





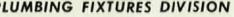
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ART OF ARCHITECTURE

The Guggenheim: museum or monument?

86

The climax of Frank Lloyd Wright's search for organic form is a challenge to museum techniques and architectural standards—a criticism.

Medicine's new "Taj Mahal" 98

In Architect Edward Durell Stone's medical center at Stanford, a horizontal institution becomes a veritable palace of healing.

Lundy's personal architecture 102

The characteristic sweeping curves devised by this young architect do not fight straight-line functionalism but peacefully leave it behind.

A journey among churches 112

An observant Australian priest recently completed a 500-church tour of Europe and America. He suggests a new credo for modern church building.

Frank Lloyd Wright's drawings 119

Seven original renderings by the artist-architect—a gallery.

The romantic necessity 127

Dean Joseph Hudnut relates modern architecture to the romantic spirit.

Norway's precast palazzo 130

Built in a triangle around a weathertight court, Architect Eero Saarinen's U.S. Embassy in Oslo is a bold structure of rare polish.

CITIES

First step toward a new Washington 114

This big apartment house by Developer James Scheuer and Architects Satterlee & Smith shows that urban design involves many bitter problems.

BUSINESS OF BUILDING

Industrial parks—city style 94

The planned factory centers of the suburbs are now turning up, slightly altered, in the city. And they are proving a useful, if limited, renewal tool.

TECHNOLOGY

The expanding engineer 134

A FORUM survey of the fast-growing profession reveals a low scale of income and a widening gap in architect-engineer relations.

5 News

13 People

53 Projects

59 Products

83 Editorial

140 Ideas

155 Abroad

145 Books

161 Excerpts

205 Forum

Cover:

Design by Ray Komai based on furniture showroom by Architect Victor Lundy (story, page 102).

206 Editorial, subscription, and advertising data.

202 Advertising index,

VOLUME III, NUMBER 6

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Pittsburgh Fab-Form, available in lengths up to 28 feet, 3 inches with \(^5\)/s-inch corrugation, is handled easily on steel joists by one man at St. Regis Church and School in Trafford, Pa. Contractor H. Justin Brown & Son, Mt. Lebanon, Pa., reported it took four men just one day to lay 10,800 square feet of Fab-Form. Fab-Form was sold and engineered by W. N. Dambach, Inc., Pittsburgh, Pa.

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• Ideal for School—One of the first construction jobs in which Fab-Form was used was the new St. Regis Church and School in Trafford, Pa. Architect for the job was Ermes Brunettini, AIA, Verona, Pa. More than 33,000 square feet of Fab-Form supports three-inch concrete floor and roof slabs set on steel joists.

Thomas A. Laboon, job superintendent for H. Justin Brown & Son, general contractors from Mt. Lebanon, Pa., said that the deeper corrugations in Fab-Form helped make a stronger slab. Pittsburgh Steel's six-inch square mesh made of No. 6 gage wire was used for reinforcing.

Fab-Form's speed of installation also impressed Mr. Laboon. He said that it took four men just one day to lay 10,800 square feet of Fab-Form on roof joists. After sections were laid, welders using the unique Fab-Form Welding Washer Stick made plug welds to every other joist.

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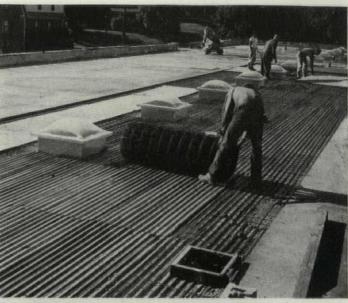
"Everything came out exactly right with no scrapped material," said Mr. Laboon in commenting on the economy of Fab-Form. "The side and endlapping worked out exactly right.

"On top of that," he added, "you know that when Fab-Form is down you have a material that will take a beating from men tramping on it, buggies and even rough weather.

"Later, after the slab is poured,



Deepest corrugation, %-inch, of all standard steel centering is available with Fab-Form. Job Superintendent Thomas A. Laboon, left, shown with Pittsburgh Steel Products Salesman C. W. Bainbridge Jr., said deep corrugation helped make a stronger slab.



Rugged Fab-Form, longest and widest corrugated steel centering for concrete floor and roof slabs on the market, easily supports a three-inch roof slab. Fab-Form saves material and erection time.

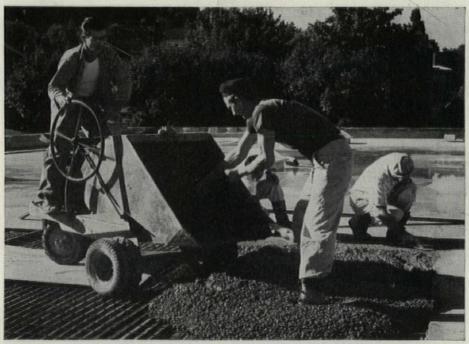
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Steel strike cuts October building figures 4.6 per cent, postpones many projects into 1960

A week after Halloween, the nation's steelworkers straggled back to work after the longest strike in the history of the industry. Hopefully, the first reports were that most mills would be working at near capacity within a week or two following the back-to-work date set by the courts. However, it was already apparent that construction, as other industries, had suffered a severe blow, and the question still to be answered is: How much has building already been hurt and what effect will the strike have on building in 1960?

Any estimate of the effect on 1960 building must be couched in terms of the likelihood of a final settlement of the strike during the 80-day injunction period. If this agreement does not emerge, next year's building will be indeterminately unsettled.

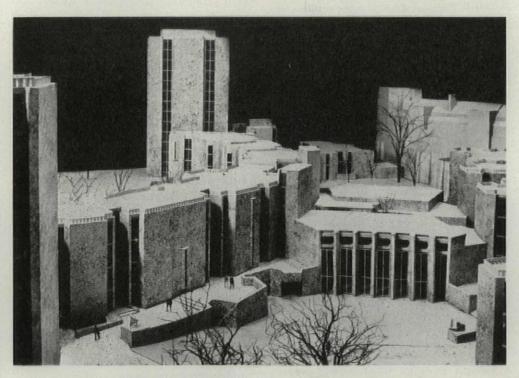
Last month, the Census Bureau re-

leased figures showing that total construction dropped 4.6 per cent from September to October, the largest such drop in postwar years, and nearly double the usual seasonal September-October decline of about 2.5 per cent.

One area of building particularly hard hit has been office building, which had already contracted somewhat from its record peak of 1958. In the first nine months of this year, office building had dropped about 3 per cent. One real estate expert, Robert Byrne, of Cross & Brown, last month predicted that the office building boom in Manhattan, backbone of the nationwide surge in office construction, would be slowed drastically through most of next year. "Because of the mortgage situation," Byrne said, "and the current steel strike, I think that the major construction which has been planned for midtown, but which has not yet been started, will be delayed for a year or longer than has been planned. Accordingly, for the first time since the war, we probably will have a pause in new construction after the completion of buildings now under way." Byrne foresees a resumption of office building in Manhattan at peak rates, however, once the tight money and steel situations have cleared up. (The fast rise in money rates for commercial mortgages was further underscored in a survey by the National Association of Real Estate Boards, which showed that in the past six months, rates of 6 per cent on commercial properties have become the rule in 54 per cent of the cities surveyed, whereas only 9 per cent of these same cities had 6 per cent rates last March.)

Perhaps one of the most lasting effects of the steel strike itself will be felt in industrial construction, which was forecast to turn upward sharply from its estimated 15 per cent drop this year. Just before the strike, industrial building showed its first real signs of the predicted revival (FORUM, Sept., Nov. '59), but now many projects have been pushed into 1960 by the strike. This postponement shows up in the most recent estimates of capital spending. Last month, for instance, the latest McGraw-Hill survey of capital spending intentions by business predicted a 10 per cent rise in 1960, to

continued on page 6



YALE APPROVES SAARINEN DESIGN FOR TWO NEW COLLEGES

Architect Eero Saarinen last month unveiled plans for two new colleges at Yale University, his alma mater. The two building complexes, named Morse College and Ezra Stiles College, are shown in the model above. The \$7.5-million residential colleges are expected to be ready for around 500 undergraduates sometime between 1962 and 1963, Exterior walls will be of rough stone, described by Saarinen

as "warm grayish monolithic . . . somewhat like the walls of old Pennsylvania houses," and interior walls will be of stone, oak, and plaster. The low-lying buildings will hunch their curves to an irregular site, near the towering Payne Whitney gymnasium. Each college will have its own small tower, and its own cellar "buttery," complete with oaken tables, for student bull sessions.

a near-record total of \$37 billion. Just how much of the rise in spending is being "borrowed" from 1959 is hard to figure. But, in steel itself, for instance, \$1.2 billion of capital spending was originally forecast for next year, and this has now been put at \$1.6 billion due to the postponement of strike-bound projects.

The upsurge in capital spending, whether it comes early or late next year, will probably be more concentrated in buildings, as opposed to equipment, than the other postwar booms in such spending. The Chase Manhattan Bank recently noted that the ratio of investment in equipment to plant had dropped from 5 to 1 to 2 to 1 in the past five years, and predicted that "the next period of expansion in manufacturing capacity may involve a heavier emphasis on plant expansion." The key to whether or not this prediction materializes will rest squarely on building costs relative to costs of new equipment. If it is cheaper to work a square foot of existing space harder with newer equipment than to build new space entirely, business is likely to go back to higher ratios of equipment to plant spending, and there will be fewer jobs for the building industry.

Costs have become an uncertain factor now, due largely to the steel problem. Construction costs in general have been relatively stable this year. In October, the index of all building costs stood only 2.9 per cent above October 1958. The E. H. Boeckh Associates index of building costs for apartments and office buildings has risen 3.3 per cent, as has the Boeckh index of commercial and factory building.

mercial and factory building.

Building materials prices the

Building materials prices themselves have risen somewhat less sharply than construction costs over all; they show a 2.1 per cent rise from October to October. Most of the rise this year has been centered in lumber. Prices of concrete products have risen less than the average, and prices of structural shapes have not risen at all in a year, according to Bureau of Labor Statistics indexes. Some steel observers unofficially say that there may not be any steel price hike right away if the eventual labor settlement resembles the one made by Kaiser Steel on its own several weeks ago. (Kaiser gave an over-all increase of 22.5 cents per hour, but said it was too early to do anything about prices.) There is considerable pressure from the administration to hold the line on steel prices. However, cement prices did rise last month, by 10 cents per barrel (to \$3.88 per barrel) in southeastern markets.

NAHRO considers the "human side" of renewal

People, not projects, were the focus of attention for the 1,200 members who attended the recent convention of the National Association of Housing & Redevelopment Officials in Cincinnati. The theme of the conference, "The human side of urban renewal," directed the many speeches and discussion panels toward most of the key problems facing NAHRO-and cities-today. As NAHRO Executive Director John Lange said: "We are re-emphasizing the fact that housing and urban development activities are designed to improve the living and working environment of people."

While this "re-emphasis" hardly seems revolutionary for an organization like NAHRO, it indicates considerable reassessment of both the public housing and urban renewal programs, as presently constituted and executed. NAHRO has requested a continuing federal research program into all housing programs as a key step in such a reassessment, and many conference



KAISER OFFICES NEAR COMPLETION

World headquarters of the Kaiser Industries Corp.—and its more than 50 affiliated companies—will be located in this 28-story Oakland, Calif. building. Designed by Welton Becket & Associates, the mammoth slab is the largest office building west of Chicago—it contains 976,000 square feet of office space. Some of Kaiser's 3,000 employees have already moved in and final touches will be finished by spring, 1960.

speakers echoed this plea. The association is undertaking its own study program, on a limited basis, as announced by incoming President Charles L. Farris, who is also executive director of the St. Louis Housing and Land Clearance for Redevelopment Authorities. Farris intends to establish a committee to explore "a new or refined concept" of housing programs to "meet the anticipated needs at all income levels." By way of indicating the sweeping nature of NAHRO's reassessment of such programs, Farris added: "Regardless of how important and necessary the urban renewal and public housing programs are, by themselves, they are not sufficient to bring to a halt the destruction of our communities by inroads of blight and decay."

Although the emphasis was on the "human side" of housing and renewal problems, NAHRO did not miss an opportunity to take on its favorite adversary-federal officialdom. City councilman and former Cincinnati mayor, Charles P. Taft, blasted back at recent federal warnings to cities to accelerate their housing and urban renewal programs or face the danger of having federal aid withdrawn. Taft charged that Housing & Home Finance Administrator Norman Mason puts "all the blame on us. Well, we are not race horses, but we have to deal not only with people like them at the top, but with housewives, grocers, ward captains, landlords, local big shots, and local politics. . . . This is the human side of housing." Taft also charged that federal agencies themselves are not above reproach in the slowness of the program: "We seem to be faced with a concerted position on the part of the administration which is to say the least obstructive, growing out of a combination of fiscal policy and distaste for the whole problem, and a pretty complete failure to realize the kind of crisis which two thirds of our people face in the cities." Taft recommended two methods of supporting housing and urban renewal: 1) a citywide educational-public relations campaign that would "make the need for housing and urban renewal a widely understood and popular concept . . ." and 2) strong neighborhood organizations that will back housing and redevelopment officials.

In its resolutions, NAHRO reiterated previous pleas to the federal government to put urban renewal on a long-term basis, and to increase the federal share of net project costs. This year, NAHRO recommended a \$600-million-

continued on page 9

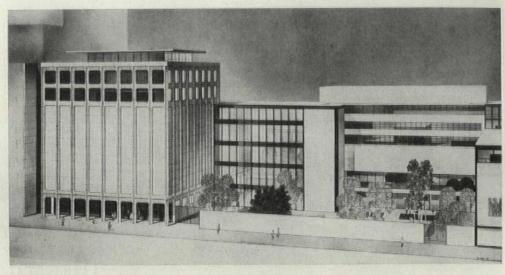
N. Y.'s Museum of Modern Art plans new wing

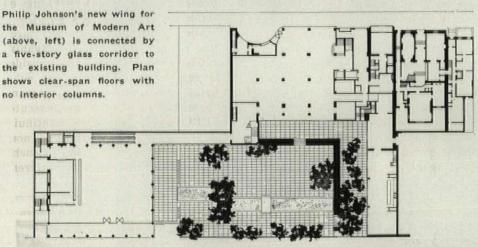
New York's Museum of Modern Art celebrated its 30th anniversary last month with a public campaign to raise \$25 million for a new wing and program funds. Designed by Philip Johnson Associates, who designed the original museum structure, the eight-story addition on West 54th Street will add 31,000 square feet of exhibition space. giving the museum enough room to make its entire collection available to the public for the first time. At present, only one-eighth of the painting collection can be shown and the museum's valuable architecture, design, and photography collections are stored out of sight. Included are the museum's famous models such as Le Corbusier's Ville Savoye (1930) and a group of original drawings by Mies van der Rohe and Frank Lloyd Wright.

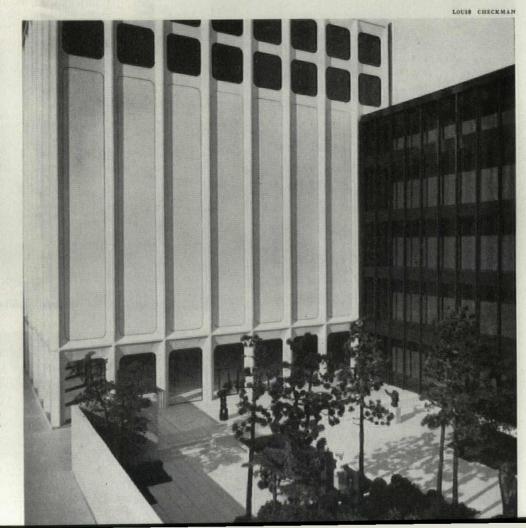
The campaign for building funds, the largest ever conducted by a museum, will add five gallery floors and a new entrance lobby, shifting the museum's address from West 53rd Street. Built of reinforced concrete and steel, the new wing will be connected to the present museum by glassenclosed corridors which would be stacked five stories high (see plan and rendering, right).

Johnson's design will give the museum a tremendous amount of gallery exhibition space in what is a relatively small building. Current space (12,000 square feet) will be almost quadrupled (to 43,000 square feet) by use of a floor slab technique requiring no inner columns. Every floor will be completely clear, for close to 90 feet in each direction, permitting a maximum of flexibility in designing exhibitions of painting and sculpture. This arrangement will also afford the museum's 700,000 annual visitors an ideal space for browsing. Storage space and workshops, below ground in the new wing, will be proportionately expanded by this maximum utilization of interior space. The penthouse will contain meeting rooms.

Johnson's wing is highlighted by a graceful use of a basically forceful facing of travertine marble. The gallery floors have no windows—only the top three floors, including the penthouse, have them—and thus the stone bulk of the building contrasts with the airy grace of the glass-walled corridors connecting the new wing to the existing museum.







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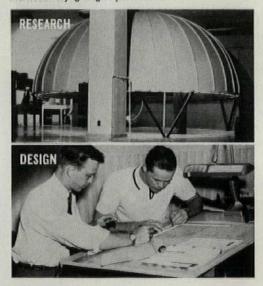


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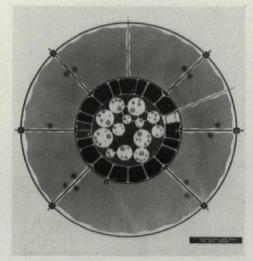
a-year urban renewal program for ten years, and an increase in the federal share of costs from two-thirds to four fifths. NAHRO also asked for a federal study to find means of coordinating the urban renewal and highway programs, and, in the public housing area, it recommended specific legislation giving local housing authorities "latitude to experiment with various building types, space standards, use of materials and facilities without the arbitrary administrative imposition of rigid standards or cost ceilings."

Aside from its consideration of redevelopment problems per se, NAHRO also took steps toward becoming a more effective instrument in housing and renewal. In place of the many committees that currently weigh NAHRO problems, the association will have three divisions (for housing, renewal, and codes), and officers will be elected for two years rather than one. General conferences will be held only every two years, with workshop sessions in the off years.

Gruenplan for Washington dies: New York gets fair

When President Eisenhower last month selected New York as the site of the 1964 World's Fair, Washington, D. C., New York's only serious competitor, lost more than a chance to stage its first such fair. It also lost an opportunity to undertake a truly unique experiment in modern city building-the creation of a new satellite city designed for an eventual population of 100,000. Backers of the Washington fair, led by a vigorous group of businessmen representing the District's Board of Trade, put all their hopes in the dramatic proposal of Architect Victor Gruen to build a permanent complex of fair buildings that could be used as the nucleus of a new community about 10 miles east of downtown Washington, near Largo, Md.

Gruen, who personally presented his scheme to the President's Advisory Commission, regarded the satellite city as a potential proving ground for solutions to all urban problems, as well as providing an opportunity to explore the furthest advances in modern architecture. The commission, composed of Denver Mortgage Banker Aksel Nielsen, former Secretary of Commerce Charles Sawyer, and retired industrialist Harry A. Bullis, was evidently



Gruen's plan for a satellite city of concentric rings (above) shows exhibition areas (white circles in center) surrounded by darker parking areas. Open areas outside parking ring would be developed for housing and commerce as area grows.

more impressed with the economic capabilities of New York City than it was with Gruen's singular proposal. In choosing New York over Washington, the commission noted that it had "placed primary emphasis upon considerations of location and timing that would be most consistent with and calculated to promote our aims and accomplishments in the pursuit of peace and the promotion of world economic considerations and of such other relevant factors as the capability and state of readiness of interested cities." Although they never said as much, the commission was reportedly more impressed with New York's financial potential than with Washington's, and this factor evidently outweighed other considerations.

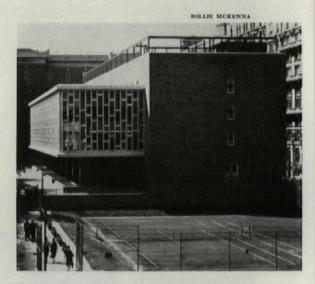
Backers of the Washington fair had hired many other well-known consultants besides Gruen to develop the satellite city plan, including the Roger Stevens development-management corporation. The plan called for a nucleus of exhibition areas from which all vehicular traffic would be excluded. New loop highways would handle this traffic. Buildings would be grouped on raised platforms interconnected by pedestrian bridges. Each cluster of buildings would have its own unique character, depending on its exhibitors and purpose. Housing, including a large number of prefabricated temporary housing structures was to have been provided in the inner ring around the exhibition clusters.

Although Washington is definitely out of the running for a 1964 World's Fair, there is still a slim chance that a smaller version of Gruen's satellite city might be built. Victor O. Schinnerer, head of the corporation established to organize the fair, said that if his group could stir up enough interest among U. S. and foreign corporations, they may still build a permanent International Exposition Center at the Largo site.

Voters approve 62 per cent of all bond issues

Voters were somewhat less favorably disposed to approving bond issues for new building projects last month than they had been last year, when an estimated 80 per cent of all bond issues were approved. This year, only about 62 per cent of all issues passed throughout the whole nation.

Chief among the casualties was the proposal to allow New York City to borrow \$500 million over a ten-year period for school construction beyond current debt limits. This proposal, which had the support of the Board of Education, Mayor Wagner, and Governor Rockefeller, was vigorously fought by City Controller Lawrence Gerosa, who claimed that the Board already had \$100 million available, if funds continued on page 11



BARNARD ADDS CLASSROOM-LIBRARY

The five-story Adele Lehman Hall-Wollman Library is Barnard's first major new building since 1926. Designed by O'Connor & Kilham, the \$2-million reinforced concrete building is linked to other campus buildings by a common facing of red brick. The open-stack library occupies $3\frac{1}{2}$ floors (including a balcony) and, by using a flexible module, the architects have made possible the rearrangement of shelves and partitions.

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were siphoned from other departments which might use them in the next fiscal period. Although other city officials denied that they could give up funds for school needs, so as to stay within debt limits, Gerosa clung to his argument and evidently convinced a majority of the voters, who killed the bond amendment by a 1,529,000 to 1,167,000 vote. After the election, Board of Education officials announced that it would have to cut its school building plans in half, halting plans for building 15 schools next year, to save \$40 million. State Controller Arthur Levitt saw the defeat of the school bond issue as a voters' revolt against high taxes. He noted that in the past year 38 per cent of all New York State school issues had been defeated by voters, and added: "I believe that concern over the rising burden of local taxes played an important role in such rejections."

School bonds fared better in New Jersey where voters approved an ambitious \$66.8-million program to aid state-supported colleges.

New Jersey voters, however, turned down a unique proposal to use surplus highway funds for supporting debt-ridden commuter railroads by a wide margin. The plan would have allowed the state to shift an estimated \$430 million from New Jersey Turnpike surpluses to be used, in part, as payments to help pay local taxes on the railroads or aid in the reduction of those taxes. Proponents of the plan could never muster vital political support at local and county levels, particularly in heavily populated Hudson County, and so the move was defeated.

The lure of the highway, and its high place in voter esteem, was demonstrated in New York as well as in New Jersey. New York voters approved the 175-mile Northway, a new superhighway proposed between Albany and Montreal, despite pleas by conservation groups to save the hundreds of acres of Adirondack Park forest lands that would have to be cleared for this road.

Voters in three widely separated cities turned down building proposals that had been backed by local officials. In Cleveland, a \$1.7-million issue to build a new municipal court building failed to get voter approval. In Hartford, a \$4-million proposal to build a new city coliseum lost, and thereby cast some question on the plot adjacent to the urban renewal area currently being redeveloped by F.H. McGraw & Co. (The coliseum site was on city-owned land outside the renewal area, but the parking that was to have been provided at the coliseum was important to the entire project.) In San Francisco, voters

failed to give the required two-thirds majority to the city's plan for a \$2.9-million park within the vast Golden Gateway redevelopment area. Immediately after the election, city officials started exploring new methods of getting this park built, because of its importance in the over-all redevelopment.

San Franciscans did approve a \$7.5-million issue to improve the civic auditorium, and also a \$1.8-million issue for the interior refurbishing of the famed Palace of Fine Arts. Around \$4 million has already been raised for the overhauling of the Palace's exterior. Last June, Bay Area Millionaire Walter Johnson donated \$2 million and the state matched that gift (FORUM, July '59).

Briefs

New York City saved \$97,000 last month when a New York State Supreme Court Judge made a condemnation award of only \$2,403,000 for a building on the Lincoln Square redevelopment site, which Robert Moses, Slum Clearance Committee head had wanted to pay \$2.5 million for several years ago (FORUM, Oct. '57). Moses was blocked by city and federal officials who wanted a condemnation award rather than a negotiated bid for the 12-story building, which will be razed to make way for the Lincoln Center for the Performing Arts.

Baltimore's public baths will disappear soon, a victim more of economics than any upswing in uncleanliness. City budget-cutters have decreed that the venerable public bath houses will be closed, resulting in a saving of \$100,000 annually. To bolster their argument, the antipublic bath faction cited a decline in public scrubbing from a peak of 7.6 million baths a year to last year's low of only 100,000.

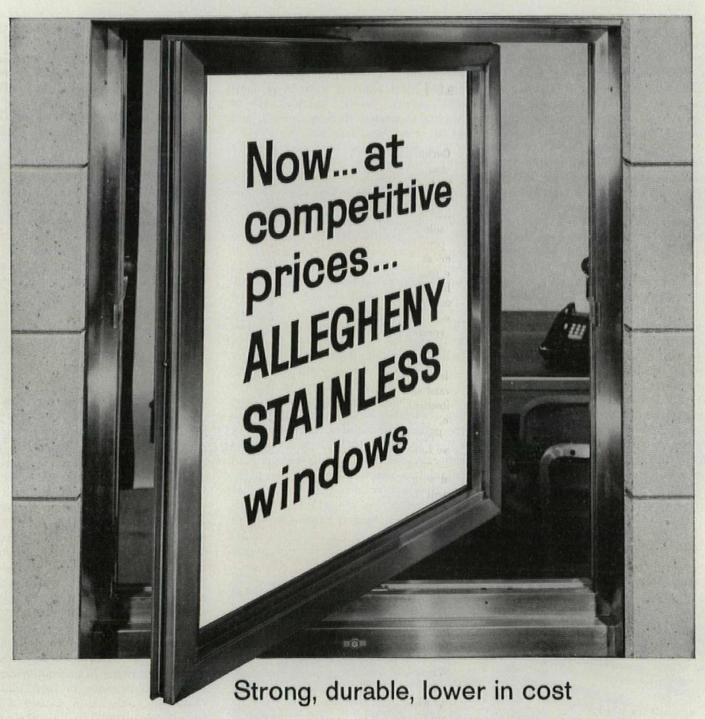
Rooftop clutter will be fought with moral suasion in Washington, D.C., where a committee was established last month to study the city's roofscape with an eye to covering up or otherwise eliminating unsightly clumps of equipment. The district commissioners will urge building owners to clear up eyesores, and will commend those who comply. Zoning changes to allow strict controls over roofscapes have also been proposed, but not yet acted on by the zoning commission.



BRITISH "NEW TOWN" PREDICTS ROOF-LEVEL HIGHWAYS

Motopia, a new city envisioned by British Architect Geoffrey Jellicoe, has been designed for a 1,000-acre site (now covered by a reservoir) about 17 miles from London. At a total cost of \$170 million, Motopia would house 30,000 people and protect them from Britain's increasing road traffic by segregated pedes-

trian and motor routes. Roadways 50 feet high laid out on a 1,200 by 800 foot grid would carry cars above soundproofed residences and a pedestrian world of parks, churches, restaurants, and playing fields. The roads would be screened from below by hedges and concrete buttresses.



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Le Corbusier to design \$1.5 million visual arts center at Harvard; Zeckendorf buys \$18 million building



CORBU

Le Corbusier, architecture's stormy genius, has started work on his first building in the U.S. since he huffed out of the international team that designed the United Nations buildings. Actually, it will be the first solo effort in this country by Corbu. The project is the \$1.5-million visual arts center at Harvard University, which was made possible through a gift two years ago of the full \$1.5 million from Oregon pear tycoon, Alfred St. Vrain Carpenter. The concept of the center evolved from the work of a special committee which recommended such a project because "man is more and more swayed by what he sees-movies, television, picture magazines, etc.-and Harvard should offer expanded teaching in architecture, painting, sculpture, and music." The new building is to be placed near Fogg Museum.

José Luis Sert, dean of Harvard's School of Design, and other Harvard officials conferred with Le Corbusier last month when he spent four days in Cambridge looking over the site for the visual arts center. He has gone back to Paris, but may return again when the preliminary design work is finished. It is not definite whether an American firm will work in association with Corbu or not.

Sert said last month that "it is, of course, a wonderful opportunity for Harvard. This will be an experimental building incorporating new visual concepts and Le Corbusier is the best man to be designing it." When asked if there might be any particular problems in working with Corbu, who has a reputation for being somewhat strong-willed in design matters, Sert replied simply: "He is an unusual man . . . so was Michelangelo."

ZECKENDORF BUYS A SKYSCRAPER

"Going once, going twice. . . . No other bids? Sold, for \$18,150,000."

Public auctions do not ordinarily involve such heady bids, but this one, held in Manhattan's Wall Street Club, was probably the most singular auction ever. The bidding was for a 70-story Wall Street skyscraper, the fourth highest in the world. And the winning bidder was ubiquitous real estate mogul William Zeckendorf, who won out over a group representing minority stockholders in 40 Wall Street Building, Inc., and a Manhattan realty firm. The bidding

started at an upset price of \$17 million, progressed upward by \$1,000 and \$5,000 jumps until Zeckendorf opened up in earnest, jumped bids by \$25,000 at a time. At the \$18,150,000 mark, the opposition quit, and Zeckendorf commented happily: "It was fun."

The sale of 40 Wall to Zeckendorf was no surprise. His Webb & Knapp Inc. holds two-thirds of the stock in the corporation which owned the building and owns one of the three parcels of land on which the building stands. About two years ago, Zeckendorf made an attempt to buy the building and the one parcel of land that goes with it for Webb & Knapp for \$15 million (later upped to \$16 million) but was blocked by minority stockholders who claimed the skyseraper was worth at least \$20 million. They took the issue to court, arguing that Zeckendorf was trying to



ZECKENDORF

pressure them into a sale at an unfavorable price because he knew that other potential purchasers would find it difficult to obtain the most advantageous mortgage financing as long as Zeckendorf still held the land parcel. The corporation pays \$222,000 a year in ground rents on this land, and an additional ground rent of \$500,000 a year on a land parcel held by still another owner.

Of course, the price that Zeckendorf eventually paid for the skyscraper may have seemed somewhat academic. Zeckendorf, the potential purchaser, would simply enrich the coffers of Zeckendorf, the majority stockholder, by two-thirds of the net profit on the transaction. But, as Zeckendorf must pay up the full \$18,150,000 before Christmas, his ultimate aim in buying the building will probably become apparent by that time. In Manhattan real estate circles, it was being rumored last month that Zeckendorf had already arranged a financial deal with a large insurance company, although no one was certain

continued on page 14



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of the nature of the deal, whether it would be an outright resale of the property, or a sale-leaseback. He had arranged a sale-leaseback deal last year with the Metropolitan Life Insurance Co., before his plans for purchase hit a snag. This commitment originally called for sale of the building by Zeckendorf to Metropolitan for \$20 million on a leaseback at \$1.2 million a year (representing a 6 per cent return) and a subsequent sale of the leasehold on the property. Whatever the outcome of the 40 Wall St. deal, the fun-loving Mr. Zeckendorf has provided another example of stratospheric wheeling-dealing in real estate.

Last month, Zeckendorf also made his first incursions into the hotel business outside New York City, where Webb & Knapp controls 6 hotels and is building a new one. W & K announced it has bought controlling interest in three Chicago hotels, The Sherman, The Ambassador East, and The Ambassador West.

DEEGAN HEADS N.Y. FAIR

When New York City was given the nod as the site for the 1964 World's Fair several weeks ago, the spotlight was thrown squarely on the man who had done the most to bring the fair to New York, Publicist Thomas J. Deegan Jr. For most men, success in such an effort, in the face of determined competition from other cities (see page 9), might be regarded as winning the toughest fight of their lives, but for Deegan it still must rank behind his work in helping the late financier, Robert R. Young, take control of the New York Central in 1954. However, that epic is history, and Deegan still has ahead of him the staggering task of organizing what will



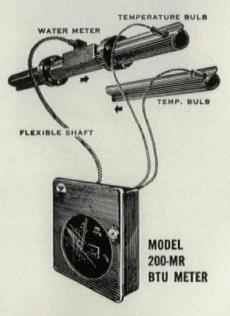
DEEGAN

be the most mammoth of all fairs, with the attendant responsibility for much of the building that will be done by the corporation which he now heads. Deegan is already scouting for a field general to look after the details of assembling exhibitors and work with city departments on initial planning. He would like to relinquish his dual role as chairman-president of the New York World's Fair 1964 Corpo-

continued on page 16

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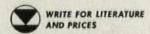


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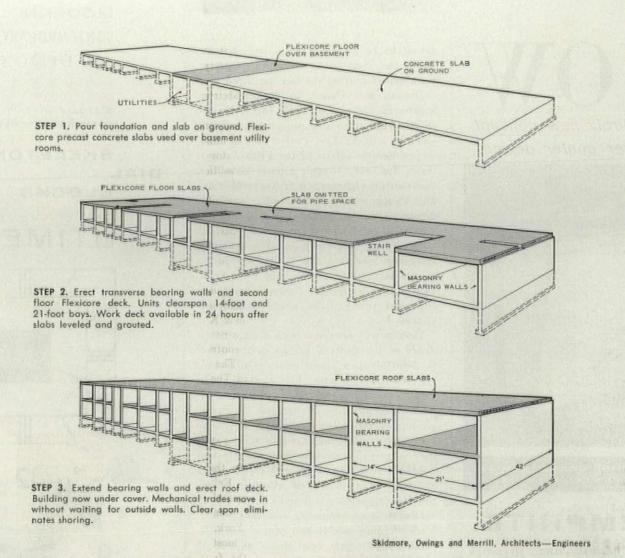
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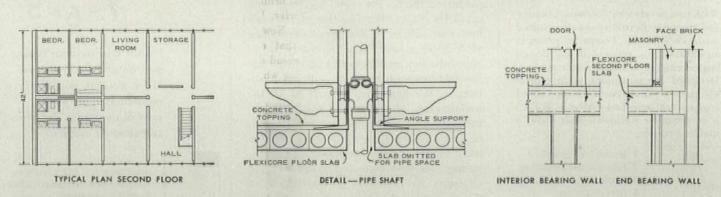


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ration to be chairman only, and thereby share the responsibility for the tactical problems of putting the fair together.

Deegan was chosen to spearhead the movement for a New York City fair because of his success in promotional efforts since he left the New York Times in 1938 to promote the affairs of the Fifth Avenue Assn. In 1946, Deegan hitched onto the fast-moving organization of Texas Millionaire Young, who made him public relations director (and later, vice president and director) of the Chesapeake & Ohio Railway, which Young then controlled. When Young fearlessly assaulted the Wall Street fortresses for control of the huge New York Central five years ago, Deegan guided the energetic proxy fight that resulted in victory.

Deegan was rewarded with a vice presidency of the Central, but he quit in 1957 to form his own public relations firm and the Central became his most important client. When Young died by his own hand two years ago, Deegan lost his directorship of the Allegheny Corp., a Young holding company, and his only ties to the once mighty Young empire today are his public relations contract with the Central and some 13,500 shares of Allegheny stock which he reportedly still holds.

Deegan is an outspoken admirer of New York building ezar Robert Moses, and will probably go along with Moses' ambitious plans for a fair. (Moses has already announced that the 1964 fair will cover 35 to 40 acres more of Flushing Meadows than did the 1939-to-1940 fair, and he has been preparing plans for new highways and rapid transit to the site.) One of Deegan's first jobs will be to arrange the estimated \$150 million bond issue necessary to finance the improvements and buildings that the fair corporation itself will construct. But, in the financing, as well as in the rounding-up of exhibitors for the fair, Deegan's flair for promotion, and his contacts with executives throughout the nation, should prove invaluable. (For instance, the first commercial exhibitor to announce its intentions to participate in the fair was the Radio Corporation of America, a long-time public relations client of Deegan's.)

Deegan also will have the final say on design plans for the "theme" building—or buildings—at the fair. Similar in purpose to the Trylon and Perisphere at the fair two decades ago, these buildings would provide a focus for the whole fair. Although the fair architects have not yet officially been announced, it is rumored that the job will go to Skidmore, Owings & Merrill, for many years coordinating architects for Commissioner Moses' Slum Clearance Committee.

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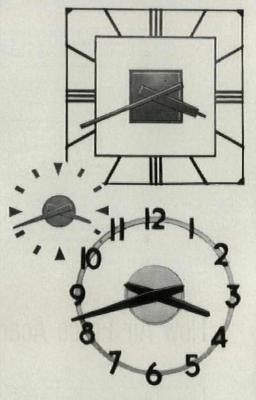
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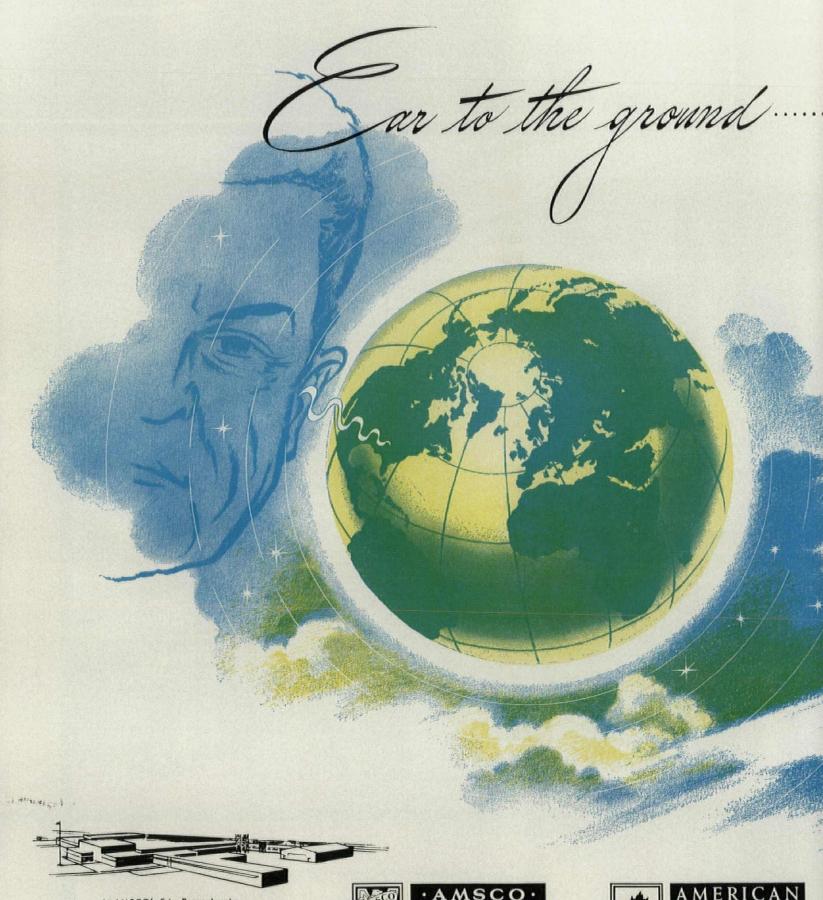


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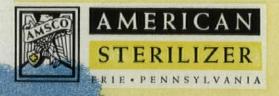
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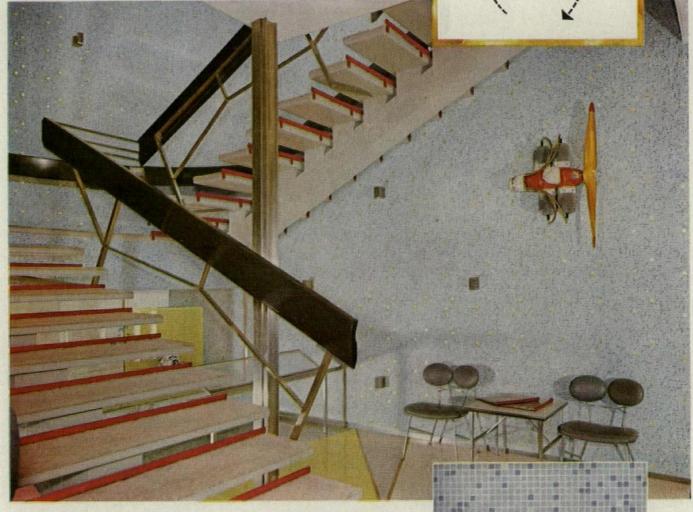




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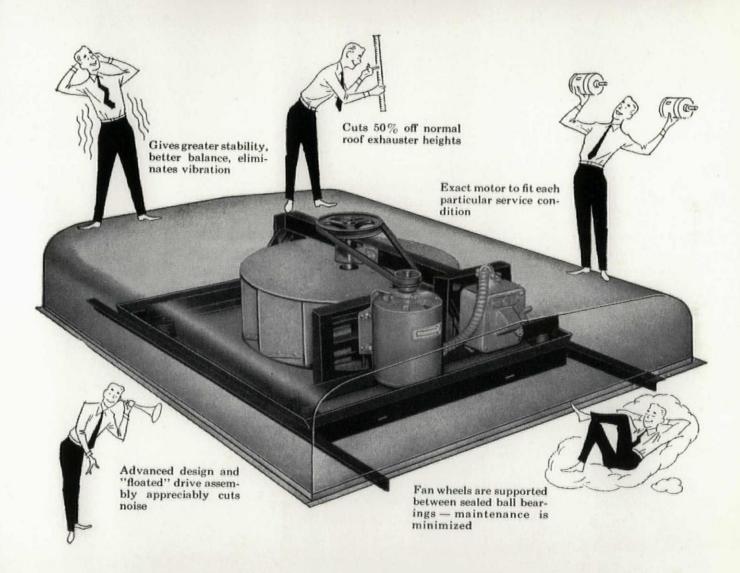
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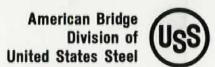
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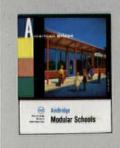


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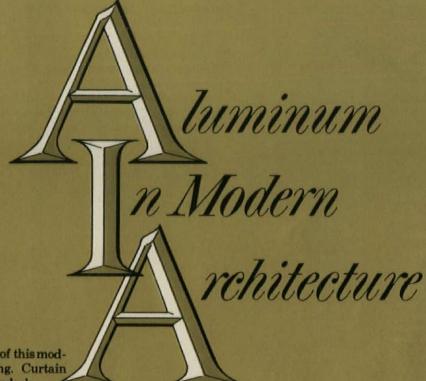
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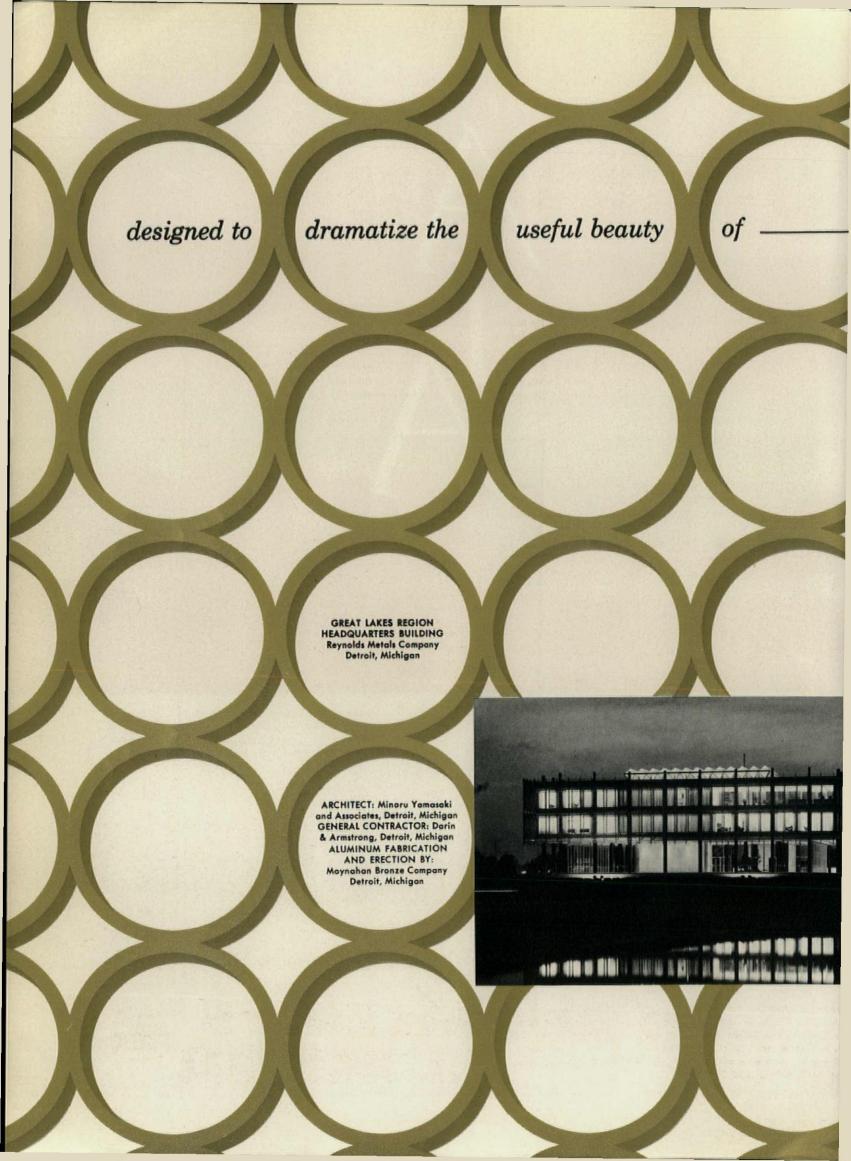
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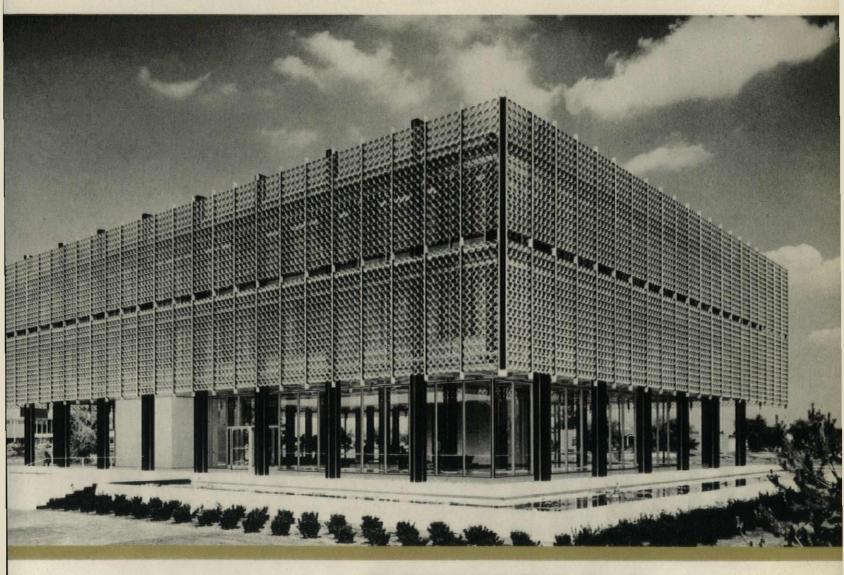
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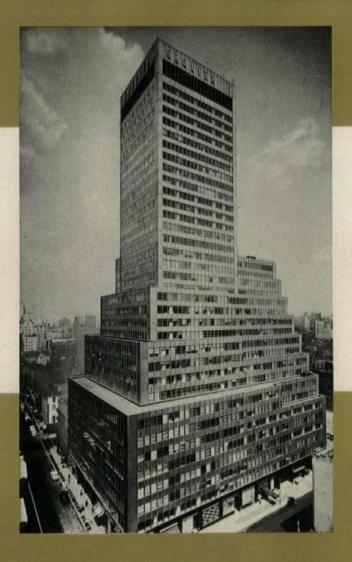
REYNOLDS ALUMINUM



575 LEXINGTON AVENUE, NEW YORK

ARCHITECTS: Sylvan Bien and Robert L. Bien OWNERS-BUILDERS: Sam Minskoff & Sons, Inc.

Golden is this skyscraper. 34 stories in two-tone anodized aluminum . . . light gold for extruded mullions, darker gold for window frames and spandrels. Intermediate projected windows. Spandrel panels pre-assembled of interlocking extrusions.



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ACOUSTICAL APPLICATORS:
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MECHANICAL ENGINEER (Air Conditioning):
Leo S. Weil & Walter B. Moses,
Consulting Engineers, New Orleans



Of special interest in connection with the gold-anodized curtain walls shown in this insert is an 8-page folder on Anodizing. Send for this and for your copy of Reynolds Aluminum Commercial Building Products File Folder. Your office library should also have Reynolds three-volume set "Aluminum in Modern Architecture." Write to Reynolds Metals Company, Dept. AM-3, Richmond 18, Va.



Golden is silence, too! Reynolds Aluminum perforated acoustical panels, pyramid type, are suspended from this Library's reading rooms. They serve both to control sound and as a diffuser for the air-conditioning system. Whether you are specifying for an educational, commercial or manufacturing building, consider the proved values of Aluminum.

REYNOLDS ALUMINUM



See Reynolds shows—James Michener's "ADVENTURES IN PARADISE" Monday nights and "ALL STAR GOLF" every Saturday ABC-TV Network.



any home you design

Because delegates to the 1958 Women's Conference on Housing chose the garbage disposer as the appliance most wanted of a long list of preferred home features . . . you may want to specify disposers in the homes you design. These facts may help you make your choice:

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For complete information, see our catalog in Sweet's architectural file; see your plumber; or write, wire or phone In-Sink-Erator Mfg. Co., Dept. AF-912, Racine, Wisconsin.





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Model 27, xtra capacity

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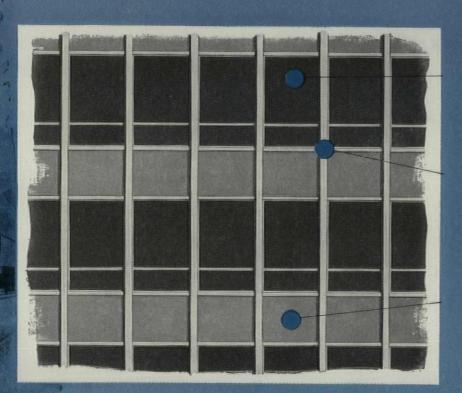




With Robertson Versatile Wall, architects and engineers can enjoy full freedom of expression in the use of modular units and colors and still be sure of the precision of fit necessary to resist the ravages of weather. Developed after years of experience, research and testing, this curtain-wall system combines the advantages of standard units with the artistic latitude of tailor-made walls.

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tightness plus extra design freedom



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from pivot pins if hopper is used below, and the entire window can be removed in minutes for easy shop reglazing.



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SPANDRELS

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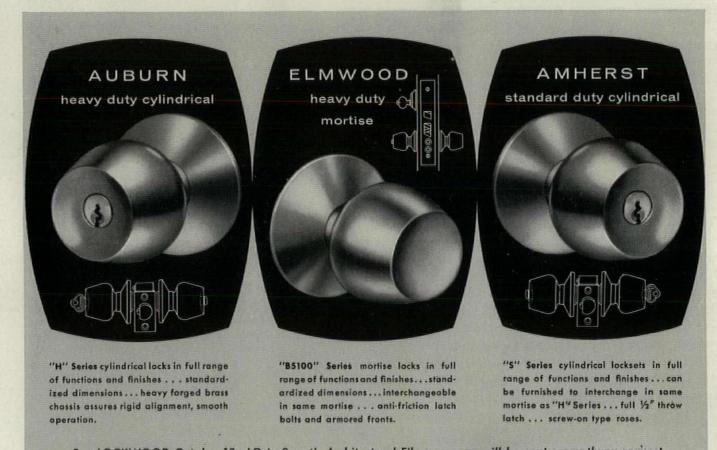
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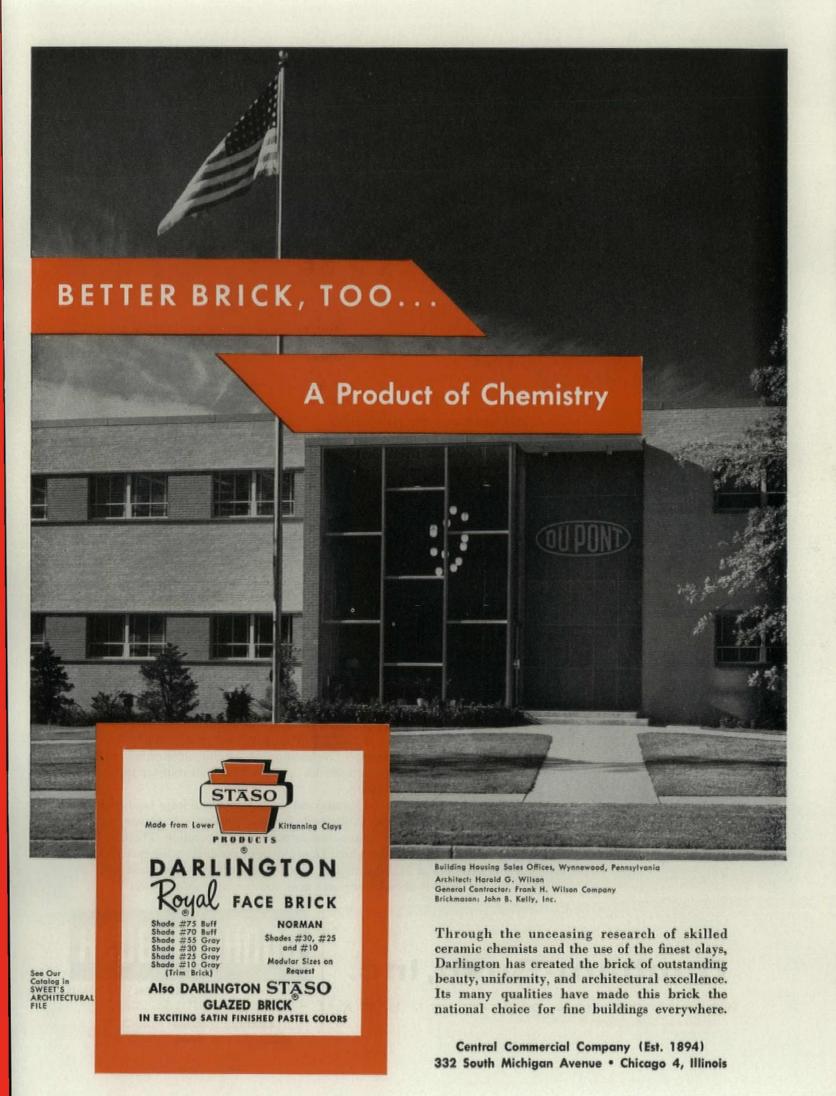
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LOOK-ALIKES

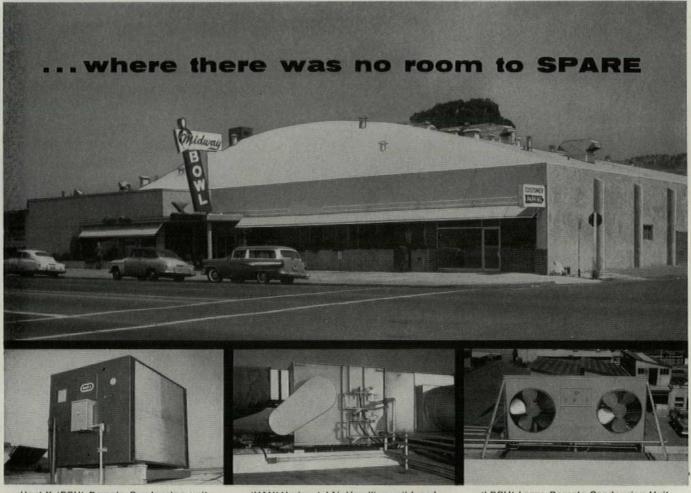


See LOCKWOOD Catalog 18e-LO in Sweet's Architectural File or a copy will be sent promptly on request.

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Architectural Forum / December 1959



Heat-X 'RCU' Remote Condensing unit (used with 'CC' unit) for coffee shop and offices.

'HAH' Horizontal Air Handling unit (used with 'LRCU') mounted on roof, air conditions bowling area.

'LRCU' Large Remote Condensing Unit (used with 'HAH') serves bowling area.

DUNHAM-BUSH made a comfort STRIKE



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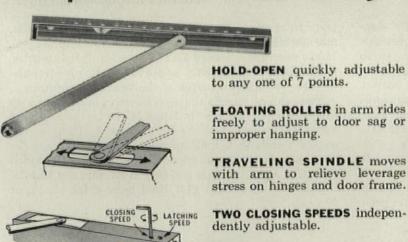




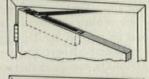
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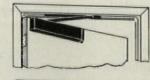
one-piece arm "hides away" when door is closed



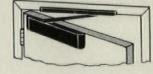
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mortised in the door (right or left hand)



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surface
mounted
(right or left hand)
NO SPECIAL BRACKET
NEEDED



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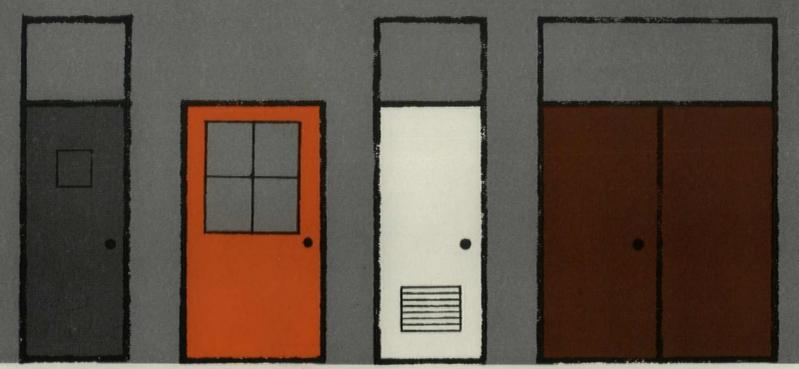
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write for complete details and installation templates

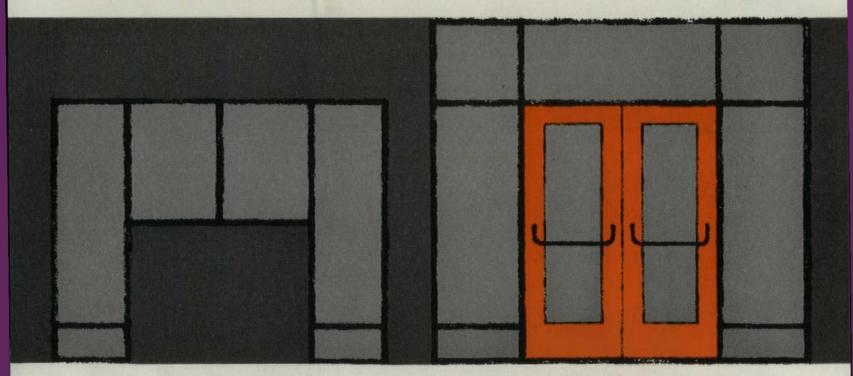


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from the wonderful new world of BLOCK

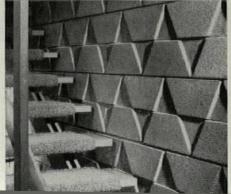
Walls leap into life, become intriguing patterns of depth and dimension wherever Shadowal block is employed. Here you see five Shadowal block patterns. Each has a character and distinction of

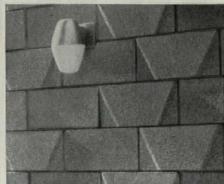
its own; each shows the unbelievable versatility of Shadowal concrete masonry. Small wonder it's called the block with 1000 faces. Your local NCMA member will be happy to assist you in working with new Shadowal block.

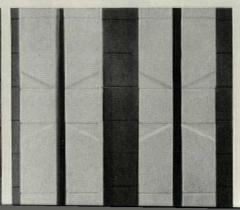


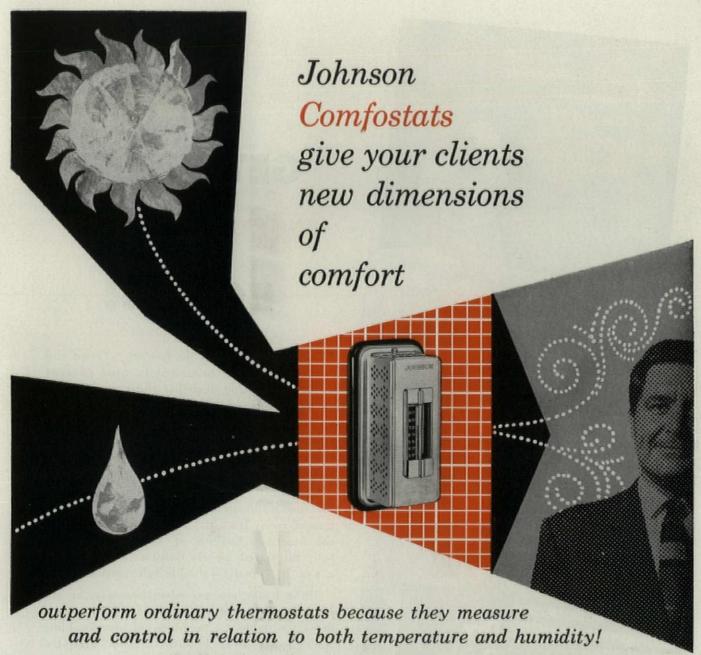
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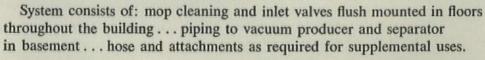


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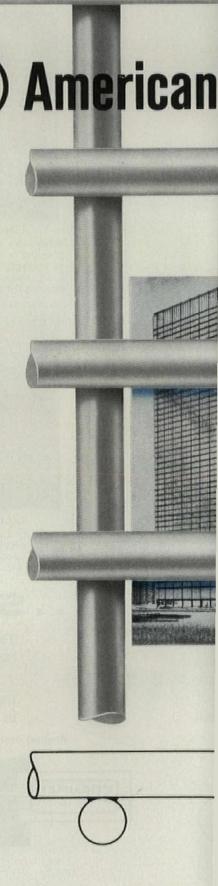
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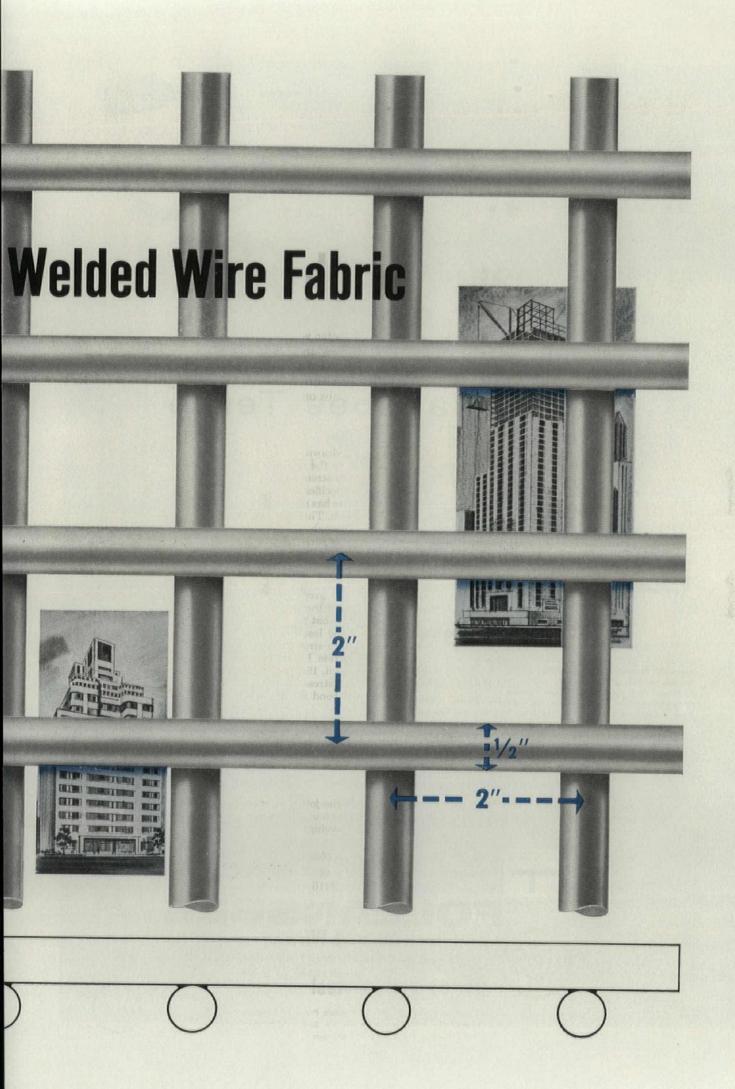
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versatility

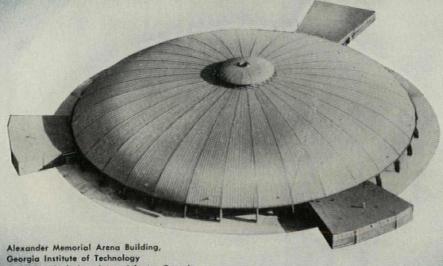
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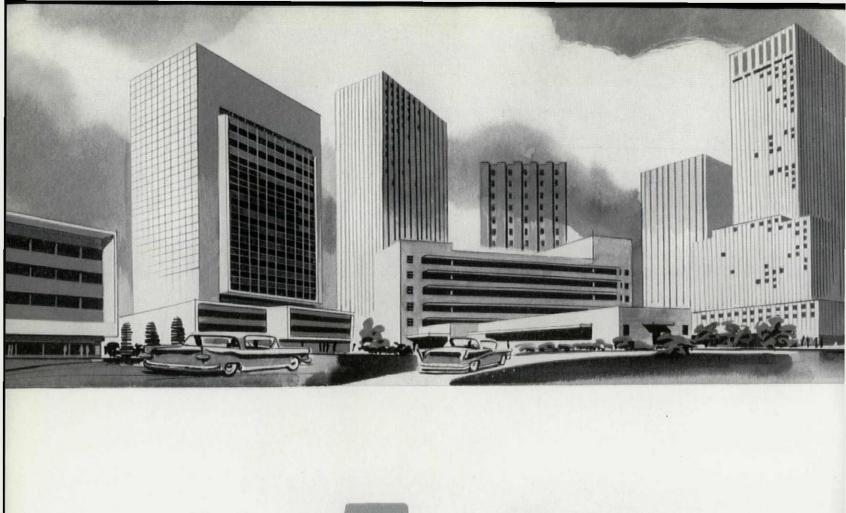
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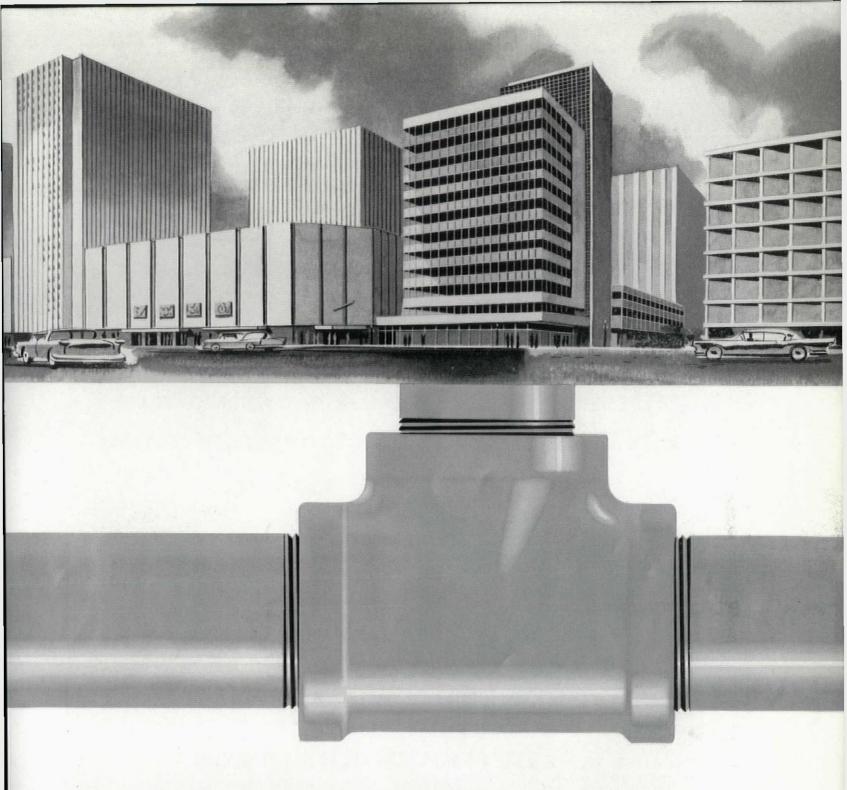
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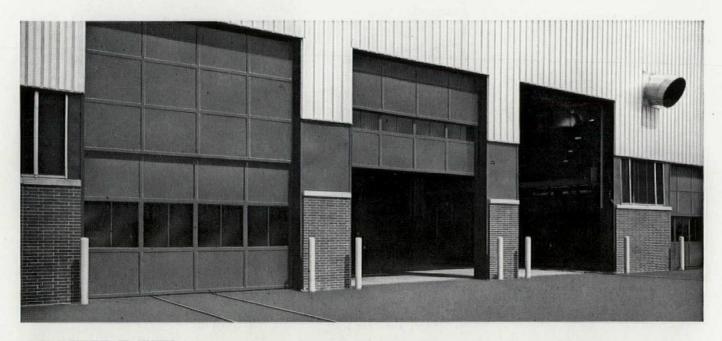
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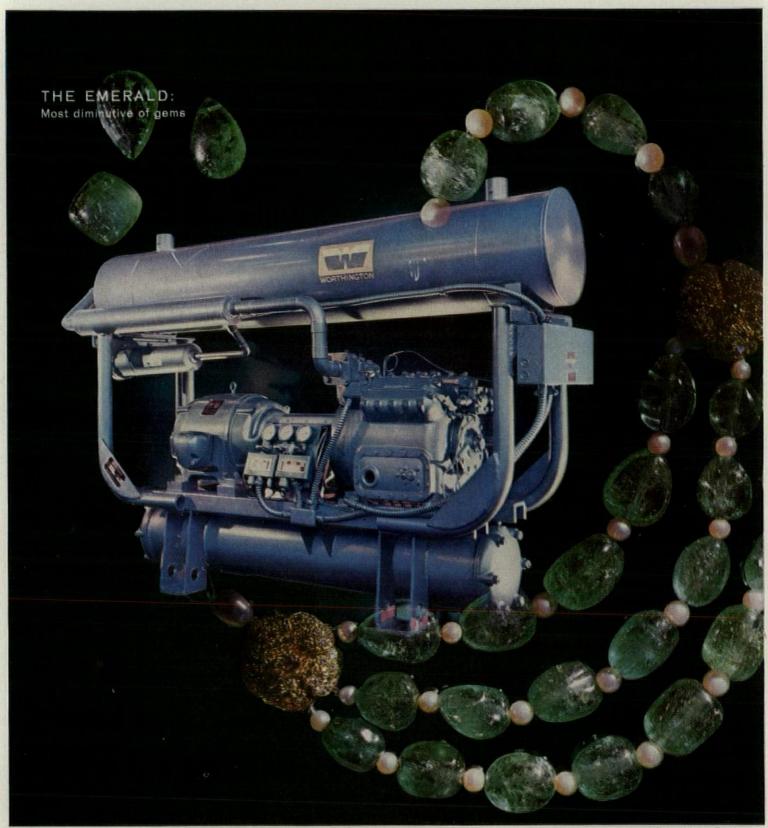
Architectural services. Since Armstrong makes all types of resilient floors, Armstrong Architectural-Builder Consultants can recommend without bias the one type of floor perfectly suited to each interior. They can also provide you with the services of the Armstrong Research Center, the Bureau of Interior Decoration, and special advice from the Armstrong Installation Technologists. Contact the Architectural-Builder Consultant at your Armstrong District Office. Or write to Armstrong Cork Company, 1612 Rooney St., Lancaster, Pennsylvania.

Armstrong Floors price list

Approximate installed prices per sq. ft.

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15¢ - 25¢ Linoleum Tile .0625″	30¢ - 45¢ Linoleum Tile .090″	50¢ - 65¢ Excelon Tile 1/6"
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80¢ - 95¢ "Futuresq" Vinyl Corlon .070" Cork Tile ¾6" Rubber Tile ¼6" "Tessera" Vinyl Corlon .090" Linotile ½" Custom Corlon Tile ¾2"	\$1.00 and over "Imperial" Custom Corlon Tile 32" Custom Corlon Tile 36" Cork Tile 516"	\$1.00 and over Rubber Tile ¾6" Custom Vinyl Cork Tile ½" Opalesq Vinyl Tile ½"



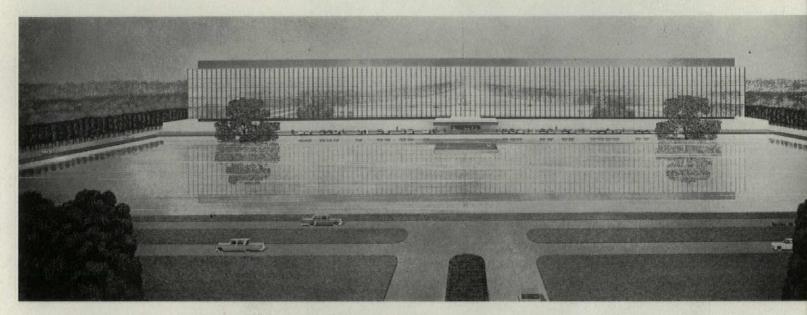
"Emeralds by Cartier"

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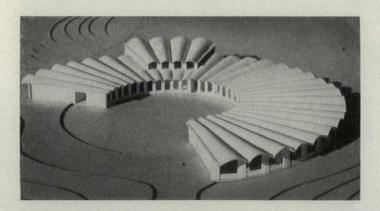
A roundup of recent and significant proposals



BELL LABORATORIES' \$20 MILLION RESEARCH CENTER IN NEW JERSEY

The long-awaited design by Eero Saarinen & Associates for Bell Telephone Laboratories in Holmdel, N. J. (above) is one long six-story building, separated by three interior courts. Though the exact type of curtain wall has not been decided, probably it will be glass and aluminum in a color. Western Electric Co. will build (and own) the new laboratories for

Bell on a 430-acre site. So many employees will use it—ultimately 4,500—that the design includes large parking areas and private traffic circles leading to the highway.



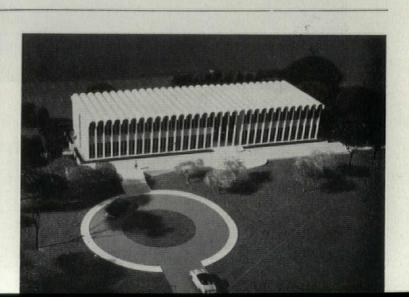
WISCONSIN SCHOOL IN THE ROUND

A school-board building committee in Wisconsin demanded a school of "individual character" from its architect, and the result (left) seems satisfactory indeed. Architect William P. Wenzler's design might be considered unusual by any school board, but it seems even more so as the replacement for a one-room school without plumbing or heating in a small community near German-

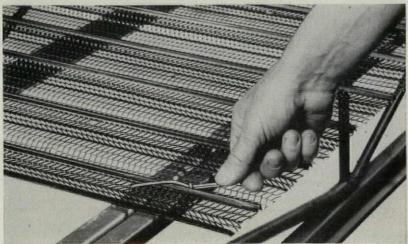
town, Wis. At present, the plan is to build Wenzler's school in four stages: the first (center segment), which will include three classrooms, toilets, office, storage room, and a partial basement, will cost about \$12.15 a square foot, but Wenzler expects later stages to cost less, about \$10 a square foot. Curved roof shells will be precast concrete, 12 feet wide at one end, narrowing to 5 feet.

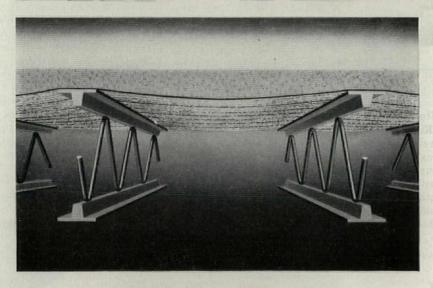
MICHIGAN DOCTORS' BUILDING

When Michigan State Medical Society officials assembled recently in annual meeting, their first order of business was to lay the cornerstone of their headquarters (right) in East Lansing. Minoru Yamasaki's building, intended as a service and information center, was called "a beautiful symbol" of professional service. Its two stories will be roofed by precast concrete vaults.









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BANK WITH A LAKESIDE VIEW IN OAKLAND

Ensconced behind a glass wall partially shielded by concreteblock sun screens, executives of the Central Valley Bank in Oakland (above) will have almost as good a view as the customers. The main banking floor, glass-enclosed from floor to ceiling, will face a small landscaped plot overlooking Lake Merritt. Expected to cost \$1.5 million, the bank will open its doors next year across the street from Kaiser Center. Architects: Welton Becket & Associates, San Francisco.

DRIVE-IN BANK, SUNSHADED OFFICES IN MIAMI

Weed Johnson Associates of Miami designed the seven-story office building below, a square office block over a squat twostory base containing a bank. Carborne bank customers may converge on the bank from any side, draw up at tellers' windows, or park on a higher level and enter the bank's second floor. The office block's concrete wall panels, which overhang the floor below, serve as sunshades. Cost: \$1.3 million.





HEALTH CENTER IN MARYLAND

A cafeteria tucked beneath a sawtooth roof will link two office buildings planned for the National Institutes of Health in Bethesda, Md. (left). Besides putting the cafeteria in an accessible spot, the architects made its shape a contrast to the more sedate look of the office structures. The three units will be built by the General Services Administration from designs by Keyes, Lethbridge & Condon and Richard Collins & Associates.

KANSAS CITY DOCTORS' AND DENTISTS' OFFICES

Though it is true that most visits to doctors' and dentists' offices are hardly joyful occasions, these medical offices in Kansas City (right) manage a cheerful appearance with the help of a boldly patterned façade and a small reflecting pool which continues right into

the lobby. Architects Geis-Hunter-Ramos of Kansas City chose precast concrete in large hexagons for the exterior sun screen on the two upper floors. The start of construction is scheduled next month, and completion next September. Cost: \$240,000 for 13,000 square feet.

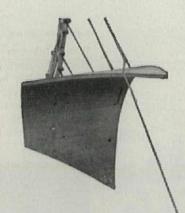


A TRUCKING FIRM'S OFFICES-ALSO IN KANSAS CITY

For its \$750,000 headquarters in Kansas City, Mo., the Yellow Transit Freight Lines, a trucking firm, is erecting a two-story office building with three onestory wings, one for each of its operating divisions. Between these small wings at the rear, there will be landscaped patios,

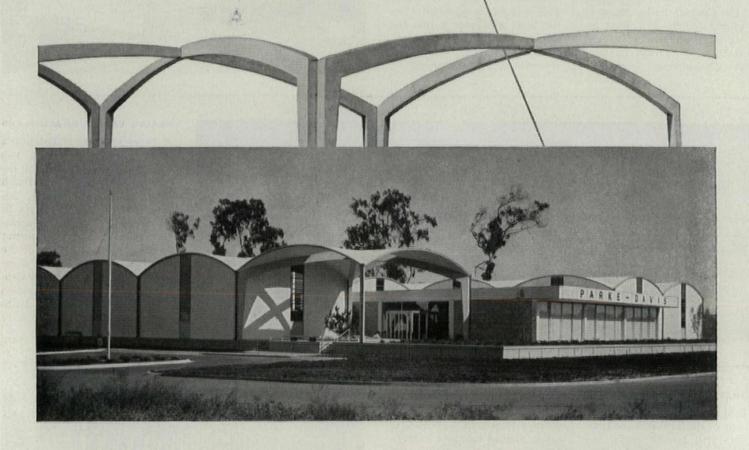
the one closest to executives' offices enhanced by a reflecting pool. The façade of the office building will be equipped with vertical sun louvers mechanically controlled and, at the rear, tinted glass. Architects: Evans Folger and Arthur Pearson of Kansas City.





Parke-Davis building at Menlo Park...

jaunty "showcase" assembled from just 3 basic shapes in precast concrete



Beauty is good public relations, agreed officials of Parke, Davis & Company in planning this combination office and warehouse in a restricted industrial area in Menlo Park, Calif. To achieve this beauty, and fill practical needs as well, concrete was chosen for the whole job.

Shell-roof sections, L-shaped bents and wall panels were all precast, quickly and easily assembled on the job site. The results: a graceful, pleasing silhouette; the wide-open, fire-resistant interior specified; and a clean, modern look that suits a maker of pharmaceutical products.

Architects: Minoru Yamasaki & Assoc., Birmingham, Mich. Associate Architects: Knorr-Elliot Assoc., San Francisco, Calif. Structural Engineers: Amman & Whitney, New York City. General Contractor: Williams & Burrows, Inc., Belmont, California.

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HOTEL-MOTEL-OFFICE BUILDING IN DOWNTOWN NORFOLK, VA.

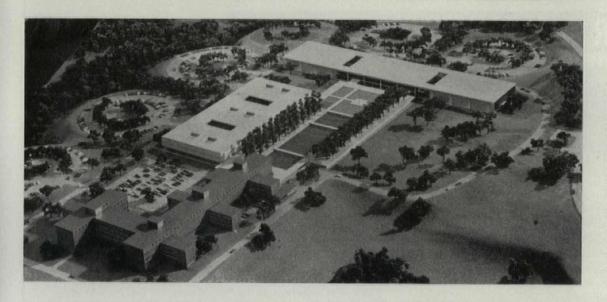
Stratified like a layer cake, a 13-story hotel-motel-office building (right) is rising on a redevelopment site purchased by Herbert Glassman of Washington, D. C., from the Norfolk (Va.) Redevelopment and Housing Authority. The bottom layer will consist of three floors of shops, and dining rooms of several sizes; the middle layer, a three-story office section; and topping it off, a seven-story hotel with 217 rooms. Two motel wings will

stream out behind, a swimming pool sandwiched between them. Elsewhere on the 5.2-acre site there will be gardens and parking spaces for 400 cars. Robert A. Futterman, a New York City syndicator, is joining with Glassman in developing the multipurpose building, expected to cost \$5.5 million and to be ready for occupancy next August. Architects: Anthony F. Musolino & Associate; Morris Lapidus, Kornblath, Harle & Liebman.



MISSOURI CHEMICAL CENTER

By 1961 Monsanto Chemical Co. hopes to have completed work on a large new research center (left) in Creve Coeur, St. Louis County, adjacent to the general offices already there. Thus Monsanto plans to bring its research people into close proximity to its administrative headquarters. Altogether there will be six new buildings, all concrete, to cost over \$10 million. Architects: Holabird & Root; W. Cleneay and E. Walls of Monsanto.



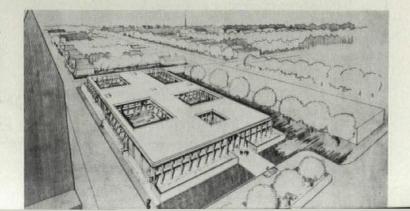
PITTSBURGH RESEARCH CENTER

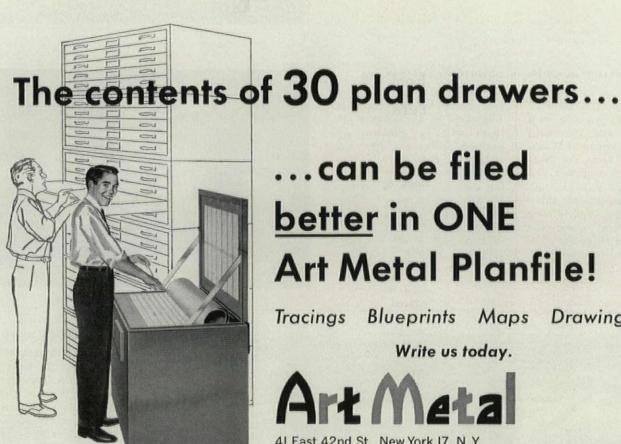
Westinghouse Electric Corp. recently announced a largescale expansion at the 100-acre site of the company's research laboratories at Churchill Borough near Pittsburgh. The two additional buildings (shown in light tones, left) will add 712,-000 square feet of floor space and house 450 individual laboratories and 35 general service functions on the site. Charged with designing "an environment conducive to creative scientific work," Skidmore, Owings & Merrill grouped old and new buildings around a central court and pool, like a university quadrangle.

UNIVERSITY PSYCHIATRIC HOSPITAL IN ST. LOUIS

With a \$500,000 gift from David P. Wohl and a matching grant from Missouri Hill-Burton funds, the Saint Louis University School of Medicine will build this psychiatric hospital next year. Guided by the medical school's wish to avoid an institutional look, Archi-

tects Hellmuth, Obata & Kassabaum designed three residential wings (20 patients each) which could be supervised by nurses stationed where the wings join. Each wing's living room, two stories high, would look out on a landscaped interior court.





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SCHOKBETON PRECAST CONCRETE comes to U.S. from Holland

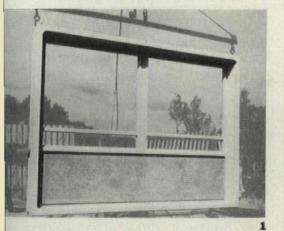
Schokbeton, a patented technique for precasting strong, dense, highly finished concrete in a variety of shapes, has been widely used in Europe and Puerto Rico for structural members, wall and roof panels, grilles, and window frames (see photos left and below). Now it will be produced in the U.S. for the first time. Although the technique is well known to some U.S. architects who have worked with it abroad, such as Skidmore, Owings & Merrill, whose structural system for the Banque Lambert in Brussels is to be Schokbeton (FORUM, May '59), most of them are acquainted with it only through hearsay or perhaps a look at one of the Schokbeton factories in Europe. Through a licensing agreement with N. V. Schokbeton's U.S. representative, the Structural Concrete Products Corp., Schokbeton will be produced in the New York area by the Eastern Schokcrete Corp., in its manufacturing facilities in Bound Brook, N. J. Other licensing agreements, not yet concluded, will extend production to Chicago, Detroit, and New Orleans.

Since its introduction in Holland some 25 years ago, Schokbeton has been widely used in Holland, Belgium, Germany, and the Scandinavian countries, particularly in postwar building. Curiously enough, Schokbeton units were cast in Holland and shipped across the Atlantic for some of the structures at Thule Air Base in Greenland. A factory in Puerto Rico has been turning out Schokbeton elements for three years, but Eastern Schokcrete has

the first license granted for production in the continental U.S.

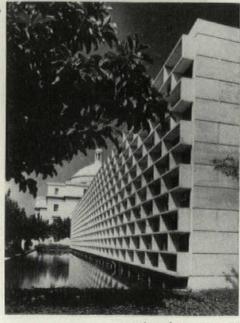
Quite literally, Schokbeton is shocked concrete, a process, its makers say, which enables them to produce extremely accurate, slim sections. The patented shock operation is a variation of the vibrating method of concrete making. In the Schokbeton process, a zero slump mix is used, with just enough water to complete the chemical action with cement. A "shock table" raises and then drops the mixture onto an anvil, where it lands with an impact. This continuous rise and fall, impact after impact, is vertical, rather than horizontal, and it takes place at low frequency, roughly 250 cadences per minute. An important part of the process is a specially designed mixer, which distributes coarse and fine aggregates evenly throughout the mix. When the concrete has been shocked sufficiently to be ready for the next step, molds are placed on a shock table which vibrates vertically as the molds are filled, thus shocking each piece of aggregate into place. As continuous shocking consolidates the mass, air is expelled upward, while the heavier pieces are compacted downward and locked tightly together. The shocking process forces the concrete mixture to fit tightly in the mold and around the reinforcing bars, so that all voids are filled. It is the shocking process which permits a high degree of accuracy in the finished element. To achieve color, different aggregates are used, but dyes are never added to the mix.

Manufacturer: Eastern Schokcrete Corp., 276 Fifth Ave., New York 1.









continued on page 60

Three examples of Schokbeton concrete in use: (1) an exterior wall panel being handled in the production yard; (2) somewhat similar panels in place as the wall of a factory restaurant in Holland; (3) a bus shelter in Puerto Rico built from five bents, four pierced wall panels, and five roof panels; and (4) a hanging sun screen for the façade of the Commonwealth Capital Building in Puerto Rico.

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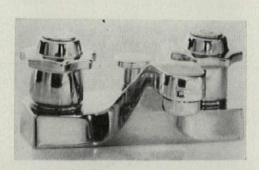
WASHINGTON, PENNSYLVANIA

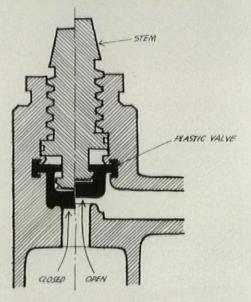


Washington Steel Corporation
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Please send me Bulletin 259, Architectural File 15-H-1, "ARCHITECTURAL STAINLESS ENGINEERING DATA."

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DRIPLESS FAUCET eliminates washer and saves water

American-Standard's Aquaseal, a valve which makes dripping faucets passé, works on the diaphragm principle, eliminating the usual seat washer. When the faucet handle is turned, it releases the tension so that water pressure easily forces the valve open (see drawing). A stainless-steel insert acts as a bearing plate against which the stem operates. Made of plastic, Aquaseal moves up and down only, never around, eliminating friction. Because it works without friction (or a washer), the new valve promises to last through 20 to 30 years' service.

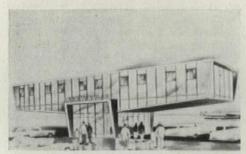
American-Standard is using Aquaseal on its new Heritage line of fixtures (see photo), and adding it to other premium lines.

Manufacturer: American Radiator & Standard Sanitary Corp., 40 W. 40th St., New York 18.

AIRPORT "PULLMAN" UNITS occupy small space in parking lots

The Pullman-car-without-wheels look of the small structure on the facing page indicates its use: a comfortable, private place for travelers to wait between planes. Built close to the terminal—in a parking lot, for instance, where space is at a premium—Airwayte's base takes up only 16 by 19 feet, roughly the space of two parked cars. The upper part is 75 feet long, 20 feet wide, 21 feet high, and 9

feet above ground, high enough so that cars can be parked underneath the wings. The first two Airwayte units will be built at Washington National Airport early next year, and negotiations are under way for installations in other cities.



Topside, there are 18 small compartments (7½ by 6 feet) fitted out compactly with a built-in bed and desk, telephone, shower, toilet, and air-conditioning control. Each compartment will rent for \$3 for the first four hours and 50 cents for each additional hour. The narrow base contains a stairway and a lobby, where a porter is on duty to register guests, assign rooms, and collect rent. The exterior is porcelain enamel curtain wall manufactured by the American Bridge Division of U.S. Steel.

At Washington National Airport, the Hotel Corporation of America will own and operate both units but will lease and equip those built at other airports. Airwayte was designed by Louis K. Shostak, president of Airwayte International. Each unit costs \$100,000 to \$125,000, depending on ground preparation.

Manufacturer: Airwayte International, Inc., 1305 Polk St., San Francisco 4.

JUNIOR TREE CRUSHER clears land for \$3.50 an acre

A pint-sized version of the enormous 150ton LeTourneau tree crushers developed to chew up jungles in Africa and South America, the new *Model G-40*, designed for use in the U.S., weighs less than one

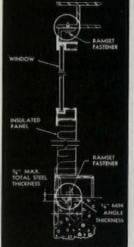


third as much. Tried out in tests against unproductive scrub forests in North Carolina, the small model cleared an acre every 17 to 21 minutes in rough terrain (slopes and cut-over areas with heavy hardwood stands) and did even better in Mississippi, where the test area was less rugged. LeTourneau estimates that the continued on page 62

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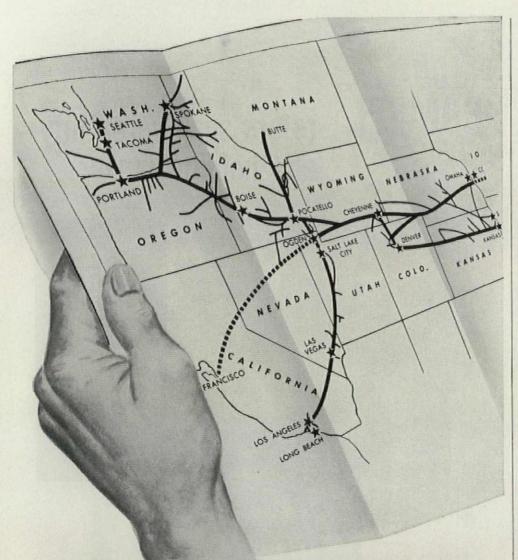
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operating cost is \$3.50 per acre cleared.

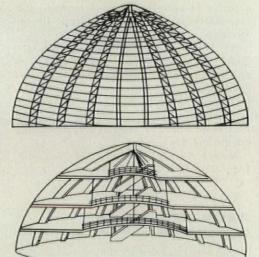
Operated by one man and powered by a Diesel engine and electric motors, the tree crusher knocks down and chops up small trees in one operation, then compresses the splinters into a mat for burning. It is compact enough to be shipped completely assembled except for the pushbeam bumper. Its over-all dimensions are: height 12 feet, length 37 feet, with two rollers 12 feet wide and 5 feet in diameter. Cost: \$75,000.

Manufacturer: R. G. LeTourneau, Inc. 2399 South MacArthur, Longview, Tex.

STOCK STEEL DOMES go up fast, enclose large areas

A New England steel products manufacturer is marketing stock steel domes supported by a truss (drawing, below) or a girder (bottom) spanning 200 feet or more; horizontal members are lightweight beams.

In large sizes, their columnfree interiors make them suitable for such uses



as skating rinks, auditoriums, and warehouses. The basic price is about \$6 a square foot for the steelwork and shell, but this does not include the foundation or floor slab. Both basic models may be covered with corrugated aluminum or galvanized steel and bolted or welded together.

Manufacturer: Shlagro Steel Products Corp., Somerville 43, Mass.

PLASTIC-AND-PLYWOOD SANDWICH makes paneling only 5/16 inch thick

A melamine called Panelyte and ¼-inch plywood are factory-bonded to produce Panel-Gems, thin sandwich wall panels. The bonding process was worked out by the melamine supplier, St. Regis Paper Co., and the small plywood company which manufactures the panels. Shallow V-shaped grooves running at random intervals from top to bottom of each panel are the key to its thinness; they allow the plastic layer to expand without

buckling the panel. Besides acting as expansion joints, the grooves hide the special conical nails, prepainted to match, which attach Panel-Gems to walls.

According to their manufacturer, Panel-Gems possess the desirable qualities of hard plastic—heat-, water-, and wear-resistance—and add to them easy installation and low cost (about \$1.20 per square foot installed). Offered in a choice of seven wood grains, Panel-Gems are manufactured in panels 4 by 8 feet.

Manufacturer: Industrial Plywood Co., Inc., 105-15 180th St., Jamaica, N. Y.

LOW-COST ALUMINUM SHEET replaces Alcoa's previous alloys

Alclad, a high corrosion-resistant aluminum alloy bonded to a structurally stronger base, is replacing Alcoa's other sheet alloys in its line of building products. Designed to compete with galvanized steel in many building applications and in price, the new Alcoa Building Sheet may be used for curtain-wall panels, industrial roofing, acoustical ceiling panels, louvers, interior partitions, and heating and airconditioning ducts.

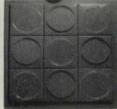
The new sheet, marketed in coils or flat sheets, may be ordered in mill finish, in thicknesses from 0.08 to 0.01 and widths from 6 to 48 inches. Prices run from 34 cents to 40 cents per pound in 100,000-pound base price lots. A bare sheet (without Alclad) is also available.

Manufacturer: Aluminum Company of America, 1501 Alcoa Bldg., Pittsburgh 19.

SCULPTURED CERAMIC TILES offered in two designs, 40 colors

Peter Quay Yang, a New York City industrial designer, has developed a new series of sculptured ceramic tiles for the Robertson Manufacturing Co., thus joining the ranks of artists and designers commissioned by tile companies, such as George Nelson for Pomona and Max Spivak for Cambridge Tile. The first two in a projected group of six are shown below: "Sand Dune" (left) and "Half Moon"





(right). Yang says that his designs, when combined with plain tiles, offer the architect many possibilities in textured wall patterns. Both designs are available in two finishes, bright and semi-matte, in a choice of 40 colors, but in only one size: 4 by 4 inches.

Manufacturer: Robertson Manufacturing Co., Box 848, Trenton 5, N. J.

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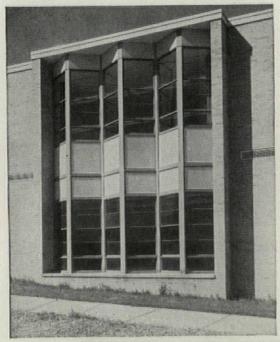
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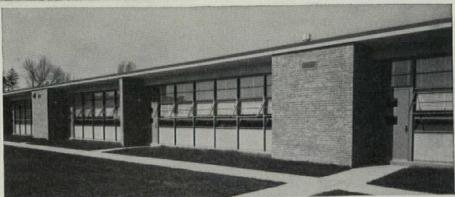




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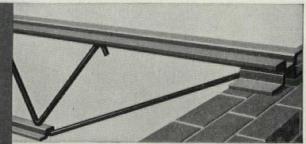
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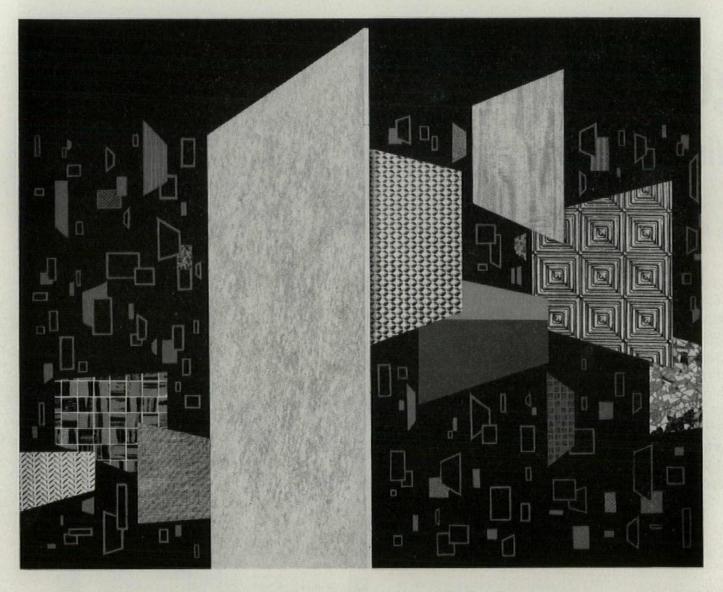
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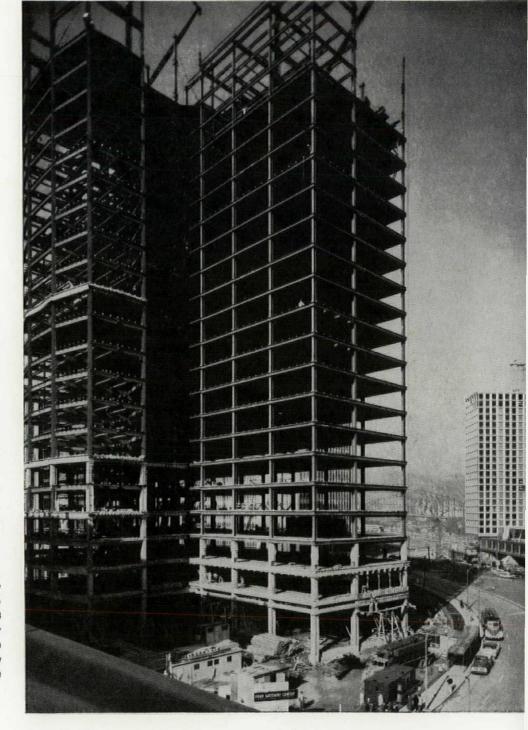
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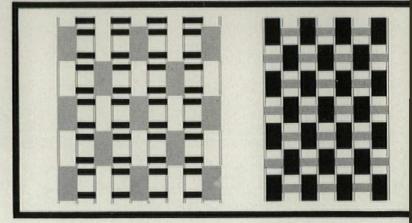
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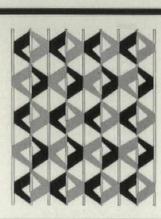
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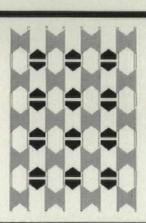
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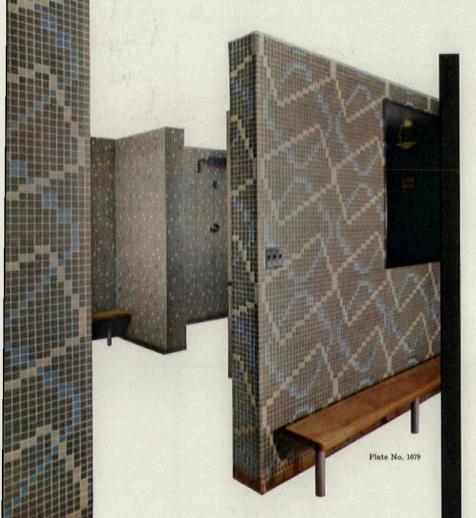


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GREENFIELD HIGH SCHOOL

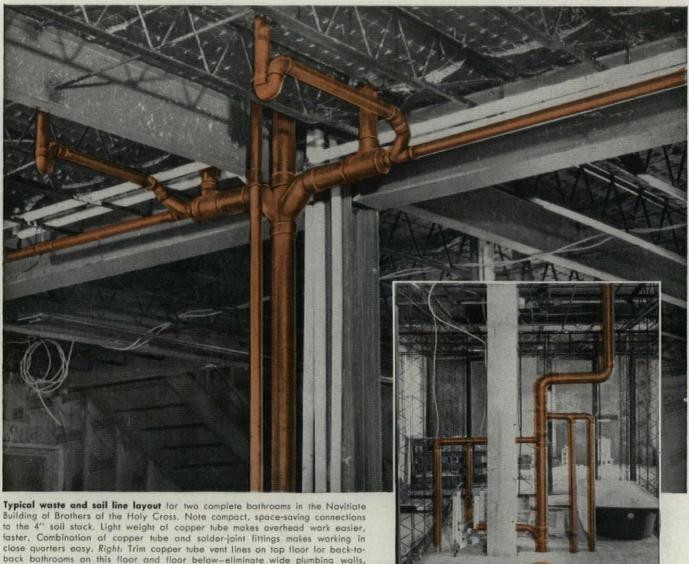
Architect: JAMES A. BRITTON, AIA

Tile Contractor:
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installed. All of these advantages add up to substantial

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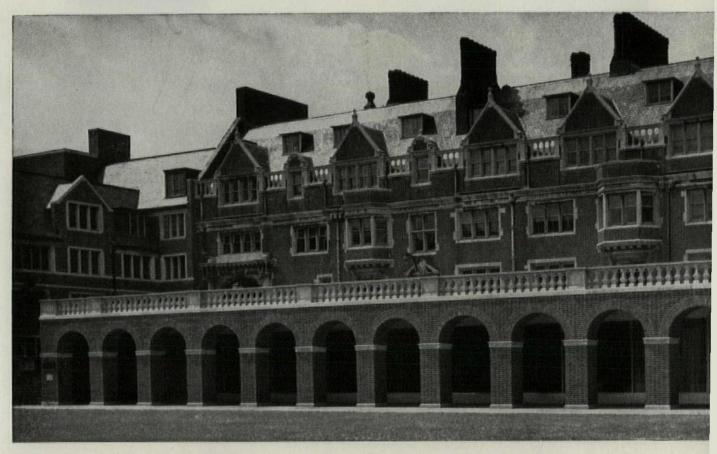
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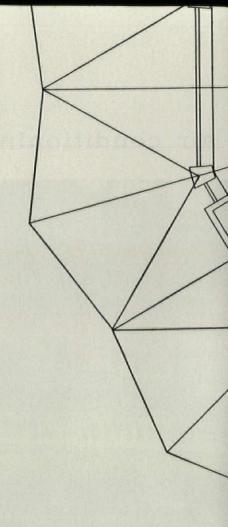
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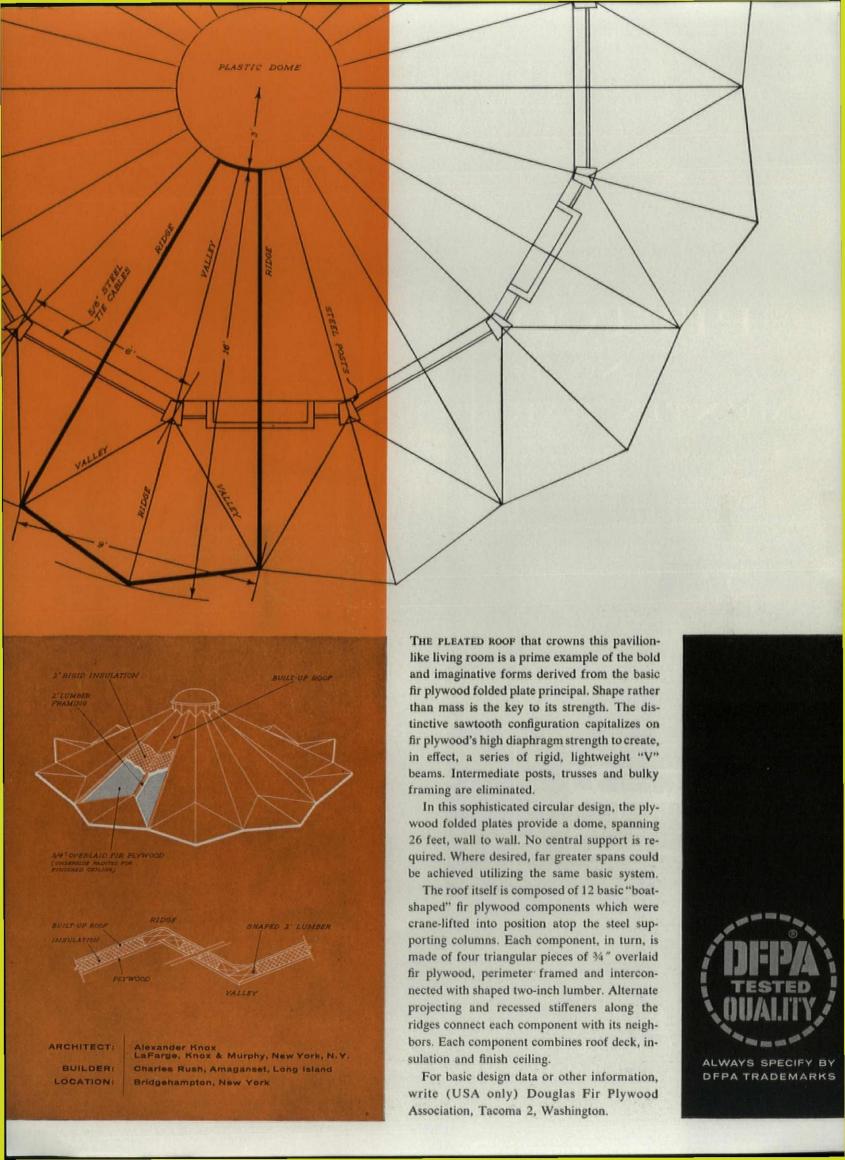
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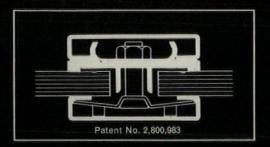




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Architecture by Congressmen

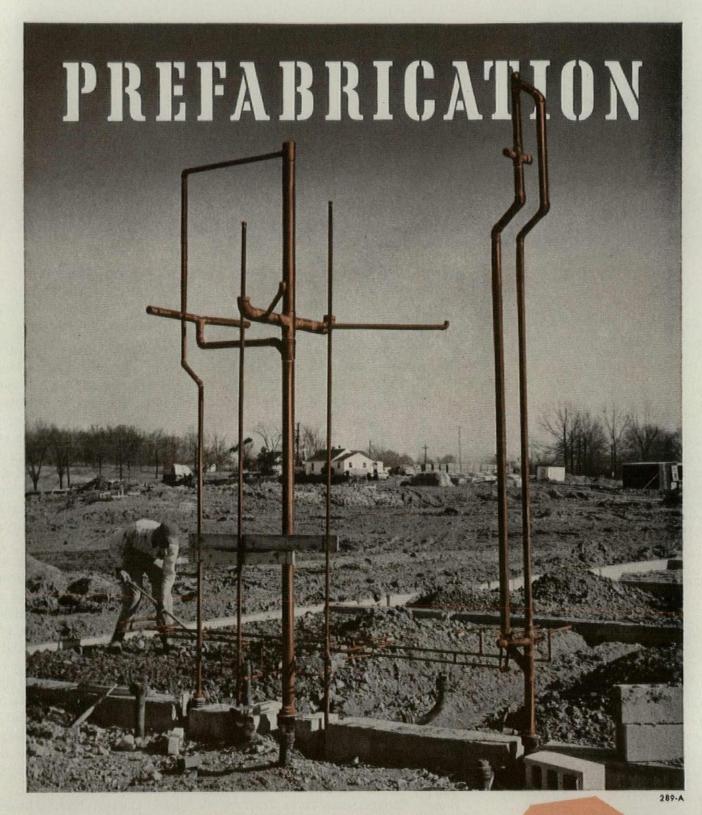
Who should decide on architects and architecture when a democracy builds? In the case of the federal government, Congressman Wayne L. Hays, Democrat from Ohio, thinks that Congress should. Congressman Hays is a tough, independent, outspoken man who does not intend to be taken in by anybody, including architects. He thinks that the State Department, in its foreign buildings program, guided by a committee of eminent architects, has been taken. If his proposed amendments to the Foreign Service Buildings Act of 1926 were to pass, then control over State's foreign building would shift from State to his subcommittee. No architect could be appointed, no building plan approved, without Hays and his colleagues first reviewing and passing it. Behind the scenes this sort of thing is happening already (FORUM, Oct. '59).

History often picks its themes out of old dramas, and Hays is the kind of hero who turns up in early American plays like *The American Farmer*. Innocent, practical, unspoiled, the hero of the people can smell fraud and pretense a mile away, and he upsets the schemes of highfalutin slickers with no weapons other than native wit and shrewdness. Hays is a good representative small-town American who has been a history teacher and is, by avocation, at least, a practising farmer. In politics he has advanced on merit. He thinks that members of the architectural profession can no more be trusted to give a full honest criticism of one another's work than doctors can; and as for leadership: "Do you think as a matter of taste that an architect knows more than you or I do?" He has talked with good honest men like himself abroad and has found them bothered by some of the new U.S. buildings in their midst just as he is. All in all, Hays thinks it is time for men of good sense, such as his committee, to take over.

Honest Congressman Hays deserves an honest answer. FORUM believes that the success of State's foreign buildings program has been not only good but amazing, and that the chief reason has been its outstanding advisory committee of leading architects.

Mr. Hays and his friends may be difficult to convince. It may be no help to report that qualified architectural critics, and the editors of outstanding architectural periodicals all through Europe, have been widely favorable to the State program and, more than that, enthusiastic. They have urged that the procedures of the U.S. be promptly studied and emulated by their own governments. Mr. Hays probably regards this as unimportant. He appears to think that the people who have to be impressed

continued on page 85



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are the great masses of architecturally uneducated people whose taste, he believes, is as good as anybody's.

A second difficulty is that the success of State's program has not been unfailing. At least the London Embassy that Mr. Hays singles out for dispraise has not been vigorously defended by all independent critics: it has resembled one of those rocketshoots which somehow fail to reach altitude and to get in orbit, despite high hopes and long, painstaking preparation. And some of the other buildings have been less than perfect, though the Oslo Embassy by the same architect as London's has been reported as highly popular (see pages 129 and 130).

As a history teacher perhaps Mr. Hays will concede that such lapses just do happen. Even in that wonderful historical building program which some people regard as the world's greatest—the French cathedral-building program of the Middle Ages-results were uneven, and the biggest and boldest venture of all fell literally on the ground. Only a fragment stands today. Its name is Beauvais. The crucial question is of course not who could be convinced of what, but whether Congressmen led by Hays could have done any better than State did.

Taste needs training

The fatal flaw in Mr. Hays's position lies in the fond belief-held by himself and millions of Americansthat in matters of taste one good Democrat's opinions are as good as any other's, and perhaps a whole lot better. This ignores the value of special knowledge and skill, long study, and loving application which, even in art, still have their uses. Art is not a simple joy ride-either in execution or in appreciation. In art as in life, even love requires cultivation. Perhaps Mr. Hays will accept this truth from a writer democratic and popular enough to be a prolonged best seller, Harry Golden. Golden says: "I think love

of music is acquired like anything else. Training, training—as Joseph Pulitzer kept saying about good reporters. Listening, listening—to learn to appreciate and love good music." If training is required to generate love for music, how much more true is this of architecture!

Two part-truths mislead honest people about the connection between taste and knowledge.

One part-truth is that art truly appeals only to deep inward personal feelings, and therefore the individual, whatever may be the state of his ignorance, must ever stand up for what he does like and must never personally endorse what he does not really like. This is true for him individually, since otherwise his development cannot be honest. Things stand differently when the man acts in public, for his tastes are not valuable to anybody else short of his having cultivation. The ignorant derogations that were aired about Architect John Johansen's brilliant Dublin Embassy project by some members of the Congressional Committee during hearings escaped total disgrace in the minds of qualified people only because two of these Congressmen admitted frankly that in matters of architecture they were not qualified. (And low personal attacks were made on State's Consultant Eero Saarinen just when the Metropolitan Museum, a pretty good authority, was displaying his works as one of the world's top living architects.) The majority can be

The other part-truth is that buildings by government should meet the taste of the majority. It is a nice result when this does happen, as in the new embassy at Dehli. But the general public, left leaderless, ever rejects excellence when it is unfamiliar. Ignorance is afraid of strangeness. Thus Rembrandt and Van Gogh and Le Corbusier and Frank Lloyd Wright were popularly rejected at their first appearance. But to deny excellence its chance

just because it is strange is to deny to the public the very values that later on mankind lives by.

State's wonderful record thus far rests on the fact that its eminent architectural advisory committees, led by a qualified expert from State itself on matters of need and program, have been giving excellence its chance by commissioning fine architects, preferring to risk in excellence an occasional dispute or failure rather than to stay safely with mediocrity on the assumption that democracy is intrinsically clodlike. (The statement that the committees truckled to cliques is a canard, baseless in fact and not worthy of further discussion.)

An acceptable policy

Once upon a time opinions in science were aired with the same fine free abandon that opinions in art still are, and Galileo was forced to recant because his propositions were unfamiliar and therefore ridiculous. Since then democracies have learned better, although control over scientists by unknowledgeable people still imperils the nation. Where this nation fails others are more than ready to take over.

Americans want the best scientific help set up by the best scientific judges, apart from uninformed popular opinions about scientific details. So too Americans probably would love to be led by the best architectural judges into the best public architecture, regardless of uninformed popular taste in architectural details. State has been supplying this leadership. In any event Congress, though it has the right to control costs, should not meddle in State's cultural missions. In the Senate, the apposite committee headed by knowledgeable Senator J. William Fulbright, in reporting out Senate Bill S2633, has commended State's submitted future plans as "excellent," and plumped for the full appropriation. May a wise House join a wise Senate.

The Guggenheim: museum or monument?

BY PETER BLAKE

The climax of Frank Lloyd Wright's lifelong search for organic form and space is a challenge to accepted museum techniques and to accepted standards in architecture

"The critic is no respecter of an original source of information," Frank Lloyd Wright said some years ago. In all the excited comment that has attended the opening of the Guggenheim Museum, "the original source of information"—which is Wright's work over more than 60 years—has been largely ignored as an aid to understanding the building.

The Guggenheim building is, by this time, reasonably familiar to most people, both in New York and elsewhere. Although much of the impact of its



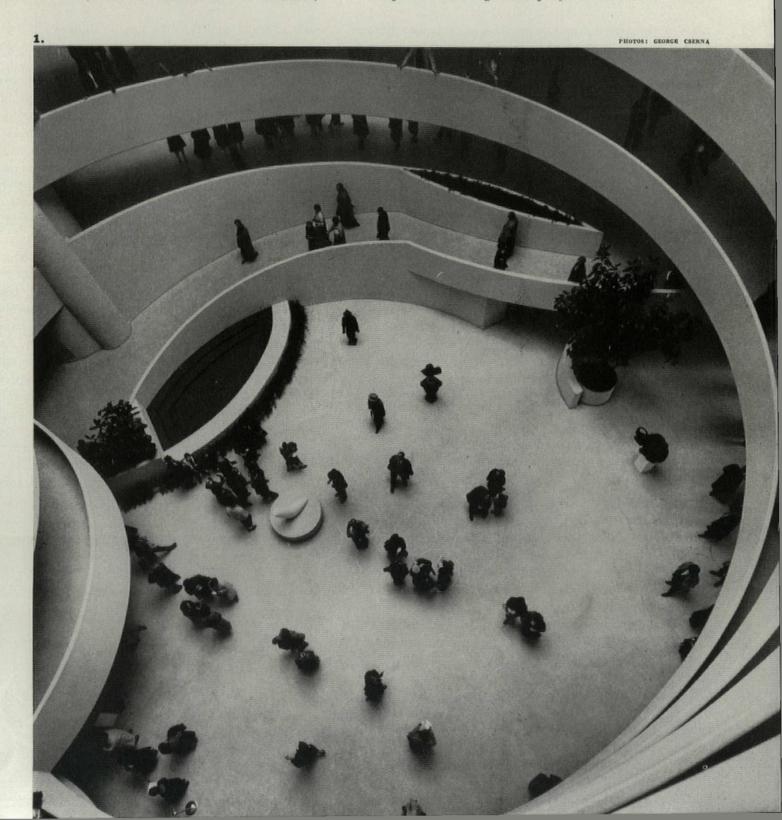
astonishing spaces cannot be captured by the camera, enough has been published to give everybody a rough idea of what the structure is like (1).

It is, of course, an extremely complex structure. "They'll still try and figure this one out 100 years from now," Wright used to say, grinning wickedly. Any attempt to evaluate the building is bound to be complex also, for such an evaluation should try and answer these questions: first, what sort of structure and what sort of space was Wright trying to create? Second, does this sort of structure and this sort of space make for a good museum—and what is a good museum, anyway? And, third—intent and function aside—is the Guggenheim Museum a beautiful piece of architecture?

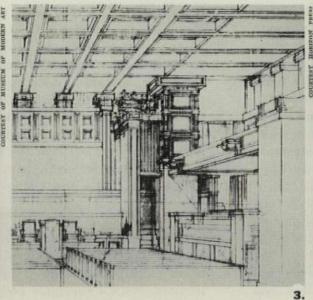
Wright operated on an architectural level reserved for very few men in each generation. On this level —the level of pure art—architects like Phidias, Brunelleschi, Michelangelo, and Wren produced forms and spaces that have become significant parts of our cultural heritage. In all likelihood, these forms and spaces were judged, initially, according to whether or not they were practical; but over the centuries the work of such men has become important to us because it possessed less tangible qualities that seemed more significant in the long run. Any critical evaluation of the Guggenheim Museum must therefore deal both with its immediate, practical aspects and with its long-term implications.

What sort of structure and what sort of space?

The most remarkable fact about the Guggenheim Museum is that it represents, literally, the summing up of almost everything Wright tried to do in his lifetime. Within the huge body of his work—both completed buildings and projects—the museum re-









veals a consistency and singleness of purpose that should be an important lesson to many younger architects who have been bouncing around from "new concept" to "new concept" as fast as a bevy of jittery Ping-pong balls. What Wright tried to do over the years, in logical order and with utter dedication, was this: first, the creation of open rectangular structures that contained open spaces; next, the manipulation of space so that it began to move within structures-horizontally outward and inward, as well as up and down; then the development of fluid structures to complement fluid space fluid structures not unlike those found in sea shells; and finally, the complete marriage of fluid structure and fluid space. The Guggenheim Museum is the most important fruit of that marriage.

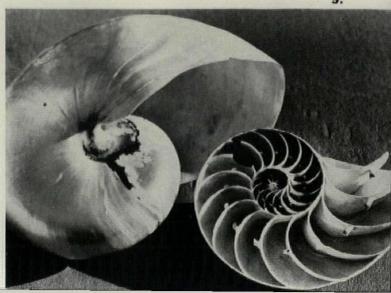
Wright's first attempt to break away from rectangular structure and to create a sort of fluid composition of interlocking planes was in that charming little windmill at Taliesin East, which he built in 1896 and which, for some mysterious reason, he insisted upon calling "Romeo and Juliet." The plan of that little structure is almost identical with the plan of the Guggenheim administration wing completed this year! Wright's first effort to manipulate space so that it would move up and down as well as sideways came in the Larkin Building (2) in Buffalo, 1904. "I think I first consciously began to try to beat the box in the Larkin Building," he wrote later. Like the Guggenheim Museum, the Larkin Building was lit, primarily, through a huge skylight above a central well; like the Guggenheim Museum, the Larkin Building had galleries at several levels, all open to the great, central space; and like the Guggenheim Museum, the Larkin Building had all vertical circulation in towers pushed out beyond the central space.

But the Larkin Building was still a rectangular structure—and so were some of the other buildings that belong into this astonishingly consistent chronology: the skylit Unity Church of 1906 (3), the open-to-the-sky Midway Gardens of 1914, the multilevel lobby of the Imperial Hotel, completed in 1922. All these shared a great, central idea: the idea that space could be made to break down floors as

well as walls, and that the flow of space—"the great reality of the building," as Wright called it—could take place in three and four dimensions.

The first completed structure that went beyond the Larkin concept was the S. C. Johnson office complex of 1936 (4). Here, in this curvilinear building, Wright permitted his fluid spaces to mold the enclosing structure. The result was a remarkable space, full of premonitions of the Guggenheim: a space lit, again, from above, and ringed at different levels by galleries which, in turn, followed the curvilinear pattern of the plan. The "module" of the building was the circle.

Still, Wright had felt for some years prior to the Johnson Wax Building that the only way truly to experience space in motion was to let people "glide" effortlessly through the spaces so conceived. The most effective way of conveying that experience, Wright felt, was to create curvilinear structures in three dimensions—i.e., to build spiral structures rather than flat circles. His theory was this: as people moved along the path of the spiral, the space around them would seem to revolve gently, and unfold in thousands of ever changing views and vistas. The spiral form—the sea-shell form (5)—became an obsession with him: in 1925, in the Gordon Strong Planetarium project, Wright turned



5.

the top of Sugar Loaf Mountain into a majestic spiral ramp, ascending to the planetarium proper. Years later, after World War II, he finally built his first spiral - the lovely Morris Store in San Francisco (6), whose elegant ramp plays the most amazing tricks upon any visitor used to the straightforward experience of boxy spaces. At about the same time Wright, still obsessed by the spiral device, designed a self-service garage for Pittsburgh which used the spiral effectively to solve an eminently practical problem. By this time the Guggenheim Museum project was well under way: from its inception, the building had been a spiral shape lit from above through a glass dome. Somehow Wright, one of the great salesmen in the history of architecture, had persuaded Solomon R. Guggenheim that the spiral (7) was just the thing for his museum.

It may be argued that the application of so obviously preconceived a form to just about any problem-planetarium, store, parking garage, or museum-is a complete denial of Sullivan's "Form follows function." Probably so. But Wright had denied that maxim almost from the start (and Sullivan himself had qualified it repeatedly). Wright always felt that an architectural form that grew out of some truth in nature would, more often than not, challenge preconceived notions of function, and force men to re-examine such notions in the light of a new architectural truth. That certainly became necessary in the Guggenheim Museum.

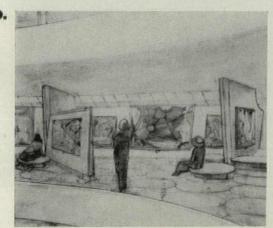
How good a museum?

The most extreme opposite in concept to Wright's museum is Mies van der Rohe's museum project designed for the ARCHITECTURAL FORUM in 1942 (8). Mies's project is, in some respects, the realization of every museum director's dream: it is a large, open space, practically without columns, and so utterly anonymous in character that Mies himself, in presenting it, simply composed a series of collages showing paintings and sculpture floating in a space that was barely defined by a few, nearinvisible lines. The paintings and the sculpture were King. Nothing in the architecture was permitted to impinge upon the experiencing of the works of art displayed. Moreover, since no one could possibly

predict what sort of art might, some day, be displayed in the museum, the installation was made infinitely flexible.

The Guggenheim Museum has little of this flexibility. Wright did prepare several sketches showing ways in which he thought the paintings could be displayed (9); but, if anything, these sketches emphasize the fact that the spiral-ramp museum did not allow very much flexibility of installation. Wright argued that the outward-slanting walls would make the paintings look as if they sat







10.

on easels—a rationalization that no experienced museum director could take very seriously. The fact is that it is extremely difficult to display paintings on the Guggenheim's spiral ramps: to start with, the viewer stands on an incline; next, the wall slopes away from him at another angle; then the principal source of light (as conceived by Wright) would tend to light the viewer rather than the painting; and, finally, because of the absence of all verticals and horizontals in the structure—and the





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prevalence of lines and planes slanting in all directions—no painting would ever look as if it had been hung straight.

In the face of so much adversity, the Guggenheim's director, James Johnson Sweeney, developed an installation scheme (10) that comes close to pure genius: he "floated" all paintings on single, steel arms that project about 4 feet out from the slanting walls; he balanced Wright's strong back-lighting with even stronger front-lighting; and he removed all frames from the canvases. The result is an extraordinarily airy and spacious installation in which the paintings seem totally removed from the powerful architecture that surrounds them, and are given a chance to speak clearly for themselves. display of sculpture has proved to be more difficult: Sweeney has placed most of it in the center of the great, circular well, where it is dwarfed by the space above. (In any event, Wright had meant the well to be a sitting area.) The small side gallery on the second level (11) might offer a solution as installation techniques are further perfected.

Loyal partisans of Wright are critical of Sweeney's installation for three reasons: first, because he painted the background walls white instead of leaving them cream-colored as Wright wanted them to be. (But paintings do not look well when seeming to float in lobster bisque.) Second, because

he lit the walls so brightly that the ramps and the people on them are thrown into silhouette (12). (But to divorce the paintings from the overwhelmingly powerful architecture, Sweeney had to suspend them between front- and back-lighting of almost equal intensity.) And, third, because several of Sweeney's installation techniques (e.g., the big lighting troughs along ceilings) tend to violate the integrity of Wright's forms and spaces. (This problem remains to be resolved—and Sweeney might well feel that it was not his job to resolve it.)

But despite the complaints of the loyalists, it is quite possible that Wright would have been delighted by many of Sweeney's improvisations. Although the two men did not subscribe to the same esthetic principles, they have tended to complement one an-



other: Sweeney's lighting made Wright's room look even more spacious than it would have looked otherwise; and Wright's architecture—though self-assertive in the extreme—gave Sweeney a museum that, as G. E. Kidder Smith put it recently, "glorifies art."

To glorify and dramatize art—that certainly has been one of the chief functions of a good museum ever since museums were first built. And, quite frequently, this important requirement has produced buildings that tend to overshadow the works of art displayed inside them. At times this has been a blessing; but at no time has a dramatic building ever succeeded in overshadowing a really great painting or work of sculpture. Some of today's painters and sculptors who have criticized the Guggenheim Museum as an attack upon their art may be simply (and justly) insecure about the power of their own work. The Miros and Kandinskys now on display in the Guggenheim Museum do not seem to be having the slightest trouble

Still, there is no denying that the Guggenheim Museum will be an everlasting challenge to its directors. But if all its future directors respond to the challenge as creatively as Sweeney has responded to it, the result may be a good deal more stimulating than the "easy" exhibitions made possible in any "ideal" museum.

How beautiful a building?

Although the external form of the Guggenheim cannot be divorced from its interior spaces, the two are, of course, read separately and can be judged separately.

Almost all of Wright's city buildings were, in a sense, attacks upon the city as it is. The Guggenheim is no exception: it is in deliberate conflict with its neighbors, and in deliberate conflict with the street on which it stands (13). At a time when we are becoming increasingly concerned with coherence in our townscape, this may justly be criticized. Paul Rudolph, the architect who heads Yale's School of Architecture, has recently talked about the difference between "background" and "foreground" buildings, and the need for both. Wright's building is, of course, a "foreground" buildingand correctly so. The trouble is that it does not, at present, have a decent background. But in the ever changing pattern of Manhattan building, Wright might have been justified to hope for a decent background in the near future. (Indeed, several neighboring buildings have been torn down since the Guggenheim was completed.) Ideally, of course, the museum should have been located in an open park; for any rounded structure needs to be seen in the round-and needs plenty of space to be so seen. And, perhaps, the building will be seen that way at some future time. In any event, if the Guggenheims had wanted a building that was polite to its Manhattan neighborhood, they should have gone to another architect. In every respect, the Guggenheim denies its surroundings: it does not look out at them, but is centered upon itself and open only to the sky.

Seen as an isolated form, the building has great force and beauty. But, oddly enough, it has practi-



12.

cally no scale. The great surprise that awaits a visitor coming into the museum for the first time is the breath-taking size of the circular space within. Nothing on the outside has prepared him to expect so huge an interior! It may be argued that Wright wanted to create precisely that dramatic effect, but his earlier work tends to deny that. Here, in the Guggenheim, there might have been a real place for Wright's exterior ornament to give pattern, texture, and scale to the great, sculptural forms. It is possible that the planting (ivy, etc.), when completed, will provide this texture and scale; but at present it is absent.

Inside the museum is a collection of two or three major spaces, all of them hugely successful. The great, circular, spiral-enclosed room is, quite simply, one of those spaces that no one will ever forget. It is a space of such grandeur that all the many, justifiable criticisms of the building as a museum seem to become insignificant by comparison.

It is impossible to describe the impact of this space; it must be experienced to be understood. It is sufficient to say that if Wright had built nothing



else, this space would assure him a special place in the history of architecture. But it is possible to isolate a few details that reveal Wright's genius. Landis Gores, the Connecticut architect, has pointed out that a lesser man would have made the spiral a continuous, uninterrupted corkscrew. Such a scheme would have been boring as well as confusing, for it would lack points of reference that would give a visitor a chance to orient himself. Wright, by reversing the flow of the ramp near the elevator stack (14), made the spiral infinitely more interesting and dramatic.

The dome above the great, central well (15) is less successful as executed than as originally designed. Wright's first details of the dome showed a division into circles very similar to that used at the Johnson Wax Building (16); the present dome is a little less elegant and its ribs (especially as lit up from inside the building) seem a little too thick. Wright's original design ran into cost problems, and the present dome represents a compromise.

A second space inside the museum is easily missed -and should not be. This is the circular, 277-seat auditorium in the basement (17). This intimate room is, quite possibly, the most delightful auditorium built anywhere in recent years. The circular (but not symmetrical) plan establishes a sense of intimacy between audience and stage that is lacking in most theaters and auditoriums today. Once the museum's program gets under way, this auditorium should become one of the finest public assets Manhattan can boast.

The third, important space inside the museum is the administration block, a circular building with a central well, a skylight, and galleries at every floor. Except for the fact that the galleries are level and there is no ramp, the administration block is a "baby-Guggenheim," and a pretty one at that.

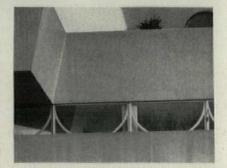
Eero Saarinen has said that one test of a fine piece of architecture is whether it is "all one thing." The Guggenheim theme is, of course, the circle; and this theme is ever present: it appears in the circular pattern of the terrazzo floor, in the windows of the office block, in the friezes, gates, and screens (18). There is hardly a false note in the detail supplied

by Wright (though later additions are, occasionally, out of character). There is, however, some unfortunately crude workmanship, especially where different planes and curves intersect. Wright might have been well-advised to take one small leaf from Le Corbusier's book, and to contrast deliberately brutal surfaces with smoothly finished details elsewhere. But this would have been asking too much.

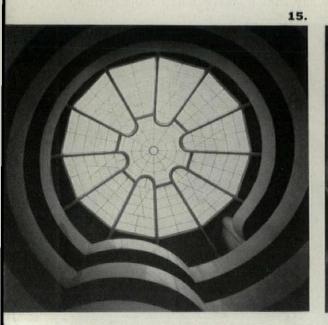
The Guggenheim Museum is the only permanent building in New York City to have been designed by Wright. It is an extraordinarily personal statement in the midst of a conformist city. It contains at least one of the most beautiful spaces created in this cen-







tury. It is a dramatic glorification of the paintings and sculpture housed within it. It is not the most practical building in the world-but neither, one suspects, is the Pantheon. It will be remembered and debated long after its more efficient contemporaries have been forgotten. It is, undoubtedly, the most valuable piece in the Guggenheim collection. And it will be a constant admonition to all those who see it-and especialy to architects, painters, and sculptors-that creation is, among other things, a constant process of challenging and questioning accepted notions, everywhere.





John Canaday in the New York Times: "The Solomon R. Guggenheim Museum is a war between architecture and painting in which both come out badly maimed. The pyrrhic victory belongs to architecture, or to the shade of the architect, the late Frank Lloyd Wright, over the museum's director, James Johnson Sweeney, who was faced with the problem of adapting an abstract architectural composition to its function as an exhibition gallery. There are plenty of scars to show that Mr. Sweeney has put up a game and ingenious fight against an impossible scheme, Mr. Wright was not too fond of painting, believing that its only legitimate function was that of an adjunct to architecture. If he had deliberately designed an interior to annihilate painting as an expressive art, and to reduce it to an

architectural accessory, he could not have done much better. . . . Unfortunately, the pictures disfigure the building and the building disfigures the pictures, and in honesty, for this writer at any rate, there is no point in pretending anything else."

Emily Genauer in the New York Herald Tribune: "That this museum which has been variously derided during its three years of construction as a giant corkscrew, a washing machine, and a marshmallow, has also turned out to be the most beautiful building in America, appears beyond question to be the majority opinion of architects, artists, critics, and special guests who have been taken through the structure. . . . [They] have been astonished not only by the grand sweep of the interior . . . but also by the fact that it

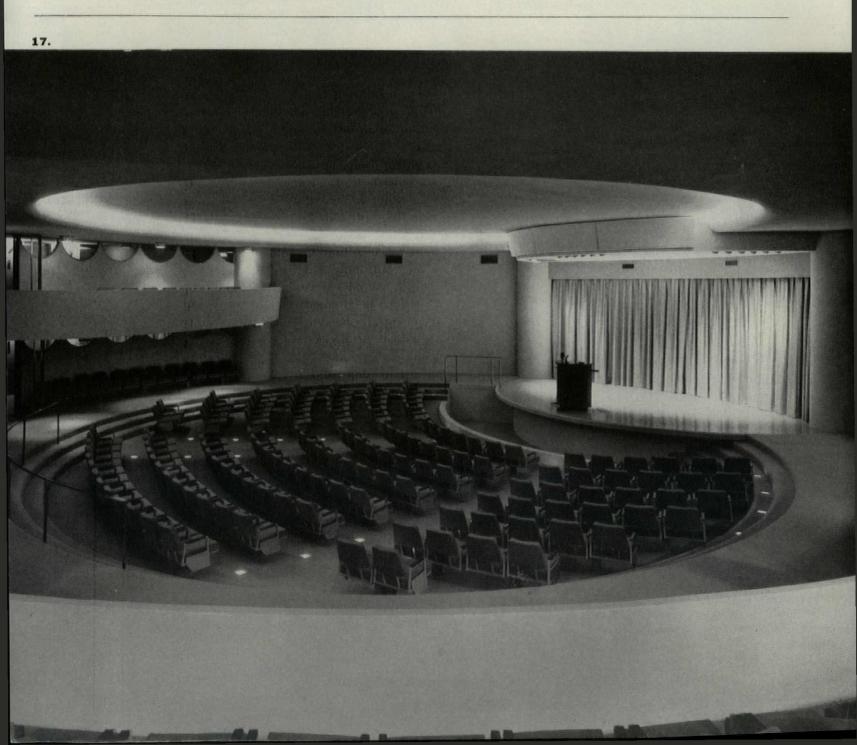
never for a minute dominates the pictures being shown. . . ."

Russell Lynes in Harper's Magasine: "It is an extraordinary shape and the volumes of space that it contains are extraordinarily interesting. It is a work of originality, vision, and undeniable grandeur of concept. . . . In creating the Guggenheim Museum [Wright] may not have struck the death blow to painting, but he has got it sagging on the ropes."

Walter McQuade in The Nation: "New York has some fine modern buildings, but nothing resembling this. For unlike most modern architects, Wright was no understater. His designs are Shake-spearean — works of high elocution which blend fantasy, structural fact, avid connoisseurship

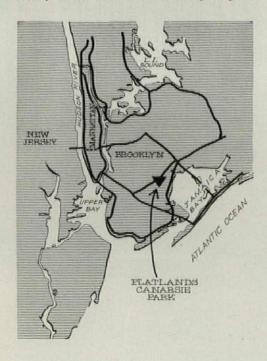
of materials and craftsmanship, many lights, many dims and darks, metallic glints, daylight, porosity, the sweep of curving planes that carry the eye commandingly. This building has the pull of a giant winch and all the confidence in the world. It even, surprisingly, turns out to be a good neighbor. The buildings around it are not big enough to be overbearing; instead the Guggenheim cheerfully dominates their discreetness. Seen from the street, it is a young man's building - imaginative, rich, drawn with a vivid hand, a gift of great talent to the city. In a civic sense, it is a brilliant success. You think, 'thank God for the Guggenheims,' and wonder at those critics who have considered the building only as a rack for paintings."

continued on page 180





Brooklyn industrial park, surrounded by city, would transform 95 acres of now largely vacant land near Jamaica Bay. Park (as shown) would have mixed building heights.



The planned factory centers of the suburbs are now turning up, slightly altered, in the city. And they are proving to be a useful renewal tool

In the public mind an industrial park is a landscaped collection of "clean," modern factories which belongs, like the ranch-house development, strictly to the suburbs. This autumn an accumulation of events has made that image seem somewhat out-of-date:

▶ In New York, plans are under way for two industrial parks which will be built on land that is not even faintly suburban but lies within 4 miles of downtown Brooklyn. One of the parks (picture above), covering 95 acres of gray-area land, is intended as the first step in a broad city-sponsored program to strengthen New York's dwindling industrial position.

▶ In Philadelphia, three groups of bidders have made elaborate proposals (page 97) for developing an 850-acre industrial park that will be part of the city's giant (2,140 acres) Eastwick renewal project. The park, to be awarded to one or more of the bidder groups this month, will be wholly within city limits, less than a half-hour's ride from downtown.

▶ In at least seven other cities, private or public backers are planning, building, or operating some sort of in-

dustrial center within city boundries. Providence, R. I. has a 57-acre industrial park under construction; its first building, the new automatic post office by International Telephone & Telegraph, is already partly up. Detroit has cleared about one-quarter of the land for a 75-acre project on the west side of the city; Richmond, Calif. has a park "well under way"; and Norfolk, Va. has one that is partially sold. More ambitious and farther from construction are several industrial centers that are part of large-scale renewal schemes: the Kenyon-Barr project in Cincinnati, Chateau Street West in Pittsburgh, and Mill Creek Valley in St.

These projects, many in waiting for years, could prove significant far beyond their numbers. True, a few incity industrial parks do not make a trend, nor do they change the basic suburban nature of the industrial park, which has been both cause and effect of industry's decentralization since World War II. But they do enlarge the industrial-park concept and open an intriguing possibility: that specially designed parks, catering to special industries, could be used successfully to combat two of the city's major problems, the blighted gray area and lack of industrial space.

The in-city industrial park is, of course, a breed all to itself. Not only does it differ physically from its suburban kin; it also is peculiar in its financing and in the clientele it serves. These differences are perhaps temporary, for the gap between city and suburban land economics is narrowing. But for the moment they do exist and compel attention.

What is an industrial park?

For all the industrial parks that have been built—possibly as many as 250 since World War II—there is still no universal description of just what one is. Part of the trouble stems from a genuine confusion between industrial parks and industrial districts, which have overlapping qualities. No one is

completely sure where one leaves off and the other begins. The industrial district, which is a sort of planned preserve for industry operated under continuing management, is an old device. In the U.S. it goes as far back as 1909, when the first Clearing Industrial District was set up in Chicago, and it is even older in England (where districts are called trading estates). In keeping with their age, districts show fairly rigid characteristics: they are usually developed by a railroad, private development corporation, or community group, and they invariably follow a comprehensive plan. The plan generally: 1) specifies subdivision of the site; 2) provides for installation of streets, rail lead tracks, and utilities; and 3) establishes controls through zoning regulations and restrictions written into leases or deeds of sale when industry acquires sites. Most all districts have an administrative staff to maintain the project and keep order. Some not only sell and lease sites but also build plants on a package basis (i.e., the district handles the design, construction, and sometimes arranges the financing for a factory).

Until World War II the growth rate of U. S. industrial districts was insignificant. In 1939, there were only 33 districts in existence—and there were no parks at all. But in the next decade a near runaway began in district construction, and it is not over yet. Powered by the tremendous postwar boom in capital spending, the number of organized industrial centers shot up to more than 100 by 1949, and about this time a new sort of district, catering mainly to light industry and calling itself an industrial park, appeared.

Aside from semantical differences, the main distinction of an industrial park is a degree of openness and greenery largely lacking in the grimier, more intensively developed industrial districts. The change has perhaps been best described in the report of the Dartmouth College Conference on Industrial Parks, sponsored in 1958 by

the State of New Hampshire and Arthur D. Little, Inc. Industrial parks, said the report, go beyond districts in providing not only for a community of industries but also by insuring "compatibility between the industrial operations . . . and the existing activities and character of the community in which the park is located. The [industrialpark] plan must provide for streets designed to facilitate truck and other traffic, proper setbacks, lot-size minimums, land-use ratio minimums, architectural provisions, landscaping requirements, and specific use requirements, all for the purpose of promoting the degrees of openness and parklike character which are appropriate to harmonious integration into the neighborhood."

The case of city parks

Since 1950, most new industrial centers have been industrial parks. While there is no exact count, it is probable that 90 per cent or more of the centers built during the boom have qualified as parks. Of these, however, no more than a handful have been adapted to the central city and built within its limits.

The main deterrent to the in-city park has been the high cost of acquiring and clearing city land. As Raymond Vernon points out in The Changing Economic Function of the Central City, a report for the Committee for Economic Development, "carving out a new site or greatly enlarging an old site in the central city" has become "increasingly difficult with the passage of time." Historically, Vernon says, "as the city developed, most of its land was cut up in small parcels and covered with durable structures of one kind or another." The problem of assembling sites, without some type of condemnation power, not only requires farsighted planning but a willingness to risk the chance of price gouging by the last holdout. Moreover, once a site is acquired, there are razing costs to cope with. "All told," Vernon concludes, "the value of the site could amount to 20 or 30 times more than that of an

equivalent area in a developed suburban location." Small wonder, he adds, that many manufacturing establishments choose a suburban location in replacing their obsolescent structures.

Unquestionably, costs are at the bottom of almost every aspect of the city industrial park. They explain why the parks usually have to rely on urban-renewal subsidy and why they have catered to a select group of industries (e.g., printers and publishers, food processors, service industries) where there are small companies requiring central locations and willing to pay premium prices for them. They also explain why in-city parks must make much more intensive use of their space than do suburban parks.

Even in the suburbs, raw land for industrial use will cost \$2,000 to \$5,000 an acre, and, depending on lot sizes, a developer will probably have to spend at least \$5,000 to \$8,000 per acre to grade the site, install streets, sidewalks, power lines, rail lead tracts, etc. This usually adds up to more than the cost of a residential tract (roughly \$9,000 per acre, including acquisition and development, in most parts of the country today), but it is only a trifle when compared with the outlay required to start a city industrial park.

Providence's new park is a case in point. By the time the Providence Redevelopment Agency finally completes assembling and clearing the site and installing utilities, it will spend about \$128,000 an acre (\$74,000 to buy the land, \$2,500 to clear it and \$51,500 to improve it). The land is now about half sold off to private industry, and the commission figures that its final gross from the sales will probably average out to about \$39,000 an acre, or roughly one-third the cost. The project has had federal urban-renewal subsidy (two-thirds of the difference between the cost and sale price) and so has been feasible. Without this prop, it very probably never could have been built.

Other cities show much the same inflated land and development costs. The Detroit Housing Commission, for instance, will commit about \$98,700 of federal and city money per acre to acquire and develop its 75-acre West Side Industrial Project. Philadelphia will put roughly \$38,000 an acre into its Eastwick project. In Brooklyn, recommended plans for the 95-acre, city-sponsored park point to a total cost of about \$79,000 an acre, assuming that the city handles the site development.

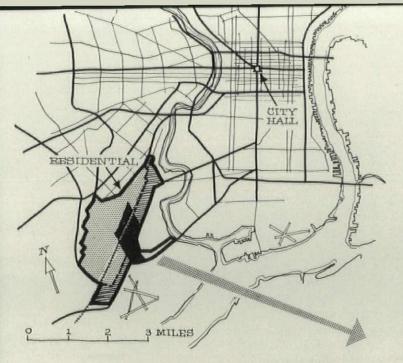
In the face of prices such as these, it is obvious that city parks cannot hope to compete with suburban parks in terms of open space and density of use. Most of the newer outlying parks enforce building-site coverage limits of 35 per cent to 40 per cent. Stanford Research Institute in a survey of 302 industrial centers did not find one that allowed buildings to take up more than half the building site. Along with this, almost all suburban parks now limit building heights to one story and require minimum front setbacks of 50 feet or 100 feet on main streets. Many parks also require side yards.

Against this, city parks may have to be content with upward of 60 per cent coverage of the building site and no blanket restriction to one-story buildings. The Brooklyn park is a good example. The preliminary plan for the project, drawn by Tippetts-Abbett-McCarthy-Stratton for the city's Urban Renewal Board (the project is not a Title I operation, however, nor is there any cost write-down involved) calls for roughly 20 per cent of the site to be set aside for rights of way and public landscaping, which is about average. But on the remaining land-about 75 acres reserved for predominately industrial use-bulk regulations will allow single-story plants which cover about 60 per cent of their sites, provided front or side yards are used for parking. The rules also will allow twostory plants covering 45 per cent of their sites, and where buildings provide basement parking, coverage up to 85 per cent will be approved. Front yards will have to be at least 20 feet deep, but side yards will not be required at all.

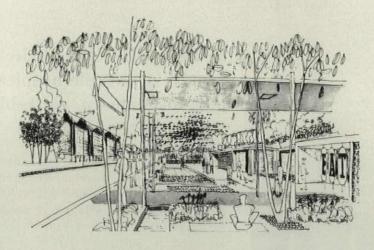
A useful but limited future

Even with the most liberal building rules, the cost to industry of sites in city parks will always be high. For this reason, it is not likely that there will ever be wholesale construction of central city parks, even with renewal subsidy. As Richard Boley of the Urban Land Institute has pointed out: "... it would be folly for the central city to attempt to compete (through an industrial renewal project) with the periphery areas of the city for those industries requiring extensive acreage, only a portion of which is to be utilized initially, or those desiring a campus-like setting for their new plant."

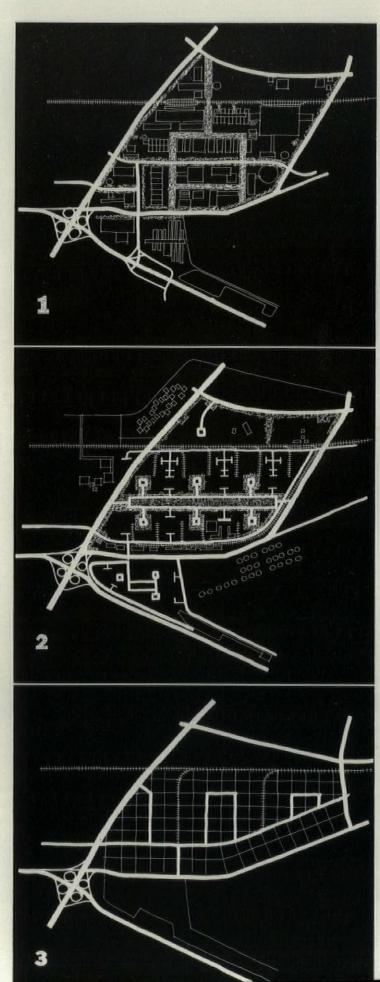
But if the role of the in-city park is necessarily a restricted one, it need not be so confined as it is today. There are strong forces at work, both in and out of the city, which would seem to be leading directly to more city parks: the growing congestion of suburbs, which make them less attractive; the advances of automation, with the prospect of more production from less space; and, most immediate of all, the changes in the urban renewal laws which now make it possible to use up to 20 per cent, instead of 10 per cent, of the aggregate amount of capital grants available under Title I for projects that are primarily industrial. On top of this, there is the peculiar fact that decentralization has in some ways enhanced the appeal of the city as a site for industry. More and more, the central city has come to specialize in industries that not only offer products as their stock in trade, but products in a hurry. As such the city has become the haven for the unusual, the unorthodox industry which lives in uncertainty and demands company for comfort. For this sort of specialist, prospering and growing but still depending upon others, an in-city industrial park may be just the thing.

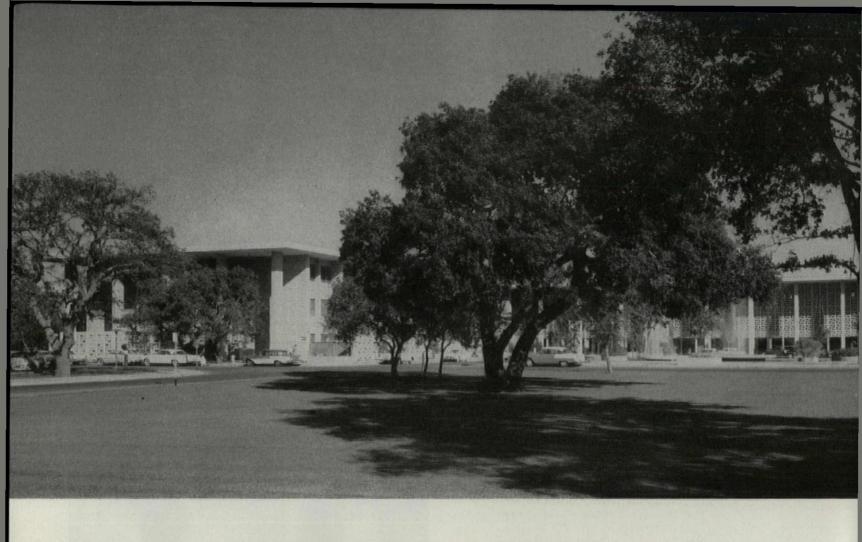


Eastwick area of Philadelphia (heavy outline, above) is site of giant renewal project involving an 850-acre industrial park (shown in black). Three bidder groups have made plans for the park, each taking a slightly different approach. Conduit & Foundation Corp., using a scheme by Urban Planning Associates, proposes a tightly controlled rectangular plan (1) which groups buildings by size and provides an interior greenbelt. Mc-Closkey & Co. would follow a central mall design (2) by Architect Lyle F. Boulware. This plan calls for a series of cul-de-sac streets about 600 feet deep which would provide flexible plant sites. A plan by Doxiadis Associates, Inc. for Reynolds Metals Co. and the Berger Brothers (3) would divide the park into 3-acre module with rail lines and roads covering most of the area.



Central mall, envisioned in McCloskey plan, would have a series of fountains and moats. Mall would be setting for restaurants, snack shops, possibly other service businesses.





Medicine's new "Taj Mahal"

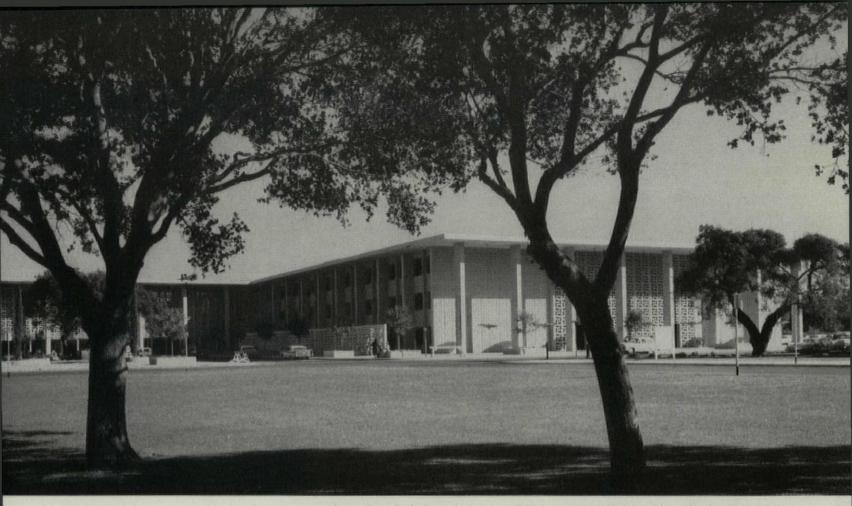


Big reflecting pool at the entrance is dotted with planting islands and fountains.

In Stanford's big medical center, a notable hospital plan becomes a veritable palace of healing

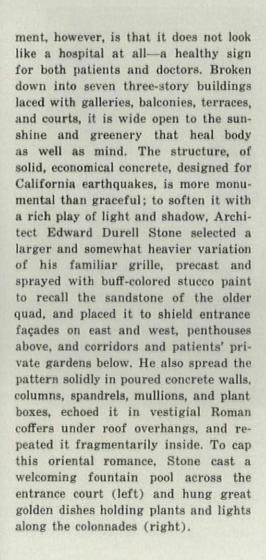
Spread out in a golden field among gnarled oaks and towering eucalyptus, Stanford University's new \$21 million medical center goes a long way toward fostering a new and broadly human approach to medicine. Only a stone's throw from the old "quad," it encourages both medical students and teachers to explore more sides of university life and learning than just their own. And for the increasingly complex specialties of medicine itself, it meshes a complete modern school, clinics, and 434-bed hospital into a smoothly working campus expansible to twice its present size (see plan overleaf, and analysis, FORUM, June '57).

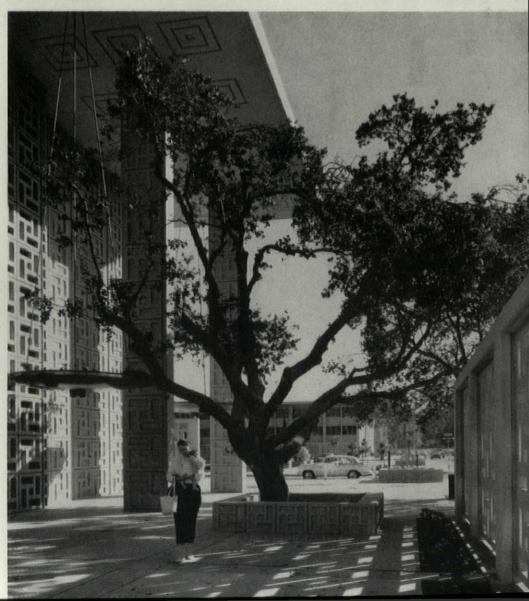
Perhaps Stanford's greatest achieve-



Long, low clinical section (center) links hospital (left) with medical school (right).

Monumental grille shields the colonnades facing the entrance drive and western sun.





STANFORD MEDICAL CENTER

PALO ALTO-STANFORD UNIVERSITY
MEDICAL CENTER, Palo Alto, Calif.

ARCHITECT: Edward Durell Stone.

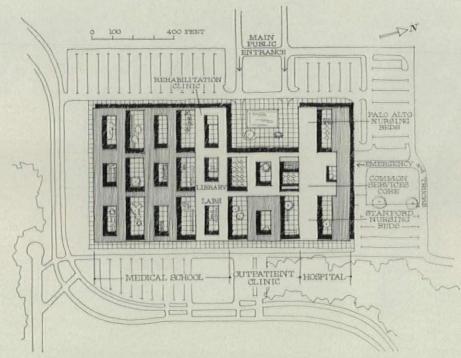
LANDSCAPE ARCHITECT: Thomas D. Church.

INTERIORS: Maurice Sands.

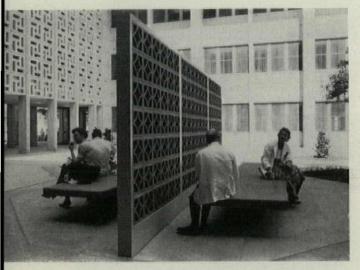
ENGINEERS: Pregnoff & Matheu (structural);

Keller & Gannon (mechanical).

CONSTRUCTION MANAGERS: Wagner & Martinez.



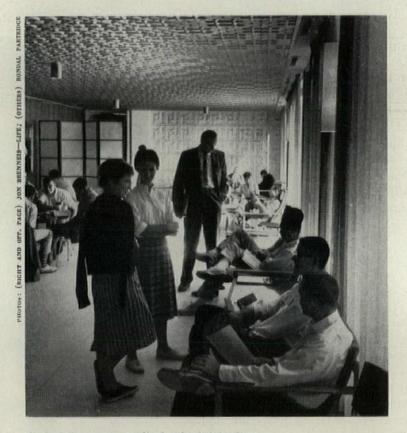
Medical Center contains 700,000 square feet of floor area (shown in white), can be expanded to over twice the present size (gray).



Terra-cotta screen separates lunchers in an interior court. Grillwork at left shields upper passageways between buildings.

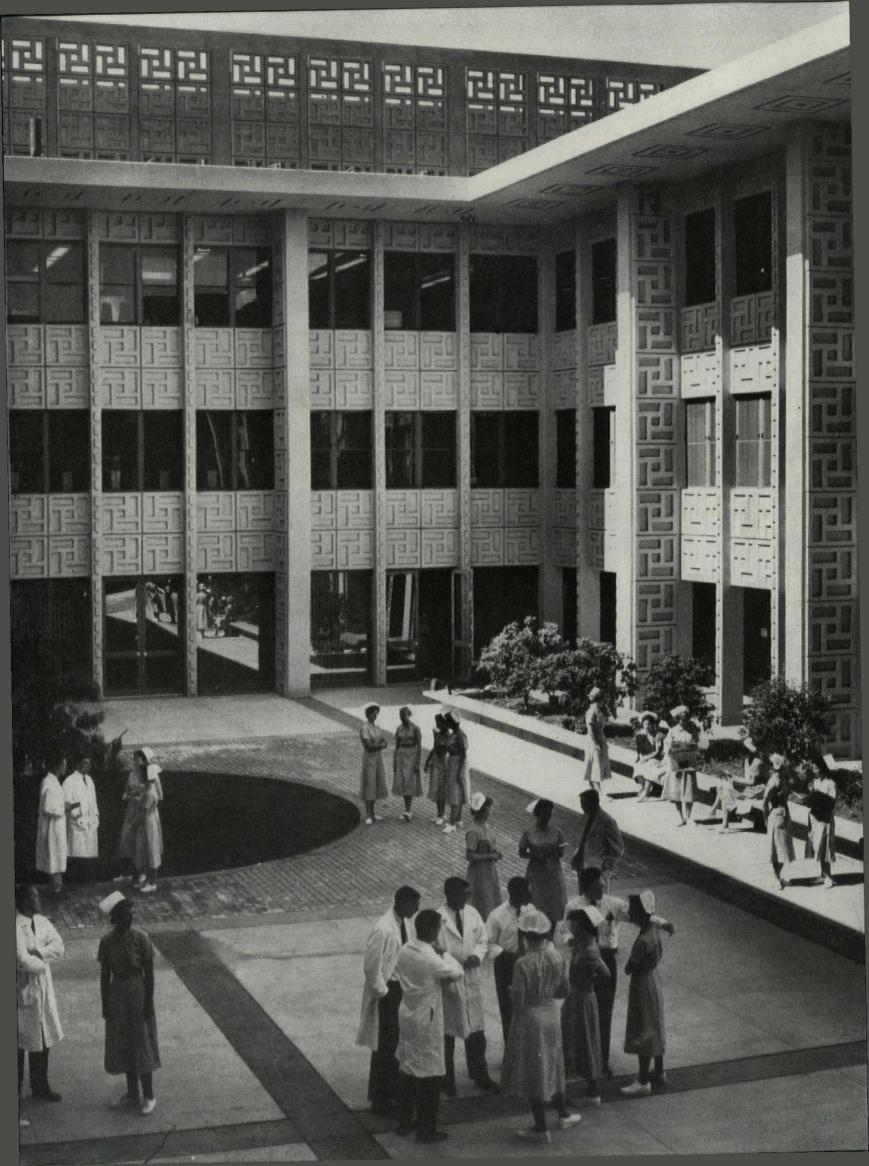


Hospital waiting lounge overlooks the main fountain court, and a smaller court behind. Grille is repeated here at smaller scale.



Student lounge in medical school introduces still another pattern on the ceiling, in addition to the end-wall grille motif.

Student doctors and nurses relax in the main court of the school. Monumental scale and patterns may be seen here in detail.



Lundy's personal architecture

BY WALTER MCQUADE



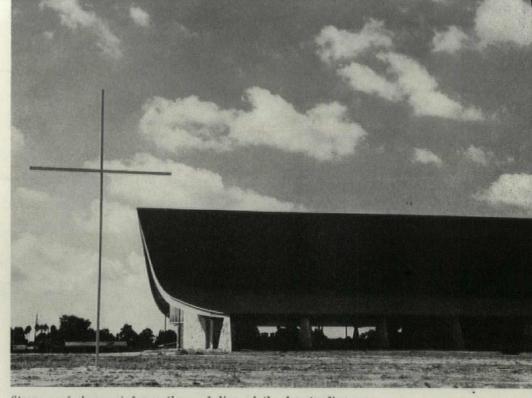
The sweeping curves of this young architect do not fight straight-line functionalism but peacefully leave it behind

The significant fact in the meteoric career of Victor Alfred Lundy, lonewolf architect of Sarasota, Fla., is that he revolted against the creed of functionalism before he was confirmed in it, before he began practice. He is not one of the many young architects who cut their teeth on the hard industrial edges of the international style, mastered it, then began to fear they were being mastered by it. As a result, many of these recent rebels lately have been cracking savagely through their straight-line, flat-plane disciplines to build very vigorous, very sculptural, or very brutal buildings, violently exorcizing their old inhibitions, But Lundy never had to break out of the box; he was never in it.

This may well explain why even Lundy's most daring essays in style or in structure contain a quality today found rarely in anything but archaeological architecture-peace. They are lyrical. This is partly because his fame has come largely through churches built gracefully of laminated timbers, framed like upside-down ships; these commissions have contributed to his self-education. But he is eager to get away from wood now, and he is doing it, although his success in wood still makes this difficult. Of three recently completed works in Sarasota shown on these pages, one is prestressed concrete, with an equally strong personal stamp on its design as his work in wood.

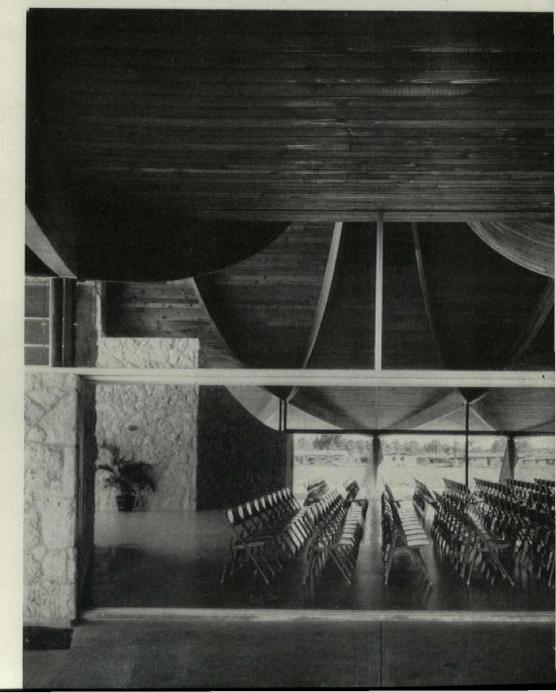
Lundy's rise to fame was swift. National notice first came to him by way of his design for a drive-in church for a Florida congregation (FORUM, Oct. '54). He then began to win national prizes and publication by the general press as well as the professional magazines, and was generally marked as an interesting young regionalist.

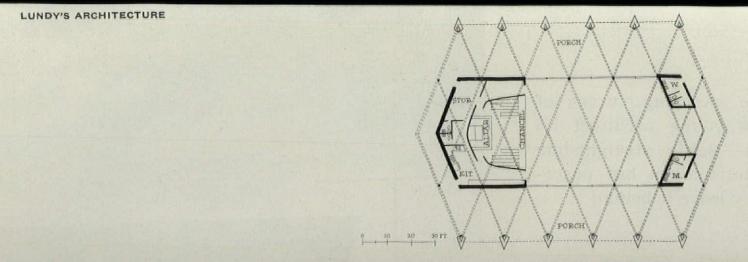
Now he is about to break out of that description; this month he is opening (text continued on page 106)



Strong roof shape reinforces the symbolism of the freestanding cross.

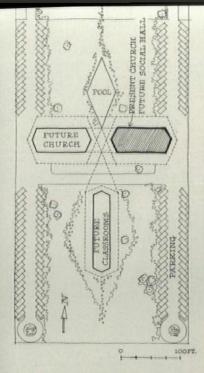
Laminated frames, spaced on an 18-foot bay system, crisscross under the roof.





Great outdoor porches can be used to expand the seating capacity of the church; glass walls slide open. Above is the plan.







Altar end of the church, photographed at night, is framed above by the draped structure.

All walls in the building turn into glass before they strike the roof plane.

LUTHERAN CHURCH

"The roof shape of this church is not a derived shape out of the past; it is a symbolic shape," says Lundy. "There is an attempt here in the form of the church to symbolize God and Man—God in the central high areas, reaching and pointing upward, Man in the low horizontal side areas that hug the earth."

Also important in the broad, horizontal concept of the church plan is the uneven population of this resort city in different seasons, which distorts church attendance. Rather than build air-conditioned facilities for a winter congregation, and then have the space only half used in the five or six months of summer weather, Lundy kept the central space compact and provided expansion room in covered porches on both sides. Sliding glass doors can be opened to include these areas for seating. The supports for the crisscross system of laminated roof arches are along the outside edges of the porches, with lally columns for further stiffening at the line of the sliding doors. To emphasize the fact that the roof is supported on the exterior piers (steel, faced with coquina stone), none of the walls reaches up to the ceiling. The roof is red cedar shingles on double tongue-and-groove wood decking over the laminated arches.

ST. PAUL'S LUTHERAN CHURCH, Sarasota, Fla.

ARCHITECT: Victor A. Lundy; STRUCTURAL ENGINEER: Paul J. Jorgensen; ELECTRICAL ENGINEER: Kenneth D. Brumbaugh; GEN-ERAL CONTRACTOR: T. T. Watson.



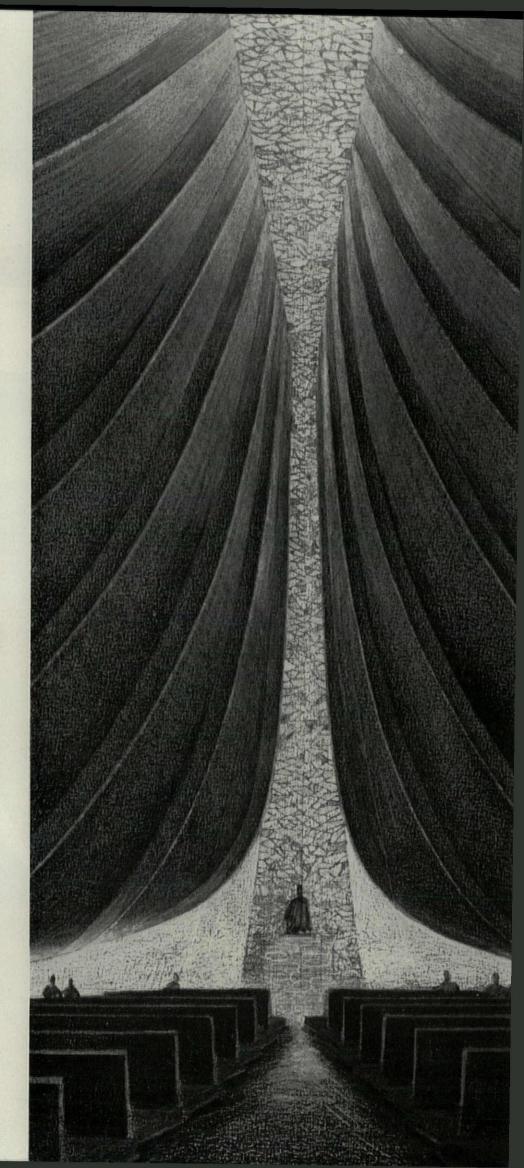
an office in New York City (meanwhile his Sarasota office is moving into larger quarters—big enough for him to do murals and sculpture for his buildings). The commission which lured him north was, as might be expected, a church to be built in Fairfield County, Conn. (design, right); but already he has a sizable elementary school to design in Westport, Conn., and his burgeoning national reputation is proved by such commissions as a ski resort for the top of a mountain in New Mexico.

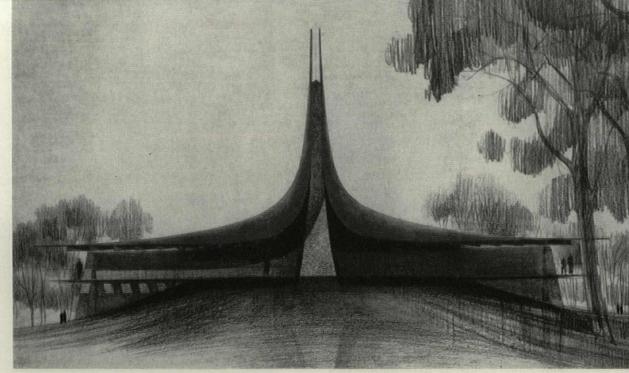
Lundy's revolt against the industrial style came to pass in Europe in 1948. After starting architectural study at New York University in 1939, then spending several tough years in the U.S. Infantry in Europe and a year at Walter Reed Hospital recovering from advances made by a German tank, he had enrolled at Harvard, earned his undergraduate and graduate architectural degrees, and won the Rotch Traveling Fellowship for study abroad.

His stubborn lyricism was present even at disciplined Harvard, then led by the master of the functional Bauhaus, Walter Gropius. As soon as Lundy arrived there he unleashed his feelings on his first design problem. "Everything came out that had been bottled up during the war. I gave it the works. I splashed emotion and color all over it. Well, they gave me a pass, and I think they thought they were doing me a favor." But he then got smart and turned around to do it the Harvard way, he says, "pristine, safe, lovely, cubular things." Although he disagrees with Walter Gropius' theory of architectural cooperation, he admires him as a great teacher. "He brought out the best in everyone. But you cannot do architecture by cooperation. One guy has to wield the brush, finally."

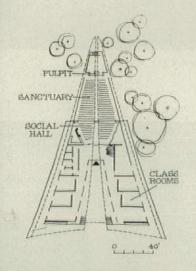
Lundy's exuberant, glinting personality did a great deal to mitigate—or mask—this heresy in the eyes of his teachers, and when the Rotch Traveling Fellowship was awarded in 1948 by the Boston Society of Architects, his application, bolstered by some wartime sketches, took it. This prize, for a gentleman to travel in Europe for six months, took him and his young wife around and about the Continent and Africa for two full years, sometimes traveling deck class on Arab vessels.

(text continued on page 108)





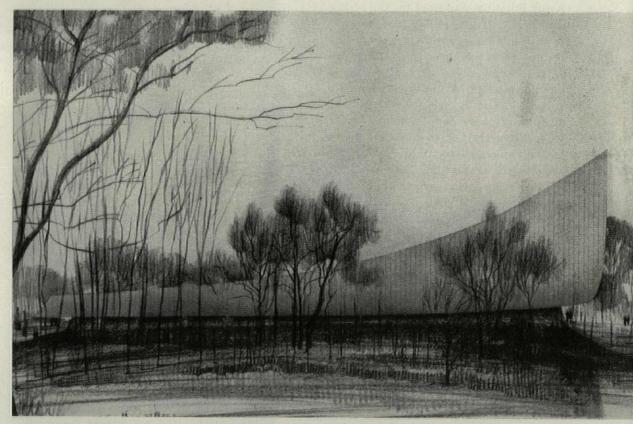
Reaching upward, the great curved roof will split at the top in a skylight.



UNITARIAN CHURCH

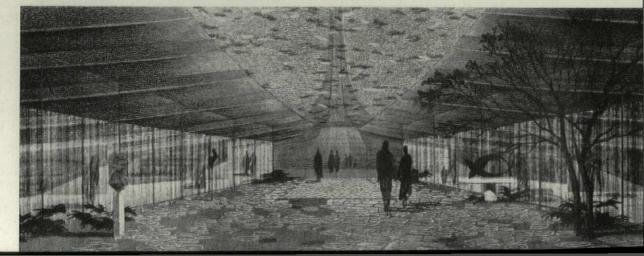
A soaring roof split at the peak by a long skylight over the congregation is Lundy's architectural interpretation of the attitude of Unitarianism: "When hands in prayer come together, it implies submission . . . an attitude of 'I can't do this. God, you do it for me.' When separated, the hands are . . . vehicles for letting light and warmth through. They imply a new dimension for prayer. . . ." Set on a ridge on an 8-acre site, the church itself will also include classrooms and social space. The roof will soar to a steeple at the north end, with clear glass at the apex to view the north star. The budget for the project is limited: \$350,000 for the ultimate buildings, and \$200,000 for the first construction stage.

FIRST UNITARIAN CHURCH OF FAIR-FIELD COUNTY, Westport, Conn. ARCHITECT: Victor A. Lundy.



The boatlike framing of this church design will carry a sail-like roof.

Skylight over the entranceway to the building will be wide and low.

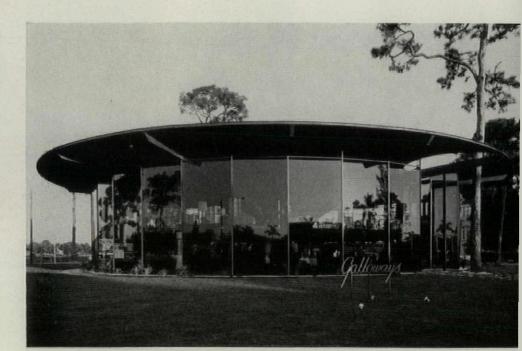


They began the tour in England and Scandinavia. "For the first four months I looked seriously at nothing but contemporary architecture. I never saw those countries, just the flat, empty buildings." Then they bicycled on to Paris, where he had a letter of introduction to Le Corbusier. "He was sitting there, in this bathroom of an office, with a light shining on him, and one of his sculptures jutting from the wall. At that moment, it all began to end for me. I asked him what I should look at of his work, and other silly questions like that. He was obviously bored and wanted to have the meeting end. He shrugged.

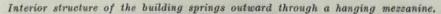
"I went to look at his Salvation Army Building, and went in, and photographed it. It was still in rough shape from bomb damage. But it was terrible inside-there were rooms like the backs of trucks, and long, narrow, dungeonlike dormitories. The people who were supposed to be in them were all outside sitting on the sidewalk, and I knew why. From then on in Europe I didn't look at any modern architecture, just the old. The Rotch turned out to be the greatest thing that ever happened to me. It gave me a chance to start from scratch, to be myself, to forget all the cooperative-design nonsense, and to know what I really wanted to doto have it come from myself, be mine."

When the Lundys, broke, finally sailed back from Europe, they lodged in New York and stayed two years. But then came an opportunity to work on a project in Florida, and they moved. They now have two children, and live in a rented house on one of the Keys off Sarasota, a house Lundy sees mostly at night. A man of immense thrust and ambition under his boyishness, he dramatizes himself intensely, but he also works tremendously. His staff, which varies from two to six, may leave the office at 5:30, but it is then that he, like many other young architects, begins to design. "Lately I keep a pair of swimming trunks in the office. I get into them and swim in the Gulf for ten minutes, and wash away all the stenography and telephone calls, then come back to work until midnight."

In the crowded architectural world of Sarasota, Lundy bags more than his

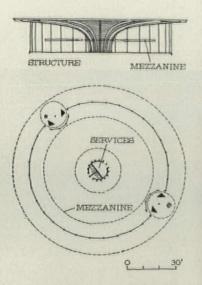


Tinted glass walls of furniture showroom extend up under the roof.





(text continued on page 110)



FURNITURE SHOWROOM

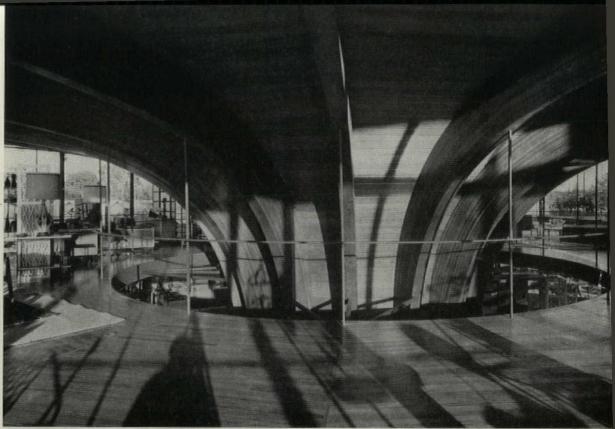
"This sales building," says Architect Lundy, "purposefully has an inward direction. The attempt is to draw people away from the glare into restful shade, where one can really see and appreciate color — the upholstery, for instance." The walls are gray glass.

The building is a potent company symbol, as well; like the stems of a symmetrical plant, 16 minated redwood members curve outward from a central base to support the roof of the glasswalled structure. Because all furniture sold here from samples is assembled to order in a plant in nearby Tampa, and delivered direct, no dead storage space was necessary.

The decking on the laminated shapes-clear heartwood redwood glued to Douglas fir-spans from arch to arch. The mezzanine is also hung from these arches, which come to the ground around a small central area used for toilet facilities and mechanical services. A city ordinance demands that parking space be provided on the site at a two-to-one ratio to floor area of the store, a requirement which might have subtracted the parklike charm of the design. However, the parking area was not paved, but instead planted with Augustine grass on marl — a hard-wearing natural surface.

GALLOWAY'S FURNITURE SHOW-ROOM, Sarasota, Fla.

ABCHITECT: Victor A. Lundy;
STRUCTURAL, ENGINEER: Paul J.
Jorgensen; ELECTRICAL ENGINEER:
Kenneth D. Brumbaugh; GENERAL CONTRACTORS: Schierloh
Builders Inc.



Laminated bents, the stems of the structure, are reported to be the largest ever made of redwood.

Mezzanine scales the space down nicely into a graceful area for showing furniture.



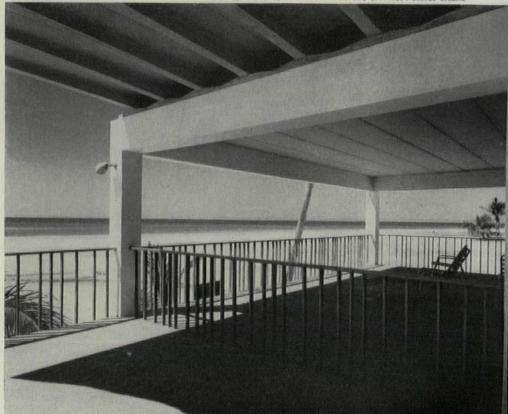
share of commissions, although he bemoans the fact he is too busy to run a suave operation in the matter of securing clients. "I get the tough, low-budget ones." But his social approach, if not exercised often on the dance floor of a country club, is indisputably intense, charged with Balkan camaraderie. He will grasp friends on the forearm at lunch in New York and gleam: "Let's the three of us get a little plane and go down to Havana this afternoon. It's really great, really great!" When novelists, especially elderly lady novelists, write books about architects, they usually have someone like Lundy in mind.

But he is neither frivolous nor unassured, although contemporaries criticize him for fast and loose use of materials. With the group of most creative architects-by his standards Saarinen, Kahn, Neutra, Yamasaki, Rudolph, the ones just below Mies and Le Corbusier-he includes himself. He has talked and taught at several architectural schools and looks back with sympathy for the nonconformists in them: "There are sleepers in every architectural school. They are often victimized, sometimes by neurotic teachers who themselves haven't made the grade in architecture. These sleepers may have to sit back and think three months about a problem; the facile students in the class can turn out acceptable solutions immediately, get the best marks, win the prizes. But a few of those others are tough enough to fight through because of their life experience and then are lucky enough to get confidence in themselves."

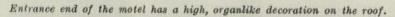
Lundy is talking about Lundy. If the Rotch was the lucky opportunity he names in his life, he regards the war as the life experience that toughened him to take advantage of it. His conversation frequently goes back to those years, and he often opens those of his sketchbooks which survived that period. A combat infantry squad leader in Patton's Third Army, he was in a battalion cut off by the Germans near the Moselle River in late November of 1944; he was one of 16, out of 360, to escape, although he was seriously wounded. "After that," he says, "I knew nothing else could ever be that hard again"-even a personal style in modern architecture.



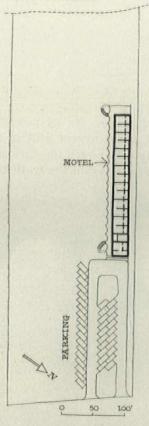
PHOTO (ABOVE LEFT) : LIONEL MURPHY JR., (OTHERS) : GEORGE CSERNA



End bays of the motel on both floors are left open to create porches facing the Gulf.







FLORIDA MOTEL

The scalloped edges of the balcony and roof of this 30-unit motel are a treatment suggested to the architect, he says, by the lapping of waves in the Gulf of Mexico, beside the site. He sized his concrete waves to correspond to the width of each motel unit. A departure from the familiar Lundy treatment in laminated wood, this concrete structure is even more exuberant in its design. Precast, prestressed I sections were hoisted into place to span the short dimension of the long building.

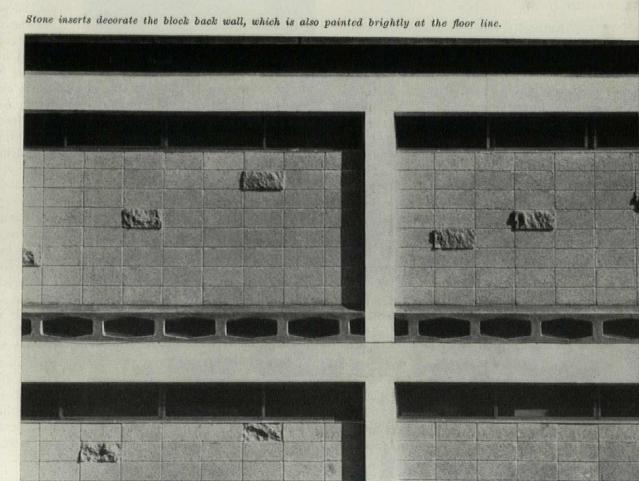
Also connected with water imagery—reflections, in this case—is his colorful treatment of the ends of the I beams. These deliberately are dramatized: concrete blocks are recessed 3 inches where the section is cut (see photograph, right) and the beam ends are painted in four shades of turquoise in each bay, a startling effect under the bright Florida sky against the predominantly white building.

THE FEONTENAC MOTEL,
Sarasota, Fla.
ARCHITECT: Victor A. Lundy;
STRUCTURAL ENGINEER: Donald

STRUCTURAL ENGINEER: Donald A. Sawyer; MECHANICAL ENGINEER: Louis H. V. Smith; ELECTRICAL ENGINEER: Kenneth D. Brumbaugh; GENERAL CONTRACTOR: Stroud & Boyd, Inc.



Prestressed concrete planks were used to span both the first story and the roof of the long narrow building.



A journey among churches

BY MICHAEL SCOTT, S.J.

Father Scott, a Jesuit scholar at Australia's Aquinas College in Adelaide, recently completed a seven-month trip through Europe and America on a Carnegie grant, during which he visited more than 500 new churches, and talked to clergymen, architects, and artists wherever he went. His impressions offer a credo for modern church architecture that is as freshly human as it is simple and direct.

Throughout history, the building of churches has been man's highest form architectural expression. From Byzantium to Chartres, the secular leaders of the people built churches of conviction and beauty, because they had faith in what they stood for. But what of today, when faith and leadership has been so largely transferred to economic institutions, or Progress, or some vague form of humanism? How are we to draw back into the church those who have ceased to use it? What needs and desires must today's church answer in an age of confusion, skepticism, and untruth?

Authority, clarity, simplicity, warmth, above all love and true security—these are the obvious, urgent needs of today. The church must reassert its own leadership to answer these needs, not only in its ministry but in its building as well. Furthermore, it must answer them with such assurance that people will be forced to stop and say: "Here is something strong and sure. Here is the peace, the beauty, the warmth I have been looking for. I could think clearly here. Perhaps I could even pray."

Can this certainty and authority be expressed in lines and forms and masses? I think they can: strong, sure lines; bold, flowing curves with nothing tentative about them. This is no longer the time nor the place for the delicate tracery of the Gothic, the quiet, classic curves of the Romanesque, the extravagant decoration of the Baroque or Rococco. Our need is for a fundamental "definiteness."

Everywhere I went in Europe and America it seemed clear that this was the way others, too, were thinking. I saw it in strikingly clean, rectilinear buildings: in the K.T.I. Synagogue by Philip Johnson at Port Chester, N. Y., for example, and Mario Ciampi's Corpus Christi Church in San Francisco; in superbly simple, tentlike forms like Warren Weber's Congregational Church at Cedar Hills in Oregon, with its steep walls of wooden shingles rising sheer to form the roof. I saw it in Mexico, in the sweeping curves of de la Mora's and Candela's hyperbolic paraboloids, which seemed to brush the earth like a bird about to

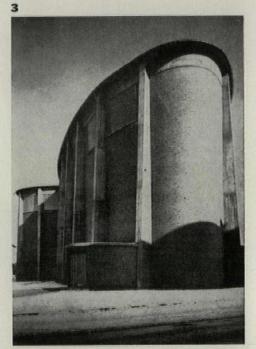


rise (1). I saw it in France in the firm arches of the Church of St. Léopold at Lunéville (2), in Germany in Rudolf Schwarz's Church of St. Michael at Frankfurt-on-Main, which like a great



ship thrusts its prow through troubled seas, stable and strong and sure of reaching port (3).

We have a deep need for clarity today. For minds that knew the truth and wanted only a quiet place to pray, the dark fastnesses of the old cathedrals were perhaps the perfect setting. Stillness and prayer are as necessary as ever, but more urgent still is the need for a light to pierce the darkness, a light to show us again the truth that

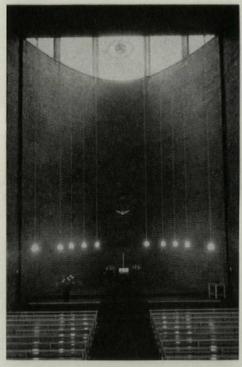


so many have lost. In a hundred different, dramatic ways, architects are opening up the House of God to God's own light. I saw it in the Wayfarer's Chapel by the younger Lloyd Wright, a jewel in metal and glass open to the lovely, clear sky of that fabulous California coast at Palos Verdes. And in the strong, translucent synagogue of his father, Frank Lloyd Wright, in Philadelphia; and in the Swampscott, Mass. synagogue by Pietro Belluschi and others, with its hexagonal, domed sanctuary in pale lavender glass admitting quantities of soft, diffused light.

We need simplicity in our churches. There is too much pretense in today's world, too many false façades, too much meretricious decoration and cheap veneer. The longing for simplicity has already made itself felt in our contemporary domestic architecture. Should it not be felt in the House of God, indeed, above all there? This feeling, too, I found wherever I went. It was reflected in church exteriors, but even more in interiors, where clean lines all direct the eye toward the altar as the focus, where vision has been freed

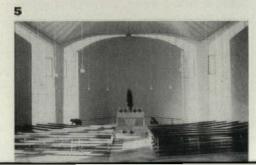
by the elimination of heavy pillars. where devotional objects and liturgical activities had been removed to side aisles or chapels, and where all the old clutter of cheap commercial statues, lamps, and shrines has given way to simple, striking furnishings (4-Rudolf Schwarz's Church of the Holy Cross at Bottrop).

If the church is to reach out into today's world, it must also satisfy an increasing basic need for love, for protection, and true security. In an age of individualism and fierce competition. a cry wells up in human hearts for some surcease from the constant battle, for some small island where all men are equal and can meet together as sons of their common Father. This, too, is being reflected in a marked change in church interiors. Gone are the long, narrow naves and transepts with their isolated sanctuaries and altars, the people strung out in long, thin lines with their inevitable suggestion of precedence. In their places are churches



that are broad and spacious, churches that are round, triangular, fan-shaped, hexagonal, all tending to bring people together in intimate contact around the altar, as in Hans Schädel's chapel at Kölberau (5).

We need authority and clarity and







simplicity in our churches. We also need warmth. Not material, physical warmth-too often in modern countries it is the opposite we need-but emotional, psychological warmth: something to come into, to lift up and warm the heart after the indifference of the world outside. Religion is not the domain of the mind alone. In this age of color-rich, warm, glowing, exciting color-there can be no excuse if the church fails to provide it. Indeed, if I were asked what impressed me most in all the new churches I saw, I would sum it up in that one word.

It struck me first in America; in St. Louis, for example, where Emil Frei and his associates, particularly a young artist named Rodney Winfield, have given such an exciting warmth of murals and windows to churches of all denominations. I saw it again in Minneapolis and Montreal, where in the bleak winter blizzards of January, glowing color gave such a lift to the heart. But it was in Europe that I felt its fullest impact: in the lovely, restrained glass wall of the Church of Maria Königin near Cologne; in the radiant little Columbakapelle in Cologne, standing in the ruins of the warblasted church (6). And in the breathtaking glass wall behind the altar at Solothurn, where in the Church of the Mother of God, Hans Stocker has woven the 15 mysteries of the Rosary into a glowing tapestry of light (7).

Yet even the churches in Germany and Switzerland did not prepare me for the moment when the new French glass, inch thick and set in concrete instead of lead, first blazed into my consciousness. The richness of this glass is quite astonishing. Even with rain pouring outside, church walls burn with imprisoned light, spilling their warmth inside in purest color.

It was toward the end of my journey, when sheer physical tiredness and mental indigestion had drained much of my enthusiasm, that this glass helped provide the most heart-lifting experiences of all. The first was in Gaston Schmidt's parish church at Villey-le-Sec, a little village of less than a thousand people near Nancy (8). Outside, it was not a particularly exciting or modern church, but it had a quiet simplicity and honesty about it that suggested assurance and strength, and the promise of something held in reserve. My companions and I opened the door and went in. For two or three minutes we stood there quite spellbound, only our eyes moving as they passed from one detail to another in rapt enjoyment. The walls were of the same finish as the exterior: warm, sand-colored stones with the feel of the still sun lingering within them. The ceiling of honey-colored wood seemed to hang intimately above the walls, carried only by columns of raw cypress, 12 in number to symbolize the apostles - tree trunks, literally, just peeled of their bark and varnished with the knotholes left in to give character





to the grain. Between walls and ceiling, a narrow band of light ran the full circuit of the interior, filling it almost imperceptibly with a softly muted clarity and freshness. But the glory of the church shone out in its windows, by François Stahly and Etienne Martin: 72 of them, linking disciples and apostles together with Christ-72 small rectangular slits of different sizes, spaced, it seemed, quite arbitrarily, yet somehow in a perfect pattern of abstract form, spilling color on ceiling and walls and floor until the whole church glowed with warmth and love.

continued on page 196



First step toward a new

Apartment is first building in project area (dark), one mile from the Capitol (top of photo).



The 530-foot-long building shown on these pages stands smack in the center of a 550-acre wasteland, about a mile to the southwest of the nation's Capitol. Rising there all alone among the rubble of a sordid past, the Capitol Park Apartments have all the earmarks of any daring, young pioneer on a new frontier. In this instance, the appearance does not mislead.

Capitol Park is not only a daring forward step by Developer James Scheuer into a great, big area of southwest Washington where other developers have (so far) been slow to tread; it is also a daring advance into *creative* urban renewal by Architects Satterlee





Washington

This 402-unit apartment house shows what good design can do for urban renewal and points toward a bright future for the capital's worst slum

& Smith, who proved that perseverance, imagination, and idealism can produce good design over almost any bureaucratic obstacles.

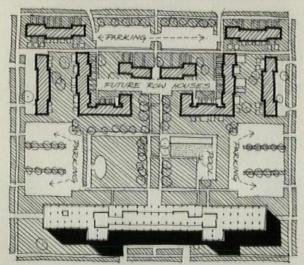
The building shown on these pages is a success by any architectural standards. The fact is, however, that this success was achieved at an unreasonable cost of time, effort, and money. The moral of the story of Capitol Park is this: unless high-quality urban renewal is made more painless (and more profitable), most potential developers will turn to other forms of investment. For the reasoning behind this unhappy conclusion, see page 118.

Lobby is part of "no-story," so dubbed to beat code restriction. Mural in rear is by Bertoia.





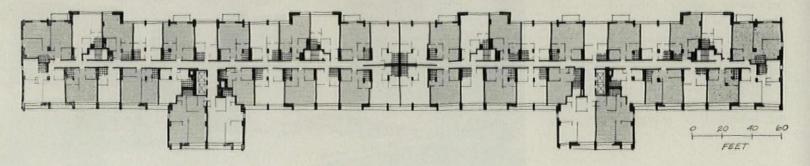
PHOTOS: © EZRA STOLLER



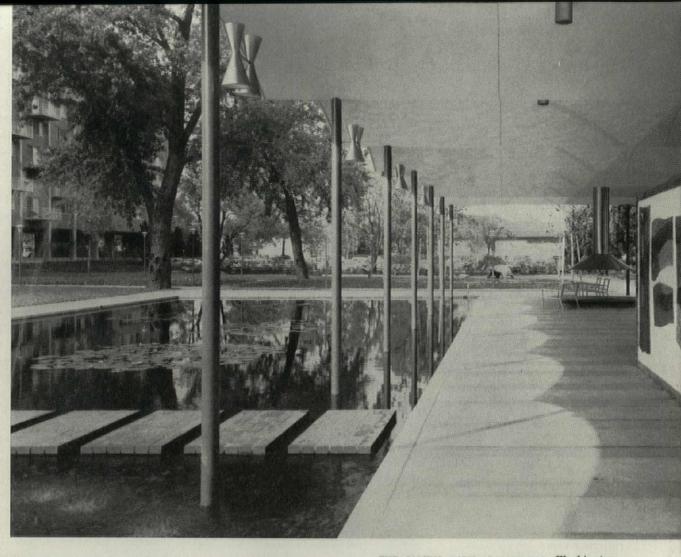


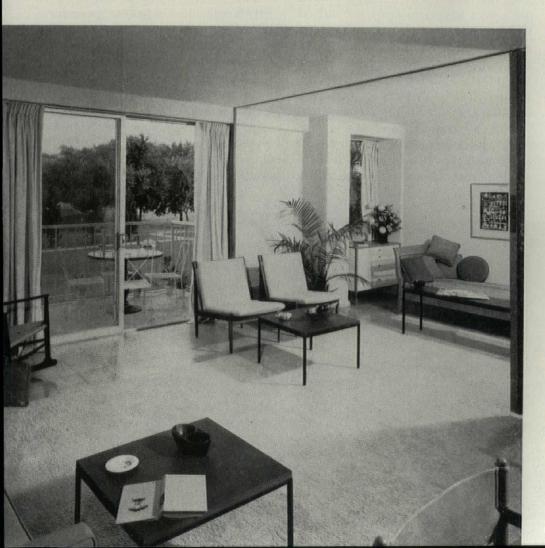
Photos (above) show park area behind the apartment block, with wading pool and pavilion. The roof of the pavilion has a two-color pattern that is attractive when seen from apartment balconies. The latter were staggered to give variety and interest to the façade. The pool-pavilion has a mosaic by Leo Lionni (see picture at far right), a shaded sitting area with outdoor furniture. Columns stand in water to make the pool a part of the pavilion and, hence, a part of the mortgage.

Site plan (at left) shows next step in the development: a series of row houses grouped around courts. Typical floor plan of apartment building (below) indicates great variety of apartment plans. Monthly rentals range from \$98 for an efficiency apartment, to \$220 for a spacious two-bedroom unit. Rentals include switchboard service for all apartments, air conditioning, electricity, gas, and use of communal facilities.



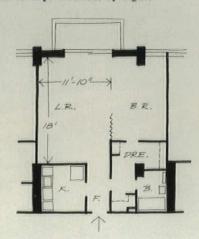






THE CAPITOL PARK APARTMENTS, Washington, D.C. ARCHITECTS: Satterlee & Smith. LAND-SCAPE ARCHITECT: Dan Kiley. STRUCTURAL ENGINEERS: Severud-Elstad-Krueger Associates. MECHANICAL ENGINEER: William A. Brown. SITE ENGINEER: Ralph Eberlin. CIVIL ENGINEER: Bernard F. Locraft. CONSULTING ARCHITECTS: Mayer, Whittlesey & Glass. GENERAL CONTRACTOR: Blake Construction Co., Inc.

Typical one-bedroom apartment (left and below) was decorated by Emily Malino. The folding partition between the living and bedroom areas proved to be more popular with tenants than a fixed partition. High-velocity air-conditioning units are low and compact, could be kept well out of sight.



The bitter lessons of Capitol Park

Developer Jim Scheuer is proud of Capitol Park, and full of praise for its architects.

So far, so good. But there is another, disturbing side to the story: stripped of its design qualities and stripped of its considerable value as a public-spirited gesture, Capitol Park is just so much more proof that, in urban renewal, it does not yet seem to pay to be good.

Scheuer learned this bitter lesson the hard way. Specifically, he discovered that an isolated urban-renewal effort cannot succeed-unless it is part of a broader scheme of things; he discovered, too, that it is much simpler (and more profitable) to put up a poor, routine pile of bricks than to build a fine piece of architecture; he discovered, further, that it is difficult to get a building approved in a hurry unless one plans it according to the lowest common denominator of all the various bureaucracies involved; and he discovered, finally, that all he could get for his troubles was a 5 per cent return on his investment.

Isolated effort

To rent his apartments, Scheuer needed good shopping facilities nearby for the use of his tenants. He assumed that the big shopping center planned by Webb & Knapp to the south of Capitol Park would be ready the day the new apartments were completed. Webb & Knapp, however, were having their own problems with Washington agencies, and the shopping center was delayed. As a result, Scheuer's initial tenants had to travel a mile through rubble for a pack of cigarettes, or

a carton of milk. (In desperation, Scheuer put a small, temporary store into the basement of Capitol Park.) Still, living in Scheuer's lone, brave building is like living in an air-conditioned mirage in the middle of the western Sahara. Six months after the building was completed, only half of the highly desirable apartments were rented. The remainder should go fast once Webb & Knapp break ground for their shopping center (probably this month). Says Scheuer: "No one man can carry the entire burden of redeveloping a slum. There have to be parallel efforts all around him. . . ."

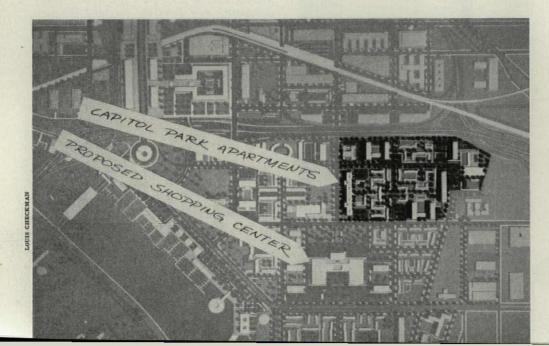
No bonus for beauty

Although Capitol Park cost no more to build than any run-of-the-mill apartment house in Washington (\$11.05 per square foot), it cost Scheuer plenty of time and money to make his building as handsome as it is. He was quite happy to pay his architects a 4 per cent fee (instead of the cut-rate fees of 11/2 per cent or less charged by some urban-renewal hacks), because he saw that Satterlee & Smith gave him much better service in terms of research, imaginative planning and detailing, and sensitive design. But he did resent having to fight for each of these improvements with agency after agency, authority after authority. In the end, Scheuer and his architects won most of their battles: the open ground floor (with the eight-story building on stilts above) was classified -with a straight face!-as a "nostory" to satisfy the eight-story limit of Washington's building code; the wading pool in the communal park was classified as part of the park pavilion (for mortgage purposes), because the pavilion's supporting columns stood in the water, rather than on the water's edge; and the pool itself was finally okayed by Washington's Department of Public Health when the architects agreed to stock it with mosquitoeating Gambusia fish! Although it all seems amusing in retrospect, this wrangling cost Scheuer some $2\frac{1}{2}$ years.

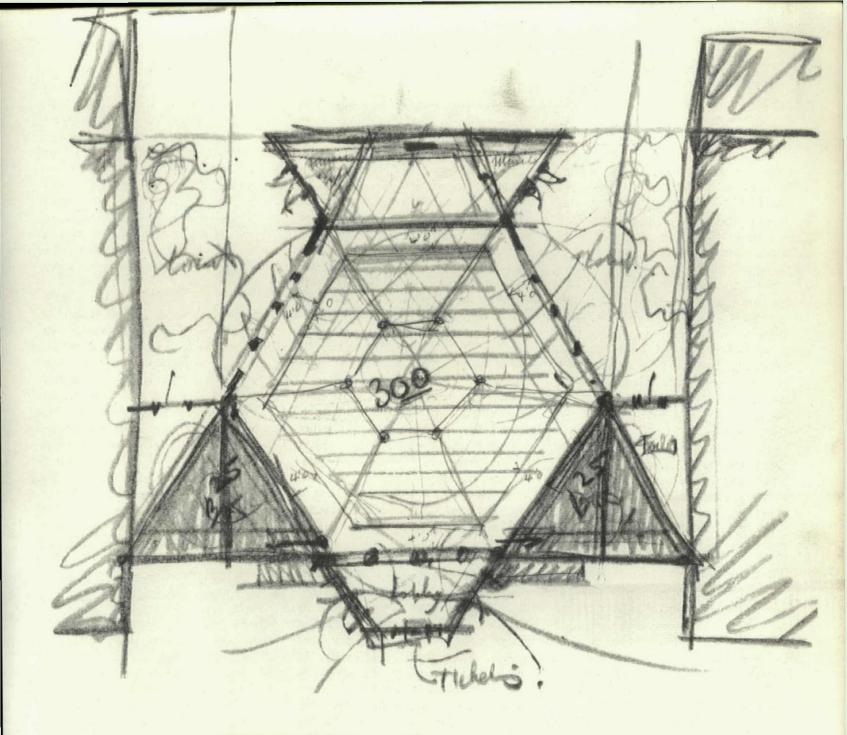
No return for trouble

These and other delays also cost money. Scheuer's initial request for FHA mortgage insurance was 90 per cent of the estimated construction cost. By the time FHA had approved that request-over a year later-the original sum represented not 90 per cent, but closer to 80 per cent of increased construction costs. As a result, Scheuer feels, he has twice as much equity in this project as he should be expected to have; and the return on his investment will be no more than 5 per cent. "It makes no sense to take on all these headaches for that kind of return," Scheuer concludes. "You can get 5 per cent on the new government bondsand without trouble."

Since Capitol Park got under way, FHA's and other agencies' procedures have been improved. Still, so long as urban renewal is out in the open market, competing with everybody else for the independent investor's dollar, it must become more attractive, financially, to make any real dent in America's urban mess. The few, admirable do-gooders can not be expected to do this job alone—especially if bureaucracy penalizes them for doing good.



Model of redevelopment area shows the ultimate scope of Scheuer's project, and location on the proposed shopping center to be built by Webb & Knapp. A school is now under construction opposite Capitol Park Apartments, but otherwise the surrounding area is still barren of any new construction.

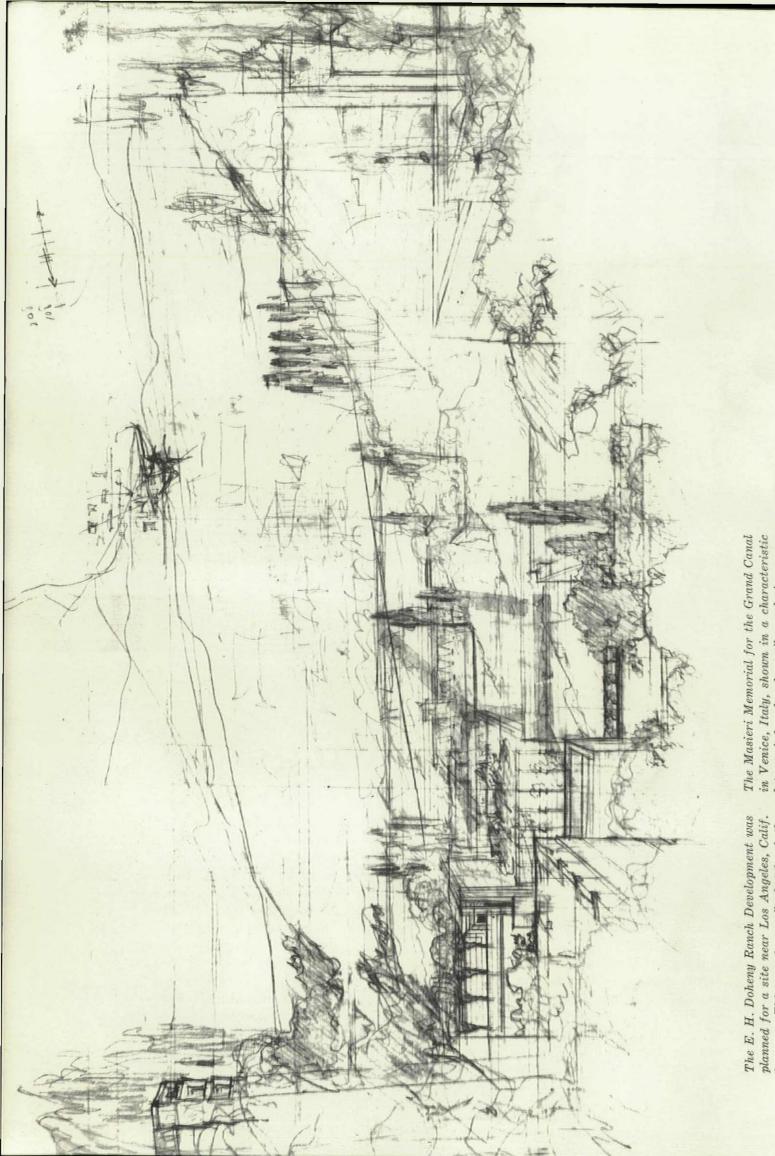


FLLW's drawings

A large and handsome book of Frank Lloyd Wright's drawings published this month* makes a significant contribution to the otherwise thoroughly documented history of his work. This contribution is, indeed, the revelation of Wright's architectural ideas at the moment of their formulation. "His drawings tell so much," writes A. Hyatt Mayor, curator of drawing at the Metropolitan Museum of Art, "because he refrained from drawing until he had meditated the building in all its essentials. When Wright was finally ready to draw he merely recorded a vision that had matured to singleness, the way Mozart wrote music."

Wright's drawing was more than mere recording; it was an act of fervor and vigor. And it is this quality that shows through powerfully in the best of his drawings and makes all of them joyful as well as profound. The several drawings shown here, which are portions of the big book's original plates, are only a sampling of the 200 drawings in the volume. Without intent, this selection demonstrates the sad fact that much of Wright's major work was never built. Thus the drawings not only reveal ideas, they are surrogates for the buildings that might have been.

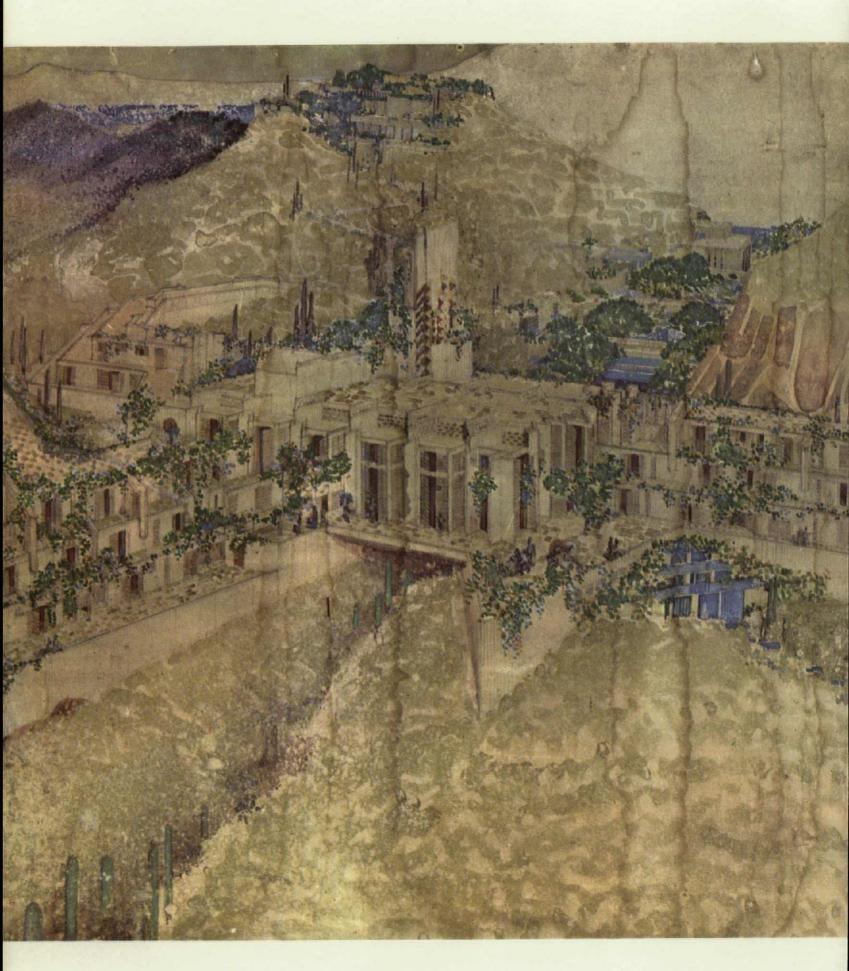
^{*}Frank Lloyd Wright drawings for a living architecture. Published for the Edgar J. Kaufmann and Bear Run Foundations by Horizon Press, 220 W. 42nd St., New York. 256 pp. 11 34 x 14 in. \$35.



planned for a site near Los Angeles, Calif. in Venice, in 1921. This rough pencil sketch of the late-period terraced house community was the basis of a planned in larger colored-pencil presentation drawing. for archite

The Masieri Memorial for the Grand Canal in Venice, Italy, shown in a characteristic late-period colored-pencil rendering, was planned in 1953 as a library and residence for architectural students.

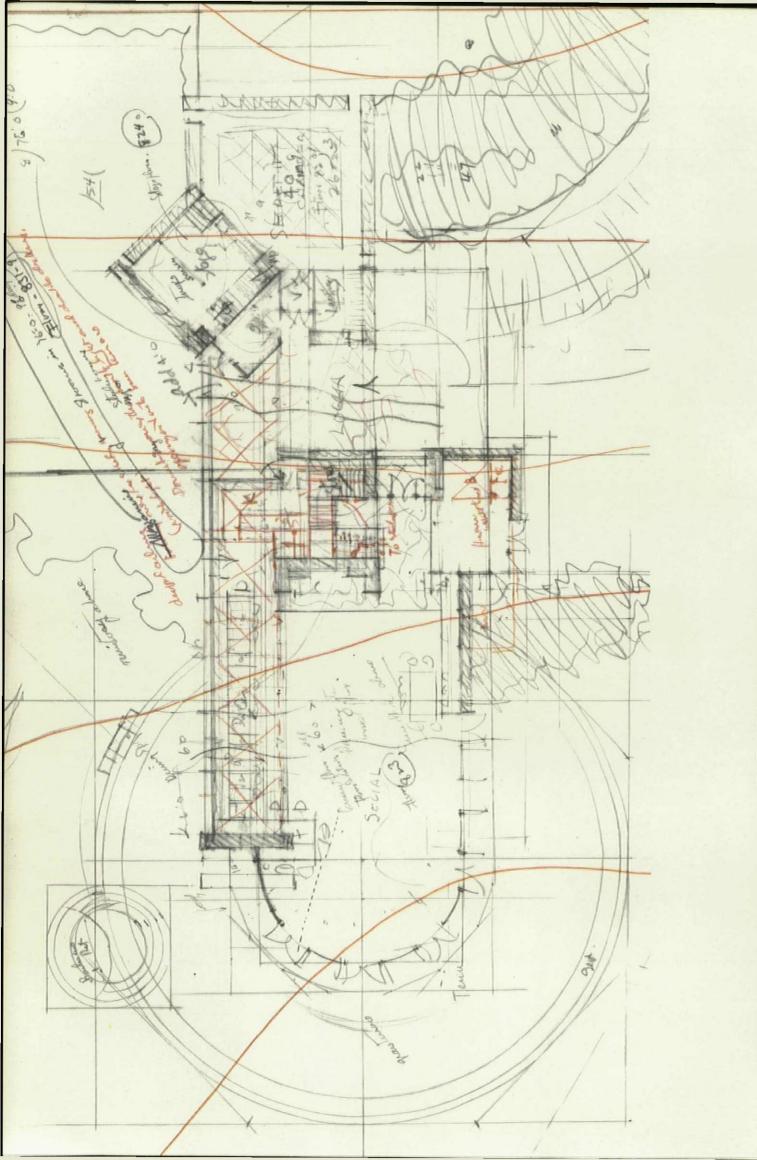




San-Marcos-in-the-Desert, a resort hotel and house colony projected for the Arizona desert near Chandler in 1927, although rendered with architectural accuracy and detail, could well be a design for a Japanese

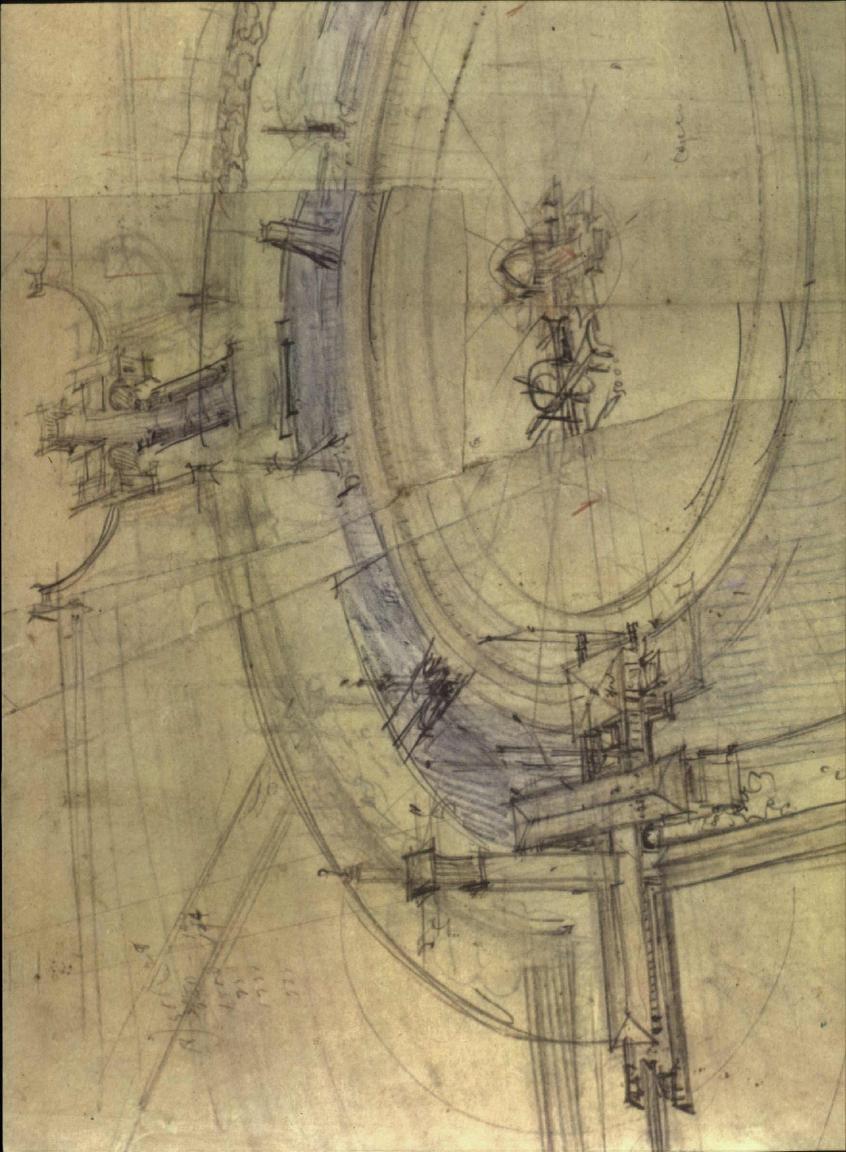
screen. Wright's rendering techniques used many of the principles of Japanese art. Presentation drawings roughed out by draftsmen generally received finishing touches, at least, from the master's hand.

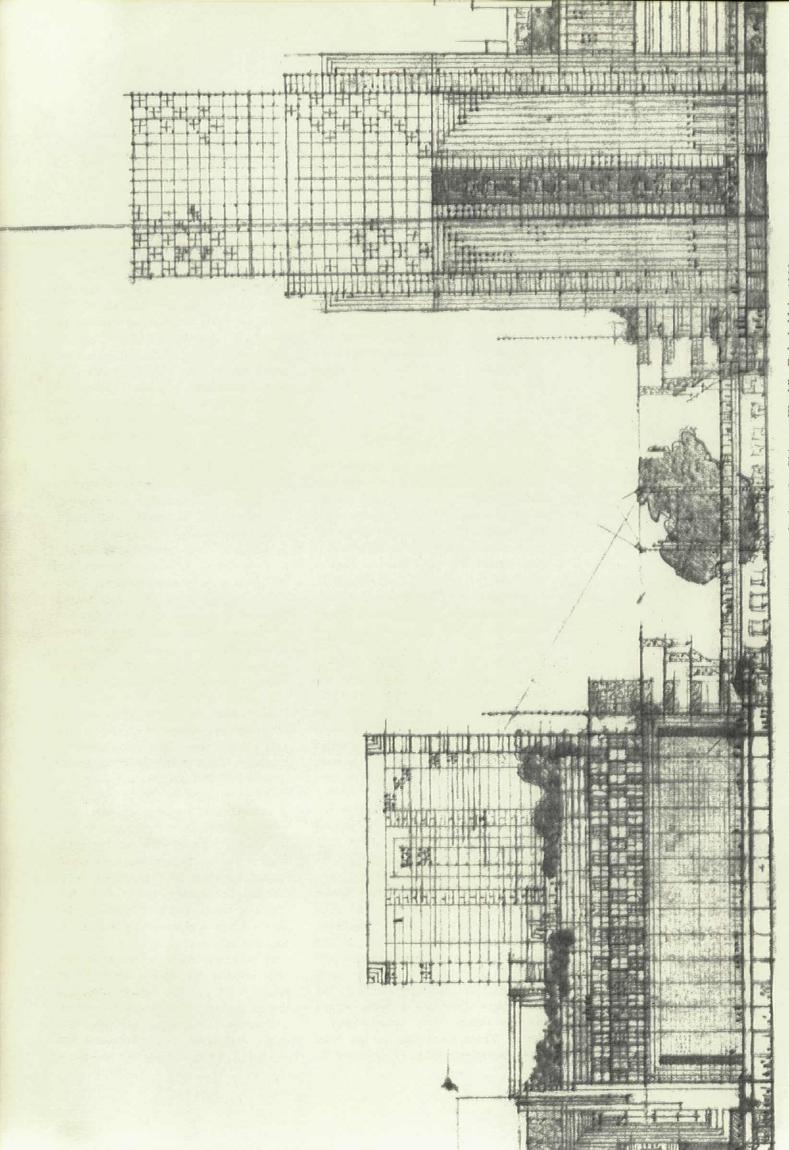




The Sigma Chi Fraternity House, proposed The Wolf for Hanover, Ind. in 1941, is shown as posed in 18 drafted by Wright. The sketch is typical of study is ty Wright's later study drawings which were, Later design effect, instructions to senior associates.

The Wolf Lake Amusement Park was proposed in 1895 for a site near Chicago. This study is typical of Wright's early drawings. Later designs were to scale, many showing plans and an elevation superimposed.





Frank Lloyd Wright's skyscraper regulation study of 1931 grew out of one of his proposals for the Chicago World's Fair held in 1933.

The romantic necessity

BY JOSEPH HUDNUT

The former dean of Harvard's Graduate School of Design, still active in architectural teaching, sees beyond the softening effect that recent trends have had on the severity of functional architecture to the needed strength today's culture might find in a rediscovery of its romance.

Oppressed by those hostile powers that arrayed him on all sides, primitive man built within his material world the immaterial world of his imagination; and the kindly gods, amused by man's impertinence, permitted him to believe in that comforting make-believe. Thus it happened that the human race survived.

A terrain not a hundred miles in diameter, encircling his palisaded village, comprised all that primitive man knew of the earth on which he lived. Beyond the narrow edge of his fields the dark forest opposed the rationality of his community with its unreasoned enmities. Beyond the forest the sky descended to enclose and isolate his life. Within these imprisonments, assailed by the recurrent rhythms of tempest, famine, and pestilence, primitive man lived alone.

But he was not alone. Happily the fields and the forest could be peopled with a companionable population. The invisible spirits of the sunlight and the wind, of fertility and the gentle rain, lived in the fields; and in the forest there could be heard at night the footsteps of the nymphs who at daybreak would dance at the margins of the meadows-the gentle wood nymphs who died with the trees in which they were born. And in the hills beyond the woods there lived the uncouth satyrs and the oreads with flower-enwoven tresses. There lived also in the hills sweet loquatious Echo. If you said to

her come she would answer come.

Thus in the childhood of our race we built into the dull cycle of our routines an inward fabric of wonder and beauty. That armature of the imagination, constantly enriched by new story and imagery, has ever since sustained our civilizations wherever these have endured. Woven into the stern actualities of our material world there exists today that ethereal world which after long centuries still presses upon us its liberating enthrallments. And to these coinages of the spirit, current today in our experiences and remembrances, we give-not without condescension-the name romance.

Romance is a fusion, both esthetic and psychical, of things known and things imagined or remembered. There is romance wherever there are blended into forms that are finite and familiar the essences of forms that are distant, strange, ideal, or infinite. Romance is an interlacing of desire and a present reality. Thus Keats, meeting a lady in the meads, knew her to be a faery's child. Thus Carpaccio, dreaming of Saint Ursula, suffused her with a holiness drawn from the inner circle of Heaven. Thus every knightly legend rides with Gattamelata and thus the thunderstorm of the Sixth Symphony is crowned with a sylvan serenity. Thus within the Paestum-like fover of the House of Seagram we sense the grandeur of that distant megaron in which walked the kings of Troy. There is romance in architecture whenever we recognize in buildings this ancient impulse of the spirit and know the delight of that recognition.

These sublimations, which have been until our day the certain resources of the arts, are also the certain resources of civilizations. They create the values that make civilizations valuable: the values that make our civilization worth defending. Enlightening the commerce

of life with legend and imagery, clothing with honor the clash of political rivalries, assuaging the cruelties of war with ceremony and adventure—the staff and ornament of religion, the melody of love—romance irradiates our world, as it irradiated the world of primitive man, with the illusions that men live by. "Romance," declared Frank Lloyd Wright, "is the essential joy of living."

It is an arresting fact that no poll of opinion, whether lay or professional, fails to give high honor to Boston's Trinity Church—as if that monument led two lives, one on either side of that abyss which separates the judgments of cognoscenti from the more immediate enthusiasms of the people. On one side of that widening gulf the critic, regretting the trivialities of a derivative style, spread over the masonry walls like chocolate frosting over a birthday cake, admires "the bold structural concept, the rationality of form, the plastic unity of the whole." On the opposite side the people, less curious of these abstractions, take the building to their hearts as the very embodiment of an age-old grandeur that evermore shall

We are wrong to condone such schisms in the judgments of architecture. We are wrong to think of an emotional content, thus derived from remembered associations, as something to be apprehended and enjoyed apart from stone and space and formal idea-as if it were not an integral element in the experience of the whole. To do that is to take architecture away from the people. Richardson proved—as if proof were necessary!-that romance may transfigure a building without the least prejudice to its integrity or to its formalisms (a reminder to those who build skyscrapers).

I think it a happy augury for architecture that people still find in the Lincoln Memorial so profound a reverberation of their love and reverence. For that expression we had need of the Greeks, the Greeks of the philosophic mind and democratic passion—and it is of no consequence that those Greeks never existed. We need not be afraid of such absurdities; they are inherent in all works of art; and in architecture

we may, as Santayana has suggested, dim our memory from time to time. That is why I shall not reproach the RCA Building for having recalled the soaring lines of a cathedral. Why should it not remind us of a cathedral? Although I would not have any honest utility made fatuous with irrelevent sentimentalities, I still like well those buildings which, when I first encounter them, begin our acquaintance with *Once upon a time*. . . .

The touchstone in the judgment of architecture is truth. But we must not be too rigorous in the meaning we give to that stoic word. Truth in architecture may be conformity to those actualities which can be counted and measured: to the nature of stone, to the purpose of enclosed space, to the climate of opinion in which a building stands. Such knowledge, directing and coloring perception, may and often does enter an esthetic experience and give that experience the authority of truth. But truth may be conformity to whatever idea or feeling a building is meant to channel. A building may be false to its techniques, to its function, and even good sense, and yet be faithful to that chant intérieur which is, or ought to be, a prime reality in architecture as in every art. That song is romance.

My affairs often bring me to a pleasant suburb of Boston in which there are many houses built in the colonial style. White, foursquare, distinguished (sometimes) in detail and decorously set along elm-shadowed streets, these houses maintain a surprising dignity and prestige. Whenever I have an architect as my guest I like to expose him to that confident respectability. I learn in that way the degree to which architectural judgments are tempered by romance. One of my guests, an architect of some distinction, remarked that people even in the suburbs ought to express in contemporary materials their own way of life. (It seemed to me that that was precisely what they were doing!) Another guest, who might be described as a sociological architect, condemned these houses outright as the "products of a ruthless individualism" (the ruthless individualism, I suppose, of a junior executive who hopes to be-



come an assistant to the vice president). Still another guest, a recent graduate of the School of Design, summed up all colonial houses as nothing but elegant lies, refuges of the impotent forms of graceful dying—and in a moment of exceptional restraint he added: putrid.

Plausible as these judgments seem in my library, I find when I am in Wellesley Hills many shameful delights in this gentle masquerade. Disentangled from social consciousness and from the necessity of expressing our era-and from those pleasures of dialectic which engage the students of architectural schools-these self-respecting houses, living within their frame of accepted conventions, saying expected things gracefully (as a gentleman should), attain a quiet eloquence merely by being themselves. No doubt they are only another of the infinite conformities of suburbia: conformities which include, as it happens, a conformity called marriage, a dedication called civic virtue, and lovalties which are the foundation stones of our civilization. Those who think that romance cannot illume a conformity have not looked deeply into the human heart.

The best modern houses are those which recapture these universal resonances. The best modern houses are apt to be symmetrical, proportioned, and in their lines reticent. They, too, look out



COURTESY THE BETTMANN ARCHIV

on lawn and trees. That they are built of plate glass is a circumstance of less import than people sometimes imagine. We are too much concerned in these matters with outward show. We do not always perceive that modern houses in their inward grace often continue the renaissance.

We have need of symbols. On that sea of loneliness upon which our sciences have set us adrift symbols are the masts to which we cling. The ancient symbols—the spire, the Doric peristyle, the colonial house-are losing their universal meanings. We have played these records too long. There is no longer gold in those worked-out mines. We must, then, invent new symbols and learn how to give them new meanings. Until our modern house becomes a symbol the people will live in colonial houses-unless, of course, they find a more certain lodestar in the split-level ranch.

This nation owes a debt of gratitude to that excellent advisory board which assists the State Department in the choice of architects for embassies built in foreign lands. Through a subtle diplomacy of selection the State Department, thus advised, has reminded architects of the romantic necessity. And surely it is most appropriate that this reminder should have a visible

consequence in those buildings which represent around the world the most romantic of nations.

How shall we describe these surprising and often delightful buildings-at Baghdad, at Seoul, at Dublin: these well-behaved tourists who neither astonish the people of other lands with glittering splinters of Hollywood nor yet provide tilting grounds for new philosophies of design? Too varied to admit of classification, our embassies have forgotten the clichés of modernism as if a sudden curtain had descended before our unintelligible quarrels. Over delicate columns of gold, sunny domes lift a fragile grace; roofs undulate like the Sea of Sinbad or dance zigzag ecstacies that are responsible only to themselves; grilles borrowed from the Moguls, even from imaginary Moguls, screen the State Department's hushed arcana-which turns out to be only a Persian garden; and at Bangkok an enameled pagoda rides the templed canal like a wonderful water lily. Not since the opulent days of the Beaux-Arts have architects thus let themselves

Into the anxieties and longings of the world beyond the seas these couriers weave the thread of an America dimly known by those who know only the luxuries of our films, and the voices of our vacationers crowding into the Folies-Bergéres. Are we not, then, bar-

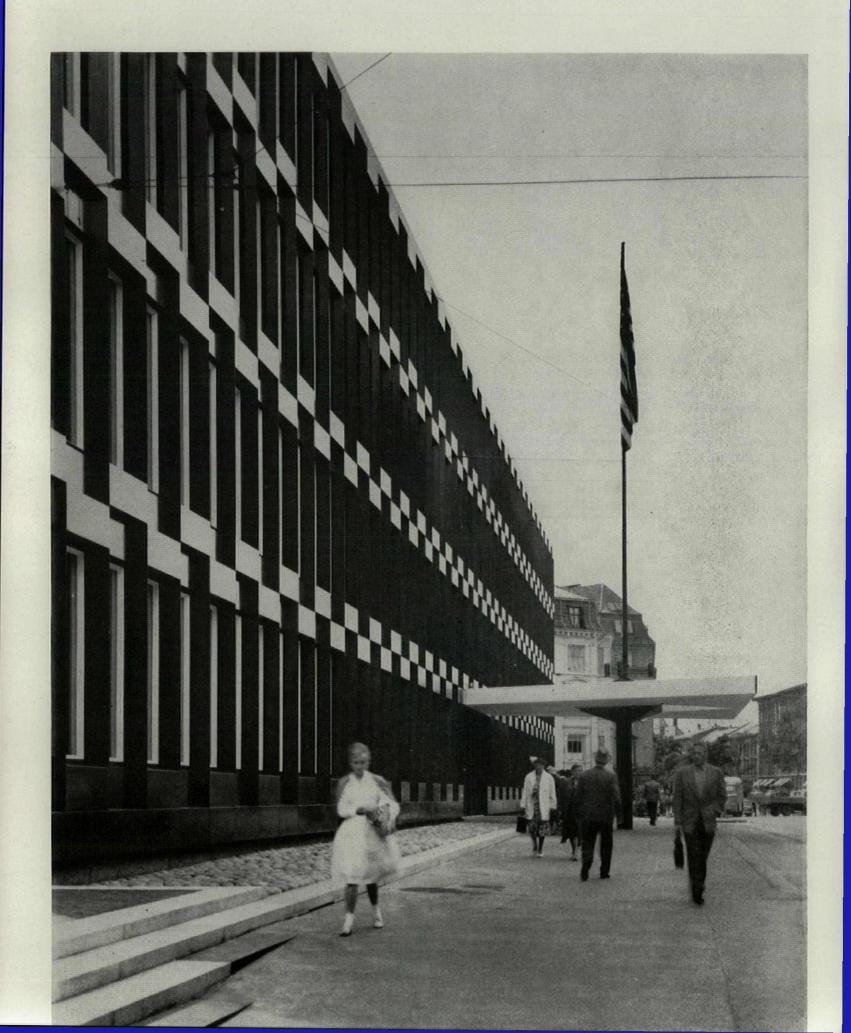
barians who think only of oil and steel and the things that oil and steel will buy? Our embassy in Grosvenor Square is shaped, and in no mean fashion, by the great renowns that still inhabit there; our garden in Baghdad is stirred by the voice of Scheherazade; and at Athens an American Bauhaus remembers the marble stoa and the Gateway to the Acropolis. Barbarians do not remember.

I do not suggest that the gentle millenaries of our architects abroad, thus informed with discreet distillations of India, of Iraq, of Dublin, are the beginnings of a romantic revival. They recall neither the uninhibited pomp of McKim nor the Neo-Gothic nostalgia; and certainly they have no commerce with that decorator's romance which expresses itself in lace curtains and antimacassars. Their romance, I think, is less fragile and more universal. Within the delight of our recent architecture they have satisfied for a moment our more persistent and more ancient hunger for myths and symbols. They have escaped like truant schoolboys the strict discipline of our industrial era.

In these matters it is the first step that counts. The architect who has known liberty, whether abroad or at home, will seek liberty however invincible are the imprisonments of his philosophy. The functional revelation loses

continued on page 188

Norway's precast palazzo

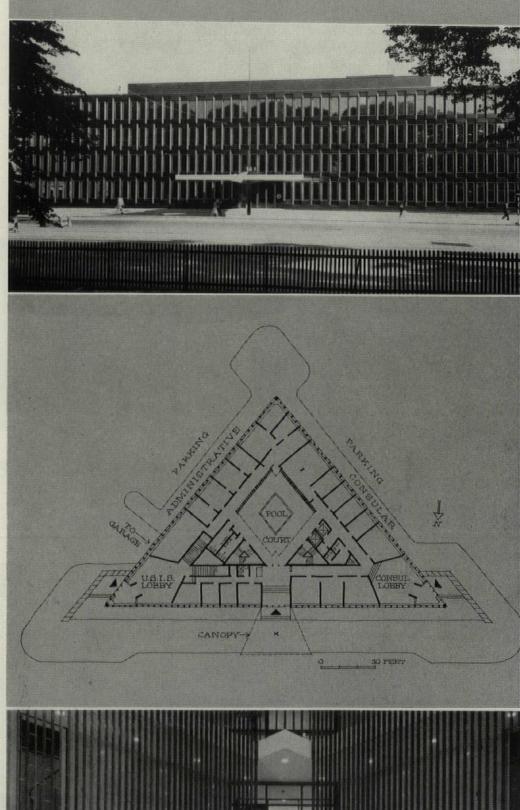


Built in a triangle around a weathertight court, the new U.S. Embassy in Oslo displays a boldly patterned structure of rare polish

One of the more arresting and popular new sights in downtown Oslo this winter is the façade shown at left: a darkly handsome checkerboard of precast wall frames surfaced in a lustrous. greenish-black Norwegian Ranging 190 feet along the old and fashionable Drammensveien, Architect Eero Saarinen's newest U.S. Embassy, like his earlier design for London, creates its own sharp, fresh structural rhythm while respecting the formal, continuous lines of older, Renaissancestyle neighbors. But even more than the big, white, London Embassy, whose strong patterns tend to heaviness among the red-brick manses of Grosvenor Square, the elegant detailing and rich, quiet polish of the Oslo building seem quite at home with the spacious greenery of the Royal Palace Park across the way. Nine out of ten Oslonians questioned by FORUM say they like the new addition, and some rank it among the town hall, palace, and museums as one of the city's major attractions.

Given a splendid view, and a three-cornered block left over by Oslo's meandering street system, Saarinen organized the new embassy offices into a kind of triangular Renaissance palazzo facing out to the park, and in toward a diamond-shaped court (right). To keep the court warm and weathertight during Oslo's long, gray winters, he also provided it with a diamondlike skylight, lively wall patterns, and a visitors' sculpture pool (overleaf).

Checkerboard façade of deep wall frames (left) gives passers-by a changing, threedimensional impression. Canopied entrance at center leads into a tall interior court which serves as a reception area (right).





U.S. EMBASSY OFFICE BUILDING, Oslo, Norway.

ARCHITECTS: Eero Saarinen & Assoc.; Engh,
Qvam & Kiaer, associated architects.

INTERIOR DESIGNER: Susan Tucker.

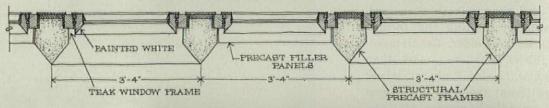
ENGINEERS. Ing. Bonde & Co. (structural);

Ing. Gjert Aasheim (mechanical);

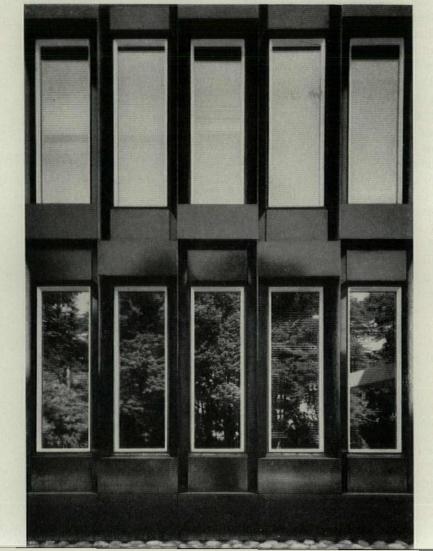
Ing. Sverre Bolkesjo (electrical).

GENERAL CONTRACTOR: Nils Stiansen.

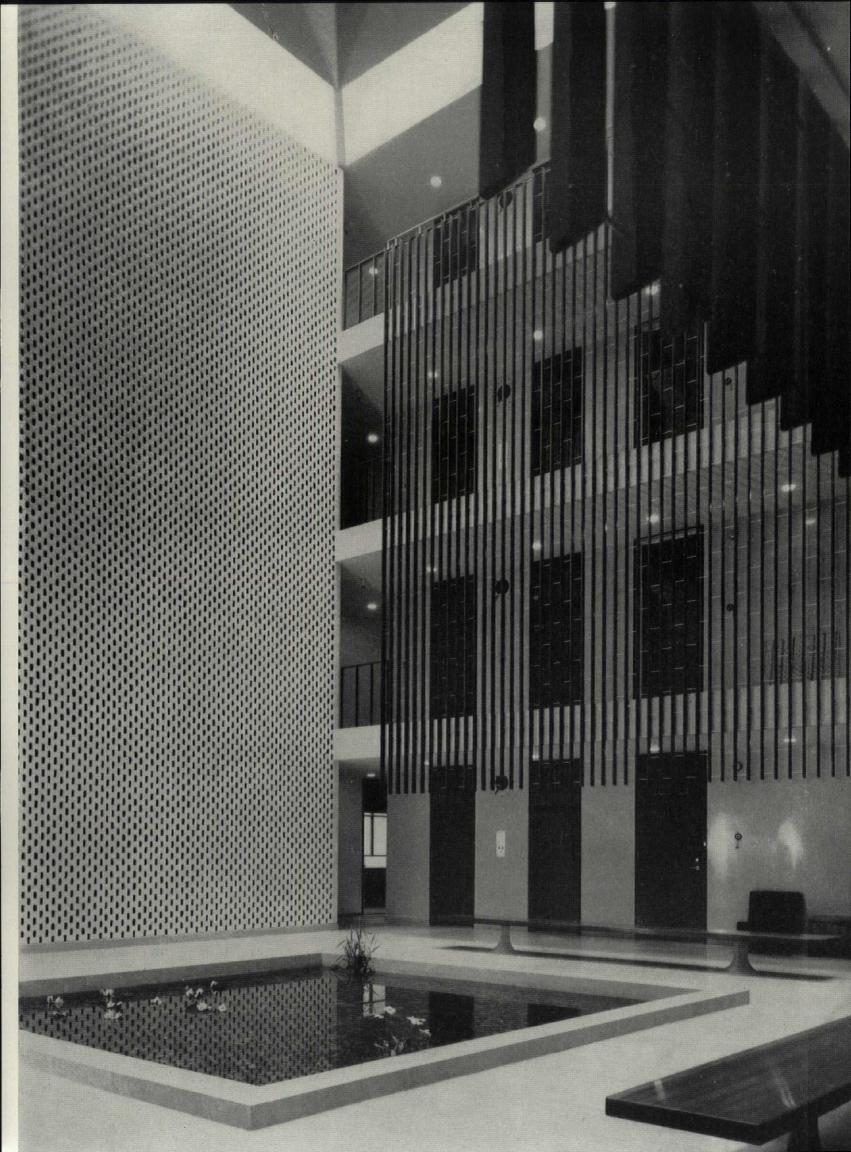
Sharp detailing of teak door frames and white jambs recalls the pattern and proportions of the exterior (below). Lined up in precise perspective, the doors provide internal communication between administrative offices.

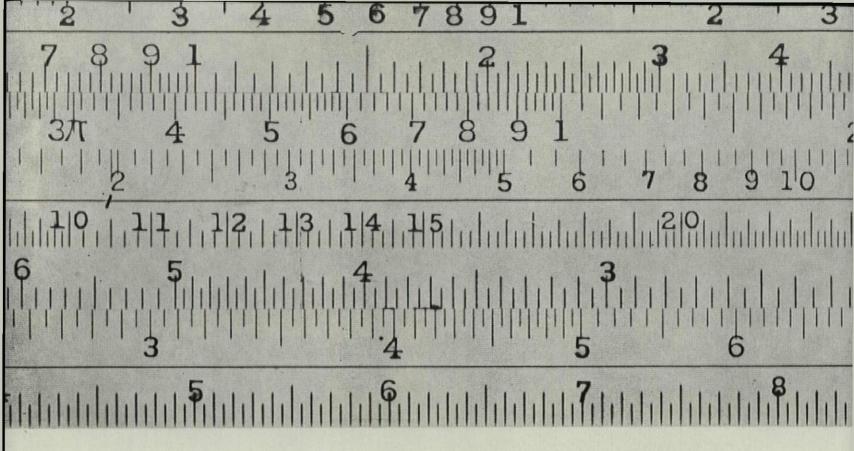


Elegant exterior unites the office module with the outside structural system. Set on top of one another in a staggered pattern, the wall frames were precast of reinforced concrete with an integral surface of black-green granite chips, highly polished. Between the protruding frames were placed recessed filler panels of the same material, and teak window frames with white jambs were set in all openings. The base of the building is raised slightly and separated from the sidewalk by a textured cobblestone strip; the windows reflect the gardens of the Royal Palace.



Interior court (opposite page) is rimmed by a skylight around a diamond-patterned ceiling, which contains warm downlighting for sunless winter months. The institutional-looking grille shielding corridor doors to washrooms, elevators, and stairs is actually of handsome natural teak. Visitors entering at right will face a 15-foot sculpture (not yet completed) rising out of the pool against two pierced walls of light-colored brick. Tree and plant beds will also be placed on the warm beige travertine floor.





Technology

The expanding engineer

Growing faster than any other professional group in building, the engineer is beset by growth problems, low income, and a widening cultural gap in architect - engineer relations —a FORUM survey

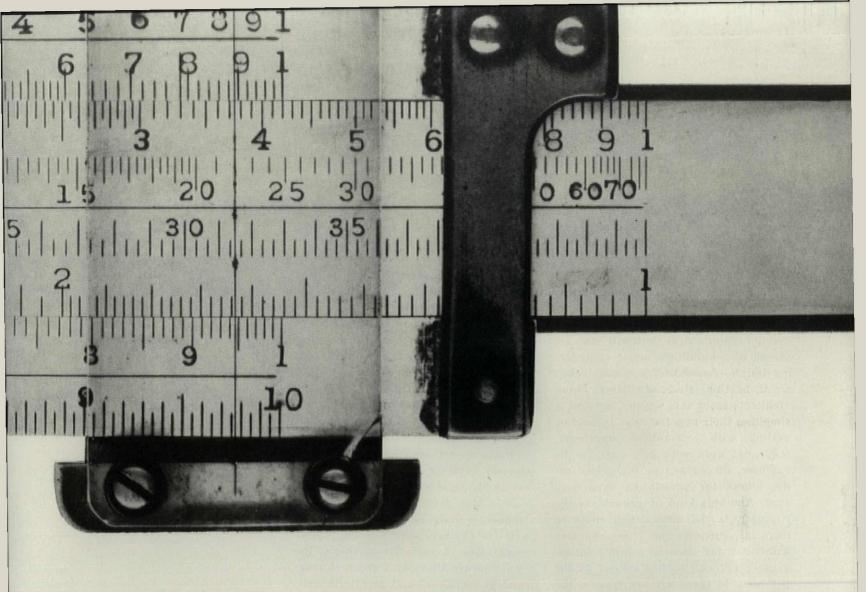
BY DAVID ALLISON

No man in building has risen more rapidly to a position of responsibility during the past half-century than the engineer. Where once he was called upon only to see that the building frame went together in a logical way, he now takes charge of the foundation design, the frame, the heating and airconditioning systems, the lighting and electrical work, and the problems of noise control. Sometimes, in a highly complex structure, such as a chemical plant, he will be responsible for as much as 80 per cent of a building's design; more often, he will handle up to 40 per cent of it, usually under the coordinating hand of an architect.

And yet, for all his importance in contemporary building, very little is known about the engineer, other than that few other professional groups, either within or without the building industry, are multiplying at a more accelerated rate. To learn something more of the profession—its make-up and the patterns which appear to be taking shape within it—FORUM has surveyed 364 engineering firms across the U.S. Because this is no more than

a sample and economic reporting is sparse even within this sample, no listing of the major engineering elements by rank or size can be attempted. This is simply a preliminary portrait of a new phenomenon.

From this survey data-some of which is shown in the charts on page 137-and from other data obtained from engineering societies and journals, a rather incongruous portrait emerges. There are no less than a dozen categories of engineering firms, comprising a mixture in singular or combined forms of structural, mechanical, civil, and electrical engineering, plus specialties-indicating a profession growing like Topsy. They range in size from many small firms, with less than a dozen employees, to an important few who employ several hundred. Their gross incomes spread over a few thousand dollars per year up to more than \$5 million, with no consistent correlation between number of employees and gross income, since some firms with relatively few people manage to turn out great masses of work. Finally, in a profession



whose growth is nearly as vigorous as the petrochemical industry's, profit levels are comparable to those of a mismanaged railroad. The average annual gross from fees is only some \$10,500 per person on the payroll, little more than the income of a tradesman.

The lurking danger

This low-income level, perpetrated by a willingness within the profession to allow a minimum recommended fees to become accepted maximums, cannot but weaken one of building's most essential underpinnings: its technological capability. Low income precludes any really basic or long-range research in building engineering.

To be sure, the survey has found many engineers who will not work for a minimum fee, men with established reputations of excellence, enabling them to demand more equitable returns. Moreover, there are building engineering problems which demand far more design time and capability than can be purchased with a minimum fee. Thus there is always a demand for the "special" engineer. But, of course, the

demand is much greater for the cutrate service, a fact substantiated again and again in FORUM's survey. "It is something like the current cigarette commercial," says one engineer:

"'Pardon me, sir, I see that you are a structural engineer.'

"'No, not exactly, but structural engineering is my hobby.'"

The engineer explains that this is the only rationale: "If you like engineering, take it up as a hobby, because there is no money in it."

Where does this lead? It would lead, certainly, toward a pervasive mediocrity in building engineering, except that many engineers want so much to dedicate their efforts to building that the financial return—up to a point—becomes secondary to the stimulation of problem-solving.

Nonetheless, it is risky to assume that this dedication will last without more incentives, and that building can continue to attract the necessary brain power for an expanding technology. Indeed, the survey has tracked down a handful of highly creative structural engineers who are finding more excit-

ment and returns in designing rocketlaunching facilities and space ships. Says one: "The below-average engineer has to stay in building, but the good engineer is wasting his time."

Trends in engineering

Obviously, such negative views have done little to discourage many young men from entering the profession. One survey, covering some 5,000 engineering offices, shows that two thirds of all engineering consulting firms in the U.S. were established since World War II. And one third of all firms are five years old or younger, a fact which helps to explain the difficulty of establishing a healthier fee structure. The new firm is willing to accept inordinately low fees until it has established a reputation in building. Further, the architect will often "shop" for his engineering talent, thus perpetuating the practice. Having himself accepted a design commission at a low fee, the architect is compelled to scout around for engineering firms who will work for him at comparable low levels.

This prevailing tightfistedness has

prompted two notable trends within the engineering profession. Each serves to strengthen the "business" side of the engineering office and, indeed, many engineers maintain that all design can be carried on more effectively under these schemes.

The first is the "integrated" engineering office, a firm that will contract for all of a building's major engineering design-foundation, structural, electrical, heating, air conditioning. Many architects favor this scheme, because it simplifies their negotiations; instead of dealing with half-a-dozen engineers, they need work with only one. To the engineer, of course, the integrated office allows for growth by expanding staff. And this kind of growth, to the engineer, is the most direct route to financial success. As one engineer points out, for example, a firm's annual gross profit can seldom exceed \$1,000 per man. If there are six men in the firm, five of them registered engineers, the net return to the firm's principals can never be great. On the other hand, if the firm has 100 men, the \$1,000 gross profit per man becomes more significant; moreover, a firm of this size would likely have fewer registered engineers, in proportion, than the smaller office. (According to FORUM's survey, a firm of 100 men generally has only 20 or 25 registered engineers on its staff.)

The engineer who believes in the principle of integration maintains that he can perform his functions more effectively-and more to the satisfaction of the architect and client-because all engineering responsibility is under the supervision of one man. Thus, all engineering design is coordinated and complementary. Opponents of integration, including many prominent engineers, argue that too much knowledge is demanded in each of the building engineering fields to permit any one firm to become proficient in all of them. The result, according to this thesis, is that a group of engineers who are wellqualified in one field dilute their talents by attempting to extend themselves into other segments of building engineering. Nonetheless, despite these contrary views, the integrated service is growing: of the 364 firms surveyed by FORUM, about 30 per cent said they perform in at least three areas of building engineering; about 10 per cent perform in four areas or more.

The second trend to be noted among the engineering groups is the growing tendency of engineers to seek design commissions directly from building clients, rather than from the architects. With the commission in hand, the engineer then selects an architect, and perhaps other engineering firms as well, to make up his design team. The more complex building designs, such as processing plants, chemical plants, which involve a high degree of engineering, are frequently designed under such a plan, with the engineer acting as the project coordinator. A variation of this is the joint-venture alliance: a group of independent engineers and architects combine forces to secure a specific contract, e.g., a large laboratory project. Normally, the architect will act as the project administrator, though it is possible for any member of the alliance to head the group.

There also are other combinations by which building engineering gets done. There are the engineer-architect firms, for example, which are capable of taking on all segments of design. And there are the architect-engineers, similarly equipped. Both types are increasing in number, accounting for an important segment of total building design. Further, there are the "package builders" (FORUM, Apr. '58) who execute all design and engineering, plus construction, a group not considered in this survey. Together, these three groups design well over half of all industrial, commercial, and public utility construction in the U.S.

According to one survey of the engineering profession, about one building engineering firm in five does some architectural design. Some firms—an estimate would be one firm in 20—carry a full staff of architects. However, in the more "typical" engineering firm,

At right are two lists of prominent U.S. engineering firms in the building field. One is made up of ten of the largest offices (with 185 to 564 employees). The other group consists of 36 of the largest firms (25 to 180 employees) which are principally involved with architectural design: at least 65 per cent of the work of these firms is done for architects. Firms in this second group are probably making a greater aggregate contribution to building science. (Note that most of the work of all ten of the firms in the first group is done for someone other than architects, e.g., bridge and dam design.)

Most of the firms in the first group are integrated offices, providing at least four kinds of engineering service. Only one can be regarded as a specialist: Ammann & Whitney. Among the second group of \$6, on the other hand, there are \$25 specialists; only one firm in six is an integrated office. Gross fees for the ten large firms range from \$1.5 million to over \$5 million per year. The range for the second group is \$200,000 to over \$1 million.

representing those 80 per cent who do not carry staff architects, there seems to be no widespread desire to expand into architectural design. Those few firms which are considering such an expansion intend to retain their engineering character, using their architect staffs in the design of structures which are primarily problems in building engineering.

Portrait of the profession

In describing the consulting engineering profession-the firms which do not encroach on either architectural design or construction-perhaps the most ill-chosen adjective ever used is the word "typical," for there is no "typical" office, and no "typical" consulting engineer. Among the firms included in FORUM's survey, there is no pattern which indicates that the profession is headed in the direction of the integrated office; on the other hand, the statistics do not suggest a predominance of specialists. For example, among the firms surveyed, one in five indicated that it was equipped to provide all types of major engineering service: structural, electrical, mechani-

Engineers in building				Type of work performed (% of total)					Per cent
10 of the largest	Total employees	Registered engineers	Other technicians	Structural	Mechanical	Electrical	Civil	Other	of work performed for architects
Metcalf & Eddy (Boston)	564	97	359	20	20	15	10	35	10
Parsons, Brinckerhoff, Hall & Macdonald (New York)	370	80	284	20	10	5	50	15	15-30
Ammann & Whitney (New York)	347	55	237	85	1	2	10	2	7
Henningson, Durham & Richardson (Omaha)	265	37	183	5	20	10	25	40	10
Seelye, Stevenson, Value & Knecht (New York)	231	53	147	48	_	22 —	12	18	45
Singmaster & Breyer (New York)	200	35	120	10	50	10	5	35	10
Whitman, Requardt (Baltimore)	200	40	150	20	20	15	45	-	25
Benham Engineering (Oklahoma City)	155	29	114	20	15	15	30	20	25
Guy B. Panero (New York)	135	32	103	_	45	35	10	20	40
H. E. Bovay Jr. (Houston)	130	40	70	15	20	20	20	25	35
36 of the largest building specialists									
Beeman, Britt, Curley & Jaffer (Tampa)	30	14	16	50	20	20		10	90
Beling Engineering (Moline)	75	25	30		60	20	10	10	80
Brandow & Johnston (Los Angeles)	30	15	15	100	_	_	_	-	95
D. E. Britt (Fort Lauderdale)	25	6	18	95	3	2	1	-	90
Buerkel & Co. (Boston)	75	12	40	_	95	5	-	-	75
Buonaccorsi & Murray (San Francisco)	65	9	40	-	70	25	1 1 E 1 E 1	5	80
Byers, Urban, Klug & Pittenger (Cleveland)	34	12		COTTON IN	70	30	day significan		85
Cleverdon, Varney & Pike (Boston)	90	15	65	40	26	26	8		75
A. Ernest D'Ambly (Philadelphia)	44	8	32		66	34	Section 1	-	99
Dudley Deane (San Francisco)	40	8	25		67	33	_	and The	80
John Dolio (Chicago)	45	20	25	-	70	30	-	-	70
Fred S. Dubin (Hartford)	80	12	55	10	53	28	7	2	80
Edwards & Hjorth (New York)	35	10	20	95	5	-	-		90
Murray Erick (Los Angeles)	33	10	20	98	_	-	2	-	85
James A. Evans (Birmingham)	25	10	12	-	80	20	_	-	70
V. L. Falotico (Brooklyn)	31	4	27	-	60	40	-	-	100
Ferris & Hamig (St. Louis)	25	3	18	-	65	35	-	-	90
Fraioli-Blum-Yesselman (New York)	42	6	31	95	-	-	5	-	80
Hilburg & Turpin (Los Angeles)	25	5	20	_	50	50	-		70
Hyde & Bobbio (Detroit)	38	7	26	5	60	35	-		70
Krey & Hunt (New York)	50	7	35	-	- :	100 —	-	_	80
Leo L. Landauer (Dallas)	25	7	17	-	75	25	_	-	90
Marchant & Minges (West Hartford)	30	10	17	45	30	20	5	-	80
Ralph E. Phillips (Los Angeles)	40	10	30	-	60	40	_	-	65
E. R. Ronald (Louisville)	30	6	21	-	55	25	-	20	80
J. M. Rotz (Indianapolis)	25	7	15	_	65	35	_	_	80
James Ruderman (New York)	31	14	17	100	-	-	-	-	90
Sears & Kopf (New York)	41	6	30	-	60	40	_	-	90
Severud-Elstad-Krueger (New York) Slocum & Fuller (New York)	75 45	21 8	49 30	90	60	40	10	_	85 70
Swanson-Rink (Denver)	30	10	18		25	73		2	
Syska & Hennessy (New York)	180	40	100	_	60	40		2	80 80
Vogelbach & Baumann (Jersey City)	30	4	20		40	40	10 F	20	85
Weinberger, Frieman, Leichtman & Quinn (New Yor		11	20	100	-	-		_	90
Weiskopf & Pickworth (New York)	55	25	30	95			5		95
Worthington, Skilling, Helle & Jackson (Seattle)	35	15	18	90	_	_	10		90

cal, and civil. But about one firm in three has an interest in only one kind of engineering, whether it be structural, mechanical, or some other. The only combination which shows up in any significant number is the mechanical-electrical firm: about one firm in six works exclusively in this area. But of all other firms covered, including offices which handle structural design, for example, or some other type of engineering, almost one third said that they were equipped to do electrical and mechanical engineering along with their other work. In other words, there is no single pattern into which most engineering firms can be put, and no apparent trend toward any one pattern.

However, there are other facts about the engineers which do form an orderly portrait. For example, most of the firms in the U.S. employ no more than ten people. Only one firm in five has eleven employees or more, and only one firm in 30 employs 100 or more people (but this small group employs about 40 per cent of all people who work for consulting engineers).

Among all consulting engineers, only 16 per cent of their work comes through architects. This reflects the fact that most of the largest firms concentrate on power plants, highways, etc., and that most of the very small firms concentrate on small surveying jobs for individuals and local governments. In between are the firms that work for architects. The second chart, page 137, lists 36 of the largest such firms, all of which perform 65 per cent or more of their work for architects.

A philosophy of engineering

In a field so complex as building, with so many elements to play upon one another and so many talents tangled together in the course of an evolving design, there must inevitably arise certain conflicts between architect and engineer. There are cases of infringement, for example, with the architect doing work which rightfully belongs to the engineer, such as the design of

drainage systems, and others involving engineers doing the work of architects. Since 1958, a joint committee of the Engineers' Joint Council and the American Institute of Architects has been working to develop "proper relations between engineers and architects" and to cooperate on problems of mutual interest in areas such as design and site planning. Subcommittees of EJC-AIA are currently investigating such problems as professional liability, division of responsibility, engineer-architect collaboration, and the establishment of principles relating to fee practices. The first results of this collaboration are expected to be forthcoming in about two years.

What is the individual engineer's philosophy with regard to his role in the building process? Where, in his view, does the architect belong? The opinions of many engineers who were questioned by FORUM on these points might startle some architects. Indeed, anyone who characterizes the "typical" engineer as a rigorous defender of a kind of superiority cult may be shaken by the following expression, typical of others heard, from the director of engineering of one of the largest consulting offices in the U.S. Says Daniel T. Webster Jr., of Guy B. Panero Engineers: "We feel that the client is apt to get a more responsible job if he hires an architect."

And from Fred N. Severud, the creative structural engineer of Severud-Elstad-Krueger, comes this view: "The architect is the essential man on the team. It is wrong for the engineer to take anything away from the architect. The architect must have the authority and all efforts must be focused on that point to create the best possible conditions for the architectural design." With what is clearly a European concept of life, Severud compares the relationship of the architect and the design team to that of the father and the family: "Just because the wife has better knowledge of a certain problem. it does not mean she has better judgment. It is the responsibility of the

father to make the decisions, to exercise judgment." Should the engineer have closer contact with the building client? Severud believes not, because it would "tend to force disunity within the team."

When should this teamwork begin? To a man, the engineers urge that it must begin "at the earliest stages of design," so that the engineer can "project his ideas into the mind of the architect." The able architect will be capable of absorbing this information, handling it with freedom. The result is sometimes great architecture; it is likely to be good architecture, although either achievement is perhaps more difficult today than it was in years past, when the architect had fewer elements to coordinate and, thus, could more easily master his design. Today's architect, say many engineers, often finds himself in a strait-jacket: he tries to weave together the ideas given him by the specialists in structural, electrical, mechanical, and other facets of engineering, but the design is unsuccessful, because the essential spark is missing.

Some may attribute this to the failure of educators in architecture to assimilate and transmit a firm understanding of the tools of technology to the upcoming generations of architects. And similar accusations may be thrust at the schools of engineering, that they are failing to teach the meaning of architecture in their heavy emphasis on engineering subjects. Whatever the cause, the human product of either system is something of a mystery. As one prominent Midwest engineer says: "I do not see how two boys can come from similar backgrounds, be close friends, go to school together, then come out such completely different people. One turns to engineering; the other to architecture. The engineer seems interested only in practicalities, and the architect only in esthetics."

The highly specialized nature of education, largely brought about by the absurd belief that there simply is not time enough for some grounding in related fields, has created a gulf between architecture and engineering. (A prominent school of architecture, which happens to be within walking distance of some of the world's most respected authorities in foundations engineering, has squeezed out of its curriculum a two-hour lecture on foundations, once a part of its undergraduate training. There is not, it says, sufficient time for this fundamental during a four-year program.)

But the widening gulf is not merely an awkward phenomenon of modern architecture, something which propagates mediocre buildings and a grotesque clashing of art and science. Rather, it is a symptom of a greater ill, a characteristic weakness which grips modern society. Building is only a fragment of this. The great British novelist and scientist, C. P. Snow, has strikingly characterized this society as one of two cultures-the literary or artistic and the scientific-barely able any longer to communicate with each other. Says Snow: "It is bizarre how very little of twentieth-century science has been assimilated into twentiethcentury art. . . . There seems to be no place where the cultures meet. I am not going to waste time saying that this is a pity. It is much worse than that. . . . At the heart of thought and creation we are letting some of our best chances go by default."

Why is there danger in this widening gap between art and science? Says Snow: "Closing the gap between our cultures is a necessity in the most abstract intellectual sense, as well as in the most practical. When those two senses have grown apart, then no society is going to be able to think with wisdom. For the sake of the intellectual life, for the sake of this country's special danger, for the sake of the Western society living precariously rich among the poor, for the sake of the poor who need not be poor if there is intelligence in the world, it is obligatory for us and the Americans and the whole West to look at our education with fresh eyes."

The other specialists: light, sound, and the earth

Within the matrix of building engineers, but usually too small as a group to be noted, are three important specialists: the lighting consultant, the acoustical consultant, and the foundation engineer. Few structures are built today without guidance from at least one of these, and the designers of most major buildings dare not venture far without consulting all three.

Two of the specialties-lighting and acoustics-are relative newcomers. The third, foundation engineering, perhaps the most advanced of the building sciences, has been around longer. Each has had a marked influence on contemporary architecture. Lighting and acoustics are linked by a common bond: the outstanding people in these fields are generally trained in both the physical sciences and architecture. Similarly, acoustics and foundation engineering, though far apart as elements in building, are led by men whose professional origin was the university laboratory. Many of them continue to have two careers, one at the university and the other in building itself, as prominent consultants.

The lighting consultants

There are some 30 firms in the U.S. which describe themselves as specialists in building illumination. The illumination man differs from the electrical engineer in that he specializes in lighting effects, as opposed to the engineer's responsibility for plans and specifications for the over-all electrical job. (A few electrical engineering consultants also perform in the illumination field, having illumination men on their staffs. Two examples: Syska & Hennessy's Felix B. Graham and Hyde & Bobbio's S.S. Squillace.) Richard Kelly, of New York, is perhaps the most prominent example of a consultant whose background includes both physics and architecture. But a number of others, such as Abe Feder and Jean Rosenthal, both of New York, have come to building by way of the theater, i.e., stage lighting. Most illumination consultants work with small staffs: of the firms covered in FORUM's survey, only one in five employs as many as ten people. And four firms in five said that at least 75 per cent of their work is done for architects.

The acoustical consultants

There are some 40 acoustical consultants in U.S. building, many oneman firms affiliated with a scientific activity of a major university. Two examples: Cyril M. Harris of Columbia University, and Vern O. Knudsen of U.C.L.A. The "typical" acoustics man, comprising more than half of the firms surveyed, spends about half of his time on the problems of acoustics and noise control in building, the other half on industrial noise control and design of noisefree products. Thus today's acoustics problems are more varied than those of a generation ago, when the consultant dealt mainly with auditorium design. Only one acoustics firm in five employs more than ten people. The most notable exception is Bolt, Beranek & Newman of Cambridge, Mass., which began as a three-man firm ten years ago and now employs 120 people, doing about 20 per cent of its work for architects.

The foundation engineers

Most of the work of the foundation engineer-there are some 25 to 30 firms in the U.S.-is done outside the building field, e.g., dams, bridge foundations, roads. Only about 30 per cent of the work of most foundation men comes to them through architects. Some of the most important consultants are university professors, such as Arthur and Leo Casagrande at Harvard, Ralph Peck at the University of Illinois, and Philip Rutledge, now of Moran, Proctor, Meuser & Rutledge, who was long associated with Northwestern University. This tradition traces to Karl Terzaghi, the father of the science of soil behavior, himself a great teacher and engineer, who taught most of today's leaders in the field. Thus, many foundation consultants maintain small offices, with three or four men. Large firms are exceptional in this field.

Soothing noises . . . recessed equipment . . . rent-free offices . . . clear-span space

How to overcome the noisetransmitting drawbacks of lightweight office partitions.

Install noisemaking devices of a pleasing frequency in air-conditioning diffusers to override ordinary office noises.

So far it is virtually impossible to produce portable, lightweight partition panels that are fully soundproof; at the point where they become heavy enough to absorb all ordinary office noises they are no longer portable.

Anxious to preserve the lightweight feature of partitions in the new Time & Life Building in New York, the owner sought help from Acoustical Consultants Bolt-Bera-nek & Newman, Inc., who came up with a solution. Although all air-conditioning systems produce some air noise, the consultants designed I-beam-shaped metallic noisemaker to be installed in the air-conditioning diffusers in each office. The rush of conditioned air (warm in winter, cool in summer) around the "I-beam" gives off a controlled sound concentrated in the frequencies where the partitions are acoustically weak -a humming noise that will deaden the sound of talk, typewriters, and telephones. The hum itself, it is reported, will be "pleasant and much lower and less obtrusive than an electric fan."

? How to save floor space and remove some of the clutter from a doctor's office.

Recess the medic's scales for weighing patients into the wall and floor.

Built-in equipment for added efficiency and compactness is used extensively in the new

Royce Children's Clinic in Pasadena, Calif., designed by Pasadena Architects Smith & Williams. One of the most interesting details, the idea of clinic chief Dr. Stephen Royce, is built-in scales (see photo).

The scales are recessed into a partition and the concrete floor, and the height-measuring device is mounted separately on the partition. The matching wood panel that covers the scales is removable, to permit easy servicing or replacement of the scales. For the same reason the floor section that is attached to the platform of the scales is also removable. This floor section is a piece of plywood covered with regular flooring tile and edged with stainless steel.

This design gets a necessary but cumbersome and unsightly piece of equipment out of the way, adding useable floor space to the doctor's office, and diminishing the danger of patients tripping over or stubbing toes on the base of ordinary exposed scales.

? How to convert office rent expenses into an incomeproducing investment.

Consider the feasibility of erecting a building to contain owner-occupied offices, plus a moderate amount of space for other tenants.

In expanding suburban areas and in the fringe sections of many small cities there is a need for a considerable amount of new office space for small businessmen and for professional and service organizations that do not require space in the heart of the central business district. Usually this space can be provided in relatively inexpensive one-story buildings of from 2,000 to 20,000 square feet although additional land will be needed for a liberal-size, easy-access, off-street parking area. Typical owner-builders and tenants include lawyers, accountants, agents, or district offices of large insurance companies—and architects.

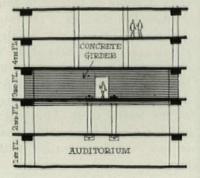
Taking note of the increasing number of professional and businessmen who are becoming both occupants and investor-owners of such buildings, and thereby converting a large portion of their rent outlays into an income-producing asset, the Institute for Business Planning, of New York, recently outlined the financing of a typical structure of this kind-and its tax and investment advantages. Assuming that a suitable site could be purchased for \$20,000, and that a 10.000-square-foot, onestory office building ould be erected for \$10 per square foot, total capital costs would be \$120,000, consisting of perhaps \$45,000 in cash and a \$75,000 mortgage. At 6 per cent interest and 3 per cent amortization, financing costs would amount to \$6,750 a year. Allowing \$1.30 per square foot, taxes, insurance, heat, and operating expenses would cost another \$13,000, or a total of \$19,750 a year to carry the building. On the income side, full occupancy at a rental rate of \$4 per square foot would produce \$40,000, or a profit of \$20,250 before federal taxes and depreciation allowances on the \$45,000 cash equity. At a rental rate of \$3 per square foot, the profit would be \$10,-250. Or, if the owner's offices occupied half of the space (5,000 square feet) at a rental rate of \$4 per square foot, that alone would be sufficient to carry the building. Under optimum conditions, the building could earn enough to pay off its entire mortgage in about five years and recover the cash investment in another two years. If held in a corporation earning less than \$25,000 a year, the profits would be subject to only 30 per cent federal taxes, after depreciation allowances, and profits could be left to accumulate in the corporation until

the owner retired, or some other advantageous time to take them out.

? How to obtain both an auditorium and a floor of large clear-span spaces in the lower portion of a building.

Locate girders for spanning the auditorium and supporting the upper floors an extra level above the auditorium; then suspend the extra floor from the girders.

A new building for the Watchtower Society, in Brooklyn, presented a special problem. The building required a clearspan auditorium only one story high, an adjacent floor of sizable assembly rooms uninterrupted by columns, plus eight stories of conventional structure. To accomplish this and to make maximum use of every cubic foot of space within the building's "zoning envelope," the designers (Frederick G. Frost Jr. & Associates with Engineers Severud, Elstad, Kreuger Associates) used a series of deep reinforced concrete girders, sketched below, to support the upper stories. But they placed these girders (each 11 feet high, 15 inches thick, spaced 12 feet apart) between the third- and fourth-floor levels of the building and then suspended the floor of large assembly rooms from the girders immediately over the auditorium. On the third floor, these girders form permanent partitions between rooms, but each is pierced to form a corridor.

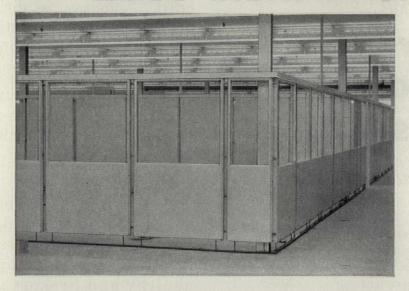


Why design around movable partition wiring problems?



The flexibility and unique construction advantages of GR Movable Partitions and Walls is obvious in the provisions made for wiring. The wiring can go through the base, between the panels, behind the pilasters and along the crown or cornice. When ceiling high partitions are specified, there is room to run wiring in the U-channel. Switch boxes and outlet boxes are put in the pilasters or base or they can be put in the panels. Ordinarily pilasters are recommended because they are expendable and can be easily replaced or moved to another location. Cut-outs for wiring in a particular size panel might be difficult to adapt in another location. However, cut-outs in panels can be made at the plant or in the field, if desired. GR's functionally designed movable walls and partitions solve wiring problems for you easily, quickly.

Ease installation with GR



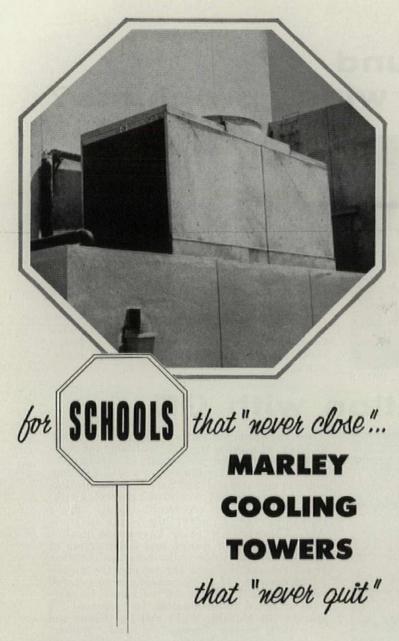
From the standpoint of saving time, of saving on labor, of making the office available for occupancy faster...the accessibility of wiring raceways for the electrician... is a factor to consider in movable wall and partition installation. Sometimes extremely low-priced movable (without pilasters) walls are specified which appear on the surface to offer big dollar savings. Almost always such "price" buys are an illusion. The inherent poor design and construction of "price" type movable walls increases the electrical contracting cost far beyond the anticipated savings. If the purchaser is to get full value for his dollar, overall costs must be carefully weighed and evaluated. In your next job specify GR Movable Walls and Partitions and take both wiring "headaches" and "hidden" costs out of your building picture. The complete GR line... Portable Partitions, the Richland Movable Wall System and Metal Walls will accommodate the wiring requirements of any office regardless of size.

A complete line for design continuity regardless of decorative demands

One of the problems facing architects is the specification of different types of movable walls and partitions for different functions on the same floor or various floors throughout a building. If metal walls are designated for the second floor, wood walls for the tenth floor and portable partitions — both steel and wood — on all floors, maintaining a uniformly, attractive interior appearance must be given prime consideration. Specifying GR Movable Walls and Partitions is the way out of this dilemma since the complete line has a family resemblance.

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Title (or

Sears orders white concrete to package new retail outlet



Precast white concrete panels front this sparkling new Sears store in Roanoke, Va. Made with ATLAS WHITE portland cement and exposed quartz aggregates, these concrete facing panels provide the freshness and variety in design specified by Sears to avoid a drab, "chain store" look.

These 4-inch-thin concrete panels were easily and quickly anchored in position to provide a curtain wall that is weather-tight and maintenance-free.

The economy and versatility of precast concrete panels are opening new possibilities in building design. They can be specified in a range of sizes, shapes, colors and textures. For more information on the use of ATLAS WHITE portland cement in architectural concrete, write Universal Atlas Cement, 100 Park Avenue, New York 17, N. Y.



Sears, Roebuck & Co., Roanoke, Va.—Architect: Stevens & Wilkinson, Atlanta, Ga. Contractor: Wm. Mulrhead Construction Co., Inc., Durham, N. C. Concrete Panels: The Mable-Bell Company, Greensboro, N. C.

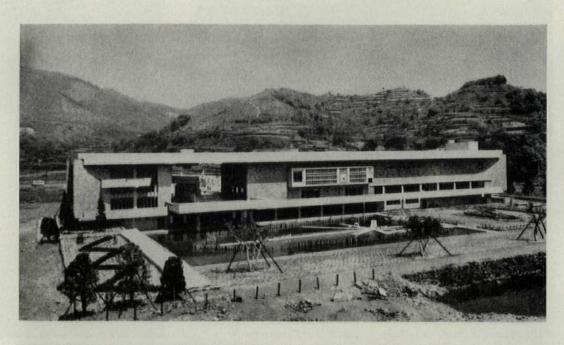


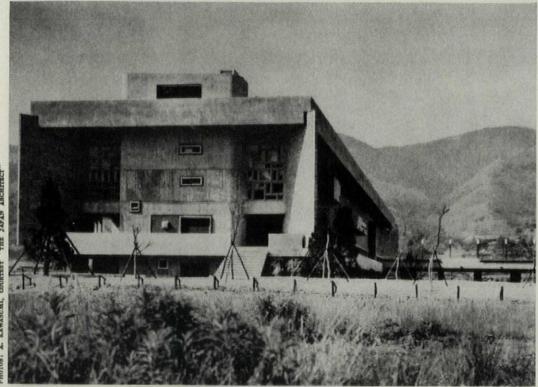
Universal Atlas Cement Division of United States Steel

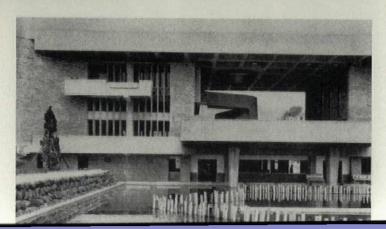
WF-4

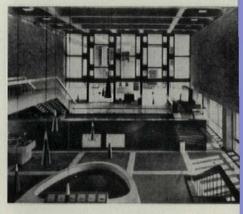
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A continuing review of international building





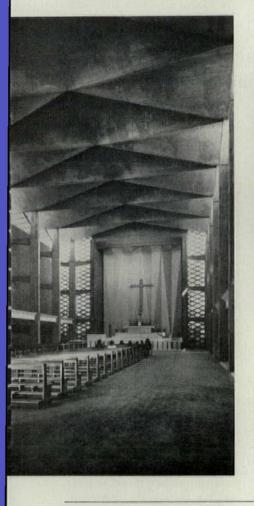




JAPANESE FISH POND

Few of all Japan's recent civic structures have been so well organized and harmonized with their sites as the Nagasaki Aquarium by Motoo Take. The west end of the long, low-slung building (at left in photo left, bottom) houses the reception areas and lounges, the east end houses the exhibit spaces (above and below) of the working aquarium. The long side walls of the building, framed by the rough concrete end walls (left) and roof structure, are built of native Goto stone and blend naturally with the surrounding terraced hillsides. The building is the major structural element in a parklike development that will eventually include a botanical garden, a stadium-sized whale pool, and a dormitory for humans.



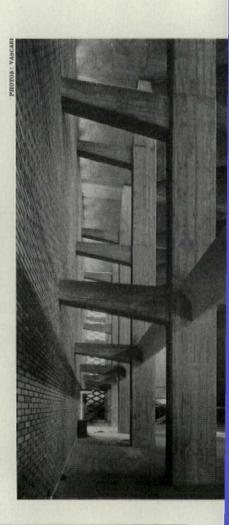


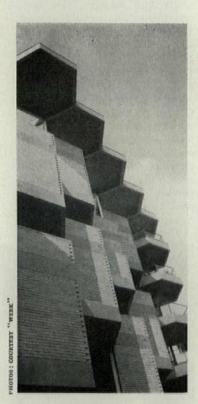


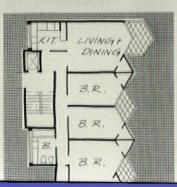
ROMAN SECRET

Non-churchgoers in the neighborhood of Rome's Church of San Luca must feel that they are missing something: from the outside (above), the aluminum-sheathed, folded concrete roof appears to float clear of the dangerously thin exterior walls. The dramatic structural

secret is only revealed to those who go in (left). The roof is supported by interior columns which branch out at two places along their lengths to hold up the walls (right). The church was designed by three architect brothers, Vincenso, Fausto, and Lucio Passarelli.







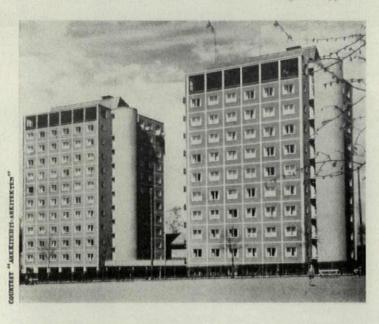


SWISS HEXAGONS

Near Lugano, Architect Peppe Brivio has built these rental apartments-apparently in the form of stacked-up hexagons. Actually, as the plan at left shows, only the sun screens for the roof terrace are true hexagons; the other odd corners are the projecting balconies and closets of the four staggered apartment floors. The building's reinforced concrete floor slabs are supported within the building by steel columns filled in with masonry walls; the slabs show through as solid bands on the brick exterior, giving the jumbled façade (far left, above) a degree of horizontal order.

FINNISH PATTERN

Looking very much like used lottery punchboards, the facades of a nurses' residence outside of Helsinki are a pattern of regularly spaced windows and concrete frame crossings. Alongside the two present buildings (two more are now under construction) stand silo-shaped stair towers that take the nurses from the classrooms and lecture halls on the ground floor to the ten dormitory floors. At the top of the buildings are gymnasiums and, of course, a sun deck. Architects: Mastta and Ragnar Ypya.

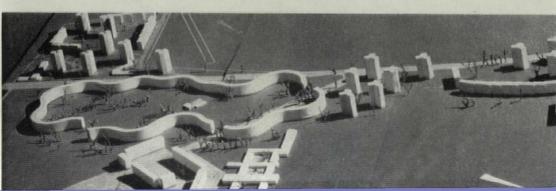




VIENNESE CONFORMITY

On Vienna's fusty Schillerplatz is a gleaming but polite new press building for Boehler & Co. by Austrian Architect Roland Rainer. The printing operation is carried out at the back of the building; the offices are given the view of the square. This arrangement let Rainer design the main façade to appear more in keeping with the building's less commercial neighbors: the cornice height conforms; the aluminum spandrels carry out the horizontal emphasis; the narrow, operable sash seem in scale with the elegant surrounding windows.







PARISIAN IRREGULARITY

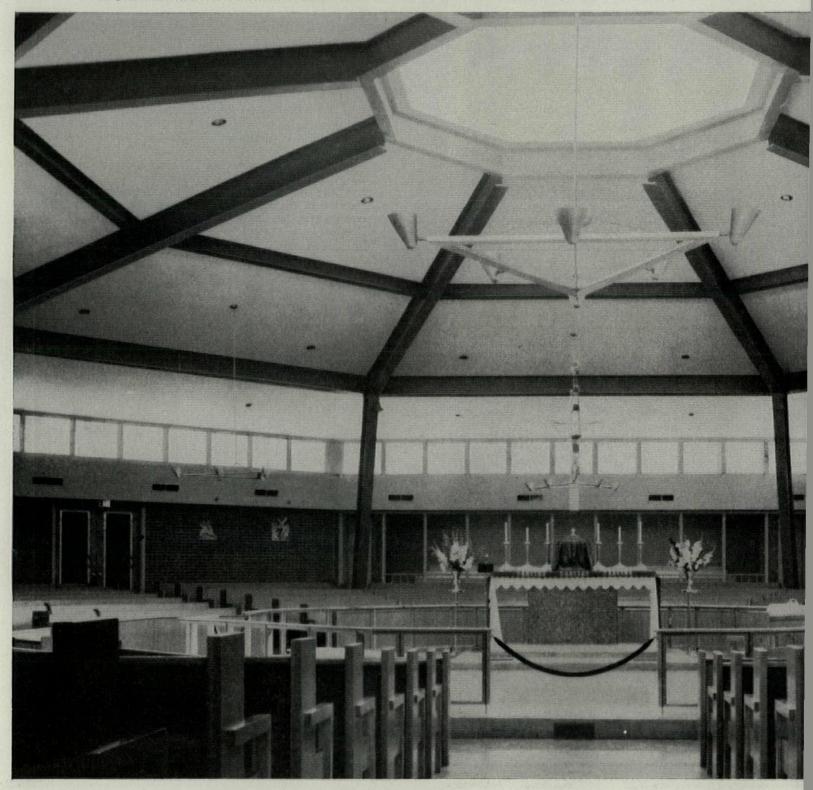
On the way out to Le Bourget from Paris, air travelers have recently spotted the irregular apartment development, called les Courtilières, designed by Emile Aillaud. The 42-acre development contains 791 apartments in a six-story sinuous structure, and 432 apartments in a number of 13-story towers. Aillaud's design objective was to humanize the huge project by means of the snaky forms and the off-beat fenestration of the tile-clad towers. The area enclosed by the curved walls will be a forest park.

ST. JOHN'S CHURCH, McLEAN, VIRGINIA

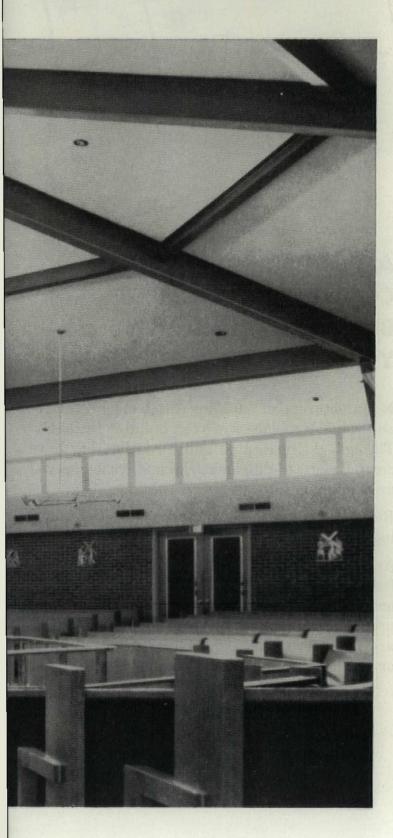
Architects: Francis L. Koenig, combined with Soulé & Donnally Structural Engineer: Edward J. Scullen & Assoc. General Contractor: Burroughs & Preston Structural Steel Fabricator: Southern Iron Works



Octagonal auditorium roof fabricated from USS Structural Steel makes a pleasing design. This shape permits maximum seating close to altar.



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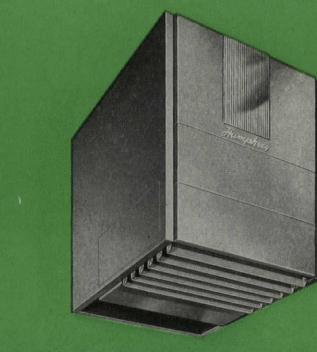
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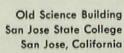


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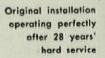
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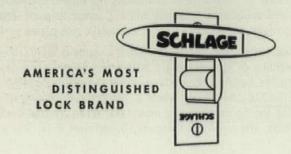
Another excellent feature is the panic-proof construction. Schlage heavy duty entrance locks have a built-in dead-lock feature to withstand jimmying, yet the panic-proof design makes it possible to exit immediately simply by turning the knob. Every Schlage Lock is always free for exit.

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Capital architecture . . . urban problems . . . creative real estate

poorway to Brasilia. By Eugene Feldman. Foreword by John Dos Passos. Published by Wittenborn & Co., 1018 Madison Ave., New York 21, N.Y. 50 pp. 11" x 11". Illus. \$12.50.

A book that will be of interest both to those who want to capture the spirit of Brazil's capital experiment and to those who value imaginative printing. While it is hardly a journalistic survey of the new city's construction, the book does communicate the architectural vision (at left is a model of Niemeyer's cathedral), courage, and labor that have so far gone into its building. The method of printing is, in keeping with the subject, highly experimental: for each picture, several aluminum offset plates were made from the same negative and overprinted in several tones.

The reader suspects, finally, that the book exists more because its creator found an exciting subject that would be appropriate for his printing experiments, rather than because the right medium was eventually found for the subject. But, whatever its origins, the result is admirable.

AARON SISKIND PHOTOGRAPHS. Introduction by Harold Rosenberg. Published by Horizon Press, 220 W. 42nd St., New York 36, N.Y. 102 pp. 101/4" x 131/2". Illus. \$12.50.

This remarkable collection of photographs—many of them vaguely related to architecture—is a selection from Photographer Siskind's most recent decade of work. Like his picture shown at left, they all defy labeling as "abstract" or "realistic"; they are just to be marveled at for what they are. And this, perhaps, is to say that they are art. The 50 plates are beautifully reproduced and printed.

ANATOMY OF A METROPOLIS—The Changing Distribution of People and Jobs within the New York Metropolitan Region. By Edgar M. Hoover and Raymond Vernon. Published by Harvard University Press, Cambridge 38, Mass. 345 pp. 534" x 81/2", \$6.

This first volume in a mammoth study of the New York metropolitan region under Raymond Vernon, which will run to eight or nine volumes before the capstone synthesis and projection is published next year, covers the gross statistics of the metropolis, changing distribution of jobs and living places, and the forces and trends of change. It was undertaken by

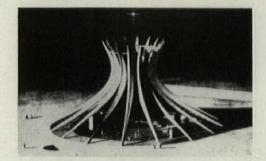
the Graduate School of Public Administration of Harvard University for the Regional Plan Assn., with support from the Ford and Rockefeller Brothers' Fund Foundations.

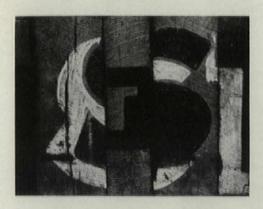
The first volume is descriptive biology, the necessary details of a living organism and how it functions before any diagnosis of its ills or outline of future treatment can be made. It may be viewed as pessimistic on the future growth of the region's city core and inner ring areas simply because nearly all present statistics are pessimistic, but the book notes in many places that its projections do not assume any unusual and unpredictable public, private, or political interventions, which could well change the whole course of the future. For the devotee of cities, the book is a wealth of primary and incidental intelligence, such as the fact that the region has 350,000 self-employed, an independent republic the size of a respectable city.

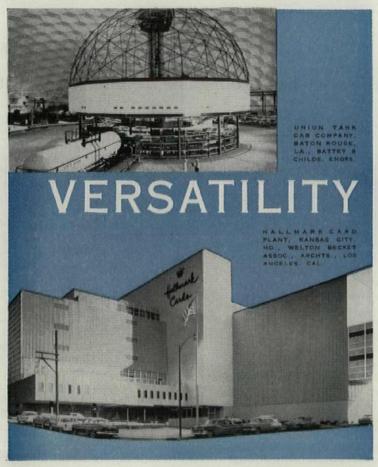
CREATIVE THINKING IN REAL ESTATE. By William J. Brede. Published by Harper & Bros., 49 E. 33rd St., New York 16, N.Y. 296 pp. 576" × 856". \$4.95.

In 1944, William J. Brede originated the contests for the "most ingenious deal" awards given annually by the Real Estate Board of New York (and since then by many boards in other cities). In this book, Brede explains in popular terms many of the past decade's prize-winning Manhattan deals to show how "creative thinking" is usually the most important element for success in real estate and building ventures. Drawing on his experiences in New York, Brede also relates many other fascinating stories about some of the city's most famous personalities and outstanding real-estate transactions during a period of almost 50 years.

Primarily narrative and anecdotal (rather than a textbook), Brede's tales are all factual and informative, making his book both entertaining and educational. It includes several accounts of deals that turned out to be amazing successes through happenstance or luck, but its main stress is on the need for "real estate sense," plus hard work, patience, perseverance, and bold, imaginative thinking. By emphasizing that real estate is a field for skilled, experienced people, and not one for the amateur to enter, or to invest in haphazardly, Brede has made his book an excellent antidote to some recent publications that would lead the naïve to conclude that practically anyone can make a fortune in real estate with just a little bit of luck and some spare time.







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Flint Medical Arts Building, 2765 Flushing Road, Flint, Michigan.

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To create an over-all feeling of distinctive quality for this medical building facade, the architect chose a standard Kaiser Aluminum facing system with gold color finish.

It is an economical choice as well as an aesthetic one.

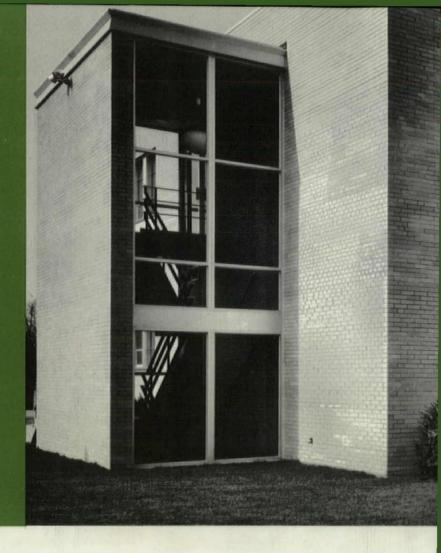
The facing system components, readily available from Kaiser Aluminum distributor stocks, greatly reduce costs for material and labor, and for maintenance later on.

And with their gold-anodized finish, the ribbed aluminum extrusions between windows provide distinguished color and texture contrast to the green porcelain-enameled flat panels above and below.

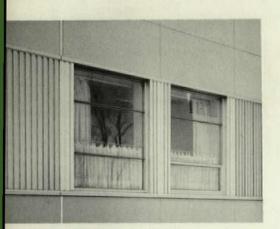
Please turn the page for more information on the architect's use of this facing system and other Kaiser Aluminum standard architectural shapes.

KAISER ALUMINUM ARCHITECTURAL SHAPES ENHANCE CONTEMPORARY BEAUTY OF FLINT MEDICAL ARTS BUILDING

The contemporary shapes described here were specified by the architect for the new Flint Medical Arts Building at Flint, Michigan. These shapes are part of the complete new line of Kaiser Aluminum standard architectural extrusions...all readily available through your local Kaiser Aluminum distributor.



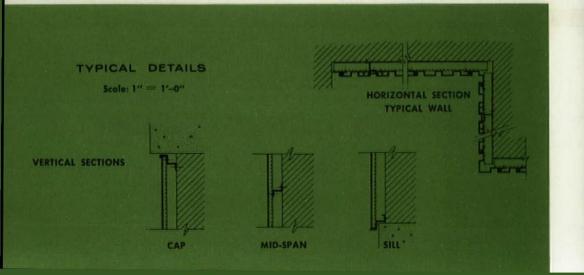
STANDARD ARCHITECTURAL ALUMINUM FACING SYSTEM



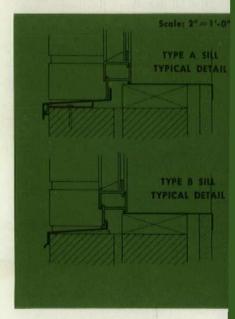
With alternating shallow channels and raised flats, these gracefully-designed extruded panels provide a textured effect of highlights and shadows. In the Flint Medical Arts Building, the facing panels are secured to aluminum furring members anchored to the masonry backup.

This versatile facing system is made up of only seven basic interlocking sections plus a cap and sill stop and furring zee.

(A complete description of the system is contained in a new Kaiser Aluminum brochure. For your copy, send coupon on back of next page.)

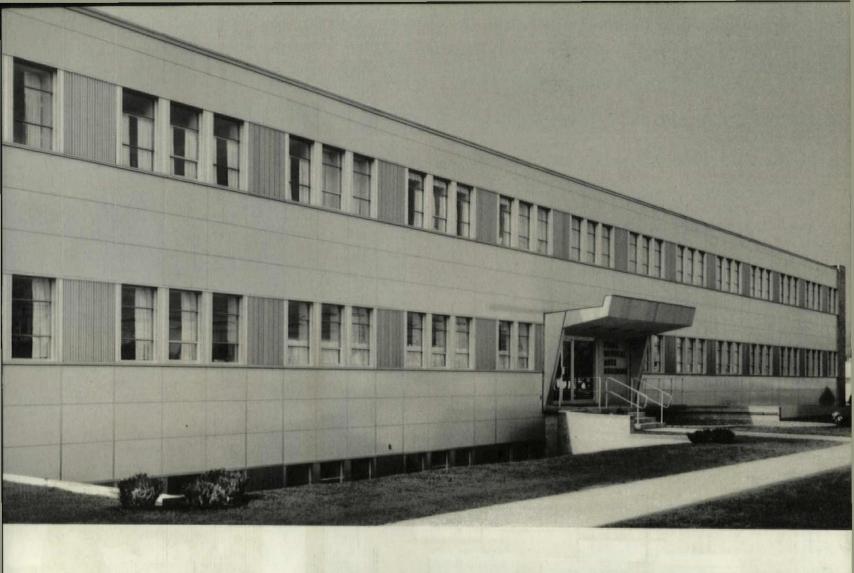


STANDARD ARCHITECTURA ALUMINUM WINDOW SILI



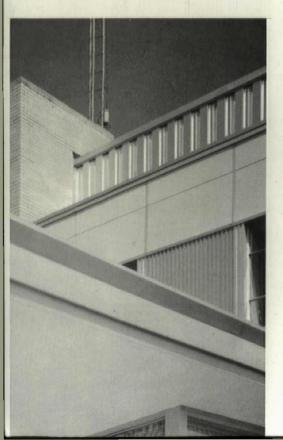
For the Flint building, Kaiser Aluminum Ty A window sills were used with alumin windows. They may also be used with we or steel windows.

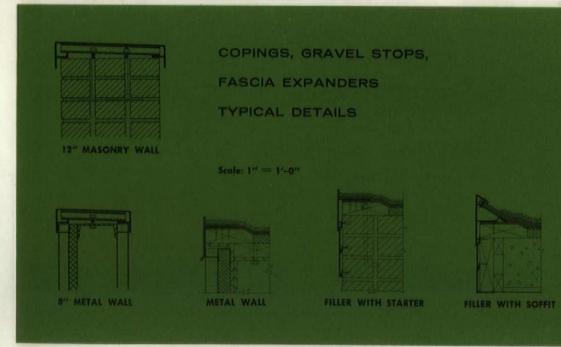
Although these sills can be used with types of wall systems, they were design for use chiefly with masonry walls, afford weathertight, non-staining, maintenance-f protection over mortar joints.



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On masonry end walls of the new building, Kaiser Aluminum copings were installed. The standard coping system, available for 8" and 12" thick walls, features a straight drip edge and is specially engineered to prevent weather damage.







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What other people are saying

WHY UNCLE SAM?

Walter S. Fried, New York's Title I administrator, gave four good reasons for federal aid to U.S. cities in an October talk before the New York City Bar Assn.

Why must the federal government participate in urban renewal?

First, the health and welfare of all of our people are being seriously jeopardized by the steady deterioration of our cities.

Second, large sums of public money are necessary to carry out this program. The federal government is best able to supply these funds. In the fishing that is done in the taxpayers' pond, the cities fish with a bent pin, the states with hook and line, and the federal government with a net.

Third, many of the problems of this urban chaos extend across the borders of cities and even of states and cannot be dealt with separately by these independent political subdivisions.

Last, but unfortunately much too often, it is necessary to offer the bait of federal funds to induce some city fathers to stir themselves in the interest of their electorate.

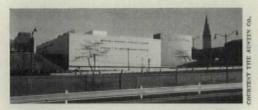
IMAGE OF CLEVELAND

Architectural criticism at its most indignant appeared recently in the Ohio Architecture & Engineering, in the form of an essay on the new Cleveland Press Building by Architect Philmore J. Hart.

I remember my first reaction to the report that *The Cleveland Press* was to build on the downtown corner of East 9th St. and Lakeside Ave. Cleveland had long forsaken its shore front, and with the advent of the St. Lawrence Seaway, here was a magnificent opportunity to give impetus to its development. From this inspiring site, a newspaper office could open its arms to embrace the seaway! Here were dynamic possibilities for reporters and editors to look on and communicate with both the seaway and the city—to feel its "heartbeat."

But look at the building. As far as *The Cleveland Press* is concerned, the lake, the shore, the seaway, the city simply do not exist, for here, on the most commanding and stimulating site in downtown Cleveland, the people within the building will see only blank walls and small light slits.

Symbolically, The Cleveland Press has turned Cleveland's back to the seaway. In essence, this building is closed and non-communicative—constructed as a feudal fortress growing out of the cliffs left by





a passing glacier (top photo, above).

It is quite apparent that the relationship of the building to its surroundings has been ignored; for Willard Park, the city hall, the cliff, the lake, are all "accidentally" in view. What could be a main axis—Ninth St.—is merely an access. Instead of creating a vista to the lake, the building serves as a visual block. The building is more important than the view, but unfortunately, the building itself is chaotic—disordered (bottom photo).

The conclusion is that this building cannot be seriously evaluated on an architectural level. It is a building without meaning, without proportions, without special concepts, without form, without discipline, without feeling or sensitivity. It cannot be judged by architectural precepts.

Do not mistake me; I do not say the building will not function, for on a limited idea of functions, it will do a job. However, this is not architecture.

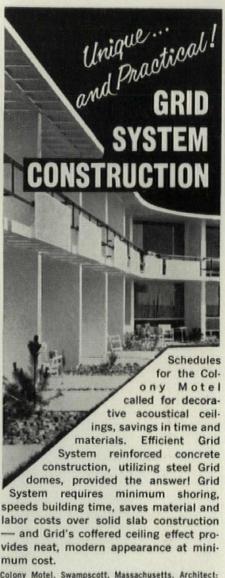
Any building may be analyzed and judged on social premises. A building cannot help but be an expression of the ideas and aspirations of its owners. If the Press building is devoid of all vigor, of character and creativity, and is an honest expression of The Cleveland Press, is it not reasonable to assume the city of Cleveland to be devoid of vitality and imagination as well? Is Cleveland a city closed to new ideas? The new home of The Cleveland Press says "Yes!"

THE COST OF DIRTY AIR

The peril of pollution to metropolitan citizens and investments was documented with frightening statistics by a recent article in the Journal of American Insurance.

Air pollution has reached the proportions of a national emergency, and the hazard is increasing every day.

Some 10,000 communities throughout continued on page 62



Colony Motel, Swampscott, Massachusetts. Architect: Salsberg & LeBlanc. Construction: Poley-Abrams Corp.

Interior of the Colony illustrates Grid's modular appearance. Economical Grid System ceilings are just painted — no finishing or a coustical treatment is required.



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the country have the problem in some degree, and farmers have crop and livestock losses running into millions of dollars annually from fluorine and other chemical pollutants in the air, even though rural air is five times cleaner than even the cleanest city's.

The country's total economic damage from air pollution is estimated at \$2 billion to \$7.5 billion a year.

The time has come when virtually all

metropolitan areas have had to face the problem of air pollution and attempt to solve it. Pittsburgh, for example, passed smoke-abatement ordinances which cut total smoke 90 per cent and heavy black smoke by 98 per cent.

Philadelphia eliminated open burning dumps, coal burning engines, and black industrial stacks, started a multimillion-dollar incinerator program, and guided industry in making major pollution control installations throughout the smoke-hung city.

In New York, where 107 tons of soot accumulate on each square mile every month, millions of cubic yards of trash and debris now are toted out to sea and dumped, rather than burned.

Chicago broadened its smoke-abatement ordinance to give the city control over all types of pollution. Industries and apartment-heating units will be monitored strictly under the new law, and drivers may be arrested if their auto exhaust is excessive.

Los Angeles has probably the toughest industrial anti-pollution laws anywhere; the program has been compared to a full-scale civil-defense emergency plan. But its 3 million exhaust-spewing automobiles are considered the main source of pollution, and so far little has been done to regulate them. Some officials urge a ban on the sale in California of any car without smog suppression equipment.

Such equipment hasn't been satisfactorily developed yet, although auto manufacturers are spending about \$1 million a year in research. Some devices still in the test stage will cut hydrocarbon exhaust by up to 90 per cent, researchers say; since incomplete combustion of fuel is the source of the pollutant, an afterburner to oxide the unburned fuel as it comes out the tailpipe is sought. Meantime, highgrade fuels and tight engine tune-ups may cut the amount of unburned fuel, estimated at one gallon of every 14 put in the car. With some 70 million vehicles in use, that's a lot of fumes and smoke to pollute the air.

Industry, generally blamed for about half the pollution in the air, is spending about \$300 million a year to cut that figure. The chemical, petroleum, electric power iron, and steel industries, among others, have worked to reduce the dirt, smoke, and fumes they emit.

Refuse incineration causes another 7 to 33 per cent of a city's pollution. Apartment and home space heating creates more, especially if coal is burned.

In farm areas, soil erosion, crop spraying, and certain processing activities contribute to the pollution of the air. And, of late, radioactive fallout from nuclear tests is causing more alarm than perhaps all the rest together.

There's more than enough evidence already to confirm that pollution of the air we breathe is one of the most serious health hazards of our time, as well as an economic and esthetic liability. Although admittedly the National Air Sampling Network, like the state, local, and private programs it aids, falls short of the massive efforts we need, it is heartening to know that at last the frontier of research aimed at giving us longer, healthier lives has been extended upward as well as outward—upward into our troubled air, which could be the death of us.

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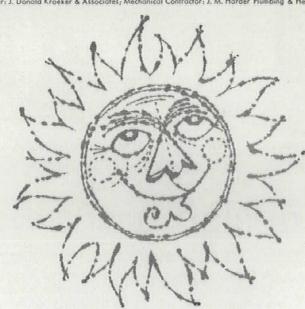
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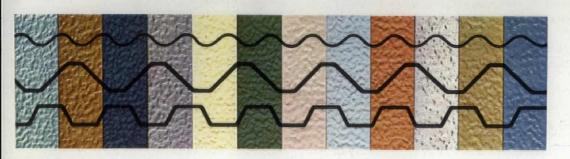
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Building site, courtesy George A. Fuller Co., New York, N.Y.

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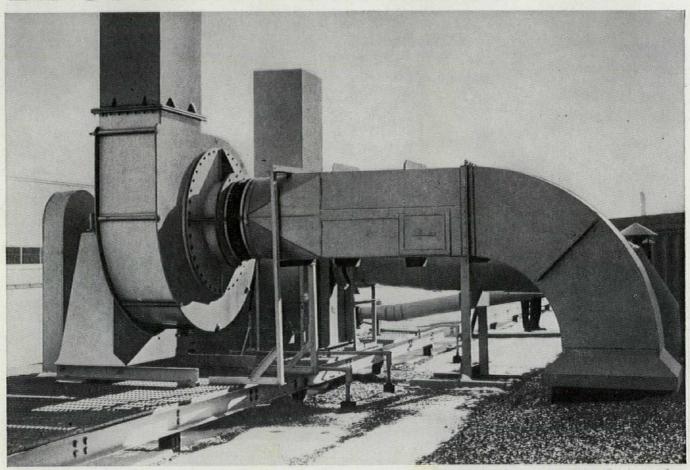


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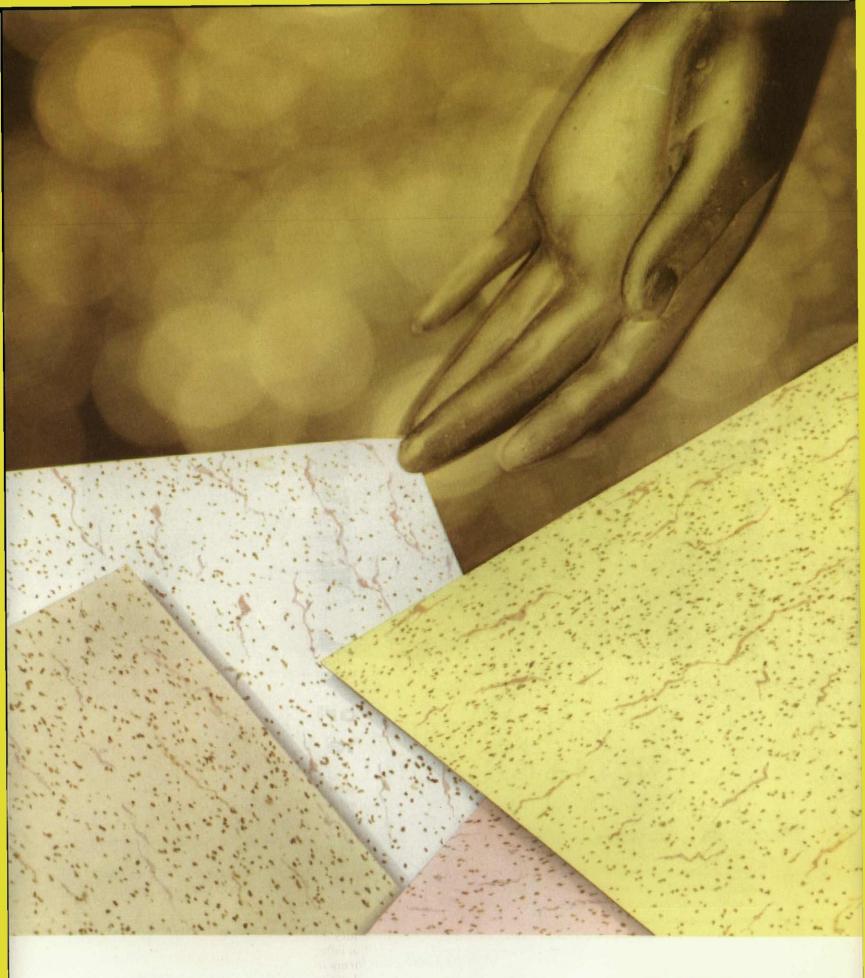
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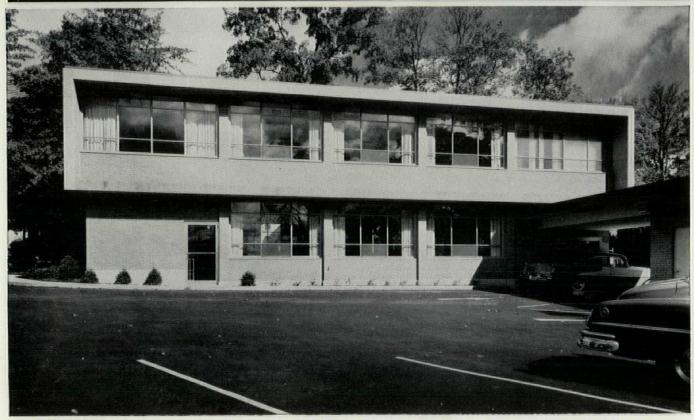
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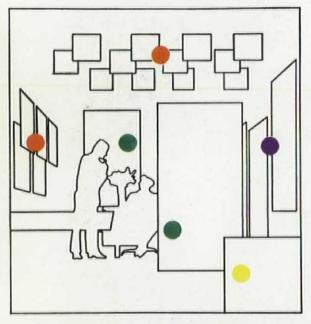


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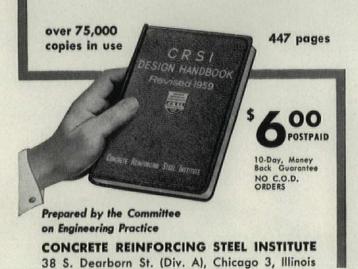


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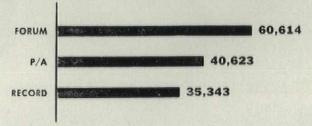
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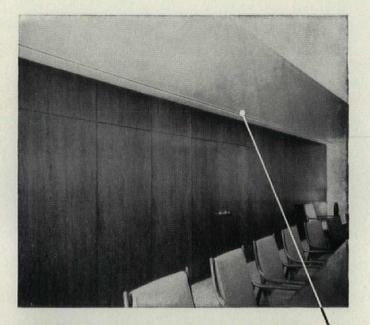
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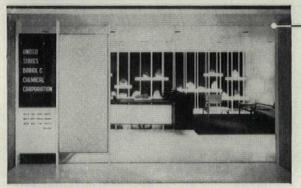
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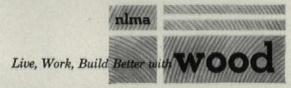
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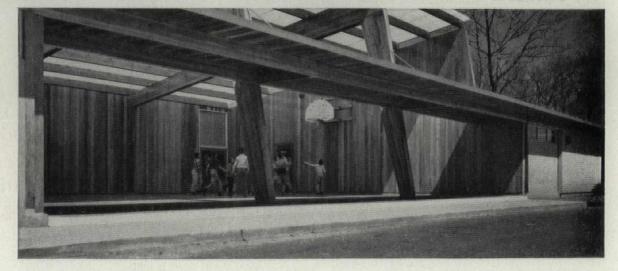


Exposed framing, 2" lumber on edge in decking and ceiling, on the porch of this new Lake Grove, Ore. lakefront home, form a natural setting for a scenic view. Architect: Van Evera Bailey.



Church of the Redeemer, Baltimore, Md., matches several species of wood in siding, ceiling and towering laminated arches for a spacious, uplifting feeling. Architect: Pietro Belluschi.

Great laminated members have been used, with exposed roof deck and walls of wood, structurally and decoratively in the Tokeneke Elementary School, Darien, Conn. Architects: O'Connor & Kilhan.



Mahon METAL CURTAIN WALLS

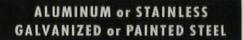


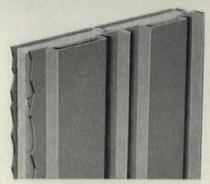
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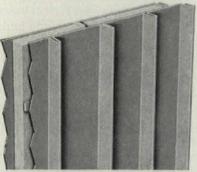
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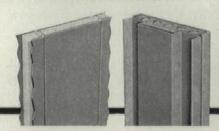


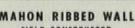


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THE GUGGENHEIM & THE CRITICS

continued from page 93

Patrick O'Donovan in The Observer (London): "It is as if it had been turned on a gigantic potter's wheel. It could be a dictator's tomb or a nuclear installation. It is menacing and confident and it commands attention. . . . The entrance to the Museum is unobstrusive, but inside there is a sudden white and dazzling empty space. It is the bottom of a majestic well. . . . It is a new, more forceful conception of a museum. . . . Even if it is a little disquieting, it is a majestic and simple plan. . . . If this was a contest between the architecture and the painting, then the building has played dirty and won. It is an unforgettable building. It is a delight to walk down its ramp and toy with the pictures. Itself, it is probably a major work of art. Whether it yet qualifies as an art gallery is less certain."

Editorial writer in the New York Daily Mirror: "A building that should be put in a museum to show how mad the twentieth century is."

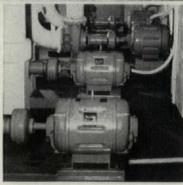
Robert M. Coates in The New Yorker: "If, viewed from the outside, the building seems cramped, its interior is marred in somewhat similar fashion by a conflict between design and function, and the good is mingled with the bad most confusingly. I am, of course, speaking of the museum solely as a repository for paintings and sculpture, leaving it to others to discuss its merits as architecture. I must say, though, that at first sight, and regarded simply as a building to move about in, it is a startlingly adventurous and impressive affair, with its uncluttered, circular central lobby; its ramplike, continuous balcony, or 'gallery'; and its glassed, slightly dome-shaped roof, some eighty feet above. My question is not 'Is it art?' (I believe it is) but 'How well will it house art?' Here I think the design is open to grave objections, some of them, I'm afraid, springing from Wright's well-known impatience with the plastic arts in general. As everyone knows, he regarded paintings and such falderal as mere decoration-an intrusion on the sovereign art of architecture -and perhaps because of this the very things that make the structure handsome architecturally tend to militate

continued on page 184



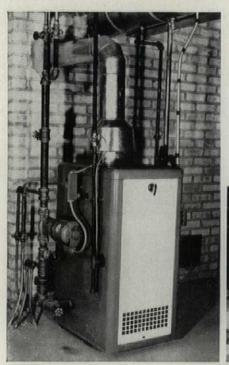


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Since the manufacture of its first heating pump, B&G has been conscious of the need for silent, vibrationless operation. Today, B&G pumps have reached a peak of perfection—they are incredibly quiet—need no flexible connections or vibration eliminators. From B&G-built motors to B&G-developed, harder-than-glass "Remite" leak-proof seals, these pumps are specialized units.

B&G Boosters and Universal Pumps are available in a wide range of capacities with 1/12 to 40 H.P. motors.

These homes have modern Hydro-Flo hot water (hydronic) heating systems equipped with B&G Booster Pumps. Builder reports that the many exclusive advantages of B&G Hydro-Flo Heating helped sell these homes fast.



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PREVIEW HIGHLIGHTS FROM THE WESTINGHOUSE ELEVATOR

"30-Minute PRE-INVESTMENT Eye-Opener"

We extend a personal invitation to experience for yourself this revealing demonstration of operatorless elevator performance

Executives who are planning construction of new buildings—or modernization of existing ones—are invited to investigate before investing. And here's an interesting and educational way to do it. Westinghouse asks but 30 minutes of your valuable time to have you experience a special—and personal—demonstration of operatorless elevators. We call it the "30-Minute

Pre-Investment Eye-Opener" because it takes you "backstage" and shows what's behind Westinghouse 4-star elevator performance.

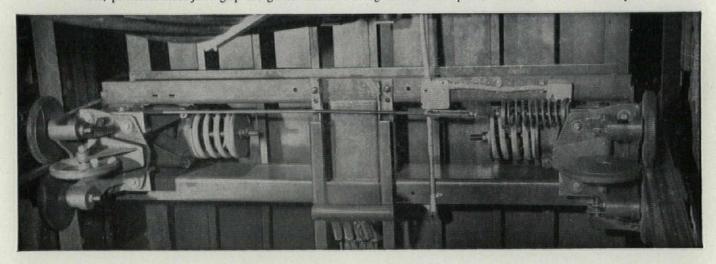
Make arrangements to see this behind-the-scenes demonstration by calling the Westinghouse Elevator Division Sales Office in your city. Consult the Yellow Pages of your telephone directory.

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YOU CAN BE SURE ... IF IT'S Westinghouse

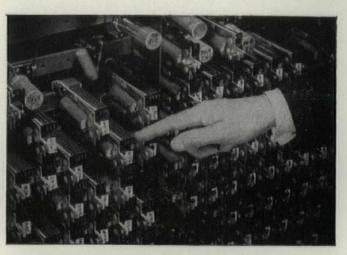
Watch Westinghouse Lucille Ball-Desi Arnaz Shows CBS-TV Fridays

SAFETY UNLIMITED . . . You'll see why safety performance is exceptional in a Westinghouse Operatorless System. In addition to the many other safety features, should elevator speed become excessive, powerful steel jaws grip the guide rails and bring the car to a quick, smooth, comfortable stop.

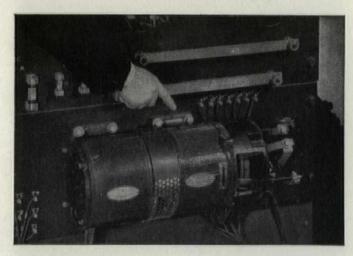




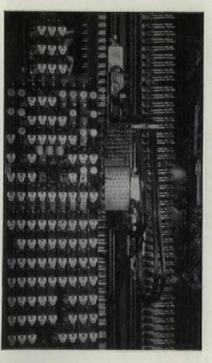
MEET THE GOVERNOR... Here's the "boss" of the "safety" shown at the lower left. It's constantly alert to car speed and its normal function is to stop the car at the next floor landing in the event of overspeed. However, should overspeed be excessive, its trigger-like reflexes will activate the "safety" immediately and automatically.



SHUNTLESS RELAYS . . . Relays are vital parts of elevator control systems. Relays with small shunts (wires) connected to moving contacts break down because of repeated flexing. Result: erratic operation, elevator shutdowns, annoyance to passengers and building management. You'll see how Westinghouse solved this problem by eliminating all shunts from these relays.



HAPPY LANDINGS . . . Courtesy of Rototrol®—A Westinghouse-exclusive speed regulating system. Encased in this compact unit are electronic thinking devices which control elevator speed patterns through the entire cycle from start to stop. Rototrol is the heart of the Westinghouse landing system. It controls a four-ton elevator with incredible ease, landing it lightly as a feather.



MINIATURE

. See the electronically-driven selector which is a miniature "elevator" that moves in synchronism with each elevator car. Mounted on it are contacts used for many purposes, the most important of which is to "tell" the control when the car reaches the point at which slowdown should begin for a registered call. It then follows through, electrically, to do its part in achieving a comfortable, accurate stop.



"Safety, service, prestige . . . these are three important requirements we wanted in the elevator system for the Boston Travelers Building. We found them, in good measure, during the Westinghouse 'Pre-Investment Eye-Opener'. This 30-minute demonstration showed me how a Westinghouse operatorless elevator system is skillfully 'put together' to produce true automation in elevatoring. Yes, you'll find these impressive elevators in our new Boston building, We're proud of them."

J. Doyle De Witt, President The Travelers Insurance Companies

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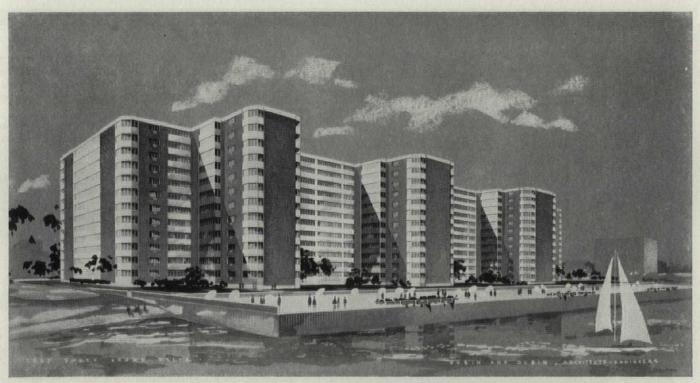
THE GUGGENHEIM & THE CRITICS

continued from page 180

against its function as a museum. Consider the famous ramp, for instance. In itself, it is a daring and original conception, but as a device for putting paintings on exhibition and providing a means for people to inspect them it has the same defects as the Grande Galeries of the Louvre and other implacably long old-style museum galleries. It is a lengthy parade, lacking intimacy and variety, providing neither the means nor the incentive for pauses and dallying, and not even offering much 'backing-away' space for leisurely contemplation. . . . The whole museum thus becomes, in a sense, a place to 'get through,' and I can't help feeling that this aspect of the design must in part embody Wright's own probable reaction to the idea of touring a museum -get it over as quickly as possible."

Bill Roeder in the New York World-Telegram: "Indoors it's as big as all outdoors... We were struck immediately by the size and brightness of the place. It's all one room, six stories high but without any floors except at ground level, so that the impression is of an immense cylinder of air rising to the skylight dome."

Frank Getlein in The New Republic: "The great spiral is the only arrangement I've ever seen that lets you walk through an exhibition with no involuntary doubling back. But the building does something else, too, that is probably as important as the machine-forlooking-at-pictures: it gives you the sheer elation that comes from looking at, being in, and moving through large amounts of enclosed space. . . . If you take New York painters as seriously as they take themselves, you can sympathize with their objections to all this handsome space. . . . In Wright's great ramp, all the [painters'] hokum about gesture and size, texture and space simply vanishes, lost in monumental space, obliterated by the gesture of a giant. You are looking at daubs and may like them or not with no reference at all to the rhetoric. It's rather like art night at the PTA. . . . You know that eventually the children will all grow up and some of them may even become artists; and you know that the teacher knows it, too."



Tenants of this just-completed building don't have to rely on fickle breezes from Lake Michigan. All 364 apartments are air conditioned with General Electric Built-In Thinlines.

General Electric Thinlines Air Condition Luxury Apartment on Chicago's Lakefront

778 through-the-wall room units assure comfort throughout building

"Price was only one reason why we chose General Electric Thinline Air Conditioners," says Henry Dubin, of Dubin and Dubin, Architects & Engineers. "In product engineering and manufacturing quality, Thinlines were the best of all air conditioners we considered.

"And tenants are sure to be pleased with the exclusive decorator-front baffle on all General Electric Built-In Thinlines. This baffle conceals the unit and it can be

painted, papered, or paneled to match the walls."

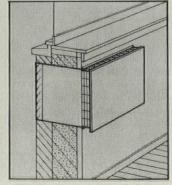
Each living room and bedroom in 7337 South Shore Drive has its own General Electric Built-In Thinline. Tenants can control their own comfort; varying the temperature from room to room as they wish.

General Electric Thinline air conditioning systems can be tailored to your needs-whatever they may be. Thinlines are available in a variety of models, over a wide capacity-range (5,300 to 16,000 B.T.U.'s*).

See your General Electric representative for full details. General Electric Company, Room Air Conditioner Department, Appliance Park, Louisville 1, Ky.



Built-In Thinline Air Conditioners are part of the wall-and they look like it.



Thinline case is installed during construction. Unit is concealed by decorator baffle.

*Cooling capacities are tested and rated in accordance with NEMA publication No. CN 1-1958.



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Lightweight TRUSCON FERROBORD STEELDECK roofs up to 30% more area per sheet

In longer lengths, Truscon 24-inch Ferrobord* roofs up to 65 square feet per sheet compared with approximately 50 square feet for most other steel decks. This 30% extra area per sheet means faster roofing, faster protection, dollar savings.

Lightweight Ferrobord weighs substantially less than pre-cast planks or poured slabs—only 2.5 pounds per square foot compared with from 10 to 30 pounds per square foot. Longer allowable spans permit wider spacing of purlins, lighter supporting steel framing, smaller foundations, and substantial savings in total construction costs.

And, Ferrobord welded to purlins gives you a structure with rigid lateral bracing not possible with pre-cast or poured-in-place slabs. Exposed ceilings have definite noise reduction qualities. Greater value.

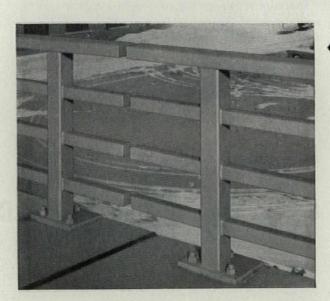
With the 13/4-inch flute opening, Ferrobord roofs can be insulated with any type of 1-inch thick insulation where other deck with wider flute openings require a greater thickness of insulation for 20-year bonded roofs. More savings.

Ferrobord roofs large areas quickly-flat, pitched, or curved. Straight lay means that several crews can work without delay. All work is done from above. Jobs go fast.

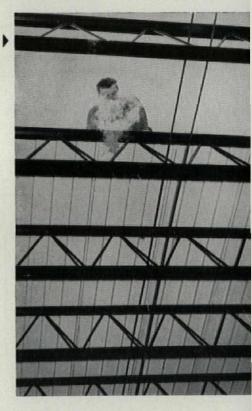
Ferrobord is a controlled product from the basic raw material to the installed finished roof. It is roll formed in long lengths, not brake formed in short lengths. Deck is prepainted, before forming, with a high quality bakedon finish that meets rigid test requirements, resists rust and abrasion from shipment and job handling. Send coupon for more facts, specifications, loading tables.

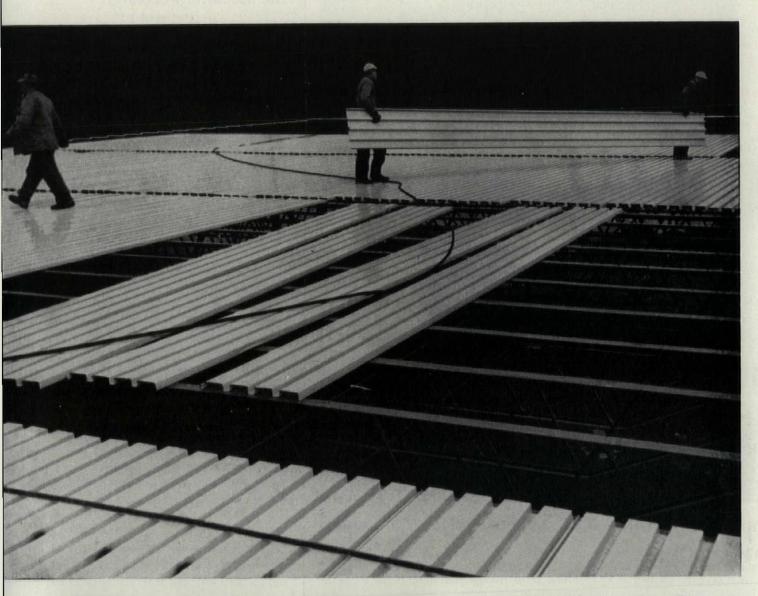
Truscon 24-inch Ferrobord Steeldeck and "O-T" Steel Joists installed in Sandran Corporation building, Fullerton, Pa. R. E. Moyer Associates, architects. A. Newton Bugbee, Inc., contractor.

TRUSCON "O-T"® STEEL JOISTS now designed to 20,000 pounds per square inch working stress. Design is in balance with all other structural elements. Truscon "O-T" Joists are made to the rigid standards of the Steel Joist Institute Quality Verification Program. Straight bottom chord carries to spandrels and columns. Good stability in both directions. Economical extended end. Now being produced in the industry's newest plant, designed for highest efficiency. Send coupon for details.



For columns, beams, railings, mullions. Republic now furnishes square tubing up to 5 inches a side; rectangular tubing in peripheres up to 20 inches; up to .250 inch wall. Square and rectangular tubular components add a pleasing contemporary architectural appearance. And, tubular components are highly functional, do many jobs as no other material can. Send coupon for facts about using these modern materials most efficiently and economically.





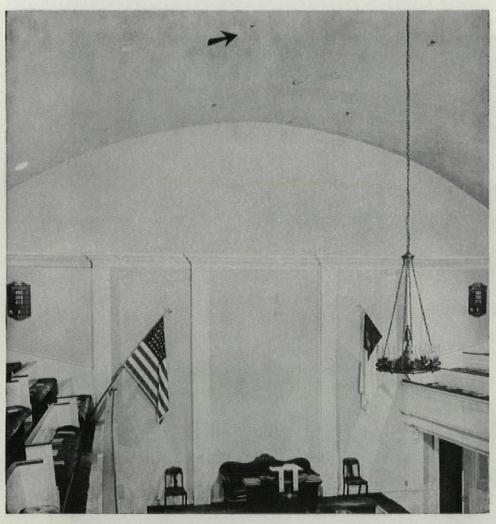


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Automatic Sprinklers Conserve American Heritage

In 1745 George Washington was 13 years old. And the First Presbyterian Church of Springfield, New Jersey, was founded. Sixteen years later, the original building was replaced. But in 1780 British troops burned it to the ground during the Battle of

Springfield.

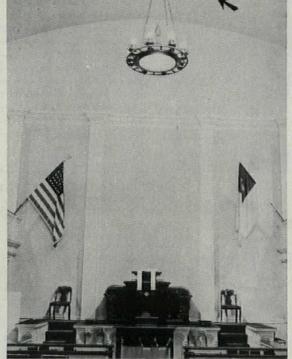
The congregation agreed that, "A burnt child dreads the fire;" and they planned to rebuild the church of brick and stone. But it was too expensive. Finally, in 1791, the oak timber, frame of the present church went up.

The church trustees remembered the fire of 1780. They knew the value of their priceless link with the past, a past that stretched back beyond the birth of this nation. And they decided to take a step that would preserve it forever from fire.

They believed that the best way to insure their old historic land-mark was to install an automatic sprinkler system.

The system was installed with the piping running above the ceiling, with flush sprinklers protruding through the ceiling to prevent marring the beauty of the Sanctuary.

Another monument to our American heritage is conserved for posterity.



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THE ROMANTIC NECESSITY

continued from page 129

its sacerdotal authority when it sanctions sterilities infinitely repeated; our architects in ever greater numbers set out for the unknown or for goals only distantly discerned.

We must not expect too much of skyscrapers -skyscrapers are articles of commerce - but there are buildings which already melt into a new humanism. Consider, for example, the many buildings recently built for the shelter of men gathered together in congregations. The wide unemcumbered spaces which such buildings require-uncongenial to the modular grid-seem to invite the shapes of an engineering which is itself the child of a romantic technology: the concrete shell, the geodesic dome, the tilted vault, the hyperbolic paraboloid, the warps, waves, and droops -all of which are to be had in that purest white (well, nearly white) which is itself a sentimental preference. To these many an architect, putting aside his Miesian creed for a more congenial occasion, adds a sly romance stemming from myth and symbol, from personality and poetic expression-and even from his tradition.

I like to think of that new hockey rink at Yale as an example of this happy togetherness of architect and engineer. The structural shapes of that unique building are scarcely to be cited among those cool, reasonable, impersonal, and unaffected forms supposed to be characteristic of the engineering mind. No doubt these have submitted to some distortions imposed for his own purposes by the architect. Nonetheless they are an engineer's shapes-graphs, stress diagrams, and calculations built in three dimensions. And yet they are strangely charged with those excitations which, almost from the beginnings of recorded history, have welded athlete and spectator into a fierce communion. It seemed to me that the building, which like some great earth goddess lifted player and audience into its understanding hands, took an eager part in the torrent, tempest, and whirlwind that raged over the white-blue ice. A splinter of the Colosseum, the hockey rink gained no small part of its dramatic élan from that proud provenance. It would be appropriate, I thought, to throw a Christian to those young lions.

The Congress Hall, recently built in Berlin, is romance of a different kind.

continued on page 192



INSTALL IT INDOORS



INSTALL IT OUTDOORS

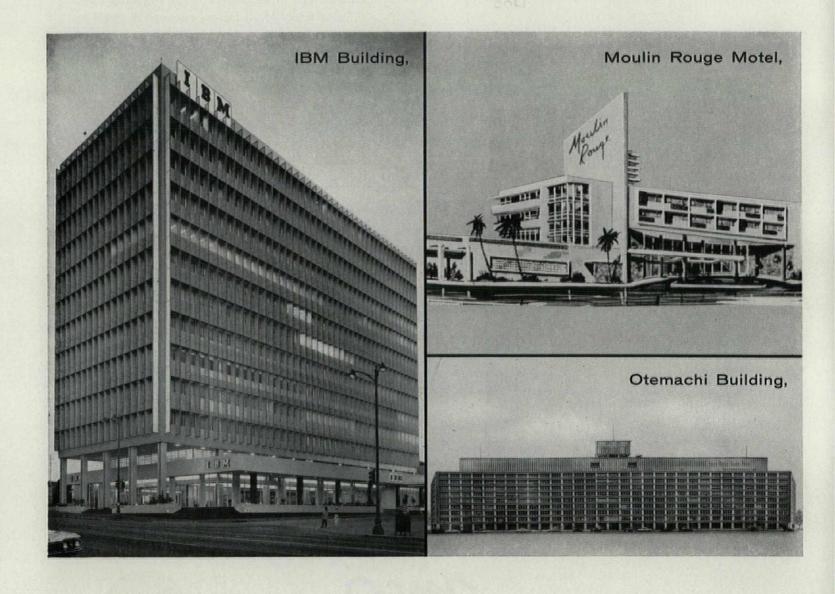
The McQuay "AL" AIRCON air cooled condenser provides the ultimate in flexibility by combining refrigerant condensing with heating and ventilating. You can utilize condenser heat for heating, and this AIRCON may also be used for exhaust ventilation, saving both time and money in installation, maintenance and operating costs.

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MORE...AND MORE...AND MORE



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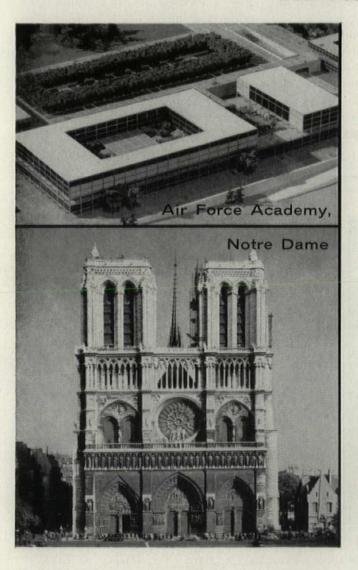
IBM Building, Los Angeles Otemachi Building, Tokyo Moulin Rouge Motel, Miami Beach

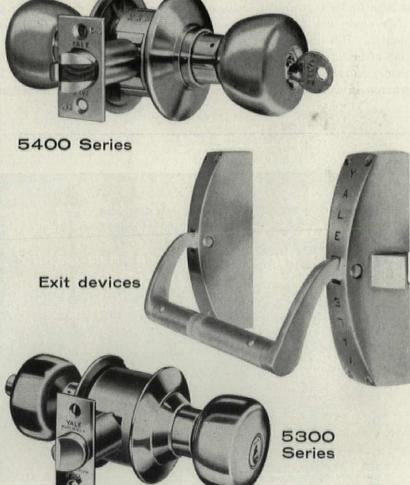
AND INSTITUTIONAL BUILDINGS SUCH AS...

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YALE & TOWNE MANUFACTURING COMPANY, LOCK & HARDWARE DIVISION, WHITE PLAINS, N. Y.

Here an engineer's concept has become self-conscious and in doing so has resolved itself into a symbol: a symbol of the right of free men to freedom of speech and of our steadfast resolve to protect that right. That in itself gives hope to architecture. The great eagle screams over the tortured city.

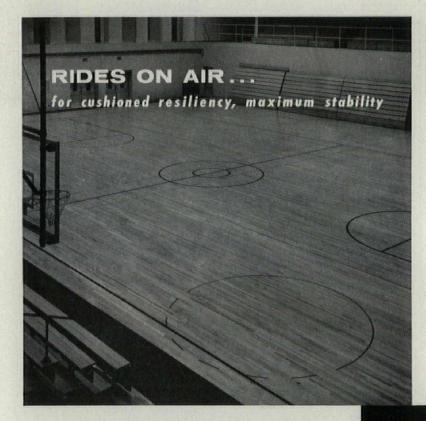
The Airport Building at Saint Louis embodies a more quiet drama but it is as certain a promise of a romantic renaissance. A great piece of sculptured space anticipates in its eggshell grace the arched immensities to which it leads and lifts us as in an airplane out of our earthbound lives into the adventure of the sky and the promise of endless poetic thoroughfares. Somewhere in the occult recesses below those sun-filled domes my baggage was forever lost—but that was a small price to pay for an hour under that bright firmament.

We ought not to compare these encounters with immateriality with that kind of architecture which is frozen in history as romanticism. Romance is too generous a word to be thus reduced to an ism. An ism-meaning a doctrine, a practice, a religion-when added to the word romance, like a shadow to a star, follows that beautiful word with the stated connotations of time and circumstance. A habit of mind, coexistent with the human adventure, is thus given a periodicity of appearances, like those of a comet-as if there were moments when the arts filled the sky with imaginative fire presently to be extinguished in successive nights of rationalism. Romance in architecture, on the contrary, is neither a fashion nor a theory. Romance is a habit of architecture, in differing degrees a habit of all architectures, tincturing all architectures with the color of humanity. There never was an architect who was not at heart a romantic.

We ought to think of romanticism as a critical term denoting primarily that literary movement occupying the first half of the nineteenth century in which the speculative imagination was reasserted in poetry and in philosophy against the rigid formalisms of the neoclassical tradition. The influence of that movement invaded architecture—an art, happily, not always armored against literary influences—and sometimes entered there as a debauchery of feeling inimical to plastic values. Romanticism, which "cast on the screen of an imaginary past the projection of unfulfilled desires," came to an end when it was discovered that architectures cannot live except in the civilizations which first nourished them—a fact so obvious that it had escaped the attention of the nineteenth century.

Today, behind ever expanding palisades, we look out, as did our ancestors, upon fearful, imminent, and unknown enmities. The forest has receded to enclose a universe almost a billion lightyears in diameter but it is nonetheless filled with darkening shadows.

Before our palisade our young men face the most cruel and senseless tyranny that ever confronted mankind. Why not tell them, in the romantic language of architecture, that their city is worthy of their arms?



18,250 ft. 33/32" PermaCushion floor. Dri-Vac treated, in Physical Education Building, Godwin Heights High School, Grand Rapids, Mich. Archt: Louis C. Kingscott & Assoc., Kalamazoo. G.C.: Beckering Constr. Co., Grand Rapids. Installer: Bauer-Foster Floors, Inc., Detroit.

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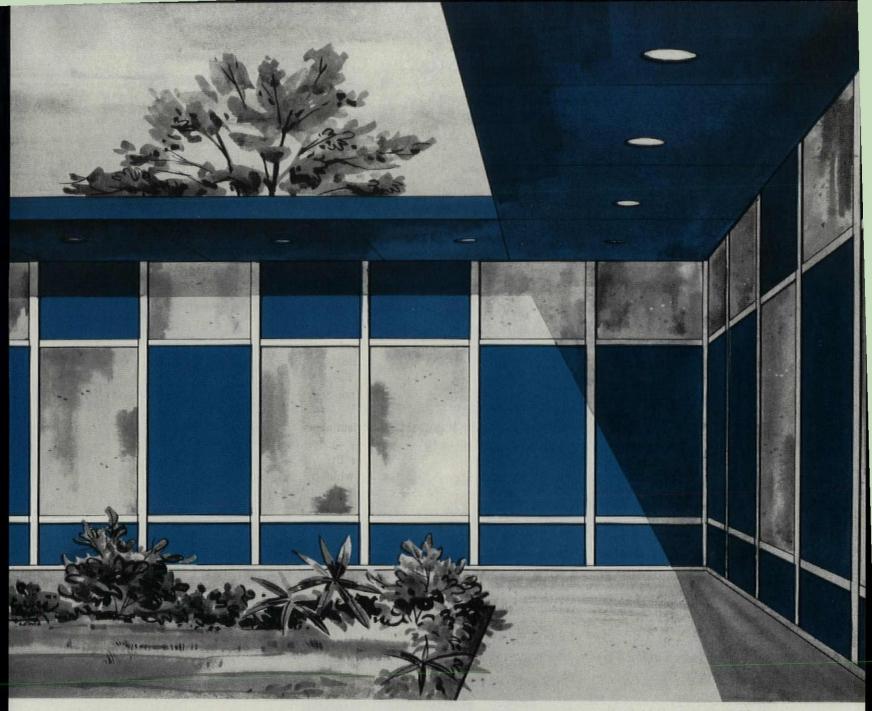
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For Pittsburgh's Beautiful Gateway Center

LONG LASTING MULTICOLOR LACQUER ENAMEL

Pittsburgh's Golden Triangle—where the Allegheny and Monongahela Rivers join to form the Ohio—has long been one of the nation's leading landmarks. Today the Golden Triangle is changing. New stainless fingers of steel point upward in this truly modern business development.

At Gateway Center—as elsewhere across the nation—multicolor lacquer is the choice for a long-lasting protective coating. Multicolor lacquer is more than a coating—it is a new architectural design tool that combines beauty with functional advantages.

Two or more colors of multicolor lacquer can be sprayed on a surface simultaneously using only normal techniques and equipment. This single finishing coat can be applied to any properly primed surface—plaster, canvas, wood, concrete, wallboard, even most plastics and metals. These different types of surfaces can actually be merged into a smooth, integral area. It's little wonder that architects everywhere are turning to economical multicolor lacquer for a coating that makes the best in design look even better.

Hercules Powder Company does not make finished lacquers or coatings of any kind but it does manufacture nitrocellulose, a basic material used in this multicolor lacquer. If you have difficulty securing adequate information on multicolor lacquer, write us and we shall be glad to assist.

Multicolor lacquer enamel is manufactured under license from Coloramic Coatings, Inc., Los Angeles (U. S. Patent No. 2,591,904).

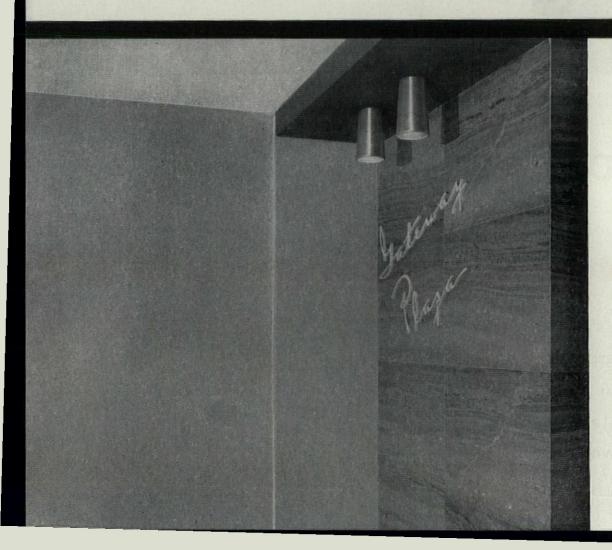
HERCULES POWDER COMPANY

INCORPORATE

Cellulose Products Department, 900 Market Street, Wilmington 99, Delaware

CHEMICAL MATERIALS FOR INDUSTRY





INVITINGLY

The variety of colorful designs available with multicolor lacquer transfer corridors and stairways into brighter, more inviting space. Officials for Gateway Center report numerous compliments from tenants and visitors alike since the application of multicolor. Appearance combined with long wear make multicolor ideal for commercial buildings.

Multicolor lacquer for this application is Spatter Finish Lacquer, manufactured by Pittsburgh Plate Glass Company.



SYMBOLS OF PROGRESS AND GROWTH

Gateway Center's three stainless steel office buildings adjoin Point State Park at the apex of Pittsburgh's Golden Triangle. Owned and operated by The Equitable Life Assurance Society of the United States, Gateway Center is modern in every way—one of many good reasons why multicolor lacquer coatings were selected for the interior.

STAYS "LIKE NEW"

All main stairways, public corridors and lower level elevator corridors of the Gateway Center are finished with multicolor lacquer. Where the previous coating continually showed dirt and handprints, multicolor remains clean and spotless. On rare occasions when touch-up is needed, new multicolor lacquer blends perfectly and unnoticeably with the existing finish.

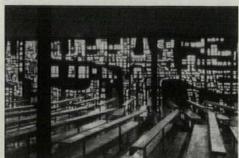


Perhaps the loveliest church of all, however, was at Hem in the north of France, where Hermann Baur, the Swiss architect, and Manessier, Rouault's successor as the outstanding religious artist of France, have combined to produce the tiny chapel of Ste. Thérèse—a poem in pure color (9). Clean and compelling in its exterior lines, inside it is one rich, heartwarming glow, as color floods in from

its walls of inch-thick glass—reds, blues, greens, yellows, turquoise, tangerine, rose and pink and gray. Such is Manessier's skill that, instead of remaining the distracting blaze they appeared on entering, the walls seem gradually to withdraw into a murmurous background chant of praise in color. It struck me fully then that there is very much a place for abstract art in churches, where pure form and

color lift the heart, while the mind, undistracted by a search for story or statement, can turn to God in prayer. At Hem, as at Villey-le-Sec, one can only drop to one's knees in gratitude

9



that there is such love and beauty in the world.

Our church buildings, I am convinced now more than ever, cannot have an impact on people if they are simply imitations of the past, meaningless anachronisms that in the surroundings of today make religion itself appear dated. Our churches must be supremely at home with, even dominating, the places in which they stand. "Sermons in stone," our older cathedrals have been called, and with justice; stone and wood will always remain fundamental, fitting materials. But concrete and steel have eloquent voices as well, and aluminum and copper and glass, stainless steel, and ceramics, and all the new products of our age. These are the materials of today, the materials with which we are at home in our daily lives. If religion itself is to be a part of that daily life, then it too must clothe and house and express itself in them.

We can perceive the needs of our day, and we have an unprecedented wealth of tools and materials with which to fashion our answers. Have we also the ideas to put behind them, and the courage and perseverance to carry these ideas through in the face of doubts and impatience and false economies? We are the ones who must build our churches-laymen, clergymen, and architects working together-and the ones who must take the blame together for producing less than we are capable of. Our imagination or our sterility, our vitality or our timidity, these are the qualities that will determine the shape of our churches. Which of these qualities shall we let prevail in our time?

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Recordlift speeds interfloor delivery in multi-story buildings; features modern MAGNETIC MEMORY control

*VIPs are tough on time. They're impatient. They dislike being tied up by coffee breaks, a chat in the hall, small delays. VIPs are Very Important Papers — mail, policies, files, contracts, invoices — going places, doing things. VIPs run the business world.

In a single day, a Standard Recordlift can automatically distribute tons of VIPs throughout a multi-story building. And this talented vertical conveyor does it with ease, economy, safety.

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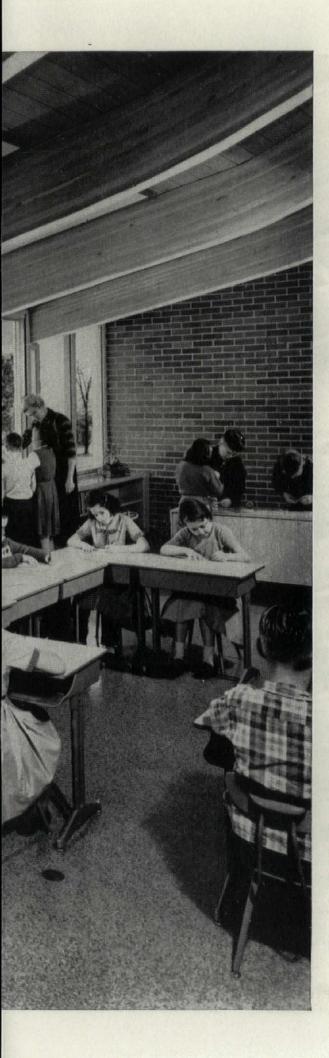
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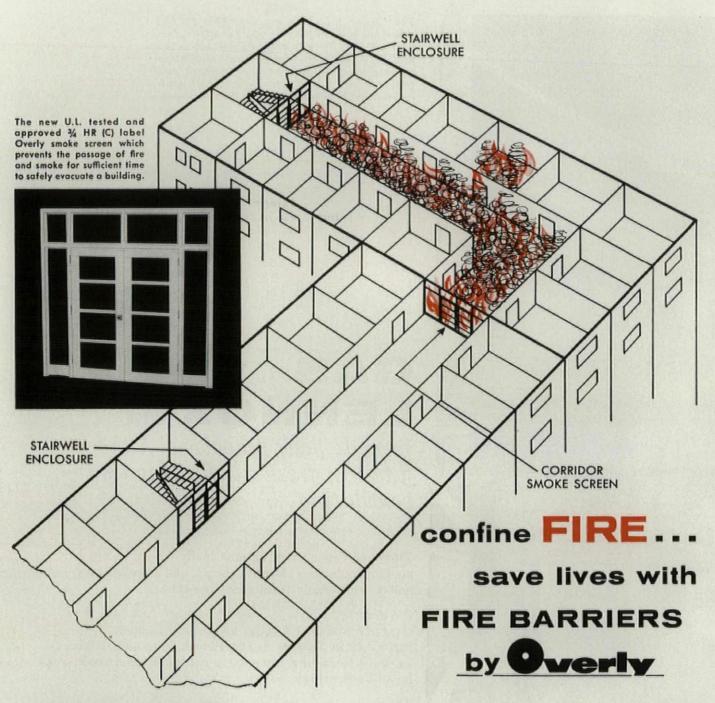
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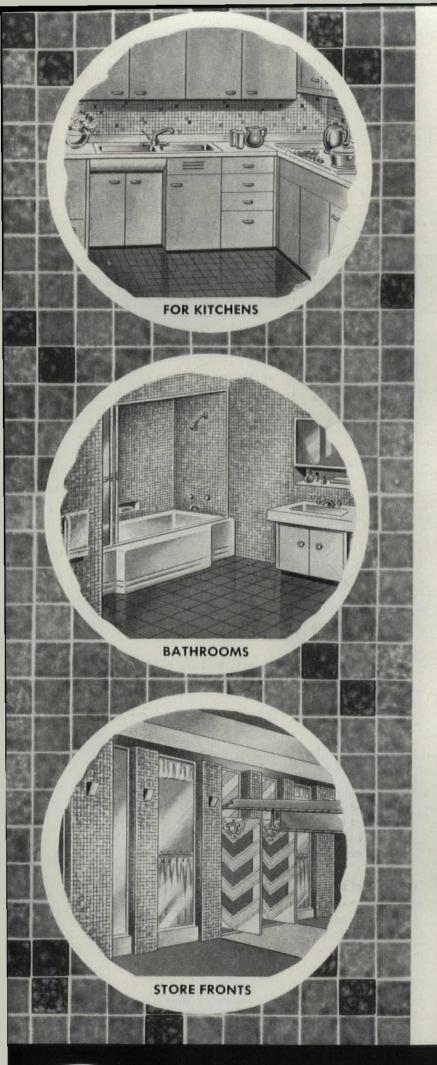
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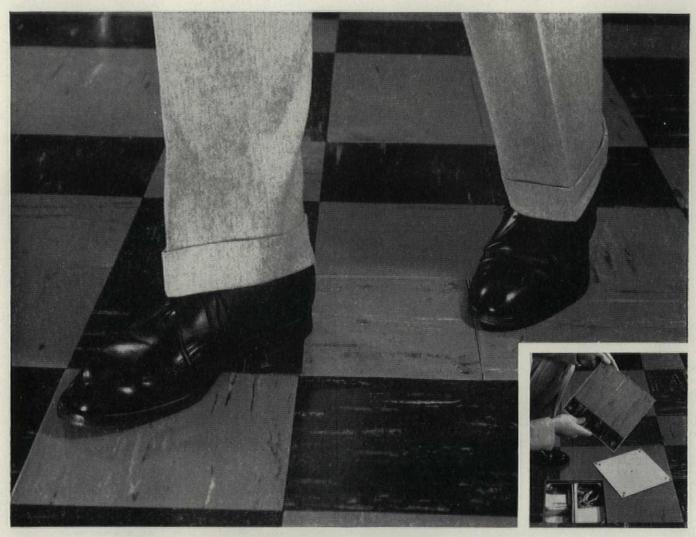


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United States Plywood Corp163, 164, 193 Kenyon & Eckhardt, Inc.
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United States Steel Corp.
United States Steel Corp. (American Steel & Wire Division)42, 43 Batten, Barton, Durstine & Osborn, Inc.
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Puzzle: Find the Spang Floor Pan! In this unretouched closeup photo, it's barely visible between the man's feet. From a few feet away, it's difficult to spot this access-box covering. Only 1/16" rim and corner and center screws are visible. (Right inset) Linoleum tile is easily and accurately cut to fit recess in this square Spang Floor Pan design. Center and corner screws hold floor pan and access box plate firmly in place. Square access box provides maximum working area.

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AMATEUR CRITICS

Forum:

Your October News story on the state of the State Department's foreign buildings program neglected the most newsworthy statement of Representative Hays. "Let me say with regard to art," he observed, "there may be an element . . . among architects as there is in the medical profession where you can get no doctor to criticize the operation of another doctor, even if the patient dies." It was one of the interesting aspects of the late Frank Lloyd Wright that he was rare, if not alone, among architects to criticize the work of his fellows.

If architects won't criticize architecture, who will?

Your story went on to mention with obvious derogatory intent: "... the amateur architectural critics of a subcommittee of the House Committee on Foreign Afairs." Is there anything wrong with being an amateur architectural critic? Representative Hays and his colleagues are heir to a long and distinguished line of amateur architectural critics. Our own George Washington and Thomas Jefferson were no mean examples.

As long as there is architecture, you will have critics, especially amateur.

HENRY HOPE REED JR. New York City

■ Critic Henry Reed, spokesman for a small group who would have architects ignore the scientific revolution and copy classical patterns, continues to find himself out of sorts with the bulk of the architectural profession and its leaders. He appears similarly determined to ignore Webster's differentiation between the two types of amateurs: the "dabblers," and the men who "cultivate a particular study or science from taste." For more comment on "Architecture by Congress," see p. 83.—ED.

TWO DOMES

Forum:

To Harmon Goldstone, the dome of the Guggenheim Museum by Frank Lloyd Wright looked very much like the head of a Trinidad steel drum (FORUM, Oct. '59). To me it looks very much like the dome over the main entrance hall to the museums of the Vatican, in Rome (see photos). That entrance hall, incidentally, is also

circular and is ringed by spiral ramps. The structure was built some time during the first or second decade of this century. In fairness to Mr. Wright, I want to point out that his original dome design was a fantasy of many circles, rather than the final, bicycle-wheel pattern. Perhaps someone in the drafting room changed the design to make it more economical to build—and that someone may have had some subconscious recollections. Ah, well—let the historians fight it out.

MATTHEW PETERS New York City

■ For a more complete criticism of Frank Lloyd Wright's controversial museum, see page 86.—ED.

GOOD-BY EGG-CRATES

Forum:

Your article on schoolhouse productivity (FORUM, Nov. '59) will be controversial. Anything that has to do with the Ford Foundation, and particularly with Dr. Trump-and-entourage's proposals is going to bring on a barrage of indignation. When Trump starts abusing the 1-to-25 teacherpupil ratio, he is abusing one of education's most sacred cows. I don't know exactly how long this ratio has been with us, but we have traced it back to the Fourth Century. And when the architects find out that they can no longer rely on the tried and true formula of subdividing the big space into so many equal-sized egg-crates for so many equally equipped eggheads, they are naturally going to react.

Also, the poor state-level people, who gain their livelihoods by checking to see that all teaching spaces conform to a certain preconceived "classroom," are going to be caught flat on their stack of restrictive regulations.

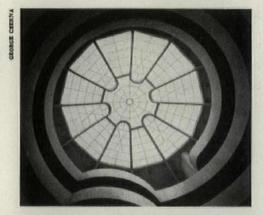
WILLIAM W. CAUDILL, architect Caudill, Rowlett & Scott Houston

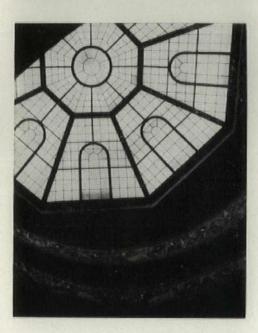
THE BIG ONES

Forum:

The list of "The 100 biggest contractors" (FORUM, Sept. '59) brings together a mass of very useful information for anyone engaged in the construction industry.

Would you consider producing and publishing a similar list of other principal continued on page 206





elements of the industry, such as the electrical and mechanical fields? The fine service you have rendered by the contractor, architect, and client lists so far released will be amplified by the additions of the other major components of building construction.

D. H. McBRIDE, vice president Limbach Co. Pittsburgh

■ Because the various fields of engineering are so numerous and divergent, a list of the 100 biggest firms would have little significance. However, the article on the industry's engineers (page 134) cites many of the bigger firms in each branch of the profession .- ED.

HEATED ELECTRICITY

In your article "Electric heating puts on the heat" (FORUM, Oct. '59) there is an unfortunate slur against the architectural profession. In my 25 years of practice with architects I have yet to meet one who knowingly specified a more expensive system in order to earn a higher fee. From the engineering viewpoint this article also shows bias and omits mention of some pertinent considerations:

- 1. You talk about "the high efficiency of electric heating in buildings of intermittent occupancy." This fails to take into account the many areas where electric rates include a demand charge based on the highest use during the month even where this use only lasts a few minutes.
- 2. Of all heating fuels electricity is the most whimsical, with the greatest tendency to fail during freezing weather - when it is needed most. Oil burners are, of course, dependent upon electricity, but gas and coal-fired heating systems generally are not.
- 3. You point out that with electric heating you can have individual room control, implying that with other fuels you cannot.
- I predict that steam-driven or steamabsorption air conditioning, which permits year-round use of boiler plant, will grow much more rapidly than electric heating of commercial buildings in the northern part of the U.S.

SAMUEL A. BOGEN, consulting engineer New York City

■ Forum's article nowhere implied (1) that electric rates made electric heating feasible in all areas as yet or (3) that only electric heating allowed individual room control. The U.S. power industry and its customers, the largest in the world, will be startled to learn that electricity is (2) "the most whimsical" of all heating fuels or energy sources .- ED.

UNDER THE ELEPHANTS

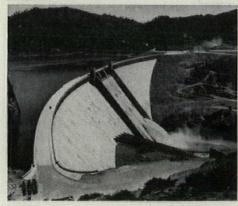
Your article on "expressway blight" (FORUM, Oct. '59) carelessly condemns engineers for situations not of their own doing.

You compare the handsome pedestrian bridge across Storrow Memorial Drive and the "box-girdered hell" of Boston's John F. Fitzgerald Expressway. The pedestrian and truck loadings imposed on these two structures are in entirely different galaxies of magnitude. If even God could not create an clephant as graceful as a gazelle, how could one expect engineers to do as much?

WILLIAM ZUK, professor of civil engineering University of Virginia Charlottesville

■ Big sizes and heavy loads do not necessarily dictate ugly design. The George Washington Bridge and California's Shasta Dam (photo below) are very graceful elephants.-ED.

ANDREAS FEININGER-LIFE



Forum:

Your recent article on Boston's Central Artery (FORUM, Oct. '59) was welcome to one who has spent more time under, than on, it. Critics have begun to point out that clevated freeways nearly always are much bigger than antiquated rapid-transit elevateds, and the illustrations in your article would seem to confirm this.

> DON FICHTER Jefferstontown, Ky.

CURTAINS

Your October critique of present curtainwall construction is, alas, all too appropriate. As a manufacturer of curtain wall panels, I must admit that imagination and ingenuity have been sadly lacking in recent examples of the technique.

Who is at fault?

Is it the panel manufacturer, who is so squeezed by price "shoppers" and the competitive market that he cannot set aside money for research, development, and sensible conferences with architects on the proper use of his material?

Is it the window manufacturer, who is equally squeezed, but who tries to get out of it by offering successively lighter and cheaper sections as the price skids downward, day after day?

Is it the contractor, who tries to get out of it by forcing substitute after substitute down the hapless architect's throat, thus emasculating the specifications?

Or is it the architect, who is often unable or unwilling to stick by his original choices of materials and sources, and thus becomes a pawn in the hands of the contractor?

> HERBERT R. SPENCER JR., president The Erie Enameling Co. Erie, Pa.

REASONABLE REYNOLDS

Forum:

In your story on the Reynold's Detroit Regional Headquarters you put a price of \$2 million on the building-which indicates a cost something like \$44 per square foot. The actual price was \$1,654,000, which gives an actual cost of \$36 per square foot including parking lot, pool, screen, and skylight.

MINORU YAMASAKI, architect Detroit

■ The \$2 million figure, obtained from Reynolds, also included furniture, planting, and fees .- ED.

SIGNIFICANT PROBE

Forum:

I'm sure I'm among many who found your article on the "Mies-less Johnson" (FORUM, Sept. '59) a significant probe.

> EUGENE E. BURR Corinth, Miss.

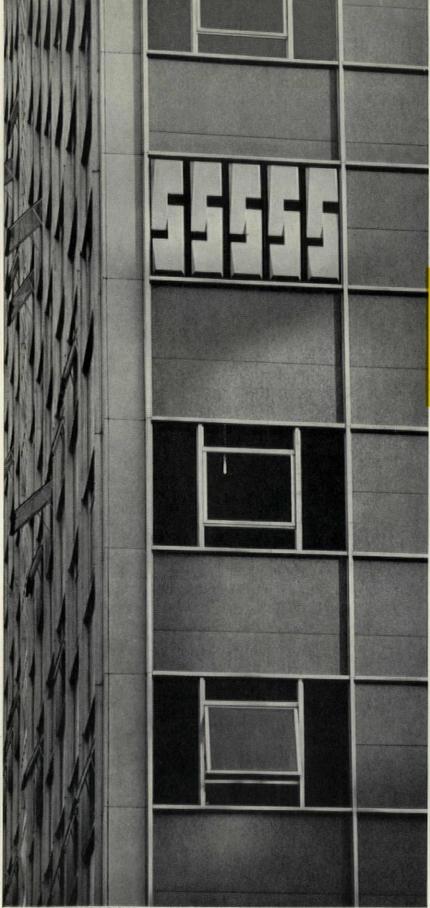
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Yet, this distinguished design has provided unusual construction economies. For example, the aluminum grid of the curtain wall has been fully integrated with the reinforced concrete frame. This has permitted wide spacing of the mullions, which, in turn, has resulted in major savings in the entire curtain wall.

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