought had been raised at auction, and Zeckendorf wearily announced that he was "disappointed." Bids were received on only ten of the 25 properties auctioned, and only \$34,000 more than the minimum "upset" prices on the properties was realized from the sales. On only two parcels was there any spirited bidding, one selling eventually for \$204,000, the other for \$57,500. In the good old days that was pocket money.

The old vigor. Zeckendorf still flashed with the old-time vigor, however. He quickly announced that he would auction another \$20 million worth of properties in September. And he sold a site on San Francisco's Russian Hill for an undisclosed amount, as well as selling his personal interest in some \$2.7 million worth of stock in Republic Corp. (formerly Republic Pictures) the day after the "disappointing" auction. But last month's fast-moving events made it clear that he was quickly running out of time and room to maneuver. His realty empire has dwindled considerably, leaving him fewer assets to juggle. And potential buyers, aware of Zeck-

endorf's difficulties, obviously are waiting for distress prices.

Zeckendorf did manage to erase two large debts last month, but both at some cost in properties. First, he dissolved his role in Zeckendorf Property Corp., which had been set up in 1961 as owner of 13 projects to be held jointly by Webb & Knapp and British realty interests, with Aluminum Corp. of America holding a minority interest. Projects such as Century City, in Los Angeles, and Kips Bay Plaza, Lincoln Towers, Park West Village, and U.N. Plaza in New York, Society Hill in Philadelphia, and Washington Plaza in Pittsburgh will now be controlled by ALCOA, with a minority interest held by the British, who may eventually pull out altogether except perhaps for their one-third interest in Century City. The British will, however, still hold a 15-per-cent interest in Webb & Knapp itself as well as 49 per cent of Trizec Corp., which owns Place Ville



Successful bidders in a huddle

Marie in Montreal (*FORUM*, Feb. '63).

The other debt Zeckendorf paid was to Alleghany Corp., which had given Webb & Knapp \$20 million for the Courthouse Square project in Denver, Colo. Zeckendorf in turn had been leasing the properties back for \$1 million a year, but had fallen more than \$700,000 behind in his payments. For \$2.3 million, Alleghany has now bought 51 per cent of a Zeckendorf site near Roosevelt Field, L. I., and forgiven the back rent on Courthouse Square.

Canadian troubles. Meanwhile, Zeckendorf's Canadian operations were having their own troubles,

and last month he decided to let his Canadian operatives work out of them by themselves, by resigning as chairman of Webb & Knapp (Canada) Ltd., which owns a majority interest in Trizec and other projects. Obviously there was some pressure for Zeckendorf to resign—the company was groaning under the burden of \$40 million of debts and President James A. Soden had asked a three-year moratorium on sinking fund payments to keep at least \$12 million in the till to develop "existing resources." And it was widely rumored that Zeckendorf's U. S. troubles were largely to blame for the slow rental of Place Ville Marie offices. Webb & Knapp Canada was also looking for a partner in its proposed \$55 million apartment project in Vancouver, which it probably will

drop if no outside help can be had. The company has already stopped plans for projects in Toronto and Trois Rivières, and will curtail its previously announced shopping center plans.

Zeckendorf's next major move will probably be his upcoming \$20 million auction, which will have some unusual touches, engineered in light of the apathy which greeted last month's offerings. Instead of upset prices, bidding will open at any figure whatever, and in any case where there have been at least three independent, legitimate bids, Zeckendorf will pay the high bidder 5 per cent of his bid on the property should that bid be refused. Unlike the previous auction, this one will be open only to invited persons who have expressed previous interest in specific properties.

WHO SAYS ZECKENDORF TOOK THE BRITISH?

Big Bill Zeckendorf's troubles have been duly scrutinized in the British financial press, and last month, London critics such as the *Daily Express* were warning "all British property companies to watch their step before invading the American property world."

This was, as the British must surely know, so much flapping, for it implies that investors such as Second Covent Garden Ltd. and Eagle Star Insurance are babes in the financial woods. As a matter of fact, the British deal with Zeckendorf looked exceedingly sweet for them at the time (*FORUM*, Feb. '62) and might still be a good one.

In the first place, it is true enough that the \$6.2 million of Webb & Knapp stock the British bought (at \$1.12 when the market was \$2.12 per share) has since declined about 50 per cent in market price. Two years ago, the British put about \$12.5 million in cash into the now defunct Zeckendorf Property Corp. (for equities and debentures worth considerably more at the time). They still hold a 10-per-cent interest in five properties owned primarily by ALCOA. These projects are just beginning to generate some income (see story

above). And the new British corporation, Covent America, which succeeds ZPC, still owns about a 30-per-cent interest in the huge Century City project in Los Angeles, an interest which has been valued at \$17.5 million.

All told, the British stand to lose no more than the amount of the shrinkage in value of Webb & Knapp stock, presuming they are willing to wait until returns begin to accrue from Century City and the ALCOA projects. But should they suffer further, it would not be out of place to observe that they went into the deal with their eyes open.

At the time the deal was made with Zeckendorf, one of the British spokesmen observed that "We wouldn't have come to this arrangement if we didn't have control," yet they quickly abdicated that control when Zeckendorf continued his far-ranging operations on a big scale. It is a little early, at any rate, for the British financial press to put its astute investors in the role of crybabies—and certainly warnings to other Britishers to beware of the big, bad, U.S. market are premature in light of such successes as the Pan Am Building and Boston's British-backed \$20 million tower.

continued on page 8

RACE ISSUES STIR THE BUILDING INDUSTRY

Last month, building labor and management alike fidgeted uncomfortably under growing charges of job discrimination.

► The Electrical Workers Union, criticized by the Administration as well as integrationist groups, stated that it would not jeopardize the quality of its work by going out of its way to hire Negroes and Puerto Ricans.

► Six major contractor associations complained that while they do not approve of discrimination, they are caught in the middle of the struggle over job rights. In response to a White House request for their opinion on the problem, and a review of job practices, the contractors replied that if they refuse to hire union labor which practices discrimination, the union can sue under the National Labor Act.

The six associations also pointed out that policing federal construction programs for discrimination would raise the costs of the work considerably.

► Meanwhile the FHA indicated it would soon insist that builders of FHA-insured apartment projects hire construction workers on a nondiscriminatory basis, or face the risk of being declared ineligible for future FHA mortgage insurance.

In another action, some \$500,000 of construction at the Jackson, Miss. airport was halted by the Federal Aviation Agency because the airport operates segregated facilities. This is the first such cancellation of federally backed construction, but equal rights advocates are pressing for more of the same.

► Just to make it clear that no area of the building industry is safe from the swirl of civil rights activity, the Congress of Racial Equality has been directing its fire against investment bankers who underwrite bonds for the construction of municipal facilities in segregated communities. Some months ago, CORE picketed an investment company's Wall Street office, because it headed a syndicate that had raised \$19 million worth of municipal bonds to finance a segregated school and other public building in Mississippi.

More recently, CORE has approached the attorney generals of several states where most municipal bond raising is underwritten in an effort to show that such financing is illegal. To date, both the New York and Massachusetts attorney generals have expressed sympathy with CORE's interpretation of existing laws.



DAN WEINER

INDUSTRIAL RENEWAL IS URGED FOR UTICA

The problems that beset Utica, N.Y. (population, 320,000) are far from unique: a deteriorating, unplanned downtown, a sizable heritage of obsolescent and inefficient buildings on disadvantageous sites, a perennially high unemployment rate. Recently, the New York State Division of Housing and Community Renewal teamed with the Urban Renewal Administration to make a demonstration study of what can spur Utica's growth and that of similar cities. The key: industrial renewal.

Probably the most thorough study of this subject yet attempted, it concentrates on 1) determining the potential growth of the Utica area, 2) deciding which industries can be attracted to the city, 3) analyzing present industrial space, and 4) correlating industrial renewal with future housing needs and community development. The authors, led by Planner-Economist Chester Rapkin, include economists, geographers, realtors, and housing officials.

Input-output theory. One major contribution of the study is the use of the "input-output" theory to trace the interdependence of industries (the output of the rubber-tire industry, for example, is the input of the automobile industry). By using this theory, which has previously been applied to industries on a national basis, the au-

thors found that a large number of new industries might be attracted to Utica and would benefit from locating there. Among them: the manufacture of men's clothing, plumbing fixtures, and electric lamps—which could successfully utilize existing plant space—and industrial chemicals, drugs, glass containers, and ball-and-roller-bearings—which would have to build new plants.

Much of Utica's antiquated factory space can be rehabilitated both for new industries, and for the greater efficiency of existing industries. (Improvements in building design alone, say the authors, can lead to a 15 per cent savings in materials-handling charges as well as other overhead costs.) Many older buildings, however, should be razed. The report calls for the creation of industrial parks on the outskirts, and new industrial sites closer to the city center. The authors suggest that the city set up a nonprofit corporation to help finance new industries. Concurrently, they call for new arterial construction, a reshaping of Utica's commercial district, and some residential renewal.

Industrial renewal, of course, cannot solve all of the problems of Utica, or of many similar towns. But as Planner Rapkin says, "it will undoubtedly render their solution easier."

CHICAGO LANDMARK THREATENED

The Reliance Building (right), designed by Daniel Burnham in 1890, is one of Chicago's official architectural landmarks. Like most landmarks, it is uneconomic. Its outmoded office space commands rents of only \$3 per square foot—about half the going rate in newer, centrally air-conditioned space.

Sensitive Chicagoans recently learned that an adjacent site is scheduled to be cleared and a new structure erected, and immediately wondered whether the Reliance would be demolished in the near future. A spokesman for the neighboring developer said they "would not touch the building," and Reliance's owner, Karoll's Men Store, reported no offers had been made to buy the masterwork. These assertions did not mollify preservationists, who have heard it all before, and, in the absence of firm plans to save the building, they are fearfully preparing themselves for a new battle.



R. NICKEL

1963 FHA VACANCY RATE DROPS SLIGHTLY

Over the past year there has been a lot of talk about the apartment boom—and overbuilding. A few weeks ago, the annual FHA survey of the vacancy rate in FHA-insured rental apartments was released, putting some perspective on the situation. Surprisingly, the national vacancy rate has dropped for the first time in five years. It now stands at 5.1 per cent, the lowest figure since 1960's 4.8 per cent and 0.4 per cent lower than last year's rate.

Five of the six U. S. zones (including Puerto Rico) reported a decline in vacancies. The only increase was registered in the highly populated mid-Atlantic sector, where vacancies rose from 3.4 to

3.6 per cent. New England, with a 3 per cent rate, again was the lowest, and the Southwest, with 10 per cent, the highest.

The nation's largest cities reported the lowest vacancies. New York, despite its widely publicized boom in luxury apartment buildings, remained at last year's figure (2.6 per cent), while Chicago declined from 3.3 to 2.4 per cent and Los Angeles from 4.9 to 4.8 per cent. Philadelphia, however, registered more vacancies than last year, increasing from 7.3 to 7.8 per cent. Denver and Miami more than doubled their rates—to 14.4 and 11.6 per cent. Other major cities remained close to last year's figures.

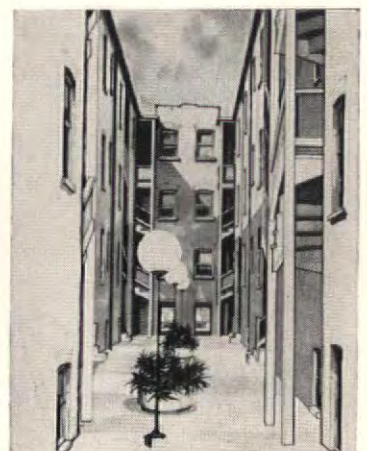


LAWRENCE S. WILLIAMS, INC.

VARIED SHAPES TAKE 1963 AWARDS FOR ESTHETIC USE OF STEEL

A playful cage for gibbons at the Oakland, Calif. Zoo, a sculptured structure for a 500-foot solar telescope at Kitt Peak, Ariz., and a headquarters building for the International Association of Bridge, Structural, and Ornamental Ironworkers Local No. 40 in Philadelphia (photos above) were among nine awards announced last month by the American Institute of Steel Construction. AISC's Architectural Awards

of Excellence recognize the esthetic use of standard steel shapes; the cage (by Norris M. Gaddis) employs tubular steel; the telescope (by Skidmore, Owings & Merrill), a steel-framed windshield; and the office building (by Hassinger & Schwam), a steel frame. Other winners include Breo Freeman's press box at the Rose Bowl, Pasadena, Calif. and Vincent Kling's American Cyanamid headquarters, Wayne, N.J.



A NEW TWIST FOR 221d3: REHABILITATION

FHA's Section 221d3 is generally believed to be the best solution yet devised for new, privately built low-income housing (FORUM, Apr. '63). Last month, the below-market-interest-rate program was used for the first time in another field—rehabilitation housing.

With the purchase of a 91-unit deteriorated apartment house in north Chicago, Industrialist Arnold H. Maremont initiated his plan to rehabilitate extensively some 100 buildings such as the one pictured above. His objective: to provide good housing for moderate-income families and to regenerate neighborhoods without bulldozing or relocation. Maremont has the cooperation of FHA, which has insured 100 per cent mortgages on the first two buildings, regulates the rents, and enforces an income eligibility scale.

Maremont obtains the 3½ per cent mortgage interest rate (underwritten by FNMA) on his long-term mortgage covering both purchase of the building and rehabilitation, and operates as a non-profit developer. Rents meet the building's yearly interest, maintenance, and tax charges, confining Maremont's involvement to administrative expenses. His Foundation has set up a \$500,000 fund to meet these payments.

The Maremont program, which HHFA Administrator Robert Weaver has termed "a pioneering enterprise," will turn to slum-property rehabilitation if the work on moderate-income buildings lives up to its promise. Consultant to the Foundation is Real Estate Expert and Planner John M. Ducey (*People*, Nov. '62); Architects are Tigerman & Koglin.

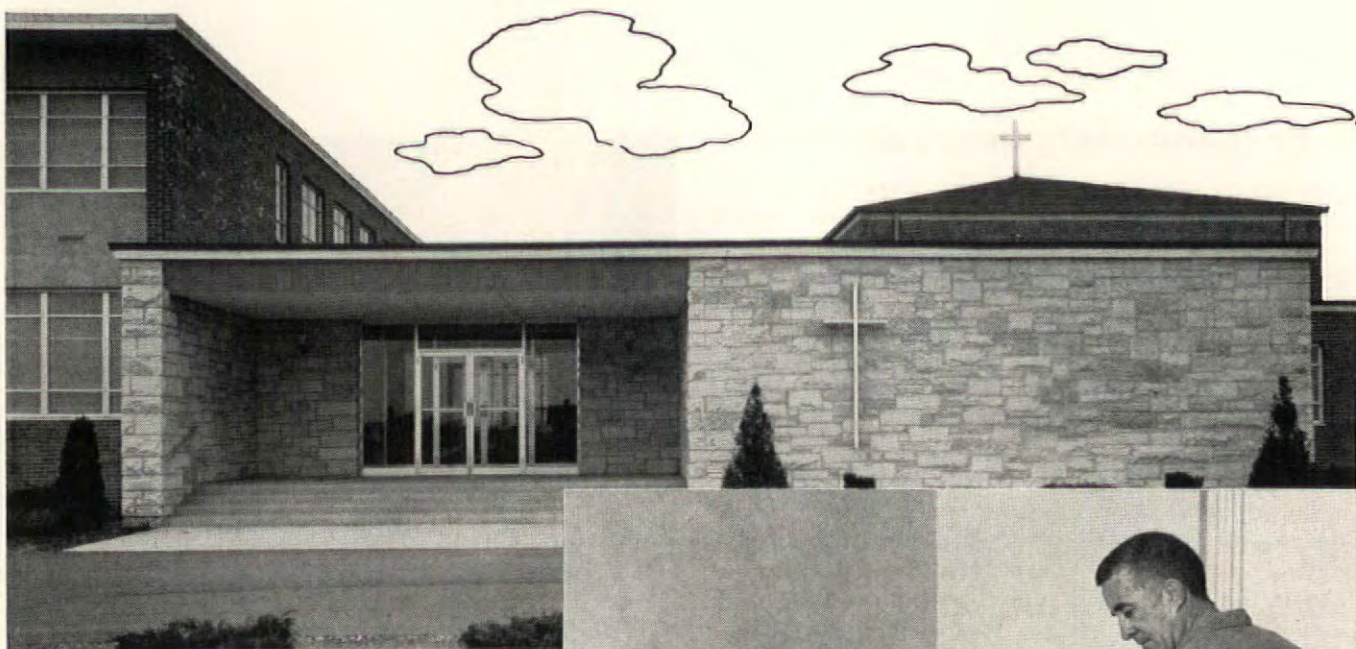
BRIEFS IN THE NEWS

Governor's mansion. The latest word from Sacramento, Calif., is that the competition-winning Governor's mansion will not be built. Legislators object to its cost (already cut down by \$200,000 to \$650,000) and its site. To have been located on one of Sacramento's busiest streets, the mansion would also have been overlooked by multistory apartments. No one was especially pleased by the prospect of having neighbors gazing down on state functions. When Architect Worley K. Wong heard about the impending legislative decision he said that he was "completely deflated." His

firm, Campbell & Wong, will receive \$60,000 for their work, however. The Governor will continue to live in the existing mansion, often described as a "firetrap."

Fallout shelters. In an unexpected move last month, a House Armed Services subcommittee unanimously approved President Kennedy's request for \$175 million this fiscal year for a fallout-shelter program. Instead of being used to construct shelters, the funds (if appropriated by Congress) will be used to encourage people to include shelters in new buildings, to stock them with emergency provisions, and to mark their locations.

continued on page 11



MARION HIGH SCHOOL, CHICAGO HEIGHTS, ILLINOIS

VACUSLOT makes housekeeping THIS EASY!



Push . . . phfft . . . and it's gone! All the dirt and litter that accumulates in a school. Maintenance people merely push it to conveniently located slots in the floor. Vacuum piping, built into the walls, instantly draws it into a collection tank in the basement. Dust mops held over the slots are thoroughly cleaned in seconds . . . minimizing airborne dust. For complete information on the Spencer Vacuslot System, request Bulletin No. 153D.



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

continued from page 9

GAO OBJECTS TO URA'S "VAGUE CRITERIA"

That zealous watchdog of federal expenditures, the General Accounting Office, recently charged that the Urban Renewal Administration had acted prematurely in approving \$10 million in federal grants and \$33 million in federal loans for Cleveland's Erieview urban renewal project (page 81).

The dispute centers on the condition of the existing buildings in the project area. According to a survey by Cleveland officials, some 70 per cent of the structures were substandard. A GAO review team, however, classified only 20 per cent as "beyond repair by normal maintenance."

Noting that "the intent of the urban renewal legislation is to encourage alternative forms of urban renewal, such as rehabilitation and spot clearance," the report chastises URA for not having investigated the situation to determine whether these other methods would not have been appropriate. URA, said the accountants, has "vague criteria for determining whether buildings are substandard to a degree requiring clearance." This fuzziness should be dispelled by defining the condition "substandard requiring clearance," stated

the GAO, and the "condition be related solely to the structural condition of the specific buildings being considered."

GAO's criticism indicated that while it might be a wizard at accounting, it did not know much about the economics of urban redevelopment. The point of Erieview, like most other vast urban renewal projects, is not simply to patch up what is already there. Rather, a major objective is to create a new pattern of capital investment all over downtown, through the redevelopment of this key site. As HHFA Administrator Robert C. Weaver said, in replying to GAO's charges, "substandardness of structural condition of buildings is only one criterion for eligibility. Others include neighborhood blight, obsolescence, harmful land uses, deterioration of buildings to the point where rehabilitation is uneconomical, and other environment deficiencies." Weaver went on to note that HHFA teams work with local officials to determine project eligibility, and that this procedure is "in keeping with the spirit and letter of the law which requires local initiative and execution."

ARCHITECT OF THE CAPITOL IN TROUBLE?

Nine years after President Eisenhower appointed him Architect of the U.S. Capitol, J. George Stewart is undergoing his most serious crisis. Criticized, in both houses of Congress, he is the target of a pending bill which would strip him of his authority to build on Capitol Hill, another which would check his judgment on the necessity to alter the Capitol's West Front, and a third which would give his job outright to a registered architect (which he is not). Stewart might well rue the day last May when he announced that he wanted to rebuild the West Front (*News*, July '63).

Then again, he might not. The short, rotund man knows his way around Washington, and how to listen and express his ideas to the right people in the right places.

Stewart, a one-time landscape gardener and contractor, and a one-term Republican Congressman from Delaware, was brought into his job by the late influential House Speaker, Sam Rayburn. Stewart was the instrument of Rayburn's determination to remodel the Capitol's East Front, a job which eventually cost twice the original estimates and so far has achieved few of the miracles proclaimed for the change.

By law, Stewart is responsible to five overlapping Congressional groups composed of some of the most compelling legislators in the nation. If they have a project in mind, they generally outline it to the Capitol Architect, who fills in the details. In his own domain, Stewart enjoys almost autocratic power. He does not work under



Stewart

CAMERAMAN, INC.

the public eye, and presents *faits accomplis* with startling regularity. Thus were brought about such projects as the East Front renovation and obtaining the site for Madison Memorial (FORUM, Jan. '63).

In the matter of the West Front, Stewart deals with the joint supervisory Committee on the Extension of the Capitol. It consists of Stewart himself, House Speaker John W. McCormack (chairman), House Minority Leader Charles

A. Halleck, Vice President Lyndon Johnson, and Senate Minority Leader Everett Dirksen. Under previous legislation, the Committee can establish the cost of a project at any sum, and can determine its own "scope of work performed." Thus, when the Committee decided that the West Front should be rebuilt and extended, it could legally go ahead with the job—without awaiting funds or debate.

Not so, said the Senate Appropriations Committee a few weeks ago: Stewart could neither have the \$20 million that the West Front would cost, nor could any construction be started without the approval of Congress. The House has yet to pass on this new proviso.

At the time of the Senate's action, a move to dismiss Stewart (via a vote of no confidence) failed. This reflected, say Washington savants, how well-ensconced Stewart is, and how useful some powerful legislators find him.



PHOTO: KESSLER

BERLIN HOSPITAL ABUILDING

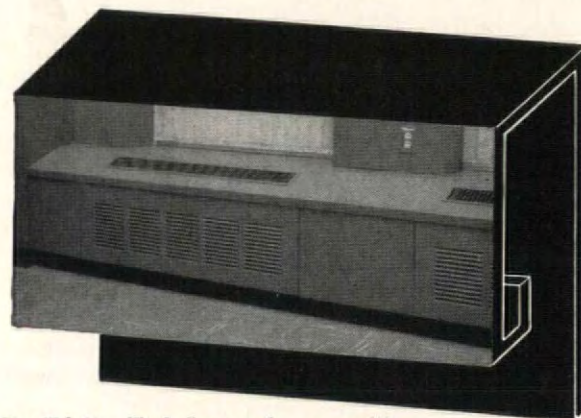
The photograph above shows progress on the West Berlin Medical Center, which, when completed in 1965, will be the "most modern structure of its kind in Europe" (FORUM, Feb. '60). Jointly financed by the U.S. and German governments, the huge complex centers on a 1,500-bed hospital (model, left). Architects: Curtis & Davis; Sherlock, Smith & Adams; and Franz Mocken of Berlin.



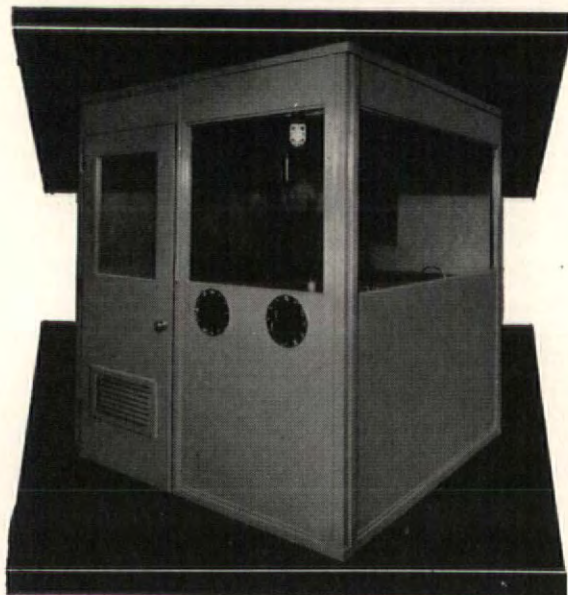
continued on page 15



Place For Quiet Conversation—There's no distraction from the bustle of outside travelers in these Overly telephone booths installed at Dulles International Airport, in Washington, D. C. Clean exterior lines, seamless joints, modern exteriors and high acoustical absorbance are features of these enclosures.

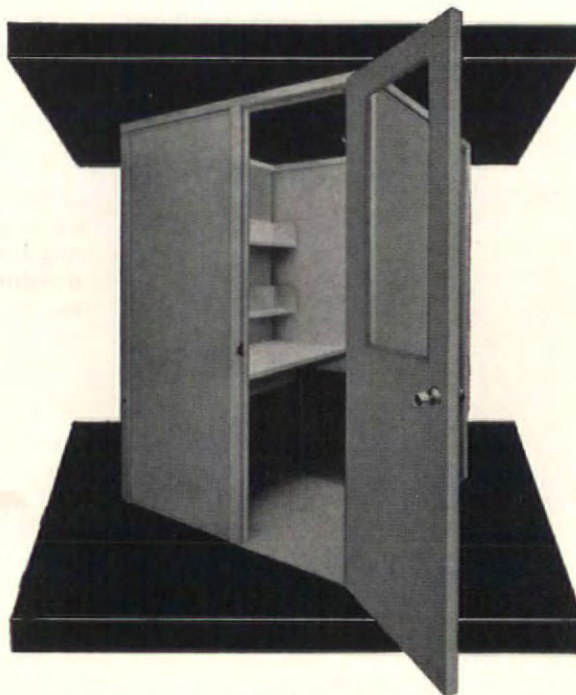


Take The Noise Out Of Air—Flush front and a recessed base are two features of this silent Overly convector enclosure. Unit welding assures uniform panel strength. Visible fastening devices have been eliminated and the product is designed for easy field adjustment.



Science Works in Isolation—Providing a completely controllable environment for aerosol testing, this Overly enclosure at Vanderbilt University, Nashville, Tennessee, is completely prefabricated. Door and window areas are trimmed with special seals to assure absolute scientific isolation. Louvers are filtered and dry-box gloves are supplied with the unit.

ENCLOSE SPACE WITH FUNCTIONAL SIMPLICITY



Hideaway For Study—This Overly carrel at the University of Southern Illinois, Carbondale, Illinois, gives the student an uncluttered, private world in which to do research and general study. Crafted in enamel-coated steel, it will resist the wear and tear of endless years.

This is an Overly enclosure. The one shown above, and 94 others like it, are installed in a university library to provide private study areas for students doing research. They are known in use as carrels. Overly encloses all manner of things. Our telephone booths offer attractive cubicles that permit you to carry on normal conversations in the noisiest areas. Other Overly enclosures provide acoustical chambers for audiometric testing, industrial control booths, test vehicles, engines, turbines and noisy apparatus of all types. They are known by many names.

METAL ENCLOSURES FROM OVERLY

Researchers in science and industry use Overly enclosures for environmental test chambers to carry on bacteriological testing. Our "clean rooms" provide controlled atmospheres that are completely dust-free. Overly convector enclosures quietly control and direct the flow of heated or chilled air in office buildings. We fabricate all types of enclosures that silently perform their designed function. Specify Overly for enclosing people, space, sound, engines or controlled environments.

Overly
Greensburg, Pennsylvania

PRECAST UNITS

*form huge
all-concrete
housing
project*



Nine of the 101 buildings in various stages of construction. Entire project covers 80 acres.



This is the concrete bed on which roof units are cast. Roof units as well as all the other precast structural units are 3,000 p.s.i. lightweight concrete.

• Atlanta's Field Road low-rent housing project will contain 3,245 rooms in 101 buildings with dwelling units for 650 families. It is being constructed almost entirely of precast concrete made with Lehigh cement.

Precast concrete was chosen for its speed and economy in construction, for durability, and for low maintenance costs. The extra fire resistance of concrete provides safety for occupants while keeping insurance costs at a minimum.

This immense project is further evidence of the advantages and adaptability of concrete for structures of any shape or size. Lehigh Portland Cement Company, Allentown, Pennsylvania.

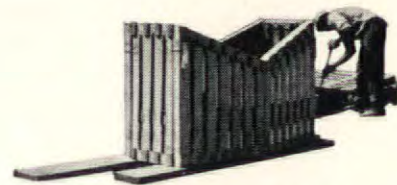
**LEHIGH
CEMENTS**

Owner: Housing Authority of the City of Atlanta, Ga.

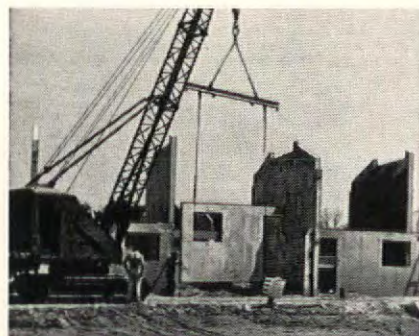
Architects: Bodin & Lamberson and Stevens & Wilkinson, Atlanta, Ga.

Structural Engineers: Chastain & Tindel, Atlanta, Ga.

Contractors: Thompson, Street & Diversified Co., Atlanta, Ga.



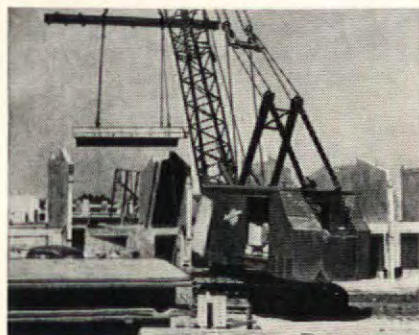
The roof vent screens are cast in four sections on the ground and are assembled at the casting site. There is a roof vent screen for each family unit.



Crane places a first floor side wall between two-story party walls. Units are moved from casting areas to building sites on flat bed trucks.



Precast stairs connect the first and second floor of each dwelling unit. Stair forms are positioned on a graded embankment and ready mix trucks dump concrete from the top.



A second floor slab being lowered into place. Supporting beams are cast as an integral part of the slab. Connections are made with weld plates cast in the units.



Roof units provide an overhang and built-in gutter. Roof and side wall units are 4" thick. Party walls are 8" thick and second floor slabs are 5" thick.



Buildings vary in size providing from four to sixteen dwelling units each. Exterior walls have masonry veneer. Note roof vent screens atop each unit.

People in the News

QUOTE . . . UNQUOTE

"We are against the Big Brother philosophy of government. . . . We can get out from under the federal urban renewal program, essentially a local responsibility, which carries an ultimate price tag of more than \$600 million a year. We can save billions more by staying out of mass transportation. . . ."—*U. S. Chamber of Commerce President Edwin P. Neilan.*

"The flat façade may look practical and easy to maintain, but in fact it may be difficult to build and may prove disappointing in the weathering and aging process. . . . We are in the flow of transition from modern architecture to good architecture." — *Architect Marcel Breuer.*

"Some planners spoof at emulating the suburbs. We had better find out how to compete with them." — *ACTION Chairman Ferd Kramer.*

"To me, the whole secret of it is that the private car is the badge of our freedom of movement. People will go hungry in this country to keep their cars running."—*Public Roads Administrator Rex M. Whitton.*

"Of all the complaints owners throughout the country hear about postwar apartments, lack of soundproofing heads the list. . . . The minimum standards of sound control (in most European countries) for their lowest level of public housing . . . far surpass the best that we do for our most expensive apartments. . . . No builder can [set minimum soundproofing standards] by himself. . . . Government agencies, private lending institutions, and the Acoustical Society of America must set such standards."—*Investment Builder Frederick P. Rose.*

"Motor vehicle transportation in congested urban centers may be substantially underpriced, in terms of the taxes and charges imposed on the users. The indication is in general traffic congestion throughout an entire area."—*Dr. Lyle C. Fitch, President, Institute of Public Administration.*



LUCKMAN PROMOTED

CHARLES LUCKMAN was elected chairman of the Board of Trustees of the California State Colleges last month, becoming the first architect to head the largest state college system in the world (more than 100,000 students on 17 campuses). A board member and chairman of the Board's Committee on Campus Planning, Buildings and Grounds since 1960, Luckman played a major role in obtaining superior design for state's building program (FORUM, Mar. '63).

HALPRIN ON HIGHWAYS

To correct California's urge to scar its cityscape with ugly swirls and ribbons of concrete, the State Division of Highways hired Landscape Architect LAWRENCE HALPRIN as a consultant. A few weeks ago, Halprin made his ideas clear in a report, accompanied by his own designs. Highways, he said, should be made part of the city by constructing buildings over and under them. They should also be double-decked (perhaps with one level underground) and built on the narrowest rights of way possible, running parallel to existing streets. Finally, freeways should be built in conjunction with other city projects because, he reported, "if you can design everything together, there is a much better possibility of doing something beautiful."

33 MEN IN A TUB

For a week last month, experts on practically every urban problem met aboard a cruise boat in the Aegean Sea. Head of the informal symposium was Greek City Planner CONSTANTIN DOXIADIS, and his 33 guests included such well-

known U. S. figures as Structural Engineer R. BUCKMINSTER FULLER, Housing Expert CHARLES ABRAMS, Anthropologist MARGARET MEAD, Planners EDMUND BACON and JACOB L. CRANE, and LYLE C. FITCH, president of the Institute of Public Administration in New York. Their common concern: the steady deterioration of urban conditions. Outcome of the symposium is still uncertain.

FINE ARTS FRONT-RUNNERS

Well before any official announcement, Washington observers had pretty well determined that the last Kennedy appointment to the Commission on Fine Arts would be Architect PHILIP JOHNSON. The same sources also picked the next commission chairman: Artist WILLIAM WALTON. Walton, they reasoned, would be the only new member residing in Washington. And he has both taste and the ear of the White House—as

JOE SCHERSCHEL—LIFE



Walton

evidenced by the "rescue" of Lafayette Square, in which Walton is generally credited with having played a major part (FORUM, Jan '63).

MEN OF URDOA

Plans for the new Urban Redevelopment Division of ACTION, Inc. (URDOA) are coming along fast. Commissioners PHILIP BROWNSTEIN of FHA and WILLIAM SLAYTON of URA have endorsed the new agency, which is designed to "facilitate effective public and private participation in redevelopment programs," and will assign staff members to work with URDOA. Meanwhile a blue-ribbon steering committee has been set up to start URDOA moving. It is temporarily chaired

by Developer LEWIS KITCHEN, and includes Architect CECIL A. ALEXANDER, Developers ARTHUR RUBLOFF and BERNARD WEINBERG, Contractor JOHN H. TOLAN, municipal development officials JOHN R. SEARLES and WILLIAM SESNON, and ACTION officers FERD KRAMER and ALBERT M. COLE. Among their plans: creating a technical advisory committee to meet with FHA and URA; establishing a Washington, D. C. office; and running a series of regional conferences to "achieve a comprehensive review of redevelopment procedures and problems."

ANOTHER FOR MIES

The sole architect receiving a Presidential Medal of Freedom last month was LUDWIG MIES VAN DER ROHE. It is the highest civilian peacetime honor in the nation, awarded in recognition of the "high achievement of persons who contribute significantly to the quality of American life." Presentation ceremonies take place next month in the White House.

BRIEFLY NOTED

A long-time friend of architecture in the Aluminum Company of America, FREDERICK J. CLOSE was appointed an ALCOA director a few weeks ago. Close pioneered applications of aluminum in building and was largely responsible for the aluminum work on the Empire State Building (1931), Rockefeller Center (1933), and his own ALCOA Building in Pittsburgh (1953).

Architect D. KENNETH SARGENT recently became an honorary member of the Producers' Council, the third outsider so recognized. He was cited for his close cooperation with building products manufacturers in developing educational material for use by architectural students.

Architect BENJAMIN THOMPSON was appointed last month to one of Dean JOSE LUIS SERT's three posts at the Harvard University School of Design—that of chairman of the architecture department. He fills the vacancy created when JOSEPH PASSONNEAU refused the job last spring (News, Apr. '63).

continued on page 16



NEW JERSEY COLONIALISM. Johnson & Johnson, the pharmaceutical company which years ago led in building some of the first fine modern structures along U.S. #1, has taken a puzzling backward step with the completion of the

new, pseudo-Georgian Johnson Hall in New Brunswick. A desire to harmonize with the Rutgers campus was apparently decisive. Architect: John Mac William. Contractor: John W. Ryan Constr. Co. Cost: about \$3.5 million.



NEW YORK HOTEL. Just opened on the booming Avenue of the Americas, the 46-story, \$75-million New York Hilton at Rockefeller Center expresses the new, convention-dominated economics of hotel-keeping without most of the design excesses which have marked other recent Manhattan hostelries. A slim slab of 2,153 rooms with faceted bay windows of blue glass rises cleanly from a three-story base containing ball and banquet facilities. The Hilton spent \$500,000 on art, much of it good, some of it bad (left: "Elysian Fields" by Sculptor Ibram Lassaw). Architect: William Tabler. Contractor: Uris Buildings Corp.

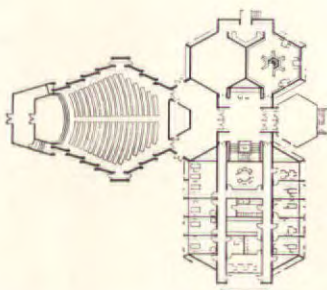


OHIO MEDICINE. This new circular medical office building in Cuyahoga Falls is encased by precast panels sculptured in abstract forms which the architects de-

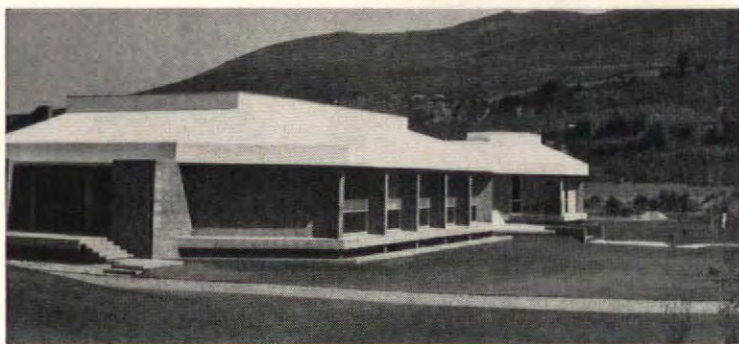
scribe as "self-interpretive organic designs." Harry Wheeler was the sculptor, Kamenir-Hamed the architects. Contractor: Alessio Constr. Co. Cost: \$1.1 million.

TEXAS POST OFFICE (right). At the north end of Houston's developing civic center stands the new U.S. Post Office, a crisp white axis-stopper composed of two elements. Toward the front of the 14-acre site is a five-story administration building with quartz-aggregate spandrel panels and vertical sun-screening. Behind it a long, low building houses automatic mail-sorting equipment. A large landscaped mall in front separates two big parking lots. Architects: Wilson, Morris, Crain & Anderson. Contractor: C. H. Leavell. Cost, with land: \$10 million.





COLORADO INSTITUTE. Architect Herbert Bayer's latest building for the Aspen Institute, a memorial to Founder Walter Paepcke, makes a fine focal point for the small, growing campus. The building, of gray cinder block with a crisp white roof, cost \$16.90 per square foot. Two wings for offices and seminar rooms form a courtlike entrance to an auditorium behind. Contractor: Horace Hendrichs.



J. ALEX LANGLEY

NEW YORK SCULPTURE. Almost crippled by the space which surrounds it (a cramped side-lobby in Manhattan's Pan Am building), but lighted to good effect by Abe Feder, Sculptor Richard Lippold's newest creation is an exciting and

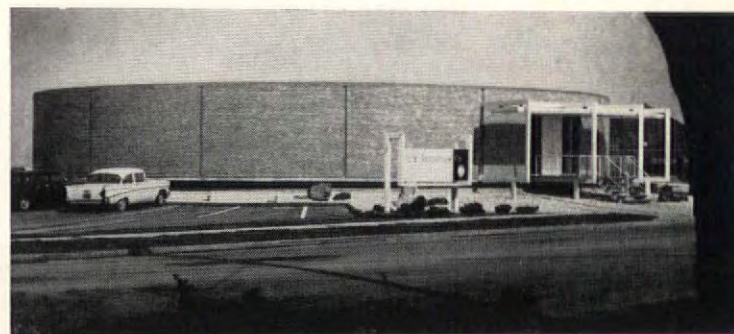
beautiful construction of golden, gossamer-thin wire. The 30-foot-high sculpture, called "Flight," shoots a myriad of fantastic, dazzling rays of light (taut wires in curving planes) on all sides of a symbolic earth.

MARSHALL BURCHARD



MASSACHUSETTS SCIENCE. Now at the 17th floor, with only three more to go, I. M. Pei's Green Center for Earth Sciences already dominates the M.I.T. skyline along the Charles River in Cambridge. The concrete structure,

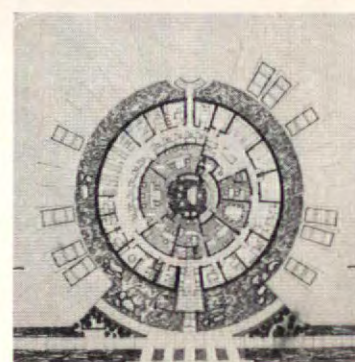
which is cast in place except for the precast spandrels, has blank end walls which will ultimately be sandblasted. General contractor: Turner Construction Co. Estimated final cost: \$5 million, for 130,000 square feet.

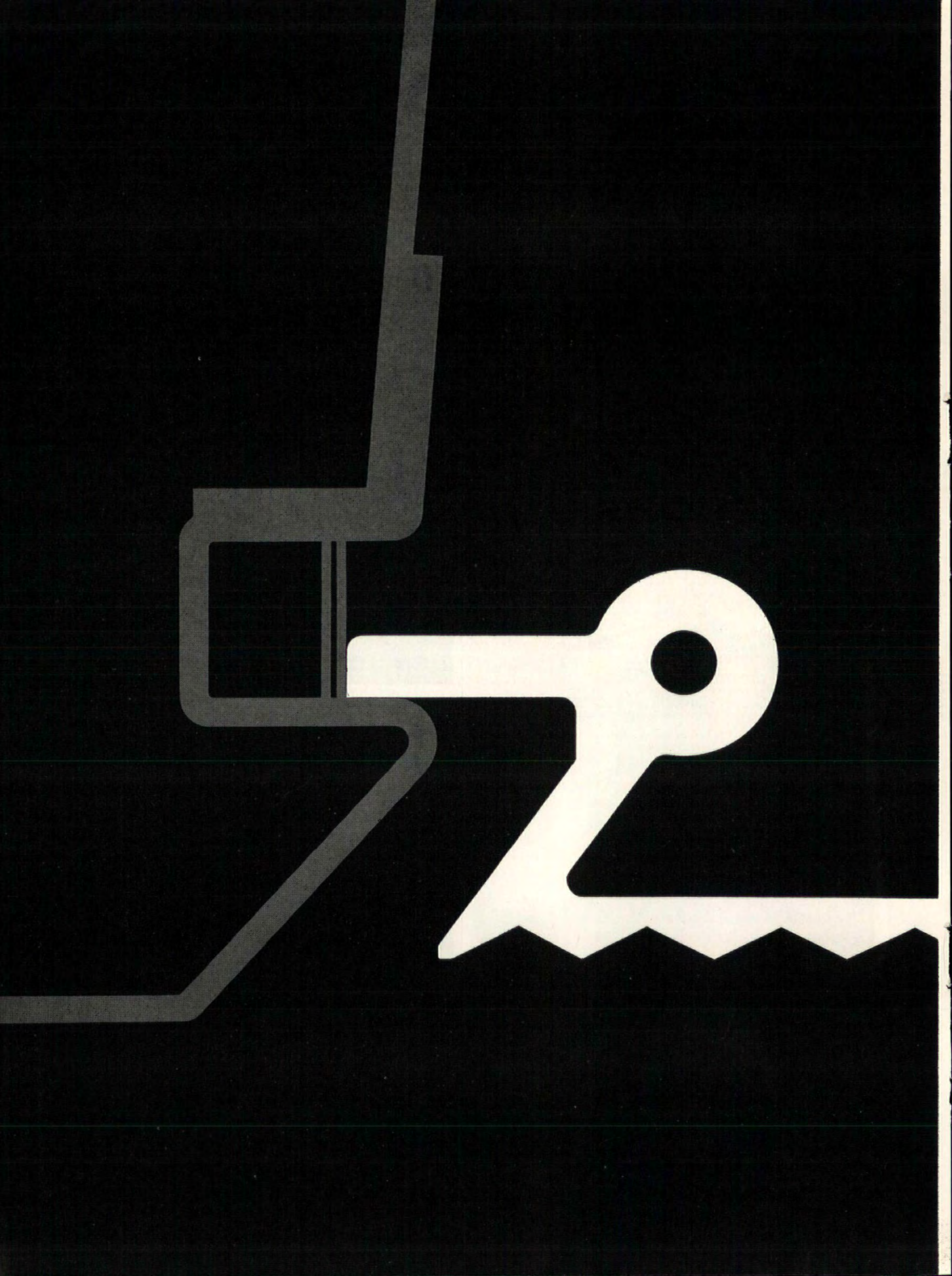


HENDRICH-BLESSING

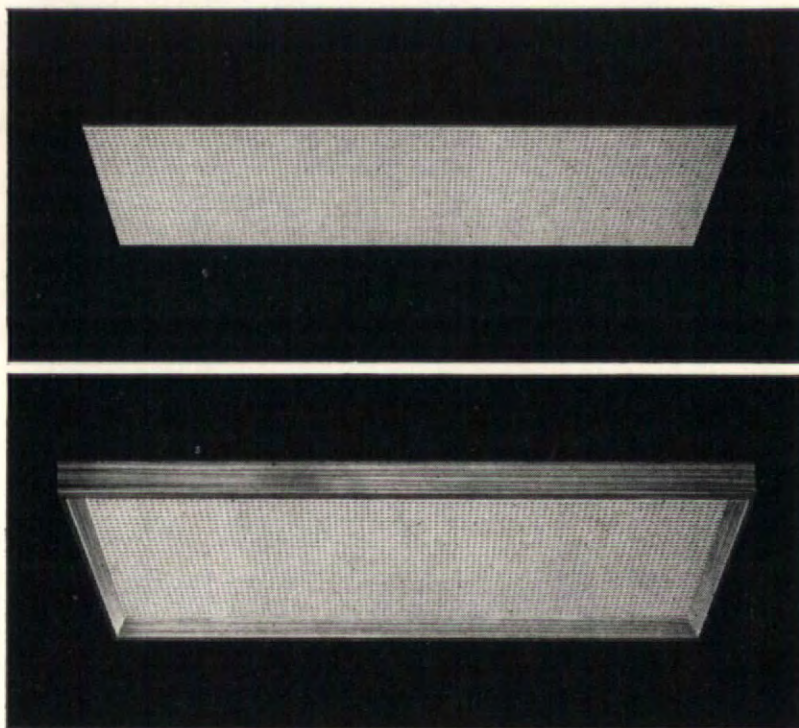
INDIANA OFFICES. The president of the U.S. Reduction Co. in East Chicago wanted quick communication with his three vice-presidents. The company's new round, one-story headquarters building gives it to him: the three v.p.'s sit like so many super-secretaries right outside his office, at the center of the building. Architects & engineers: A. Epstein & Sons. Contractor: Calumet Constr. Co. Cost: \$180,000.

END



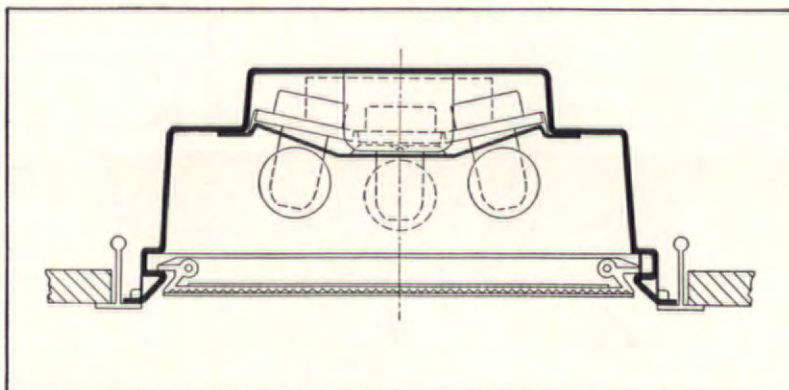


No visible means of support!

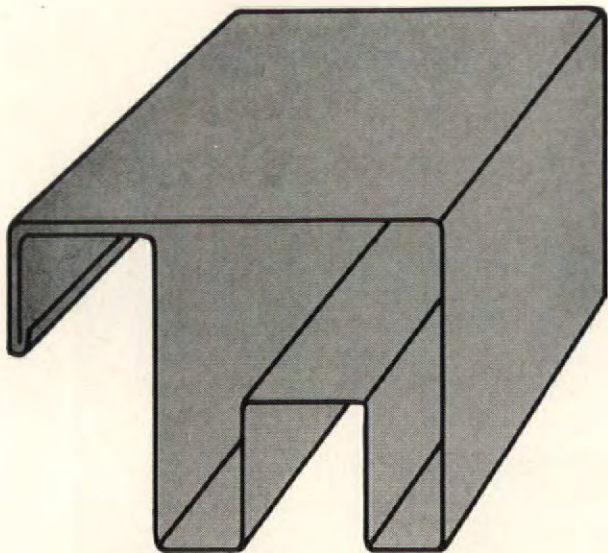


No hardware, no gaps, no "frame-within-a-frame." All that meets the eye is a clean, precise rectangle of light. The diagram on the left reveals the secret: ingenious self-supporting shieldings. These were devised by Lightolier engineers to eliminate the mechanical look of so many of today's recessed fixtures.

Lightolier's advanced recessed designs are also available with decorative walnut frames, so that important areas can be accented while over-all design continuity is maintained. Built to Lightolier's high standards of construction and efficiency, these fluorescents are available in 1' x 4', 2' x 4', and 2' x 2' sizes and in a range of wattages—with prismatic or diffuse shieldings—to meet virtually any performance, budget or ceiling requirement. For further information, write for Brochure 39, Lightolier, Jersey City 5, N. J., Dept. AF-8.

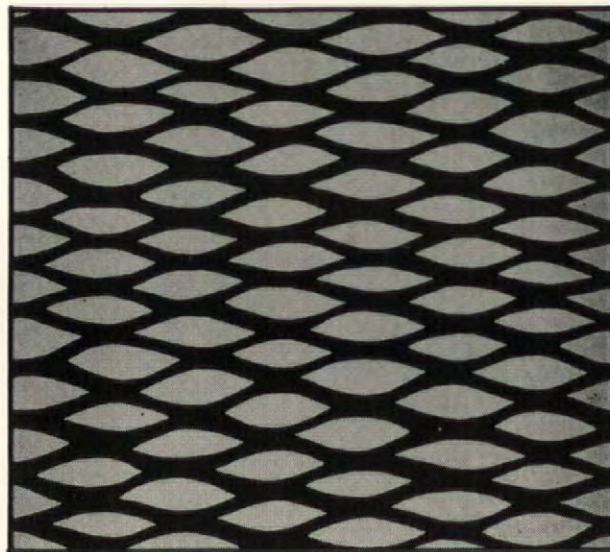


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FOR FORM...

In the fabrication of certain components for sliding doors, J&L 300 series stainless undergoes 26 progressive forming operations. The drawing above shows the intricate designs involved in this application. The metal is roll formed to close tolerances without distortion or burnishing. The high strength/weight ratio of J&L 300 stainless permits the use of light gauges without sacrificing durability. Additional qualities which make this versatile design material popular with both architects and fabricators are: an attractive surface finish, good corrosion resistance, uniformity of formed parts, and adaptability to assembly by modern welding methods. Virtually all of these qualities lend added sales appeal to the finished product.



FOR TEXTURE

J&L 300 series stainless is proving itself as adaptable for textured finishing as for roll forming. An already durable and attractive surface can be given distinctive eye-appeal and greater scuff-resistance by the addition of any one of more than 60 varied patterns.* These patterns are available up to 48" in width—from textures .001" to .270" in depth—in natural finish or in color. Designs vary from directional (fluted and ribbed) to non-directional, from geometric to abstract. Textured J&L 300 series stainless is being used in a number of architectural applications, such as curtain walls, interior wall surfaces, building foyers, elevators, kitchens, cafeterias, stores, and for wainscoting, revolving doors, stair treads, walkways, and counter fronts.

*Producers' names on request.



J&L 300 SERIES STAINLESS STEEL IS PROVING ITS VERSATILITY IN NUMEROUS ARCHITECTURAL APPLICATIONS.

If you have in mind an application that might utilize the many versatile qualities of J&L 300 series stainless steel, let our Architectural Services provide you with specific information on both the basic material and fabricators capable of meeting your requirements.

Jones & Laughlin Steel Corporation • STAINLESS and STRIP DIVISION • DETROIT 34 STAINLESS



PREFINISHED

Cromosaic

HARDWOOD FLOORING



A STRIKING NEW PREFINISHED HARDWOOD PARQUET ...THAT LAYS LIKE TILE!

SIX EXCITING WOODS—AN INFINITE VARIETY OF COMBINATIONS!

Walnut with Maple Feature Strips



SOLID HARDWOOD: Cromosaic is not a veneer—not an imitation. It is $\frac{5}{16}$ " of solid, edge-grained hardwood, offering a wearing surface exceeding that of full-thickness $\frac{3}{4}$ " T&G hardwood flooring. Cromosaic is assembled in 18" x 18" panels for quick, convenient, ready-to-live-on installation.

INSTALLS EASILY: Cromosaic installs quickly (like tile) with a fast-setting, easily-trowelled PVA mastic on any smooth, hard surface... *including concrete on grade!* Because Cromosaic is already finished, installation requires no more than minimum experience, talent and equipment.

VERSATILE: Cromosaic is ideally suited and is being increasingly specified for churches, hotel ballrooms, commercial buildings, apartments, private homes.

LOW COST: Priced in a class with medium-grade resilient tile, Cromosaic brings the natural beauty and warmth of hardwood within the range of most budgets... in a distinctive and exciting new form.

WANT TO HEAR MORE? Mail the coupon below for further information.

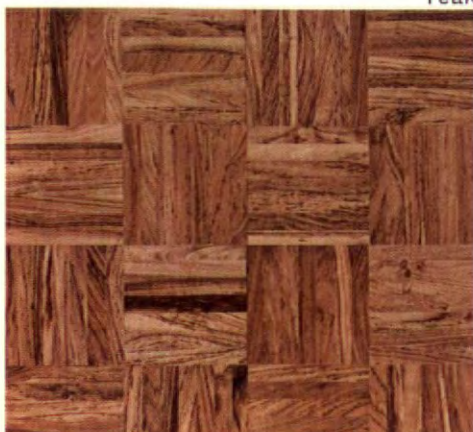
THE CROMAR COMPANY

Williamsport, Pa.

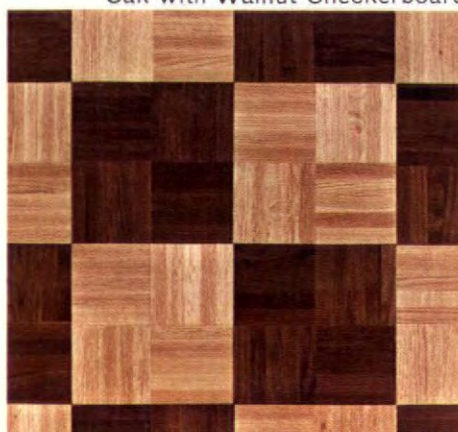
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Teak



Oak with Walnut Checkerboard



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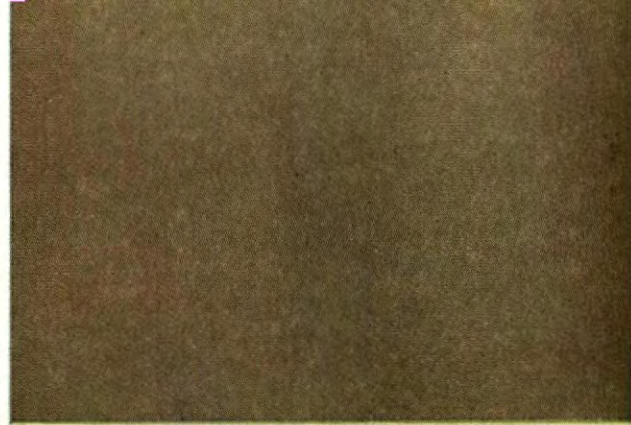
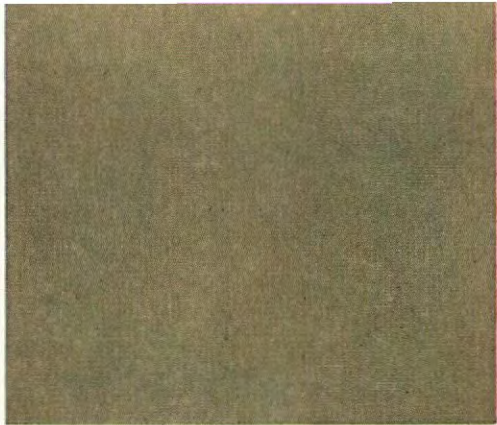


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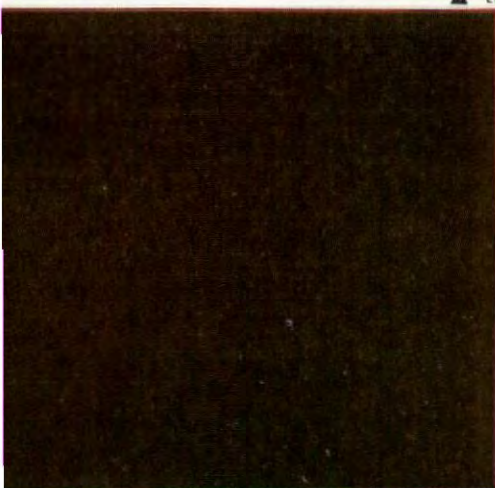
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Left: Our Lady of Angels Seminary, Glenmont, N. Y. DURANODIC 300, medium bronze used for windows, doors and frames. 215 R1 Alumilite spandrel panels. Urbahn, Brayton, & Burrows, Architects. ■ Top Right: The Madison Hotel, Washington, D. C. DURANODIC 300, medium bronze windows and entrance doors. Emery Roth & Sons, Architects. ■ Right Center: Fair Oaks Elementary School, Minneapolis, Minn. DURANODIC 300, medium bronze mullions. Matson & Wegleitner, Architects. ■ Lower Right: Charter National Life Bldg., Clayton, Mo. DURANODIC 300, medium bronze windows and fin type mullions. Meyer Loomstein, Architect.

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GRISWOLD AT YALE

Forum: The tribute to Whitney Griswold in the June issue is outstanding . . . a superbly written tribute to a great educator.

Hillsborough, Calif. WILLIAM A. WIEDERSHEIM
Yale Alumni Ass'n. of
Northern California

Forum: We have known and admired the Griswold convictions and his philosophy of practicing what you preach in the arts, which has resulted in this marvelous renaissance at New Haven, and for which he alone was responsible.

I think your article is a fine picture of a great man.

NEW HAVEN CARLETON GRANBERY
Architect

Forum: What a beautiful piece on Whitney Griswold!

NEW YORK CITY AUGUST HECKSCHER
The Twentieth Century Fund

Forum: Congratulations on your article on Whitney Griswold. We in New Haven are proud of the distinguished architecture that he has brought to Yale University.

For 20 years Mr. Griswold has been a personal friend of our Mayor, Dick Lee, and in some small way Dick Lee may have helped to influence Mr. Griswold's concern for good architecture. In his own right, Mayor Lee has contributed to the architectural quality of New Haven by commissioning outstanding architects for public projects.

NEW HAVEN MELVIN J. ADAMS
New Haven Redevelopment Agency

Forum: The article was superb, as was the layout. It was one of the best explanations of modern architecture I have ever read, and handled the subject of educational leadership in this field in a persuasive way.

NEW HAVEN STEPHEN KEZERIAN
Yale University

CONTRACTORS BID FOR PROGRESS

Forum: Your article (June '63) is the finest I have seen on the general contractor's function. However, I think a couple of points were neglected.

In order to compete in today's market, general contracting organizations continually have to conduct training programs of graduate architects and engineers in order to fill their need for competent construction personnel capable of assisting architects and engineers, with a knowledge of costs and methods which have become critical items due to continued wage-scale increases.

Your statement with respect to research is a bit misleading. It is true that general contractors spend little of their own money in research and this is primarily due to the fact their profit margins are so small that a research budget is not possible.

It is quite obvious that the construction industry cannot approach the expenditures of Procter & Gamble (3 per cent of sales)

when its profits after taxes are only 0.2 per cent, and before taxes, would be approximately 0.4 per cent.

Most owners fail to recognize that in engaging a general contractor they are hiring a technical service of highly trained and highly educated individuals who have spent their lives in the construction industry learning how to plan, coordinate, and construct, at a minimum cost, still attempting to comply with the demands of the architect, engineer, and owner.

NEW YORK CITY R. C. DALY, President
George A. Fuller Co.

Forum: Congratulations on "Contractors Bid for Progress." There is little question that the contents of this article apply equally to Canada as well as to the U.S., but I have seldom seen the problem put down in such a concise and matter-of-fact way.

MONTREAL J. ERIC HARRINGTON
Anglin-Norcross Corp. Ltd.

PUBLIC HOUSING

Forum: David Carlson has done his usual fine reporting job ("New Look in Public Housing," July '63).

Clearly, public housing is now at a crossroads and will have to probe new directions. What needs still more analysis is the question of costs and quantities: due to diseconomies of scale, vest-pocket housing has run into the barrier of excessive costs; and it remains to be seen whether such meritorious proposals as the purchase and fix-up of existing houses can produce more than hundreds of units where many thousands are needed. Given the present administrative set-up of public housing authorities, the massive project—despite its deep-seated faults—has proved thus far the sole device for delivering low-income housing in sufficient volume to absorb Congressional allotments.

It seems to me that only through some form of direct subsidy—such as rent certificates—could large numbers of poor families be moved into standard housing at reasonable cost.

NEW YORK CITY LOUIS WINNICK
The Ford Foundation

100 BIGGEST

Forum: We agree wholeheartedly with the letter from Henry R. Slaby, Architect, in regard to your publishing the names of the 100 Biggest Architects (June '63).

To us this seems entirely unnecessary and merely perpetuates the worship of "bigness." We fail to see any merit or justification for the publishing of such a list.

SALT LAKE CITY ARTHUR K. OLSEN
Architect

THE VIEUX CARRÉ (CONT.)

Forum: Your June issue carried a letter by my good friend John Lawrence, Dean of the Tulane Architectural School, [whose]

usual perception seems to have failed in depth this time.

Isn't it significant that the two appointive commissions recommended a zoning change of the Holy Family Convent site while the elected City Council voted against? The members of both the Vieux Carré Commission and the Zoning and Planning Commission are dedicated business and professional men who serve their community without pay and too often without thanks; these men couldn't care less where the votes come from. On the other hand, city councilmen are elected every four years and an important election is not far in the future.

According to existing city code and zoning regulations, a hotel-motel must provide off-street parking. Had the zone change been permitted, 200 parking spaces would have been provided off-street and underground. Now, however, an apartment hotel is proposed, and some 200 cars will be seeking curb space in an already traffic-jammed Vieux Carré.

Moreover, the hotel-motel proposal included the complete restoration inside and out of the historic and architecturally important Quadroon Ballroom, opening the interior of this fine old building which has not been seen by the public since 1883.

Exactly what has been gained by the carefully organized citizen protest to which the City Council paid so much attention, and which Dean Lawrence didn't see through?

NEW ORLEANS I. WILLIAM RICCIUTI, Architect
Chairman, Vieux Carré Commission

CORRECTION

The photographs of the hotel in Abidjan, Ivory Coast, (June '63) were taken by Marc and Evelyn Bernheim, not Bernstein. FORUM regrets the misspelling.

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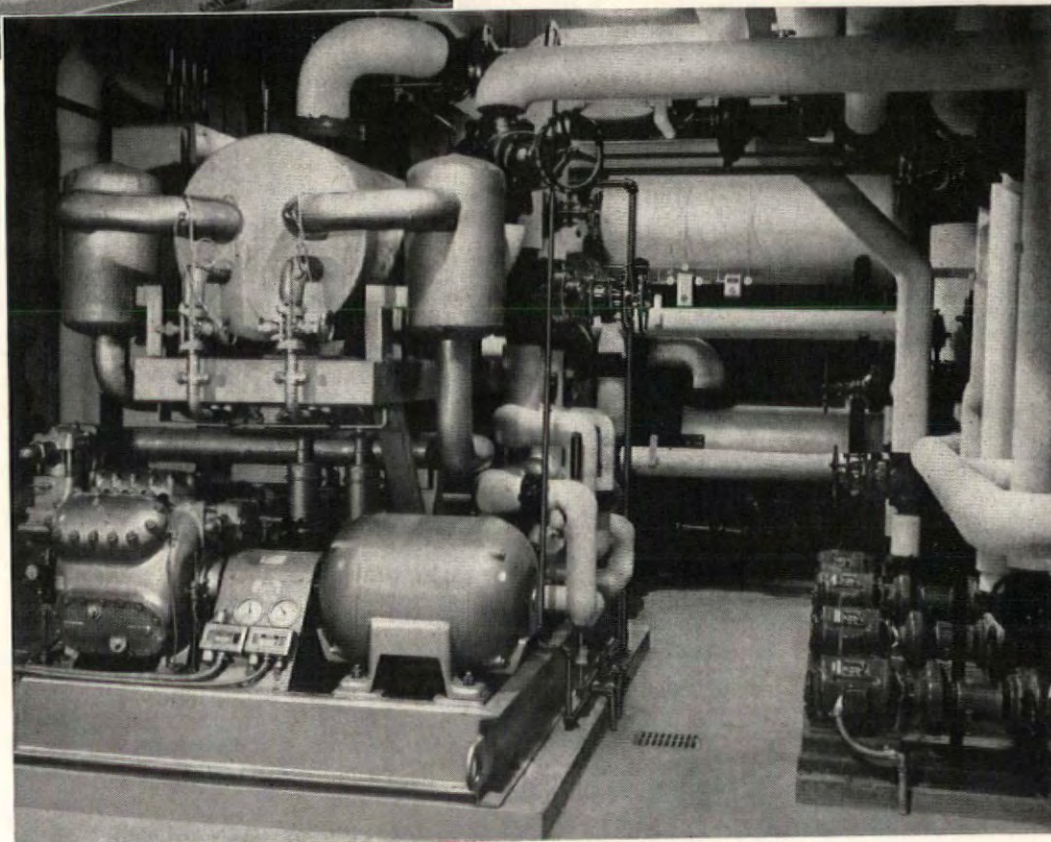
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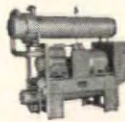
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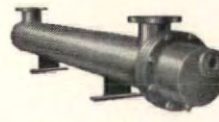
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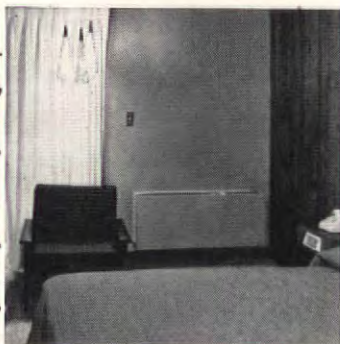
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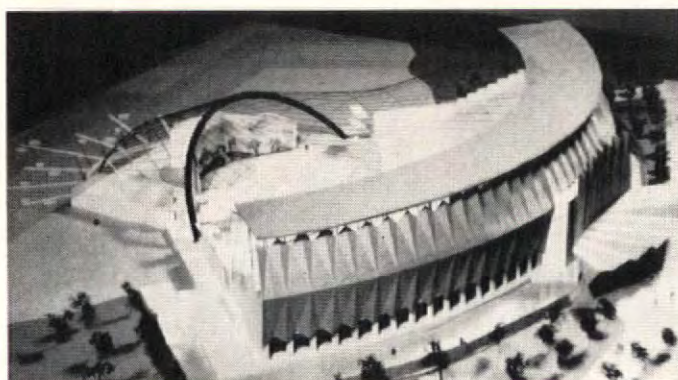
Advantageous arrangement of laboratory and lecture-demonstration areas is permitted by circular shape of building.



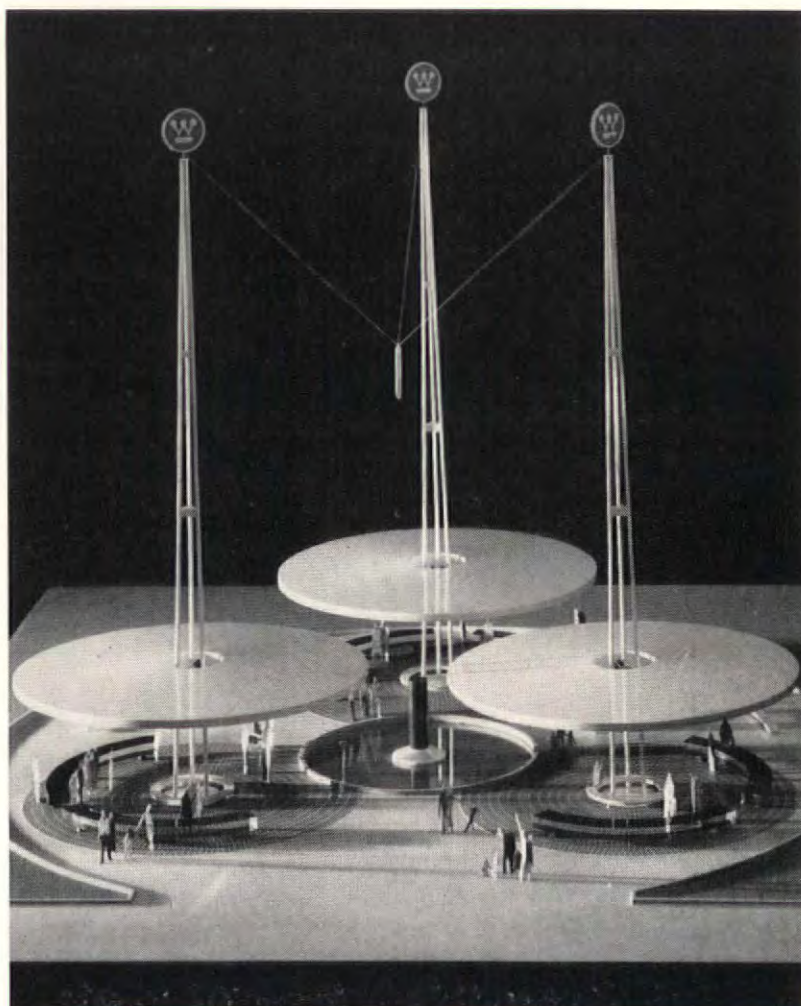
Exhibition architecture: 16 designs for the New York World's Fair



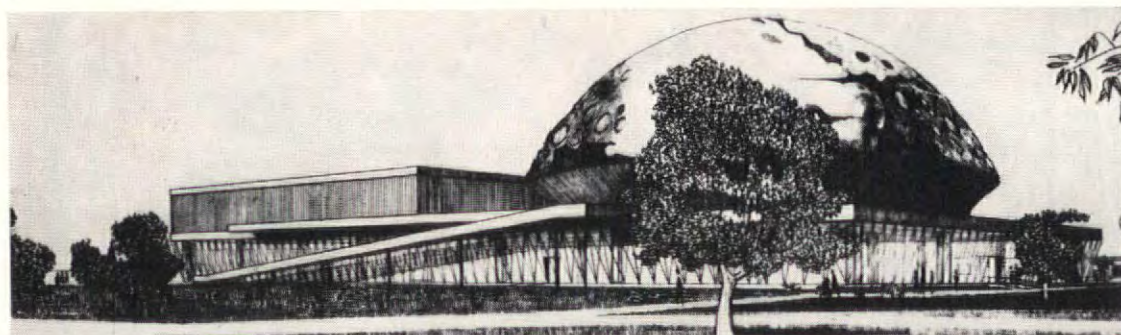
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1. MORMON TOWERS. The triple towers of the great Mormon Temple in Salt Lake City will be at the New York World's Fair next spring—in replicas 12 stories high facing a reflecting pool. Behind this front, the Mormon pavilion will consist of twin precast concrete halls containing theaters and dioramas. Fordyce & Hamby Associates designed the pavilion so that after the Fair some of the components can be reassembled into new Mormon chapels.

2. AMPHITHEATRE ROOF. Band-leader Meyer Davis is one of a

group sponsoring Amphitheatre, Inc., a setting for outdoor extravaganzas. The site is what is left from the 1939-40 Aquacade: a stage, a pool, and some 8,000 seats arranged in a semicircle. The seats will be refurbished, a new front put on, and a new roof suspended on cables to cover the whole area. Architect: Edward W. Slater. Structural engineer: Paul Gugliatta.

3. WESTINGHOUSE DISCS. The metal case dangling from three pylons is a new Westinghouse time capsule, located right over

the one buried at the 1939-40 New York World's Fair. In it will be placed a variety of objects typical of life in the 1960s. Beneath the discs Westinghouse will display the contents of both capsules and a peek at the future. Architect: Eliot Noyes & Associates.

4. TRANSPORTATION MOON. The Transportation & Travel pavilion, to house a group of exhibitors, has been completely redesigned since the first model was shown (*Projects*, Feb. '62). The new scheme, by Clive Entwistle Associates, will present the lumpy sur-

face of the moon on a stuccoed dome, with a moon crater, space stations, and robot figures on display inside. The first floor will be enclosed by a tensile wall of glass braced by stainless-steel cables standing 1 foot outside the glass.

5. SUDAN DOME. The Sudan's building will have a rich blend of colorful mosaics above the entrance (left) and brown-and-white glass-fiber screens, topped by a gleaming white dome. One of the exits (right) will lead into a refreshment garden. Architects: Noel & Miller of New York City.

continued on page 35

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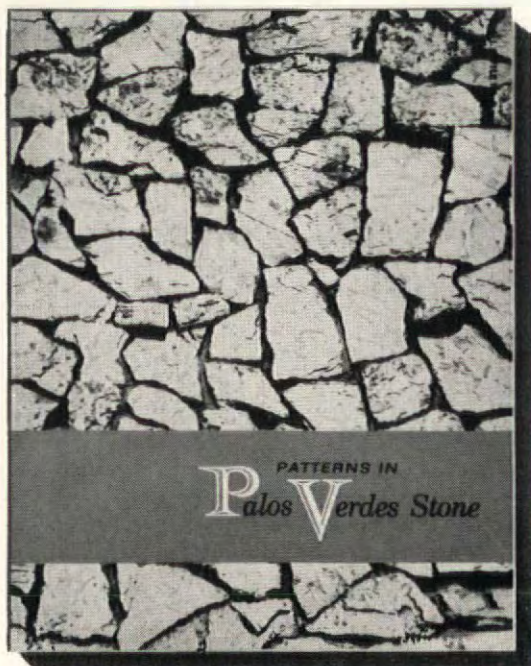
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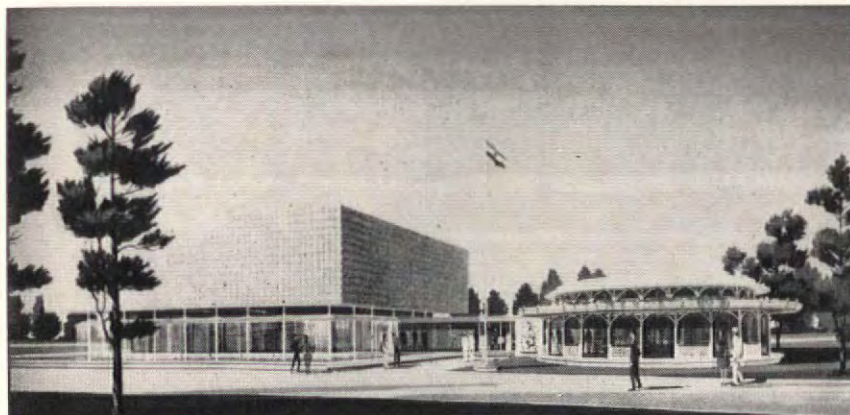
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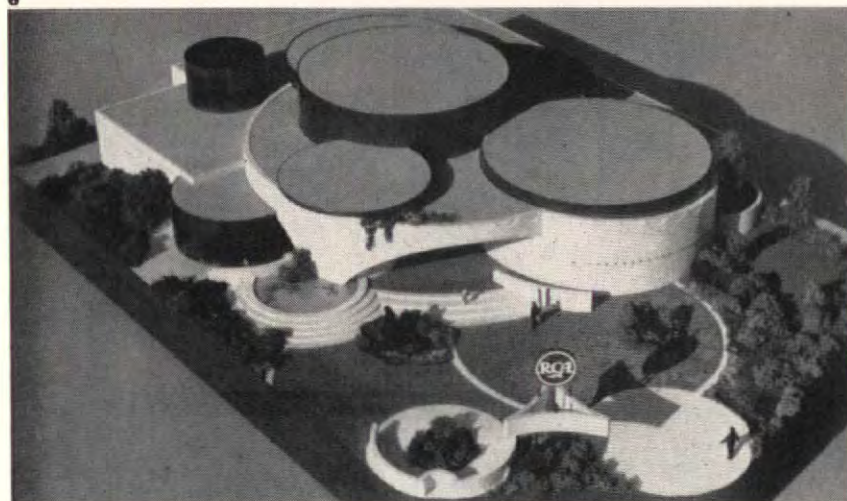
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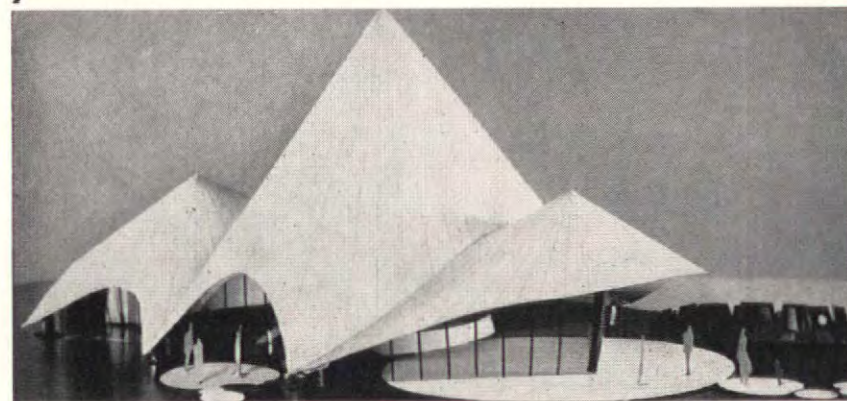
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6. INDIAN SCREENS. India will display facets of its past, present, and future on two levels behind a rectangular marble screen. In the round restaurant at right, native chefs will conjure up the best of Indian cooking, some of it done in open earthen ovens. Architects: Mansinh M. Rana of New Delhi; Stonorov & Haws of Philadelphia, associates.

7. R.C.A. STUDIOS. Concentric rings in the Radio Corporation of America building will contain (left to right) stereo demonstrations, TV studios, control rooms,

and a reception area. Visitors will see themselves live and on tape, then watch color shows produced in a working studio. The exterior of the pavilion will be buff cement and weathered copper. Architect: Malcolm B. Wells.

8. SIERRA LEONE CONES. The plastic cones covering Sierra Leone's pavilion will echo that country's mountains, its native roofs, and even the pyramids in its coat of arms. After the Fair, 70 per cent of the building will be salvaged and shipped home to become an exhibit hall. Archi-

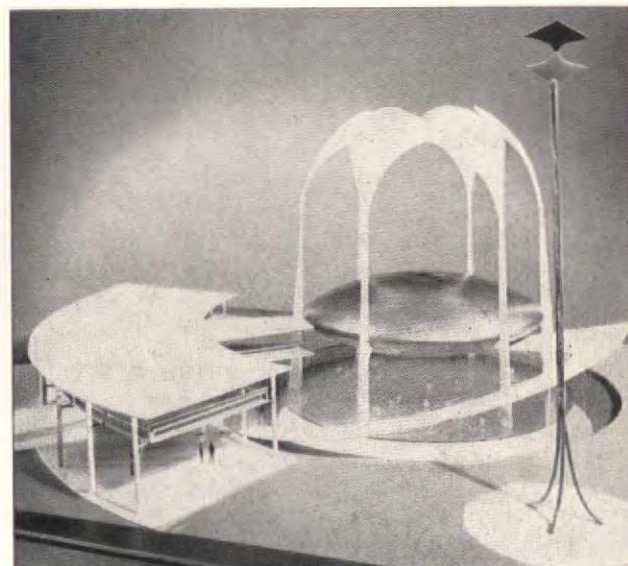
itects: Costas Machlouzarides of New York City; Ransford Jarrett-Yaskey of Sierra Leone, associate.

9. S. C. JOHNSON THEATER. A double golden saucer, held aloft by 80-foot arched columns, will be the centerpiece of the Johnson's Wax pavilion, designed by Lippincott & Margulies, Inc. Inside the saucer, reached by elevated walks, a 600-seat theater will offer continuous entertainment.

10. PAKISTAN BLOCKS. Pumice blocks alternate with vertical concrete blocks to give Pakistan's entry an individual character, car-

ried further in the lamella dome and an intricate Venetian block grille behind the entrance. Architects: Oppenheimer, Brady & Lehrecke of New York City.

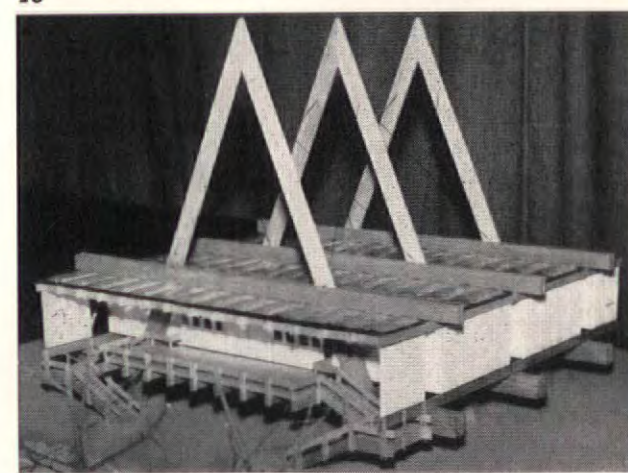
11. AUSTRIAN A-FRAMES. Most of Austria's pavilion (sponsored by the Austrian Chamber of Commerce) will be prefabricated and shipped to the U.S. The wooden A's are reminders of Austria's mountain peaks and the importance of timber to the economy. Architect: Gustav Peichl of Vienna; Pisani & Carlos of New York City, associates.



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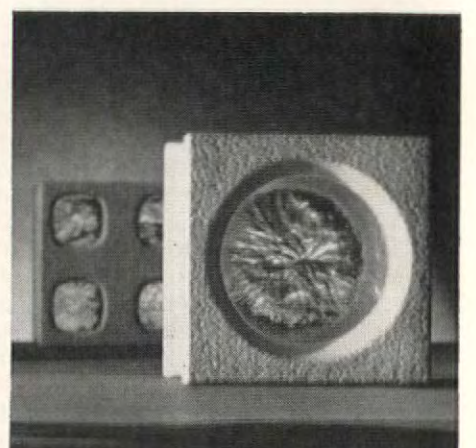
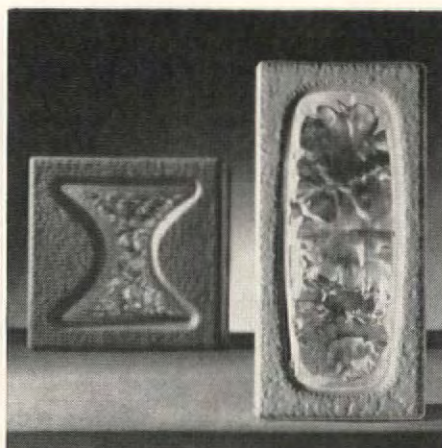
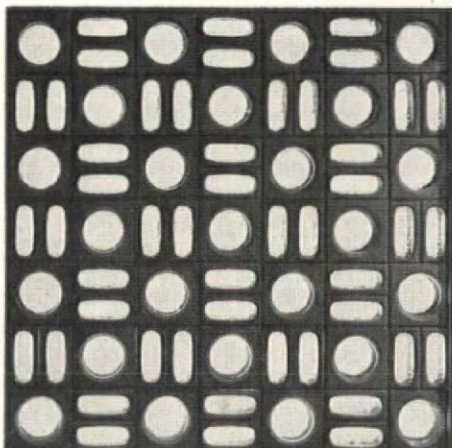
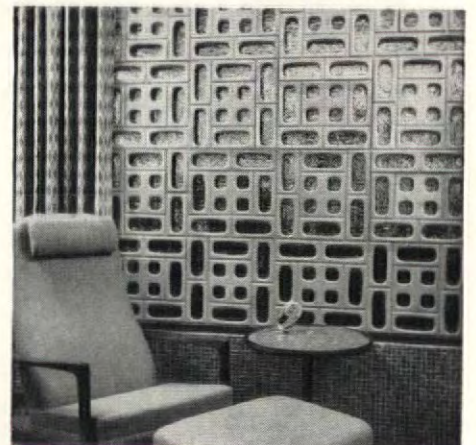
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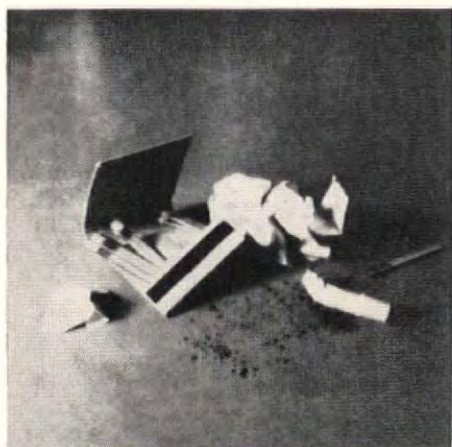


A screen wall that birds can't nest in...

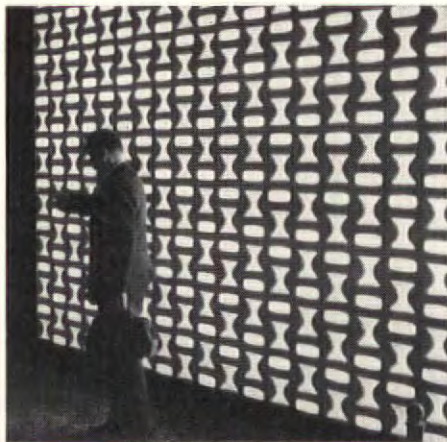


kids can't climb on...

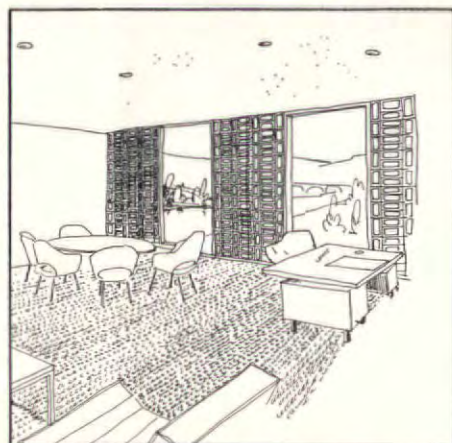




refuse can't collect in...



Now glass and grill are one...INTAGLIO glass wall units



A screen wall with no voids. A glass wall with pattern and texture. An insulating wall that combines the classic values of glass with the appeal and function of the grill. All this in one material. Intaglio glass wall units.

Four designs: in three units 8" x 8" x 4", and one 4" x 8" x 4". Both faces of each unit have a fired on ceramic finish in the color and texture of concrete, patterned to let

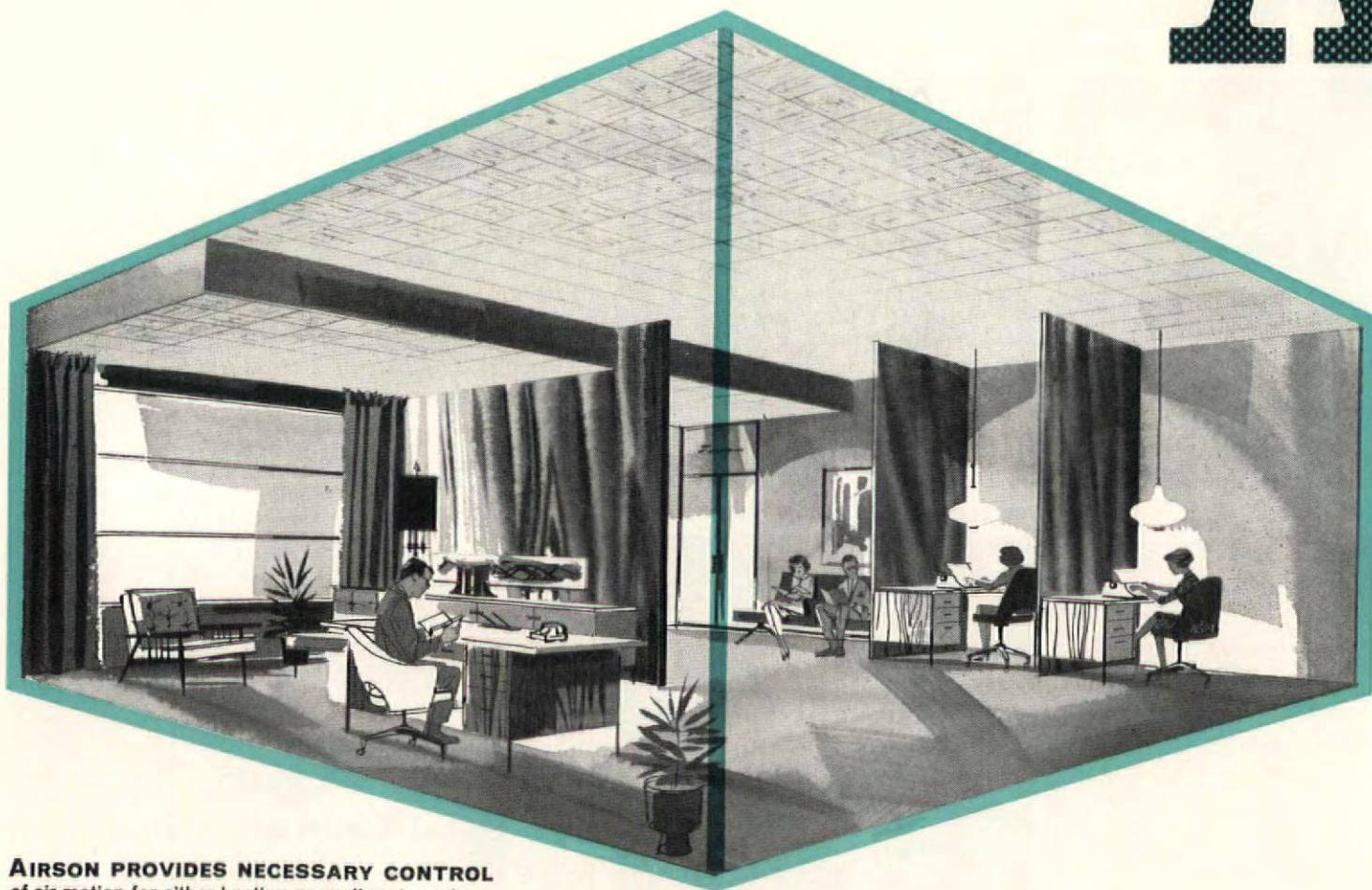
light pass through artfully shaped areas of antiqued glass. All in one all-glass building product.

Kids can't climb it—or deface it. Birds can't nest in it—or fly through it. Refuse can't collect in it—or behind it. Now glass and grill are one. Write for the new Intaglio brochure: *Pittsburgh Corning Corporation, Department AF-83, One Gateway Center, Pittsburgh 22, Pennsylvania.*

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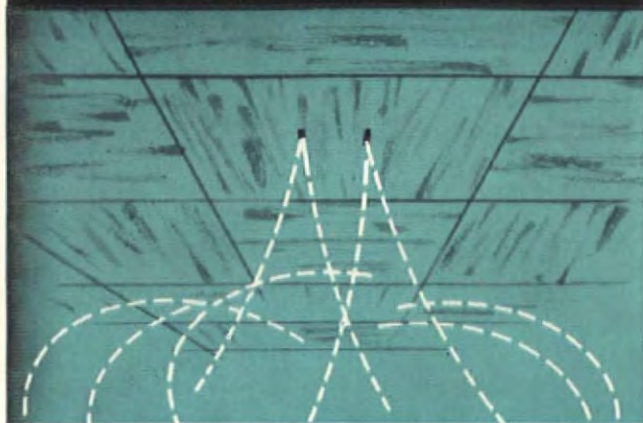
every room
a comfort cube...

A



AIRSON PROVIDES NECESSARY CONTROL
of air motion for either heating or cooling, to make
a room of any size a solid "comfort cube."

AIRSON A-2 Tiles are used for high ceiling installations where greater air velocity is needed for penetration down to breathing level.



AIRSON A-5 Tiles are used for low or average-height ceilings where less velocity is needed for gentle, uniform air motion.



AIRSON*

AIR DISTRIBUTION SYSTEM

offers a system for any situation

Any room in which air motion† is effectively controlled from wall to wall and ceiling to floor is a "comfort cube." The ceiling system that *most* effectively makes *any* room a "comfort cube" is the AIRSON Air Distribution System.

AIRSON is a suspended ceiling of ACOUSTONE* Mineral Acoustical Tile with scientifically designed openings in each tile. Heated or cooled air moves through these openings from the plenum into every square inch of the room below.

Deep-down penetration

AIRSON provides proper, uniform penetration right down to breathing level by providing different systems for different room situations. Rooms with high ceilings need tiles with two openings

for high air velocity. Rooms with lower ceilings call for tiles with five openings for lower velocity. Other AIRSON systems use ventilating strips and runners, or air distribution panels.

"Custom" balancing

Adjustable "dampers" on the back of each AIRSON Tile make the balancing of air distribution easy both during and *after* installation. Thus AIRSON meets not only individual needs but also *changing* requirements.

AIRSON eliminates drafts and hot spots; makes every room a cube of solid comfort.

For all the facts, see your U.S.G. Architect Service Representative; or write Dept. AF-32, 101 South Wacker Drive, Chicago 6, Illinois.

†Room comfort requires control of three elements: temperature, humidity, and air motion.—ASHRAE GUIDE

*T.M. Reg. U.S. Pat. Off.

UNITED STATES GYPSUM
THE GREATEST NAME IN BUILDING



Nebraska State Education Association Building. Architects & Engineers: Davis & Wilson. General Contractor: George Cook Construction Company. Concrete Panel Manufacturer: Nebraska Prestressed Concrete Company. All of Lincoln, Nebraska.

DAVIS & WILSON selected precast white concrete curtain-wall construction for this association headquarters building at Lincoln, capital city of Nebraska. The panels are made with ATLAS WHITE portland cement and exposed marble aggregate with wire-mesh reinforcement. They are bolted to the structural-steel framework. ■ Of particular interest are the dramatic vertical fins. Though cast separately, these effective sun louvers were attached to the wall panels at the plant. Entire sections, containing 3 window openings and 3 louvers, were transported and erected in one piece. ■ Today, more architects are choosing precast white concrete for the design freedom it offers, plus outstanding construction economy. Any idea of size, shape, texture and pattern is attainable. For specific information about panels, facings and cast-stone units, see your local precast concrete manufacturer. For a brochure on white concrete in architecture, write Universal Atlas, 100 Park Avenue, New York 17, N. Y.



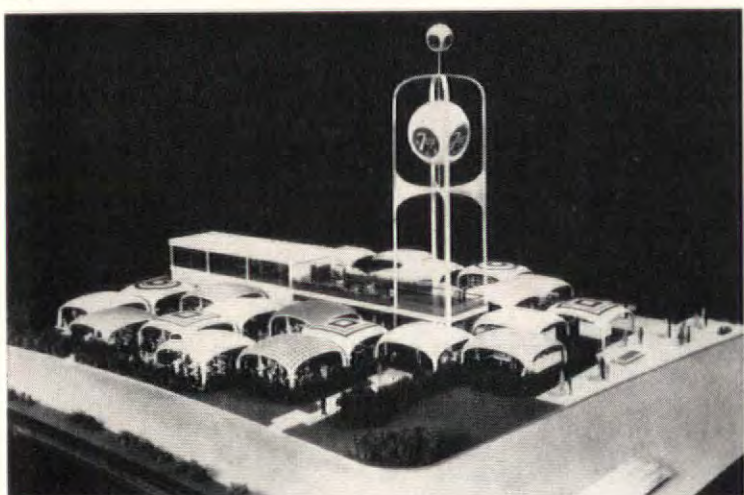
**Universal Atlas Cement
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"USS" and "Atlas" are registered trademarks WF-63

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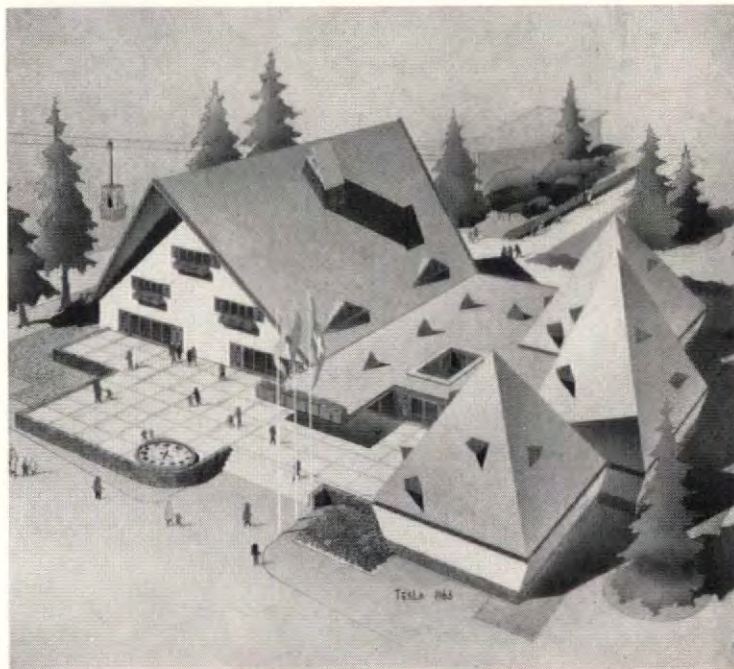
12. PROTESTANT COLUMNS. Protestant pioneers will be commemorated by 34 freestanding columns at the entrance to the Protestant Center at the Fair. Fanning out behind the oval court will be a large exhibit hall, where several groups will sponsor displays on the pavilion's theme, "Jesus Christ, the Light of the World." Stationed between the hall and a 372-seat theater, spiritual counselors will offer advice in a series of private rooms. Architects: Henry W. Stone; Emil Kempa and Robert E. Schwartz, associates.

13. 7-UP SHELLS. The great American sandwich will be king at the 7-Up pavilion, where 100 different kinds will be served inside gaily-colored plastic tents. Down the center will be a promenade deck surmounted by a large clock and an even larger 7-Up symbol. Designers: Becker & Becker & Associates, Inc.

14. GUINEA HUTS. The emphasis will be on handcrafts in Guinea's pavilion: in two reproductions of native huts (left), native weavers and other craftsmen will display their skill, but the hut roofs will be



15



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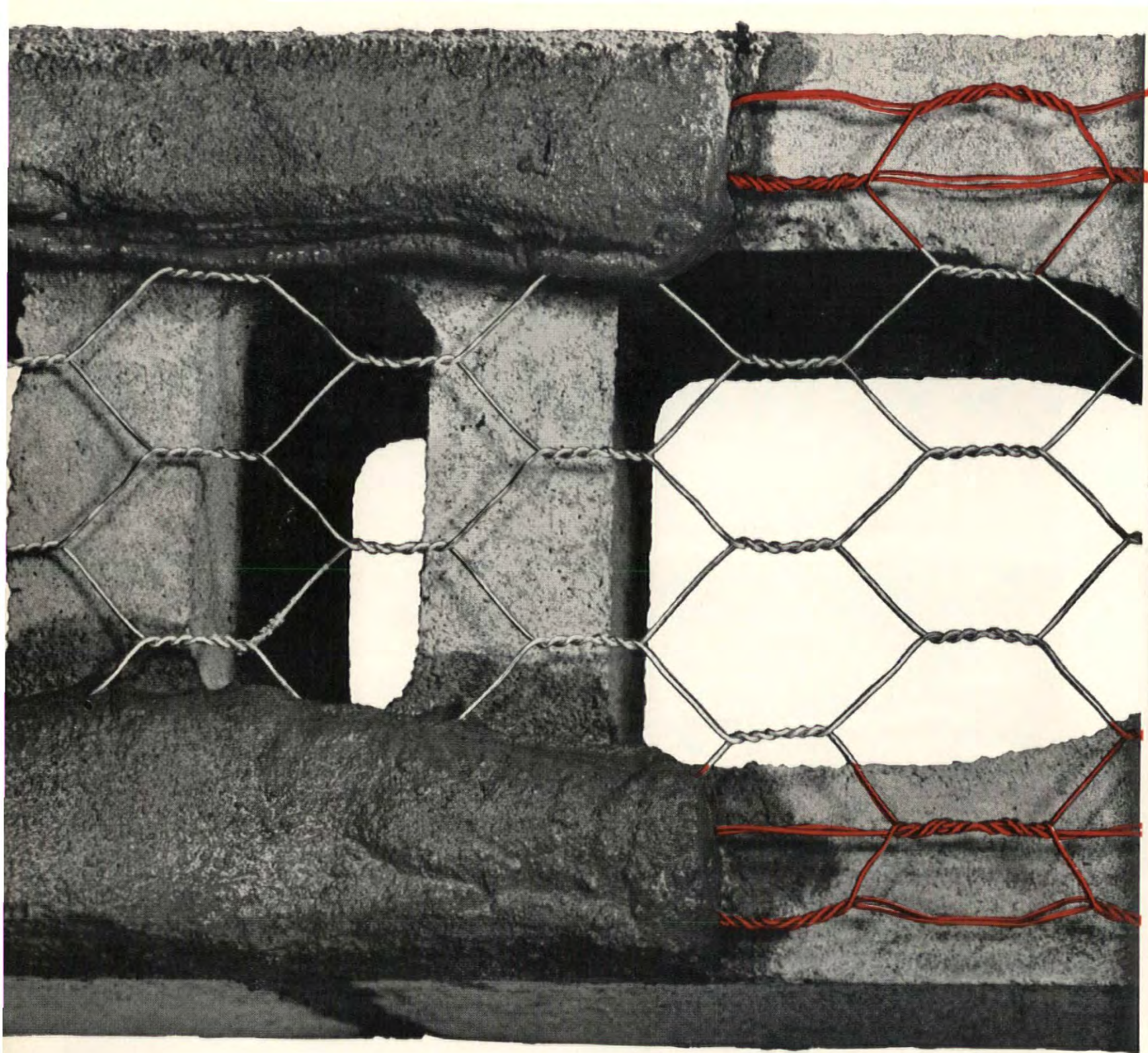
of plastic thatch instead of the real thing. The main building—where crafts will be sold, industrial progress shown, and the Ballets Africaines performed—will be of steel tubing in a hexagonal pattern, held in place by a tension ring. Architects: Noel & Miller.

15. COKE'S COURT. Built in an ellipse around a 120-foot carillon tower, the Coca-Cola exhibit will turn inward, showing solid, decorative walls to the outside. These outside walls are to be a series of white plastic arches and gold-colored screens hung on a steel

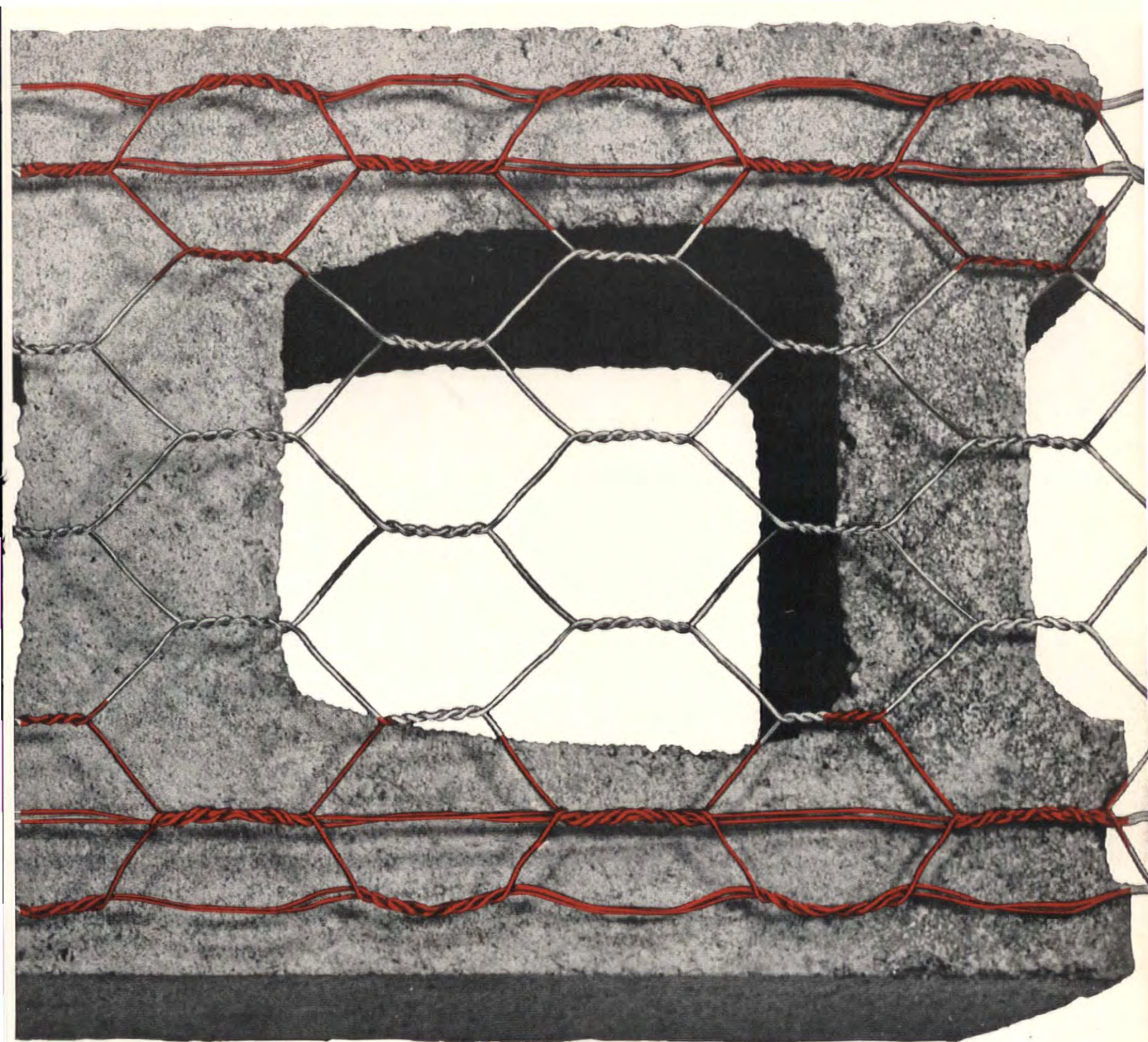
frame. The display areas will show three-dimensional scenes from Coke-drinking countries. Architect: Welton Becket & Associates.

16. SWISS CHALET. Swiss Exhibits, Inc. will represent its nation's industry with a three-part display. In the chalet proper there will be a restaurant in a comfortable, old-fashioned setting; in the middle section a series of shops selling Swiss chocolate and other goodies; and in the pyramids, the Swiss watchmakers' display. Architect: John L. O'Brien of New York City.

END

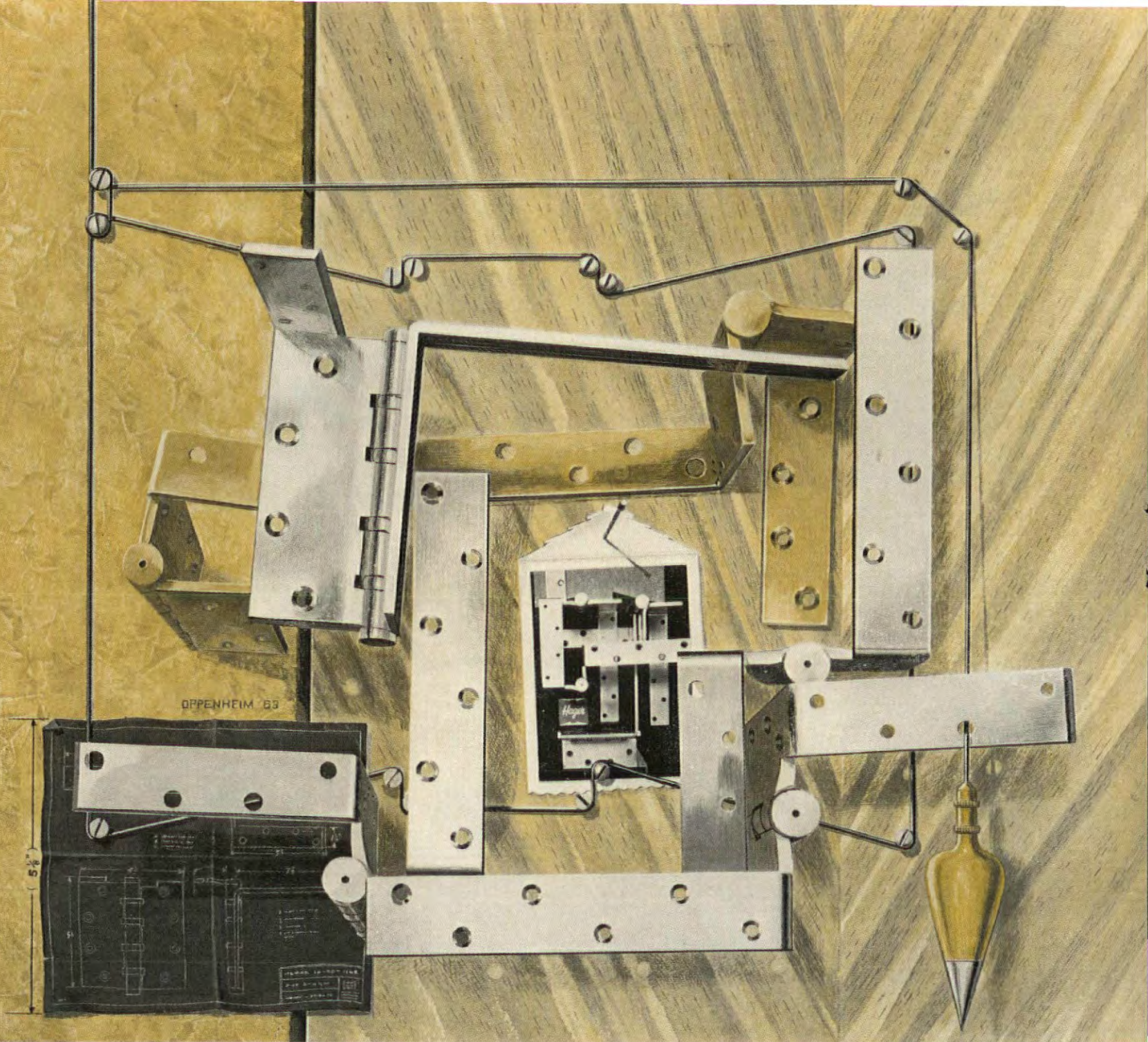


KEYSTONE STEEL & WIRE COMPANY Peoria, Illinois



22 square inches of bonding surface per block foot. One measure of the effectiveness of reinforcement is the amount of metal in surface contact with the mortar. Keywall compares very favorably with the other commonly used reinforcements. For example, a pair of 9 gauge trussed wires give you 11.2 square inches of bonding area per block foot. A pair of $\frac{3}{16}$ " trussed rods, 14.2 square inches. Keywall gives you 22 square inches. That's approximately 96% more bonding surface than the 9 gauge, about 55% more than the $\frac{3}{16}$ ". More bonding surface . . . one more reason why the important jobs are going Keywall.

MORE BONDING SURFACE TO THE BLOCK WITH KEYWALL



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from the Hager collection

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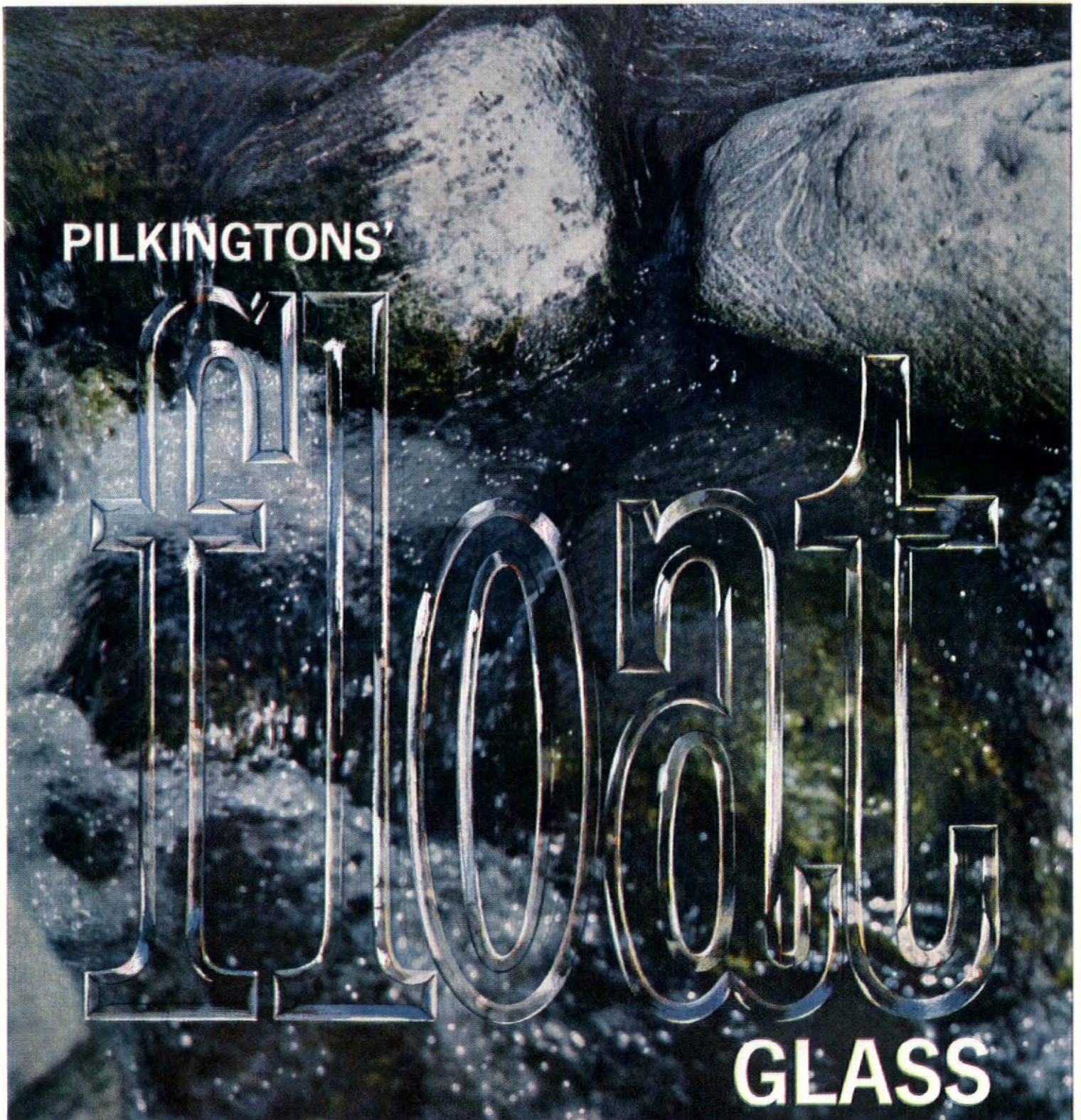
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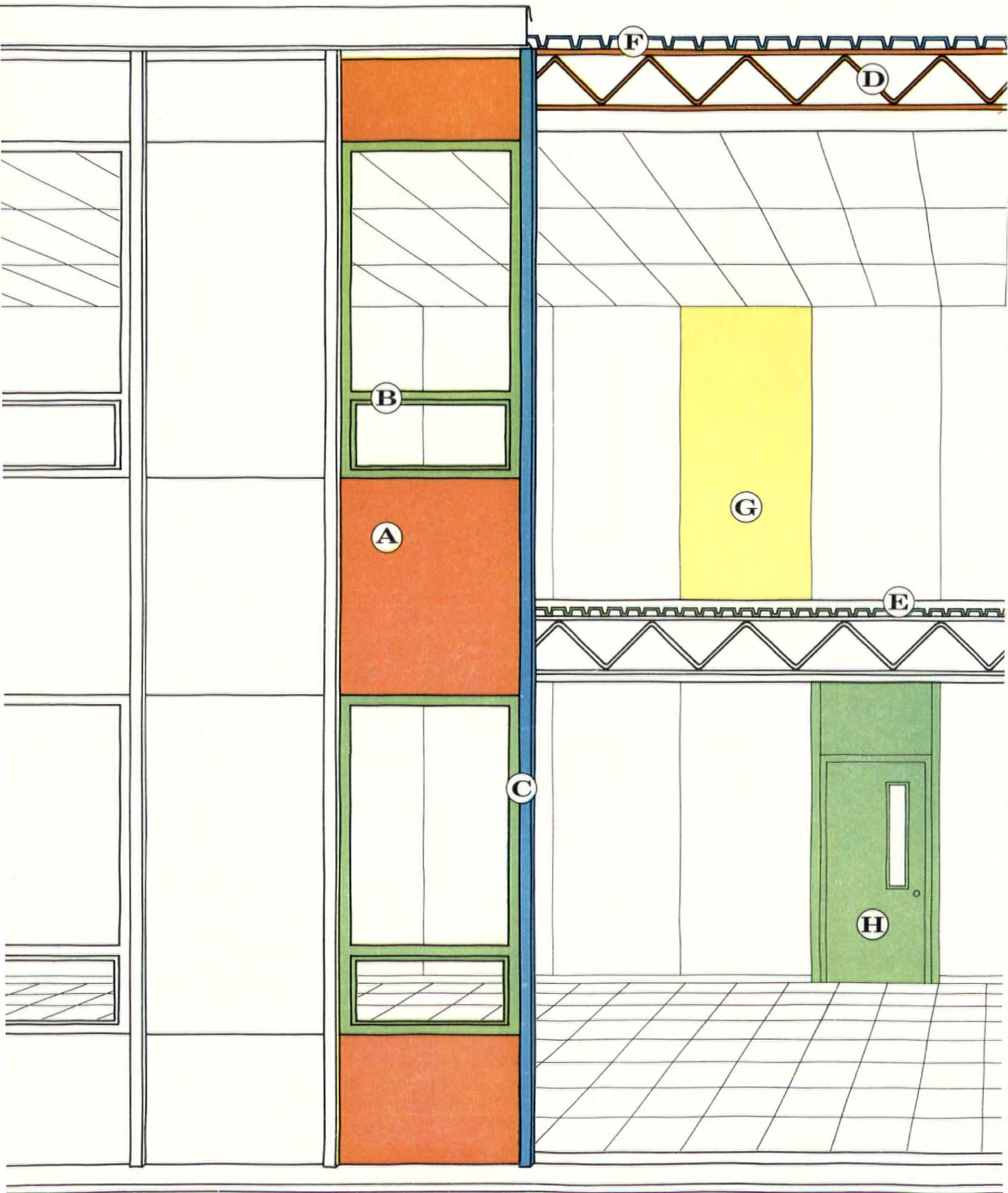
Float is a Pilkington achievement. This revolutionary advance in glassmaking is a product of Pilkington research and development. For the first time all the best qualities of plate glass and sheet glass have been combined in a single product.



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AmBridge Coordinated Building Components: beauty and the best

AmBridge Coordinated Building Components are precision-fabricated. The system is simple and fast to assemble—because every component fits perfectly. Biggest use so far for the AmBridge family of components is schools (where costs are often 13-18% less than average), but AmBridge Components have also been used successfully for power plant, bank, warehouse, laboratory, and office buildings. Architects find that AmBridge Components readily lend themselves to the most modern modular design practices.

USS AmBridge Curtainwall

(A) USS AmBridge Curtainwall systems are available with exterior faces in the 47 recommended PEI colors. Interior surfaces are fully finished with vinyl (at no extra cost to you) or baked enamel to match or harmonize with the partitions. The steel panels are normally designed to a 4-ft. module and run continuously outside the columns. Standard panels are available in 1-, 2-, and 3-story heights. Panel frame members are cold formed galvanized steel. Face sheets are mechanically attached to the structural frame. Heat transfer is controlled with thermal breaks which prevent a thru-metal condition. Because the glass fiber insulation is held away from the exterior face by stainless steel clips, the panel is free to breathe, thereby minimizing condensation. AmBridge walls are so thin compared to masonry construction that you gain about 5% usable floor space. Yet the walls provide a tested thermal "U" factor of .168 that assures comfortable temperatures at reasonable cost.

(B) Sash are high-quality 2" monumental projected or fixed-type, of stainless steel or aluminum. Vertical or horizontal sliding sash are optional.

(C) USS AmBridge Exterior Battens are extruded metal sections with provisions for mechanical attachment without drilling from interior. Battens are fitted with shop-applied neoprene gaskets that permit expansion or contraction while keeping joints weathertight. Custom-designed covers permit aesthetic variation in stainless steel, porcelain enamel finish, or special extruded shapes.

USS AmBridge Open Web Steel Joists

(D) USS AmBridge Open Web Steel Joists support floors and roof. Joist and framing details have been designed to adapt to any specific load requirements. Like all AmBridge Coordinated Structural Components, joists meet specifications of the SJI, AWS, AISC, and AISI latest adoptions.

(E) Leave-in-place light-gage steel floor forms provide support during cure for the poured concrete floor.

(F) Steel roof deck specifically engineered to the structural requirements permits all-weather installation, receives insulation for built-up roofing and supports roof loads.

USS AmBridge Partitions

(G) USS AmBridge Partitions, like our curtainwall interiors, are available in six pastel vinyl finishes that cost no more than our 28 baked enamel colors. Both finishes are applied under factory-controlled conditions. Mild detergents easily keep surfaces clean and new-looking. The panels incorporate a cold-rolled steel channel frame with face sheets attached to each side. Partitions are insulated with glass fiber, and although only 2¼" thick, they provide excellent acoustical values. Test results show an attenuation of 45 decibels or more from room to room. Partitions are easily movable (just unbolt) to permit alteration of room size with minimum disturbance and cost. Interior battens are flush with the partition and are removable for simplified wiring.

(H) USS AmBridge Steel doors with a corrosion-resistant polyurethane foam core are supplied as an integral part of exterior and interior panels. All doors are complete with pressed steel frames and hardware, baked enamel finish, and can be furnished with lights and/or louvers. Neoprene weatherstripping is furnished on all exterior doors to assure a storm-tight seal. Hardware of the finest quality approved by the architect—such as lock sets, closers, panic bars and kick plates in various finishes—can be installed under supervision of experienced AmBridge personnel.

(I) Square or rectangular tubular columns are offered for maximum economy of section.

If you want, American Bridge will provide experienced erection crews. We'd like to give you more information. For our free full-color booklet, write to American Bridge Division, United States Steel, Room 1831F, 525 William Penn Place, Pittsburgh 30, Pa. USS and AmBridge are registered trademarks.

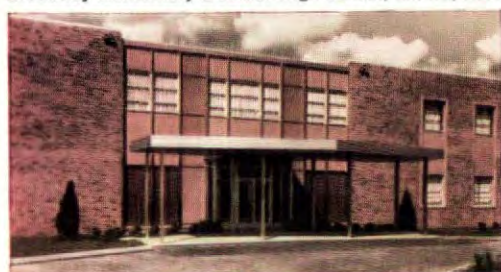


**American Bridge
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Beauty, too. Best of all, USS AmBridge Coordinated Building Components blend handsomely with traditional materials, letting you stamp your own signature on every AmBridge Building you design. Three good examples:



Broadway Elementary & Junior High School, Elmira, N.Y. Architect: Considine & Haskell, AIA, Elmira.



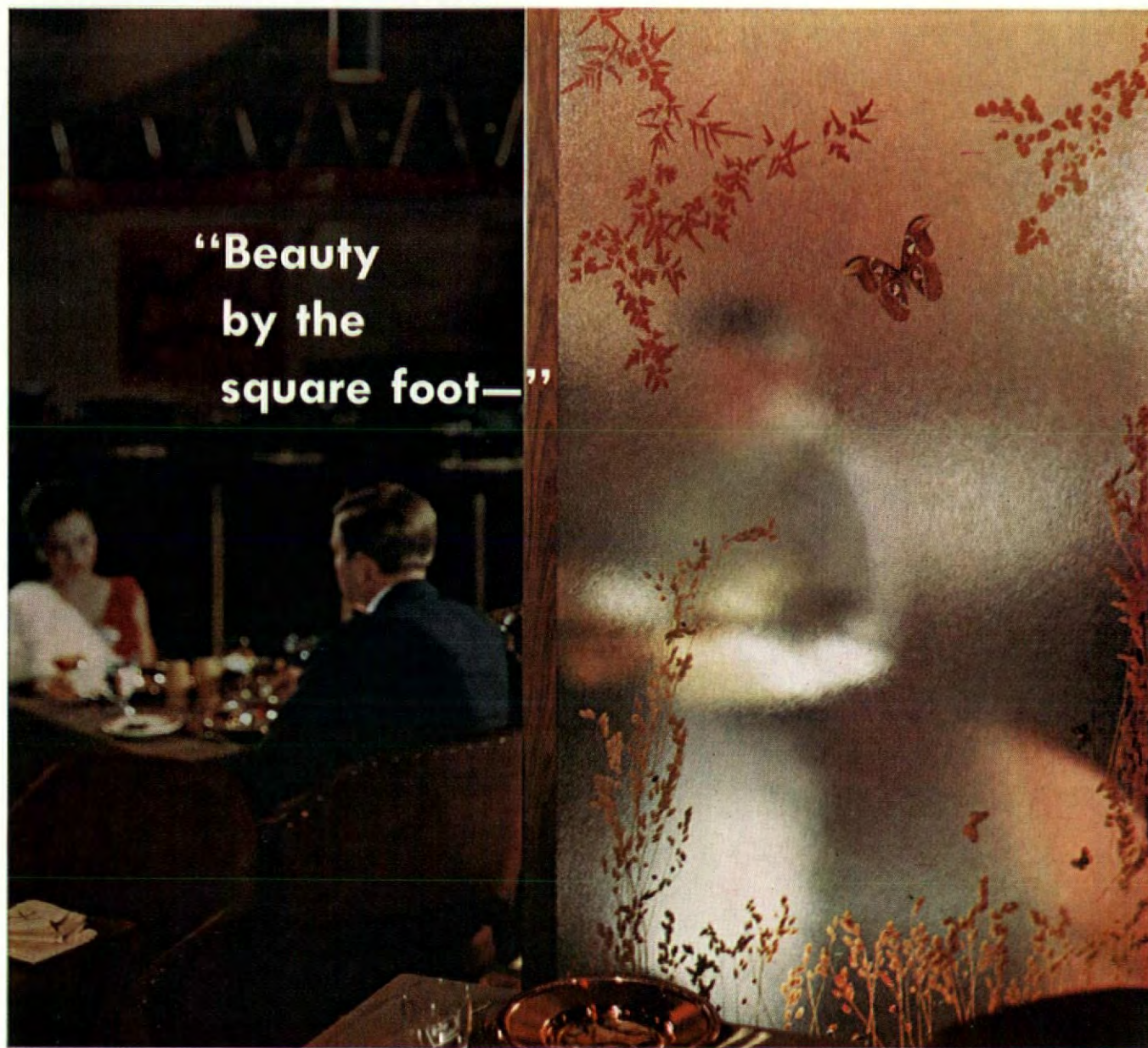
Mobay Chemical Company Office Building, Pittsburgh, Pa. Architect: J. Kenneth Myers, AIA, Pittsburgh.



Union Carbide Company Laboratory and Testing Building, Eastview, N.Y. Architect: Skidmore, Owings and Merrill, AIA, New York.

I

It's EASTMAN **UVEX** for PLASTIC SHEET*



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Outdoors, this versatile material can be used for store fronts and signs . . . UVEX Plastic Sheet from EASTMAN.

***UVEX Plastic Sheet from EASTMAN:** Lustrous. Glossy, with great surface brilliance. Excellent ultra-violet resistance, low moisture absorption. Tough, resilient. Good dimensional stability. Available in red, coral, turquoise, blue, green, yellow, black, and white—also clear. Thicknesses through .125".

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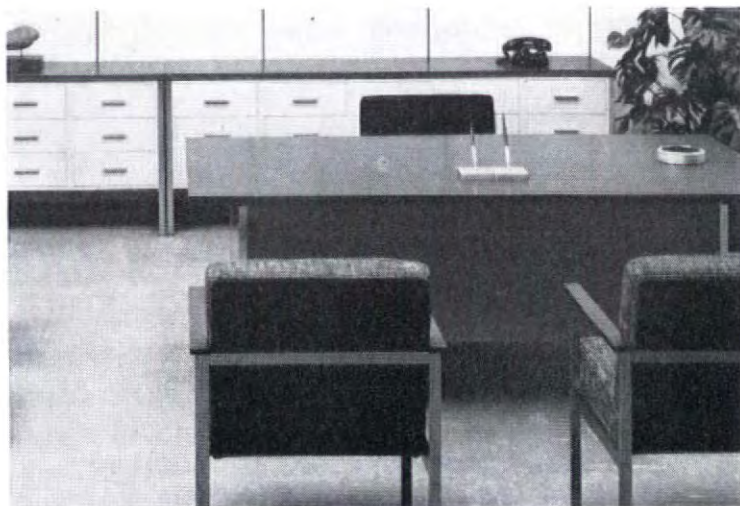
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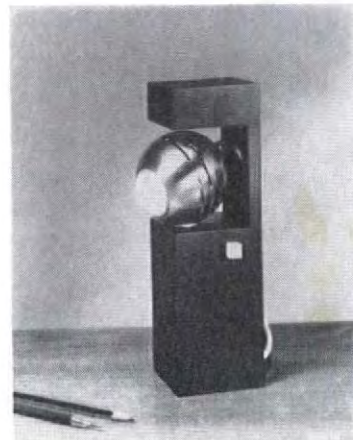
Office coordinates, "eyeball" lamp, tufted chair and bench



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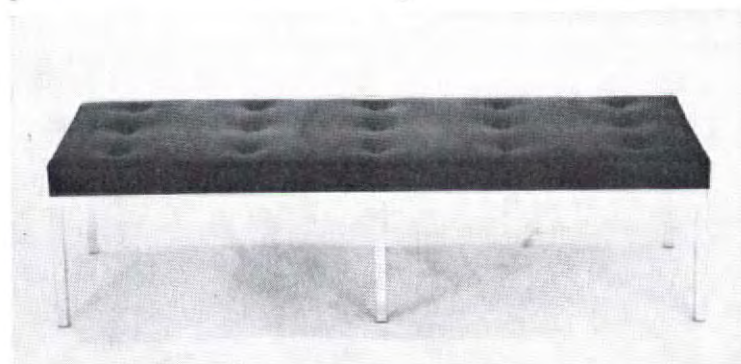
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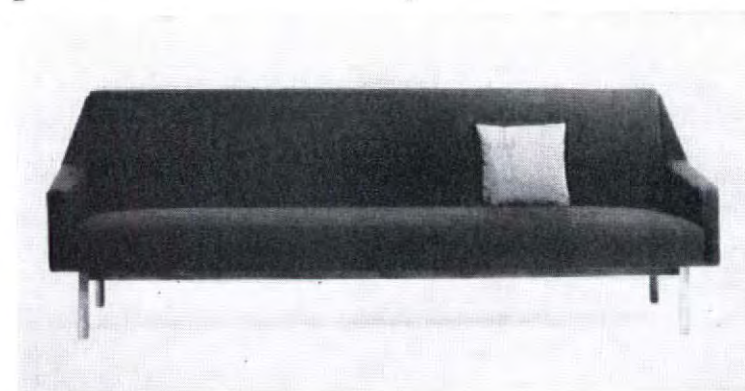
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8

1. & 2. ART METAL OFFICES.

The challenge of good design at moderate prices produced these coordinated pieces designed by the Knoll Planning Unit for Art Metal, Inc. The sample executive office (1) shows pieces from two lines: a "400" desk and cabinets, and "900" chairs. Both desk and cabinets are of steel finished in beige or gray, mounted on square brushed-chrome legs. The tops are plastic laminates in wood grains. Visitors' chairs have rectangular steel tubing frames, upholstered bodies (fabric or Naugahyde), and

wooden arms. The armless chair (2), shown separately, is like the one hidden by the desk. The swivel base is chrome-plated aluminum. Total cost: \$1,608.

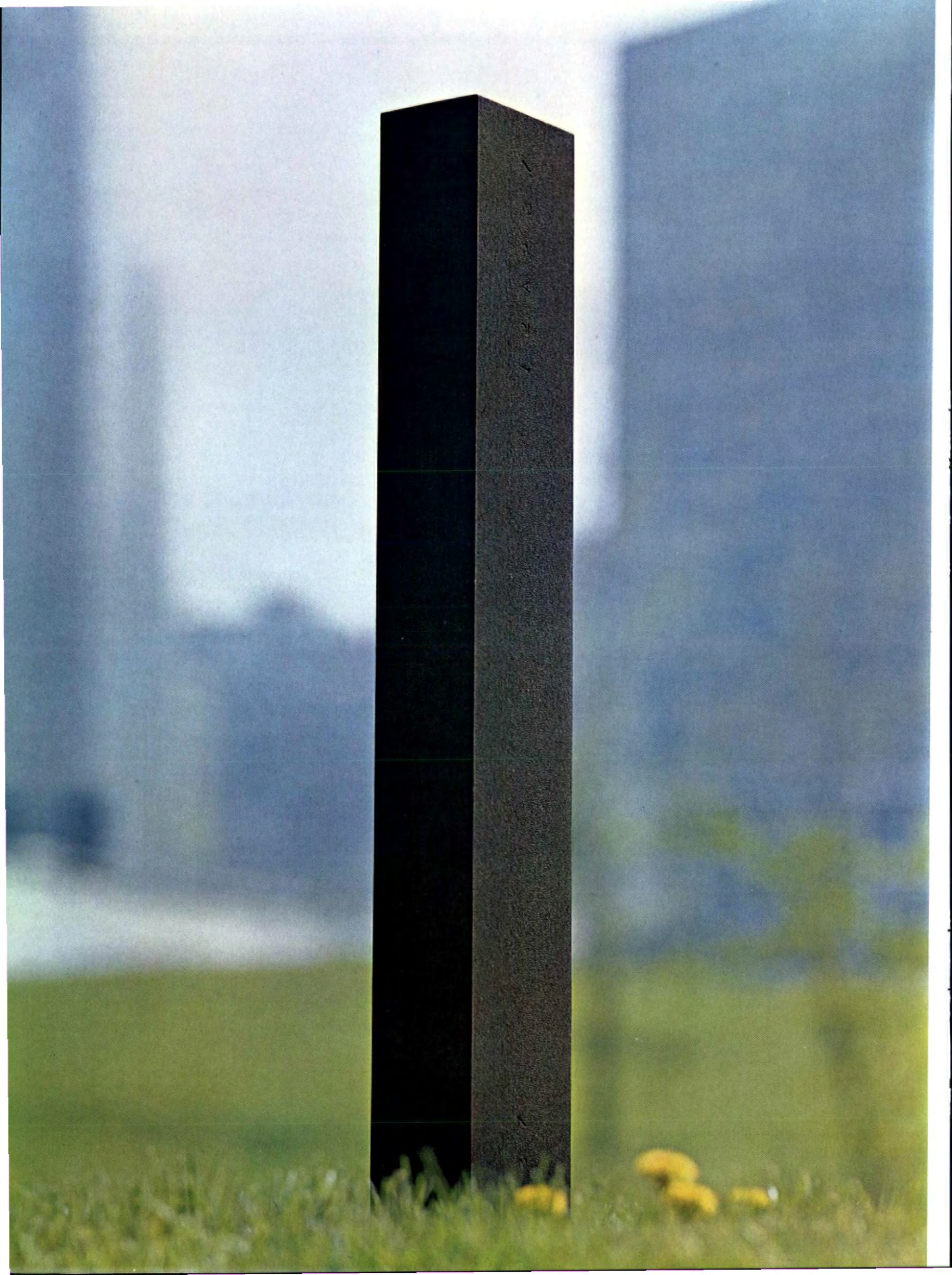
3. & 4. GERMAN DUO. Eugen Schmidt of Darmstadt manufactures these two upholstered pieces: a side chair on spidery steel legs (3) and a 7-foot contract sofa with sloping arms set at an angle to the body (4). Design International imports them at a cost of \$174 for the chair, which includes wool upholstery, and \$395 for the sofa covered in muslin.

5. TUFTED SWIVEL. A new companion to Jules Heumann's Contract C sofa for Metropolitan Furniture (*Furnishings*, Aug. '62) is a tufted executive swivel chair with low arms and a leather, vinyl, or fabric cover. Cost in muslin: \$432.

6. ITALIAN EYE. This Arredoluce lamp, imported by Stiffel, spotlights paintings, planters, or other objects by means of a nickel sphere surrounding a small light bulb. The case is black metal highlighted by a square red on-off button. Cost: \$87.50.

7. STEEL BENCH. This 5-foot bench from JG Furniture Co. has an attached tufted cushion on a square aluminum base. In muslin or colored vinyl, it costs \$250; in black vinyl, \$242, both with satin-finish legs.

8. STEEL DESK. Corry Jamestown's trim new office furniture, Doric II, is a collection of steel desks and matched filing and storage units. The desk above is a double pedestal model supported by chrome steel legs and topped by a plastic or wood veneer working surface. Cost: \$243. END



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When used bare on building exteriors, it weathers to a rich, earthy color of natural beauty, and if it is scratched, it heals itself. USS COR-TEN Steel is the name of this versatile material.

The oxide coating that forms on bare COR-TEN Steel is extremely dense and adherent, inhibits further corrosive attack and preserves the structural integrity of the member. Its brown-red-blue color gradually darkens with exposure to the elements and develops a fine-grained texture—a character only nature can give, as with stone or timber.

USS COR-TEN Steel is a high-strength low-alloy steel. It is up to 40% stronger than structural carbon steel, so it can be used in thinner sections to cut weight. It

is readily weldable. And, when a color scheme *requires* painting of steel members, the paint will last twice as long because the oxide film is nonflaking. COR-TEN Steel is available in all rolled steel products—plates, structurals (including wide-flange), bars, sheets, strip and tubular products. For more information, write for our new folder, "COR-TEN Steel for Architectural Applications." United States Steel, Room 6774, 525 William Penn Place, Pittsburgh 30, Pa. USS and COR-TEN are registered trademarks.

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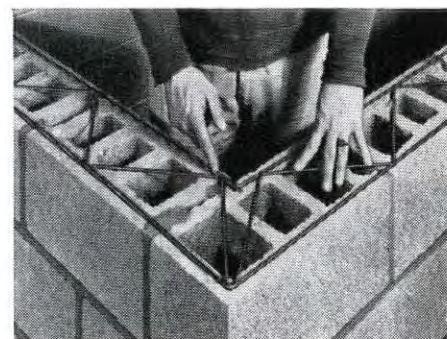
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Dur-o-wal®...



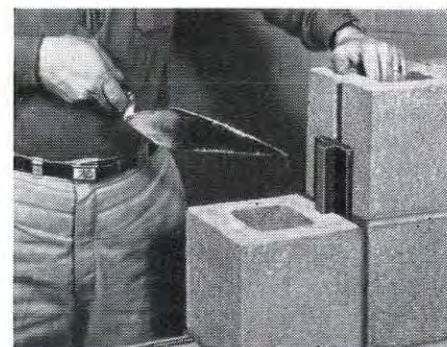
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it's Dur-o-wal®

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with the truss design*

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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.



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A report to the President: On June 17th the White House released a report by August Heckscher, the President's Special Consultant on the Arts, which contained a number of recommendations designed to establish a "new and fruitful relationship between government and the arts." The report is a fine summary of what has (and has not) been done, and what might be done in this area—to wit:

"The most striking and most enduring objects created by government are buildings. . . . There are vast opportunities for an imaginative approach to architecture. . . . An overall panel on architectural policy might help assure that the standards achieved in our best Federal buildings, such as those hitherto constructed abroad, could be made to prevail in what is built at home for all the various purposes which government serves. . . .

"[Government] is a builder on a grand scale. Should it not consistently promote—as Pericles said in his funeral oration to the Athenians—a 'beauty in our public buildings to cheer the heart and to delight the eye day by day'?

"Public buildings, if they are to be genuinely significant, must not only be well designed but must be part of a setting in which life can be lived with some sense of spaciousness, dignity and esthetic delight. . . .

"The scale upon which modern government acts makes it vital that this responsibility to the total environment be acknowledged. . . . The urgency of slum clearance often means that a wrecking crew destroys in the process a humanly scaled and intricately woven community life. . . . Government policies and programs directed toward legitimate and accepted ends have had the secondary results of destroying sites and buildings which ought to be preserved. . . . In all Federal policy governing construction, highways and community development the interest of the nation in historic preservation [must] be given weight. . . .

"There are small incentives at present for men of ability in the arts to think of the Federal Government as a place where they can do good work . . . there is slight disposition among government agencies to make use of outside talent. Younger artists, designers, architects, etc., are rarely brought into the service of the Government. . . . Competitions which might appeal to such talent are the exception. . . .

"Today the whole environment, the landscape and the cityscape, should be looked on as potentially a work of art—perhaps man's largest and most noble work. The power to destroy . . . is also, if it is wisely used, an unprecedented power to create. To create humanely in the service of man's highest needs is a supreme task of modern statesmanship."

In accepting the report, President Kennedy committed himself to the practice of such statesmanship, announced the establishment of a *permanent* office of Special Consultant for the Arts in the White House, and the establishment, also, of a President's Advisory Council on the Arts, whose members will be named shortly. If Mr. Heckscher's words are followed by Presidential action, then we may yet see a return to the conviction held by Washington, Jefferson, and others of their time that public buildings should set an example for public taste and that they should, as Mr. Kennedy has put it, "provide visual testimony to the dignity, enterprise, vigor, and stability of the American Government." As Mr. Heckscher leaves Washington to return to the Twentieth Century Fund, he deserves the thanks of all who care about the future of the American landscape.





NEW SCHOOLS FOR THE SUBURBS

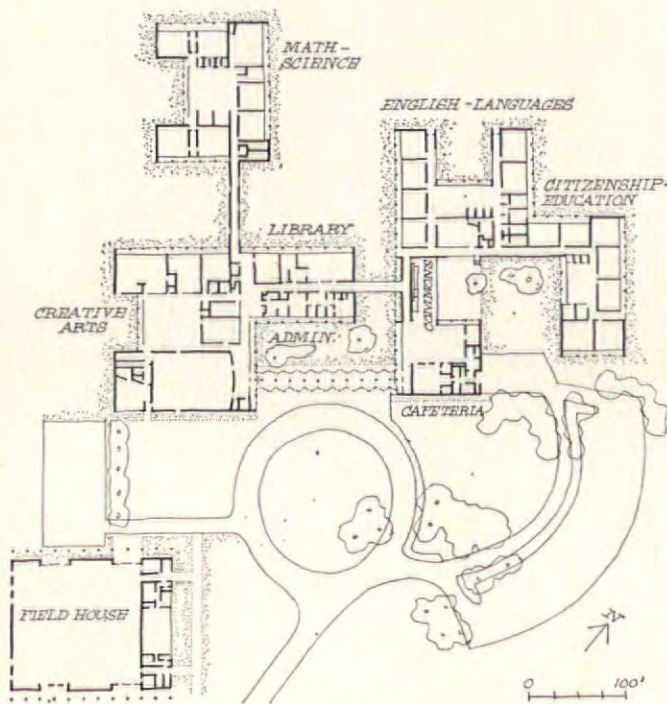
Here are three well-known facts concerning the U.S.: since World War II the populations of our great metropolitan cities have been struggling to stay even; their suburbs have grown fantastically; and many millions of children have been born in the U. S. What with the additional fact that the rural areas, beyond the suburbs, have also decreased in population during this period, it should not be necessary to look beyond the suburbs to find the children.

This is hardly because these children's fathers enjoy traveling daily from the suburbs to the central office or manufacturing districts where they work. Nor is it because many of our suburbs can offer the charm of really countrified living within commuting range.

One of the chief reasons for America's exodus to the suburbs is the lure of better schools: sprawling, spacious, comfortably sited *suburban* schools. By contrast with their grim city counterparts, the suburban schools are a relief at worst, irresistible at best.

To begin with, the suburban school does not have to cover its site with asphalt; there can be trees, sometimes even views; moreover, the pattern of up-to-date teaching is beginning to encourage breaking schools into large plan-fragments—which logically can conform with irregularity of the land.

Not all the schools shown on the next dozen pages actually sit in suburbs outside teeming metropolitan areas, but they are the type almost every community wants to build today. The question of whether it is practical for metropolitan areas to do this will be examined in the November issue of *FORUM*. But for now, here are the latest entries in the competition the suburbs are continuing to set up for the city school boards.



PAVILION PLAN FOR LONG ISLAND

Six separate buildings, connected only by enclosed corridors, make up this sprawling junior-senior high school. Low and irregularly composed, these units subdivide their site into very pleasant yards and courts, but there is also a teaching purpose behind each pavilion.

Cold Spring Harbor School is another in the growing list of "Trump Plan" designs (FORUM, Nov. '59), which place predominant emphasis on flexibility in the curriculum—and in the architectural design—in order to accommodate wide variations in class sizes. Cooperative teaching—i.e., the pooling of several classes and teachers together—is practiced here; lonely learning is also accommodated, in individual study carrels. There are no conventional home rooms, but, instead, lockers for individual belongings in the corridors.

The six steel-framed clear span pavilions are: creative arts (including auditorium), library and administration, mathematics-science, English-languages, citizenship-education, and the cafeteria-student commons. There is also a dirt-floored field house. At

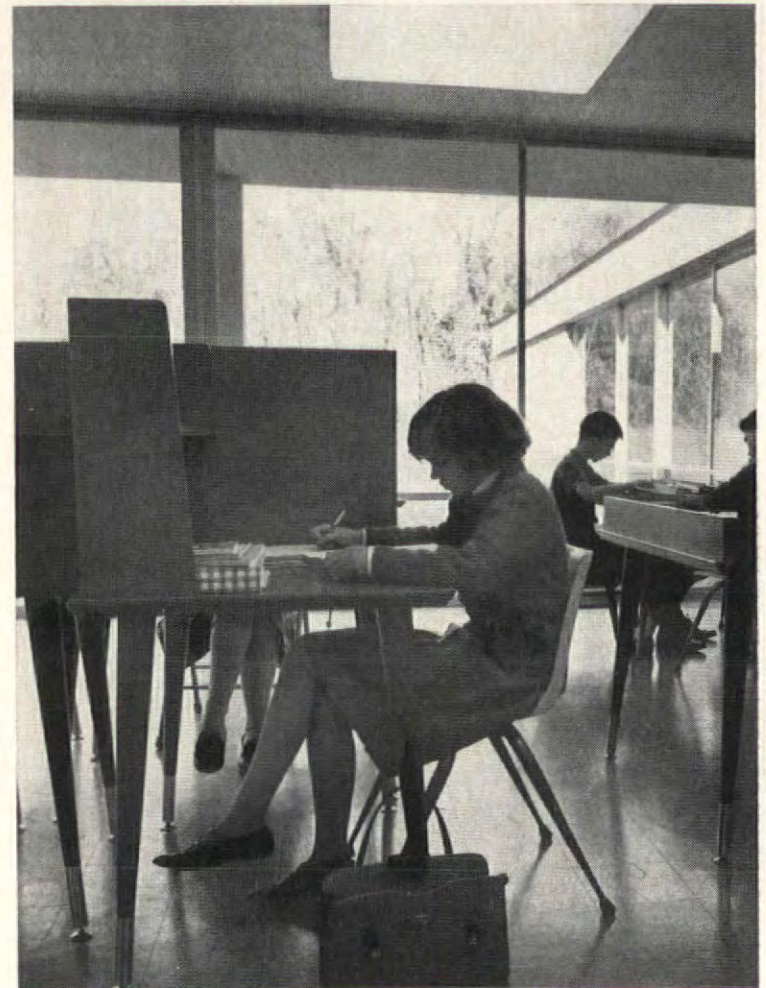
the core of each of the teaching pavilions are departmental library facilities, faculty offices, the study carrels, tables, and a space for collaborative student projects. The variation in size of instruction areas ranges from small-group rooms for 12 students to large-group instruction rooms with stepped tiers seating between 75 and 80.

FACTS AND FIGURES

Cold Spring Harbor Junior-senior High School, Cold Spring Harbor, N.Y.—600 students, expandable to 1,000. Architects: Sherwood, Mills & Smith, Willis N. Mills, partner in charge. Engineers: Werner-Jensen & Korst (structural); Bernard F. Greene (mechanical). Landscape architect: Jack Staunton. General contractor: Edward Corning Co. Building area: 108,424 square feet—approximately \$17.50 per square foot (land and site development cost was \$216,878; total cost was \$2,110,794). Structure is steel, with no bearing walls; partitions are framed on steel studs set in channel runners at floor and ceilings. Heating, lighting, and fenestration are planned on a module of 15 feet; school is heated with forced warm air supplied under the floor to outlet grilles at the bases of windows; hung ceiling encloses a return air plenum.



Large-group teaching, above; facilities for individual study, below.

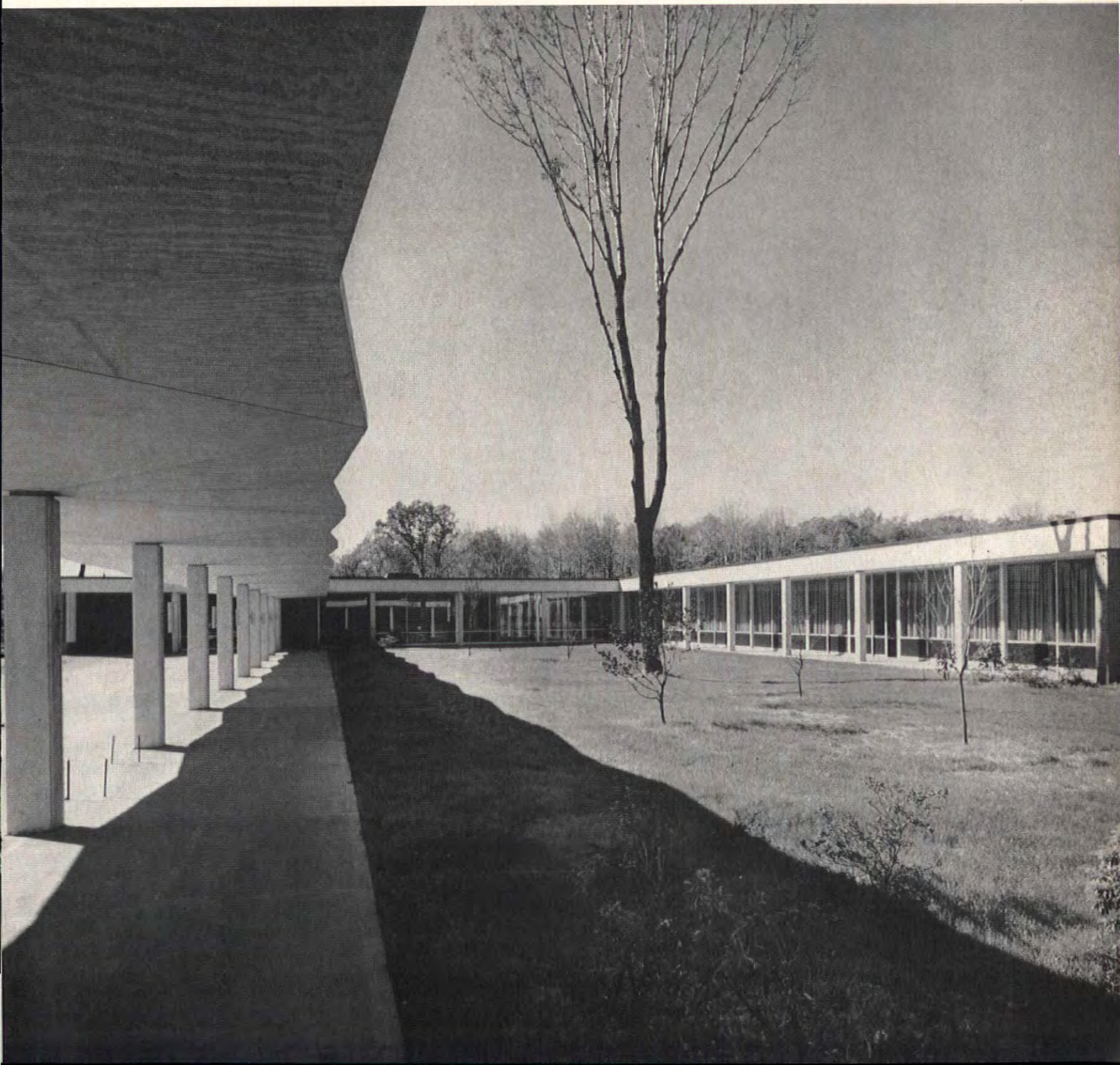


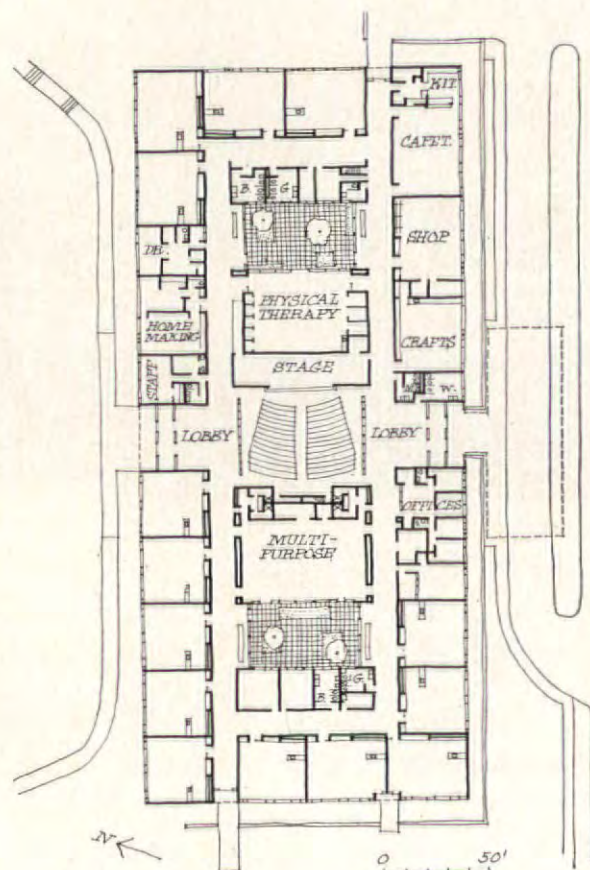
Long stone wall (below) containing a fireplace signals the social center.





Set on a wooded site, and made up of scattered wings, this high school is virtually the epitome of the suburban type. (See also photo, page 56)





COMPACT PLAN IN PENNSYLVANIA

Any school for the physically handicapped and mentally retarded poses very special problems in access, in circulation—even in room size. For one small example, corridors must be wide enough for wheel chairs to negotiate. The further fact that this "special education center" for the city of Reading, Pa., was to occupy a steeply sloping site, donated to the school district, added to these problems—but it also suggested, in logical steps, the eventual architectural characterization of the whole building.

It was essential to keep all facilities on one floor level, but just where on the hillside should that floor level be set? Say the architects: "Rather than select an arbitrary floor level and bank earth around the building in a great mound which would call for extensive brought-in fill, we decided to let the building rise naturally above the grade, and connect it to grade with ramps where necessary."

All the children, aged 7 to 17, arrive in buses, whose only access to the site is on the high side; this necessitated a retaining wall 16 feet from the face of the main

building, creating a kind of moat, which then was bridged. Then, because the lower floor of the school itself was little more than crawl space, the screen wall around it was pulled in and steel structural columns were extended to grade as freestanding elements.

To dramatize the carefully detailed steel, the designers looked for a walling material which would contrast with it both in color and texture, and found it in the exposed aggregate panels which form the spandrels.

FACTS AND FIGURES

Special Education Center for the School District of Reading, Pa.

Architects: Muhlenberg Brothers (Charles H. Muhlenberg, Jr., partner in charge; J. Scott Cressman, job captain). Mechanical and electrical engineers: Moody & Hutchison. General contractor: William F. Sutter.

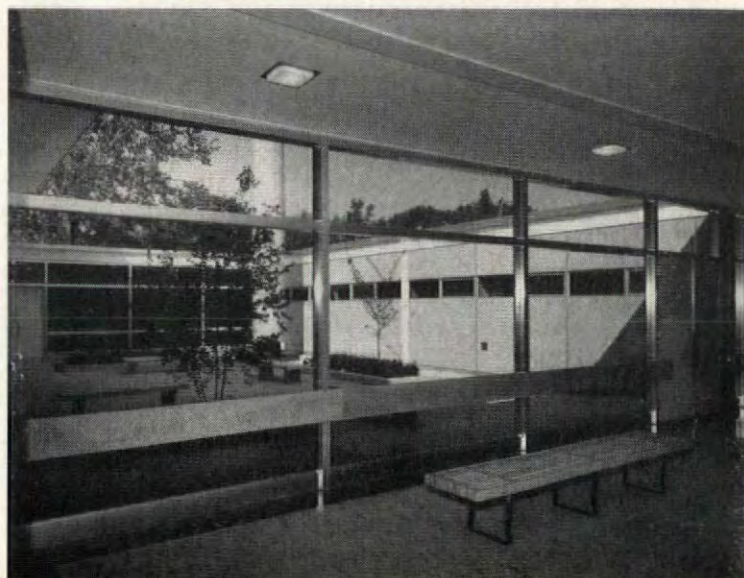
Building area: 63,300 square feet—approximately \$18.13 per square foot. Costs: land development, \$31,053; construction, \$1,147,824; furnishings and equipment, \$32,381; fees, \$86,124. Fourteen classrooms (for 10, 16, or 18 pupils each), plus special rooms and office; welded steel construction with concrete slab floors on steel joists. Heat: oil-fired hot water system.

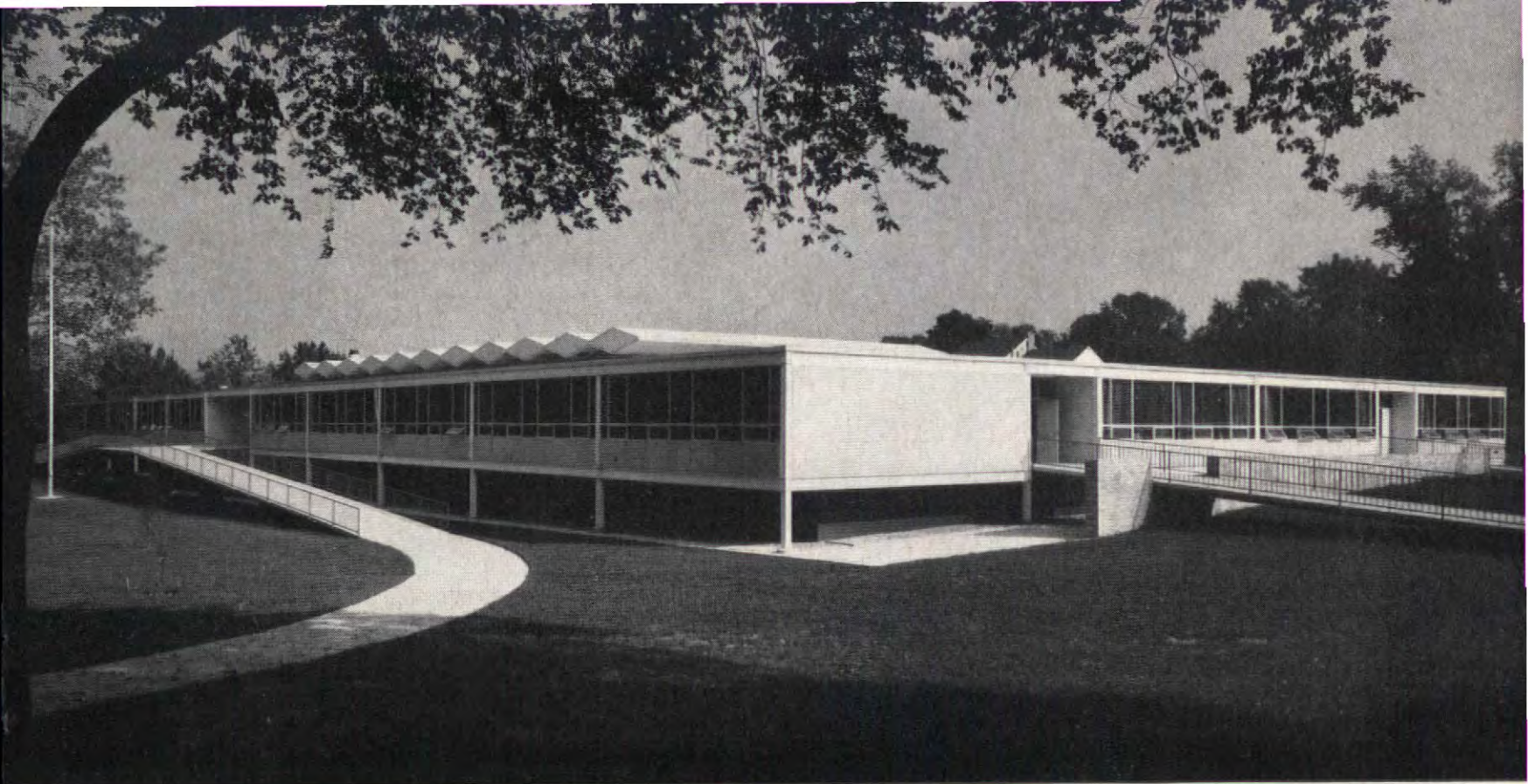


Interior courtyard cut into the plan provides a contained play space.

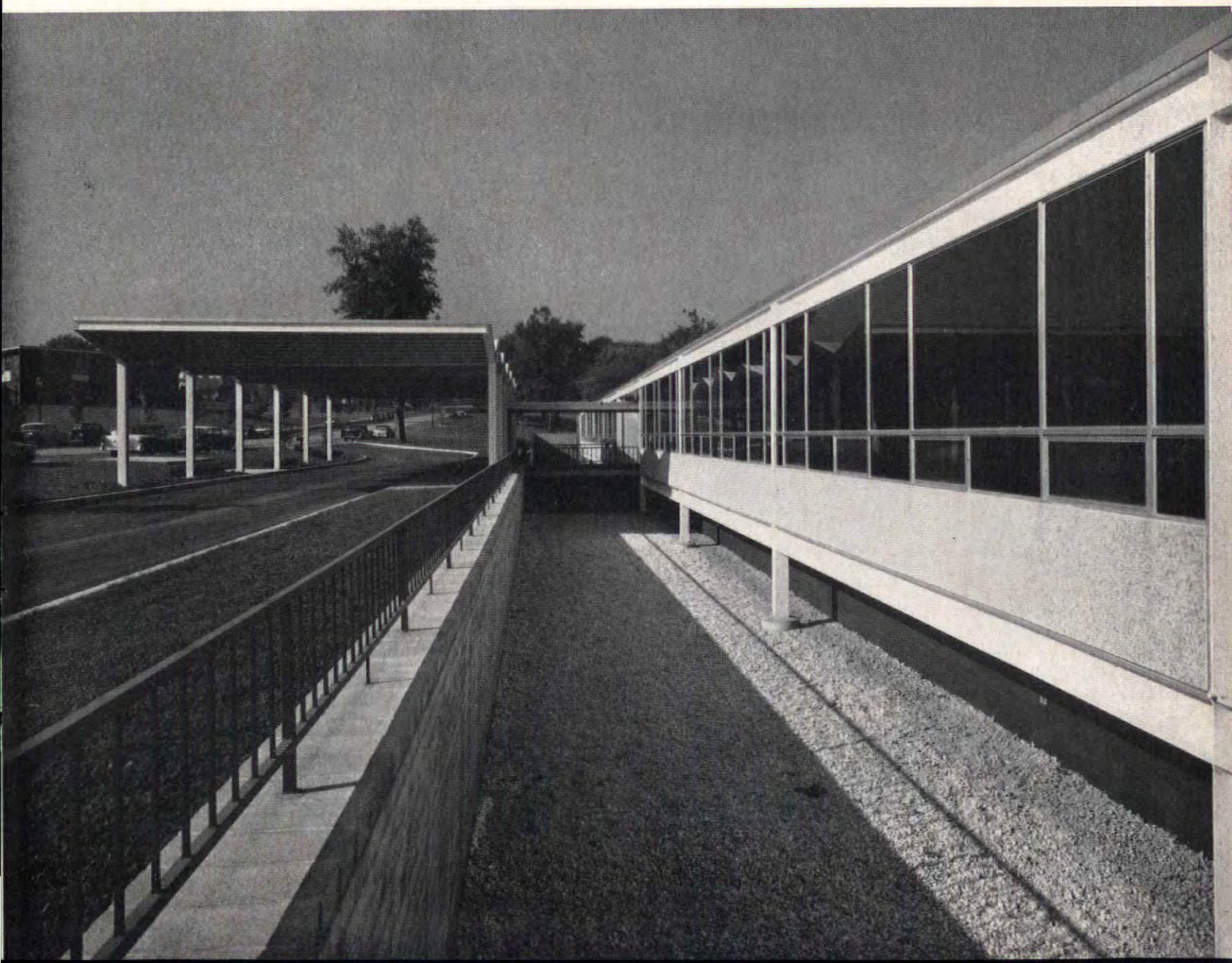


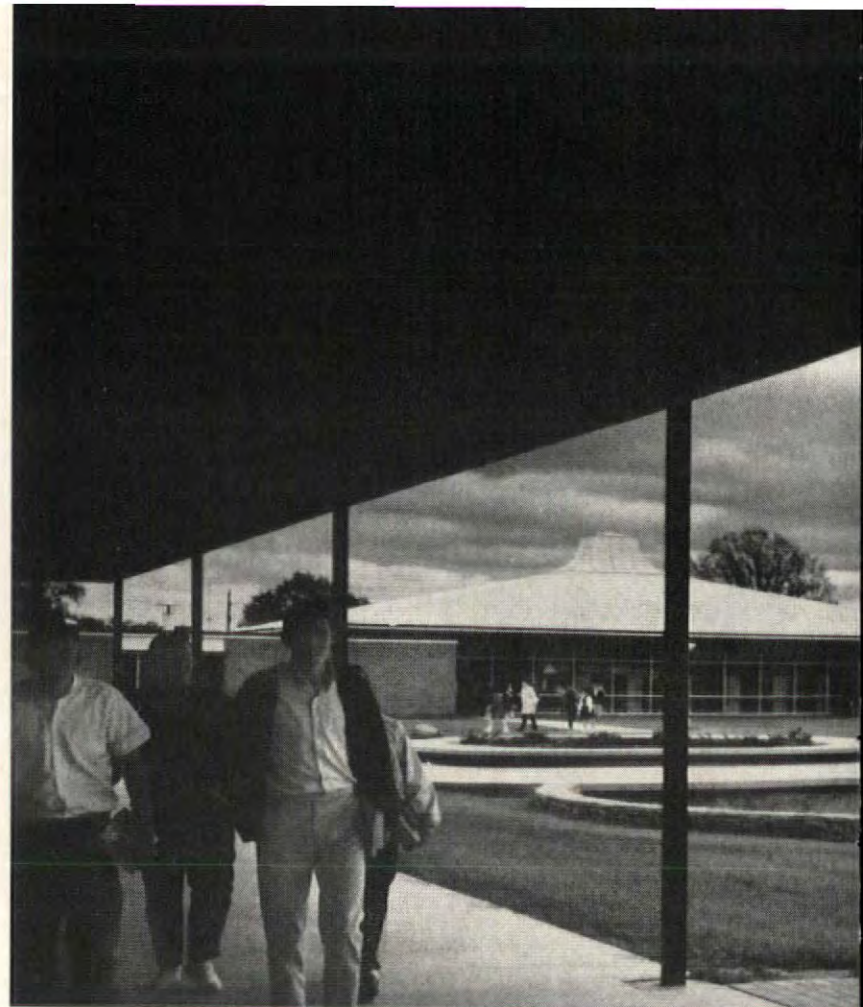
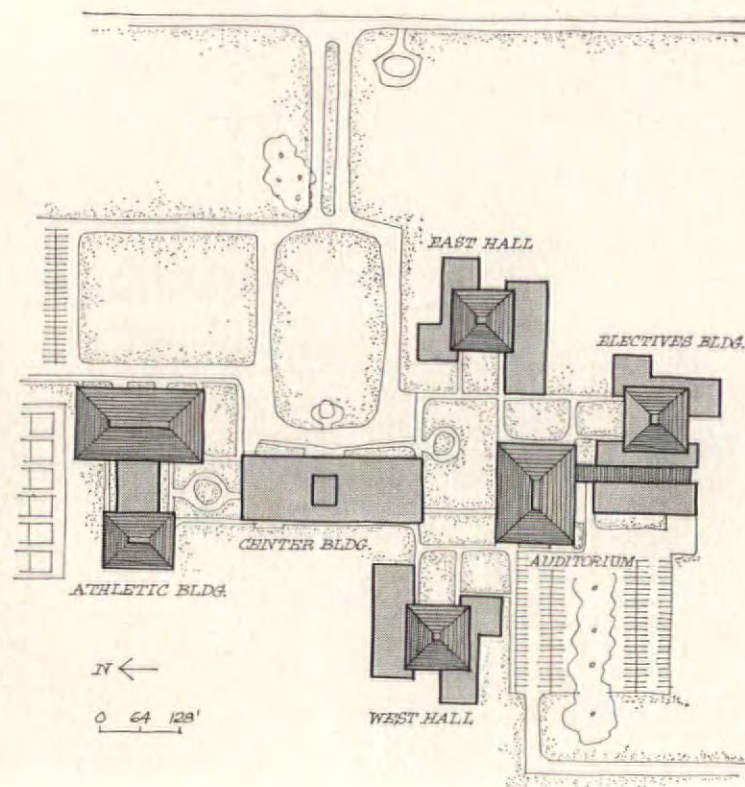
The school's well-lighted rooms house much special equipment, furniture.





Neatness in detailing gives the building a consistent architectural quality, making it seem to float confidently above its irregular hillside site.





Plan of one of the two academic houses (below) included in the campus.

VILLAGE-LIKE PLAN IN MICHIGAN

The "house plan" is the feature of this new high school in Saginaw, Mich., an establishment actually divided into two separate, but adjacent, academic high schools, each housing grades 9 through 12 to the number of 800 students. Each student spends from 40 to 60 per cent of his time within his own house.

Besides the houses the new Saginaw high school has four other buildings used by all students: a "centers" building with a several-level cafeteria, snack bar, teachers' dining area, administrative offices, conference rooms, etc.; a gymnasium; an electives house, which includes classrooms for languages, typing, arts and crafts, foods and sewing, graphics laboratory, shops for autos, metalwork, woodworking, electronics, etc.; and an auditorium building. The temptation, of course, will be to add a third house of 800 students to this neatly defined assortment of supporting services, making a virtual university of it, and possibly overloading the services; the community, in conscience, will probably have to face the decision at some time or other—but not just now;

another high school is being built on the other side of Saginaw.

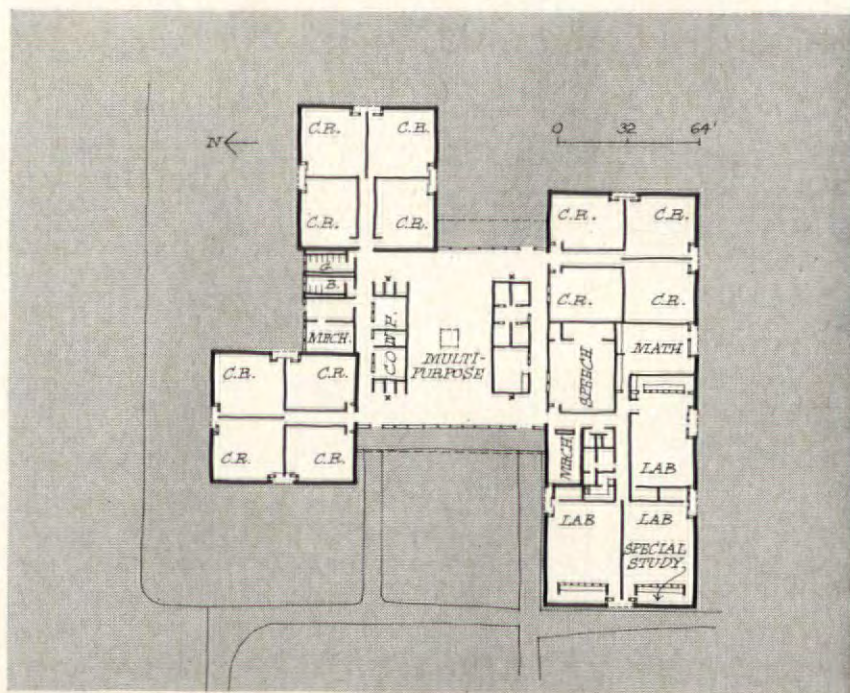
The village of buildings is arranged on a flat 62.7-acre site; the peaked roofs of the units add character. Despite the sometimes severe climate of this area, no interconnecting passages exist between the buildings, the rationalization being that stepping outdoors now and then, as on a college campus, is not a bad idea, to clear the enervated academic mind. It is notable that in the classrooms themselves, glazing is kept to a minimum, with stoutly insulated walls almost all around.

FACTS AND FIGURES

Douglas MacArthur High School, Saginaw Township, Mich.

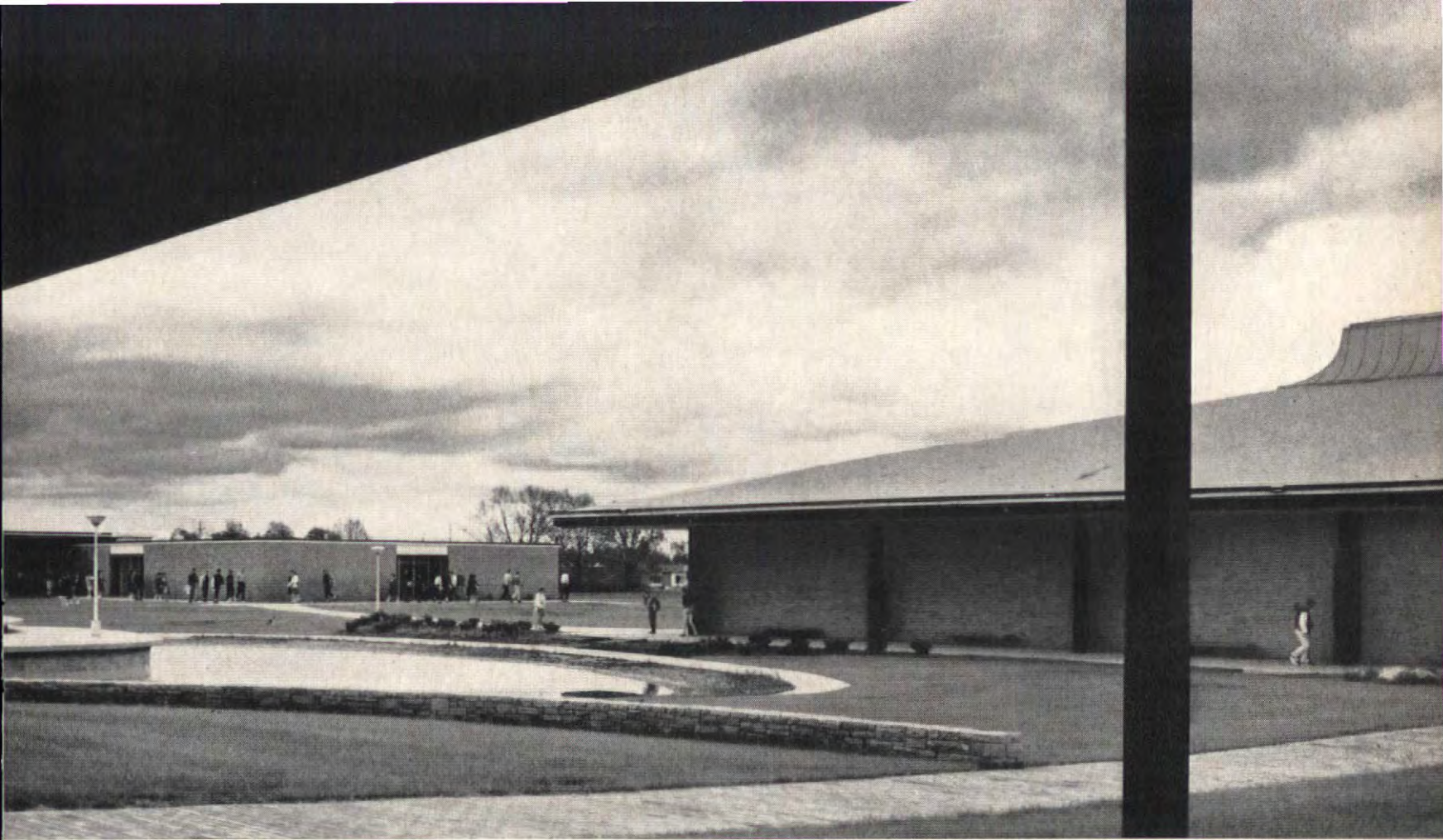
Associated architects: Caudill, Rowlett & Scott and Glenn M. Beach. Structural and mechanical engineers: Caudill, Rowlett & Scott. Landscape architect: Drew-Skidmore. General contractor: J. A. Utley Construction Co.

Building area: 189,621 square feet—approximately \$14.14 per square foot. Costs: site development, \$282,636; construction, \$2,633,046; furnishings and equipment, \$478,470; fees, \$183,350. The structure is steel rigid frames on spot concrete footings, with concrete floor slabs.



From the town's streets the school has the look of a village in itself.





The separate buildings, connected only by outdoor walkways, moderate the impact of the usual large school "plant" concentrated in one structure.

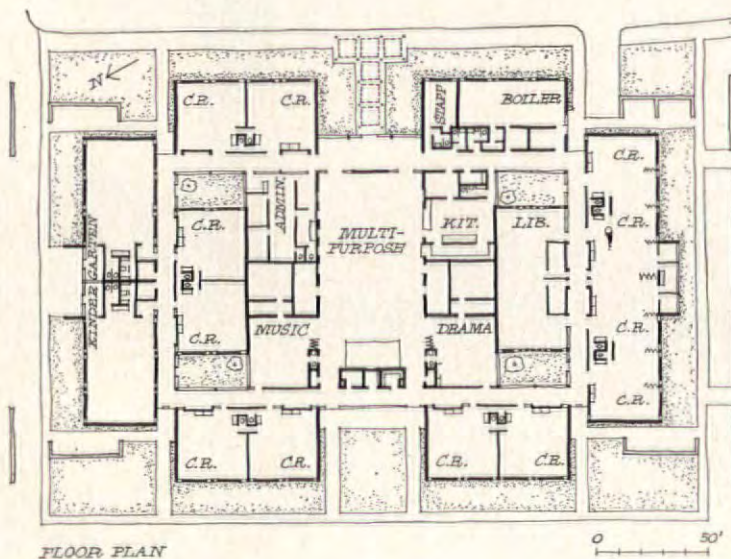


Creative arts and crafts inhabit the center of one of the skylit "houses."



Library includes a large hooded fireplace as a focus for its seating.





INTROVERTED PLAN IN MICHIGAN

The art of this elementary school in Bloomfield Township, Mich., is in its trim, orderly, but insistently pleasant plan. The idea is very simple. Around a central block of large spaces such as the library, music rooms, kitchen, and multi-purpose space, was built a continuous loop corridor. Then the 14 self-contained classrooms and two kindergartens were placed on the outside of the loop, as were the boiler room and teachers' lounge. The long corridor was opened, however, by leaving occasional cavities both around the periphery and in the core, so an airy, sunny effect was created in almost all the rooms, together with a diverting visual awareness of the interlocking character of all components.

The most important of the cavities in the plan probably are the small courts cut into the core at each corner, which will be landscaped. Almost as pleasant as this enclosed space, however, are the glass ends left on the two shorter corridors, framing longer views. (The site is 10 acres, and includes a number of handsome old trees.) Each of the longer corridors is also opened at the

middle with an entrance wall of glass. It quickly becomes evident that the orderly designers have made maximum repetition in almost all phases of construction, from structural frame to finish materials, a practice which they say has much to do with the somewhat startling fact that the school came in close to \$45,000 under its budget of \$520,000.

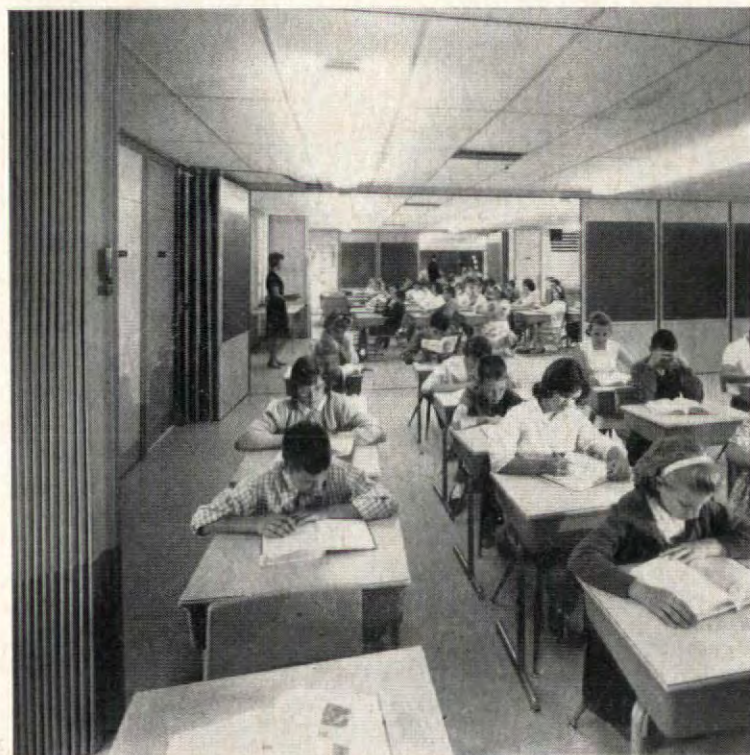
The designers added great flexibility to one bank of four adjacent classrooms by using movable walls (photo right) which permit all these rooms to be thrown open into one extroverted space.

FACTS AND FIGURES

Meadowlake Elementary School, Bloomfield Township, Mich.
Architects and engineers: Linn Smith Associates.
Total space: 37,200 square feet—approximately \$12.77 per square foot. Costs: site development, \$45,238; kitchen, \$13,382; furnishings, \$50,000; fees, \$35,000; construction, \$475,050. Construction is steel frame on concrete footings. Exterior walls are face brick with concrete-block back-up, aluminum sash with glass and insulated porcelain-enameled metal panels. Heating: gas-fired hot water boiler with central, multi-zone heating and ventilating units.

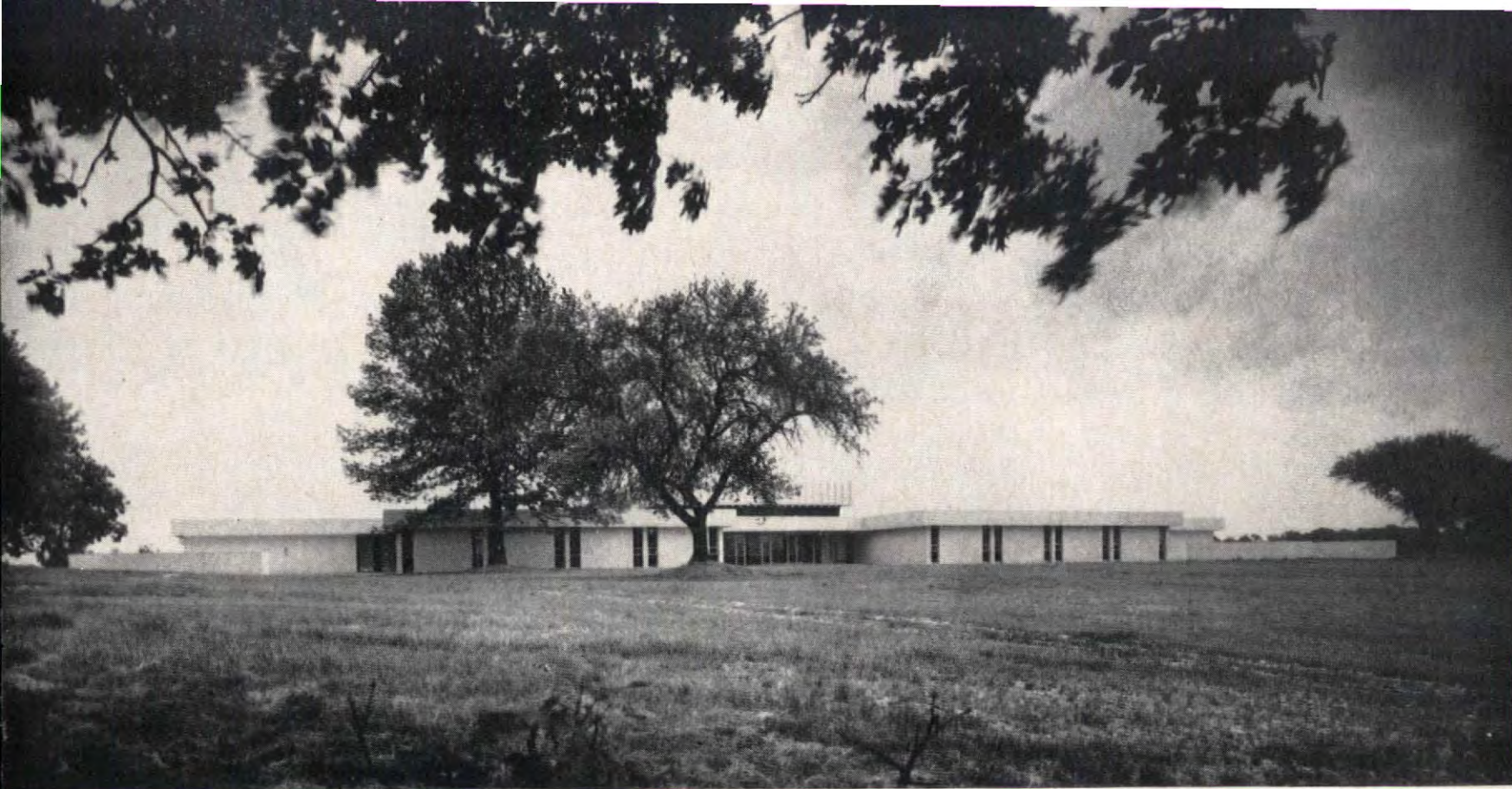


School features interconnecting (above) and adjustable (below) rooms.



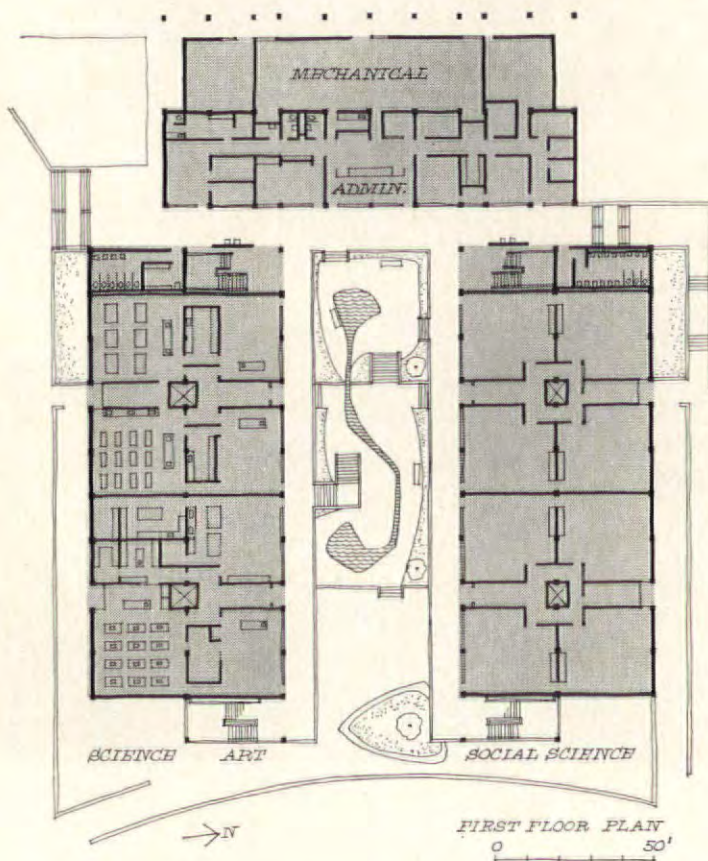
One of the interior courtyards, below—landscaping yet to be finished.





The school, above, on its site; and below, an indication of how deftly space is organized and defined both inside and out: a walled bicycle rack.





GALLERIA PLAN FOR NEW MEXICO

The most prominent physical feature of this high school in Carlsbad, N.M.—apart from its 6,000-seat football stadium—is an immense cavity in its academic building, roofed over with a translucent plastic canopy. This is called the academic court, and is overlooked on three sides by galleries which are also the circulation corridors for the surrounding air-conditioned classrooms. The site for this school—which enrolls 1,000 (in the 11th and 12th grades)—is 70 acres, largely barren rock; so, for relief, the academic court also shelters a small contrived garden.

The idea is as sensible as it is spectacular—although some of its details lack grace. The opening to the court is carefully angled away from the sweeping winter winds from the northwest; the fact that the corridors and the large, shaded socializing area are left out of the air conditioned areas saves considerable summer air conditioning. This economy is extended by restricting most of the school's glass to shaded walls. Source for both heat and cooling is an electrically operated heat pump. An air-distribution system

pressurizes the building to insure the elimination of dust—a regional hazard.

In addition to the academic building, there is a shop building, a gymnasium (which seats 3,500 spectators), and a "centers" building (cafeteria, planetarium, theater, music, home economics, etc.). The school gets heavy community use off hours, year round, and will eventually be expanded to accommodate 2,000 students.

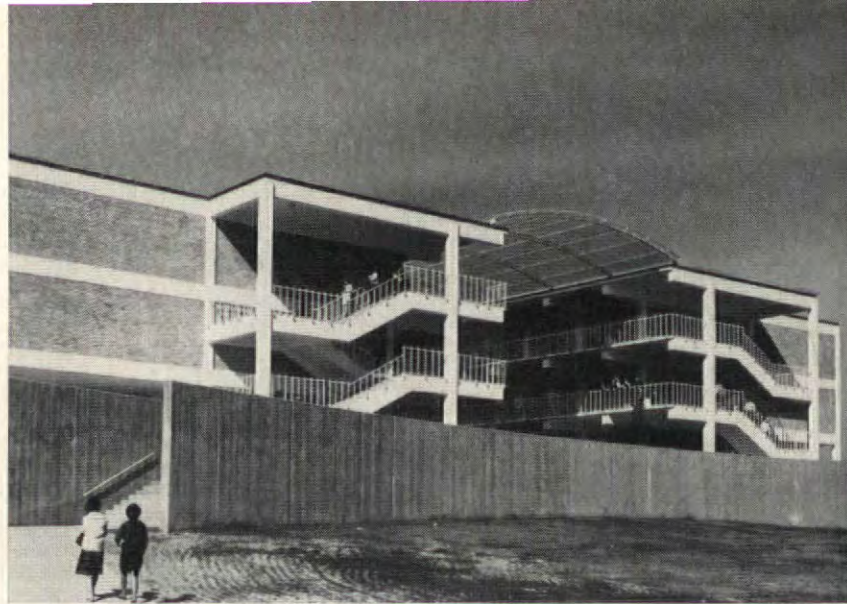
FACTS AND FIGURES

Carlsbad Senior High School, Carlsbad, N.M.

Architects: Caudill, Rowlett & Scott; Associated architects: Kern Smith, Engineers (structural, mechanical, and electrical): Caudill, Rowlett & Scott. Landscape architect: E. W. Zukauckas, Jr. General contractor: Newton Construction Co.

Building area: 153,900 square feet—approximately \$12.90 per square foot. Costs: stadium, football field, track, stadium lighting, \$311,898; land and site development, \$150,525; construction, \$1,983,795; furnishing and equipment, \$247,715; fees, \$160,540.

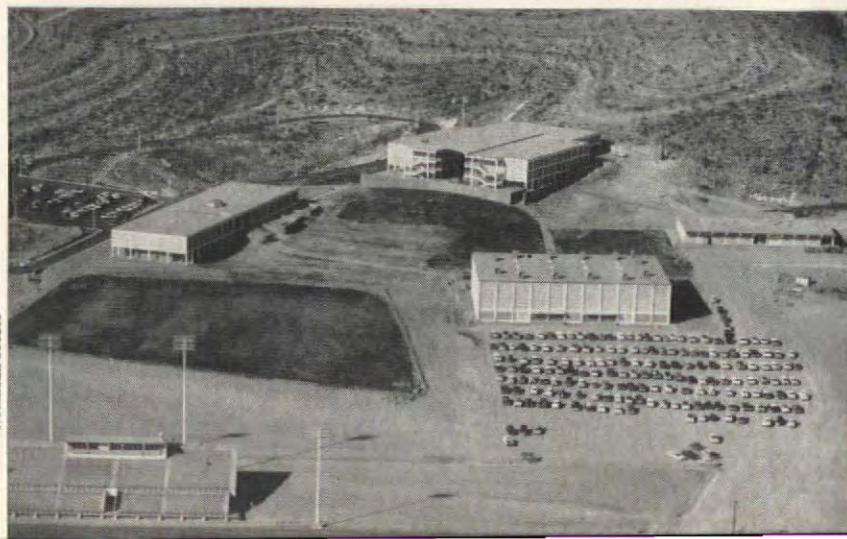
Structure is reinforced concrete, with long-span steel joists over the gymnasium, and rolled steel sections supporting the academic court canopy.



Neither indoors nor fully out-of-doors, the gallery civilizes the site.



All three units of the school are very sparing with their use of windows.





Sophisticated new electronic systems may revolutionize both the process of learning and the planning of buildings

BY BERNARD P. SPRING

"PLUG-IN" SCHOOLS: NEXT STEP IN EDUCATIONAL DESIGN?

Never before have school boards across the nation had to face such a perplexing range of choices when planning new facilities. The next five years, however, may bring an end to such problems with perfection of a new teaching technology which uses equipment of unprecedented flexibility. In fact, sophisticated new teaching tools just emerging from the laboratory seem to be leading to an entirely fresh concept: the "plug-in" school.

Today, many are questioning techniques and tools introduced over the last five years. Does it really pay to break up the old teaching pattern with its rows of similar classrooms? Are costly audio-visual facilities, television, and teaching machines able to repay the added investment that taxpayers must be asked to make?

Though more and more schools are being built with various-sized spaces, movable partitions, and mechanical gadgetry, the new teaching has had its share of failures. Some studies show language labs and teaching machines to be no more effective than conventional teaching techniques; on rare occasions, they have proved even less effective.

While this may bring joy to the conservative camp, proponents of the new teaching say that the failures are simply the result of not going far enough. New rooms and new machines, they say, are not enough to break down old, inefficient patterns of teaching and learning: people are endlessly ingenious in fitting old habits into new facilities, which is why the new facilities sometimes fail.

Second-generation teaching machines

But while the arguments continue, there is already emerging a far more sophisticated technology of learning systems: a whole new generation of school equipment that goes far beyond the "gadget" approach. The new machines are capable of using the steadily sharpening insight psychologists are gaining into the complex structure of the learning process, and they are enabling teachers to cut through old habits that so often seem to stand in the way of the efficient transfer of knowledge.

These "second generation" machines, now being developed in universities, industrial research laboratories, and the workshops of private consultants, have these significant features in common:

- ▶ They are complex and versatile enough to allow learning to be self-paced and tailored precisely to individual student needs.
- ▶ They transfer the burden of flexibility for future changes in program from the school building to the machine itself. And the machines are being designed to handle change with remarkable ease.
- ▶ They imply some profound changes in the way that the school plant and even the school district is organized; e.g. they suggest a centralized facility for the production and storage of programs coupled with a wide-ranging network of communications channels into which individual learning stations may be "plugged" as needed.
- ▶ They need a powerful, computer-aided scheduling program to make efficient use of both student time and school plant.
- ▶ They can be used even more effectively in conjunction with new automatic food-service systems that permit flexible sche-

duling of the students' time for classes of varying length.

Some of the new learning systems have passed their first laboratory tests with high marks and are now ready for the next and most critical step, widespread testing in the field. These systems are:

The "live" study carrel for individual self-paced learning, with instant access to a vast store of audio, visual, or printed material.

The computer-linked teaching station, which can be programmed to shape its output to the student's individual learning patterns in some ways more effectively than a human private tutor could.

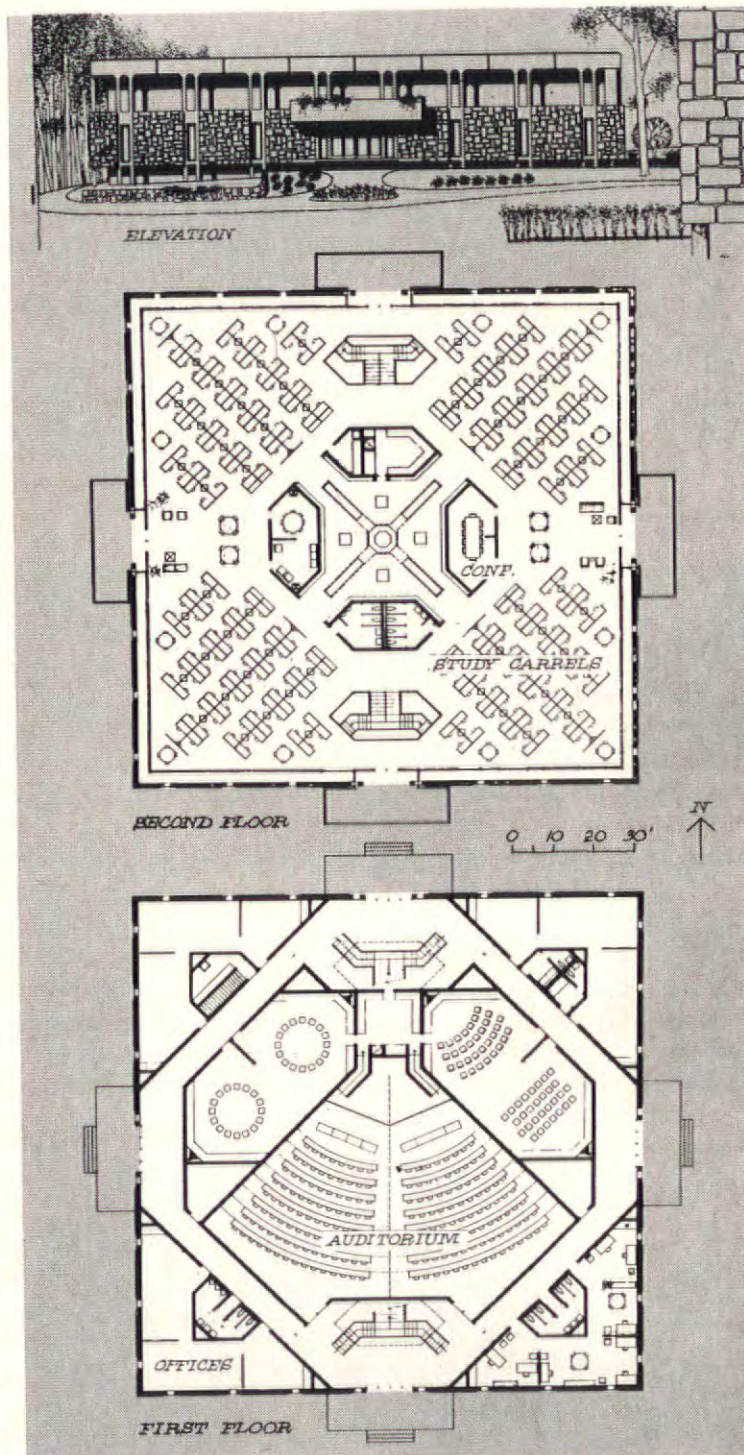
The automatically sequenced lecture that can close the gap between teacher and student by allowing frequent student response to influence the course of the presentation.

Learning network at Grand Valley

Next month, the first group of 250 students will begin their studies at Michigan's brand new Grand Valley State College (drawings, right), planned by Architects Meathe and Kessler to accommodate up to 10,000 commuting students from the smaller communities of western Michigan and nearby Grand Rapids. Grand Valley is shaped around a radically new kind of facility: the learning center. Each of these 30,000-square-foot buildings (two of which are now built) is a self-sufficient liberal arts college. Each is planned around 256 carrels and divisible lecture halls equipped with an extensive audio-visual communications network (designed with the help of a grant from the Ford Foundation's Educational Facilities Laboratories). This network opens up each learning center to resources and people in other parts of the college, and to the sights and sounds of the world beyond. The carrels (photos below) provide instant access through the twirl of a telephone dial to any one of 17 video and 80 audio channels (more will be added later). These channels tap either live or stored presentations. Some of the audio tapes will be kept blank to record student comments or questions to be taken up with faculty members later. Cartridge-loaded tapes for sound and TV will multiply the amount of material that each receiving station can reach. The educators who created the Grand Valley scheme feel such resources will make individual study far more efficient and rewarding.

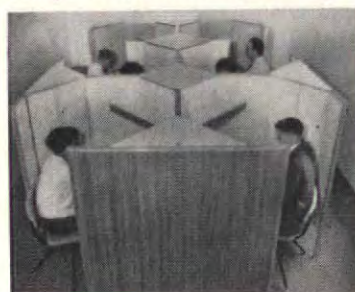
The system will also reduce the space needed to provide a complete liberal arts program. Along with the associated lecture hall and conference rooms, the four groups of 64 carrels shown in each learning center will serve 512 students, each of whom will spend half his time in the study carrel, half in group learning activities. But perhaps most important of all, the ability of this network to provide random access to so much stored material, including lecture sessions, will free a great chunk of faculty time for scholarly work and the preparation of more effective programs.

The designer of the system, Sol Cornberg, a New York consultant with a long background in the design of commercial television and stage facilities, has taken up this new approach to education with a missionary zeal. Realizing that the high cost of elaborate equipment is the major obstacle to wider use of the "live" carrel, he has designed one that can be built for

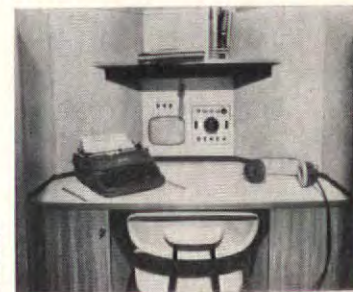


Unique "Learning Center" designed by Architects Meathe & Kessler for Michigan's new Grand Valley State College is based on the use of a

complex audio-visual network. Live or stored study programs are dialed by students in second-floor carrels (see plan above and photos below).



COLORAMA



slightly more than the standard school desk. The cost of equipping the carrel and the production center can vary from \$200 to \$500 per student station depending on the number of channels required. Cornberg believes that the savings in classroom space and faculty time will in the long run make the learning center less costly than conventional school facilities.

With the random-access audio-visual network, curricula may be drastically changed merely by changing the stored programs—without touching the physical plant of the school. The system also can be adapted to educational schemes that do not depend on the unified learning center, as in subject-oriented departments at Nova High School near Fort Lauderdale, Fla., and in a new dormitory at New York University's downtown Manhattan campus.

"Live" carrels knit a campus

Nova High is part of an enormous complex of schools called the South Florida Education Center. Along with a new junior college, Nova will open next month as the first unit in a kindergarten-through-college plant on 550 acres of an old World War II airfield. Eventually, there will also be four elementary schools, a junior high, and the South Florida Institute of Technology.

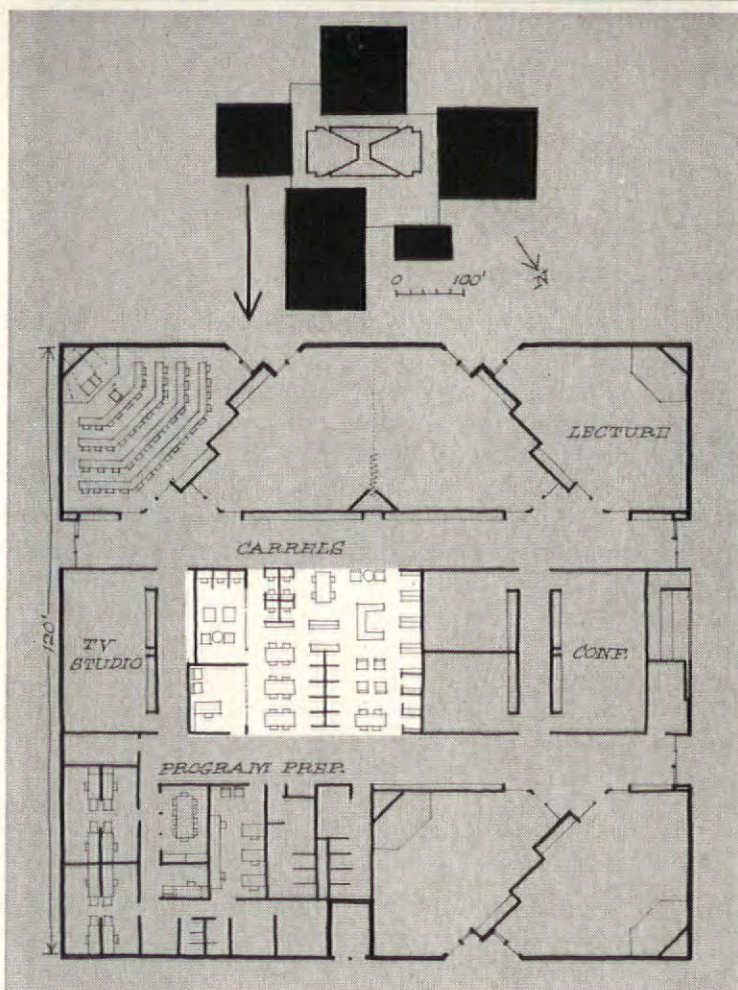
Designed by Architect James M. Hartley, Nova is organized around clearly differentiated departments, each with its own specially equipped laboratories and lecture rooms (drawings, right). Although the plan is arranged basically for "team teaching," a typical department such as mathematics (shown at larger scale) is built around a resource center with provision for a group of live study carrels. These will be linked to a central TV production center to allow increasing use of stored programs for self-paced learning on a departmental basis.

Each department at Nova will be wired so that programs it originates can be sent out to the entire school. This means that although the different disciplines are separated physically by the plan, they can be brought together for special interdisciplinary programs.

N.Y.U.'s Washington Square campus, with a student population of 26,000, used to be thought of as a "commuter school." But with an increasing enrollment of out-of-towners, N.Y.U. is now putting the finishing touches on a new downtown dormitory. Joe Weinstein Hall, designed by Architects Harrison & Abramovitz, will be the testing ground for an intriguing application of the "live" learning station (perspective and plan, right). If this dormitory tap into widespread learning resources is as successful as he expects it to be, Cornberg can see the entire vast and scattered campus being linked together through his audio-visual network.

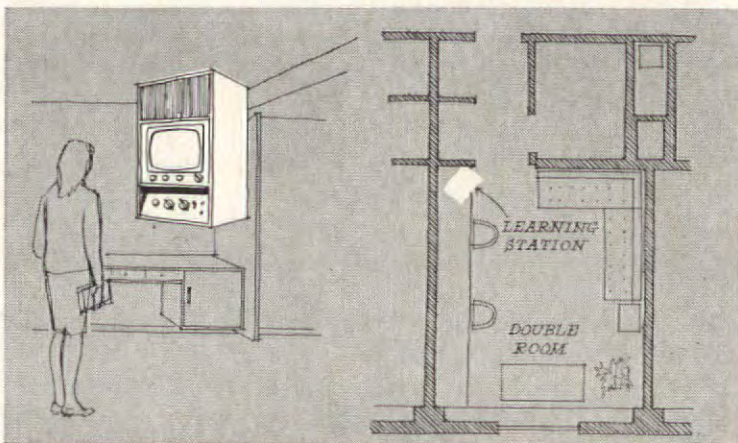
The most promising tools in the new generation of teaching machines, however, are the giant electronic devices called computers (a misnomer here because it is their logic network and storage capacity rather than their computing ability that are most helpful in teaching).

At a half-dozen research centers around the country, studies of computer teaching programs are in full swing, most of them sponsored by the Department of Defense to aid military training programs. Even skeptics who are sure that a machine can never teach in the responsive way a human teacher can may



Clearly defined departments in Architect James Hartley's design for Nova High School (above) are linked by a TV network. Each department centers on a group of "live" study carrels (detail plan).

TV and audio will bring study programs to new dormitory bedrooms at New York University (below), and could actually eliminate the need for much classroom space. Architects: Harrison & Abramovitz.



be startled by the results so far. In the first place, it takes a skilled and sensitive teacher to program the machine, so a human is still at the heart of the system. Moreover, with the aid of a computer, he may act as a private tutor to tens of thousands of students rather than as a lecturer to only a few.

The computer is a vastly different kind of teaching machine from the flood of little black boxes that have appeared recently. It has an enormous capacity for storage of knowledge, and it can branch from one item to another in a complex pattern responsive to the individual student's learning habits.

How the computer goes beyond present-day teaching machines may be seen in the work that has been done at IBM's laboratory in Yorktown Heights, N.Y. The courses that have been tried—stenotyping, German, and statistics—were chosen to test three basic types of learning: manual, auditory, and conceptual. The computer diagram for statistics (right) indicates the wide range of paths the student may follow in solving each step of the course. At any step, the computer may be programmed to ask the student to read a section of a specially prepared text, or it may display stored sound or pictures based on the nature of the student's previous response.

The man-machine conversation

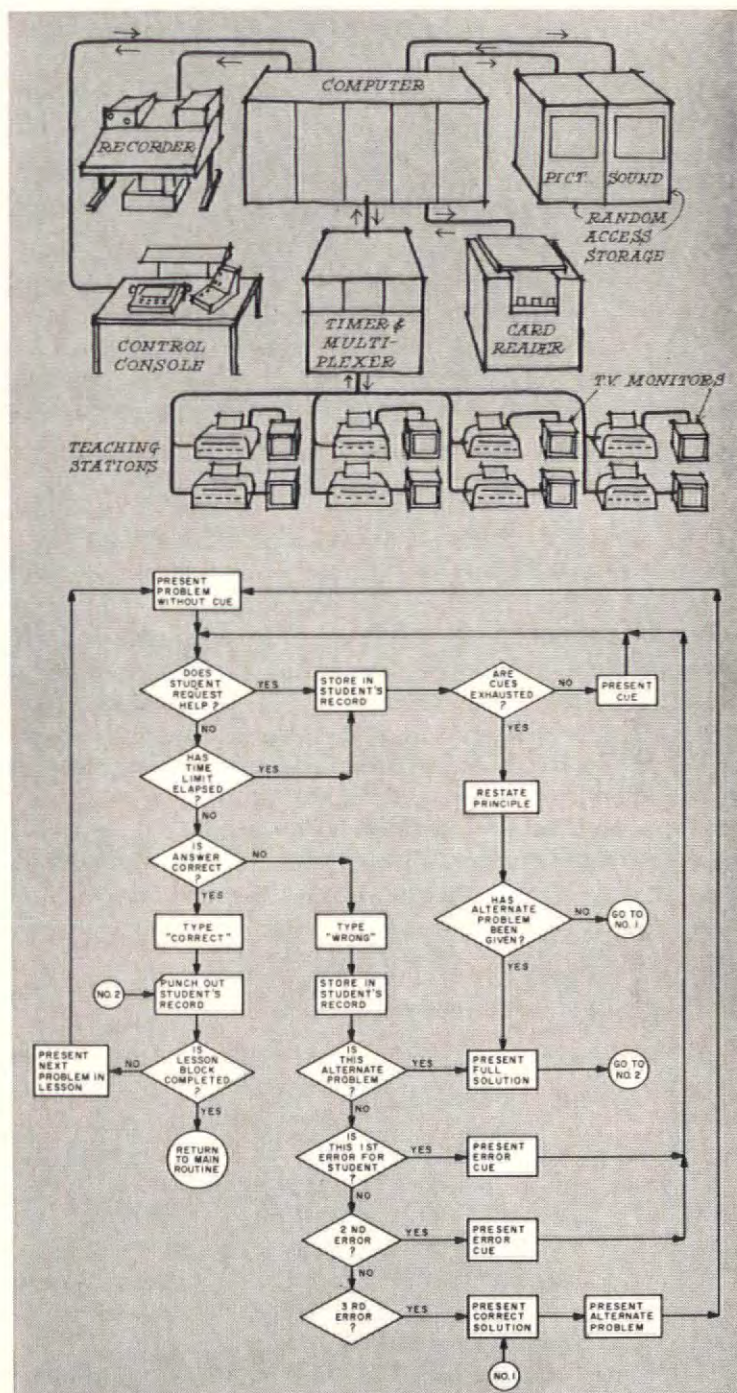
The main design problem facing computer scientists occurs at the console where the student confronts the machine (photo). At present, the "conversation" must pass through a typewriter keyed to the computer. As the technology of computers bounds ahead, however, this man-machine communication may be considerably simplified by an oscilloscope tube that will accept drawings from both sides, and some day there may be direct voice conversation.

At this stage, the most valuable by-product of computer teaching is the clear picture it provides the teacher of how a group of students reaches mastery of a new subject; with speed and accuracy for each step recorded, the course may be constantly refined to fit the way in which people actually learn.

How effective is computer teaching? The most telling evidence comes from the work of Ralph Grubb, an IBM scientist who also teaches statistics at a nearby college and programmed the computer course in that subject. The conventional lecture course involved 24 hours in the classroom, 25 hours of homework, and about 5 hours spent reviewing for an exam—a total of 54 hours. The average time on the computer to cover the same material was only 5.8 hours. And the computer-taught students averaged 30 points higher in their examination grades!

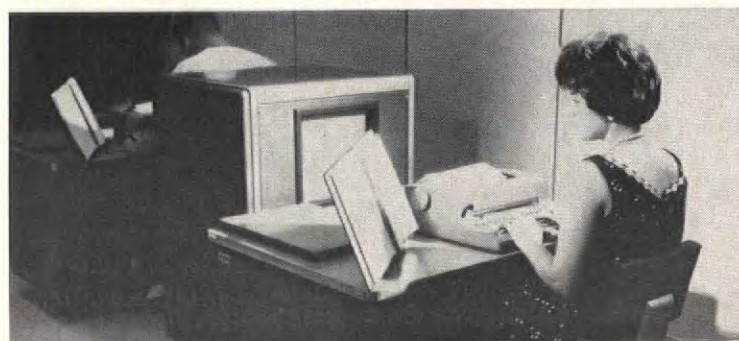
Now that computers are beginning to prove their value, the question is: can schools afford them? Rental of an IBM 1410 like that shown at right runs some \$12,000 a month. But since it can serve up to 200 students simultaneously and move them through some of their course work at many times the usual speed, the net cost of education might well be slashed.

Lectures are not likely to go out of style as long as there are brilliant teachers who can bring a sense of excitement and motivation to the listener. But psychologists have found that as a means of transferring wisdom, the lecture has everything working against it. Apparently, the mind does not readily



Auxiliary equipment required to convert IBM's 1410 computer to a teaching machine is seen in drawing, top. Complex branching pos-

sible in computer teaching programs is indicated by the schematic chart above. Below, student "converses" with machine through a typewriter.



absorb knowledge at the rapid pace of the conventional lecture. And, while the use of appropriate visual material can help a lecturer to fix an idea in the student's mind, darkening the room and fussing with equipment often wash out any advantage a projected picture may have.

Multiple choice, and multiple images

Many of these difficulties are being overcome by the automatically sequenced, rear-projection systems that were first worked out for military training programs and are now being used by several colleges. Such systems are usually designed around the simultaneous presentation of three images from five or more picture sources in a rear projection room (photos and plan, right). The multiple image allows the lecturer to relate general concepts and specific examples.

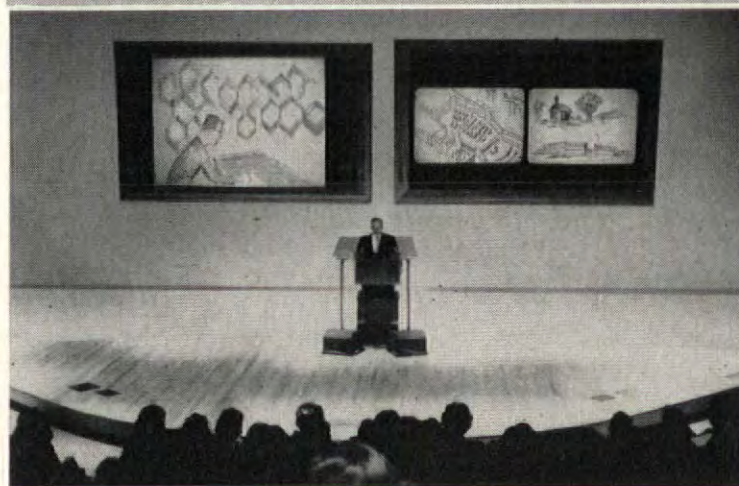
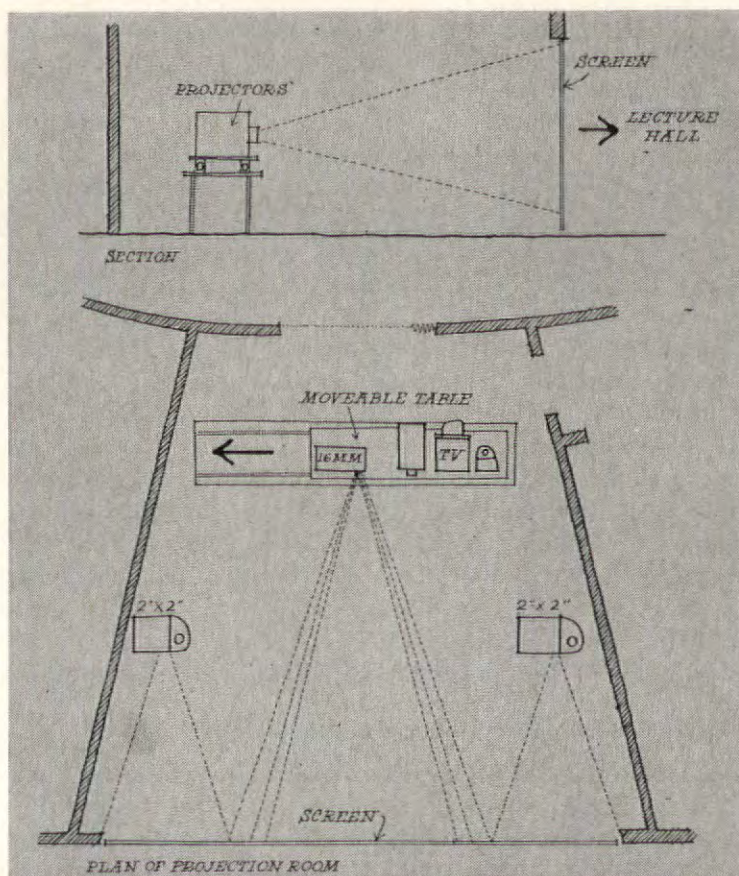
The most intricate sequencing can be simply controlled from a push-button console on the lectern which operates a punched tape to bring on pictures in predetermined order from several slide, film, or TV projectors (which may be connected to stored tapes or to a camera which will bring in a closeup view of a display or demonstration at the front of the room). However, the lecturer can also dial at random to any part of the stored program if he wants to repeat, skip ahead, or supplement his planned presentation. And to overcome the most evident drawback of the lecture situation—the speaker's lack of knowledge of the listeners' understanding—students' desks can be equipped with multiple-choice answer buttons. Now, the teacher can ask questions as he goes along, monitor class response, and modify his presentation according to how closely his students are following content.

Automatic vending for flexible schedules

As the use of technologically advanced teaching systems spreads, it will surely bring with it wider use of the team-teaching concept. Not only will the usual class group of 30 be abolished in favor of individual study, discussion groups of 15, and large lectures for 150, but customary schedules will be altered. Instead of the rigid division of the school day into uniform periods of about one hour, many educators now favor a 20-minute time module which will allow student sessions of varying length. In this way, the time spent in class can be tailored to the subject matter to be studied.

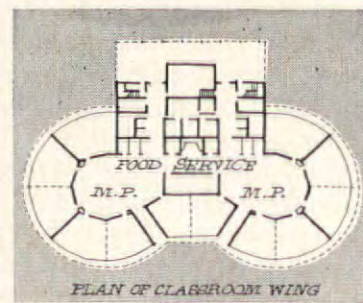
Perhaps the greatest drawback to this kind of flexible scheduling—aside from the complexities of arranging the schedule itself—is the economics of running the conventional school cafeteria. One school using a modular time schedule successfully is the 1,500-student high school in Holland, Mich. (Architect: Suren Pilafian). Lunch at Holland consists of getting a meal from an automatic vending machine at virtually any time, and eating it nearby in a multi-purpose space (drawing, right). Scheduling is thus made easier, and both cafeteria and kitchen are eliminated from the building—at savings of up to \$100,000 in initial (not to mention operating) costs. Both hot and cold food are brought in from outside kitchen facilities and are maintained at the proper temperature by the coin-operated vending machines, which are accessible throughout the school day.

Up until now, it was almost inevitable that a school with



Seven projectors for automatically sequenced presentations (top) are concealed behind screen in room planned for St. Patrick's Seminary in Hartsdale, N.Y., by Architect Charles Luckman. Above: a multi-

ple-image display at Chicago Teachers' College, North by Architects Perkins & Will. At Holland, Mich., High School (below), vending machine meals allow flexible time schedules. Architect: Suren Pilafian.



highly differentiated spaces would have a lower utilization rate than one with all-alike rooms, unless the curriculum was sharply limited. But here again, several computer-oriented scientists are working out programs that could provide an answer to this dilemma. At M.I.T., for example, Assistant Registrar Robert Holz has been working for the past year and a half on a project called GASP (Generalized Academic Simulation Programs) sponsored by the Educational Facilities Laboratories and IBM.

Computers for school-space planning

Although this work has been aimed primarily toward the use of the computer to help work out better student schedules in existing facilities, it can be adapted to serve as a planning tool to raise the utilization rate of complex new school plants. Recently, the first analysis of this type was made on M.I.T.'s huge 7090 computer to aid the planning of a new junior high school in Natick, Mass., designed by Davies & Wolf, Freeman & Flansburgh, associated architects (drawings, right). The computer solution to the scheduling problem in this case indicated that two classrooms could be eliminated from the plan while the remaining, highly differentiated facilities could be in actual use some 85 per cent of the time (a high utilization rate even for a conventional school plan).

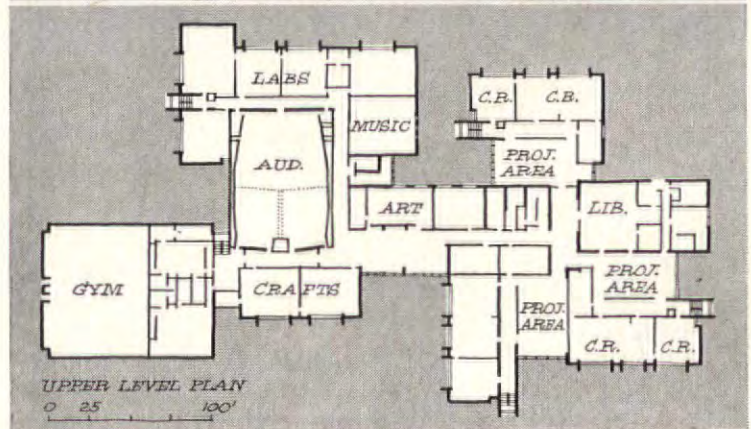
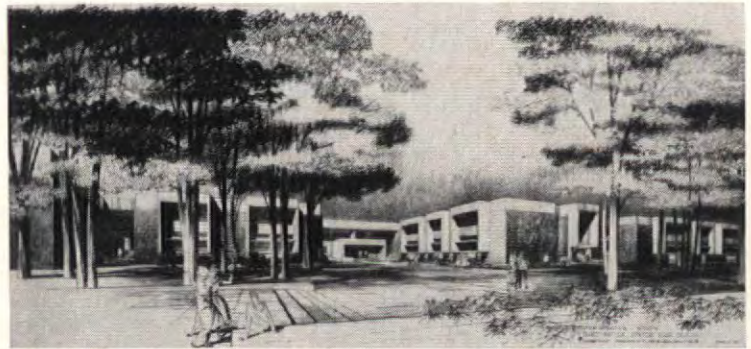
However, the architects of the Natick school feel that this percentage, based on room utilization, does not tell the whole story. They hope that the computer program can be modified to keep track of space in the school on a seat-by-seat basis. If this is done, they will be able to get data for future designs that will tell them not only how many rooms to include in a school but also just how large each type of room should be.

Underground networks, movable modules

As electronic teaching systems get into ever wider use, the implications for school planning seem clear. Someday entire school systems may be planned around central production and program-storage facilities, which can be tapped through an underground network by students in individual schools (there are those who suggest using the same network for distributing mechanical services, and even refills for the food-vending machines). Learning stations, with their high content of electronic devices, would be ideally suited to low-cost factory production as appliances are today. And if portable receiving stations could be plugged into the learning-service network, a computer could schedule periodic redistributions of such units to keep pace with population shifts.

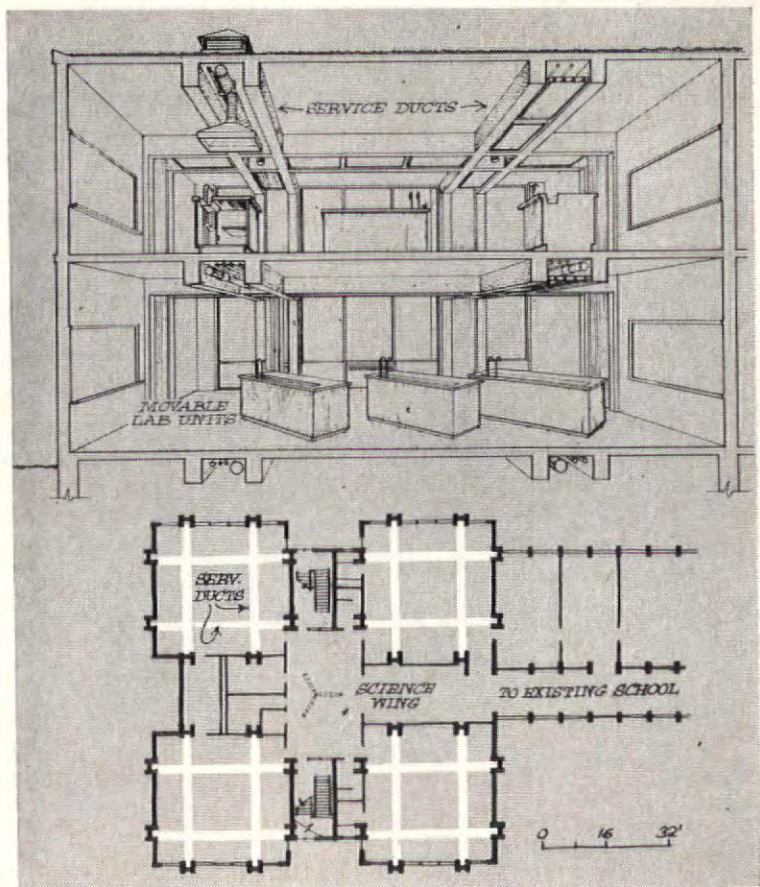
This ultimate flexibility in school planning is strongly suggested by schools being planned today. In adding a science wing to the seven-year-old Wheatley School in East Williston, Long Island, where relatively new equipment was found to be educationally obsolete, the architects sought a scheme that would insure against rapid obsolescence. What they came up with was a plug-in science laboratory (drawings, right) with a service network that can be tapped by a wide variety of movable laboratory modules. Designs like this one may soon eliminate the quandary of the school board trying to decide which way education will go in the future. They are the fore-runners of tomorrow's "plug-in" school.

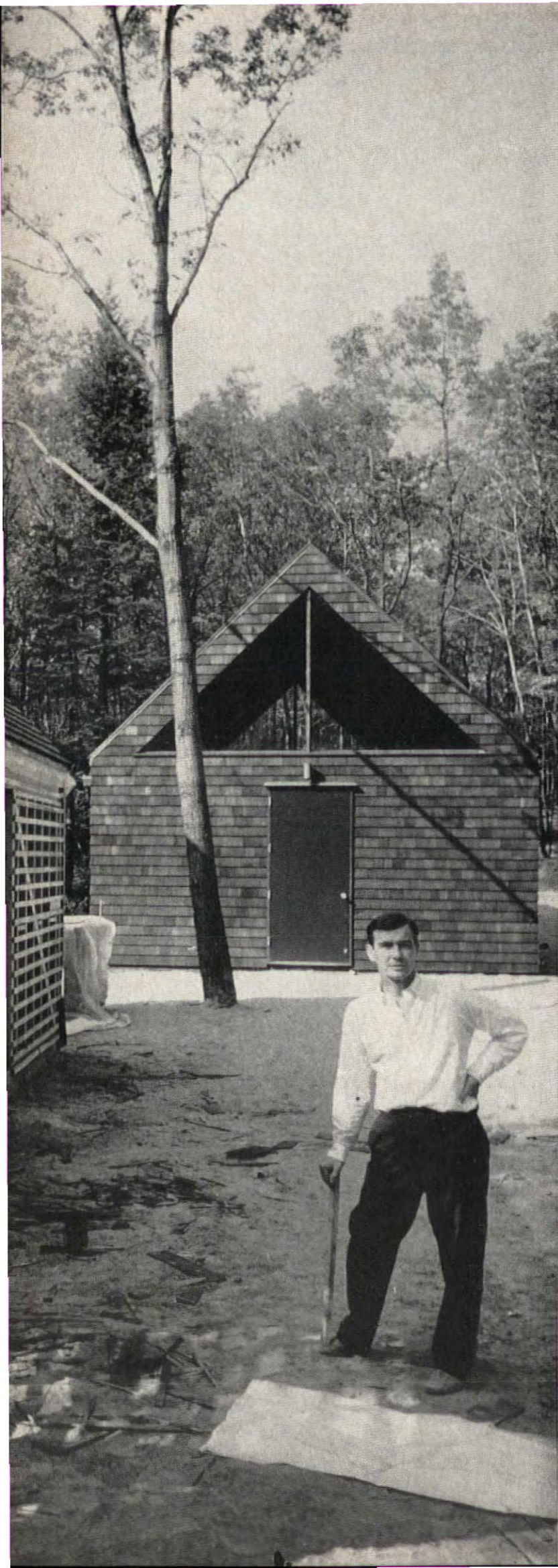
END



High (85 per cent) utilization of varied spaces in a new junior high for Natick, Mass. (above) was calculated with the aid of a computer scheduling program. Below: a permanent utility network and easily

changed equipment in new wing of Long Island's Wheatley School suggest a versatile design approach for tomorrow's "plug-in" schools. Both plans are by Architects Davies & Wolf, Freeman & Flansburgh.





DENNIS STOCK—MAGNUM

AT 48, Edward Larrabee Barnes (shown at left in front of one of the five summer camps he has built in the New York area) is something of an exception among his generation of architects. While most of his fellow practitioners have become more and more interested in complexity, Barnes' work has taken a sharp turn toward greater simplicity; while many other architects have become intrigued by eclecticism, Barnes' forms and details have become increasingly pure; and while many others have leaned more and more heavily on esoteric materials and esoteric engineering, Barnes has gone back to such basic things as wooden shingles and two-by-fours.

Yet there is nothing primitive about Barnes' work; his buildings are among the most polished and sophisticated in the U.S. today.

Maine's Haystack Mountain School of Crafts (right) is a good case in point. At first glance, these rough-hewn, loosely spaced cedar buildings seem to have grown out of their site, without benefit of human design. In reality, they are organized in a highly rational way. And far from growing out of their environment, the little cabins, dormitories, and work studios had to be imposed upon a difficult site.

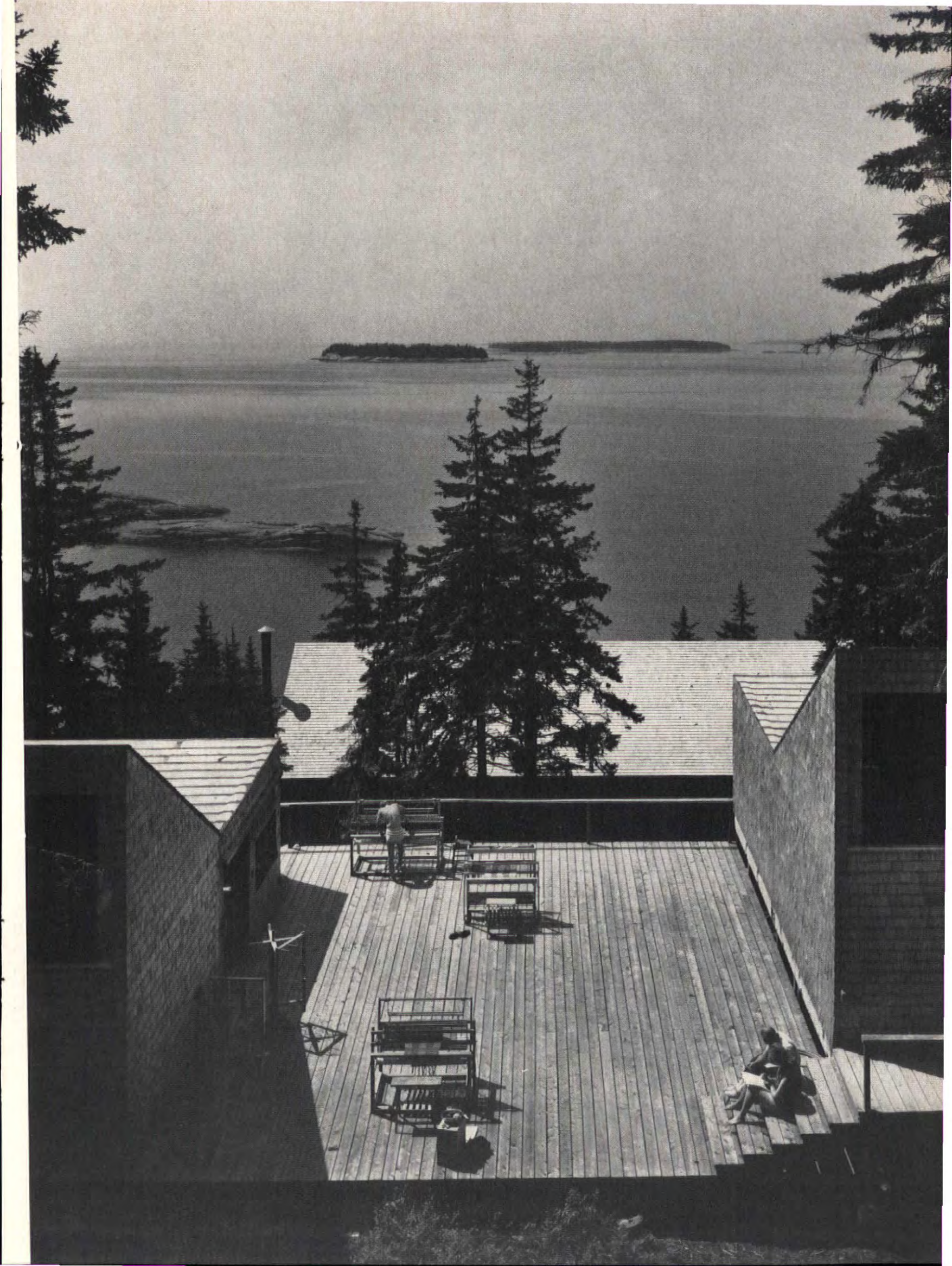
The rocky Deer Isle promontory and precipitous slope down to the sea had very few buildable shelves on which to place living and working quarters for the summertime community. Barnes designed small informal buildings for 80 students and faculty in village fashion around a "main street" or wide flight of wooden stairs leading straight down the slope to a shoreline lookout platform. Students reach their living quarters and work studios (pottery, weaving, carpentry, and graphic arts) via secondary wooden walkways. The angled shapes of the roofs, sometimes parallel to the slope and sometimes sharply at odds, add a lively pattern to the whole.

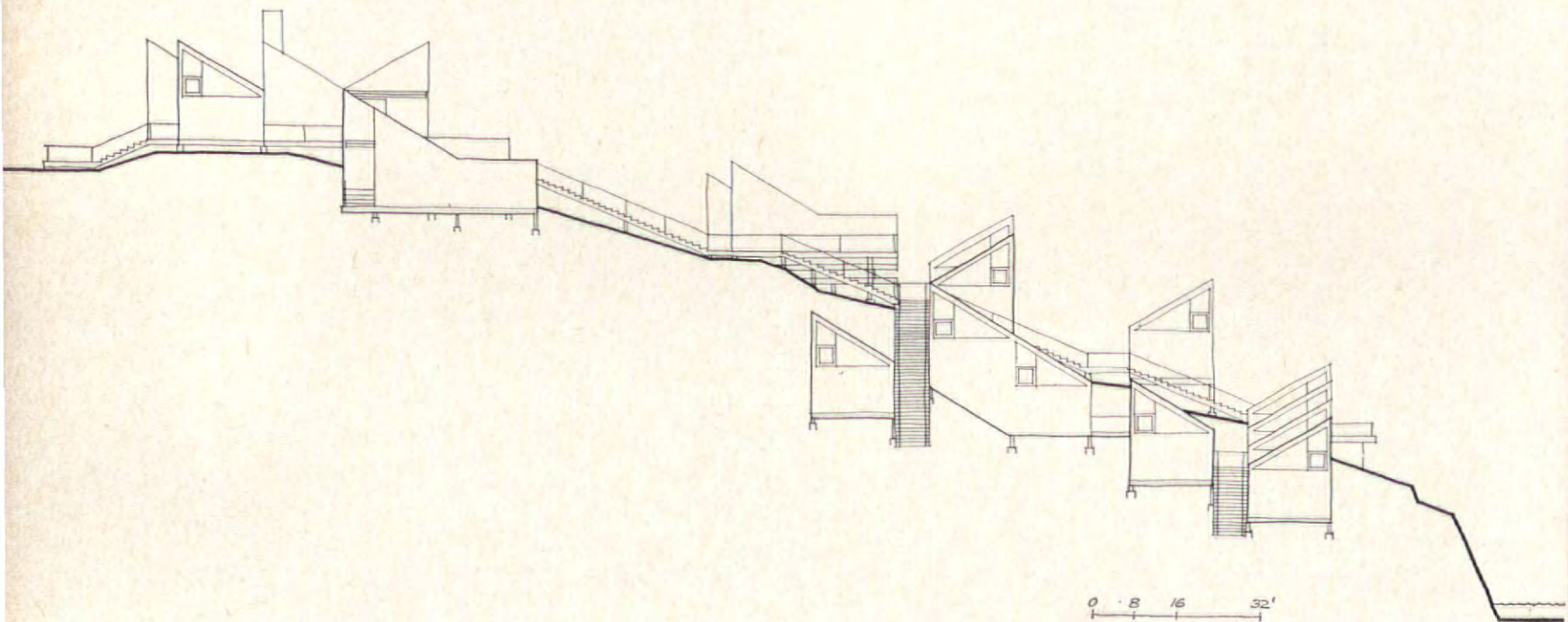
They also tell a good deal about Barnes' current approach to architecture, going well beyond the obvious fact that, at the moment, he is very fond of triangles.

Characteristically, the approach is a highly individual one. Barnes is a Harvard man; he received a B.S. *cum laude* in the history of architecture, tried a stint of teaching English and fine arts at Milton Academy, then returned to take a B.A. in architecture and with it the Sheldon

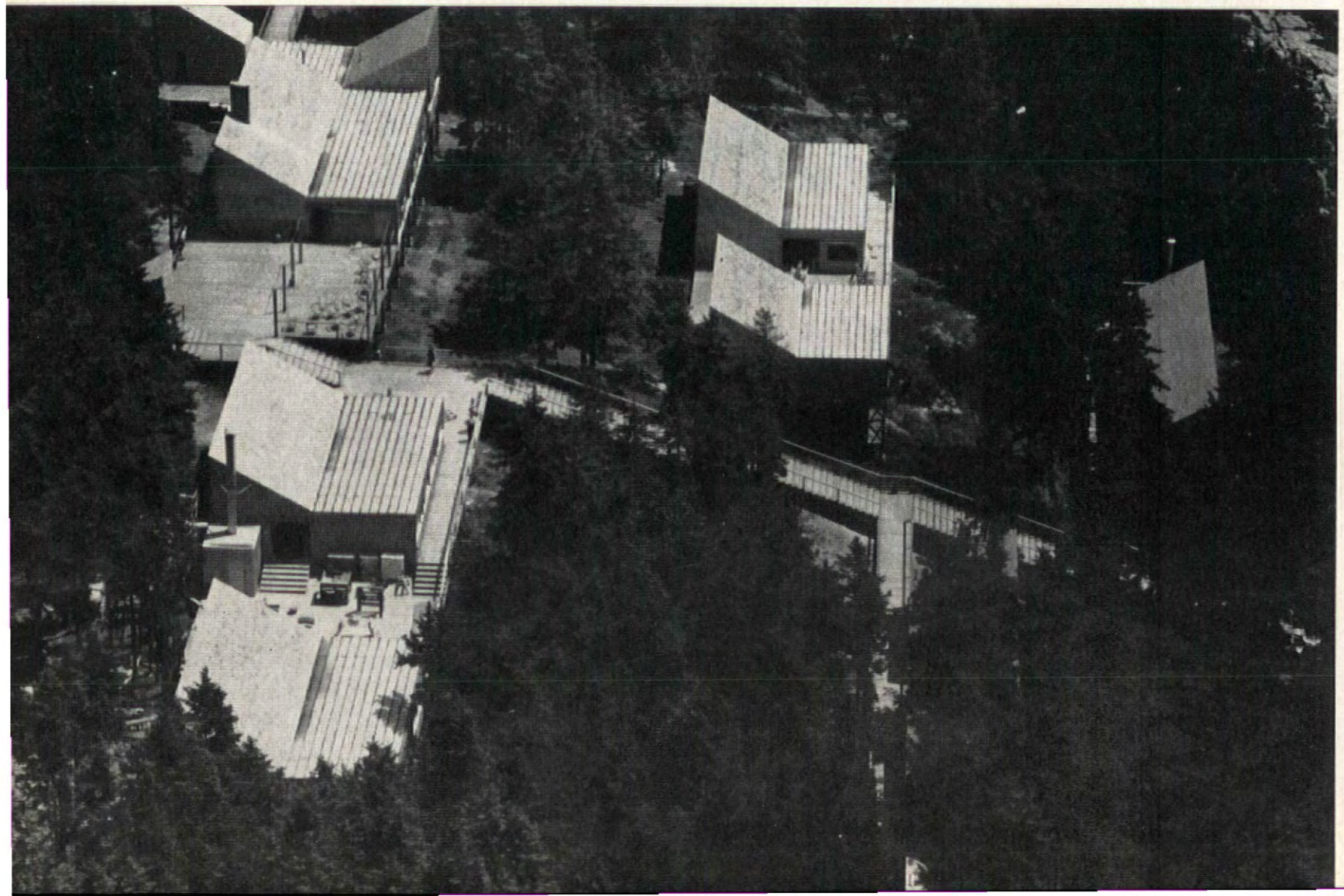
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**ARCHITECT ED BARNES:
TOWARD SIMPLER DETAILS,
SIMPLER FORMS,
AND GREATER UNITY**



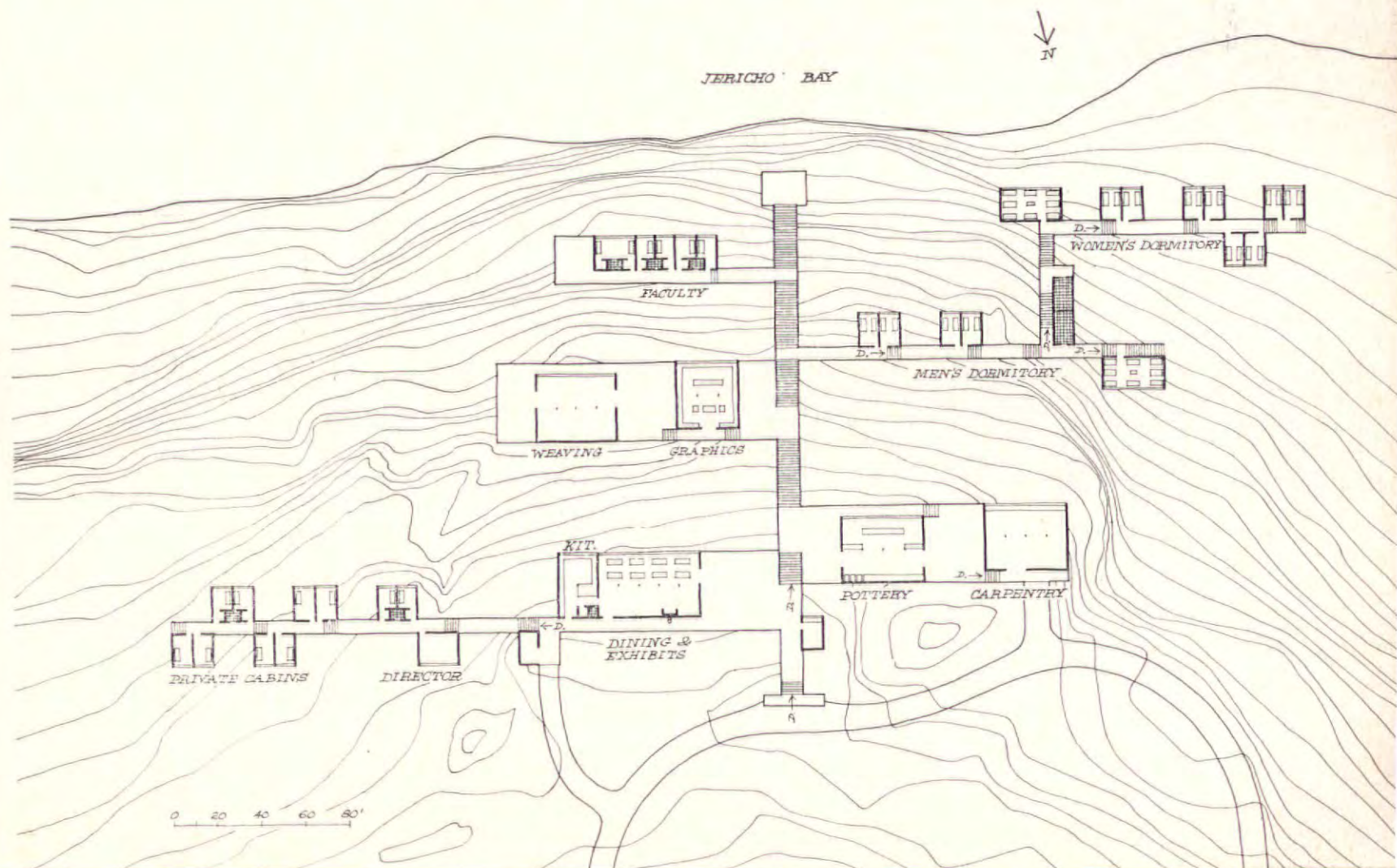


Haystack's twenty-three peaked roofs form an irregular silhouette (above), following central unifying stairway 90 feet down the steep slope (below).





A secondary "street" leads past small cedar-shingled cabins, already weathered and resembling the silver-grey saltboxes of Maine fishing villages.



1 & 3, VELY NOTH



1.

Travelling Fellowship, which he used to study housing and prefabrication. But the buildings which have come from Barnes' New York office in the past 15 years have avoided any particular line, even Harvard's. They have been marked by a kind of refined romanticism, a willingness to break the rectilinear pattern of the post-war era and a strong bent toward use of natural materials (as in the Haystack School, 2). Sometimes, in fact, it has almost seemed as if the Barnes office were located on the wrong coast.

From mud villages, continuity

Barnes' latest works contain these same characteristics. But projects such as his Administration Building at Princeton; faculty and student housing at Rochester Institute of Technology; dormitory for Detroit's Wayne State University; elementary school in Columbus, Ind., and a 35-story office building in Boston also show a

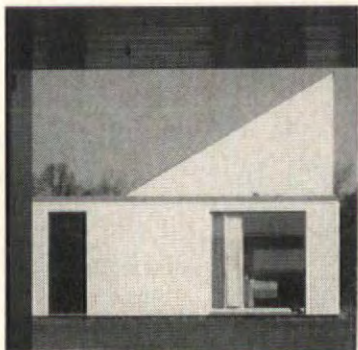


2.

JOSEPH W. MOLLITOR

heightened emphasis on mass, on volume, and on continuity. Much of it Barnes dates from his journey three years ago to the site of his U.S. consulate in Iran.

"When I saw the mud brick villages of the Middle East and the white towns of the Greek Islands, it was their sense of continuity



3.

which impressed me most," says Barnes with his intense enthusiasm. "It was not only their use of one material for roofs and walls and pavements, but also the continuity of the life of the people. Life and death, love and birth, work and worship, all were molded together in a way quite foreign to our fragmented society. It seemed to me that this kind of unity should be encouraged in our lives and expressed in our architecture."

To Barnes, the primary meaning of continuity in architecture is "simplification of detail and of form." This, of course, places him in conscious opposition to what he

terms "the brittle use of planes, screens, and precast elements" in many of today's buildings. "Basically, I suppose I am reacting against the breaking up of the façade," he says in summary.

At the Haystack School (pages 75-77) and in his other more recent work, the quest for unity through simplification has taken Barnes away from the soft sculpture of some of his earlier buildings. He has turned increasingly to Le Corbusier's "prime forms," to 30 and 60-degree angles, to what he calls "simple geometry." At the same time, when faced with multi-building problems, he is pursuing the "village idea," breaking them down into separately expressed but continually joined elements which carry the eye from one piece of geometry to the other.

Hence Haystack, and hence the even more village cluster of buildings just completed by Barnes for a gentleman farmer in the Middle West (1, 3). Here the white siding of the walls runs almost without interruption around the entire complex. From this continuous plane pop the angular roofs of the principal rooms and out-buildings, in an irregular but carefully contrived rhythm.

When Barnes had the opportunity to do an experimental theater for the Ford Foundation with Set Designer Jo Mielziner (4),



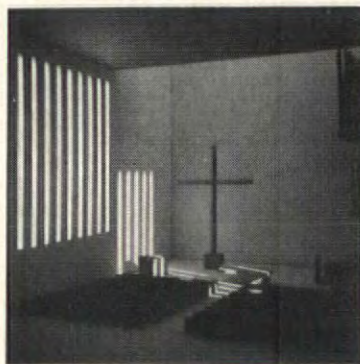
4.

CHARLES FORBERG

he emphasized "the volume of the major masses rather than the surface textures and details. The stage house and the auditorium nest together, their respective volumes carved out of two great cones. The use of the cone as a form is somewhat related to the conical sight lines and the projection of light inside."

From space and light, quality

Perhaps the clearest and most dramatic expression of what Barnes is trying to do is contained in his design for the Christian Theological Seminary in Indian-

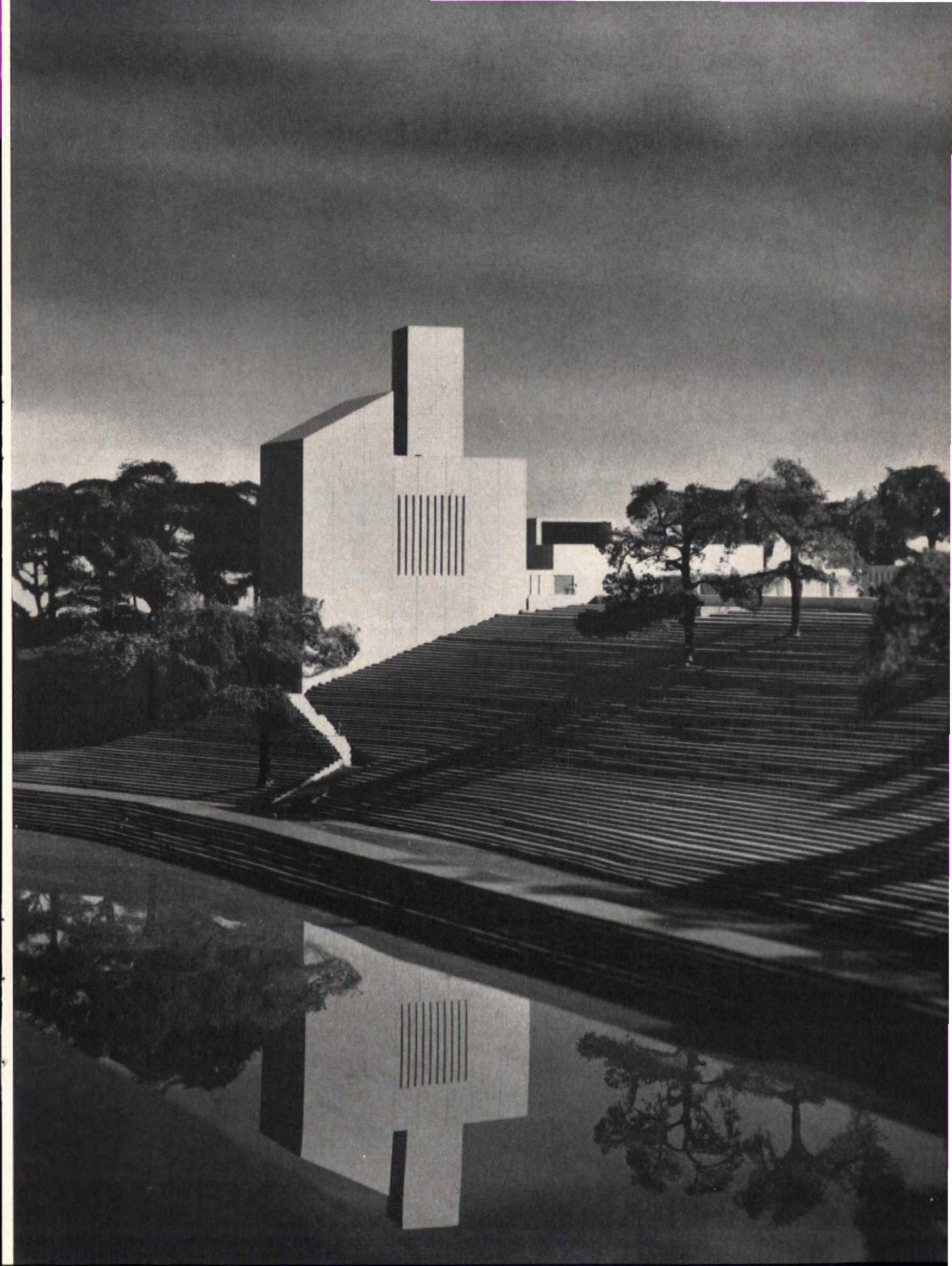


5.

5 & OPP., © LOUIS CHECKMAN

apolis, Ind. (5 and right). The great chapel, its blocky tower 120 feet high, rises from a courtyard formed by a continuous chain of other campus buildings. Its form is pure geometry, with both roof and walls of large precast concrete panels. Light enters from the tower roof, through narrow slits in the side walls.

"The space and light inside this chapel is the single design idea," says Barnes. "There is no interior decoration. The boxlike sanctuary is simply white plaster, with the large cross and chancel furnishings standing in what Tillich calls 'sacred emptiness.'" Space, light, and form—the essentials of architecture since architecture began—these are the components that give Barnes' work its special quality.



After 14 years of urban renewal, the American cityscape is beginning to change dramatically—but not always for the better. BY DAVID B. CARLSON

URBAN RENEWAL: A NEW FACE ON THE AMERICAN CITY

Since 1949, when the federal urban renewal program began, some 1,180 projects have been started in 627 different communities. As of today, 86 projects have been completed, and a number of others will be finished by the end of this year or early in 1964. The fact is, as the next five pages indicate, that there is now a considerable record of achievement in urban renewal.

The record so far consists of a rather mixed bag of buildings and projects, varying widely in size and in quality. Projects range in scope from the creation, in 1957, of a small traffic island in Syracuse, N. Y., to the construction of Manhattan's ambitious Lincoln Center for the Performing Arts—which will undoubtedly be the most expensive urban renewal project of all when it is finished.

In some cities, urban renewal means nothing more than a new parking lot, replacing a few slum dwellings. But in Carbondale, Pa., for example, urban renewal means heroic efforts to extinguish an underground coal mine fire.

The following pages show a broad sampling of finished projects (some "projects" are a single building) and a few striking efforts at large-scale redevelopment just getting underway. All the projects shown have one thing in common—they are all either completed or already under construction, or, else, sure to go ahead in the near future. None is a pipe dream, although some of the larger proposals may change significantly before completion.

The projects illustrate what is perhaps the most striking change in the program since its inception in 1949: "the totality of renewal . . . including industrial and commercial areas as well as residential," as Urban Renewal Administrator William L. Slayton puts it. Thus there are new industrial buildings in Providence and Cincinnati, motor hotels in Norfolk and Kansas City, a school in New Haven, a church headquarters in Nashville, and a downtown university in Chicago.

Since Slayton took over at URA, the federal program has expanded not only in scope and

the number of projects and cities involved, but it has bent its efforts toward better quality also. Slayton himself has led this search for quality, prodding both cities and redevelopers toward better planning and design. Slayton's boss, HHFA Administrator Robert Weaver, laid down the federal line when he said "we should give the d for design at least equal standing with the d for dollars."

This effort to equalize the two "d's" has not been easy. That much is obvious just from looking at the projects shown on these pages. Many of these very buildings were drawing criticism when Slayton himself said that the "unwillingness to accept design as a major criteria is a flaw in the program." Unhappily, that flaw continues to blight the program, despite Slayton's efforts and despite the bright spots in the record provided by a handful of outstanding architects.

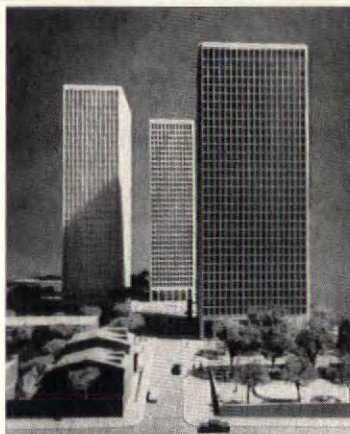
The plain fact is that, in too many cases, dollars have won out over design. When a city faces difficulties in disposing of land for renewal, it is too often tempted to waive esthetic preferences. Some cities, such as Philadelphia, San Francisco, and Washington, have experimented significantly with land disposition via design competitions; but many developers still feel that this method is too costly and that public officials have been too slipshod, in some instances, in the administration of the competitions. Still, some of the best projects in the whole urban renewal gallery have emerged from competitions (e.g., Diamond Heights in San Francisco and Society Hill in Philadelphia).

When he resigned several weeks ago as President Kennedy's Special Consultant on the Arts, August Heckscher pointed to URA's recognition that well-designed urban renewal projects "can become great assets—functionally and esthetically," as one of the happiest auguries for a better American environment. "But if these areas are poorly designed, rebuilt in uninteresting and unproductive patterns," Heckscher added, "a basic purpose for the expenditure of public funds will be lost."



PHILADELPHIA

This city has perhaps the most comprehensive renewal program in the nation, with a wide range of land uses and techniques. Philadelphia also has the largest single project of all, Eastwick (2,140 acres) by Reynolds Aluminum Service Corp. So far, this residential-commercial-industrial complex only has a few new rowhouses (lower right, designed by C. Doxiadis). In a more advanced stage is Washington Square East, where I. M. Pei's high-rise apartment towers (720 units) are under construction, and some 45 red-brick townhouses are already being sold (top, right). These projects form part of the larger Society Hill area, which has considerable (and expensive) new housing and rehabilitation underway in this vital neighborhood east of the city's downtown, which is expected to become a prime downtown residential area.



GEORGE CSERNA



PROVIDENCE

Perhaps the most impressive use of industrial land in urban renewal is in the West River Park area, which now has 14 industrial structures in operation, ranging from a new printing plant for the Provi-

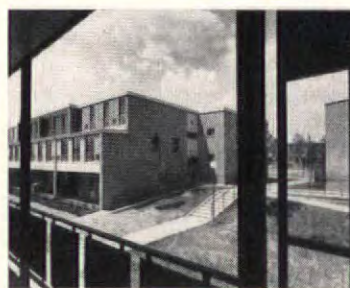
dence Journal to the nation's most automated post office designed by Charles A. Maguire & Associates (vaulted roof in photo above). West River's new plants represent 1,000 new jobs and will boost the tax take in the area ten times.

KEERA STOLLER ASSOC'S.



CLEVELAND

Like most other large cities, Cleveland is concentrating its urban renewal downtown, in a huge (163 acre, quarter-billion dollar) project called Erievue. The first element of the plan prepared for the city by I. M. Pei (see above) will be the 40-story office tower shown at top, designed for Developers John W. Galbreath and Peter B. Ruffin by Harrison & Abramovitz. When it is completed, Erievue will provide a new focus for a wide range of downtown activities.



ST. LOUIS

One of the first sections of the vast Mill Creek Valley project to be finished is the housing designed by Leo A. Daly and Mayer, Whittlesey & Glass for Developer James H. Scheuer (above). The LaClede Park apartments, when completed, will consist of 1,700 units. The first apartments have rented slowly, but two 12-story towers and more commercial facilities scheduled to be finished soon are expected to help the whole area.



CINCINNATI

The self-styled Queen City of the West has been in the renewal business since 1950, but hasn't gone very far yet. Park Town Homes (top), designed by C. Doxiadis for Reynolds Aluminum Service Corp., have been less than a full-blown success, and the ambitious Queensgate industrial area (lower) so far has fine plans, but few plants.

BOSTON

After mixed success in other parts of town, Boston is now concentrating its urban renewal effort downtown, with the biggest and most important single undertaking the \$185 million Government Center (below). Principal elements of the center will be: a 35-story, \$20 million office building designed by Edward L. Barnes for Cabot, Cabot & Forbes (1); the city hall, designed by Kallmann, McKinnell & Knowles (3); and a complex of several buildings designed principally by Paul Rudolph (2).



PROVIDENCE JOURNAL-BULLETIN



NEW YORK

With nearly 10 per cent of the \$3 billion of federal urban renewal funds which have so far been reserved, and 37 different federally aided projects, New York City has far and away the largest program in the U.S. Over 11,000 apartment units have been built so far, including five of the newest projects: Lincoln Towers (1), designed by S. J. Kessler and Sons, which loom a short walk from Lincoln Center; I. M. Pei's Kip's Bay apartments (both projects built by William Zeckendorf, but now owned by ALCOA) (2); University Terrace development in Brooklyn, by Kelly & Gruzen (3); the Seaside project in Rockaway by S. J. Kessler and Sons (4); and Kelly & Gruzen's serpentine Chatham Green apartment tower near City Hall (5).

As these projects indicate, New York is still caught in the clutches of megalomania, and the projects, if anything, seem to get bigger. Hopefully, redevelopment scandals are a thing of the past, but New York's program still suffers from too much high-priced housing (the Housing and Redevelopment Board last year called a halt to all "luxury" projects after much criticism), and from a tendency to rely on large new projects to carry most of the renewal load. Obviously, New York, like most other cities, is most impressed by its own figures which show that renewal is fine for beefing up the tax yields—the 1,384 acres under development will yield nearly \$40 million in taxes when projects are completed.

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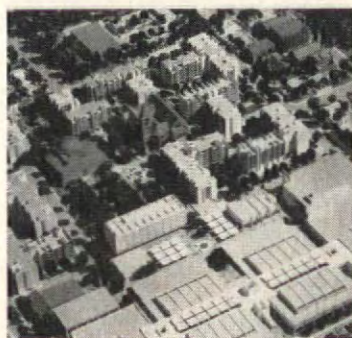


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PHOTOS: SKYVIEWS



PITTSBURGH

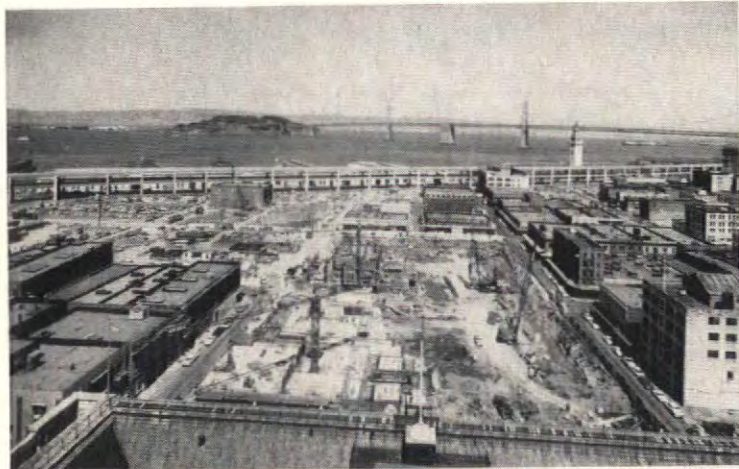
The Steel City was the first to do something dramatic about its downtown, with the Golden Triangle "renaissance" pioneered by local businessmen even before the federal government came on the scene. Since then, other areas have come in for some attention, with federal aid: e.g. the Lower Hill project, with new apartment towers by I. M. Pei (top) not far from the Civic Auditorium dome. The towers will contain 950 units when completed. Meanwhile ALCOA, which now holds the chief interest in Lower Hill, and Developer Lewis Kitchen are going ahead with plans for Allegheny Center, on the city's North Side. This \$60 million project (shown in model form, above) will include Pittsburgh's largest shopping center, 1,000 apartment units and 250 townhouses, as well as a six-story office building. Architects Deeter & Ritchey have grouped ten apartment towers around the existing Carnegie Library and the Planetarium, with townhouses arranged around courtyards. Completion date: 1966.



CHICAGO

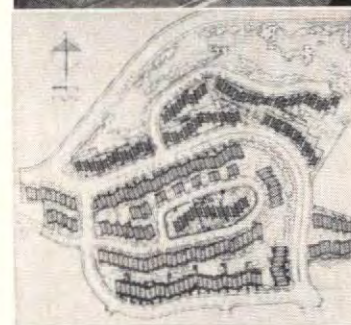
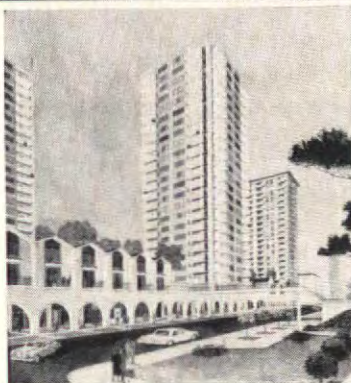
With the nation's second biggest program well-underway, the Second City is now putting more emphasis on the West Side and on the North Side. Recent developments on the South Side, where the first big projects, Lake Meadows and Prairie Shores, were built in the 1950s, have been relatively modest. On the North Side, where rehabilitation is rife, Carl Sandburg Center (above) is being built at what is perhaps the fastest tempo of any renewal project in the nation. Two of the proposed seven apartment towers (27 stories each) are finished and work is proceeding on two more plus the first group of 48 townhouses. Eventually Sandburg Center, designed by Solomon & Cordwell, will have 1,875 units of housing, plus shopping, restaurants, and office space in the 34-acre site. On the West Side, the biggest single project is the new \$150 million downtown campus for the University of Illinois (below).





SAN FRANCISCO

The first phase of the \$85 million Golden Gateway project is underway on the 20-acre site shown above. Three apartment towers and 38 townhouses will be finished next year (right, 1), and work will soon commence on a 1,300-car parking garage and an office tower designed principally as ALCOA's West Coast headquarters. (ALCOA is co-owner of the project, with Perini Corp.) Architects Wurster, Bernardi & Emmons and Demars & Reay won a design competition for this project. Another competition winner was the design of B. Clyde Cohen and James K. Levorsen for the Diamond Heights project (right, 2). Some 98 units of townhouses and duplexes are under construction, 200 are already built on Red Rock Hill, and work will soon start on the towers (see plan, 3). When completed, Diamond Heights, being built by Developer Irving Kahn, will have 2,397 new apartments in all. In another San Francisco project, the Western Addition area, one of the newest buildings is the Kaiser Foundation Health Plan building (4), with offices for 100 doctors (designed by Morris N. Wortman). San Francisco's extensive program has tried just about every renewal trick in the book; yet the city's latest annual report reveals a great deal about the state of the program: "It is clear that increasing emphasis must be given to . . . housing families and single persons of moderate and low income. . . . If their needs are not given constructive attention, the redevelopment program will of necessity be impeded." To help meet these needs San Francisco is encouraging new low-rent units and is expanding its residential rehabilitation program.



DETROIT

Among the most classic of apartment developments in or out of a renewal project is Mies van der Rohe's Lafayette Park in Detroit's Gratiot area. Two new 22-story towers have recently opened, joining the original high-rise (in top picture, left). Between the towers is a new multi-level parking structure (lower picture). The apartments are less than a mile from downtown and the city's new Civic Center (Forum, May '63), and rent for \$125 to \$300. Early next year, a 30-story tower with an additional 336 units is expected to be completed, and other sites are currently being sold.



HONOLULU

Three apartment towers designed by Minoru Yamasaki comprise the Queen Emma Gardens project in Honolulu. The apartments (two 22-stories high, the other 12 stories) contain 582 apartment units and are scheduled for completion next year. A restaurant is also included in the 8.7-acre project.



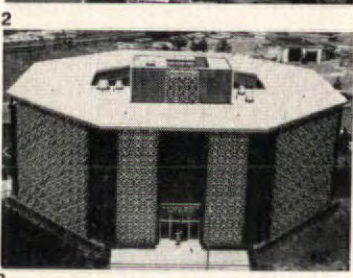
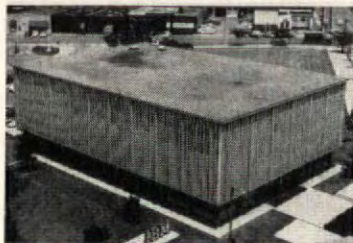
BALTIMORE

Mies van der Rohe's 24-story office tower (top) which opened last fall is presently the jewel of the Baltimore renewal program. It is the first major structure in the city's ambitious downtown Charles Center, and the first new office building since the 1920s (Forum, May '63). Also part of Charles Center will be a new 17-story federal office building, with over 450,000 square feet of office space (center) designed by Fisher, Nes, Campbell & Associates, and Fenton & Lichtig and the office of James R. Edmunds, Jr. The building will be the biggest in Charles Center. In another part of town are the city's newest urban renewal apartments, Sutton Place, designed by Jewell & Wolf for Developers Marvin and Bertrand Gilman. The 16-story, \$6.5 million building has 300 apartments and nine shops, plus two restaurants and a swimming pool. Rentals range from \$110 a month for a studio to \$320 for a two-bedroom unit. It is less than a mile from the elegant Mies tower.



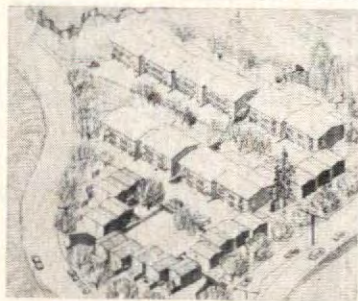
NASHVILLE

Tennessee's capital city has permitted the highway engineers to chop up its leading renewal project, right on Capitol Hill (above). Multi-lane roads and parking wind through the area, cutting off any possibility of coherent planning. Nashville isn't the only city that suffers thus, but its problem is perhaps most notable: Some 40 per cent of the project area is now highway or parking space. Among the new buildings on the hill are the \$425,000 International Business Machines building (by Curtis & Davis, 1); the Parkway apartments (by Billis & Johnson, 2), with 170 units and a rooftop swimming pool; and (3) the new offices of the executive committee of the Southern Baptist Convention by Hart, Freeland & Roberts. This five-story building has an anodized aluminum curtain wall, laced with green stone. Aside from Capitol Hill's highway woes, the project has been criticized for not being oriented more directly toward the downtown financial district.



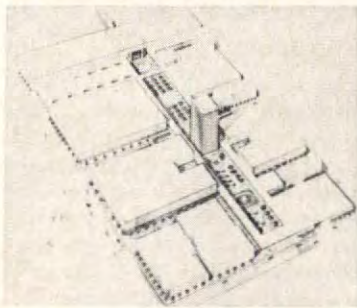
MARIN CITY

The magic number in urban renewal is "221d3"—the designation for a program of federally insured mortgages for relocation housing. One of the best such projects is this one in Marin City, Calif., designed by DeMars & Reay for larger families. The magic is in the rental: only \$123 per month for the largest units.



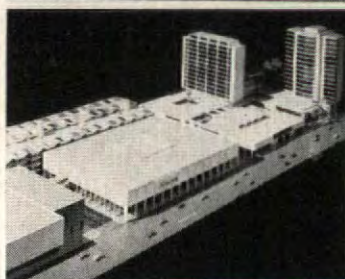
SACRAMENTO

Reynolds Aluminum Service Corp.—like ALCOA up to its neck in urban renewal—has started work on its first wholly commercial project, a shopping center designed by Edward Durell Stone. Tallest structure in the \$35 million project will be an office tower. A central mall (with an arched gateway) will hold the 15-acre project together.

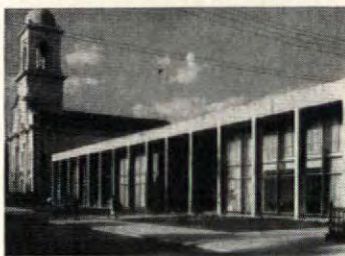


NEW HAVEN

Still spending more per capita on urban renewal than any other large U.S. city, New Haven doesn't show any signs of letting up. The vital Church Street project (picture, left), backed by Developer Roger Stevens, now has Macy's in it again (after the chain had earlier bowed out), near Paul Rudolph's celebrated concrete parking garage (center, above), plus Malley's Department Store (by John Graham & Associates). Less grandiose, but no less important to the city, is Skidmore, Owings & Merrill's new elementary school and community center complex (left), a key focus in the rehabilitation of the Wooster Square neighborhood.



EZRA STOLLER ASSOC'S.



NORFOLK

The 14-story Golden Triangle project (top, right) is a combination motor hotel and office building designed by veteran Hotel Architect Morris Lapidus for Futterman Corp. So delighted was the city with this new building that it had some old oil storage tanks nearby painted in pastel colors so as not to offend tenants. The \$6.5 million building is located on a 5.6-acre site near a post office—and will pay taxes 22 times higher than those returned by the slums formerly on the site. Another recent renewal development is the Medical Office Building (right, lower) by Architect Vincent Kling, situated in the Medical Center area, where considerable new construction has taken place.



MINNEAPOLIS

Some 40 per cent of downtown Minneapolis is included in Gateway Center, which already has completed a new Sheraton Hotel



(center, above) and a building for IBM, both by Peterson, Clark & Griffith. Knutson Companies, Inc. has also broken ground for two more office towers and apartments.



WASHINGTON, D.C.

The most widely discussed urban renewal project in the nation is Washington's Southwest area, where 552 acres of slums have been completely replaced by new housing and shopping facilities, as well as a few new light industrial plants and offices. Most striking of Southwest's new apartments are the black and aluminum River Park high-rise units designed by Charles Goodman (for Reynolds Aluminum Service Corp.) shown at the top, and Satterlee & Smith's Capital Park III tower and townhouses (below). Meanwhile, other projects in the Southwest area are underway, with Satterlee & Smith's Harbour Square slated for completion next year. Now that Southwest is in its home stretch, the city has turned its attention to Northwest, where the Adams-Morgan and Northwest projects have met considerable local opposition. Neither calls for all-out clearance, but rather for a multi-faceted approach, including rehabilitation.



KANSAS CITY

Quality Hill, shown in the aerial photograph above, was one of the first urban renewal projects to be started, and might well be the last to be completed. Developer Lewis E. Kitchen built five 11-story apartment towers (a total of five hundred units) in 1951, but didn't get anything more built until ten years later, when a new tower was completed (shown in center of picture and right). Like the earlier towers, it was designed by Kivett & Myers. The new building has been renting slowly so far (its rents are higher than those of the others). Among the nearby attractions: a new Hilton motor hotel shown left (2). Meanwhile, Reynolds Aluminum has been operating on a more modest scale in another part of town, where it completed 214 small homes last fall as the first step in its Parade Park project. A total of 600 rowhouses are planned, at a cost of \$6 million. The homes, designed by Geis-Hunter-Ramos, will be sold as cooperatives, with down payments as low as \$100 and payments beginning at \$48 per month. The houses have aluminum panelled walls, and aluminum doors and windows.



SYRACUSE

One of the newest urban renewal projects in the nation is a \$26.2 million plan of Reynolds Aluminum for downtown Syracuse. The plan by Keyes, Lethbridge & Condon includes three 30-story apartment towers and three 10-story apartments plus townhouses, with units totalling 957. An office building, recreation center, and enclosed-mall shopping are also planned.



JOSEPH W. MOLITOR



BALTHAZAR

NEWARK

Of the dozen urban renewal projects in Newark, the most striking one is Colonnade Park. Designed by Mies van der Rohe for Metropolitan Structures, Inc., the project is actually three 22-story apartments (with a total of 1,240 units), the two small towers separated from the larger slab (above) by an array of bland, existing public housing. The three buildings cover only about 10 per cent of their sites, leaving lavish open space around each. Rents in the \$20 million project start at around \$96 for an efficiency and go as high as \$266 for three bedrooms.



SANTA MONICA

One of the most bitterly contested struggles for any urban renewal site occurred in this California city, where a joint venture of Kern County Land Co. and Del E. Webb Corp. finally won out. Their plan for the 20-acre residential complex was developed by Welton Becket & Associates, and calls for two 17-story apartment towers as the first phase of the project. Also planned: four large towers and two clumps of townhouses. END

VENID A MI HIJOS MIOS



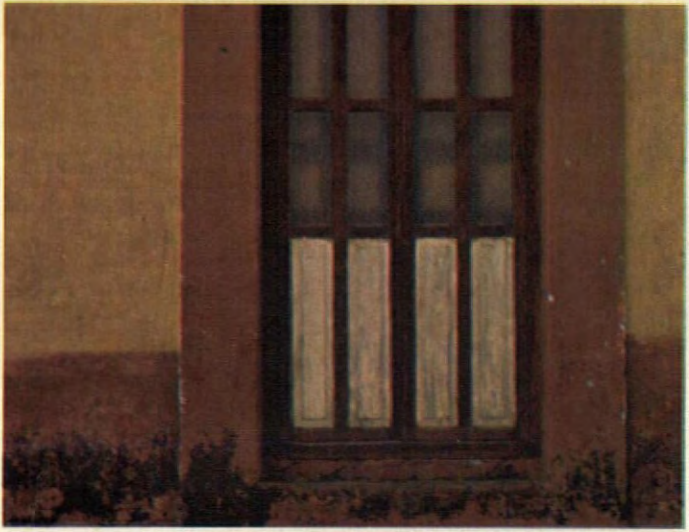
Mexico's Vivid Doors

In southern Mexico paint is one of the poorer people's few vivid means of expression; most notably, they brush it on the doors to their houses, churches, and markets. Since the poor are numerous, the exotic entrances are frequent.

Freshness is not one of the required qualities; a patina is permitted, sometimes even a peeling one, as in the door (opposite) to an old church in Janitzo, a fishermen's town on an island in Lake Patzcuaro. Overleaf are shown residences and another church in Las Casas, high in the mountains (where the women retain native Indian dress, but the men wear blue jeans as a proud symbol of education). The final page shows doors in Oaxaca and Tierra Blanca. The legend over the church door above: "Come to me, my sons."

PHOTOGRAPHS BY BARBARA GOULD









100

BIGGEST BUILDING CLIENTS IN THE U. S.

More volatile than the list of the ten best dressed women, FORUM's annual tabulation of the 100 biggest building clients in 1962 continues to show about a 50 per cent turnover each year. The main reason for this pattern: most corporate clients spend a great deal at one throw for a new headquarters or major manufacturing complex, and then are set for some years to come. Thus names such as Rock-Time (owners of the Time-Life Building in Manhattan), Union Carbide, First National City Bank of New York, Borg-Warner Corp., and Southland Life have appeared in the past, each representing a single major building. None of these corporations is on the 100 biggest list this year. Last year, such singular examples included Detroit's Michigan Consolidated Gas Co. (FORUM, May '63) and Phoenix Mutual Life of Hartford, Conn.

Fifty-one newcomers appear on FORUM's latest list of the 100 biggest clients, and these represent only those corporations responding to direct queries. Others which would obviously be included are such firms as Columbia Broadcasting, with a new skyscraper going up on Manhattan's Avenue of the Americas; Loew's Theatres, Inc., builders of the Americana Hotel and a new mid-Manhattan motor hotel; Litton Industries, the nation's fastest growing electronics and space-age corporation; Douglas Aircraft; National Dairy Products Corp.; and Dow Chemical Co. None of these corporations, however, provided a breakdown of its expenditures for buildings as against capital equipment.

Of those corporations which have become regulars on the FORUM list, the very largest still dominate. American Telephone & Telegraph is still the leader by far, with over \$193 million of investment in new buildings. And that most massive of wholly owned subsidiaries, Western Electric, showed an additional \$97 million of new investment in 1962 (on top of \$72 million the previous year), making the total for the Bell System well over \$280 million for all of last year.

E. I. duPont de Nemours, which estimated that it would spend 20 per cent more than the \$25 million it spent in 1961, was just about right, and showed up fourth on the latest FORUM list, with expenditures of over \$31 million. Other repeaters from last year's top ten building clients include General Motors Corp., Eastman Kodak, and Safeway Stores.

The 1962 clients list shows a greater emphasis on remodeling than ever before. Large clients such as Sears, Safeway, and North American Aviation spent 20 per cent or more for remodelings last year. And Hilton Hotels spent over 30 per cent of its nearly \$11 million total, Equitable Life nearly half its \$10.5 million, and Metropolitan Life, in the latter stages of a dramatic overhaul of its downtown Manhattan headquarters, about \$7 million for remodeling.

One element of the 1962 client tabulation which might be misleading in the light of latter-day optimism is the client forecast of this year's spending. Of the total 83 corporations which reported, 45 predicted a decrease in building spending, while only 38 foresaw an increase. (Significantly, the larger spenders were the most optimistic.) But since that count was taken, the overall economic picture has changed considerably—contracts let last May for future factory construction, a large element of the 100 biggest clients' spending, went above \$280 million, some 53 per cent higher than a year before.

Reprints of this article, combined with articles on the 100 Biggest Architects and Contractors, may be obtained for 50 cents each prepaid. Address FORUM, Rm. 1939, Time Inc., Rockefeller Center, N.Y. 20.

U. S. construction put in place

Type of construction as a per cent of 1962 total

Company (main office)	Value (\$000)	Remodeling	Production	Research	Offices	Other	Forecast '63
1 American Tel. & Tel. (New York)	\$193,000	10	—	—	12	88	+22%
2 General Motors (New York)	97,000	na	na	na	na	na	— 2
3 Western Electric (New York)	41,000	12	33	21	15	31	—24
4 E. I. duPont de Nemours (Wilmington, Del.)	31,000	na	85	10	—	5	+29
5 Sears, Roebuck (Chicago)	30,605	20	—	—	—	100	+31
6 Eastman Kodak (Rochester, N. Y.) ²	30,000	na	na	na	—	—	na
7 Safeway Stores (Oakland, Calif.)	28,096	22	13	—	—	87	+ 3
8 Boeing Co. (Seattle)	23,400	5	32	11	53	4	—65
*9 Tenn. Gas Transmission (Houston)	22,836	5	—	1	86	13	—42
*10 New York Life (New York)	21,840	13	—	—	64	36	—71
11 Bank of America (San Francisco)	20,800	10	—	—	100	—	—33
12 R. H. Macy & Co. (New York)	18,000	9	—	—	—	100	—28
13 Prudential Ins. Co. (Newark, N. J.)	17,280	—	—	—	91	9	+85
14 Minnesota Mining & Mfg. (St. Paul)	16,750	3	55	10	30	5	+121
*15 Thompson Ramo Wooldridge (Cleveland)	15,500	na	—	80	—	10	na
16 International Business Machines (New York)	15,400	—	43	24	33	—	+140
17 North American Aviation (El Segundo, Calif.)	14,300	20	8	32	60	—	+ 5
18 General Telephone & Electronics (New York)	14,173	na	—	—	—	100	+30
19 Chase Manhattan Bank (New York)	13,148	10	—	—	100	—	— 2
20 Lockheed Aircraft (Burbank, Calif.)	13,000	30	47	12	35	6	—38
*21 Kroger Co. (Cincinnati)	11,600	1	2	—	—	98	—46
*22 Hilton Hotels Corp. (Chicago)	10,827	32	—	—	—	100	+13
*23 Hotel Corp. of America (Boston)	10,600	4	—	—	—	100	+ 8
24 Equitable Life (New York)	10,500	49	—	—	100	—	+ 6
25 Deere & Co. (Moline, Ill.)	10,400	3	18	2	55	25	+ 8
26 Aluminum Co. of America (Pittsburgh) ¹	10,000	na	na	na	na	na	+50
27 First National City Bank (New York)	10,000	na	—	—	—	100	—50
*28 Michigan Consolidated Gas (Detroit) ²	10,000	—	na	—	na	—	na
29 Food Fair Stores (Philadelphia)	9,800	—	—	—	—	100	+43
30 Westinghouse Electric (Pittsburgh)	9,700	10	50	40	10	—	—18
31 Metropolitan Life (New York)	9,400	72	—	—	80	20	+13
32 R. J. Reynolds Tobacco (Winston-Salem, N. C.)	9,219	14	99	—	1	—	—66
*33 Grand Union Co. (East Paterson, N. J.)	9,200	20	—	—	—	100	—46
34 Ford Motor Co. (Dearborn, Mich.)	8,900	25	65	—	4	29	+124
35 Borden Co. (New York) ²	8,000	na	100	—	—	—	na
*36 Procter & Gamble (Cincinnati) ²	8,000	na	100	—	—	—	na
37 Swift & Co. (Chicago)	7,800	35	90	—	5	5	—10
*38 Commonwealth Edison (Chicago)	7,629	4	100	—	—	—	— 8
39 Weyerhaeuser Co. (Tacoma, Wash.)	7,500	10	na	na	na	na	—13
40 United Air Lines (Chicago)	7,396	14	—	—	61	39	—21
41 Owens-Illinois Glass (Toledo)	7,081	2	89	—	1	10	—36
*42 Crown Cork & Seal (Philadelphia) ²	7,000	na	100	—	—	—	na
*43 Gillette Co. (Boston)	6,900	na	na	na	na	na	na
*44 Johnson & Johnson (New Brunswick)	6,850	6	48	3	41	8	—43
45 Ideal Cement Co. (Denver)	6,700	1	25	3	3	69	—46
*46 Potomac Electric Power (Washington)	6,596	3	91	—	9	—	—42
*47 General Tire & Rubber (Akron, Ohio)	6,500	10	na	na	na	na	+231
48 Caterpillar Tractor (East Peoria, Ill.)	6,490	1	44	52	3	1	—46
*49 Pennsalt Chemicals (Philadelphia)	6,465	16	36	62	—	2	—13
50 United States Gypsum (Chicago)	6,400	5	35	—	60	5	—41

* Newcomers to the list since 1962 survey.

1 Estimate by company

2 Estimate by FORUM based on available statistics

na = not available

U. S. construction put in place

Type of construction as a per cent of 1962 total

Company (main office)	Value (\$000)	Remodeling	Production	Research	Offices	Other	Forecast '63
51 Jones & Laughlin Steel (Pittsburgh)	\$6,300	1	45	28	9	18	-40%
52 Security First National Bank (Los Angeles)	6,137	na	—	—	100	—	+62
*53 Northrop Corp. (Beverly Hills)	6,100	—	na	na	na	—	+66
*54 Standard Oil of Ohio (Cleveland)	6,100	10	—	—	—	100	+41
55 Hercules Powder (Wilmington, Del.)	6,000	10	50	5	40	5	-33
*56 Merck & Co. (Rahway, N. J.)	6,000	10	80	10	10	—	+33
*57 Phoenix Mutual Life (Hartford, Conn.)	6,000	—	—	—	100	—	nc
58 Stop & Shop, Inc. (Boston)	6,000	—	—	—	—	100	-58
*59 Union Central Life (Cincinnati)	6,000	—	—	—	100	—	-42
*60 Anheuser-Busch (St. Louis)	5,900	—	100	—	—	—	+
*61 Amer. Radiator & Stand. San. (New York)	5,600	25	60	20	20	—	-29
*62 Motorola (Franklin Park, Ill.)	5,547	14	41	42	6	11	+127
*63 Bankers Trust Co. (New York)	5,521	17	—	—	100	—	-33
64 Travelers Ins. Cos. (Hartford, Conn.)	5,500	80	—	—	100	—	+7
65 Flintkote (New York)	5,494	5	89	—	8	3	-82
*66 Eli Lilly & Co. (Indianapolis)	5,374	15	3	55	—	42	+105
*67 Xerox Corp. (Rochester)	5,200	na	na	na	—	—	na
*68 Virginia Electric & Power (Richmond, Va.)	5,000	3	84	—	8	8	+26
*69 T. J. Lipton, Inc. (Hoboken, N. J.)	4,854	—	50	15	35	—	+28
*70 Public Service Electric & Gas (Newark, N. J.)	4,800	30	90	—	10	—	-17
71 Northwestern Mutual Life Ins. (Milwaukee)	4,778	35	54	—	32	14	-16
*72 Addressograph-Multigraph Corp. (Cleveland)	4,774	10	90	—	—	10	-91
73 New England Mutual Life (Boston)	4,603	1	—	—	100	—	-66
*74 Cleveland Electric Illuminating (Cleveland)	4,600	—	100	—	—	—	na
*75 Zenith Radio Corp. (Chicago)	4,580	—	75	—	8	17	+37
*76 Illinois Power Co. (Decatur, Ill.)	4,500	2	63	—	37	—	-67
*77 Bullock's, Inc. (Los Angeles)	4,460	—	—	—	—	100	-73
*78 First National Bank of Hawaii (Honolulu)	4,381	—	—	—	100	—	-93
79 Columbia Gas System (New York)	4,348	6	32	2	60	6	-6
80 Anaconda Co. (New York)	4,320	10	97	—	—	3	-31
*81 Dan River Mills (Danville, Va.)	4,301	12	100	—	—	—	-86
*82 Sinclair Oil Corp. (New York)	4,157	46	—	48	—	52	-20
*83 Consolidated Freightways (Menlo Park, Calif.)	4,102	10	—	—	10	90	-20
*84 Allied Stores Corp. (New York) ²	4,099	na	—	—	—	100	na
*85 Federal Mogul-Bower Bearings (Detroit)	4,000	20	70	20	10	—	-25
86 Genesco, Inc. (Nashville) ²	4,000	na	na	—	—	na	na
*87 Super Valu Stores (Hopkins, Minn.)	3,900	20	—	—	—	100	+15
*88 National Tea Co. (Chicago) ¹	3,850	10	—	—	—	100	+56
89 United California Bank (Los Angeles)	3,747	57	—	—	100	—	+17
*90 Pittsburgh Plate Glass (Pittsburgh)	3,641	na	na	na	na	na	na
*91 FMC Corp. (San Jose, Calif.)	3,600	na	na	na	na	na	+ 5
*92 Beatrice Foods Co. (Chicago)	3,500	20	75	—	10	15	na
93 B. F. Goodrich (Akron, Ohio)	3,500	70	45	5	—	50	+57
*94 Richfield Oil (Los Angeles)	3,500	—	—	—	2	98	na
95 International Harvester (Chicago)	3,400	50	50	5	5	40	+147
*96 Wrather Corp. (Beverly Hills)	3,200	16	—	—	—	100	na
*97 Occidental Life (Los Angeles)	3,198	—	—	—	100	—	+291
*98 Stauffer Chemical (New York)	3,100	1	76	5	11	—	+19
99 Colgate-Palmolive (New York)	3,021	15	—	85	—	15	na
*100 Inland Steel (Chicago) ¹	3,000	—	95	—	5	—	+500

* Newcomers to the list since 1962 survey.

¹ Estimate by company

² Estimate by FORUM based on available statistics

nc = no change
na = not available

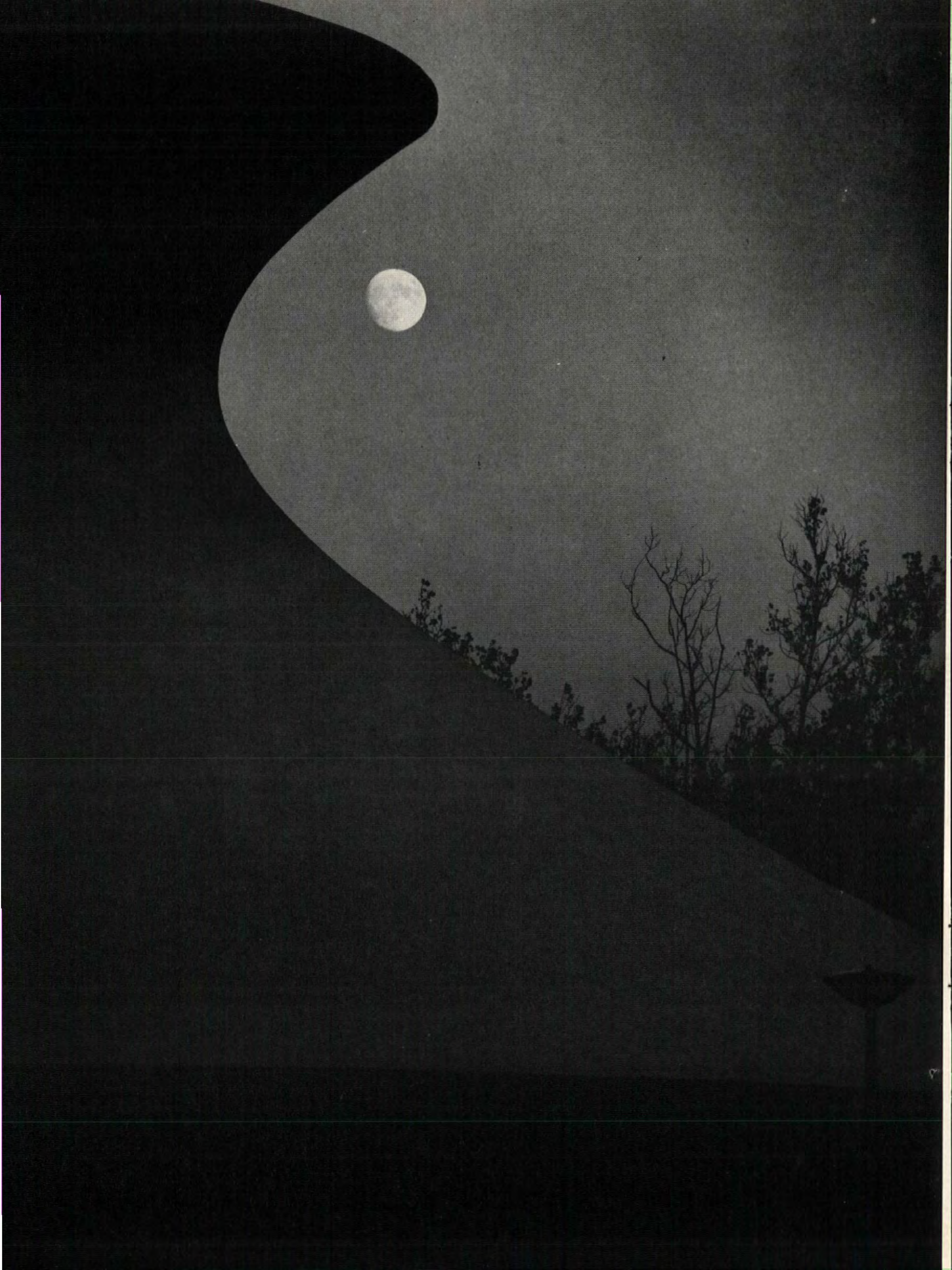
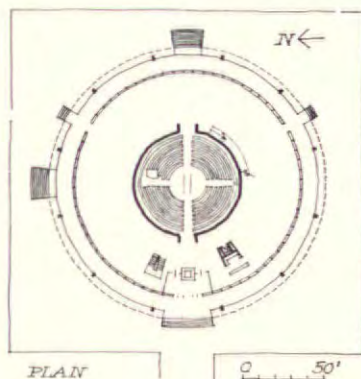




PHOTO: JACK ZIEHL

SPOOL-SHAPED PLANETARIUM FOR ST. LOUIS



Looking like some strange craft spun down to earth from outer space, the great spool-shape of St. Louis' new municipal planetarium perches gracefully on a rise in downtown Forest Park.

"The Mayor [Raymond Tucker] asked us to design a building that would be different from any other planetarium in the world," says Designer Gyo Obata of Architects Hellmuth, Obata & Kassabaum. And different it is. In the flaring shape, some see a family resemblance to the tiny space capsules that have carried U.S. astronauts toward the stars—perhaps because St. Louis' own McDonnell Aircraft Corp., makers of the capsules, gave \$200,000 toward the planetarium's \$1.2 million cost.

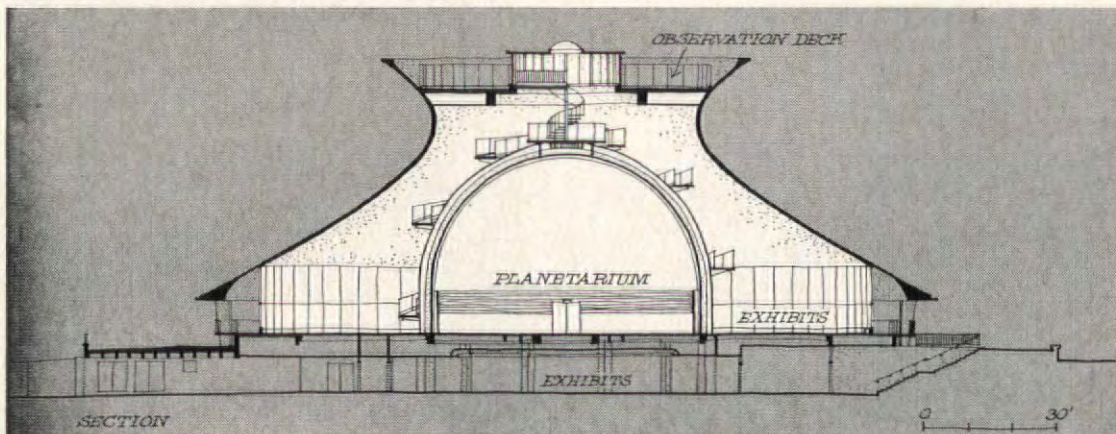
Whatever guessing games the shape may provoke, however, it is

far from arbitrary. A simple "hyperboloid of one sheet," the thin concrete shell (average thickness: 3 inches) acts as a 160-foot-wide umbrella for the inner planetarium's more conventional projection dome, and its peripheral exhibit space (see overleaf). A ramp winding up around this inner dome emerges on a circular roof deck, where those who prefer their astronomy live can see the stars through telescopes on clear nights; the flaring top of the hyperbolic shell, 72 feet high at this point, forms a 7-foot parapet that cuts off distracting city lights.

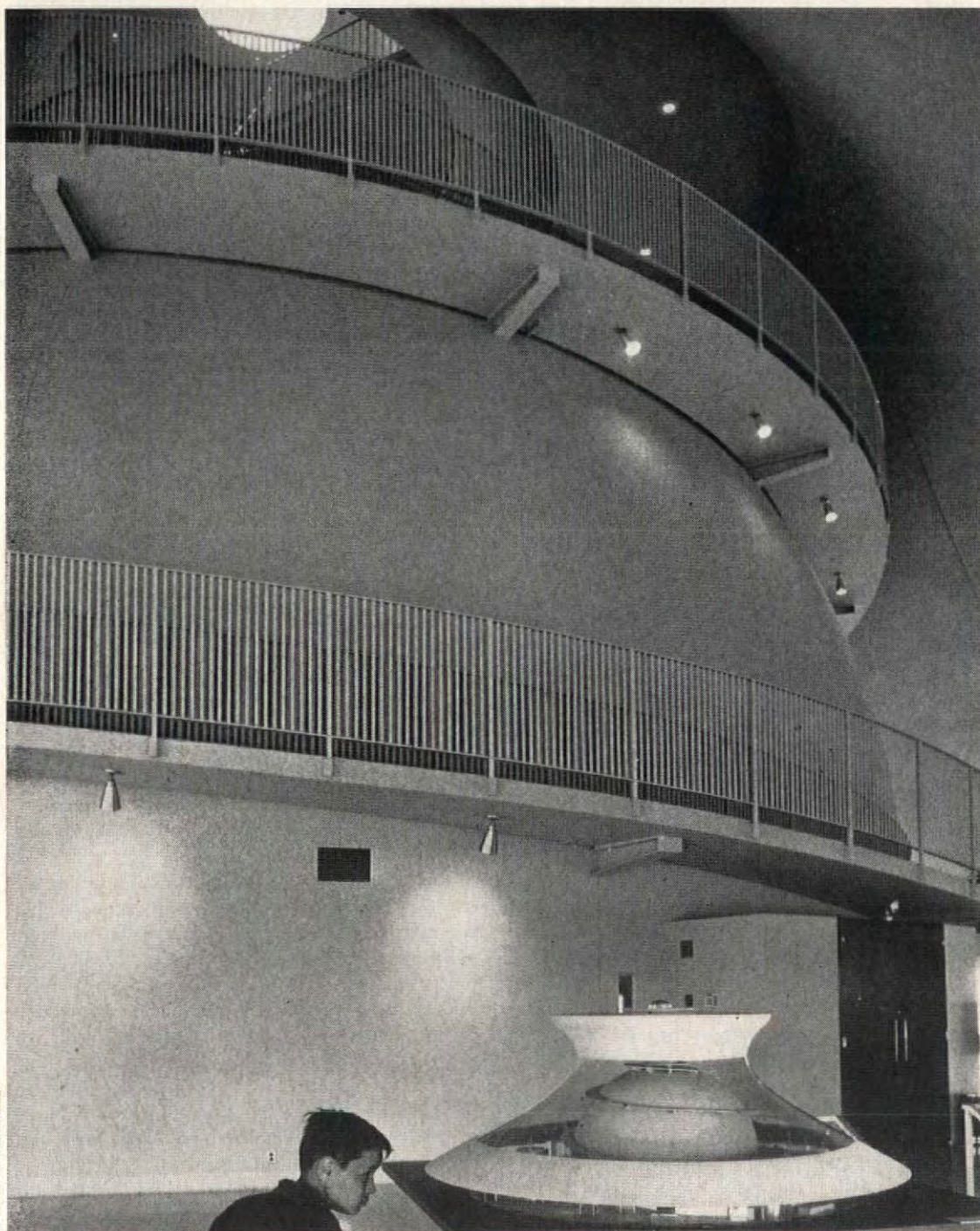
The shell itself is held top and bottom by ring beams; the main beam at the lower edge was post-tensioned by 36 grouted tendons spaced athwart stubby pilasters cast into the beam directly over

the support columns. A 4-foot, nonstructural overhang was added to cover the pilasters and tension bolts and to shade the glass of the exhibition hall. The shell's concrete surface is waterproofed with seven layers of an elastomeric compound.

The planetarium itself is of more conventional design, seating 408 around a central star-projector (made in Japan for \$176,000 and included in the building's total cost). The artificial sky of the 60-foot hemisphere is made of perforated aluminum concealing 16 12-inch speakers. For complete sound control, the inner dome is surrounded by a 2-foot air space, spun-glass insulation, and an outer dome whose structural steel bents support the winding ramp to the roof (details, next page).



Beneath the big umbrella of the hyperboloid shell nestles the dome of the planetarium proper (section, left), a raised hemisphere of 30 feet inside radius seating 408 people. Below this, a big basement contains offices, a library, and workshops, with ample room at the center for more exhibit space, classrooms, or a large lecture hall.



Around the planetarium dome, which is actually two domes with an air space between for sound control, a spectators' ramp winds some 500 feet at a 10 per cent grade up to a skylight penthouse, from which visitors may step out onto an observation promenade shielded from city lights by the flaring parapet of the shell. At right: a view down from the ramp, toward entrance and exhibit area.

FACTS AND FIGURES

St. Louis Planetarium, Forest Park, St. Louis, Mo. (city-owned). Architects: Hellmuth, Obata & Kassabaum (Gyo Obata, partner in charge of design; Chester Roemer, project manager; William Penney, construction supervisor). Engineers: Albert Alper (structural), Harold P. Brehm (mechanical). Structural consultants: Ketchum, Konkel & Hastings. General contractor: Gamble Construction Co. Building area: 37,700 square feet (including ramp). Construction cost: \$941,200. Furnishings and equipment: \$180,000. Cost per square foot: \$25. Financing: 1955 city bond issue, plus a grant from the McDonnell Aircraft Corp.





**PAN AM TICKET OFFICE:
AN AIRY SWEEP OF
SCULPTURED SPACE**



GEORGE CSERNA



J. ALEX LANGLEY

Even though it is nestled safely under a 25-foot overhang on the lobby floor of Manhattan's Pan Am building, miles from the nearest runway, this new ticket office for Pan American Airways shares the same sculptural, flight-evoking quality so evident in recent U.S. airport design. It does so for several good reasons.

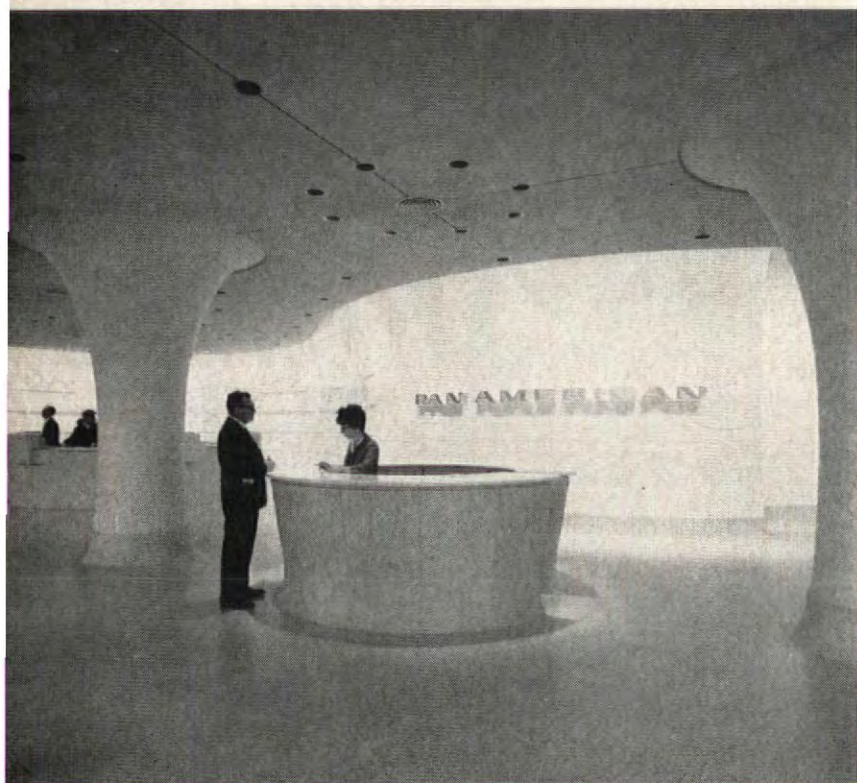
The space is large: at 10,000 square feet it is, Pan Am claims, "the largest airline ticket and sales office in the world." More importantly, the space is very long (135 feet) and low (11 feet). It was

largely to counter this feeling that the designer, Charles Forberg, created such a dramatically molded interior.

Tickets are sold at three circular counters; a fourth, slightly smaller counter for information is located opposite the main entrance (above, right). These freestanding, terrazzo-clad islands, growing out of the floor, will ultimately be connected to a world-wide computer reservation system called "Panamac," located elsewhere in the building. Each counter has ten selling positions and the three

islands together are capable of handling 350 customers per hour without crowding. In addition to efficiency they eliminate the traditional long, straight, bank-style counter which would only have emphasized the low, horizontal sweep of the space.

Behind these island counters, great, curved back walls carry striking plaster relief maps of the world; the rounded motif is also echoed in the serpentine seating arrangement and in the flaring mushroom columns. The walls receive brilliant downlighting from



PHOTOS: GEORGE CSERNA

a continuous recessed cove which makes them a dramatic white backdrop for people clustered around the islands.

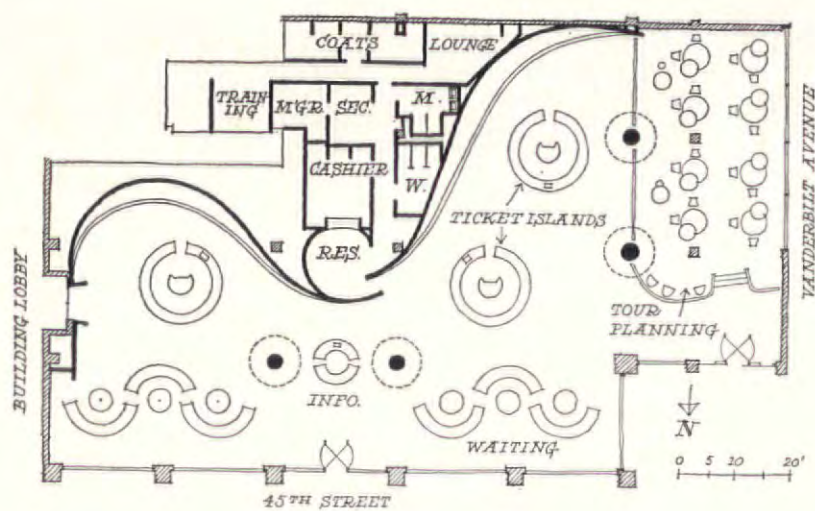
Customers who have phoned in their reservations need not wait at one of the islands to pick up their tickets but may go directly to a special counter in a snail-shaped chamber off the main room (see plan, right). For those planning an extended trip there is a separate tour-center area on a slightly lower level at one end, where customers and agents may talk around circular conference

tables (large photo, above right). Adjoining each table is a lower circular cabinet for easy filing.

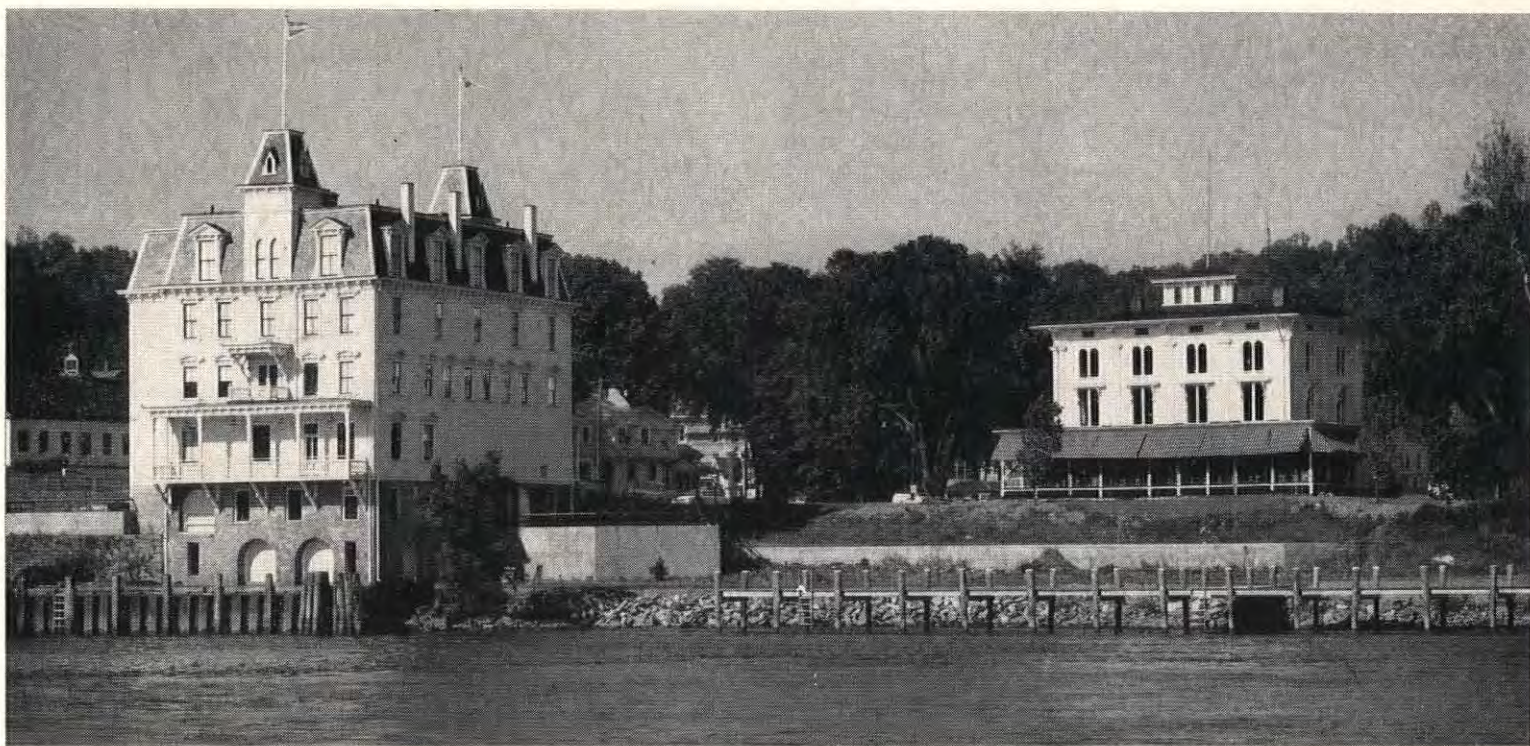
FACTS AND FIGURES

Ticket office for Pan American Airways, 45th Street and Vanderbilt Avenue, New York, N.Y. Designer: Charles Forberg Associates. Associated architect: Edward Larrabee Barnes Associates. Mechanical engineers: Jaros, Baum & Bolles. Wall relief: Rochette & Parzini, Inc. General contractors: Diesel Construction Co., Inc. Floor area: 10,000 square feet. Estimated final cost: about \$400,000.

Handsome plaster relief maps of the world (top left) are hung on the curved, concave back walls, lighted dramatically by a continuous recessed cove above, and protected from scuff marks and finger prints by the raised lip of the terrazzo floor. An information island faces the main entrance (bottom left). In the separate tour-planning area (large photo), agents confer with customers across circular tables which have drum-like "Lazy Susan" file cabinets alongside. Hooded confirmation screens seen at desk and counters beyond will be linked to future "Panamac" computer system.







PHOTOS OPP. & ABOVE: WILSON BROWNELL

A CHARMING FOLLY RESTORED



Across the U.S., more and more citizens aware of both history and economics are restoring fine old buildings before they fall to the bulldozer. That such restoration can create far greater value than equivalent new building is well illustrated by the case study shown here.

When Yankee merchant William Goodspeed built an opera house on the Connecticut River in 1876 (photo, left), East Haddam residents snickeringly called it "Goodspeed's Folly." After three quarters of a century of good and bad fortune, however, his folly has been launched anew, following a \$750,000 financing and re-

construction, and a gala opening this summer.

Goodspeed obviously had an eye for scenery—his Victorian skyscraper and its companion hotel overlook the river at one of its loveliest points (photo above). He also had an eye for business: a riverboat owner and ship builder with extensive interests in the valley, Goodspeed believed he could attract many people to his Lower Landing; to get audiences he actually brought whole theatrical companies by boat from New York to play for a night at the Opera House, returning them to the city in time for their next night's performance. Other steam-

ers arrived from New York and Hartford carrying theater-goers, who simply walked down the gangplank and upstairs to see the leading attractions of the day.

After Goodspeed's death, his theater declined to other uses, the last a state highway storage depot, and was finally abandoned in 1958. This prompted a local resident, Mrs. Alfred Howe Terry, to lead a move to rescue the old building. A nonprofit organization, The Goodspeed Opera House Foundation, Inc., was formed and Frédéric Palmer, designer, and Schutz & Goodwin, architects, were commissioned to start a painstaking restoration job.

continued

PLANK WALK ENTERTAINMENT!
THE VILLAGE IMPROVEMENT SOCIETY OF EAST HADDAM
FAIR!
AT GOODSPEED'S OPERA-HOUSE, ON
Wednesday and Thursday Evenings, April 25-26, 1900.
For the benefit of the Plank Walk Fund.

FIRST EVENING: Supper from 5 o'clock until 6:30.
Concert by the East Haddam Cornet Band.
DANCING: Music supplied by Mrs. Wm. L. Goodwin and Family.
Admission, 50c; Dancing Tickets, 25c.

SECOND EVENING: FANCIAL COMEDY IN THREE ACTS.
ENGAGED!
The Little Theatre Company.
DANCING: Music supplied by Mrs. Wm. L. Goodwin and Family.
Admission, 50c; Dancing Tickets, 25c.

The Foundation worked to raise money and interest in the structure, even staging a plaster-ripping party and a gala New York benefit. The then Governor Ribicoff of Connecticut turned over the Opera House and its land for \$1, having approved a state outlay of \$10,000 for interim repairs. The total reconstruction was budgeted for \$500,000. The Foundation's trustees also bought the theater's companion piece: the Riverside Hotel, built in 1853 and purchased by Goodspeed in 1870 as a fashionable stopping place for theater-goers and honeymooners. The purchase price was \$57,000 including land, and close to \$100,000 has gone into renovating it in period style.

Rococo on the river

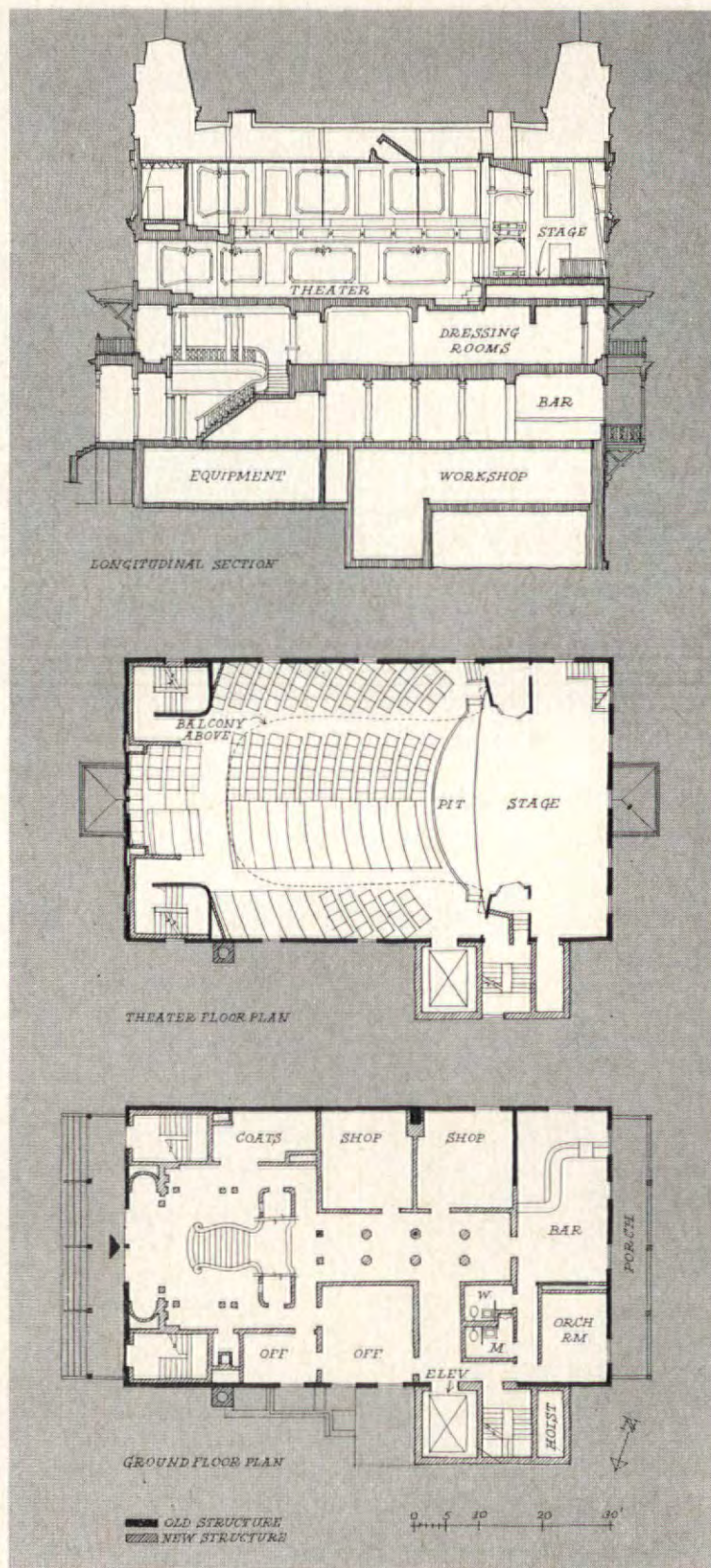
No penny-pinching Yankee, Goodspeed had furnished his theater lavishly (photos, opposite). The proscenium, the hanging horseshoe balcony (suspended by thin iron rods), and the boxes were ornately decorated with gold-leafed rococo designs and delicately painted medallions of women's heads. The stage sloped upward toward the rear, Italian-style, so the audience could see the actors' feet at all times; hence the scenery had to be built on a slant (and is on the new stage).

The original wood trusses from which the balcony hangs remain, but they have been strengthened with steel. The decorative medallions have been copied exactly (from photographs of the originals) by a local artist, Gerry Miller. The original drop curtain with the side-wheel steamer, "State of New York," painted in 1877, was bought back from the Hartford Athenaeum, and restored.

In the building's lowest story, a partial sub-basement on granite rock ledge, Palmer put in a waterproof wall against river flooding, and an 8,000-gallon tank for the new sprinkler system. The basement itself houses new mechanical equipment: furnace, pumps, air-conditioning and electrical equipment, and one of five air-handling units. The remaining space is used for preparation and painting of scenery. A new elevator, scenery hoist, and backstage staircase begin on this level, in a service core that is the only new external addition to the original building (drawings, right).

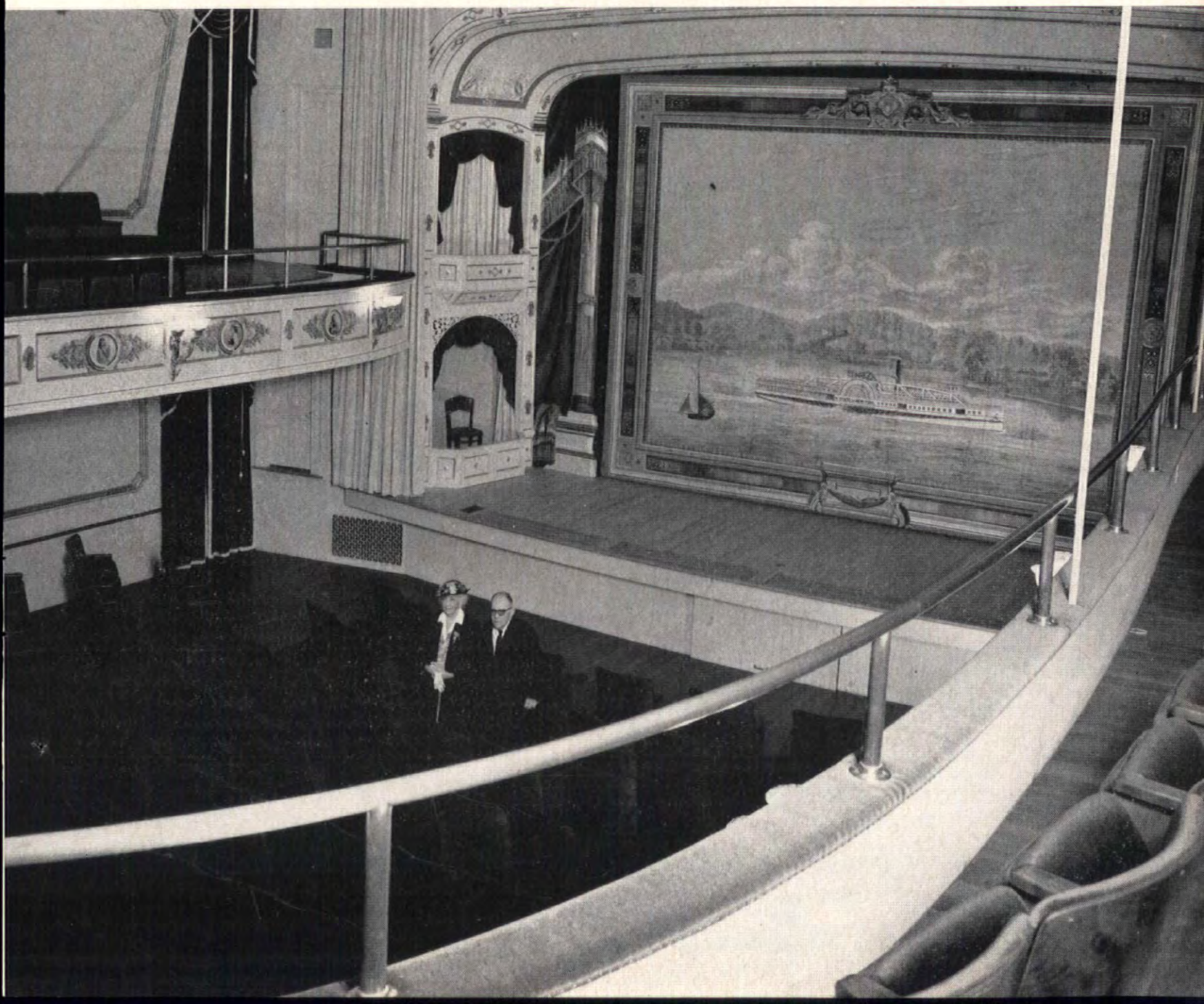
From the entrance at ground-floor level a grand staircase rises in the two-story foyer to a gallery above. Beyond is a columned corridor, called "Peacock Alley," on which face an art shop and a small boutique (photo overleaf). The wide doors to the rear lead to a Victorian saloon, which contains a serpentine bar with black walnut handrails and bartop, and opens onto a lofty veranda suspended above the river. From here theater-goers can enjoy the breeze and glorious views up and downstream.

The second story now contains the "Green Room," an elegantly furnished area with antique piano, to be used for small parties or teas, and the traditional meeting place for the actor and his public. Also included on this floor are toilets, dressing rooms for the cast and the stars, and, on each end of the building, the air-handling





Sponsor Mrs. Alfred Howe Terry and Designer Frédéric Palmer survey the gutted auditorium (above), and its glittering restoration (below)



units for the two-story theater.

To date, \$7,400 has been spent on a marine dock, and the Foundation ultimately hopes to extend it to the south to increase anchorage for visiting yachts.

The financing for the reconstruction and operation of the theater has been entirely by subscription and donation, including a generous grant from the Albert H. and Jessie D. Wiggin Foundation of New York. So far, the whole \$750,000 raised has been spent and there may be a deficit of from \$20,000 to \$50,000 this year. The management hopes that in the future admissions will cover the cost of the productions themselves. With luck, and continuing subscribers, the glory of Goodspeed's grand old Opera House will once more be the river valley's pride.

FACTS AND FIGURES

Goodspeed Opera House, East Haddam, Conn. Owner: The Goodspeed Opera House Foundation, Inc.

Architectural restoration: Frédéric Palmer, M. Arch. designer; Schutz & Goodwin, architects. Engineers: Robert W. Loomis (structural), van Zelm, Heywood & Shadford (mechanical, electrical), Megson & Hyypa (civil). General contractor: The Wadhams & May Co.

Cost of restoration: \$750,000 (including hotel). Opera house reconstruction: \$525,124 (including \$179,000 for new wiring, plumbing, heating, air-conditioning, scenery hoist and passenger elevator, new stairways). Additional costs: \$64,000 for decorations, fixtures, special wallpaper, furnishings; \$11,000 for river balconies; \$7,239 for stage equipment; \$7,400 for marine dock and sitework; \$60,000 for architectural and engineering fees (fee was in part reimbursed by the designer and architects). Other costs: legal, organizational, and fund-raising fees, plus \$30,000 in insurance premiums, and heating costs during reconstruction.

Total building area: 16,600 square feet. Restoration cost: about \$38.50 per square foot.

Financing: by subscription and donations. **END**



The Victorian Green Room (above) is reached by a grand staircase from the lobby, shops, and bar (below)

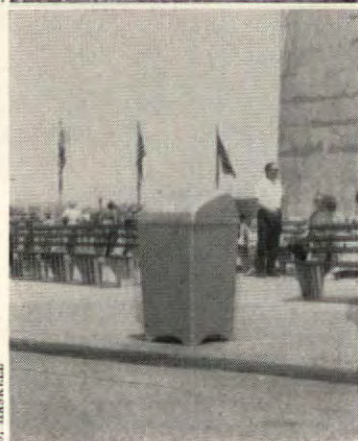


PHOTOS: WILSON BROWNELL





JOHN BURWELL



D. HASKELL

WASHINGTON

The two trash baskets above, before and after, betoken a modest but good advance in the appearance of the national capital, one which we had known about long before the *Washington Post* mentioned it incidentally in a recent story.

When President Kennedy found the Washington issue of *FORUM* on his desk last January, he read it, says the *Post*, from cover to cover. He gave orders that all possible suggestions it made for improvement in the capital be carried out forthwith. Within 48 hours the old trash baskets around the base of the Washington Monument, criticized by Contributor Paul Rudolph, had been replaced with the new kind shown—unambitious but solid ones.

The story reminds us of Thor-eau: "The youth gets together his materials to build a bridge to the moon, or, perchance, a palace or temple on the earth, and, at length, the middle-aged man concludes to build a woodshed with them."

This may seem a modest victory in a *FORUM* crusade, but as

can be seen, it is real and solid, and could lead to much more in Washington.

OBERLIN, OHIO

College reunions tend to deflate those who love fine building, because of the small success such graduates have in communicating the joy they find in new creation to their classmates.

Even in educated persons the American eye is quite generally an uneducated eye not trained to seek out the form of what it looks at, and the uneducated eye responds with fear to any new visions. Of the many, many new buildings going up on university and college campuses, it is safe to say that the best and the worst are the ones equally feared and resented. The middle-building group escapes by being invisible, unnoticed. And the resentment at new and positive achievement is rather aggressive, as if demand for attention by new buildings were an imposition.

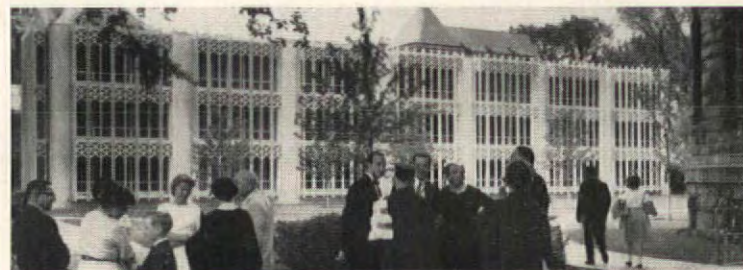
"Why do we have to have such variety?" is a most frequent question, and it would be a good



LEFT BELOW, M. DAVIS; BELOW, W. HOWE

variety among them as the new is something which today's graduate will stoutly deny, but they do. He simply failed to note this, as an undergraduate. All the buildings were an undifferentiated mass presented to the young freshman, who unsaw them, all alike, through a film of dust and sentiment.

Even in the old days a new cluster of rock-hewn castle turrets in Richardsonian Romanesque must have been a jarring note to the sensitive eye regarding it in context with an elegant brick church, Greek Revival in style and wood-steeped. Some



one if it were directed to distinguishing between good, creative, stimulating variety and weak, assertive variety.

The fact that the old buildings on most campuses show as much

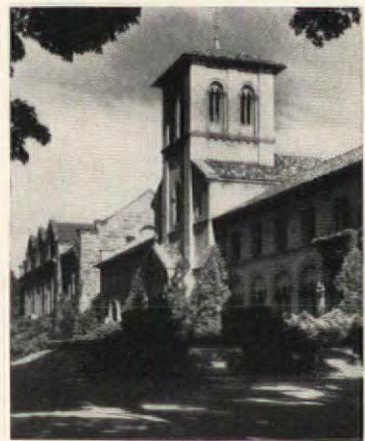
of those contrasts were good, some were bad, but educated Americans will continue blind to both, so long as nobody trains his eyes to discern the visual vocabulary in which architecture delivers harmonies or disharmonies.

The demand that buildings simply be built all similar, so the eye need not be exercised, is murder to the enjoyment of architecture.

LONDON

The *Architectural Review* recently went into panegyrics on the advantages of being culturally "European" rather than isolationist. May they prosper at it!

"Prosper" is the right word, for the magazine does not fail to couple its ideal with the hopes of



WARD ALLEN HOWE—TIME

the Common Market from which, its writers insist, Britain cannot be long excluded.

This creates an interesting turn of events, for it implies that popular prosperity can foster culture instead of discouraging the arts, as easy wealth has so often been blamed by Europeans for discouraging them in America. Indeed Europeans have gone further, and declaimed against a corrosive "Americanization of Europe."

If European prosperity should outstrip ours, who knows but the roles may be reversed and we shall begin to blame our cultural shortcomings upon the corrupting "Europeanization of America"?

FOOTNOTE

A full list of teachers and courses in all the collegiate schools of architecture in the U.S. was released recently, and if there were as many as five courses having to do with the economics of building, then some were missed by this peruser. Several such courses are taught in such schools in England, where the Building Research Station itself undertakes economic investigations along with its studies in physical construction.

Two eminent authorities made up lists in the past of what architecture is concerned with. In the Renaissance, Sir Henry Wotton said it was "commodity, firmness, and delight," a situation in which "commodity" would have required some use of money. Paul Valéry early in this century said the architect dealt in "words, numbers, and geometry," the numbers no doubt related again to calculations of necessary strength or "firmness," and the geometry to building shapes. As to the words, it would be surprising if they did not include the statement, "And we have negotiated the mortgage." Might it not be well if young architects were told about this in youth, when shocks are less fatal? It would give them more chances to make beautiful geometry, if they learned how to get clients to put out the money for it.

Douglas Haskell



Buffing alone maintains 100,000 sq. ft. of Goodyear tile at Baptist Hospital

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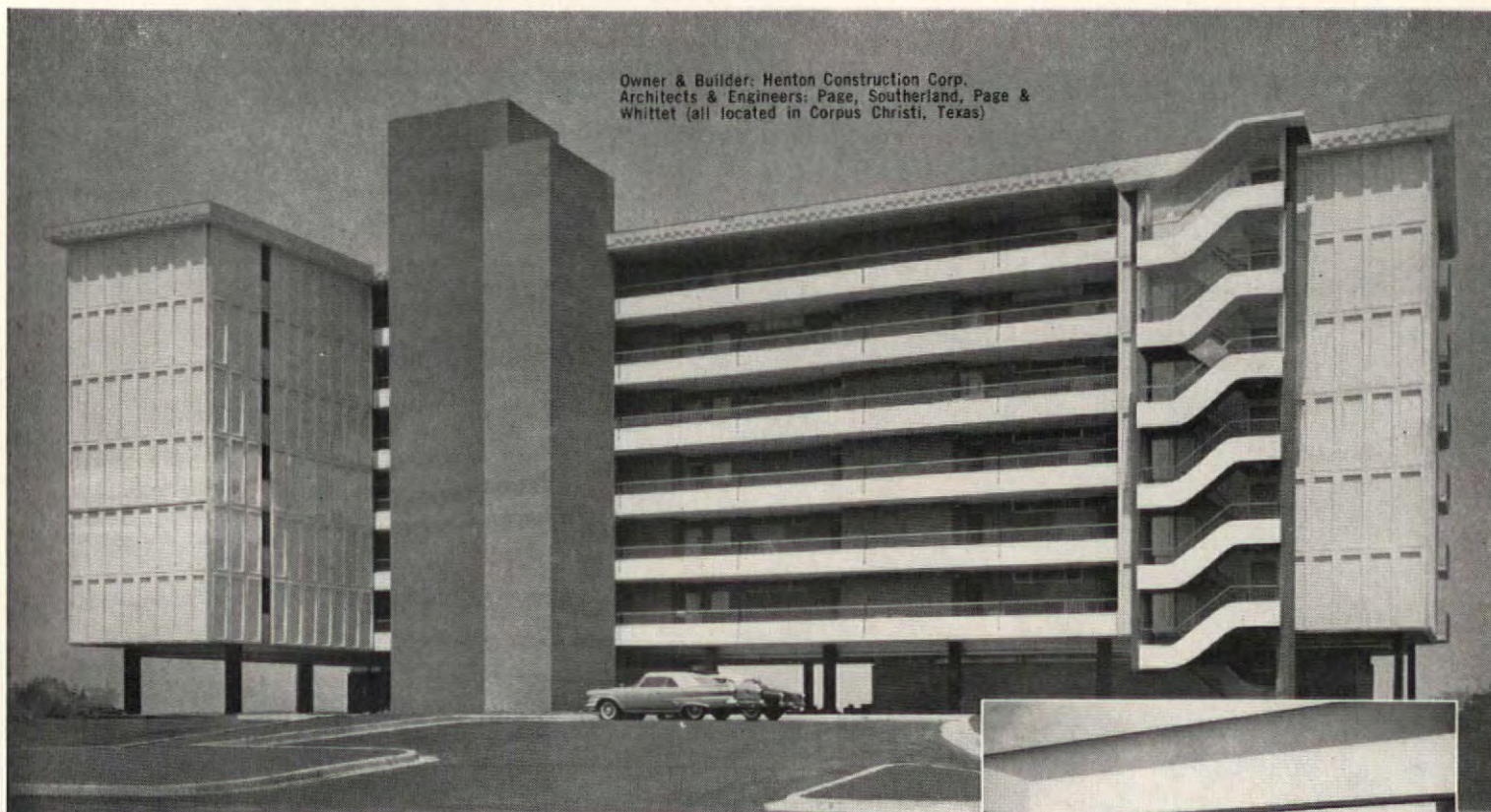
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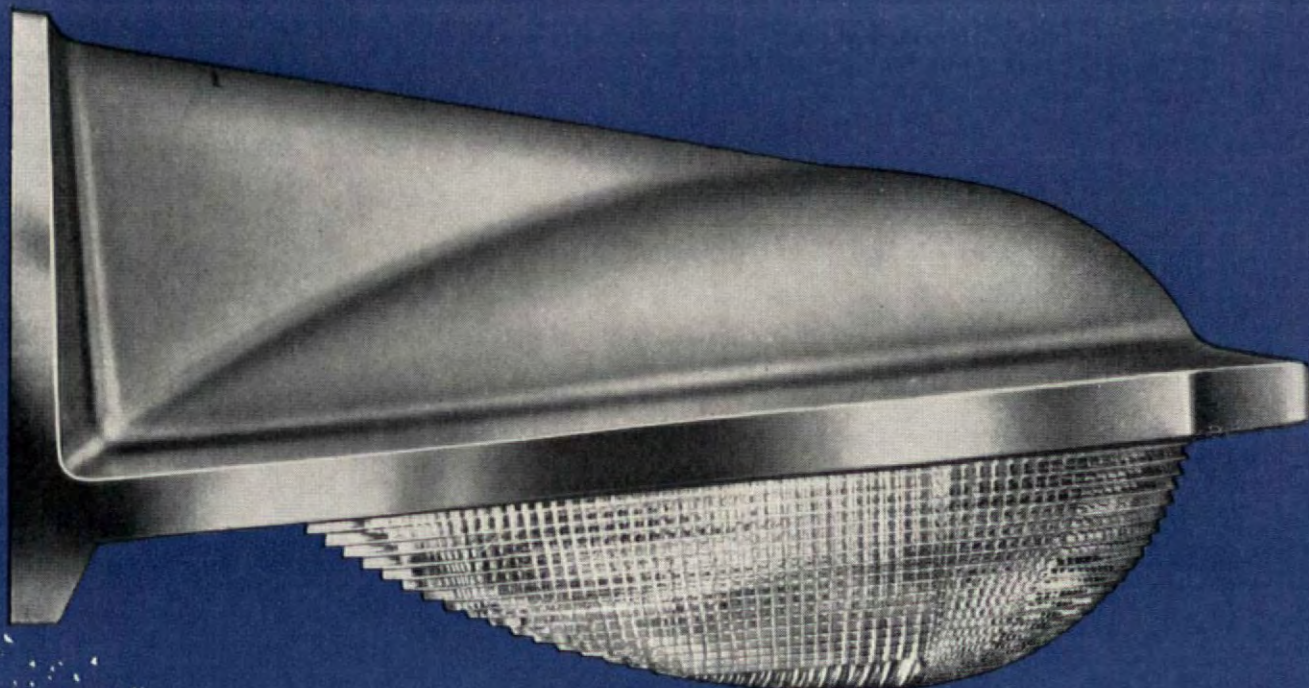
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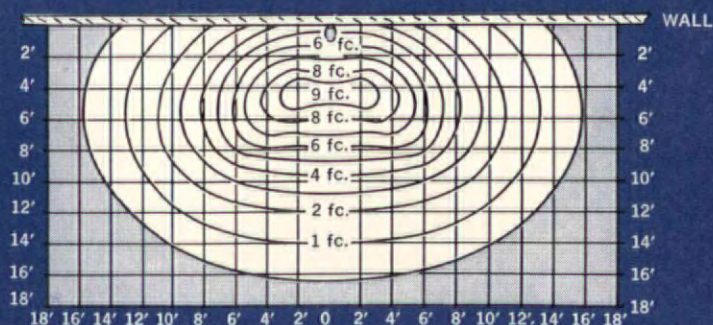


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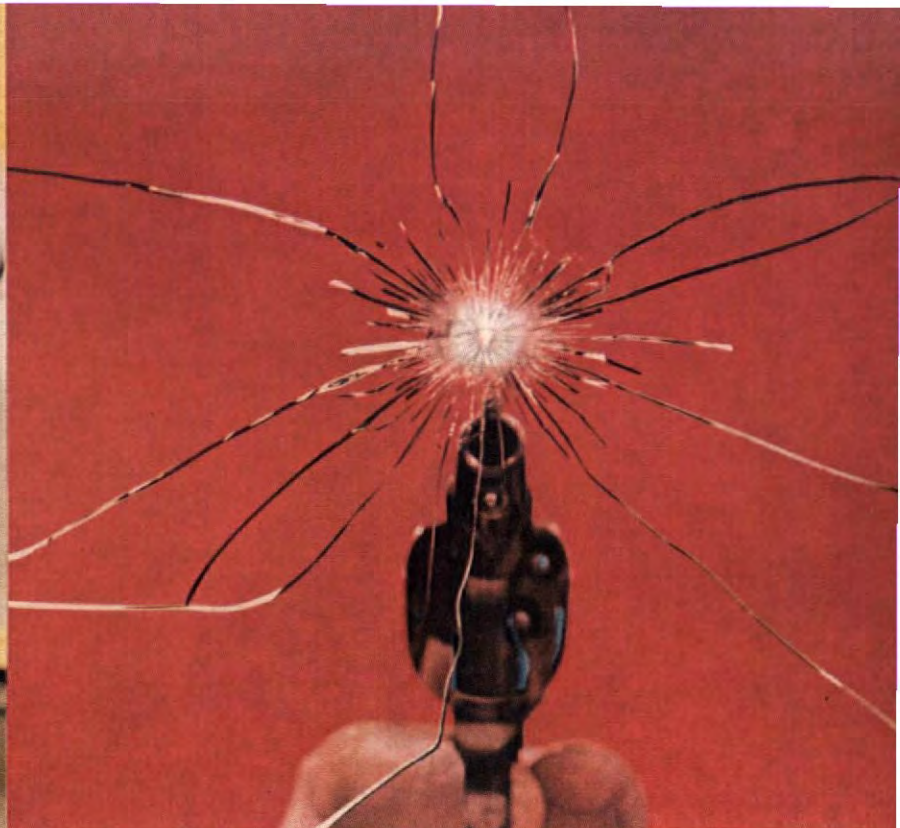
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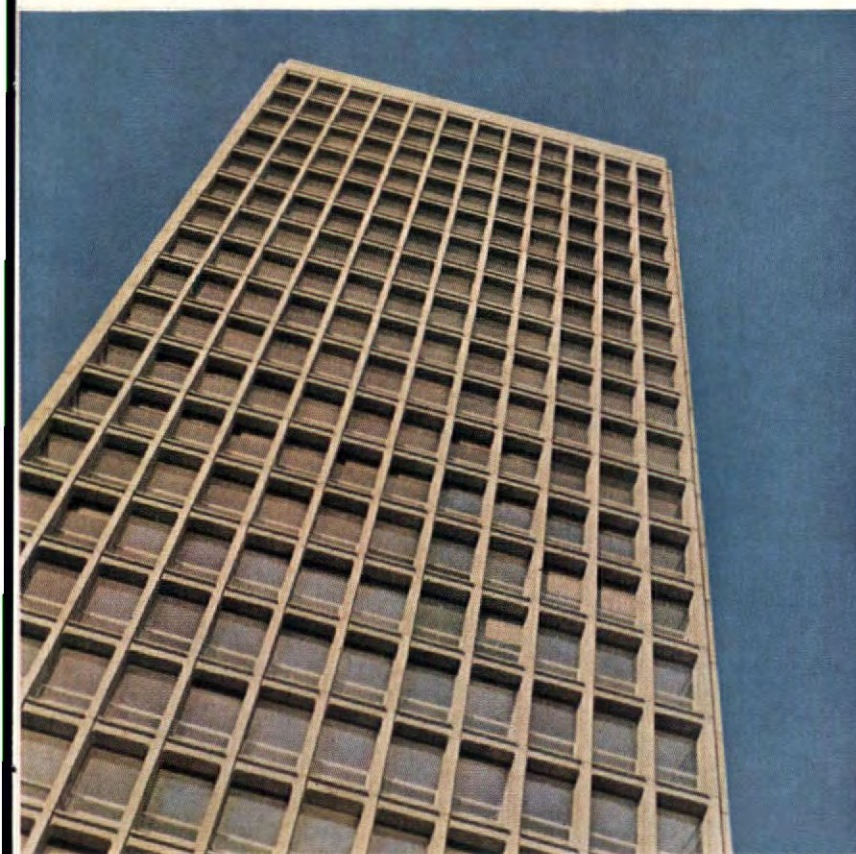
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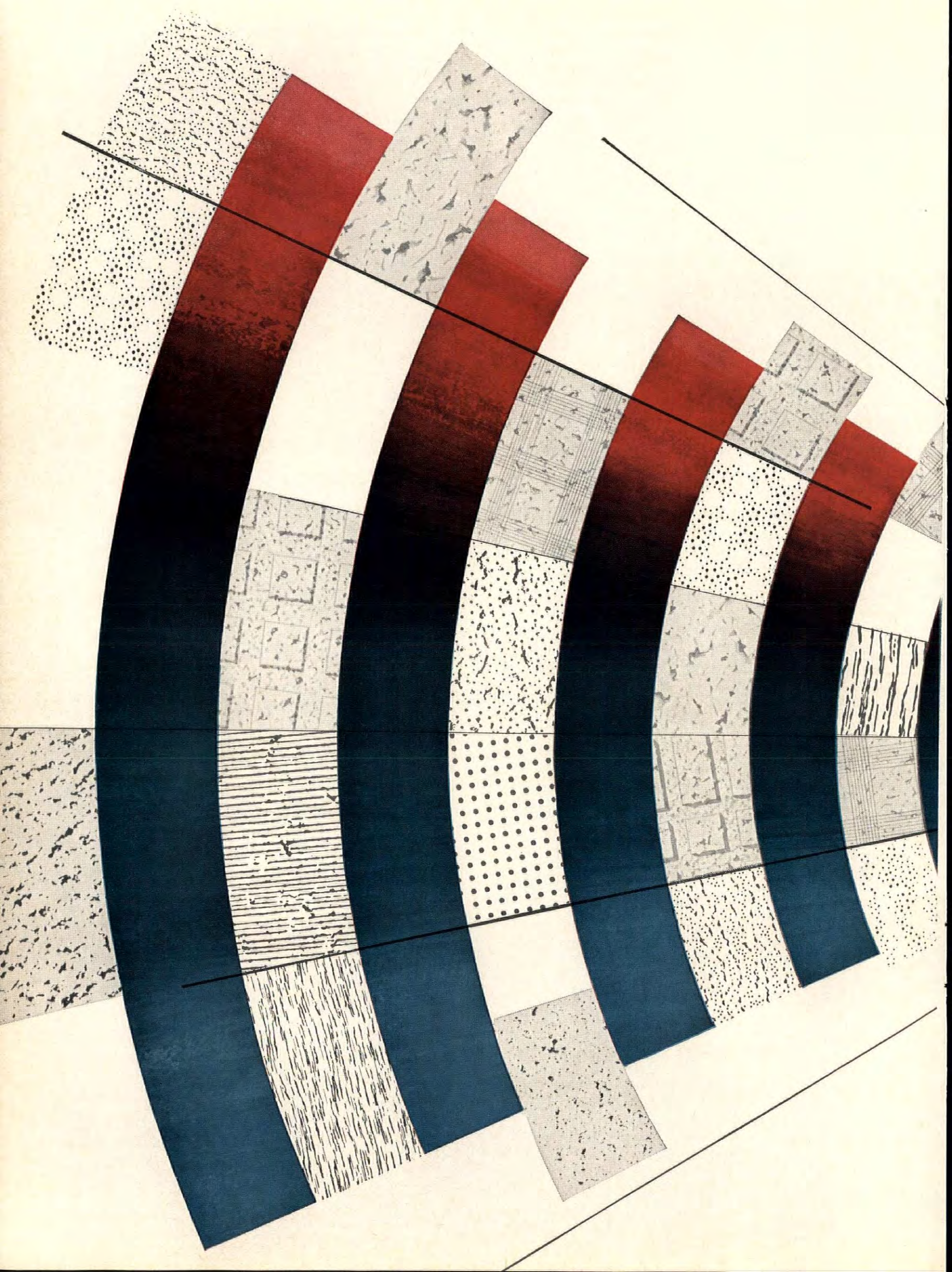
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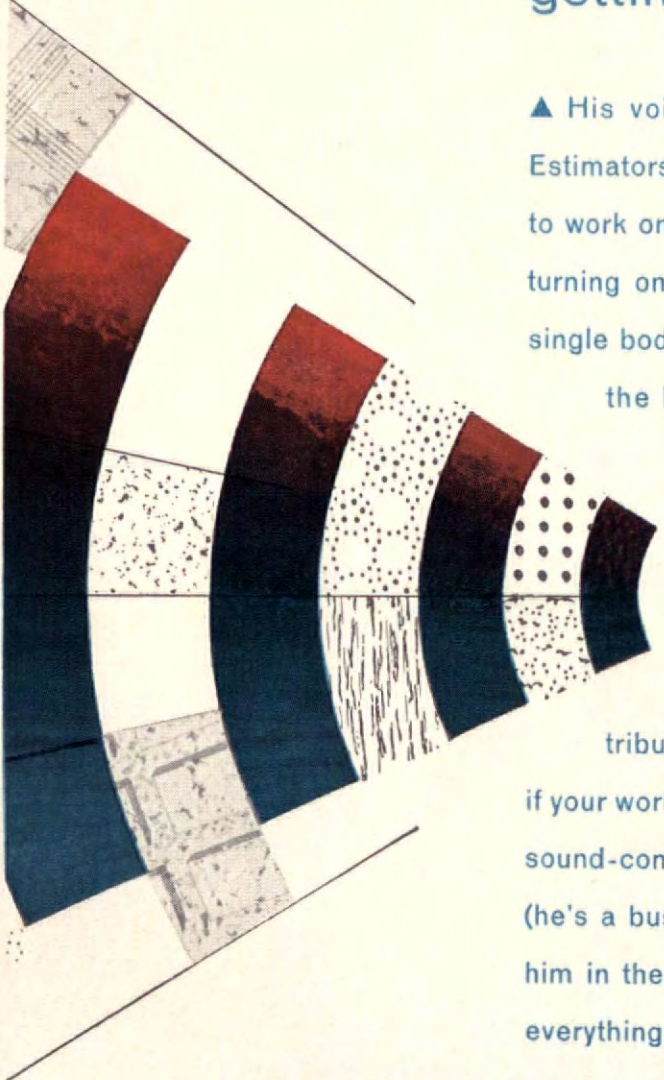
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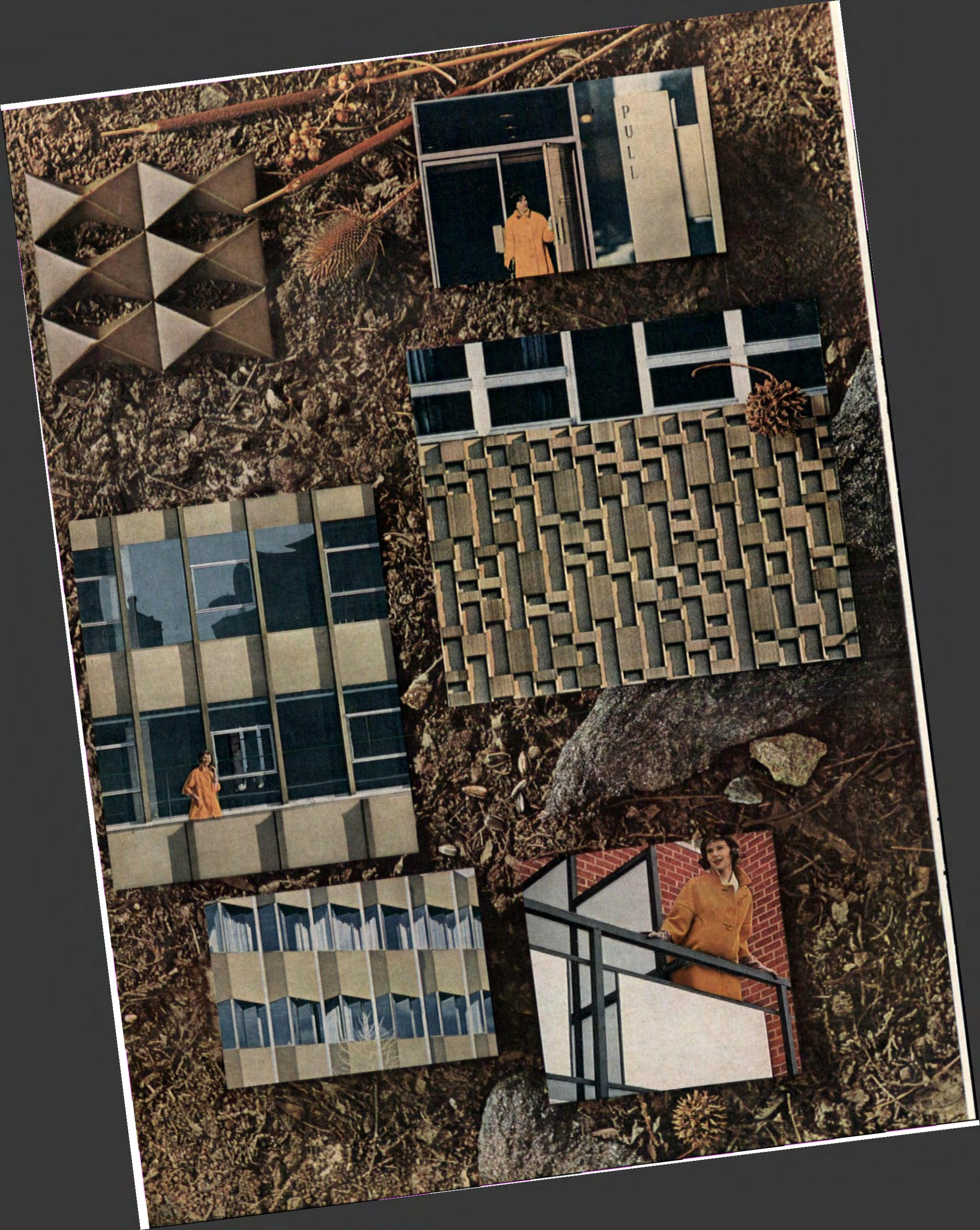


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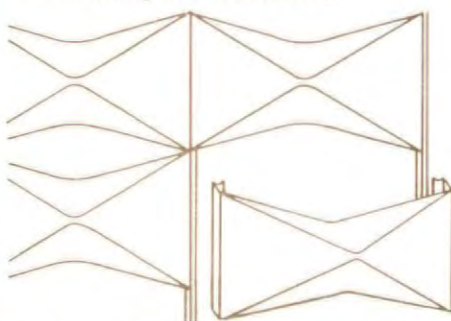


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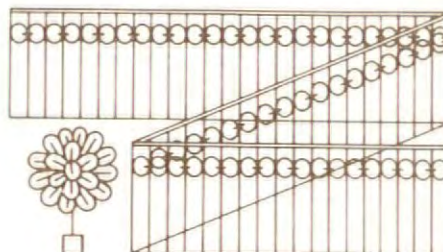


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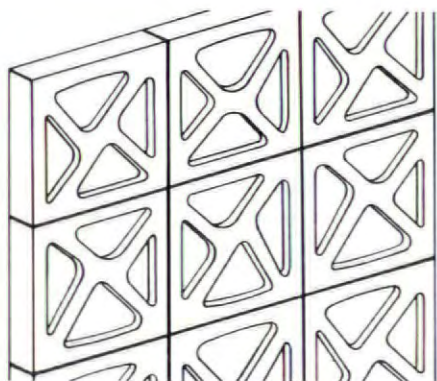
middle right The Pittsburgh Press Building, Pittsburgh, Pa. Owner: The Pittsburgh Press Co., Pgh. Engineers & Designers: Hunting, Larsen & Dunnells, Inc., Pgh. General Contractor: Martin & Nettletrou Co., Pgh. Fabricator and Erector: Columbia Architectural Metals Co., Pgh. Duranodic Applicator: Stolle Corp., Sidney, Ohio

bottom left Grand Rapids Post Office, Grand Rapids, Mich. Owner: Thomas D. McCloskey, Philadelphia, Pa. Architect: J. & G. Daverman, Grand Rapids, Mich. General Contractor: Owen, Ames & Kimball, Grand Rapids. Fabricator and Erector: Marmet Corporation, Wausau, Wis. Duranodic Applicator: Stolle Corp., Sidney, Ohio

bottom right The Continental, Queens, N.Y. General Contractor and Owner: Cord Meyer Development Co., N.Y.C. Architect: Morris Rothstein & Son, Brooklyn, N.Y. Fabricator and Erector: Samson Window Corp., N.Y.C. Duranodic Applicator: Electro-Color Corp., N.Y.C.

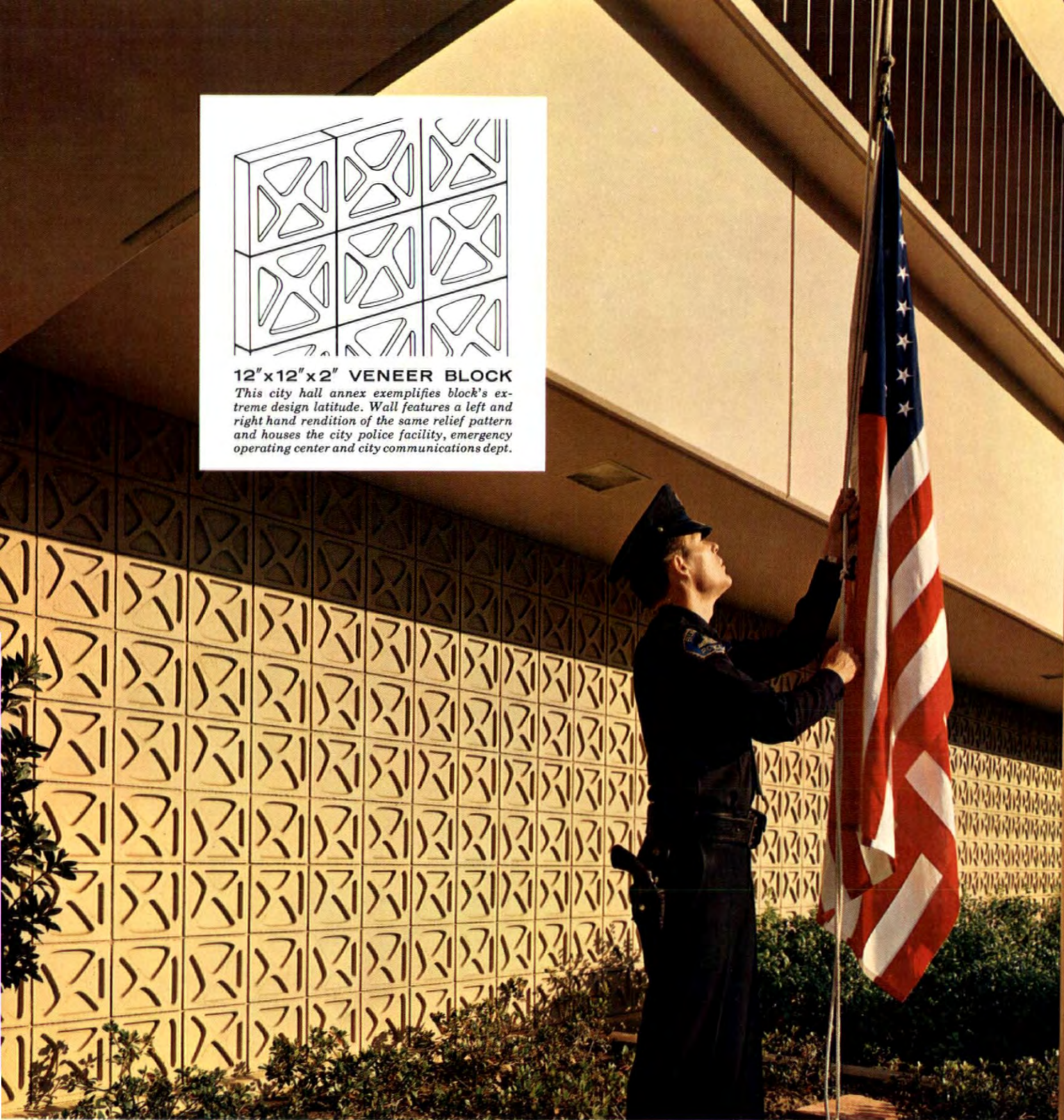


ALCOA



12" x 12" x 2" VENEER BLOCK

This city hall annex exemplifies block's extreme design latitude. Wall features a left and right hand rendition of the same relief pattern and houses the city police facility, emergency operating center and city communications dept.



For wonderful walls with a timeless flair

Architect: Prescott and Whalley
Associate Architect: Marion J. Varner

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Arresting wall patterns are yours for institutional buildings of every nature. Countless shapes, sizes

and textures of concrete masonry contain all the quality trappings required for imaginative and superlative design concepts. Block is replete with durability, fire-safety, very high sound absorption and self-insulation. See your local NCMA block producer. NATIONAL CONCRETE MASONRY ASSOCIATION • 1015 WISCONSIN AVENUE, N. W. • WASHINGTON 7, D. C.



*when there's a hardware
selection to be made...*

this
man relies
on past
experience

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He knows the practical value of having his order analyzed as a double-check against errors, and the reassurance of custom-engineering assistance when it's needed.

He knows that the guarantee of durability and smooth function is in the original design, basic metal, precise machining and the expert finishing of an item.

He knows the time and money that are saved when the correct hardware reaches the building site on time.

Because this man knows GJ... he specifies GJ... for the *quality that he demands*, the *service-extras he has a right to expect*, and the *scheduled delivery that he needs*.

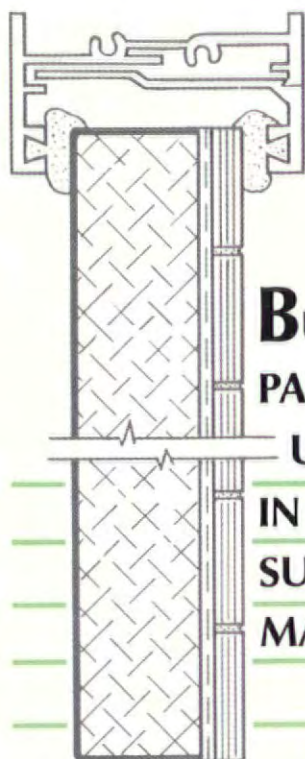


GJ hardware is built to endure...and LOOKS it.



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UNLIMITED..
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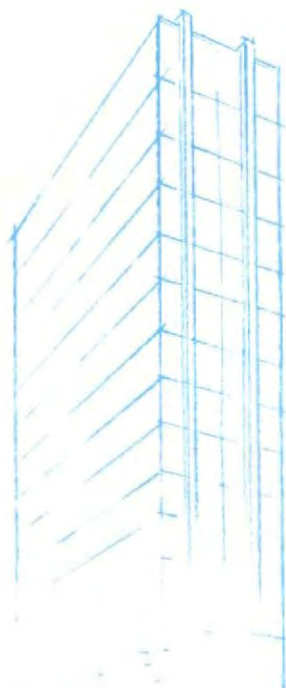
*Honed Marbles
and Granites*



Limestone

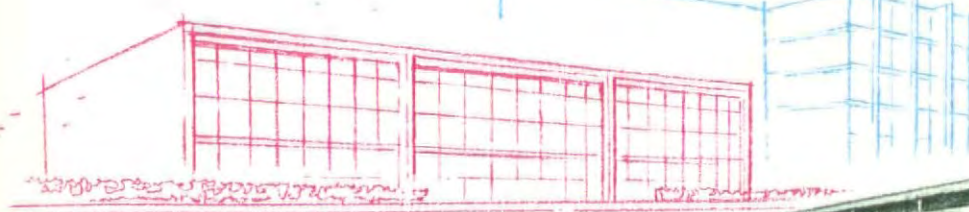


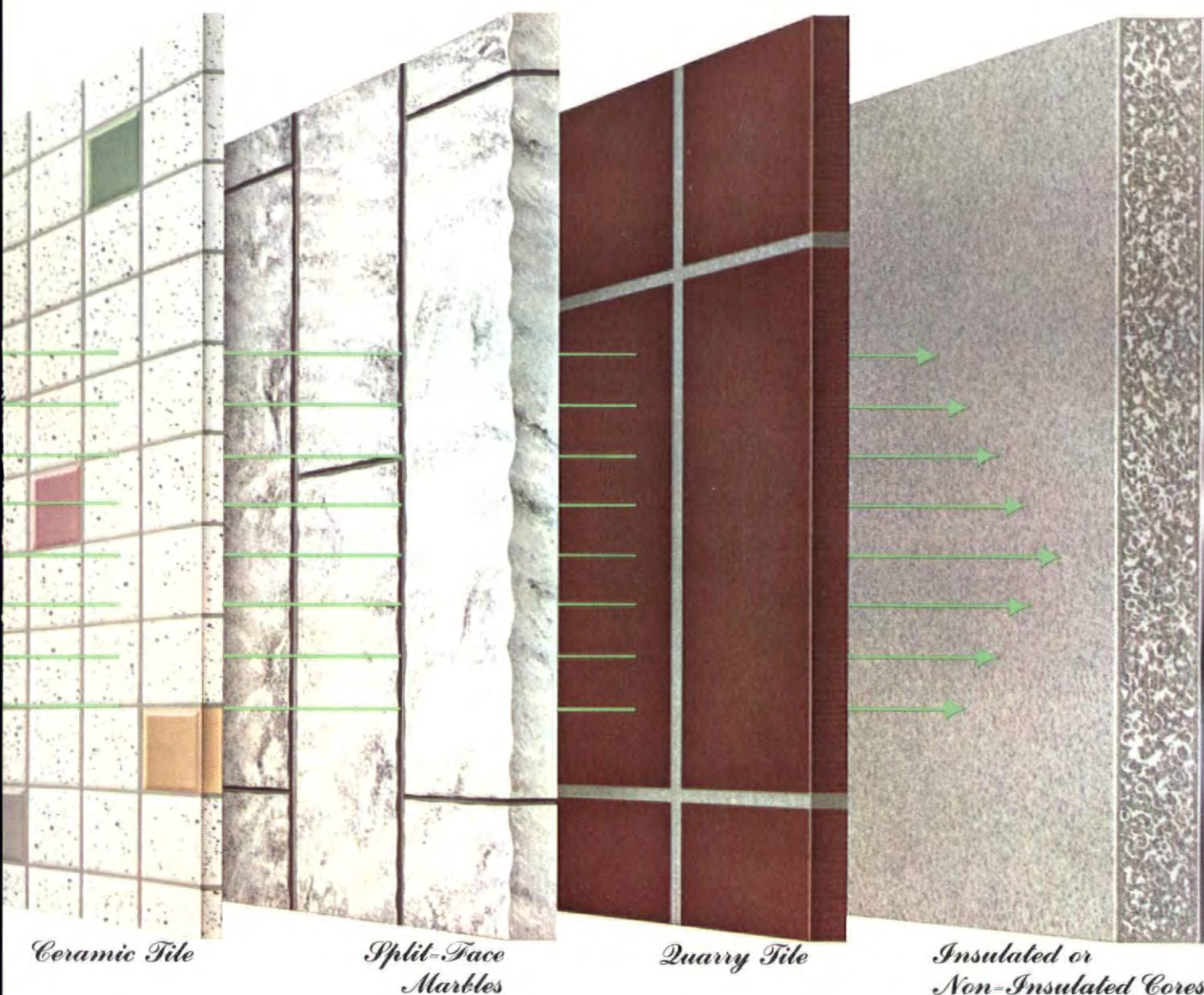
Plate



SOMETHING NEW? YES! A technically-equipped, experience-backed source for building panels which brings low cost to buildings surfaced with impressive quality materials. Exterior and interior panels today, other innovations on the way. A new, cost-reducing use of fine building facings. Consult us for any prefabricated surface requirements.

SOMETHING OLD? YES! The stability, integrity and financial responsibility of The Mosaic Tile Company, a substantial element in the building materials business for generations, and the "parent" of this new subsidiary, Mosaic Building Products, Inc.





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*Split-Face
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Late in 1962, our new Mooresville Plant (25,000 sq. ft.) opened production with possibly the best-equipped and best-manned panel facility yet announced to the building industry. Our principal product is a light-

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Curtain wall panels can be engineered and fabricated for use with any building frame system in any normally required dimensions. Frameless veneering panels can be supplied for a wide variety of fastening methods, with close dimensional tolerances.

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adds **GLULAM**

to its long established timber fabricating department

Adding both physical facilities and experienced personnel . . . Rosboro Lumber Company announces expansion into the manufacture of structural glued laminated timber. Rosboro has been actively operating a Timber Fabrication Department in sawn timber with personnel of over twenty years' experience. The new Laminating Department has been completed with the latest in manufacturing equipment and procedures.

A complete line of all types of structural glued laminated timber in beams, curves, arches, trusses will be produced and marketed on a national scale. Rosboro Glu-Lam is equal in quality to the reputation the firm now enjoys in all of its lumber and plywood products.



Specify Rosboro structural glued laminated timber for beams, arches, curves, trusses, lamella.

THE LOOK OF CLASSICAL COLONNADES

...concrete brings timeless beauty to this modern office building

Minneapolis embraces progress in new buildings such as the home of the Northwestern National Life Insurance Company, to be completed in the fall of 1964. Reinforced and precast concrete, the structure will be a dramatic contribution to civic beauty.

• Rows of slender precast, prestressed concrete columns with flaring capitals soar 80 feet high, and extend beyond the building to create an impressive portico. For full development of the arched colonnade effect, the columns are brilliant white, achieved with quartz and white portland cement. Additional accent is provided by dark green walls of faceted panels flanked with gray glass. • Concrete offers endless opportunity for striking departures from prosaic design in structures of every purpose.

PORTLAND CEMENT ASSOCIATION

A national organization to improve and extend the uses of concrete



THE BEST IDEAS ARE MORE EXCITING IN CONCRETE

Architect: Minoru Yamasaki & Associates, Birmingham, Michigan • Structural Engineers: Worthington, Skilling, Helle & Jackson, Seattle, Washington • Owner: Northwestern National Life Insurance Company, Minneapolis, Minnesota

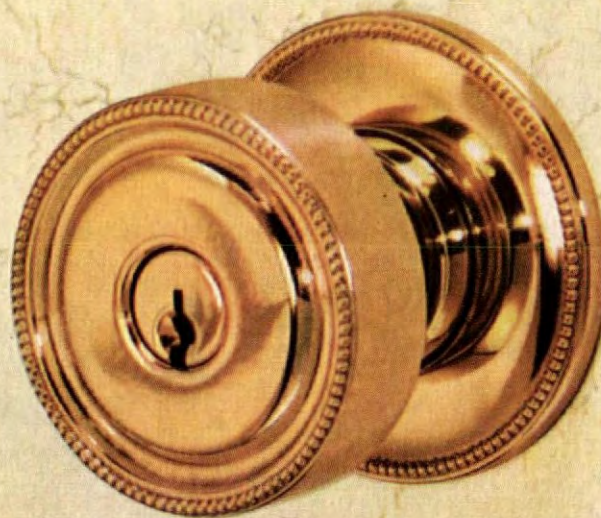


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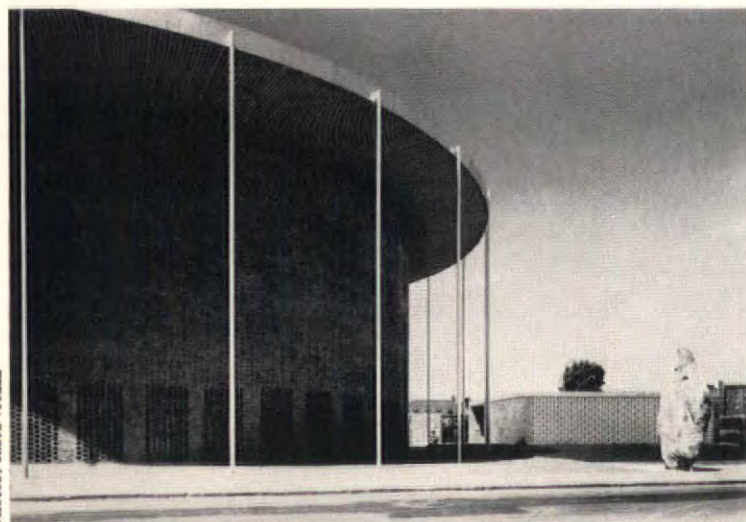
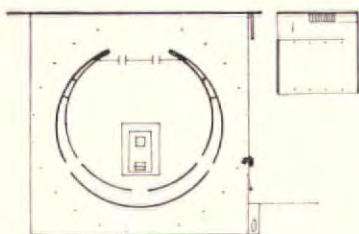
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Illustrated in bright brass. Also available in all standard finishes. Knob, 2 1/4" diameter; rose, 2 5/8" diameter.



GERMAN CHURCH. The strong, cylindrical space of the St. Johann von Capistran Church in Munich is enclosed by inner and outer brick walls arranged eccentrically to produce a crescent of space which houses fonts, chapels, sacristy, and utilities (plan, left). The roof, supported on the walls and on slender, freestanding columns (below), is topped by a plastic dome. Architect: Sep Ruf.



ITALIAN APARTMENTS. This five-story apartment building in Rome (below) is basically a symmetrical, six-sided structure which groups two apartments per floor around an open court with a strong oval paving pattern (right). The building's symmetry is vigorously broken, however, by strong, jutting balconies which open off every room. The structure, of reinforced concrete, is handsomely finished in brick. Architects: Julio Lafuente and Gaetano Rebecchini.



PHOTOS: L'ARCHITETTURA

AUSTRALIAN SKYSCRAPER. The new 26-story Blue Point Tower takes full advantage of its spectacular 2-acre site on the tip of a peninsula in Sydney Harbor. The almost square (70 by 75 feet) building is set diagonally to take

advantage of views over the water which surrounds it on three sides. Supported on concrete bearing walls with a skin of cream-colored brick, the structure contains 168 apartments, 7 to a floor, each with balcony. Architect: Harry Seidler.



MAX DUPAIN

continued on page 134

24" MODULES FOR TRUSSED ROOF
48" MODULES FOR ROOF SHEATHING

STANDARD ROOF SLOPES

48" MODULES FOR TRUSS &
GABLE SPANS

16" MODULES FOR WINDOW &
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16" MODULES FOR DOORS,
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48" MODULES FOR OVERALL
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16" MODULES FOR FLOOR JOISTS
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48" MODULES FOR OUTSIDE
OVERALL DIMENSIONS AND
FLOOR SHEATHING

MODULAR MASONRY FOUNDATION

Diagrammatic drawing shows the modular coordi-
nation of house elements with the UNICOM system.

unicom: a new way to use WOOD and your imagination . . . in structures for living

Wood has a new word: UNICOM. It's a system of uniform dimension components for modular construction. It creates more time for design . . . by providing you with basic engineered principles for the entire structure.

The flexibility of UNICOM encourages individual planning with all types of 1-, 1½-, 2-story, split-level, and bi-level homes. There are multiple panel sizes. And UNICOM standards can easily be co-ordinated with other materials. Also, UNICOM may be applied to both conventional and component construction methods . . . to give you added freedom of design.

The dimensions of UNICOM are as simple as its modular planning grid, which is divided into equal spaces of 4, 16, 24, and 48 inches for width and length. Based on the 4-inch modular standard, the 16- and 24-inch units are the multiples for walls, windows, and door panels. The 24- and 48-inch units apply to over-all exteriors, and to floors, ceilings, and roofing.

Vertically, UNICOM's first floor standard exterior wall height is 8' 1½" from the subfloor top

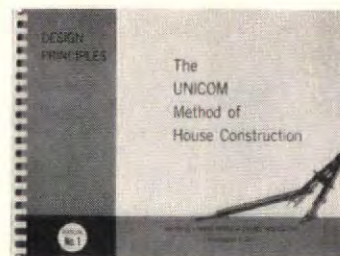
to the bottom of the ceiling joists. Roof slopes and overhangs are standardized with many variations. Similarly, uniform floor-to-floor dimensions permit ready-made stair components for an infinite number of home designs.

The quality of UNICOM is assured by components made to fit with simplified specification and nomenclature. The interchangeability of units from any source using the UNICOM system is another sure benefit.

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UNICOM MANUAL NO. 1: "The Unicom Method of House Construction" . . . 122 pages of design principles, drawings, and modular planning for basic homes of wood. Single copies of Manual No. 1 are available without cost to those associated with or supplying the home building industry. Your request should be made under professional letterhead and sent to UNICOM, National Lumber Manufacturers Association, 1619 Massachusetts Ave., N.W., Washington 6, D.C.



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Marshall Savings & Loan Association, Riverside, Ill. B. T. Moravec, Architect

Heavy-duty all-glass HERCULITE Doors are made of shock-resisting PPG Tempered Polished Plate Glass to give strength and durability. They are available in a wide range of standard sizes, in thicknesses of $\frac{1}{2}$ in. and $\frac{3}{4}$ in.



S&W Professional Building, Coral Gables, Florida. Leroy K. Albert, Architect

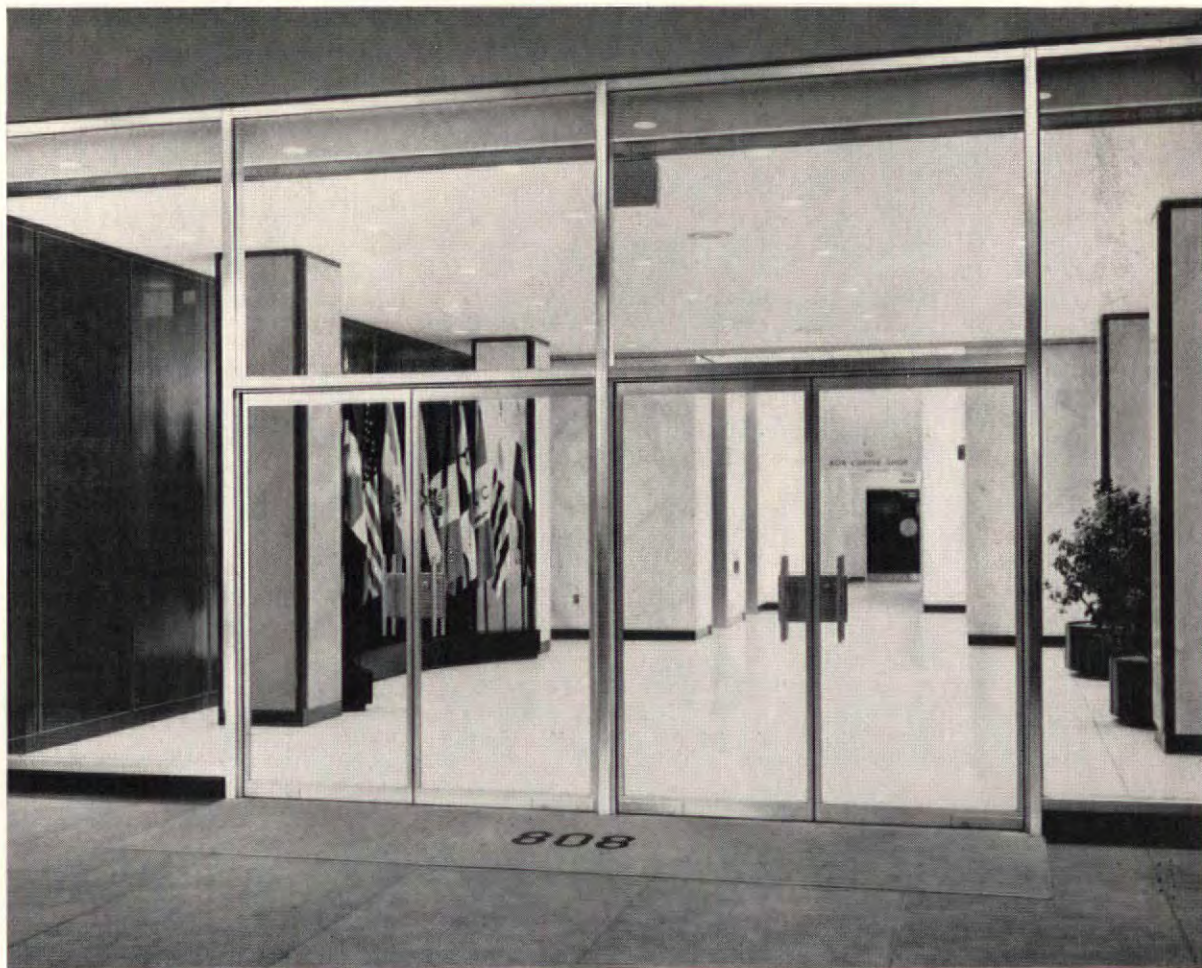
Stylish, aluminum-framed TUBELITE Doors have an exclusive interlocking feature to assure rigidity. Exposed seams and fastenings are eliminated by dovetailed, hollow construction. A reinforcing structural channel is available when required.

Simplicity of line and appealing design give Modern Doorways by PPG the look of distinction and elegance that naturally fits in with today's varied architectural requirements. An extensive range of sizes and styles gives you almost limitless design flexibility.

PPG offers three basic doorway units—HERCULITE®, WEST and TUBELITE®—each with distinctive characteristics. A complete PPG Doorway Package includes frame, all hardware required for installation, and—when desired—the PITTCOMATIC® automatic door operator.

For complete information, contact your PPG Architectural Representative. Also, see Sweet's Architectural File, Section 16e.

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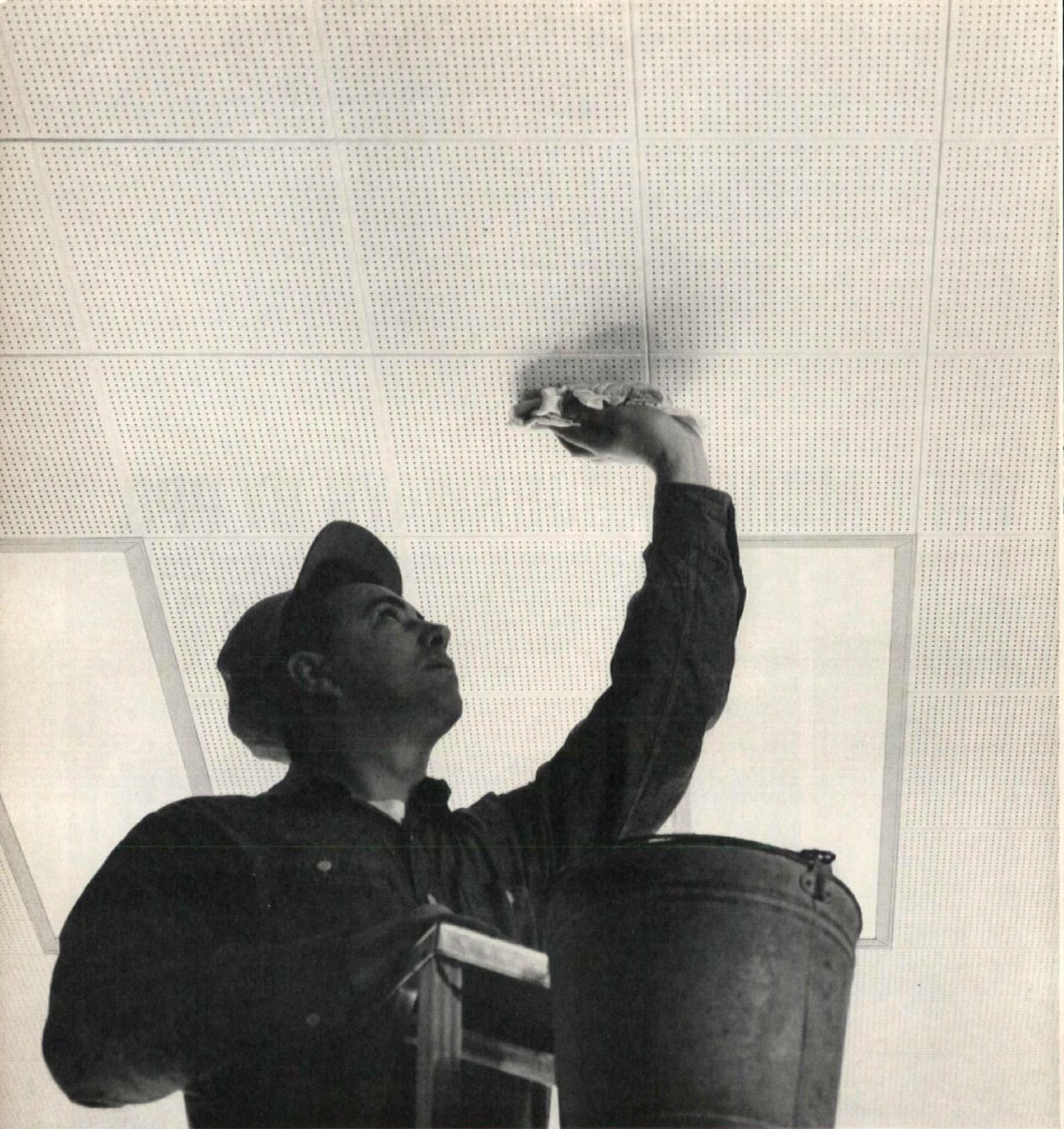
808 Office Building, Washington, D.C. Vlastimil Koubek, Architect

Elegant, slender-framed WEST Tension Doors have 1/2 in. glass held under tension within the metal frame. Result: a strong, serviceable unit that does not sag, rack, or get out of alignment. Available in aluminum, bronze, and stainless steel.

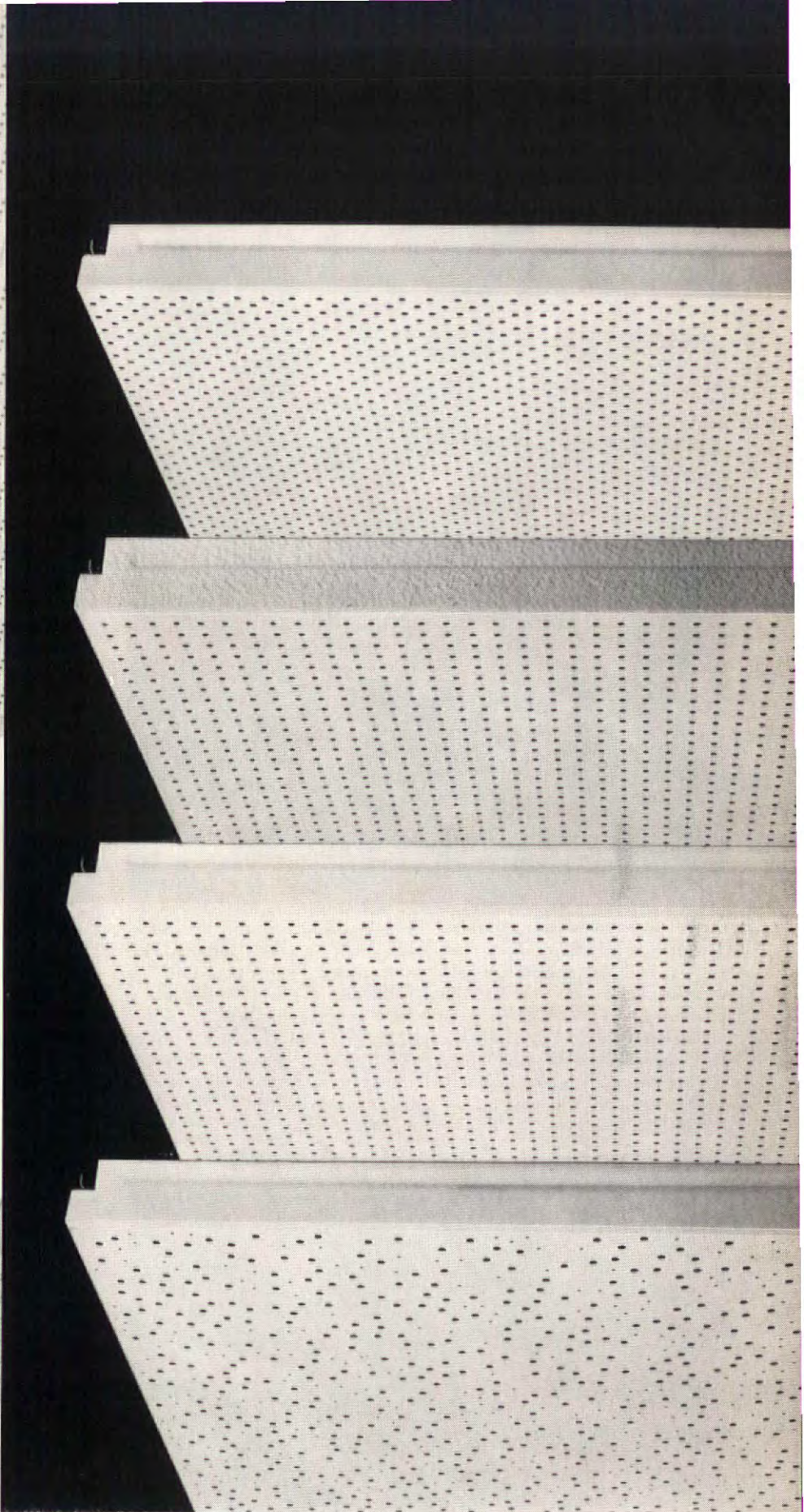
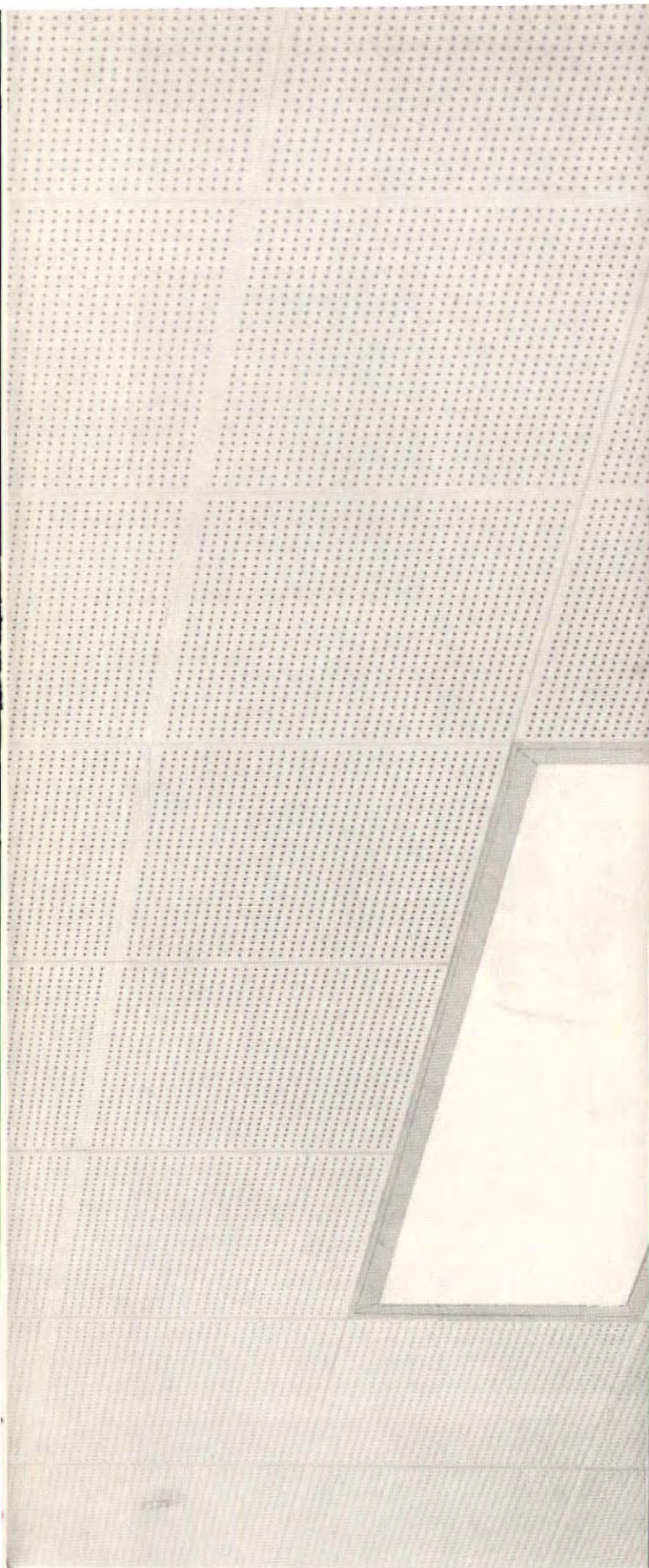


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Paints • Glass • Chemicals • Fiber Glass In Canada: Canadian Pittsburgh Industries Limited



**The Gold Bond difference: Acoustimetal ceilings
are washable, paintable,
and almost indestructible
...and there are new
patterns and finishes!**

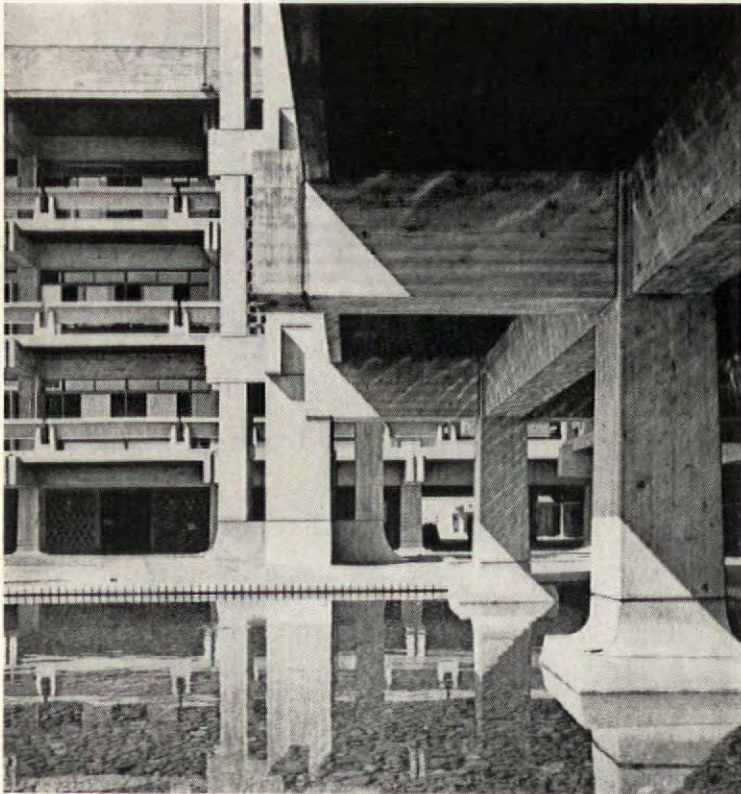


When you take a 24-gauge-steel or an aluminum perforated pan, bake a surface of enamel on the exposed side, and add a noncombustible sound-absorption unit, you have an acoustical ceiling that will last as long as the building. Gold Bond Acoustimetal comes in units one foot wide, one to four feet long, in 12" increments (center scored to simulate 12" x 12" tile). Requires little or no cutting and fitting to get around snap-in flush lights or drop lighting. And units snap out of carrying channels for easy access to areas above. New, small bevel gives the

ceiling that flat plane and evenly finished look you want. The new patterns to choose from are: Needlepoint, Diagonal, and Square. All are available in either smooth finish or Rippletone. Acoustimetal can soak up 90% of the noise that reaches it. And that's a lot of noise . . . anywhere. Ask your Gold Bond® Representative about Acoustimetal. National Gypsum Company, Dept. AF- 83, Buffalo 25, N.Y.

Gold Bond materials and methods make the difference in modern building



**JAPANESE GOVERNMENT BUILDING**

The new office building and assembly hall for the Katsushika ward of Tokyo was raised up on pilotis for an unusual reason: the area floods frequently and the building will be used as a refuge for the surrounding population (a rooftop heliport will aid evacuation). The design also has its side

benefits: a plaza under the assembly hall dappled by the flickering light of a reflecting pool (above); and, under the office wing, parking for a considerable number of cars (below). The four-story building is of roughly formed reinforced concrete and is lined with narrow balconies. Architect: Takeo Sato & Associates.



PHOTOS: THE JAPAN ARCHITECT

FRENCH APARTMENTS. This mass, low-income housing (10 buildings, 560 units) at Créteil, a suburb south of Paris, was constructed within a strict budget. To save money the five-story buildings were largely prefabricated, including kitchens and bathrooms. The oppressive drabness and uniformity of most large-scale, low-budget developments were avoided by the use of broken stones (right), placed in the concrete according to designs by individual workers. Architect: Paul Bossard.



PHOTOS: PIERRE JOLY—VISA CARROT



ITALIAN RESORT. The improbable concrete structure shown in the top photo is a restaurant pavilion for a new resort hotel on the island of Dino, south of Naples. Two ventilation chimneys poke skywards with a look which suggests two enormous beach hats. Equally ar-

resting are the living units (bottom photo), also of concrete. Resembling the giant eggs of some great shore bird, the paired units are nestled into the rugged slope. Six pairs have been built so far, and 12 more are to come. Architect: Giancarlo Simonetti. **END**



Chief Francisco Solano Junior High School, Vallejo, Calif., has an attractive facing of Glasweld in two colors—Grey Green 54A1, and Yellow Beige 62QA. **Architect:** Beland, Gianelli and Associates, AIA, Vallejo. **System:** Pacific Curtainwall Inc.

Here's a face with no complexion problems

(Just wash permanently colored Glasweld to keep it young looking)

Glasweld® colors are nonfading. The surface is a permanent all-mineral enamel. The panels form a smooth surface that remains optically flat in appearance. Glasweld is strong and dimensionally stable; will not buckle, bow, "oil can," "pillow" or "orange peel." The only care Glasweld requires

is the attention you give windows—an occasional washing.

IDEAL FOR CURTAIN WALLS. The attractiveness of Glasweld is more than skin deep. Glasweld is particularly well suited as a facing for sandwich panels, giving quality and durability to low-cost insulated components. It is also eminently practical as a single thickness facing panel with or without masonry back-up.

100% INCOMBUSTIBLE. Another advantage of Glasweld is its fire hazard classification—UL rating 0-0-0. This is of particular importance in schools, hospitals, apartments, hotels, motels, and commercial buildings.

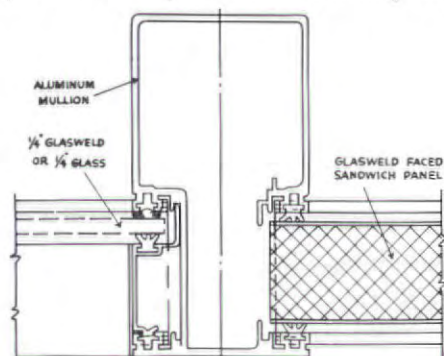
HIGH QUALITY AT LOW COST. Glasweld is easy to work and apply. It can be readily cut in the shop or on the job site with ordinary tools. Installation is quick and simple, using nails, screws, mastic, or metal moldings. Glasweld's

low coefficient of linear expansion simplifies sealing. The result is low installed cost.

28 PERMANENT COLORS. A broad variety of semi-matte colors gives you great freedom in creating a pleasing warmth and softness—in coordinating color surfaces with other building materials.

PROVED IN USE. Installations in service since Glasweld was introduced by United States Plywood in 1957 bear testimony. It has lived up to its promise. The panels have kept their color and inherent strength—and remain optically flat in appearance.

For full information on Glasweld, send in coupon on back of this page.



Typical detail of Pacific Curtainwall 500 Series aluminum system in which Glasweld insulated panels were installed. Single thickness facing panels are 1/4" Glasweld.

Weldwood®

GLASWELD

A product of United States Plywood



Weldwood Algoma Architectural-Grade Custom-Made plain sliced cherry paneling in lobby of Union Tank Bldg., Chicago, Ill. Top panels are 16' 3" high. The 7' panels below are end-matched with top panels. All panels are 5-ply with lumber core, were completely premachined and prefinished at our Algoma plant. **Bldg. owner:** National Properties, Inc. **Architect:** A. Epstein and Sons, Inc., Chicago, Ill. **General Contractor:** George A. Fuller Co. **Installer:** Peterson Co., Chicago.

How to get a tall wall from a short flitch

The lengths of veneer for custom-made architectural paneling depend on the way individual trees grow. Some flitches run up to 16 feet. These can be made into panels that display an impressive unbroken sweep of grain pattern. Look for them among such species as mahogany, paldao, Brazilian rosewood, Korina®, elm, teak, and zebrawood.

But not all woods can provide extra-long veneers. Take American cherry used

above, for example. Its flitches are in the medium-long range, when plain- or quarter-sliced. Ash, red and white birch, butternut also have this characteristic. Walnut and English brown oak, for instance, are in the medium-length range.

Yet, these shorter flitches, too, can be made into long panels with a beautifully matched grain pattern. The veneers are carefully butt-matched on the panel as indicated in the diagram at the right. The result you see in the 16-foot panels at the top of the wall above—and the 23-foot panels facing the columns.

The simple answer is to call the United States Plywood Architects' Service representative. Tell him the dimensions of the walls you wish to panel. Then either indicate your preference of wood or simply describe the general character and color of the wood you are looking for to achieve an effect. He will assemble a variety of flitch samples for your inspection—in our showroom or in your office. He can further help you with suggestions regarding matching of veneers on the panels, the core, finishing, etc.

This service is available to you no matter what your problem is regarding architec-

tural paneling. In case time or the budget is tight, your Architects' Service representative can tell you what's available in our stock of Weldwood® Architectural-Grade, Sequence-Matched Sets.

For further information about Weldwood Architectural Paneling, send in the coupon at the left.



Where the height of a flitch does not permit its fabrication into a panel of the desired height, the veneers may be matched vertically as well as horizontally, as shown. This is called a vertical butt and horizontal bookleaf match.

United States Plywood, Dept. AF8-63
55 West 44th Street, New York 36, N. Y.

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- ☐ 36-page portfolio of Glasweld installations
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- ☐ "Weldwood Architectural-Grade Paneling"

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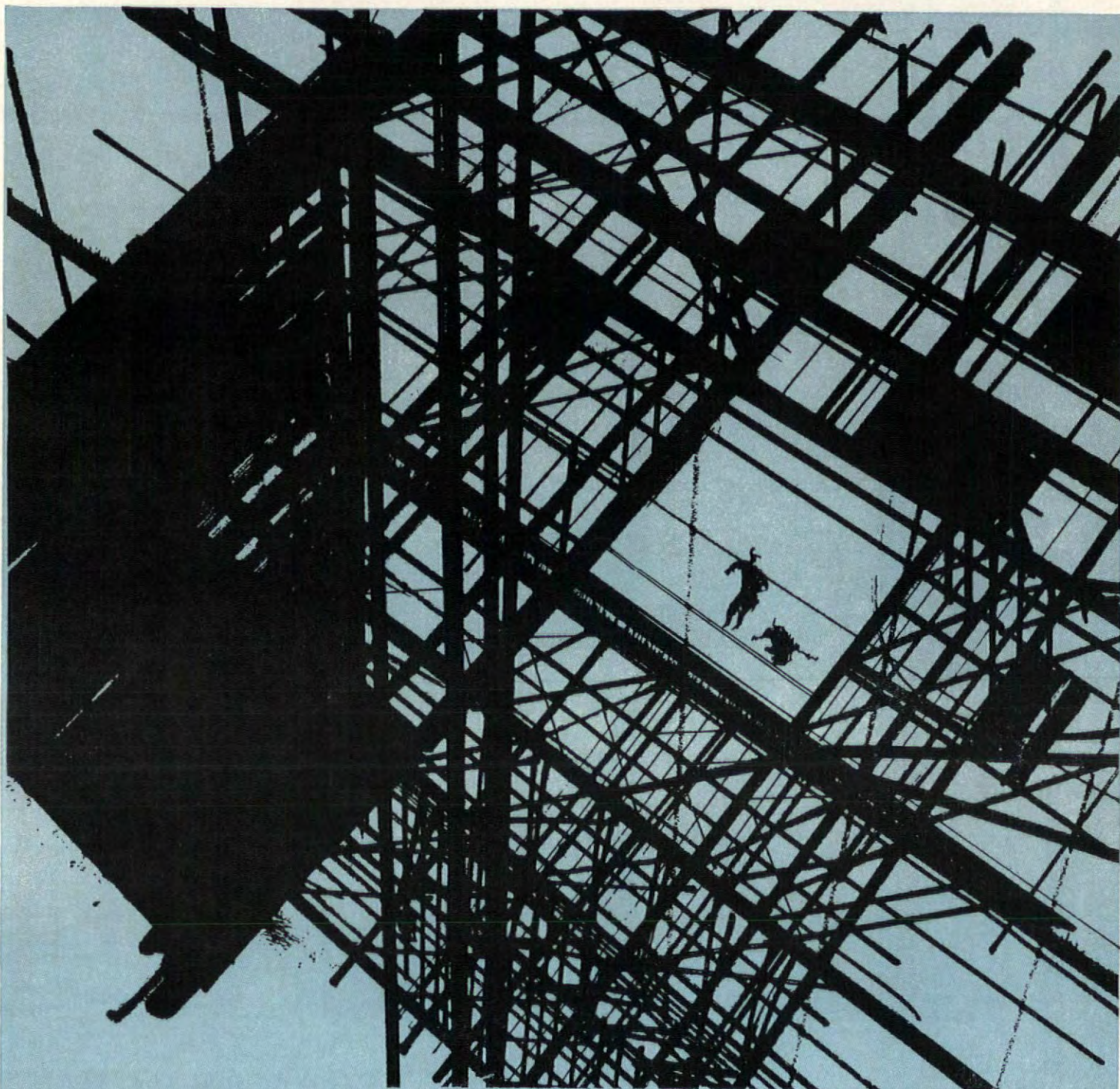
That's why we burn the midnight oil to come up with a continuing flow of new profiles, new styles, new sizes, new design features in Amweld "Clean Line" Frames.

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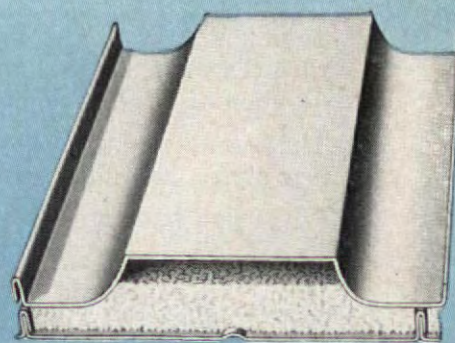
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Magnified view shows pattern distribution through full thickness of tile.

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- Use joint filler meeting ASTM D1751-60T or D994 and be sure of joint protection

Don't overlook the importance of the type of expansion joint filler used in concrete sidewalks, driveways, and walkways on your projects. Low cost expansion joint filler may look alike, but there's a big difference in performance. Experienced architects, engineers, contractors, and owners alike, insist that only joint meeting ASTM D1751-60T or D994 be used on their projects to ensure optimum performance and service life.

Write for complete information on how to obtain better concrete joint protection for less cost.

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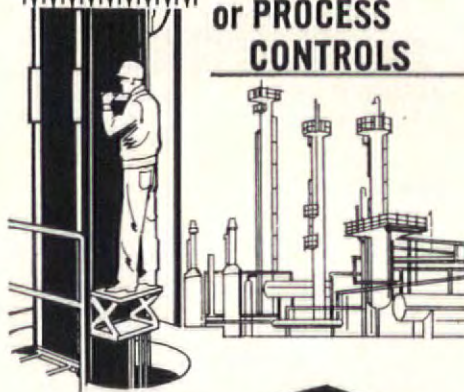
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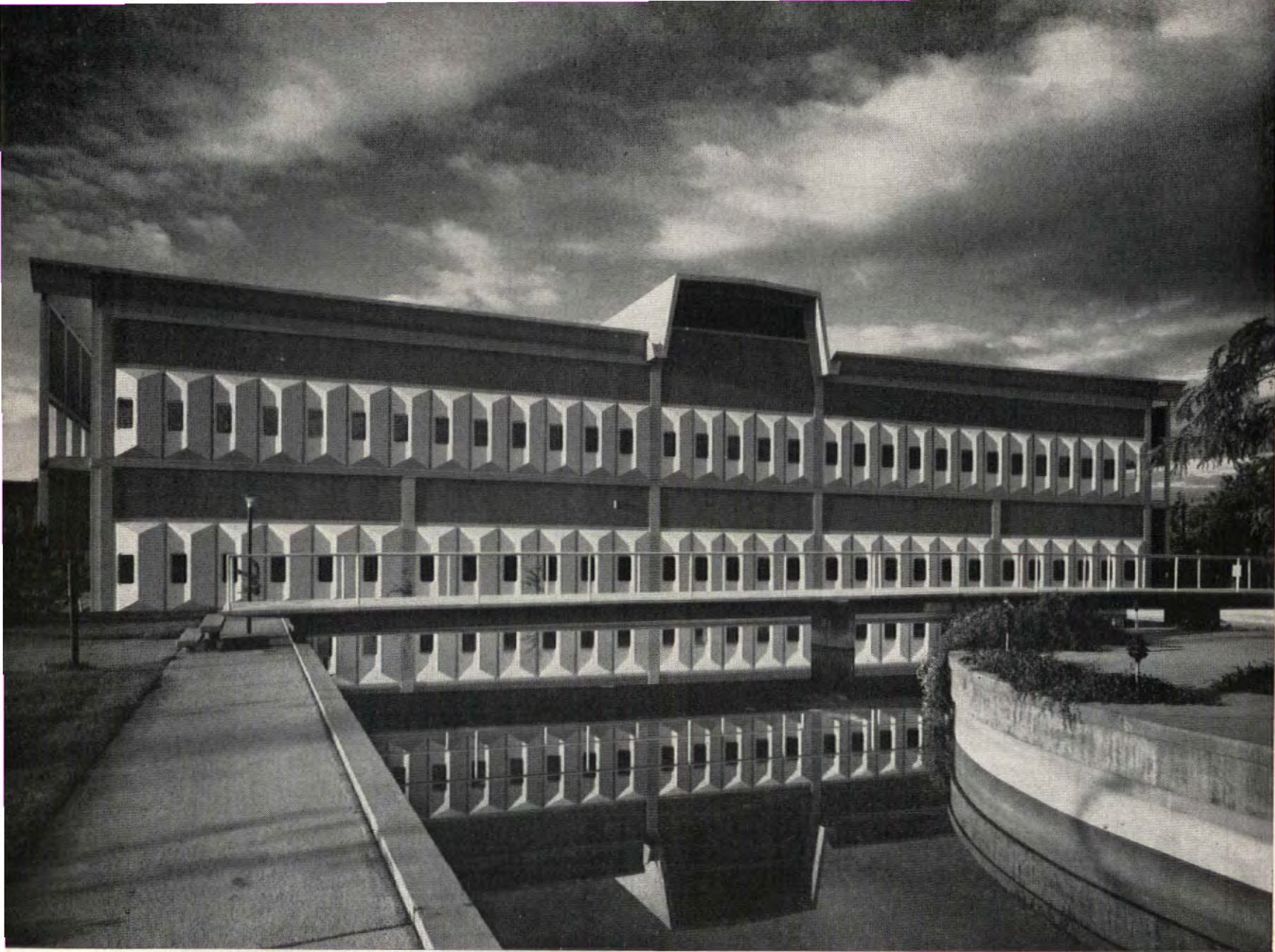
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Above and below: Library, Central Washington College of Education, Ellensburg, Wash. **Architects:** Bassetti & Morris. **Contractor:** Newland Construction Co. Rotary Oilraulic Passenger Elevator sold and installed by Sound Elevator Co.



Tutt Library, Colorado College, Colorado Springs. Architects: Skidmore, Owings & Merrill. **Contractor:** Lembke Construction Company of Colorado, Inc. Rotary Oilraulic Passenger Elevator sold and installed by Dover Elevator Co.

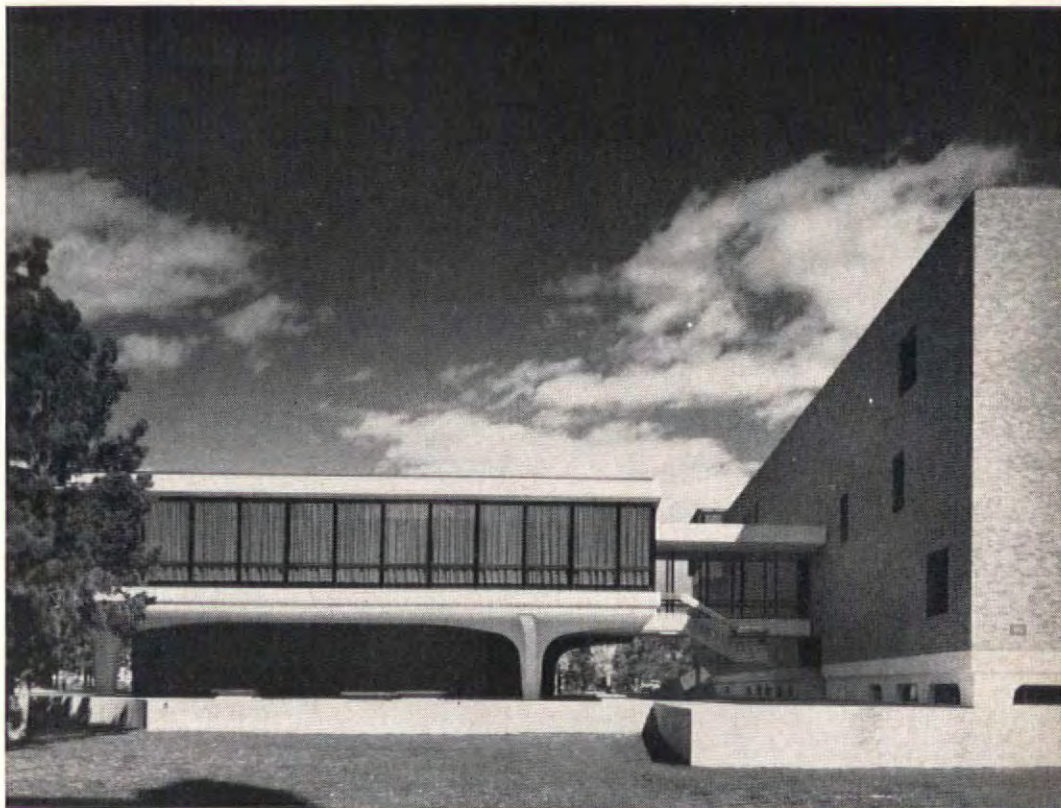
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Contractor: B. H. Baker, Inc. Rotary Oildraulic Passenger Elevator sold and installed by Dover Elevator Co.



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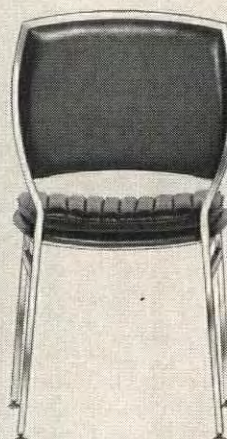
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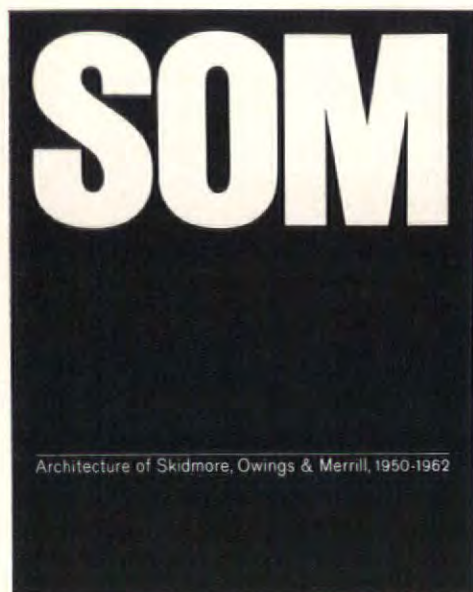
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SOM. Architecture of Skidmore, Owings & Merrill, 1950-1962. Introduction by Henry Russell Hitchcock, text by Ernst Danz (in German and English). Published by Frederick A. Praeger, Inc., 64 University Place, New York 3, N.Y. 9" x 11". Illus. \$18.75.

As Professor Henry Russell Hitchcock points out in the text prelude to this photographic show of the work of Skidmore, Owings & Merrill, an era of architecture is represented here—the good large commercial work of 15 years by the best big American office.

Professor Hitchcock casts doubt on the commonly held proposition that SOM is generically Miesian: "Before 1950 their approach to design was closer, perhaps, to Gropius. Their type of organization, with its emphasis on anonymous production by teams of co-workers, is certainly so although it was not derived from the pattern of practice Gropius had long called for and finally achieved with TAC. And it is a serious error to consider Lever House itself as Miesian. . . . The immediate analogy was with two more nearly current buildings on which, not Mies, but Le Corbusier had served as consultant: Costa and Niemeyer's Ministry of Education in Rio de Janeiro of 1937-43 and Harrison's U.N. Secretariat, the latter just reaching completion in New York in 1950."

Whatever the brand of leek in the leek soup cooked up so expertly in SOM's offices, the interesting point may actually be that it has taken so many years for this mighty office to develop an original design flavor to match its own architectural expertness. That this finally is happening is fairly evident in the photographs toward the back of this book—recent SOM work from the various offices of the firm. That the process may yet split SOM into several flavors and perhaps several firms also seems quite evident.

The book, like the buildings, is very handsome. Aside from the introduction by Professor Hitchcock, however, it does not really comment very interestingly on the buildings

shown, as a book should; it, in fact, seems to suffer a little from brochuremanship, although not a brochure, as such.—W.MCG.

THE GOOD CITY. By Lawrence Haworth. Published by the Indiana University Press, Bloomington, Ind. 160 pp. 5½" x 8¾". \$4.50.

Mr. Haworth, a Purdue University philosopher, has set out "to develop a systematic theory of urban life, connecting it at one end with the ethical principles that underlie the ideal of a good city, and at the other end with the practical discipline of city planning. . . ." The concept of establishing a philosophical, rather than physical, base for the ideal city was a good one (good enough to attract a Rockefeller Foundation grant). The problem of this book, however, is that it is too general to provide an immediately applicable theory, and not general enough to achieve its broader purpose.

A COMMUNICATIONS THEORY OF URBAN GROWTH. By Richard L. Meier. Published by The M.I.T. Press for the Joint Center for Urban Studies, Cambridge, Mass. 184 pp. 6¼" x 9½". \$4.50.

"By November 1955," says the author, "I arrived at the fundamental insight—that of a city as an open system that must, if it is to remain viable, conserve negative entropy (information)." Confronted with this unsettling discovery, the reader is somewhat let down to find that this study of cities starts with "those pieces or elements which yield the least amount of ambiguity and disagreement at the start—the names and addresses of individual humans and their organizations."

The author, however, is up to a lot more than just compiling a telephone directory. He is, it seems, attempting to show how cities can be analyzed in terms of their communications (messages and information of all sorts), and to theorize about urban growth in these terms. This indeed might be fruitful, but nothing comes easy for Mr. Meier. A simple message, such as "Say, Mac, have you got a match?" gets broken down into eight (8) component parts (a sender, a message, a channel, a receiver, etc.). If this all seems unnecessarily obscure, it is. Yet buried in the convoluted language are some disturbing notions. For instance: "Another six-fold increase in reading matter would demand that many other worthwhile activities (e.g., mealtimes, sports, etc.) would have to be cut back." To avoid the resulting starvation or physical atrophy, Meier suggests that routine transactions be taken over by machines. (But then, why not let the machines do the eating and running?).

If readers are baffled by Meier's analysis, they can take heart that the static on the line of inquiry he has opened up may soon clear. Meier promises that in "two or three years" he will have evolved "a more explicit version of the theoretical model."—D.B.C.

BUILDINGS FOR THE ELDERLY. By Noverre Musson, AIA, and Helen Heusinkveld. Published by Reinhold Publishing Corp., 430 Park Ave., New York, N.Y. 216 pp. 8½" x 10½". Illus. \$15.

ARCHITECTURAL DESIGNS: HOMES FOR THE AGED, EUROPEAN APPROACH. By Robert B. Rutherford, M.D., and Arthur J. Holst. Published by Howard Co., 2000 North East Perry, Peoria, Ill. 101 pp. 11" x 14½". Illus. \$12.50.

Anyone planning to design or sponsor a retirement housing project can get much good use out of these two books, which between them show pictures and plans of about 90 projects for the elderly in the U.S. and Europe. The variety of buildings and land use is stimulating and shown in good detail in both volumes. Each book also offers lengthy check lists to help sponsors provide the special accommodations needed by older people under varying conditions of economics and health.

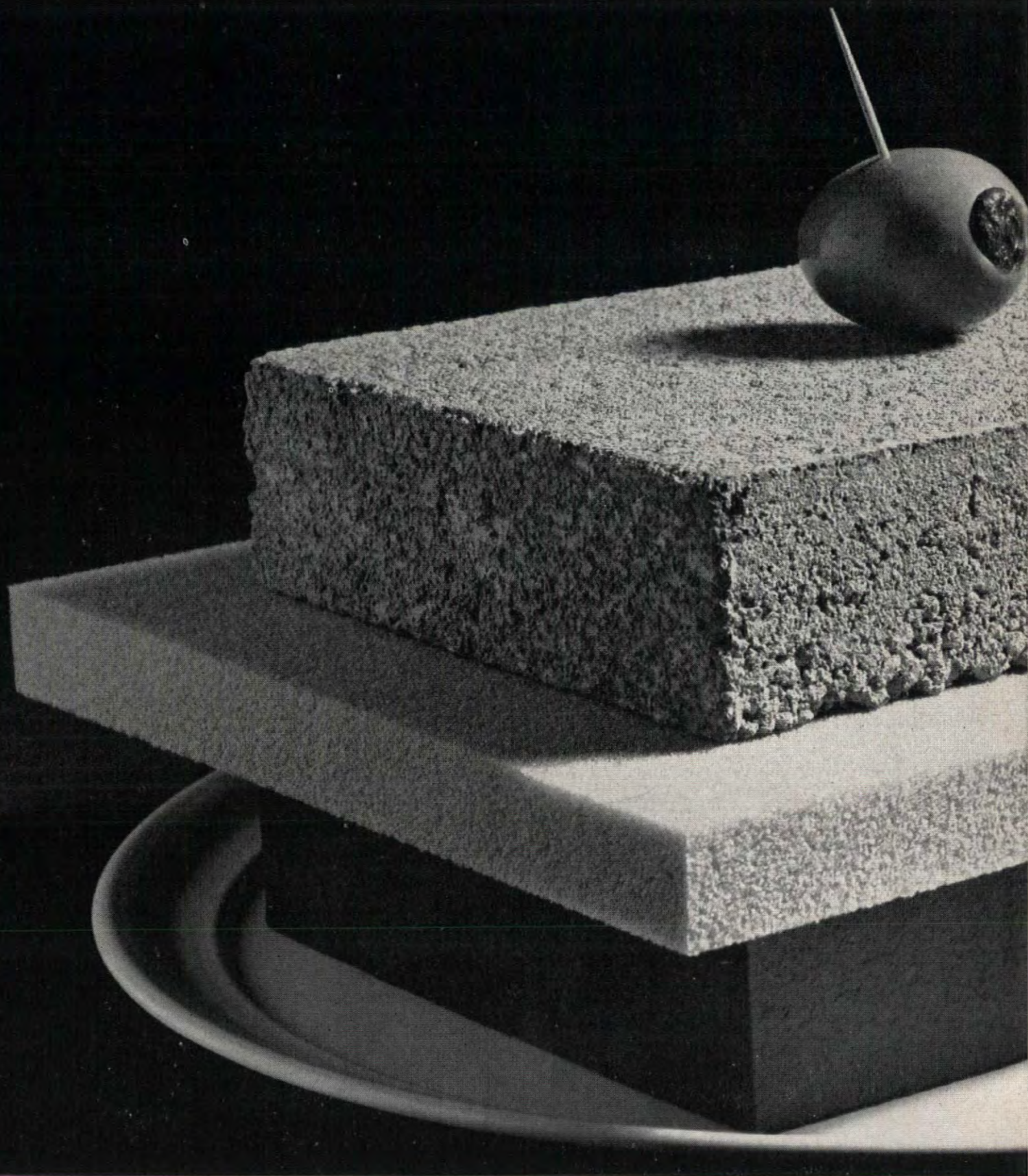
Architect Musson (of Tibbals-Crumley-Musson, Columbus, Ohio) and Mrs. Heusinkveld (of the National Council on Aging) cover all bases in their handsome, well-organized, and fact-filled book. They begin with five chapters on 1) whom to build for, 2) who should build, 3) what to build, 4) where to build, and 5) what it costs to build. Each section gives a comprehensive view of the range of choices open to architects and builders, and down-to-earth advice on how to make them. Chapter 4, for example, includes an "access check list" in choosing a site, listing needs for "direct," "easy," and "feasible" access from residences to many types of facilities.

But the book's major contribution is its clear outline of how to organize to sponsor a retirement project, select an architect, and proceed step-by-step to final completion and operation.

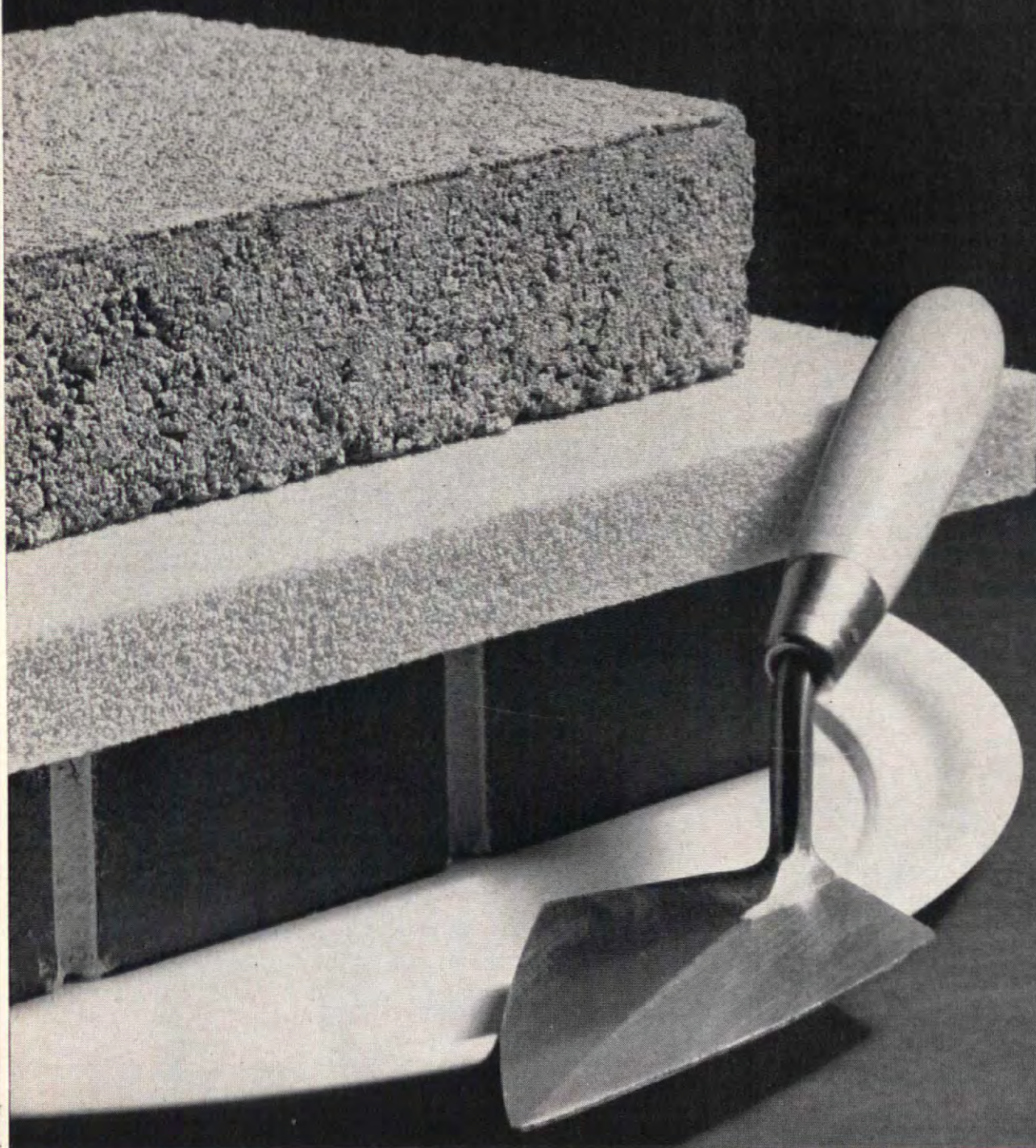
The other book, by Messrs. Rutherford and Holst of the Forest Park Foundation in Peoria, makes a good companion work, showing retirement housing in 12 European countries. Featured is a lengthy description of Sweden's advanced approach to the problems of housing the aged, written by Swedish Architect Ake E. Lindquist.—R.W.M., JR.

THE GROWTH OF CITIES IN THE NINETEENTH CENTURY, A STUDY IN STATISTICS. By Adna Ferrin Weber. Published by the Cornell University Press, Ithaca, New York. 495 pp. 5½" x 8½". \$5.75.

The first of the Cornell Reprints in Urban Design is Weber's classic, 1899 study of city growth. A master statistician with a prose style as clear as his logic, the author analyzes a vast number of figures to determine the causes and direction of continued urbanization. Undoubtedly, the book's seminal impact has diminished over the past six decades, but it still proves interesting, and often entertaining, reading. END



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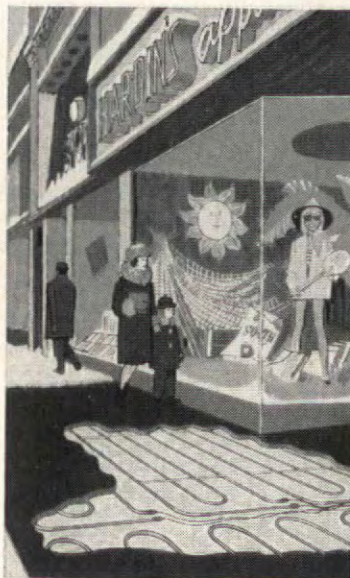
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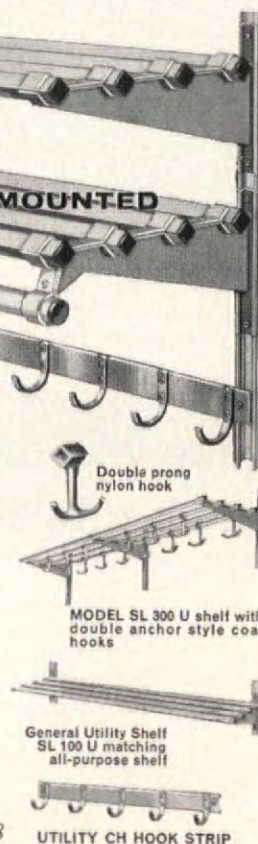
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These beautifully styled, heavy duty, steel wall mount units are built to fit your exact length and multiple shelf requirements. Shelf brackets are held at wall in box formed channel mountings for vertical adjustment. Finish in choice of Mist Green, Desert Sand or Medium Gray, baked on enamel. They come with hanger rail or double pronged nylon hooks in Black or Red. Matching overshoe racks are also available.



Write for catalog SL-48

VOGEL-PETERSON COMPANY
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Low-cost insulated panels (below)
Snug jackets for lamps (page 149)



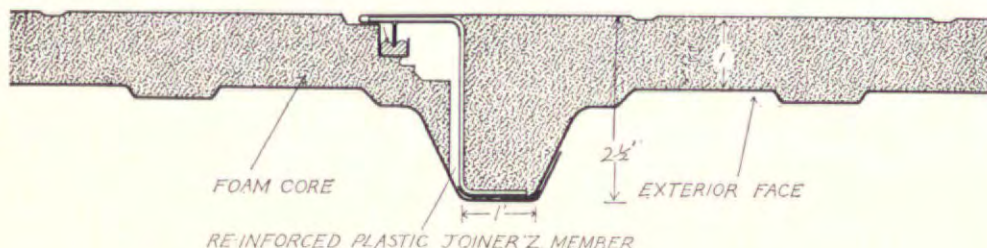
INSULATED PREFABS

Butler's well-known pre-engineered buildings are now available in a new system of insulated roof and wall panels. *Butler F-103* panels are stiffened and insulated with foamed-in-place urethane, expanded between steel skins. The finished panel is nominally 1 inch thick, although the deepest ribs are 2½ inches (see diagram). Including joints, the overall U factor of an F-103 roof or wall is .1 B. T. U.'s, about the same as that of masonry walls up to 20 inches thick, according to Butler's

calculations. Panels are prepunched at the factory, ready to be tilted in place and attached to structural supports.

The new panels are 3 feet wide, up to 32 feet long, and span 14 feet between supports. They are factory finished in a choice of colors outside, bone white inside. A plastic thermal break, shaped like a Z, prevents metal-to-metal contact at the joint. In-place costs for the F-103 system run to about \$1.35 or \$1.40 per square foot.

Manufacturer: Butler Manufacturing Co., 7400 East 13th St., Kansas City 26, Mo.



CONCRETE FORM LINER

The smooth contours of the manhole casing (below, right) illustrate the benefits of an *Acton* treatment. Acton is a new, non-oily coating for concrete forms which is said to produce a more perfect finish on concrete shapes than previous repellents for the same purpose. It can be used to coat forms of steel, plastic, wood, plywood, glass fiber, and plastic-coated wood and also to keep trucks, scaffolding, and other equipment free of concrete.

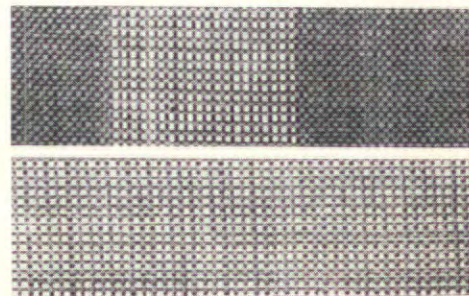
Acton is sold as a concentrate to be mixed into an evaporative solvent such as fuel or range oil, kerosene, or mineral spirits. The concentrate costs \$18.50 per gallon, but a little goes a long way: 1 gallon diluted by 54 gallons of solvent lowers the average cost to about 50 cents per gallon. The mixture may be sprayed, brushed, or mopped on at the rate of 1,000 to 1,500 square feet per gallon.

Manufacturer: Industrial Synthetics Corp., 2000 W. Walnut St., Chicago 12.



DURABLE WALL COVERINGS

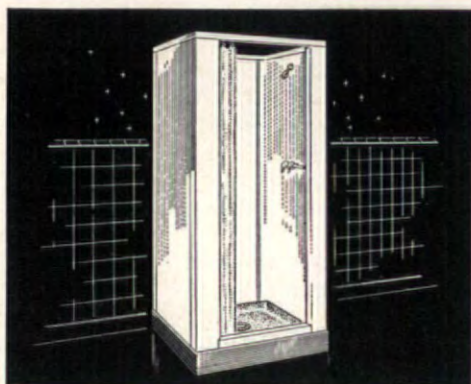
C. W. Stockwell, a wallpaper manufacturer, Designer Marianne Strengell, and Dow Chemical Co. have come up with a new wall covering that offers interior designers a fresh source for durable, good-looking wall finishes. *Vanaveve*, the result of their collaboration, is actually a collection of wall coverings and matching drapery fabrics woven of Dow's Rovana saran flat monofilament combined with other fibers. Rovana



continued on page 149

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...a handy guide in selecting the proper product for each application

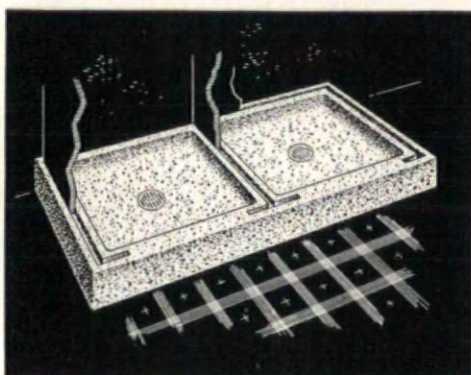


PRODUCT CADET SHOWER STALL

A versatile cabinet that fills a wide range of requirements. Bonderized-galvanized wall panels are prefabricated with precision to provide easy installation and leak-proof service. Square, corner and recessed models available—come in white or choice of colors. **Cadet** is one of many Fiat models—see Sweet's Architectural File 22b/Fi for details on all models.

APPLICATION HOME/SCHOOL/CLUB

Cadet is the key to economy in planning for showers: Saves cost of carpentry (no lumber needed); saves cost of sub-pan (uses Pre-Cast Terrazzo floor); saves on call-backs (over 2,000,000 Fiat showers prove value and performance in new homes, remodeling and institutions). Contractors claim they save $\frac{2}{3}$ the cost of built-on-the-job showers.

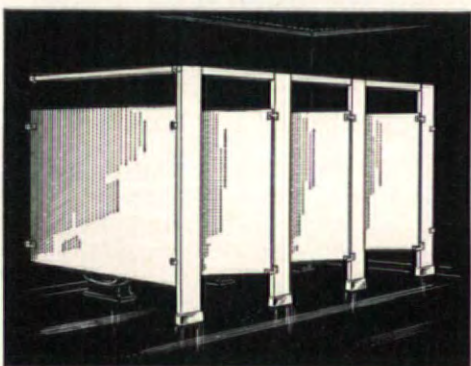


PRODUCT GIBRALTAR FLOOR

6" deep floor designed to keep wall joints high above water. Shoulders are extra broad to accommodate walls of marble or other thick, structural materials. Precision cast rabbets assure tight fit of walls...save time, avoid error and eliminate expensive on-site fabrication. Single size 36" x 36"; dual size 72" x 36". See Sweet's 26c/Fi for complete details.

APPLICATION DORMITORY, GYM, ETC.

The right shower receptor for institutional and industrial installation—either in battery or individually. Accommodates walls of marble, slate, structural glass, ceramic tile or other heavy-duty wall materials. Can be supplied with combination of rabbet for marble and metal flange for tile where different wall materials are to be combined.



PRODUCT TOILET ENCLOSURE

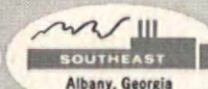
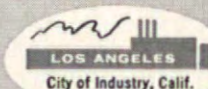
Duro headrail-braced model shown is the most simple and hence the least expensive toilet enclosure to install. It was deliberately designed to meet popular concepts of clean, modern design and yet was engineered to economize on details that do not detract from its appearance, nor lessen its performance or long-life.

TYPES AND APPLICATION

The Duro model is ideal for replacement, remodeling projects as well as new construction. No special reinforcement of floor, wall or ceiling required. Ceiling-hung and floor-braced models are also available with the "years-ahead" features that have earned a reputation for durability, low maintenance and easy installation.

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See Sweet's $\frac{22B}{Fi}$ and $\frac{26C}{Fi}$ or write nearest Fiat office for literature.



FIRST IN FEATURES / FIRST IN PERFORMANCE / FIRST ON-THE-JOB FROM 5 STRATEGIC PLANT LOCATIONS

SHOWER CABINETS

SHOWER FLOORS

TOILET ENCLOSURES

continued from page 147

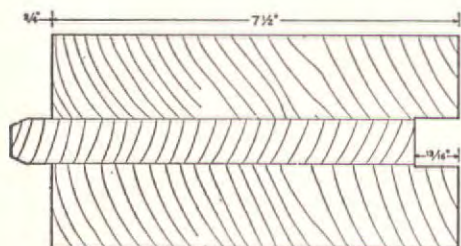
contributes resistance to fire, abrasion, stains, rot, and mildew. The handsomest of the group, at least for contemporary interiors, are the grass-cloth textures and stripes, although Vanaweve is also available in replicas of eighteenth-century brocades and smooth weaves, some with Lurex threads.

The solid, tweedy colors and stripes cost less than \$7 in wallpapers that are 37 inches wide and fabrics 52 inches wide. The smooth weaves and brocades cost \$1 or so less, except for those woven with Lurex, which are up in the \$7 range.

Manufacturer: C. W. Stockwell Co., 3262 Wilshire Blvd., Los Angeles 5.

INDUSTRIAL FLOOR

One of the first products to come out of Potlatch Forests' electro-mechanical system for rating lumber (*Products*, June '63) is *Lock-Deck* industrial flooring. Because each piece of lumber going into the floor has been graded and its structural strength determined, Potlatch vouches for *Lock-Deck* in spans of up to 20 feet. As illustrated in the drawing, planks of 2-inch white fir are glued to either side of 1-inch boards, the layers staggered into broad tongue-and-groove joints. If an additional surface is needed over the basic floor, a plywood topping may be screwed in at



right angles to the *Lock-Deck* planks.

Individual boards in the structural floor have a fiber stress in bending rating (f) of at least 2,100 pounds per square inch and a modulus of elasticity rating (E) of 1,800,000 pounds per square inch. The calculated design stresses of the composite floor increase the f rating to 2,478 pounds per square inch. Prices have not yet been set.

Manufacturer: Potlatch Forests Inc., Lewiston, Idaho.

OUTDOOR LAMP PROTECTOR

A cold-weather jacket for fluorescent lamps, developed by Tishman Research Corp. and displayed here by John Tishman, is being marketed under the name of *Wepco Light Shield*. Work on a protective jacket for outdoor lamps began when Tishman's prefabricated parking garages had trouble getting efficient light levels from their fluorescents during cold weather. The shield developed is nothing more complicated than a plastic sleeve slipped over the lamp, plus a pair of



rubber washers, but it increases the light output from 15 to 300 per cent at temperatures from 50 down to 0 degrees F. under laboratory conditions. Outdoors in cold and wind, Tishman estimates a much better showing, perhaps doubling the laboratory efficiencies.

The *Wepco* shield is made of light-stabilized polystyrene in lengths of 24, 48, 72, and 96 inches and sells for a first cost that is less than that of a double glass-walled fluorescent tube. However, the real savings occur when the lamp is replaced, for the shield transfers to a new lamp without any additional outlay. Several colors are available, one of them a bug-repellent yellow. Costs start at \$4 each for the smallest size and go up to \$8.

Manufacturer: Wheatland Electrical Products Co., Arch St. Extension, Carnegie, Pa.

WHITE FLASHING

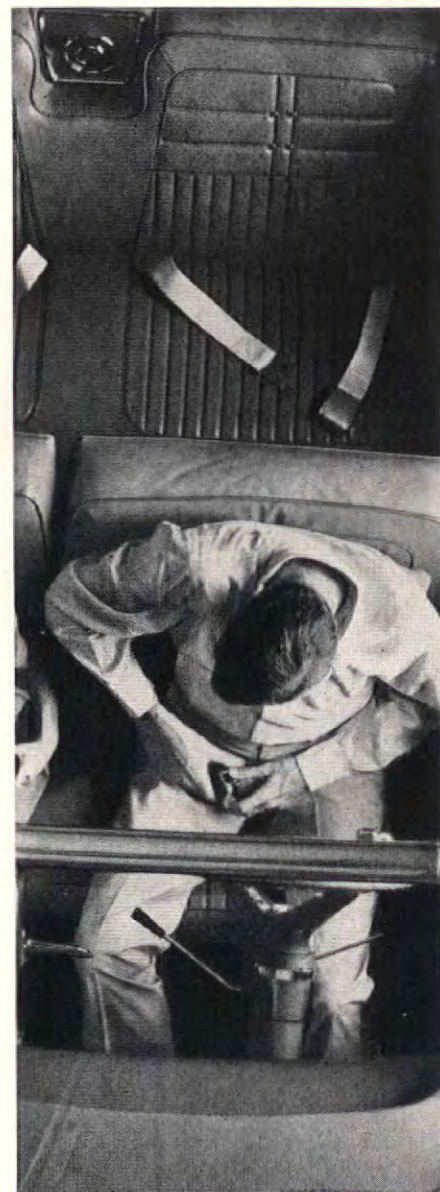
This model-size roof expansion joint demonstrates the pale color of B. F. Goodrich's new flashing, said to be the first of its type in white. It is made in black, too, but the emphasis is on white to blend with light-colored roofs, particularly those of concrete. The material is polyvinyl chloride sheet which is pliable over wide temperature ranges and adheres when mopped with standard roofing asphalt or pitch.

The new flashing is sold in 50-foot rolls and in widths from 9 to 54 inches. The cost is in the neighborhood of 60 cents per square foot.

Manufacturer: Building Products Dept., B. F. Goodrich Co., Akron 18, Ohio.



continued on page 150



BUCKLE UP!

Seat belts can save at least 5000 lives a year—reduce serious injuries by 1/3

Isn't it time to heed this advice from The National Safety Council? Isn't it time to protect your loved ones and yourself by installing seat belts in your car?

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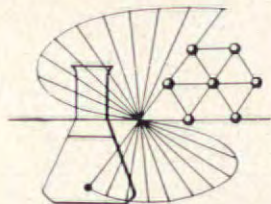
Don't wait. Install and use seat belts now. You'll drive with a new peace of mind.

Buckle up for safety with seat belts!



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FRESH!



IMAGINATIVE USE OF STIMULATING MATERIALS

You can select distinctive Haws fountain designs that keep pace with your own architectural ideas. They're fresh! Here are a few for your appraisal: detailed specs are yours for the asking.

Fiberglass

HDFC electric water cooler, AIR COOLED! Semi-recessed wall model, molded in strong fiberglass. In 3 colors or white.

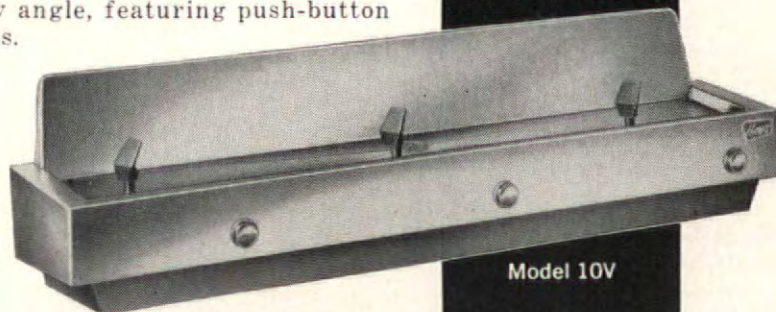
Hard Anodized Aluminum

7L wall fountain in cast Tenzaloy aluminum, hard anodized to rich bronze finish that stands up under rough usage. Here's a real beauty: and practical, too!

7J wall model with same hard anodized finish as 7L, above. Features Haws easy-action push-button valve.

Stainless Steel

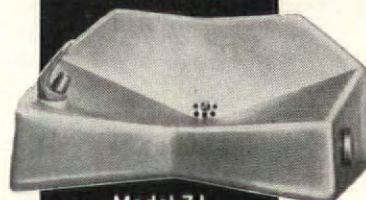
10V multiple wall fountain, new from every angle, featuring push-button valves.



Model 10V



Model HDFC



Model 7J



Model 7L

Haws

DRINKING FOUNTAINS

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Since 1909



URETHANE ROOFING

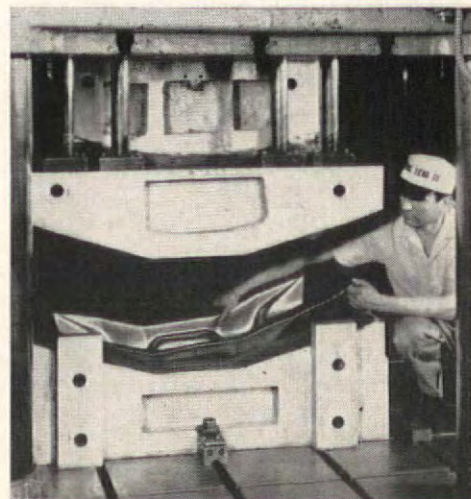
The man with the gun is spraying *Urapol 823A*, a new elastomeric coating for roofs and floors. It is a two-part urethane system that provides a seamless coating guaranteed by the manufacturer for three years after application. Sprayed on as a roof coating, Urapol bridges small cracks in concrete; as a flooring, it has resilience underfoot, sound-deadening properties, and resistance to abrasion, oils, and solvents.

Urapol's coverage is about 30 square feet per gallon when built up to a 50-mil thickness. Depending on the area, the application cost is 49 to 95 cents per square foot.

Manufacturer: Poly Resins, Sun Valley, Calif.

PREVIEWS

A shell of plastic takes on properties of the base material it surrounds in a new encapsulation process developed by National Lead. The blends with which National Lead has been experimenting—plastic shells around glass fibers, cellulose, carbon black, and textile fabrics—are called *Nalcon*. One



Nalcon laminate is this steel and glass-fiber sandwich, in which thin steel sheets are separated by encapsulated glass fibers. This laminate is said to have a high strength-to-weight ratio and good sound and heat-insulating properties. Encapsulated cellulose shows promise as a top layer in acoustical tile and insulation board.



The lightweight car body above is one of the products U. S. Rubber makes from *Expanded Royalite*, a thermoplastic laminate derived from ABS plastics. The properties which make Expanded Royalite suitable for car bodies—light weight, rigidity, and impact resistance—lead to the logical next step, the production of big shells for prefabricated portable shelters, motels, and hospitals. The manufacturing process builds into each panel a closed-cell core while keeping the outside skins solid. Panels are built up in layers, then pressed into one continuous sheet. The plies in the center are compounded with a chemical blowing agent which releases nitrogen gas at the proper moment. The gas expands the core before the whole panel goes into a mold. In a sense it is a sandwich panel, yet, unlike the usual sandwich, the skins and core are the same material given different treatments.

Bolt, Beranek & Newman's *Soundshear* principle of panel design sandwiches a specially engineered core between thin, stiff skins to make a structurally rigid, acoustically limp panel. The principle was developed several years ago, patented, and licensed to U. S. Plywood, which has been working on a Soundshear panel for the last year and a half. Models in development are stressed-skin panels with a core mixture of organic and inorganic materials. Soundshear panels will be part of a complete movable wall system.

Structural shapes produced on automatic machinery will be manufactured and sold by Kaiser Pullmax SA, a new Swiss corporation formed by the Kaiser Steel Corp., and Pullmax AB of Sweden. Machines weld pre-cut sections into beams, girders, and columns at speeds that make automated shapes competitive with rolled sections. **END**

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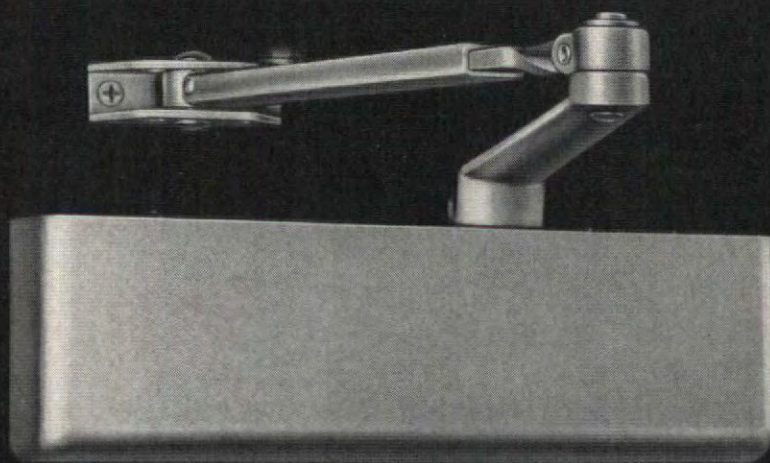
Although their addresses are as different as their three points-of-view, one delivery can reach all three at the same time. For they are assembled each month by Architectural FORUM, the only magazine addressed to their individual and common building interests: the art of architecture, the technology of construction, and the economics of building.

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*Among FORUM's 62,000 paid subscribers, there are 15,600 U.S. architect/engineers, 7,200 U.S. contractor/subcontractors and 23,200 U.S. client/owners. Because no other magazine covers more than one group to any appreciable degree, FORUM is indeed essentially different.

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Series 7000W lets you carry the warmth of the wood doors and room paneling to the closer itself. You can choose from 67 native and exotic woods. The wood of the closer cover is in its natural form. It can be finished along with the paneling and door.

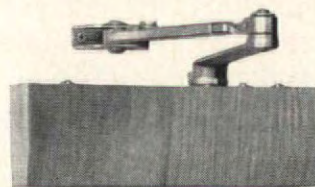
Series 7000A is available with anodized aluminum covers to match other door hardware. Choose from

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