Architectural Forum the magazine of building August 1961

FORUM

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Architectural Forum August 1961

VOLUME 115, NUMBER 2

Cover: Vignettes of buildings designed by "New talent" architects (story, page 68).

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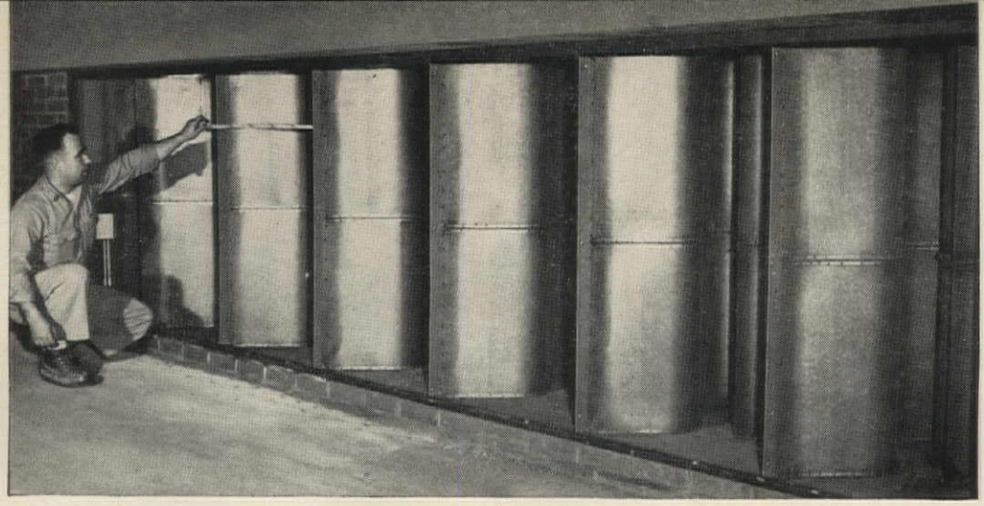

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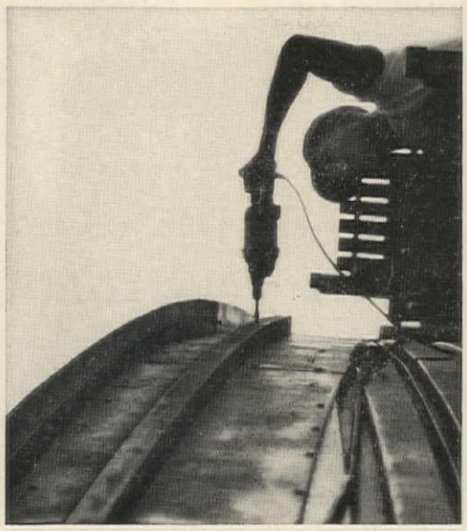

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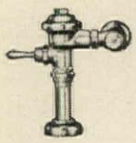

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Construction recovery seen in second half of year as nonresidential building establishes new records

Last year, construction suffered its first setback since the end of World War II, after 15 consecutive years of annual gains in the volume of building activity. Although the relapse was slight (down 2 per cent from a record 1959 volume of $56.1 billion) the nation's biggest industry has been struggling ever since to get back to new record levels. Despite a fumbling start, it appeared last month that 1961 might make it, after all. The Department of Commerce, acting on the basis of results for the first six months, revised its forecast of this year's building activity upward, to show a projected gain of 4 per cent over 1960. This would mean that 1961 will indeed be a new record year for building—though not by much and probably not at all in terms of constant dollars—but more than that, it means that building's one postwar "recession" was unimpressive and short-lived.

The department's revision of its 1961 forecast clearly indicates a robust second half of the year, for the first half was rather pallid. Total building was just a shade (1 per cent) above the first six months of 1960, and private construction actually showed a 3 per cent decline. This was slightly more than offset, however, by an 11 per cent surge in governmental construction of all types. As was the case through 1960, home building continued to be laggard through the first half of this year (down 12 per cent), while nonresidential construction is still scoring new highs (see chart below). Office building (up 10 per cent), hospital building (up 17 per cent), and industrial construction were the bellwethers through the first half of the year, while all public nonresidential construction scored a healthy 14 per cent advance, led by a whopping 14 per cent upswing in school construction.

Public building boom

The school boom will, in fact, be one of the key elements in the expected new record of building this year. For the first time, public school construction will total better than $3 billion, continuing a surge that began two years ago. Military construction is moving at an even quicker pace (up 22 per cent in the first six months) under the spur of the accelerated missile base programs. The $1.6 billion total of military building estimated for 1961 would be the highest since wartime 1943.

Public office building also may hit a new peak in 1961, because of the surge in federal spending for new administration and office structures. Finally, in this year of peak governmental spending for building, even public housing is showing a surprising resurgence. Spending for public residential building is expected to hit $800 million in 1961, a gain of 12 per cent over 1960, which was one of the worst of all postwar years in public housing. And spending figures for public housing should be even stronger in 1962, if latest estimates of the Public Housing Administration stay firm. The PHA announced last month that it already has applications for 36,000 of the 100,000 new units provided by the Housing Act of 1961, and that more units (37,000) were placed under construction in the first six months of this year than in any year since 1953. Of the total units scheduled for construction in fiscal year 1961-62, about 33,600 will be built in 91 cities in federally designated depressed areas. Spending for these units will total $341 million.

Housing decline offset

In the private sector, the big news is still the decline in home building. However, the second half of the year is expected to show a considerable revival in new starts, so that the 12 per cent decline of the first half should be trimmed to a 3 per cent drop by year-end. But even this is considerably rosier than the 15 per cent drop in new dwelling units experienced in 1960.

Meanwhile, the incipient boom in the construction of apartments seems to have been nipped before it really reached full promise. Although the basic factors underlying the apartment resurgence—namely a growing corps of young couples and a coincident upswing in numbers of the elderly—are still present, the market seems at least temporarily soggy. A 16 per cent decline in private apartment construction through the first half is expected to be only slightly mitigated by the general building rise in the last half of the year. The housing market aside from apartments seems to have slipped into a stagnant phase due largely to a lessening in the elements of basic demand. And economists currently doubt if even an injection of easy credit could turn it into the mushrooming bull market in housing of 1955 or 1959.

The decline in housing is being more than offset, however, by other sectors of private building. Commerce, in its updated forecast, sees private nonresidential building rising 4 per cent over 1960, with every building type advancing except for social and recreational structures. Industrial building should benefit from an upswing in total capital expenditures in the third and fourth quarters, and office building is expected

continued on page 7

NEW CONSTRUCTION EXPENDITURES, FIRST HALF 1961 (in millions)

	First half 1961 Private	First half 1961 Public	First half 1961 Total	First half 1960 Total	% Change First half 1960 vs. 1961
TOTAL CONSTRUCTION	$17,768	$7,657	$25,425	$25,148	1.1
TOTAL BUILDING CONSTRUCTION	7,274	3,124	10,398	9,785	6.3
Industrial	1,457	250	1,707	1,554	9.8
Offices and warehouses	1,067	—	1,067	973	9.7
Stores, restaurants, and garages	966	—	966	917	5.3
Religious	468	—	468	474	—1.3
Educational	285	1,460	1,745	1,552	12.4
Hospitals and institutions	331	177	508	476	6.7
Social and recreational	288	61	349	367	—4.9
Public administrative and service	—	303	303	259	17.0
Apartments	1,325	171	1,503	1,726	—12.9
Hotels, motels, and dormitories	717	85	795	609	30.5
All other building construction	370	617	987	878	12.4
TOTAL HOUSE CONSTRUCTION	$7,515	$134	$7,649	$8,353	—8.4
TOTAL OTHER CONSTRUCTION	2,979	4,399	7,378	7,010	5.2

Source: Miles L. Colean estimates based on Bureau of Census data.

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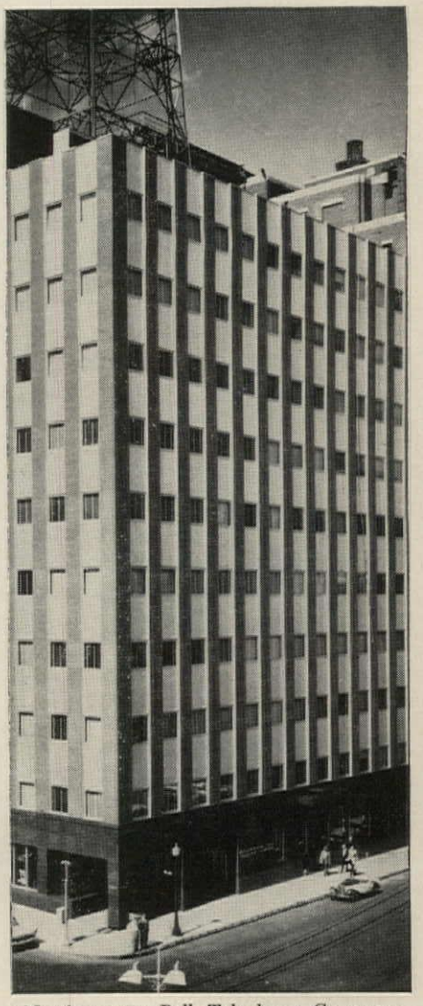
• The Methodist Country House, Wilmington, Delaware. Architects: Dollar, Bonner, Blake and Manning, Wilmington, Delaware.

• West Penn Power Company, Connellsville, Pa. Architects: Hoffman and Crumpton, Pittsburgh, Pa.

• Federal Low Rent Public Housing Project, Elberton, Ga. Architect: James M. Hunt, A.I.A., Elberton, Ga.

• Harris Trust and Savings Bank, Chicago, Ill. Architects: Skidmore, Owings and Merrill, Chicago, Ill.



• Northwestern Bell Telephone Company, Des Moines, Iowa. Architects: Tinsley, Higgins, Lighter and Lyon, Des Moines, Iowa.

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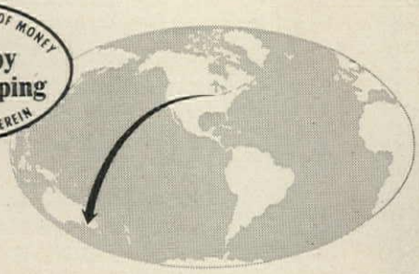

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to rise only slightly less this year than it did in 1960.

Costs steady, money ready

Two factors that are expected greatly to enhance the expected revival of building through the second half of this year are relatively steady construction costs and the availability of a ready pool of building money. Through the first half of this year, total building costs rose less than 1 per cent, and costs for the building of apartments, hotels, and office buildings only a shade more than that. Building materials costs, however, have been rising fast since January, reversing their earlier downtrend. But not even the 4 per cent rise in materials costs so far this year has brought them up to year-ago levels. At the moment, steady competition in such basic materials as steel reinforcing bars has forced producers to cancel anticipated price hikes.

Most mortgage bankers predict a readily available pool of money for all types of building, and most look for steady interest rates through this year. However, Federal Reserve Board Chairman William McC. Martin and other top monetary spokesmen warned last month against any hopes of steady interest rates as the economy moves into the period of "superboom" predicted by many for 1962.

President signs $5-billion omnibus housing bill

President Kennedy last month signed into law the biggest housing bill ever enacted by any U.S. Congress, and one heavily loaded with aid programs pointed right at cities (FORUM, July '61). The nearly $5-billion program actually provides even more for some federal housing programs than the President himself had asked. (Although both houses of Congress passed the bill by tidy margins, there was disagreement about its total cost. Administration spokesmen claimed that the act calls for spending totaling about $4.8 billion, while Republican opponents argued that this figure does not count new public housing authorizations, which add at least another $3 billion.)

The biggest single item in the bill that the Administration had not requested was an additional $750 million for the Federal National Mortgage Assn.'s special assistance functions. This was double the amount originally requested, but was deemed necessary to support new and existing FHA mortgage insurance programs.

The urban renewal program, which had run out of money while Congress resolved differences between House and Senate versions, was given another $2 billion of capital grant authority. This enabled the Urban Renewal Administration to give the go-ahead to more than 80 projects in 70 localities, which had been stalled for want of $200 million in federal commitments to get them going. And the new law also provides that the federal government will pay three-quarters of net project costs in all towns of 50,000 and under and in depressed areas of under 150,000 population. This is contrasted to the two-thirds of net costs paid by the federal government in larger cities. Although the Administration is somewhat disappointed that Congress did not give it the $2.5 billion originally requested, it is nevertheless relieved that at last the renewal program is off the hand-to-mouth capital grant basis that had hamstrung forward planning for many cities.

Other established programs boosted by the new law included $1.2 billion for college housing loans, $200 million for rural housing loans, and $75 million for the housing for the elderly program. The public housing program was beefed up by a whopping 100,000 units, although these had been authorized, but not committed, in housing bills of previous years. Provisions for FHA-in-

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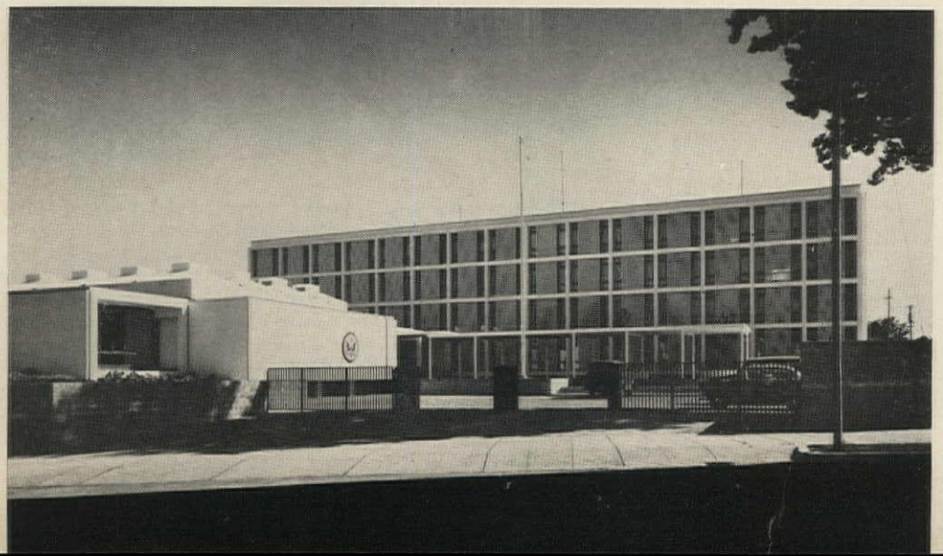
MEGALOCOMOU BROS.; CREEK PHOTO NEWS



THREE NEW U. S. EMBASSIES ABROAD

These three new U. S. Embassies reflect the State Dept.'s continuing exportation of outstanding American design. Walter Gropius' $2-million glass-enclosed, marble-columned embassy (above) opens in Athens this month. In Karachi, the embassy by Neutra & Alexander (left, above) is protected from the Asian sun by gold-anodized louvers. Vincent Kling's Quito, Ecuador Embassy (left, below) added another honor to the foreign building program when the Quito City Council awarded a special gold medal to Kling and the U.S. government for the best new public service building of the past year, the first time any U.S. embassy has been so feted.

sured mortgages were eased, though not so far as the Administration had wanted. Instead of the controversial 40-year mortgage, Congress compromised with a maximum 35-year term, with top mortgage amounts raised to $25,000 from $22,500. Down-payment terms were eased, however, and the 40-year mortgage did get a slim handhold in the law by dint of a provision for giving such terms to hardship families who could not afford payments under the 35-year provisions. FHA's home rehabilitation provisions were also greatly broadened, loans now being insured for up to $10,000 for 20 years, compared to the old modernization terms of $3,000 for five years. Hopefully, this program could be an asset in urban renewal, and the new law gives it further impetus in this direction by backing it up with Fannie May special assistance funds. Also, FHA would waive its rigorous economic soundness criteria for such loans in all urban renewal project areas.

One of the biggest question marks in the new housing law will be the provision for FHA mortgage insurance for loans to nonprofit corporations which would build rental housing for families with incomes too high for public housing, but not high enough to afford available private apartments. Fannie May will backstop this program too, which may be the only way to get if off the ground.

Two new key programs also rode through Congress in the omnibus bill, both of them of immediate concern to cities. One is the $50 million program of loans to local governments for the repair and acquisition of mass-transit facilities. This program is considerably smaller than that advocated by some members of Congress, but it is nevertheless an important start toward solving a critical urban problem. Another such start emerged in the form of $50 million in federal grant funds to aid local governments in the acquisition of open space. The amount of any grant cannot exceed 20 per cent of the total cost of the land, unless the agency has planning responsibilities extending over a whole urban area, in which case it could rise to 30 per cent.

Although the housing bill skimmed through Congress with comparative ease, another Administration plan, for federal aid in the building of public schools and payment of teachers' salaries, died last month when the House Rules Committee bottled the bill. It will be 1962, at the earliest, before a federal aid program for school construction can become law.

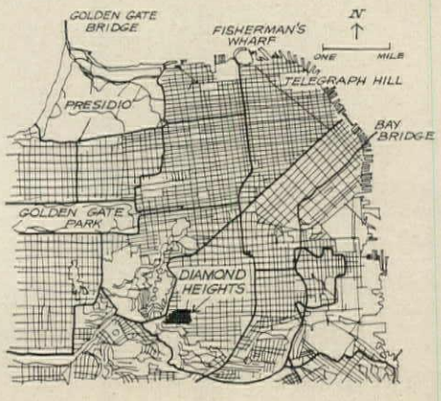
Four designs picked for San Francisco renewal site

In an unusual verdict for a design competition, the San Francisco Redevelopment Agency last month chose four possible schemes for its 22-acre Red Rock Hill urban renewal site in Diamond Heights (see map, below) and announced that potential redevelopers could pick whichever one they wished to build. The ultimate choice will be determined by land price and other economic factors when the developer has chosen which of the four designs he will build. Last year, the redevelopment agency found itself snarled in conflicting economic and design criteria in the competition for its huge Golden Gateway project (FORUM, Aug. '60).

The redevelopment agency chose four final designs from a preliminary selection of ten (out of a total of 90 submissions to the competition). Each of the ten semifinalists gets $1,000. All of the four finalists came from the Bay Region (see proposals at right). Many of the other entrants, being unfamiliar with local climatology, had happily suggested swimming pools, broad open plazas and wide balconies for the project, but the judging panel* was quick to see that Red Rock Hill's gale-proportion winds would make such unprotected amenities untenable.

The redevelopment agency extolled the winning designs as ranging all the way from "informal but with a strong San Francisco character," to "a most striking monumental design." The agency was anxious to provide potential developers with as wide a variety of choice of design concepts as possible in the belief that "there can be real hazard in the insistence that some well-

* Architects Ernest J. Kump, John Carl Warnecke, Don Burkholder, and Developer-Builders Sanford Weiss and Gerson Bakar.



Capitalizing on the sweeping view, the architects for this project have provided a feeling of airy spaciousness with their sensitive grouping of both high-rise and low-rise buildings. The open spaces are diverse in size and use and a well-defined hilltop plaza overlooking the city could become, the panel believes, a community focal point. Architects: Reid, Rockwell, Banwell & Tarics; Rai Y. Okamoto; and Royston, Hanamoto & Mayes.

The strict discipline of this proposal as it closely hugs the hilltop site suggested to the panel "a more or less sophisticated row house neighborhood [with a] San Francisco character." Repetition of building segments and similarity of detail provide a sense of unity while the preservation of a natural green strip at the north of the site softens the tight cluster. Architects: B. Clyde Cohen and James K. Levorsen.

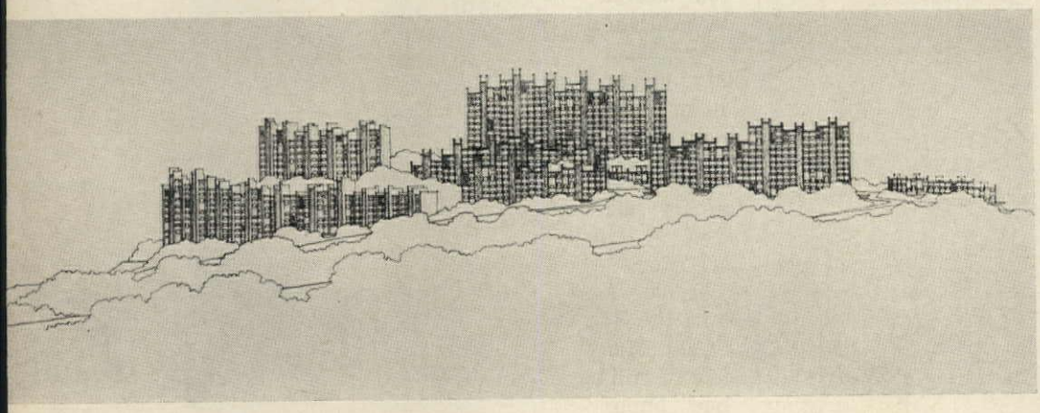
With its dramatically upswept towers, this imaginative proposal is said by the agency to offer "the opportunity for a major breakthrough in urban design." Members of the panel, however, voiced doubts as to whether the area would command high enough rents for such a "monumental" project although it commended it for its practical construction possibilities. Architects: Jan Lubicz-Nycz and John Karfo in association with Mario Ciampi and Paul W. Reiter.

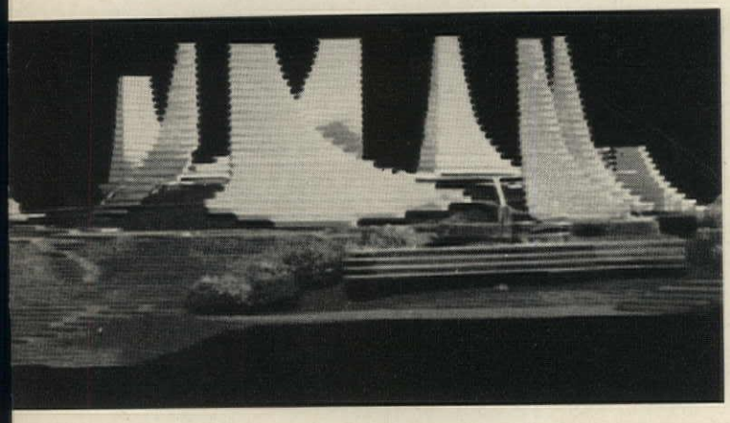
Economic feasibility and good use of building variety on the site were instrumental in the panel's choice of this design. The balance and spacing of apartment towers vis-a-vis low-rise wood-frame structures have also provided well-distributed and sheltered recreational areas. A terrace overlooking the city would be available to the public and would connect three of the hilltop towers. Architects: A. N. Contopoulos, Russell Gifford, Albert R. Seyranian, Karl E. Treffinger, and Paul A. Wilson.

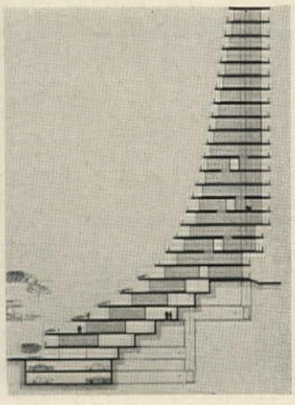
GERALD RATTO

established pattern . . . must necessarily be repeated to the exclusion of other approaches." Their four selections therefore "represent well-accepted and enjoyed designs of 'old' San Francisco and concepts that could be a new element for acceptance and enjoyment."

San Franciscans seemed delighted with the results, too. "All are imaginative, pleasing," editorialized the *Chronicle* and "possessed of the essential attribute that 'they look like San Francisco'. . . . We congratulate the redevelopment agency for developing the means that produced such winners."







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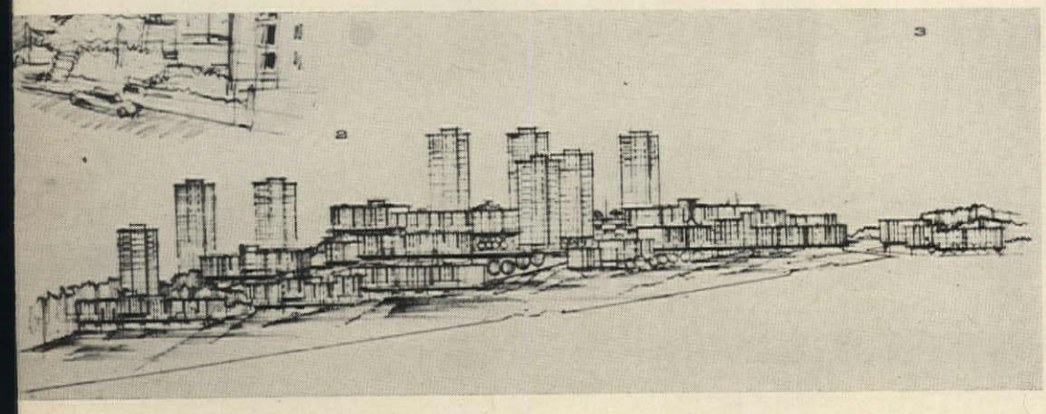

London conferees ponder architects in prefab age

More than 2,000 architects from all over the world and both sides of the Iron Curtain met in London last month where Great Britain was the gracious host to the Sixth Congress of the International Union of Architects. The Congress theme: "New techniques and materials, and their impact on architecture." An exhibition (The Architecture of Technology) occupied one of two gay temporary buildings designed especially for the Congress by Theo Crosby, art director of *Architectural Design;* the other building (roofed in glistening aluminum pyramids) was a lounge and service center for the delegates. (The construction cost and other Congress costs were borne by several British building materials industries.)

Three papers (by Poland's Professor Jerzy Hryniewiecki, Professor Henry Russell-Hitchcock from the U.S., and Italian Architect and Engineer Pier Luigi Nervi) provided a focus for the discussion. Delegates and speakers, concerned with the threat to the architect's freedom and humanism of design posed by building with factory-made components, stated that the architect must find some way of contributing to industrial development in building and to economic planning. Critic Lewis Mumford, who the week before had received the coveted Royal Gold Medal of the Royal Institute of British Architects, hit hard at unwillingness to face up to this challenge. "Many architects have accepted the position that the architect has become little more than an expert in packaging, giving a superficial finish to the outward aspects of a building whose apparatus and structural forms were no longer subject to his design." Professor Hryniewiecki's paper followed lines long familiar in the West: "We must try to think on

continued on page 11

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lines of expendable buildings," he wrote, "which can be continually reshaped to meet changing needs. Elements must be lighter, designs more flexible and portable."

AIA President Philip Will Jr. and First Vice President Henry Wright headed a loosely organized U. S. delegation. Much in evidence was Architect Ralph Walker, past president of AIA, the firmest, steadiest American supporter of the UIA. Among the others: Henry Churchill, Vernon DeMars, Carl Koch, G.E. Kidder Smith, Max Brooks, Buckminster Fuller.

Briefs

Architects and lawyers struck an entente last month which lays out guidelines for avoiding overlapping of professional services. The agreement reached by special committees of the AIA and the ABA said in part: "Lawyers shall not perform services constituting the practice of architecture . . ." nor will "architects perform services constituting the practice of law." The agreement must be ratified by both the AIA and the ABA before it becomes effective.

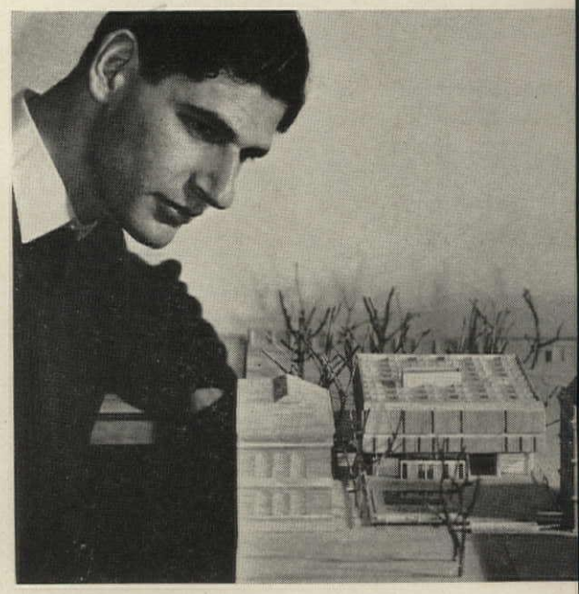
The New York Chapter of AIA last month came out strongly against the Victor Gruen proposal for a vast redevelopment of Welfare Island (FORUM, June '61). The chapter asked instead that the island be used for recreation space.

People

Young architect wins Dublin contest

Another architect crowded into the names of "new talent" recently, when it was announced that 28-year-old **Paul G. Koralek** had won the $4,200 first prize in the competition for a library extension at Trinity College, Dublin. Koralek's achievement was singular for so young an architect, for the competition was extremely heavy —218 entries were filed from 29 different countries.

Koralek's design was not chosen without reservations by the jury consisting of: Franco Albini, well-known Italian architect; Sir Hugh Casson, professor of interior design at the Royal College of Art, London; Raymond McGrath, architect for the Office of Public Works, Dublin; R. T. Esterquest, Librarian of the Harvard Schools of Medicine and Public Health; and the Earl of Rosse, who is vice-chancellor of the University of Dublin. Although the jury described the design as "consciously modern in style," and called it a "notable addition to the architecture of the college," it also questioned many feaures of Koralek's project. For instance, it held that the "structural system, mainly precast concrete columns and trusses with *in situ* walls and floors, will almost certainly require much reconsideration." However, this and other criticisms were not nearly strong enough to dissuade the jury from the over-all value of the project. The key element, and the one which caused the most friction among the jurors themselves, was the relationship of the new building to its neighbors, and particularly to the eighteenth-century library building itself, a solid block of gray stone epitomizing academic solemnity. Koralek tried to achieve this by planning a small courtyard between the new building and the old, and by keeping the addition itself modest in both proportion and texture. The precast structure would be faced in gray granite vertical panels and gray limestone. A small pool, the necessity for which the jury questioned, is included in the courtyard plan.



Paul Koralek looks over model of Trinity College library extension, winner of $4,200 first prize over 218 other competing entries.

All but one of the jurors agreed that Koralek had accomplished the coordination of the new and the old at Trinity the best of any of the entrants. Albini, however, had such strong reservations that he abstained completely from voting for Koralek's design. His reason stemmed directly from the question of the project's relationship to the older buildings. Albini stated his opinion: The project "does not appear to give any indication that the problem of inserting the new architecture within the present surroundings has been faced up to, or that the restraints and stimuli that would result from this insertion have been assessed, so as to reach an architectural solution."

Albini's abstention notwithstanding, Architect Koralek has scored a noteworthy hit with his library project. Koralek did most of the work on the project while in New York working with Marcel Breuer on a plan for a French ski resort. But he

continued on page 16

NEW WEST SIDE STORY

Manhattan's West Side is fast becoming a new center of commercial and cultural activity. The westward and uptown trek has been under way since the Coliseum (6) was finished on Columbus Circle in 1956. Three years from now when the buildings in this drawing are all scheduled to be completed, New Yorkers will find their lives reoriented around the Lincoln Center for the Performing Arts (8); Fordham University (5); the New York Times headquarters (4); Webb & Knapp's $85-million Lincoln Towers apartments (1), and one of two new public schools in the area (2), all now under construction. Adding interest to the West Side building surge will be the American Broadcasting-Paramount Theater Building (7); two luxury liner piers (3), and a New York Chapter American Red Cross Headquarters (9), all scheduled for completion by 1964. Lincoln Center itself received a substantial boost last month when the West German government pledged $2.5-million as a gift, toward the building of the Metropolitan Opera House.

A unique dental clinic attests best to wood's natural adaptability and warmth. The simplicity of exposed beams and supports bolted together, the mixture of spaced and solid siding complementing one another—all present a friendly outside, promise a comfortable inside. Architects: Kirk, Wallace, McKinley & Assoc., A.I.A.

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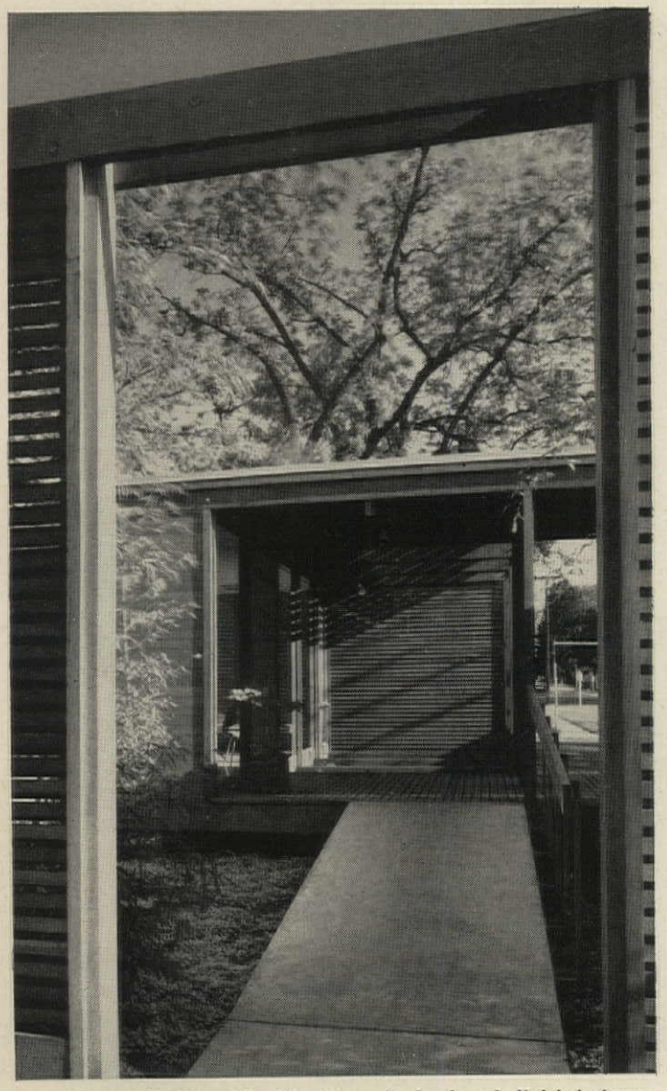

Wood bares still more of its friendliness in the dental clinic's intimate courtyard. The wall of spaced siding offers ample privacy with open-air freedom, clearly demonstrates one of wood's many economies.

Far-reaching double-plank beams and supports of wood frame the translucent glass panels around an informal garden, let the outdoors in naturally for a relaxed atmosphere throughout the clinic.

THE NEW PLAZA TOWERS in Little Rock, Arkansas, has 132 apartments, from one to three bedrooms.

Architects: William W. Bond, Jr., and Louis Ost, Jr., 4985 Summer Avenue, Memphis, Tennessee.

Structural Engineer: S. S. Kenworthy, Sterick Building, Memphis, Tennessee.

General Contractor: Harmon Construction Company, Oklahoma City, Oklahoma.

"We keep corners crack-free with KEYCORNER"

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Keycorner comes in easy-to-handle four foot lengths and goes up in a hurry. "But what I like most about Keycorner, it doesn't cut up my hands," says Carl Kennedy, one of Kirk's best workers.

A living room in one of the apartments of Plaza Towers. The owner, W. C. Mason of Little Rock says, "I shudder to think of what the upkeep on our apartments would be if the walls and ceiling weren't plaster. We chose it for its beauty, superior fire resistance and economy as well. And we're happy we did."

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will finish the Dublin plans from a new London office, which he has formed with two other young British architects, Peter Ahrends and Richard Burton. Koralek was trained at London's Architectural Assn. school, where he won honors, and in 1956-57 won an Imperial Chemical Industries traveling scholarship to Turkey and Iran.

Torroja dies in Madrid

World-renowned Spanish Engineer **Eduardo Torroja y Miret**, 61, died in Madrid recently at the Technical Institute of Construction and Cement which he founded and directed. A modest, unassuming man, Torroja withheld from his colleagues a doctor's warning that death was near. He quietly accelerated the pace of his work to finish as much of it as possible before death intruded. One of the world's leading masters and pioneers in the design of concrete shell structures, Torroja was designing daringly beautiful concrete churches and aqueducts as early as 1933. His first major contract, the Madrid Hippodrome, proved its structural soundness during the Spanish Civil War under several direct shell hits. Torroja expressed his devotion to beauty through the mathematical laws of stress and tension. The results were soaring, delicate shells in the form of small churches and shrines throughout Spain as well as larger, stunning structures such as Barcelona's Las Corts Stadium, the Costillares Building in Madrid and one of the longest concrete arches in Europe, spanning the Esla River at Zamora.

Planner Pomeroy dies

Hugh Reynolds Pomeroy, commissioner of planning for Westchester, N. Y., and international authority on community planning, died last month of a heart attack at the age of 62. Pomeroy came to Westchester in 1946 after four years as executive director of the National Association of Housing Officials and a long record of planning and zoning experience in California. As a leading figure in the Regional Planning Assn., Pomeroy championed unification of planning and zoning resources for the whole 22-county New York region.

Died: **Alice Fries Levi**, wife of colorful, octogenarian Architect Julian Clarence Levi, of cancer in Paris. END

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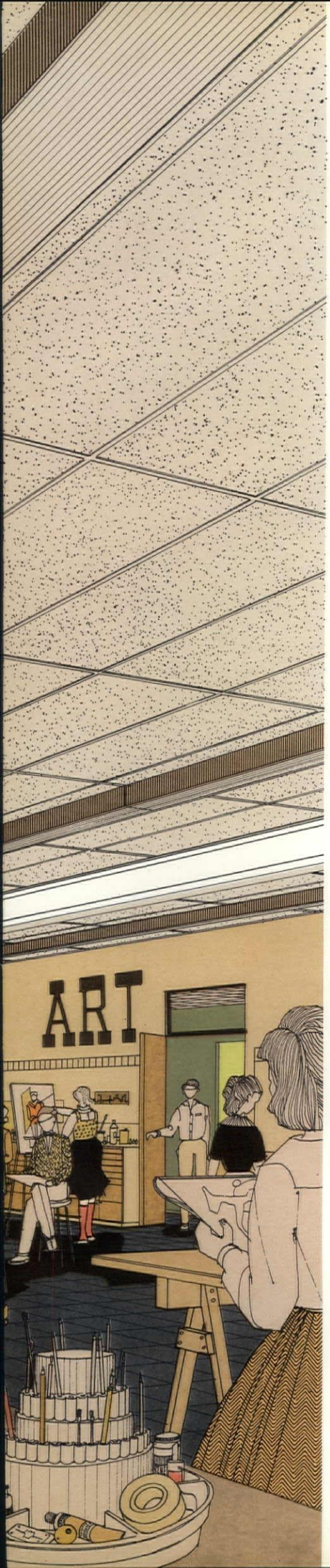

How Armstrong Acoustical Fire Guard is saving this Indianapolis school $34,000 and eight weeks' construction time

THE NEW Perry East Junior High School was especially designed to be a "laboratory of learning" by Indianapolis architects Fleck, Quebe, and Reid Associates, Inc., in association with Mr. Paul W. Seagars, education consultant. It will have facilities for such advanced techniques as language labs, closed circuit television, and block-time teaching. Yet with these many advantages, this school will cost only $14.07 a square foot. One factor making this low figure possible is the specification of Armstrong Acoustical Fire Guard ceilings.

Acoustical Fire Guard 24 x 48-inch *lay-in units* are being installed in all classrooms, including the Art Room featured in this rendering. Fire Guard 12 x 12-inch *tile* is being used in the corridors. Including both tile and lay-in units, there will be 121,000 square feet of Armstrong Acoustical Fire Guard ceilings. The savings in money: $34,000. The savings in time: eight full weeks. Here's why:

Intermediate fire protection no longer necessary

Both acoustical and fire-retardant qualities are built right into Fire Guard. This eliminates the need for installing intermediate fire protection above the suspended acoustical ceiling. Based on the cost of installing conventional "intermediate" fire protection, the architect estimates that Acoustical Fire Guard will save this school approximately $34,000. And the floor-ceiling assemblies using Acoustical Fire Guard easily met Indiana's two-hour assembly and three-hour beam protection fire code requirements.

Fire Guard saves 8 weeks' construction time

With Acoustical Fire Guard, installation is a completely *dry* operation. Carpenters, painters, and other building trades are not delayed while wet work dries. They work right along with the acoustical contractor. Project designer, Mr. C. C. Shropshire, of Fleck, Quebe, and Reid Associates, Inc., estimates Fire Guard will cut this school's construction time 8 weeks.

Exposed grid suspension system

Because of a unique exposed grid system, the lay-in ceiling can be installed quickly and economically. Frequently, it costs considerably less than a combination of conventional fire protection and an acoustical ceiling. And, equally important, the lay-in ceiling allows accessibility to the plenum chamber.

Distinctive designs

To beautify, while they protect, Acoustical Fire Guard tile and lay-in units are available in both the Classic and Fissured designs. Tile also offers a Full Random design. General Contractor for this school is the F. A. Wilhelm Co., Inc., and the Acoustical Contractor is Commercial Floor Covering and Acoustics, Inc., both of Indianapolis.

For full details about Acoustical Fire Guard, call your Armstrong Acoustical Contractor (he's in the Yellow Pages under "Acoustical Ceilings") or your nearest Armstrong District Office. Or write to Armstrong Cork Company, 4208 Rock St., Lancaster, Pennsylvania.

Here are 9 Acoustical Fire Guard UL ratings most frequently used to meet fire code requirements

FIRE GUARD LAY-IN		FIRE GUARD TILE	
Floor & Ceiling Design	Rating	Floor & Ceiling Design	Rating
#30	2-hr. (Beam—3-hr.)	#31	4-hr.
		#21	4-hr.
#13	2-hr. (Beam—3-hr.)	#8	2-hr.
		#7	1½-hr.
#21	2-hr.	#9	1-hr.
#8	1½-hr.		

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Rendering by Helmut Jacoby

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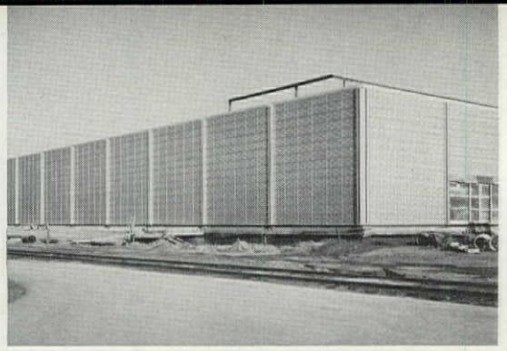
Bradley

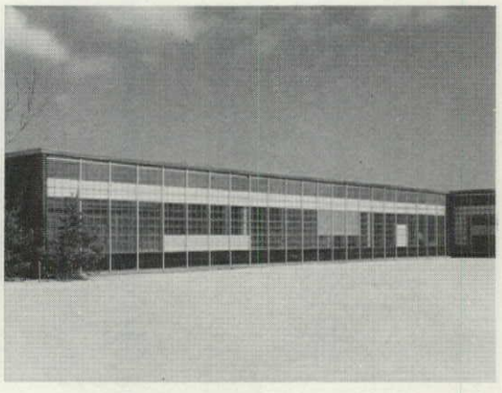
61-103

Light-controlling Thinlite panels provide excellent natural light, help reduce heating and cooling costs for the new $20-million Intelex Systems Post Office in Providence, R. I. Charles A. Maguire & Assoc., Providence, supervised design and construction.

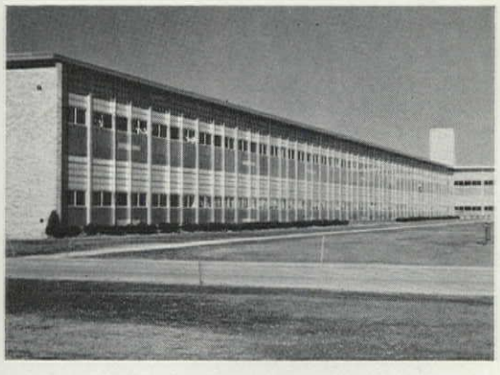


All exterior walls of the new research facility of Miles Laboratory at Elkhart, Indiana, designed by A. M. Kinney & Assoc., Cincinnati, will utilize the light-controlling features of colored Thinlite panels. The ground-to-roof installation will provide a more pleasant controlled environment for modern research.

Northwest Suburban Y.M.C.A., Des Plaines, Illinois, is one of a series of new Y.M.C.A. buildings in the Chicago area in which Thinlite is used. Y.M.C.A. architect Eugene White commissioned Eckroth, Martorana & Eckroth, Chicago, to design Des Plaines Y.M.C.A.

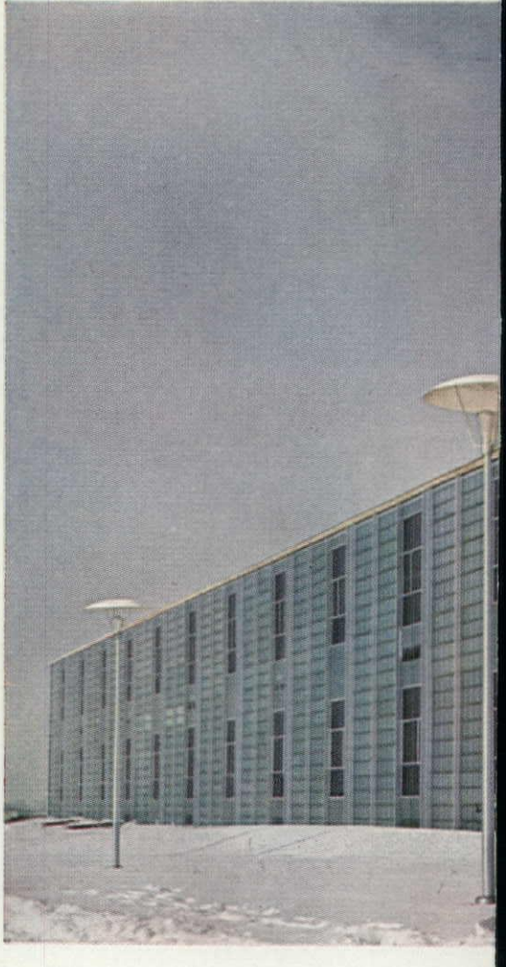


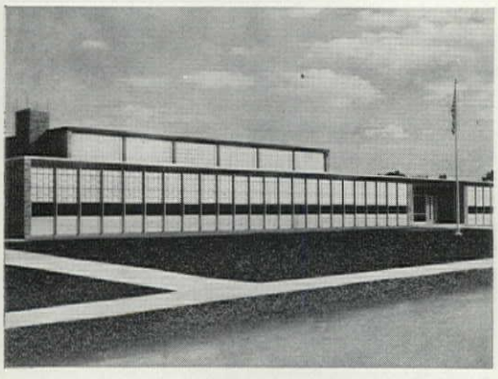
Severe New England winters called for a weather-control exterior at the Split Ball Bearing plant in Lebanon, N. H., so C. M. Koelb Associates, Weston, Mass. specified Thinlite curtain wall with vista panels and ceramic accent panels.



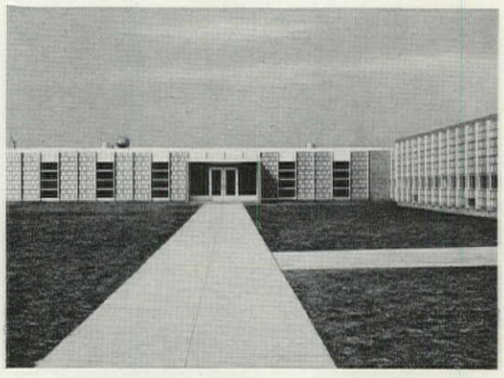
Architect Enos Cooke, New Kensington, Pa., used Thinlite in a major way at Stewart Junior High School, Lower Burrell Township, Pa., blending light-controlling panels with windows and aluminum-faced insulating panels.

Lee Center School, Lee Center, Ill., used Thinlite Curtain Wall for this new addition that has taken years off the appearance of the school. Samuelson & Sandquist, Chicago, architect.

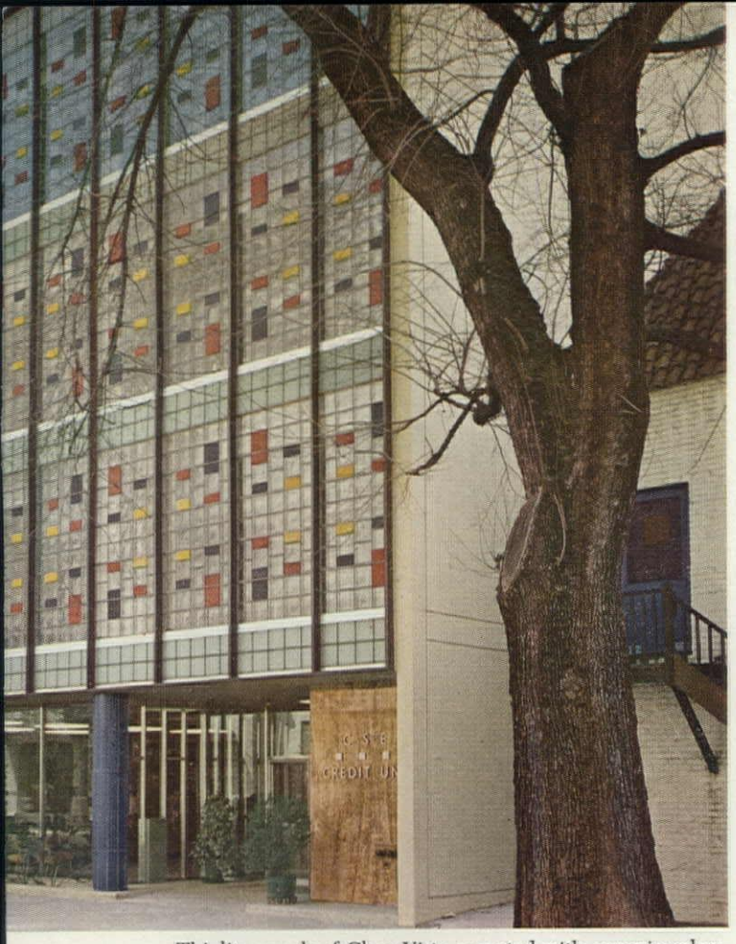




Extensive use of Thinlite prismatic panels, in combination with gray glass and porcelain enamel panels, controls harsh sunlight and severe weather in John Quincy Adams School, West Allis, Wisconsin. Architect, Schutte, Phillips & Mochon, Inc.

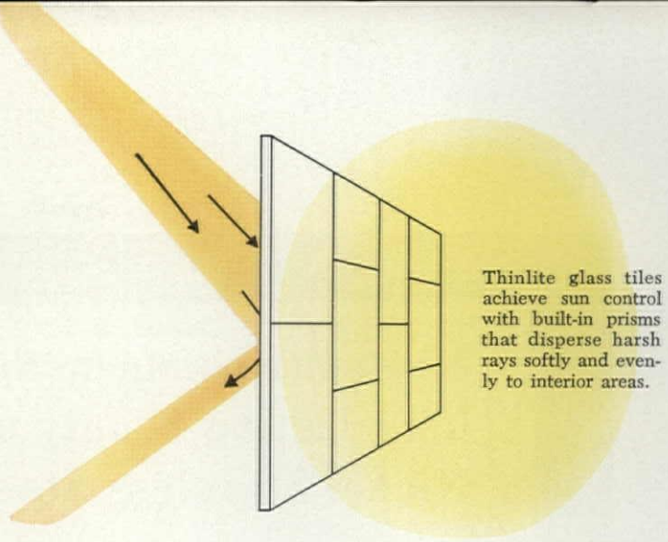


West Carrollton (Ohio) Senior High School (Architects—Outcalt, Guenther & Assoc.) features extensive use of prismatic and window panels to protect occupants from sun and weather in classrooms, corridors and cafeteria.



Thinlite panels of Clear Vista accented with ceramic colors, admit maximum light with low heat transmission in the new office building of the State Employees Building Corporation, Sacramento, Calif. West America Engineering Company, Inc., San Francisco, designed the structure.

At Fontbonne Academy, Allegheny County, Pa., architects Celli-Flynn, McKeesport, combined light-controlling panels of green Thinlite with window and metal panels to achieve this unusual effect in the classroom wing.



Thinlite glass tiles achieve sun control with built-in prisms that disperse harsh rays softly and evenly to interior areas.

THINLITE curtain walls enclose buildings across the nation

Unique system offers many practical advantages for wide variety of structures:

- **DISTINCTIVE APPEARANCE**
  Wide selection of panel materials, colors and arrangements permits unlimited design possibilities.
- **SUN CONTROL**
  Thinlite solar-selecting tiles diffuse sunlight on all exposures. Distribution of light is excellent and brightness is well controlled.
- **SOLAR HEAT CONTROL**
  Tests show Thinlite tiles transmit less solar heat than any other light-transmitting medium.
- **SAVINGS IN HEATING AND AIR CONDITIONING**
  Significant savings in heat and air-conditioning can be achieved with Thinlite curtain walls. Tiles transmit less solar heat while the double-glazed construction guards against heat loss. Through-metal is kept to a minimum.
- **FACTORY-CONTROLLED PRE-FABRICATION**
  All possible fabrication is performed at factory under controlled conditions. Field cutting and fitting is reduced to the barest minimum. Field caulking is unnecessary except at wall perimeters.
- **LOW MAINTENANCE COST**
  Thinlite glass tiles are self-washing. Colors are permanent and metalwork is durable anodized aluminum.
- **COMPLETE CURTAIN WALL SYSTEM**
  The Thinlite system includes all necessary framing metal and parts, as well as glass or metal panels in 2′ x 4′ or 2′ x 5′ sizes.

For complete information including details, see Thinlite catalog in 1961 Sweet's Architectural Files —Curtain Wall Section.

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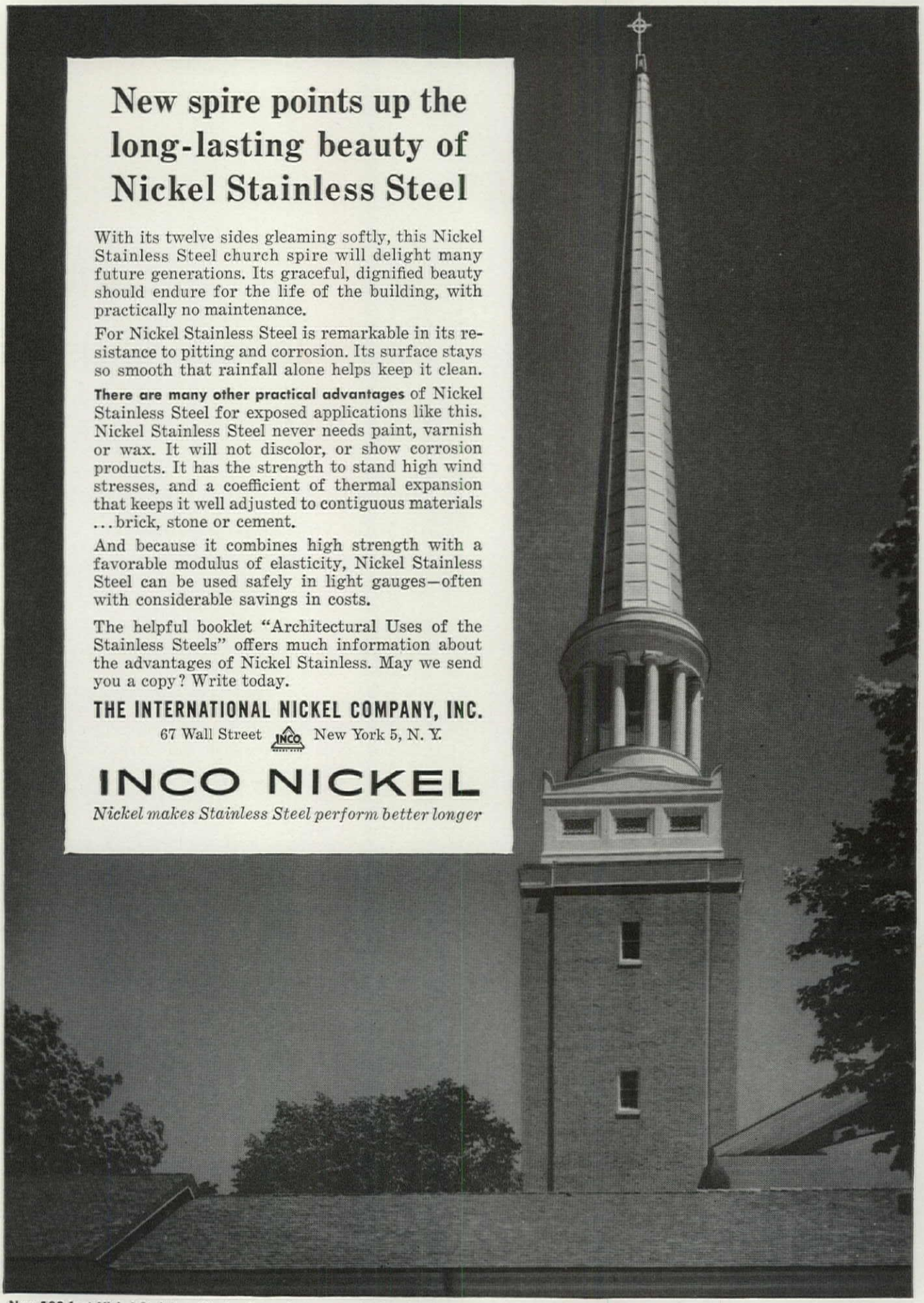

New spire points up the long-lasting beauty of Nickel Stainless Steel

With its twelve sides gleaming softly, this Nickel Stainless Steel church spire will delight many future generations. Its graceful, dignified beauty should endure for the life of the building, with practically no maintenance.

For Nickel Stainless Steel is remarkable in its resistance to pitting and corrosion. Its surface stays so smooth that rainfall alone helps keep it clean.

There are many other practical advantages of Nickel Stainless Steel for exposed applications like this. Nickel Stainless Steel never needs paint, varnish or wax. It will not discolor, or show corrosion products. It has the strength to stand high wind stresses, and a coefficient of thermal expansion that keeps it well adjusted to contiguous materials ... brick, stone or cement.

And because it combines high strength with a favorable modulus of elasticity, Nickel Stainless Steel can be used safely in light gauges—often with considerable savings in costs.

The helpful booklet "Architectural Uses of the Stainless Steels" offers much information about the advantages of Nickel Stainless. May we send you a copy? Write today.

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Nickel makes Stainless Steel perform better longer

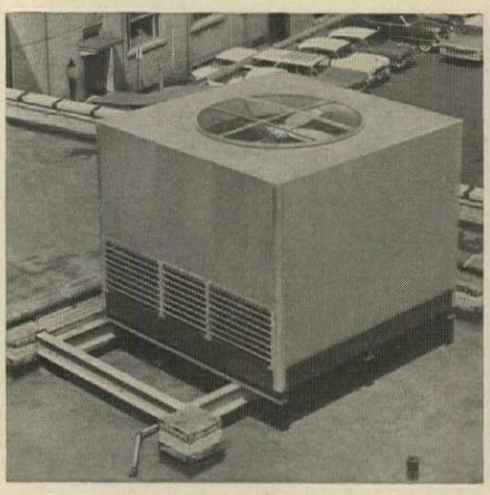
New 100-foot Nickel Stainless Steel spire and cross on the Goodrich Memorial Chapel, Albion College, Albion, Mich. Architect: Frank E. Dean. Associate Architects: Trautwein & Howard. General Contractor: Miller-Davis Company. Roofing Contractor: Overly Manufacturing Company.

WEST TENSION DOORS add style and beauty to the entrance of the I.B.M. Corporation Office Building, Chicago, Ill. Narrow stiles of West doors give that pencil line look without sacrificing strength. Their ½" thick glass held under compression in the metal frame makes a completely solid unit that won't sag or rack. Architects: Eliot Noyes & Associates, New Canaan, Conn. Associate Architects: McClurg, Shoemaker & McClurg, Chicago, Ill. Glazed by Cadillac Glass Company, Chicago, Ill. Contractor: B. W. Handler Construction Company, Chicago, Ill.

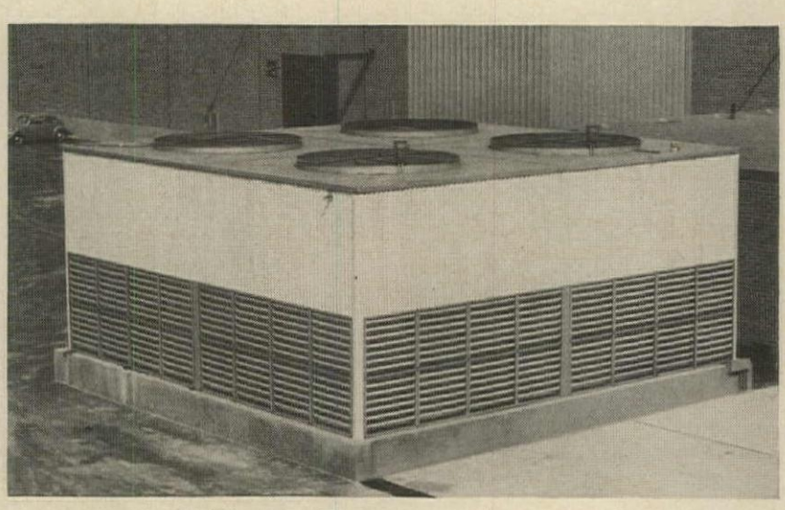
HERCULITE DOORS set in bronze Herculite door frame assemblies and sidelights—First National Bank of Topeka, Topeka, Kansas. Herculite tempered plate glass doors will last a building's lifetime without maintenance. These doors are handle operated by Pittcomatic—PPG's exclusive automatic door opener. Architects: Kiene & Bradley, Topeka, Kansas. Contractor: M. W. Watson, Topeka, Kansas.

THESE PHOTOS DEMONSTRATE 3 BIG CARRIER COOLING TOWER ADVANTAGES!

1. **Flexibility of skin treatment** to harmonize with individual architectural and building design requirements. Steel is standard, with other treatments available in transite, fiber glass and metal wall paneling.
2. **Choice of cell arrangements** from single-cell to multi-cell application depending on the load.
3. **Less floor space required**—about 25% less over-all base or floor area than other towers of the same capacity. Plus a compactness that provides greater freedom of location.



Standard steel-skin single-cell Carrier Cooling Tower with a capacity of 170 tons



Transite-skin Carrier Tower with four 355-ton cells—total capacity: 1420 tons

You can't see these 2 advantages, but they're there!

4. **Lower operating weights**—as much as a 50% reduction, and more, over conventional cooling towers.
5. **Greater efficiency**—with heat transfer efficiency maintained at a high level under all water-flow conditions.

Carrier Induced Draft Cooling Towers, in 9 sizes with a capacity range from 170 to 500 tons in a single cell, are available complete with basin or without. For complete information, call your Carrier representative. Or write Carrier Air Conditioning Company, Syracuse 1, N. Y. In Canada: Carrier Air Conditioning Ltd., Toronto 14.

Carrier ***Air Conditioning Company***

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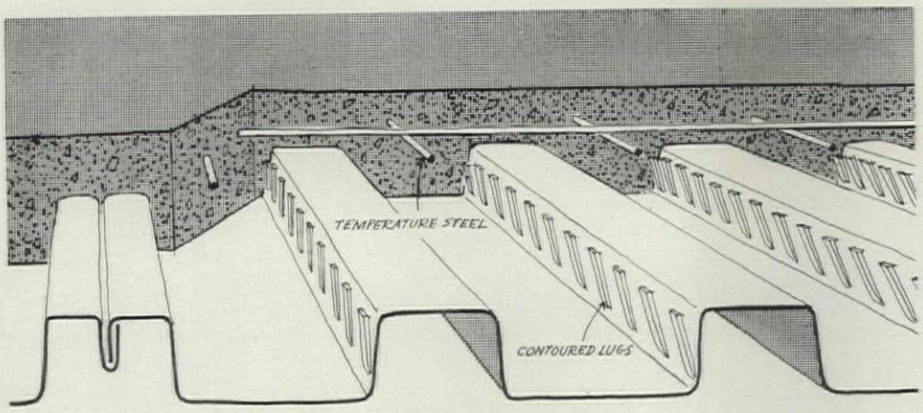
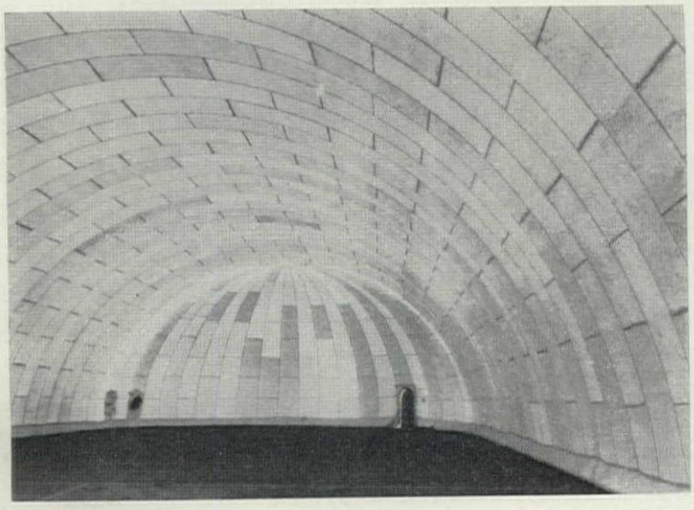


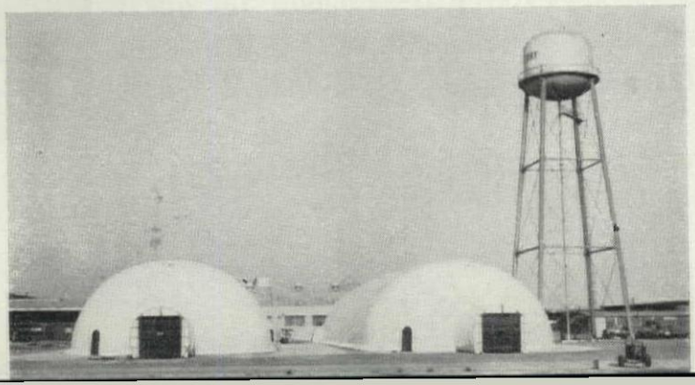
REINFORCED DECK

This new Inland steel decking reinforces concrete without the use of bars, substituting deeply contoured lugs along the webs of the panel. (The thin rods in the drawing are temperature steel inserted by the contractor, not reinforcing bars.) Formed into the webs during the rolling process, the lugs function like the deformations in reinforcing bars, providing a positive lateral and vertical mechanical bond between the steel and concrete so that they act together to bear loads and stresses. On the reverse side, they are indentations which supply a key for sprayed fireproofing. In addition to reinforcing the slab, *Hi-Bond* is a permanent form; it also eliminates shoring and is a safe working platform before and after the pour.

Hi-Bond is available now in Type BR profile, the one shown here, in gauges 16, 18, 20, and 22; Type B (similar to BR, but upside down); and two types of Cellu-flor. Other profiles will be offered later. In cost, Hi-Bond slabs compete favorably, Inland claims, with ordinary reinforced concrete slab construction.

Manufacturer: Inland Steel Products Co., P.O. Box 393, Milwaukee 1.





BALLOON FABRIC

These air-supported structures in California are among the first built of a new vinyl-coated nylon, said to be as much as ten times stronger and more tear-resistant than previous fabrics of the same cost and weight. A basket weave, in which two threads are woven as one, accounts for the fabric's strength. The manufacturer claims that *Mark X*'s toughness permits bigger air structures than ever before, the maximum size depending on engineering techniques. These B. F. Goodrich Co. tire warehouses in Los Angeles, made by CID Air Structures Co. of Chicago, are 60 feet wide and 180 feet long.

Finished Mark X fabrics weigh a minimum of 18 ounces per square yard, not appreciably heavier than other air-supported building fabrics, and are offered in a wide range of opaque and translucent colors. The material is classified as self-extinguishing and costs slightly more than other coated nylon fabrics of the same weight.

Manufacturer: Farrington Texol Corp., Farrington Manufacturing Co., Needham Heights 94, Mass.

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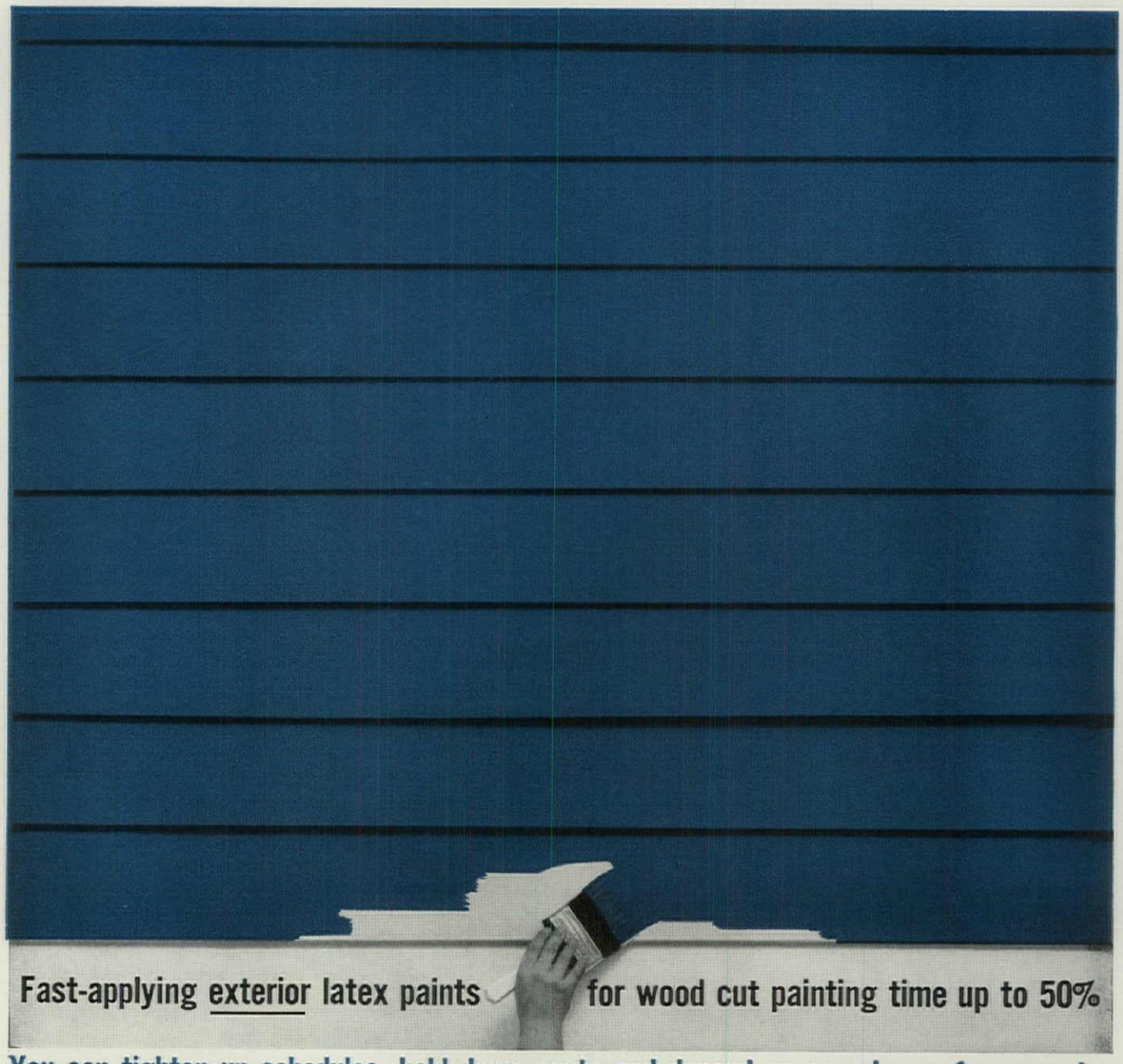

Fast-applying exterior latex paints for wood cut painting time up to 50%

You can tighten up schedules, hold down costs and depend on superior performance by specifying quality exterior latex paints. Exterior latex paints help trim schedules and cut costs because they flow smoothly... can be applied without brushout in about half the time required for most other paints. Foul weather delays are minimized because exterior latex paints are moisture-resistant in minutes. They dry completely within an hour with a tough, waterproof film that resists dust, fog, mildew, insect and storm damage. Extensive exposure tests on residential houses and commercial buildings made by major paint manufacturers have shown that exterior latex paints have equal or greater durability than all types of conventional paints. These tests were conducted over a seven-year period in all climatic areas. Available in a wide range of decorator colors, exterior latex paints can be used on previously painted or primed wood, brick, stucco, cement block and metal. If you would like further information on cost-saving exterior latex paints, for which Monsanto supplies the ingredient, Lytron® 680 latex, write to Monsanto Chemical Company, Plastics Division, Room 814, Springfield 2, Mass.

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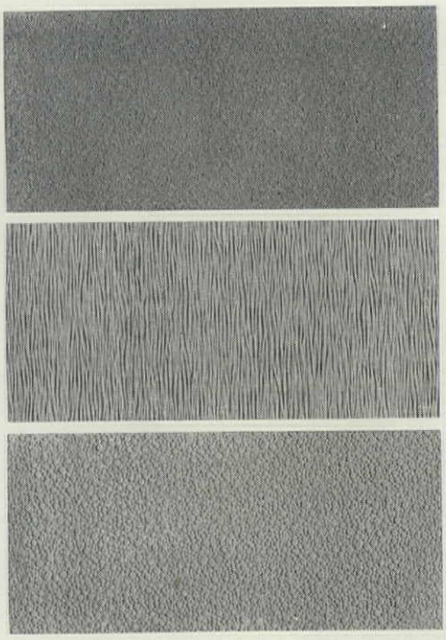


DURABLE COAT

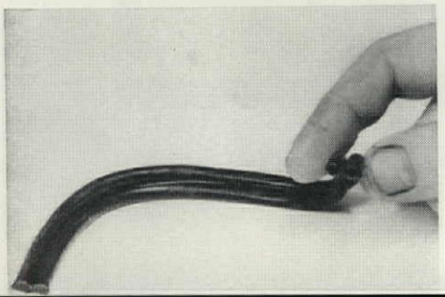
Polling architects on their tastes in wall coverings, Armstrong Cork has discovered that many object to fabrics simulating natural materials. The result is Armstrong's three new embossed finishes for vinyl wall coverings, which make no attempt to look like anything but vinyl wall coverings. These three small-scale designs in *Wall Corlon*—suede, striated, and knobby textures—are on comparatively heavy fabric in order to cover irregularities in the wall and also to stand up to hard wear in school corridors, hospital rooms, and offices. This is the first wall covering backed with Hydrocord, an inert backing material, partly asbestos, which resists moisture and alkali and has been used as backing for floor tiles.

There are 20 colors in the three textures, and two gauges, 0.30 and 0.40 inches, in sheets 54 inches wide. For a large job, Armstrong estimates the cost to be about 45 to 55 cents per square foot, including installation.

Manufacturer: Armstrong Cork Co., Lancaster, Pa.

DOUGHNUT SEALERS

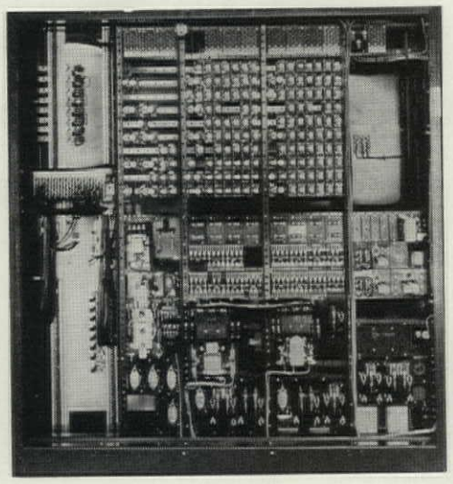
In cross section this sealer for curtain-wall panels and window and door units is a double doughnut. It is also available in solid form. Both are extruded rubber-base gaskets which conform to uneven or tapered joints, bend 90 degrees without cutting or fitting, and resist moisture, salt spray, and weather. In their other properties, the two types have slight differences: the hollow one compresses 50 per cent and is particularly designed to fit uneven seams; the solid sealer compresses 33 per cent and is intended for wider seams.



Manufacturer: Minnesota Mining & Manufacturing Co., Adhesives, Coatings & Sealers Div., 900 Bush Ave., St. Paul 6, Minn.

ELEVATORS ON CALL

Guided by a new Westinghouse system, tomorrow's elevators will glide up and down in direct response to calls, rather than continuing up or down, by-passing reverse-direction calls on the way. Week-to-week comparison of an experimental installation with a conventional system in a populous New York City office building showed that the *Selectomatic Mark IV System* reduced average waiting time by 30.6 per cent and cut the number of calls waiting more than 50 seconds by 78 per cent. Because it responds immediately to changing traffic instead of waiting for a forecast pattern as conventional systems do, it is particularly suited to large buildings where heavy and erratic traffic conditions are the order of the day, i.e., office buildings, department stores, hotels, hospitals, and large apartment houses.



Typical panel for each car has individual selector, the miniature elevator at left, which moves with the actual car. Sensing devices alongside tell the car what to do, mesh with electronic scanner and computer "brain" controlling each elevator bank.

Westinghouse expects to have the new system ready for installation early in 1962 but is not yet prepared to tell how much more it will cost than conventional systems. Incorporating the new controls into an existing elevator system, Westinghouse estimates, will run about one third the cost of brand-new controls because it involves fairly complete replacement. Despite the lack of cost figures, Westinghouse expects savings in operating expense, since the cars will run only when called.

An electronic scanning device and an electronic computer are the key elements: the scanner to record calls, waiting time, and car loads, the computer to evaluate what it has learned and then dispatch cars to meet the demand. So responsive is this system that it determines not only whether the cars should go up or down but which call should be answered first and which should wait longest, automatically reversing cars if necessary.

Manufacturer: Westinghouse Electric Corp., Elevator Div., 150 Pacific Ave., Jersey City, N.J.

CHAIR-DESK

The glass-fiber and steel school chair Brunswick introduced two years ago has shifted its legs and added a top, gaining a new name in the process, the *Cluster Combination*. The attached top, finished in gray melamine plastic, is a level trapezoid, one corner curved. It doubles as a desk and a table and is the right size for a cafeteria tray. Pulled into groups, the new units increase the seating capacity of a given area by as much as 20 per cent.

Cluster Combinations come in two sizes, 27 and 29 inches (height from floor to work surface), to fit students in grades 7 through 12, and four colors, salmon, gray, green, and yellow. Single units cost $25, but this price is subject to quantity discounts.

Manufacturer: Brunswick Corp., School Equipment Div., 2605 E. Kilgore Rd., Kalamazoo, Mich.

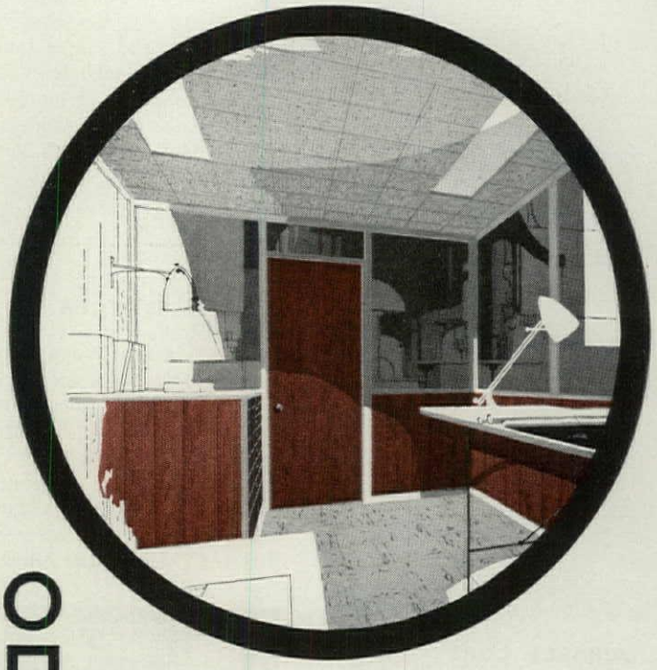
FIRE-RETARDANT FOAM

A fire-retardant material for foamed-in-place or slab insulation, Hooker Chemical's *Hetrofoam 250* is a rigid polyurethane "one-shot" foam—one-shot because it eliminates an expensive production step, the prepolymer processing of resin. The foam is created by the reaction of a polyol and a polyisocyanate, and simpler produc-

continued on page 55

Simpson

Commercial Easy-Wall partition system . . .



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SIMPSON, Room 2056,
Washington Building, Seattle, Washington

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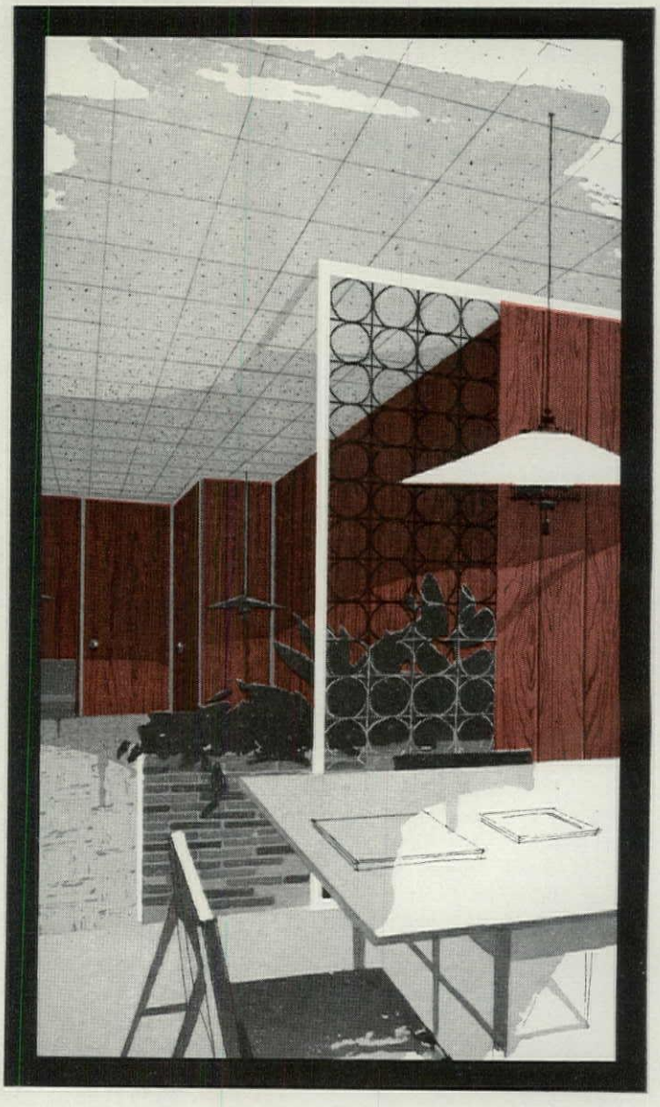

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tion makes the new material cheaper than the more complicated fire-retardant foams. As an insulator in building panels, Hetrofoam 250 rises rapidly and uniformly, frothing up at the rate of one foot in five seconds, to heights of 8 feet and over. It bonds well to facing skins, cures rapidly, is dimensionally stable, and has low water absorption. It also has low thermal conductivity (a K factor of 0.11 at 75 degrees F.), and it does not distort even at temperatures exceeding 200 degrees F.

Manufacturer: Hooker Chemical Corp., Durez Plastics Div., North Tonawanda, N.Y.

PREVIEWS

▸ The long-awaited production of a lightweight clay aggregate for brick, structural tile, and architectural terra cotta will begin late this year when 4,000 pounds an hour will be turned out at Mapleton Development, Inc., Minerva, Ohio. At first all production will go into structural glazed facing tile, which will be lighter by about 18 per cent than conventional tile, because the clay will contain 33 per cent (by volume) of the new aggregate, *SCR Veri-Lite*. Lightweight aggregate development has been a project of the Structural Clay Products Research Foundation for six years.

▸ Better known as pile fabrics dyed to look like costly furs, Union Carbide's *Dynel* is also a protective overlay for glass-reinforced plastics. Laminated to one or both sides of a panel, the fabric overlay resists chemicals, water, abrasion, and fire. The first building application, double-face overlays on a geodesic dome in the Arctic, is holding up so well that Union Carbide expects much greater use of Dynel as a topcoat for structural panels.

▸ In an effort to use up the whole tree, researchers at Rayonier Inc. have extracted a chemical from hemlock bark which halves the cost of cold-setting waterproof glues. Indeed, it lowers the cost of laminated lumber so drastically that the Southern Pine Association regards the discovery as a major technical breakthrough and one certain to promote wider use of exposed glue laminated arches and beams. Rayonier begins production of *HT-120*, the extract's trade name, this summer. END

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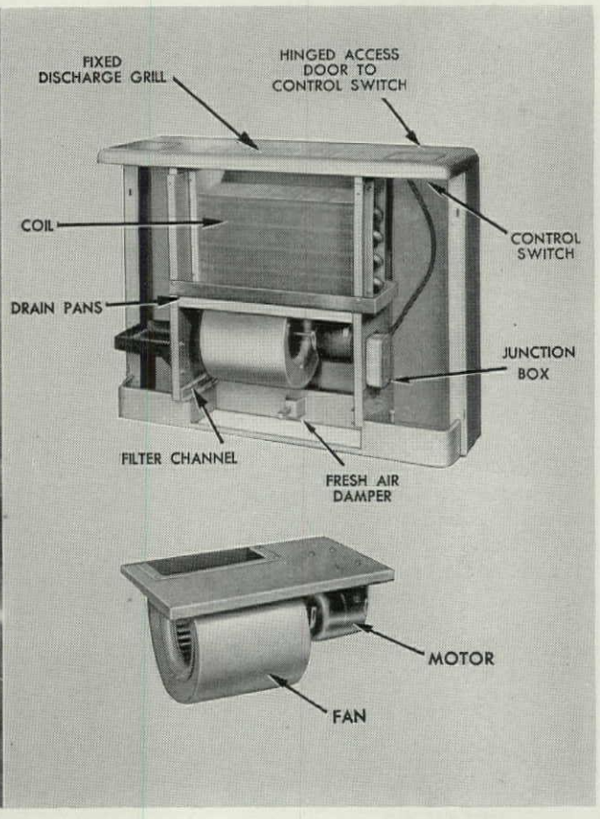

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THE ARCHITECTS COLLABORATIVE

specified precast white concrete curtain-wall panels for this new Sears store in New England. Anchoring the panels in pairs to a structural concrete frame, an unusual corrugated concrete facade was created. Each unit was precast with a gleaming surface of exposed white quartz aggregate and ATLAS WHITE portland cement . . . 1½ inches of foamed polystyrene insulation . . . and a gray concrete backup. After erection, joints were sealed with gaskets and calking compound. □ More architects are discovering the aesthetic potential of precast concrete in curtain-wall design. Any size, shape, color, texture or pattern can be achieved . . . and economically anchored to any structural frame. For details, consult your local precast concrete manufacturer or write Universal Atlas, 100 Park Avenue, New York 17, New York.

Sears, Roebuck & Co., Saugus, Mass. **Architects:** The Architects Collaborative, Cambridge, Mass. Partner in Charge: Norman Fletcher. **Contractor:** Vappi & Co., Inc., Cambridge. **Concrete Panels:** "Mo-Sai" by Cambridge Cement Stone Co., Allston, Mass.

Universal Atlas Cement
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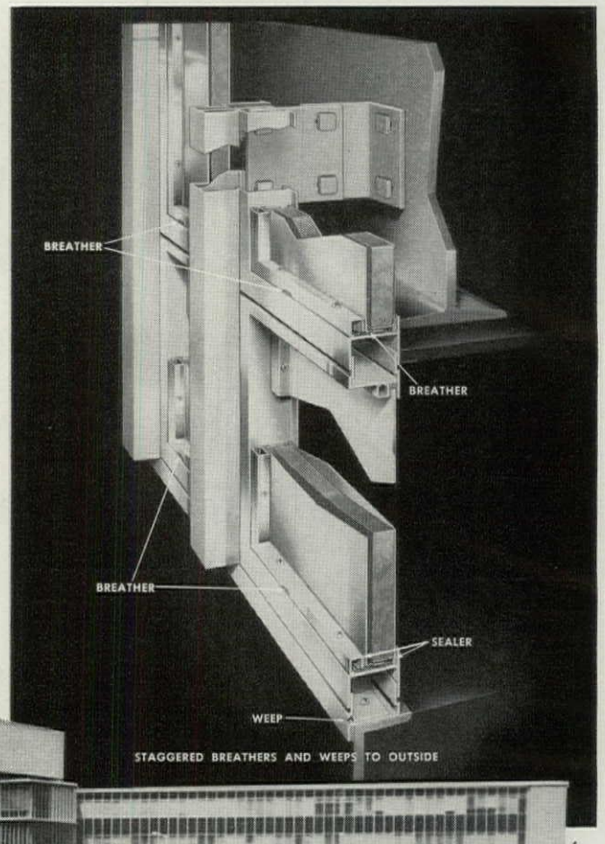
This Series AV250 Bayley Vertical Curtain-Wall System, with 2½" deep mullion, accommodates any arrangement of insulating panels, glass or Bayley Aluminum — ventilated or fixed — Window units having channel frames, mounted directly into the sub-frame. Selection of types and depths of vertical mullions also available.



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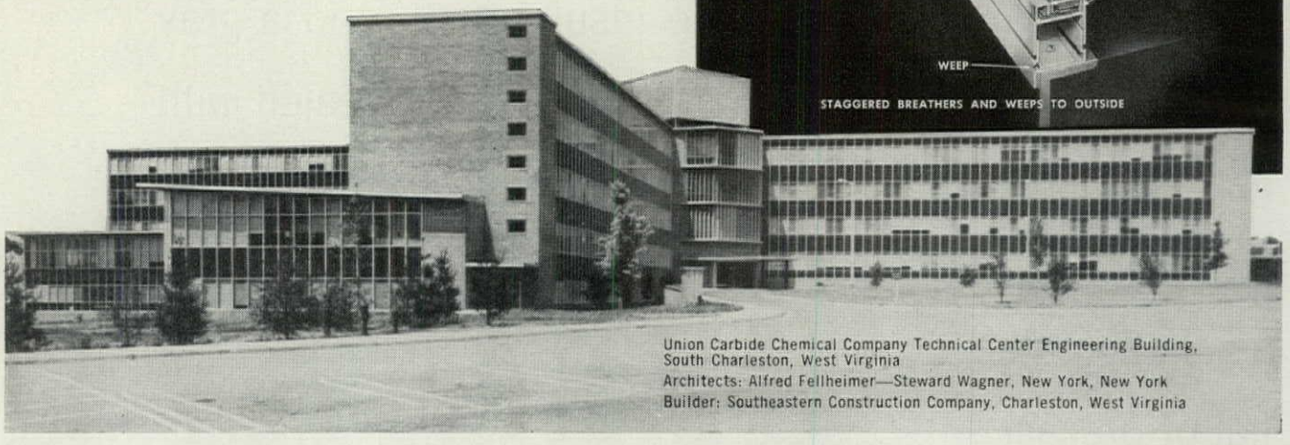

Union Carbide Chemical Company Technical Center Engineering Building, South Charleston, West Virginia
Architects: Alfred Fellheimer—Steward Wagner, New York, New York
Builder: Southeastern Construction Company, Charleston, West Virginia

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The Series AV250, used in this attractive Union Carbide Chemical Company Building, is one of TEN Bayley **pre-engineered** Curtain-Wall Systems . . . available in aluminum or steel and in depths of 1½" to 7½". Flexibility of these designs permits originality of wall treatment for individualized building appearance. By being pre-engineered, they more fully meet all functional requirements and facilitate your problems of holding to a budget. By working with Bayley, you gain the extra benefits of a financially responsible organization with complete manufacturing and erection facilities; and experienced curtain-wall engineering assistance available to you upon request. Write or call Bayley on your current or contemplated projects.

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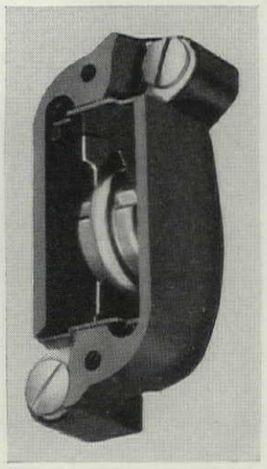

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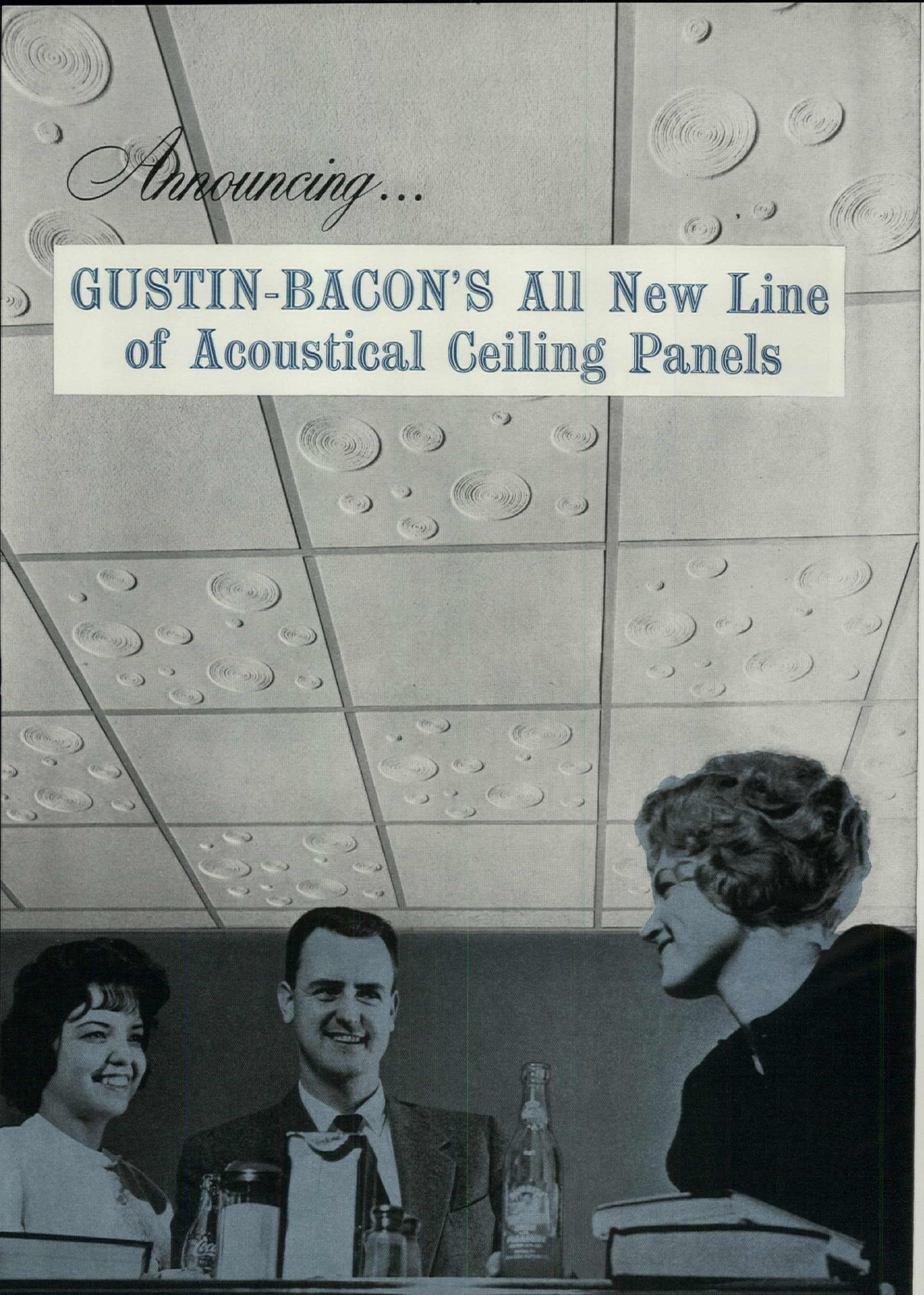

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The high cost of payola

A scant five months ago, FORUM called for fast action by professional, business, and union organizations to police the building industry before widespread evidence of graft, political payoffs, and palm-greasing leaves an indelible blemish on the nation's No. 1 industry.

Since then, as though to underscore that plea, a rash of new evidence of building-via-payola has broken out. In Florida, Indiana, Massachusetts, and New Mexico, it was kickbacks and payoffs in state highways. In Philadelphia, a storm has broken over a contractor's gifts (e.g., bottles of whisky wrapped in $100 bills) to city building officials. But the most jarring revelations of all came from New York City, hitherto so jaded by a continuing probe of irregularities in city building programs that it hardly seemed to care at all when its mayor recently shrugged off graft as a "historical" way of building in the city.

It is true that payola has long been a part of New York's unparalleled building boom ($1.4 billion of construction in 1960). Even before the days of Boss Tweed, palms had to be greased in the great city before bricks could be laid. But this "historical" tradition of payola has not completely dulled the city's sense of outrage; here are some of the revelations that have shaken the most sophisticated New Yorkers:

▸ New schools are built so shoddily that they sometimes need massive repairs only a short time after they open. One high school, which cost $6.5 million to build, needed $500,000 of repairs within months after it opened.

▸ The former superintendent of construction for the Board of Education and the board's director of architecture admitted soliciting funds, reportedly on orders from a higher-up, from school architects to support the political campaign of a Tammany Hall candidate for U. S. Senator. Architects, accustomed to such shakedowns, kicked in uncomplainingly—and some admitted supporting the opposition candidate too, just in case.

▸ The head of the board's building and site division admitted voting (unwittingly, he claimed) to build a school on a site which was partially owned by a corporation in which he held a 45 per cent stock interest.

▸ A heating contractor waited three years to get change orders approved on one school job, before he caught on to the system. For $50, the changes were approved in five days.

Not only is the deterioration of schools themselves shocking (in one instance, a 10-pound cinder block fell through an auditorium ceiling of a recently built school), but the deterioration of men's characters in a climate of bureaucratic stagnation and corruption is even more frightful. One minor inspector sadly related accepting payola only after he had noticed "everybody else in the office accepting things."

But the biggest share of the blame cannot with good conscience be laid to underpaid inspectors and clerks, nor even to a logical outgrowth of corruption that comes from a school system like New York's, controlled as it is by politicians who have kept it free from either administrative or technical vigor.

The greatest blame must be shouldered by those builders, architects, and contractors who have learned to live by the system, and, eventually,

continued on page 67

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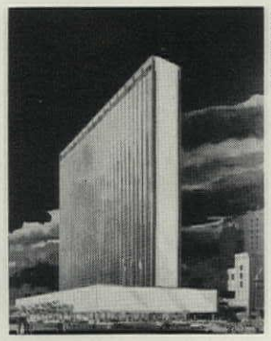
to make it work to their own advantage. Architects, particularly, stand accused in the public eye, for they enjoy the prestige accorded professionals. But the individual architect stands little chance of beating the system alone. Only through collective action, both by local chapters and the national AIA, can architects hope to reform this system. New York's AIA chapter took a step in this direction last month when it called for substantive changes in the present method of school building in the city, chief of which would take full control for supervision of construction out of the hands of politically sensitive Board of Education personnel and put it directly into those of private architects who design the schools. This step would at least make payola a less likely means of liaison between architects, builders, and city employees; but it still leaves unanswered the fundamental question of the architect's responsibility—and that of professional organizations—for ethical conduct.

If building's leaders do not do the necessary job of cleaning their own house, the public will assume that role, once it becomes sufficiently aroused to the facts—and it is becoming aroused. The public, working through the instrument of government, can place certain controls on the building industry, as it has on others. Of more immediate concern to New York, Philadelphia, and many other cities where evidence of corruption in building has come to light, is the possibility that the public may simply refuse to build, until these conditions are corrected, by turning down public bond issues. The cost of payola has become too high; the construction industry can no longer afford to pay it.

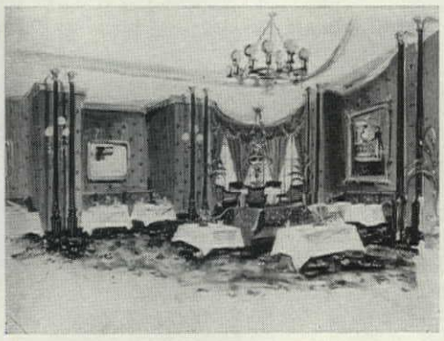
The solid chintz skyscraper

On pages 106-114 of this issue are shown, in detail, Architect I.M. Pei's exceedingly handsome apartments at Kips Bay, Manhattan. What is not shown is the "model apartment" created—if that is the phrase we are struggling for—by Decorator Joseph Freitag for the same building (photo below). Mr. Freitag's sortie in the war between architects and decorators deserves notice—though it would hardly seem to call for much comment.

GEORGE CSERNA



GIL AMIAGA



FORUM has, however, received another bulletin from the fighting front: Architect William Tabler (with Harrison & Abramovitz as consultants) has been at work on the forthcoming New York Hilton, which looks as though it might make a very fine addition to the Rockefeller Center area—on the outside, that is. Unhappily, the proposed interiors do not reflect precisely the same spirit as Mr. Tabler's exterior (sketch left, below). An "Old Bourbon House" by Decorator William Pahlmann will grace this newest and largest Hilton on the inside, together with a great deal more along the same lines (an "Old Dutch Kitchen" room, an "Orangerie" fit for Marie Antoinette, a rustic "Jardin de Buffet"). A quote from the press release: "A restaurant geared to masculine taste . . . red plush, lots of gilt, and deep upholstered banquettes will . . . relax the most harried businessman."

Feeling thoroughly relaxed, the editors leafed through the day's paper, came across this opening sentence on the Women's Page: "Earlier this week, Decorator Robert Denning was mulling over the possibilities of a chintz skyscraper. . . ." Mr. Hilton, meet Mr. Denning. (Or, perhaps, preferably not.)

Gerald M. McCue, 33, studied at the University of California at Berkeley, now teaches, practices there. His cyclotron for U. C. is shown on pp. 74-75.

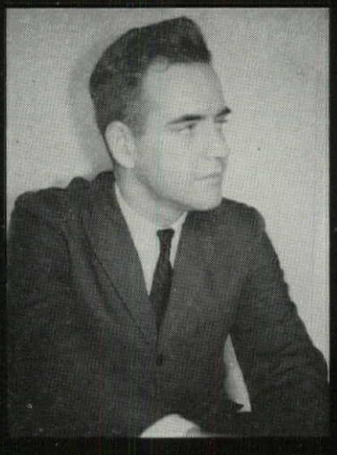
Fumihiko Maki, 33 (Tokyo U., Cranbrook, Harvard), commutes from Tokyo to teach at Washington University, his client for the library on p. 88.

Before branching out, Bert Brosmith, 33 (U. of Pa., U. of London), spent four years with Paul Rudolph's Sarasota office. His school is shown on pp. 76-77.

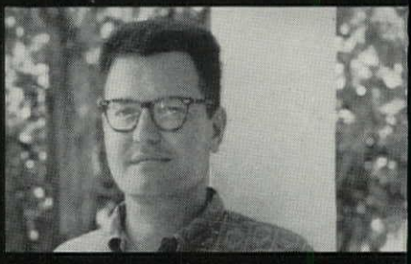
Richard D. McConnell, 39, and Ray D. Crites, 36, studied and taught at Iowa State before going into practice in Cedar Rapids. See church, p. 84.

Tulsa church on pp. 90-91 was designed by Lee C. Murray, 37, David G. Murray, 41 (Oklahoma State); Robert L. Jones (center), 36 (Notre Dame, I.I.T).

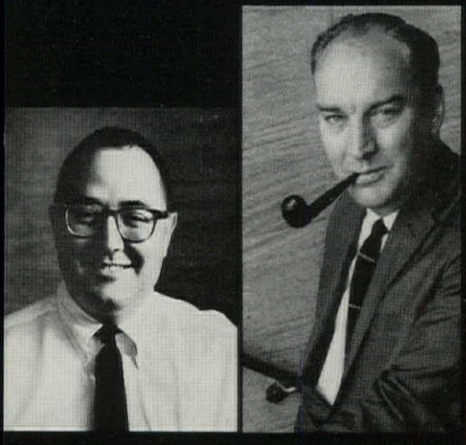
San Francisco Partners Robert B. Marquis, 34 (U. S. C.), and Claude Stoller, 39 (Harvard); both studied in Florence. They designed the factory on p. 85.



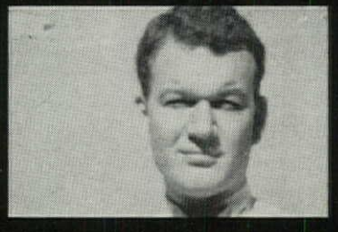
Neil Nehrbass, 29, designed the school shown on pp. 70-71. A Louisiana State graduate, he has practiced architecture in Lafayette, La. since 1953.



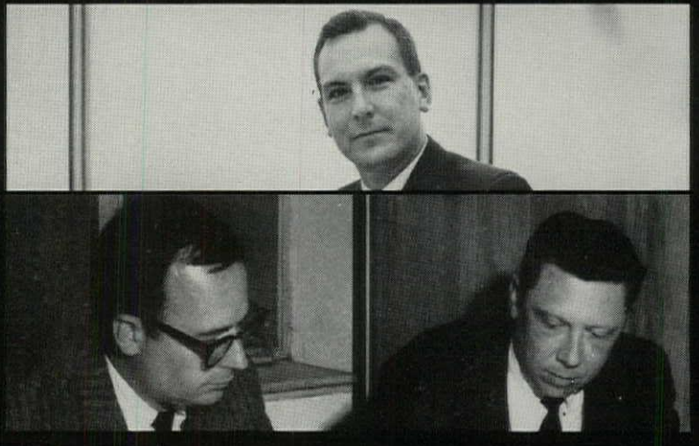
Philadelphian William Rupp, 34, studied at the U. of Florida, worked for Rudolph in Sarasota and now practices there. His dining pavilion is on p. 72.



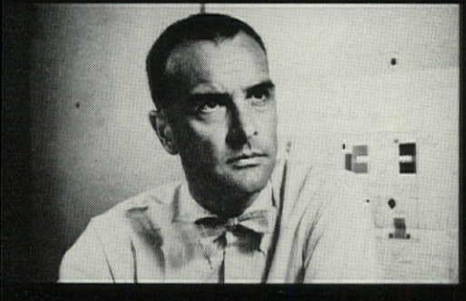
Robert Entzeroth, 35 (Washington U.), and Eric W. Smith, 45 (U. of Illinois), work in suburban St. Louis, designed the music library shown on pp. 80-81.



New Yorker Norval White, 35 (MFA Princeton, '55), did the country club on pp. 86-87. He also teaches, heads the young architects of the local AIA.



The Kansas City offices on p. 79 are the work of William M. Linscott, 33; Ralph E. Kiene Jr., 34 (U. of Kansas), and Ward H. Haylett Jr., 38 (Kansas State).



Allison B. Peery, 37, ex of Texas A & M and the University of Grenoble, has practiced in San Antonio ten years. His apartments are shown on p. 78.

California graduates Lyman Jee, 34, and Eva Fong Low, 33, joined Lun Chan, 34 (below), to design the new Confucius Temple in Sacramento (see p. 73).

The New Orleans church on pp. 82-83 was designed by Leonard R. Spangenberg Jr., 35, a Taliesin Fellow and a builder before graduating from Tulane.

Alexander Graham Bell (1847-1922) is responsible for the remarkable constructions shown on pp. 100-105. He also invented the telephone.

New talent for the sixties

Almost exactly ten years ago this month FORUM published its first issue devoted to the new architects who were emerging after World War II. Many of these were then barely known; today they are among the leaders of U.S. architecture and their work is exhibited, published, respected, and discussed throughout the world. Represented in FORUM's first New Talent issue were men like Ed Barnes, Ulrich Franzen, Mark Mills, Paul Rudolph, Vincent Scully, Paolo Soleri, John Carl Warnecke, and Harry Weese. The editors have had no reason to regret their choice of these and others.

On these 38 pages are the work and the ideas of a new generation of men and women (opposite) who will shape American architecture and American building in the 1960s. Most of them are relatively unknown today; their names may be as familiar as those of Rudolph and Warnecke by the time this decade is out.

What are the chief characteristics of their work? In what ways does it differ from that of their elders?

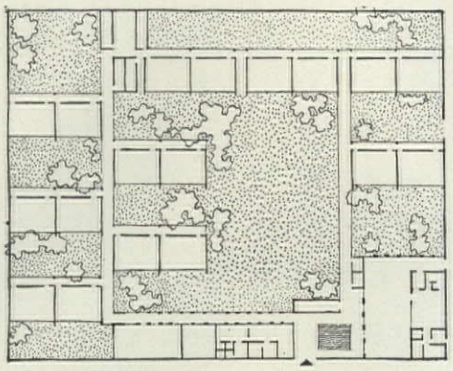
The new architects and engineers represented on these pages have one thing in common: they are building upon precedent, much of it established during the past decade. Every reader will be able to recognize the precedents referred to, and every reader will be able to judge how successful are the new versions.

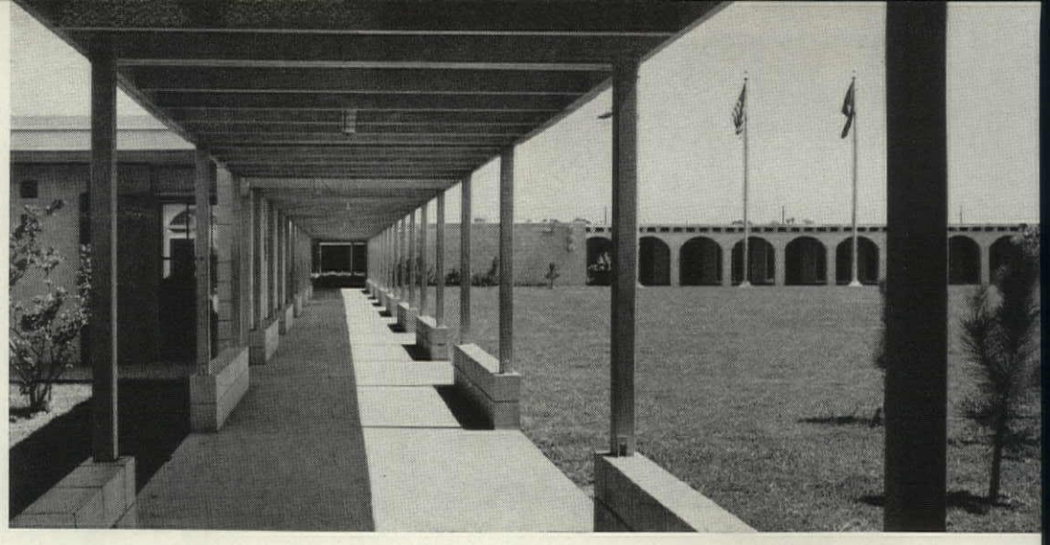
But the most interesting difference in this new work is its self-assurance. Where the young architects and engineers of ten years ago seemed to search for novelty above all other things, the New Talent of the 1960s seems more concerned with making the new forms and techniques work and make sense—rather than with discarding them in a headlong rush toward even greater novelty. Indeed, while the work of the early 1950s looked extremely unconventional (which was at least a part of its designers' intention), the very similar work of the 1960s looks entirely acceptable, accomplished, and mature. It also looks a great deal more suitable than did the earlier structures: for the new architects and engineers seem concerned not so much with making a big splash with every new commission, as with calming down the rather chaotic townscape and landscape of the 1960s; not so much with being different, as with fitting their buildings into an existing setting.

In other respects, too, there is a shifting emphasis: whereas the early work of the postwar years tended to stress more and more perfect detailing, it is now clear that in a world of exploding populations and enormous demands upon building resources, architectural effects must often be achieved with cruder execution; how well they can be thus achieved has been amply demonstrated by Le Corbusier in France and India, and by Louis Kahn in America.

In these 38 pages there is also a section devoted to new talent in engineering, for in many respects the new engineers have outrun their contemporaries in other areas of achitecture. Today the concepts of these new engineers are becoming visible wherever we look: terms once mysterious, like "hyperbolic paraboloids," "geodesics," "space frames," and so on, have in the short span of ten years become part of the daily vocabulary of building. What these new engineers have to say about their art is worthy of the attention of all who are interested in the future of architecture.

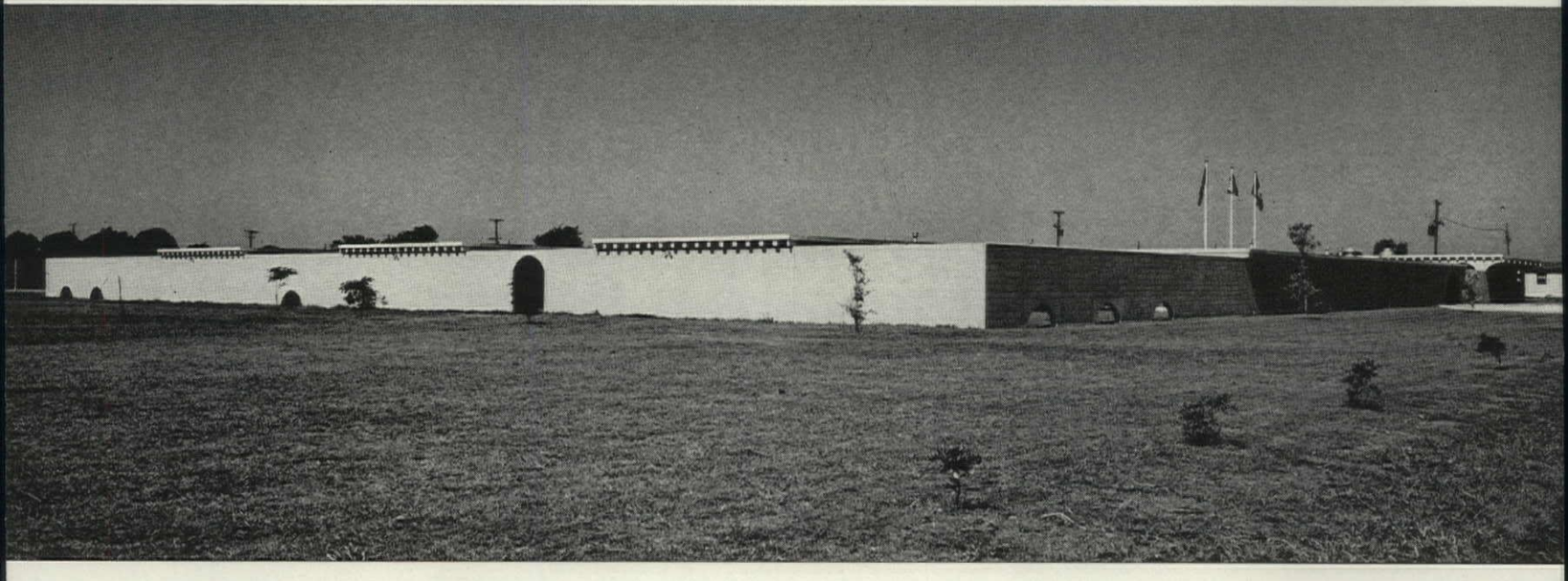
One of these "new engineers" represented in this issue is a bearded gentleman who died in the year 1922 at the age of 75. He had had a rather busy life, having invented a large portion of the basic technological gadgetry that makes our world go around today. Among the things he invented almost in passing and almost casually was the entire vocabulary of space frames which we now associate with such men as Buckminster Fuller and Konrad Wachsmann. The name of this gentleman is Dr. Alexander Graham Bell, and FORUM is proud to honor him in this belated fashion and in this context. It should give the new generation pause that out of 44 architects, engineers, and architectural students represented in this New Talent issue, Alexander Graham Bell's talent is the newest, the freshest, and the greatest.





Visible through the main entry arch is a fountain, ringed by a planter and open to the sky. Precast concrete channels and concrete block are used in all roofs and walls. Outdoor corridors are framed in wood, except for the precast arches in front of the administration building. Assemblies are held in a court. Play areas are outside of the perimeter.

PHOTOS: GEORGE CSERNA



School in Louisiana

Surrounded by a high wall of concrete block, the Truman Elementary School in Lafayette, La., shuts out a world of run-down houses and unpaved streets, and creates a separate world for children within its 240 foot by 304 foot compound. In this compound, there are eight two-classroom units connected to a library, cafeteria, and offices by covered walks, and 11 landscaped courts of varying shapes and sizes.

This is architecture as old as that of a Pompeiian house, as new as an electronics factory. Precast concrete arches suggest renaissance architecture without imitating it. The result recalls a monastic cloister or frontier cavalry post, a secluded world within a world.

Financed by a parish-wide bond issue, the school cost an almost incredible $8.50 per square foot (including built-in furnishings, kitchen equipment, deep well, septic tank, and sewer system). A certain brutality of detail and finish was necessitated by such strict economy, but in this structure that brutality was turned into a design asset. Amenities include a fountain, and murals on inner surfaces of the perimeter walls.

Many slicker and more sumptuous schools lack this one's elemental virtues: true style, and changing experiences of space, form, light, and shadow. The Lafayette Parish School Board and 600 Negro pupils have been well-served by an architect with a sound sense of proportion and priorities.

Artist: Elemore M. Morgan Jr. Landscape architect: Robert S. Reich. Civil engineer: William J. Mouton Jr. Mechanical and electrical engineers: Whipple & Meyers. General contractor: Gossen Construction Co.

ARCHITECT: NEIL M. NEHRBASS.

Pavilion in Florida

The dining pavilion for the Ringling Museum of Art in Sarasota stands in a 45-acre park which also contains a Florentine palazzo (the museum itself) and the Ringling's own pseudo-Venetian residence, "Ca'Zan." The architect's task was to produce a design which would maintain the spirit of the rest within a restricted budget, could be built by the museum's own maintenance crew, and would reflect the character of the circus—without looking like a hot-dog stand.

The building's formalism does maintain the spirit of its environment; it was built by the maintenance crew and for a modest $15,000; and it looks not at all like a hot-dog stand. As an act of devotion it is somewhat literal: the circular form (actually a hexadecagon of reinforced concrete) under a conical wood roof with ceiling drapes on the interior is a gay resurrection of the Big Top.

Its intimate scale, its textural contrasts, and, particularly, the way it frames the landscape for the diners within, make it an unusually light and lively room for dining.

ARCHITECT: WILLIAM RUPP.

PHOTOS: ROBERT FORD

PHOTOS: FRED LYON

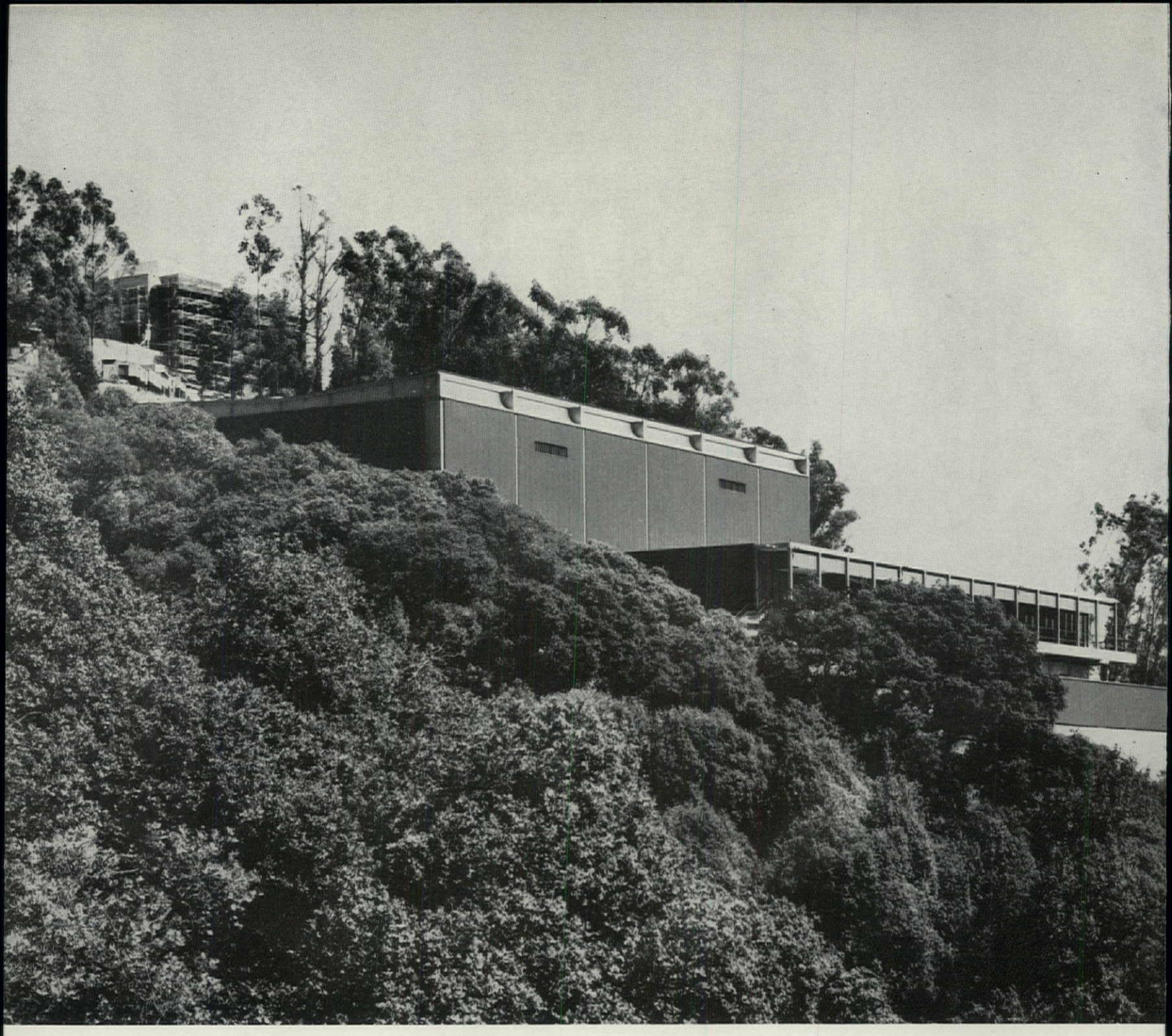
Temple in California

Oriental character was a deliberate goal in the design of the Confucius Temple in Sacramento, since the architects had the problem of creating an efficient religious building and school, and a strong symbol of Chinese progress. Determined that this symbolism should not be a fake veneer, they produced "an honest and economical expression of modern construction using Oriental methods of detail and simplicity."

After studying noted Chinese buildings, the architects designed a simple rectangular structure, monumental and freestanding. The building has three floors: the main hall is raised one story above street level and, beneath it, is a two-story school. Although joined in one building, temple and school are separated: the temple is reached by a grand stairway off a major street, while the school entrance is off a minor one.

Symbolically, the balconies echo Chinese monuments. Functionally, they satisfy fire laws. The structure is steel frame with masonry walls and a red tile roof. Total cost was $470,000.

ARCHITECTS: LUN CHAN, LYMAN JEE, and EVA FONG LOW.



Cyclotron in California

One way a university may show confidence in its faculty is by awarding its architect members the design commissions for new buildings. This addition to the Lawrence Radiation Laboratory of the University of California at Berkeley is the fortunate result of that practice.

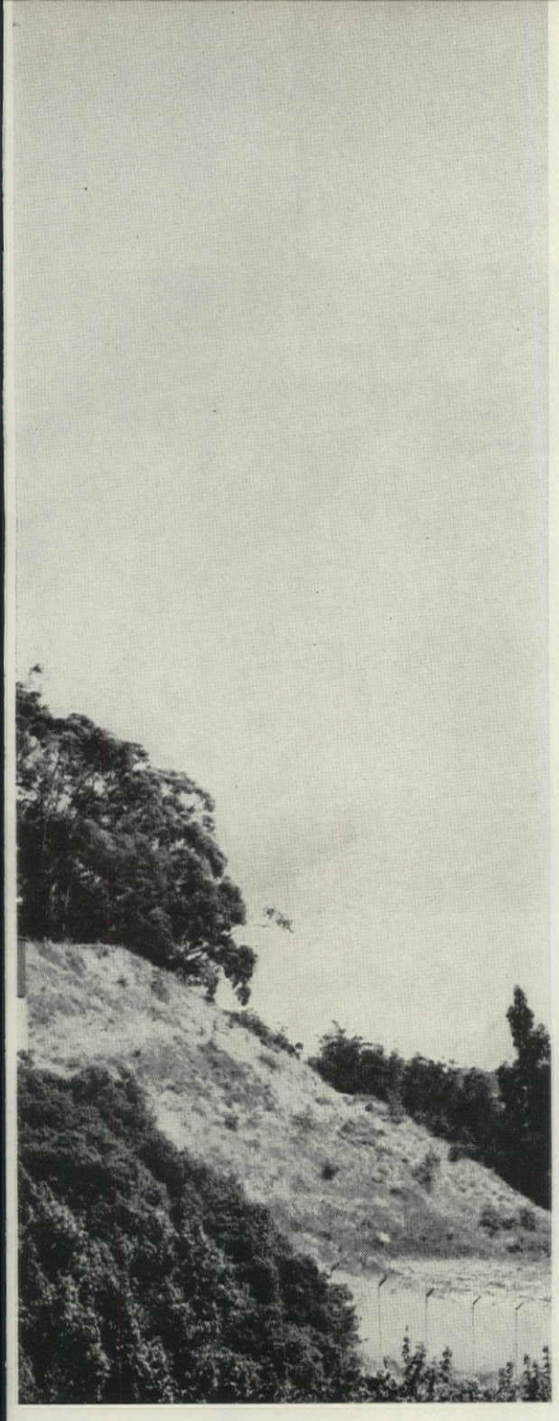
The program supplied by the Atomic Energy Commission was at once complex and imperative. The spatial needs were varied, the utilities requirements large (60 million volts) and exotic (cyclotron pit, hot target area to have negative air pressure with respect to all other areas; circulation and work areas to have positive pressure).

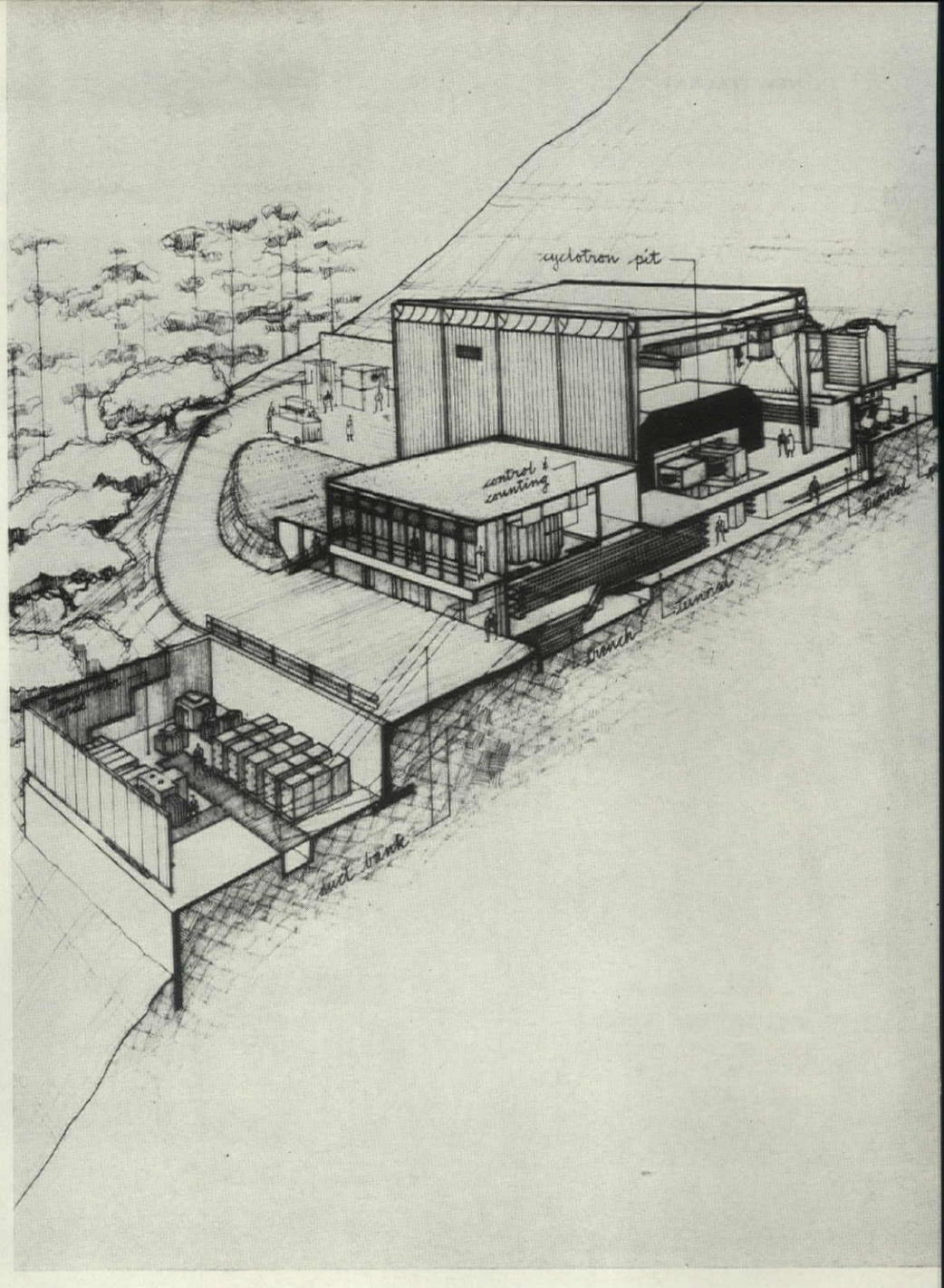
Confronting the problem with directness, the solution locates the subsidiary functions around the volume which contains the cyclotron itself. Offices and mechanical equipment are in outside rooms, laboratories are windowless.

The combination of steel frame and filler wall effectively displays many of the possibilities inherent in this type of construction. It adapts itself to the program and the site with ease, and the modules are designed to permit the addition of bays and entire stories. Clarity of structure and careful and expressive detailing contribute to the over-all impression of elegance. This elegance was achieved with the most commonplace industrial materials.

Persons or firms involved in the building of the cyclotron were: Dr. Elmer Kelly, physicist in charge; Torleif Myhrer, technical planner; John A. Blumme and Associates, structural engineers; Bayha, Weir & Finato, electrical-mechanical engineers. The contractor was Robert L. Wilson.

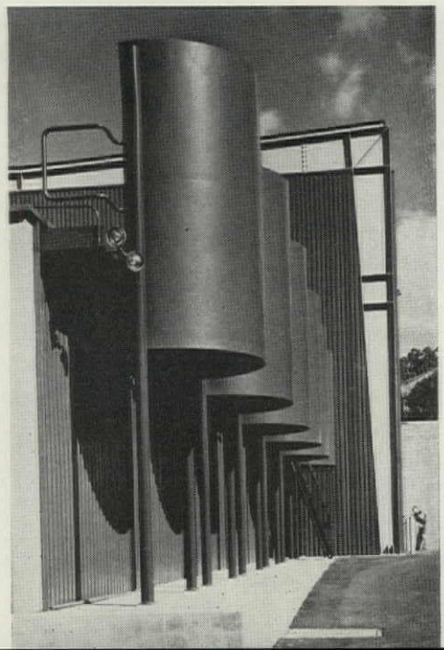
ARCHITECTS: GERALD McCUE & Associates.

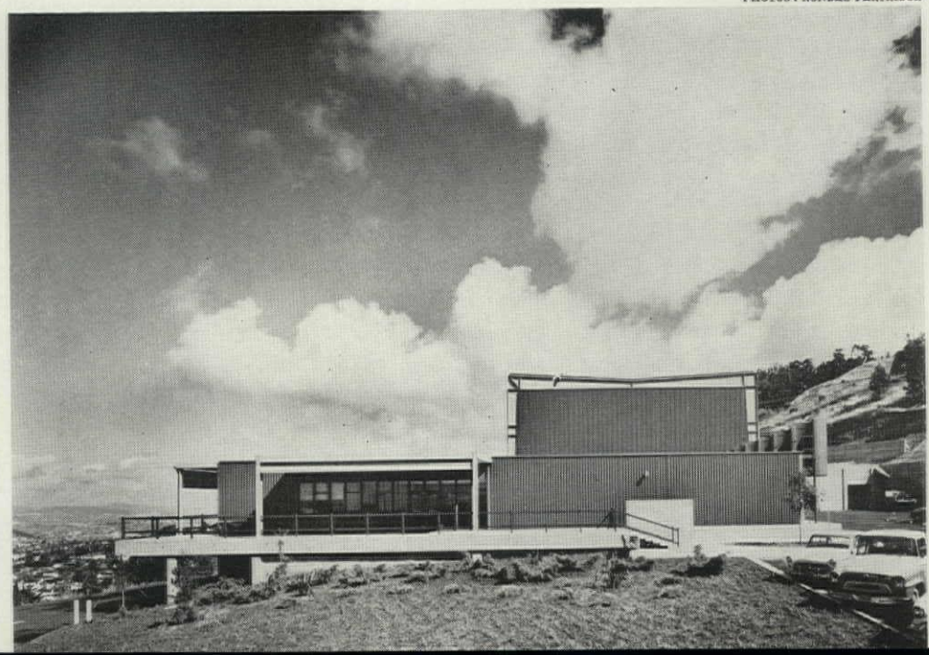


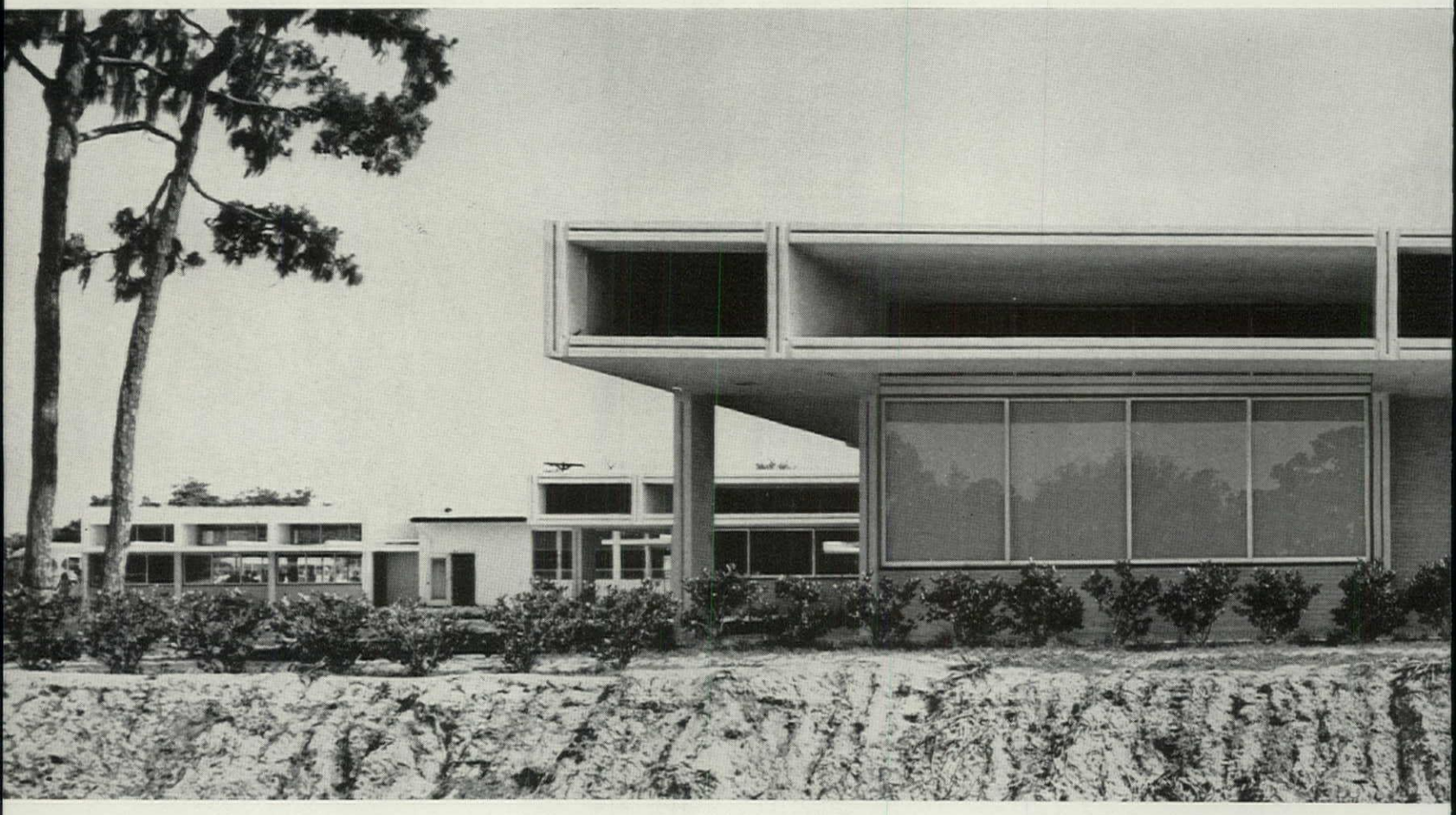


By careful siting, the steep Berkeley hill was turned to architectural advantage. Heavy loadings bear on cut; lighter loadings on fill. Below, left: curved plate-steel shields laboratory fans; cyclotron block behind.

PHOTOS: RONDAL PARTRIDGE







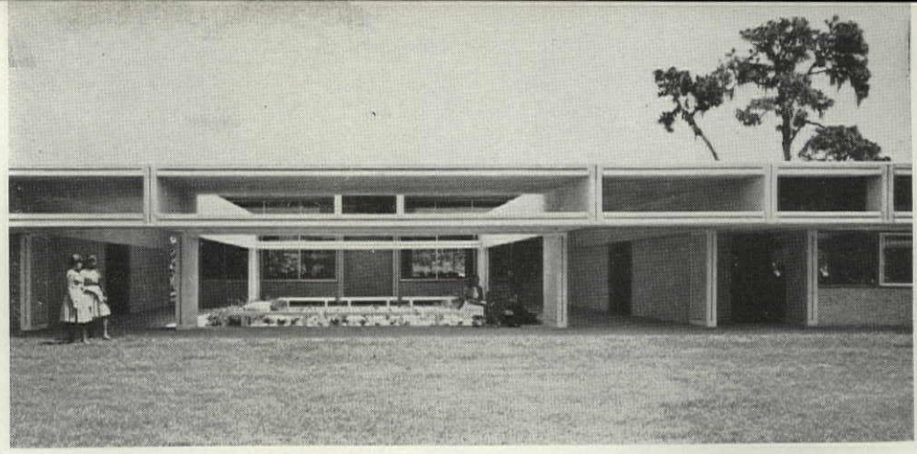
School addition in Florida

The renowned Sarasota, Fla. school board is already encouraging a new local generation of architects. Bert Brosmith, 32, who once headed up Paul Rudolph's Florida office, has been on his own more than a year now, and his first sizable project is this trim extension of a ten-year-old junior high school. Brosmith not only enlarged the finger-plan school but manicured it, unscrambling the previously combined bus unloading, teacher parking, parent pickup, and bicycle dock, giving each a clear and separate line of movement.

Brosmith picked two design qualities from the older wings to repeat, for coherence: the concrete frame structure with masonry infill walls (connected with low covered walkways) and a certain formality of arrangement. His most noticeable innovation is the biplane roof he put over the new wings. On precast concrete columns, his poured-in-place concrete beams are paired to form ducts, which cantilever out over the walkways as canopies, carry sun baffles, and also house the air-handling units and compressors.

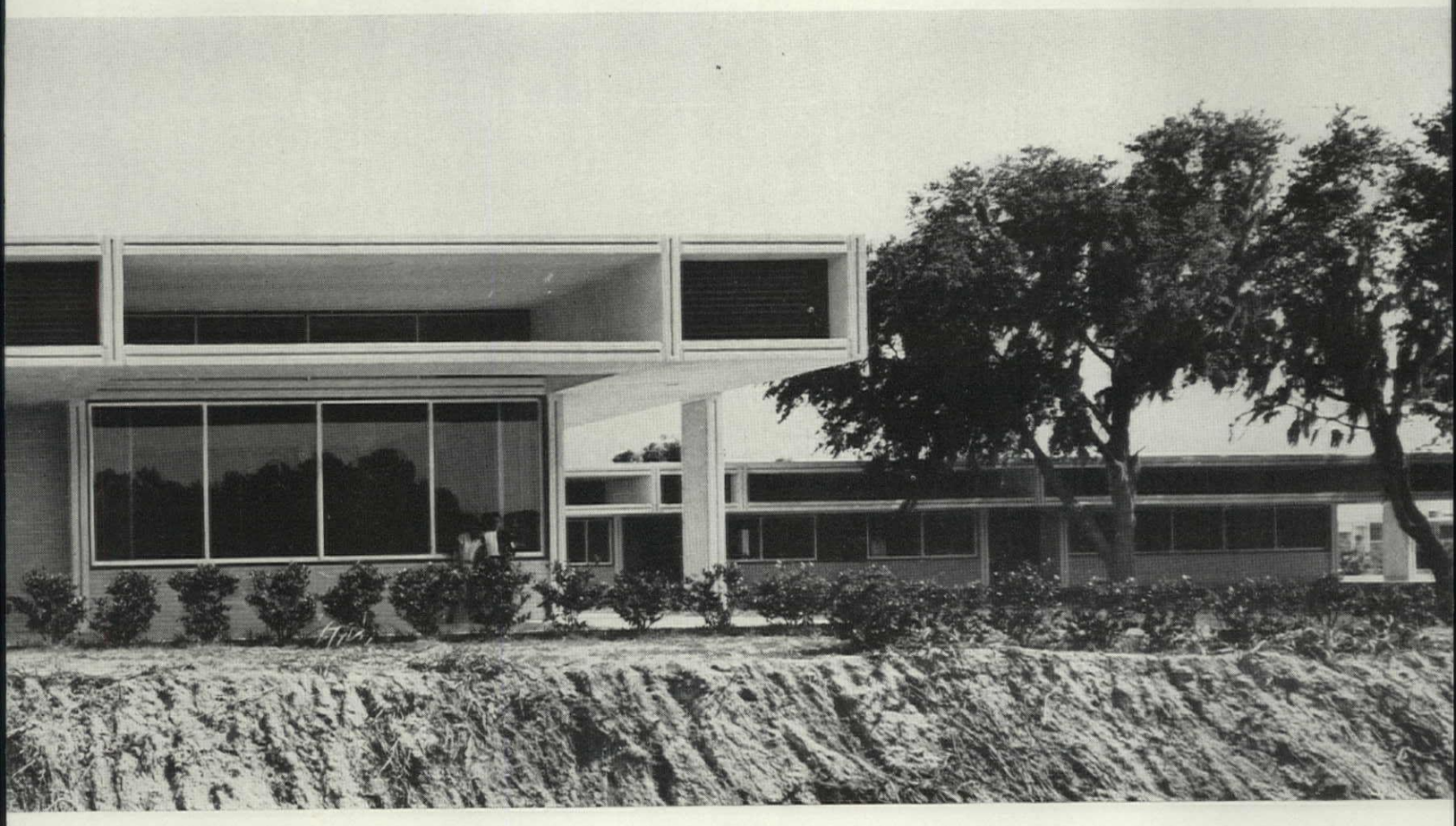
To enable team teaching he clustered the four general classrooms and partitioned them with electrically operated folding doors of chalkboard and tackboard. Acoustical absorption of these walls is surprisingly good—45 to 50 decibels in the voice range. In warm weather, classrooms are ventilated with two banks of sliding glass panels on outside walls. Construction cost for the eight classrooms (housing 256 children): $222,880. Cost per square foot (with covered walkways calculated at one-half area): $14.60. The parking areas, drives, bicycle docks, and landscaping added $5,440.

ARCHITECT: BERT BROSMITH.

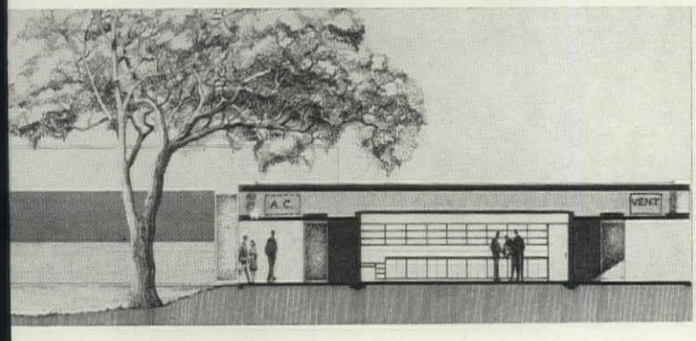


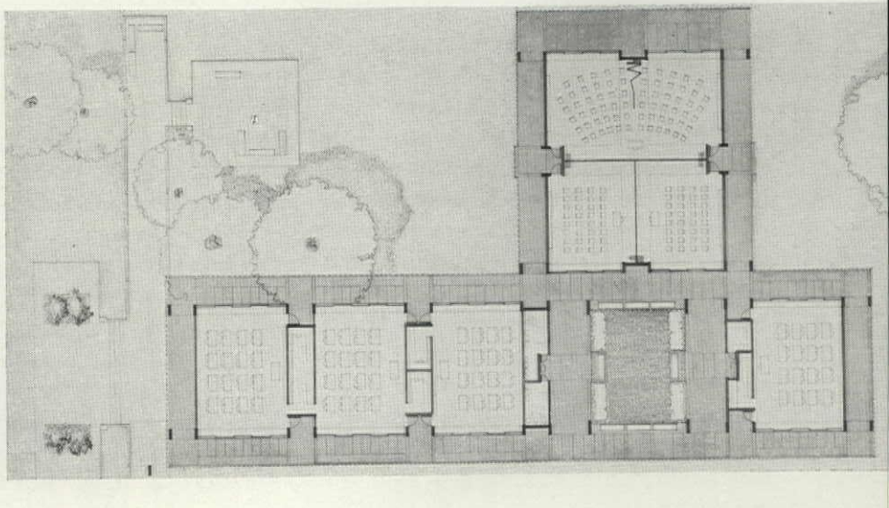
PHOTOS: PHILIP HISS

Outside walls are sand-gray face brick over concrete block backup, quietly emphasizing the horizontal sweep of the white slab edges. Wide overhangs serve not only to screen the torrid Florida sun, but also tie the new wing of the school to the middle-aged original plan.



Added to the old school were four general classrooms, three science labs, and a science workshop. Covered walkways are only 7 feet, 4 inches high. Flexible partitions in cluster classroom wing are moved by motor.





F. WILBUR SEIDEL

Apartments in Texas

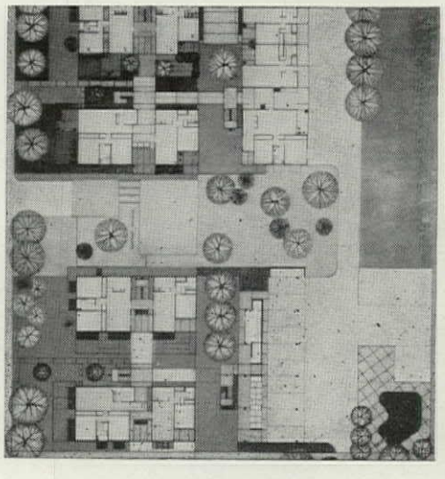
This development in San Antonio of 28 two-story flats, each with its own garden or outdoor deck, was approached by the architect as an exercise in rectangular organization. The twin rectilinear sites are broken into rectangles which, in turn, are reduced to succeedingly smaller ones.

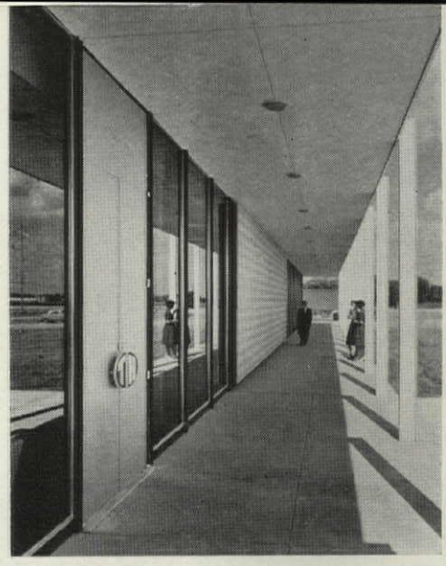
While the scheme was "designed down" from rectangles, the structure was "built up" from them. For example, the architect worked with a local window assembler to combine a 6 foot by 5 foot "picture window" with a 6 foot sliding unit, making a 6 foot by 8 foot assembly for delivery to the job. Two of these units were joined by means of a T column consisting of two 2 by 4s to form a glazed wall (see left in photo, above); the T column eliminated the need for heavy posts.

Outdoor breezeways at ground level and outdoor corridors on the second floor separate almost all apartments so there are only four party walls.

Cost, excluding fees but including landscaping and swimming pool, was $233,100, or $11 per square foot of air-conditioned (indoor apartment) area.

ARCHITECT: ALLISON B. PEERY.





PHOTOS: L. D. JONES

Plant offices in Kansas

This office-and-warehouse structure is the first segment in a large, chemical production complex. The building, according to its architects, represented "the universal challenge, to make the ordinary and inexpensive look pleasant and dignified." The principal walls are alternating bands of masonry and glass, every second masonry band acting as a structural pier. The masonry bands are laid up in stack bond with an 8-inch concrete block wall on the inside and a white brick veneer on the outside.

The result of this arrangement is a wall having an appearance of lightness which belies its load-bearing nature. The alternating bands of masonry and gray glass permit a high degree of flexibility in office layout. In addition, the striped pattern makes the building clearly recognizable at a distance of several miles across the Kansas plain.

Cost of the office block was approximately $13 per square foot for about 38,000 square feet. Consulting engineer was Uri Seiden. Mechanical engineer: James Turner. General contractor: Bob Elridge Construction Co., Inc.

ARCHITECTS: LINSCOTT, KIENE & HAYLETT.

Music library in Missouri

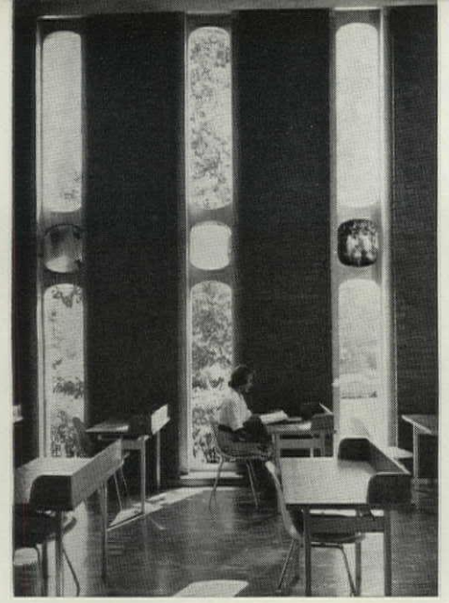
The carefully detailed stone windows in this library for Washington University in St. Louis were conceived to emphasize the building's vertical dimension, and they echo the older Gothic buildings on the campus. In addition, the design serves a number of other purposes, less obvious. Where the reading room rises for the full two-story height of the building, the central light is glazed (with imported Belgian stained glass); but where stacks, lounge, and office form a mezzanine, the central light is replaced with stone to form a spandrel. The narrowness of the windows accents the separation between exterior and interior, an effect that was desired to emphasize the atmosphere of study. This had the added practical advantage of reducing the air-conditioning load.

The frames are cut Indiana limestone into which the glass is set directly, held in place with bronze pins and putty. Clear glass is used for the long panes.

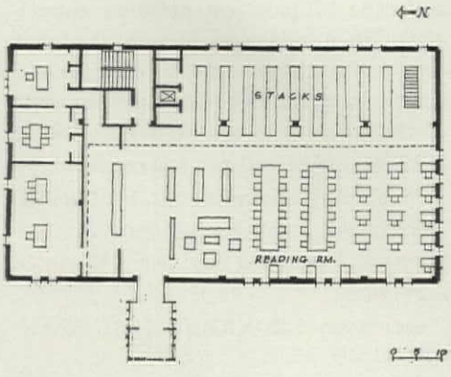
The building rests on a base of granite, quarried and laid to match the 60-year-old adjoining garden walls—another recognition of the existing establishment conveyed by the newcomer with tact and grace. Face brick was used above this granite base for contrast and to give a greater feeling of lightness.

The ground-floor level, enclosed within the base, contains listening and playing rooms acoustically isolated from the floor above; Jerome Cox, acoustic consultant, collaborated in this aspect of the design. The cost, including fees, but excluding landscaping and furnishings, was $238,029, or $20.50 per square foot.

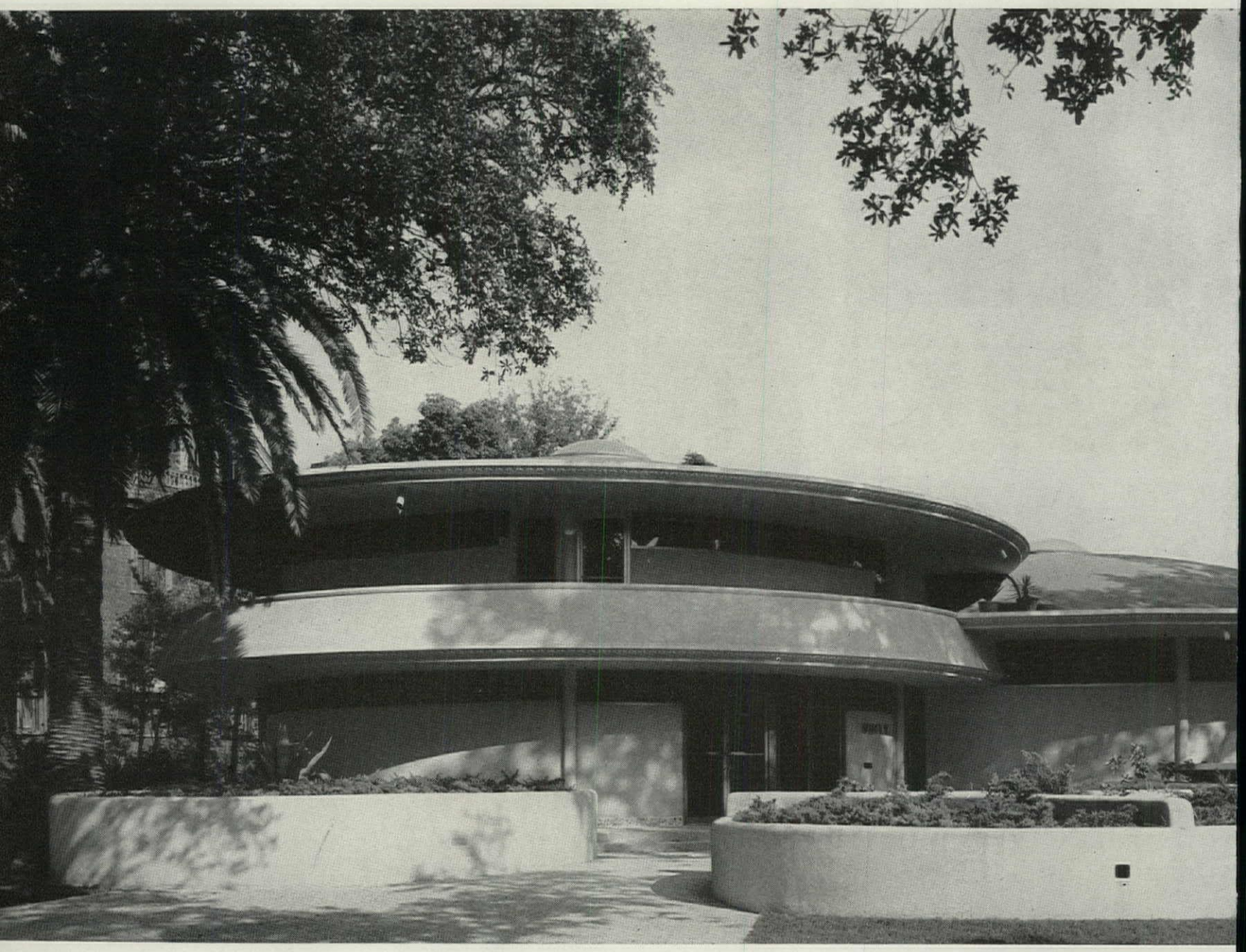
ARCHITECTS: SMITH & ENTZEROTH.



Tall windows of the Gaylord Music Library at Washington University are echoed in the limestone detailing of the main entrance on the west façade. View out the two-story-high main reading room (above) shows a group of windows as they look from the inside.



MAC MIZUKI



Church in Louisiana

The circle—one line generated by one point rotated about one center—is a singularly apt symbol of unity. And the circular plan of Unity Temple, in New Orleans, also helps overcome a practical difficulty: though sited on a block-through corner lot, visible from three sides, it never seems to turn its back.

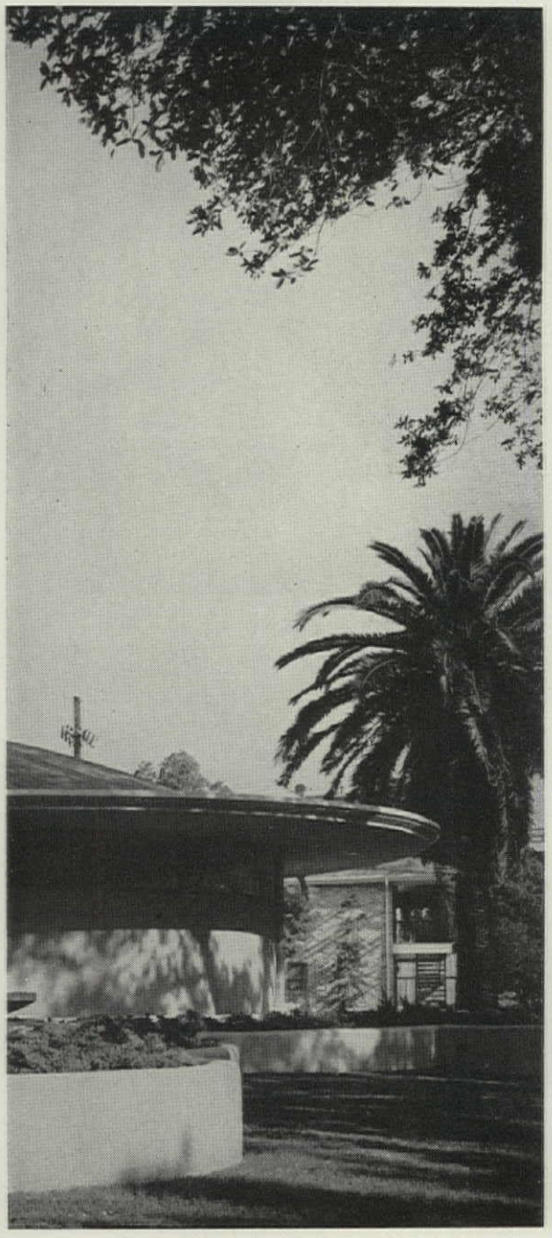
The larger of two low-pitched domes shelters a sanctuary seating 300 people. Narthex and offices are in a two-story wing, also roofed by a skylighted dome, whose top level projects into the sanctuary to form a mezzanine for choir and organ. (Acoustic problems were solved by a loudspeaker mounted overhead, soft carpeting and seating, and acoustic plaster.) Clerestory windows admit natural light that subtly models the curved planes of wall and ceiling.

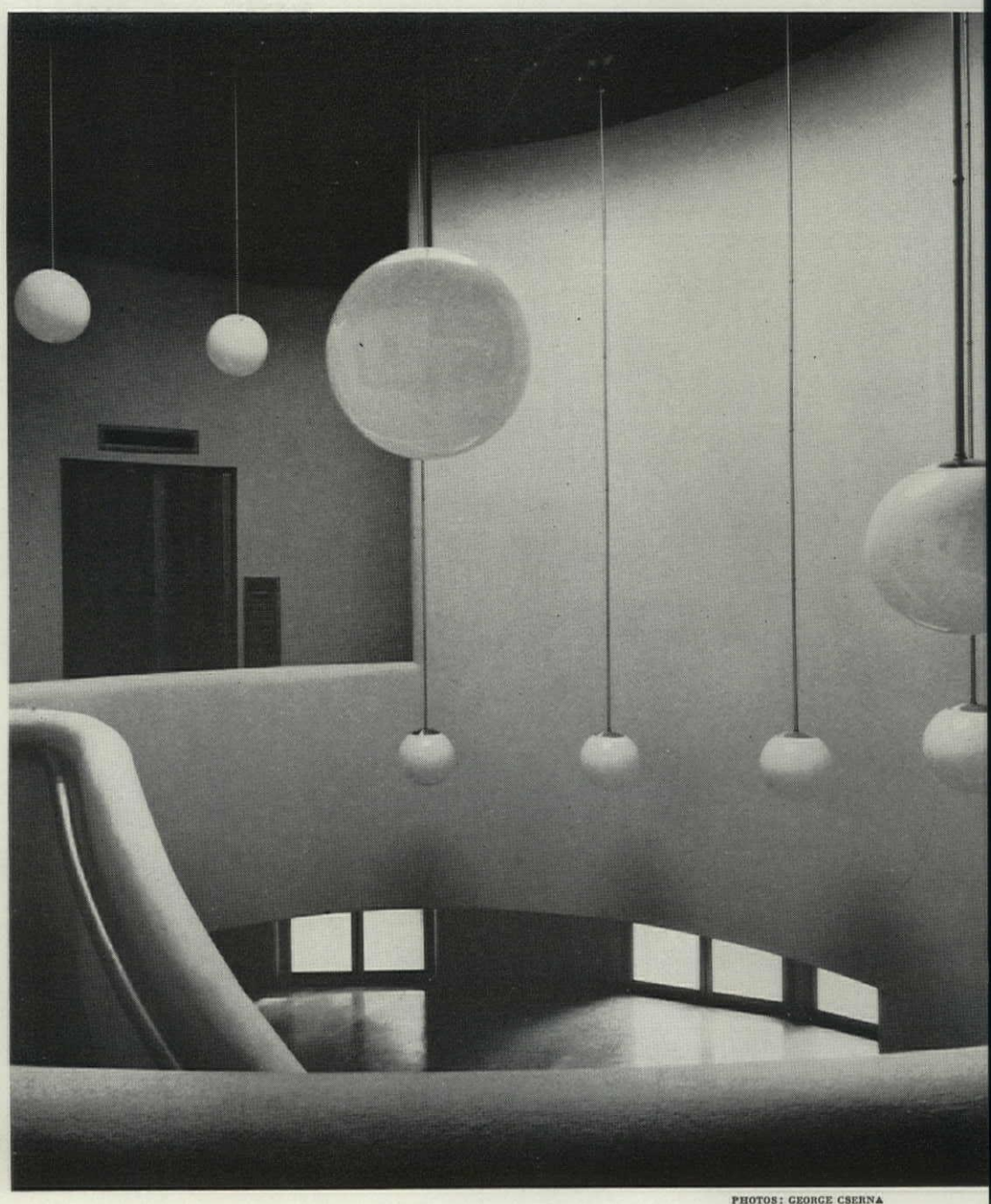
Does this building "belong" in the Garden District, where Greek Revival is the rule? This is not a question of style but of form and scale. Architect Spangenberg replies that new buildings are replacing old ones so fast that any attempt to conform is doomed. Still, the question is moot, just as it is in the case of a masterpiece by Spangenberg's mentor which Unity Temple resembles: Wright's Guggenheim Museum.

A Taliesin Fellow and Tulane graduate, Spangenberg at 35 has already had a decade of practical building experience. When bids came in a third higher than budget, he became his own general contractor. Result: construction costs of the 10,000-square-foot building were $135,000, or $13.50 per square foot.

Structural engineer: R. P. Linfield. Mechanical engineer: John S. McCormick. Electrical engineer: Mario G. Zervigon.

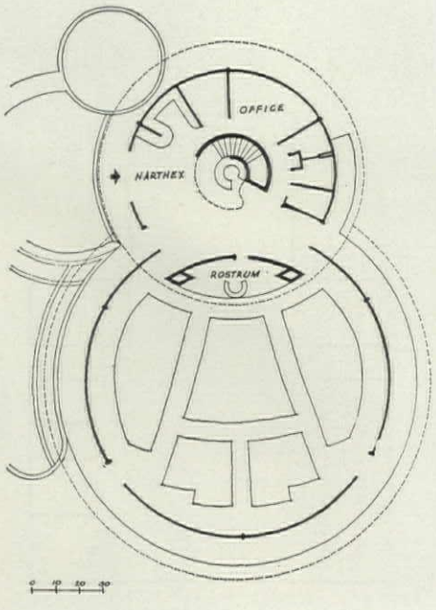
ARCHITECT: LEONARD REESE SPANGENBERG JR.

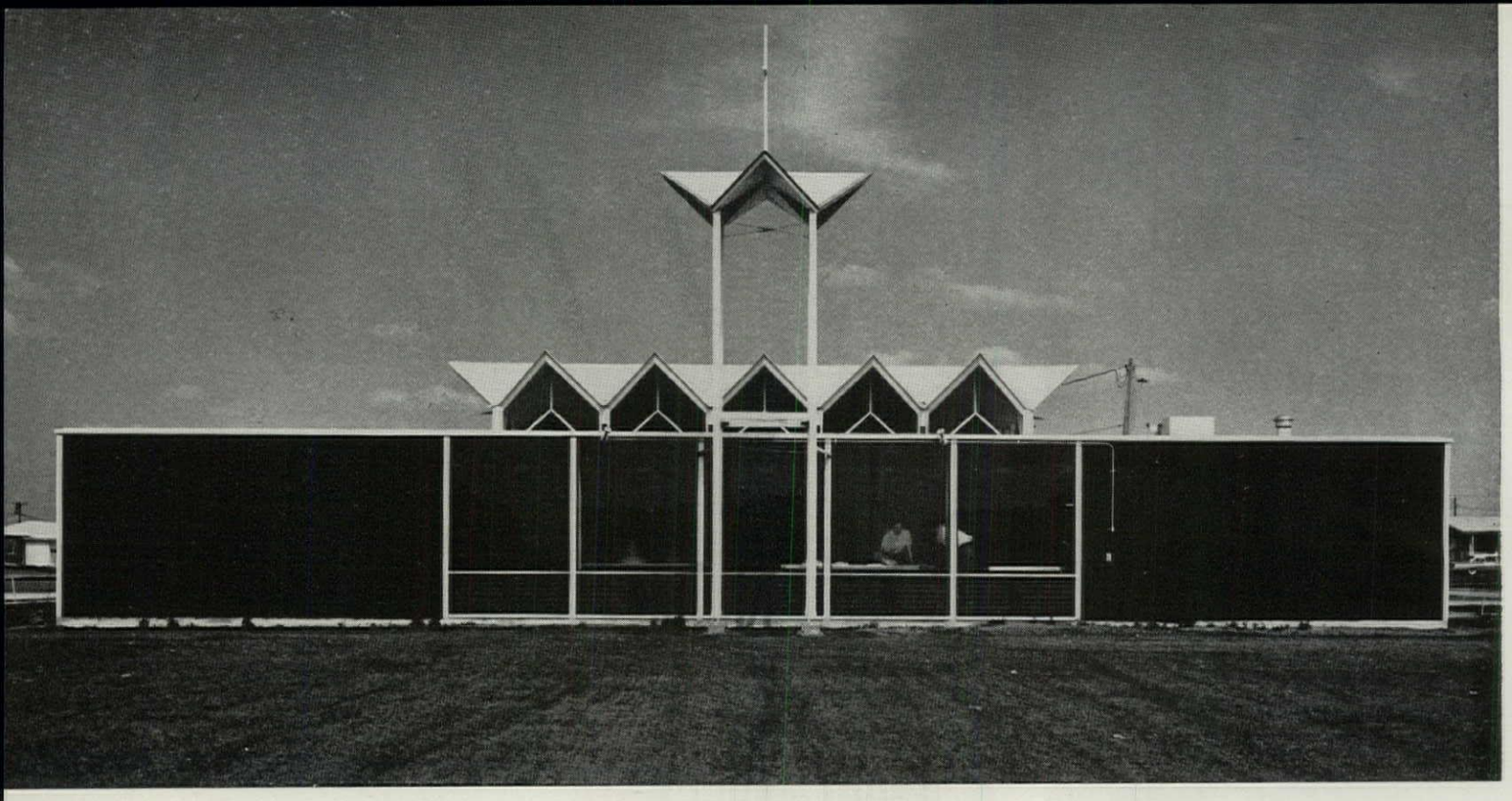


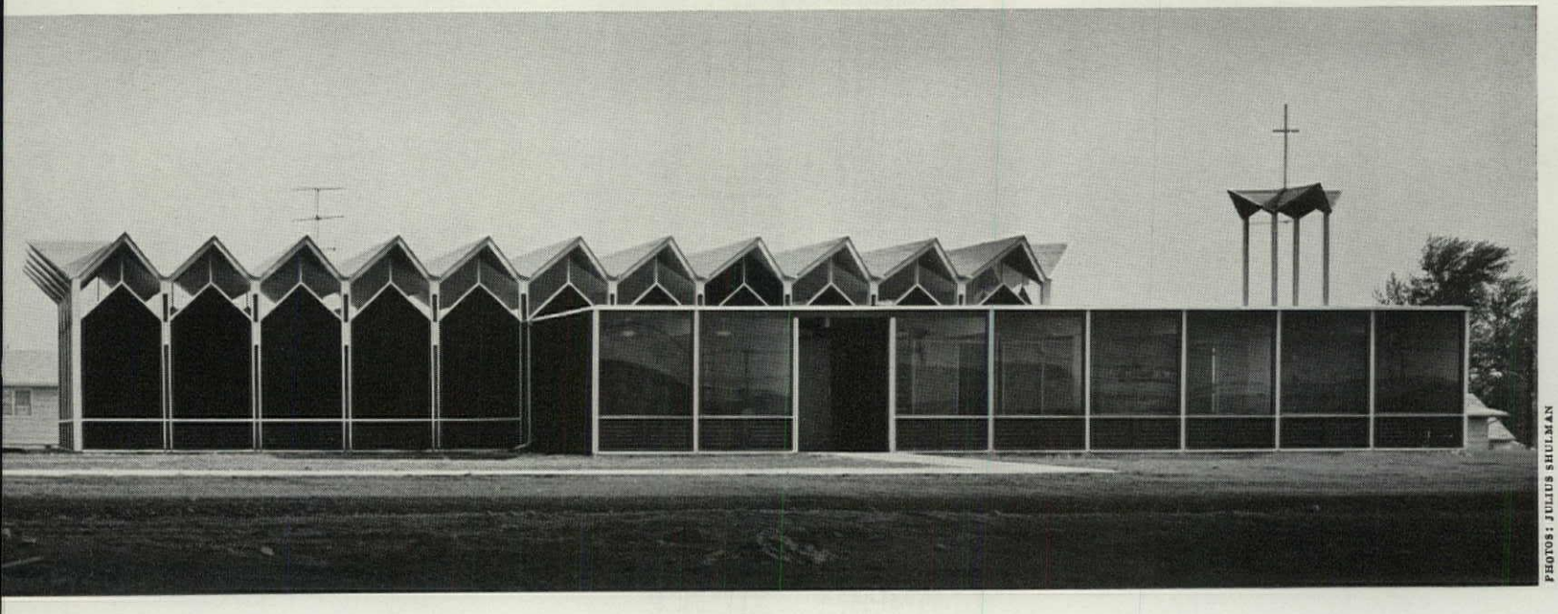


PHOTOS: GEORGE CSERNA

Structure is poured concrete except for precast columns and fascias. Gold butyl coats domes, buff plaster covers the rest of the building. Lights, outdoor planters, pool, catch basins, and benches all echo circular motif.







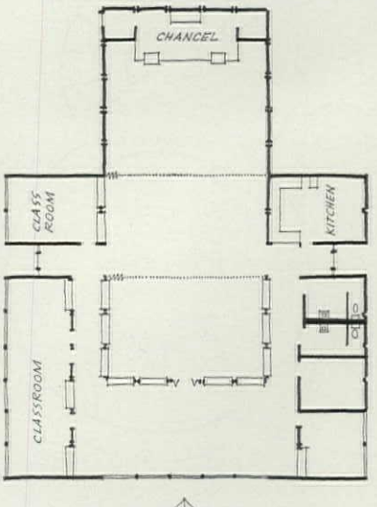
PHOTOS: JULIUS SHULMAN

Church in Iowa

Long on members but short on cash, missionary churches often demand that the architect design facilities which not only are cheap to build but also can be changed in exact use overnight as the congregation grows. The crisply detailed Lutheran Church of the Resurrection, in Marion, Iowa, looks anything but cheap, despite its meager $50,000 budget. Nor does it look makeshift, despite the fact that it temporarily serves as sanctuary, school, kitchen, and meeting area. Ultimately, it will be a fellowship hall in a parish complex.

A folded plywood plate roof, 30 feet by 66 feet, was chosen to cover the main room as "a method of introducing form to a space which had to be built very simply." The curtain walls of stained plywood, and the clerestories above them, repeat the angular lines of the pleated roof, suggesting heavily stylized Gothic arches. All interior spaces, except for the kitchen and restrooms, can be opened up into the main room—an essential program requirement in view of the church's rapid and continuing expansion.

ARCHITECTS:
CRITES, PEIFFER & McCONNELL.



Ceramics factory in California

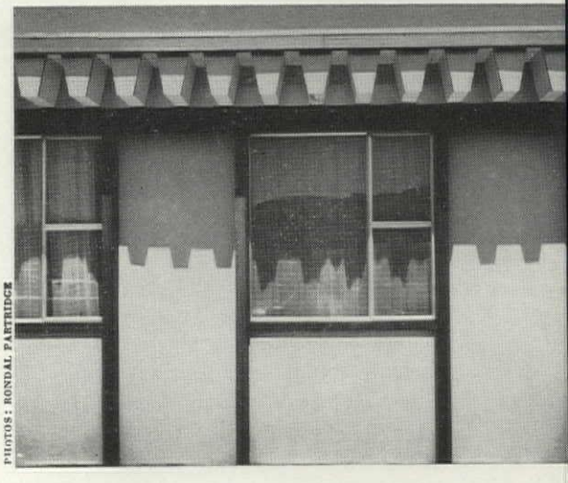
Hollow, splay-shaped plywood trusses provide 50-foot clear spans for this handsome little factory in Sausalito. Inside the building exposed trusses form the ceiling; outside, the serrated ends of the trusses are capped with thin-gage aluminum, and make a deeply patterned frieze in the sunshine.

The clients, Brian and Edith Heath, asked the architects for a building as practical and as esthetically pleasing as a good coffee pot or dinner plate. And because their firm has been growing so rapidly, the Heaths asked that the building be reusable for entirely different contents, if and when the day came that they outgrew it. This requirement was answered by the clear spans and by the movable wall panels.

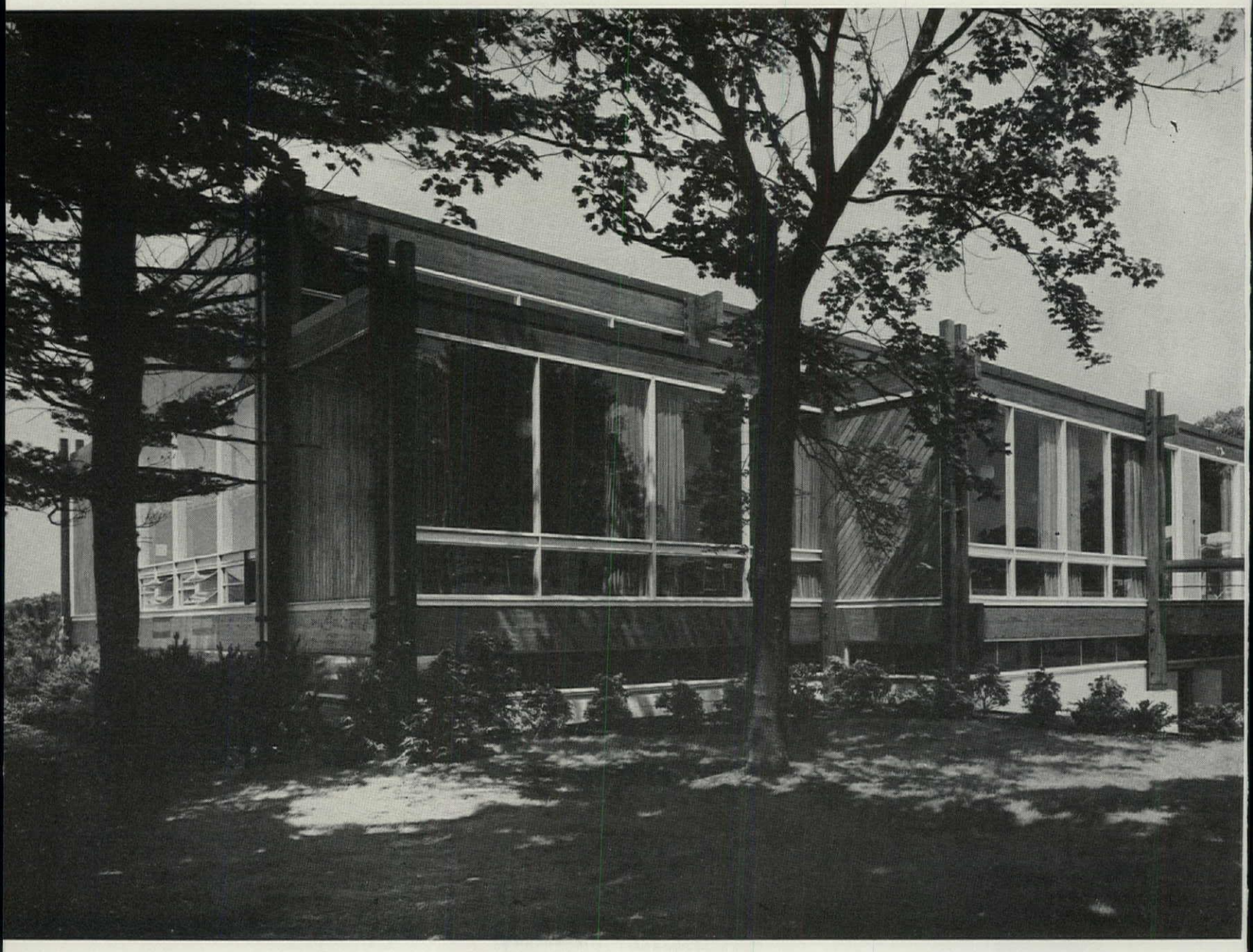
The scheme is organized around a central court for cross-ventilation—essential in a building where the electric kilns throw off heat. The court also supplies balanced light in work and display spaces, and serves as an outdoor lunch room for the employees.

Cost, excluding fees, but including sprinkler system and heavy-duty wiring for machinery, was $6 per square foot.

ARCHITECTS: MARQUIS & STOLLER.



PHOTOS: RONDAL PARTRIDGE

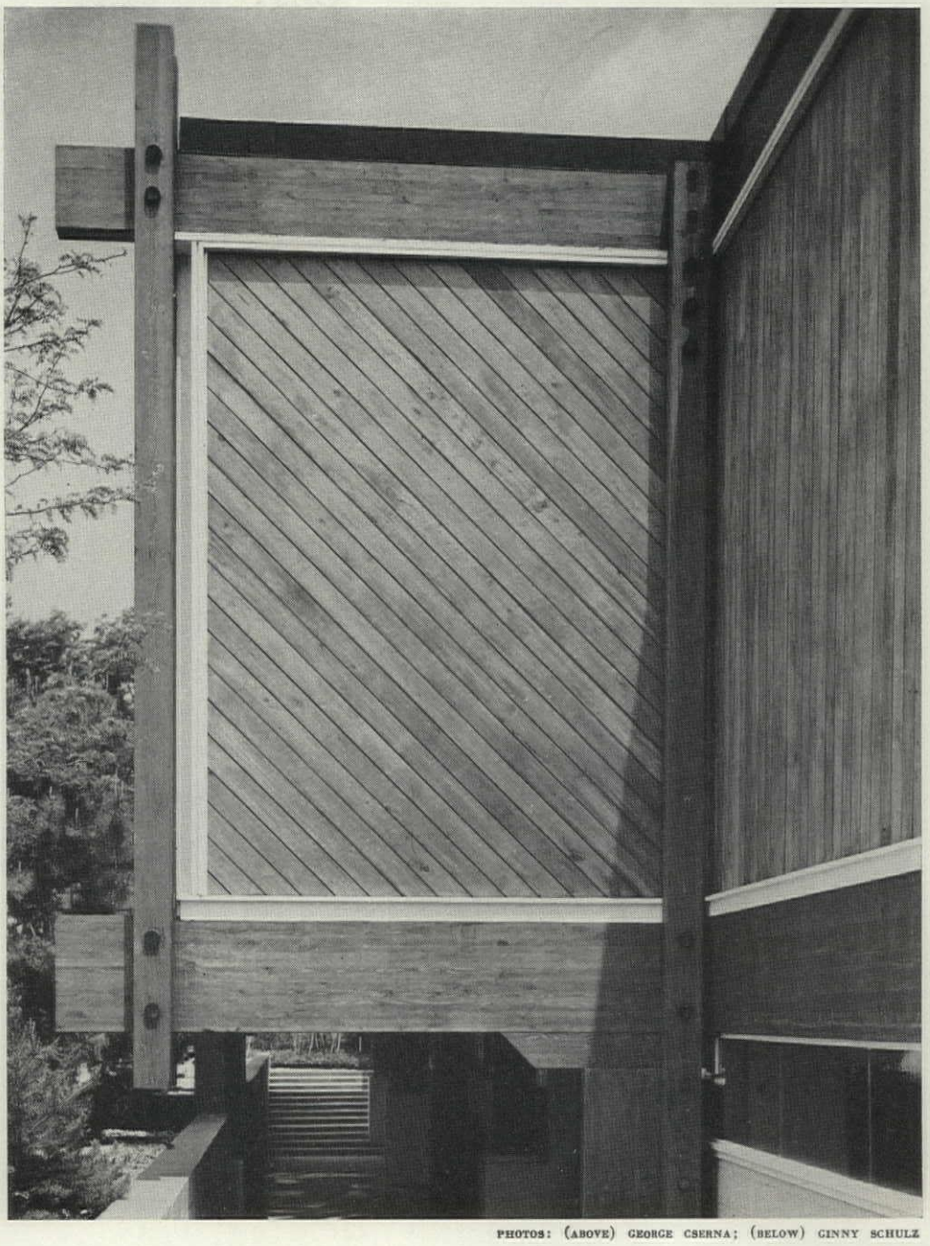


Country club in New Jersey

Precise enough for the most polished New Yorker, yet warm and woody enough to provide rural escape, this new clubhouse for the Edgewood Country Club is located in River Vale, N.J., a dozen miles west of the George Washington Bridge. By raising his pavilion-like structure above a partially sunken lower level, 35-year-old New Yorker Norval White was able to give main lounge and dining areas the luxury of formal stepped approaches and fine views out over the golf course, swimming pool, and lake (photo, above). Men's and women's locker rooms, lounges, and building services are nicely tucked underneath, where they are reached along the front and back by passages hidden behind retaining walls, and lighted by high strip glass (photo right, above). In form, the building is quite classical, with lower, more intimate side "aisles" for lounging, cards, or dining on either side of a high, clerestory-lighted central space. Kitchen, pantry, bar, rest rooms, and stairs are all grouped in a compact service core around which various rooms form a sequence of spaces which may be combined or closed off at will.

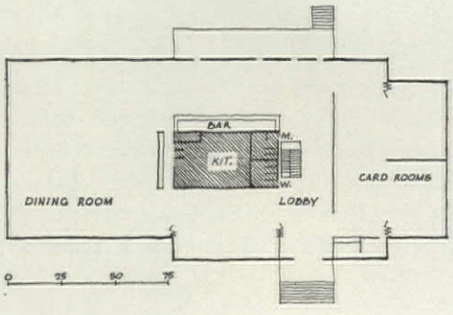
Kitchen storage and boiler room are in the core below, fan room and club office above. The structure is of laminated fir columns clustered in twos and fours; laminated girders and beams carrying a cedar roof deck; white-painted trim holding glass or solid panels of cypress siding. Total cost came to $477,000, including air conditioning and kitchen equipment, or $12.77 per square foot. Gerald Paul, associated architect; Robert E. Levien, structural engineer. Contractor: A. Pollotta & Son.

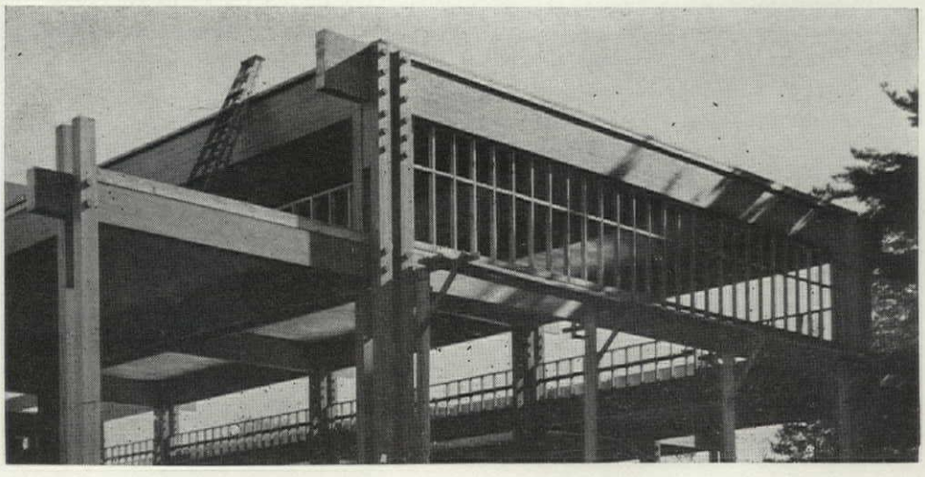
ARCHITECT: NORVAL WHITE.



PHOTOS: (ABOVE) GEORGE CSERNA; (BELOW) GINNY SCHULZ

Wood structure is given a fine display in the entrance deck overlooking the pool, and in the detail of a cantilevered porch (above). Construction photo (right) shows low side wings, high clerestory window grid.





Library in Missouri

A staff member of the School of Architecture at Washington University in St. Louis, Fumihiko Maki, 33, was tapped to design this library for the University, and responded with a strong expression in concrete. Maki, a visiting member of Japan's "Metabolism Group" (whose main aim is "to promote a new urbanism") placed a large exhibition hall and auditorium on the main floor atop a concrete podium, and folded a concrete slab 18 feet higher up, supported by sturdy stilts. On top of this are library offices and other smaller spaces sheltered under a roof that is another angular essay in concrete.

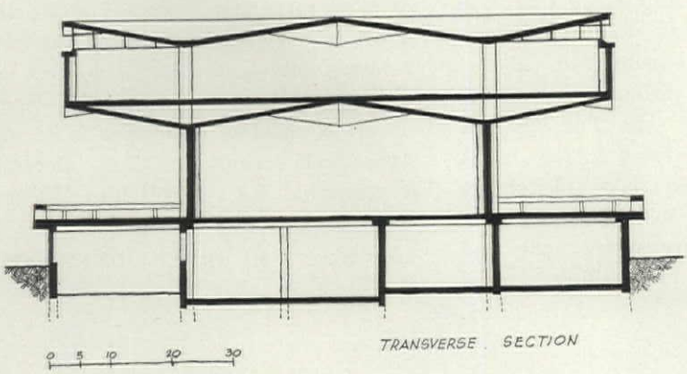
The interesting feature of the design as a whole is that somebody finally figured a way to use folded plates to support not just a roof, but a lower floor as well. Maki's structural point is plausible; evidently he wanted a long, dramatic overhang over the podium. Here was a logical method in concrete to create such suspense. But his ruggedness, as revealed by this design decision, is hardly a simple quality.

Further expression was given the building by an irregular—but tensely controlled—placement of windows in the second floor, bucking the insistent structural rhythm of those creased slabs. The darkly framed glass set into the jagged concrete is another typically table-thumping statement by one of this formidable school of emphatic young contemporary architects.

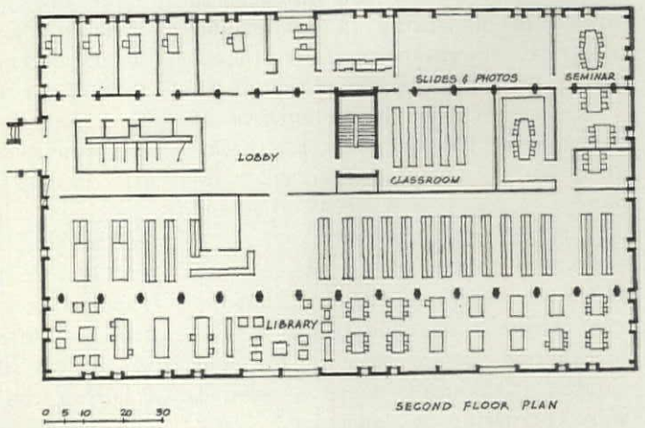
Cost of the building was $750,000. Exterior walls are precast panels; most of the interior wears plaster finish. Local architectural credits for the design go to Russell, Mullgardt, Schwarz & Van Hoefen, of St. Louis. Structural engineer: Eason Thompson Associates. ARCHITECT: FUMIHIKO MAKI.

PHOTOS: ROBERT EDMONDS

Overhang of this templelike library on either side is 20 feet; spacing between columns is 50 feet. Bay span in the other direction is 10 feet, supporting the long cantilever.



TRANSVERSE SECTION



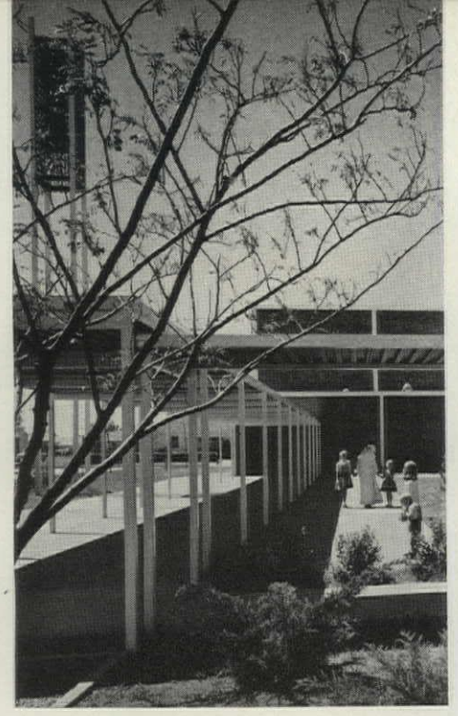
SECOND FLOOR PLAN

Church in Oklahoma

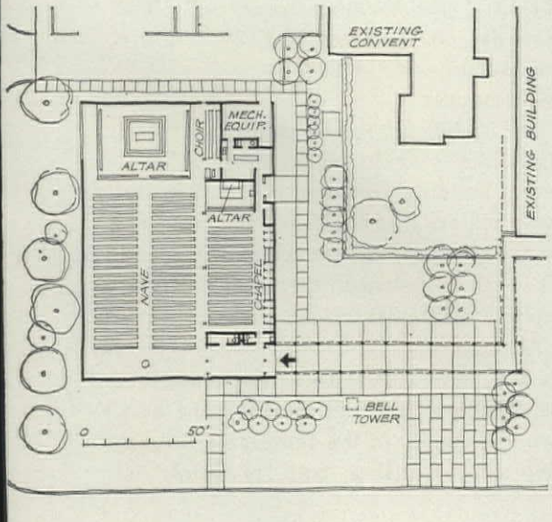
Some of the austere and fundamental drama often lacking in comfortable American churches is carefully brought out in this new Catholic church of St. Peter and St. Paul in the suburbs of Tulsa, Okla. The simplicity, say Architects Murray, Jones & Murray, is intended to convey a sense of order and a spirt of Christian poverty.

Because of a restricted site in front of an existing convent, they placed the new church to one side, turned a solid brick front toward street traffic, and entered it laterally along a covered walk bordering a landscaped court (plan and photos, opposite). Passing through a low, dark vestibule, parishioners emerge in the high space at the back of the nave around the baptismal font, placed symbolically on axis with the altar as the beginning of Christian life. Beyond a simple wooden screen is the main church seating 440 (above) and a lower, more intimate chapel seating 140 along the side. The space is windowless, except for a 23 foot by 31 foot wall of stained glass sidelighting the raised altar, splashing changing color on the severe white wall, and silhouetting chaste furnishings and a slim, suspended cross. Diffused sun from skylights along the roof edge also enters above a curved hung ceiling and washes down the brick panels between the white steel columns. The roof deck of corrugated steel, exposed above the altar, is repeated in walkway canopies outside. Total cost: $226,000. Art coordinator: Frank Kacmarcik. Engineers: Netherton, Dollmeyer & Solnok. Acoustical consultant: Bolt, Beranek & Newman, Inc. Contractor: Wickersham Construction Co.

ARCHITECTS: MURRAY, JONES AND MURRAY.

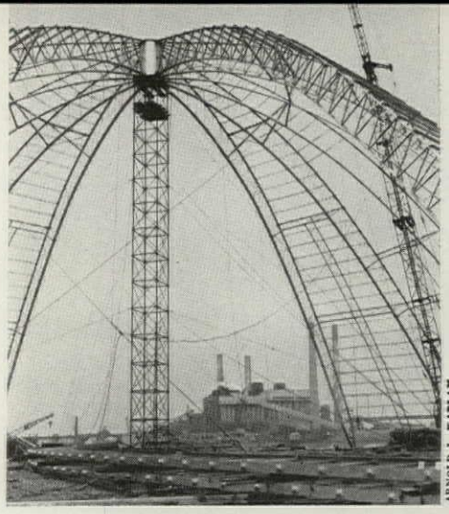


Landscaped court, separated from the street by a covered walkway, provides a gathering place before and after services and a transition between outside activity and the church interior itself. In front of this walk rises a tall, stark tower of white-painted steel, carrying the church bells behind a transparent, decorative metal grid (right).



PHOTOS: JULIUS SHULMAN

New talent: engineers



Storage dome, *Charleston, Mass. Parabolic sugar bin designed to follow angle of repose of sugar cane to eliminate lateral loads. Cost lower than that of Geodesic Dome. Design engineer: William J. Mouton. Associated: William J. Lemessurier.*

This spring FORUM circulated a questionnaire concerning the "future of structures" among a number of young engineers.

These often neglected men replied in force if not agreement; what follows is a condensation of their comments. With structure increasingly visible and articulate, it would seem that the engineers are hardly less so.

Participating:

John V. Christiansen, *34; B.S. in architectural engineering, U. of Illinois; M.S. in civil engineering, Northwestern. Associate in a Seattle civil engineering firm. Current work ranges from gas pump shelters to hangars.*

Edward Cohen, *40; B.S. and M.S. from Columbia. Associate in firm of Ammann & Whitney. Principal engineer on the Pittsburgh Auditorium. Now designing a welded aluminum reflector for a radio telescope.*

Myron Goldsmith, *43; M.S. in architecture, I.I.T.; spent seven years in the office of Mies van der Rohe; two years in Italy on Fullbright Grant. Senior architectural designer at the Chicago office of S.O.M.*

Stefan J. Medwadowski, *37; born in Poland, P.O.W. in Germany in World War II, student in Rome and London. Ph.D. from U. of California at Berkeley. Now engaged in research, teaching, and private practice.*

William J. Mouton, *30; B.S. and M.S. in civil engineering, Tulane University. Assistant professor of structure at Tulane, and private practice in New Orleans. Clients include Burk, LeBreton & Lamantia, and John Dinwiddie.*

R. R. Nicolet, *30; born in Brussels; B.S. in civil engineering, Federal Institute of Technology, Zurich; M.S., École Polytechnique in Montreal. Project manager for the Place Villa Marie Development in Montreal.*

Emmanuel Pisetzner, *35; B.S. in civil engineering, C.C.N.Y. Member of the firm of Weiskoph & Pickworth. Projects as associate or partner in charge include Denver Hilton Hotel and Metropolitan Towers, Honolulu.*

Demetrios A. Polychrone, *34; M.S. in civil engineering and Sc.D. in structural engineering from MIT. Presently in private practice in Atlanta, Ga., and teaching at the School of Architecture, Georgia Institute of Technology.*

Question: *What will be the most significant innovations in the design of tall, multistory buildings?*

GOLDSMITH:

Any building being built today, except for certain items of mechanical equipment, could have been technically achieved in 1900.

Because our building technology has improved so slowly and is still relatively primitive, we cannot predict what important advances will be made in the future. If we were to make predictions on the basis of our building progress since 1900, we might assume that the world of 2000 would be quite similar to that of today.

POLYCHRONE:

The most important structural innovation to come will be a return to the use of bearing-wall construction. From a structural engineering viewpoint it is almost ludicrous to see a vast amount of perfectly sound, strong material used merely to provide protection against the weather, as with the curtain wall . . . stressed-skin construction in multistory buildings is inevitable.

It is logical to expect much larger modular units . . . whole systems incorporating utilities within them.

COHEN:

Stressed-skin construction for tall multistory buildings appears to be a concept worth watching in the coming years. It has had application in reinforced concrete construction for multistory apartment buildings and studies have indicated its feasibility for tall multistory, clear-span structures. An approach to stressed-skin design has already been made in the design of metal structures. . . .

PISETZNER:

I expect to see further encroachment by prestressed concrete into the tall structure category normally dominated by steel. This will result in expressive designs featuring long clear spans with little or no interior columns.

Question: *The U.S. has been said to be a "steel-building country." Will this description continue to be accurate in the years to come?*

POLYCHRONE:

It is difficult to conceive of a "steel building" without concrete, or a "concrete building" without steel . . . in the vast majority of buildings the two systems are and will be competitive, and the choice between them will depend upon a particular circumstance.

CHRISTIANSEN:

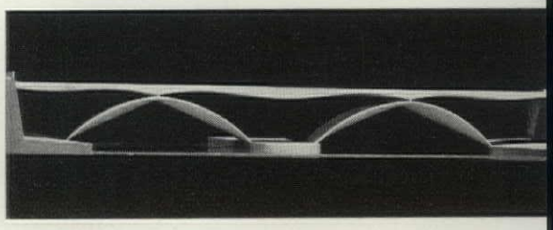
The point is that these two materials are the best we have now and the best we can expect in the forseeable future. We should utilize both materials in

WALLACE LITWIN

Service station, *Atlanta, Ga. Nondevelopable conoidal shells cast without forms. Lath, fastened to reinforcement and plastered, formed base for concreting. Structural engineers: D. A. Polychrone & Associates. Architects: Toombs, Amisano & Wells.*

DICK BALCK

Shop and garage buildings, *Redding, Calif. Large precast concrete members. Casting was done on site, but members were sized to permit highway shipment. Structural engineer: Stefan J. Medwadowski. Architects: John Carl Warnecke & Associates.*



Project for Garibaldi Bridge, *Rome, 1955. Concrete-shell arches rest on existing supports. Cross-section of continuous deck varies with shear and moment. Design: Myron Goldsmith and James D. Ferris with C. Allegri, A. Di Carlo, D. Silverji, B. Zevi.*

their most appropriate manner and not hesitate to use them together. . . .

MOUTON:

If the number of precast concrete manufacturers begins to approach one-quarter that of the steel fabricating plants, the resulting economy of precast concrete may cause this country to make the big switch to concrete. On the other hand, the increased economy of structural steel fabricated and erected in place may result in the use of structural steel in areas where reinforced concrete is now cheaper.

COHEN:

The competition of reinforced and precast concrete . . . will increase, thus tending to eliminate complacency in both fields.

Question: *In what areas lie the greatest opportunities for the further use of reinforced concrete?*

NICOLET:

In special structures greater emphasis will be placed on "spatial" structural systems made possible by the monolithic nature of poured-in-place concrete. The structural engineer is learning to analyze complex structural problems by the use of approximate methods such as model analysis.

CHRISTIANSEN:

It is very important that we do not lose sight of the plastic nature and possibilities of concrete and find ourselves merely producing the same straight posts and beams in concrete that have been used in wood and steel (and concrete).

Question: *What is the future of curved, warped, or folded structures?*

COHEN:

They will continue to be constructed of reinforced concrete, but metal space framing will expand as economical fabrication and erection procedures are developed . . . prefabricated, medium-span, stressed-skin structures of concrete and of metal may be expected. Impetus to metal structures will come from the utilization of new sandwich core materials, adhesives, and erection techniques.

POLYCHRONE:

What is needed . . . is not new theories to permit their analysis or engineers competent to perform the structural design, but architects who know how to use them, . . . architects with an understanding of structural behavior, able to conceive the infinite varieties of *propitious* forms. The word "propitious" cannot be underlined too heavily. It is saddening to see the ubiquity of particular geometric forms applied indiscriminately from hot-dog stands to cathedrals.

CHRISTIANSEN:

There is an attitude prevalent, among a good many architects and engineers, to the effect that, in the U.S.A., we are unable to do refined structural designs because our high labor costs make them uneconomical. This, I believe, is a fallacy, and put forward as an argument to avoid exerting the effort and developing the ingenuity necessary to design and construct such structures. The actual reduction of material quantities does save money.

Question: *What is the future of reinforced plastics in building?*

MOUTON:

Reinforced plastics, along with high-strength metal alloys, are not now necessary for any major innovations in building and in general have caused a deterioration of architecture by the extremes that have been attempted in order to put them to use long before they are practical.

Question: *What about high-strength metal alloys?*

PISETZNER:

The most important alloy that can be developed by the steel industry for structures is not necessarily one of high strength but rather a material which will have a satisfactory fire rating without encasement—"fireproof steel."

NICOLET:

The high-strength steel alloys presently on the market are not likely to find much more widespread use than they have now.

POLYCHRONE:

The adoption of higher-strength steels will not alter the shape of the wide-flange columns, it will merely allow a decrease in weight. Such a change will not alter the appearance of a building. High-strength steels have been available in the industry almost from the very start. The only change taking place has been the relative decrease in cost. The quality and strength of materials, all building materials, are constantly being improved.

Question: *Is there any possibility of greater integration of mechanical systems in buildings?*

MEDWADOWSKI:

In general, I believe that structural and mechanical systems should be integrated as much as possible; as a matter of fact, the whole design of a facility should be integrated from all points of view. Unfortunately, there are very few creative mechanical engineers in the building industry, although there are a great many competent ones (I suppose the same could be said of architects and structural engineers). Consequently, obtaining an integrated system is not easy. The reason for this sad state of affairs is that the gifted mechanical engineers are active in other areas of mechanical design, in particular in the glamorous field of space and missile technology. The mundane types end up in the building trade. If you know of any creative mechanical engineers in this part of the country, by all means let me know.

MOUTON:

At present, the concept of integrating structure and mechanical components is highly idealistic. . . . In any building where large and cumbersome air ducting must be employed, there is little hope for any type of integrated structure. Therefore, it is not so necessary to improve the structure as it is to come up with a good mechanical system. The problem is finding a mechanical engineer as interested in the rest of the building as in his own system.

Question: *What areas of structural development are of greatest interest to you, personally?*

MEDWADOWSKI:

I am very much interested in the application of advanced mathematical techniques to structural problems of the building industry. . . .

NICOLET:

Great advances can be made by the proper use of modern techniques such as computers. The foremost advantage gained by their use is of course the reduction of complex and time consuming mathematical operations to much more manageable proportions.

POLYCHRONE:

I am very much interested in the exploitation of new wood structures by the techniques of lamination . . . and in the develpment of model analysis techniques for complex structures.

Question: *To what extent should the training of architects be changed to incorporate knowledge of the new possibilities in structures in their vocabulary?*

CHRISTIANSEN:

A course in the "history of structures" would be most beneficial to both the architectural and civil engineering student. (How many graduating C.E.'s have never heard of Robert Maillart, Hennebique, or even Torroja and Nervi?) The "history of structures" course for the architect should be a critical study of structural forms with respect to the materials and construction procedures of their day. This study should be carried down to the present and encompass all modern materials and structural systems. A course such as this would be of far greater value than the several semesters of the analysis and detailing that architectural school students get at the present time.

PISETZNER:

The training of architects should stress an understanding of manufacturing and construction tolerances. Many recent graduates confuse the construction of a building with the assembling of a watch. Proper allowances in detailing and planning can mean the difference between success and failure.

MOUTON:

It is quite apparent that the great majority of "research" in progress or being contemplated is unfortunately founded on existing designs or uses of materials that are, in themselves, inherently unstable and unsuitable . . . the solution might be the elimination of the "gimmick" being studied rather than in a change in the method of "analyzing" it. Proof of this can be found in our present engineering textbooks, textbooks which are clouded with hundreds of two-dimensional, impractical, and unstable problems that the student should be taught to avoid rather than analyze.

NICOLET:

The average architect receives such a thorough training in elementary structural analysis that he tends to remain hypnotized by the maze of formulae and loses thereby his instinctive evaluation of the essence of a structural system.

POLYCHRONE:

The present school training is totally misguided, and that fault is reflected in the majority of executed designs . . . understanding of structure is not being imparted by the architectural school curricula, nor has it been possible for the profession at large to acquire it in practice. Our schools now train structural engineers merely to tell, with self-deluding precision, how strong a structure can be; they have failed to nurture the creative spark that conceives with ingenuity how a structure could be built, how a new structure could be devised and, alas, do not even attempt to orient him to the question of whether it is worth-while to build the structure in the first place.

Question: *What general possibilities does the future seem to hold for the field of structures?*

GOLDSMITH:

The directions of most possible developments are dependent upon how we answer these questions:

What will happen if the physical properties of building steel and concrete, including the modulus of elasticity, are doubled, tripled, and quadrupled without significant increase in cost?

What will happen if the amount spent for research and development in, for example, the aircraft industry (approximately 3 billion dollars a year) is applied to the building industry?

What will happen if building is industrialized like the automobile industry? Instead of a single contractor building a few hundred or thousand units, he might produce tens of thousands or hundreds of thousands of units a year.

What new materials will be developed and to what extent will materials and products now economically unfeasible come into widespread use?

What will be the improvements in utilization of fuels and energy, and the miniaturization of mechanical systems?

And most important, what will be the force of new ideas? Artistic, economic, and social forces? How will they effect what we build?

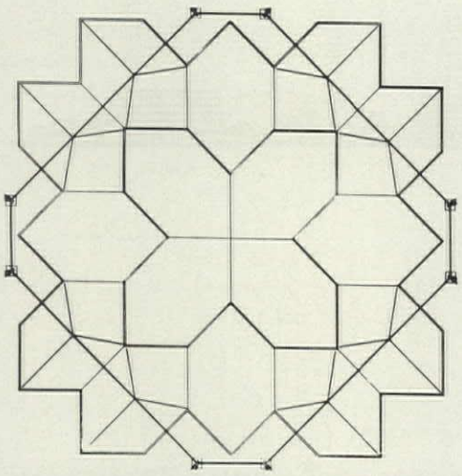
All we know now is that our achievements are far below our capabilities.

Newest talent

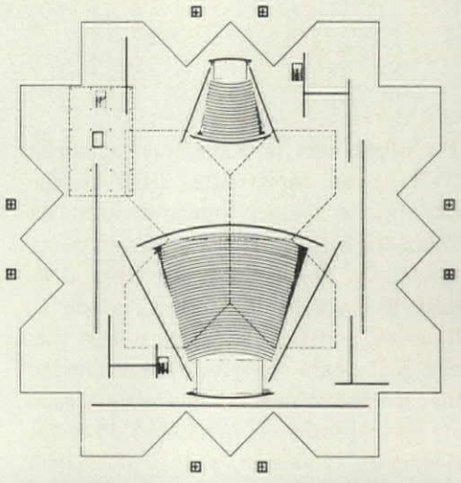
The 16,680 students in the 71 schools of architecture in the U.S. are the soil of the profession, in which the ideas of the old must germinate. These days the ideas are blooming brightly; moreover, this year's crop of graduates seems to agree, for once, with their elders of the American Institute of Architects, which awarded its 1961 Gold Medal to Le Corbusier in April: two months later, a good many students won gold seals (and degrees) from their design juries with projects that were clearly inspired by the master's flamboyant buildings.

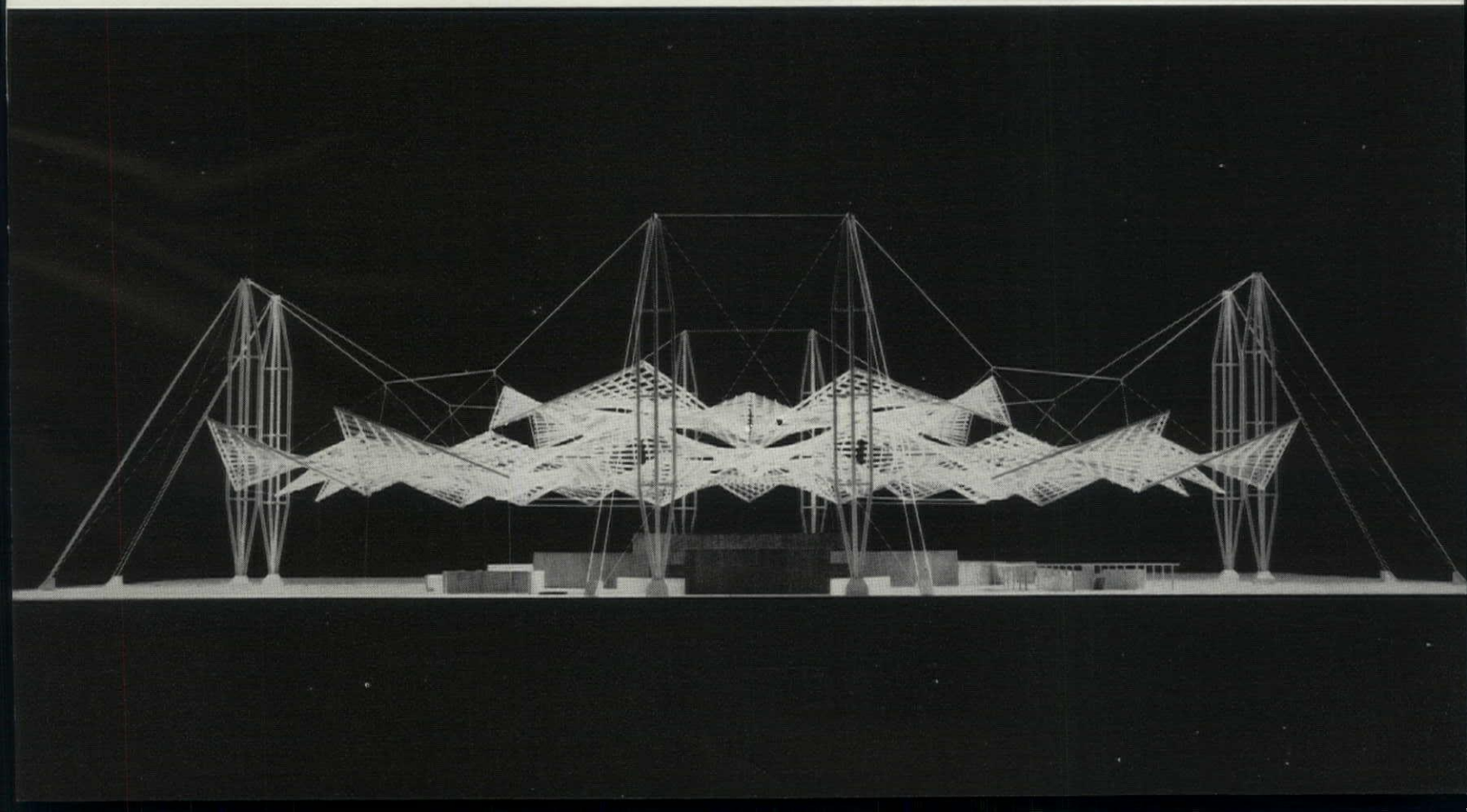
They were inspired by Le Corbusier's ideals as well; for just as he has always been interested primarily in the whole city rather than the individual building, so these new graduates of U.S. architectural schools seem more interested in designing useful complexes of buildings rather than single buildings, however noble.

The six student projects shown here were presented this summer at architectural schools across the country. Three of them are communities. (Ironically—and somewhat movingly—the largest of these, for a population of 135,000, is a striking cemetery project—page 98.) The other three are exercises in formal and structural fantasy (see below). "What gives our dreams their daring," Le Corbusier once said, "is that they can be realized." With such ferment in the schools, realization may come sooner than expected.



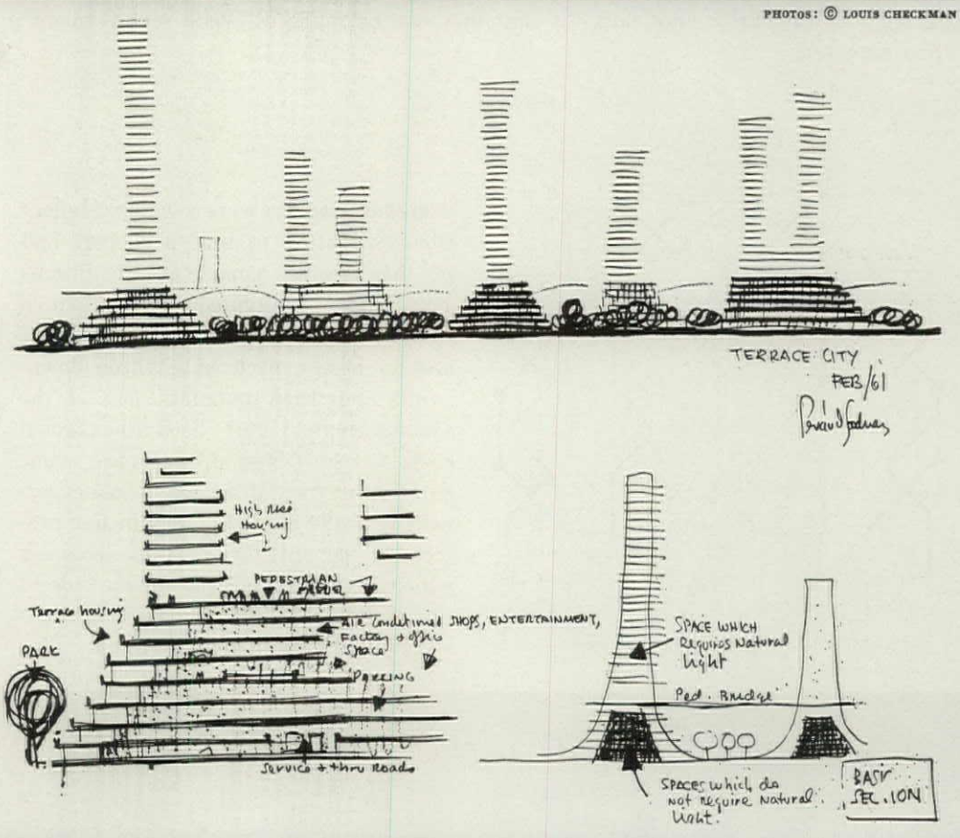
Suspended saddles were used by Student Charles Hutton to roof a concert hall in this project completed at Illinois Tech. The hexagonal shells, which would be framed in steel (with skins also of steel), each have three down-points and three up-points. One of the combinations of units uses a hexagonal shell whose edges are all the same length, but two of whose opposite corners form 90-degree angles in flat projection, permitting a roof complex which is essentially square. One side of the shelter measures 640 feet. A clerestory arrangement admits light.

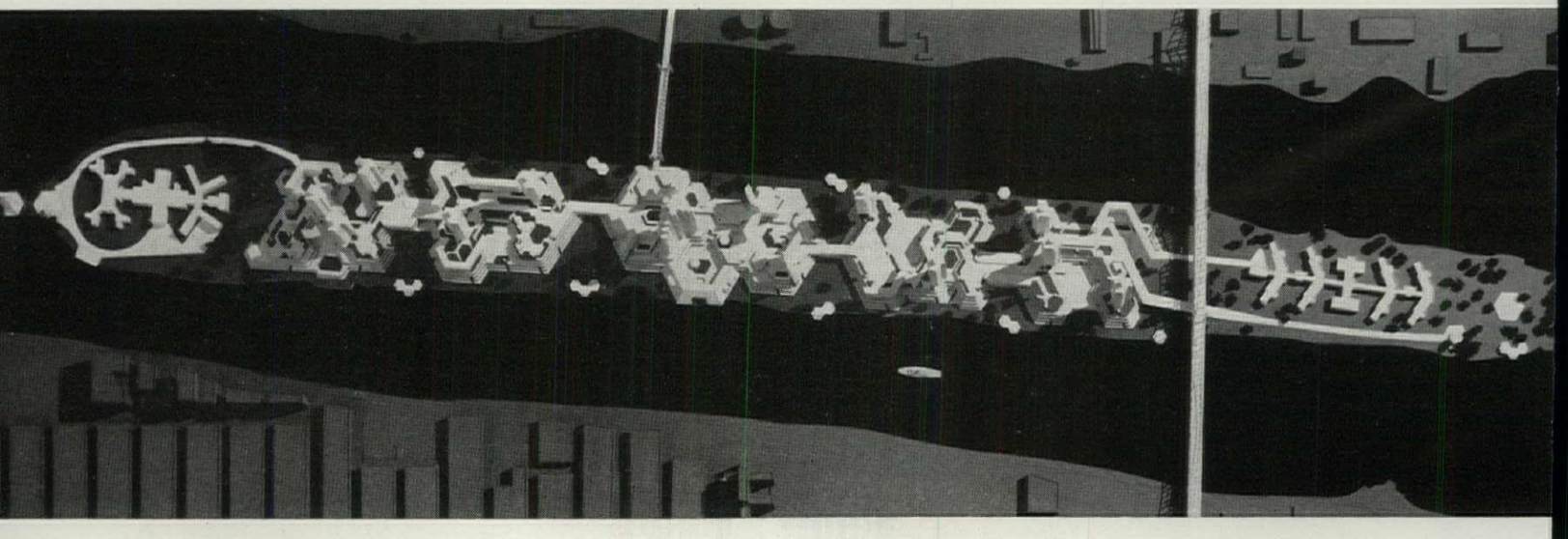


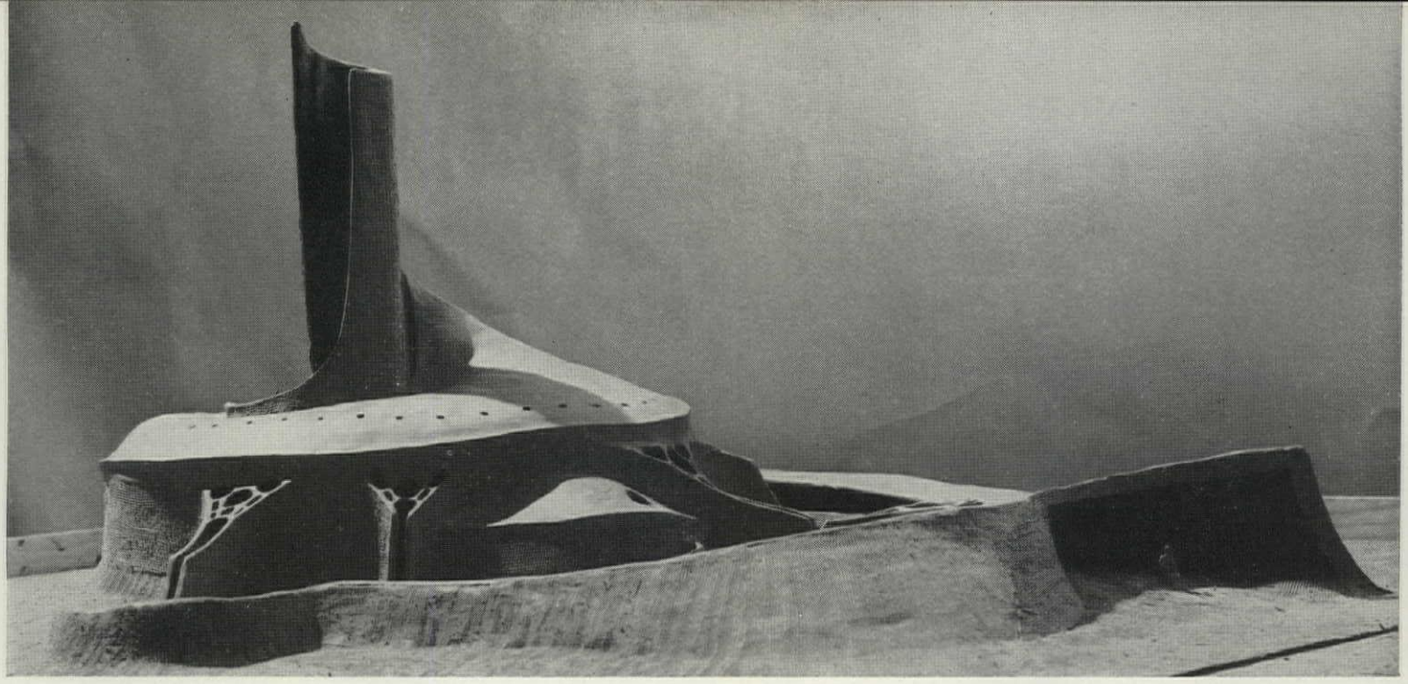


PHOTOS: © LOUIS CHECKMAN

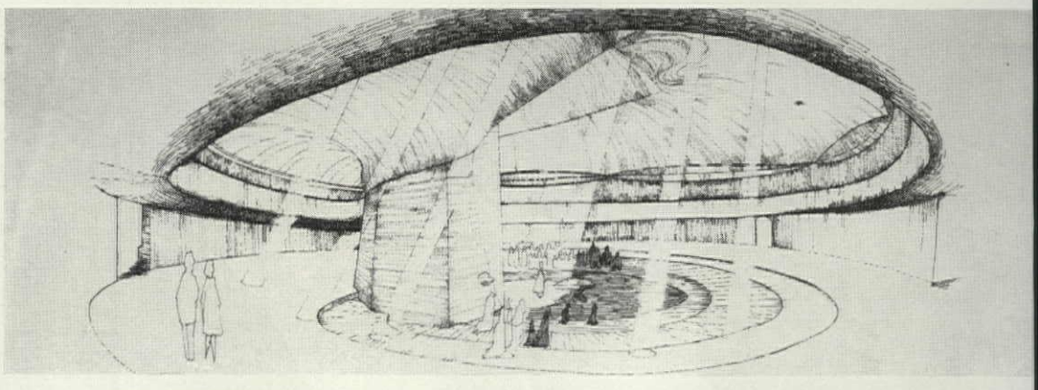
The island next to Manhattan is named Welfare, but contributes little to the city in its present rundown use. At Columbia University, graduate students Morton A. Bernstein, Elam Leon Denham, Richard M. Foose Jr., Mahesh C. Kaushik, and Donald Singer seized this ripe real estate opportunity and applied the "Terrace Housing" notion developed by their professor, Architect Percival Goodman, to design a city of 25,000. Automobile storage and other services are at the core of the terraces. Efficiency apartments would occupy the slim, handsome towers, and larger apartments the man-made cliff dwellings.



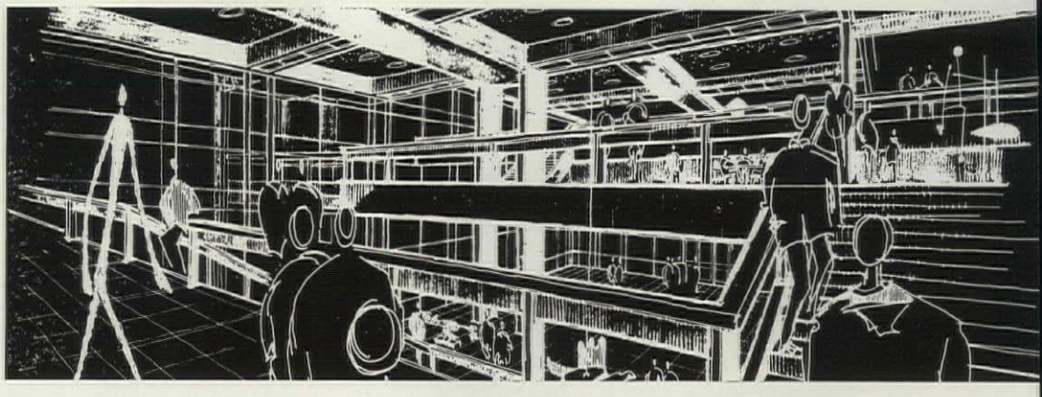


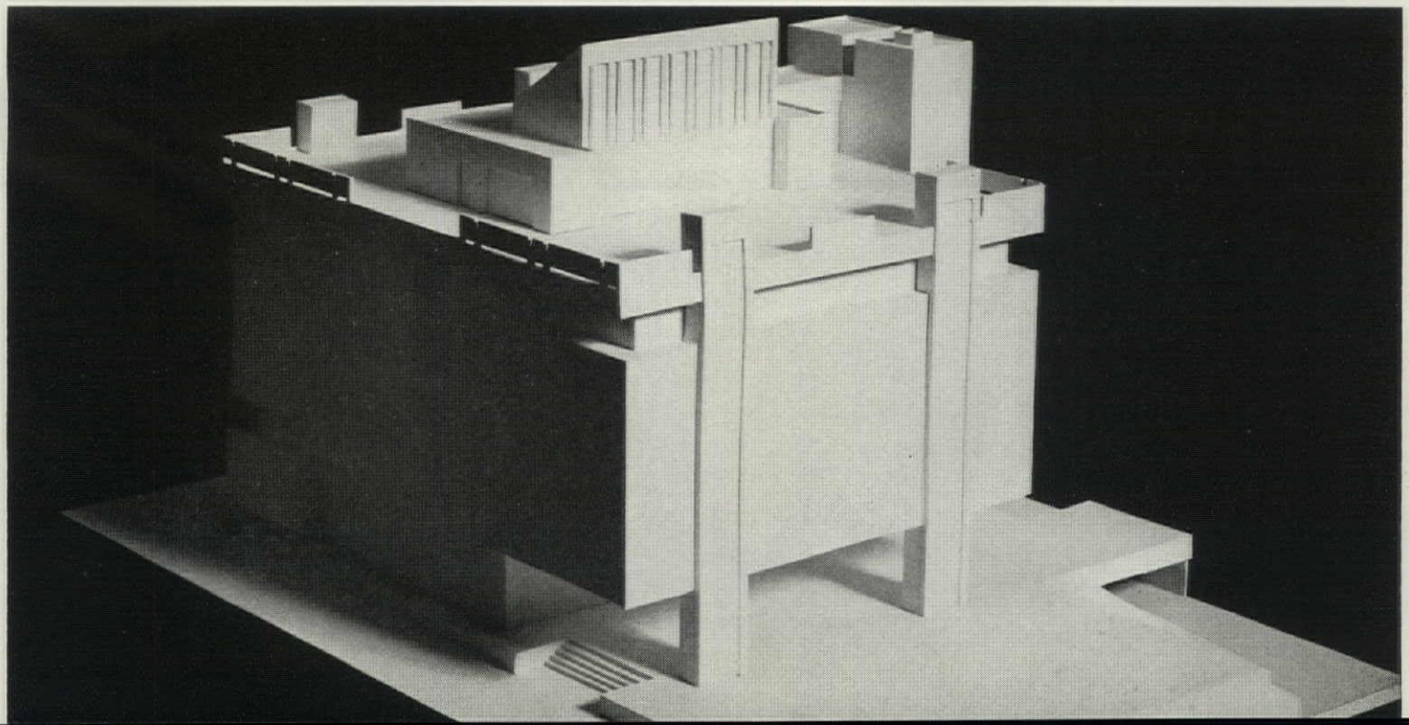


Curves with points characterize the thesis submitted by Alan Gurarye at Pratt Institute. This is a Roman Catholic Church to be formed in concrete. Its roof is a snail-like surface curling around a central bell tower which itself is composed of a tighter, taller curl. The interior of this design is even more fantastic than the exterior because of the webbed intersections of these thin shells, and because light is introduced in deliberately evocative fashion.

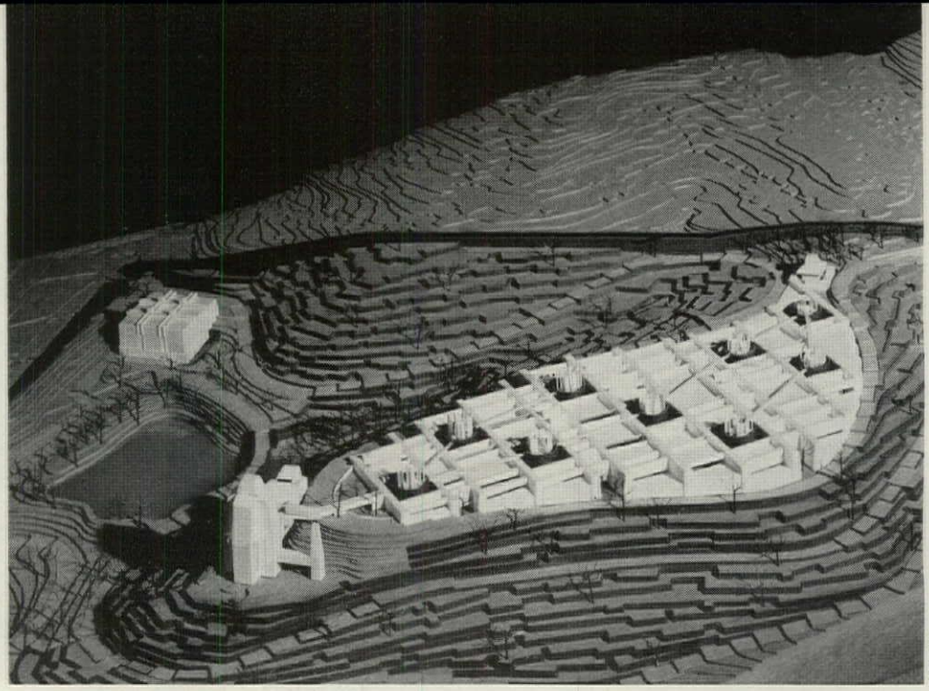


Visual arts center for the University of Michigan was the project of Student Paul Otto Heyer. By carefully siting his building in the old central university campus (rather than the new satellite campus), Heyer contradicted present plans for siting a new university architecture building. "The arts are central to our culture and should be geographically respected as such. . . ." His design for the building continues this strong statement.

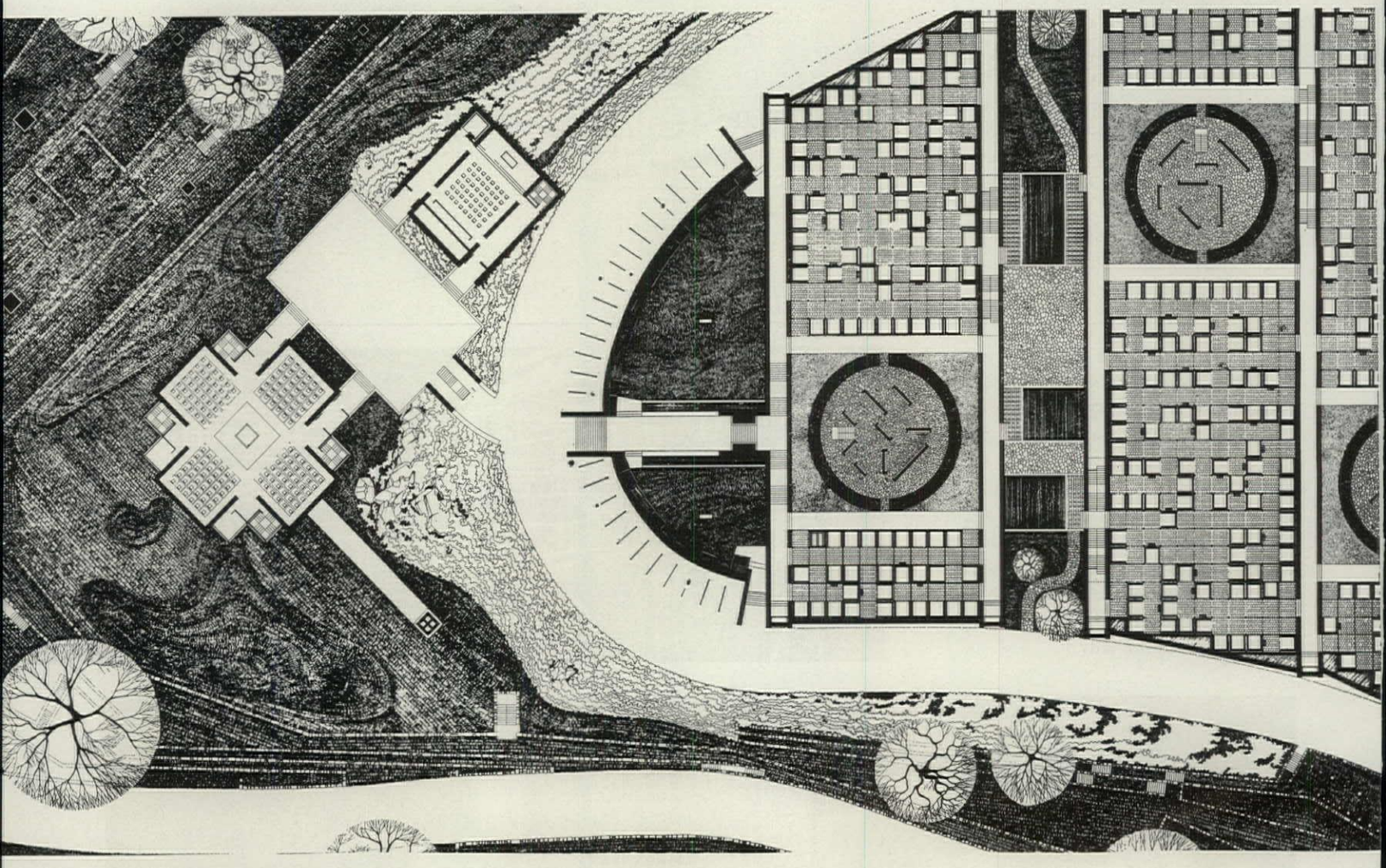


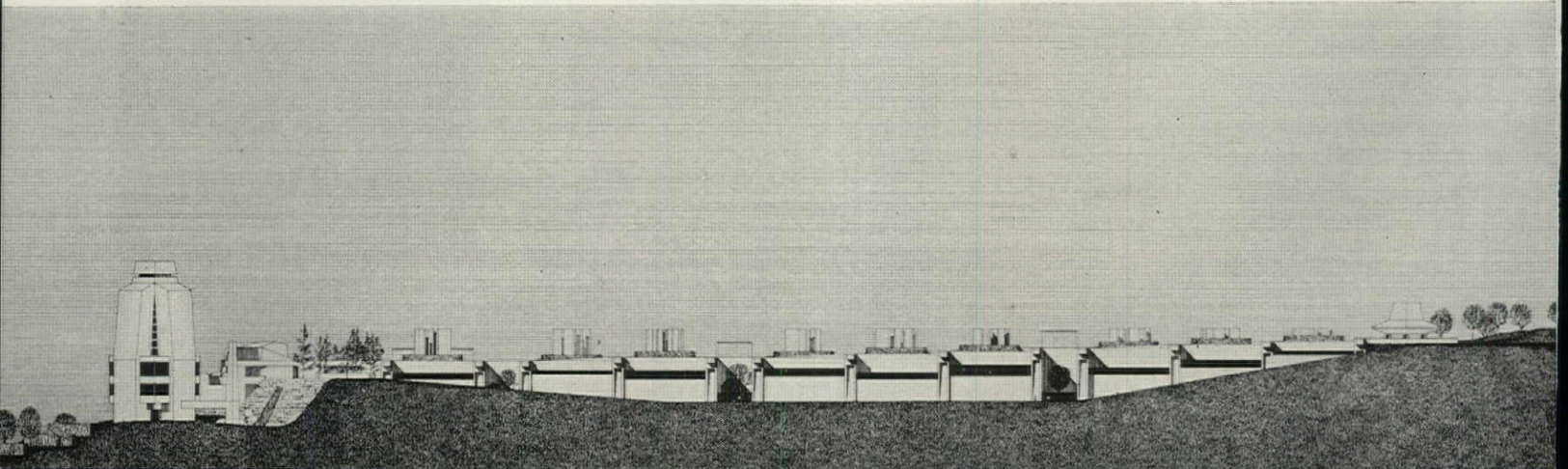


Necropolis—"a place for the remains of the dead"—was the thesis undertaken last year by Delbert Highlands for his Masters degree in architecture at Carnegie Tech. His site is a hillside as yet undeveloped in the Allegheny Cemetery in Pittsburgh; his solution reaches backward into archaeological symbolism. Yet it also possesses the dense communal scale of today's compressed urban environment: whereas the old cemetery contains only 90,000 graves, this new project, though a mere 20 per cent of the old one in size, would contain 135,000.

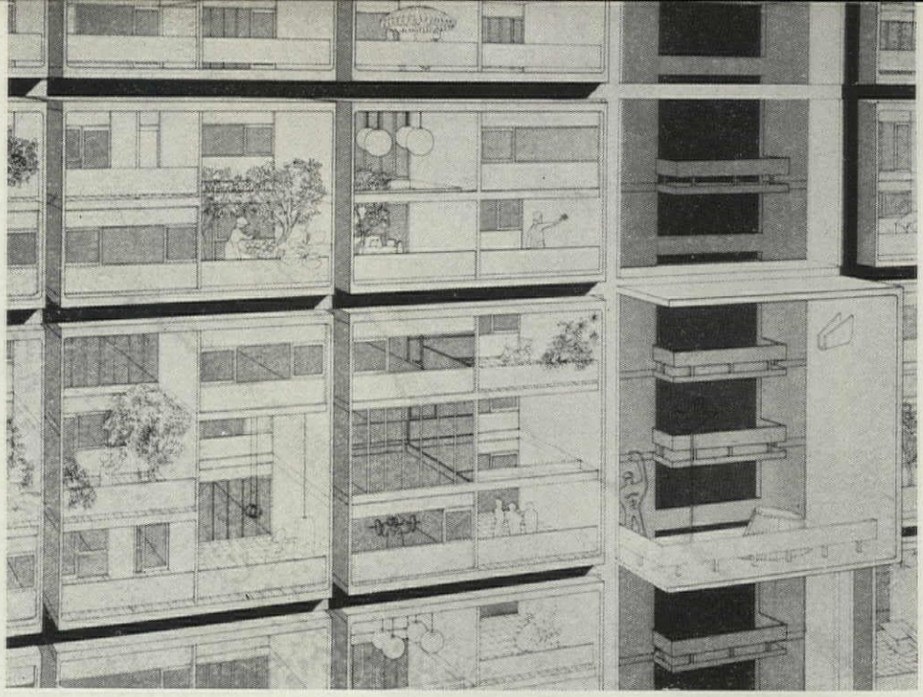


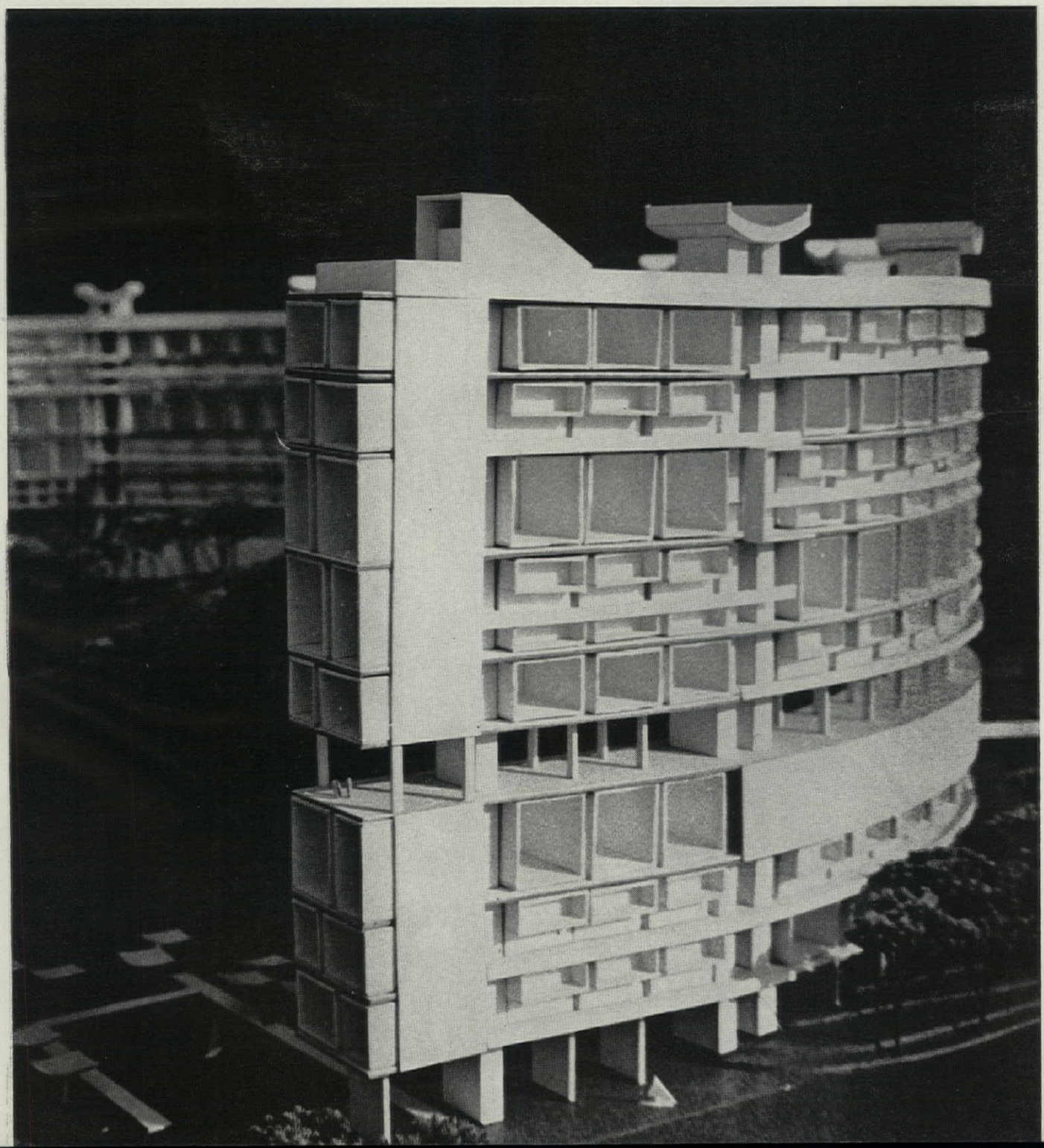
JAY-BEE





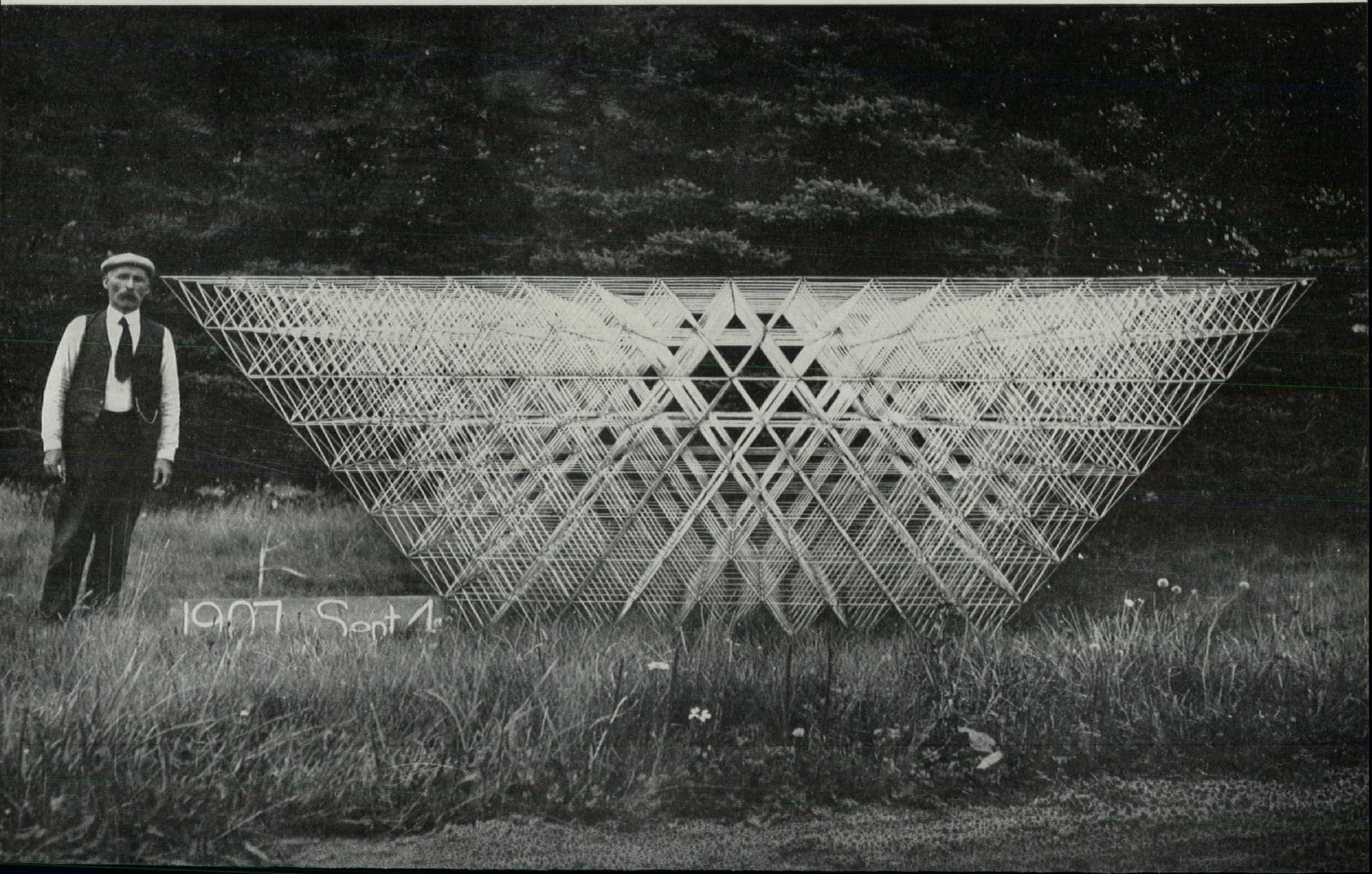
No escape to the suburbs is the verdict of Alden Christie, Eugene Lew, and Robert Loverud of the Harvard Graduate School of Design. To accommodate the "predicted doubling of population by the year 2,000" they suggest jumping over the presently declining suburbs and developing the exurbs in a systematic way. Their system, "omnihabitation," is a structural matrix into which various apartments can be fitted, like books on shelves; it is to be built of prefab components—"omnipanels." The pilot site is a 300-acre park for 4,000 inhabitants near Boston.





". . . the whole arrangement is strongly suggestive of a pair of birds' wings . . ." (A.G. Bell). *A tetrahedral kite frame before the installation of the silk panels.*

PHOTO: JOHN A. D. McCURDY, © N.G.S.



A. Graham Bell Has New Idea In Architecture

Opening of the Tetrahedral Tower, Seventy Feet High on Beinn Bhreagh.

It May Become an Important Factor in Building of the Future.

PHOTO: JOHN McNEIL, © N.G.S.

Seen on the right sitting in a one-man grandstand of his own design is a gentleman best known for his work on the transmission of sound. Dr. Alexander Graham Bell was not, however, without other interests: genetics, surgical probing, artificial lungs, distillation of pure from salt water, underwater breathing devices, hydrofoil boats, and heavier-than-air flight are but an incomplete listing. One thinks immediately of Leonardo da Vinci: he, too, was studied by Dr. Bell.

But of most direct concern to FORUM readers are Dr. Bell's experiments involving the tetrahedron, the basic unit in most of today's space frames.

These experiments began when Dr. Bell became interested in developing a flying machine (see above).

"The tetrahedral principle enables us to construct...frameworks in almost any desired form" (A.G. Bell). *Kites were built in various configurations to discover the optimum shape.*

Although familiar with the contemporary work of Langley and the Wright brothers, Dr. Bell wanted to find out whether a motorized kite could carry a man in still air.

In his search for a structural system suitable for use in a kite, Dr. Bell discovered that "a framework having the form of a tetrahedron possesses in a remarkable degree the properties of strength and lightness. . . . This form seems to give the maximum of strength with the minimum of material."

A kite similar to that shown below proved efficient as a man-carrier in December of 1907, when Lieutenant Thomas Selfridge, of the U.S. Army, was carried to a height of 168 feet. In

PHOTO ABOVE: GILBERT GROSVENOR, © N.G.S.

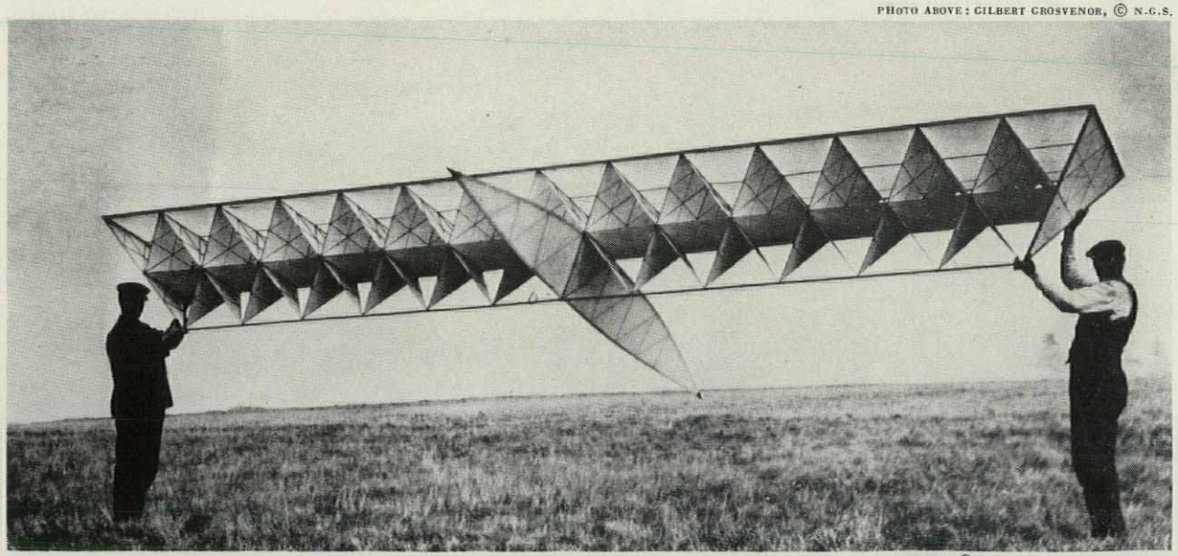


PHOTO: © THE BELL FAMILY AND N.G.S.

the interest of safety, the man-carrying experiment was carried out over Baddeck Bay, Nova Scotia. So slowly and evenly did the kite descend that Selfridge did not realize that he was coming down until he was in the icy water.

Bell, moreover, realized that "the use of a tetrahedral cell is not limited to the construction of a framework for kites and flying machines. It is applicable to any kind of structure wherever it is desirable to combine the qualities of strength and lightness. *Just as we can build houses of all kinds out of bricks, so we can build structures of all sorts out of tetrahedral frames* [*our italics*—ED.]. . . ."

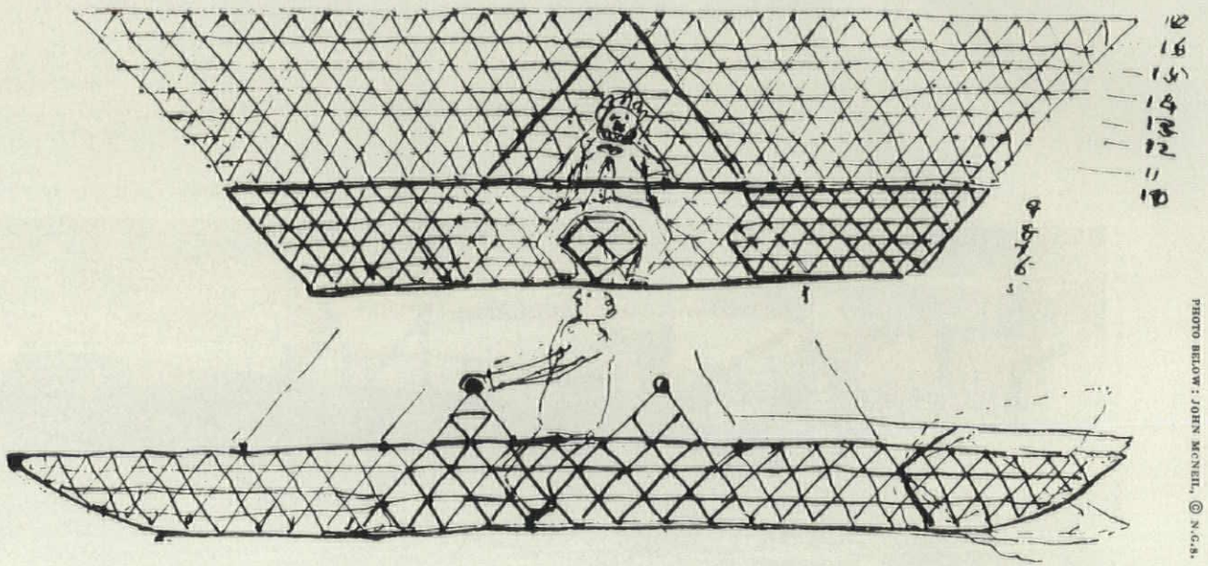
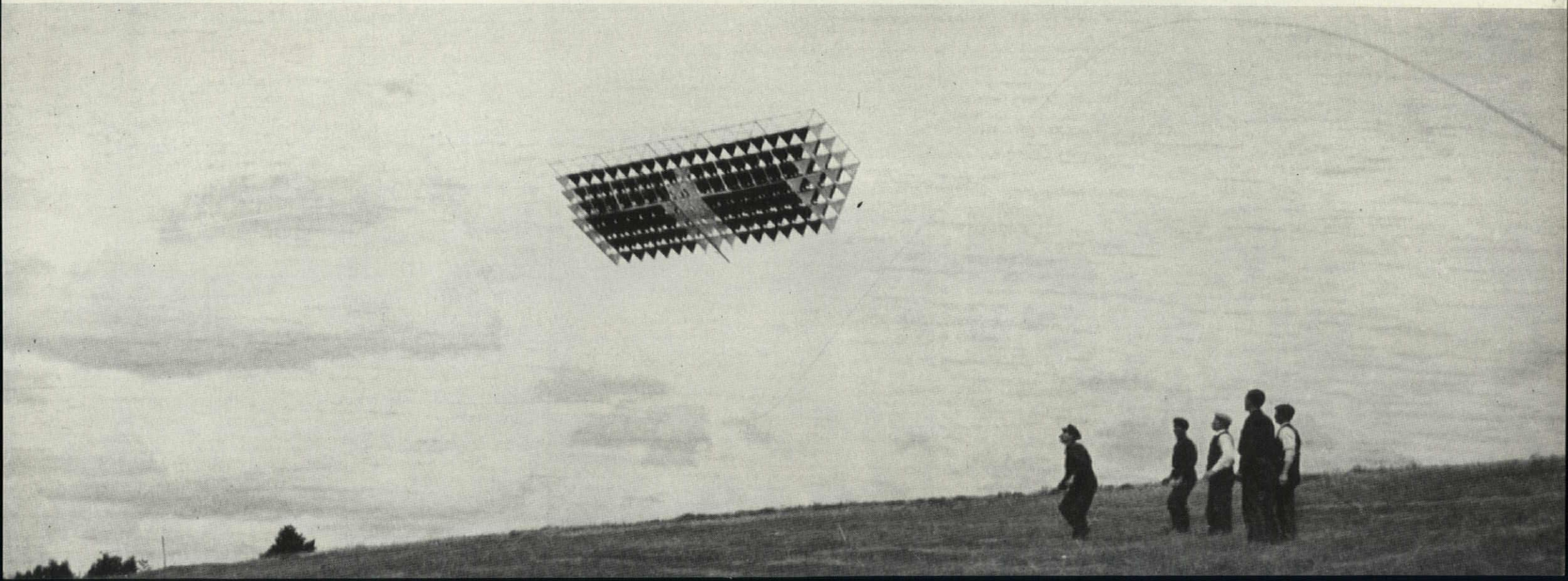


PHOTO BELOW: JOHN McNEIL, © N.G.S.

Below: one of the simplest combinations of units, this type of kite ultimately proved to be the most efficient. Above: sketches of tetrahedral airships from one of Dr. Bell's notebooks.



Climaxing Bell's architectural experiments with tetrahedral structures was an observation tower at Beinn Bhreagh, his summer estate near Baddock, Nova Scotia. Each unit for this tower consisted of six 4-foot pieces of ordinary galvanized iron pipe and four connecting nuts; the units, themselves, were riveted together in the field by unskilled labor. Upon its completion in September 1907, the tower stood nearly 80 feet high.

It was a characteristic of Dr. Bell's inventive genius that he was able to apply the discoveries in one field to another, entirely different, discipline. He once said on the subject of discovery and invention: "We are all too much inclined, I think, to walk through life with our eyes shut. There are things all round us and right at our very feet that we have never seen, because we have never really looked." The time has come to take a real look at Dr. Bell's work more than 50 years ago.

FORUM *wishes to thank the Bell family and the National Geographic Society for their generosity in making this material available and this article possible. All photographs used herein have been copyrighted by the National Geographic Society.*

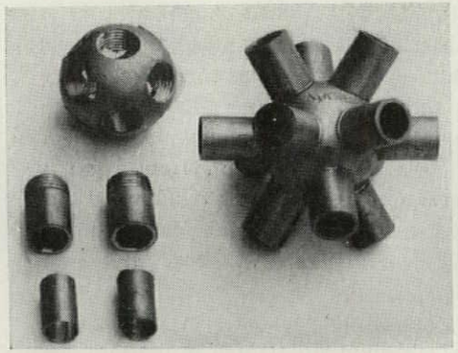


PHOTO: JOHN A. D. MCCURDY, © N.G.S.

One of Dr. Bell's several connecting systems.

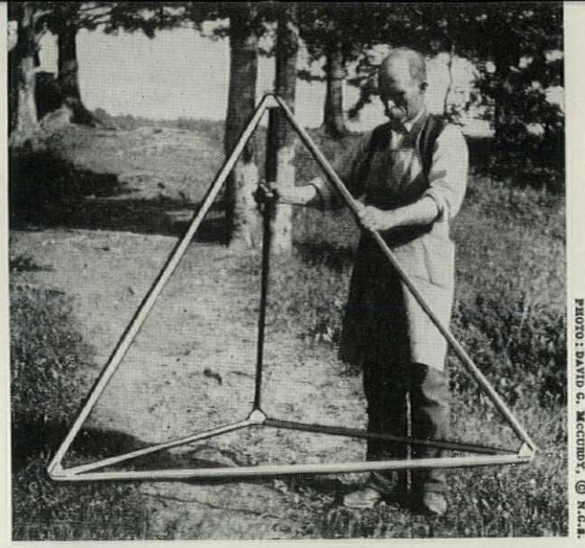


PHOTO: DAVID G. MCCURDY, © N.G.S.

A single unit of the type used in the tetrahedral tower.

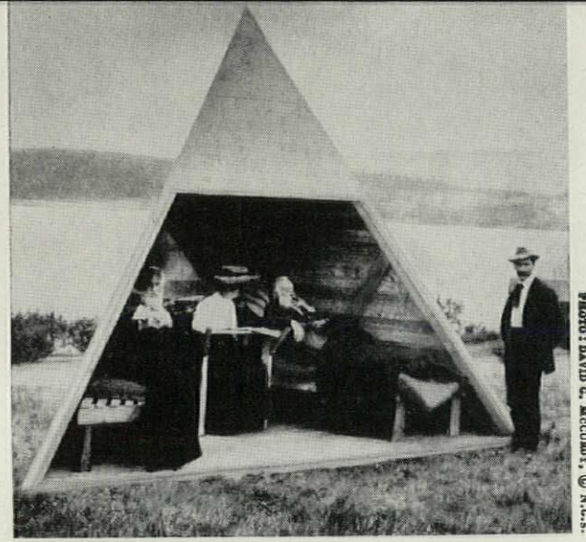


PHOTO: DAVID G. MCCURDY, © N.G.S.

Dr. Bell's observation house during the kite experiments.

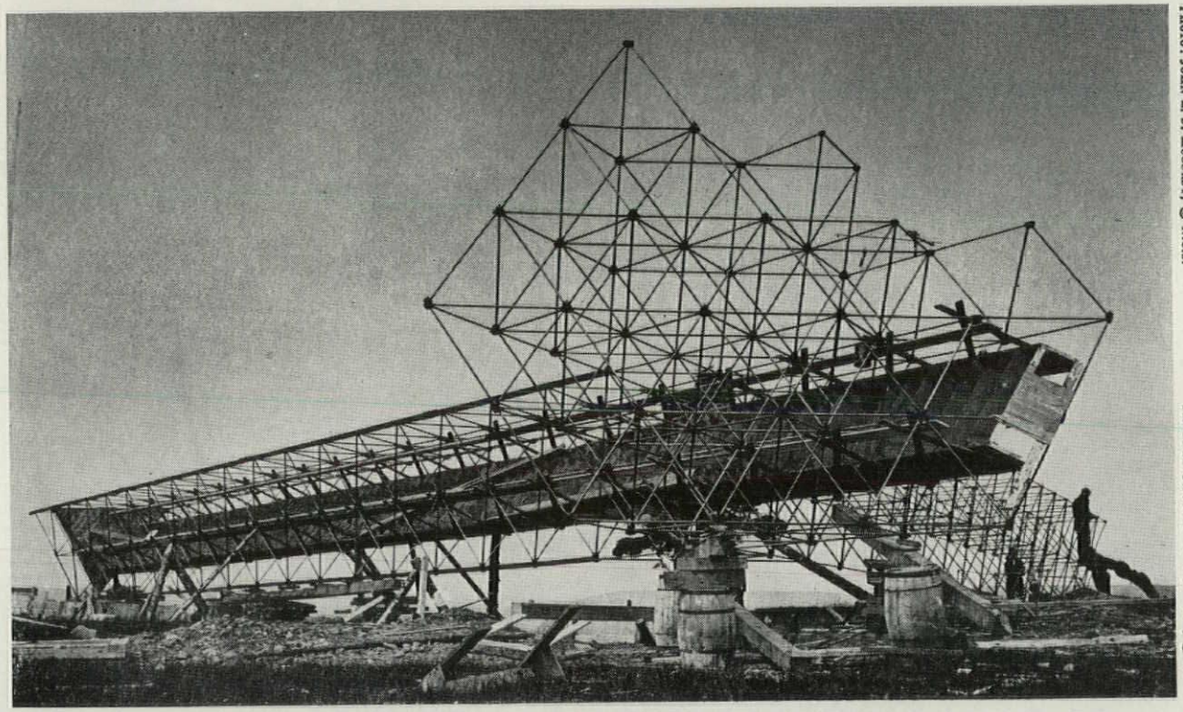


PHOTO: JOHN A. D. MCCURDY, © N.G.S.

PHOTO BELOW: GILBERT GROSVENOR, © N.G.S.

Two legs of the tower were built on the ground. As these were jacked up into the air, the third was added.

Fanfare, then neglect, was the fate of the tetrahedral tower. In time it was regretfully disassembled.

PHOTOS : GEORGE CSERNA

Pei's apartments round the corner

BY WALTER McQUADE

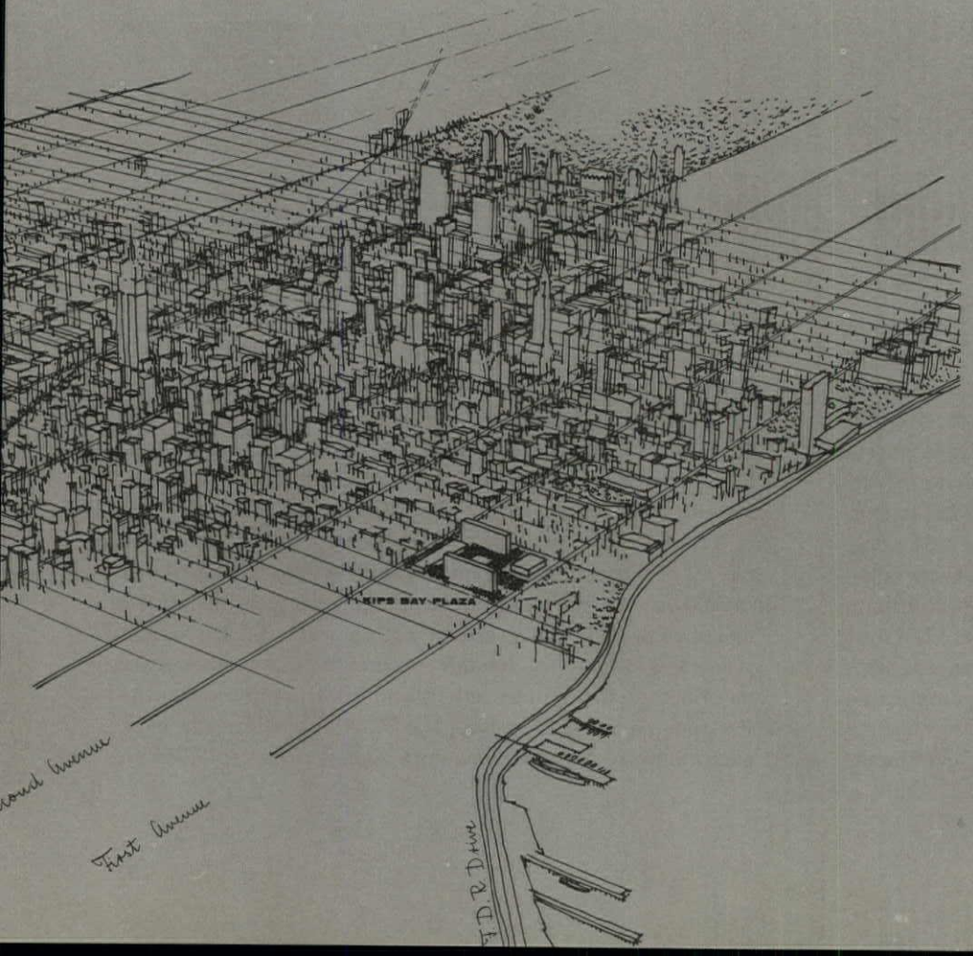
In Manhattan (left), and in Washington, D. C. (above), Architect I. M. Pei has added architecture to the financial formula of apartment building.

Most new apartment houses in big U.S. cities follow a bland financial calculation that omits architecture. The results are cliffs of comfortable investments; but to designers on the side lines these structures seem rigidly dictated by cost-cutting and by twisted FHA room counts. A neat mortgage is their soul, faceless façades their physique. There have been a few notable exceptions; on Manhattan Island, the high hive of apartment living, there are almost none.

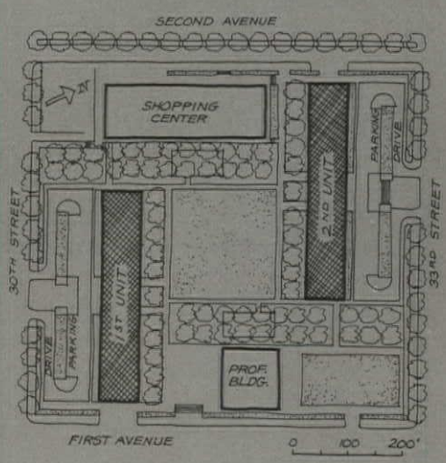
Currently, however, multistory apartment housing is being prodded by two partially completed Webb & Knapp projects in New York City and Washington, D.C., the first sections of which, recently occupied, are stubborn attempts to add the amenity of mindful design to a complicated market equation.

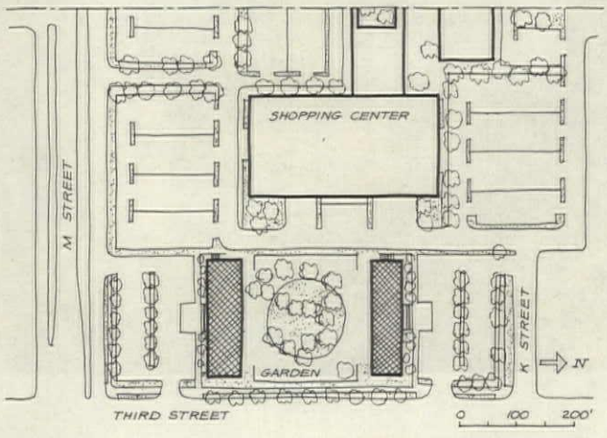
The thicket of preliminaries facing the apartment-house designer is frightening. The first thorn in the thicket is the fact that construction costs of apartment houses are expected to be startlingly lower than those of office buildings built in the same cities by the same workmen. This is true not only in such minimal enterprises as public housing, but even in the "middle income" apartments (renting up to $70 per room per month) now encouraged for Title I urban renewal projects. In office structures, even the rock-bottom, speculative kind in Manhattan, stacked like piles of crates and containing the maximum legal amount of deep windowless space, building costs run $20 to $30 per square foot. Yet if construction costs for apartments today in Manhattan crawl above $12 to $15 per square foot, entrepreneurs head for cover.

Next is the matter of the FHA, the stern and complicated parent of American residential construction. Architect Pei says about his first essays into apartment-house design for urban renewal: "It's a science, not an art, but not a logical science, at that... a strange arithmetic. It took me six months even to begin to understand it." During the months Pei was planning Kips Bay, the FHA was willing to back each room in an apartment with a maximum of $3,750 in



Kips Bay Plaza *apartments, the first unit of what eventually will be a 10-acre development on New York City's East Side between First and Second Avenues and 30th and 33rd Streets, will be accompanied by trees, a parking garage, grassed malls, some stores, and a professional building. The downtown apartment slab is occupied; the uptown twin is begun. Although the site has a pitch, both buildings are on the same level. Visitors ramp down to the first one, will ascend to the second. This is a Title I project.*





Town Center Plaza, *in the vaunted Southwest Redevelopment Area of Washington, D. C., also a Title I project, will comprise four units, two of which are completed. Between the pairs is a shopping center; drawing (left) is cut through the shopping center; its mirror image completes the plot plan. Between each pair of apartments is a private garden; the large trees are souvenirs of a road closed for the project.*

mortgage insurance. A room, however, had to be an FHA room—contemporary designers who like to imply divisions in large, beautiful spaces are not in luck; FHA prefers boxes enclosed in full plaster partitions. Moreover, a room might also be a balcony—for balconies costing about $800 then could get allowances up to $1,800; but a bathroom was *not* a room; even a second bathroom, which cost about $1,500, got no FHA allowance whatsoever. (Pei predicted in 1958, as a result, that apartments in Alaska would soon begin sprouting balconies, and he was right.)

Combined with the cost squeeze, these regulations created a tight pattern of apartment prototypes, which contractors helped to enforce. If any architectural variations to this financial folk art were proposed, the primes and subs, in righteous alarm, could be counted on to bid the job sky high—or even to refuse to bid it.

Finally, and least tangibly, there is the difficulty which faces the designer of any multistory modern structure housing many similar units: offices, apartments, labs, or whatever. How can he keep such a building interesting? How can he keep the endlessly repetitive units from overcoming and felling the architectural giant he wants to rouse? How can he make the building, if an apartment house, look like more than a filing cabinet for its families? The FHA hinted broadly *hang balconies on it,* but Pei said city balconies were useless dirt collectors, and resisted. The methods he did use can perhaps best be told by describing in reverse order his answers to the challenges described above.

Pei's progress

First, to overcome the anonymity of most gigantic apartment-house façades, Pei went to a tried and true resource—scale—and made a bold exposition. He chose concrete for the structural system, and expressed this structure strongly in the exterior walls, leaving off the usual shell of brick and all but making the façades into stress diagrams of the structure itself (see façade photos, pages 106 and 107).

At Kips Bay, the larger of the two designs, the structural dramatization is heavier; also, the walls of clear glass are set back into the structural frame, which means they are shadowed, and strong, in appearance, not the usual flat and fragile curtain wall. In Town Center Plaza Pei was able to use tinted glass (which had come down $1 per square foot in price since specifications had been written for Kips

Bay, a very slow-moving job). In both Kips Bay and Washington, Pei pushed the concrete frames for expression. He held to the basically fluid character of poured or prefabricated concrete (these buildings were poured in place, although he had wanted to prefab them—see page 114 for further details). He curved the intersections slightly and etched in pour-lines. Very conscious of a current trend to overdramatize this formless, defenseless material, he de-describes his design as an attempt "to make concrete interesting without being dishonest."

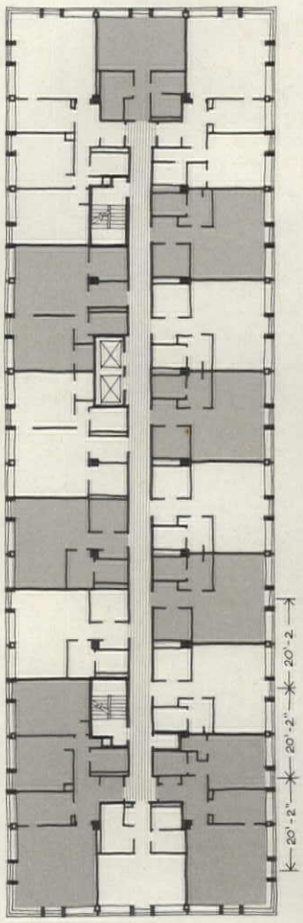
The scare

It turned out to be much easier for Pei to solve his design problems than to subdue the scare his drawings raised among the contractors. Wary of his use of concrete and of his reputation for perfectionism, they first would not bid, or bid so high as to balloon the cost of the project. What happened finally was perhaps inevitable: after many fluctuations and furies, Pei got his fine frame, his building, but without fine finish. Neither Kips Bay nor Washington has it. Cost-chopping prevailed, and is apparent from calking, to hardware, to waterproofing, to partitions. The contractors evidently won a number of rounds in substituting items specified, as well.

The room-count engagement between Pei and the FHA might be called a draw, although Pei, incidentally, is now on FHA's Industry Advisory Committee for multifamily housing, a measure of his effectiveness. (He has helped revise the room-count procedure closer to reality.) Both Kips Bay and the Washington projects have some well-proportioned apartments and a few awkward ones. The worst of the planning casualties was the inclusion of a number of 5½-room (three-bedroom) apartments in Kips Bay, in order to get the room count up. These apartments were put at the ends of the tall slab; awkwardly, it is one of the bedrooms, not the living room, which occupies the corner. This is not so in Washington, where the corner is a gracious living-dining room with two exposures (see plan, right).

In New York the 5½-room apartments are renting slowly (at $309 per month and up), and there will be fewer of them in the second Kips Bay unit.

Pei is pleased that he did not have to hang balconies on the apartments in either Washington or New York to fatten the room count. Their use often cannot be controlled, Pei



TYPICAL FLOOR PLAN

"French doors," *between the paired columns of the Washington structural façade, can be opened for natural ventilation. The Town Plaza apartments also provide a central air-conditioning system, stock draperies, and tinted glass. Model apartment shown was furnished by Modern Design, Inc. of Chevy Chase, Md.*

KIPS BAY PLAZA

I. M. Pei & Associates ARCHITECTS

S. J. Kessler & Sons ENGINEERS AND ASSOCIATE ARCHITECTS

Sears & Kopf
MECHANICAL ENGINEERS

Leo Novick LANDSCAPE ARCHITECT

Webb & Knapp Construction Corp.
GENERAL CONTRACTOR

TOWN CENTER PLAZA

I. M. Pei & Associates ARCHITECTS

Severud-Elstad-Krueger-Associates
ENGINEERS

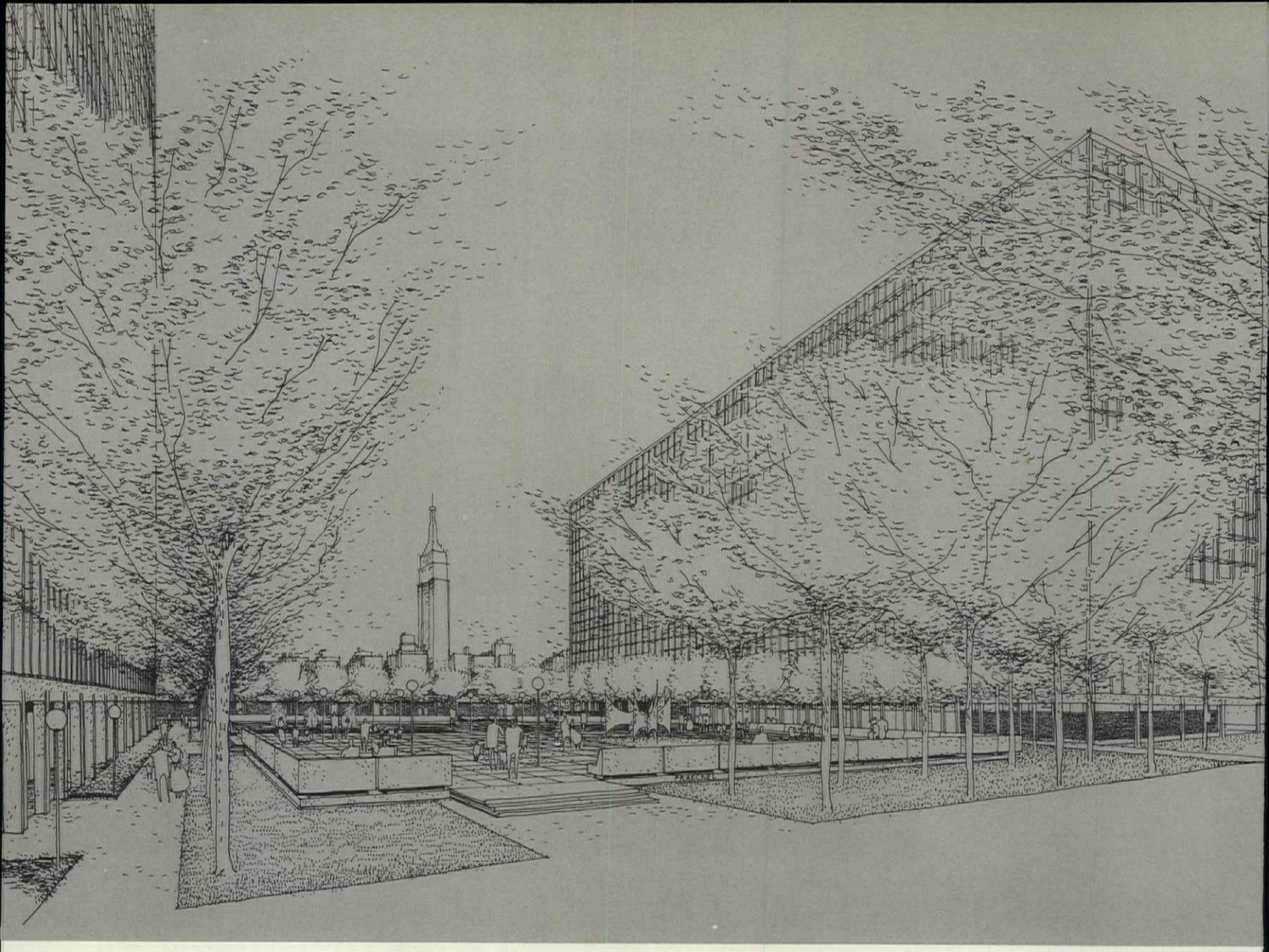
Syska & Hennessey Inc.
MECHANICAL ENGINEERS

Shefferman & Bigelson
MECHANICAL ENGINEERS

Moran Proctor Mueser & Rutledge
SOIL ENGINEERS

Robert Zion—Harold Breen
LANDSCAPE ARCHITECTS

Blake Construction Co.
GENERAL CONTRACTOR

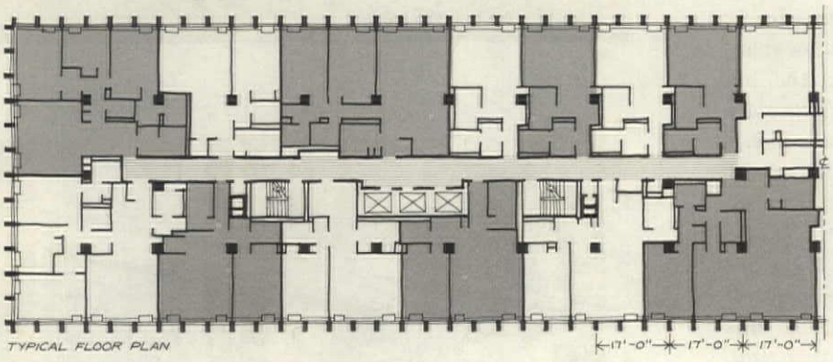


feels, so there is always the possibility that they will make buildings look like slums in the sky and, as a result, become slums – if high-priced ones. Just as Architect Louis Kahn worries about mechanical services which may be added to his buildings in the future, and provides "servant space" for them, so that they will not ruin the design, so Pei takes a wary view of possible future owners, trying to design his buildings so that poor policing measures over tenants cannot degrade the façades entirely. A combination of the tinted glass with standard curtains keeps his Washington façades from becoming a chaotic picture of their tenants' tastes in fabrics; the deep-set windows function to much the same purpose in New York.

The winner

Pei's achievement in both Kips Bay and Washington is only half complete. A second unit is begun at Kips Bay; two more are being built in Washington. But he has won his initial battles on cost, demonstrating that architecture can compete with nonarchitecture (Kips Bay came in at $10.50 per square foot; Washington a little higher). Again, the strain is apparent at many places in the buildings—more so than it would be in a routine job, for Pei's architecture is so far removed from the routine. For instance the unit air conditioners in the apartment at Kips Bay (Washington has a central system) are not the slim, trim units the Pei office invented to fit into the wall under the glass, but bulky stock units which project several feet into the room. The way they operate has embittered some tenants. Beyond any complaints, however, most of these same tenants already have a very vocal attachment to these buildings. The architect himself is justly jubilant over the demonstration of concrete technology made by his office. "Public housing can be this kind of construction" he says "and it will be, in a few years! There's no reason why not, no economic reason."

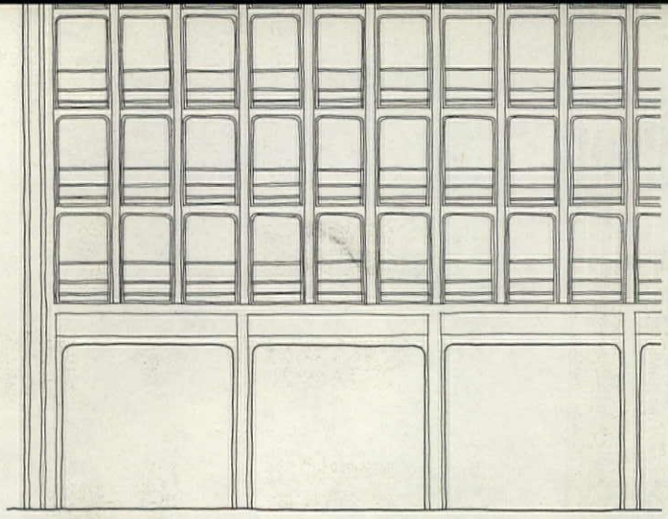
The Pei office has other urban-renewal apartment projects under way. The one which interests Pei most at present is the Society Hill towers in Philadelphia. Smaller than Kips Bay, these units will be bigger than Washington. Like Washington, and even more like Kips Bay, they will have the strong, restrained sense of concrete, the modest viaduct feeling—"interesting without being dishonest." With these, and a few other projects recently completed, U.S. apartment-house design may finally become architecture.



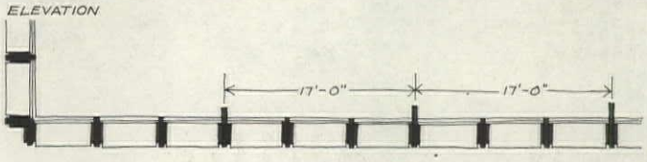
TYPICAL FLOOR PLAN

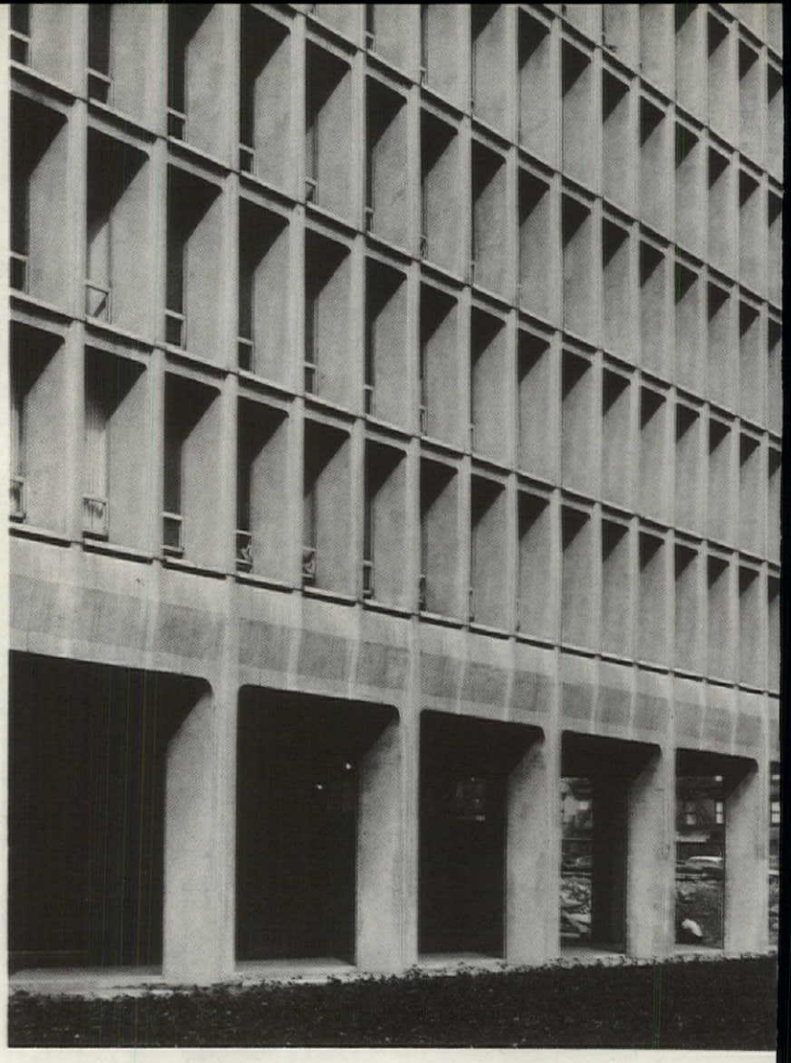
Kips Bay interior *planning ran into problems—principally the necessity to bolster the room count in order to raise the Federal Housing Authority mortgage guarantee. As one intricate result, bedrooms of the corner apartments have two exposures, but living rooms only one. The living-dining room of one of the 5½-room corner apartments—occupied by Photographer Mark Shaw and his wife, Actress Pat Suzuki—is shown above, a pleasant room with a view of the Manhattan cluster of skyscrapers framed handsomely in the well-proportioned windows.*

Unit air conditioners are installed throughout the Kips Bay Plaza apartments, with two needed to temper some living rooms. Temper was the word, incidentally, used by some occupants, before the end of the shaking-down period. Reason: instead of installing a unit specially designed by the architect, the builder bought stock units, and the connection to the wall has made for some problems. Bench seats are being offered for sale to the tenants to cover the units, which project into the rooms, but not out from the façades. Left, bedroom of tenant Howard Bentley.



ELEVATION

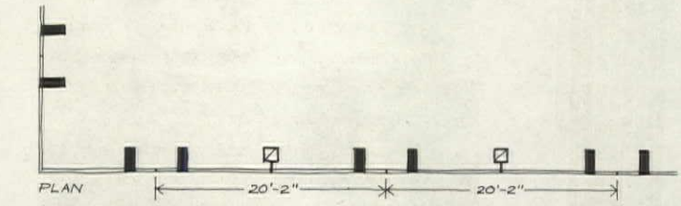


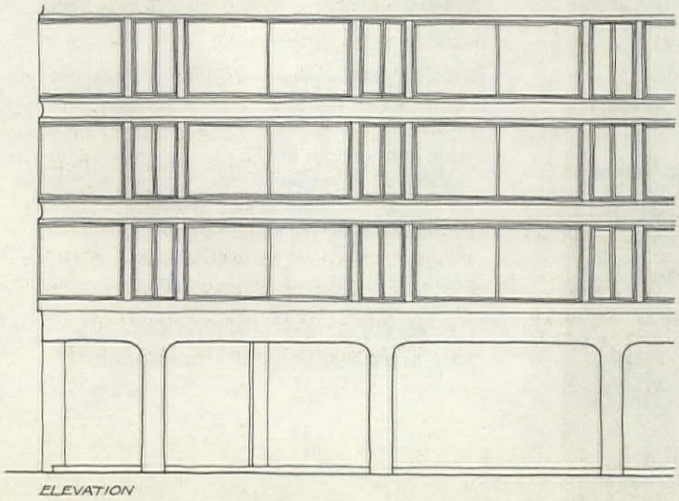


Structural façades

In the walls of both the Washington and New York projects "what you see is structure," says Architect Pei. Their reinforced concrete frames, however, are different not only in over-all size but in detail. The brawny grid of the Kips Bay wall (above, right) was originally designed to be built in precast concrete, and although costs and codes prevented this, it still retains some of the jointed character of that system. Its regularity reveals the closely spaced columns which support the façades; it lacks spandrels, instead wearing hopper windows under the big sheets of glass which form most of the walls. (These are clear glass, but are set back into the burly bay 14½ inches to provide some shadowing of the sun and shielding of sky glare.) Air-entrained concrete with silicone water repellents were used to guard against spalling.

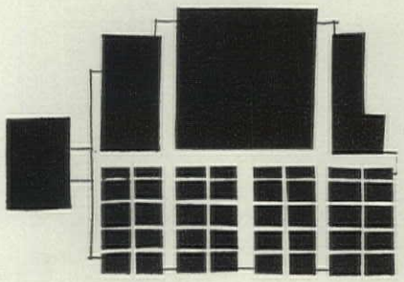
The Washington wall, also designed for precasting but finally poured in place, is a contrasting kind of structural diagram; above the lobby level the paired columns of this smaller building are more widely spaced, and turn into single columns down toward their roots. The spandrels are reinforced concrete beams spanning almost 20 feet, and the building's corners are cantilevered.



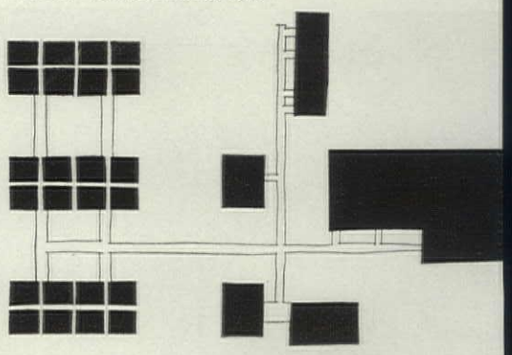


ELEVATION

Air-conditioned school



Non-air-conditioned school



Trial by cooling

Two schools, one air conditioned, one not, are compared in a Florida experiment with building costs and design.

BY JANE JACOBS

With an intriguing display of technology and a baffling confusion of logic on costs, an experiment on school air conditioning was unveiled recently in Pinellas County on the West Coast of Florida. The county Board of Public Instruction had commissioned two new junior high schools, each of the same size with the same facilities; finished, they could be, and were, equipped with duplicate sets of furniture. But the board specified that one school was to be air conditioned, the other not. Over the years, comparison records were to be kept on operating and maintenance costs, and the well-being of students.

Construction costs, however, could be compared immediately; so could the two school designs.

To discuss costs, to look the schools over, and to feel what they felt like, a group of school experts met during two hot days last May for a School Evaluation Conference.* Their comments afford some enlightenment, but in general both the conference and the schools themselves raise and imply more questions than they answer.

Before going into these matters, it is necessary to understand a few facts about the schools and about why they differ as they do in design.

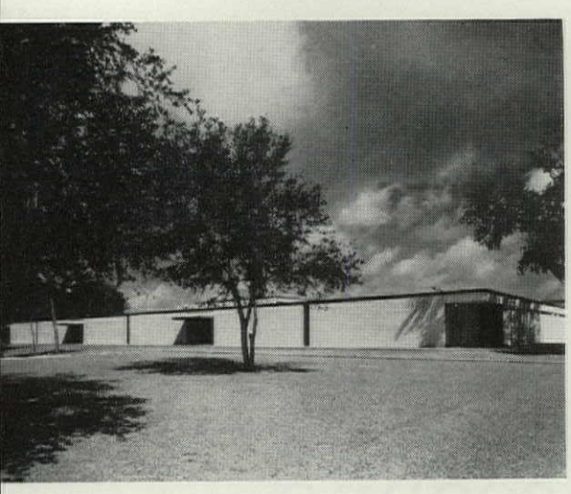
The non-air-conditioned school, Pinellas Park Junior High (Charles L. Colwell, architect), was planned to catch a breeze in every classroom. To this purpose, clusters of four back-to-back classrooms are placed across wide courtyards. Each classroom's wide outer wall is curtained principally with movable sash; doors are bordered with jalousies. Nonclassroom facilities are also scattered in a breeze-catching campus plan.

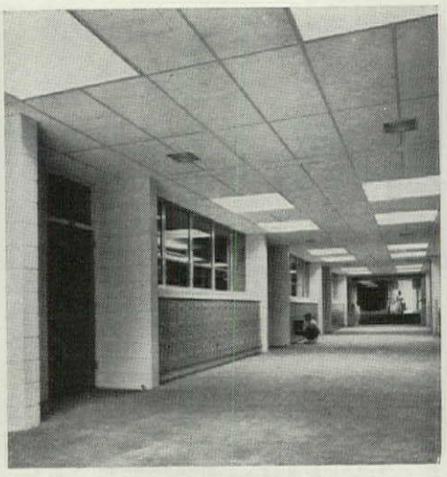
The air-conditioned school, Oak Grove Junior High (James Yates Bruce and John D. Parrish, architects), was planned compactly. The classrooms are in back-to-back tiers, each tier separated from the next by the width of a passage; the entire grouping of classrooms is separated from nonclassroom facilities only by the main corridor (see diagrammatic plans).

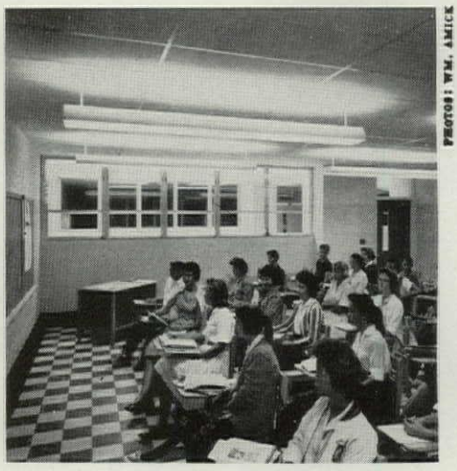
In the air-conditioned school, 18 of the 32 classrooms have no exterior walls; instead they face, through a band of high, fixed sash, into the narrow passages. These passages, and the main corridors, are not, themselves, air conditioned; for all intents and purposes they are outdoor spaces, their ends opened to the grounds and their roofs raised above open clerestories.

The first point to understand about the differences in design between the two schools is that *the compactness of the air-conditioned school was not dic-*

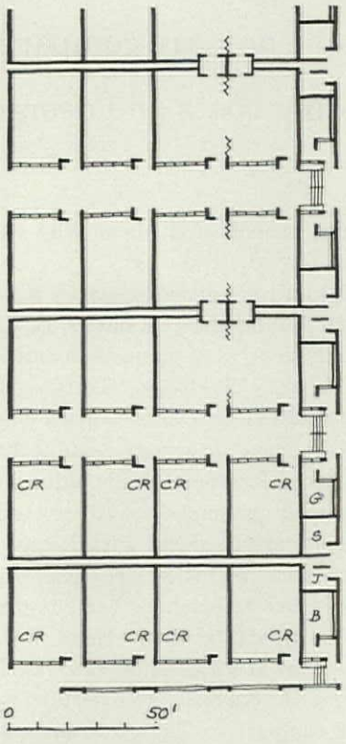
* Participants included: Joseph Amisano, Alonzo J. Harriman, Gyo Obata, and John Lyon Reid, architects; N. L. George, Ellis A. Jarvis, Edwin A. Lederer, Robert P. Savitt, Jonathan King, Jordan L. Larson, Archibald B. Shaw, Carroll W. McGuffey, Hazen A. Curtis, and Thomas D. Bailey, educators; Henry Wright, architectural consultant, served as the conference's moderator.



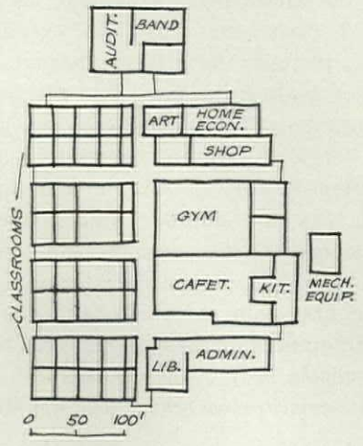




PHOTOS: WM. AMICK



Air-conditioned school, *Oak Grove Junior High, has a compact plan. Photos show, left to right, exterior at classroom wing, main corridor, and a classroom looking toward a passage. Charles Colwell, architect; Healy & Latimer, mechanical and electrical engineers.*



tated by the needs of air conditioning. Conference Moderator Henry Wright, who was consultant for the air-conditioned school, explained that a system employing a central compressor and water—the system used here—does not require a singular degree of compactness. (An air system would.) The compressor, Wright pointed out, is at one end of the school; the school might just as reasonably have been built in four groupings loosely disposed about the central machine.

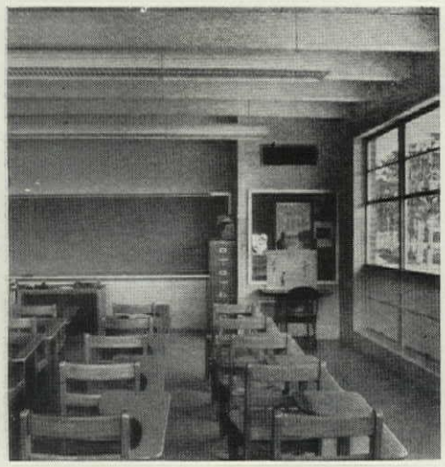
But the compactness of the air-conditioned school was extremely important to the case for air conditioning in an entirely different way. *It was a means of saving on general construction cost.* The compactness of the plan saved so much on construction costs that the air-conditioned school cost $22,496 less than the non-air-conditioned school. These savings on construction would not, in turn, have been possible without the air conditioning because the compact school without air conditioning would have been intolerable.

Since the fact that the air-conditioned school cost less than the non-air-conditioned school was the *pièce de résistance* of the evaluation conference, it is well to understand exactly where the differences in cost appeared.

The *mechanical* costs of the non-air-conditioned school (plumbing, heating, ventilating, and refrigeration) came to $101,678; those of the air-conditioned school (plumbing, heating, ventilating, and air conditioning) came to $170,082, or $68,404 more. The difference is an approximation of the added direct cost of the air conditioning, together with the provision of thermostatically controlled winter ventilation.

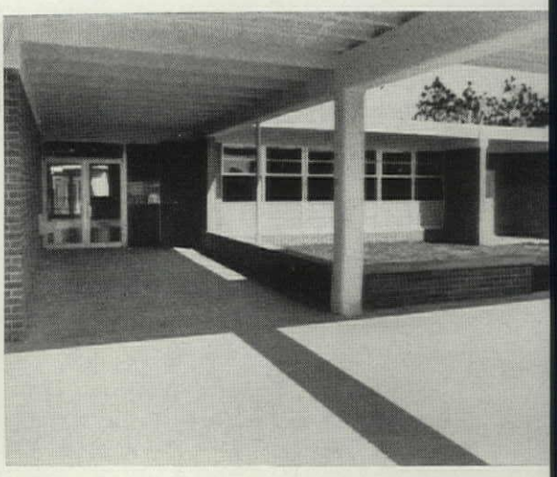
On the other hand, all other construction costs for the non-air-conditioned school came to $711,168, $90,900 more than the compact air-conditioned school's comparable figure of $620,268. This difference absorbed the cost of the air conditioning and in addition gave the air-conditioned school a 2.8 per cent lower over-all cost. Of the construction savings, it is estimated that $35,000 was saved by eliminating most movable sash glazing—how much of it owing to savings on the glazing itself and how much on the hoppers was not determined.

Many of the conference participants were disturbed by the almost totally opaque partitioning of the interior classrooms. Architect Joseph Amisano summed up this objection: "What has happened in this school is a fantastic emphasis on walls! No matter where I look, no matter where I sit, I always see a wall." Educator Archibald Shaw noted, with puzzlement, that the strips of glazing into the corridors did not accomplish what he would have expected: "I always felt that where you had the effect of a clerestory, even though it only opened onto the corridor, you were buying a feeling of space that you didn't pay anything for." He did not get that effect here. "I have been in classrooms all of my lifetime, and I have underestimated the size of *these* rooms repeatedly. They said they were 24 feet by 32 feet. That was hard for me to believe. My first hunch was they were about 20 feet by 26 feet. I am not talking about outside light or anything like that; I am talking about space." Amisano accounted for the squeezed-in effect by noting that the glazing was only at the top and only on a single



HENRY WRIGHT

ST. PETERSBURG TIMES



HENRY WRIGHT

narrow end wall of the classroom.

On the other hand, the non-air-conditioned school got poor marks for the *views* that its classrooms did offer. As one of the architects put it: "The school with all the views—you didn't see trees, you saw some barren sand-lots between buildings. The hot, debilitating effect was present everywhere. It was in the classrooms, in the corridors, outside, under the canopies, everywhere."

Apart from its classrooms, the air-conditioned school was not criticized as monotonous or depressing. The variation between the heat of the corridors and the coolness of the rooms met with general favor. Aside from the pleasurable experience of change afforded by this difference, it made every room seem cool, even though some might be warmer than others.

"The school gives a great many varieties of experience," commented one of the participants. "At the end of corridors are little bits of sunlight and grass and trees and so on. You have light coming in through the skylights in the corridors. I don't see why that might not be just as exciting, just as stimulating, and maybe more stimulating than a constant view of a green and gray hell outside a glass wall, while you are sweltering in the heat."

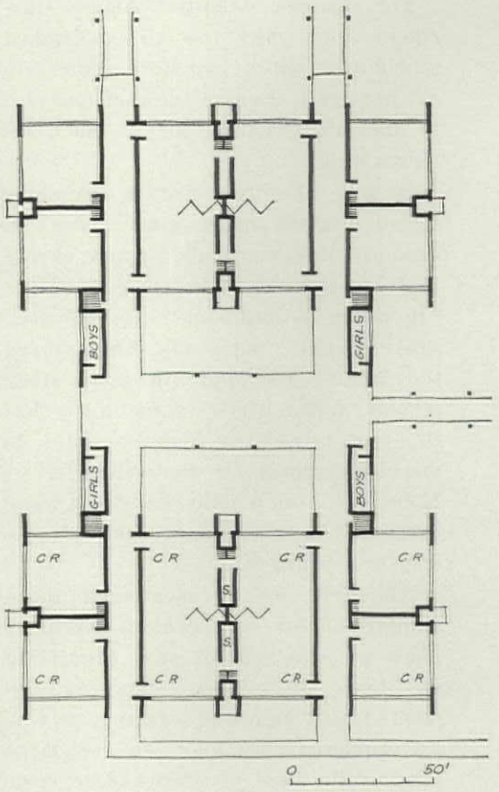
Moderator Wright spoke lyrically of the possibilities of interspersing a generally compact, air-conditioned school with lush little heavily planted courts, and almost everyone regretted that such amenities — originally intended — had been omitted. They were omitted, of course, because of fear that the air-conditioned school might cost more than the non-air-conditioned school—a fate that presumably would have doomed it.

The conferees, who began by assuming that the air conditioning must be a constricting influence on design, ended by becoming enchanted with the freedom it *could* make possible. "You come over here to the air-conditioned school," said Jonathan King, "and suddenly you realize the possibility of what you could look at because you have so much more freedom. You don't have the dictatorship of the natural breeze."

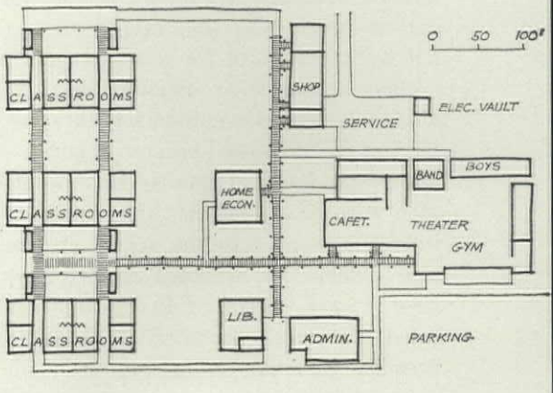
Obata and Larson discoursed on the advantages—flexibility and convenience—that can accompany the use of compact space made possible by air conditioning, and it was commented that some facilities in a school might very well be air conditioned, others not, with consequent variation and freedom of design. As John Lyon Reid summed it up: "Air conditioning gives you an added strength—to allow you to do certain things you can't do without it."

It was agreed that variety of plan, outlook, and "inlook" need represent no extravagance. Nonetheless, the thought that it was necessary for an air-conditioned school to cost the same as a non-air-conditioned school—or even less—hung heavily over the conference, much as this necessity had placed a visibly deadening stamp upon the air-conditioned classrooms themselves.

It seemed to be generally conceded that in order to "sell" air-conditioned schools to school boards and the public, cost comparisons must be in favor of air conditioning. ("Look! An air-conditioned school costs less than a non-air-conditioned school!") Gyo Obato protested: "You know in every other building type—office buildings, theaters, dormitories—we tell our clients air conditioning costs more. Why, in *schools*,



Non-air-conditioned school, *Pinellas Park Junior High, has a breeze-catching campus plan. Photos show, left to right, a typical classroom, a typical passage, and a classroom exterior. Bruce & Parrish, architects; Healy & Latimer, mechanical and electrical engineers.*



do you have to prove that it is cheaper and that that is why you are going to get it?" But the voices of realism said, in effect: "If you get it, economy is why you are going to get it."

The gimmick of economy

This device of persuasion may indeed be effective; but the price, in more ways than one, is apt to be high. The unfortunate effects of just such arguments used in the past—to justify this or that material or type of design—were obviously among the burdens that these very schools had to bear.

For example, Architect Alonzo Harriman asked why the air-conditioned school was not a two-story school, to cut heat gain through the roof and also to alleviate the need for so much interior wall.

It was admitted that a two-story school "would make good sense all around." But everybody, by now, knows that one-story schools are economical. "In order to build one-story schools," said Wright, "somebody first proved they didn't cost more than two-story schools, and it was very fortunate that this got proved so that we could do one-story schools if we wanted. . . . Nobody can tell whether they cost more or not. That's no longer the point—once you prove it."

Although nobody mentioned it, a similar history lay behind enormous glass areas which all were discussing as items of *expense* entailing unwanted heat gain and washing, as well as troublesome sky glare, etc. Yet large glass walls were justified and to some extent made almost mandatory because of economic arguments in the late 1930s and early 1940s—e.g., a 1943 article, "Survey proves large windows, properly oriented, save fuel even in rigorous climates." Convinced by one narrow economic argument, people can and do forget why they might want or not want a feature for other reasons.

Snap economic arguments like these also tend to seduce enthusiasts into justifying an "advance" because it permits lower standards of quality than would otherwise be defensible. This insidious influence crept into the school evaluation discussion. Because no windows need be open, classes of 40 children each could be accommodated without a dreadful hubbub. Using snap economic argument, it becomes tempting to explain this as progress. Ceilings can be lowered, not to make the air conditioning more efficient (it makes no significant difference) but because this makes wall building cheaper. Less attention need be paid to the site landscaping, if air conditioning permits the school to look inward. This point was appreciated by some of the participants from large cities, who noted that schools are sometimes "best" planned to look inward to evade the visual and psychological effect of slums.

Snap economy answers "proving" that a material or a design is "cheaper" tend to help standardize solutions even though the conditions differ widely. This point has been made well in an article on climate and primitive architecture, by James Marston Fitch of the Columbia School of Architecture, in *Scientific American:* "Western technology—especially modern American technology—too often responds with the mass production of a handful of quite clumsy stereotypes. This is obvious, for example, in the thermal-control features of our architecture. . . . We employ one type of wall and one type of roof. The thermal characteristics of these membranes will be roughly suitable to a thermal regime such as that of Detroit. Yet we duplicate them indiscriminately across the country."

Neither of these two schools is actually thought out as a solution to its climate. (How much else about them was not thought out, but was accepted in the form of "proved" clichés?) With little change, either school might as plausibly have turned up on Long Island or outside Detroit.

This, perhaps, is the root reason why neither school roused great enthusiasm among the evaluators. If the effect of the experiment on cost comparisons is to spread the superficial news—Look! An air-conditioned school has been proved cheaper than a non-air-conditioned school!—these schools will have added their bit to perpetuate the kind of thinking that stultifies, and that lies behind their own disappointment as architecture. But if the air-conditioning experiment widens the possibilities in school planning and raises the average quality of schools, it may prove to have been worth undertaking.

Relighting: for work, for show

A utility company turns light into heat (below); an airline uses light for dramatic effects (p. 122).

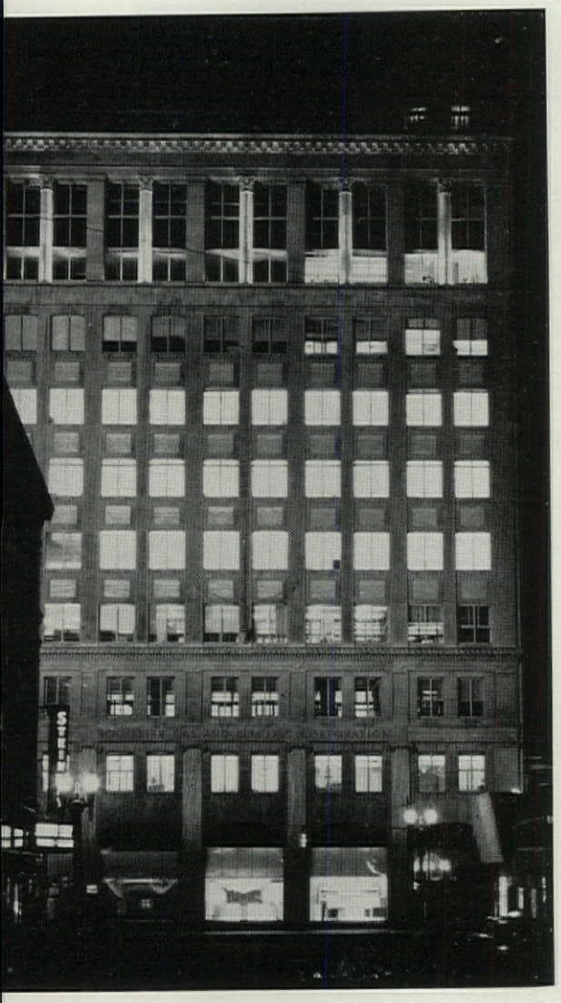
In the short space of 30 years, recommended lighting levels for general office space have increased more than six times. And—despite concern that the quality of lighting is too often neglected in favor of quantity—there are many indications that the dramatically rapid rise will continue. This has two important consequences for older buildings about to be remodeled.

First, existing wiring is usually inadequate to meet the demands of today's high levels, let alone to anticipate the even higher levels of tomorrow. This becomes a certainty when, as so often happens, air conditioning is being installed, too. Thus, in most cases, relighting also means rewiring.

Second, the heat generated by greatly increased illumination becomes significant. One answer is an integrated heating-lighting-air-conditioning system, such as that pioneered in the remarkable relighting program under way at Rochester (N.Y.) Gas and Electric (photos above and overleaf).

The history of R.G.&E.'s headquarters in many ways typifies the problems older buildings face when they try to keep pace with rising illumination levels. When new in 1926, the building had a level of 15 foot-candles, provided by 300-watt incandescent units. By raising bulb wattage to 500, this level was subsequently increased to 25 foot-candles. In 1950 the incandescent lighting was replaced by continuous rows of suspended fluorescent fixtures, bringing the level to an average of 60 foot-candles.

But by 1960, the Illuminating Engineering Society had upped its recommendation for regular office work to 100 foot-candles, and Rochester Gas and Electric was again faced with inadequate lighting. Wearied by the endless round of relighting necessary simply to keep abreast of current levels—and more than ever mindful of their building's potential as an advertisement for their product—R.G.&E. decided to establish levels not of 100 but of 200 foot-candles and, moreover, to integrate the new lighting with heat-



Above: newly lighted floors stand out.

Below: older system, installed in 1950.

ing and air conditioning. Thus, they expected to produce lighting which would not only be adequate for today but which would keep their building modern well into the 1970s.

Testing three systems

Not many building owners have the chance to test different lighting systems to find the best, but R.G. & E.'s architects and engineers did just that, using three floors of the ten-floor headquarters as a proving ground.

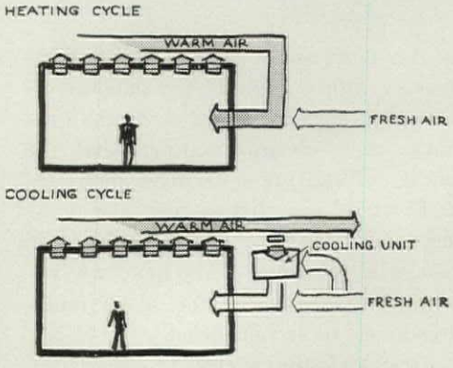
On the fifth floor, 4 by 8 foot fixtures, 6 inches deep, with elements of four extra - high - output fluorescent lamps grouped in pairs, were suspended from the ceiling. Grilles of white-painted aluminum (bottom photo, opposite), suspended from the fixtures, complete the ceiling. The brightness contrast between directly lighted and "spill-lighted" ceiling areas is four to one. On the sixth floor they installed an over-all luminous ceiling with single, extra-high-output fluorescent lamps mounted uniformly above a 2 by 4 foot grid. On the seventh floor they installed two lamp fixtures above a plastic honeycomb ceiling arranged in 18-inch strips, within an over-all 2 by 4 foot grid. A denser honeycomb was used directly under the lamps and a shallower one in "spill-over" areas, reducing the brightness contrast to only two to one. The finished ceiling on all three floors was maintained at 8½ feet —2 feet lower than the original ceiling. In all three systems, lamps were left unenclosed to prevent high heat build-up which, without adequate ventilation, can greatly reduce light output.

Although all three systems performed well, the seventh-floor system showed slight advantages and, as a result, will be used to relight most of the rest of the building. Both fifth- and seventh-floor systems, with lamps only 8 inches above the hung ceiling, left more room for ductwork than the sixth, whose lamps are 18 inches above the ceiling. Both fifth- and seventh-floor systems had the further advantage, R.G. & E. felt, of providing non-uniform, patterned lighting. But the lower brightness ratio of the seventh-floor system was considered preferable to the fifth floor's somewhat higher one, and this gave it the vote.

The new lighting level of 200 foot-candles will be achieved at 10 watts per square foot. Thus, the building will have over 13 times more light than the 1926 installation for only 3.3 times the power consumption (The former total electric load of 600 kw. has been raised to 2,200 kw., supplied by two new load centers in the basement, each fed by an adjacent underground transformer vault of 1,500 kva).

Harnessing light for heat

The heat generated by an over-all level of 200 foot-candles is a potential problem, which R.G. & E. solved neatly by integrating the lighting with heating and air conditioning. What they have done, basically, is to use the excess heat from the lights to provide most of the building's heating requirements during the winter. In summer, excess heat from the lights is simply exhausted to the outside.



The building has two air-conditioning systems: a perimeter high-velocity system using underwindow induction units, and a dual-duct interior system of high velocity, both sharing a common chilled water system. Exhaust air is taken from return inlets located

Seventh floor has strip fixtures in a 2 foot by 4 foot grid. Sixth (below) has luminous ceiling.

Fifth floor (below) is similar to seventh but has rectangles of light instead of strips.

above the lights and also near the floor to the air-handling apparatus on the eighth floor. Here, the air is discharged, but any needed heat is transferred to the water system and sent up to the main pump location in the penthouse, whence the heated water can be sent down to the perimeter window units. When cooling in both systems is needed and the refrigeration plant is not in operation, the return air is exhausted and outside air can be drawn into the system across the cooling coils, thereby furnishing "free cooling" through the chilled water piping to the exterior systems.

There is no question that the higher lighting levels increased the cost of the air-conditioning system. The difference between 5 watts per square foot (100 foot-candles) and 10 watts per square foot (200 foot-candles), spread over a net area of 92,250 square feet, necessitated 163 tons of added refrigeration —about 25 per cent more than would have been required. But, as R.G. & E. officials point out, this does not mean 25 per cent higher costs, since the increment occurs at a more favorable location on the cost curve.

Cost of the whole system, which will be completed by the end of the year, is estimated at $10 per square foot: $4 for lighting, $6 for heating and air conditioning. R.G. & E. officials estimate, however, that an improvement of worker efficiency of less than 1 per cent will offset the increased costs.

In its pioneering experiment with integrated systems, Rochester Gas and Electric doesn't pretend to have found all the answers. But it is clear that, if lighting levels keep rising, an integrated system such as this one will become increasingly desirable, if not downright necessary.

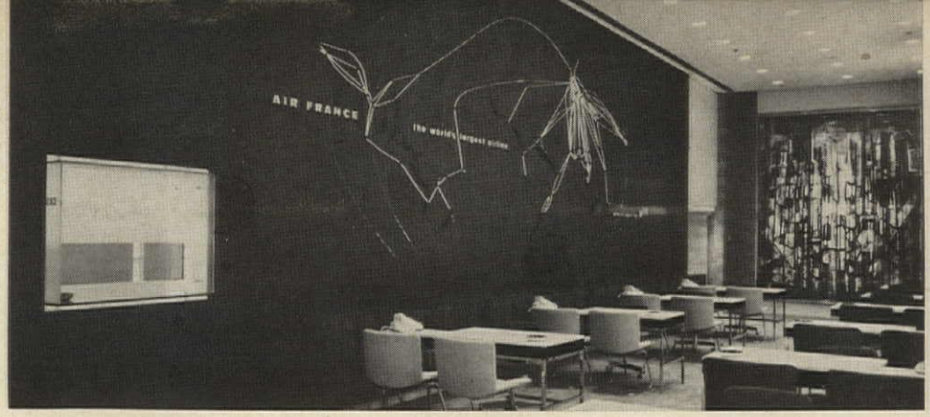
Architects: Waasdorp, Northrup & Kaelber. Consulting engineers: R. E. Cherne and G. D. Dickason. General contractor: A. Friederich & Sons.

Before: a cramped interior, a closed façade.

Showmanship with light

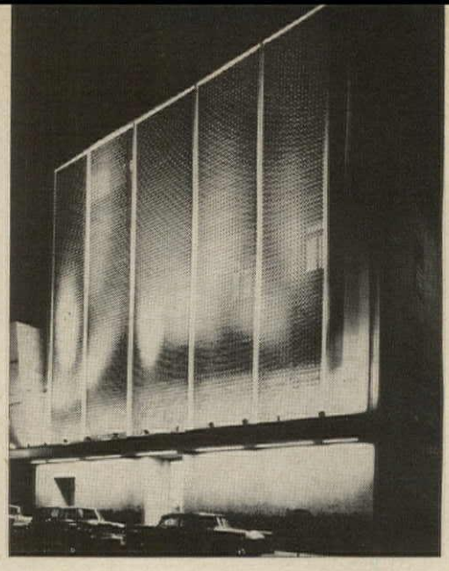
By completely opening up an old storefront it had occupied for years, and lighting it deeply and dramatically inside, Air France has transformed a quaintly aging headquarters into one of the more strikingly sophisticated showcases on New York's Fifth Avenue "airline row." Key to the remodeling is a new glass front 30 feet high, set 3 feet back from the old building line. Across the lower part a structural beam encased in stainless steel carries the airline's name in lighted letters. Directly behind the glass an illuminated band of white plastic runs up both sides and across the top of the 25-foot-wide opening, framing it in light. Beyond the entrance at the left, the building's elevator lobby is concealed by a wall of corrugated stainless steel brightly floodlighted from above. To the right, ceiling lights also pick out a handsome modern Aubusson tapestry by Henri-Georges Adam; drawing the eye down to the far end of the space is an abstract mural of "City Lights" executed in Gemmail colored glass and lighted from behind by 25 fluorescent strips. Behind the wider reception area in front, the narrow old ticketing room (see photo, left, above) is made to seem far more spacious than its 15-foot width by a dark mahogany wall bearing a route map on one side, vertical light troughs on the other, and recessed spotlighting above. The back wall of the balcony offices, which are set behind more planting and patterned glass, will be brightly lighted to contribute to the depth and luminosity of the over-all design. To insure desired appearances, all lighting is controlled by time clock for various effects during the day and night. Designers: Marvin B. Affrime (director, The Space Design Group, Inc.), and Robert Pontabry. Lighting consultant: Martin Garon. Engineers: Martin Lovett (structural), Bressman & Morgan (mechanical, electrical). Contractor: H. L. Lazar, Inc.

Reception desk is gray glass on white marble.



Passenger service desks line the wells between the cashier's window and the luminous mural.

PHOTOS: BERNARD LIEBMAN



GOLDEN FAÇADE FOR A REBUILT BANK

Hawaii's stereotype is sun and fun, and Architect Guy Rothwell found uses for both when he hit upon a solution for dressing up an old Honolulu building for the Bank of Hawaii. Rothwell took a standard grille system of anodized aluminum and designed a façade for the six-story building, 52 feet wide and 49 feet high. Aside from being bright and airy, the simple solution permitted work to proceed while the building's face was lifted. The screen also cuts down the peak midday load on the air-conditioning system.

NABOM takes a hard look at remodeling economics

Rebuilding as a major weapon in the battle for tenants in downtown office space was a recurring theme at the recent annual convention of the National Association of Building Owners and Managers in Minneapolis. Over 1,000 owners and operators, a majority of whom own or operate buildings over 25 years old, mulled over the growing problems of competition from new structures. Office buildings were a key concern: it was estimated that $5 to $10 billion of the $25 billion spent annually on rebuilding went for offices.

The discussions were singularly hardheaded, as might be expected at such a gathering. While it was affirmed that rebuilding is necessary to keep older buildings on a competitive basis with new structures, the economics of modernization were nailed down so that no one would have any illusions about profit potentials from specific installations.

A first critical economic yardstick, as pointed out by Donald K. Sheridan, executive vice president of Chicago's L. J. Sheridan & Co., is that older buildings are usually more expensive to operate than new ones. Operating costs for new office structures average $1.34 per square foot while for offices 25 years or more old, such costs average nearly $1.74. However, modernization, including installation of air conditioning and automatic elevators, can offset this differential to a great extent. And the final result can be an economic product that compares favorably with new buildings. As incoming NABOM President Murray E. Randell, of Chicago's Arthur Rubloff & Co., said: "An old, reputable building, thoroughly modernized, generally has a price advantage over a brand-new building as the total value is less than the new, and sustaining rents are therefore lower."

However, as Sheridan and other speakers indicated, modernization is not always an easy, or quick, road to enhanced profits. For one thing, it may be some time before the costs of rebuilding are made up, with anything like a satisfactory return on the rebuilding investment. Here are some of the examples presented to NABOM members:

Air conditioning

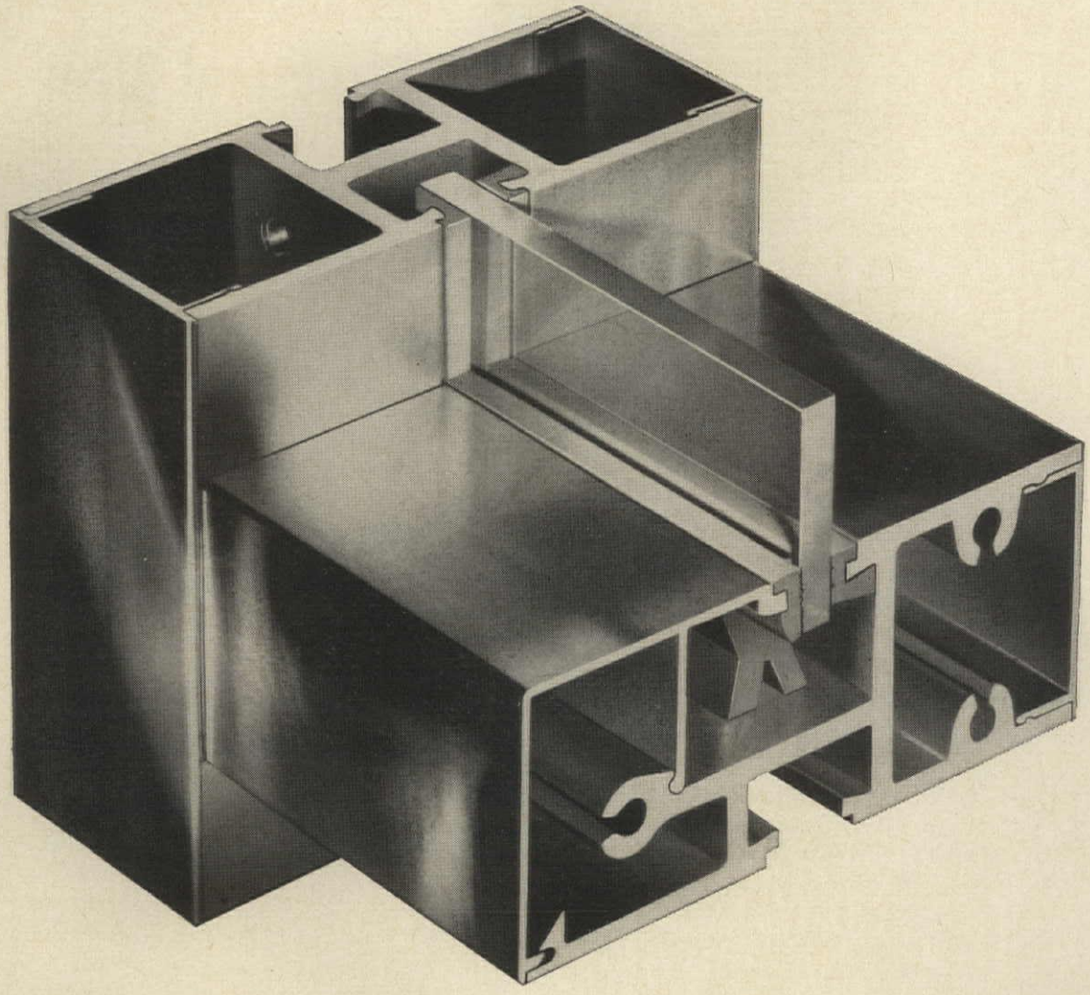
Installation of air conditioning may make it possible for an owner to charge $1.00 per square foot more rent, but it could take over 16 years before his investment in air-conditioning equipment is recaptured, with a 5½ per cent return. Sheridan figures that installation in Chicago costs at least $5.00 per square foot and that it costs about 53 cents per square foot in annual operating costs (including increased taxes). Thus only 47 cents per square foot are available for amortization of the installation cost, plus some return on the investment. The 16-year period may seem overlong to some owners, but Sheridan makes it clear that they can hardly afford not to provide this essential service: air-conditioned office buildings in Chicago currently enjoy occupancies of 97 per cent, while un-air-conditioned space shows occupancies of about 90 per cent—still good but hardly able to stand up to the competition expected from the increasing amount of new office space being built in the city.

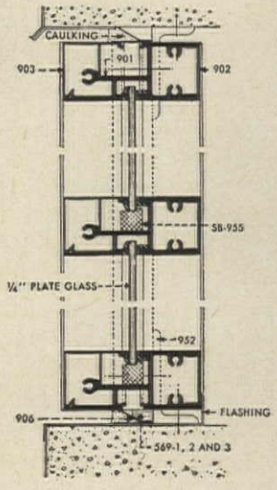
Elevators

Automatic elevators, like air conditioning, are an essential feature of any well-planned rebuilding program, but they, too, imply a lengthy period of "recapture" of capital investment plus some reasonable return. Even with an initial saving in labor cost, it is many years before an investment in elevators is recaptured. For instance, if 16 modern automatic elevators are installed at a cost of $1,250,000, an owner could expect labor savings of $111,000 annually. But it would still be seven years before interest on the cost of the installation was reduced to a break-even point, and at least 20 years before the total cost would be recaptured.

Cowen, Sheridan, and others indicated that modernization should extend to a long list of other elements, including lighting, dry-wall construction, reroofing, and heating. For the latter, Sheridan says that many buildings owned by his firm have been converted from high-pressure steam systems to low pressure, with resultant savings in fuel and personnel of over $150,000 annually.

But the speakers also emphasized that rebuilding alone cannot put an older property on a fully competitive basis with new buildings. As Cowen said: "By modernization and replacement we can easily extend the economic life of a building. But the building cannot serve the land economically unless it is properly located. This is the first test. If this qualification is met and the building is constructed of sound, fire-resistive materials, there is every likelihood that a well-planned modernization program will not only extend the life of the building but enable it to earn a higher yield."





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The new rolling mill building for Border Steel Rolling Mill, Inc., El Paso, Texas, is 800 feet long, 142 feet wide and 50 feet high. Design, steel fabrication and erection by Ramsey Steel Company, Inc., El Paso, Texas. Mr. W. K. Ramsey, President (left) and Mr. G. W. Ramsey, Chief Engineer.

"We redesigned the rolling mill building for Border Steel Rolling Mill, Inc., to take advantage of the higher strength of A36 Steel. Our original plans were made before the introduction of A36 Steel," said Mr. W. K. Ramsey, president of Ramsey Steel Company, Inc., "and called for 794 tons of A7 Steel. By redesigning with A36 we cut the cost of structural steel almost 10%. In columns and beams alone we saved 44 tons of steel. A36 Steel also saved us $6.00 a ton on shipping charges. At that time, A36 wasn't available in all shapes or we could have saved even more by making the roof trusses of A36 Steel, too."

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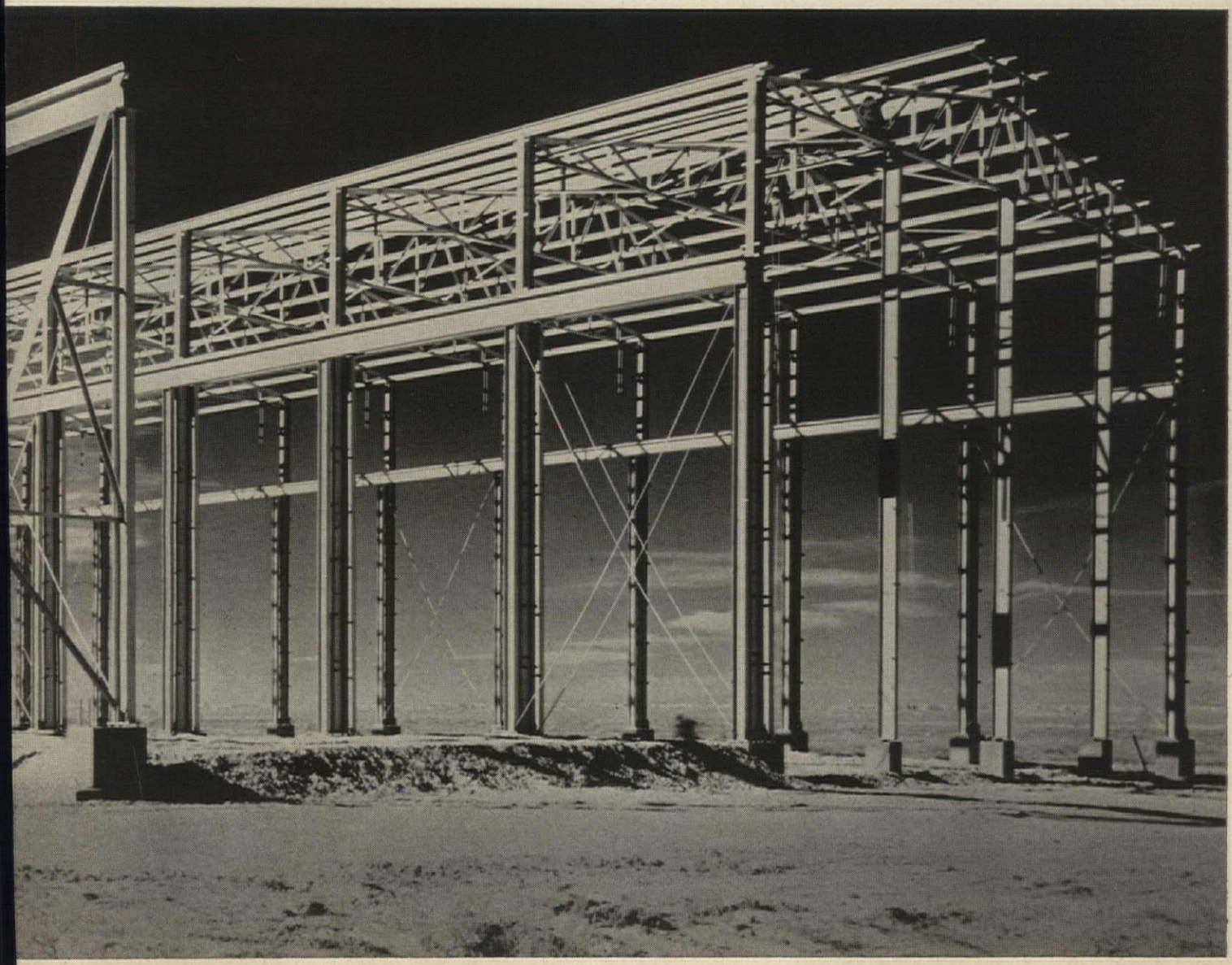


Abroad

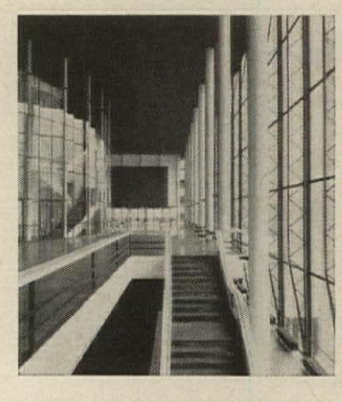
UPI PHOTO

PUZZLING RECONSTRUCTION

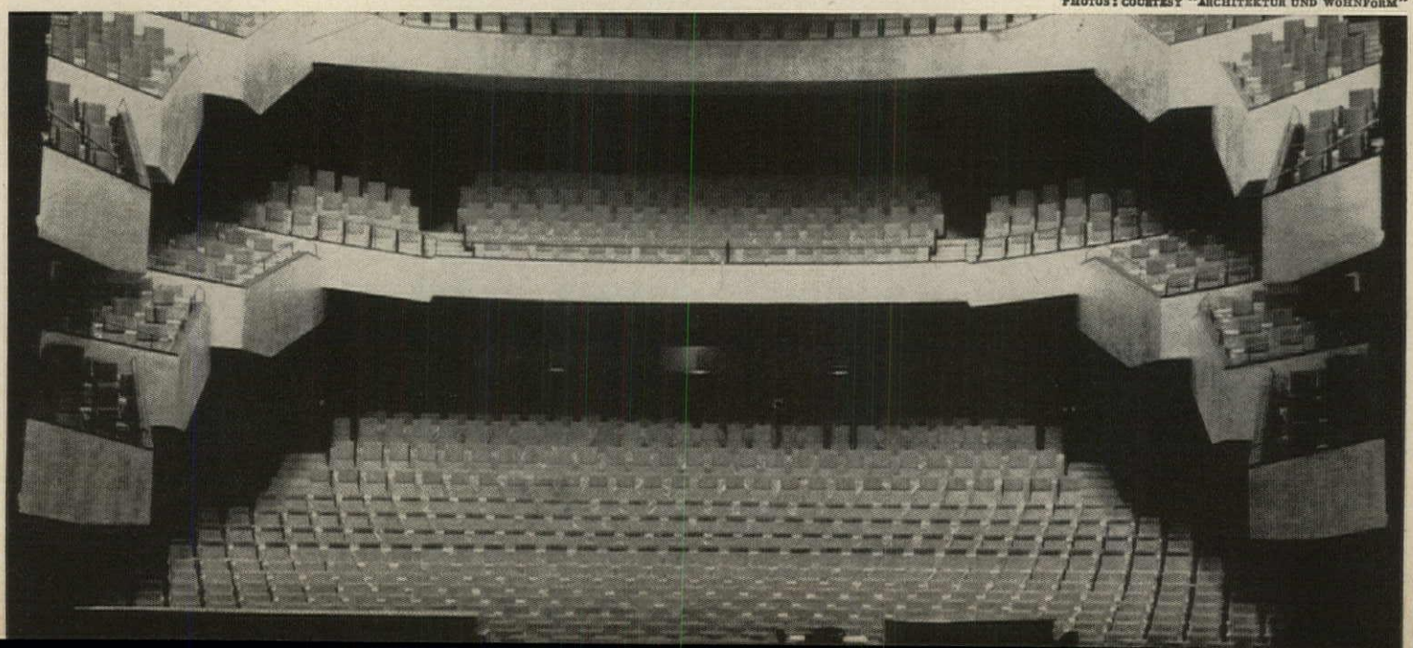
Rebuilding war-shattered monuments has been one of Europe's unhappy burdens, and in most cases the architectural problems posed have not been easy, either. Bombs left little of the Kaiser Wilhelm Church at one end of the Kurfuerstendam in West Berlin, but enough of the main bell tower so that it was decided to retain its ruin as a grim reminder of the horrors of air raids. Few Berliners have taken issue with this idea, nor with the concept of restoring the church to usefulness with frankly modern additions. Now that the job is nearly complete, however, there has been some questioning of the form those additions have taken. A new church hall has risen in a style that has little apparent relation to its neighbor, and blocks it from the main boulevard view. On the other side, a new bell tower crowds up in a rather puzzling duplication of the old one. The new steel framework is filled in with prefabricated waffle panels holding chunks of colored glass, an assembly-line version of earlier modern European church technique. The effect here seems a little mechanistic as a setting for an old shrine, although, lighted from inside, the buildings could become a glowing beacon at night. Architect: Egon Eiermann.

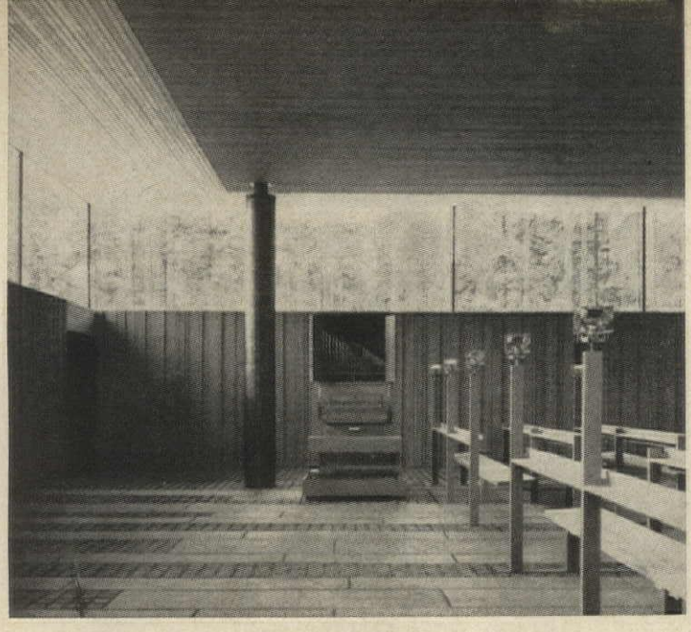
GREAT GLASS HALL

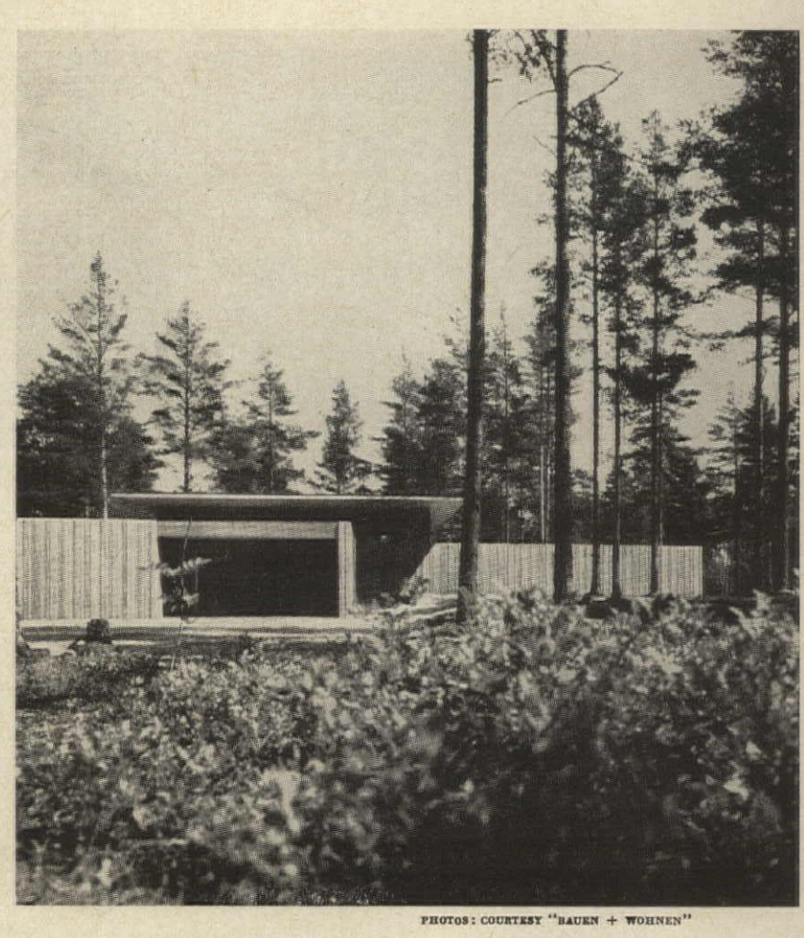
An architectural bright spot in the smog-covered industrial Ruhr is the new Stadttheater in Gelsenkirchen. Its great glass façade, dramatically lighted at night (left), reveals a two-story lobby on three sides of a U-shaped auditorium, itself wrapped in an inner cocoon of glass behind which rise the scissoring pattern of stairs. The "big glass box" idea doubtless owes something to Mies van der Rohe's famed Mannheim theater project, and bears a striking resemblance to the new Portland, Ore. Coliseum (FORUM, Apr. '61). The hall's 1,050-seat auditorium (below) groups the audience close about and above the stage. Architects: Werner Ruhnau, Ortwin Rave, and Max von Hausen.



PHOTOS: COURTESY "ARCHITEKTUR UND WOHNFORM"







PHOTOS: COURTESY "BAUEN + WOHNEN"

PEACE IN A FOREST

Nestled unobtrusively in a pine forest west of the Swedish town of Gävle, the community's new crematorium has been carefully and skillfully reduced to a classic of quiet understatement and repose. Behind rough-textured board fences and walls, simple wooden roofs float on pipe columns, above continuous bands of glass that summon in the view of woods outside. In effect, the interiors of the three chapels are simple glazed and heated extensions of the beautifully paved outdoor courtyards, which act as preparatory garden spaces for the services inside. Furnishings, by the architects, are few: sparse and angular altars and wooden pews capped with stunning light fixtures in the form of heavy blocks of sparkling crystal glass. Architects for the building were: Alf Engström, Gunnar Landberg, Bengt Larson, and Alvar Törneman.

MUSICAL ENCOUNTER

When the New York Philharmonic met with England's Royal Ballet and others at Tokyo's East-West Music "Encounter" this spring, they christened what may become an important new cultural center for the world. Tokyo's Metropolitan Festival Hall in Ueno Park seats 2,327 in its main auditorium, 490 in a separate international conference hall, and incorporates a generous handful of exhibit, meeting, and rehearsal rooms for artists. One of the handsomest areas is the main entry hall (left), with textured floor, seating grouped at columns, and airy mezzanine above. The balconies of the main hall (below) curve lightly up like the smooth-planked hulls of boats. Architect: Kunio Maekawa.

PHOTOS: (BELOW) COLUMBIA RECORDS PHOTO; (OTHERS) JAPAN TOURIST ASSN.

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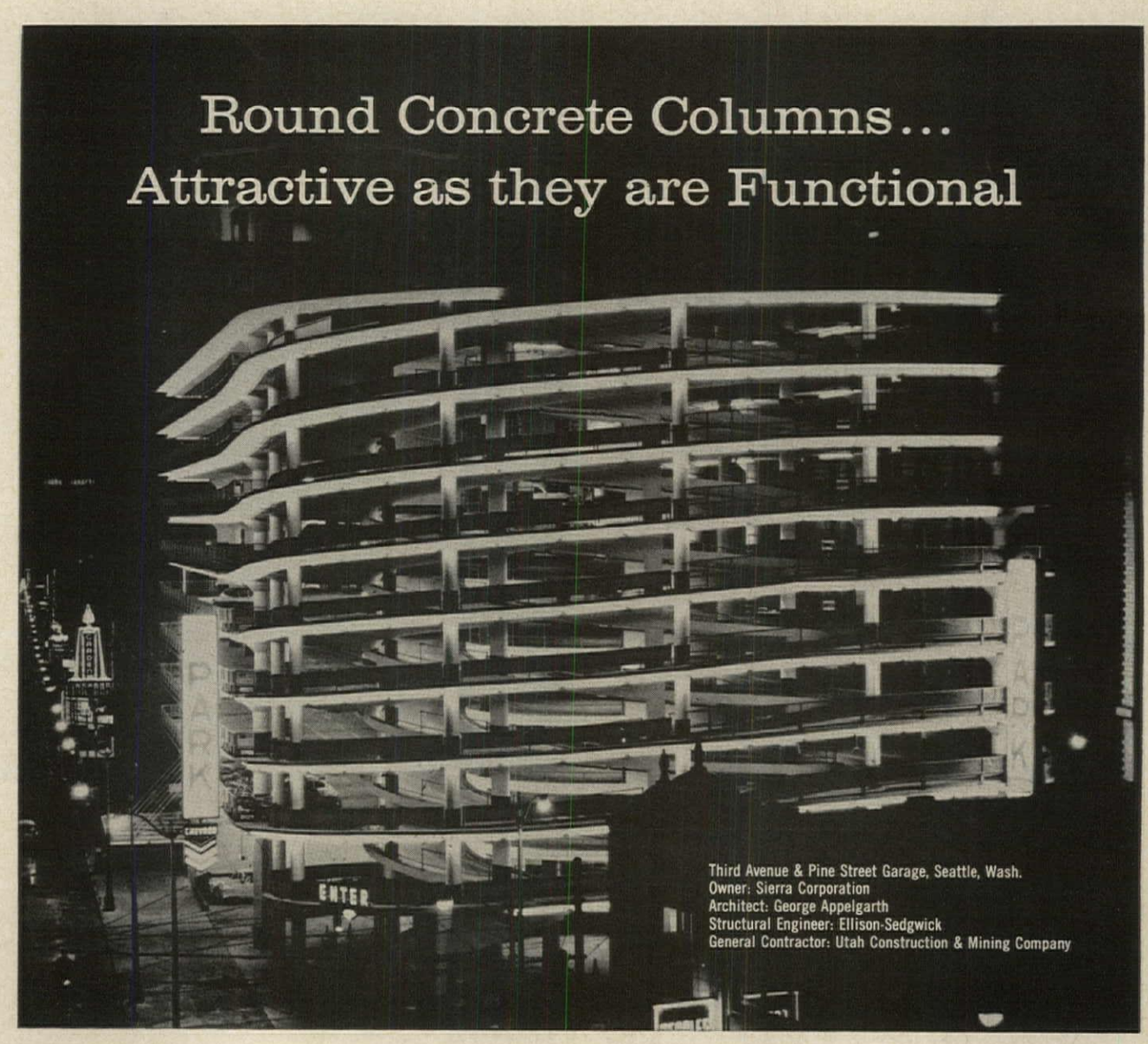

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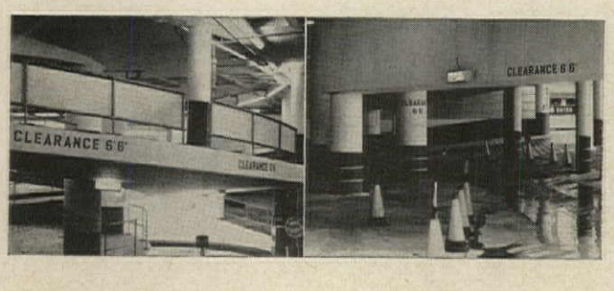

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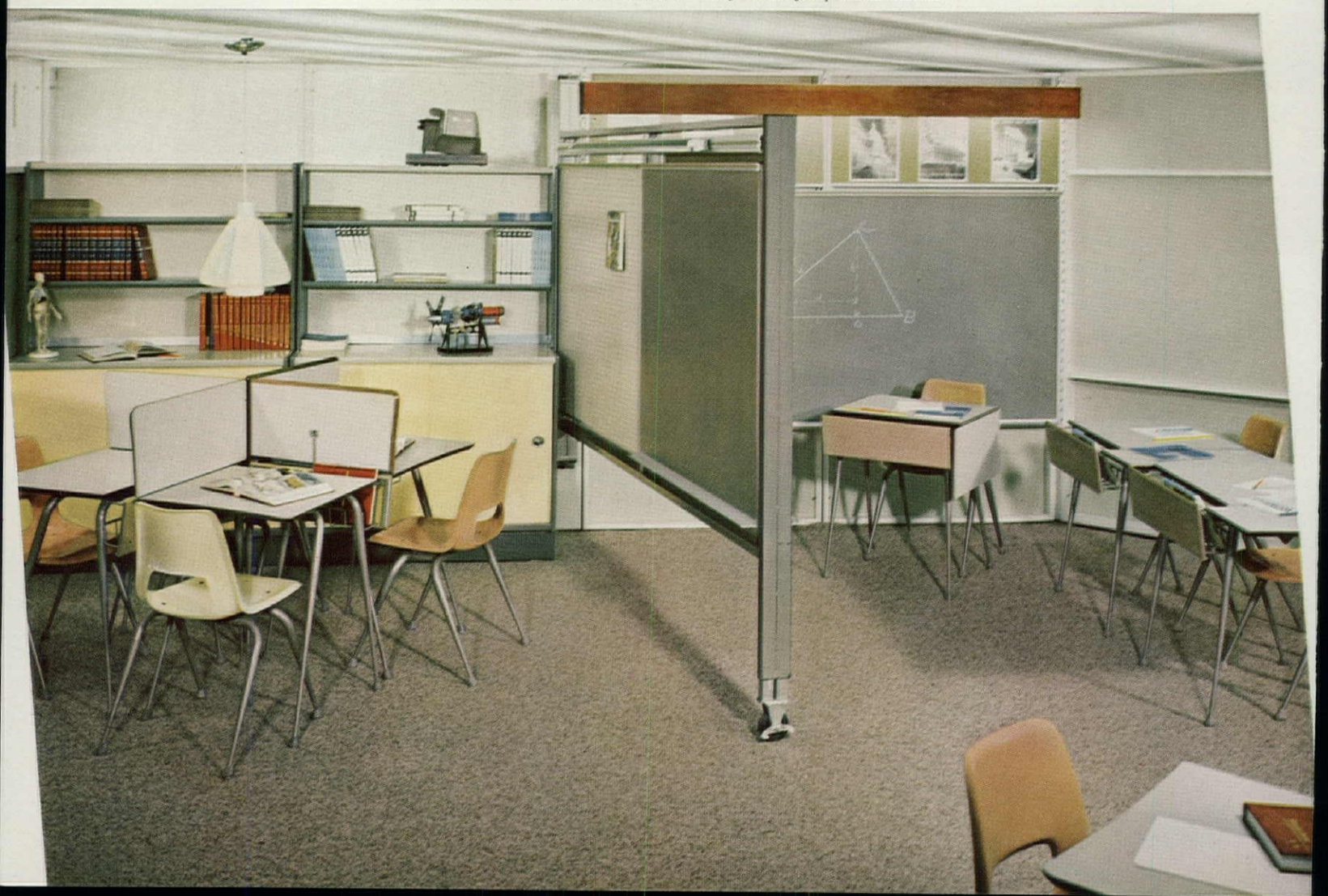

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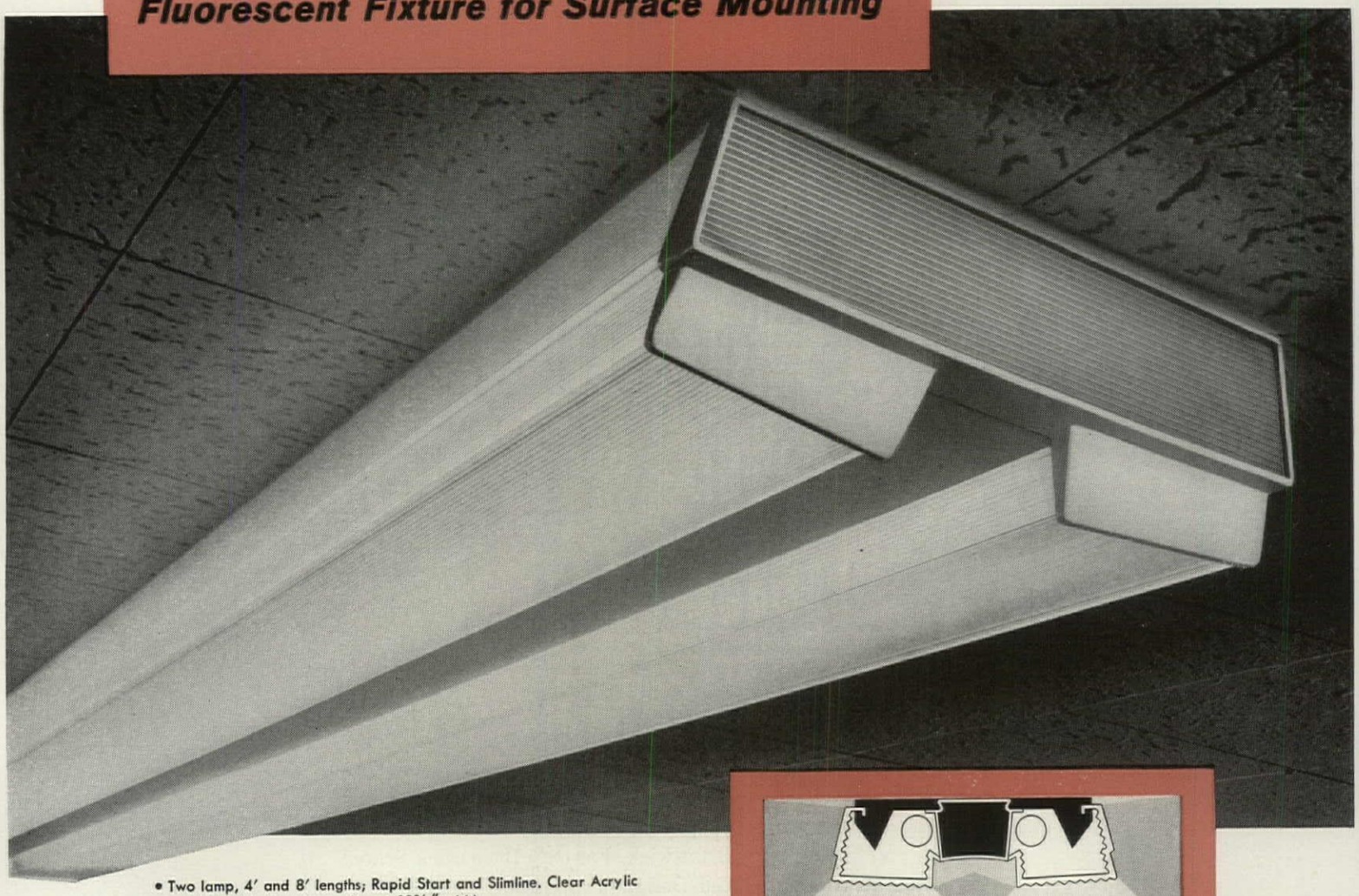

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THE ARCHITECTURE OF AMERICA: A Social and Cultural History. By John Burchard and Albert Bush-Brown. Published by Atlantic-Little, Brown & Co., 43 Beacon St., Boston, Mass. 595 pp. 6" x 9¼". Illus. $15.

This is a serious work and, as such, is entitled to serious attention. Two well-qualified students of American architecture here give their version of a comprehensive history of the field. The book is thus aimed at filling a big gap in literature—namely, a survey of the development of architecture in America from the beginnings of European settlement up to the present day. Moreover, as the title suggests, it aims at relating this development to the social and cultural matrix which gave it birth. These are admirable objectives, both of them; and to the task the authors bring a point of view that is urbane and liberal, a truly impressive familiarity with a vast body of specialized historical materials, and a set of critical standards which is polished and (with minor exceptions) generous and objective.

Structurally, the book is quite orthodox —a long theoretical prologue; five historical sections arranged in chronological order; and six inserts of related (and well-chosen) illustrations. The prologue is a somewhat didactic introduction which the layman will find more useful than the professional. Each historical section begins with a review of developments in the art and literature, science and technology, politics and culture of the period in hand; then proceeds to a parallel discussion of the period's architecture. These sections are not of equal length: the 250 years between John Smith and Abe Lincoln occupy much less space than the 27 years between F.D.R. and Kennedy. This, of course, is a deliberate emphasis on the part of the authors, and—in view of the material available on the earlier periods as against the scanty attempts to analyze the recent past—it is entirely justified. It is also, one must add, quite courageous on their part, since it involves them in a critical estimate of the work of every one of their contemporaries. It is these latter sections—and especially the fourth, 1913-1933—that this reviewer found most rewarding. The book closes with the usual bibliography and notes and an unusually complete index. All in all, 600 carefully developed and beautifully printed pages.

Nevertheless, *The Architecture of America* is a disappointing book. It may well be that, as worth-while and as necessary as the project seemed to the American Institute of Architects, which commissioned the work, the task itself is insuperable. With so wide a canvas to cover, on the one hand, and so great a depth of penetration desired, on the other, it is probable that no historian could have done a better job than Messrs. Burchard and Bush-Brown. In any event, given this structure, the book is unlikely fully to satisfy either half of its assumed audience. For laymen it will seem far too detailed. Literally hundreds of individual architects and buildings are passed under review; and though the critical estimates will often seem perceptive to the specialist, they will be too brief and cryptic to be of much aid to the layman. By the same token, they are too cursory for the student, who will be forced to turn to specialized literature for more detail. Because of this structural weakness, the book tells a less-coherent and illuminating story than the layman might wish, and a less-informative one than the student might require, of all the men, movements, and monuments under review.

Another problem raised by an approach of this sort is the conflict it sets in motion between the narrative and the critical aspects of the work. One acts against the other, since few critics of well-defined points of view will find all the materials of history equally interesting. This probably explains the impression of esthetic ambivalence raised by *The Architecture of America*. Thomas Jefferson, for example, gets short shrift. The reasons for this summary handling are candidly subjective. The University at Charlottesville "lacked architectural character" because Jefferson was never able "fully to relinquish formalism." The authors are certainly entitled to this estimate of the man. But since their whole judgment turns upon this narrow base, a man who played an enormously influential role in his country's architecture gets less than a page in the text. Whether this is due to a division of labor between the two authors or to the fact that they both share a set of critical standards in which esthetic criteria are more heavily weighted than either the social or the cultural, the result is, occasionally, sheer imbalance in their book.

Given the prescribed structure of the work, there may be no way of avoiding this dilemma. But there are certain other flaws in *The Architecture of America* of a more conceptual nature. For example, Burchard and Bush-Brown are unquestionably correct in their premise that social and cultural data on the period in hand are essential to understanding the rise, maturation, and decay of the art of that period.

But the connections between cultural milieu and artistic action are extraordinarily intricate; they defy any effort to establish simple mechanical parallels.

Thus a formal *description* of the political parties, novels, trade unions, and technologies of an epoch does not, of itself, illuminate the art of that epoch. This requires much more elaborate, intensive, and leisurely detective work—a luxury which the authors do not allow themselves. As a result, their social history, well-informed and gracefully written though it is, seems less rewarding than it might have been had fewer cases been cited and those explored in greater depth: less comprehensiveness might have yielded more comprehensibility.

Nevertheless, the authors of *The Architecture of America* must be praised for their courage, perserverance, and skill. It will be a long time before their book will be challenged by another of equal scope and substance. —JAMES M. FITCH.

RENAISSANCE EUROPE. Edited by Harald Busch and Bernd Lohse with an introduction by James Lees-Milne and commentaries on the illustrations by Hans Weigert. Published by the MacMillan Co., 60 Fifth Ave., New York, N.Y. 180 pp. 8½" x 10¾". Illus. $10.

The English, the French, the Scandinavian, and the Spanish architectural adaptations of the brilliant Italian style, the Renaissance, were at first unassured and tentative; later they became almost glib, with a high polish but impoverished imagination. The idea, however, was so strong that it never could be rendered lifelessly—not, at any rate, until the Renaissance really was over. The obvious parallel is the sleek progress of the modern style in the later fifties, when respectable modern finally became reasonably easy to design, before the current outbreak of a new Baroque yearning.

But in retrospect, in this handsome book about earlier times, it can be seen that the less perfect the adaptations away from Italy, the stronger they seem today. Away from home, accented versions of Renaissance—touched heavily with Romanesque or Gothic—have more visual strength than the more perfect renditions, although the pure Renaissance, at home in Italy, is of course strongest of all.

The book, printed in Germany, is quite good as compared to the usual letterpress, if not quite up to the best gravure. The choice of photographs is very, very good, and the descriptions are concise and instructive.

continued on page 154

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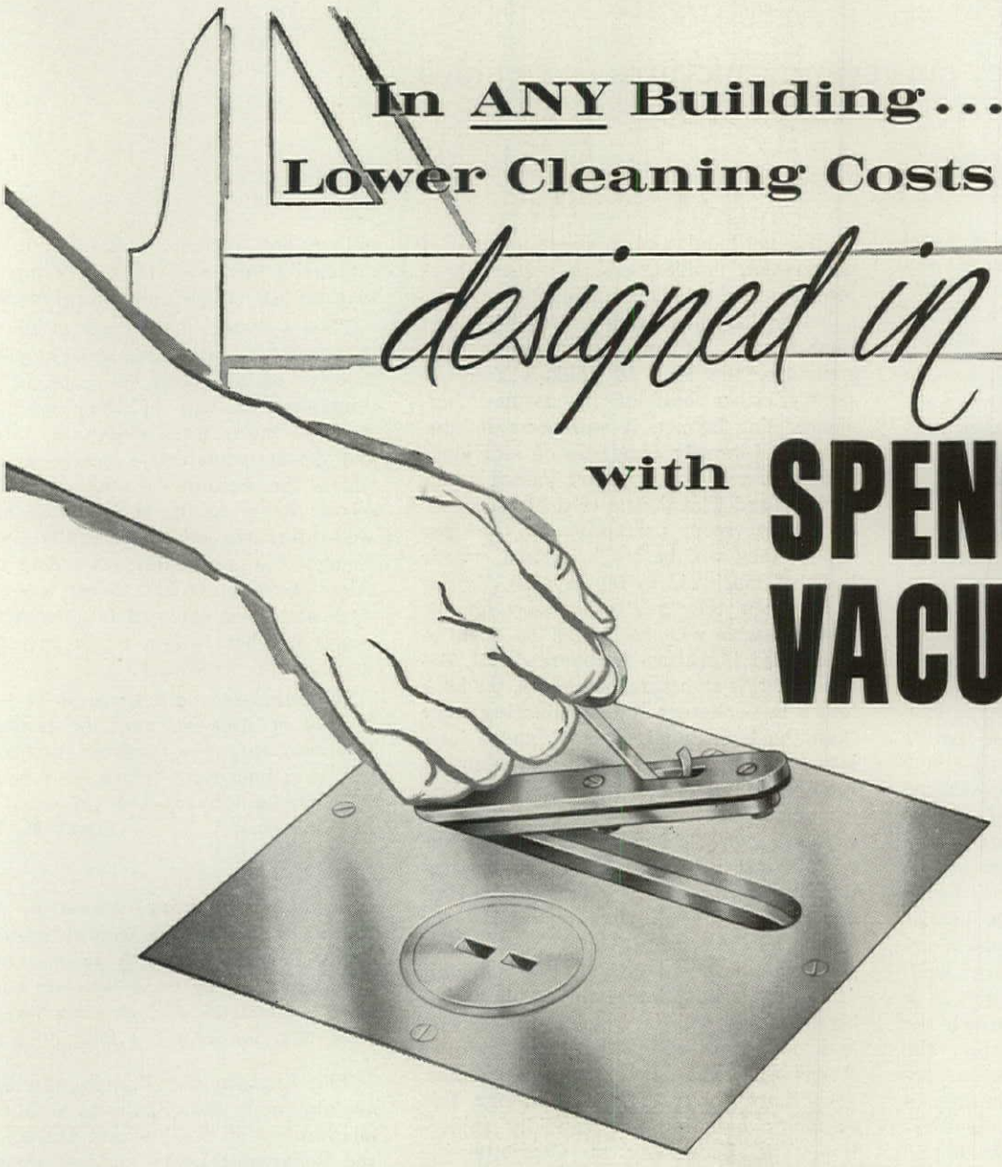

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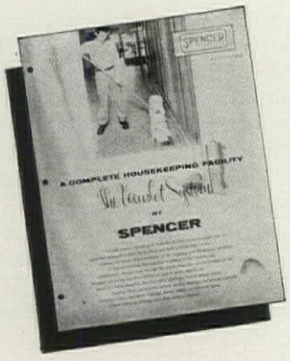

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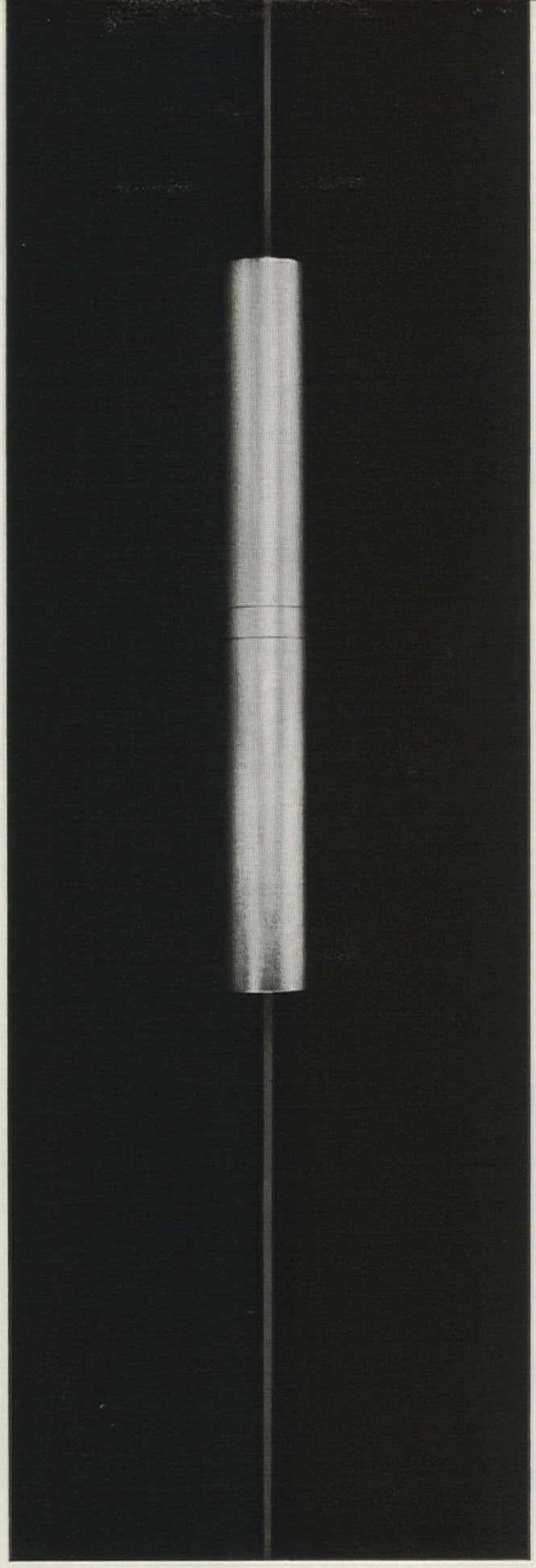

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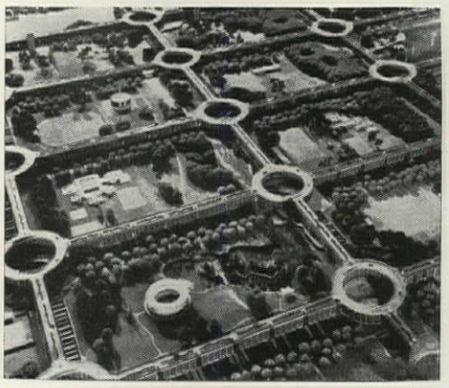

MOTOPIA. A Study in the Evolution of Urban Landscape. By G. A. Jellicoe. Published by Frederick A. Praeger, Inc., 64 University Pl., New York 3, N.Y. 168 pp. illus. $9.50.

It is really quite frightening when the author of such a gracious book as this one predicts what man must do in order to preserve a little future natural graciousness for himself in his overpopulated, overautomobiled future. G. A. Jellicoe, in thoughtfully captioned photographs, paced by periodical essays, examines in this volume the development of town living patterns and problems and caps his examination with a proposal for a Utopian solution which would elevate roads to the *tops* of buildings, in order to leave the ground free for people. This is not a brand-new idea, and Jellicoe attributes it freely to Le Corbusier, but Jellicoe's own development of the solution is very interesting. In its physical character his city, *Motopia*, owes much to the English background of urban building in Bloomsbury and Bath. It is worked out with English care and attention to amenities; for instance, Jellicoe suggests that the parked automobiles of the 30,000 residents of *Motopia* will be "cleaned, rather like shoes, overnight. . . ." Most of all, it suggests the English love of green landscaping, and quietly conveys the immense civilization of this view. Another evidence of civilization: the project originally was sponsored by a British building materials manufacturer, Pilkington Brothers Limited.

THE NEW ARCHITECTURE OF EUROPE: An illustrated guidebook and appraisal. By G. E. Kidder Smith. Published by The World Publishing Co., 119 W. 57th St., New York 19, N.Y. 316 pp. 4⅝" x 8". Illus. Paperbound $1.95; clothbound $4.

Here, at last, is the pocket Baedeker traveling architectural buffs have been waiting for, and a good many armchair wanderers will also find useful. Photographer-Author Kidder Smith, helped along by an Arnold Brunner Scholarship from the New York Chapter, AIA, has turned out a remarkably concise and readable survey of postwar architecture in 16 Western European countries, locating his choice of 225 of the finest buildings on maps of each country, and discussing each in perceptive capsules of pictures and text. The book is handily indexed by building type and nation, and for those who want to pursue subjects further, there are not only recommendations of architectural books and periodicals in each country, but the names, addresses, and telephone numbers of those whose work is shown.

AMERICAN BUILDING ART: The Twentieth Century. By Carl W. Condit. Published by Oxford University Press, 417 Fifth Ave., New York, N.Y. 426 pp. 7½" x 10". Illus. $15.

In this, the companion volume to *American Building Art: The Nineteenth Century*, Professor Condit carries his resumé of American heavy construction through the first half of the twentieth century. Included are sections on steel framing, railway terminals, concrete building construction, dams, highway construction, and large bridges of all types.

If this is a somewhat academic summary rather than a definitive history of structural forms and techniques, limitations of space scarcely allow it to be otherwise. END

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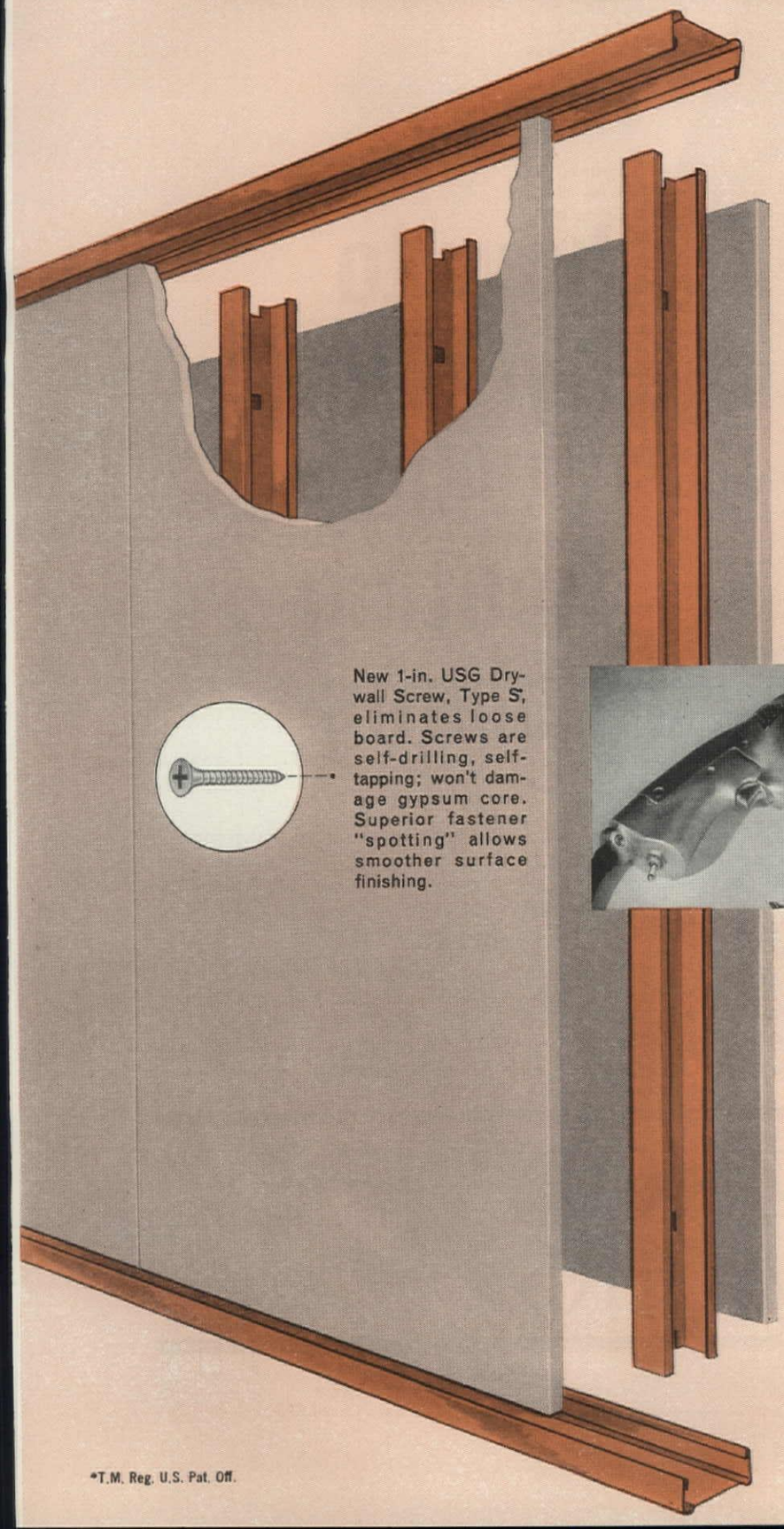

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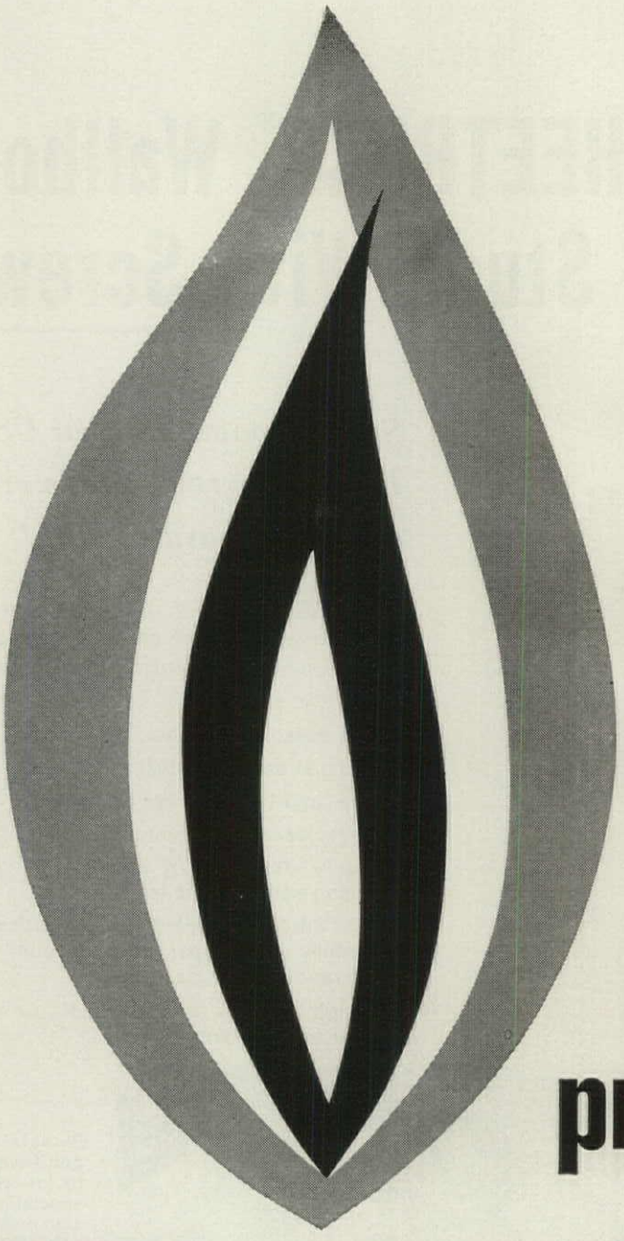
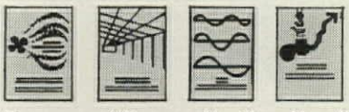


how to overcome basic heating problems



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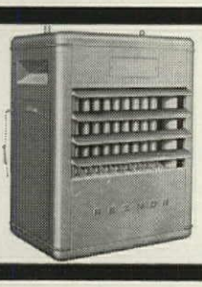
We think you'll find these handbooks valuable as basic working tools. To receive your copies, call your Reznor full-service distributor or nearby district office listed in the Yellow Pages under "Heaters—Unit." Reznor Manufacturing Co., Dept. AF-8, Mercer, Pa.



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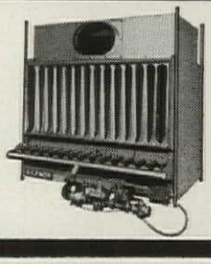

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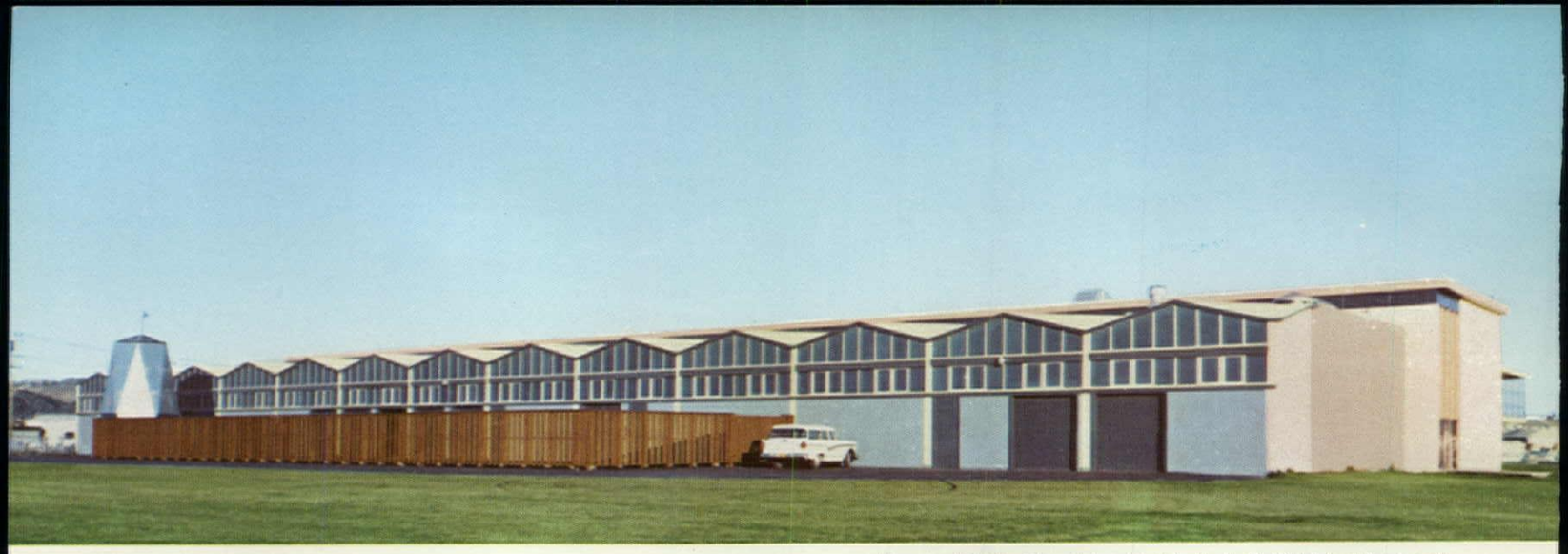

Hammered Coolite, Glare Reduced, installed in Pacific High School, San Leandro, California. Architect: Schmidts, Hardman & Wong, Berkeley, Calif. Glazing by: W. P. Fuller & Company.

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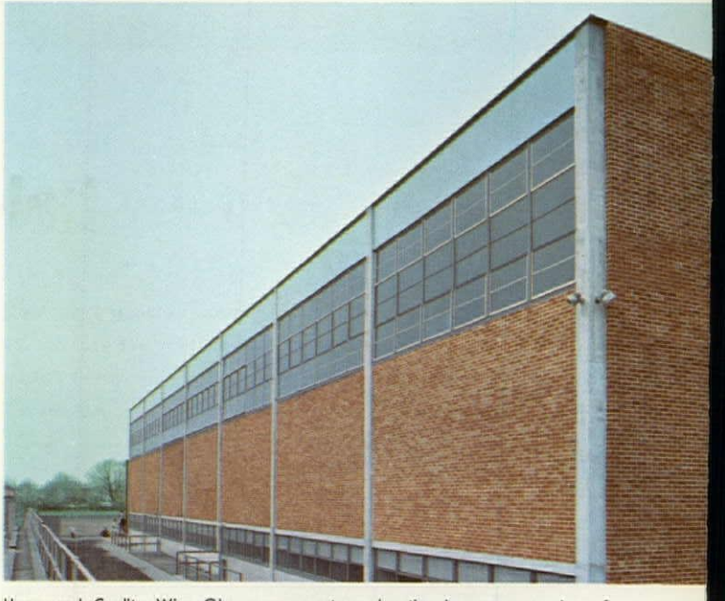
Undistorted, softened natural light by Pentecor provides the maximum in light distribution in Clopton High School gymnasium, Clarksville, Missouri. Architect: Kenneth E. Wischmeyer. Contractor: Brockmeyer Construction Co.



Hammered Coolite Wire Glass spans western elevation in new gymnasium of Belleville Township High School, Belleville, Illinois. Associated Architects: Charles E. King & Wesley W. Charlton.

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RENEWAL AND DEMOCRACY

HHFAdministrator Robert Weaver recently told New York City's Citizens Housing and Planning Council of one of renewal's saddest errors.

One of the most unfortunate mistakes which has been made in the past is simply a disregard for democracy. Planners and public officials—not always, but sometimes—have acquiesced in urban renewal projects to serve particular interests, without regard for the interests of the community as a whole.

This particular mistake has attracted not only wrath but ridicule. Some of you, I'm sure, have seen the simulated greeting cards which are being circulated. On the cover they read: "Urban renewal is good for you." And inside they say: "So shut up."

Urban renewal is for the entire community. There is no place in it for segregation along racial lines. Nor should it become a vehicle for creating ghettoes for the upper- or the middle-income segment of a city's population.

What we want to achieve is not similarity, but diversity; not uniformity, but unity; not leveling, but balance.

We will achieve that in urban renewal when high-, middle-, and low-income families can all find a place in the same community.

The concept of economic diversity in urban renewal is a long-range, community-wide objective. It does not imply that each and every project must be multi-income, but that the city-wide approach must achieve such diversity. The economic realities and current consumer preferences, related as they are to prestige considerations, limit the tempo and extensiveness of economic mixing, especially in areas which have lost their attractiveness in the process of decline.

We have our goals, and we shall pursue them without being so unrealistic and doctrinaire as to lose both the immediate objective and unduly complicate and endanger urban renewal.

Nor shall we ignore the economic realities of land use. There are some sites which, because of their location and value, should be used for housing which will produce high rents and correspondingly high taxes. But a local program composed exclusively of such sites is, in my opinion, an unsatisfactory program.

BOTTLED BILLBOARDS

Defiling public terminals with advertising is not an exclusively American pastime, an item in the London Observer *reveals.*

Frederick Gibberd, the architect of London Airport, had a shock the other day. He stepped off a plane to see four 14-foot-high whisky bottles on the flat roof of his new Left Luggage Office. "The whole thing's monstrous," he said. He's all for advertising inside, but this is "right in front of the building that won the R.I.B.A. medal of the year." And he was not even consulted.

The trouble is that the Ministry of Aviation is badgered so much by Tory backbenchers to make the airport pay that when the whisky company offered a round £10,000 a year for the site they could not resist it.

There have been some protests. One angry man wrote: "I don't object to drink, but to greet every visitor with this astounding piece of vulgarity!" The airport spokesman, however, seems partial to drink advertisements: "We have a rather attractive Martini poster at the main entrance," he says with more than a hint of pride.

continued on page 165

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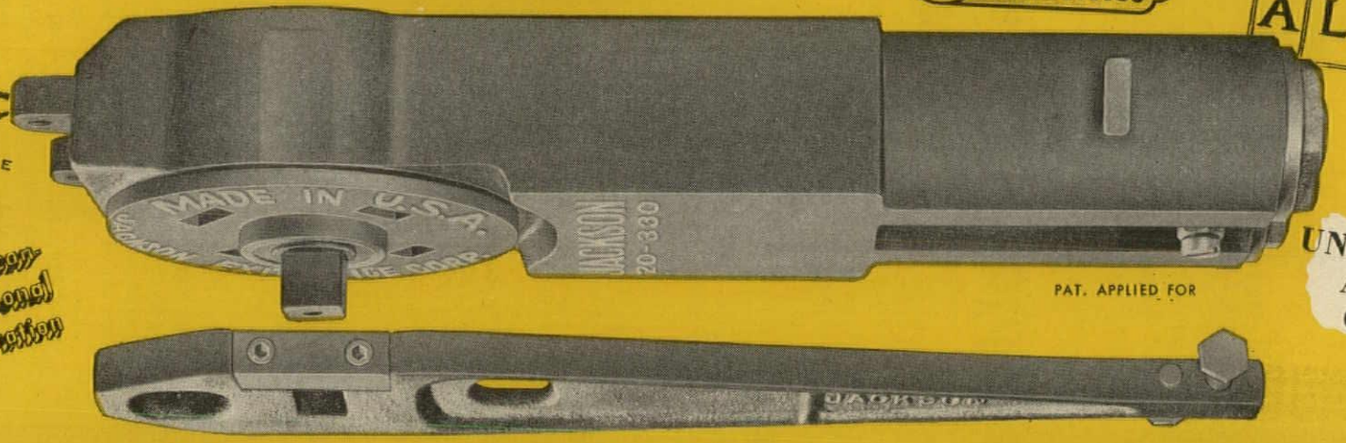

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A PERCENTAGE FOR ART

At the recent dedication of his New York City Courts Building, Architect William Lescaze asked that a definite portion of construction costs be allotted to sculpture and painting.

As a result of my experience with this particular building and also as a member of the National Council on the Arts and Government, I offer two specific recommendations to the public authorities and to private builders as well. The first is that for the guidance of the authorities, the architect, and the taxpayer, there should be an agreement right from the start on the amount of money allocated for artwork in ratio to the total cost of construction of a building. This is currently being done in other countries.

My second recommendation is that the architect be recognized as the head of the team. By this I mean that just as the architect selects his structural engineer and his mechanical engineer, and submits his selections for approval to his client, he likewise should be charged with the responsibility of selecting his sculptor and his painter. Thus, and thus only, can a work of art be created which will be harmonious, where sculpture and painting will belong together and be really integral parts of architecture. Alas, I didn't find this achieved even in the UNESCO Building in Paris.

What I am pleading for is not a new subsidy. It is simply a plea that the relationships between architect, sculptor, and painter be acknowledged and provided for by our building agencies or private builders so that architects, sculptors, and painters may work again together, dream again together, and thereby make that wonderful and simultaneous creation happen again—as it should and as it did happen in the Renaissance. I can assure you that we architects, sculptors, and painters are indeed ready for a modern Renaissance.

RENEWAL AND SKID ROW

Architect Kenneth Brooks recently told fellow Spokaneites that rebuilding plans must recognize the problems of the city's homeless men.

Skid Row, invariably found in all of our major cities, is one of the growing problems of renewal. Who are the Skid Row dwellers? The radical, the Bohemian, the migratory worker, the immigrant, the unsuccessful, the queer, and the unadjusted.

Rarely are these men criminals. This is important to understanding the problem of homeless men. They do not ordinarily present our community with a police problem. Some have elected this way and have no intention of changing. They would be "fish out of water" in other environments.

I believe that Spokane is doing the humane and morally right thing when it refrains from using the "small-town sheriff procedure" of putting Skid Rowers "on the next freight to the big city." In a sense Spokane is saying that for the privilege of being a city it is accepting its share of the responsibility to care for these homeless men, or at least providing a habitat for them. A homeless person likes the city lights—he doesn't want to look out of his window at a petunia in the suburbs; he wants company and lots of it. Architecturally, a "remodeling" of Skid Row to make it livable for these homeless men may be a cheaper and better solution for them and for the city as a whole than to relocate them—at least this possibility should be studied.

When this architect reviews a report which proposes a civic center replacing Skid Row, or mass parking facilities replacing Skid Row, or even a Freeway replacing a Japanese-Negro neighborhood, he anticipatingly thumbs through the report to see what the sociologist has observed in regard to the existing use of the area—what he proposes in the way of reproviding for the needs of these people who are displaced. If he finds no such report (and he has found none in the case of the Spokane Civic Center plan, parking plan, and Freeway plan) he concludes that the report-makers have looked at only one side of the coin—the technical, financial, and political side, but not the side of the coin with the man on it. END

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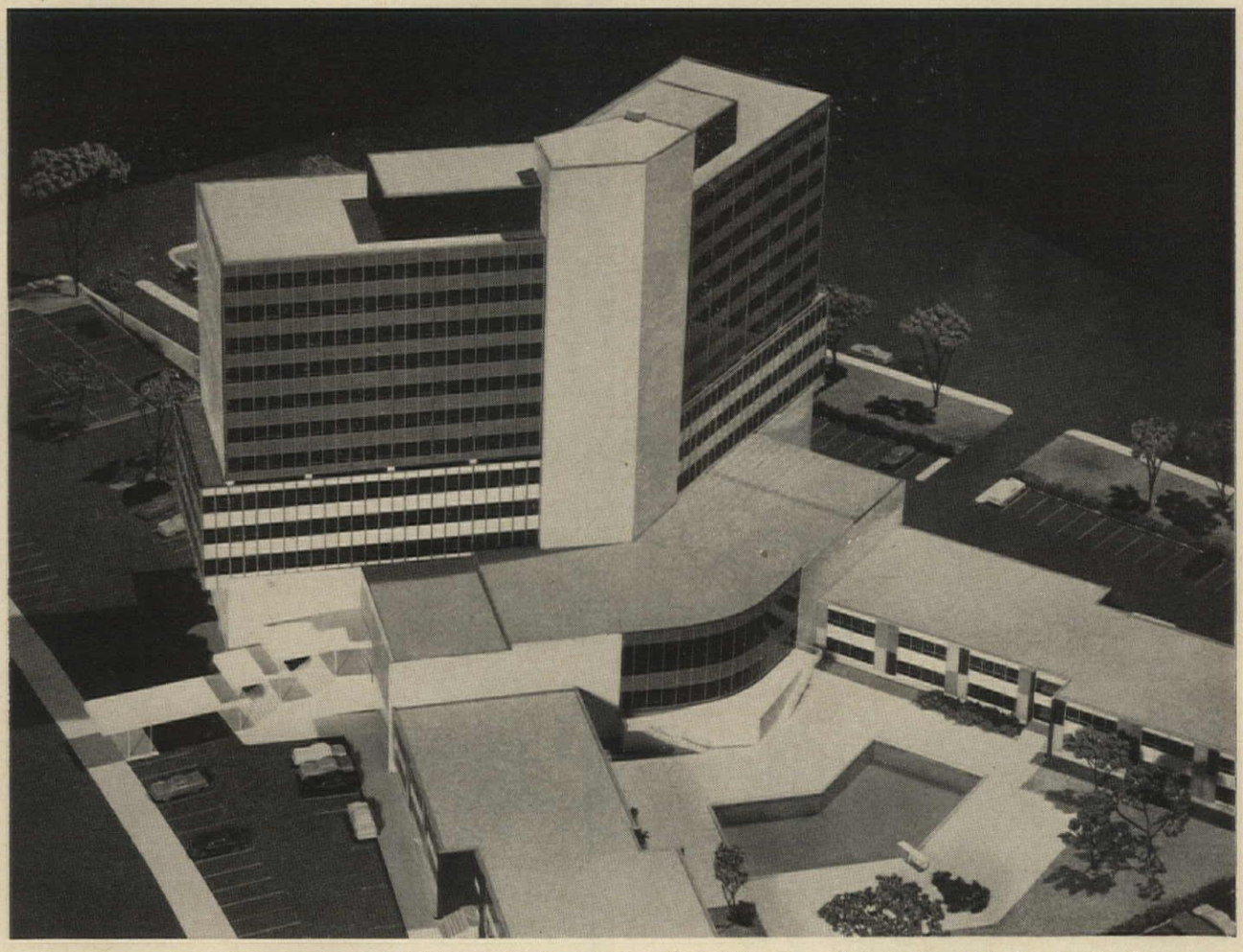

GOLDEN TRIANGLE MOTOR HOTEL, Norfolk, Virginia. Architect: Anthony F. Musolino; General Contractor: Blake Construction Company; Mechanical Contractor: Hicks & Ingle Company; Distributor for Anaconda: Hajoca Corp.

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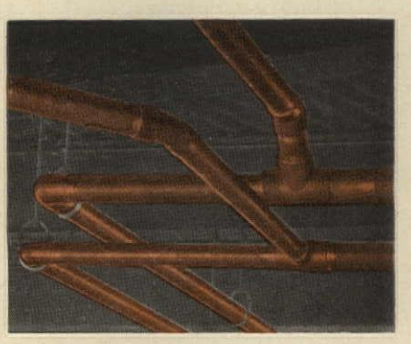

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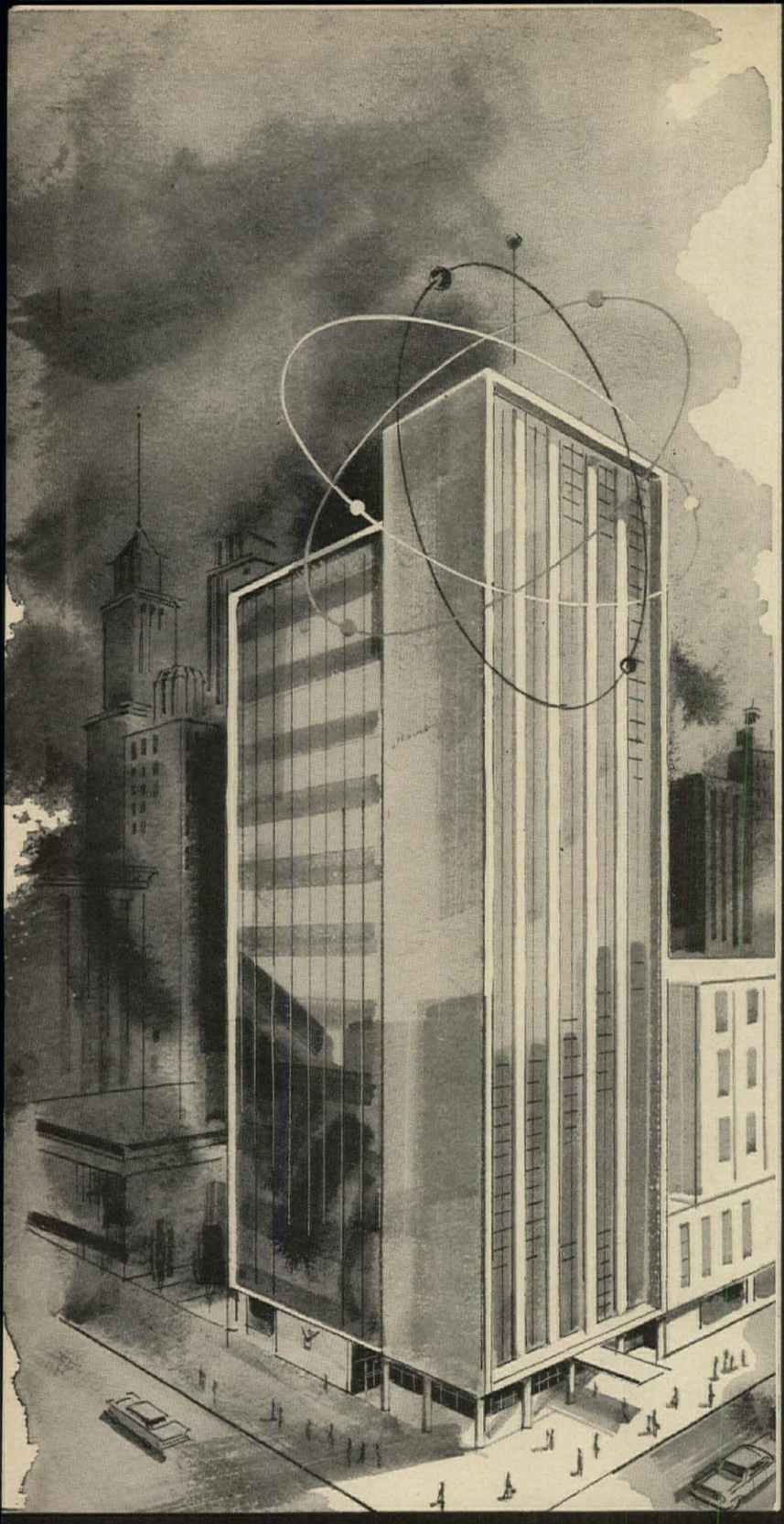

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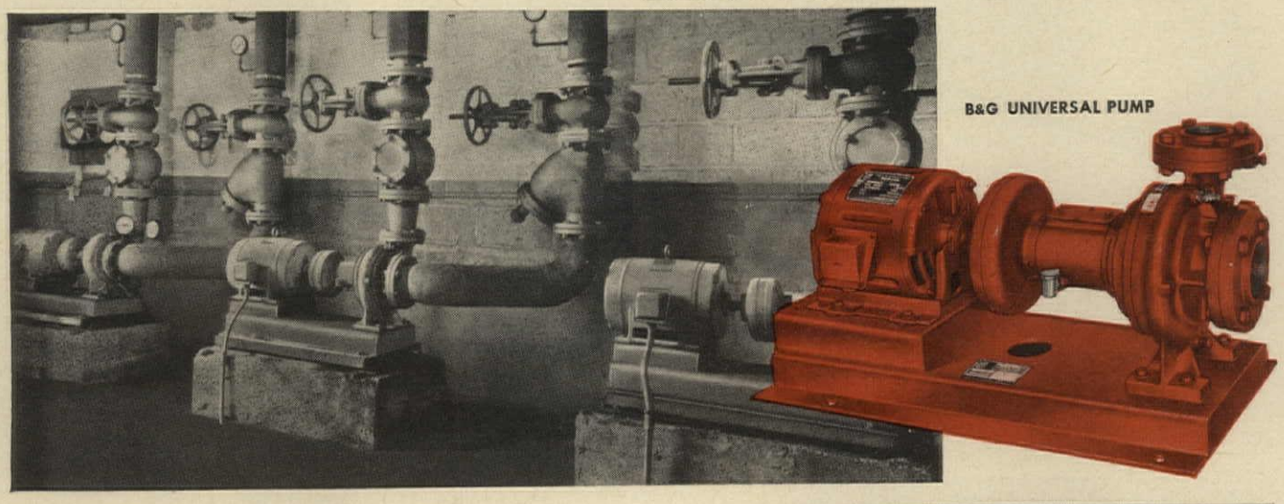

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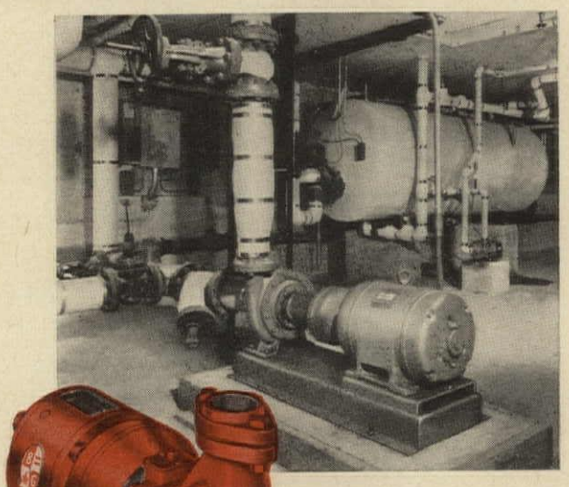
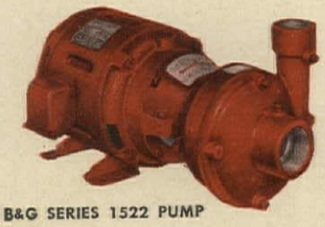


B&G BOOSTER PUMP

Photo shows secondary heating pump, domestic water secondary pump and domestic water recirculating pump.



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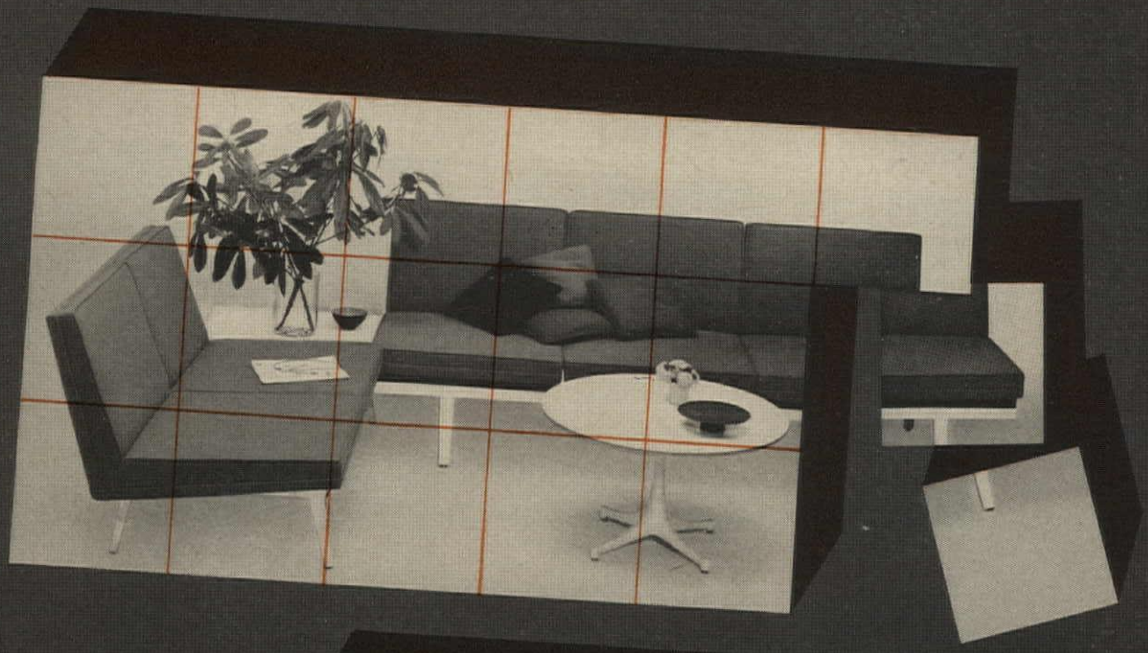
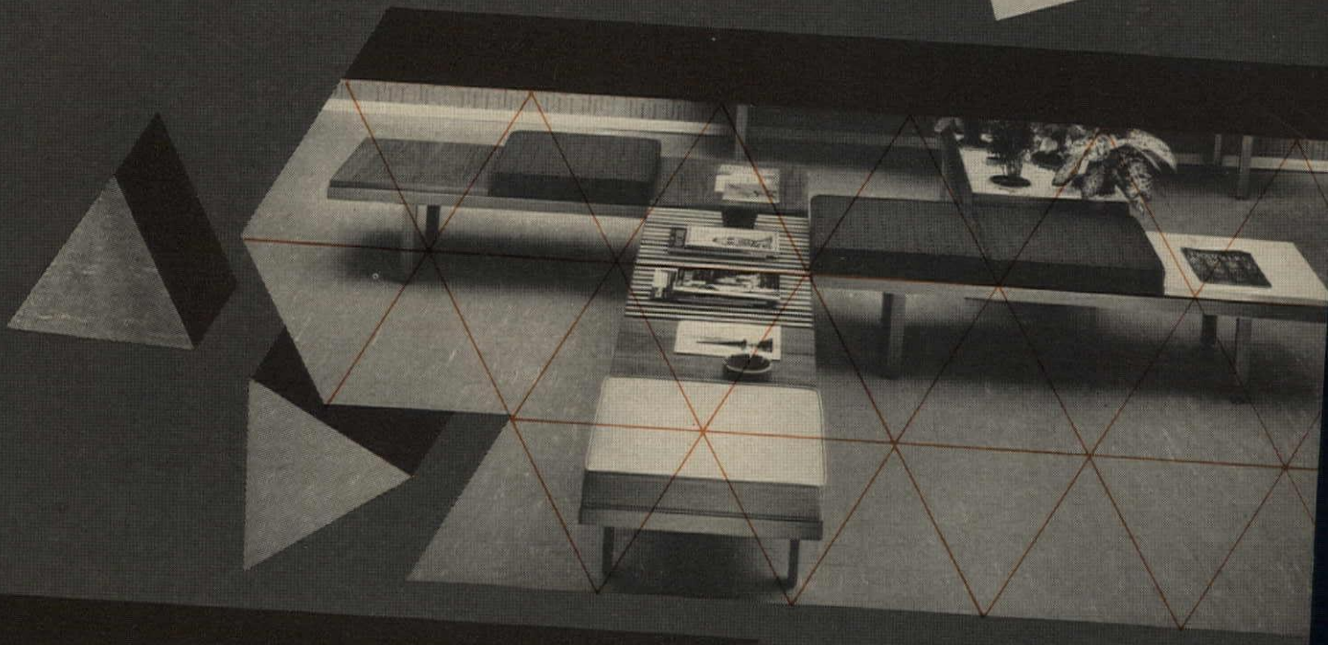
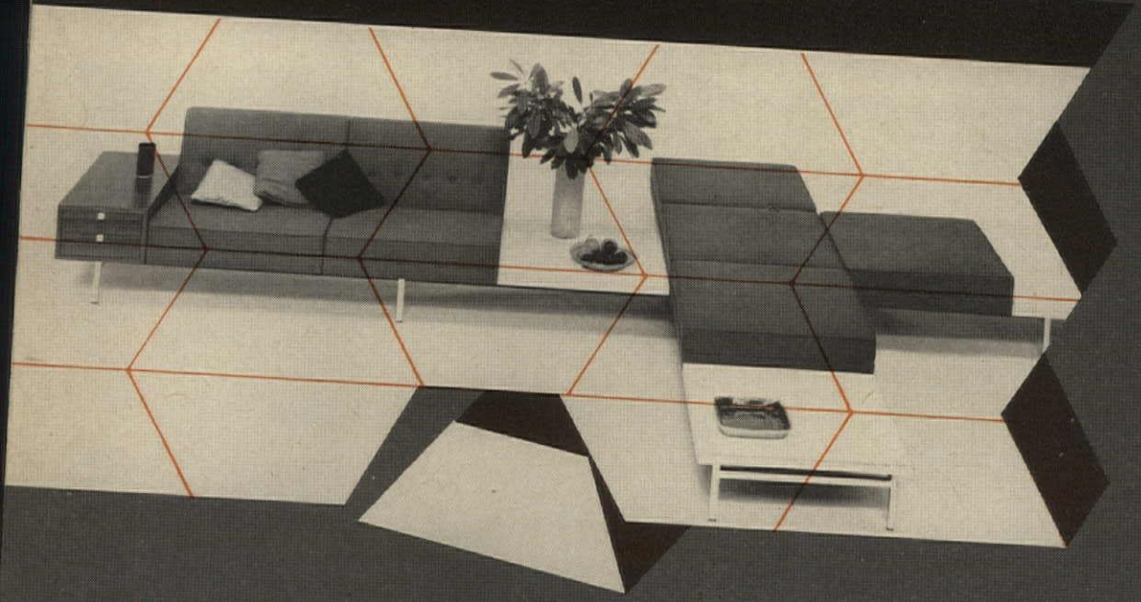
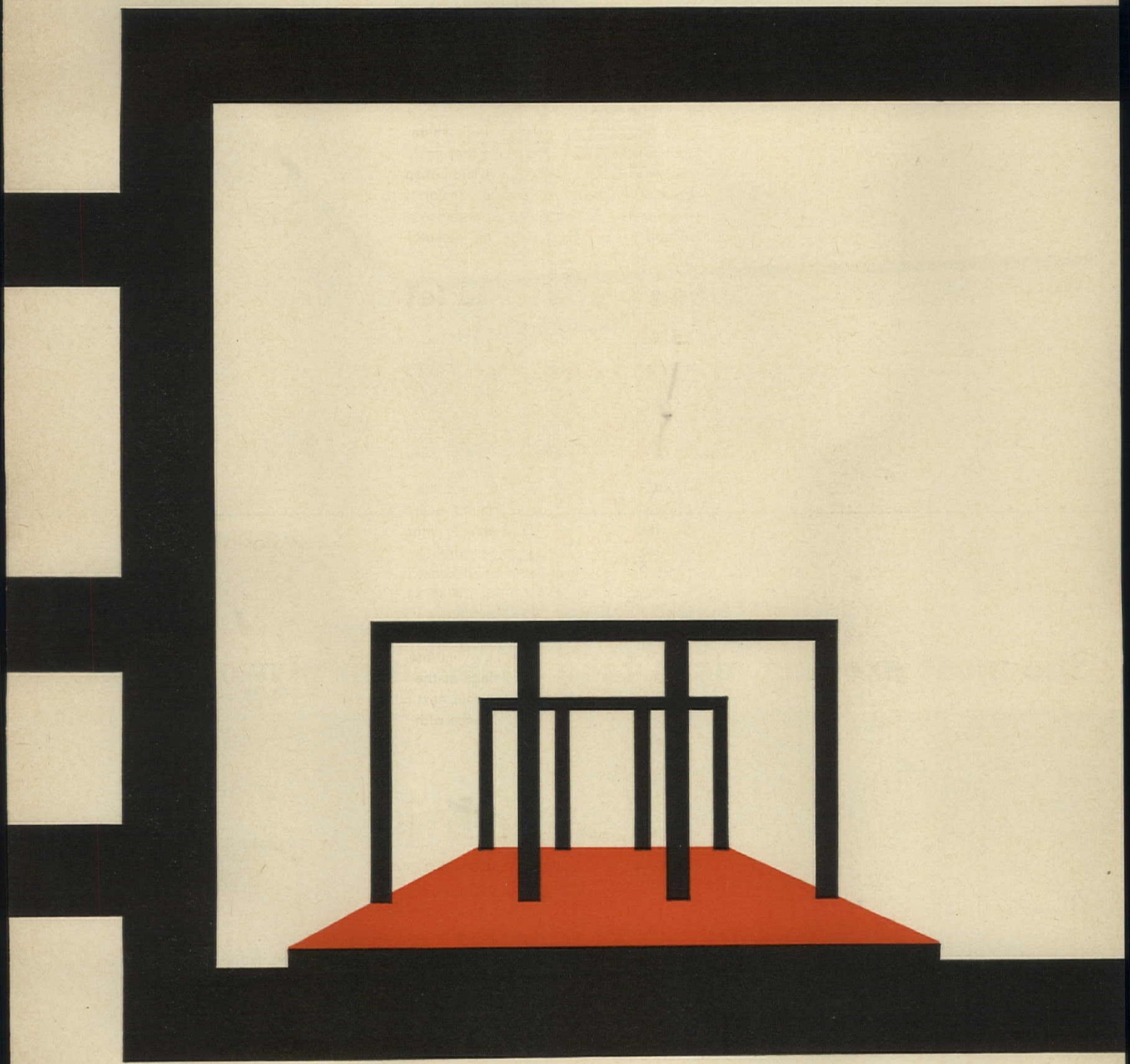






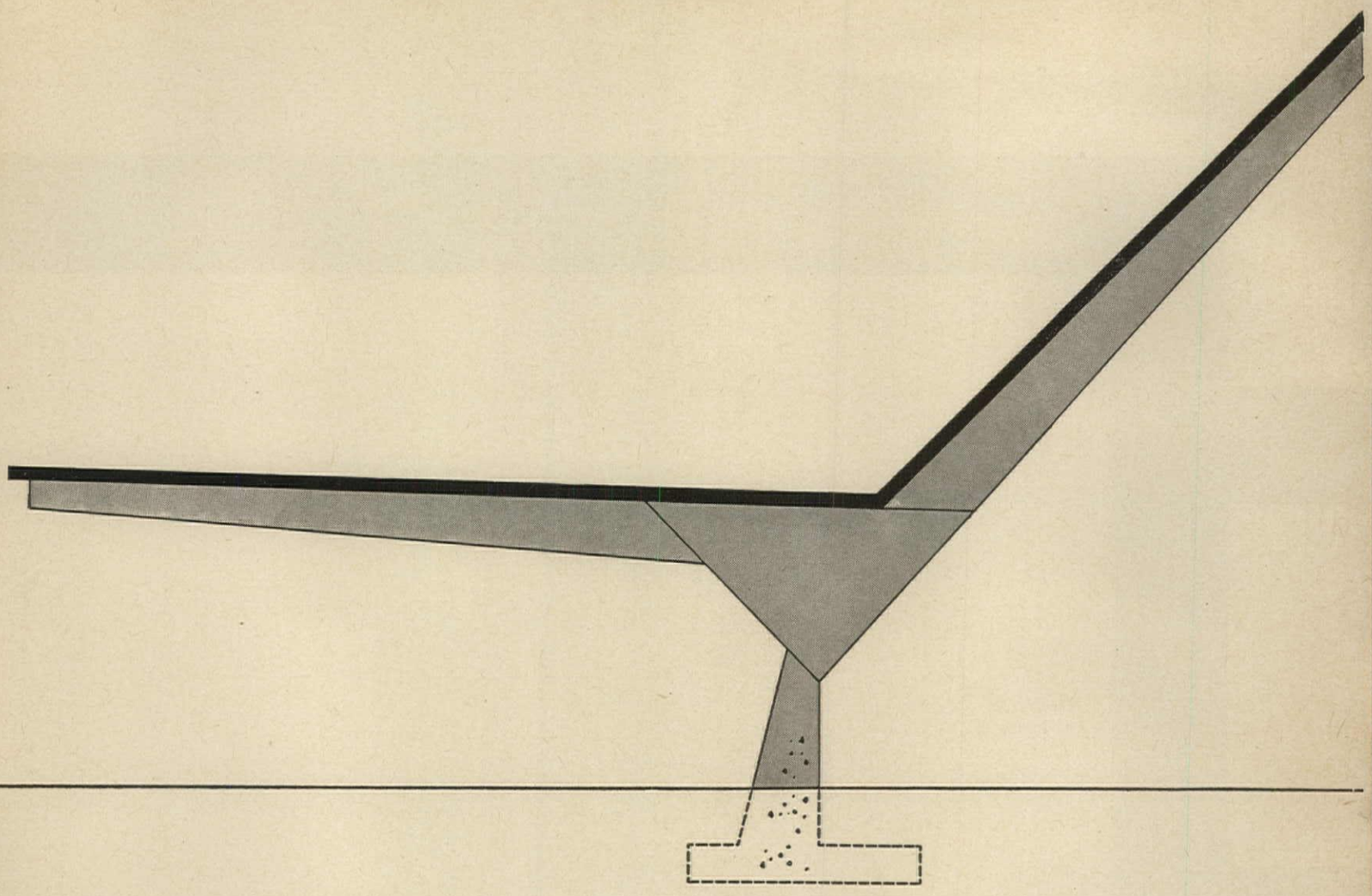
3 seating solutions

Difficult office and reception area seating problems need no longer puzzle interior designers. Herman Miller offers no less than three systems—Steelframe Seating, Contract Bench System and the Modular Seating System to answer these specialized needs.



Overly

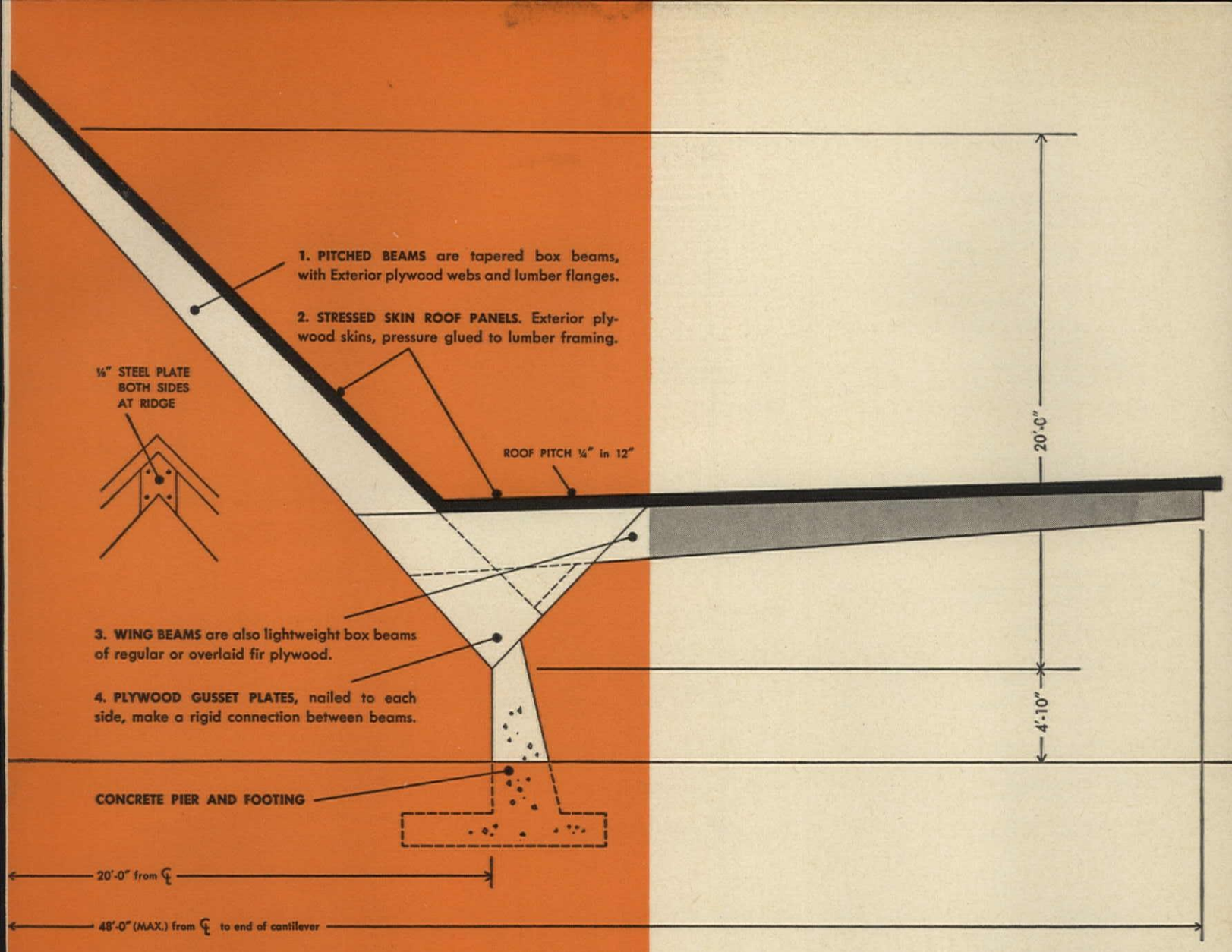
Overline® Entrances



the most exciting ideas take shape in fir plywood

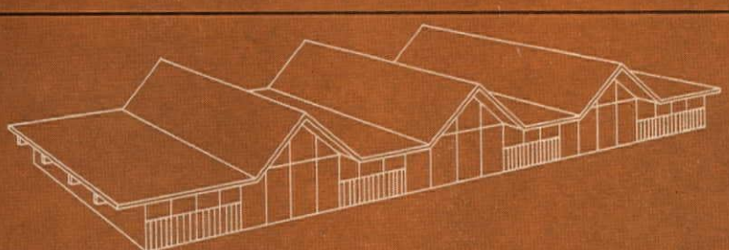
PLAY SHELTER
PARK LODGE ELEMENTARY SCHOOL

LOCATION: Pierce County, Washington
ARCHITECT: Robert Bruce Waring, Tacoma
CONTRACTOR: Korsmo Brothers, Tacoma



THE DELTA SYSTEM PERMITS LIMITLESS DESIGN VARIATIONS

Supermarket has circular folded roof; wings radiate from center.



School is a series of Delta units with cantilevered wings joined.

Pool, under Delta section, is flanked by plywood-vaulted cabanas.

DELTA STRUCTURES—based on a revolutionary new building system keyed to engineered plywood components—combine distinctive appearance, speed and ease of construction and remarkable design flexibility. They also offer important cost advantages.

Named for its dominant triangular profile, the Delta System was developed and engineered by Douglas Fir Plywood Association to meet the need for an attractive, versatile and low-cost commercial-industrial building with large clear floor area and non-load bearing walls. Several Delta structures have been built to date, besides the one shown at left.

The simplicity of the structural scheme, which depends on only four basic plywood components, permits almost limitless design variations. Length and width may be varied by changing the size and number of basic Delta frames or the length of wing beams. DFPA has prepared design recommendations for 608 structural variations.

For more information on Delta System and other plywood components, and name of fabricator nearest you, write Plywood Fabricator Service, Inc., Chicago 17, Ill. Delta components are made and sold only by PFS licensees, and are available in most parts of the country. For basic plywood design data, write (USA only) Douglas Fir Plywood Association, Tacoma 2, Washington.

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Ad Index

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Masonry Wall Reinforcement and Rapid Control Joint

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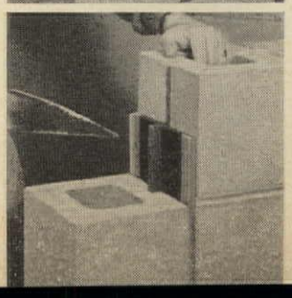
- Dur-O-waL Prod., Inc., Box 628, **SYRACUSE, N. Y.**
- Dur-O-waL Div., Frontier Mfg. Co., Box 49, **PHOENIX, ARIZ.**
- Dur-O-waL Prod., Inc., 4500 E. Lombard St., **BALTIMORE, MD.**
- Dur-O-waL of Ill., 260 S. Highland Ave., **AURORA, ILL.**
- Dur-O-waL Prod. of Ala., Inc., Box 5446, **BIRMINGHAM, ALA.**
- Dur-O-waL of Colorado, 29th and Court St., **PUEBLO, COLO.**
- Dur-O-waL Inc., 1678 Norwood Ave., **TOLEDO, OHIO**
- Dur-O-waL Ltd., 789 Woodward Avenue, **HAMILTON, ONTARIO, CANADA**



Strength with flexibility—the two basic factors for a repair-free masonry wall are assured by these intelligently engineered companion products. Dur-o-wal reinforcement, top left, increases flexural strength 71 to 261 per cent, depending on weight Dur-o-wal, number of courses, type of mortar. The ready-made neoprene Rapid Control Joint, beneath, flexes with the wall, keeps itself sealed tight.

Letters

ALFRED EISENSTAEDT—LIFE

WRONG SHORE, RIGHT IDEA

Forum:

While finding agreement with your presentation of "The suffering shore line" (FORUM, June '61), I must admonish your pictorial section for misidentifying Alfred Eisenstaedt's photo on page 91.

This view is not of the Staten Island shore line, but of Brooklyn at the Gowanus Canal. The trestlelike structure over it is the Smith and 9th Street station of the IND subway line.

Civic pride has not prodded me to come to the defense of this stepchild of the "Empire City." On the contrary, I will readily admit that this "visual squalor" is predominant throughout most of the north and west shores of Staten Island.

RICHARD E. JOINSON
Staten Island, N.Y.

Forum:

Three cheers for Walter McQuade and FORUM for "The suffering shore line" (June '61). Now, if you could get Washington interested in matters such as this, instead of the moon, there might be some hope for the human race.

A major portion of my work, through the years, has been of subject matter pertaining to the sea and ships. Every visit to the shore line has been and is filled with frustration, for seldom is it possible to eliminate entirely the myriad trash heaps from the view. Many of our contemporary foreign camera artists achieved initial reputations of superiority over the domestic group simply due to the factor of their lands and people being more photogenic than ours. There existed a reverence for nature.

Let's first set our house in order.

HANS MARX
Photographer
Baltimore, Md.

WELFARELESS ISLAND

Forum:

I see with alarm in the June issue of FORUM the Richmond-Gruen-Stevens project to develop Welfare Island by housing 70,000 people in a "city within a city." A city, moreover, without a park. A city, moreover, which is to be monoclass. A city, moreover, which provides no employment for its inhabitants. A city which can make $59,947,500 profit for the government of the city of New York. (This must be a better bargain than the Louisiana Purchase.)

Perhaps we shall do better when we have read full reports of the recent talks by Social Critics Lewis Mumford and Catherine Bauer Wurster.

Perhaps then we shall begin to design an environment, and not just money-making machines.

PHILIP LANGLEY
Architect, landscape architect
Ville d'Avray, France

WHO'S A BANDIT?

Forum:

"Memorial to a gallant band," a monument to the Brigata Sassari (FORUM, June '61), is excellent, and I am glad to see this presentation. But I would like to say that I read with some surprise—and I assume Nivola would have read it with some surprise and humor—that "The Italians . . . lose all their wars and win all their war memorials." In actuality, the Italians won their wars: in 1866 (against Austria), in 1912 (against Turkey), in 1915-1918 (against Austria and Germany), in 1935-1936 (against Ethiopia); and lost the war of 1940-1945. I don't believe anyone is more anti-nationalistic and anti-racialistic than I am, but certain truths must be established.

As to your confirmation that the Brigata Sassari were ". . . recruited entirely from among Sardinia's proud descendants of bandits," let's leave it at that. It is like saying that divisions of the U.S. Army recruited from the region of Chicago are composed of descendants of gangsters. Constantino Nivola—those who know him can say so—is not a descendant of bandits, nor does he look like one.

BRUNO ALFIERI
Zodiac Magazine
Milan, Italy

• *Italians are much too charming to win wars—at least we'd prefer to think so. Regarding the Sardinian bandits, this intelligence came from* FORUM'S *favorite nonbandit, Tino Nivola himself. (They were unsuccessful, nonviolent bandits, of course!)*—ED.

COLLABORATIVE TOWER

Forum:

Concerning the construction of the water tower at Casablanca (FORUM, May '61) which we built with our consulting engineer, Eduardo Torroja of Madrid, we wish that there could have been some mention of the close collaboration between the engineer and the contractor which made possible, from conception through execution, the smooth progress of a design of great boldness.

FERNANDEZ
Societe Marocaine
d'Exploitation des Entreprises
Rabat, Morocco

FERNANDEZ

BACK TO THE CAVES

Forum:

Your magazine appears to have launched a drive to enlist architects in the promotion of the twentieth century's newest building form — fallout shelters (FORUM, Feb. and Mar. '61).

With the building of these, man's untiring efforts through the centuries have been brought full circle—back to the caves. (Of course, these are technologically superior caves. After all, we have learned something in all these years.)

And when man emerges from his new caves, he will start, not like his primitive ancestors in an untamed world of natural creation, but in a tamed world of his own making: burnt, devastated, ruined, and contaminated.

STIG HARVOR
Architect
Ottawa, Ont.

Forum:

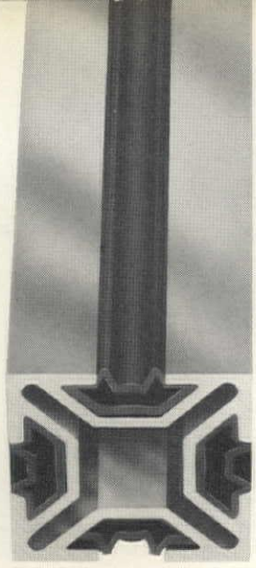
One can only hope that we expend as much energy on the possibility of peaceful prevention of attack, as is suggested we spend preparing shelter for it.

JOHN R. MASLEN
Portland, Ore.

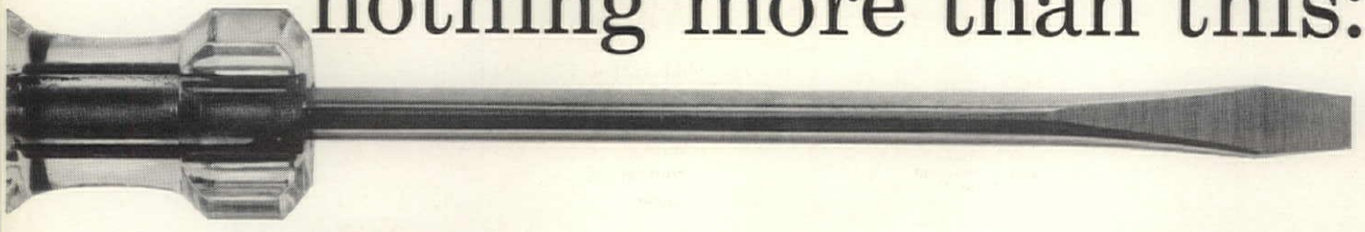
ERRATA

The article, "The Low Cost of Fine Buildings" (FORUM, *June '61) miscredited the design of the Norton Building in Seattle. Bindon & Wright of Seattle were the architects; Skidmore, Owings & Merrill of San Francisco were the consulting architects.*

In the same issue, FORUM'S *report on the new IBM Research Center in Yorktown Heights, N. Y. neglected to credit Bolt, Beranek & Newman, Inc. with the acoustical engineering of the main auditorium.*—ED.



Because of this extrusion, engineered with Olin Aluminum, 15 floors of the TIME-LIFE building in New York City can be quickly re-shaped with nothing more than this:



Olin engineers helped design this unique extrusion to serve as the universal junction of movable wall panels. The genius of this extrusion makes it possible to change office size, shape and color in jig time with nothing more than a screwdriver! So many Olin ideas like this have saved so much time and money for fabricators, designers and architects that modesty forbids telling all. As versatile as aluminum is, it doesn't think, doesn't create designs, or doesn't fabricate itself. That's why Olin Aluminum offers you the services of its marketing and technical staff. They "think aluminum." Don't you think it would be a good idea to call Olin?

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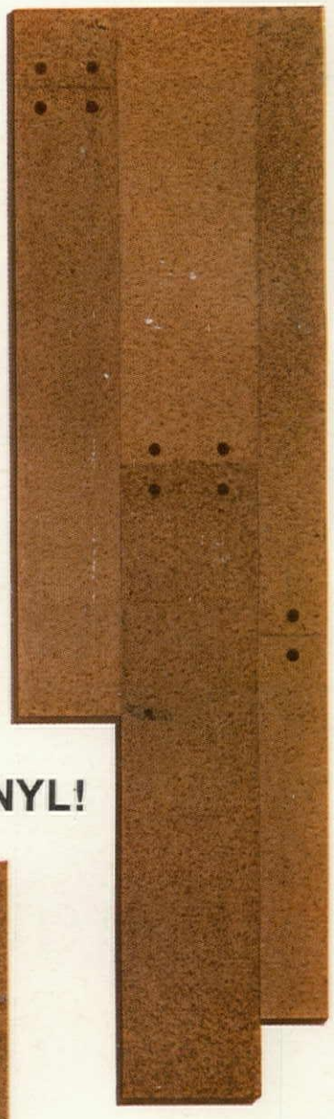

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