

PUBLISHER'S NOTE

Besides writing the magazine, the editors write a lot of letters. One department alone, the Editorial Service Department, answered thousands of inquiries last year, about half by mail, half by phone. No one is quite sure what it proves (the editors' perspicacity or the readers' curiosity or what), but the volume of inquiries increased more in 1962 than in any previous year—by about 20 per cent and almost all by mail.

The burden of handling all these questions and requests is carried in the experienced hands of Mrs. Henry Ottmann and her associates, Anna Wong and Donald Peterson. Mrs. Ottmann has been with FORUM for 22 years.

In addition to corresponding with readers, Mrs. Ottmann and her associates keep the editorial



files in order, maintain the picture "morgue," and type all the editorial copy. They are also responsible for returning all material submitted to the editors for publication, a task which sometimes requires the assistance of TIME INC.'s staff of husky porters. For example, one recent package was a crated building model—so big it had to be moved to and from the editors' nineteenth-floor offices not in an elevator but on top of it!

Most inquiries seek information about the design of various kinds of buildings, or ask when the editors published this article or that,

or request tear sheets of FORUM articles. The favorite subject still seems to be Frank Lloyd Wright, even though the great architect died three years ago. Thus, a modest announcement in the advertising pages of the April issue last year, concerning the availability of copies of a 1959 article on FLLW's work, drew 1,184 requests for 1,884 copies. Filling these orders quickly exhausted the supply-as well as Mrs. Ottmann's staff, who had to keep track of more than 1,000 fifty-cent pieces which accompanied the orders.

As for more current topics, the most popular were the editors' articles about the 100 biggest architects, contractors, and clients, for which there were reader requests for 551 extra copies. (The first 1963 installment of this annual editorial series appears on page 110.) Other subjects which particularly interested readers: concrete technology, office interiors, church architecture, the work of the late Eero Saarinen, urban renewal, and laboratory buildings. The publisher's office handles editorial reprints which are produced on order and at cost. It turned out more than 75,000 last year, including 16,000 reprints of the article on concrete (Sept. '62) and 10,000 of the article on hospital design (Oct.

One quarter of Mrs. Ottmann's inquiries come from architects, another quarter from building product manufacturers, the balance in about equal parts from building owners, real estate companies, and planning agencies. A few come from high-school students who want to know "all about the building industry" in one easy lesson.

Any questions? Ask Mrs. Ott-mann.—J. C. H. JR.

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1,	LETTERS		ARCHITECTURAL FORUM, April 1 Vol. 118, No. 4. Published mont	963. hly
49	PROJECTS		Vol. 118, No. 4. Published mont by Time Inc., 540 N. Michigan Ave., Chicago 11, Ill. SUBSCRIPTIONS: U.S., U.S. Posses	sions
			and Canada, one year \$7:	
56	PRODUCTS		elsewhere, one year \$12. Single copies, if available, \$1. Addres all subscriptions and correspond	s ence
67	FURNISHINGS		concerning them to ARCHITECT FORUM, 540 N. Michigan Ave., Chicago 11, Ill. Second-class po	URAL
07	PURININGS		Chicago 11, Ill. Second-class po paid at New York, N.Y., and at additional mailing offices.	stage
81	EDITORIAL		at additional mailing offices. This issue is published in nat and separate editions. Addition	ional
			and separate editions. Additions pages of separate editions are	n.i

EDITOR'S NOTE

BOOKS

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western edition W1-W4.
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Circulations and Associated Business
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Clean Room, Robins Air Force Base, Georgia. John H. Watson, Chief Designer; David B. Gaines, Architectural Engineer: Leon Leonard, Mechanical Engineer.

Seven special benefits that make Armstrong sheet vinyl Corlon an ideal floor in this Clean Room

The picture on the opposite page shows a floor of Armstrong Tessera Vinyl Corlon in a Clean Room at Robins Air Force Base, Georgia. This room is typical of controlled environment enclosures used increasingly for precision manufacturing and assembly. In these interiors, cleanliness, temperature, and humidity must be rigidly controlled. Several Armstrong sheet vinyl floors meet the exacting requirements of Clean Rooms. Of these, Tessera Corlon is especially recommended and has proved successful in many installations. Here are some of the reasons

1. Seamlessness. Because it comes in rolls 6 ft. wide and up to 90 ft. long, Tessera can be installed with



a minimum of dirt-catching seams. In specialcases, since vinyl is thermoplastic, the few seams can be

closed by heat sealing.

2. Flash coving. Because it is tough and flexible, Tessera can be curved

up the wall, eliminating crevices at the juncture of wall and floor. Thus, maintenance is easier because there are no traps for soil and other contamination. Where large quantities of water are used to flush away waste and foreign materials, liquid does not seep below the flooring.

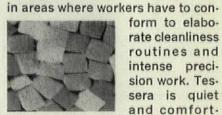
3. Non-abrading. All interior surfaces in Clean Rooms must be virtually immune to dusting or flaking. Tessera has excellent abrasion resistance and, by most Clean Room standards, is non-dust-producing.

4. Resistant to chemicals. Tessera is completely resistant to grease, many chemicals, most dilute acids and alkali.

5. Withstands vigorous cleaning. Repeated cleaning of this rugged floor will not damage it or mar the colors.

6. Installation anywhere. Like most other types of Armstrong sheet vinyl Corlon, Tessera has the exclusive moisture-resistant Hydrocord Back, which permits installation at all grade levels-even below grade in direct contact with a concrete slab except where excessive alkali

or hydrostatic pressure is present. 7. Pleasing to workers. The psychological atmosphere is important

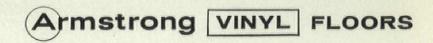


form to elaborate cleanliness routines and intense precision work. Tessera is quiet and comfort-

able underfoot and has an attractive random design that never dominates the interior. It is available in a choice of pleasant colorings of varying light reflectance.

For more information on floors for Clean Rooms-or for any type of building-contact your Armstrong Architect-Builder Consultant, He can make available the services of the Armstrong Research and Development Center and the Armstrong Installation Specialists. Call him at your Armstrong District Office or write direct to Armstrong, 304 Rooney @ Street, Lancaster, Pa.

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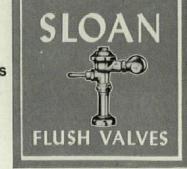
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Commerce proposes research to spur building (below)
Urban renewal misused in L.A. (page 7)
First Design In Steel awards announced (page 8)
Planners descend on Canaveral (page 9)







Holloman

Hod

WASHINGTON DEBATES BUILDING RESEARCH

Last month, the federal government moved to shake the construction industry out of its lethargic state. With the full realization that building has been a stagnant industry compared to other segments of the economy (*Editorial*, Feb. '63), the Department of Commerce has proposed that construction be one principal target of a \$8.6 million federal program for developing basic research over the next 16 months.

Commerce's object is to restore construction's growth rate by concentrating on ways to generate higher productivity rather than simply refining existing products and technology. Yet its proposed Civilian Industrial Technology Program even in the present preliminary form—has provoked a storm of criticism from the building industry.

Suggested: A Point Four program for the building industry

As put forth by Commerce Secretary Luther H. Hodges several weeks ago, the program would:

1) stimulate the industry into exploring new research areas it might otherwise avoid as too expensive or too marginal; 2) establish an industry-university extension service to advise on and demonstrate new building methods; 3) help support university work on industrial research and development; and 4) distribute technical information.

Dr. J. Herbert Holloman, Assistant Secretary of Commerce for Science and Technology, developed the program. Last month before a House Appropriations Subcommittee, he explained it, stressing Hodges' first two points.

In fiscal 1964, said Holloman, a dozen key engineering schools will be selected to begin pilot programs to provide background and bases for future extension activity using matching funds from state and local governments or from industry. Example: basic research will probe such aspects of interior environment as light, sound control, proportion of spaces.

Even though the program is still in its formative stage, it has drawn fire from several sources. The subcommittee's minority leader, Rep. Frank T. Bow (R., Ohio), charged that it would: 1) tamper with the free enterprise system, 2) create a costly program "that offers little of benefit," 3) undercut the industry's own research and development.

opment programs, and 4) set up a new area of political patronage.

At the same time a private poll of some 100 trade organizations showed that the building industry had no enthusiasm for government-subsidized research of the sort contemplated. The American Institute of Architects took a moderate stand. AIA Executive Director William H. Scheick suggested that the Department of Commerce seek the advice and collaboration of the industryoriented Building Research Institute and Building Research Advisory Board in order to develop a more acceptable program.

Chief objection to the federal scheme is that it is too vague. Although Holloman has emphasized that government would not get into the manufacture or distribution of proprietary products, the industry still regards the program with suspicion. Much will probably be resolved when, as is considered likely, the House subcommittee approves the proposal (after cutting the appropriation) and sends it to the Senate. There the appropriations subcommittee will conduct hearings open to testimony from outside sources, and the merits and demerits of the program can be debated in public.

REALTORS CRITICIZE U.S. TAX REFORMS

A few weeks ago, real estate leaders had a chance to express their views on the Administration's proposed tax reforms. Their verdict, presented before the House Ways and Means Committee: the reforms would slow sales and construction, thus harm the industry.

Two proposals were specifically attacked. One would allow the taxpayer to claim only that part of total deductible expenses which exceeds 5 per cent of his gross income. This, according to Daniel F. Sheehan, President of the National Association of Real Estate Boards, would hurt low- and middle-income families and reduce incentive to buy homes.

The other controversial reform proposes to end the use of accelerated depreciation on buildings. By using the fast write-off, the Administration noted, building owners now reduce their taxable income in the early years of ownership, and often sell the property when the depreciable amount (relative to amortization and mortgage interest payments) starts to diminish. The sale usually re-

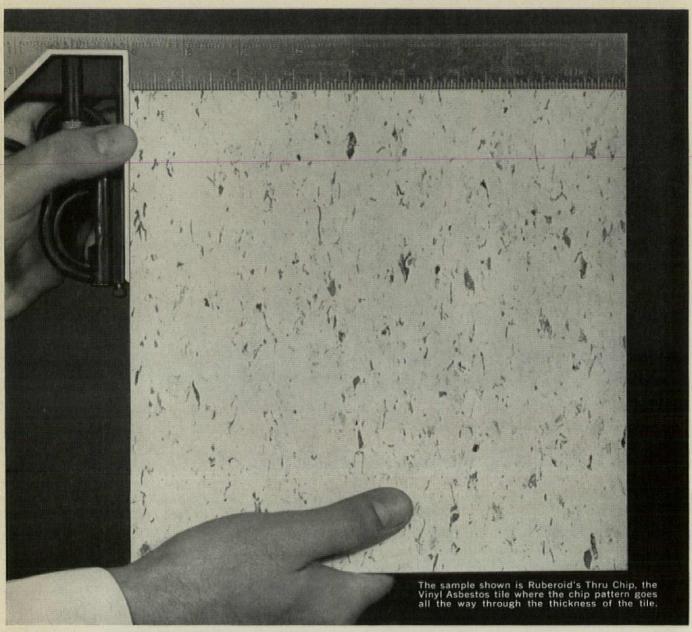
sults in a profit—which is taxed at capital-gains rates. To the Treasury, this means building owners now have two tax loopholes.

Treasury would close them. It proposes limiting depreciation on future acquisitions to the "straight line" method, where equal annual amounts are written off over the life of the structure. Also, in the sale of the property, the amount of gain subject to capital-gains treatment would be reduced by the amount of depreciation taken since December 31, 1963.

These reforms would apply only to buildings held under six years, thus curbing wheeler-dealers. If a property is held for a longer time, a sliding scale would reduce the amount taxable as ordinary income in the event of a sale. Any property held for 14½ years or longer would be subject to capitalgains rates when it is sold.

NAREB Official Maurice A. Pollak criticized these proposals on grounds that they would substantially diminish the attractiveness of real estate as an investment.

continued on page 7



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Real property, he said, is such a speculative venture that it must offer high rates of return (8 per cent and over) to draw investment funds. If the reforms in their present state are enacted, he added, investment in real estate—including urban renewal projects—would slump.

Pollak did recognize, however, that there were serious abuses in the field. He therefore proposed a compromise reform which would keep the fast-depreciation feature and would cut the time limit that a building would have to be held from six years to three. If sold earlier, ordinary income-tax rates would apply to the portion of

profit already charged off in accelerated depreciation. Committeemen were interested in Pollak's suggested reform, as they are reportedly looking for ways to approve a stiff tax bill—but one not so strong as the President's.

About the same time, the committee heard praises for another aspect of the Administration's tax proposals: the section designed to give architects, engineers, artists, and other professionals with widely fluctuating annual incomes a large measure of tax relief, by allowing them to average out lucrative years with leaner ones, spreading a good year's earnings over five for tax purposes.



U. C. UNVEILS YET ANOTHER MEGACAMPUS

Hard on the heels of the University of California's announcement of plans for a centralized campus at Irvine and a highly decentralized campus at Santa Cruz (Forum, Mar. '63), came the unveiling of yet another new branch at San Diego. It falls squarely between the other two in concept.

As designed by Los Angeles Architect Robert E. Alexander and approved "in principle" by the U.C. Regents in late February, the 1,100 acre San Diego campus will consist of three clusters containing four colleges each. Students will receive about twothirds of their graduation requirements at their own colleges and glean the remainder at other colleges within their cluster. This arrangement led San Diego Chancellor H. F. York to describe the plan as "the best of both worlds" -neither so concentrated as Irvine nor so diffuse as Santa Cruz.

Nonetheless, the San Diego campus tends towards the centralized prototype-at least physically (see model photo above). To be completed by the year 2000, at a cost of some \$400 million, the new campus will eventually contain 27,500 students in fairly close contact with one another. The college clusters will be built separately over the course of years. The nucleus of each cluster is marked by a thematic spire, which echoes a 350-foot-high communications tower at the hub of the new university. Also in the center is a pyramid-shaped library, administration and other communal buildings.

Alexander's plan has encountered one snag already: It conflicts with a master plan drawn up for the community surrounding the campus, thus posing the question of who is to pay \$4 million in road and utility costs.



L.A. VIEWS A "COLOSSAL RENEWAL ERROR"

The apartment project above is, in the words of Los Angeles' Urban Renewal Coordinator Robert L. Goe, "a colossal error from several points of view."

The project, called Barrington Plaza, was approved under the previous administration of ex-Mayor Norris Poulson. Federal slum clearance funds were not used in the area, but federal mortgage insurance aids were.

Barrington Plaza is luxurious by any standard: included under a \$18.6 million federally insured mortgage are such items as swimming pools, massage parlors, and a nine-hole miniature golf course. So far, it is renting slowly; rents run from \$155-\$495 per unit.

Still more potent criticisms are that the urban renewal process was used in an inappropriate area, and that the area was redeveloped with little regard to proper overall planning, forcing an enormous new load of 2,500 people and almost as many cars on the already

congested Wilshire-Sunset Boulevard district.

Retorts Harold L. Manley, chief of the conservation bureau of the Department of Building & Safety, "Over a ten-year period, the increase in tax revenues from these properties will return manyfold expenditures by the city for improvements."

Manley defends the project on other grounds: "This area met federal requirements for a non-assisted program—there was evidence of substantial blight." Manley agrees, however, that most of the problems in the 30- and 40-year-old homes in the area could be solved just by code enforcement. But he points out that the area would not then be eligible for long-term, federally insured loans for redevelopment and re-habilitation.

Goe's answer: "This sort of development has spread the word that 'urban renewal' is a dirty piece of business."

REYNOLDS EXPANDS ITS TITLE I ACTIVITY

Reynolds Metals' urban renewal subsidiary, Reynolds Aluminum Service Co., announced recently that it is going into two new Title I projects. The move indicates that Reynolds now feels its other six renewal ventures are sufficiently well advanced to per-

mit new investments.

Reynolds now has definite plans for the Weybosset Hill area in Providence, R. I., and for a 13½-acre site in Syracuse, N.Y. Beyond these, a new project in Louisville now awaits URA approval, and Reynolds has bid (with a

continued on page 8

group of local investors) in Hartford's Bushnell Plaza redevelopment. Whether Reynolds' activity has been stimulated by Alcoa's recent purchases of five big renewal projects from New York Developer William Zeckendorf is not certain, but industry observers feel this is likely. Indeed, Reynolds and Alcoa were slated for the first time to compete (with six other firms) for the same site in Hartford. Collision of the two renewal-minded giants was avoided, however, when Webb & Knapp, Alcoa's partner, withdrew.

Reynolds' new projects, like the others, will be undertaken with local interests. In Providence, the \$20 million Weybosset Hill job is being co-ventured with the Gilbane Building Co.; in Syracuse, Reynolds is working with Eagan Real Estate, Inc.; in Louisville, with General Electric.

Similarly, Reynolds will use well-known architects. Washington Architects Keyes, Lethbridge & Condon (with Syracuse's Pederson, Heuer & Hare) won a design competition for the \$26.6 million Syracuse project, which consists of three 30-story apartment towers, an office building, recreation center, and smaller buildings. The \$20 million Louisville river-front residential redevelopment (1,000 housing units) is being designed by Doxiadis Associates and Carl Koch.

The Providence project still does not have an architect designated, but I. M. Pei drew up the basic urban renewal plan for the area (which will include two office buildings, a motor hotel, and 600 dwelling units in apartment towers and town houses).

Reynolds' new, confirmed jobs boost its stake in renewal to some \$250 million, including projects in Washington, D.C., Kansas City, Richmond, Cincinnati, Philadelphia, and Baltimore.



DESIGNERS HONORED FOR USES OF STEEL

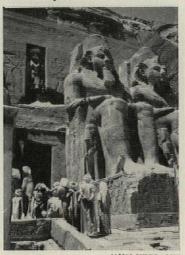
A decorative tower, an injector razor, and a highway bridge are among the winners in the first "Design in Steel" awards program sponsored by the Iron and Steel Institute. Architects, engineers, and industrial designers submitted some 540 entries using any of eight major categories of steel; last month ten designs received first prizes. Shown above are the Vacation Village tower in San Diego by Architects Spencer & Lee, the new Pal razor by Industrial Designer Henry Dreyfuss, and the Sultan Bridge in Washington by Consulting Engineer Harry R. Powell & Associates (picked for best use of concrete reinforcing rods, sheet steel or strip, and steel plate, respectively). Also named as winners were: Architects James J. Nardis and Edwin S. Darden of Fresno, Calif., for their calibrating tower (galvanized steel sheet); Industrial Designers Walter Furlani and Jack W. Stringer for the IBM 1440 Data Processing System (sheet steel or strip); The International Engineering Co., Inc. for its "radial" spillway for the Karnafuli River Hydroelectric Project in East Pakistan (steel plate); Engineers P. W. Freitag, Ir. and L. S. Kraft of the Goodyear Tire & Rubber Co. for their "curveflo" conveyor belt (drawn steel wire); Architects Smith & Williams for their own professional office building in South Pasadena, Calif. (structural steel); Designer Hugh Acton, for his folding pedestal table (steel bars); and Architects Hellmuth, Obata & Kassabaum for the St. Louis Priory Church in Creve Coeur, Mo. (FORUM, Dec. '63), which won in the welded-wire fabric category.

WHO WILL SAVE THE ABU SIMBEL TEMPLES?

To save southern Egypt's two 32century-old temples of Abu Simbel from inundation by 1965, when the Nile backs up behind the Aswan High Dam, engineers have estimated that \$70 million is needed. The admittedly risky rescue operation, proposed in 1961 by an Italian group and endorsed by the AIA, involves cutting the temples out of the sandstone cliffs into which they were carved, encasing them in concrete, and jacking them up 215 feet. For work to have started last month as planned, a contract should have been signed in January.

It was not, UNESCO headed a drive to raise the money, but toward the end of last year vetoed a proposal to borrow \$30 million from its own budget. So far, about \$18 million has been pledged from other sources-plus \$10 million earmarked for saving 25 other monuments in the Aswan Lake area. If further funds cannot be obtained, the government of the United Arab Republic has indicated it will study an alternate measure: quarrying the temples into huge pieces, and reassembling them on some safe site.

This plan, estimated to cost only \$1 million, was discarded in 1961 for unclear reasons, including cries of "vandalism." Considering, however, the risks inherent in the Italian proposal (such as the temples slipping within their caissons), the charge seems weak. One critic, indeed, believes that the fate of Abu Simbel is completely ensnarled with politics. The UAR, he says, feels that "if the Western World would not help to build the High Dam, it ought now to help pay for the consequences."



JAMES BURKE-LIFE

N. Y. MOVES TOWARDS ITS CIVIC CENTER

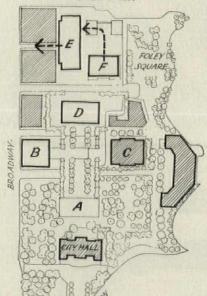
New York City last month moved rapidly toward adoption of a civiccenter master plan which the planners themselves fear may be critically weakened at the outset. The problem: the federal government's determination to put a \$60 million, 41-story office building in what is generally agreed to be the wrong place.

The widely hailed plan, presented to the city in December (News, Jan. '63), calls for clearing the space behind New York's fine old City Hall (A in plan opposite) for a plaza and two-level

mall, flanked by a new executive office building (B) and the existing Surrogate's Court (C). The mall ends at a new municipal office building (D); behind it is the federal tower (E) and its accompanying courthouse (F) facing Foley Square.

The consultants, however, recommended that the original federal site be moved west and north to increase the size of Foley Square and achieve a better relationship between building masses. The shift would also leave the way

WORTH SIKEET



open to unify the plan's presently separated open spaces, Foley Square and City Hall park.

The difficulty was that the fed-

eral buildings (Architects: Kahn & Jacobs, Eggers & Higgins, Alfred Easton Poor) already were in working drawings when the master-plan studies began. The General Services Administration said the time was simply too late for a change in site, and accepted a \$59.5 million bid by the Turner Construction Co.

The Civic Center's indefatigable champion, Architect Nathan Ginsburg, previously had started a letter-writing campaign to federal officials that was bolstered when Mayor Robert F. Wagner wrote to President Kennedy asking that GSA be directed to make the change anyway. Negotiations between the city and the GSA, however, have so far produced no progress.

GSA estimates cost of the shift "conservatively" at \$9 to \$15 million, Says Karel Yasko, chief architect of GSA's Public Buildings Service. "We'd have to go back to Congress for it, and you know what kind of a reception we'd get."

The Planning Commission held its public hearings on the overall civic-center scheme in mid-March. Most of the testimony was enthusiastically favorable, and adoption seems assured. Perhaps significantly, plans and model photos on display at the hearing showed the federal building and courthouse wing in their original location.



SHOPPERS' SUBWAY PAYS OFF

This is Texas' first subway. Opened a few weeks ago, it makes its 1.5 mile run between a 5,000-car, free parking lot and a central Fort Worth department store in 31/2

minutes-and at no cost to riders. It is a \$1 million gamble by its owners, Leonards store, to bring shoppers back to downtown, and is succeeding. Sales, says Leonards, are well ahead of last year.

PLANNERS PONDER CANAVERAL SPACE BOOM

Last month a planeload of planning specialists and community leaders took to the air to study the nation's fastest-growing and most celebrated "impacted area": the 5,900-square-mile, six-county region fanning out from Florida's booming missile test center at Cape Canaveral. What they saw, from the awesome launching pads and gantries (photo below) to the sprawling motel strips, was inevitably described as both a challenge and a mess.

Item: in the decade since the launch site was started in 1950, the region's population grew 128 per cent to 600,000 persons, compared with an average 18.5 per cent for the U.S. as a whole (the Cape's own Brevard county soared 371 per cent in people, 434 per cent in school enrollment, 510 per cent in cars).

Item: honky-tonk development, wild land speculation, trailer camps, and housing shortages are still not under control, though serious efforts are underway.

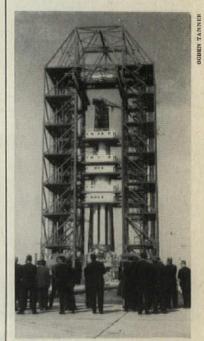
Item: the real impact, say local planners, is yet to come; to accommodate its moon-launch program, the National Aeronautics and Space Administration now owns some 100,000 acres, and has \$400 million in construction scheduled for 1963-64 alone.

Item: by next year, permanent space and military personnel will rise from 25,000 to 32,000; and "temporary" construction workers may increase from 2,000 to a high of 14,500 to get NASA's "lunar spaceport" in full operation by

Bewitched by the fireworks on the Cape, residents have not until recently seized the crisis as an opportunity for charting their region's growth. But during the past year action of a joint federallocal "impact committee" has resulted in an East Central Florida Regional Planning Council-with a paid four-man staff and a kitty of \$56,000 raised locally, plus \$90,000 in federal "701" planning funds.

Some \$90,000 is already going for a detailed aerial photographic survey, and a statewide panel of officials in fields from turnpikes to conservation has met to merge interests and ideas. Last month's air tour of outside consultants represents the next step in ECFRPC's unique, all-embracing approach. Under the guidance of the Council's energetic 34-yearold planning director, Robert Doyle, the invited experts* argued what they had seen, and how the region might best go about getting itself a true long-range plan coordinating economics, transportation, land use, and public facilities with overall community design.

Next step: formulation of a "skeleton" plan, to be reviewed this spring by the Council and the same two broad groups of experts; and, finally, presentation to officials and citizens of the six counties involved. The whole process is scheduled for completion in less than eight months, but then, says Planner Doyle, "We've got to grab the rocket by the tail".



Planners view new Saturn C-1 pad

*Frederick H. Bair, Jr. of Auburndale, *Fla. (housing); Margaret C. Breland of Atlanta, Ga. (population analysis); Charles M. Haar of Harvard Law School (land controls); Philip G. Hammer of Washington, D.C. (economics); Howard K. Menhinick of Georgia Tech (transportation); Dorothy A. Muncy of Arlington, Va. (industrial development); Pearson H. Stevart of Raleigh, N.C. (public facilities). To be joined by Marion Claussen of New York (open space and recreation), and Carl Feiss of Washington, D.C. (community design).

continued on page 11



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QUOTE ... UNQUOTE

"Everybody has been Horatio Algerized. But the get-rich-quick urge erodes as a man ages. The greed is still there, but one is more likely to consider the chances of falling on his face if he goes for big stakes. It's a reversal of the reaction of Pavlov's dog—the attraction is greater in later years if the stimuli are reduced."—Real Estate Investor Richard Swesnik.

"Billboards are the art gallery of the public."—Burr L. Robbins, President, General Outdoor Advertising Co., Inc.

"In no other period except the modern one could men have worried about the problem of design. They would have been bothered as to whether an object could perform its function, whether it was likely to last, and to be useful and perhaps in the end to be loved. But design, as something added to the object and as something to be considered by itself, would have been unheard of."—Presidential Consultant August Heckscher.

"Intellectually, British Architecture remains a slum."—British Critic Reyner Banham.

"We use a strange psychology in selling schools. Beer is sold as a part of gracious living; cigarettes as essential to social graces; soap as the zest of life; and automobiles on performance and quality. How do we sell a schoolhouse? 'If it's cheap, it's good.' "—Architect William W. Caudill.

"The defilement of Connecticut Avenue, one of Washington's noblest boulevards, has been almost completed during the winter. For block upon block, it is now faced with the cheap glass façades of shabby and spiritless new office buildings built as real-estate speculations. The New House Office Building on Capitol Hill . . . is simply monstrous, an incredible architectural clash of Texas-Roman and Nineteenth-Century Penitentiary. . . ."—N. Y. Times Columnist Russell Baker.



Dean Passonneau

HERB WEITMAT

ACADEMIC QUESTIONS

Dean WILLIAM W. WURSTER of Berkeley's College of Environmental Design will leave the University of California at the end of this academic year upon reaching retirement age. Speculation immediately began on the question of who would succeed him.

It is the same question that had apparently been answered to the satisfaction of observers of the Harvard hierarchy a few weeks ago (News, Feb. '63). Dean José Luis SERT of the School of Design seemed to have designated his successor when he handed one of his jobs, that of Chairman of the Department of Architecture, to JOSEPH R. PASSONNEAU. Then, to everybody's surprise, Passonneau announced in February that he would not take the position after all, but will remain as Dean of the Washington University (St. Louis) School of Architecture. His decision was prompted by "unforeseen factors"-not the least of which is said to be Dean Sert's change of mind about leaving Harvard in the near future to devote his time to the practice of architecture, as was expected.

DO-IT-YOURSELF RENEWAL

Powell, Wyo., is still a small town and, on the whole, looks like it: bland, squat buildings of brick and concrete, garnished with neon and tattered awnings. But R. A. Nelson, president of Powell's First National Bank, started thinking about a year ago while moving his bank into a new building, and decided to see what could be done to improve the town.

He hired Casper, Wyo. Architect Robert Wehrli to investigate and recommend ideas. Wehrli came up with some sketches and estimates to show

how very little money—often the cost of a new paint job and a neat, well-placed sign—could brighten the town considerably. Nelson was impressed, offered free design service to Powell businessmen who would agree to remodel. Local civic associations were also impressed and backed the plan. It began catching on; already seven remodeling projects have been





Nelson and Wehrli

completed, six are under way, and more are expected. And because of Powell's new sparkle, a completely new, Wehrli-designed mall and shopping-office complex will be built.

PRIZE-WINNING SPACE FRAME

The third annual \$5,000 Reynolds Aluminum Prize for Architectural Students has been awarded to MANUEL A. FERNANDEZ of the University of New Mexico. His winning design, an "aluminum curvilinear truss system," is a geodesic space frame formed by simply connected, interlocking aluminum rings. Fernandez, 27, kept the number of components to a minimum, invented a new

Fernandez, U.M. dean, space frame



joint to hold them together. The system is still experimental, but the jury (Architects Linus Burk Smith, Robert Anshen, Philip D. Creer) found it "a creative approach to the design of a light-weight space structure."

COMPUTER PIONEER'S WOES

Consulting Engineer ROBERT C.
MEISSNER over the last five years
evolved an ambitious electronic
computer system that showed
signs of using computers in an unprecedented way (FORUM, Oct.
'62). His company, Meissner Engineers, Inc., set up a battery of
computers able to translate raw
data into calculations for structural frames and then directly
into engineering drawings.

Towards the end of last year, however, Meissner found himself besieged by creditors. Reasons: the costs of research and the rental of computers had drained away all revenue. Some \$1.2 million in debt, with its line of credit stopped at \$950,000 and the Internal Revenue Service after more than \$300,000 in withheld taxes, Meissner Engineers was put under reorganization. The biggest blow came in January when it lost its rented computers. By late February, the company was in receivership under the Meiscon Corp., a computer manufacturing company with a larger financial base, which intends to apply Meissner's experience to automating probems of highway designs and industrial procedures.

BRIEFLY NOTED

The Mortgage Banker's Association of America has appointed ex-FHA Officer Graham T. North-Rup as its Director of Government Relations in Washington, D.C. His job: representing MBA on Capitol Hill.

A member of the Aluminum Co. of America's legal staff, Robert C. Erikson, was recently named Alcoa's manager of urban renewal. The company has 11 major redevelopment projects in seven U.S. cities, five of which were purchased last November from Webb & Knapp's subsidiary, Zeckendorf Property Corp.

continued on page 14



Low-riser, wide-tread stairways make going from one level to another easier at the Peninsula Volunteers' Retirement Apartments. Together with the over-hanging roof, they also demonstrate some of wood's self-supporting capabilities.

For retirement apartments people long to live in

use WOOD . . . and your imagination

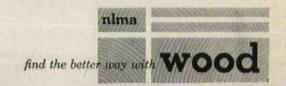


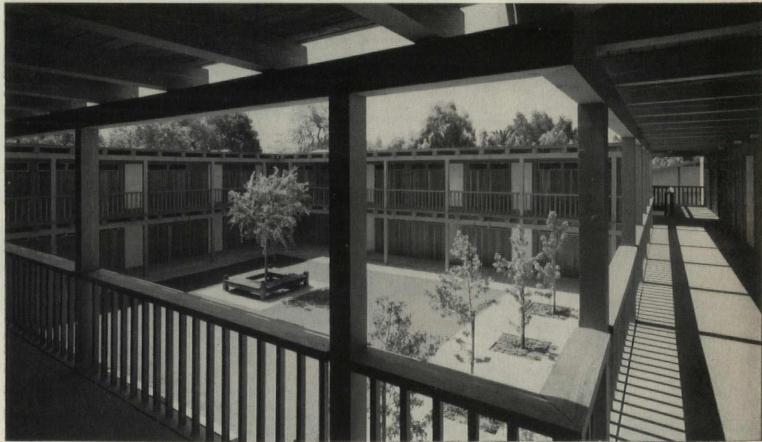
Partially tree-shaded shingled siding, balcony, roof overhang, and fence show wood's natural ability to belong in the 30-unit Peninsula Volunteers' Retirement Apartments. Architect: Skidmore, Owings & Merrill.

Wood makes retiring comfortable in a multiple dwelling . . . just by being all around in siding, stairways, and on balconies overhead. Its freedom of design permits economies in both individual interiors and large, friendly exteriors. Wood's inherent durability provides years of use with little wear . . . its compatibility with other materials promises decades of beauty.

Wood insulates, too, through hot and cold seasons. Its sound qualities help maintain privacy from one apartment or room to the next. Its multitude of grains, tones, and textures offer a welcome warmth, generate an environment enviably livable. For more information on designing with wood, write:

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





A continuous balcony and patio below use exposed wood framing to surround an open-air quadrangle, and add to the outdoor serenity of the Peninsula Volunteers' Retirement Apartments in Menlo Park, California.

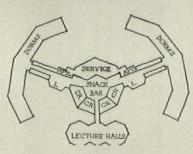


LAS VEGAS HOTEL. Soaring 300 feet out of Las Vegas' neon junk-yard, the new Landmark Hotel (above) is one of the oddest sights in a town which thrives on sensation. On five concrete pillars containing elevator shafts and stair wells sit a casino, restaurant, and entertainment areas. Cost: \$6 million. Architect: Clarence Stringer. Contractor: Caroll Constr. Co.

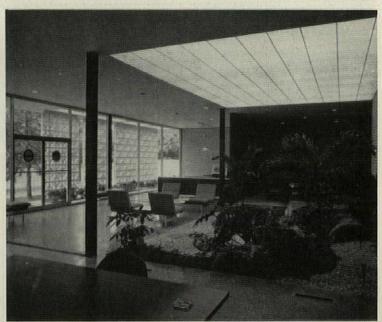
BOSTON STUDENT UNION. The nearly completed George Sherman Union (below) is the first building in Boston University's new high-rise campus plan. Designed by Architects Hoyle, Doran & Berry, it bears the unmistakable imprint of their consultants, Sert, Jackson & Gourley: e.g. the bold penthouses. Cost: \$4.4 million. Contractor: M. S. Kelliher.







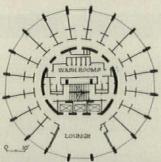
MICHIGAN "COLLEGE." Wilson Hall (above) is one of five projects at Michigan State University designed to intensify academic use of decentralized dormitories. The \$6 million project puts 1,000 men and women in two six-story wings around a central library, lecture, classroom, and dining facility. Architect: Ralph R. Calder & Assoc. Contractor: Miller Davis.



CAROLINA SAVINGS & LOAN. The new home of the Southern Pines (N.C.) Savings & Loan Association has a small interior garden (above) at its center. Lighted by a patch of luminous ceiling, the garden provides ready-but limited-space for expansion. The one-story building is constructed of steel, glass, and white brick, with terrazzo floors. Deep overhangs shelter the sides. In front (right) a masonry screen filters the western sun. Cost: \$50,000. Architect: Hayes-Howell & Associates. Contractor: A. E. Carter.







PITT'S NEW DORMS. One block from the Cathedral of Learning at the University of Pittsburgh, three striking circular towers to house 1,900 male students are nearing completion. The towers-15, 18 and 21 stories-are 88 feet in diameter, group all rooms outside around central cores. Cost: \$15 million. Architect: Deeter & Ritchie. Contractor: Dick Corp.



CALIFORNIA MOTEL. The Caravan Inn in Mt. View, Calif., clusters four buildings around a secluded pool with a scallop-roofed dressing pavilion alongside (above). Three buildings contain 119 guest

rooms in two- and three-story units. The fourth houses a coffee shop, dining room, and bar. Cost: \$700,000. Architect: Richard Dorman & Associates. Contractor: Noxon Construction Co.

CALIFORNIA CHAPEL. The new 200-seat chapel of the First Methodist Church in La Verne, Calif., is made out of strongly sculptured concrete. The two long side walls are composed of big roof-high panels with slots of glass between (below), supporting a vaulted roof of thin shells. A tremendous old camphor tree backdrops the altar through a wall of glass. Cost: \$136,000. Architect: Ladd & Kelsey. Contractor: Encino Construction Co.







MUSEUM. GEORGETOWN ART Complete except for landscaping is the new addition to the Dumbarton Oaks estate in Washington, D.C. The small gallery consists of eight domed cylinders ranged evenly around an open court. The cylinders are 22 feet across; each is ringed by eight marble-faced columns 3 feet in diameter. Cost: \$1 million (about \$80 per square foot). Architect: Philip Johnson Associates. Contractor: George A. Fuller Co.





"ARCHITECTURE IN THE MOON AGE"

Forum: Mrs. Moholy-Nagy should be congratulated for exposing the collective mediocrity of "popular" architecture in contrast to the "big idea" and the ability of certain architects to express such an idea (Feb. '63).

Architects should endeavor to become environmental controllers, to know their materials and their structures, and to quit blaming "business" for changing the architectural field.

Mrs. Moholy-Nagy is bringing out a great ideal this profession must embrace. We must not be satisfied with an inferior goal propagated through the "expanded services" proposal of the AIA.

P. D. PHARMAKIDIS
Architect

Forum: For years we have been trying to embroil the architect more and more in ship design, industrial design, graphics, etc., as part and parcel of architecture. The nostalgic idea of Mrs. Moholy-Nagy of going back to the Middle Ages is extremely surprising to me. The architect must be fully integrated in his mind and spirit with the financial, technological, social, cultural, and scientific developments of his era; otherwise he cannot be a great architect.

ROBERT ANSHEN
Architect

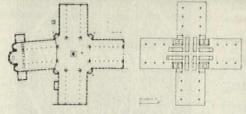
San Francisco

Toledo, Ohio

Forum: Permit me a brief rebuttal of your rebuttal, "Bringing back the Desire," in the February issue.

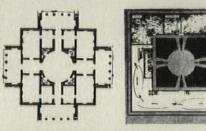
My "dreams close to being hallucinations" do not consist of leading architecture "back to the Academy with the historians," as you wrongly heard, but of "transforming established historical images" according to the design language of our time. The very issue of the FORUM in which my article and your reply appeared furnished the most overwhelming proof that this historical transformation survives where architecture survives.

The affinities between history and actuality in these plans go much deeper than mere surface likeness; they go back to the common root of design intellect. The builder of St. Simeon, 1,500 years ago, chose the cruciform plan for stability in an earthquake region, and for a diversification of identical space needs for large crowds. (Fig. 1)



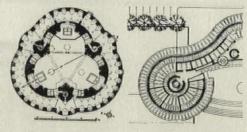
1. St. Simeon, 450; Place Ville Marie, 1963

The cross-in-square plan of the Federal World's Fair Pavilion clearly hopes to invoke a certain formality and concentration beyond the restlessness of the exhibition area by establishing two axes, just as Palladio, 400 years ago, narrowed undefined external space down to the Rotunda in the Villa Capra by channeling the approach through four formal passages. (Fig. 2)



2. Villa Capra, 1567; U.S. Pavilion, 1963

The ambulatory between an outer ring of 38 relic altars and an inner ring of ritualistic chapels in the pilgrimage church from 1686 differs radically in intent from a police station; but the architectural consideration of limiting the spread of a structure on the site, avoiding the deadening effect of a straight corridor with similar units, and assuring continuous communication, was the same. (Fig. 3)



3. Wallfahrtskirche, 1686; Police HQ, 1963

Do you really think that knowing what you term "the business . . . the realities of investment" contributed an iota to the excellence of either the historical or the modern solutions? "Architecture," you state, "cannot regain its position through force." We beg to differ. Architecture can hold its position through sheer force alone, the force of talent and integrity combined. All I tried to express was a growing concern that neither talent nor integrity are supported today by architectural education or architectural representation.

SIBYL MOHOLY-NAGY
School of Architecture
Brooklyn, N. Y. Pratt Institute

Forum: "Bringing Back the Desire" is one of the most timely articles I have read in a long, long time. I sincerely hope that this does not fall upon deaf ears, because "manana" won't do.

Grosse Pointe, Mich. PHILIP J. MEATHE

STEEL, NOT CONCRETE, FRAME

We wish to correct your item on the West Side High School (*Projects*, Feb. '63). The building is not a concrete frame, but a

steel frame with concrete fireproofing exposed.

MAURICE BARRON Farkas & Barron Consulting Engineers

FORUM CRITICISM

New York City

Forum: Let's take a look at the definition of "criticism" as given in your Publisher's Note, February issue: "To Forum's editors it means first to state the architect's intention; next, to evaluate how well he succeeded in doing what he was trying to do; and finally to do all this while making clear the premise on which the discussion is based."

I would like to ask that you consider more attention to the evaluation of what the architect is trying to do as well as how well he succeeds. Thus let's not just praise a school, for example, by saying it's "flexible." Why not give a bit of attention to the merits, and to the demerits, of flexibility? Remember, the truly flexible man could be the one who has nothing to say because he has an empty mind. Thus FORUM would not retreat after an initial skirmish or two on the planning for the New York World's Fair and be content with reviews of the various individual solutions to individual buildings. And thus FORUM would not merely review the Pan Am Building or Place Ville Marie with the press-release type of grand figures, but question actively what such plaza and concourse spaces do to people.

WILLIAM M. RICE

New York City

Architect

U.S. PAVILION-A "COPY"?

Forum: Regarding the U.S. Pavilion at the '64 Fair (Editorial, Feb. '63), your congratulations come too soon. Continue to speak harshly: the U.S. Pavilion is an exact copy, larger in size, of the Austrian Pavilion at the 1958 Brussels World Fair (photo below)—now a museum of modern art in Vienna. It was designed by Architect Dr. Karl Schwanzer.

Where are the "high standards" of U.S. architecture? Is our "image" a copy?

KNUT J. KOESTER Mamaroneck, N. Y.



WASHINGTON, D.C. ISSUE

Forum: The special issue on Washington (Jan. '63) was an outstanding job of covering the wide range of problems and chal-

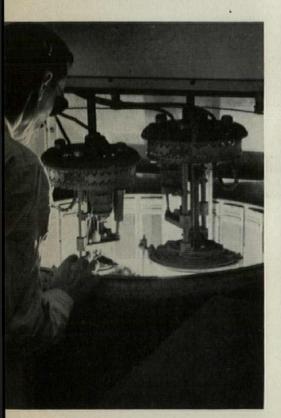
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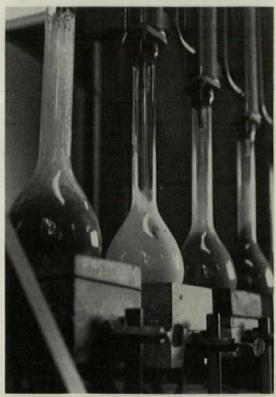
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lenges which exist in the capital. Syracuse, N.Y. JOHN R. SEARLES, JR. Metropolitan Development Assn. Syracuse and Onondaga County

Forum: The Washington issue performs a great service. It is all good, but perhaps special kudos belong to Paul Rudolph. I hope the exigencies of publishing do not prevent a few similar studies, either in FORUM, or under FORUM's guidance in a book. I live in a city which could stand a good deal of critical examination.

nbridge, Mass. JOHN E. BURGHARD Dean of Humanities and Social Science Cambridge, Mass. Massachusetts Institute of Technology

Forum: The January issue is chock-full of provocative thoughts.

I certainly agree with most of the criticisms, such as those Paul Rudolph pointed out. However, in comparison to most cities, I do not believe Washington's look is quite so dire. There is plenty of strength and richness in the city-a fine framework upon which a great future can grow. However, the future is the big question mark.

I would like to point out one discrepancy that appears in most articles on Washington by historians and planners alike, i.e., that Jefferson proposed a grid city and L'Enfant rejected it and applied a baroque of diagonals to fit the "so-called contours." Actually, L'Enfant applied a grid and then superimposed a system of diagonals that only relate to the topography at certain termini.

I think the biggest mistake that was made in Washington was when they filled the Potomac below the Washington Monument and the end of the White House grounds. The Lincoln Memorial and the reflecting pool, although charming, are not, I feel, basic to the city's design, and the waterfront, as it originally was, would be much more exciting.

Charlotte, Vt.

DAN KILEY Architect

Forum: The most interesting aspect of your special issue was the attention paid to the problems of getting things done in the District, and to "the other city." You recognize that design alone is not enough, that there must be improvements, too, in how the city is run, and in how all of its residents are treated, before it can become a beautiful city and "a credit to all of our people."

KNOX BANNER Executive Director Washington, D. C. Downtown Progress

Forum: Congratulations on the excellence of your photographs and text about Washington, D. C.

GEORGE L. WHITE

New York City

Harcourt, Brace & World, Inc.

Forum: Wonderfully supplementary to the January AIA Journal on "Washington in Transition." For the first time, there has been a clear statement of the various agencies and forces that have affected our National Capital's planning and government.

Washington, D. C. HENRY L. WRIGHT President, American Institute of Architects

Forum: Enjoyed the January issue except that in all 130 pages there was little or no mention of landscape design or planting. Is good architecture and planning only based on aluminum and concrete?

Beverly Hills, Calif. I. R. BOLKER President Brighton-Bilt Homes

Forum: As always, I have enjoyed recent issues, particularly those on Chicago and Washington. Are you planning one on the fascinating city of San Francisco?

WILBER L. JOHNSON Architect

Forum: An exceptionally good issue. Indeed, it does supplement the January AIA Jour-

> PAUL THIRY Architect

Seattle, Wash.

Philadelphia

Salina, Kansas

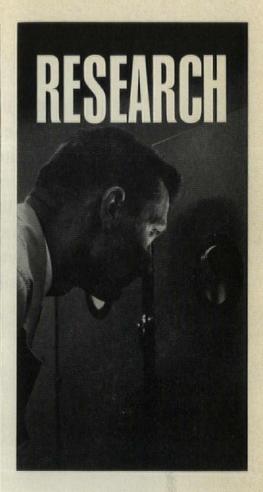
ATROCIOUS AIR VIEWS

Forum: I think the publication of every architectural work should include an air view so as to frankly embarrass the many, many otherwise respectable contemporary architects who indiscriminately scatter all sorts of mechanical equipment on the roof, not only making a miserable view from taller buildings or airplanes, but also producing atrocious skylines.

EDMUND N. BACON City Planning Commission

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WHY A SYSTEMS ENGINEER?

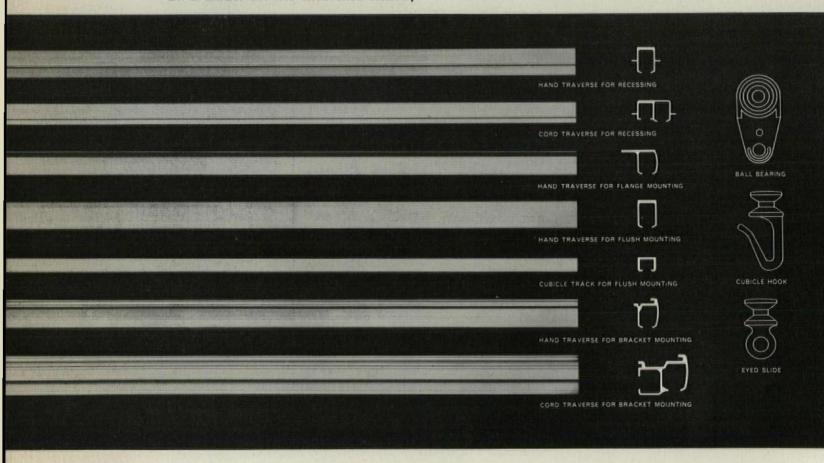
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FROM ARMSTRONG... AN ENTIRELY NEW KIND OF FLOOR: VISTELLE CORLON TILE— WITH DU PONT HYPALON

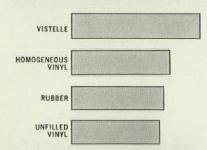
This handsome new floor is probably the most significant development in resilient floors since the introduction of vinyl. It offers the best combination of physical properties and functional advantages ever incorporated into one flooring material.

Here's how Vistelle compares to some other widely used commercial floors:

RESISTANCE TO INDENTATION MARKS

Some flooring materials, such as terrazzo, marble, and the better unfilled vinyl tiles, resist indentation by virtue of their hardness. But they offer this benefit at the sacrifice of underfoot comfort. Vistelle's exceptional resistance to permanent indentation is a function of its extreme resilience. It gives on impact, but recovers when pressure is released, providing a floor that is free of permanent indentation marks and at the same time, comfortable underfoot. Unlike other resilient floors, the resilience of Vistelle Corlon Tile does not decrease with age.

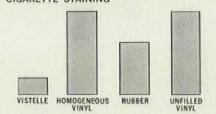
RESILIENCE



RESISTANCE TO CIGARETTE BURNS

Vistelle's superior resistance to cigarette burns is shown in the chart above right. In this test, cigarettes were left to burn out on the tiles. Then the tiles were cleaned with fine steel wool and a commercial floor cleaner and the remaining stain given a severity rating from 0 to 5. Vistelle rates best with only slight staining; so slight in fact, that it was undetectable at arm's length. The vinyl tiles were irreparably scarred, the rubber tile severely stained.

CIGARETTE STAINING



RESISTANCE TO STAINING

Staining tests have also been conducted with more than 100 solvents, acids, and chemicals—and with a like number of common household staining agents such as lipstick, grape juice, crayon, and ink. As shown below, in both sets of tests, Vistelle received a rating of 1 or below indicating very slight or no visible stain. Vistelle is also greaseproof.

ACID, SOLVENT, CHEMICAL STAINING



VISTELLE HOMOGENEOUS RUBBE VINYL DIMENSIONAL STABILITY

Vistelle Corlon Tile has exceptional resistance to shrinkage or expansion, exceeding the requirements of Federal

UNFILLED

Specification (homogeneous vinyl tile) Interim L-F-00450—(COM-NBS) by a wide margin. Dimensional stability will be guaranteed in writing by Armstrong.

COLOR CLARITY AND FADE RESISTANCE

Compared to other resilient floors, Vistelle's white is whiter, its black deeper, its colors richer. The delineation of design is sharper, too, because colors do not overlap one another. Vistelle is also highly resistant to fading. Test floors exposed to traffic and sunlight for several years have stayed remarkably color constant.

DURABILITY

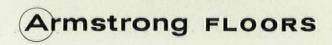
Vistelle gives superior service under heavy traffic. Tested on the entrance ramp at the Monsanto House of Tomorrow in Disneyland, it was exposed to a traffic rate of 6,000 people a day . . . a total of four million during the test period. After two years under these severe conditions, constantly abraded by sand and gravel tracked from paths leading to the house, only 20% of the tiles' thickness had been worn away.

COST

A floor of Vistelle costs \$1.50 to \$2.00 sq. ft. installed over concrete, depending on the size of the installation. Vistelle can be installed at any grade level over any type of subfloor.

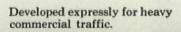
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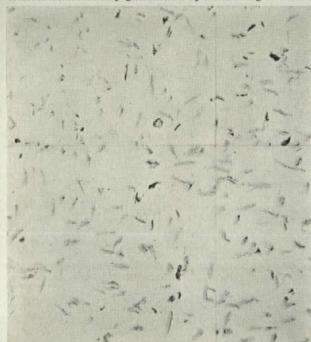
Excellent resistance to indentation — comfortable and quiet underfoot.





A lighted cigarette will not burn its surface.

Dimensional stability guaranteed by Armstrong in writing.



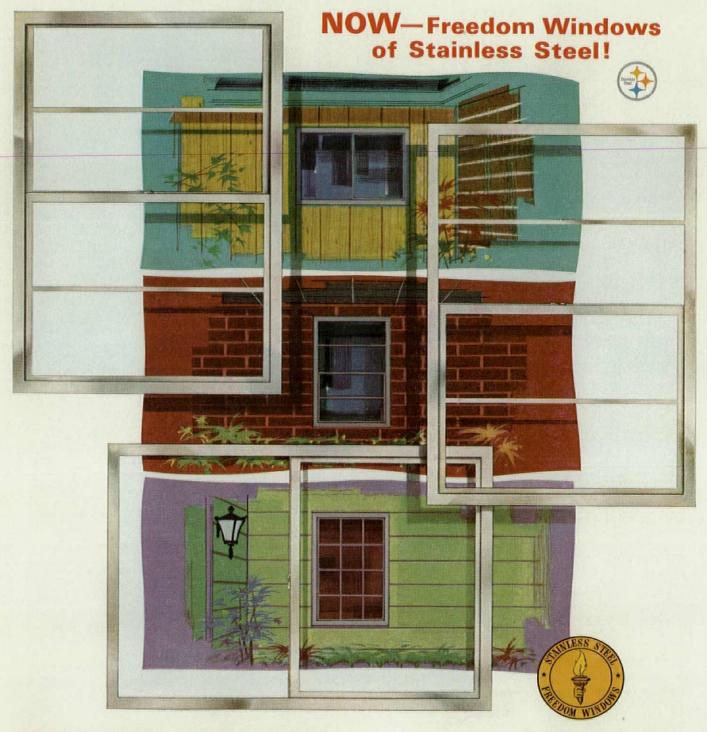




Ten colorings in five color-coordinated pairs. Subtle, flecked design gives a plain monolithic effect.

Resists more chemicals, solvents, and staining agents than any other resilient floor.





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ish I may, ish I might... make that bathroom Eljer bright!

Eljer is the name to look for when it comes to bathroom fixtures. There's a gleaming array of styles and colors to choose from-many of them exclusive Eljer ideas, all of them manufactured to Eljer's highquality lifetime standards.

Here are just four Eljer bathroom fixtures-any one of which ought to set your imagination percolating

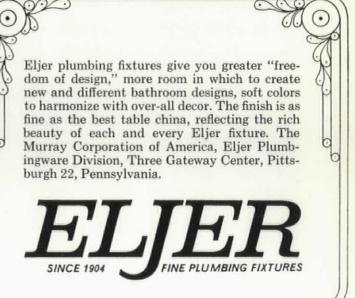


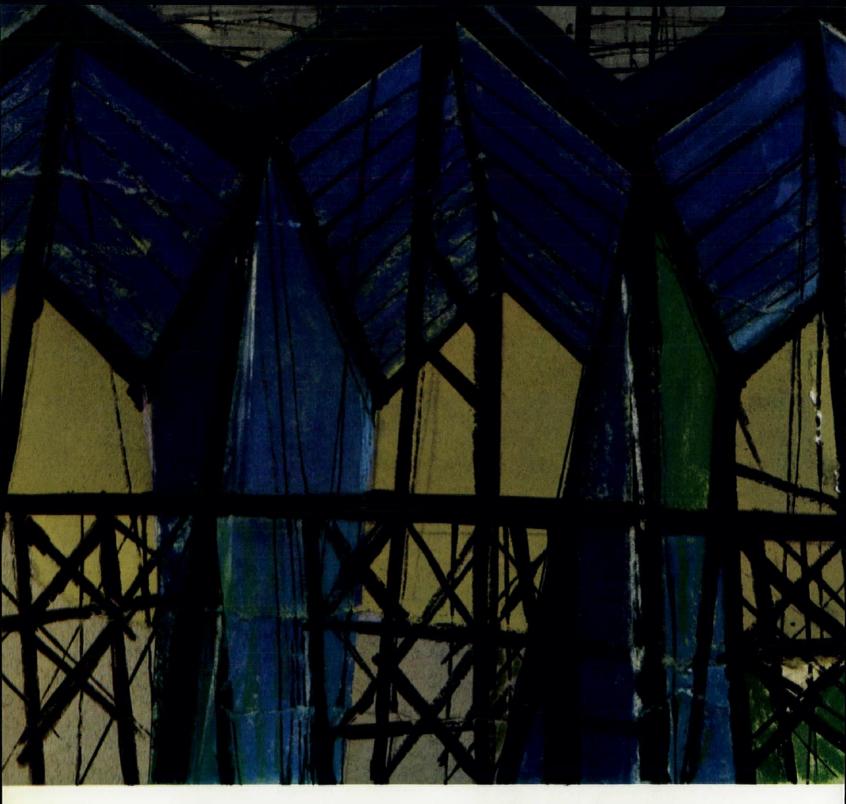
with unique and different bathroom designs and arrangements. Available in six pastel colors and white.







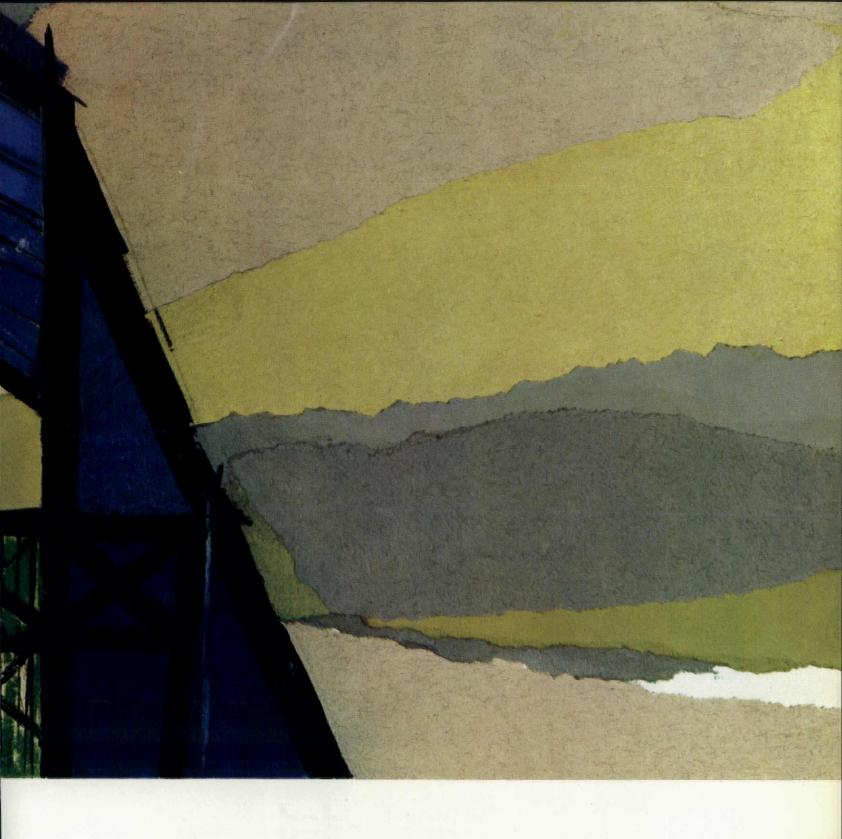




Cellular Steel Folded Plate

Clear Spans-Over 100' Light Weight-11 psf finished

Developed by Fenestra and independently tested at Cornell University, this new roof system gives efficient, column free, truss free, long span structures using only 1½" cellular steel panels and structural angle fold-line members. The folded plate sections may be constructed in place or lifted into place after fabrication. The system can be used to create a variety of interesting shapes, each serving as a structural roof ready for insulation and roofing, and a finished acoustical ceiling. Complete design information upon request. Call your Fenestra Representative or write Fenestra Inc., 220 Delaware Avenue, Buffalo 2, New York.



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NEW General Electric Wall-hung Water Coolers

give you an exciting new shape in refreshment - exclusive trapezoid design. These attractive, flush-to-wall coolers are different in a truly functional way. The space saving trapezoid shape invites drinking from either side, keeps personnel out of aisle. Mount the smart-looking wall-hung models at any height for easy floor-cleaning. Ask your General Electric distributor for "Specifier's Water Cooler Guide," No. 67-2042. Or write Section 761-23, General Electric Co., Chicago Heights, Illinois.

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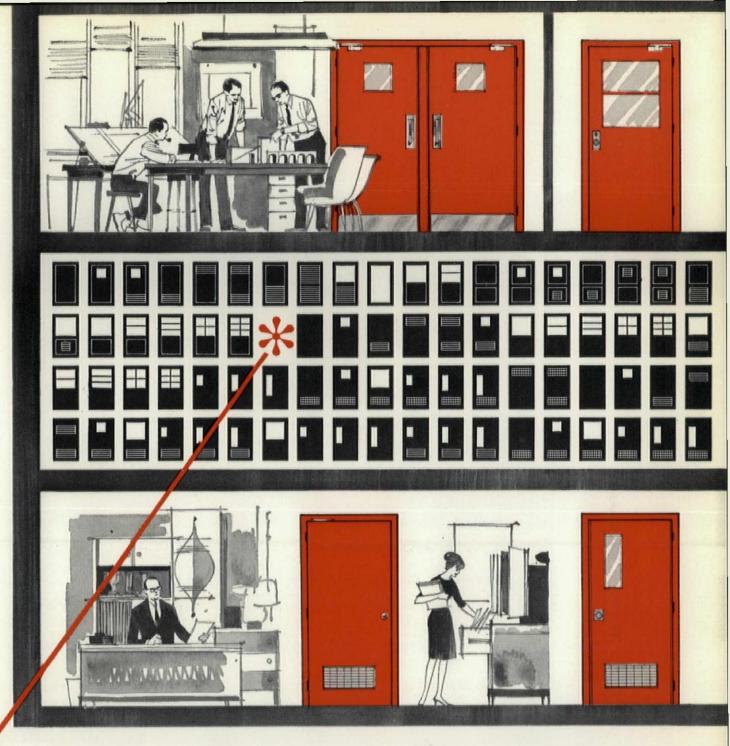




grade, or over wood or plywood subfloors. Consult Sweet's Catalog - or let us send you samples, color charts and detailed architectural specifications. Azrock Floor Products Division, Uvalde Rock Asphalt Company, 502-A, Frost Building, San Antonio.

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Porcelain Enamel Walls bring 2-way savings to Motels

In modern motels, as in most types of commercial buildings, the emphasis today is on *practicability*. Materials must be highly functional, serviceable. They must be handsome, durable, reasonable in cost—require but little maintenance.

Porcelain enamel wall panels meet all of these requirements. They are colorful, durable, withstand hard abuse, easily wipe clean with a damp cloth. They are quickly installed, require no special tools or skills. And they are relatively low in cost, permitting you to stretch construction dollars.

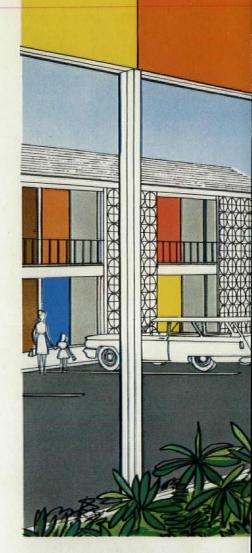
The lifetime porcelain enamel is *fused* to lightweight steel. Panels come to you ready for installation. Aluminum molding can be *porcelain enameled to match* if desired. You get a complete package. And you can choose from literally hundreds of colors.

Use them also for remodeling!

With porcelain enamel panels you get both *low initial cost* and *rock-bottom maintenance*, proved in thousands of installations. Porcelain enamel panels are available in a *variety of finishes* from long-established, highly reputable companies. Look them up in Sweet's! Call them in! Or write us for further information. FERRO CORPORATION, 4150 East 56 Street, Cleveland 5, Ohio.

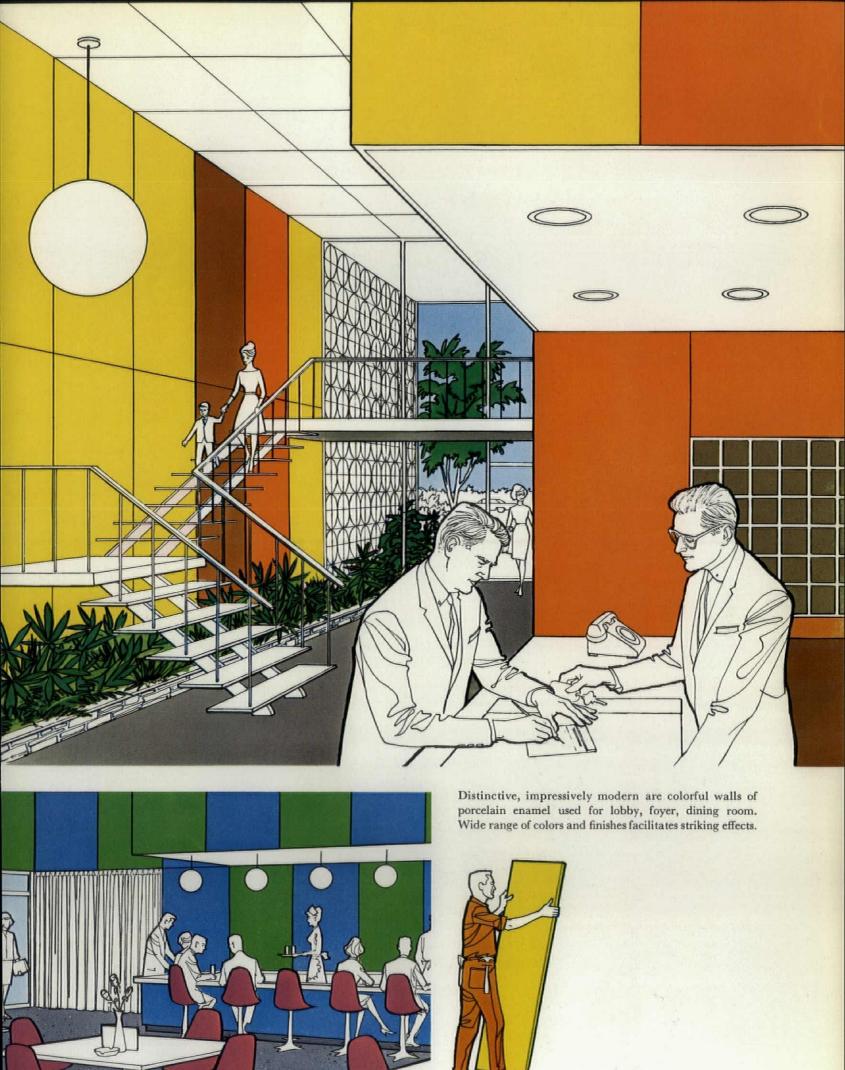


Vertical porcelain enamel panels in cheerful hues dress up windowless areas (inside corridors and sitting rooms). They are easily installed. Practically scratchproof. Never require repainting. Wipe clean with a damp cloth.





Carefree beauty and sanitation are combined in porcelain enamel walls for lavatories and guest bathrooms.





Excellent resistance to chemicals and stains

The Armstrong Cork Co. says,
"Our new Vistelle™ Corlon®





made with Du Pont Hypalon®

offers the best combination of physical properties and functional advantages ever incorporated into one flooring material"

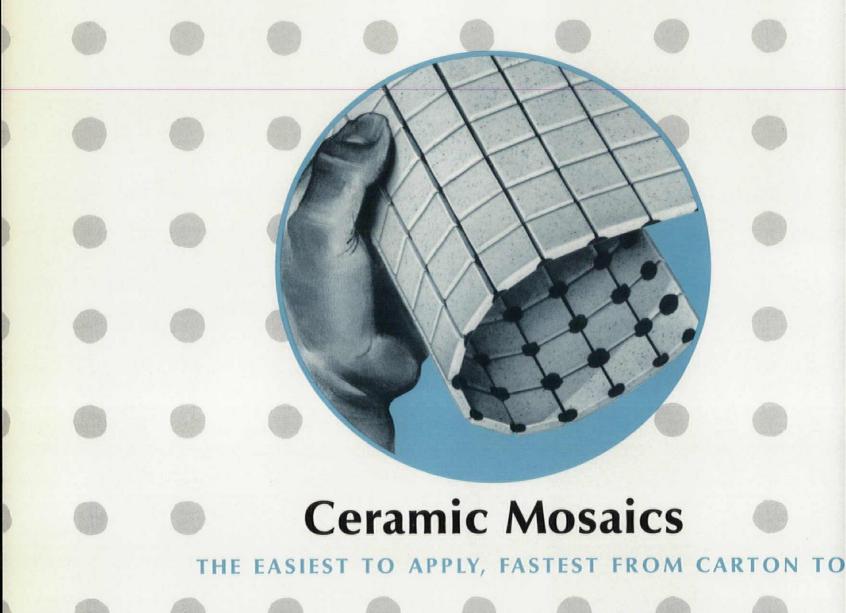
An entirely new kind of floor tile for commercial, institutional and fine residential use has been developed by the Armstrong Cork Co. It is made with Du Pont HYPALON.

Armstrong finds that HYPALON gives Vistelle Corlon superior underfoot comfort as well as fast and complete recovery from heel impact. Also, it provides superior resistance to furniture indentation, cigarette burns, wear, chemicals and staining. HYPALON makes possible whiter whites, deeper blacks, subtle pastels with sharp delineation of design.

Armstrong's success with Du Pont HYPALON is another example of the way this rugged, resilient elastomer can help improve existing products and make possible new ones—in a range of applications that's practically unlimited, from shoe soles and colorful roofs to automobile tires and insulation on automotive primary wire. For further information, write to E. I. du Pont de Nemours & Co. (Inc.), Elastomer Chemicals Department AF-4-HB, Wilmington 98, Delaware.

HYPALON® ANOTHER RELIABLE





"DOT" TILE BY MOSAIC is possibly the most meaningful development in the history of modern ceramics. The tile is the same but the precision-applied permanent "DOT" edge-mounting gives both architect and tilesetter new command of the material and new installation time savings. The "beam-like" effect of "DOT" interlaced edge-mounting preserves strength and uniformity in all three dimensions. Yet, the "DOT'S" are so flexible that sheets can be rolled up without loosening the tiles. Sheets will not stretch, shrink or sag. (Rolls of ceramic mosaics up to 2'-0" x 6'-0" and longer available on special order in some areas.) "DOT" Tile can be applied with adhesives or thin-set or conventional mortar bed. "DOT" ceramic mosaics give a truer level surface on adhesives or thin-set mortar because the sheets are made flush on the surface. The all-resin "DOT" is impervious to moisture (unaffected by soaking, even in boiling water) and remains flexible down to -10°F, with no loss of strength. Yet, sheets are easily cut and they shear clean and straight. We share enthusiasm for our "DOT" Tile product with the



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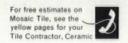
WALL OR FLOOR, OF ANY CERAMIC TILE MADE

many tile contractors who have had good experience with it. When you specify Mosaic "DOT" Tile, you are calling for the most satisfactory tiled walls and floors you have ever known . . . on the best cost basis available today. Call your Mosaic Representative for "DOT" mounted ceramic mosaic patterns and sheet sizes available in your area.

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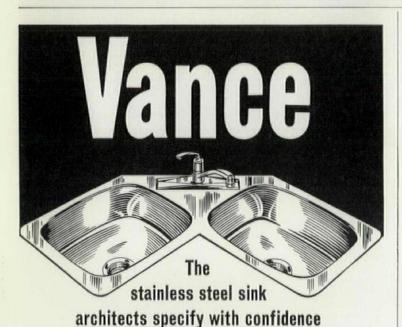
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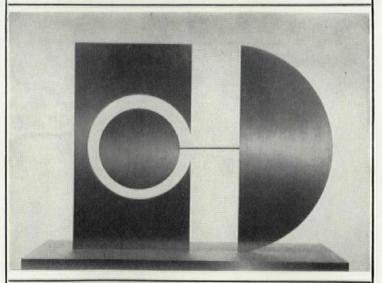
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Tebco Midnight Gray 53 WC Velour
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Architect—Heine, Crider and Williamson, Berea, Ohio
General Contractor—Schirmer-Schneider Company, Cleveland, Ohio
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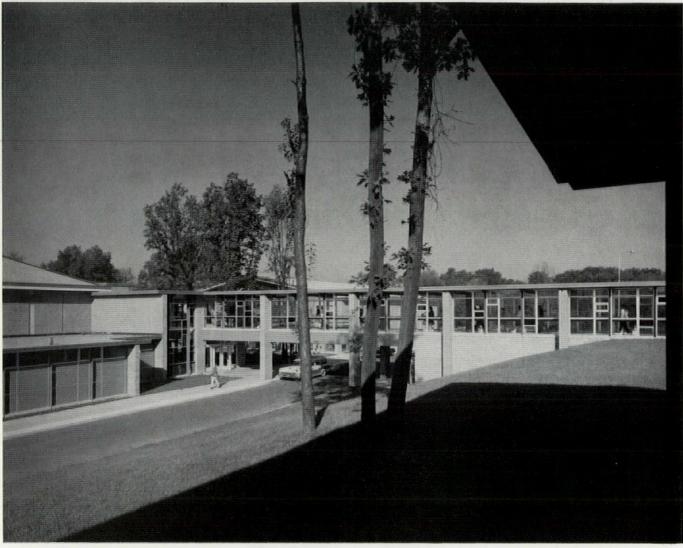


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EVEN THE EVIDENT WASN'T NEGLECTED

Regardless of architectural plan or program, all buildings have this in common: they must be cleaned. But sometimes the obvious is overlooked.

Not in this splendid new school, however. Here, high caliber, money-saving maintenance was provided for when it should be: during **planning** of the building. Here, a built-in Spencer Vacuslot® system handles a myriad of maintenance chores, including:

Dry mop cleaning Vacuum cleaning Carry-off of dirt and litter Wet pick-up after scrubbing

*Loy Norrix High School Kalamazoo, Michigan Perkins & Will Architects-Engineers Chicago, Illinois

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The big, comfortable, adaptable swivel chair changes to match its environment.

Covered in leather it dignifies offices, boardrooms and large scale settings.

At home, in soft textured fabric, it becomes a comfortable lounge chair.

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Design by Vincent Cafiero.

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Include functional lighting beauty in your plans for walks, drives, parks, campuses, malls



with the new Westinghouse Promenade luminaire

luminaire satisfies the growing preference for the functionally decorative effect of post-top lighting at low mounting heights (usually 18 to 20 feet).

It is especially applicable for walks, shopping malls, drives, campuses, and recreation areas.

This new Westinghouse design lets you choose the ideal pattern of light for every location. The refractor that controls light

The Westinghouse Promenade post-top distribution is made up of four quadrants that can be assembled in eight different arrangements to produce just the pattern you want. An extra advantage: if you break one quadrant, you replace just one -not the whole refractor.

Durable, weatherproof, easily installed and serviced, the Westinghouse Promenade takes 175, 250 or 400 watt mercury or incandescent lamps. For mercury lamps, the ballast is built-in.

Finish is hammertone aluminum or seven other standard colors. All are highquality, corrosion-resistant, epoxy-base baked enamel-including the white enamel canopy reflector.

Ask your Westinghouse sales engineer for the facts on the Promenade post-top luminaire-or write to Westinghouse Electric Corporation, Lighting Division, Edgewater Park, Cleveland, Ohio. You can be sure . . . if it's Westinghouse.

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CONTEMPORARY ROOF DESIGN... Start Glass



St. Sebastian's Catholic Church, North Hills, Pittsburgh, photographed for Aluminum Company of America by Leonard Schugar.

Mississippi Wire Glass Combines Beauty and Utility

Outstanding construction feature of this newly built church results from the perfect wedding of metal and glass. Contributing to its modern appearance, translucent Hammered Misco blends harmoniously with the peaked aluminum roof . . . offers maximum beauty and the proven protection of wire glass while it contributes light, drama, distinction. Achieve the safety and unparalleled beauty of modern design with Misco*. Available in types for clear vision or diffusion wherever quality glass is sold.

* Mississippi's designation for its diamond-shaped welded wire netting.



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WORLD'S LARGEST MANUFACTURER OF ROLLED, FIGURED AND WIRED GLASS



W' Hammered Misco glass glazed in roof of St. Sebastian's Catholic Church. Architects: Gerard & McDonald—M. W. Stuhldreher Assoc., Pittsburgh. Glazing Contractor: Golomb Paint and Glass Company, Pittsburgh. Photos of St. Sebastian's Catholic Church courtesy of Aluminum Company of America.

MISSISSIPPI GLASS... New Look for a New Era

Typifying clean, functional, modern design, distinctive Mississippi figured patterns blend subtly with any interior or exterior. The versatility of Mississippi glass provides architects, engineers and contractors with a practical and economical solution to virtually every daylighting problem including diffusion, decoration, protection and heat absorption. And remember...

New horizons for glass... promise of the future... will come from the facilities of Mississippi Glass Company.



Coolite, heat absorbing glass controls light and temperatures in Parkway Consolidated School, St. Louis, Missouri. Architect: Schwarz & Van Hoefen, St. Louis. General Contractor: Swan Construction Company.



NEW CATALOG

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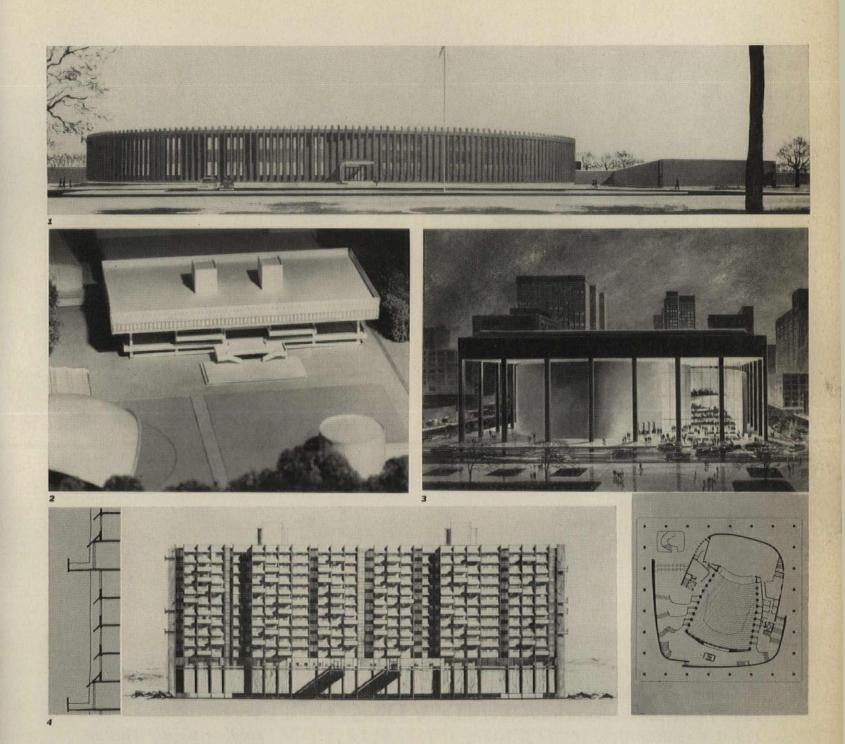
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MEEP AMERICAN WORKERS BUSY BUY... UNITED STATES GOODS New community centers from Wisconsin to Texas (below)
Two research towers for New York (page 53)



1. WISCONSIN HIGH SCHOOL. An arresting design by Architects Doberman & Helske and Hammel & Green Inc. will give Superior, Wis., both an unusual high school and a community center open for public use after school hours. The big spoked wheel will contain two floors of classrooms; the other elements—cafeteria, shops, and auditorium—will spread out in single-story buildings behind.

2. M.I.T. STUDENT CENTER. Added to distinguished architectural company on the Massachusetts Institute of Technology campus, the

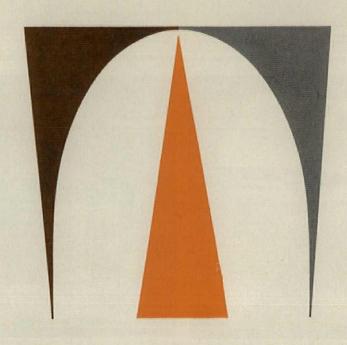
new student center will be a close neighbor to the Kresge Auditorium and the chapel, both visible in the model photograph. M.I.T.'s Eduardo Catalano, in association with Brannen & Shimamoto, designed the center, in which student activities will be concentrated on the big top floor, cantilevered above a two-story dining room and a separate multipurpose room for music, banquets, and lectures. The basement and main floor will be lined with shops, a bank, and a post office. Estimated cost for the new building: \$4.6 million.

3. TEXAS THEATER. Even by jet, it's a long way from Houston to New York's Lincoln Center, so Houston will build its own Jesse H. Jones Hall for the Performing Arts. The exterior will be a tall pavilion of glass and travertine revealing the shape of the theater within (see plan). Visitors will enter to the right of the stage, pass through a 65-foot lobby, up terraces, and into their seats through side entrances. The hall's capacity of 3,000 can be adjusted to smaller audiences. Caudill, Rowlett & Scott are the archi-

tects for the Houston Endowment, Inc. Estimated cost: \$6 million.

4. WASHINGTON DORM. Seattle's University of Washington will build this advanced design: a 10-story tower with 500 men students on one side, 500 women on the other, grouped eight to ten around balconied living rooms. The balconies, and "rain shades" (section), protect and pattern the façade. Beneath, a lobby bridges to the campus above dining rooms and a garage ranging down a hill-side. Architects: Kirk, Wallace, McKinley & Associates.

continued on page 51



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5. RETIREMENT IN MICHIGAN. "Meha Village," an unusual community for 300 retired people, will be built in Saline, Mich., near Ann Arbor. Between bay-windowed apartment towers, residents will share a low community building containing a glass-roofed courtyard with swimming pool, lounges, recreation rooms, dining rooms, health and hobby clubs, library, and store. Also planned are a lake and a golf course. Architects: Begrow & Brown.

6. PHILADELPHIA APARTMENTS. Going up at the rate of a floor

every week, the Dorchester, a new 32-story, 518-unit apartment building on Philadelphia's Rittenhouse Square, is being pushed for fall occupancy. The builder, Mc-Closkey & Co., is also the sponsor, with the James Butler interests. Besides the usual range of apartment sizes, from studio to threebedroom, the Dorchester will have a unit called the Dexeter, in which a sliding bedroom wall opens to enlarge the living-room space. Architects of the new apartment tower are Milton Schwartz Associates of Philadelphia.

7. LUXURY IN LOS ANGELES. Standing on adjacent blocks along Wilshire Blvd. in Los Angeles, these apartment towers are a joint venture by National General Corp. and Sunset International Petroleum Corp. The whole project of 400 apartments, to cost a total of \$15 million, will be in the luxury bracket. Both towers will have their first five floors allotted to tenant parking, ground floors to commercial space. Architect: Irving D. Shapiro & Associates. 8. THEATER IN HAWAII. Billowing up from a hillside in a Honolulu

park, this model shows how a planned children's theater will look when finished. Incorporating into their plan an existing formal garden, Architects Wimberly, Whisenand, Allison & Tong have made it the forecourt to the theater. The theater itself will be of reinforced concrete; the steel bents of the auditorium roof will be covered with a thin layer of concrete poured in place. There will be a little art gallery under the edge of the cut-out roof, which here frames a view of Diamond Head.

continued on page 53



GOLF STARTER HOUSE, PURDUE UNIVERSITY General Contractor: KEMMER CONSTRUCTION CO. Architects: PURDUE PHYSICAL PLANT DEPT. Engineers: PURDUE STRUCTURAL ENGINEERING DEPT., School of Civil Engineering Ready-mixed concrete for footings and piers: CONCRETE READY MIX CO. Ready-mixed concrete for floor, sidewalks and roof: VERPLANK CONCRETE & SUPPLY CO. Lone Star Masonry Cement Supplier: SPEER BUILDING MATERIALS, INC. (All of Lafayette and West Lafayette, Ind.)

There's new simplicity in this university-designed thin-shell roof (made with reinforced concrete and Incor[®])



Insulating panels of polystyrene foam, which constitute the form for the thin-shell reinforced concrete roof, are fastened to high tensile steel wires.

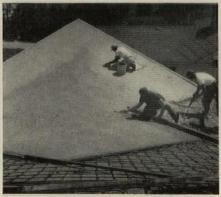
Now there's a new and simpler way to form thin-shell concrete roofs in graceful hyperbolic paraboloid shapes.

Purdue University's golf starter house—an experimental research project—provides an instructive example of how it's done. Steel edge beams, supported on concrete piers, were interlaced with steel wires. Polystyrene foam slabs were then fastened to the wires and grouted in place to form a base upon which lightweight concrete made with "Incor" 24-Hour Cement was cast. As a result, the profusion of forms and supports usually required in H-P concrete construction was eliminated. And still further savings in time and money were assured by the use of "Incor"—America's first high early strength portland cement.

"Incor" cement grout is broomed over insulation before steel reinforcing is placed.

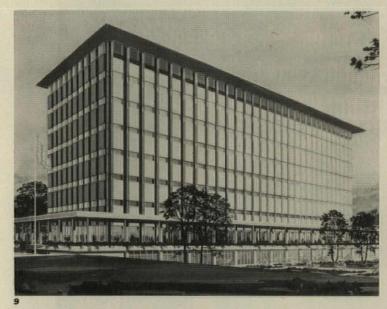


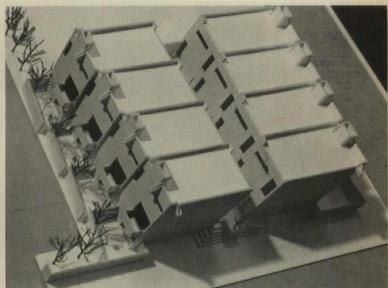
Lightweight "Incor" concrete roof slab is cast and finished over reinforcing.

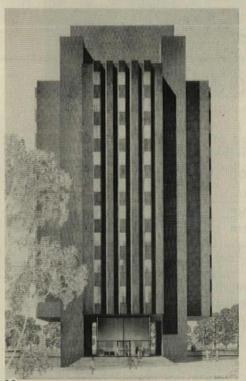


LONE STAR CEMENT CORPORATION New York 17, N.Y.













9. MARYLAND CENTER. The New Town Center Federal Building, first unit in a \$78 million "rural Rockefeller Center," is under construction in Prince George's County, Md. The \$5.5 million structure, largest private office building in the Washington suburbs, was designed by Architect Edward Durell Stone; 80 per cent of its 238,280 square feet of floor space has been leased by the Department of Agriculture. Builder: Bancroft Construction Corp.

10. CHICAGO TOWN HOUSES. For the periphery of Chicago's "Old

Town" district, Architects Tigerman & Koglin have designed this group of eight three-story town houses, each with seven rooms (1,600 square feet) and a private courtyard. Main entrance is through a raised central court, with secondary access through the outer walls of the private yards. Developers: Donald A. Lebold and Charles W. Palmer.

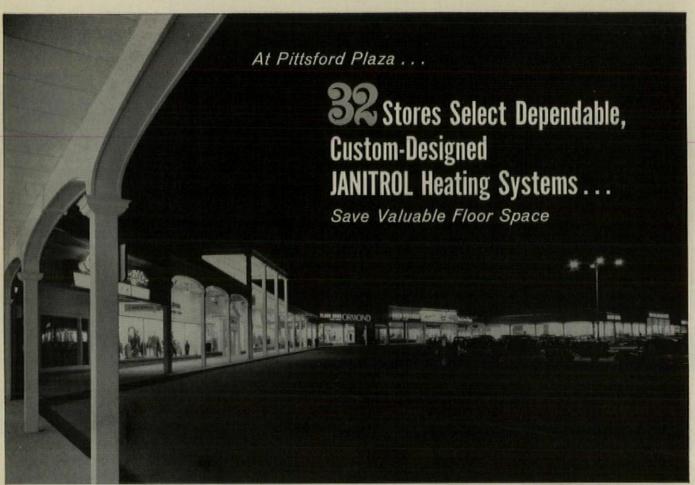
11. NEW YORK RESEARCH. This tower of Roman brick, designed by Philip Johnson Associates, promises to be an elegant addition to New York City's Monte-

fiore Hospital. It will house laboratories for the Henry L. Moses Institute behind walls expressing four main structuralmechanical piers and work spaces, above a glass-cube lobby.

12. MANHATTAN INSTITUTE. Warren Weaver Hall, a \$4 million research center, has been started on the Washington Square campus of New York University. Largely financed by the Sloan and Ford Foundations, the building will house the Courant Institute of Mathematical Sciences. Ducts and piping will be enclosed in exterior

shafts reaching up past a bay-windowed library floor. Architects: Warner, Burns, Toan & Lunde. Contractor: Wigton-Abbott Corp.

13. WASHINGTON OFFICES. By way of apology for the noise and dust created by this new office building going up on Jefferson Place in Washington, D.C., MBG Associates and Stuart A. Bernstein sent every tenant within earshot a box of ear plugs and a lint brush. Rental floors will be 8,000 square feet of uninterrupted space around a service core. Architect: Vlastimil Koubek. END



Pittsford Plaza Shopping Center, Pittsford, N. Y. Gen. Contr.: Wilmorite, Rochester; Consulting Engr.: J. L. Bettinger, Rochester; Heating Contr.: A. Burgart, Inc., Rochester



The Music Lovers' Shoppe at Pittsford Plaza is heated by Janitrol duct furnaces, ceiling-suspended in the rear storeroom. Heat is efficiently distributed to the retail area through inconspicuous, circular, ceiling outlets. Manager Vince Meleo reports, "During winter months our heat is turned down overnight. About 5 minutes after opening in the morning, temperature is back to the comfort stage."



In the Pittsford Plaza Sherwin-Williams paint store one compact Janitrol 67-Series gas-fired unit heater effectively heats the entire sales area. The ceiling-suspended unit uses no valuable floor space and its modern, functional design does not detract from the decor.

The new Pittsford Plaza combines the charm of authentic Early American design, a one-stop selection of quality merchandise or services and over 30 acres of convenient parking for residents of Rochester's eastern suburban area. Thirty-two stores heat with top efficiency and economy. Ceiling-suspended Janitrol gas-fired unit heaters and duct furnaces turn the trick. These compact heating units with individual thermostatic control are sized to give fast, evenly-distributed heat in smallest shop or largest retail store.

Being ceiling-suspended, these Janitrol units don't need floor space or an "equipment room." Store operators can utilize more floor space for sales or stock. Janitrol unit heaters install fast. And they're easily moved, readily adaptable for future expansion and modernization needs.

FREE INFORMATION—Janitrol commercial-industrial specialists will gladly supply latest data on heating and air conditioning equipment. Call them without obligation. They're listed in the Yellow Pages. For your files, we offer an informative 16-page brochure covering commercial product lines and applications. Write for Form JS-151P.



MIDLAND-ROSS CORPORATION, COLUMBUS 16, OHIO



1060F, one of the 1000 SERIES models chosen for The Austin Company's new general offices in Cleveland

created for the buildings you design... 1000 SERIES BY GF

Here's a desk styled specifically to complement today's smart business interiors. Its crisp, sure lines, all-flush surfaces and pleasing proportions conform aesthetically to the architectural format of the structure itself. Here's the same superb engineering and painstaking attention to detail that has made GF the undisputed quality leader. See 1000 SERIES at your nearby GF branch or dealer. Or write Dept. AF-20 for our new color brochure. The General Fireproofing Company, Youngstown 1, Ohio.



Heat shield for windows (below) Banking by television (page 62)

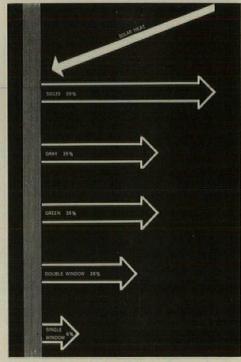
NEW SUN SHIELD

SSG35, a heat-shielding window glass now in production at the Coming Glass Works, rejects 59 per cent of the solar energy beamed onto it while transmitting 35 per cent of the visible light. Hence, this gray, stippled borosilicate glass is a more effective barrier against solar heat than typical heat-absorbing glasses, as shown in the chart of solar heat exclusion. The first window glass to be produced by Corning, it is competitive in price with other makes of heat-absorbing glass.

The stippled surface—a thin ceramic film which is fired into the glass before it is rolled—causes a sharp decrease in visibility, particularly at a distance. The heat-shielding film is permanently bonded into the glass, so that it will not chip, peel, or wear. Further, says Corning, this glass resists almost all corrosive atmospheres and is heat resistant. Currently, it is produced in 24 by 60-inch sheets ½ inch thick; additional sizes will be available in a few months.

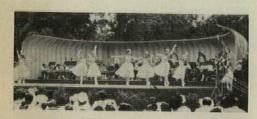
Manufacturer: Corning Glass Works, Corning, N.Y.

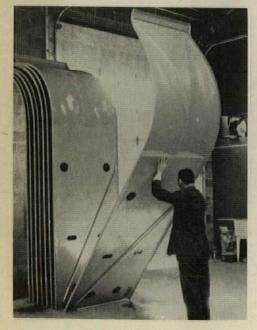




PORTABLE BAND SHELL

The Eneotee Acoustical Shell, developed to upgrade school auditoriums and fieldhouses into temporary concert halls (FORUM, Oct. '60), is now available in an outdoor version. Last summer two developmental units saw diversified service: on the White House lawn





(top photo) and the Norwalk, Conn. town beach. The Department of the Interior bought the first unit, a large, 28-segment shell, for concerts on the White House lawn and in Washington parks.

Like the earlier indoor version, the Stage-craft Portable Outdoor Shell is made of molded glass fiber, but for the rigors of outdoors, a heavier, resin-impregnated glass fiber is reinforced with a plywood sheet molded into the back (bottom photo). From the rear, single segments look somewhat like big toboggans, curved at the top to enclose the musicians. Set up to form a shell, the sections are braced from behind and may be bolted to a wooden platform or staked to the ground. The sections nest, as shown, for convenient storage.

Stagecraft's designers, Christopher Jaffe and Paul Kleinman, also offer sound amplification equipment to suit each shell. The large symphony shell of 24 to 28 sections costs about \$6,500, including outdoor braces and a carrying trailer. A complete amplification package adds about \$1,800 to the basic cost. A smaller shell, suitable for string quartets, soloists, and small choral groups, is made up of seven segments. Its cost, again including braces and trailer, is about \$2,100.

The shells come in two tones of gray, but may be painted to specification, or tinted by colored lights for performances.

Manufacturer: Stagecraft Manufacturing Corp., 25 Belden Ave., Norwalk, Conn.

COMPACT CHILLERS

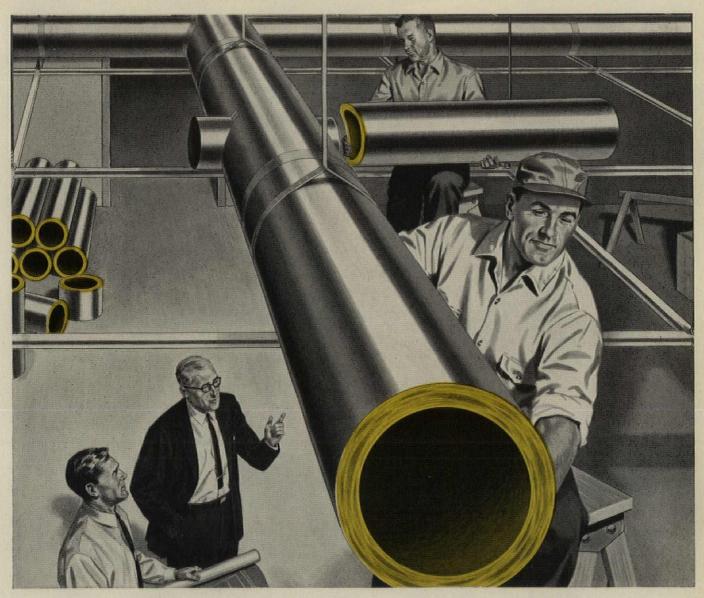
This photograph (right) shows what Chrysler has done with its bulky water chillers: the new version of the 100 HP unit, standing at the right of the old model, can fit into a small elevator and thus can be moved into a building without exterior rigging. All chillers in the new line—20 HP to 100 HP—are less than 6 feet 8 inches long and less than 35 inches wide. Chrysler managed this by using the cooler and condenser as structural elements, installing them side by side instead of up in the air on heavy steel supports. The result is a simple "building block" package with wide interchangeability of parts between sizes.

Further, says Chrysler, the new units are quieter and vibration free. Where most reciprocating compressors must be mounted on noise-dampening structures, isolation is built into the new units. For example, the compressor muffler is acoustically tuned to the frequency of the refrigerant gas. Further acoustical isolation is provided by an optional cabinet enclosure. Costs of the new units are expected to be competitive with other lines.

Manufacturer: Airtemp Division, Chrysler Corp., Dayton, Ohio.



continued on page 59



They're cutting the cost of comfort with G-B's new prefab, fiber glass duct

To provide uniform comfort throughout a building, a duct system must distribute conditioned air (heated or cooled) to the right places at the right temperatures. And it must do so as efficiently and quietly as possible.

In conventional duct systems, thermal insulation, sound absorber, and vapor barrier must be applied to the duct in a step-by-step installation.

Not so with G-B Duct! It's made entirely of high-density fiber glass insulation—thermal and acoustical efficiency are built-in. G-B Duct is covered with a vinyl or aluminum vapor barrier, so there's no moisture condensation.

G-B Duct is prefabricated, which means it arrives at the job site ready to be installed. There are no extra installation steps necessary for insulating the duct system—it's already insulated. Installation costs can be cut up to 50% over conventional insulated sheet metal ducts.

For commercial applications where strict fire codes must be met, aluminum encased G-B Duct is the answer. In residential and light commercial construction, vinyl covered G-B Duct is the popular choice. To learn more about G-B Duct, write

today. Ask, too, about rectangular G-B Duct—available prefabricated at the factory or shipped flat and assembled on the job.



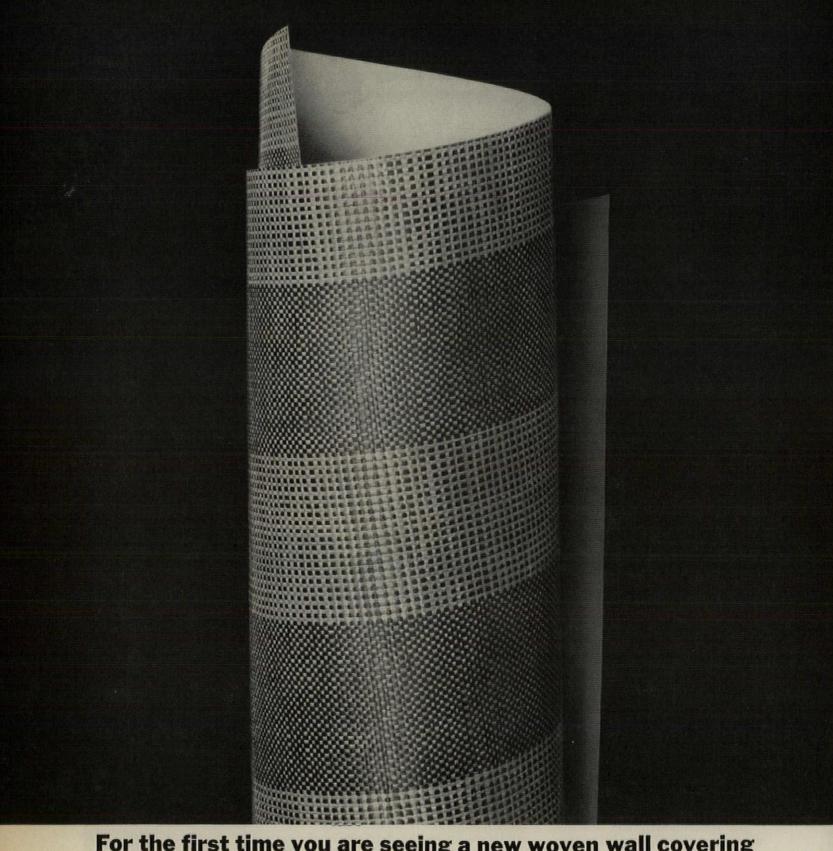
This Northridge, California, office building is typical of the many that depend on G-B Duct.

GUSTIN-BACON



FIBER GLASS

206 W. 10th St., Kansas City, Mo.



For the first time you are seeing a new woven wall covering that combines unusual performance with rare beauty

WALL COVERINGS OF

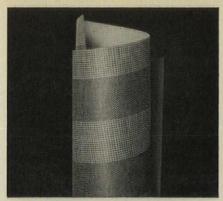
Until now you had to choose wall coverings that measured up to your standards of low-cost performance or styling versatility. Now-with new woven fabric wall coverings of Rovana-you get both, perfectly coordinated with the patterns and textures of draperies made of the

same Rovana saran flat monofilament. New wall coverings of Rovana are tough. Fire, stain, and abrasion resistant. Colorfast. Easy to clean. Dimensionally stable, even when applied to new walls. The fact that they "breathe" makes them ideal for installations in warm, humid climates. For the complete story on the low maintenance costs, exceptional performance, and styling versatility of these unique wall coverings of Rovana,

contact one of the distributors in the adjacent columns. And see our listing in Sweet's Architectural Catalogue, file

13k/Do. THE DOW CHEMICAL COMPANY DOW





Wall coverings made with ROVANA®

VANAWEVE wall coverings. designed by the C. W. Stockwell Company, woven with The Dow Chemical Company's Rovana saran flat monofilament, are available in deep, rich colors, subtle neutrals and pastels, dramatic embossed patterns, intriguing textures, solids and stripes. Shown at left: "Sierra Stripe"



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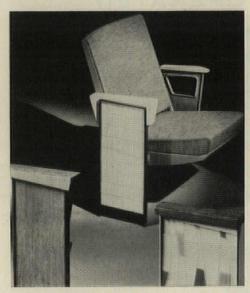


PLANTS IN PARTS

Inside this Louisville, Ky. plant, which is assembled from prefabricated wall and roof components, Reynolds Metals is manufacturing more components for its Everwear line of prefabricated buildings. In a curious reversal of the usual filtering-down process that products often undergo, these buildings were sold originally as poultry houses, which worked well except in northern climates. Adding insulation made them so comfortable, says Reynolds, that it decided to sell them for plants, warehouses, and other lowcost utility spaces as well. Indeed, a duplicate of Reynolds' own plant, complete with basic plumbing, lighting, and space heaters, would cost less than \$3.50 per square foot in place, according to the company.

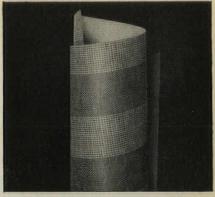
Currently, Everwear panels are available in only one size, 8 by 8 feet, although panels 8 feet wide and 10 and 12 feet long will soon be marketed. The \$3.50 per square foot price is for an insulated building, whose panels are made of a layer of glass fiber sandwiched between an aluminum outer skin and an inside skin of foil-covered building board.

Manufacturer: Reynolds Aluminum Supply Co., Buildings Division, Crittenden Dr. & Fern Valley Rd., Louisville 13, Ky.



A VARIETY OF SEATS

American Seating's Stellar Series is a basic chair design with a choice of end standards (photo), widths (20, 21, and 22 inches), continued on page 60



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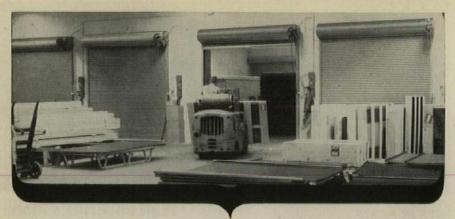
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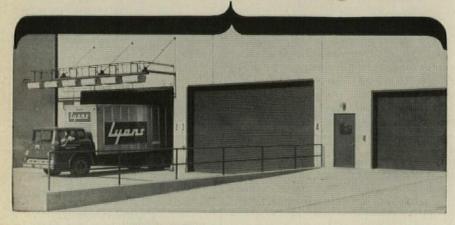
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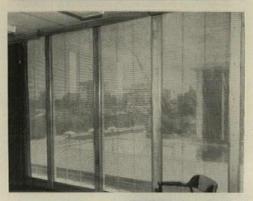


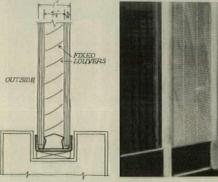
The KINNEAR Mfg. Co.

Factories:
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different mountings and fabrics. The basic chair has a polyethylene back padded with urethane, a self-rising seat, and arm rests of plastic or wood. Costs vary with features selected.

Manufacturer: American Seating, Grand Rapids 2, Mich.





LOUVERED WINDOW

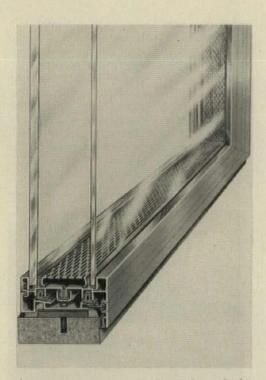
Ultra-Shade, a new sun-shielding window, is a sandwich of glass and aluminum louvers: one sheet of clear glass, a strip of fixed louvers, and a second, inside sheet of gray glass. The louvers, set at 35, 25, or 15 degrees, are sealed between the sheets of glass to form a glazing unit one inch thick which also cuts direct heat transmission. Cost: \$4.35 per square foot, F.O.B. Detroit.

Manufacturer: Ultra-Shade Corp., 712 Penobscot Bldg., Detroit 26, Mich.

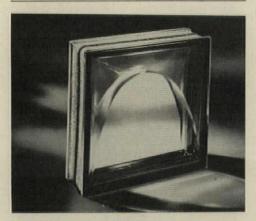
GLASS NOISE BARRIER

Aud-O-Fen is an acoustical double window, hermetically sealed and glazed from inside the building into a mated subframe. In tests at the Riverbank Acoustical Laboratories of the Armour Research Foundation, it achieved a sound transmission loss rating of 45 decibels, class 48, transmitting no more than 22 decibels of an outside noise of 70 decibels (70-48=22).

The cost of a large unit—about 5 by 7 feet—is \$13 or \$14 per square foot installed, using the minimum recommended thickness of glass (7/32 inch). Prices go up with glass thickness, to a maximum of ½ inch. The window is designed primarily for buildings having acute outside noise problems



(e.g., structures near airports) and for recording and broadcasting studios, *Manufacturer*: Miller Sliding Glass Door Co., 3216 Valhalla Dr., Burbank, Calif.



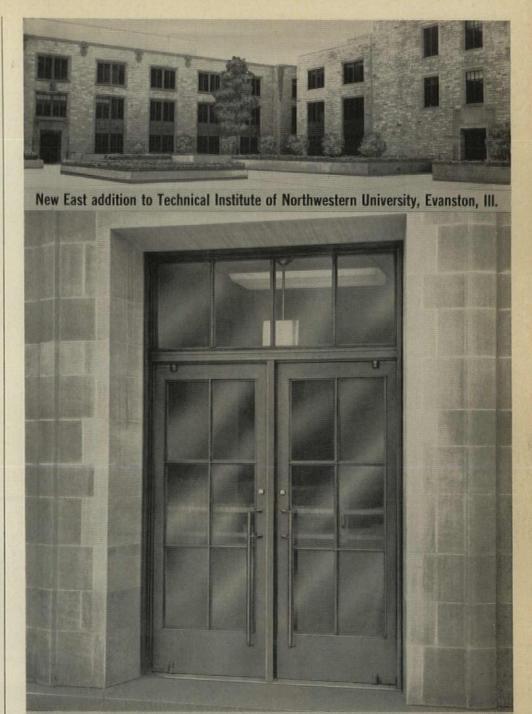
SCULPTURED BLOCK

Owens-Illinois has introduced the first in a new series of contoured glass block, a half moon pressed into both sides of a 12-inch square. The new design is called, appropriately, *Grescent*, and it may be used any side up to build different wall patterns. It is introduced in Royal Gray, a clear neutral color that cuts sun brightness and solar heat transmission. Cost: slightly more than standard glass block.

Manufacturer: Kimble Glass Co., Owens-Illinois, Toledo 1, Ohio.

NONSKID DECKING

Skid Guard is the name of Simpson Timber Co.'s new plywood designed to reduce the slipperiness of wet decks and floors. Grit imbedded in the overlay (translucent phenol formaldehyde) is bonded to the plywood, continued on page 62



12 ELLISON BALANCED DOORS in both Steel and Bronze. Architect: Holabird & Root

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architectural metal work in doors and contiguous framing

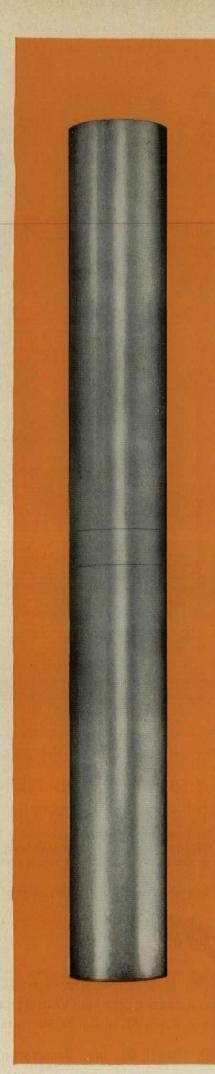
Ellison Balanced Doors have been used for years in many of the country's largest schools and universities. The integral, built-in strength of Ellison Balanced Doors provide durable, consistent performance under heavy traffic flow and severe wind and suction conditions.

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PITTSBURGH 33, PENNSYLVANIA/IN CANADA: McKINNEY-SKILLCRAFT LTD., TORONTO 3, ONT. and the whole top surface is waffled into small squares. The new deck gives a nonslip surface to exposed walks, factory floors, and locker rooms, as well as boat decks.

Panels come in exterior-grade Douglas fir plywood or hardboard laminated to plywood, in tan, brown, and black. The standard size is 4 by 8 feet in several thicknesses. Retail price for one panel 5/16 inch thick is 50 to 55 cents per square foot.

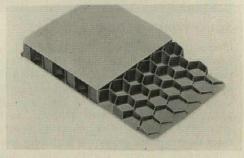
Manufacturer: Simpson Timber Co., 2043S Washington Building, Seattle 1, Wash.



TV BANK TELLER

Drive-in tellers at the First American State Bank in Wasau, Wis. are actually in the main bank building a block away from the drive-in facilities, which are located on an available vacant lot. This is made possible by Mosler's TV Auto-Banker units (photo) connecting them with car customers by television, voice, and pneumatic tube. Tellers need not transport cash outside the bank, are not isolated, have access to all records, and may attend to other duties when the drive-in is not busy. Average cost for a two-station unit: \$22,000, plus installation.

Manufacturer: The Mosler Safe Co., 320 Park Ave., New York 22, N.Y.

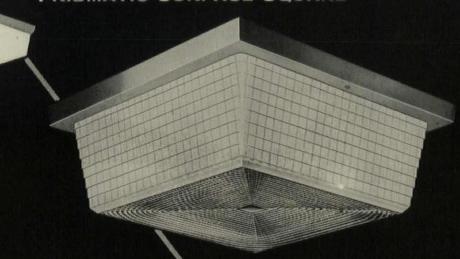


PREVIEWS

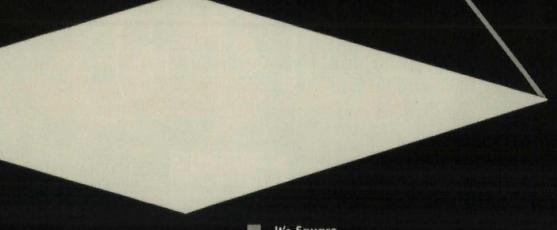
A new brazing process has lowered the cost of "aircraft grade" metal honeycomb panels to around \$5 per square foot, low enough so that Bridgeport Brass' Cladmetal Division expects them to find a market as roof, ceiling, and floor panels, and load-bearing partitions. Though their high strength-to-weight ratio has been well known for a long time, all-metal honeycombs had previously been too costly except for special uses.

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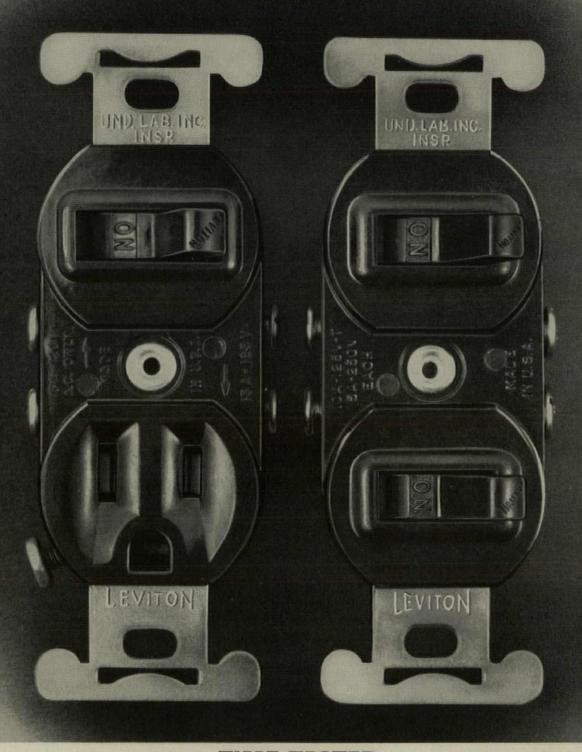


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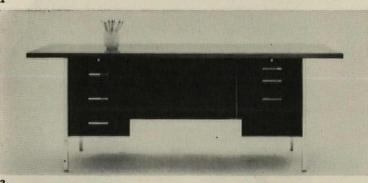
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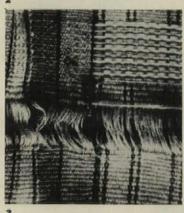
Forty years ago we introduced the first line of combination devices. Forty years later these tested, proven, universally accepted products are being specified in major installations across the country. There must be a reason. Maybe it's the scope of the line... more combinations to choose from than any other source—(the most complete line of AC Quiet Switches in the industry is included). Maybe it's the quality... sales in millions, returns and complaints practically nil. Maybe it's our research... a neverending quest for newer, better ways to meet your every requirement. Whatever the reason (and we strongly suspect it's a combination of all three) Leviton Combination Devices bring you the assurance of quality and performance.

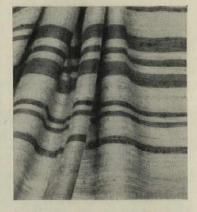
Our completely new illustrated brochure on the entire line belongs in your files. May we suggest you write to Dept AF-2 today? Leviton Manufacturing Co., Inc., Brooklyn 22, New York.















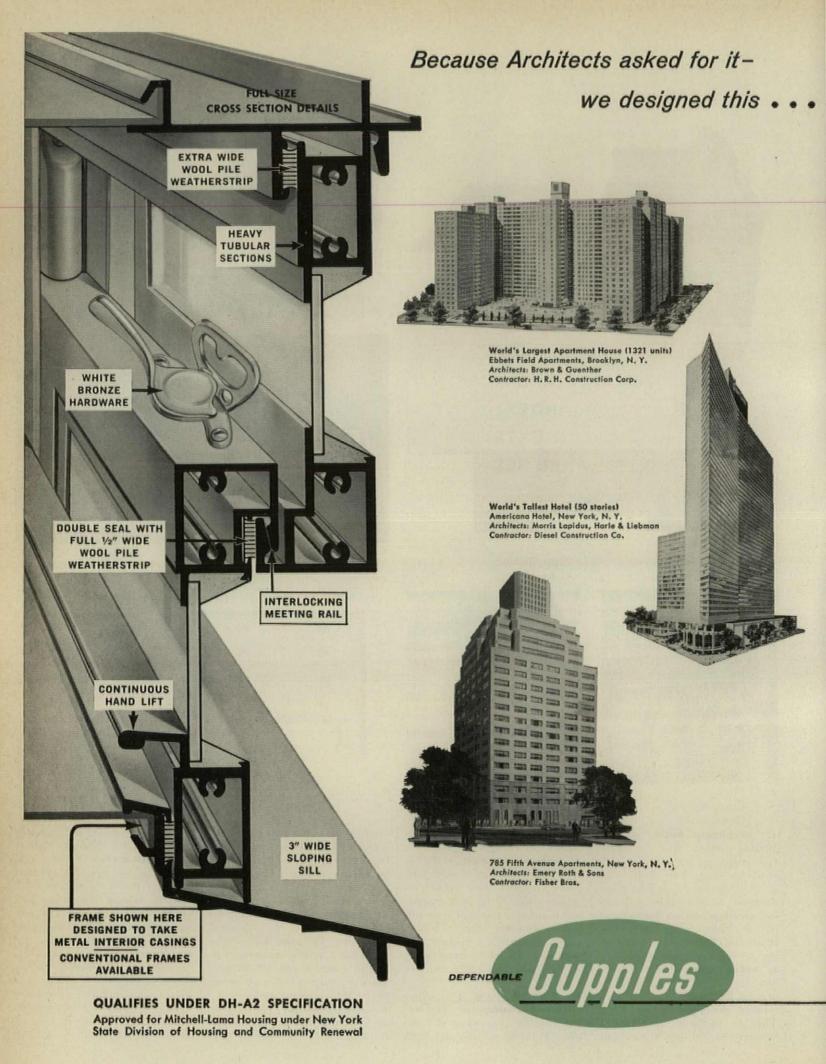






- 1. RECEPTION ROOM GROUP. Downy cushions line the backs and seats of Albano Contract Division's deep chairs built over a welded frame. Nicos Zographos designed the low table on stainless-steel legs with a rectangular top of Italian olive burl. The chairs cost \$393 each, not including fabric; the table is \$540.
- 2. STEEL DESK. All-Steel Equipment Inc.'s new 2500 Line of desks in color have wood or plastic tops, brushed or mirror-chrome trim. This one, in matte black with a cantilevered teak top, costs about
- \$380 and measures 78 by 36 inches.
- 3. AFRICAN STRIPES. A 20,000-mile safari to Africa shaped Jack Lenor Larsen's new collection. "Kano cloth" (left) is a drapery and upholstery fabric of spun silk and embroidery floss; "Swazistripe" (right) is a mohair and linen drapery fabric handcrafted in Swaziland. Cost: \$24 and \$47 a yard.
- 4. FINNISH CHAIR. This loosecushioned chair from Finland, imported by International Contract Furnishings, may be used
- singly, or in groups to make a divisible sofa. The cushions are foam rubber over rubber webbing on a frame of square steel tubing. Designers: Toivo Korhonen and Esko Pajamies. Cost: \$350 up.
- public wear, Lee L. Woodard Sons' new Embassy chairs wear replaceable tufted cushions clipped to a steel frame. Chairs may also be ordered without arms. Cost: \$318 in Naugahyde.
- 6. MIES CLASSIC. The tubular steel S-chair that Mies van der Rohe designed in 1926 is now

- made in Switzerland and imported by Stendig, Inc. Net cost: \$85.
- 7. DANISH WAFER. About as thin as a chair can get, this polished design is the work of Denmark's Poul Kjaerholm and is imported by Frederick Lunning. The seat and back are oxhide; the frame, chrome steel. Cost: \$260.
- 8. EXECUTIVE STORAGE. Dunbar's designer, Edward J. Wormley, combines three woods in a series of executive cabinets: frames are walnut, tops are teak, and pulls are rosewood. Cost of the unit shown: \$596.



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DOUBLE-HUNG ALUMINUM WINDOW
COSTS A FEW DOLLARS MORE BUT ITS
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The Cupples, "Series 300" double-hung window wasn't designed down to a price, or to fool bargain hunters. Instead, it was designed to do a job—a big job—to satisfy a long felt need. However, even with its heavier tubular sections, better weather-tightness and foolproof operating qualities, you'll find it economically priced—only a few dollars more (approximately \$3 to \$4) than the cheapest residential windows. It's a worth-while investment that will continue to pay dividends for many years to come.

Before you specify or order windows for your next job be sure to investigate the Cupples "Series 300" double-hung window. Remember, too, that when you deal with Cupples you get Dependability of product, quality, service, delivery and the Company behind the product (Cupples is a division of Alcoa). Our representative will be glad to consult with you at your convenience. Write for full size details. Address Dept. AF-34

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A Division of Aluminum Company of America 2650 SO. HANLEY ROAD, ST. LOUIS, MO. 815 W. SIXTH STREET, CORONA, CALIF.



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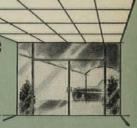


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CUPPLES ENTRANCE DOORS

New "40 line" of stock units combine beauty with flexibility of design and simplified installation. Choice of hardware locks and door clasers.

This new addition to the Student Union Building measures 112' x 72'. 20 precast wall panels prestressed at 200 psi form the side walls. They are 8' wide and vary in length. The two longest are 35'. Note Tee section stairs leading to entrance. Louvers shielding entranceway are attached to cantilevered roof and floor Tees.

PRECAST and PRESTRESSED

CONCRETE Adds Beauty and Utility to College Student Union

• Prestressed single Tee beams form both the floor and roof of this new addition to Gonzaga University's Student Union in Spokane, Wash.

Precast columns support the beams and add a dramatic frame for prestressed wall panels of exposed natural aggregate. An unusual array of giant prestressed louvers add a decorative and protective screen to the main entrance. Even the main stairway is precast concrete—formed by basic sections of a single Tee.

The varied use of concrete in this new structure adds more than a pleasing design that blends easily with the existing architecture. Such all-concrete construction also provides the utmost in fire-resistance. Strength for long service, Freedom from maintenance. And low initial cost.

LEHIGH EARLY STRENGTH CEMENT BENEFITS ALL MEMBERS OF THE TEAM

Central Pre Mix Concrete Co. used Lehigh Early Strength Cement for the precast and prestressed units in this building. Here, as in almost any concrete work, this cement provided important benefits for manufacturer, contractor and architect alike. Quicker re-use of forms. Earlier availability of units. Assured ontime delivery for smoother planning. Lehigh Portland Cement Company, Allentown, Pa.



Architect: Whitehouse, Price & DeNeff
Associate Architect: Henry J. Swoboda
Engineer: Andy Bingham
General Contractor: Wm. Spilker & Sons
Prestressed & Precast Units: Central Pre
Mix Concrete Co., Prestressed Division
Ready Mix Concrete furnished by: Central
Pre Mix Concrete Co.

All of Spokane, Washington



Fourteen prestressed single Tee beams form the roof; the same number are used for the floor. Roof Tees are 8' wide; range from 88.2' to 30' in length. Floor Tees are 73' long, 8' wide, 3' deep. The precast supporting columns are 34' high, 3' deep, 8" thick.

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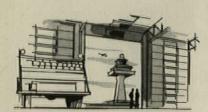
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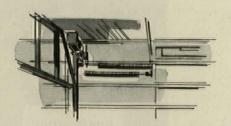
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FLEXIBILITY OF THE "OVERHEAD DOOR"

At Dulles Airport, "Traffic" means much more than just people and planes. Traffic means a constant flow of air cargo and the ground vehicles to handle it. Traffic means a sizeable task force of fire and crash equipment and the maintenance crews to keep it "at the ready."

To solve these and many other problems in traffic flow, the architects called on the engineering experience and production facilities of Overhead Door Corp. Their confidence was well placed, judging by results. Already installed: 115 doors, 104 of them equipped with "Auto-Mate" automatic operators, with more on order. Now, traffic flows smoothly, quickly, flexibly, with The "Overhead Door." Installed side-by-side, and equipped with "Auto-Mate" automatic operators, these doors become a movable wall. Opened as a group, they can give total access to an area. Opened individually, they can direct the flow of traffic, prevent pile-ups.

direct the flow of traffic, prevent pile-ups.

No limitations on materials—The "Overhead Door" comes in aluminum, steel, and wood. With glass panels or without. Doors of any size or style to fit any opening.

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These two central systems can provide



Carrier Classroom Weathermaster System

... for use where outside walls and windows must be swept with warm air in winter

Croton Elementary School, Syracuse, New York. Architect: Gordon P. Schopfer. Consulting Engineer: Cedric R. Acheson. Mechanical Contractor: H. H. and F. E. Bean, Inc. General Contractor: D. H. Fellows Construction Corp.

This compact, two-story structure serving 600 pupils occupies half the space required by an equivalent finger-type design. Site acquisition costs

were reduced by \$200,000. Year-round climate control, which made the compact design possible, is provided by the Carrier Classroom Weathermaster® System. The building contains 22 classrooms, four special purpose rooms, and offices. Cost per square foot with full climate control: \$14.92, about average for elementary schools with heating-ventilating only in the Syracuse area.



The single duct induction system using Carrier Classroom Weathermasters gives individual room control without complex zoning. One air treatment station centralizes outside air intake, filtration, cooling, condensate disposal, air movement. Carrier supplies refrigeration, too.

BOTH SYSTEMS OFFER THESE ADVANTAGES

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economical climate control for any school



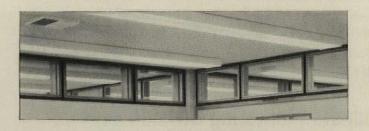
Carrier Multi-Zone Weathermaker System

... for use in interior spaces and compact schools where downdrafts don't form

Robert E. Lee High School, Midland, Texas. Architect: Preston M. Geren. Consulting Engineer: Yandell, Cowan & Love. Mechanical Contractor: Roche Newton Co. General Contractor: A. P. Kasch and Sons.

This 2200-pupil school in hot, dusty West Texas is fully air conditioned, yet cost only \$12.10 per square foot. Closely related structures are grouped

around a central court. Classroom and laboratory sections are compacted into separate squares, affording flexible partitioning of interior space for classrooms, laboratories, teachers' offices and storage centers. From several small mechanical rooms containing Carrier Multi-Zone Weathermakers®, ducts radiate to each classroom, giving individual room temperature control.

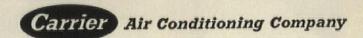


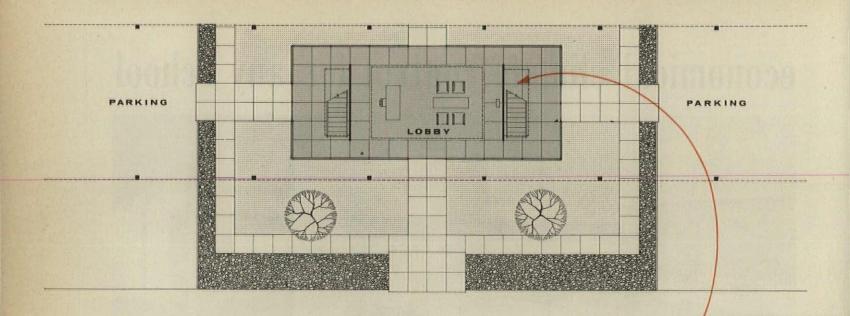
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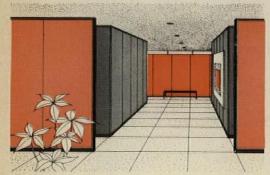


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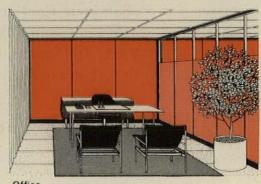
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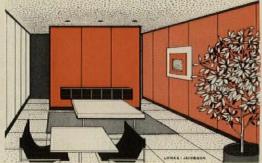
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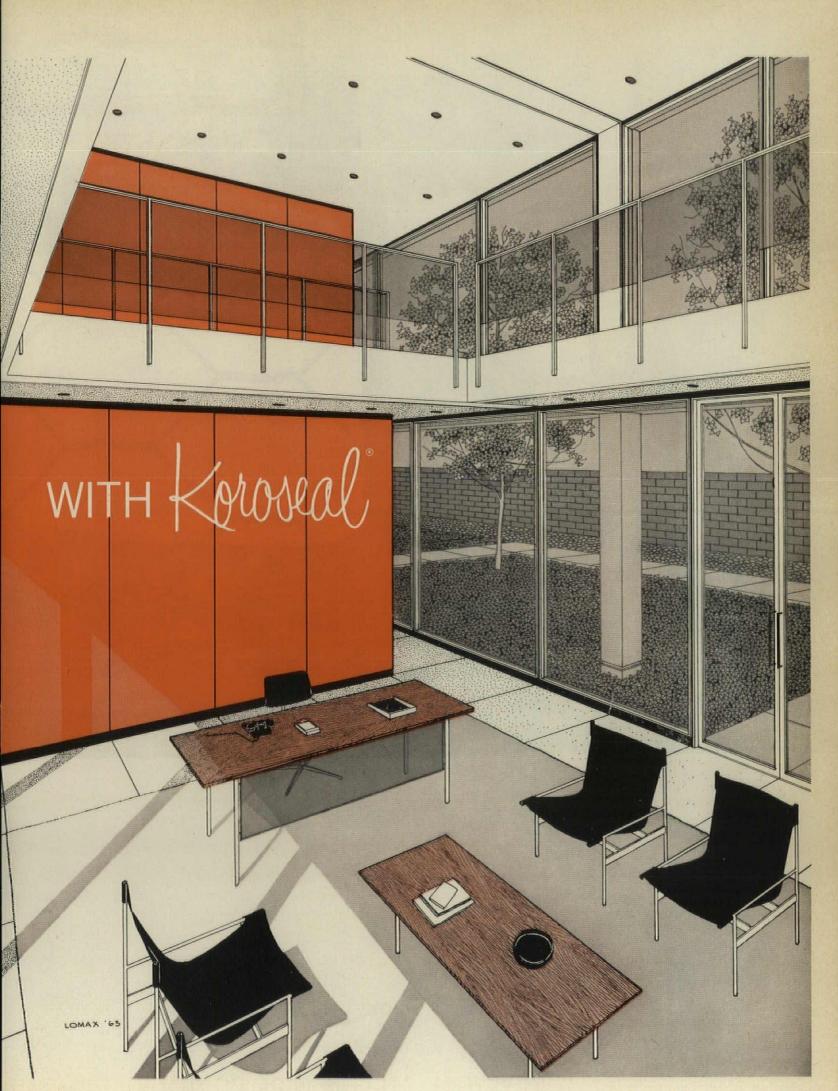


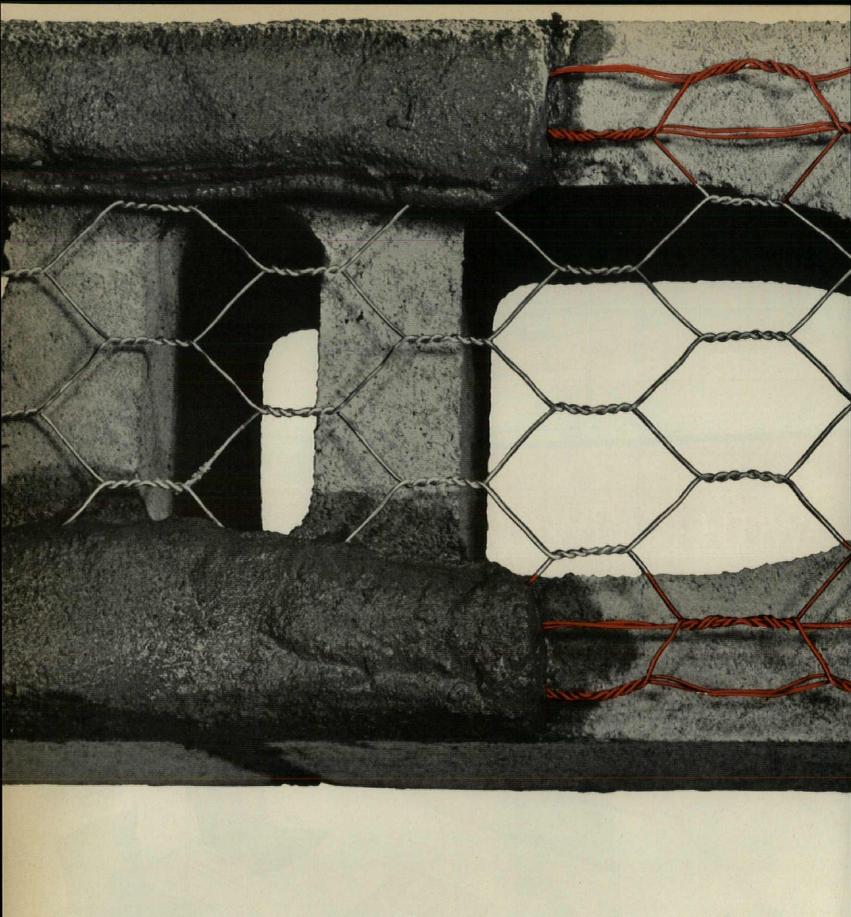
Corridor

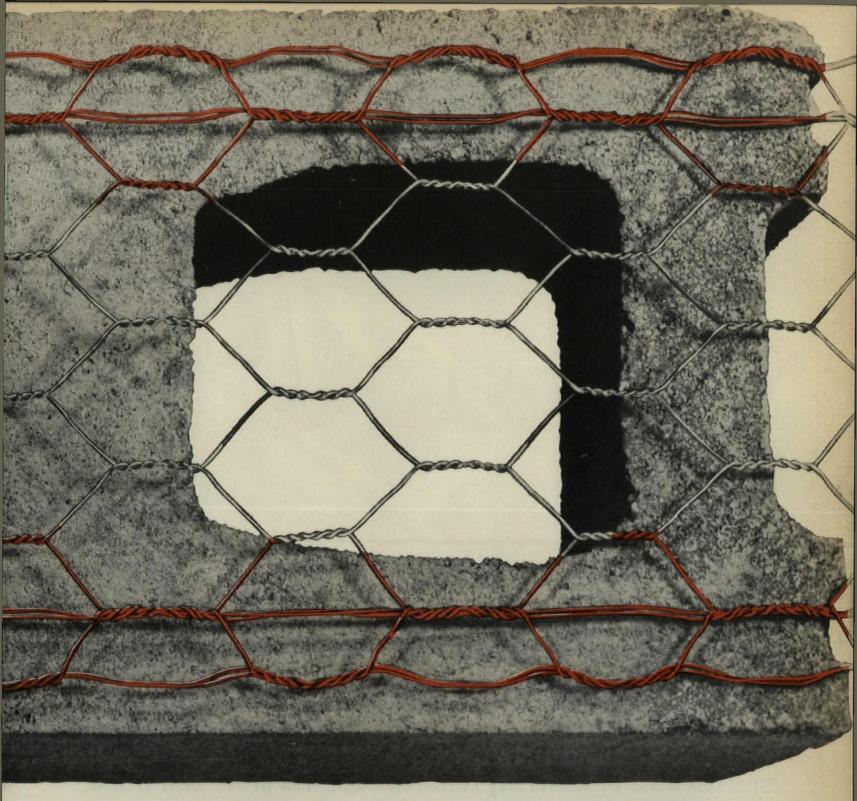


Office









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

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Impartial tests by university research engineers prove DUR-O-WAL far exceeds accepted standards for flexural strength

We sent Dur-o-wal masonry wall reinforcement to school—for evaluation by independent university research engineers. Here are the facts: Tests of 8' concrete block walls proved that truss-designed Dur-o-wal increases horizontal flexural strength from 60 to 135 per cent, depending on weight of Dur-o-wal, spacing, type of mortar. When used in lieu of brick headers for composite masonry walls, Dur-o-wal increases ultimate compressive strength. Repair-free years are added to masonry wall life. Please pass the evidence? Write to nearest address below for new comprehensive Dur-o-wal data file.

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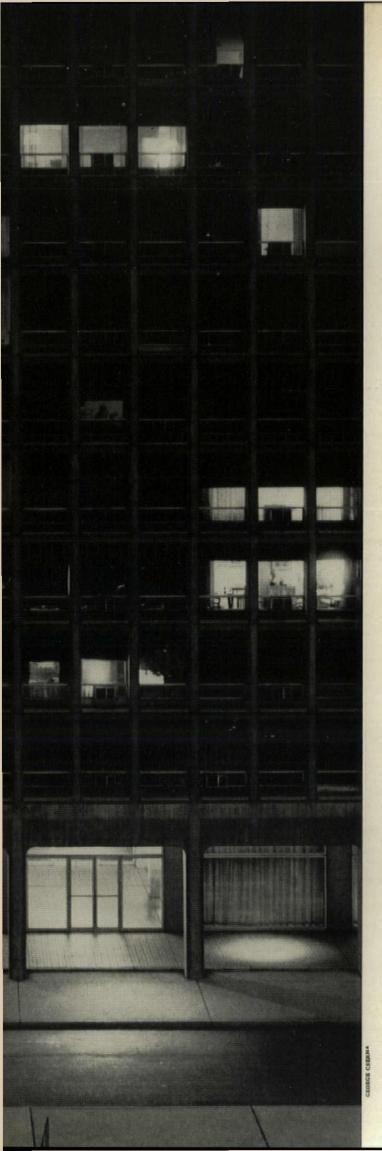


Civilization wins a round. For 33 years, starting in 1921, an Italian tile-setter named Simon Rodia labored to express his gratitude to the U.S. with "something big." The results were his now-famous towers in the Los Angeles suburb of Watts, nine pinnacles of mosaic bric-a-brac over a concrete base (above). Threatened with destruction in 1959 because they were allegedly unsafe, the towers were reprieved after rigorous testing proved their strength. Last month their permanent preservation was assured: the Los Angeles Cultural Heritage Board declared them an historic monument.

It is worth underlining that all of this happened in Los Angeles, target of more opprobrium than any major city since Babylon. It is also worth remembering that the supposedly civilized city of New York has destroyed the castiron façades of Worth Street and doomed Pennsylvania Station; that the site of the rugged S. S. Pierce building in Boston is now a parking lot; that no one in Buffalo seemed to care about the destruction of Wright's Larkin Building; that the character of the Vieux Carré in New Orleans is being threatened by random demolition; that the Cable Building and, of course, the Garrick Theater are nothing more than memories in Chicago—and that this dreary list could be continued ad infinitum.

Having raised the issue of preservation in the past, we are delighted that in the case of the Watts towers it has been taken seriously. Perhaps it will be taken seriously outside of Los Angeles before all of our architectural heritage has been demolished by latter-day vandals.





THE APARTMENT BOOM

It is still going strong—but will it last? The answer depends on what the apartment builders have learned about better design and better financing, and about the nature of their market.

Apartments are the *only* modern building type in which the U.S. has consistently lagged behind other countries—at least in terms of design.

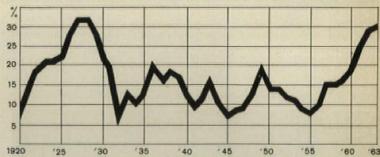
This rather shocking fact is explained, in part, by the nature of the apartment building business in America since the early 1920s: its booms have been spectacular but short-lived; to profit from them, investors usually had to get in fast—and be prepared to pull out just as fast.

So there has never been much time to "waste" on good design. The best apartment building, from the point of view of the speculative investor at least, was the familiar, readymade model that could go up first thing Monday morning.

As a result, the architectural quality of most U.S. apartments over the past 40 years has been a disgrace. Indeed, some of the solid apartments of the 1920s look better than their notably less solid neighbors of the 1960s. Still, the outlook is not all black: more discriminating tenants, more discriminating builders, somewhat improved financing, more economical methods, better mechanical equipment—plus a more realistic design approach on the part of some architects—all this has produced a new promise of better design.

This is the story of the problems and the promise.

PERCENTAGE OF APARTMENTS TO TOTAL NUMBER OF DWELLINGS BUILT 1920-63



Statistics tell us that there has been a rousing apartment building boom underway for some time—1.6 million units since 1956, 410,000 apartments last year alone.

Yet, in New York, Denver, Los Angeles, Cleveland, and elsewhere, vacancy rates have been rising right along with new apartments, and prospective tenants are being lured with several months' living rent-free, with free furniture or even free baby-sitting. What, then, is going on?

A glance at the statistics of the past 40 years (above) provides part of the answer. Apartment booms have come—but unhappily, they have gone just as quickly. In the six years from 1923 to 1928, over 1.3 million apartments were built, but the depression and World War II cut apartments drastically, and it took 20 years to equal that volume.

Five years after 1927, when 257,000 units were built, annual production had sagged to a bare 9,000 apartments. After World War II, apartment production rose again, under the spur of the federal "608" program. But the windfall scandal investigations punctured that balloon, and it was another decade before 200,000 units were built in one year.

Still, today's market presents quite a different picture from that of the 1920s, or even from that of the immediate postwar period. Dale M. Thompson, president of the Mortgage Bankers Association of America, last month pointed to the two key elements underlying today's apartment market: first, "the large and growing number of small families in the younger and older age ranges," and second, "a substantial increase in the number of single-person households." Thompson added a third important reason for the current apartment boom: "the growing scarcity and cost of land for house building and the growing cost and inconvenience of transportation. . . ."

These three reasons—more small families, more single-family house-holds, and growing problems in suburbia—sound valid enough to ensure a continuing apartment

boom. But all three phenomena may vary from city to city. So the answer to "is the boom here to stay?" is—obviously—"it depends on what you mean by 'here.'"

Are apartments for families?

The population structure is especially important. Net new family formations will stay up around 700,000 or more for several years at least. This year, marriages will total a record 1.5 million, and the marriage rate is expected to continue to increase. Moreover, the two age groups which most favor apartments—the 20 to 25 category and couples over 55—are growing fast. By 1970, these two groups will have grown from 24 per cent of the total population to 27 per cent.

In the past decade, the number of persons living alone has more than doubled, from 2.3 million to 4.8 million. In Manhattan, for instance, almost two-thirds of the women over 20 are either single or widowed, divorced or separated. (This is one reason why Manhattan's apartment builders concentrate on efficiency units.)

The population structure will continue to favor apartments over houses until today's young couples begin having children and need more living space. But then these couples will run smack into the other factor boosting apartment construction: a shortage of land for suburban tract development. Land prices have more than quadrupled in most big city suburbs, with much land now selling for better than \$10 per square foot. This makes it tougher to get desired returns on single-family structures, and makes builders look more favorably on apartments.

Apartments for suburbia?

At the same time, suburban communities have come to realize that apartment buildings pay more than their fair share of community costs, particularly for schools—whereas tracts of single-family homes invariably create deficits in community budgets.

A recent study in Stamford, Conn. showed that apartments produce a cost-revenue "surplus" of \$33.34 annually for each unit surveyed, and this surplus covered school costs only, which comprise about 40 per cent of that city's budget. One reason: high-rise apartments attract young families without school-age children, and older families whose children are on their own or in college. On the other hand, in the average singlefamily dwelling, there is one school child from every two houses compared to one public school child from every eight apartment units.

Love those taxes!

Suburbs are also beginning to realize that apartments represent much more intensive—and profitable—use of the increasingly scarce land. On an acreage basis, apartments are valued as much as five times higher than single-family houses.

For example, a 1962 study by the Urban Land Institute showed that in one Philadelphia suburb, land developed for houses had an average market value of \$40,000 an acre while land on which high-rise apartments were built showed an average value of over \$200,000. The Philadelphia survey reinforces

the Stamford findings: high-rise apartments, particularly luxury units, can provide more than twice as much tax revenue as *any* suburban land use.

These statistics are not lost on the suburbs—zoning restrictions, which once were formulated to keep out high-rise apartments, are fast being reshuffled to invite them.

Mortgages are easier

There is a third factor that has helped create the apartment building splurge of the past two years: the relatively "soft" mortgage money market. In fact, the supply of investment capital looking for the handsome returns traditionally associated with building (15 to 25 per cent) is so plentiful, that many apartment projects have seen the light of day just because an investor pressed a builder to "get something up—anything!"

Not only have interest rates declined over the past year or so, but lenders are allowing thinner equities and higher loan-to-value mortgages than in postwar years. As Economist James C. Downs says, "Despite a dawning surplus of income property, we are creating it faster than ever in history. As a result, we see declining profits and higher vacancy rates. . . "

But overall vacancy rates don't tell much about local situations. The national vacancy rate for rental units actually declined last year, from 7.7 per cent to 7.3 per cent. Even in cities, the rate went down, from 6.9 per cent to 6.6 per cent. However, the picture changes radically when you consider the five cities which have been the scene of 52 per cent of all apartment building at the peak of the boom—New York, Los Angeles, Chicago, San Francisco, and Washington.

For the past three months, New York's newspaper strike has aggravated an already sticky situation: the city had a fantastic eruption of new apartments (largely because of a change in zoning regulations, which meant that every would-be

Typical of Manhattan's apartment boom are these Third Avenue co-ops



builder was trying to get his plans approved before the old law ran out). A three year's supply of applications for apartments was filed in 1961 alone to beat the deadline and now the first of those apartments are beginning to come on the market. And that market, particularly for luxury units, was nearing saturation before this latest flood.

The upshot is a dizzying array of concessions-free furniture, air conditioning, television, baby-sitting, and, of course, several months' free rent in just about any of the newer apartments. In short, the New York market appears temporarily glutted. Builders who used to count on having their buildings 75 per cent rented within six months are now happy to get half their tenants within 18 months. If they somehow seem to scrape along and meet their obligations nonetheless, it makes one wonder what profits there are-or used to bein New York City apartments.

Tough all over-but not very

In Los Angeles, where 61 per cent of last year's record 110,000 housing starts were apartments (compared to 36 per cent just three years before), there is now a vacancy rate of over 10 per cent, and it threatens to grow. Local bankers predict that apartment starts will drop 8 per cent this year. Despite the present troubles, however, one Los Angeles mortgage banker insists that "the long-term apartment prospects remain good."

In Chicago, apartments last year comprised half of all housing starts, compared with 25 per cent in 1959. But vacancy rates have doubled too, from 3 to 6 per cent, and the softening market is expected to result in a 5 per cent drop in total starts this year. Apartments in Chicago's suburbs, however, are still being built at a record pace.

San Francisco and Washington are faring better than the bigger three. A month's free rent on the eastern shore of San Francisco Bay is not uncommon, but apartments in the city itself are renting well,

despite a record 3,943 units built last year (about 75 per cent of all housing starts). And Washington, in the midst of a record building boom of all types (FORUM, Jan. '63) has almost no vacant apartments. Yet apartments last year made up over two-thirds of the city's total housing starts.

The changing market

Still, despite the soft spots in some cities, the outlook for apartment construction in the next few years appears good. Volume should stay between 350,000 and 400,000 units a year, at least, and vacancies, except in a few locations, are probably about as low as they will get.

But, in the midst of the boom, there are still several unanswered questions. Design quality, as indicated earlier, is one of them, and a big one. The modest gains already made in this direction, as reflected by some of the projects shown on the following pages, are encouraging, but there is still plenty of room for further advance in both planning and design.

Above all, there is the unanswered problem of building moderate and low-rental apartments in urban areas. The boom we have been experiencing has not touched upon the problem to date: not more than 40 per cent of all apartments built since World War II can be called middle income by any standard. But the problem must be faced squarely if cities are to maintain their diversity and provide the new housing their diverse group of citizens so badly need. The boom has not touched the forgotten middle class-too rich to qualify for public housing, and too poor to be able to afford luxury living. These wage-earners are, of course, members of that frequently forgotten group: the majority.

One possible solution, the FHA's Section 221d3 program, may offer the best hope for obtaining moderate-rental apartments on urban sites. Its potentials are explored in the following story.

221d3: The key to moderate-income housing?

The most amazing statistics of the great apartment boom are not the 410,000 units built last year. They are the low rents for a relatively few units built in the past year and a half—e.g. \$105 per month for three-bedroom apartments in Hartford; \$96 for three bedrooms in New Haven; \$77.50 for two bedrooms in Baltimore. When new city apartments elsewhere are renting for at least \$40 per room, this seems phenomenal indeed.

The key to these low rents is a program of 31/8 per cent federally insured mortgage loans. In the New Haven development, for example, which was one of the first in the nation, annual carrying charges were cut from \$66,-082 (which is what they would have been under a normal FHA mortgage insurance program) to \$42,900. This alone resulted in rents 20 per cent lower than they would have otherwise been. The low interest rate is, of course, made possible through an indirect government subsidy.

In setting up a 221d3 development, FHA determines maximum rental amounts by "working backwards" from each city's median family income as determined by the Census. Thus, projects in Memphis, Tenn. (where the median income is \$5,500) cannot rent for more than \$1,100 annually (or 20 per cent of income), while New York projects can rent for \$1,520 a year. This obviously means low-cost construction, and so far most 221d3 projects have been built for about \$10,000 per unit. Even FHA's complex procedures have not prevented the creation to date of 129 projects (costing over \$131 million) since the program got underway in 1961. And this is despite the fact that sponsors must be either nonprofit or limited-dividend corporations.

Section 221d3 has great potential for urban renewal, too. (It

was originally conceived for relocation of families from slum clearance projects, but has now been made available to all lowincome families.) On a renewal site, for instance, the sale price of the land for a 221d3 project must be set low enough to be consistent with the expected rentals.

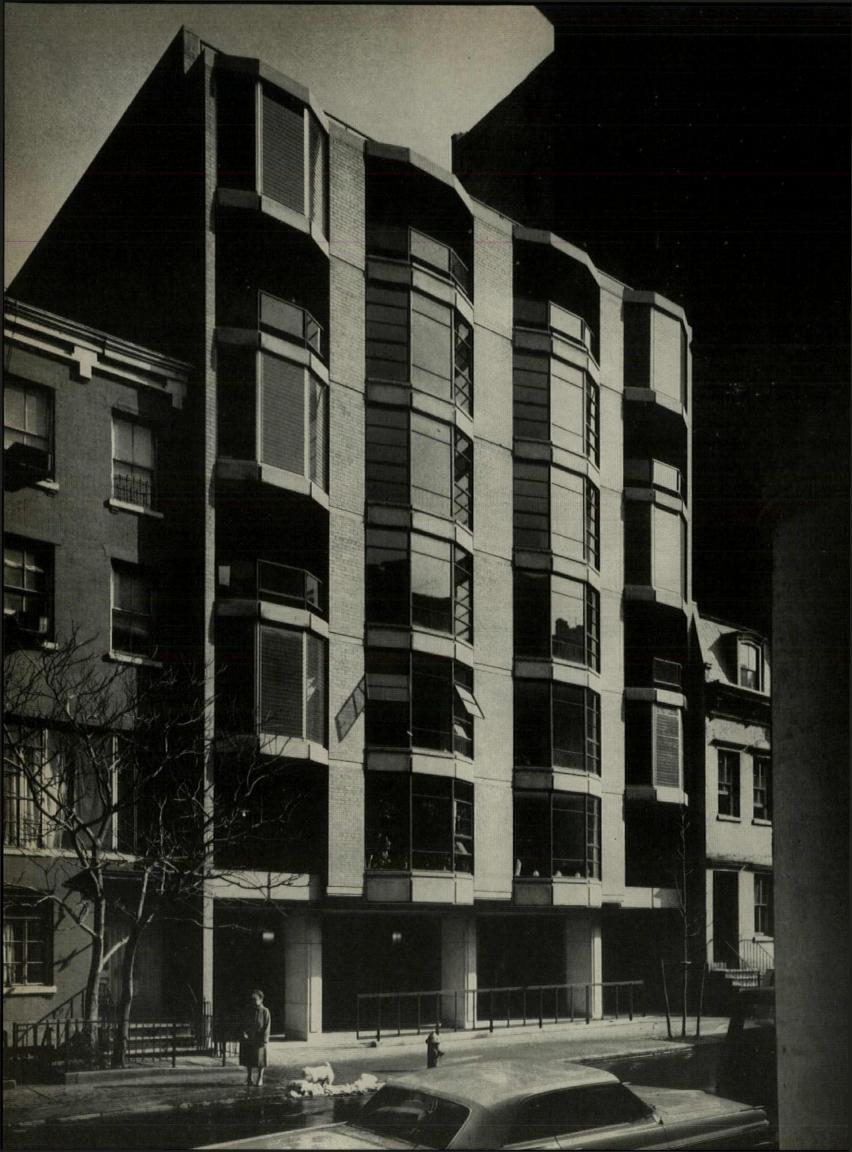
So far, only one high-rise project has been built (in Passaic, N.J.) and it attains low rents only through use of another cost-cutting device—tax abatement.

These two features-low-interest mortgage loans and tax abatement-offer what some builders believe to be the best solution yet devised for privately built lowincome housing. In New York City Title I projects, the potential saving in rents is striking. For instance, the Lindsay Park project being built in Brooklyn, if done under a combination of 221d3 and low real estate taxes (set at predevelopment levels), could rent for only \$21 per room, a better than \$5 per room savings over current rents.

So far, New York City has not seen fit to grant tax abatements to the extent needed for low rentals, since this would sometimes mean an abatement of taxes of perhaps as much as \$0 to 90 per cent for a 20-30-year period. But the chance to build new apartments in New York City—or any other large U.S. urban center—for \$120 monthly for a three-bedroom unit obviously is too good to pass up, particularly since most of that city's new apartments are high-rental units.

The 221d3 program could break the bottleneck of unmet needs for moderate-income families—and builders will never have to worry about vacancies.

FORUM gratefully acknowledges the help of Mr. Roger Schafer, of Rose Associates, in the preparation of the above article.



QUALITY CO-OP IN MANHATTAN

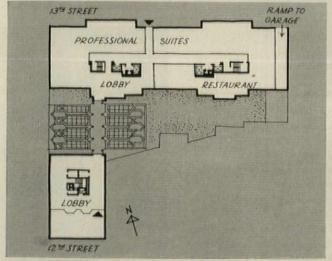
Into the genteel block of Twelfth Street west of Manhattan's lower Fifth Avenue have come several recent and rude intrusions: tall, staring, blank-faced new commercial apartment houses. But somehow the neighborhood balance has remained one of brownstone; the block is one of the unfrayed-and very expensivefringes of Greenwich Village. Most surprisingly, one of the buildings responsible for this restrained atmosphere is the newest: Butterfield House, just completed, a carefully scaled, dominantly brown-brick façade that is thoroughly at home with the old stone houses. It may even be the only new apartment house in Manhattan which can be called courteous in its architecture.

Yet this decorous design is also quite shrewd. Butterfield House contains 102 costly co-op apartments. Where are they all? Take a look at the plan (2). There are two wings to this block-through apartment house-one high, one low-connected across a central open court (4). This doubling was made possible when Builder Daniel L. Gray assembled the site, because, to match his two old 25foot-wide Twelfth Street brownstones, he also bought 215 feet of frontage on the next block, the more commercial Thirteenth Street. There he put his bulky 12story (plus penthouse) wing (1), without changing the character of those surroundings. He could have gone up just as high on Twelfth Street (with a slight setback) under the old zoning law, which pertained when his plans were filed by Architects Mayer, Whittlesey and Glass. Another commercial operator down the street had done exactly that (3). But instead he stopped at seven floors; here was one builder who actually anticipated an upzoning, rather than cramming cubage into an existing law.

Nor is the handsomeness of this design merely façade deep; the building also has a very kind heart. Connecting the Twelfth and Thirteenth Street wings is a glass-walled passage through a pleasant interior yard: a large-scale mosaic of pools with fountains and patterned tiles, and greenery. At night, it is lighted by festive pedestal fixtures.

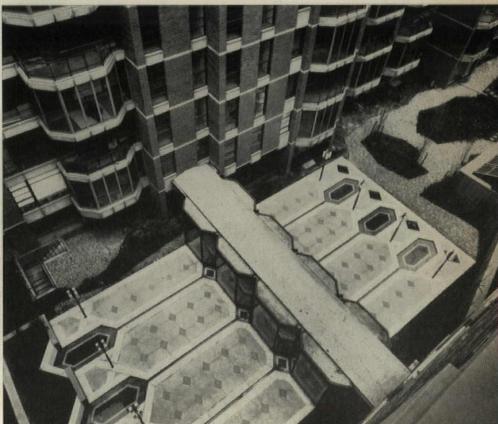
This means that every apart-







2. 3.



PTOS: MERA STOLLS

Architectural Forum / April 1963

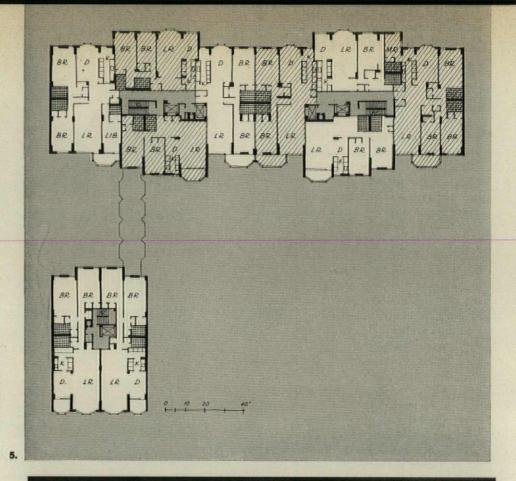
ment has a bay window with a decent view (4). Almost all of them also have matching balconies or garden rooms (balconies with jalousie glazing), and the penthouses boast concrete gazebos as well on their terraces. This is luxury housing (plan, 5); most of the apartments sell for about \$5,000 per room (the typical price is \$28,000 for a two-bedroom apartment, with approximately \$350 monthly maintenance; the top is \$60,000 for the penthouseswith \$520 monthly maintenance). Like all co-ops in Manhattan since the stock market stumble of May 1962, these are selling slowly; and the building is reported in a precarious financial condition. But people who buy into Butterfield seem to buy with zest. On the Twelfth Street side, one buyer has taken two apartments and knocked out the principal partition. Result: a living room 50 feet long facing Twelfth Street. Cost: \$56,-000 cash plus \$780 maintenance per month.

Butterfield House, if not a bargain, does demonstrate quite well what makes an apartment house luxurious in Manhattan: the generous bay windows (on the Twelfth Street side, a person sitting in the middle of one of these windows can swivel his head to see both ends of the block); a few inches extra in the 8 foot 6 inch ceiling heights; an air-conditioning system with thermostatic control in every room; intimate elevator corridors upstairs, with but few apartments off each one (this was accomplished by putting an extra elevator core into the design; there are five elevators); two exposures in the majority of apartments; lobbies (6, 7), with an air of generosity.

But most agreeable of all, and very unlike the usual frigid co-op fortress, this new house's kindliness does not stop at home. Butterfield House declines to exploit the old neighborhood; it joins.

FACTS AND FIGURES

Architects: Mayer, Whittlesey & Glass; M. Milton Glass, partner in charge; William J. Conklin, associate partner in charge of design. Designer: James S. Rossant. Engineers: Weinberger, Frieman. Leichtman & Quinn (structural); Emil Gruenberg & Assoc, and I. M. Robbins & Assoc. (mechanical and contractor: electrical). General Dangray Construction Corp. Total cost, including land (\$1.85 million) and fees: approximately \$6 million, for 230,466.69 square feet.









PHILADELPHIA TOWN HOUSES

The first of Architect I. M. Pei's new town houses for Webb & Knapp in the old Society Hill section of Philadelphia are completed and being occupied. The neighborhood is old, full of eighteenth-century grace and ornateness. The street façades of these three-story (plus basement) row houses are undecorated except in the careful placing of the openings (1, 4). Yet their quality is courtly.

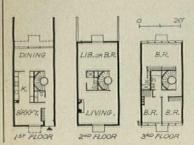
At street level is a row of arched entrances, and, up under the flat roof, a continuous stretch of bedroom windows. In between are the only breaks in the brick facades-long, regularly spaced slits which run from high on the first floor up past a little iron balcony to become floor-to-ceiling openings in the second-story living room (3). The houses are spacious-about 3,200 square feet on four levels, including basement, and sell for \$45,750 (\$46,750 for the corner houses). The houses are centrally air-conditioned.

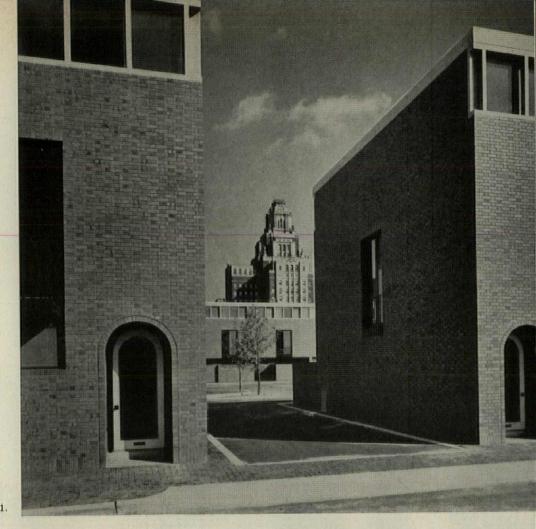
To the rear, each house has a small walled-in private garden; beyond (2) is a central parking lot (condominium-owned by the householders) in which shade trees have been started. What the design demonstrates better than anything else is the possibility of building simple (if luxuriously spacious) contemporary houses elegantly in an old neighborhood. This not only recreates a way of urban living for families who can afford it, but also plants a graceful neighborhood background for the tall Pei apartment houses which will come later.

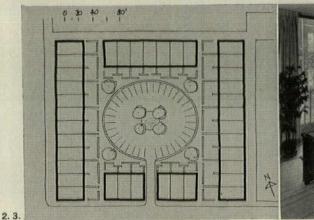
FACTS AND FIGURES

Society Hill Town Houses, Philadelphia, for Webb & Knapp Redevelopment area.

Architects: I. M. Pei & Assoc. (job captain, Owren J. Aftreth). Associate architects: Wright, Andrade & Amenta & Gane. Landscape architect: Robert Zion. Structural engineers: Severud-Elstad-Krueger Assoc. General contractor: Jack Feldman.











BOOMERANG IN PUERTO RICO

The big, curved El Monte Apartments in Hato Rey, near San Juan, Puerto Rico, rise from a thicket of lower buildings (below) and they break the local residential pattern in an equally definite financial manner. For these are high-quality rental units in an apartment market where quality units usually are for sale, rather than for rent—where the condominium is king.

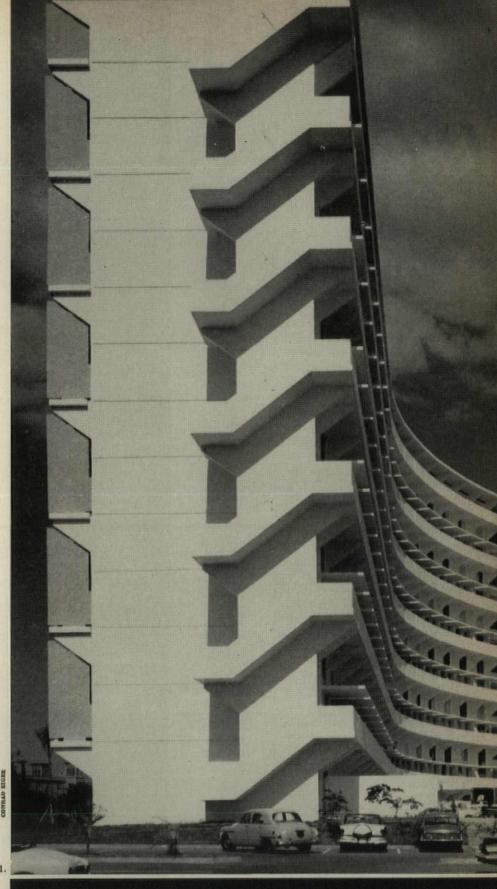
Most of the 311 apartments—the first building of a planned pair—are duplexes, entered off long galleries which cling to alternate floors of the façade (1, 2). The elevator is skip-stop, with smaller apartments clustered around the elevator cores. The design gives almost every apartment through ventilation, which, in Puerto Rico's kind climate, is usually sufficient for comfort. (The top floor, however, up nearest the sun, is fully air conditioned.)

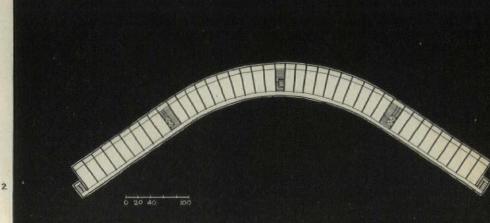
Other local habits which were adopted by the architect, Ed Barnes, include the use of metal louvers rather than windows in bedrooms and in kitchens on the gallery side. The other side of the building wears private balconies, with sliding glass walls. There are also scores of flat sun screens to shade the walls from the high summer sun.

FACTS AND FIGURES

El Monte Apartments, Hato Rey, Puerto Rico, for Renewal & Development Corp., New York, N.Y. Architect: Edward Larrabee Barnes. Associate architect: Reed, Basora & Menendez. Landscape designer: Hideo Sasaki. Engineers: Farkas & Barron and Martinez & Costa (structural), Francisco Viscal (electrical), Francisco Rodriguez Olivieri (mechanical). Square footage: enclosed, 306,440; open, 91,490. Field construction cost: \$4,300,000. Total cost: \$5,950,000, financed under an FHA 220







PHILADELPHIA LANDMARK

Hopkinson House, designed by Architects Stonorov & Haws, is the first landmark of Philadelphia's Washington Square renewal area. The 33-story, 596-apartment building towers over the square, casting its long shadow almost to nearby Independence Hall. It is a large and assertive element in the emerging pattern of the new Philadelphia.

Hopkinson House rises from a huge (90 by 254 feet) floating concrete mat 4 feet thick. Its frame consists of reinforced concrete columns and flat plate floor slabs (1), with bearing walls rising to the twentieth floor to resist shear. Exteriors are busy checker-boards of recessed aluminum window walls, brick closet boxes, and precast concrete balconies.

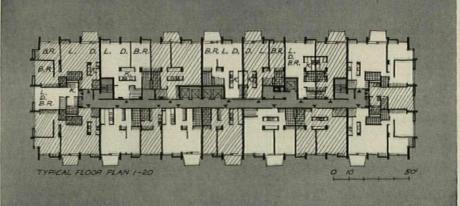
Base rentals begin at \$95 for efficiencies, with a median of \$175 for a standard one-bedroom apartment, and a high of \$335 for three bedrooms (all increase five dollars with each five floors in height). Amenities include a large ground-floor terrace, a roof-top pool, and a thirty-third-floor clubhouse. To date, nearly a quarter of the apartments are occupied, and the rental rate is said to be running somewhat higher than for other similar buildings in Philadelphia. The tower shares the Lshaped site with 18 four-bedroom town houses, now nearing completion (2).

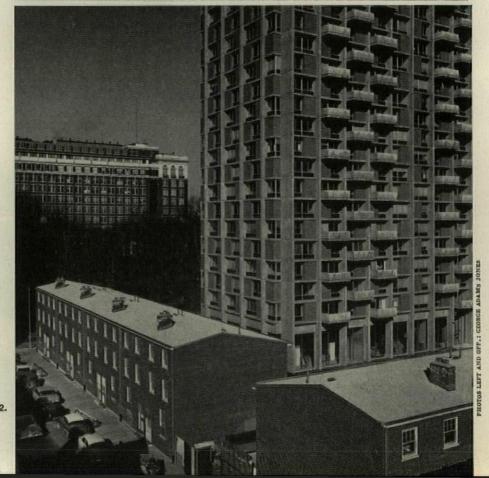
FACTS AND FIGURES

Hopkinson House, Philadelphia.
Owner: Major Realty Corp. Architects: Stonorov & Haws; George
W. Smith, project captain. Engineers: Garfinkel & Marenburg
(structural); Garber & Cohen
(mechanical and electrical). General contractor: R. M. Shomaker Co.











ANGULARITY IN MILAN

The walls of this Milanese building, by Architects Angelo Mangiarotti and Bruno Morasutti, move continually in and out, trying first one angle and then another, taking the eye of the beholder on a bumpy but exhilarating ride (1). They are composed of uniform parts, but the parts are freely, almost randomly put together. The building's most consistent quality is variety.

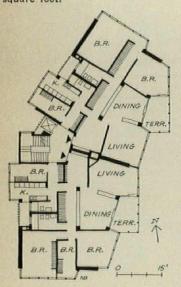
There is variety in the interior spaces, making this the antithesis of the filing-cabinet school of apartment design. There is variety in the views, in the fenestration, in the placement of balconies. There is, finally, an endless variety in the play of light against the glass, making the exterior a mosaic of reflections.

The building thus takes the life and motion of the street, and gives it back in fragmented, prismatic form. Mangiarotti says that he and his partner wanted to create "a continual series of diverse but interrelated spaces," and they have succeeded admirably. A second unit, twice as big, is planned next door. Together, the two will stretch along nearly the full length of the block.

Components of the exterior walls are slender metal-framed panels (2). Most are glass, but some are wood, and others, at the balconies, are open. The structure is reinforced concrete, painted black where exposed. Floor slabs project slightly and crisply outline the paneled walls.

FACTS AND FIGURES

Apartment building, Milan, Italy. Architects: Angelo Mangiarotti, Bruno Morasutti, Cost: \$8 per square foot.







TWIN DUPLEXES IN COLOMBIA

The design of these apartments in Bogotá, Colombia, renounces the usual smooth-surfaced designs of South America in favor of a burlier character.

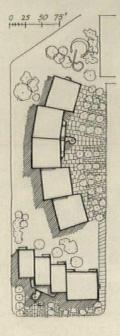
The project is composed of 30 duplex apartments, arranged in two blocks. The 20-unit block is oriented east-west, with the smaller block set north-south, giving all the occupants views either over Bogotá's savannah or the nearby mountains. The cylinders of brick (2) are stairways serving 14 of the apartments whose duplex levels are floors three and four. There are also interior stairs to all apartments.

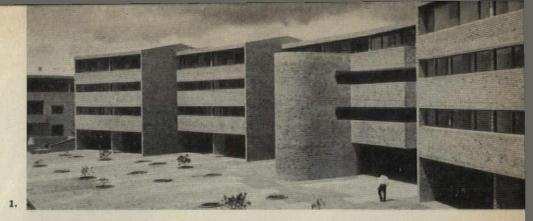
Each apartment has a living room and study, two bedrooms with baths, and a service area including kitchen, servant's bedroom and bath, linen room, etc.

The architects extended their arrangement of bricked planes to the site as well, zoning the east yard (1) as a paved area (but with a pattern of portholes for trees in the paving), and the western side (3) to be grassed and gardened. This, plus the careful arrangements and adjustments of the apartments with relation to each other and to the view, brings a feeling of definiteness to the design which makes it stand like a landmark in the casual development of most of the cities of South (or North) America.

FACTS AND FIGURES

Polo Apartment Buildings, Bogota, Colombia. Architects: G. Bermudez and R. Salmona. Total of 30 duplex apartments in two units of four-story brick and frame.









BOLDNESS IN NEW JERSEY

The twin buildings of Horizon House are more rough cast than most luxury apartments. Their broad east façades (left), 14 stories high, are bold compositions of considerable depth and strength; their end walls (1) are of raw concrete and bear striking, jagged fire stairs. The guts thus displayed have something to do with current architectural directions. But they also reflect an attempt by the developers, Tishman Realty & Construction Co., to attract moneyed tenants by sheer architectural force.

The east walls and syncopated stairways express the unusual arrangement of the apartments, which, in turn, evolved from the nature of the site. Horizon House (or more properly, Horizon Houses, for there eventually will be somewhere between five and seven buildings to the development) sits in commanding isolation on 33 wooded acres in Fort Lee, New Jersey, just south of the George Washington Bridge. The land is atop the Palisades, those splendid rocky cliffs which line the Jersey shore of the Hudson River. This location brings them within close commuting range of Manhattan, and provides a spectacular view of New York's skyline (2,3).

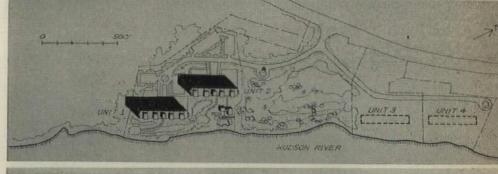
The primary objective of Architects Kelly & Gruzen obviously had to be maximum use of this view. Their answer was a skip-floor stacking of apartments which makes wide use of the split level, a device familiar to New Jersey but seldom used in big apartments.

The structure is a pigeon roost of reinforced concrete slabs and 8-inch shear walls; the latter, on 24-foot centers, pay valuable acoustical dividends. The distribution of units within this framework is best shown in diagrammatic section (6).

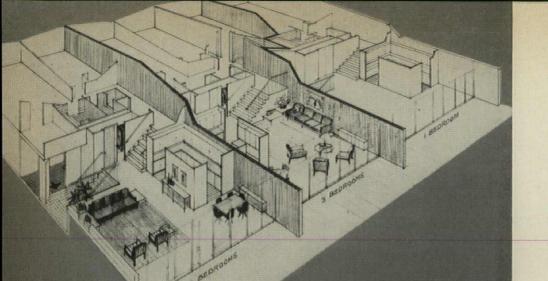
The split levels go either up or down across the building's full depth, with living areas facing the river and bedrooms looking out on the New Jersey suburb (4). On the river side, pairs of "bi-level" apartments—single-story except at the entry and two bays in width—are sandwiched between pairs of splits. On the New Jersey side, the bedrooms of the splits alternate with single-level units, again two bays wide, aligned with the corridors. There are also efficiency units and four big penthouses.

The upshot is that 80 per cent of the units enjoy the Manhattan

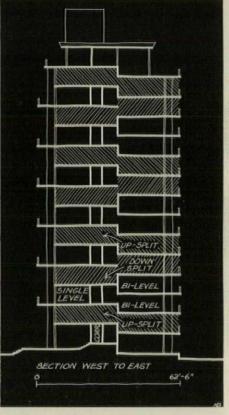














HORIZON HOUSE cont'd

view. The splits also have some of the spatial variegation of a singlefamily home, and, further, a distinct separation of living and sleeping areas. All have generous (24 by 7-foot) balconies.

Rentals go from \$135 for the efficiencies to \$1,300 for the penthouses. A one-bedroom apartment can be had for \$200 to \$275, depending on the view and the number of levels, and a three-bedroom split can come as high as \$425. All 180 apartments in the first building are taken, and the second, now being given finishing touches, is about 70 per cent rented.

Sitework has already begun on the next two units, which will be almost identical to the first. What happens next is problematical, and thereby hangs a tale.

The original zoning on the property imposed a 150-foot height limit and a 150-foot separation between buildings. But it failed to say in which direction the 150-foot separation should occur. The initial site plan for Horizon House made full use of this loophole by taking the 150 feet in setback with no lateral separation at all. Seven slabs housing 1,260 families were to be lined up along the 1,000-foot frontage, creating what local residents dubbed "the Tishman wall."

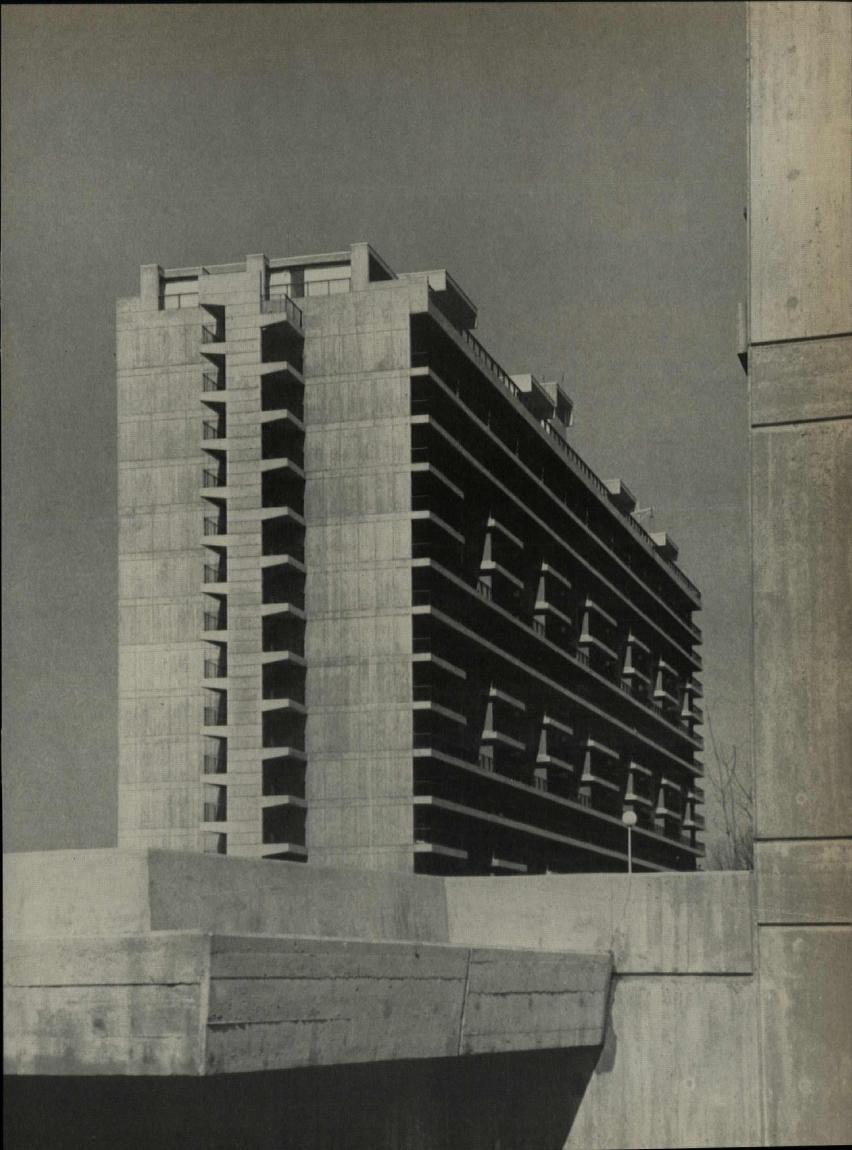
The zoning ordinance was subsequently amended and the height limit removed. The Tishmans and their architects then changed the composition of Horizon Houses to include 30-story towers, providing at least a modicum of space between buildings. Removal of the lid was challenged by a taxpayers' suit, however, and the issue is still in the courts.

It would be rather hard to choose between the two schemes. The unbroken wall of slabs could be intolerable, but the towers might well be a major distraction from the rugged drama of the Palisades. Horizon House has achieved considerable distinction in its individual buildings, but as a complex it has not, as yet, exploited the full potential of its site.

FACTS AND FIGURES

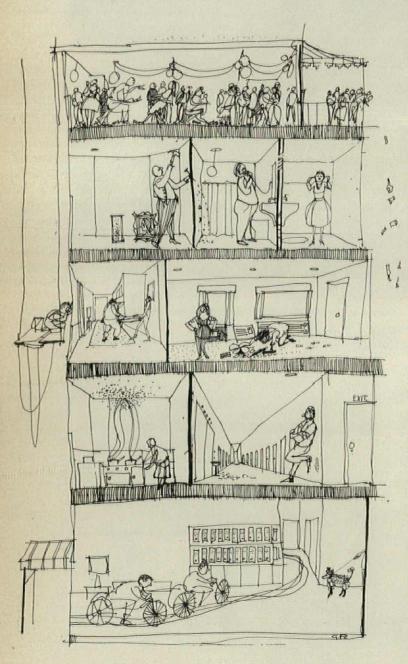
Horizon House, Fort Lee, New Jersey. Owner and builder: Tishman Realty & Construction Corp.

Architects: Kelly & Gruzen; George G. Shimamoto, associate in charge; Richard H. Gordon, project architect; Irving Levett, Job captain. Engineers: Farkas & Barron (structural); Cosentini Associates (mechanical and electrical). Landscape architects: Michael M. Burris.



HOW CAN YOU MAKE THEM PEOPLE-PROOF?

Keeping apartments presentable continues to be a major expense. Here are ways to avoid high maintenance costs by thinking ahead.



Maintenance costs for elevator apartment buildings in ten large U.S. cities averaged 10.7 per cent of their 1961 gross annual income. Yet, despite the obvious relationship between maintenance costs and ultimate profits, most apartments built since the War have paid precious little attention to ease of maintenance or soundness of construction.

Part of the blame for shoddy construction and correspondingly high maintenance expenses falls on the speculative apartment builder during the great postwar housing boom. His formula was to put up a building as cheaply as possible, to make an initial profit on the construction, to get the building filled up under threevear leases, and then sell it to an investor or real estate syndicate, taking a profit on the property's capital appreciation at a low tax rate. Aided by a severe housing shortage, the speculative builder was reluctant to tie up larger amounts of equity money than was absolutely necessary. By the time the building began to come unstuck (sometimes even before the first set of leases had expired), the initial owner would be out of the picture.

At the other extreme are the institutional investment builders, such as the large insurance companies. When they build, they know they will keep the property for many years and they consequently tend to pay considerably more attention to maintenance costs. In between the institutional investors and the out-and-out speculators is a third category of builder, the man who plans to hold his property until the point, usually eight or ten years after the building goes up, when interest and amortization outstrip depreciation. Quite naturally, this sort of builder will be more concerned with maintenance than the speculator, less concerned than the institutional investor.

Financing also affects the way an apartment building is constructed: most top insurance companies look over the plans of a building for a variety of factors, including maintenance, on which to base the loan. With FHA-insured loans, however, where the room-count method is in operation, some builders feel that projected maintenance costs are not given adequate weight in determining the loan. Consequently, much of the money spent on better maintenance features has to be equity money. Under these circumstances, it is hardly surprising that this money has frequently not been spent.

Forces for better design

Though the postwar apartment history has been unremittingly sad (with a handful of notable exceptions), the signs are that a subtle change may now be taking place which will result in better apartment buildings for the future. For one thing, the housing shortage in many urban areas has abated somewhat. For another, today's apartment market tries to appeal to a high proportion of second- or third-time apartment dwellers who are wiser and more discriminating than they used to be when it comes to construction quality. So today's apartment builders will find it increasingly difficult to rent "a park bench with a roof over it" and they will, more and more, have to supply quality buildings that last well and are easy to maintain. Finally, buyers of cooperative apartments (a growing band) inevitably demand more than renters and, since they are self-responsible for maintenance, they have a greater stake in what maintenance costs.

Easy maintenance surfaces

Labor, of course, is by far the largest part of any maintenance budget. With floors, labor costs have been estimated as high as 95 per cent of the total. In the past, the answer has been to use materials that were hard, and therefore "people-proof," smooth and therefore washable. Recently, however, there has been a trend in private housing to softer, richer surfaces which discourage abuse by their very luxury or to rougher surfaces which simply don't show dirt as much.

In lobbies, for example, where wear is heaviest, hard, washable surfaces are still the rule. Terrazzo floors have long been the standard, but less expensive resilient tile is frequently being used. With tile, the pattern is important since the plainer the color the more likely it is to show off dirt. Some lobbies, however, are abandoning slick surfaces for pebbly aggregate concrete which hides dirt, mellowing with age and reducing the labor expense of washing.

Lobby couches and chairs should naturally have durable coverings such as vinyl. But, cautions one bigscale apartment builder, "spend your money on the surfaces, the walls, floors, and ceilings, not on the furniture—you don't want people sitting around in your lobby anyway; they will just mess things up that much faster."

In many new apartment houses, carpeting covers the floors of upstairs corridors, replacing the more familiar ceramic or resilient tile. The carpeting is being used not just because it is more luxurious but because it is often easier to vacuum a rug than it is to wax and polish a floor and the labor savings help offset a higher first cost. In addition, careless people are less likely to throw cigarette butts on a rug than on a tile floor. Still another advantage: carpeting helps deaden sound in the corridor.

In the upstairs hallways, the persistent wear from shuffling feet on areas in front of the elevators suggests a change from carpet to tile. While waiting for the elevators, people tend to lean up against the opposite wall with hands and even feet and this, in turn, suggests a change from the painted wall, which may be perfectly acceptable along the rest of the corridor, to a more durable surface such as

ceramic tile or vinyl covering.

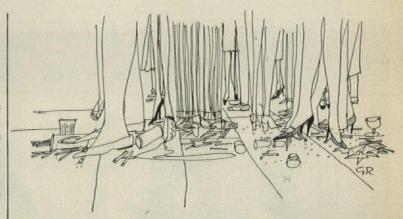
As for the *elevators* themselves, they are now, of course, fast becoming all self-service. Without an operator, the handsome, easy-to-maintain wood cab becomes defenseless against carved inscriptions and is giving way to costlier plastic-laminate or metal finishes. The cab floors are the worst maintenance spot in any building. They have to be cleaned often anyway, and carpeting diminishes the number of butts on the floor.

Security control systems, as well as elevators, are being automatized to help reduce high labor costs. Eventually, closed-circuit television, in lobbies, elevators, and corridors, can be expected to replace the primitive buzzer-and-speaker system now in wide use.

Ventilation and noise

The argument about air conditioning is hard to resolve. Most new apartment buildings still offer individual underwindow units. And many apartment owners would like to keep it that way. The advantages, they say, are that there is no central system which can break down and leave all apartments without cooling, that individual units are cheaper for them to install than a central system, and that since the cost of electricity is usually billed directly to the tenant they do not have to raise rents to compensate for the additional service. Some of the owners also favor individual units which provide electric heating as well as cooling. With the heating bill also going straight to the tenant, the landlord can offer an apparent rent reduction while at the same time eliminating one more management headache.

Arguing against this is the undeniable fact that central systems provide much better control over the cleanliness of air—and in our increasingly smog-choked cities this is not to be taken lightly. It is possible, of course, to buy good filters for individual units but their size and cost have deterred most builders from doing so.



A further advantage to the central system, provided the hallways are pressurized and not used as return air ducts, is that air flows from the halls to the apartments, preventing the buildup of cooking smells in the corridors, which many tenants cite as a prime complaint.

Tenants who welcomed any sort of accommodation in the postwar squeeze are now reacting to noise transmission. With the change from massive walls to light, inexpensive partitions which are fast to put up and take less space, noise has in fact become the greatest single complaint. Some architects are already responding by returning to heavier walls and this has profound design implications: at the point where a wall is really thick enough to do a good job of retarding sound it may also, with the right material, be thick enough to support the building.

Impact noise through floors is also a major problem. The FHA has just published a study on how to control it, prepared by Bolt, Beranek & Newman, Inc.



There is wide disagreement among builders about which type of window frame—wood, steel, or aluminum—makes the most sense. Both wood and steel require painting every four or five years, a delicate, time-consuming, expensive job. Aluminum does not. But, unlike wood, both types of metal frames conduct heat, causing inside condensation on cold days in rooms which are reasonably humid.

Minimizing liability

Apartment owners can also reduce their operating expenditures by saving on liability insurance. Most new builders, for example, find it necessary to provide tenants with parking garages. Increasingly these are attendant-free, self-parking facilities with a specific stall assigned to each tenant. This arrangement sacrifices some efficiency in the use of space: an attended garage with a squad of fearless car jockeys can cram more automobiles into the same area. But the savings to management in insurance as well as labor usually make up more than the difference. Heated sidewalk areas can also reduce the cost of liability insurance.

No matter how carefully the apartment builder and his architect plan for maintenance, one factor is certain to remain constant: man's capacity for messing up the place he lives in. This, plus an increasingly competitive market bidding for wiser, more selective customers, behooves him to build better than ever before.



SAM LEFRAK: HE BUILDS THEM CHEAPER BY THE DOZEN

Apartment builder Samuel J. Lefrak, genial host of Lefrak City, is proud indeed of his \$150 million, 6,000-unit Queens spectacular—and considerably wealthier for it.

BY DAVID B. CARLSON

Rush-hour travelers leaving Manhattan at a snail's pace on the Long Island Expressway are faced by signs like this: "If we lived here, Daddy, you'd be home now."

This may only make them grit their teeth, but it is supposed to make them aware of just one of the advantages of Lefrak City—it is closer to Manhattan than places farther down the line. Lefrak City is an awesome apartment project in Queens—12 of its 18-story brick towers now shoulder up against the six-lane expressway, and 12 more are on the way. Over 4,000 persons already live there, and eventually more than 25,000 are expected to enjoy its advertised comforts: swimming pools, tennis courts, explosion-proof buildings.

It isn't the pools and tennis courts that set Lefrak City apart from other New York apartment projects, however, and it isn't even its size, though that is prodigious. What makes Lefrak City noteworthy is that you can rent an air-conditioned apartment with 1,080 square feet of space (two bedrooms) for about \$220 per month. Moreover, Lefrak City is conventionally financed, without government aid of any sort, and is being built at exceptionally low cost (about \$1.50 per cubic foot) compared with other projects that cost anywhere from \$1.60 to \$1.80 per cubic foot.

To understand the combination of circumstances that produced Lefrak City, it is important first to look at its builder, Samuel J. Lefrak himself. Even before Lefrak City, he had

established himself as one of the most vigorous apartment builders in the nation. He has been building apartments, mostly in Queens and Brooklyn, at the rate of about 2,500 each year for the past five years. Today, Lefrak is the landlord for nearly 250,000 persons who pay over \$5 million each month in rentals. When Lefrak City is finished, it will augment this monthly bounty by over \$1.1 million. (These are only residential rents. Commercial income will be an extra added attraction.)

The supermarket approach to apartment building

The implication of these figures is plain—Lefrak is a rich man. And he has a rich organization, with net assets of about \$150 million. Most amazing of all, however, is that Lefrak has prospered by putting up what many builders eschew as nigh impossible—middle-income housing.

Until Lefrak City thrust itself upon the scene, Lefrak had contented himself with building mostly the sort of six-story walk-up "garden apartments" which make Queens a sea of building monotony. (Lefrak alone built over 10 per cent of all Queens apartments from 1945 to 1960.) Most of these apartments rented for \$20 to \$30 a room until recently, when construction costs pushed rents up to the \$35 mark.

With Lefrak City, a new standard has been established-highrise apartments with lots of "amenities," renting for about \$40 per room. (Cheapest efficiency: \$102 per month. Most expensive three-bedroom unit: \$264 per month.) This is moderate by the standard of most new high-rise buildings in New York, and a phenomenal buy compared with similar housing in Manhattan, which is less than a half hour away by subway (which in turn stops only several blocks from Lefrak City). There is no government aid of any sort involved, not even FHA mortgage insurance. For although he has had some experience with various government-aided programs, Sam Lefrak generally expresses vigorous scorn for all varieties of "government

encumbrances and bureaucracies."

What is the mystique whereby Lefrak does what most builders seem to believe cannot be done? Is he shrewder, richer, or what? He is a little of everything. This, in his own words, is Sam Lefrak's formula for producing new middle-income housing:

"Lefrak City is the result of a manufacturing and supermarket approach to apartment planning and building . . . and to acquiring land and materials. . . . We purchase larger quantities than the average builder and stockpile them. . . . We buy land at bulk prices, and we usually get a lower cost per square foot. And we also buy land and hold it for future construction. . . . We operate with our own money, and we have verticalized our operation. . . . We do our own architecture, engineering, painting, plastering, carpentry, and we even have our own brick plant which makes bricks to our design. . . . We take advantage of the seasons, too, in our buying of materials . . . we buy distress merchandise, pipe, cable, switches, or whatever and put it into warehouses until we need it . . . we dovetail and coordinate occupancy dates. . . . Put it all together and it spells mother."

Size and money power

Sam's secret is delivered at a rapid-fire clip, with much pacing and gesticulating. If it is not very revealing, that is because he somehow overlooks, with uncharacteristic modesty, the real source of his success—his organization's great size, and its money power.

Sam Lefrak's formula translates into something like this: He has, in the first place, enjoyed the good fortune of an expanding market for housing in Brooklyn, and in Queens, which is today New York's only major borough showing any growth. (With 1.8 million people, Queens is larger than either Detroit or Houston). Therefore, though he sometimes buys marginal land, Lefrak holds it until the market looks right for development. After all, he is under no pressure to build immediately.

His buying of "distress merchandise" is another key point. Vigilant young men from the Lefrak Organization stand ready to snap up wholesale lots of all sorts of materials at bargain prices. They know when a subcontractor is stuck with some material, or when a wholesaler has a bulging warehouse, and they take full advantage of the situation. Lefrak denies that he buys inferior materials, but when you buy "distress merchandise," you obviously can't be too choosy.

Squeezing subcontractors

Lefrak's size and affluence are tremendous factors in themselves. He uses them as a lever on subcontractors, suppliers, and manufacturers. For instance, Lefrak was unhappy with the price Consolidated Edison quoted to deliver power to Lefrak City, which has all-electric kitchens. He threatened to generate his own power, and, with typical Lefrak flair, to do it with a nuclear reactor. He reputedly spent thousands of dollars researching the possibilities of a reactor before scrapping the idea. In any case, in the midst of this research, Con Edison came up with a better deal.

The size and pace of Lefrak's operation enable him to squeeze subcontractors in every conceivable way, but they can hardly complain: after all, a project like Lefrak City alone can keep a sub-

contractor working for several years; and, even though his unit costs might be depressed to a minimum, he can make a tidy profit over the life of the job. Subcontractors say, with a sigh, that life is often tough working for Lefrak, but it's a lot better than not working at all.

Subcontractors do not play nearly so large a role in the building of a Lefrak job as they do in most large projects. Lefrak does most of his own building, except for mechanical services. (On Lefrak City, he also subbed out the brickwork.) As Executive Vice President Arthur Klein says, "This way we squeeze out the middleman's profit."

"A ferocious negotiator"

Even the biggest money lenders find Lefrak a formidable partner. Insurance giants such as Prudential, Metropolitan, and John Hancock are bankrolling Lefrak City, each lender writing a \$15 million mortgage on a single section comprising four apartment towers. Negotiations for the fourth section are now underway, and Klein says that in the process of these talks, the money market has already softened sufficiently to cut threeeighths of a point off the price of mortgage money. "And threeeighths of a point on \$15 million is not chicken feed," as Klein points out. (In fact, it is a tidy \$56,250—all saved by just sitting tight for a bit.)

Size and the power of money, then, underly the Lefrak formula. These in turn are used to impress suppliers and subcontractors—"Lefrak is a ferocious negotiator," as one former associate puts it. Lefrak says he uses the formula to pass savings on to the tenant, and this is proved by the many "amenities" available at Lefrak City. Certainly, there is no housing in Manhattan which compares with Lefrak's prices. And he has established a reputation as a fastidious landlord, at least in his

nonrent - controlled apartments, who treats his tenants "as if they were guests in my house."

The power of the Lefrak Organization did not derive entirely from the endeavors of Sam Lefrak. When he became president of the organization in 1948, it was already a substantial enterprise, built up with years of hard work by his father, Harry Lefrak, now 78, and no longer active.

Building near the subway

Harry Lefrak arrived in the U.S. in 1905, twenty years old, with an arm of iron and some knowledge of how to throw a house together. Times were not so propitious for immigrants, and Harry Lefrak patrolled lower Manhattan working at odd jobs (he even shoveled snow for \$4 a day) and eventually picked up considerable work as a glazier in the industrial district. His trick was to remove glass from abandoned factory buildings to be reused in other locations.

Harry's big chance came in 1916, when a gas explosion rocked midtown Manhattan, blasting out thousands of windows. Lefrak was there, with a crew of men, and he made his first big killing. This enabled him to get into the building business in Brooklyn where, with a knowing eye for the immigrant housing market, he built walk-up row houses to rent for considerably less than comparable housing in Manhattan-thus establishing one tenet of the Lefrak formula. During the building boom of the 1920s, Harry Lefrak got rich, building whole blocks in Brooklyn. He also was a firm believer in plowing profits back into the business. Harry laid down the guide lines for other Lefrak policies, too: he always tried to buy land near the subway, even though it might be years before he would actually build on it. When he did build, he stressed two things: the size of the apartments and the rent. He wanted his apartments to look a little bigger than his competitors' jobs, and he usually rented them for a few dollars less. The quality of Lefrak's work, in the bargain, was probably not significantly lower than the competition's.

Samuel was the fourth and youngest child (Sam has three older sisters) and after public school he was dispatched to the University of Maryland to study dentistry. "Somehow dentistry lost its appeal," he says today, "and I began to wonder if I wanted to spend the rest of my life staring into people's mouths. I wanted to build things, to leave my mark in the world. I wanted people to know some day that Sam Lefrak had lived here." (Actually, Sam lives in a villa in Woodmere, L.I.) Anyway, he proceeded to go into engineering.

Lefrak on his way

Upon graduation, Sam immediately bought himself a piece of his father's business, and by 1948 was the president. Three years later, Sam made his own big break: he went to State Supreme Court in Manhattan and outbid some 400 others for 20 mortgages and 29 pieces of real estate being auctioned off by New York City. Lefrak dauntlessly bid \$5 million for the properties, after the competition quit at \$4.9 million. He put up the required \$50,000 on the spot (just about all the cash he had at the time) and then began to scrape up the remaining \$450,000 required to satisfy the 10 per cent down payment demanded by law. Lefrak split the properties into three chunksprime, "choice," and marginal. The prime properties he used as collateral to get the needed \$450,000 for his down payment. The choice properties he decided to develop himself, where it seemed feasible, and to borrow against such development as part of his purchase price for the land. He was forced to borrow at high

rates, and to liquidate some of the land parcels below their assessed value, but in the end he was left with ten prime properties returning sturdy incomes.

From the time of this auction, Sam Lefrak was on his way. He began building on a large scale, and building his organization at the same time. He also began to build an image of Sam Lefrak as an idea man. He came up with a proposal to keep the Brooklyn Dodgers in Flatbush, offered to buy Ellis Island from the U.S. government, and proposed a \$14 million apartment project over the Manhattan approaches to the George Washington Bridge. (This project has since been built by another developer, after Lefrak abandoned the notion.) More recently, he has proposed that New York City buy the Seattle Fair's monorail and put it alongside the L. I. Expressway.

Lefrak also blazed the trail for New York's Mitchell-Lama housing, which permits low-interest state-guaranteed loans and tax abatement. He built the first Mitchell-Lama project on a site he had owned in the Sheepshead Bay section of Brooklyn, and advertised it for \$350 down and \$21 monthly per room carrying charges. Some 4,000 people stampeded the project for the 520 apartments, many waiting in line all night.

A foe of public housing

Despite the success of this project, Lefrak shies away from government-assisted programs. His only concession so far has been that he intends to develop a small parcel, involving rehabilitation, of Manhattan's large West Side Renewal project, for which plans have not yet been fully determined. Lefrak is even a little skeptical of the project, although he is on the record as saying that "the Title I program is a step in the right direction."

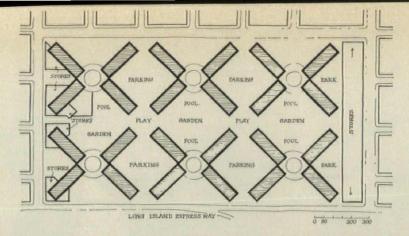
Like most builders, Sam is a

determined foe of public housing (too often it suffers, says the creator of Lefrak City, from "a deadly drabness of design"), but unlike most builders, he is a firm believer in rent controls and "state and city financing" to erect low-rent developments (see page 85). Also unlike many builders, Lefrak avoids the FHA because he can actually borrow more cheaply from conventional sources.

Merchandising Lefrak City

Lefrak City is the most ambitious deal Sam Lefrak has ever tackled. Getting the land alone took 15 years, by his reckoning, since the first time the trustee of the Astor estate was approached about selling the 40acre site. The trustee for the estate wanted to lease the land, as it was in the habit of doing with other properties, but Lefrak insisted on owning it outright. Meanwhile, other builders shunned building on the site because it was so swampy. (There is still a creek running through the site, and the water table is only 10 feet below grade.) When Lefrak finally got the chance to buy it for \$7 million he jumped at it, despite the soil conditions. (Most of the buildings are being built on wooden pilings.)

Buying the Lefrak City site was a typical Lefrak deal. It was marginal land, despite the convenience of the subway and the expressway. Sam bought it cheap (around \$4 per square foot) and is building cheap (for \$1.50 per cubic foot or about \$13.50 per square foot). Despite its swampiness, the property is strategically located, and Lefrak himself will see that it gets all the shopping and commercial facilities it needs. Nearby he intends to build four more office buildings to complement his 14-story Lefrak Tower. A convincing pitch to prospective office tenants: office help, of which Lefrak City and environs have plenty, works in Queens for



\$15 to \$20 per week less than in Manhattan.

Selling Lefrak City to prospective tenants is basically a question of what Sam calls "merchandising." This, according to the Lefrak formula, means figuring out what might attract the tenant (pools, tennis courts), giving it to him in spades, and still turning a handsome profit.

Schools might turn out to be a problem too, although at the moment the New York Board of Education is not worried. Lefrak told the Board at an early date of his plans for Lefrak City, but the Board figured that, based on Manhattan apartment experience, there would be few children. So far, there are 494 kids in the first 1,000 apartments, and the Queens school system may be drastically strained even before Lefrak City is finished. No funds are budgeted for school expansion, and the school board still seems unconcerned, much to Lefrak's discomfort. Lefrak himself is unwilling to donate a large chunk of land for a full-scale elementary school on the site, but he is willing to lease building space for a kindergarten-to-third-grade facility, using Lefrak City play spaces for recreation. The school board has turned down this offer.

It is almost impossible to find out just how well Lefrak City is renting, because no one in the Lefrak Organization will say. The surrounding area is now well stocked with both high-rise apartments (renting for about the Lefrak City price) and six-story walk-up apartments (renting for considerably less). It would seem that every builder but Lefrak is offering concessions in the areaseveral months free rent on a twoyear lease is not uncommon. Practically next door to Lefrak City, it is possible to rent apartments with the same basic space and layout for as much as \$40 per month less. But, of course, there are no swimming pools, tennis courts, masseur parlors, or explosion-proof buildings.

People do care about pools

This situation raises the question of what "merchandising" really means to the tenant. Many Lefrak City tenants are quite happy. As one housewife (and mother of two) said, "We can hear everything through the walls, even conversations, and the windows are drafty and the heat has been erratic and the painting and plastering job is terrible—but we really love it here."

The fact seems to be that Lefrak City is good space for the money, and the people do care about swimming pools. It might cost a little more than the buildings down the street, but, with its "amenities," the "little more" is evidently worth it to the present tenants. Whether Lefrak can sell all 6,000 units on this basis, in a continually softening market, remains to be seen. He is convinced that he can.

Santa+Robin Hood=Lefrak

There is nothing that Lefrak can't do, to hear him tell it. He is monumentally egocentric, and is determined to be, if nothing else, a living legend. Lefrak City is just the beginningafter all he is only 45 years old. He is a vigorous philanthropist, going at it with the determination of a man very mindful of his public image. And for all his brash, aggressive manner, he is eager to have people think of him as a combination of Santa Claus and Robin Hood: "I want people to say about me, 'There's a human being.' . . . I feel I'm a landlord with a heart."

Lefrak does have a heart, but Lefrak City is depressingly heart-less—an almost frightening conglomeration of cheerless buildings. The site planning is marked by the very sort of monotony that typifies most of New York's public housing. Lefrak's own architect, Jack Brown, says, defensively, that "you must understand that there are great compromises in this sort of a job." Brown has had to cater to the whims of mortgage lenders and to scrap his original

plans to centralize shopping because profitable leases couldn't be worked out. (This "compromise" has meant wrapping an ordinary supermarket around the ground level of one of the buildings.) Brown says hopefully that the apartments are supposed to be laid out to provide tenants with an uncluttered view for "at least 400 feet." The actual vista between the buildings is not that spacious, although four of the buildings will have two Manhattan skyline-oriented exposuresat least until another Lefrak City obstructs them. Cars are scattered throughout the site (as well as underground, for there is about one space for every two apartments) and cannot be well hidden by the sparse shrubbery planned and planted.

All in all, Lefrak has used the land badly, in an effort to obtain "economic" rents. If it is better than other competitive projects, that is only a sad commentary on the booming New York apartment market. Probably no builder in the nation has ever proved so aptly that organization, efficiency, and merchandising are not in themselves adequate to produce first-rate housing. The supermarket approach has so far created nothing more than supermarket buildings, whose biggest virtue is that they are cheaper by the dozen.

Twelve of Lefrak City's 24 brick towers are already up, each building named after a great city-e.g. Paris, London, Copenhagen, and Marseilles





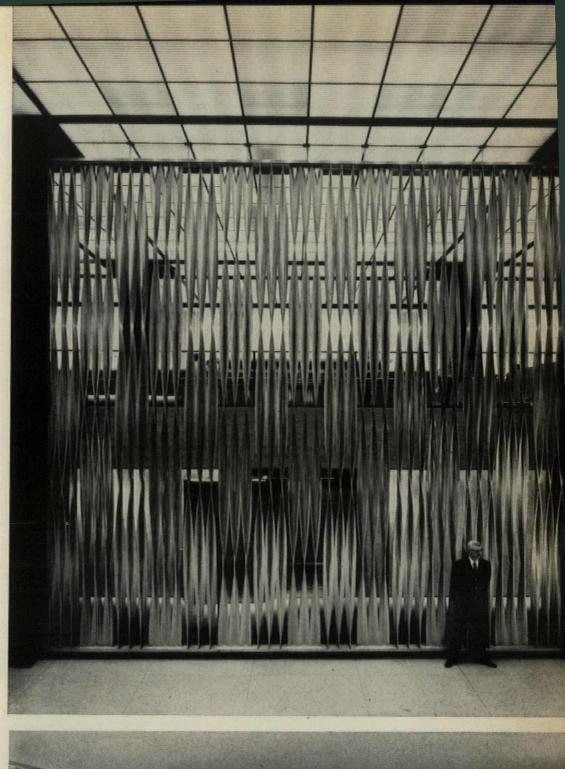
A NEW ART OF BANKING

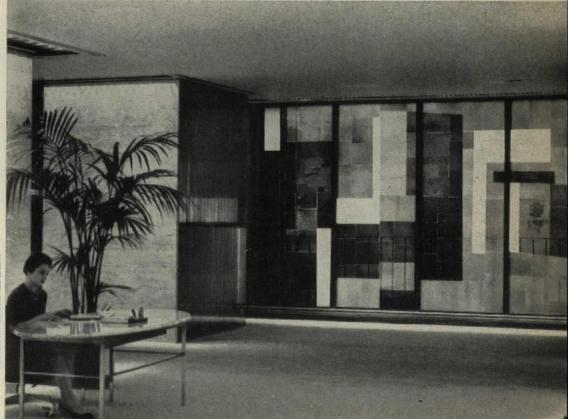
It is almost axiomatic that banks, those forbidding temples of yesteryear, have become sleek, even spectacular, showcases for the friendly, worldly banker of today. Few, however, have espoused the visual arts quite as enthusiastically as Manhattan's Bankers Trust Co., in its new 30-story headquarters on Park Avenue.

The guard at right, for example, is seen next to one of two giant bronze screens which flank the building's main escalator lobby, shielding vaults and banking offices. The work of Sculptress Stephanie Scuris, they are made of hundreds of brightly polished rods woven in a ribbonlike pattern. (The gentleman seen through the pattern at left is seated at a central electronic control desk.)

Upstairs, the lobby of the executive (seventeenth) floor displays glowing travertine walls, and a 9 by 18-foot stained-glass window by Artist Robert Sowers (lower right). Elsewhere, Henry Dreyfuss, the industrial designer charged with creating the whole building and its contents, has assembled equally prodigious and eyecatching effects (overleaf).

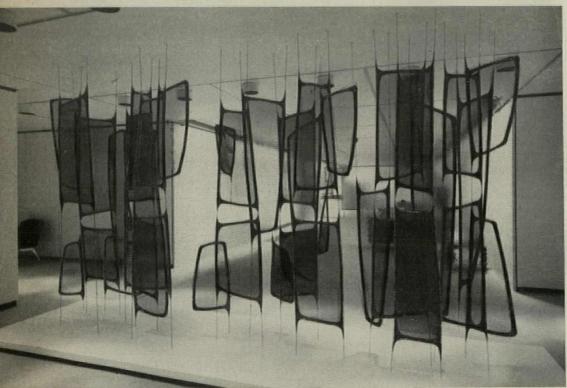




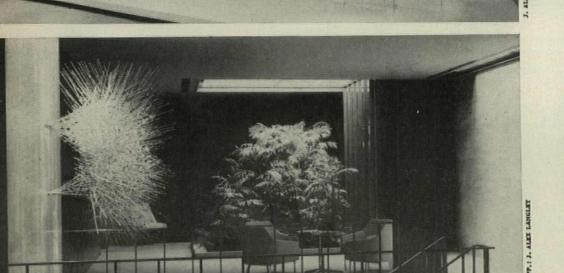




Employee lounge (left) has molded chairs on an outsize carpet by Dorothy Liebes. Behind the decorative screen at the rear is the bank's cafeteria. The ceiling is like that designed for the general office floors: 6-foot squares with air supply and return built in around new "low brightness" lighting fixtures, which direct light so efficiently that, seen from the side, they look dark.



Between the tenth-floor elevator lobby and the customers' dining rooms stands a screen by Alistair Bevington—a vaguely insectile creation of floating metal wings framing sheets of glass in purples and blues. The dining rooms themselves have less daring replicas of old tavern signs and early-American prints, as well as Dreyfuss-chosen furniture, tableware, matchbooks.



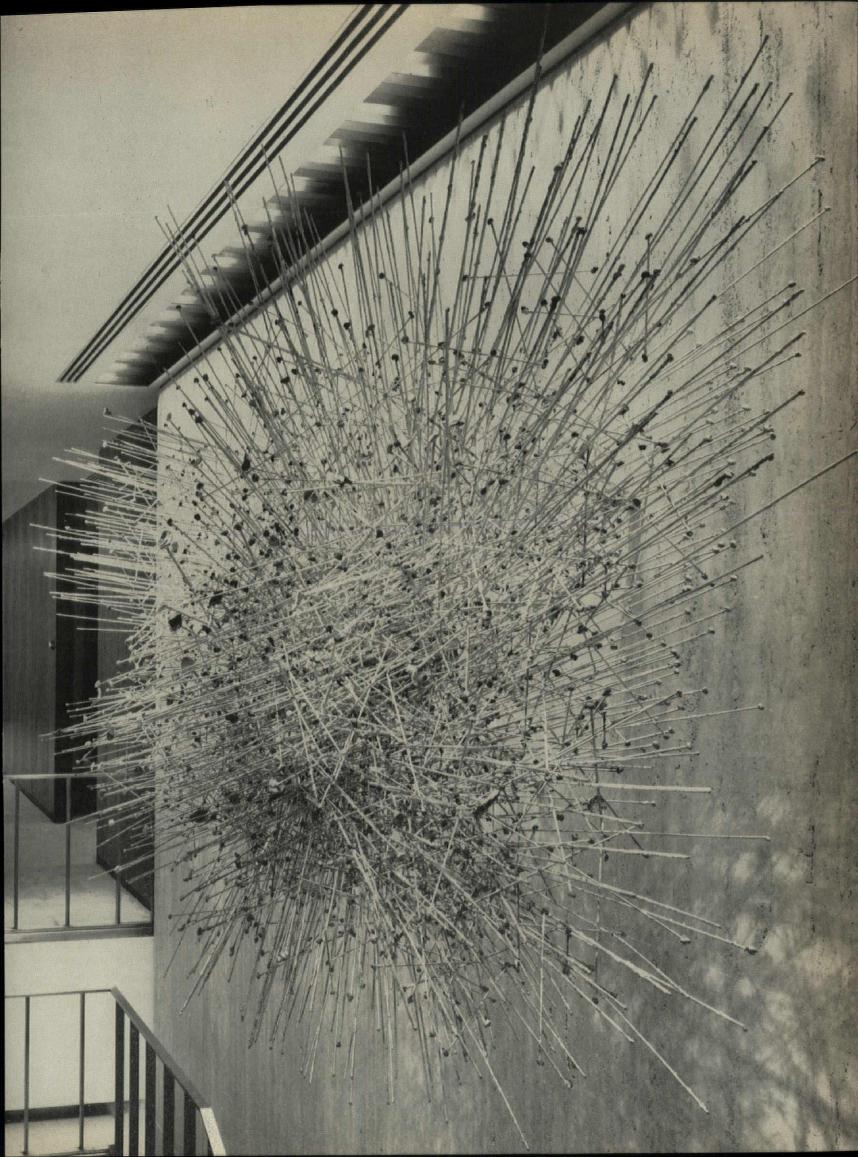
The bank's executive suite, below the building's eighteenth-floor setback, boasts a pair of small gardens skylighted through the roof (background of photo below, left). Above a stair well connecting with a subexecutive floor hangs Sculptor Harry Bertoia's 6-foot "sunburst" of gilded wire rods, seen also in the photograph at right.

FACTS AND FIGURES

Bankers Trust Co., 280 Park Ave., New York, N.Y.

Over-all design: Henry Dreyfuss.
Building architecture: Emery Roth
& Sons. Interior architecture;
Shreve, Lamb & Harmon Associates. Engineers: James Ruderman
(structural); Weiskopf & Pickworth
(consulting); Jaros, Baum & Bolles
(mechanical). Consultants: Bolt,
Beranek & Newman and Michael
Kodaras (acoustical); Richard Kelly
(lighting); Dan Kiley (landscaping);
Ebasco Services, Inc. (space planning); B. Altman & Co. (furniture).
Contractors: Diesel Construction
Co., and Rose Associates (owner).

WEST-AND OPP. : J. AVEX LANGLEY



LARGEST ARCHITECTURAL FIRMS IN THE U.S. FORUM's latest volume survey of U.S. architectural firms shows that 1962 was a record construction year for the 100 largest—just as it was for the nation as a whole. They were responsible for \$4.5 billion worth of buildings put in place last year, a 7.1 per cent advance over the 1961 total of \$4.2 billion. Lowest qualifying volume was \$19.5 million, compared with \$16.1 million on last year's list.

The steady climb will continue if the architects' estimates for 1963 hold true. Across the board, they predict an average increase of 12 per cent—although 22 foresee a decrease and 13 expect no change in 1963.

The 100 biggest architects, a small minority in the ranks of their profession, were behind 7.4 per cent of the country's total \$60.7 billion expenditure for construction in 1962. They account for an even more imposing 17.1 per cent of the national total when figures for nonbuilding construction, such as highways, waterworks, etc. (\$17 billion in 1962) and one- and two-family houses (\$18 billion) are deducted. Only 17 of the top firms listed houses among their completed work last year and of these, only two (Claude Oakland; Palmer & Krisel) reported 30 per cent or more in that category.

Specialization continued to be a trend with 49 firms reporting half or more of their volume in a single building category: residential—apartments, hotels, and motels—(15), educational—schools and colleges—(11), offices (10), industrial buildings (8), medical—hospitals, clinics, and institutions—(3), retail—stores, shopping centers, and restaurants—(2). Other categories most frequently listed were government projects ("military," "defense," "space") followed by prisons, aviation facilities, banks, and urban renewal projects.

There are only 11 newcomers to the directory, marked by asterisks in the table at right, and none of these are in the two top-volume brackets. The 100 names came from just 24 states and the District of Columbia, with the big cities as usual providing the majority. Fifty-six of the firms are located in the big five: New York (26); Los Angeles (10); Chicago (8); Philadelphia (7); and Detroit (5).

Within each of the five volume ranges, architects have been listed alphabetically. In this way, firms with quite disparate volumes in the same range may be listed side by side. The only yardstick in compiling Forum's directory of 100 largest architects is volume in the preceding year. The list has no bearing on quality of design. Approximately 600 firms were contacted this year and asked to return signed questionnaires, stating the actual dollar volume of their building construction put in place. The consulting research firm of Erdos & Morgan supervised mailings and tabulations. Since architectural offices are rarely corporations with publicly listed financial information, Forum must accept the completed questionnaires as bonafide statements of each firm's work.

Two firms are included among the top 100 on the basis of FORUM estimates (Daniel, Mann, Johnson & Mendenhall; Emery Roth & Sons). SOM and Eero Saarinen & Assoc's. are not listed because of insufficient data.

Construction put in place	Professio	ofessional staff†		Type of Construction as a per cent of 1962 Total							
Firm (home office)	Architects	Engineers	Offices	Educational	Industrial	Residential † †	Medical	Retail	Other	Forecast '63	
	-									The state of the	
\$70,000,000 or more**			40	10	5	19	11	9	4	+21	
Welton Becket and Associates (Los Angeles) George L. Dahl Architects & Engineers (Dallas)	98 15	35 15	42 48	11	2	3	14	14	8	+15	
Leo A. Daly Company (Omaha)	76	80	7	19	17	9	10	6	32	+5	
Daniel, Mann, Johnson & Mendenhall (Los Angeles)	45	43	na	na	na	na	na	na	na	na	
Eggers and Higgins (New York)	33	5	25	25	10	5	20	-	15	+12	
A. Epstein and Sons, Inc. (Chicago)	48	59	14	2	55	13	8	1	7	+9	
Ferrenz & Taylor (New York)	20	4	-	25	-	_	65	-	10	-9	
Gerber & Pancani (Newark, N. J.)	7	8	_	-	_	61	-	10	29	+10	
Giffels & Rossetti, Inc. (Detroit)	22	125	2	3	50	2	5	36	38	+ 7	
Victor Gruen Associates (Beverly Hills)	40	19	14	1	1	12		30	5	-2	
Harrison & Abramovitz (New York)	45	2	90	5 24	_	60	15	1	_	+1:	
Kelly & Gruzen (New York)	22 171	6 31	25	13	17	14	5	20	6	+10	
Charles Luckman Associates (Los Angeles) Morris Lapidus, Liebman & Associates (New York)	6	1	2	1		89	_	1	7	+7	
Albert C. Martin and Associates (Los Angeles)	25	32	20	9	35	_	19	14	3	+;	
C. F. Murphy Associates (Chicago)	20	43	24	9	15	10	10	_	32	n	
Samuel Paul & Seymour Jarmul (New York)	4	1		2		96	_	1	1	+1:	
Emery Roth & Sons (New York)	16		na	na	na	na	na	na	na	n	
Smith, Hinchman & Grylls Associates, Inc. (Detroit)	25	52	24	6	30	-	24	_	16	+18	
Sverdrup & Parcel and Associates, Inc. (St. Louis)	19	240	5	4	85	-	5	-	1	n	
Voorhees, Walker, Smith, Smith & Haines (New York)	49	45	35	20	28	3	1		13	+4	
\$50,000,000 to \$70,000,000											
Cohen, Haft & Associates (Silver Spring, Md.)	15	_	4	2	_	65	_	1	28	+14	
Ellerbe and Company (St. Paul)	na	na	16	21	18	2	42	1	-	+	
Albert Kahn Associated (Detroit)	20	27	20	10	50	-	15	-	5	+1	
S. J. Kessler & Sons (New York)	10	5	4	-	10	73	6	3	4	n	
William Lescaze (New York)	6	_	80	_	=	2	13	-	5	+2	
Lockwood Greene Engineers, Inc. (New York)	18	52		6	84	-	10	-	15	n	
Perkins & Will (Chicago)	63	17	15	56	2	-	12 75		3		
Schmidt, Garden & Erikson (Chicago) Shaw, Metz and Associates (Chicago)	38 26	31 15	6 17	4 14	10	2 58	-	=	-	п	
225 000 000 to \$50 000 000										N Justine	
\$35,000,000 to \$50,000,000 *Stiles & Robert Clements (Los Angeles)	8	2	20	5	35	-	_	30	10	+	
Curtis and Davis (New Orleans)	19	_	15	5	_	32	45	-	3	+3	
Dalton-Dalton Associates (Cleveland)	19	27	5	30	25	-	20	5	15	+1	
George M. Ewing Co. (Philadelphia)	27	34	12	23	33	8	14	6	4	n	
Fellheimer & Wagner (New York)	15	19	15	17	22	-	3	5	38	+	
Holabird & Root (Chicago)	16	20	46	17	12	4	-	1	20	n	
(ahn & Jacobs (New York)	10	_	66	_	3	13	1	1	16	+	
A. M. Kinney Associates & Affiliates (Cincinnati)	18	86	na 5	na	na	na 75	na	na 5	na 15	+1	
Charles F, McKirahan and Associates (Fort Lauderdal	e) 6 15	1 13	25	20	15	5	5	10	20	+1	
Mills, Petticord & Mills (Washington) Samuel I. Oshiver & Associates (Philadelphia)	4	8	25	20		85	_	15	_	+5	
Robert and Company Associates (Atlanta)	21	51	5	27	23	_	34	_	11	+	
Sargent-Webster-Crenshaw & Folley (Syracuse)	26	9	8	55	5	12	7	1	12	+	
Sharp and Handren (New York)	12	_	_	99	_	_	_	_	1	+	
Sherwood, Mills and Smith (Stamford, Conn.)	25	1	4	69	10	-	5	3	9	-2	
William B. Tabler (New York)	8	2	_	_	_	100	-	_	-	n	
*Tippetts-Abbett-McCarthy-Stratton (New York)	15	125	_	5	55	40	-	-	-	n	
	4.4	2	4	00	0	2	0	· Panel	5	+!	
Frederic P. Wiedersum Associates (Valley Stream, N.Y.) Adrian Wilson & Associates (Los Angeles)	11 21	3 39	1	82 20	10	20	36		10	+6	

na=not available

nc=no change

^{*}Newcomers to list of 100 since 1962 survey
**Firms are listed alphabetically within ranges given
†Registered architects and licensed engineers only
††Apartments, hotels, motels—does not include houses

	Construction put in place	Professional stafft as a per cent							Construction t of 1962 Total					
	Firm (home office)	Architects	Engineers		Offices	Educational	Industrial	Residential	Medical	Retail	Other	Forecast '63		
-	\$25,000,000 to \$35,000,000*					1000		MAG						
	Abbott, Merkt & Company (New York) Robert L. Bien (New York) John S. Bolles (San Francisco) Carson, Lundin & Shaw (New York) Chapman, Evans & Delehanty (New York) Flatow, Moore, Bryan & Fairburn (Albuquerque) Gehron & Seltzer (New York)	7 3 6 22 21 11 12	20 3 - 3 -		30 90 5 43		15 	60 8 - 26 6	10 10 17 2 45	70 37 — 4 —	15 — — 32 31 5	+17 +62 -13 -21 nc -22		
	John Graham and Company (Seattle) Melvin Grossman (Miami Beach) Harbeson, Hough, Livingston & Larson (Philadelphia) Harley, Ellington, Cowin and Stirton, Inc. (Detroit) Wyatt C. Hedrick and Associates (Fort Worth) Hudgins, Thompson, Ball & Associates (Oklahoma City) Kiff, Colean, Voss & Souder—The Office of York & Sawy (New Yor	33 1 21 24 16 14 er 32	31 — 18 14 28 2		3 72 40 22 17 2	2 13 10 20 33 12	2 — 25 6 6	14 85 9 8 1 —	1 3 12 39 2 86	74 10 — 7 — 7 —	4 5 3 5 42	+75 -34 +18 +62 -43 -5 +78		
	Vincent G. Kling (Philadelphia) Lennox, Matthews, Simmons and Ford, Inc. (Indianapolis*Loewenberg & Loewenberg (Chicago) Charles H. McCauley (Birmingham, Ala.) *Outcalt, Guenther, Rode and Bonebrake (Cleveland) J. N. Pease Associates (Charlotte, N. C.) Office of Alfred Easton Poor (New York) J. E. Sirrine Co. (Greenville, S. C.) Thomas E. Stanley (Dallas) *Edward Durell Stone (New York) The Office of Max O. Urbahn (New York) Wise, Simpson, Aiken & Associates (Atlanta)	44	1 6 1 4 1 19 3 52 5 3 1		37 10 — 21 — 14 20 2 50 25 9 19	23 50 — 14 45 17 3 4 — 30 36 1	30 15 - 8 - 30 10 80 1 - -	5 95 21 1 10 — 28 — 17 23	5 30 1 20 2 2 2 30 19 5	20 -2 -1 -3 9	5 — 4 53 8 65 12 16 16 19 41	+36 +31 nc -13 -12 +17 +72 +19 -12 +54 +59 -52		
	Austin, Field & Fry (Los Angeles) The Ballinger Company (Philadelphia) Claud Beelman & Associate (Los Angeles) *Ralph R. Calder and Associates (Detroit) Caudill, Rowlett & Scott (Houston) Chatelain, Gauger & Nolan (Washington) Fletcher-Thompson, Inc. (Bridgeport, Conn.) Frank Grad & Sons (Newark, N. J.) Hellmuth, Obata & Kassabaum, Inc. (St. Louis) *Frank L. Hope & Associates (San Diego) Hunter, Campbell & Rea (Altoona, Pa.) Lankton-Ziegele-Terry and Associates (Peoria, Ill.) LaPierre, Litchfield & Partners (New York) William E. Lehman (Newark, N. J.) John C. Lindsay & Associates, Inc. (Santa Monica, Calif Loebl, Schlossman and Bennett (Chicago) Lyles, Bissett, Carlisle & Wolff (Columbia, S. C.) Marshall & Brown (Kansas City, Mo.) Naramore, Bain, Brady & Johanson (Seattle) *Claude Oakland (San Francisco) Palmer & Krisel (Los Angeles) *August Perez & Associates (New Orleans, La.)	7 15 6 8 26 12 16 13 24 11 10 11 14 7 5 21 15 17 16 4 3 9 8	5 17 		46 10 85 1 5 60 5 39 30 49 — 12 13 — 12 30 5 8 5 30 49 — 12 13 — 12 16 16 16 16 16 16 16 16 16 16 16 16 16	30 20 — 99 86 — 53 16 24 15 75 41 31 15 10 8 16 28 9 3	10 35 — 5 20 45 — 8 5 9 — 15 4 — 18 3 — 11	10 — 15 9 — 5 27 60 32 4 20 16 2 14 42 1 99	10 25 — 2 — 5 — 1 10 12 23 29 — 3 13 7 1 20 —	-6 10 1 5 7 3 10 6 40 17 1 8 11	4 4 5 7 25 16 - 25 2 8 7 - 33 5 17 43 15 83 30 4	+ 28 + 38 - 2 - 33 - 25 + 23 + 42 + 19 + 11 nc + 39 + 25 - 35		
	*Stonorov and Haws (Philadelphia) Thalheimer & Weitz (Philadelphia) Paul R. Williams and Associates (Los Angeles)	16 5	- 8 6		11 40	15 20	23 5	10	19 30	22	5	+30		

*Newcomers to list of 100 since 1962 survey
**Firms are listed alphabetically within ranges given
†Registered architects and licensed engineers only
††Apartments, hotels, motels—does not include houses

na=not available

nc=no change



THE NEW SAARINEN OFFICE

BY WALTER McQUADE

Last spring the head of one of the largest U.S. architectural firms telephoned Aline Saarinen to ask her to lunch. When lunchtime arrived, in the opulent surroundings of Manhattan's 21 Club restaurant, it became evident that what he really was hungry for was Eero Saarinen and Associates. He offered to buy the firm outright, saying, winningly, that he could put all that talent to good use, including Mrs. Saarinen's public-relations expertise.

The conversation was never allowed to reach the proposed purchase price; Mrs. Saarinen declined, in behalf of Saarinen's surviving partners, so the money value of the 94 talented people of this organization is not yet clearly established. Yet it can be assumed to be very high. The 94, with very few defections since Saarinen's death, are immensely busy in their headquarters in a Connecticut mansion (above), whose efficient new drafting-room wing (below) contrasts amusingly with the romantic old front. For more details, turn the page.



OTOS: JOHN HIM



\$125 million in work

The Saarinen office has not lost a single client since the death of Saarinen, and there is now \$125 million of work underway. Most telling is the fact that \$25 million of that work has come in since Saarinen's death, including such prized commissions as a municipal museum for Oakland, Calif., whose directors went on a nationwide architect-hunt before picking Saarinen Associates, (page 116); a large high school for New Haven (page 115); a department store outside Dallas for Neiman-Marcus (page 118); a brace of college buildings; and-in collaboration with Charles Eames-one of the few exciting buildings so far proposed for the 1964 New York's Fair (the exhibitor being one of the world's corporate connoisseurs of architecture, IBM).

That the Saarinen organization has survived the death of its namesake is thus evident. It will not be the first firm to have done so: McKim, Mead and White, established in 1880, did not change its name until 1960-some 32 years after the death of the last remaining original partner. But the success of successors is difficult to define, and this will be especially true in the case of the Saarinen office, because it has been such a special breed. One of its industrialist clients said recently, "We've felt it has always been an R. and D. kind of operation-not just technical research and development, but also visual ideas-architecture, I guess." Can the same kind of operation survive without the personal touch of Saarinen? The answer is up to three men: Joseph Lacy, John Dinkeloo, and Kevin Roche.

The Administrator

Ioe Lacy, the senior partner, is a quiet, stocky man, soundly conservative in appearance, unassuming in manner. He was born 57 years ago in Kansas City, Mo., into a family in the construction business, and by the time he was in high school, he was working summers as an architectural draftsman. Then came the University of Pennsylvania architecture school, followed by drafting jobs in Philadelphia, including several years with Paul Cret.

In 1945 Lacy was associated with another Penn and Cret alumnus, Louis I. Kahn, in the construction of a housing project in Washington, D.C. One day, Eero Saarinen came looking for



an experienced project manager for a big job he and his father had landed. Kahn recommended Lacy generously, and Lacy made the move to Bloomfield Hills, outside Detroit, joining an office called Saarinen, Saarinen & Swanson, which then numbered, he remembers, about 15 people, but was building up for a very big project, which was the General Motors Technical Center. Upon Eliel's death and Robert Swanson's departure into his own practice, the firm was remade in 1951 with Saarinen as principal owner and Lacy as one of two other partners.

Lacy took over general administration, which he continues to handle today. But today he also checks the drawings and closely supervises several projects, including the big John Deere Co. group near Moline, Ill.



The Technologist

Dinkeloo, 45, the other partner, is a dark, good-looking man who sometimes appears sardonic but never is. Instead he is that rare combination: a very practical man who is also an enthusiast. He too started in architecture young, working in the summer of 1939 for Skidmore, Owings and Merrill in Chicago while he was attending the University of Michigan. After graduating in 1942, and spending several informative years with the Seabees in the Pacific, Dinkeloo returned to Chicago and SOM, and, by the time he was 28, was chief of production and coordinator of structural and mechanical work for that office.

It was Harry Weese who took him to the Tavern Club one day in 1950 to meet Saarinen, who commented at once on the unusual name, Dinkeloo. Dutch, originally," said its owner. "Whenever you hit a double vowel, it's Dutch, you'll find."

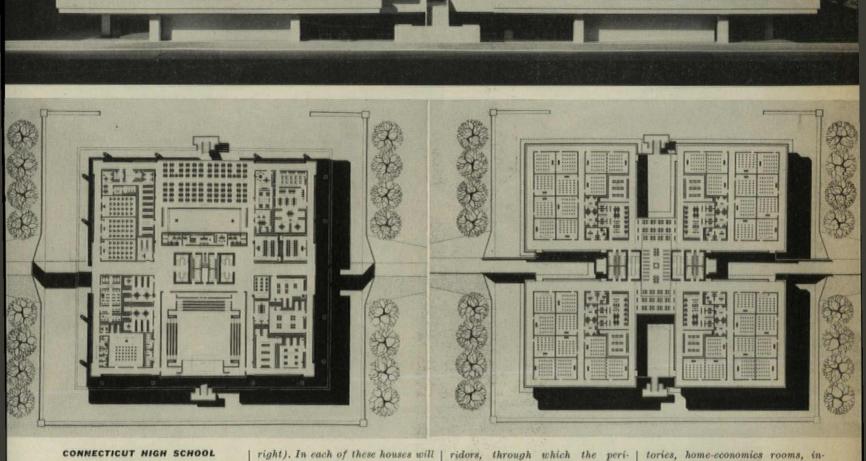
"Oh?" said the Finnish-born Saarinen. Then he told Dinkeloo he was looking for a buffer between the designers and the engineers on the still-expanding G.M. job. "We made a deal," says Dinkeloo, and he moved enthusiastically to Bloomfield Hills. In 1956 he became the third partner, with responsibility not only for working drawings but for a very important generative specialty of the firm: searching outside the usual building industry to find industrial processes for adaptation to construction, such as the plastic zippers for the G.M. glazing, the mirror glass at Bell Labs, etc. Dinkeloo is still at it; he has just uncovered a new liquid honing finish for the granite in the CBS building.

The Designer

The third force in the future of the firm, who is not yet a partner, will be. Kevin Roche, 40, is a pleasant, pale-eyed man with a faint Irish brogue. Born and educated in Ireland, he worked in Dublin and in London for Maxwell Fry, before coming to the U.S., then spent a semester or two at Illinois Institute of Technology with Mies van der Rohe. In 1948 he was working in New York for the UN Planning Group, when he met Saarinen-and shortly thereafter he, too, was in Bloomfield Hills, working on the GM Research Center. Roche got on very well with Saarinen, who fast formed great respect for his designing talent.

Roche is rich with humor, a well of Celtic mirth which bubbles frequently to the surface, but he is anything but a whimsical, goingmy-way Irishman. Instead he is an intellectual, somewhat withdrawn. Although poised enough socially, he frequently has the air continued on page 117





CONNECTICUT HIGH SCHOOL

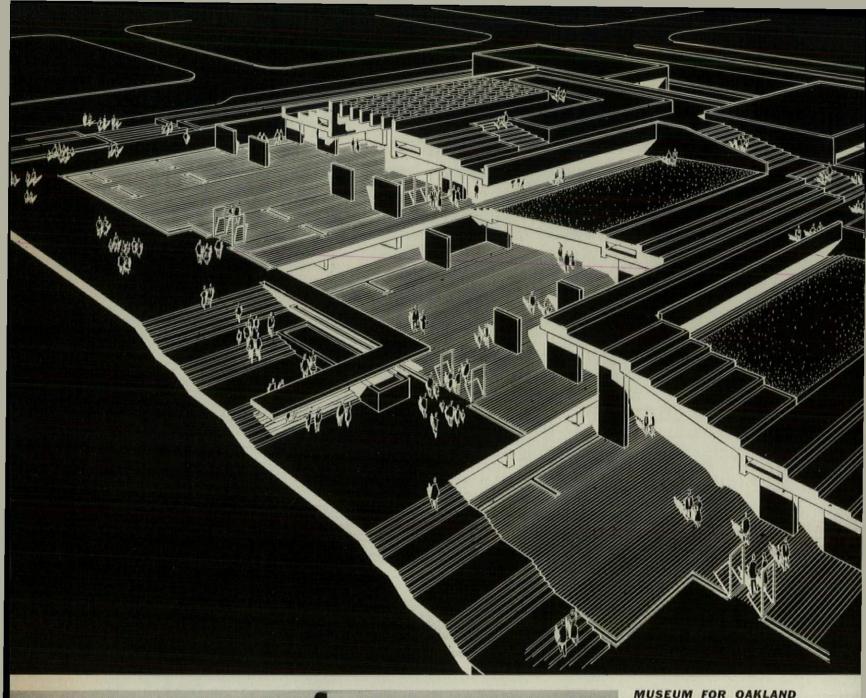
On a cramped site in midtown New Haven, this strong concrete structure will divide its 1,600 students into four "houses" in the four quadrants of the top-floor plan (above,

be a number of classrooms with relocatable partitions, plus a commons or general purpose room, and office space for the house master. Around all will run galley-like cor-

ridors, through which the peripheral classrooms will look outdoors. In the center of this level are a library and the toilets.

Downstairs will be specialized classrooms, such as science laboradustrial-art workshops, and business education classrooms, administrative offices, cafeteria, and auditorium. A separate building, not shown, will house the gymnasium.

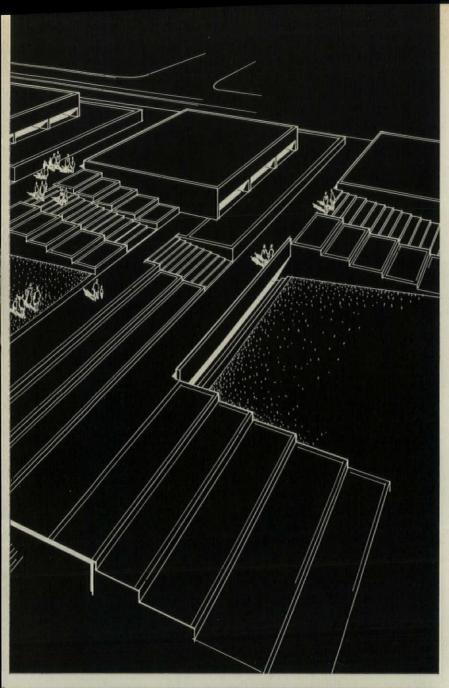


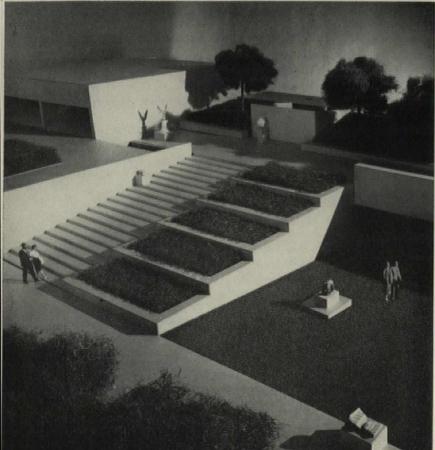


MUSEUM FOR OAKLAND

Three levels of galleries-one each for natural history, for culture, and for art-together will form a \$6 million regional museum for the California area. These sets of rooms will face outward on even more levels of gardens and outdoor displays (see schematic cutaway drawing above). There will also be a large gallery for traveling exhibitions, two auditoriums for lectures, and a restaurant. The inner buried shelves behind the galleries will be a municipal garage.

Beyond details, it is as a complete "surround" that the design is construed, a pleasantly diverting place to take a walk, indoors or out, while learning somethingperhaps something unexpected. Designer Roche believes the model, photographed left, in plan view, best reveals the character of what he is after in the way of a sculptural environment in the middle of the California city of which Gertrude Stein was once able to say, "There is no there there."





of standing around, waiting for someone else to say something first. When he speaks it is at a quiet pitch, and quite slowly. The brogue whittles his words into a gently commanding diction, however. Nor are his ideas easy to anticipate, or to ignore.

Several years before Saarinen died, in 1961, he announced that he wanted to make Roche a partner; this could not be done legally, however, until Roche became a registered architect. To do that he had to begin the process of obtaining U.S. citizenship.

Today Roche is still too busy to do either. A bachelor, he literally lives in the old mansion in Hamden, in an upstairs room, frequently working seven days a week in a very time-consuming manner of designing-by means of models and mock-ups. People who know Roche well say he is a more "rationalist" designer than was Saarinen, who had a wide romantic streak. But there are two qualities which the two obviously shared: full devotion to the laboriously detailed programming of any project, in the attempt to distill out the prejudices pulling the designer toward a commonplace solution. The other quality is audacity.

The first new job

Typically, Roche and Dinkeloo won the campaign for the design of the Oakland Museum by urging almost a nonbuilding, a threelevel set of bunker-like galleries largely buried to one side in enclosed parking areas for cars, and opening on intricately terraced gardens on another side. It will be a very vernal place, with much man-made boskiness, something of a combination of Copenhagen's Tivoli Gardens and the Villa D'Este outside Rome. "There was this opportunity to make a unique thing," Roche murmurs, "to show that art is not just esoteric but a part of nature and culture. . . . The essence of the thing was to make the gardens come forward. The Renaissance garden was an architectural thing, but there is no longer any such thing today. This is an effort to really tie the museum and the garden together, to combine them. What we're really looking for is just a very nice place to be in for a day."

Charles Eames points out something else about the Oakland job: "Kevin's great worth is the same large view of architecture that Eero took. The office got the Oakland museum as a building to design, then they began to consider the next larger thing, which is what the museum really could and should be, both in terms of the rest of the city physically and as a museum. Kevin said, in effect, 'OK, now wait a minute; let's look at the whole thing.' This is a difference in kind from the usual architectural approach."

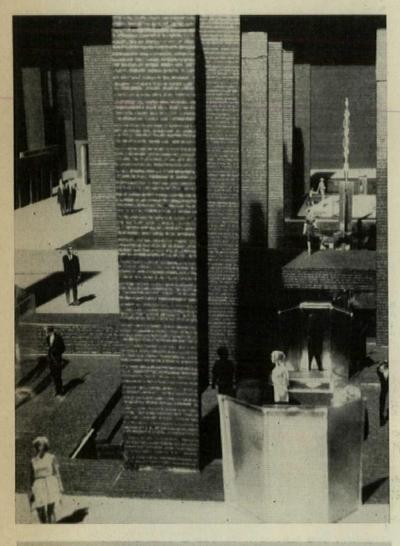
"But," adds Eames, "it would be a mistake to view the development of the office as a linear thing. What Kevin did for years was backup Eero, a very helpful thing. But now there is a new development. The one-time backup to the main show becomes the main show."

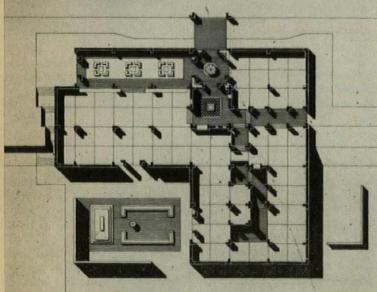
The future

Perhaps fortunately, the busy Roche does have a positive deadline for getting his registration. The present partnership must be dissolved and renamed by 1966. the year in which the Saarinen estate ceases to hold even a minority interest. The estate has three equal beneficiaries: the architect's two children by his first marriage, Susan, 18, and Eric, 20, and his widow, Aline. Mrs. Saarinen is not a partner in the firm, as widely supposed, but is a part-time employee, spending four mornings a week in the office as director of public information, and has been invaluable in continuing the intimate client relations which the Saarinens created. But her other interests are beginning visibly to pull her back into the busy world in which she whirled before marrying the architect-art and publishing. She expects to finish a book about Stanford White soon, and is in demand for TV appearances.

To the visitor to the Hamden hilltop office, the office seems the same quiet studio as ever. Immense working models stand in the big design drafting room with

continued on page 118





DALLAS DEPARTMENT STORE

At one end of a huge new shopping center in the Dallas suburbs, the merchandising lord of the central city, Neiman-Marcus, will take a strong stand. The idea is to construct an indoor "street" through

the \$2 million building with exhibitions all along the way, and an indoor "public square" for such displays as a yacht or a Maserati—Texas type impulse merchandise. Opening off the indoor avenue will be broader merchandising pastures.

shirt-sleeved young men making adjustments to them. There is no rush, but long, long hours. Saarinen was proud of the fact that he sometimes seemed to be running a finishing school, with a very high turnover in employees; since 1948, some 166 designers and draftsmen have come and gone, besides the people in the office at present. But recently the turnover has not been high.

This may be partly as a result of the strong shake-out in the organization when it moved from Bloomfield Hills to Hamden in 1961. At that point almost 60 per cent of the employees (45 per cent of the architectural force) stayed behind, in Michigan, where a number of them are today working for Minoru Yamasaki. But there are also strong loyalties not only to the firm itself, but to the individual projects: Deere & Co., the CBS Building, the Jefferson Memorial, the repertory theater for Lincoln Center, North Christian Church in Columbus, Ind., Athens airport.

Design orientation of the firm is indicated by the fact that there are about as many men in the design department as in working drawings (about 40 in each).* The average age of the key people is just over 35, and it has been pointed out that Roche himself, at 40, is in somewhat the same situation that Saarinen was at that age, when he was given the opportunity—with the need—to move out from under the shadow of his father, who originally had been awarded the vast GM job.

The main burden not only of design, but of client relations, has fallen on Roche, who, as a result, has travelled more than 100,000 miles in the past year. He has also made presentations to larger groups than was usual with Saarinen. His audiences have been as big as 500, because of the two city jobs the office has acquired, the museum and the school.

Roche stays discreetly out of the limelight at these presentations, putting the design to the fore by means of wide-screen projection and other late technical devices. In contrast, Saarinen made almost all of his presentations to smaller groups of corporate clients, and was famous for his very personal, country-doctor approach. He would explain a design carefully, calmly, kindly—as if it were a very serious medical operation the client was facing.

Determining the Method

So far all the new office's designs have been in concrete or brick, except for the forest of steel trees which will support a part of the IBM pavilion at the World's Fair, but, says Roche, this indicates no flagging of their fervor for the industrial solution. It is the job that must determine the method, he points out. But he is capable of small wistful jokes on this score: "I'm worried just a bit about the technological aspect of using all this bearing brick wall and brick piers. I suppose it would be preferable to have something instead that could be flown in by helicopter and instantaneously assembled on the site, but it may not always be in the cards." The obligations of the past practice are there in his mind.

Daring is the quality which has always identified this office most easily, and Lacy, Dinkeloo, and Roche know that to keep their crack staff together, the big special iobs must be attracted and approached with that special verve. It can be said that so far no momentum has been lost; the Oakland Museum, especially, should be one of the most unique designs the office has ever developed. One thing is certain: in that old brick mansion on the hilltop in Hamden, with its double deck of drafting space projecting out to the rear, the lights will continue to burn late.

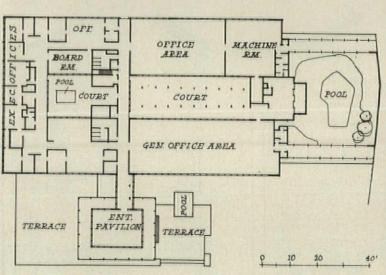
^{*}Among the people who moved with the office from Michigan and carry special responsibility: in design, Robert Burley, Olav Hammarstrom, Paul Kennon Jr., Anthony Lumsden, Cesar Pelli, David Pouvie, and Harold Roth; in interiors, Warren Platner; in graphics, Jill Mitchell; in estimating, Joe Jensen; in specifications, Dorothy Carlin; in working drawings, Norbert Blum, Allan Dehar, John Owen, James Owens, and Victor Zampa; in field supervision, R. Jerome Chamberlain, Clarence Mogridge, and Ralph Price; as project managers, Bruce Detmers, Philip Kinsella, Glenn Schneider, and Edward Saad (whose own private theory about double vowels in names is that they are neither Dutch nor Finnish, but Arabian).













OFFICES

CANTILEVERED OFFICE IN CALIFORNIA VALLEY

The two structures shown on the opposite page are actually part of the same office complex, a headquarters for the Trave-Lodge motel chain, on a 15-acre site near San Diego.

The columned entrance lobby (opposite page, top photo) is the control center and central receiving point for visitors. The lobby is connected by a short corridor to the main building (lower photo) which is cantilevered out over a long rock wall for a sweeping view of the El Cajon Valley.

The best vantage points naturally went to executive offices but Architect Frank L. Hope & Associates provided an "outdoor" view for everyone—even junior employees with no window-status. Offices without perimeter lighting overlook two pleasant courtyards. One courtyard has been furnished for employee lunches and coffee breaks (above, right) and

the other enclosed court features a rock waterfall and lily pond.

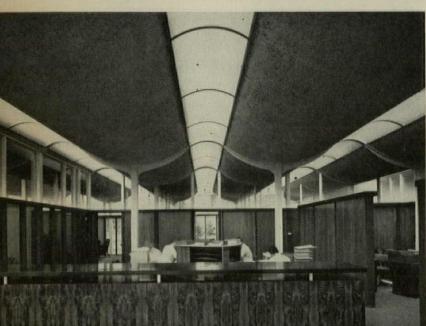
A typical TraveLodge motel room and swimming pool (used to train new managers) are at the rear of the cantilevered office level (see plan, above). Purchasing offices, a printing shop, and storage warehouse are partially below grade. TraveLodge specializes in motel construction, maintenance, and supply. When company architects ran into space allocation problems in planning the new headquarters, TraveLodge brought in Frank L. Hope & Associates to make a space and plan study and finally to design the project.

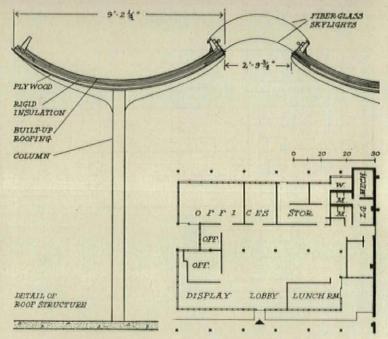
FACTS AND FIGURES

Headquarters for The TraveLodge Corporation, El Cajon, Calif. Architects: Frank L. Hope & Associates. Project designer: Frederick W. Cubitt. Landscape architect: Harold Curtis. General contractor: The TraveLodge Corp.

Total floor area: 29,094 square feet. Construction cost: approximately \$750,000; \$25.75 per square foot.







EXPERIMENTAL PLYWOOD ROOF IN SEATTLE

The row of inverted vaults shown above forms a functional as well as a fanciful roof for this one-story office building in Seattle. The client, U.S. Plywood, wanted a building that would dramatically advertise company products while providing a simple office block for the manager of an adjoining warehouse and a small sales staff.

The designer, Gideon Kramer, and his client developed a special experimental roof member, which was prefabricated in an arched 30-foot length of laminated plywood glued and stapled to form a 1½-inch thickness, and supported on hollow steel columns. A layer of acoustical insulation was added to the plywood before applying built-up roofing. Between the inverted vaults were placed the arched skylights of glass fiber. Fluorescent lighting fixtures were installed directly beneath

the skylights and enclosed by a bottom layer of glass fiber so that all lighting, both natural and artificial, comes from the same source. Each of these skylight pockets has its own exhaust fan to dissipate solar heat.

A small lobby, display area, and employees' lunchroom are ranged across the building's glass-lined façade. Individual offices, open work areas for the credit and billing departments, an employees' lounge, and storage space are included in the modest floor space (3,296 square feet). The client's line of hardwood and prefinished paneling was lavishly used in interior counters and partitions (above, left).

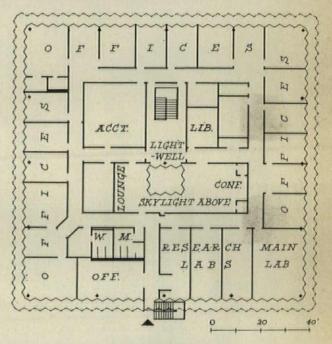
FACTS AND FIGURES

U. S. Plywood Warehouse & Sales |
Office Building, Seattle, Wash.
Designer: Gideon Kramer. Structural engineer: Irving Rodley. Gen-

eral contractor: Unipac Structures. Building area: 3,296 square feet. Total cost: \$53,500; \$16.24 per square foot of floor area.







FACETED FACADE IN TEXAS HEADQUARTERS

When Oil Base, Inc., a drilling and distribution company, recently moved from California to Texas, it chose a freeway site in Houston for its new headquarters building. Architects Neuhaus & Taylor designed a deliberately self-assertive office building which advertises the company to passing motorists. At night, the pleated sun screen is lighted as a backdrop for a freestanding Oil Base sign.

The sun screen is made of white panes of translucent glass, held together with steel clips and rubber gaskets. Because of its reflective qualities, the glass screen reduces solar heat somewhat in the air-conditioned interior but its main purpose is to combat glare. The screen, continuing around the entire building, provides shade for the glass curtain wall, which is also pleated, and tinted gray.

The whole building is raised on stilts to cover a parking area for employees (and incidentally, to give a more imposing impression from the freeway). From a glass-enclosed entrance on the ground level, stairs lead to the one floor of office space, more than 100 feet square. Offices and three research labs are located on the perimeter of the steel-frame structure. Inside lounge and conference space is lighted by a central skylight which also illuminates a ground-level pool through a jagged light well. Interior ceilings are acoustical tile and walls are finished with gypsum board.

FACTS AND FIGURES

Office Building for Oil Base, Inc., Houston, Texas. Investment builder: Gerald D. Hines.
Architects: Neuhaus & Taylor.
Engineers: Edgar L. Muller (struc-

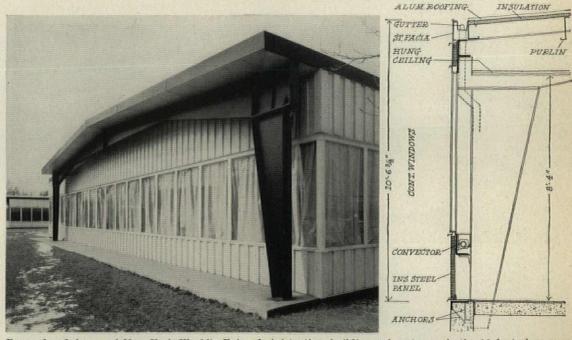
tural); Charles V. Chenault (mechanical, electrical). General contractor: Harvey Construction Co. Building area: 11,711 square feet. Estimated cost per square foot: \$15.



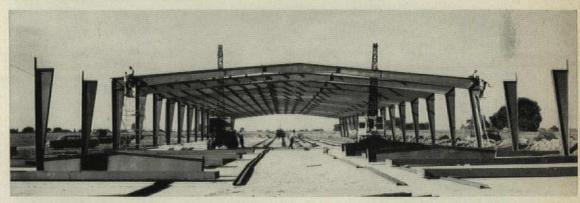
One reason Moses does not have to be ashamed of his building is that he got Architects Skidmore, Owings & Merrill to adapt the standard model offered by the prefabbers. But something more than SOM's design ability gave this prefabricated (or pre-engineered, to use the manufacturers' term) metal building its unexpected elegance.

In the mid-1950s, the metal prefabbers saw that their growth would be stymied if they continued to concentrate on raw industrial space, the demand for which seemed to have stabilized at about 3 per cent of the total construction market. Their product had proved itself in several ways: speedy and predictable erection, low cost, and durability. All that was missing was good design. If this ingredient were added, so the manufacturers reasoned, they could substantially increase their share of the commercial and school-building markets.

The 50 per cent leap in sales (from \$200 to \$300 million annually) since 1955 has borne them out, and the manufacture of metal buildings is now one of the fastestgrowing segments of the building industry. While there are dozens of manufacturers sharing this business, up to two-thirds of the metal-building market is in the hands of the 18 larger companies which are members of the Metal Building Manufacturers Association. The metal prefabbers' efforts to improve design and the corollary decision to work with architects whenever possible seem to be paying handsome dividends. Although the great majority of metal prefabs aspiring to a "new look" are still exceedingly selfconscious in their efforts to cover



Exposed end frame of New York World's Fair administration building (above) reveals the 60-foot clear span



Elegant simplicity of rigid frame factory (above), tour-de-force pavilion (below), show prefabricators' range





Three bays of standard metal prefab were used as the basis for the structure of the Elk's Country Club in Hamilton, Ohio, by Architects Casaccio and Loewe. Boldly projected fascia simplified joining of metal siding to the masonry walls.



Airy automobile showroom in Bogalusa, La., was designed by Architect John Mykolyk, using 80-foot span with 20-foot cantilevers. First 24-foot bay was left open for outdoor sales. Building was completed by the contractor in only 90 days.



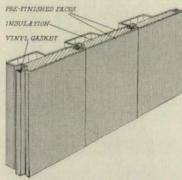
This addition to a rehabilitation center for crippled children in Middletown, Ohio, was built for only \$7.30 a square foot. Window frames of stained redwood, interior wood paneling were used by Architect Edward Loewe to add warmth.



The addition of a glass end wall, overhang, and canopies to a stock 100-foot-span industrial building resulted in a straightforward but attractive design for this furniture showroom in Hayward, Calif. Owners claim they saved \$36,000 by using pre-engineered construction.

up all traces of their simple utilitarian ancestry, some design progress is unmistakable. The best of a growing number of sound adaptations of the metal prefab, such as the four shown at left, draw on the inherent vigor and grace of the steel rigid frame (center photo, preceding page). Another source of strength for the better designed buildings is the constantly increasing variety of attractive cold-rolled ribbed siding, most of which is now available with durable factory finishes.

The economy of material possible with rigid frames has long been appreciated. For most custom buildings, however, high labor costs in cutting and rewelding, along with a low salvage value for the material removed, have made simple rectangular columns and beams more practical. But with carefully organized production of a limited number of standard spans, the metal-building manufacturers have learned how to take advantage of the economies possible with rigid frames.



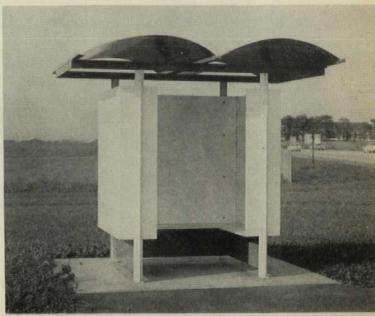
The World's Fair administration building, for example, used rigid frame bents of 60-foot clear span spaced 20 feet apart (a newer version of this system permits 24-foot bays). The complete shell for 40,000 square feet of very flexible office space was put in place for only \$4.50 a square foot. (Finishing and equipping the building brought the final squarefoot cost up to about \$30.) Because the architects made several modifications of the manufacturer's standard design, the cost of this shell was about \$2 a square foot higher than that of a standard shell of 60-foot span. Because the Fair building was designed to be dismantled and sold at the Fair's end, the structure was bolted together rather than welded.

The rapid enclosure of the Fair building was due to several factors: first, to the use of the preengineered system of purlins and corrugated aluminum sheets for the roof; and, second, to the use of a one-piece wall panel that has prefinished steel surfaces inside and out, and a cavity containing insulating batts. These batts are ventilated to the outside through the box-shaped external flutinga detail which prevents condensation. The vinvl gasket that locks and seals the foot-wide panels also separates the outside from the inside skin, and thus sharply reduces conduction of heat (see sketch below). These wall panels were cut to special lengths so that another manufacturer's strip windows could be inserted.

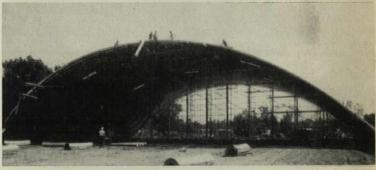
The adaptability that many manufacturers have been able to build into their production lines is demonstrated by the fact that this radically modified structure for the New York Fair was delivered to the site some seven weeks after the architects' drawings reached the factory.

One significant change has accompanied the efforts of the metal-building manufacturer to produce more sophisticated designs: in the days of the "tin shed" warehouse, each ungainly design had a certain individuality. Today's more polished products have the same strong family resemblance that has long afflicted the market-oriented design of U.S. automobiles. That the prefabricated metal building offers greater opportunities for more imaginative design is suggested by the photographs at right.

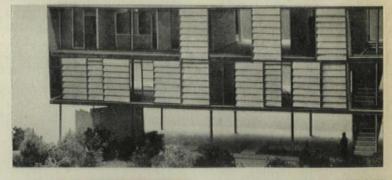
Each of the pictured designs evolves new forms for the prefab metal building from a careful restudy of a rather special problem: the lighthearted bus shelter (top) won a steel-industry design award last month; the big vault (center) shows how spans up to 300 feet can be achieved with a single thickness of doubly corrugated steel; and the unusual prefab (bottom) is the result of a radical reshaping of aluminum sheet siding, adapting this material to provide maximum comfort in humid tropical climates.



The prefabricated bus shelter of steel (above), designed by the Architect-Engineer firm Coston-Frankfurt-Short, won award last month



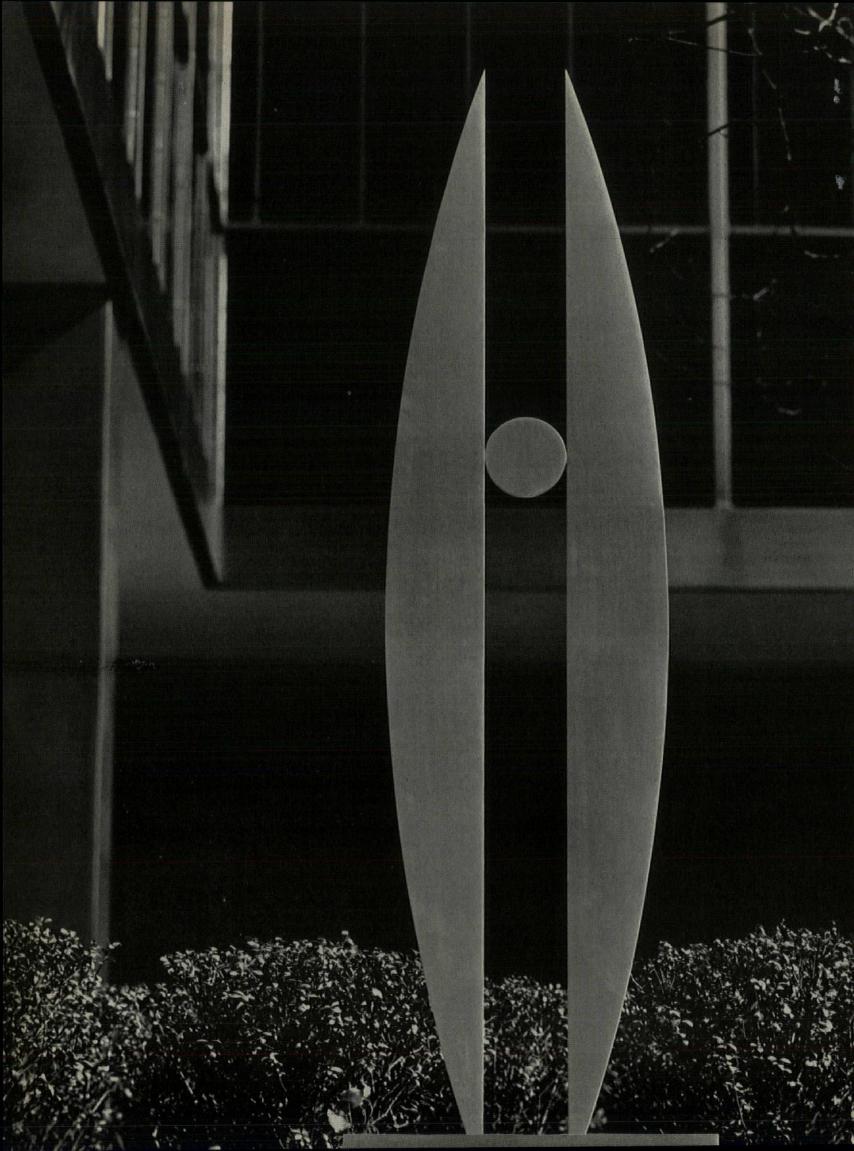
Long-span structure of doubly corrugated steel sheets is shown above







A French design group, S.E.T.A.P., reshaped aluminum prefab for tropics



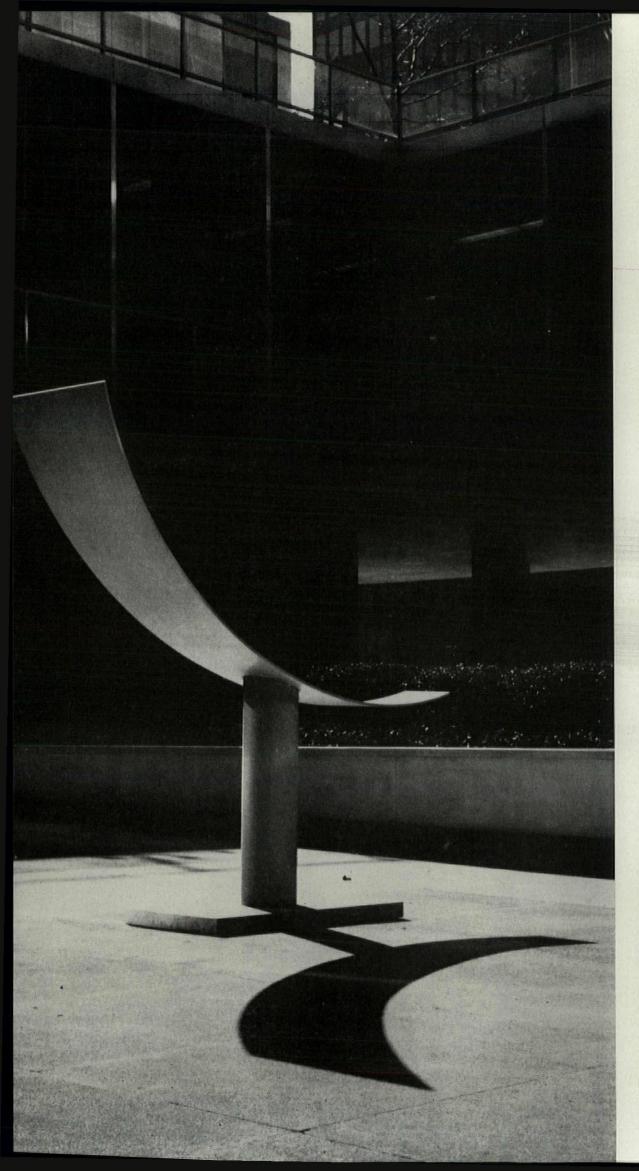
THE PRECISE VISION OF ALEXANDER LIBERMAN

"Mathematics possesses not only truth, but supreme beauty — a beauty cold and austere, like that of sculpture; sublimely pure, and capable of a stern perfection such as only the greatest art can show."

It is unlikely that Alexander Liberman ever came across this obscure passage written by Bertrand Russell some 50 years ago; it is even more unlikely that Bertrand Russell ever came across one of Alexander Liberman's austere constructions. But if each were to explore the other's work, he might find the sort of unity between them that marks significant episodes in civilization.

In historic terms, Liberman's aluminum sculpture has an inti-

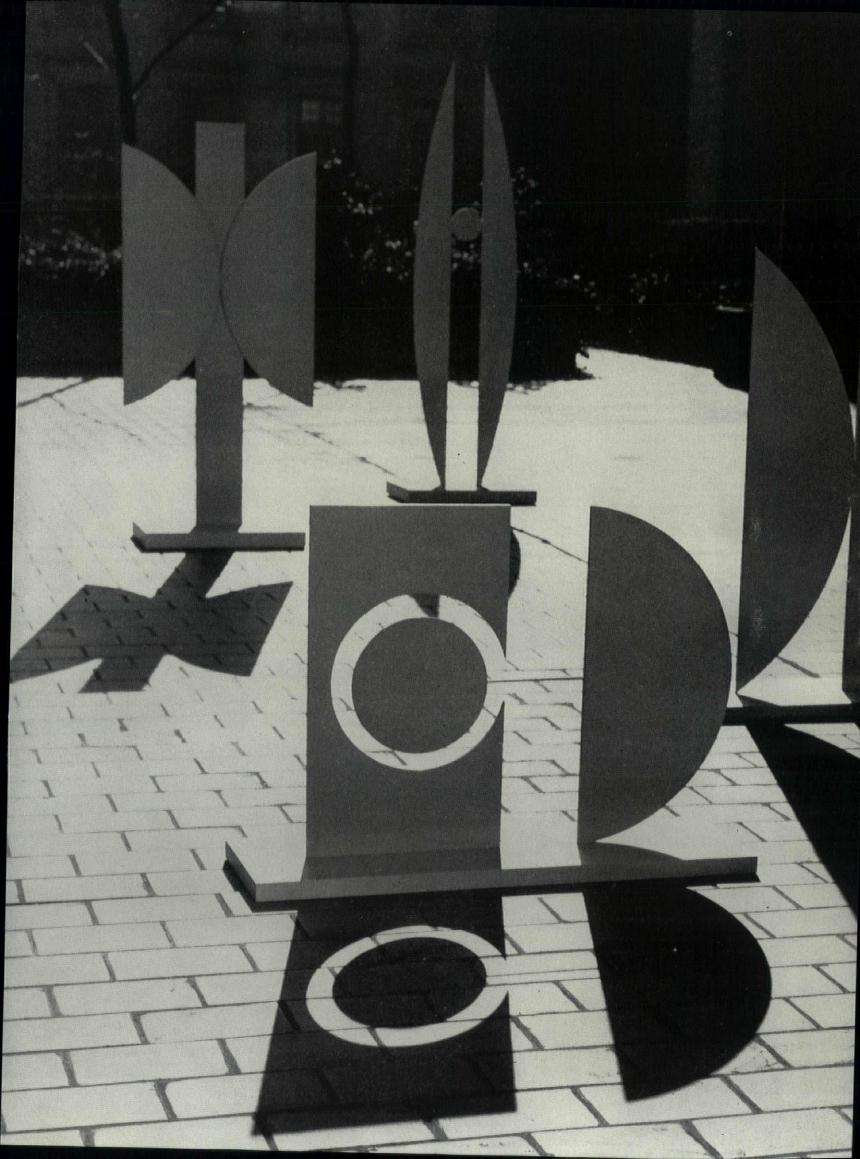




mate affinity to several main streams of twentieth-century art and architecture: his sculpture is, like the painting of Léger and the architecture of Le Corbusier and Mies van der Rohe, pure "Machine Art."

He is a new sculptor; for though he has long been one of the world's most highly respected art directors, and though he has long worked as a painter as well, his precise, geometric sculpture is of relatively recent vintage. It is shown on these pages, photographed in settings characteristic of today's architecture, and given - by the camera - the sort of monumental scale his work seems to demand. Although his pieces are rarely more than six or eight feet in height, they are meant to be great focal symbols of, or gateways to, a new kind of city.

In an age of "junk sculpture," of "automatic painting," and of deliberate "chaoticism," the stern perfection of Alexander Liberman's sculpture is a surprise and a delight. Mies van der Rohe, whose architecture is closest today to "Machine Art," likes to quote St. Augustine as having said "Beauty is the splendor of Truth." Perhaps it could be said about Liberman's sculpture that it has the splendor of intelligence.—P.B.





FRESH SURFACES AND DRAMATIC LIGHTING BRIGHTEN AN OLD APARTMENT LOBBY

The sleek modern lobby at left was, until recently, an elaborately arched and corniced space which had begun to assume the dingy pallor of age (see photo right). The lobby is one of six entrances to an enormous Manhattan apartment house, London Terrace, built in 1931 on the lower West Side.

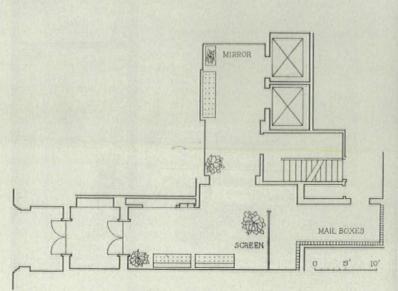
Remodeling was largely a matter of straightening out lines and covering old surfaces with new materials. The arched ceiling, with its suspended globe lamps, is now hidden by a horizontal dropped ceiling of plaster containing recessed downlights. In the spur hall leading to the elevators (plan below and photo below, right) the new ceiling stops short of the side walls, with continuous coves bathing them in light. The old walls, of cold-looking marble, were covered with vinyl wall paper in ivory and bright blue that is equally easy to maintain. Over the wellworn travertine floor was spread

an elegant new wall-to-wall carpet in a soft-toned beige wool.

The old entrance of smallpaned, heavy doors was opened up with big sheets of glass. A new mail room for the 200 tenants was provided in a small alcove at the rear, once used as a telephone room. It is screened off from the rest of the lobby by a handsome white room divider of sculptured concrete blocks, designed by Erwin Hauer. Elegant black leather furniture and lush, tubbed plants complete the interior.

Plans already exist for remodeling two more of the building's six lobbies, but they are presently in abeyance. All six lobbies will eventually be remodeled.

Cost: approximately \$22,000, not including carpeting and movable furniture. Architect: Felix Augenfeld (Emily Malino associated on furnishings). Sculptor (see photo): William Bowie. General contractor: Sheppard-Pollak.





Old lobby (above) got a new ceiling, carpet, cove lighting (below)



AIRLINE SHOWCASE FROM AN OLD STORE

The new ticket office of Pakistan International Airlines on New York's Fifth Avenue replaces an old and cut-up shopfront with a striking all-glass façade (photos, right). The big sheets of tempered glass are recessed three feet from the building front in frames of bronze-colored anodized aluminum. Flanking walls of white marble, special gray paving, and a teak ceiling are all carried one foot into the room. Above the entrance a strongly patterned grille of sheet-metal hexagons, alternating with voids, screens the intake and exhaust for the new air-conditioning system.

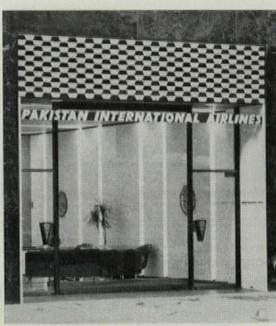
Inside the small, 16-by-36-foot room, a light-blue plaster ceiling and stucco-textured side walls (sprayed cork particles and white paint) are traversed by deep lighting troughs to recall a vaulted mosque. On the rear wall, a decorative panel of teak hexagons picks up the pattern of the entrance grille.

Specially designed furniture includes five-sided couches for customers facing a hexagonal teak table for each agent, and, behind these, octagonal work units faced in white plastic with a white-figured black marble top (below).

Cost of the remodeling, including a small back office for the manager, was \$60,000. Designer: The Space Design Group, Inc., Marvin B. Affrime, Director. Contractor: John Gallin & Son, Inc.







Old jewelry shop (above) was given a new glass front (right), a symmetrical interior with strip lighting (below)



HOTOS; BERNARD LIEBMA



AN OFFICE BUILDING BECOMES A MOTEL

Adding two floors on top and a 107-car parking garage at the rear, a group of Lincoln, Neb. investors transformed the dowdy downtown office building shown above into the new 90-room Crossroads Motor Hotel (right).

The old Spears Building had a sound structural frame but insufficient space to guarantee the investors an adequate return: hence the two new floors. To compete with outlying motels, one of these new floors is used to accommodate a roof-top sundeck with pool and patio areas. Other provisions include a 150-seat restaurant and a coffee shop. On the ground floor 1,000 square feet were designed for and leased to the National Bank of Commerce for a branch with three drive-in islands.

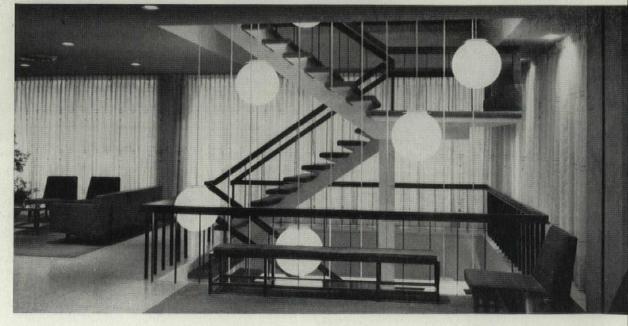
The motor hotel has lobbies on two levels: at the ground floor where guests drive in, and on the second floor (right), connected by an open stair.

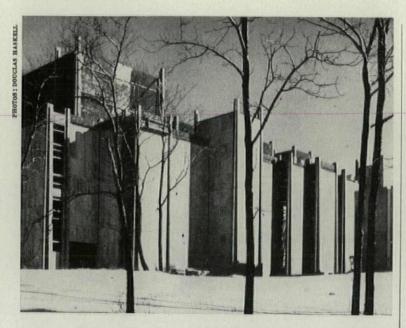
Each of the suites opens through sliding glass doors onto a narrow balcony. A new masonry sunscreen conceals the balconies, providing privacy (but also eliminating some of the advantages of having a balcony in the first place).

Remodeling cost for the 55,600-square-foot hotel and 50,000-square-foot garage came to \$1,-260,000. Architects: Geis, Hunter, Ramos. General contractor: Third Recon Corp.



Two new floors, a garage, and grille walls set off the new motel (above). Below: the second-floor lobby.





A GUIDE TO GAMES

The intelligent layman exploring contemporary architectural trends might do better with a Guide to Games than with most of the critical essays and classification systems now being produced. These lose force by not always trying to illuminate what the architect was trying to do. "Games" are of course meant in their serious sense.

SHAFTS AND BONES

The picture above, for example -taken last month at Indianapolis and showing the new opera house at Butler University under construction-would seem to qualify Architect John Johansen as a practitioner, at least this time, in the Game of Articulation which wags might call the game of bones and shafts. It's a handsomely promising building with noble high interiors and jutting forms and spaces. But without the plans at hand, it was not quite clear, when Johansen's associate Evans Woolen showed us through, whether or not the building was really entered in the Articulation Game or not, as this was set up initially by Architect - Teacher Louis Kahn. In this game every element of the physical building shares in a sort of democracy of all elements by being given a wholeness of its own, like the human bone system or circulation system which plastic models can so neatly separate out. Thus the mechanical services generally go up in "servant spaces" all their own, in shafts and tunnels which intertwine with the "master spaces" that are to be occupied by people. But the servant spaces leave these master spaces, so to speak, uninfringed upon. The effect of all this arrangement, when happily achieved, is to give full strong character to the building as a whole and in every part.

Next door on the Butler campus and also under construction is Architect Yamasaki's library (photo), done as part of the Decorative Building Game, in



which the purpose is to build quite customary sequences of rooms, but to use small-scale embellishment like this Arabian Nights arcadery to dress them out and, if possible, to let them dazzle with delight.

ARCHITECTURAL CHARADES

Yet another game is the Historical Game, which its modern practitioners are too sophisticated to pursue in its primitive form of Colonial - etc. imitations. They

search through the 30,000 years of known human building for prototype forms to "transform" for modern use. And even the most original contemporary building is bound to correspond with something earlier somewhat, anyway, as Mrs. Moholy-Nagy proves on the *Letters* page.

This procedure can be abused, leading to superficial eclecticism. Again, in a world now flooded with paper sketches of dreams and mere preliminaries, even the hardest working originator can be robbed of credit by ghosts. A magnificent job like Dulles Airport can be denigrated by pulling out some Mendelsohn sketch or the picture of some Roman army camp with a canopy on spears held over the general's head. Historical charades must be used, like all other devices, with conscience.

Another game is the Symbolic Game, whose objectives range from the sublime to the ridiculous. At top level it has produced Rudolf Schwarz's books and buildings devoted to churches; at bottom level it produces roadside googie such as frog eateries and blimp burger joints.

Eero Saarinen in his later years went in for symbolizing each client's activity and situation through his buildings—the bird airport, the medieval Yale college, the Sing-Sing mechanization of IT&T, all so different from one another in superficial aspect that an accomplished but unwary critic was drawn into a sermon against Saarinen's "lack of style" and of consistent purpose.

There are many other games awaiting characterization, e.g. the Garden City and Crganic Game, the Stark Game (very different really from the Functional Game), etc., etc.

FOLLOW THE MUSIC

Most difficult of all to characterize or imitate are the games played by great individual architects such as Le Corbusier, for these men toss forth ideas by the dozen; each gets picked up by some group of followers and frozen into a "school." Thus we get the shaggy concrete school, the sculptural architecture school, both

sometimes combined in "new brutalism," and we get the "action architecture" school (allied with action painting), and others.

An Indian architect says that he considers Corbu's greatest game to be Architecture as Music. This, in Corbu's hands, is really a sublime performance.

Quite obviously this little note would have to be written with an air of much more sonorous ominousness to qualify as a serious critical contribution. But quite seriously, when examining work previously unknown, it would seem like a good beginning to start by simply asking about the architect, "What game is he trying to play?"

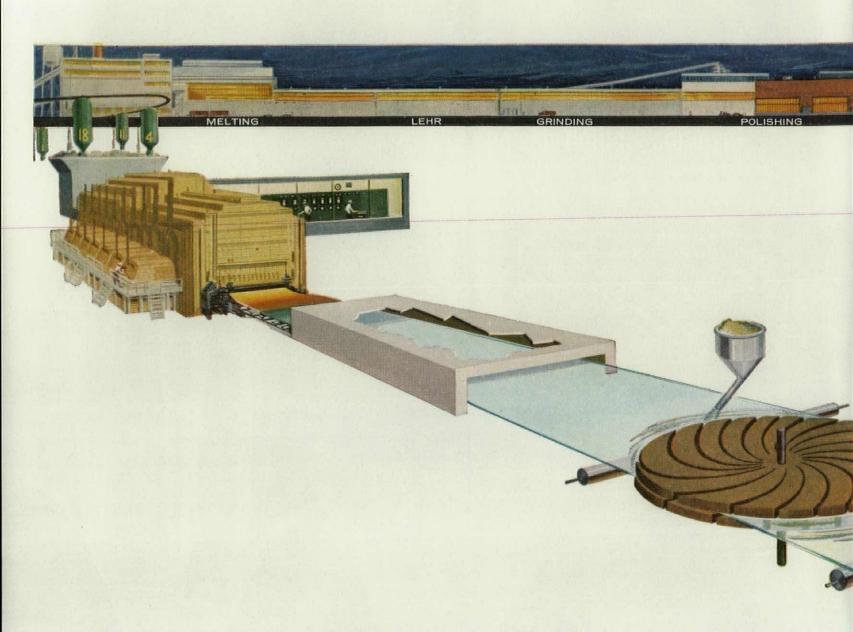
The contrary approach, much in use today, is for the critic to start with a program of his own, which he challenges practicing architects to deviate from-at their peril. If they won't play his game he accuses them of creating chaos, and one writer has gone so far as to impute "chaoticism," which, as a word formation in English, means chaos as a deliberate purpose! When such a onetracker concludes, on the contrary, that the modern movement has all become one positive "ism" of some kind or other, that's even worse, as oversimplification.

A rich world always does look like a chaotic one on first examination, as compared with a poor stark world that has very few directions in it. But is not the purpose of the arts to make life rich? Every great creator shows us a new world, a new revelation for us to grow on, and to become many-sided by; and his disciples pay it tribute.

Sorting out the many efforts of different architects into types of games could be a useful first step leading toward comprehension of what all are doing. Discarding the worthless games and studying the ones that interest us would be the next step. A later step would be to penetrate through the games into the spirit and harmony of the deep individual masters. This is a comprehensive joy in architecture.

Douglas Haskell





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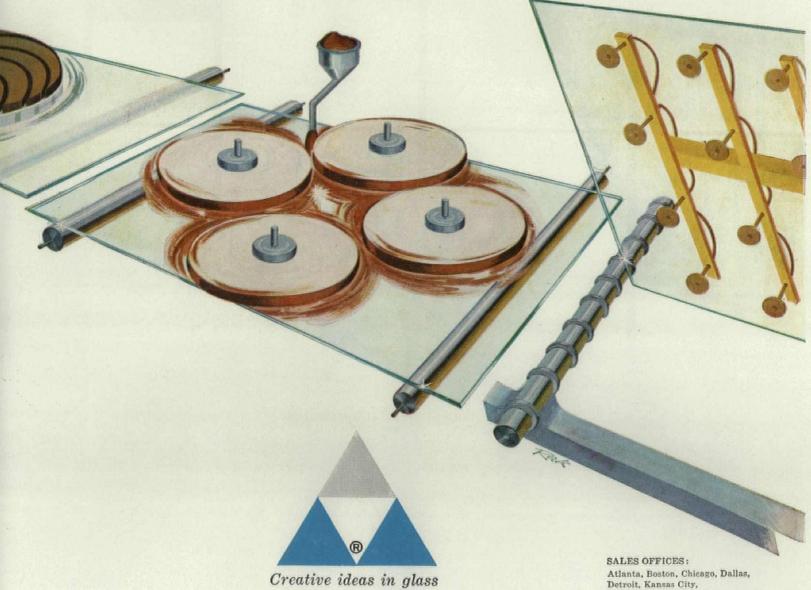
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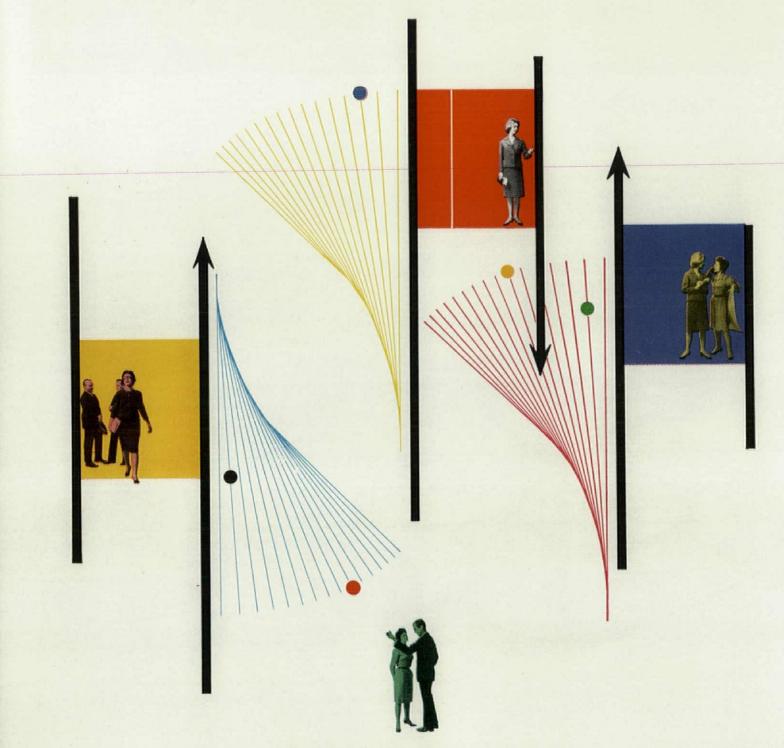


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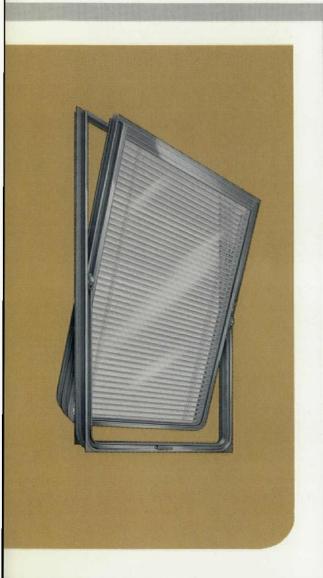
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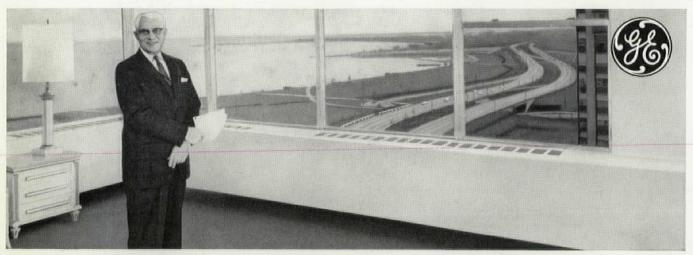




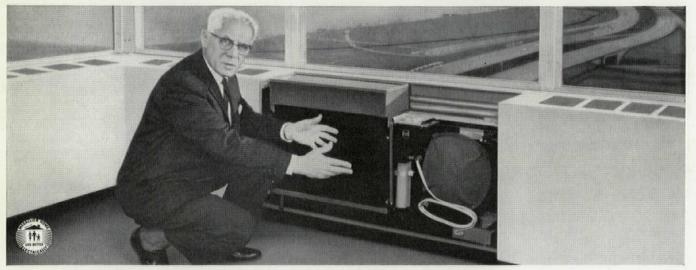
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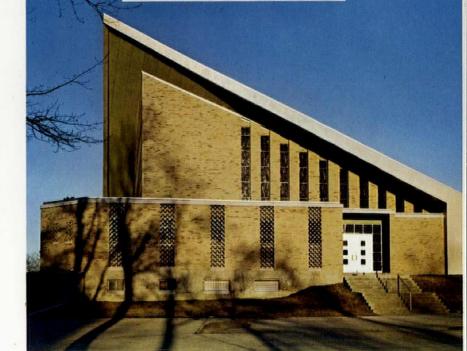
Building: St. Robert Bellarmine Chapel; Xavier University, Cincinnati, Ohio. Very Reverend Paul L. O'Connor, President. Architect: Albert V. Walters, A.I.A. Contractor: Universal Contracting Corp.

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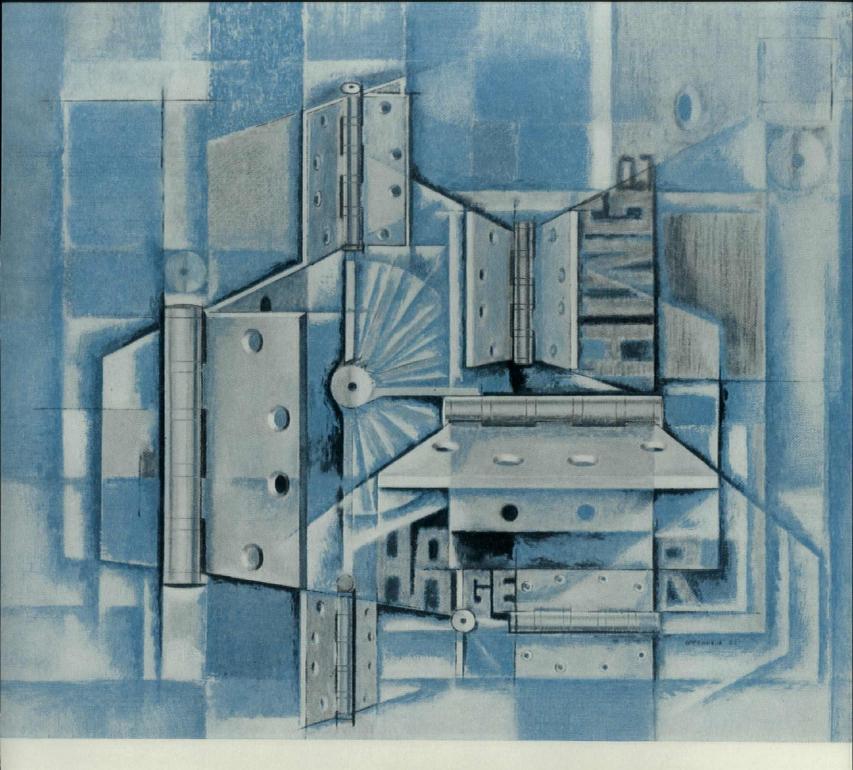
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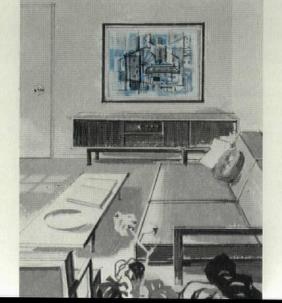




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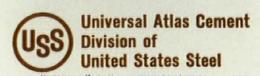


St. Martin's Hall, Duquesne University, Pittsburgh, Pa. Architect-Engineer: Gerard & McDonald. Contractor: Navarro Corp. Panel Manufacturer: "Decrastone," by General Concrete Units Corp. (All of Pittsburgh.)

GERARD & McDONALD designed precast white concrete into the

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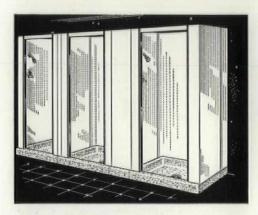
budgets, while yielding buildings of distinction. Any idea of size, shape, texture, color and pattern can be realized. ■ For information about white, tinted or exposed aggregate units, see your local precast concrete manufacturer. For our brochure "White Concrete in Architecture," write Universal Atlas, 100 Park Ave., N. Y. 17, N. Y.



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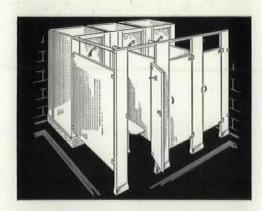


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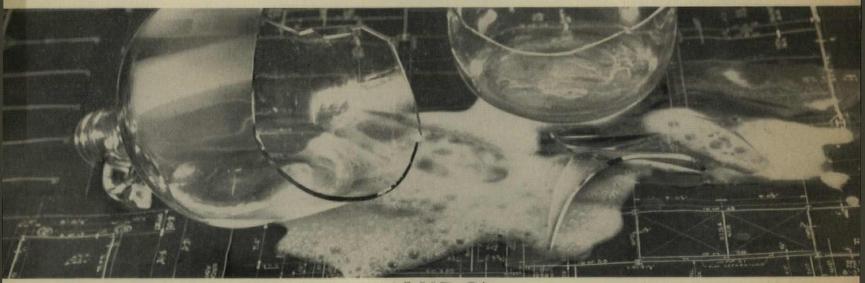
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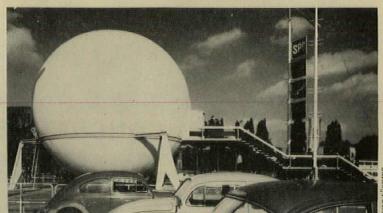


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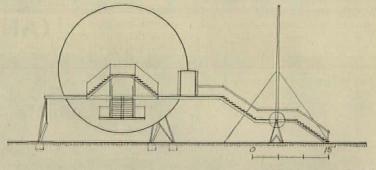
GERMAN CHAPEL. Bold, rugged forms and unfinished materials were deliberately chosen by Architect Helmut Striffler for his new chapel at Mannheim-Blumenau (above)—expressing the architect's philosophy that "divine creation is shown even in commonplace materials." Concrete, patterned by wooden forms, rises in a cylindrical bell tower over the entrance, dips over the nave, and rises again at the prowlike altar.

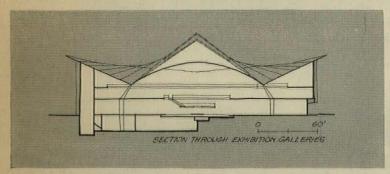
BRITISH INSTITUTE. Changing London is reflected in the shape of the new Commonwealth Institute (below), which has replaced the 80-year-old Imperial Institute. A rectangular wing housing offices, a library, cinema, club, and restaurant is clearly defined from the exhibition galleries, sheltered by a hyperbolic paraboloid roof clad in copper and supported by two sloping buttresses (section). Architects: Sir Robert Matthew, Johnson-Marshall & Partners.



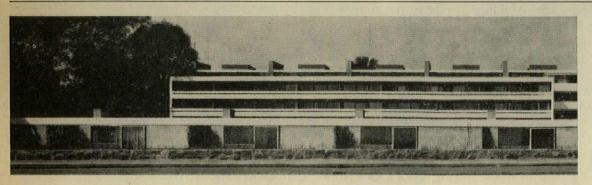
BERLIN EXHIBIT. This eye-catching information center was designed by Architect Ludwig Thürmer for a recent political rally in West Berlin. Known locally as the "Brandt-Bubble" (after Berlin's Mayor Willy Brandt), the balloon membrane was of plastic-coated fabric, fire resistant and easy to dismount and move. Compressed air pumped into the bubble supported it above ground within a metal ring (section, below).



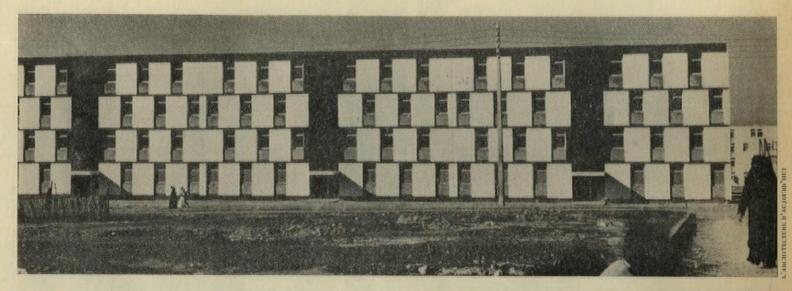








group of atrium houses and apartments (left), by Architect Arne Jacobsen, adjoins an older group which he completed in 1930 near Copenhagen. Garages and a driveway separate the five-story apartment block from the five houses. Both groups are constructed of reinforced concrete and exposed brick with wide glass expanses overlooking the sea.



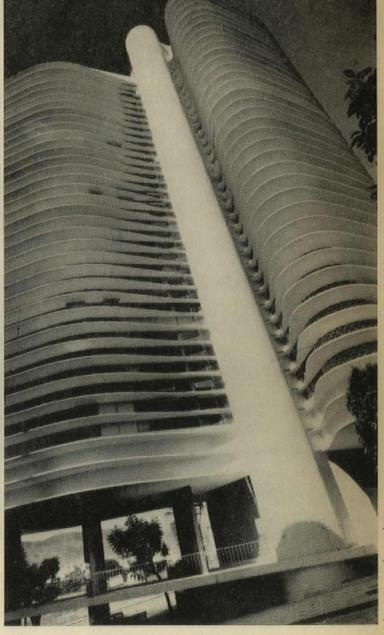
MOROCCAN HOUSING. The gay checkerboard façade shown above belongs to an apartment house located on a site at Hay Hassani which was once covered by a dismal bidonville. The old slum of tin-roofed huts was swept away by fire and is being replaced by a new residential quarter. This fourstory apartment house is one of three buildings completed. Construction materials were simple and economical: the reinforced concrete skeleton is sheathed with double brick spandrels under the windows and slabs of whitewashed concrete between. Architect: Elie Azagury.

BRAZILIAN APARTMENTS. A stack of concrete disks revolving around a cylindrical stairwell form this imaginative 12-story apartment building at Belo Horizonte (right). Architect Oscar Niemeyer used the difficult site-a triangular island surrounded by streets-to achieve a tour de force. From ground level, the slender stairwell gives the building an illusion of great height. Glass and ceramic curtain walls are almost concealed from pedestrians' sight by the concrete floor slabs which jut out to form horizontal brises-soleil, three to each floor height.



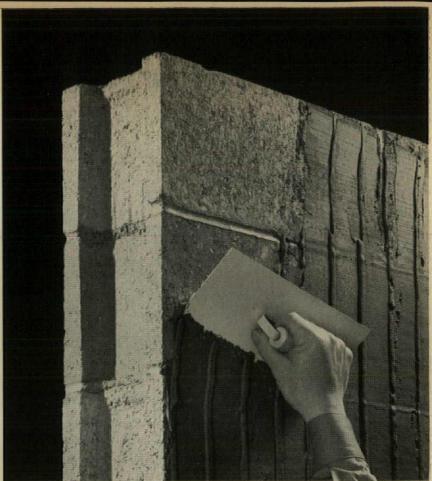
FRENCH NURSERY. The last word in nursery schools has been designed by Architect Émile Aillaud to go with Courtilières, his serpentine apartment city near Paris (FORUM, Dec. '59). The school (above), which includes every

imaginable facility from a children's clinic to a garage for kiddie cars, has been designed in a lively mood. Reinforced concrete vaults are infilled with tinted glass and the whole building is as gaily painted as a toy. END





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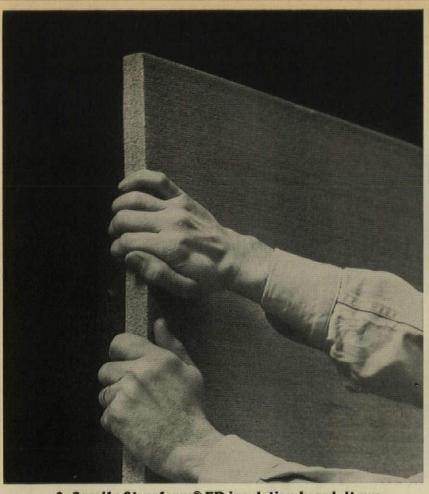
2. Start with Styrotac® bonding adhesive.



5. Take wallboard. (Forget the vapor barrier.)



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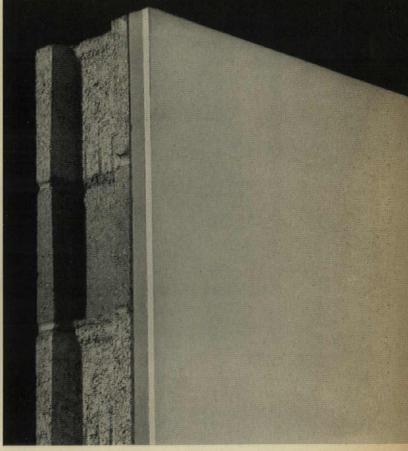
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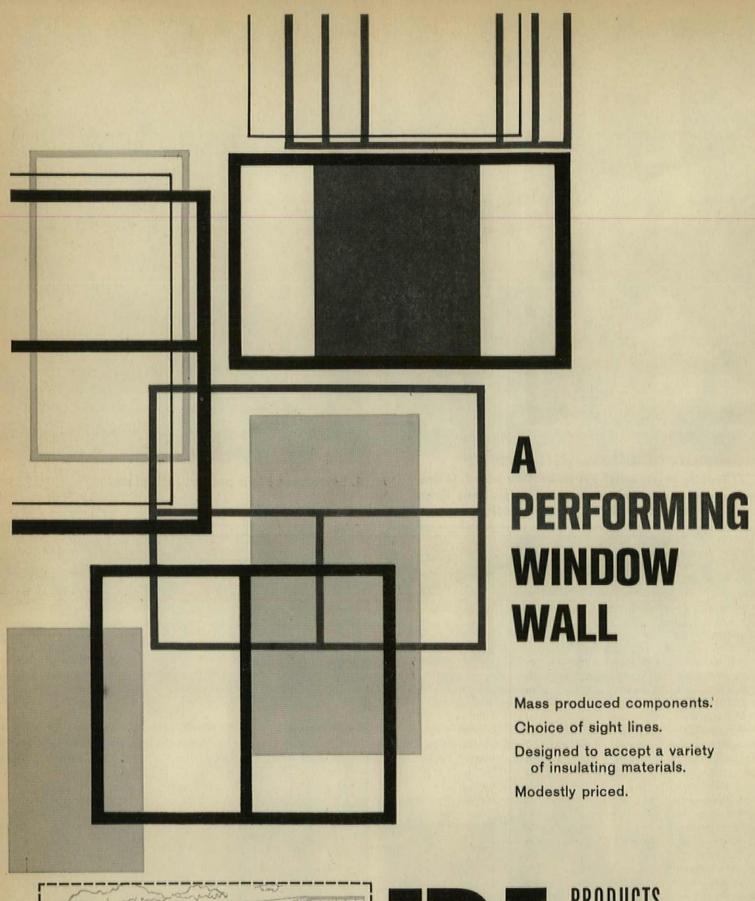


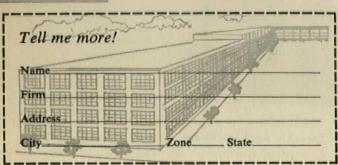
7. Wallboard goes up. Finished wall (8-in. cinder block, 1-in. Styrofoam FR) has U factor of 0.14.



8. Want more data? Consult our catalog in Sweet's Architectural File, or write: The Dow Chemical Company, Midland, Michigan.

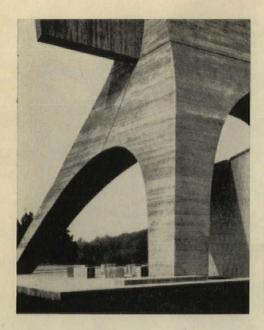






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MARCEL BREUER 1921-1961—Buildings and Projects. Captions and introduction by Cranston Jones. Published by Frederick A. Praeger, 64 University Place, New York 3, N.Y. 262 pp. 9" x 11". Illus. \$17.50.

Reviewed by Walter McQuade

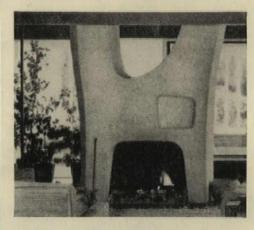
Marcel Breuer is a very accomplished architect. The experienced hand of the artist-professional, completely controlled, is intrinsic to all the designs shown in this latest volume of his work and it is, at that, the hand of a man whose life has been almost a road map to modern architecture.

Breuer was born in 1902, was at the Bauhaus from 1920 to 1928, then in Berlin practicing and producing furniture designs until 1931. He moved to England until 1937, then to Harvard, then New York, and is encountered today on business aboard international jet airliners. He is the youngest of the band of architectural pilgrims who have followed this honorable path, and in times when not very much accomplished architecture is worth considering in a really critical way, his work does merit this attention. But at his present stage there is something a little tantalizing in trying to evaluate him alongside other serious contemporary architects, who in general appear a lot less certain than Breuer but do demonstrate a grace Breuer lacks.

Perhaps this elusive quality is harder to define in the work of such a really polished professional, which Breuer certainly is—as one can see in his detailing as much as in his physical concepts. And not a narrow professional at all: he is concerned with the problems of sun, shade, tactility, seeming to shrug off nothing—the endurance problems of exterior finishes, for example, which are neglected just a little by some of today's more flamboyant designers. His range of materials, and finesse, too, is wider than most: wood, stone, concrete, glass—and he frequently uses sculptors and artists too. Who would not like

to live in one of those luxurious houses Breuer produces?

But then, to mention a minor detail, there are those owlish fireplace chimneys. And in

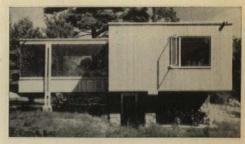


the larger buildings, even in the ones which appear most adventurous, there is an element of somber placidity which occurs whether he is pleating gigantic concrete roofs or even cantilevering that material.



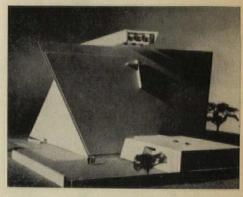
It might be that Breuer's work is so immaculate that there can't be much tension visible in it. His large buildings do appear to have an almost Egyptian order to them. Some of the houses also are very weighty—this, however, is not so with the summer houses (below) shown in this book, which, consequently, appear the liveliest in architectural feeling, recalling the stiff beauty of the





Chamberlain cottage of 1940 (above). This is the man who, at 22, was the master of the Bauhaus carpenter shop.

The studied precision of his recent designs may be interpreted to signal a lull before an approaching creative storm—that and the fact that, at 61, with an able and experienced staff behind him, Breuer is probably approaching the peak of his powers. Meanwhile, however, much is quiet, withdrawn.

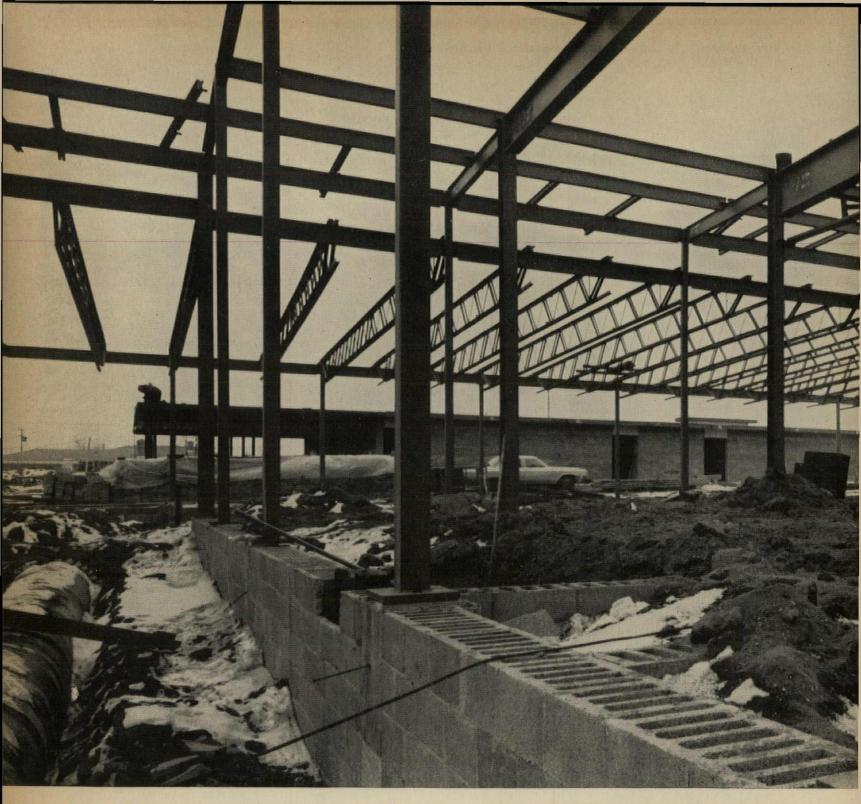


Typically, the typographic design of this book (credited to Breuer and Gerd Hatje, in collaboration) is meticulous, calculated, never a pica off balance. But it creates its own limitations: it is so carefully done that the book's photographs, although beautifully printed, look somewhat unreal, caught in an invisible web. It has the talent and tenacity of the Bauhaus typography, but not its ferment. There is a modest amount of text, written by Cranston Jones, which well deserves to be read; but it hardly can be, for it is printed in such small sans serif type.

PHOENIX AT COVENTRY: The Building of a Cathedral. By Sir Basil Spence. Published by Harper & Row, 49 East 33rd Street, New York 16, N.Y. 141 pp. 634" x 91/4". Illus. \$6.95.

The ghostly architects of Chartres, Amiens, and Wells would probably agree with Sir Basil Spence that the job of building a cathedral is a "most difficult and testing task, not only because of its practical problems but also because of those involving publicity and personalities." One can only hope that those medieval architects were as well equipped as Sir Basil with the humor and eloquence which are evidently important qualifications for a cathedral architect. The problems and setbacks during the 11 years Sir Basil spent in building Coventry Cathedral (FORUM, July '62) ranged from near personal bankruptcy to an oversaturation of sherry, meted out by hospitable clergymen.

continued on page 170



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	Tensile Strength, Min., psi. Yield Strength (.2% offset), Min., psi Elongation in 2", Min., per cent		60,000 4 6,000 25	70,000 60,000 10

ASTM A-7

Tensile strength, psi.	60,000
for shapes of all	to
thicknesses	75,000
Yield point, min. psi.	33,000
Elongation in 2 in.,	24

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	60,0
insile strength, psi.	80,0
eld point, min. psi.	36,0
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min, per cent	

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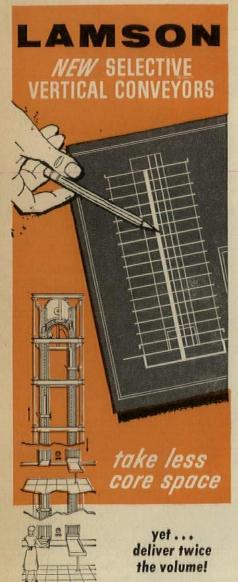
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Sir Basil's story, which he tells with engaging simplicity, begins in November 1940, when as Staff Captain Spence, he reported the Coventry raid and the Cathedral's destruction to his commanding general. The part he was to play in Coventry's reconstruction was so remote, however, that as late as 1950, when the architectural competition for the new cathedral was announced, he was "seriously thinking of throwing everything up and going to America." Nevertheless, he sent for the competition conditions-and the rest is history. Sir Basil's account furnishes fascinating historical footnotes to the evolution of a rare project-and the influences which shaped his competition-winning design for a twentieth-century cathedral. The text is illustrated by excellent photographs in color, as well as black and white, and the author's own sketches.-A.P.

SIMPSON'S HISTORY OF ARCHITECTURAL DEVELOPMENT, Volume III: Gothic Architecture. By Cecli Stewart, 239 pp. $5\frac{1}{2}$ " x $8\frac{3}{4}$ ", Illus. \$7.50. Volume IV: Renaissance Architecture. By J. Quentin Hughes and Norbert Lynton, 428 pp. $5\frac{1}{2}$ " x $8\frac{3}{4}$ ", Illus. \$12.50. Both published by David McKay Company, Inc., 119 West 40th Street, New York 18, N.Y.

Frederick Moore Simpson, an English architect and professor at London University, made his first trip abroad in 1879. He never really recovered from that first brush with antiquity and spent the next 32 years as an insatiable traveler and student of architectural history-with very little time left over for private practice. The result was a number of undistinguished buildings but a threevolume history (published between 1905 and 1911) which has set high standards ever since for its storehouse of information, clearly presented. The scope of his scholarship is probably best illustrated by the fact that six contemporary historians, working for ten years on bringing the history up to date, still have

The number of volumes has been expanded to include archeological discoveries since Simpson's day. And a fifth volume (the only one now unpublished) will include architecture of the nineteenth and twentieth centuries. Volume I on ancient and classical architecture was revised by Dr. Hugh Plommer (lecturer in Classics at Cambridge) and both Volumes II (early Christian, Byzantine, and Romanesque) and III (Gothic) were placed in the hands of Cecil Stewart (head of the School of Architecture in the Regional College of Art, Manchester). J. Quentin Hughes and Norbert Lynton (Volume IV, the Renaissance) are both lecturers on art and architecture: Hughes at the University of Liverpool's School of Architecture and Lynton at the Chelsea School of Art.

It's not surprising that such a distinguished roster of scholars, in posthumous collaboration with Professor Simpson, has produced an excellent reference work—the kind that any reader would like to have in his own library.

continued on page 174



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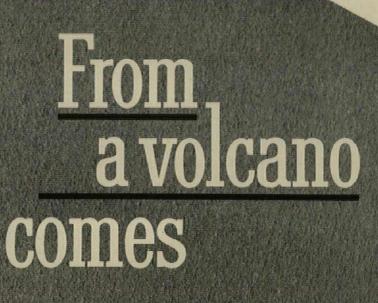
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The text, photographs, and drawings are well organized and indexed. Names, dates, and places can be summoned up quickly and with a minimum of strain.

But what is really remarkable about these books is that they are good reading. Cecil Stewart, especially, has the knack of writing about history with the infectious excitement of that rare good teacher—the one who is himself engrossed in his subject. The descriptions in Volume III of the cathedrals (e.g. "a blaze of color from floor to roof") and the crusaders' castles, with their associations of monumental bravery and treachery, are as hard to put down as any fictional romance.

Simpson and his latter-day collaborators are not afraid to speak out firmly when they assess architects and buildings—often with startling and lively results. The reader may not agree that the striped marble façade of

Sienna's Cathedral is "too startling to be pleasant" or that "Michelangelo's architecture (in the Medici Chapel) appears strange after the logic of the High Renaissance." But these opinions (often given against a background of other men's evaluations) never seem oppressive and are a refreshing change from the uncritical array of dusty facts and figures often found in histories.—A.P.

EUROPE: AN AERIAL CLOSE-UP. By Charles E. Kotkin. Published by J. B. Lippincott Co., East Washington Square, Philadelphia 5, Pa. 222 pp. 101/2" x 14". Illus. \$17.50.

This pigeon's-eye view of Europe is ideal for the urban designer—high enough so that the structure of cities emerges but low enough to read building details. "The quickest way to know the character of a city is to see it first from the air," Mr. Rotkin says, then amply proves his point in this unique and generously sized pictorial documentation.

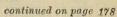
LES PAVILLONS. French Pavilions of the Eighteenth Century. By Cyril Connolly and Jerome Zerbe. Published by The MacMillan Company, 60 Fifth Avenue, New York 11, N.Y. 205 pp. Illus. 81/4" x 111/2", \$15.

This is one of those rare, beautiful books in which fine photographs have been well matched with sensitive and well-written text. Photographer Zerbe has contributed more than 250 pictures of the small chateaux and pavilions built as retreats from Versailles' stifling etiquette by pleasure-loving courtiers and mistresses of Louis XIV and Louis XV. The interiors, remaining art treasures, and gardens shown illustrate eighteenth-century France's prodigious store of talent: artists like Boucher and Fragonard; architects like Gabriel, Ledoux, and Bélanger; sculptors like Lecomte and Pajou.

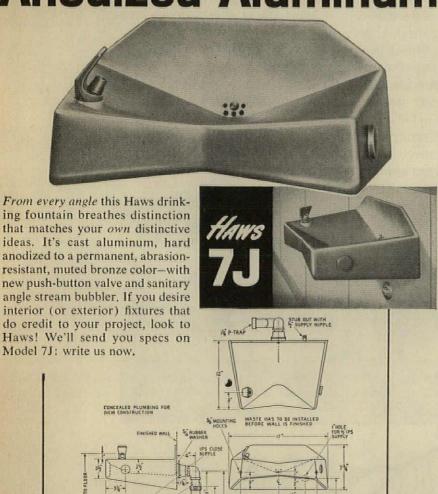
The introduction by British Writer Cyril Connolly recreates the era of extravagant luxury and taste in which aristocrats lavished fortunes on "these very small bejeweled buildings." Included among the many examples are Madame de Pompadour's Pavillon Francais by Gabriel; the Pavillon of Madame Du Barry by Ledoux at Louveciennes; and the Pavillon de Hanovre built in Paris for the Duke de Richelieu ("the most successful rake of the 18th Century"). With the Revolution of 1789, the frivolous builders vanished but the pavilions remain as clues to a society aptly described by Writer Connolly: "as marvelous, and as far, far away as that of Rameses.

THE SKETCHBOOK OF VILLARD DE HONNE-COURT. Edited by Theodore Bowie. Published by George Wittenborn Inc., 1018 Madison Ave., New York 21, N.Y. 80 pp. 6" x 9". Paperbound. \$3.

How nice it is to have—compact, clear, and authoritative—the lucid drawings of this medievalist interested in everything from sculpture and masonry devices to lion taming and perpetual motion.









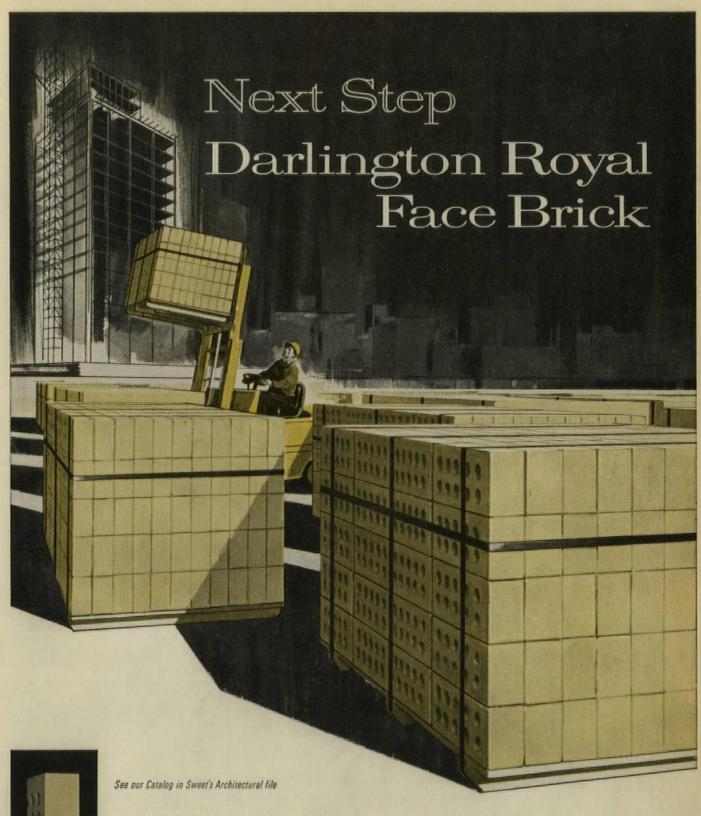
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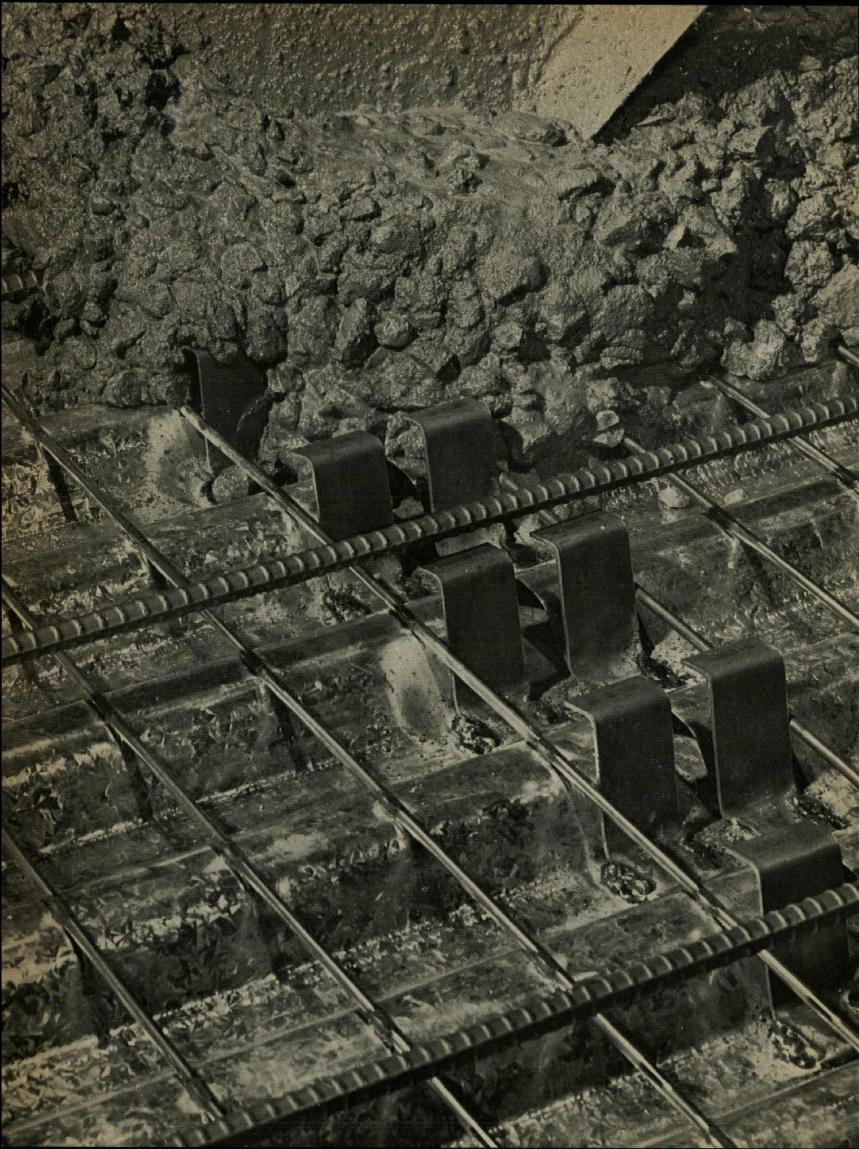
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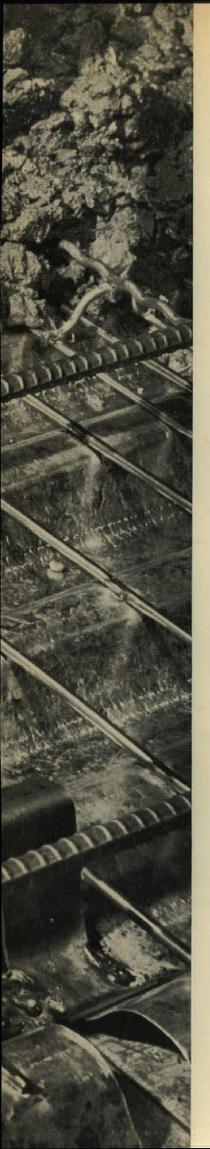
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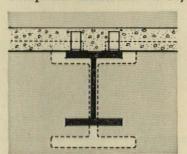




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Architect: Smith and Entzeroth Engineer: Fruco and Associates, Inc. Contractor: Fruin-Colnon Contracting Co. CHINESE ARCHITECTURE AND TOWN PLANNING 1500 B.C.—A.D. 1911. By Andrew Boyd, Published by The University of Chicago Press, 5750 Ellis Ave., Chicago 37, III. 166 pp. 84 drawings and 144 plates. 61/2" x 71/2". \$7.50.

Surveying 3,400 years of Chinese architecture in one small book is quite an undertaking. But Author Andrew Boyd has done a remarkably clear and concise job. He has also managed to present his subject against the even broader canvas of Chinese history, religious philosophy, technology, and art. The result is an absorbing study of the way in which national traditions in Chinese architecture and city planning were formed over the centuries and, in large part, developed in isolation from the rest of the world. The influence of Confucianist, Taoist, and, later, Buddhist thought on the country's buildings and cities is especially interesting.

Although the book follows Chinese architecture only through 1911, some of the photographs were taken recently and offer glimpses of building under the People's Republic of China, side by side with the traditional. In a brief postscript, the author commends the present government for its preservation, repair, and renovation of historical buildings, as well as for its programs of research and excavation. So far, so good. But then he goes on to discuss contemporary Chinese architecture with some enthusiasm, going so far as to say that some Western visitors find it "impressive and gay." This is rather sur-prising since the few tantalizing glimpses here offered to the reader appear to be, as one might expect, in the dreary Stalinist monumental tradition. But this is perhaps a minor quibble in a book which is otherwise well organized and informative.

SITE PLANNING. By Kevin Lynch. Published by M.I.T. Press, Cambridge, Mass. 248 pp. 61/4" x 91/4". Illus. \$8.

This is a most unusual type of book, in which the most practical and detailed advice is given in terms readily absorbed by beginners, though it is written by a leading theoretician concerning "the image of the city." It contains a good deal of homely wisdom, as for example in the discussion of "local siting vs. general

pattern," which carries the admonition that a land-use pattern which takes account of the detailed accidents of the site in locating its elements tends to produce a plan that has "a chaotic look on paper, but has a rich, if disorganized, content when applied on the ground." The part on "detailed technique" does not neglect sewer lines and drainage fields, even though discussion of large aspects of planning also includes sequential photographs of such things as walks through the city of Venice.—p. H.

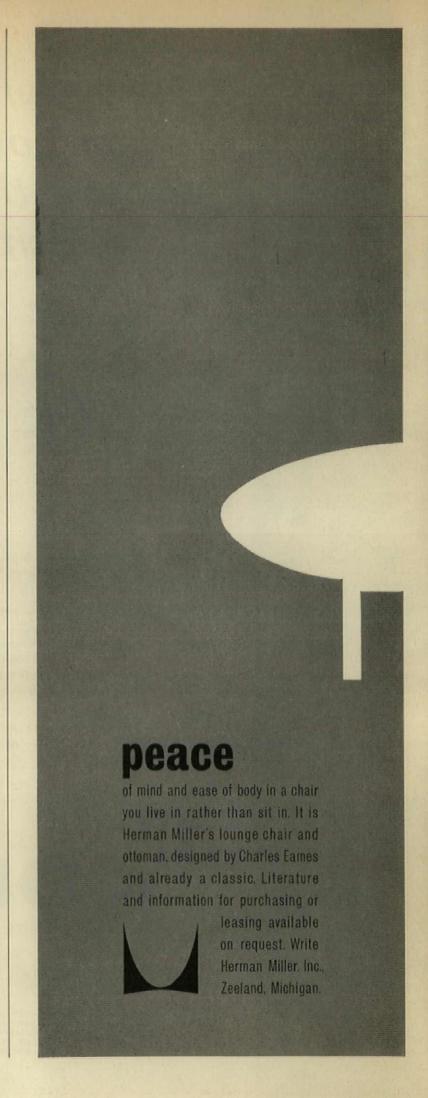
THE ARCHITECTURE OF CHIOS. By Arnold C. Smith. Edited by Philip P. Argenti. Published by Alec Tiranti Ltd., 72 Charlotte St., London, W.1. 71/2" x 10". 171 pp. 226 plates. \$13,

A direct, unornamented report on a four-year study by a gifted young student at the British School of Archaeology at Athens, completed and edited after his untimely death by Greek Dr. P. P. Argenti, who had collaborated on the text. Fully illustrated with ink drawings of plans, details, and perspectives of details of every kind of structure on this much subjugated and unpretentious Aegean island.

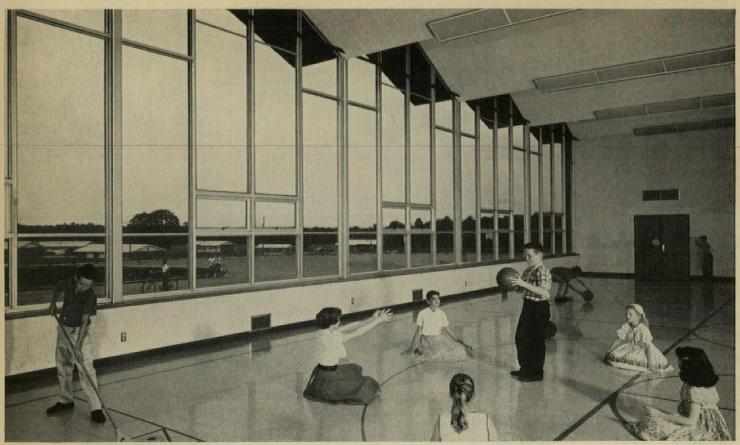
A GUIDE TO OLD AMERICAN HOUSES: 1700-1900. By Henry Lionel Williams and Ottalie K. Williams. Published by A. S. Barnes & Co., 11 E. 36th St., New York 16, N.Y. 168 pp. 8¾" x 111¼". Illus. \$10.

What are the basic clues in identifying old American houses? How can original buildings be distinguished from later wings, additions, and/or mutilations? This well-written guide by a husbandand-wife team of restoration experts should be a valuable source book not only for the beginner in architectural detective work but also for the more advanced antiquarian.

The wide geographical and chronological variations of old American houses and the different national and cultural backgrounds of their builders, as described by the Williamses in a clear, straightforward fashion, make this kind of sleuthing an absorbing pastime. More than 180 photographs and floor plans (from the simplest New England Colonial style of the 18th Century to the rampant Victorianism of the 19th) and an illustrated glossary provide ample cross references for the text.







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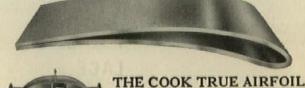
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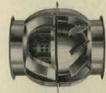
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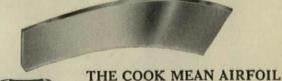




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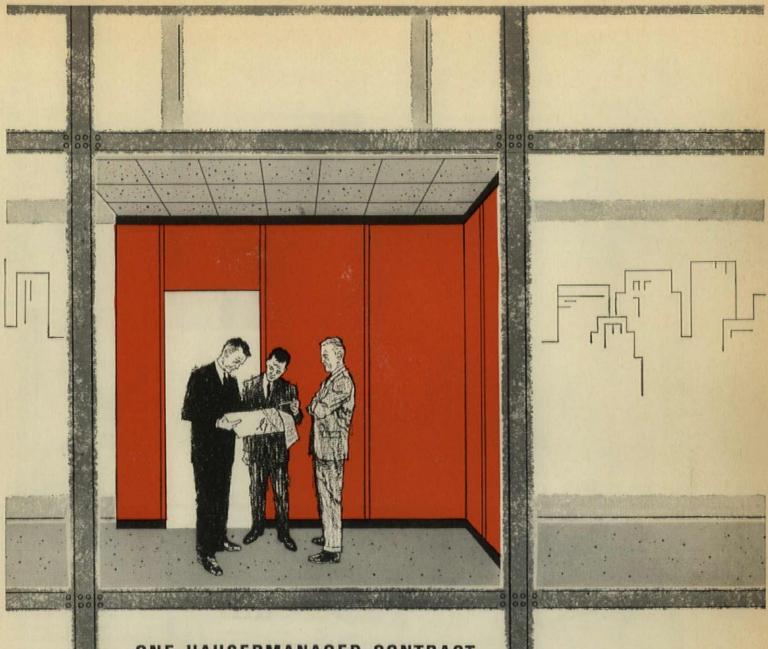
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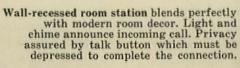






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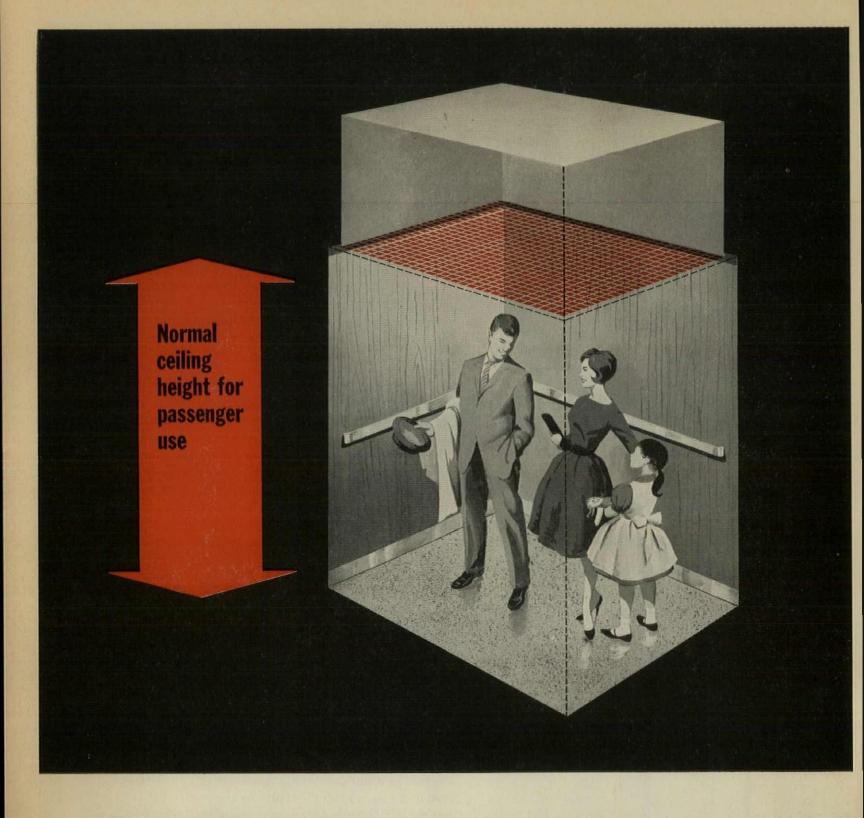
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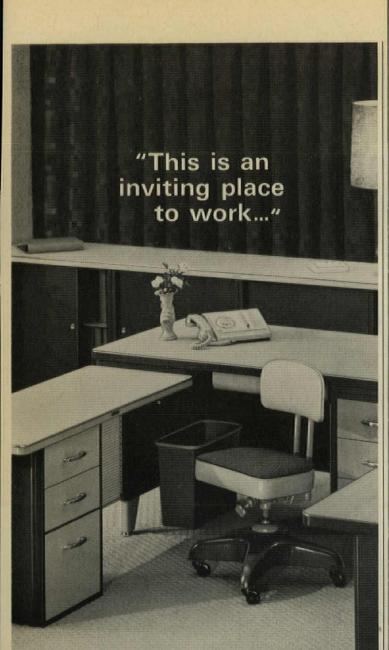
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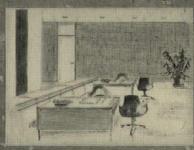
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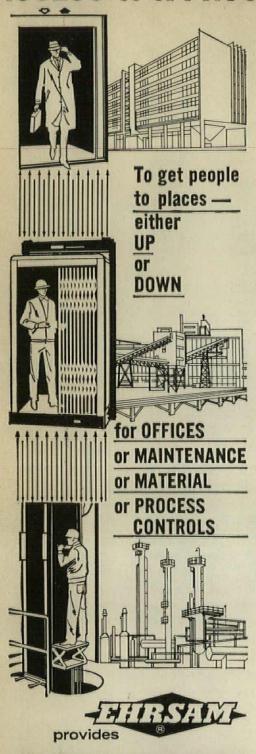


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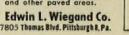
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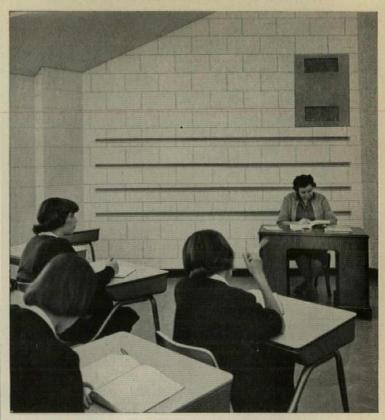
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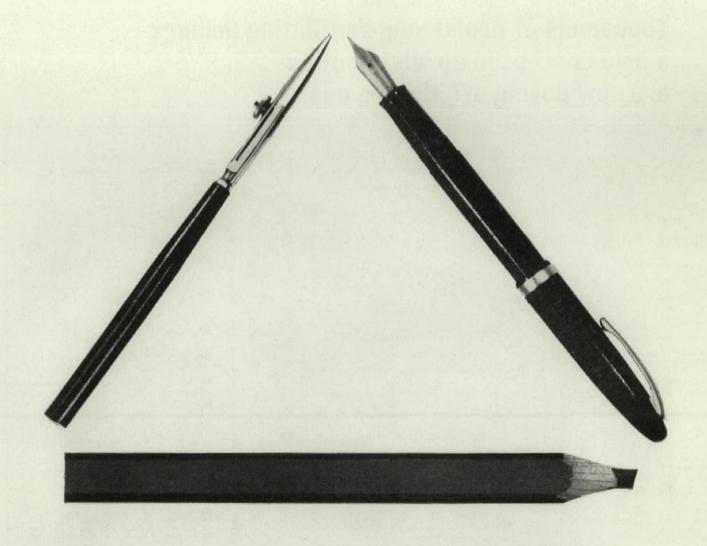
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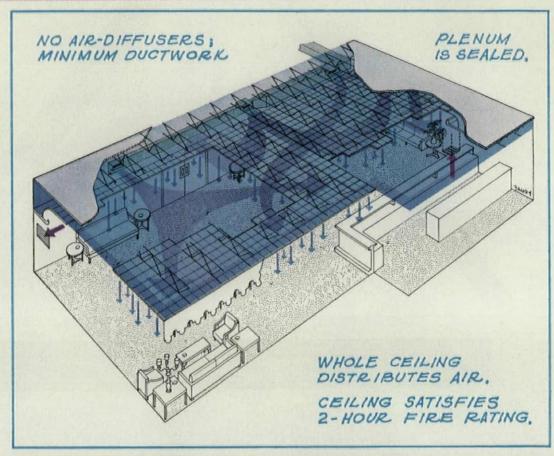
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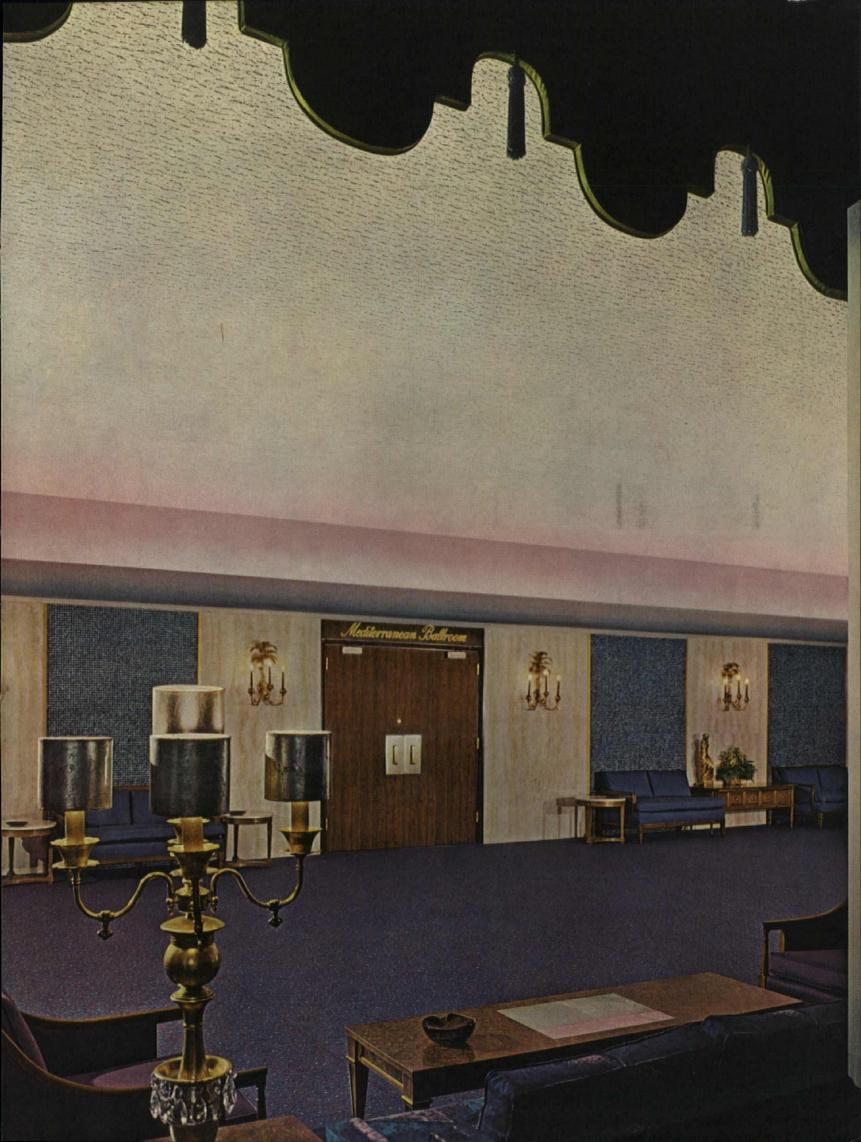
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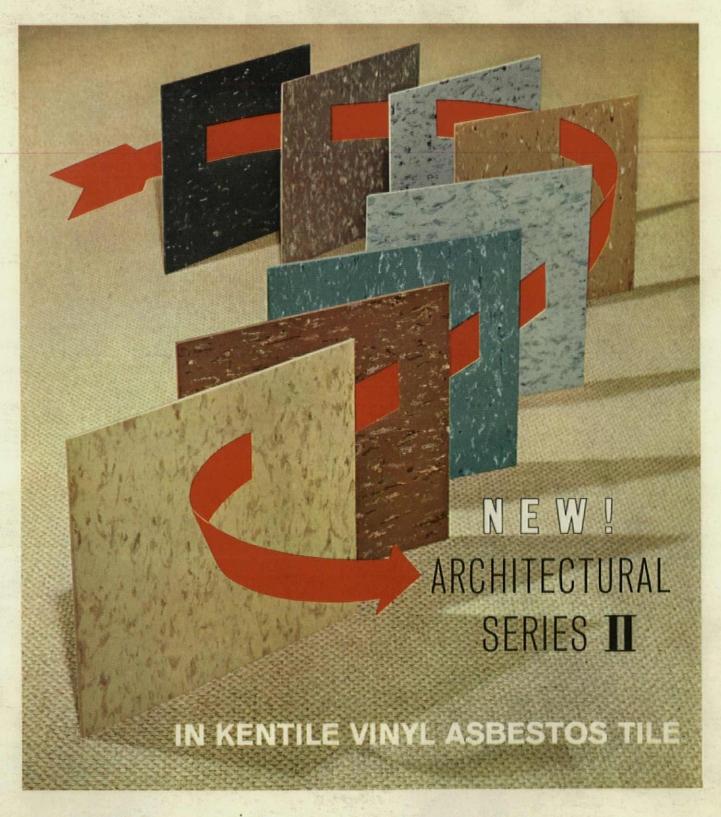
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