rehitectural Forum the magazine of building March 1960

Tubular construction

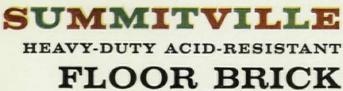
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Architectural Forum March 1960

VOLUME 112 NUMBER 8

ART OF ARCHITECTURE

Pepsi's palace 102

In its glass and aluminum headquarters in New York, designed by SOM, Pepsi-Cola has stayed true to its advertising theme: Be sociable.

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NATIONAL BANK OF DETROIT. Architect: Albert Kahn Associated Architects and Engineers, Inc.; General Contractor: Bryant and Detwiler Company.



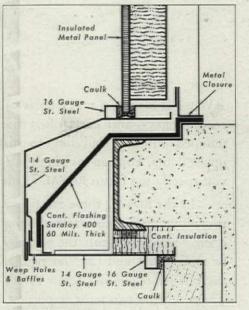
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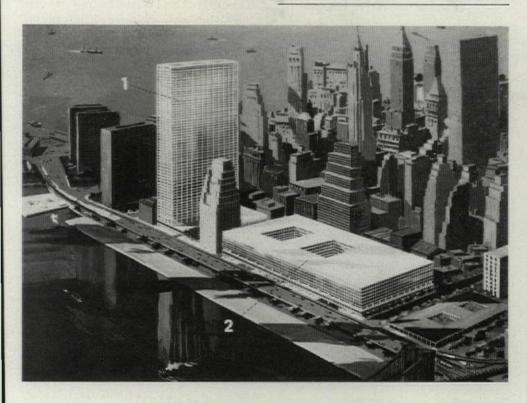
SLOAN VALVE COMPANY . 4300 WEST LAKE STREET . CHICAGO 24, ILLINOIS

News

New loan techniques: lenders share in rents or profits; escalator clause put in mortgage.

Inflation and tight money have brought forth a number of unusual new twists in the financing of new buildings. Some lenders have been negotiating a new "income participation" loan calculated to give them at least 2 per cent greater interest-equivalent payments, and potentially much higher bonuses than that. In another case, a lender will receive a share of a shopping center's rent income above a certain minimum, throughout the full 20-year period of the mortgage, even if the loan is paid off before maturity.

Lenders customarily refrain from publicizing or discussing any loan procedures that deviate from traditional patterns. Last month, however, several



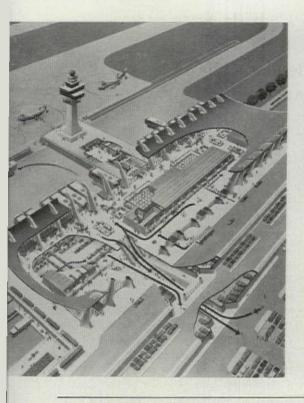
WORLD TRADE CENTER PROPOSED AT EAST RIVER END OF WALL STREET

This schematic proposal for a \$200- to \$250million World Trade Center at the eastern end of Wall Street was released a month ago by David Rockefeller, vice president of New York's influential Chase Manhattan Bank and chairman of the Downtown-Lower Manhattan Assn. Later, on requests from the Governors of New York and New Jersey, the Port of New York Authority agreed to make an economic feasibility study of the project, which presumably would require acquisition of its 131/2-acre site by eminent domain and an undetermined degree of subsidy to construct some of its components. The central tower in the preliminary plan by Skidmore, Owings & Merrill (above) would be a 50- to 70-story importexport office building with ten upper floors devoted to club, restaurant, and hotel facilities (1). The large rectangular building with two inner courts would be a 880 by 365 foot World Trade Mart exposition, trade mission, and travel service building (2). Between them would be the existing 33-story American Sugar Refining Co. Building and a new low Central Securities Exchange Building that might be the future home of the Stock Exchange and other financial marts at the East River Drive end of Wall Street. The towers at the left are proposed apartments on the Battery Park Title I redevelopment site. leading institutions revealed to FORUM in somewhat guarded terms some of the details of these new types of financing. Most outspoken was Prudential Insurance Co.:

"During the past two years, Prudential has made a few mortgage loans which contain a participation clause. These were loans on income-producing properties such as shopping centers, apartment houses, and commercial buildings. In general, the participation clauses provide that the lender will receive a small percentage of the earnings, if and when the earnings exceed a stipulated sum. Details of these participation considerations vary in every case, as do the legal considerations in each state. To the lender, the principal advantage is a degree of hedge against inflation; by the same token the borrower has an easier time getting financing." Still secret are the amounts or the additional margins of return Prudential anticipates on its participation loans, the terms of which vary to fit each borrower and to conform to different state laws.

Northwestern Mutual Life in Milwaukee recently rejected an application for a shopping center loan that would have paid it an interest rate related to a percentage of the rent collected from the project. Says A. H. Alexander, in charge of mortgages and real estate: "The man who puts up most of the money-the mortgage lender-often feels that he is entitled to more than just the return of his money plus normal interest, if the venture is a big success. The deal is not an illogical one, but we haven't made any." However, for three of the last four shopping centers it has financed, and for another now being negotiated. Northwestern has worked out another kind of equity participation. In return for making larger-than-usual loans, the company has acquired for nominal payments a 20 to 40 per cent stock ownership in these centers.

Connecticut General Life, in Hartford, has also rejected a recent application for a shopping center rent participation mortgage, but only because it was not interested in that particular project at all. Although Connecticut General has made no combination mortgage-equity loans to date, Irving G. Bjork, mortgage and real estate vice

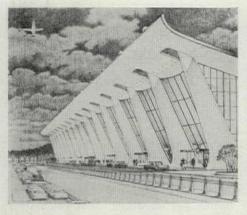


president, says "we are interested. There may be opportunities that are sufficiently sound and offer extra returns." Indicative of this company's acceptance of modern financing techniques are leasehold positions it has acquired in a hotel and a shopping center. (A second shopping center deal is under negotiation.) In these cases the insurance company not only makes the mortgage on the building, but also buys and leases the land to the organization that owns or erects the building.

The biggest problem posed by a mortgage that provides for flexible extra payments to the lender hinges on the tax status of the extra payments. If such payments can be established as extra interest or expense, they can be paid out of the borrower's income before federal taxes. If, however, they are considered to be dividends or profits paid to an owner, they have to be paid out of after-tax income.

Mortgage capital escalator clause

Adding another new twist to mortgage financing, an inflation-minded seller of a large investment property recently put an escalator clause into the mortgage applicable to the principal amount of the loan. The seller was prepared to take back a large mortgage himself for five years, but the buyer wanted ten years to pay him off. The solution, reported by Realtor-Appraiser Aaron A. Gorlin, of Jersey City, N.J., was a five-year mortgage with an option to renew for another five years, provided that the capital amount of the loan would be readjusted on a valueof-the-dollar index if the option is exercised.



SUSPENDED-ROOF CAPITAL JETPORT

"Monumental design appropriate to Washington and the jet age—but not static monumentality." This is Eero Saarinen's description of this 600 by 150 foot concourse terminal (eventually 1,200 feet long) his office designed for Dulles International Airport. Its roof will consist of precast concrete panels suspended on cables from massive columns. Mobile lounges will carry passengers to planes, eliminate long finger walkways.

Directors suggest major changes in AIA

If the membership approves recommendations of the board of directors, the organizational structure of the 103year-old American Institute of Architects will be remodeled and given a more modern open-plan design. The board has urged all members to participate in a full-scale discussion of the proposed changes at the institute's San Francisco convention next month, but has also said that "if the delegates feel that more time is needed to thoroughly debate the issues and to fully ascertain the will of all interested members, it is only proper that final action be delayed another year until we convene in Philadelphia in 1961."

Main streamlining proposals would:

▶ Reduce the board of directors from 18 to 10 members and eliminate the executive committee. The smaller board would be able "to meet more frequently and make decisions more expeditiously," the board declares. "The board must direct our national destinies. This can not be done by a large crowd nor should it be done by the dictatorship of an excessively small one." The reconstituted board would consist of the president, first vice president, secretary, treasurer, and one vice president elected from each of the six reorganized districts of the institute (below).

Create a new national council that would advise the board of directors and serve as a policy-making body, through which individual members could make their voices heard and influence the actions of the organization. This council would meet at a time about midway between national conventions and would be "in effect a second annual convention devoted exclusively to the business and practical concerns of AIA." It would be composed of the ten national directors, plus one member elected from each state association. Its presiding officer would be the national first vice president. Board members would have no vote on the council; state representatives would have votes in proportion to the number of AIA members in each state. Presiding officer could break ties.

Regroup all existing state and district organizations (now 13) into six districts, and create six new uniform "district councils." Each of these councils would be composed of the presidents of all local chapters and state associations within the district. It would elect or conduct an election for a president of the district council, who would automatically become the national district vice president and member of the national board of directors. It would also recommend candidates for membership on AIA's national "vertical committees" and hold "district conventions-but only if there is a genuine demand and need for them and with the approval of the national board of directors." AIA explains that while many regional conventions have been successful, others have failed and all have tended to compete with the national convention, which "must remain our primary means of keeping the profession united and democratic."

▶ Create state associations (where they do not exist) to facilitate the election of state representatives to the national council.

Mies wins AIA Medal; Honor Awards listed

As the customary curtain raiser for its annual convention, which will be in San Francisco next month, the American Institute of Architects announced the recipient of its 1960 Gold Medal, Ludwig Mies van der Rohe, and named the winners of its annual honor awards for buildings that "demonstrate true leadership" in architectural design.

Long since recognized world-wide as one of the fewer than half-dozen leaders of contemporary architectural design, Mies had only eleven months earlier acquired the medal of the Royal Institute of British Architects among his many honors. American recognition was especially appropriate since Mies had opened virtually a second career when, in 1938, he left Hitler's Germany and ended in the U.S. as an American citizen.

Out of 289 submissions, the institute's 1960 honor awards jury selected five buildings for First Honor Awards, and 11 for Awards of Merit. (Philadelphia's G. Holmes Perkins was chairman of the all-architect jury, which included Alfred Shaw of Chicago; Harris Armstrong of Kirkwood, Mo.; Alfred Aydelott of Memphis; and Dean Henry L. Kamphoefner of the North Carolina State College School of Design, in Raleigh.) The results:

FIRST HONOR AWARDS

Moore School of Electrical Engineering, Philadelphia, by Robert L. Geddes, Melvin Brecher & Warren W. Cunningham (FORUM, Mar. '59). (1)

U. S. Embassy Office Building, Oslo, Norway, by Eero Saarinen & Associates (Forum, Dec. '59). (2)

Blyth Arena (Olympic ice arena), Squaw Valley, Calif., by Corlett & Spackman, Kitchen & Hunt (FORUM, Feb. '60). (3)

Mutual Insurance Company of Hartford, Conn., by Sherwood, Mills & Smith (FORUM, Apr. '59). (4)

Residence for Mr. and Mrs. Richard Opdahl, Long Beach, Calif., by Killingsworth, Brady & Smith.

AWARDS OF MERIT

Industrial Reactor Laboratories, New Jersey, by Skidmore, Owings & Merrill (Forum, May '59). (5)

International Minerals & Chemical Corporation Administrative & Research Center, Skokie, Ill., by Perkins & Will (FORUM, Feb. '59). (6)

Capitol Park Apartments, Washington D.C., by Satterlee & Smith (Forum, Dec. '59), (7)

Lenox Square Shopping Center, Atlanta, Ga., by Toombs, Amisano & Wells (Forum, Oct. '59). (8)

National Airlines Nose Hangar, Miami, Fla., by Weed Johnson Associates (FORUM, Sept. '58). (9)

Church of the Redeemer, Baltimore, by Pietro Belluschi—Associated Architects: Rogers, Taliaferro & Lamb. (10)

St. Paul's Lutheran Church (Fellowship Hall), Sarasota, Fla., by Victor A. Lundy (FORUM, Dec. '59). (11)

Asilomar Housing, Pacific Grove, Calif., John Carl Warnecke & Associates. (12)

Clemens Homes (public housing), Mount Clemens, Mich., by Meathe, Kessler & Associates, Inc. (FORUM, Feb. '60). (13)

Builder's house, model for hillside lots, Mill Valley, Calif., Raphael S. Soriano.

Alyn Reid residence, Mill Valley, Calif., by Lee Stuart Barrow.

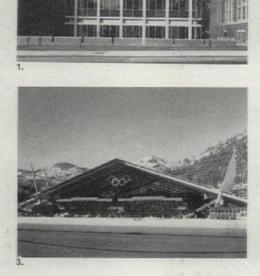
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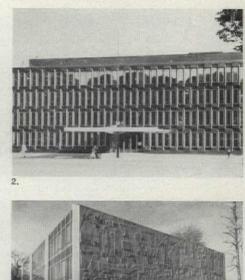
Mason remains aloof to public housing study

For seven years the Eisenhower administration has been a lukewarm supporter of the federal public housing program, as if it wished the program might gradually disappear or go away.

Under prodding from Democrats in Congress to give public housing greater support, or else come up with a better substitute program, HHFAdministrator Norman Mason last year commissioned Dr. Ernest M. Fisher, Columbia continued on page 9

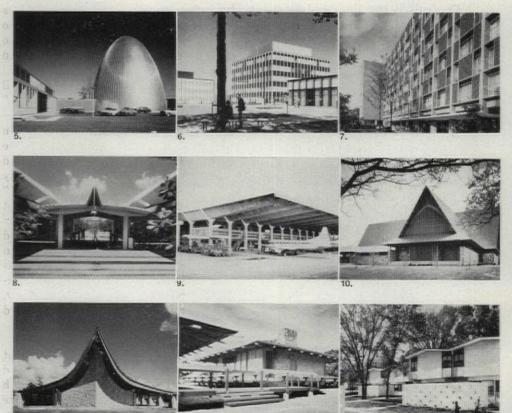
FIRST HONOR AWARDS







AWARDS OF MERIT



State and

12

Here are answers to the most frequently asked questions about Armstrong Acoustical Fire Guard

A RMSTRONG Acoustical Fire Guard is a new kind of ceiling tile that meets code requirements with no additional fire protection. An indication of architectural interest in the product is the number of questions that designers and specifiers have asked about Acoustical Fire Guard.

Q. What makes Acoustical Fire Guard so different from other incombustible ceiling tiles?

A. Acoustical Fire Guard is the only acoustical ceiling tile to receive fire-retardant time-design ratings from Underwriters' Laboratories, Inc. Other tiles, including many made by Armstrong, are rated "incombustible." But they all require some sort of additional fire protection between them and the structural steel above them to meet rigid building codes.

Q. What codes will Acoustical Fire Guard meet?

A. It will meet the nation's strictest codes. It has achieved one-hour, two-hour, and four-hour time-design ratings, depending on the floor-ceiling assembly with which it was used. Acoustical Fire Guard has never failed an Underwriters' Laboratories, Inc., test or been rejected by any code authority.

Q. Isn't it the floor-ceiling assembly, rather than the ceiling, which gets the time-design rating?

A. No. The ceiling carries the same rating as the assembly in which it is tested.

Q. To get local code approval, doesn't the assembly have to be constructed exactly as tested by UL?

A. No. In many cases, local officials will allow variations from the assembly as tested when those variations offer the same or greater fire protection. Thicker bar joists, deeper plenum chambers, various types of metal decks—all will logically be permissible.

Q. Do penetrations for ducts and lighting fixtures cause Acoustical Fire Guard ceilings to lose their fire-retardant ratings?

A. No, they do not. A certain amount of penetration is arbitrarily permissible under most codes. In addition, an Acoustical Fire Guard ceiling with a full complement of ducts and recessed lighting fixtures was successfully tested by Underwriters' Laboratories, Inc.

Q. How does Acoustical Fire Guard compare in cost with other incombustible tiles?

A. The material itself is moderately high in cost. But it can be installed quite economically. An installed Acoustical Fire Guard ceiling costs little, if any, more than a regular fissured mineral fiber tile ceiling. And it generally costs far less than any ceiling of tile and plaster or gypsum board which offers comparable fire protection.

Q. What dollars-and-cents savings can I expect from Acoustical Fire Guard?

A. 10ϕ - 30ϕ per square foot, depending on type of building, degree of fire protection required, and type of alternative ceiling being considered.

Q. Does it take more time to install Acoustical Fire Guard?

A. No, it actually requires less time than ordinary fireretardant ceilings because no delaying "wet" operations are necessary. For example, an elementary school in Delaware was opened three weeks sooner because Acoustical Fire Guard was specified.

Q. Is Acoustical Fire Guard an "experimental" product?

A. Absolutely not! Before it was announced a year ago, Acoustical Fire Guard had undergone months of rigid tests by both Armstrong and Underwriters' Laboratories, Inc. It withstood temperatures far higher than those of any "natural" fire.

And since its introduction a year ago, it has been chosen for millions of square feet of ceiling area in hundreds of buildings across the country. It promises to become *the* method of obtaining fire-retardant ceilings in the future.

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University real estate, housing, and urban land economist, to study the various federal housing and urban renewal programs with a view to possible new, more effective, or more economical approaches to the problem of providing safe, sanitary, and decent housing for low-income families in urban areas.

Last month, Mason released Dr. Fisher's recommendations. But he failed to endorse them. Citing HHFA's constant search for "new ideas and imagination, fresh solutions to problems in housing and urban development," Mason merely politely termed Dr. Fisher's analysis penetrating and his recommendations thought-provoking: "I hope it will prove stimulating and helpful to others interested in better housing and improved cities."

Although there was no prospect of an indifferent administration doing anything to implement Dr. Fisher's recommendations, it was worth noting that the body of his report, without directly saying so, had addressed itself to one of the most incongruous aspects of public housing and urban renewal. Specifically: when an area becomes so bad that it must be cleared outright or rebuilt, liberal federal subsidies can be obtained that produce substantial, although indirect, benefits either for a redeveloper who acquires the land at a marked-down price for profitable building, or for low-income persons who may become public housing tenants on it. But in neighborhoods that undergo the milder rehabilitation or conservation process, there is no provision to pass through any comparable subsidy, direct or indirect, to help a property owner to improve or conserve his property itself against blight. Some subsidy can be given for public improvements in these districts, but except for this, federal aid in a deteriorating or slum area is virtually an allor-nothing proposition.

In the main, Dr. Fisher's practical but officially unwelcomed recommendations would help solve this problem by allowing a portion of future federal public housing and urban renewal subsidies to be utilized to conserve and rehabilitate sound private housing before it becomes slum property and needs immense clearance subsidies. Permitting direct financing or service subsidies to property owners in urban renewal areas, Dr. Fisher's program recommended that the scope of local public housing authorities be expanded so they could: 1) act as an owner's agent in letting improvement contracts, 2) form their own construction crews to make repairs on private property. 3) write off unexpected improvement

expenses as part of renewal costs, 4) grant subsidies to home owners to write down their consolidated indebtedness, limiting the owner's right to sell his equity, 5) subsidize rents in privately owned rental property, 6) lend money to subsidize an owner's occupancy, allowing the owner's payments

on principal to constitute a savings account upon which he could draw in case of dire need by selling to the local authority, 7) sell from their inventory multifamily structures to occupants on a cooperative basis, and 8) acquire single-family homes and other dwellings in the open market.

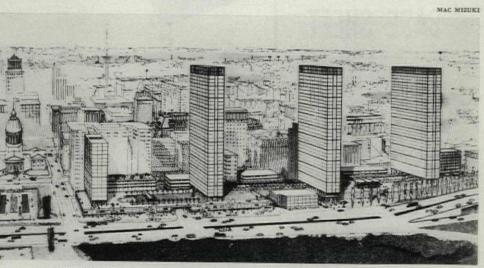
Rival St. Louis redevelopment plans pose economic and esthetic choices for officials

Five city agencies in St. Louis found themselves cast as both economic and esthetic referees last month to make the choice between the proposals of two rival builders. The builders seek the same nine-acre, five-block strip of highly desirable downtown redevelopment property facing the 83-acre Mississippi river-front Jefferson National Expansion Memorial Park where a soaring 590-foot stainless-steel arch by Architect Eero Saarinen is to be erected by the National Park Service.

The two contending developers are Lewis E. Kitchen, noted for his Quality Hill redevelopment project in Kansas City, and St. Louis Realtor-Developer G. J. Nooney, who submitted a competitive plan to the city on January 22, just 48 hours before the deadline for filing competing plans. The agencies that now have to review or approve the rival plans (each virtually has its own veto power) are the City Plan Commission, the City Art Commission (because the land fronts on a park), the Land Clearance for Redevelopment Authority, the mayor, and finally the Board of Aldermen.

One aspect that makes this competition unusual in the redevelopment world is the absence of any provision for price competition between the rivals. No public subsidies are involved. Both propose to execute their projects under the Missouri redevelopment law that grants a builder condemnation rights in an officially designated "blighted" area, and subsequent tax abatement privileges, but no other direct financial assistance.

Kitchen, who built his Quality Hill project under this law, induced the St. Louis Plan Commission, the mayor and Board of Aldermen to designate the area adjoining the St. Louis park site as an official redevelopment area last year. His original plan contemplated *continued on page 10*



KITCHEN PLAN: 36-STORY TOWERS (LATER CUT TO 28 STORIES)

NOONEY PLAN: A CONTINUOUS, FIVE-BLOCK, SEVEN-STORY S-SHAPED BUILDING



two 40-story luxury apartment towers with a total of 960 units designed by St. Louis Architects Russell, Mullgardt, Schwarz & Van Hoefen, plus parking for 2,763 cars, a drive-in bank, a 316unit motel, four small single-tenant commercial buildings and a five-block promenade two floors above the street level. Total cost was to be about \$45 million. Kitchen's original tower buildings, oriented east and west-at right angles to the Saarinen arch-would have been 450 feet high. At the urging of the National Park Service, however, which felt that a series of high towers projecting skyward would detract from the majesty of the arch, he first reduced their elevation to 36 stories, and then late in December redid the scheme with three towers each 28 stories high or a maximum of 275 feet, a little less than half the height of the arch. That height. Kitchen said, would be agreeable to Saarinen and National Park Service Director Conrad L. Wirth.

Nobody in St. Louis appeared to have obtained from Saarinen an expression of esthetic preference as between Kitchen's predominantly open, vertically punctuated plan, and Nooney's long, continuous five-block and sevenstory structure parallel to the park, which bore a strong resemblance in concept and purpose to the earlier backdrop scheme of Eliel and Eero Saarinen, father and son, for a superficially similar water front and gateway situation in Detroit.

Nooney's proposed development is a continuous S-shaped structure oriented north and south, parallel to the arch. It was designed by Architects Hellmuth, Obata & Kassabaum and would cost an estimated \$30 million. It would provide no apartment units. Instead it would concentrate on commercial occupancy and would consist of a 600-room motel, a 300-room hotel, two large multitenant office building sections totaling 260,000 square feet, parking for 1,800 cars, a drive-in bank, public dining facilities, and an upper-level promenade comparable to Kitchen's.

Downtown in St. Louis, Inc., a civic organization which promotes downtown redevelopment, exulted last month that at least the city was now assured of a comprehensive reconstruction of this portion of its river front, including an adjacent area earmarked for a huge public stadium and related facilities. Pointing out that the choice between the Nooney and the Kitchen proposals would be difficult, however, it listed the main questions that would need to be resolved as: whether this river parkfront site should be developed mainly for residential or mainly for commercial use; which plan best complements and

continued on page 11

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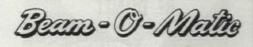
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News contd

adds the most to the arch and park improvement project; which will be most compatible to the proposed sports stadium; which will mesh best with a new master plan for downtown to be completed shortly; which will do the most for the city economically, and which has the greatest esthetic appeal?

Harvard and Wisconsin expand urban interests

Last month two universities announced plans to expand their educational and research activities in the field of urban affairs:

Beginning this fall, Harvard's School of Design will offer an advanced program leading to degrees of Master of Architecture in Urban Design, Master of Landscape Architecture in Urban Design, and Master of City Planning in Urban Design. Dean José Luis Sert will supervise a curriculum offered by members of all three departments of the school. Initially the program, requiring a minimum of one year's study in residence, will be open only to those who already hold Harvard degrees as Bachelor of Architecture, Master of Landscape Architecture, or Master of City Planning.

With the aid of a \$1 million grant from the Ford Foundation, the University of Wisconsin will launch a series of urban research and education programs similar to the agricultural education and extension programs conducted for many years by land grant universities. Both the Madison and Milwaukee campuses will participate in the program, which will concentrate on basic research in urban problems, educating specialists in urban affairs, and the development of extension division public service activities, such as radio and TV forums, demonstration projects, etc.

The Ford Foundation also announced a \$250,000 grant to the Washington Center for Metropolitan Studies to support "urban research and education that has long been needed in our nation's capital."

Labor peace pact proposed; Gray retires at 72

Better labor relations in construction and the ultimate possibility of nationwide employer-union pacts to bar all building strikes inched a little closer to reality last month at meetings of the AFL-CIO Building and Construction Trades Department in Miami Beach.

continued on page 12



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At these sessions the first draft of a basic management-labor agreement proposed by the recently created Construction Industry Joint Conference was reviewed and accepted in principle by union leaders and by the contractor group representatives who were their guests. Under this proposed pact a national joint appeals board would be established to which unions or employers could bring all the disputes and wage problems which they could not settle by direct negotiation. This labor peace machinery would function on a voluntary basis, but all international unions and national employer associations would urge their local union and association members to agree to refer all disputes to such a board for final arbitration or settlement recommendations. The board normally would have 30 days to make its finding, and during this cooling-off period both sides would agree to shun strikes or lockouts. The settlement board would consist of equal numbers of union and management representatives and an impartial chairman.

Operations of the construction industry's National Joint Board for the Settlement of Jurisdictional Disputes would not be disturbed in any way by the proposed plan, which next will be circulated nationally to local union and employer groups for their reactions.

Another highlight of the AFL-CIO Miami Beach meetings was President Richard J. Gray's announcement of his retirement this month after 14 years as chief of the building trades department. Gray, 72, said he was retiring from his \$25,000 post because of his "advanced age" and his wife's poor health.

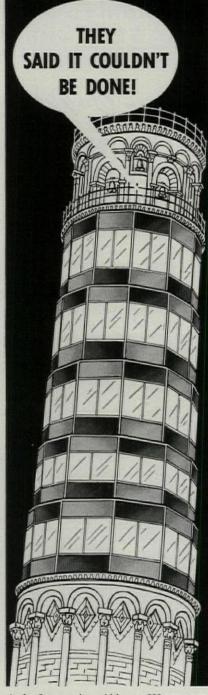
Financial failures in '59 —fewer but bigger

Department of Commerce data released last month disclosed a 4.5 per cent drop in the number of construction industry companies that failed last year—2,064 in 1959, compared with 2,162 in 1958. However, the liabilities of companies that folded were greater; the average was \$59,051, up 11 per cent compared with \$53,245 in 1958.

Commerce figures on mortality in the industry for the past five years:

| | Number of companies | Average liability |
|------|---------------------|----------------------|
| 1959 | 2,064 | \$59,051 |
| 1958 | | \$53,245 |
| 1957 | 2,105 | \$52,405 |
| 1956 | 1,834 | \$54,963 |
| 1955 | 1,404 | \$59,244 |

END



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People

Boston bids \$30,000 for a redevelopment coordinator; accident helps artist-architect.

Growing recognition of the importance of well directed redevelopment programs in large cities was underscored dramatically in frugal New England last month. To obtain the "best available" redevelopment expert for Boston's burgeoning renewal efforts, Mayor John F. Collins offered \$30,000 a year to young, energetic New Haven, Conn. Redevelopment Administrator **Edward J. Logue**, 38. This salary, which may be supplemented with expenses and "fringe benefits" as high as \$10,000, would be the highest for any public official in Massachusetts—\$10,000 greater than the mayor's and the governor's.



LOGUE

The man Mayor Collins wants to lure to Boston still has strong ties to New Haven. Unwilling to abandon his responsibilities there abruptly, at month's end he was trying to work out an arrangement so he could devote about two days a week to New Haven's program for a few more months and three or four days a week to Boston's. New Haven's nationally known program is well advanced; its big Church Street project is scheduled to move into construction in June, and by then Logue could relinquish his duties there without leaving the eity in a lurch.

Boston observers say Logue would earn every nickel of his proposed salary if his transfer materializes. Mayor Collins' election last November, they point out, was an upset victory over State Senate President John E. Powers, who had the support of every major office holder in the state including Senator and Presidential aspirant John F. Kennedy. The still-strong organization that Collins lambasted as "power politicians" has not yet forgiven Collins for charges that it has been closely linked with racketeers. "Collins' enemies will be Logue's enemies" said one observer. "With all his credit as an astute politician, Logue will have to do some pretty fancy footwork to win a majority for any bills in the Legislature. He will not have an easy task."

In New Haven, where he earns \$13,500 a year, Logue was not on the redevelopment agency staff, but operated as a top administrative aid of Mayor Richard C. Lee, who named him as his executive secretary when Lee first took office in January, 1954. In this position, Logue had greater freedom for his political-administrative activities. More like a free-wheeling vice president of a large corporation than the director of a government bureau, conscientious Logue would typically work 12 to 14 hours a day. Blunt-spoken, but still diplomatic and knowledgeable, he generated support for redevelopment from all segments of the public, reconciled conflicting factions, conciliated the aggravated, drove hard bargains for the city, and meshed the operations of all of its departments into a consistent, realistic, publicly acceptable urban renewal program. A veritable Yankee La Guardia, he also exercised daily executive supervision over the administrative activities of the redevelopment agency.

Mayor Collins wants Logue in Boston to give that city's program the same type of animation and direction. There he also would be responsible only to the mayor, with the assignment to coordinate and shape broader and more effective policies for all types of renewal activities: "slum clearance, rehabilitation, conservation, code enforcement, and the promotion of all kinds of taxable development." His high salary is a mark of the importance the mayor attaches to this job, so the door of every Boston official and business leader will be open to him. Mayor Collins had persuaded business leaders to help pay part of Logue's salary if it could not be included in the city budget, but this plan later was abandoned so there could be no suggestion that he was indebted to anyone.

Never bashful or timid, and well equipped for any intellectual or political rough and tumble, Logue was graduated from Yale College and Yale Law School and before teaming with Mayor Lee served on the staff of Chester Bowles when the latter was governor of Connecticut.

ARCHITECT + ART + ACCIDENT"Every day I pray for a 'happy accident,' and the wisdom to convert it to some useful purpose—the way Goodyear continued on page 14



Over 100 Jobs Completed in 12 Months

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spilled some crude rubber onto a stove, but was alert enough to recognize how this mishap had revealed the secret of vulcanizing to him."

So said versatile New York Architect Arnold A. Arbeit, basking last month in rich aristic success which flowed out of an accident that he first regarded as an unhappy one. At the end of a one-man show of 30 of his abstract expressionistic paintings, 20 had been sold for a total of approximately \$8,000. Even more revarding artistically, the Guggenheim Museum had asked to have two of them sent to it for study, as possible museum purchases.



ARBEIT

The accident that precipitated such artistic recognition for Arbeit occurred last fall in the basement workshop of his suburban Westchester home. One night the hot water boiler broke; in the morning about 3 inches of water covered the floor and also the bottom edges of some of his recent works. Next his insurance man gave him another blow: Arbeit's policy did not cover damage to his boiler, which was all he had intended to claim. Annoyed, Arbeit then requested damages for his paintings. Two different insurance claim appraisers examined the damaged canvases, but departed after confessing their lack of competence to estimate the value of contemporary paintings. The company then sent Sigmund Rothschild, N.Y.U. lecturer and TV speaker on art appraisal problems. Rothschild not only made a satisfactory estimate on which the claim was settled; he was so enthusiastic about Arbeit's works, damaged and undamaged, that he persuaded him to hold his first one-man show in Rothschild's gallery.

Born 43 years ago on New York's lower East Side, Arbeit studied architecture at Columbia and at N.Y.U., where he received both his bachelor and master's degrees. Along the line he also took several M.I.T. engineering and architectural courses, and in 1955 won a Master of Arts degree in art education from N.Y.U. He has taught rendering at Cooper Union, and is now on its faculty as architectural design critic.

As an architect, Arbeit has worked for the New York City Board of Education and California's Division of Architecture. After he returned to New York to open his *continued on page 15*

People contd.

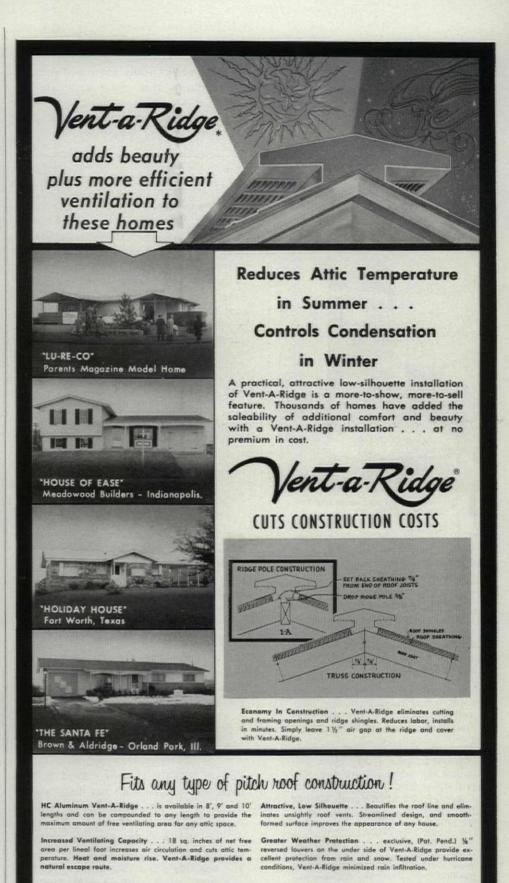
own office in 1948, one of Arbeit's first major commissions was for the immense bowling alley in the Port of New York Authority's otherwise unimpressive union bus terminal (FORUM, Feb. '52). Other commissions have included two hotelmotels at LaGuardia and Idlewild Airports, a shopping center in State College, Penn.; a \$250,000 residence in Westchester County; numerous loft and office building modernization jobs, and, in the bread-andbutter field, more than 200 Safeway stores and supermarkets. The army has also claimed considerable of Arbeit's time in recent years. Most of his four years of active Army service during World War II were spent in the South Pacific. Now, as a Lieutenant Colonel in the Reserve, he is Chief of Arts, Monuments, and Archives for the Army's Civil Affairs branch, responsible for protecting the nation's art treasures in a national emergency.

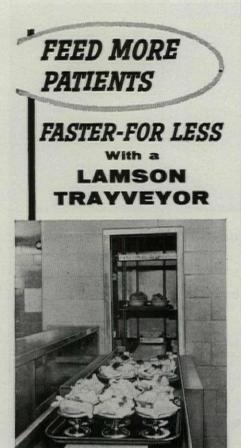
Soft-spoken, genial, unpretentious Arbeit has always been unusually adept with artist's pen or brush. He frequently amazes architectural clients by making sketches upside down while they watch so the drawings are right-side-up to the viewer across the desk or table. As a



Tracery, by ARBEIT

vacationer at Rockport, Me., he often used to sell seascapes and harbor scenes right off his easel. Several of his early paintings have been exhibited in the Delgado Museum, the Brooklyn Museum, and the National Academy of Arts. In recent years, however, he has concentrated on abstract expressionism-"realistic paintings are too easy, like renderings." Abstracts, on the other hand, require a great deal of experience and mastery of the medium, and usually a great deal of time. Although some are very spontaneous, most require the creator to "stew" over the subject a long time-"never certain when the rose is going to bloom." With divided affections, Arbeit says: "If architecture is my mother, painting is my mistress." Painting's challenge, he feels, is mainly in its continued on page 16





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People contd.

self-disciplines, because no one else can help the artist—it is his work alone. By contrast, architecture's challenge comes mainly from its many external "controls" or disciplines that circumscribe the designer at almost every turn, thus make architecture a greater achievement if it is to be artistic or beautiful.

RETURN OF THE ALUMNUS

After searching for more than a year, Columbia University School of Architecture found an architect alumnus, **Charles R. Colbert**, 38, of the New Orleans office, Colbert-Lowrey-Hess-Boudreaux, to serve as its sixth dean since it was founded 79 years ago. Colbert, now on a three-months tour to study architectural education techniques throughout Europe and the U.S., previously taught architectural design at Tulane University. He is perhaps best



COLBERT

known for the modern school designs adopted by the New Orleans school board from 1951 to 1953, when he was head of its department of planning and design. Colbert will succeed Dean Leopold Arnaud, who retired in January 1959. In the interim, James G. Van Derpool, professor of architecture and head of Columbia's Avery Memorial Architectural Library, has been acting dean.

PEOPLE IN BRIEF

Former NAREB President Boyd T. Barnard, of Philadelphia, has been elected president of the Urban Land Institute succeeding Builder David D. Bohannon, of San Mateo, Calif. Barnard was head of ULI's central business district council and was ULI's first vice president in 1958 and 1959. Realtor Clarence M. Turley, a leader in St. Louis redevelopment activities and a former NAREB president, succeeds Barnard as first vice president.

Milford A. Vieser, a director of ACTION and a frequent representative of the life insurance industry before Congressional hearings on housing and mortgage legislation, was elevated from financial vice president to executive vice president and membership on the board of directors of the Mutual Benefit Life Insurance Co.

END



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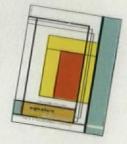
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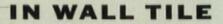


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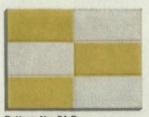
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Set within a background field of any of Suntile's palette of 35 standard colors, they enable you to create a wide variety of interesting wall treatments. Only a few of the many design possibilities offered by these basic patterns are shown here.

For guaranteed installation by skilled craftsmen, call your Authorized Suntile Dealer. His name is listed in the "Yellow Pages" of your phone book. For folder showing the complete selection of our new stock pattern insets, write to Dept. S-F3.



Pattern No. 84-B

* Patent #2,887,867-other patents pending

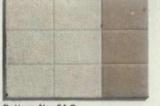
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How the boiler room of the Hudson Bay High School also serves the school across the street

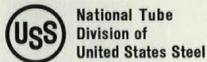
And a neighborly boiler room it is! From it, 100,000 feet of USS National Pipe, in the form of steam heat, plumbing, air and fuel lines, serves not only the Hudson Bay High School, Vancouver, Washington, but is used to pipe steam across the street to a vocational school, too. USS National Pipe in sizes from $\frac{1}{2}$ -inch through 12 inches was used.

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Plate No. 1091

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Architects: CAMBURAS & THEODORE Chicago, III. Color Consultants : M. T. POWELL ASSOCIATES Chicago, III. Tile Contractor : ALLEN TILING CO.

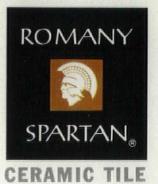
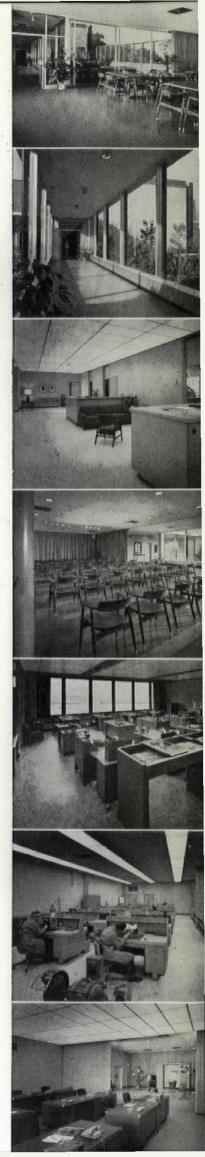


Plate No. 1092

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There's an Armstrong floor precisely right for each particular interior. For 7 interiors at Eastman Kodak Co., these are the Armstrong FLOORS

Here's how architects Kitchen and Hunt used Armstrong floors to fit the needs of seven diversified areas. (All seven are shown at right.)

1. Cafeteria: Excelon (vinyl-asbestos) Tile Greaseproof, immune to spilled foods, Excelon assures fast, economical clean-up after meals. A copper coloring in Excelon echoes terra cotta tile in terrace.

2. Corridor: Textelle Linoleum (See color picture at left) "Battleship" (¹/₈") gauge, this floor easily withstands concentrated traffic. The inherent stability of this material, plus its 6' widths, minimizes the shrinkage problem sometimes encountered with floors exposed to intense sunlight.

3. Executive Reception Area: Custom Corlon (solid vinyl) Tile Elegant, flecked design. Very rugged material. Light color of floor and ceiling provides low brightness contrast, accents furnishings.

4. Assembly Hall: Excelon Tile Very good resistance to scuff marks from chairs and foot traffic. Long wearing, too. Low initial cost.

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6. Camera Service Area: Textelle Linoleum This material provides a heavy-duty floor in an almost seamless installation. Moderate cost, too.

7. Studio: Linotile Remarkable strength and abrasion resistance prevent scratching and marring from heavy, mobile photographic equipment. Gray matte surface provides excellent studio background.

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Armstrong floors price list

Approximate installed prices per sq. ft. Over concrete, minimum area 1000 sq. ft.

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| Linoleum Tile .0625" Asphalt Tile ½" (A, B, C, D and greaseproof) Asphalt Tile ¾" (A, B) | Linoleum Tile .090" Asphalt Tile 3%" (C, D) Excelon Tile .0625" (vinyl-asbestos) Linoleum .090" | Excelon Tile ½" (vinyl-asbestos) Excelon ¾2" Linoleum .125" Battleship Vinyl Corlon .070" Cork Tile ½" |
| 80¢ - 95¢ | \$1.00 and over | \$1.00 and over |
| "Futuresq" Vinyl Corlon .070" "Futuresq Supreme" Vinyl Corlon .070" Cork Tile ¾" Rubber Tile ¼" "Tessera" Vinyl Corlon .090" Linotile ½" Custom Corlon Tile ¾2" | "Imperial" Custom Corlon Tile ½2" Custom Corlon Tile ½" Cork Tile 5% | Rubber Tile ¾" Custom Vinyl Cork Tile ¼" Opalesq Vinyl Tile ½" |
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Whether you're planning an industrial building, school, shopping or recreation center, warehouse, or any other structure . . . beautify it with Alcoa* Alumalure, *without adding premium cost!* Select from 11 handsome hues and natural aluminum finish.

Alcoa Aluminum is lightweight, strong, corrosion resistant. You can figure on it being easier to handle, going up much faster. It comes in sheets as large as 48 in. wide, 30 ft long, in corrugated, V-beam, ribbed or flat sheet. And you can promise your client that he's going to have maintenance costs. Alumalure, a tough, baked enamel fin on aluminum, already has passed the 15-year mark in rigorous test of durability!

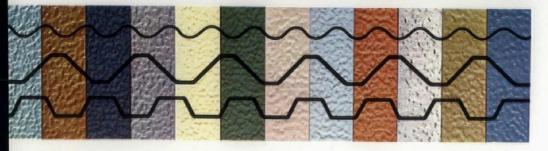
Why not check into Alumalure now? Your local Ald sales office has samples. Or get color swatches and i technical data by writing: Aluminum Company of Ameri 823-B Alcoa Building, Pittsburgh 19, Pennsylvania.

*Trademarks of Aluminum Company of America



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

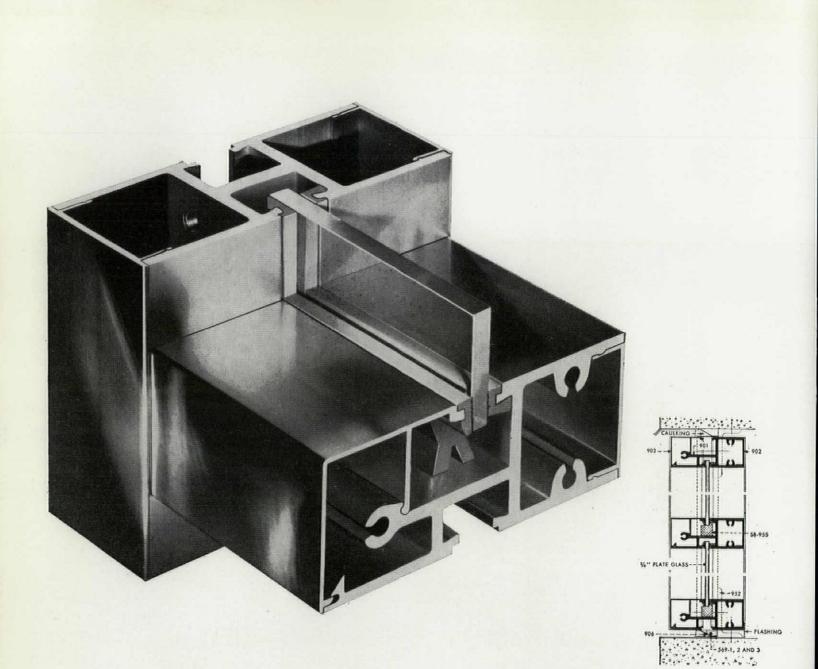
o dress a building on a budget



Alcoa has an established architectural consulting service for architects, owners, consulting engineers, contractors. For technical counsel on aluminum applications, contact your nearest Alcoa sales office.



R EXCITING DRAMA WATCH "ALCOA PRESENTS" EVERY TUESDAY, ABC-TY, AND THE EMMY AWARD WINNING "ALCOA THEATRE" ALTERNATE MONDAYS, NBC-TY



The new PITTCO[®] "900" Series—You can frame windows and glass-clad walls completely with the related components of the new PITTCO "900" series. It is provided with a drainage system. All members are aluminum; all fastenings are concealed; all glass is held in neoprene strips and recessed to increase daylight opening. And the clean beauty of every line is strikingly apparent. For details, consult your PITTCO Metal Representative.



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At a large Midwestern state university, wall panels of Consoweld laminated plastic were used to add warm, appealing beauty to this new women's residence hall.



PRIMA VERA

ASTIC

Richly grained patterns of enduring beauty.

Consoweld's new laminated plastic woodgrain patterns were the perfect answer for the women's residence hall at a large Midwestern state university. All the design-appeal, color, and luxury of authentic wood paneling add to the appeal of the building's inner beauty and charm.

Infinite number of applications possible.

Consoweld woodgrains are ideal for horizontal and vertical installations in offices, stores, churches, motels, cocktail lounges, restaurants, lobbies and other installations where permanent beauty and low maintenance cost are desirable. Shown here are three of the newest members of Consoweld's family of authentic woodgrain patterns.

From coast to coast, more than 100 distributors are strategically located to supply your requirements for Consoweld laminated plastic products.

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It's sprinkled with stars



New laminated plastic pattern by

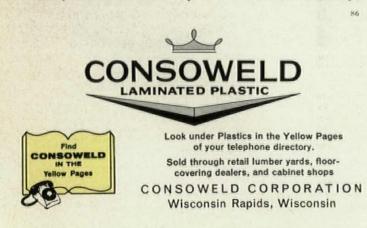
CONSOWELD

Myriads of tiny starbursts make Fantasy glitter and gleam with color excitement. It's a gay, new pattern. Rich! Warm! Inviting!

Working with it you can achieve striking new design effects. Four high-preference colors enable you to get an open, fresh, clean look to complement any color decor. Specify Fantasy for countertops, showers, walls, wainscoting or for decorative effects with accent items or accessories.

Fantasy gives you a pattern with *proven* consumer acceptance. Market-testing reports consistently give it the highest acceptance ratings.

Ask your dealer for samples of Consoweld Fantasy.





Consoweld Fantasy has the delightful look of luxury. Yet, the beautiful laminated plastic surface cannot be harmed by boiling water, alcohol or fruit juices. Easy to clean. Easy to keep clean.

Cabinets by Youngstown Kitchens



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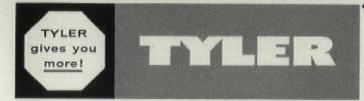
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FREE SUPERMARKET PLANNING ASSISTANCE TO ARCHITECTS. Tyler Store Planning and operations, plus complete Tyler-Ketcham color system for supermarkets. Send coupon for complete information. ADEQUATE, FLEXIBLE food refrigeration facilities for the food service operation . . . big Tyler line of Reach-In refrigerators and storage freezers meet every need.

Low-total-cost! High-merchandising-impact! See our catalog in Sweet's Architectural File-26a/Ty.



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Canada: Tyler Refrigerators, 732 Spadina Ave., Toronto, Ontario. (Export: Tyler Refrigeration International, C. A., Apartado Postal 9262, Caracas, Venezuela, S. America)



Haverhill Brings The Sun Indoors (Without Glare) ...with LITECONTROL Lighting

Here's an example of "lighting man's lighting" the high intensity relighting installation at Merrimack-Essex Electric Company, Haverhill, Massachusetts.

Sales-minded as well as illumination-minded, the utility company sought intensity on the appliances to attract customers. Brightness is controlled through Litecontrol fixtures which use the Holophane 6024 acrylic lens.

The fixtures have the eye-appeal to keep pace with the good looking appliances they illuminate. They are rugged, too. Hinged doors on both the four front square fixtures in the background and the two by four fixtures up front afford easy access for service.

This is a superior type of lighting job. But you don't *have* to be a utility to get it! Put it up to Litecontrol. You'll keep costs down, also.

INSTALLATION: Merrimack-Essex Electric Company, Haverhill, Massachusetts ENGINEER: Clifford White, Merrimack-Essex Electric Company ELECTRICAL CONTRACTOR: Earl B. Hamel, Haverhill, Massachusetts DISTRIBUTOR: John D. Osgood, Inc., Haverhill, Mass. FIXTURES: Litecontrol #7364-RS surface 6 lamp fixtures, and #8584-RS surface 8 lamp fixtures, using F40-T12/CWX/RS Super Deluxe Cool White Rapid Start Lamps SPACING: 6'6" on centers CEILING HEIGHT: 11'-0" INTENSITY: Average, 225 footcandles, after 260 hours of use. ELECTION CONSTITUTE CONSTITUTES



DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS

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As structural steel is erected, Celluflor installation follows closely — only one or two floors behind. This provides a safe work platform for all trades and eliminates the need for staging.

By using Celluflor for the 77,700-sq. ft. sub-floor, a West Coast company* saved over six months on the job schedule for an 8-story office building. Celluflor has other advantages over poured construction, including substantial savings in structural steel and footings. The greatest saving from Celluflor, though, accumulates over the years, because of the electrical flexibility it provides. Service outlets can be installed anytime without expensive alterations.

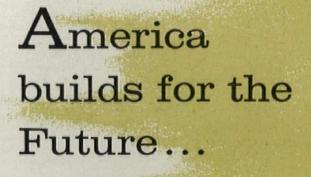
Complete information on Celluflor is given in Catalog 270. Write for your copy—or see Sweet's, Section 2b/In. For help on specific problems, call your nearby Inland office. A trained sales engineer is available for consultation. *Name upon request



ENGINEERED PRODUCTS DIVISION INLAND STEEL PRODUCTS COMPANY Dept. C, 4031 West Burnham Street Milwaukee 1, Wisconsin

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finish-



with RUSSWIN DOORWARE

In the new Hollywood home of the First Federal Savings and Loan Association, beautifully styled Russwin Unilocs with Turbo design knobs complement handsomely modern architecture. The Uniloc, precision engineered for lasting dependability and smooth performance, is completely factory preassembled. It installs intact into a simple, saw-cut notch in the door. The heavy-duty components of this unique lockset remain in undisturbed, virtually wear-free alignment. A wide choice of Uniloc designs, finishes, and functions are available for any type of architecture, any lockset requirements. For full information, write Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.

For any door . . . in any building



Russwin 466 Exit Bolts, as well as Russwin door closers and miscella-neous hardware, are also used in the new First Federal Savings and Loan Association building.

Builder and Owner: First Federal Savings and Loan Association of Hollywood, C. E. Toberman, President Architects and Engineers: Austin, Field & Fry, Los Angeles Contractor: The William Simpson Construction Company, Hardware Supplier: Montgomery Hardware Company, Los Angeles

A DESCRIPTION OF THE OWNER OWNER

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This 6¹/₂" saves you 30% of filing floor space to begin with...

A single Pro-File* needs two sq. ft. *less* floor space than a conventional file. A bank of 12, for example, saves $26\frac{1}{2}$ sq. ft. of expensive office floor space over conventional files of the same capacity. Built into walls or partitions, Pro-Files can save nearly *all* the floor space usually required for files.

It's the 6¹/₂" that does it. Because at 6¹/₂" a Pro-File is *wide open*. All index tabs and contents instantly exposed and reachable. Everything easily slipped in or out—no long reaching, no folder tugging, no other timeconsuming thumbing around. There's even enough room

*Patented

for more than one girl to work at an open Pro-File at the same time.

Only Pro-File has this money-saving, efficiency-creating 6¹/₂". Because only Pro-File has a Rock-A-Tilt, finger-tip opening action. It makes even ceiling-high stacking safe because, open or closed, the center of gravity is always *inside the cabinet*.

Get back your floor space with Pro-Files. See how their $6\frac{1}{2}''$ of extra efficiency will save you even more. Let your Y&E representative demonstrate, or write for literature that gives full details.

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COPPER

simplifies plumbing in big addition to Children's Hospital, Pittsburgh



MAKING A SOLDER JOINT on an 8-inch copper soil and waste line — the largest size used in the drainage system. Solder-joint connections are one of the important reasons why copper tube systems are so much easier and faster to install.

S OME 70,000 pounds of Anaconda copper tube were used in the sanitary drainage system, hot- and cold-water lines, oxygen, vacuum, and compressed-air lines of the addition to Children's Hospital in Pittsburgh.

Copper plumbing provides the advantages of easier, faster installation, with additional economies in design and construction made possible by the lighter weight of copper tubes and the trim, space-saving, solder-joint fittings. Equally important, however, are the long-range benefits. Copper tube systems last longer, require less maintenance than systems of other materials.

Everyone benefits with all-copper plumbing. Architects have greater freedom in design to locate bathrooms and utilities where desired without sacrificing useful space. Contractors report that installation time has been reduced up to one-half – and their men prefer working with copper tube. Owners get plumbing that lasts – costs little to maintain.



ARCHITECT'S RENDERING of Children's Hospital Addition (foreground) at Pittsburgh. Architect: Alfred D. Reid Associates, Pittsburgh. Consulting Engineer: J. A. Murray, Pittsburgh. Plumbing Contractor: Sauer, Inc., Pittsburgh.



TESTING A VALVE on the hot-water supply system. Other copper tube lines in view are part of the sanitary drainage system, ranging in size from 1½ inches to 4 inches. Because connections are easily made, even in tight quarters, the lines can hug the ceiling.

Anaconda Copper Tubes are available in all standard wall thicknesses – Types K, L, M, and DWV (Copper Drainage Tube) – through plumbing wholesalers. There's a full line of Anaconda wrought and cast solder-joint fittings. For more information on ALL-COPPER plumbing, write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.



Products of THE AMERICAN BRASS COMPANY Available through Plumbing Wholesalers

Leading manufacturers back a program of uniform standards in air-conditioning equipment.

Forty-Six manufacturers, producing more than 90% of all the unitary* air-conditioning equipment sold, now support an industry-wide testing, rating and certification program symbolized by the ARI Seal.



Result: Complete assurance that the unitary equipment you specify will deliver its full rated cooling capacity, and *continue to deliver* ample capacity under adverse conditions.

How the ARI Seal of Certification Program works:

To be granted this Seal by the Air-Conditioning and Refrigeration Institute, a manufacturer must rate his equipment in standard B.T.U.'s per hour instead of less accurate and confusing "tons," "horsepower" and "cubic feet." His unitary equipment is subject to random selection from stock for intensive checking and verification in an independent testing laboratory under adverse conditions, with emphasis on wilting heat and high humidity. Any model which fails to deliver rated capacity under this severe testing must be brought up to standard or be withdrawn from sale.

When you specify Unitary Air-Conditioning Equipment:

Look for the ARI Seal of Certification—your assurance of uniform high standards of safety and performance. Send for the latest ARI Directory, which lists all unitary air conditioners certified under this program. It will aid you in specifying. There is no charge. Write to: Chief Engineer, Dept. N-301, Air-Conditioning and Refrigeration Institute, 1346 Connecticut Avenue, N.W., Washington, D.C. Manufacturers participating in the program: • Airtemp Birking for the second standard program of the second standard standa

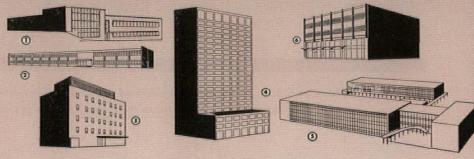
*"Unitary" air conditioners included in this program: all packaged air conditioners, whether single units or two-piece units (called "split" systems) up to 135,000 B.T.U.'s per hour in capacity, but not including room air conditioners. ARI Standard 210-58 for electricallydriven equipment; ARI Standard 250-58 for heatpowered equipment.

Now you can be sure that specified unitary air-conditioning equipment will deliver rated performance, and continue to deliver ample capacity under adverse conditions.

NOW you can design an air conditioned building for <u>much less</u> money with



Q-AIR FLOOR INSTALLATIONS INCLUDE: 1. Tennessee Eastman Company Industrial Relations Building, Kingsport, Tennessee. Owner-designed and built. 2. Police Headquarters Bldg., Fresno, California. Walter Wagner & Partners, Architects and Engineers; Lewis C. Nelson, Contractor. 3. MD Corporation, Pittsburgh, Pa. Gerard & McDonald, Architects and Engineers; Ragnar Benson, Contractor. 4. First National Bank Building, Fort Worth, Texas. Skidmore, Owings and Merrill and Preston M. Geren, Architects Childs Construction Co. – W. S. Bellows Construction Corp., Contractors. 5. Morristown Headquarters Bldg., Jersey Central Power and Light Co. and New Jersey Power and Light Co., Morristown, N. J. Bernard Kellenyi, Architect; Blanchard Const. Co., Contr. 6. Tarrant County Savings & Loan Assn., Fort Worth, Tex. Hedrick & Stanley, Architects and Engineers; Thomas S. Byrne, Inc., Contr.



Robertson Q AIR FLOOR

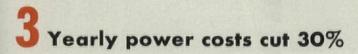
the three-way construction system that cuts costs three ways It is now more than a quarter of a century since H. H. Robertson Company developed and introduced Q-Floor, the strong, weight-saving cellular steel subflooring system that provides quick, efficient construction and continuous raceways for all types of wiring. This type of floor system has become the standard for commercial buildings. *Now, something completely new and revolutionary has been added*. Q-AIR FLOOR not only carries telephone and power lines, but provides hot and cold air for air conditioning as well. Occasional pairs of extra-wide structural cells fit in with the normal Q-Floor system (with no change in the two-foot module) and carry the air to mixing units for discharge into the room. This new system saves your client capital and operating dollars in three distinct ways:

Initial capital investment cut 5%

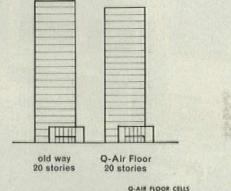
Since Q-Air Floor permits an average saving of a foot of space between each suspended ceiling and the floor surface above, a twenty-story building can be built at the same height as a nineteen-story structure built by older methods. This results in a substantial saving in structural steel, walls, piping . . . in fact every building material that is installed from floor to floor.

2 Reduced building height cuts BTU requirements 4% to 11%

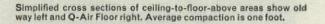
In normal high-rise buildings, the BTU requirements for heating and cooling are based primarily on exterior wall exposure. Therefore, a saving of 6" to 16" per floor can easily reduce BTU needs by 4% to 11%. This reduction permits the use of lower capacity, lower cost equipment, effecting a saving on capital investment as well as in yearly operating cost.



The Q-Air Floor system includes the Robertson Aerator, a mixing device with an exclusive seasonal changeover feature. Full blower power is used only for peak summer cooling. The rest of the year the system operates at about 65% of capacity. Older methods require a constant 100% volume of air all year. With Q-Air Floor yearly power cost can be reduced as much as 30%.







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During the winter, Robertson Aerators satisfy heating requirements at 65% of peak volume.

H. H. Robertson Company

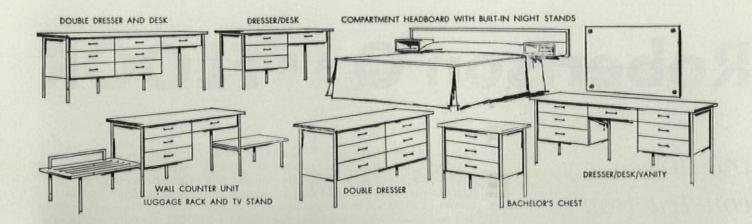
For peak summer cooling, aeratorsdeliver 100% volume and system runs at full power.

As cold weather approaches, changeoverdevice adjusts system back to 65% of peak volume.



Use coupon to send for complete details on Q-Air Floor construction.

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| COMPANY | |
| ADDRESS | |
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Contract Furnishers of America 5 YEAR FINANCE PLAN

FLEXIBLE Steel and Plastic Group adapts to space, needs and comfort

For today's hotel or motel room, Heywood's FLEXIBLE Group solves space problems with functional adaptability. Start with the basic Dresser/Desk . . . expand drawer space, add detachable Luggage or TV Racks. Do the same with Bed Headboard and Night Stand combinations or with Dresser/Vanity/Desk units. There is flexibility, too, in the wide range of baked enamel colors for metal frames and pastel or wood grain laminated plastics for surfaces.

The styling, comfort and production perfection which Heywood-Wakefield has gained in 133 years in the furniture business guarantees both gracious appointments and maintenance economy for homes away from home.

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from your DOOR CONTROL SPECIALIST

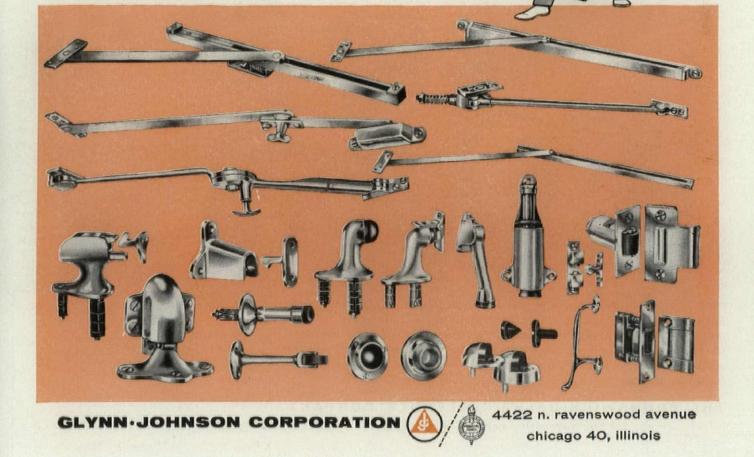
... the only complete line of door control hardware, enabling you to select to fit your exact functional and budget requirements.

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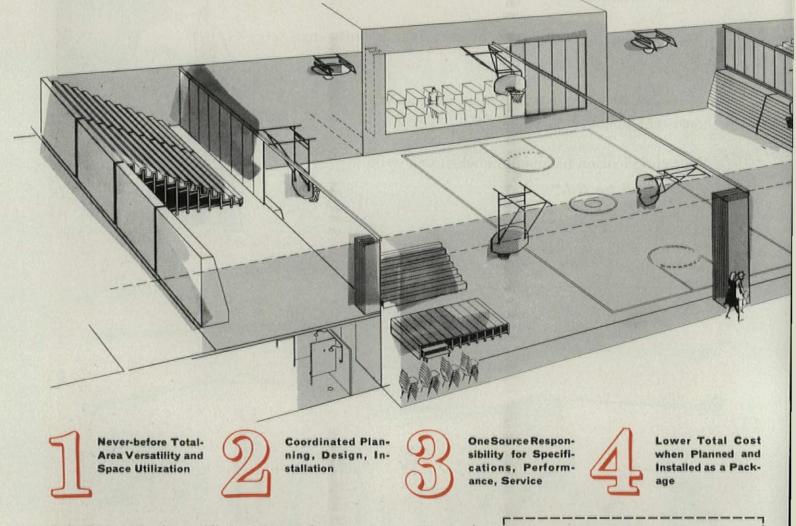
... quality, the finest in materials and workmanship, consistent for over 35 years.

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NOW... you can have these 4 exclusive advantages of the new Brunswick Flexi-Gym



Only Brunswick, the world's largest manufacturer of gymnasium equipment, can give you the time, cost and functional advantages of the Coordinated Flexi-Gym. Only Brunswick has the experience, the staff and the desire to help you plan and produce a *total* functionally advanced gym ... a gym area *far beyond* your traditional expectations and at total cost *far below* seating, partitions, backstops, stages planned separately.

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SEND FOR FREE BOOKLET "GYM IDEAS"

AT WORK—Advanced Planning resulted in a truly versatile 4680 square foot gymnasium area, Oakview Junior High School, Skokie, Illinois; Dr. Homer O. Harvey, Superintendent; Orput-Orput and Associates, Architects.



A FOLDING PARTITION, 20' high by 65' long, gives important flexibility to this gymnasium. With electrically powered partition closed there are two smaller courts each large enough for a gym class. With partition open, the Oakview Junior High School has an auditorium for glee club and band concerts, stage plays, community activities and assemblies; gym area for wrestling demonstrations, badminton, golf, touch football, AAHPER Fitness Tests, or a regulation basketball court.



10 SETS OF 5-TIER FOLDING STANDS provide a seating capacity for 500 and are set up in 10 minutes by two men. An equivalent capacity in portable stands would require 4 men working 1 hour. In addition to obvious labor-cost saving, no additional storage space is required. In the first year of experience the folding stands have been effectively used a minimum of once a week for academic, sport and community purposes, according to Dr. Homer O. Harvey, Superintendent.



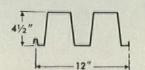
6 BASKETS AND BACKSTOPS are arranged to give both boys and girls 3 each for refereed games or free-throw practice. Five of the six baskets are retractable and easily handled by even the girls' gym instructor. When weather is inclement the gym is opened to students during lunch hours giving them a place to sit and talk or practice basket shooting. Approximately 142 boys out of 170 enrolled in school, participate on either the school or one of the many intramural basketball teams.

*A VERSATILE PLAN showing Flexi-Gym at its practical best is this dimensional view of a high school "idea" gym designed by the Brunswick Planning Service. It includes 14,400 square feet on main floor and balconies; seating for 5200; can be divided into 5 separate areas for physical education, sports, assemblies, dining areas, study areas, other educational and community purposes.

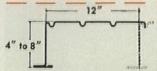
24

A-DECK — For purlin spacings not exceeding 8'4". Narrow ribs provide deck surface that supports the thinnest or softest types of insulation.

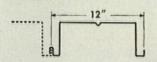
B-DECK — For spans to 10'0". Wide rib distributes metal for greater structural efficiency — gives higher section properties per pound of steel. Well suited for use as side wall panels.



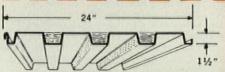
C-DECK—Carries normal roof loads over spans up to 24'0". Used extensively in canopies.



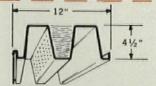
T-STEEL — New! Galvanized only. For clear spans to 32'0". Adaptable to acoustical and flush, luminous ceiling treatments. Provides superior diaphragm to resist seismic and wind loads.



H-DECK — New! For simple spans to 20'0" — 3" and $4\frac{1}{2}$ " depths. Especially practical to cover walkways in shopping centers, schools, other installations.



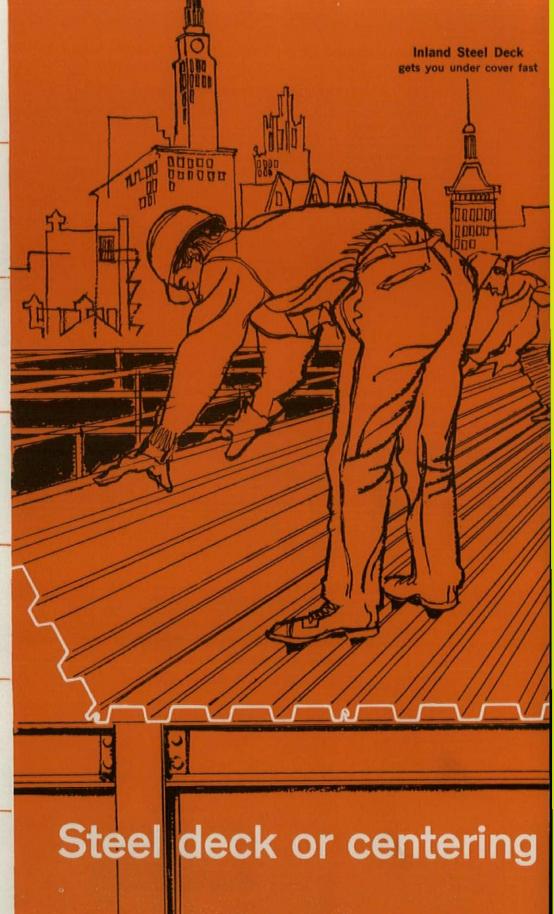
B-ACOUSTIDECK — Two-in-one panel combines steel roof deck with acoustical ceiling having Noise-Reduction Coefficient of .70. Used for spans to 10'0".



C-ACOUSTIDECK — Offers same Noise-Reduction Coefficient as B-Acoustideck. Can be used for spans to 24'0".



RIBFORM — High-tensile, galvanized steel'form for concrete slabs over spans up to 8'0". Three types: Standard, Heavy-Duty, Super-Duty (shown).



Plant-expansion projects and new buildings of many types get under cover fast and economically, when you specify an Inland roof system.

Inland steel deck is easy to handle and weld in place — in any weather that a man can work. One panel provides over 56 sq. ft. of coverage. Large areas are quickly ready for roofing crews.

Types A, B, C, and H decks are Bonderized, then covered with a baked-enamel primer that resists on-the-job damage. One field coat of paint over the primer on these decks usually does the job of two coats on ordinary decks.

ATLANTA, BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DALLAS,



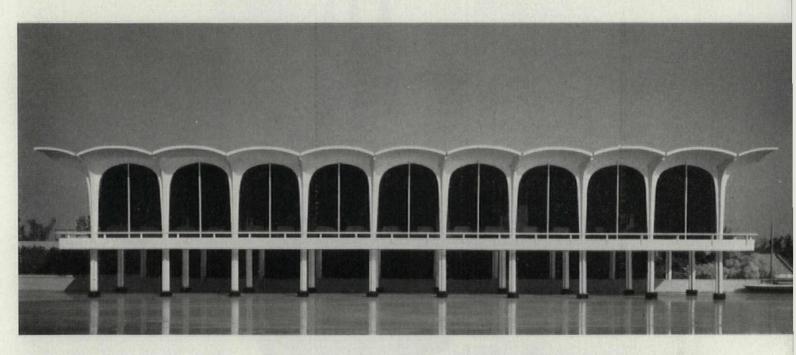
In concrete-over-steel construction, Inland Ribform supports wet concrete with minimum deflection. Rigid sheets are quickly and inexpensively attached to supports — in place, they provide a safe work platform for crews.

Write for catalogs 240, 241, and 245 — or see Sweet's sections 2c/Inl, 11a/In, and 2a/In for full information on Inland steel roof deck and permanent centering. Inland Steel Products Company has a force of trained sales engineers capable of giving you the benefit of diversified experience on specific problems. Write or call your nearest Inland office to have one of these men contact you. Member of the INLAND Steel Family ENGINEERED PRODUCTS DIVISION INLAND STEEL PRODUCTS COMPANY Dept. C, 4031 West Burnham Street Milwaukee 1, Wisconsin

DENVER, DETROIT, HOUSTON, KANSAS CITY, LOS ANGELES, MILWAUKEE, MINNEAPOLIS, NEW ORLEANS, NEW YORK, ST. LOUIS



A roundup of recent and significant proposals





OREGON BRANCH BANK

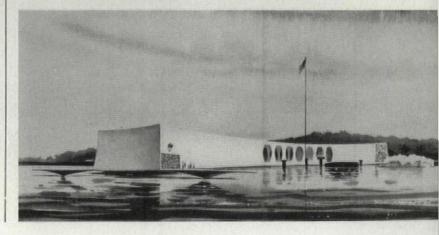
The U.S. National Bank of Portland will build a trimlined branch in Courthouse Square, Eugene, Ore., a private contribution to the square's redevelopment. Wilmsen & Endicott designed the bank, which will be enclosed with sculptured concrete panels, by Artist James Bartel, and glass between anodized aluminum mullions. Many interior sur-faces will be wood-paneled. Above the banking floor will be conference rooms, lunchrooms, air-conditioning equipment, and a bookkeeping area. Expected cost: \$500,000.

FOR A CALIFORNIA RESTAURANT: A TOUCH OF VENICE

Only a doge stepping from a ceremonial gondola will be missing from this Venetianstyle restaurant in Newport Beach, Calif. Architects Ladd & Kelsey carried the Venetian theme throughout the restaurant's interior, enriched by silk walls and gilt chandeliers. Its structure will be reinforced concrete, used for cruciform arches, thin shell domes, and pilings underneath the dining room. Gray solar glass and aluminum mullions will fill the arches on the water side.

USS ARIZONA MEMORIAL AT PEARL HARBOR

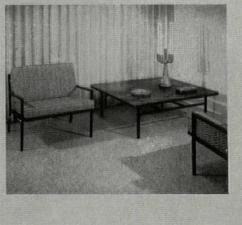
Flat concrete slabs bolstered by 4-foot girders at both ends will span the hulk of the USS Arizona, marking the spot where she was sunk at Pearl Harbor December 7, 1941. The concrete rectangle, a museum as well as a monument, will be built over a welded steel cage 186 feet long and 30 feet wide in the middle, flaring out an additional 6 feet at the ends. Inlaid cast stone, marble, and glass will form abstract patterns in the walls. Architects Johnson & Perkins & Preis of Honolulu designed it; its construction will be supervised by the Navy's Bureau of Yards and Docks.



PROPORTION is but one of the characteristics of contemporary furniture by Van Keppel-Green. VKG designs are created in a blend of those qualities which tastefully harmonize with the best architecture and furniture of any period.

For catalog or information, write or phone: VAN KEPPEL-GREEN — 116 South Lasky Drive Beverly Hills, California / CRestview 4-6149 VAN KEPPEL-GREEN OF CHICAGO—161 E. Erie Street, Chicago, Illinois / DElaware 7-0361 LUTEN-CLAREY-STERN — 50 East 64th Street New York, New York / TEmpleton 8-6420



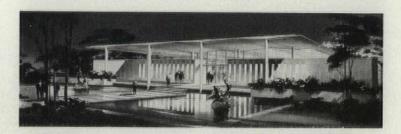


MILTON J. LEWIS

Projects contd.

SMALL INDOOR-OUTDOOR LIBRARY IN CALIFORNIA

Despite its nonutilitarian look, the decorative little building at the right is a public library, a gift to the city of Fullerton, Calif., from the Hunt Foods and Industries Foundation. The walls will admit natural light through clerestory windows; at night stained glass inserts in the façade will be lighted from within. An added bonus: patios for outdoor reading. Architects: William L. Pereira & Associates.



HOUSTON SHOPPING CENTER

Two department stores, 55 retail shops, and a ten-story office building linked by airconditioned malls will form the Sharpstown Shopping Center in southwest Houston. Folded plate concrete will roof four large buildings arranged in a rectangle; small shops inside them will have at least one side each open to the mall. Sidney H. Morris & Associates of Chicago, consulting architects for the center, placed the department stores at either end of the mall and the office building on the south side, connected by a mall spur.



LOS ANGELES CUSTOM HOUSE AND FEDERAL OFFICE BUILDING

Preliminary plans for the U.S. Custom House and Federal Office Building in Los Angeles call for an eight-story building, sheathed in glass and precast panels of marble chips. Architects: Welton Becket & Associates, Albert C. Martin & Associates, and Paul R. Williams & Associates.

MANHATTAN OFFICE TOWER

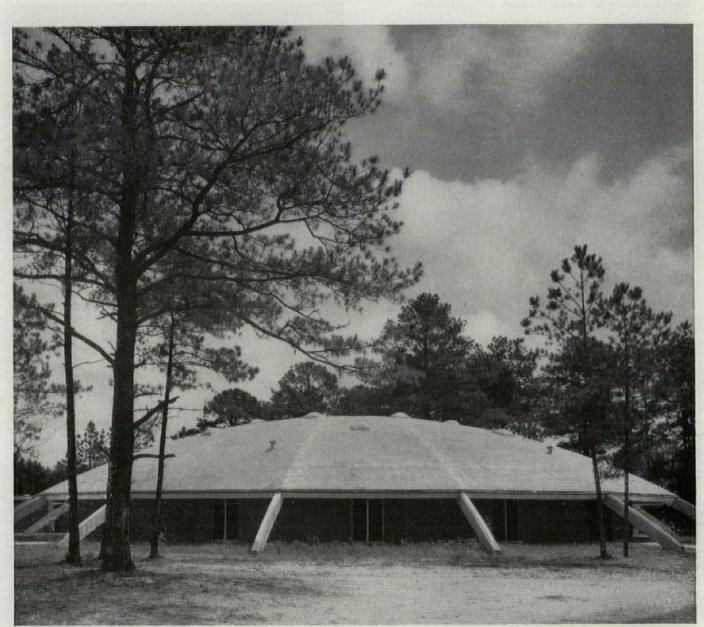
Ever since the last signs of the Third Avenue El vanished five years ago, office buildings in New York's Grand Central area have multiplied rapidly. The newest tower, the fifth in a six-block stretch on Third Avenue's east side, will rise 22 stories, its exterior a strongly vertical pattern of gray glass and aluminum above a black granite base. Floors will range in size from 20,800 square feet in the lower portion to 6,600 square feet in the tower. The Durst Organization will build it; Emery Roth & Sons are architects.





ST. LOUIS APARTMENTS

With the start of construction on these 12-story apartment buildings, St. Louis will officially begin its 450-acre Mill Creek Valley redevelopment project. The St. Louis Redevelopment Corp. will build the towers of brightly colored porcelain enameled steel over a reinforced concrete framework. Architects Russell, Mullgardt, Schwarz & Van Hoefen specified a balcony for each apartment, and central air conditioning. The 264 apartments are expected to serve middleincome families.



Hattiesburg High School Gymnasium, Hattiesburg, Mississippi. Architect J. Warren McClesky used Aluminized Static Coating "in lieu of much higher priced aluminum metal roofing . . . and for reflective-insulation value we needed."

NO! That's not a metal roof!

It's Flintkote's new Aluminized Static* Coating that protects...decorates...reflects. No other known form of bituminous coating — when exposed to weather — will outlast it!

Aluminized Static is a versatile, protective coating that provides all the high reflective insulating qualities of aluminum PLUS . . . the waterproofing and durability of asphalt static.

Use it on metal, masonry, rock wool, glass, with these important advantages:

• No danger of fire—Aluminized Static has no flammable solvent. It cannot burn.

• No flow in hot weather—Aluminized Static remains stable even under direct flame.

 Doesn't stain or alligator-crack over any normal type of asphalt sub-surface.

• Extra long life—Aluminized Static is compounded on the same base as static roof coating.

• Good retention of brilliance and reflectance— For five years and longer.

For complete information on Flintkote's new Aluminized Static Coating write: The Flintkote Company, 30 Rockefeller Plaza, New York 20, New York. *Registered trademark, The Flintkote Company



America's Broadest Line of Building Products



TWIN TOWERS NEAR DETROIT'S NORTHLAND CENTER

Close to the famed Northland shopping center in Greater Detroit, Cleveland Developer Halley H. Lipp and Northland Center, Inc. will build matching 12-story office towers (above), expected to cost \$8 million. After the glass and aluminum towers are built, the rest of the 18-acre site will be developed. Architects and contractors: H. L. Vokes Co.

DALLAS FEDERAL BUILDING

A checkerboard of marble and glass panels will wrap most of Dallas' new 16-story Federal Building and U.S. Court House (right), except for a three-story granite base and a brick utility penthouse. Architects: George L. Dahl and the Office of Mark Lemmon.



Projects contd.

An owning-leasing arrangement similar to that of Dallas' Southland Center (built by Southland Life Insurance Co. with the Sheraton Corp. as the primary lessee) will bring together the Sheraton Corp. and the Lincoln Liberty Life Insurance Co. as joint tenants in Houston. The two will share a single 26-story tower (right), designed by Quinn & Christiansen of Chicago in association with Kenneth E. Bentsen of Houston.

HOUSTON HOTEL AND OFFICES





CAMBRIDGE INDUSTRIAL RESEARCH CENTER

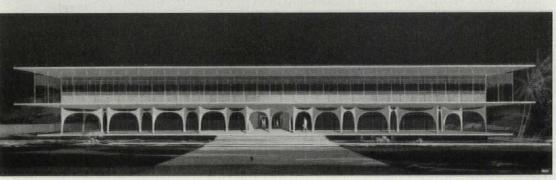
MIT and Cabot, Cabot & Forbes Co. are forming a corporation to build and own a 14acre industrial research center in Cambridge, Mass., on land bought from the Cambridge Redevelopment Authority and Lever Brothers. Four tall buildings, the tallest 12 to 15 stories, will be supplemented by one- and two-story shop facilities grouped around courtyards, plazas, and fountains. Cost: \$15 million.

LOS ANGELES COUNTY JAIL

A sprawling \$16.7-million detention center (left), for 3,300 men awaiting trial, will be built next to Los Angeles' Union Station. Its architects— Albert C. Martin & Associates, Kenneth S. Wing, William Allen, and Charles Luckman Associates—settled on a fivestory structure which includes four cell levels, chapel, kitchen, infirmary, mess hall, and exercise area.

The design of a modern office building for Manila reaches back to Filipino-Spanish architecture of the seventeenth and eighteenth centuries for its graceful arches (right). In his design for the Commercial Credit Corp., Architect Leandro V. Locsin staggered the folded concrete supports to give an illusion of movement.

PHILIPPINE OFFICE BUILDING



JOB REPORT: NELSON Stud Shear Connectors In Composite* Construction for Buildings

COBO HALL EXHIBITION CITY

Detroit's Cobo Hall and Convention Arena, with 51 acres of floor space, will be the largest exhibition hall in the world. Since it was necessary to design for extremely heavy floor loading and maximum clear span, composite steel construction was selected by the architects and engineers for lowest cost.

50,000 NELSON stud shear connectors were welded to the top flanges of the floor beams to insure permanent bond between the structural members and the concrete floor slab.

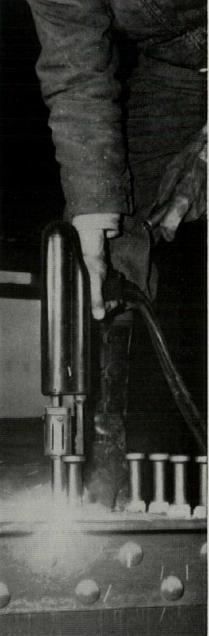


NELSON stud shear connectors were chosen to develop composite construction for several reasons ... the ease with which reinforcing bars could be positioned, better concrete compaction, ability to take stresses in all directions, their speedy installation and the absence of any distortion inherent in hand-welded shear devices.

For complete service from design to installation, write: Nelson Stud Welding Division, GREGORY INDUSTRIES, INC., Dept. 211, Lorain, Ohio.

*A steel and concrete composite beam is made up of three essential elements: A steel beam, a reinforced concrete slab, and shear connectors. Horizontal shear is transferred to the beam through the shear devices which join the slab to the beam in such a way as to cause the concrete and steel elements to act as a unit.

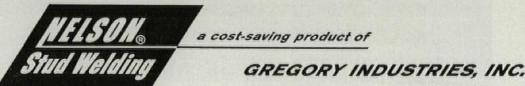




NELSON Stud Shear Connectors end-weld at rate of 4 or more per minute.

Architects and Engineers: Giffels and Rossetti General Contractor, Superstructure: O. W. Burke Co. Structural Steel Contractor: R. C. Mahon Company Shear Connector-Applicator Contractor: Bodrie Corp.

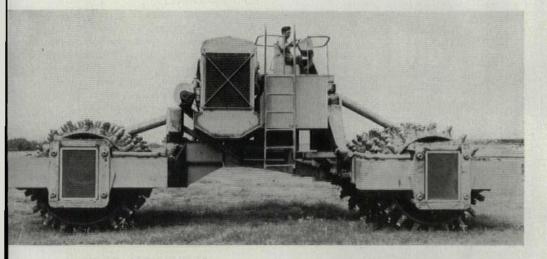
LORAIN, OHIO





Products

Earth packer and fork lift ... plastic screen ... matching cabinets and ventilators . . . paint film





PACKER AND LIFT

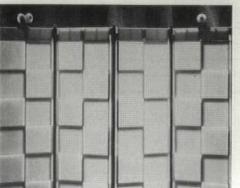
Of interest to the heavy construction industry are two new machines from R. G. LeTourneau, Inc.: a sheep's-foot earth packer and a three-wheel fork-lift truck.

One operator sitting atop the extra heavy-duty Power Packer (photo, left) manipulates its four rollers backward and forward at about 300 feet per minute. Bristling from the rollers, the flat, circular feet (each head measuring 10 square inches) tamp down the earth to the desired hardness. From his seat, the operator swings himself and the control panel to face either direction without having to turn the whole machine around. Fingertip electric switches control each drum's oscillation, as each is powered by a DC electric motor geared to the inside rim. The heavy packer (40 tons) is geared for a maximum speed of 5 miles per hour. Over-all dimensions: 28 feet long, 14 feet wide, 12 feet tall; drums, 5 feet long, and 5 feet in diameter.

The FT Stacker can handle up to 17 tons of steel or prestressed concrete or, when fitted with a pair of tusks (photo, left), grip and lift huge logs. Somewhat smaller than previous LeTourneau stackers, this is the first three-wheel model. Electric motors power the two front wheels; the third is for stability and steering only. The stacker is 31 feet long, 12 feet wide, and stands over 22 feet high. Manufacturer: R. G. LeTourneau, Inc.,

2399 South MacArthur, Longview, Tex.





FOLDING PLASTIC SCREEN

Three-inch squares of Dow Chemical's Styron 672 Verelite (light-stabilized polystyrene) are molded into a three-dimensional window covering intended to replace both fabric draperies and Venetian blinds. Squares, two abreast but one slightly behind the other, are locked into rigid vertical panels by spring steel rods which are also the folding lines when the screen is drawn to the window edge. Suspended on nylon rollers, the blind is installed on standard heavy-duty drapery track. It is stiff enough to use as a room divider or folding door.

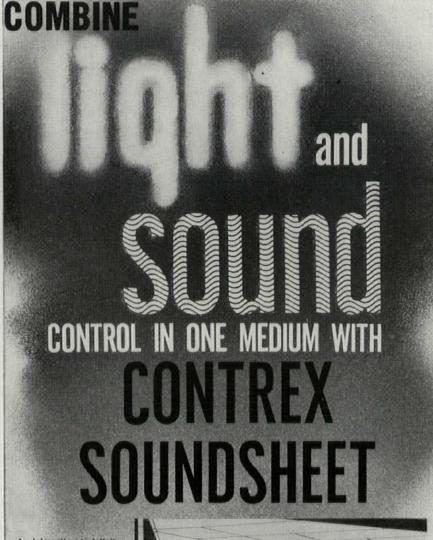
The traversing screen is offered in several colors, all of which are translucent. Small horizontal slits between squares, but indistinguishable in the design, allow air through. Sizes run up to 16 feet high and 32 feet wide at \$2.40 per square foot retail, minus a trade discount, but not including installation cost.

Manufacturer: Jaylis Sales Corp., 514 W. Olympia Blvd., Los Angeles 15.

continued on page 58

57





An interesting installation, using Contrex Soundsheet, in the offices of Lockheed Aircraft Corporation's new plant, Marietta, Ga.



Soundsheet Translucent Acoustical Element provides balanced sound absorption plus superior light diffusion in **one** medium. The use of Soundsheet shielding, in a ceiling system of your choice, offers new economies and interesting, fresh architectural interior concepts. Available translucent or opaque in flat or corrugated sheets, or in 2' x 2' tension or edge-framed modular panels.

Easy to install
 Washable
 Won't crack, craze or break
 Opaque or translucent
 UL, Factory Mutual and FIA listed



Developed for Contrex by Bolt Beranek and Newman, Inc.

OVERCOAT FOR PAINT

Coated with a fluid containing colloidal silica, painted surfaces become so slick that dirt cannot stick to them. Based on a ratio of one part *Du Pont Soil Retardant Concentrate* to 14 parts of water, the mixture contains enough minute, hard particles to fill the microscopic pits in a painted surface.

Du Pont recommends as thin a coat as possible, just enough to insure a wet surface. Brushed, sprayed, roller-coated, mopped, or wiped on a clean interior or exterior surface, the mixture dries in 15 minutes to a hard, transparent film. The surface can be repainted, when necessary, directly over the coating.

Sold in 5-gallon and 55-gallon drum lots, the concentrate costs about \$4.50 for 5 gallons, or \$0.0025 for enough to coat a square foot.

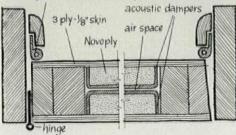
Manufacturer: Industrial Maintenance Sales Group, Finishes Division, E. I. Du-Pont de Nemours & Co., Wilmington, Del.

ACOUSTICAL DOOR

A flush wooden door which depends on dense construction to cut sound transmission is the latest addition to the line of U.S. Plywood products. The standard 1¾inch Weldwood Acoustical Door consists of two three-ply ⅓-inch skins bonded to two thicknesses of 11/16-inch Novoply (laminated wood flakes and chips), and two acoustical dampers on either side of a dead air space (see drawing, below). This construction achieves a sound reduction loss of 35 decibels, a rating which makes the acoustical door suitable for motels, conference rooms, offices, schools, churches,



synthetic rubber door stop



hospitals, and hotels. The only limit, according to the manufacturer, is that there must be a reasonable balance between the wall's sound retardance and the door's: the door alone cannot perform satisfactorily if walls readily transmit sound. If window openings are specified, they must be double ¼-inch plate glass not less than 6 inches from the door's edge and taking up not more than 40 per cent of its area to maintain the 35-decibel sound loss. Gaskets and moldings are included.

The acoustical door is available in several hardwood veneers and in standard sizes up to 4 by 8 feet. Although 1³/₄ inch is the standard thickness, thicker doors may be ordered. Synthetic rubber door stops and a concealed bottom sealing device are included. Cost averages \$125 per door.

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



GAS STATION ON SKIDS

If gas and oil sales on one corner should slump, the owner of a portable service station can pick up his station, pumps and all, and move across the street or to an entirely new neighborhood with relative ease. Available in two models, the prefab building is mounted on skids and is completely wired and piped ready to be connected.

The smaller model (shown above), on an 8 by 36 foot skid, consists of an 8 by 16 foot building containing an office and rest room, four pumps, and an air compressor. It costs \$6,440 F. O. B. Houston.

Though the skid on which the larger station rests (not shown) is a little shorter, the building itself is 8 feet longer and has two rest rooms. It costs \$5,500. Two-pump islands are sold separately for \$1,120 per island.

Both stations were designed by Architect Boone Amyx of Houston, and they are available in several exterior finishes on steel.

Manufacturer: A-1 Pump & Tank Co., 3302 Polk Ave., Houston.

HEAT-REFLECTING GLASS

Though most of the laminated architectural glass specified for the Air Force Academy chapel at Colorado Springs, Colo., will be glare-reducing, about 2,000 square feet will be a new heat-reflective kind continued on page 60



Here Is Double Protection For Masonry Walls

BLOK-JOINT For Control Joints BLOK-MESH Deep Swedged Reinforcing

BLOK-JOINT is the cross shaped rubber extrusion for making fast, low cost control joints. It's used with ordinary metal sash blocks. There is no need for special blocks, building paper or mortar fill. It can be used in single block walls, with brick and block backup and at columns and pilasters. This time saving control joint forms a secure interlock that gives lateral stability and provides for *both* contraction and expansion in the wall.

BLOK-MESH is the "deep swedged" masonry reinforcing that gives additional strength and resistance to cracking. Its large, squared deformations allow the mortar to take a deep grip for maximum bond. Use both BLOK-JOINT and BLOK-MESH for maximum protection

of masonry walls.



Available in the U.S. through Concrete Block Manufacturers and Building Materials Dealers. Distributed in Canada by Consolidated Concrete Industries, Ltd., 9th Ave. & 24th St., East Calgary, Alberta, Canada.

BLOK-JOINT and BLOK-MESH are products of the Carter-Waters Corp., 2440 Pennway, Kansas City 8, Missouri, Dept. AF



No other fire-rated gypsum wallboard has been proven in as many different constructions and received as many approvals so extensively throughout the country as Bestwall Firestop. It has been approved by the Uniform Building Code, BOCA Code and the Southern Building Code.

Made under Underwriters' Inspection Service, every piece of %" Bestwall Firestop is marked "% Firestop" for quick identification.

YOUR BEST BUY IS BUILDING PRODUCTS

BESTWALL GYPSUM COMPANY

Ardmore, Pennsylvania . Plants and offices throughout the United States

developed by Monsanto's Plastics Division. Installation of the glass in the chapel's south wall will be its first use.

Like other laminated safety glass, the new glass has an interlayer of polyvinyl butyral plastic sandwiched between glass sheets, but in this case the interlayer will be pigmented silver to reflect 40 per cent of the sun's heat while softening glare and brightness. Seen from the outside, it will be opaque and have a dull, metallic sheen; from the inside, it will seem quite transparent except for its warm, neutral color. The effect will be much like oneway glass.

At present, this glass is manufactured with silver pigmentation only, which can be made thicker to reflect as much as 70 per cent of the solar energy. Visible transmission from the inside can be varied from 1 up to 20 per cent. Prices run from \$2 to \$3 per square foot.

Manufacturer: Dearborn Glass Co., 6600 South Harlem Ave., Bedford Park, Ill.

ROW OF SCHOOL CABINETS

While streamlining the outlines of its 1960 classroom ventilators, the Herman Nelson School Air Systems Division of American Air Filter went a step further: it added several accessory pieces which will fit neatly under school windows (photo, below). Flanking the ventilators, which can be used with hot water, steam, direct-fired gas, or electric systems, the new pieces are a sink-and-bubbler unit, a magazine rack, a pull-out cabinet on casters, a cubicle storage cabinet, and a cabinet with optional sliding doors.

Even though all pieces are finished in the same charcoal gray, detachable front panels in flame, blue, green, salmon, gray, and yellow lend a dash of color in mix or match combinations. Should the school-

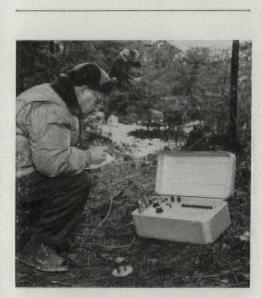


room color scheme change drastically, harmonizing panels can be substituted easily.

Herman Nelson school vent: lators were first offered three years ago as standard heating and ventilating units which could be changed over to year-round air conditioning at any time. The patented "draft/ stop" system draws cold, drafty air from the windows into narrow grilles at the back of each cabinet and recirculates it as heated air.

The unit ventilator alone costs about \$500, or about \$1,200 for the complete set of underwindow equipment. All units are 30 inches high, but they vary in depth from $16\frac{1}{2}$ to $19\frac{1}{2}$ inches. Cabinets and magazine racks are offered in two lengths, 3 and 4 feet, and the ventilators are 4 to 9 feet long.

Manufacturer: Herman Nelson School Air Systems Division, American Air Filter Co., Inc., Louisville, Ky.



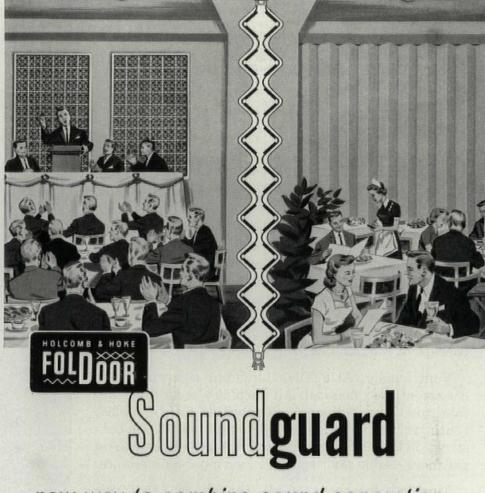
16-POUND SEISMOGRAPH

To give architects and contractors an accurate picture of what lies beneath a construction site, a Minnesota firm has developed a 16-pound engineering seismograph. With this instrument, it is claimed, depth and material analyses may be made without drilling, and more reliable cost estimates will be possible.

The MD-1 Engineering Seismograph uses a sledge hammer to produce sound waves, which are measured by an electronic counter circuit. The speed with which these sound waves travel records what lies below the surface: solid rock, for instance, is the fastest sound transmitter, soft soil the slowest. Not only are subsurface materials pinpointed, but single or multiple layers—and their depth—can be estimated.

As the photograph shows, two engineers are needed to operate the instrument, but a simple briefing is the only special training required. In return for the purchase price of \$2,695, the buyer is ready to cover % mile per day, stopping to record subsurface profiles every 200 feet.

Manufacturer: Geophysical Specialties Co., 15409 Robinwood Dr., Hopkins, Minn.



... new way to combine sound separation with folding door flexibility and beauty

You can now specify *both* sound and space separation—and also get the flexibility and beauty of fabric-covered folding doors and partitions—with SOUNDGUARD. Soundguard's greater sound reduction is due not only to the denser sound insulation within the partition itself, but also to the tight *perimeter sealing* that blocks sound from passing around jambs and operating edges. An outstanding Soundguard feature!

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The FOLDOOR line is complete—a door or partition for every commercial or residential application.



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FOLDOOR HO

... new, different, functional, decorative. A ¾" thick styrene grillework in standard designs, factory fabricated in customized panels. Ideal as space dividers and screens for interior or exterior use. Variety of complete framing systems adaptable to all commercial and residential applications.

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| City | State |

The next time you're in Philadelphia take a good look at the

Einstein Medical Center ...another installation with

Take a good look at the clean, simple lines of this striking monument to modern-day medicine. Notice how beautifully everything fits—the synthesis of approximately 11,400 sq. ft. of LUPTON Type "H" curtain-wall units, 549 LUPTON "Master" projected aluminum windows, and 732 LUPTON double-hung aluminum windows with the overall architectural concept of the building.

Functionally, LUPTON aluminum construction is consistently economical. All parts are accurately prefabricated and delivered on schedule for simplified, routinized assembly. And lightweight LUPTON construction lowers foundation and framework costs. You get more usable floor space . . . save on maintenance.

Most advantageous of all, though, is LUPTON's dependability. As proven in hundreds of jobs—including the largest aluminum curtain-wall installation in the world—you can depend on LUPTON to meet your specifications, to deliver as scheduled. You can pinpoint responsibility, because LUPTON can do the whole job—even install!

See SWEET'S (Sections 3 and 17) for the Michael Flynn Aluminum Curtain Wall and Window catalogs, and write for further specific information. Inquire about LUPTON Comfort-Conditioning*—the new curtain-wall system that cools, heats, and ventilates. A call to the nearest LUPTON representative (see the Yellow Pages under "Windows—Metal") will bring fast action without obligation.

*Trade Mark

LUPTON[®] METAL WINDOWS • CURTAIN-WALLS MICHAEL FLYNN MANUFACTURING CO.

Main Office & Plant: 700 E. Godfrey Ave., Philadelphia 24, Pa.; West Coast Plant: City of Industry, Calif. (Los Angeles County); Stockton, Calif.; Chicago, III.; New York, N.Y.; Cincinnati, Ohio; Cleveland, Ohio; Dallas, Texas. Representatives in other principal cities.



The Einstein Medical Center (Northern Division

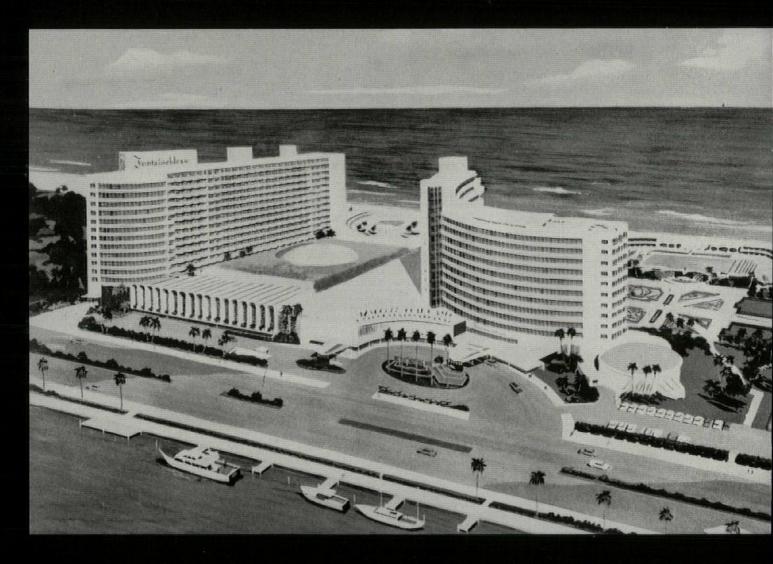
CURTAIN-WALLS AND WINDOWS

Broad Street and Tabor Road, Philadelphia, Pa. Architect: Abraham Levy, Philadelphia. Contractor: James McGraw Co., Philadelphia.

TTEL

NEW ADDITION

TO THE FABULOUS FONTAINEBLEAU



Addition to Fontainebleau Hotel, Miami Beach, Florida

Architect: A. Herbert Mathes, Miami, Fla. General Contractor: Taylor Construction Co., Miami, Fla. Masonry Contractor: Kirkland Masonry Co., Hialeah, Fla.

FACTS ABOUT THE FONTAINEBLEAU ADDITION

The proportions of the new addition to the Fontainebleau are immense. For example, a ballroom that is 200 x 140 feet, the largest in the world. A theater-banquet room that will seat 4,000 at a dinner. Set up for a performance, it will seat 6,000. A new building with 400 hotel rooms is going up right alongside. A little over three miles of Keywall is being used as a masonry reinforcement in the new addition.

BUILT TO STAY YOUNG WITH KEYWALL galvanized masonry reinforcement

You can't be leaning over the shoulder of each mason all the time to make sure he uses the reinforcement right. Yet proper use of the reinforcement makes the difference between a building that stays young and one that ages fast. But what can you do?

Here's one man's answer. Masonry Contractor Hugh Kirkland says, "Lapping is the key to proper masonry reinforcement. Here's what I mean. Some masonry reinforcement is hard to lap. Too thick. By thick I mean an $\frac{1}{8}$ inch in diameter. Lapped, that's a quarter inch. So, with a $\frac{5}{8}$ inch mortar joint, you get little mortar around the wire. That means poor bond, poor embedment. So what happens? Most of the time reinforcement is butted, not lapped. That's even worse.

"We simply avoid the problem. We use Keywall. It comes in 200 foot rolls, not short lengths. So you very seldom have to lap it. And when you do, it's easy ... easier than butting it. So of course, my men lap it. And when Keywall is lapped, there's still plenty of room for mortar.

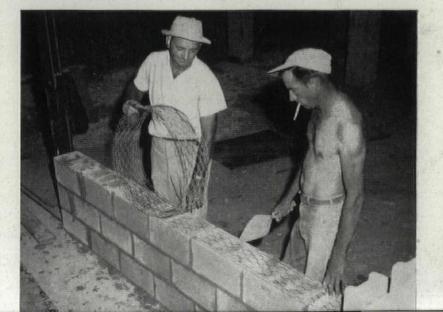
"Keywall is a lot easier for my men to handle because it comes in rolls. It's easier to cut, too.

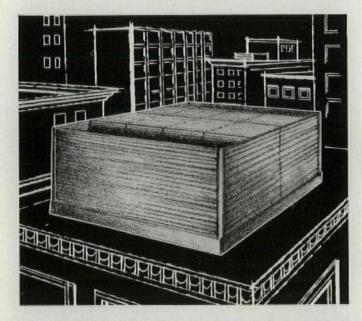
"But it's not only a matter of my men liking it. Keywall reduces shrinkage very effectively. And it's economical. What could be better than Keywall?"

KEYSTONE STEEL & WIRE COMPANY Peoria 7, Illinois

KEYWALL · KEYMESH® · KEYCORNER · KEYDECK · WELDED WIRE FABRIC · NAILS

Just unroll it and you're ready to go. Joe Kuntz, Superintendent for the Masonry Contractor, Hugh Kirkland, shows how easy Keywall is to work with for the benefit of mason Fred Kinnaird. Keywall is made for wall thicknesses of 4", 6", 8", 10", and 12".





Inconspicuous? Completely Compatible?

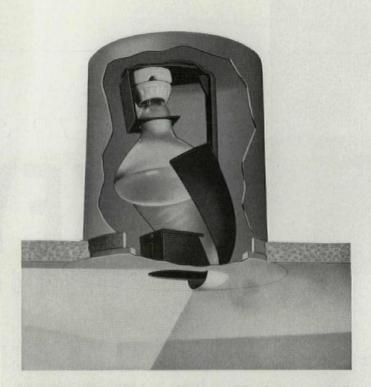
THEN IT'S A WARED UNDERFLOW

It doesn't *look* like a cooling tower . . . it doesn't *sound* like a cooling tower—but for top performance in intermediate-capacity cooling, there's nothing like the Marley Underflow. This low-silhouette tower becomes such an integral part of any structure that the eye can scarcely tell where the building ends and the tower begins. It is often located inconspicuously adjacent to walled superstructures —without any sacrifice of performance—since it has no open ends or sides to dictate or limit its location.

Substantial sound reduction is another exclusive feature of this completely enclosed tower that discharges air vertically. Unique Underflow design minimizes sound at the tower top, lends itself to sound reduction at the tower base. Moreover, since the fan and mechanical equipment are concealed below the cooling cells, the suggestion of silent operation is strong.

If your specifications call for water cooling on a commercial or institutional scale, it will pay you to look into the Underflow. To get the information the tower itself conceals, simply call your Marley engineer in any major city, or write direct.

UNDERFLOW (REG. TRADE-MARK) TOWERS PROTECTED BY U. S. PATENTS GRANTED THE MARLEY COMPANY CLARKED KANSAS CITY, MISSOURI



Wall Washer Downlights with Designed Optics by Kliegl ... the Great Name in Lighting!

Designed optics . . . controlled wall lighting from an inconspicuous overhead light source. A specially shaped Alzak finished reflector was created for Kliegl Wall Washer Downlights. This unit, with its uniquely shaped reflector, permits the use of a pinhole aperture and produces a soft overall light pattern without annoying hot spots or scallops.

Kliegl Wall Washers are optically designed to correctly illuminate *any* wall whether it is blank or decorated with pictures, murals or tapestries.

Plan to use Kliegl Wall Washer Downlights in your next project. In the meantime, for complete information, write for our Architectural Lighting Catalog.



ALUMINUM by MILLS

Aluminum by Mills... Walls for the man who must represent all that is distinctive about his company. The newest of seven movable wall systems by Mills . . . all created to shape space to the purpose, progress and growth of people at work, comfortably, attractively, economically.

Aluminum by Mills provides a limitless choice of panellingglass, laminates, woods-and a variety of contrasting frame inserts for universal vertical posts (patent pending) and horizontal members of aluminum, anodized in color or natural satin.

For details write to The MILLS Company, manufacturers of movable walls since 1921. The address is 963 Wayside Road, Cleveland 10, Ohio. If you must design efficient, comfortable work areas, you will find the Mills Planning Kit excellent help in visualizing arrangements; a request on your letterhead will bring you one.

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3

Yes, there is no substitute for "honesty" in the materials and workmanship that go into the design and manufacture of MONTGOMERY DEPENDABLE ELEVATORS.

Whether the requirements be a simple two landing installation or one that would reach the moon, every foot of it would contain "honest" equipment of trouble-free quality where freedom of annoying and costly shutdowns would be enjoyed — a tradition and creed of the "Men of Montgomery" since 1892.

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Exclusive Manufacturers of Passenger and Freight Elevators Since 1892

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BI ELEVATORS

1



"We specify MP Plexiglas Drawer Trays"

Pictured below: Block's - Glendale, Indianapolis



For latest informative MP brochure and new "Clear-To-See" calculator wheel, without cost or obligation, mail coupon today.



says Justin Fabricius, A.I.A.

vice-president in charge of planning, Raymond Loewy Corp., New York

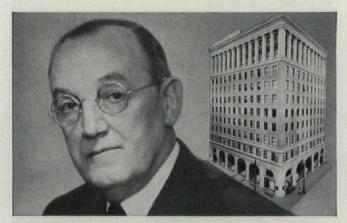
"We have found that MP Trays provide the unique features of practicality plus beauty that modern stores demand. In addition, we recognize the exceptional versatility of MP Trays for displaying a wide variety of merchandise to best possible advantage."

Hundreds of outstanding stores have been made more efficient, more attractive with MP Plexiglas "Floating Merchandise" Drawer Trays. Crystalclear MP Trays keep all merchandise in view at all times to spur impulse buying, facilitate selection by salespeople, promote more multiple unit sales. A large variety of stock and custom sizes are available to assure maximum usable space, positive dust-free protection, unparalleled interior beauty.

Merchandise Presentation, Inc., Dept. F30 2191 Third Avenue, New York 35, N.Y.

Kindly send free calculator wheel and complete descriptive brochure on MP Plexiglas Drawer Trays.

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Robert W. Otto, Chairman of the Board Laclede Gas Company, St. Louis, Missouri

BIG FACTOR IN SELECTION... "At about the time we were thinking about modernizing our elevators, my staff and I took a behind-the-scenes Westinghouse demonstration. What impressed us most was the smooth operation of the elevator cars and the time saving potential of automatic elevators. This demonstration was a big factor in the selection of Westinghouse Elevators for our building."



James M. Kemper, President Downtown Redevelopment Corporation 811 Main Street Building, Kansas City, Missouri

ALERT AND FLEXIBLE ... "When I experienced the 30-minute demonstration, I saw how alert and flexible this system was to the varying traffic demands. I found that here was an elevator system that could take care of any traffic condition existing in a heavy traffic, single occupancy building. We now have seven Westinghouse elevators in our building."



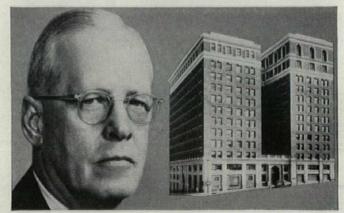
Charles E. Curry, Chairman of the Board Home Savings Association of Kansas City, Kansas City, Missouri

IMPERATIVE THAT WE PROVIDE THE FINEST... "Early in our building modernization program we decided it was imperative that we provide the finest in operatorless elevator service. My staff and I were convinced by the 30-Minute Eye-Opener demonstration that Westinghouse had the elevator system we wanted for the Home Savings Building."



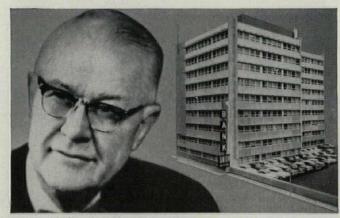
Charles O'Toole, General Manager The Brown Palace Hotel, Denver, Colorado

THE ELEVATOR SYSTEM WE WANTED... "We were a little concerned about the reaction of our guests to an operatorless elevator. After observing for thirty minutes how courteous and efficient Westinghouse elevators with Traffic Sentinel controlled doors operate, we knew this was the elevator system we wanted for our building."



J. A. Bruening, President The J. A. Bruening Company Board of Trade Building, Kansas City, Missouri

RESULT . . . WE BOUGHT WESTINGHOUSE . . . "My people and I decided to modernize our elevators. We took the Westinghouse Eye-Opener demonstration and were very much impressed with the smooth operation of the elevators. Result—we bought Westinghouse elevators for The Board of Trade Building."



Sam P. Wallingford, President Union Center, Inc., Wichita, Kansas

BEFORE MAKING THIS MAJOR EXPENDITURE... "The proper elevator system for our building was of prime importance. Before making this major expenditure, we took the Westinghouse elevator demonstration. After seeing the technical quality and refinement built into the system, we held further discussions which led to our selection of Westinghouse."

These Decision-Making Executives Experienced the

Westinghouse Elevator

"30-Minute Pre-investment

Eye-Opener"

WESTINGHOUSE DEMONSTRATION ANSWERS YOUR IMPORTANT QUESTIONS ABOUT BENEFITS OF MODERN OPERATORLESS ELEVATORS

Westinghouse invites you to participate in a demonstration of the most advanced elevator system in the world. You must experience elevator performance to appreciate the remarkable results of Westinghouse engineering skills. Here are elevators that "think" for themselves *electronically* and *automatically*. They are as new as tomorrow—and more dependable than any elevator system previously devised. Tenants expect to find them in new buildingsand more and more managements of existing buildings specify them at modernization time.

Selecting an elevator system is a key decision which deserves your personal attention and approval. As a building owner or manager, it pays to investigate before you invest. Arrange to see this behind-the-scenes demonstration by calling the Westinghouse Elevator Division Sales Office in your city. Consult the Yellow Pages.



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

WESTINGHOUSE ELEVATORS AND ELECTRIC STAIRWAYS



In the Chicago area you'll find hundreds of Arkla-Servel Sun Valley Gas air conditioners in food stores, drug stores, general stores, restaurants, taverns, halls, beauty parlors, medical centers, business offices, service offices, plant offices, small factories, small shops, repair shops, barber shops, branch offices...bringing year 'round comfort to customers and employees.



more and more Chicago businesses are cooling

with GAS! Many Chicago firms need a compact, automatic unit that will both heat and cool at low cost. That's why-in a one year period - 275 Arkla-Servel Sun Valley Gas air conditioning units were specified and are being used in business places throughout the Chicago area.

With this central Gas unit, there's no need for fans, window air conditioners or separate cooling units. The design is so clean and simple that it can be installed wherever there is room...out in the open, on the roof, in the basement, or in the back room.

In addition to heating and cool-

ing, the Arkla-Servel Sun Valley unit also cleans the air, dehumidifies and ventilates to assure year 'round comfort.

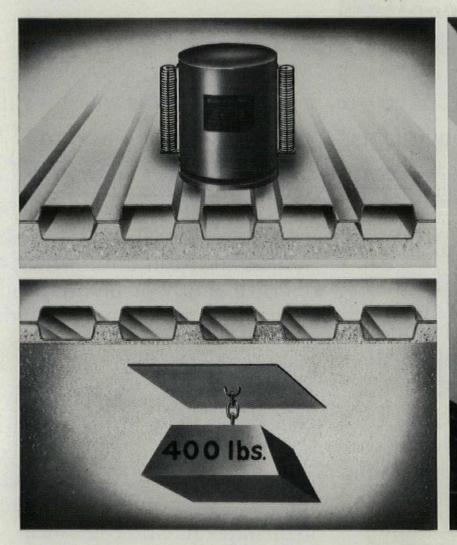
The Arkla-Servel Gas air conditioner is flexible, too – comes in 3½ and 5-ton units which can operate singly or be adapted to multiple installations depending upon the amount of space to be air conditioned.

If your customers and employees sweltered this summer, think now about installing a Gas cooling system before next year's heat wave is here. For specific information, call your local Gas company or write to the Arkla Air Conditioning Corporation, General Sales Office, 812 Main St., Little Rock, Ark. AMERICAN GAS ASSOCIATION

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WET: Passes Vibration Torture Test, with a 4" thickness of Gold Bond Fire Shield Plaster, just five minutes after it is sprayed on.



DRY: Withstands 400 Pound Pull per square foot without bond failure or plaster separation according to repeated laboratory tests.

Greatest advance in fireproofing steel in 20 years! According to a leading, independent testing laboratory, a single %" thickness of Gold Bond Fire Shield Plaster will produce a *full four-hour fire rating* on cellular-type steel decks. Corrugated steel decks get this rating with a ¾" thickness sprayed to the contour of the deck.*

sprays 4-Hour Fire Protection in one coat!

Gold Bond Fire Shield Plaster is spray applied in one coat to get the job done faster. It sprays directly to steel supporting beams or to beams encased in metal lath.

Gold Bond Fire Shield Plaster sticks immediately to clean steel decks and dries with a bond that is stronger than the material itself. (See tests at left.)

Ask your Gold Bond® representative to tell you the full story about this remarkable new fireproofing plaster. Or, write Dept. AF-360, for complete Technical Literature.

NATIONAL GYPSUM COMPANY, BUFFALO 13, NEW YORK





ronbound^{*}floor solves Puerto Rican problem

The architects charged with specifying this replacement wood floor were faced with a real problem: Puerto Rico's high humidity and termite conditions had destroyed previous floors within five years.

They specified the floor system best equipped to combat these conditions — Ironbound* Continuous Strip* Edge Grain Hard Maple.

The use of Edge Grain Maple in an Ironbound floor prohibits excessive movement. Individual flooring strips are interlocked with steel splines to prevent shifting and to keep the surface smooth. Screeds and subflooring subject to hidden deterioration are not used.

For maximum protection against wood-eating insects and excessive moisture absorption, the flooring is vacuum-treated with Woodlife by the Dri-Vac method to a retention double the normal amount.

If you are confronted with similar problems, specify the Ironbound guaranteed floor system.

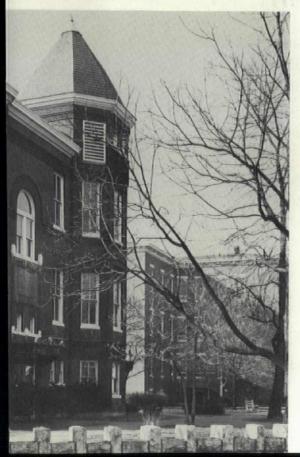
For further information and the name of your nearest franchised installer, write to Robbins Flooring Co., Reed City, Mich., Dept. AF-360.





ibrary entrance, University of Louisville, features large panes of Parallel-O-Plate® Glass. Architects: O'Connor & Kilham, New York, N.Y.; Nevin & Morgan Assoc., Louisville, Ky.

ocial Science Building on Shipp St. is typical of the archicture of some of the buildings which date back to 1869.





visits a university . . .

where architecture doesn't stand still

University of Louisville's Belknap Campus is a revelation in architectural development.

The older buildings (some dating back to 1869) are predominantly Georgian in style . . . solemn brick structures with narrow windows. But on one edge of the campus is a classic Grecian museum. And at the other edge stands a natural-science building that might be called modern transitional.

In the middle of this group are two startling, new, contemporary structures which, through skillful and imaginative use of color, form and expanses of glass, dominate and enliven the whole campus. These are the University Library (dedicated July, 1958) and the University Center Building (dedicated January, 1959). To find out more about these exciting buildings and how they



University Library, erected in 1958, features big areas of Parallel-O-Plate Glass, twin ground for greatest freedom from distortion.



DR. PHILIP DAVIDSON President

Dr. Davidson: Why should a campus be tied to one kind of architecture? Why shouldn't the buildings reflect the history

are functioning, we sought out the Univer-

Question: Why did you depart from the

sity's President, Dr. Philip Davidson.

traditional style of architecture?

of a growing institution? We expose our students to modern art, literature, and sciences; why not expose them to changes in design philosophy, too? On the practical University of Louisville side, we couldn't have bought as much

Question: How have the buildings been received by the public?

Dr. Davidson: They've been received with great enthusiasm right from the start. They've given a real lift to campus morale and to the community. I believe they have helped increase enrollment and faculty recruitment.

Question: And all those glass walls?

functional space with a traditional design.

Dr. Davidson: They're a real joy! We like bringing the outdoors in. It gives a new dimension to space, and a feeling of freedom.

Question: What are the practical aspects of glass?

Dr. Davidson: Now you're getting into an area that I think Mr. Woods, our Assistant Superintendent of Buildings and Grounds, is more qualified to answer. Why don't you talk to him?



WADE A. WOODS Assistant Superintendent of Building and Grounds

Question: Mr. Woods, I understand the window walls in the new Univ Center Building are Thermopane[®] in ing glass with a $\frac{1}{2}''$ air space be plate glass panes.

Mr. Woods: Yes, and you'll notice th outer pane is made of grey plate to a strong sunlight and glare.

Question: Has Thermopane helped your heating and air-conditioning

Mr. Woods: It's hard to measure, b all our buildings are supplied from

central power plant and we have no flow meters. But I c you this. When people in the other buildings are calling for the people in the University Center Building have theirs sh

Question: How about maintenance?

Mr. Woods: As far as upkeep maintenance goes, we don't to have any. After all, glass doesn't wear out.

The spandrels in the University Center Building are Vi glass which has color applied to the back. Dirt doesn't nearly as readily, I've discovered, as on surface-colored ma

Question: What did this building cost per sq. ft.?

Mr. Woods: I'd rather you ask the architect that. He's here in the city.



REDERICK R. LOUIS OF HARTSTERN, LOUIS AND HENRY Architects We found Mr. Frederick Louis, of Hartstern, Louis and Henry, in his office and asked him about the construction cost. Mr. Louis: The University Center Building contains 68,800 sq. ft. We figure it cost \$17.08 per sq. ft. including plumbing, heating, air conditioning, electrical work and automatic sprinklers.

Question: Why did you specify *Thermopane* for this building?

Mr. Louis: Well, you see, we have temperature ranges from 0° to 100° in Louisville. We specified double-glazing for the

mfort of those using the building. Another consideration was the ad on the central power plant which was reaching its limit. e were able to add this building without enlarging the heating tem. Another factor was the location of the building near an pressway. Double-glazing helps to shut out traffic noise.

estion: You specified grey glass for the outer pane in the uble-glazed walls. Would you mind telling why?

Louis: Not at all. Mainly to reduce intense sun glare. Also, to away with overhangs which would run up construction costs d might detract from the architecture. And it permits people ide a certain amount of privacy. There's still another reason. a building this size, draperies of different colors and designs often used in different areas. Grey glass tends to minimize se contrasts which would otherwise disturb the building's ign unity from the outside.

estion: One last question. Why did you use glass spandrels?

Louis: Because we didn't want a contrast in texture between ndrels and windows. We liked the reflective qualities of grey ss (it's quite exciting), and we wanted to retain a relationship reflectivity in the spandrels, too.

All in all, it has been a real pleasure working on this project. a know that the University of Louisville is the oldest municipal ege in America (and has the largest adult-education enrollnt in the state). But they're tremendously progressive—an tude we've tried to catch in our contribution to the campus.



Auditorium and multi-purpose room in the University Center Building looks out on campus through *Thermopane*.



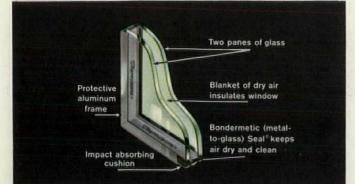
Façade of glass. Even the spandrels are glass—*Vitrolux®* heat-tempered polished plate glass with ceramic color fused to the back.



Cafeteria in University Center has window walls of *Thermopane*, with *Parallel-O-Grey* as the outer pane to reduce glare. Notice that grey glass does not affect the color of objects seen through it.



This plate glass window wall was purposely planned to capture the beauty of the giant cypress tree it frames.









THERMOPANE[®]—For maximum comfort and for heating and air-conditioning economy, use *Thermopane* insulating glass in windows. Heat loss is cut in half, compared to single glazing. Drafts near windows are reduced. Outside noises are muffled. *Thermopane* is available with metal-to-glass *Bondermetic Seal*[®] and enclosed in an edge-protecting aluminum frame, and with a glass seal. *GlasSeal*[®] *Thermopane* is ideal for preglazed sash.

TUF-FLEX^{\circ}—Tempered plate glass is 3 to 5 times tougher than regular plate glass of the same thickness. Yet it's as clear as any fine plate glass. If maximum resistance is reached, *Tuf-flex* disintegrates into relatively harmless, rock-salt-size particles.

Recommended for gymnasiums, entrance doors and sidelights, rooms facing recreation areas . . . any place where students and missiles are in rapid motion.

THREE KINDS OF PLATE GLASS—To assure undistorted vision from inside and a richer appearance on the outside, use twinground, clear *Parallel-O-Plate* Glass in windows. For control of sun heat and glare, use *Parallel-O-Grey* or Heat Absorbing Plate. *Parallel-O-Grey* is neutral grey in color. Heat Absorbing Plate is pale bluish-green. Both effectively reduce transmission of sun heat to keep interiors cooler, but *Parallel-O-Grey* is more effective in reducing glare.

MIRROPANE[®]—Wherever it is desirable to observe people without their knowledge, *Mirropane*, the "see-thru" mirror, is the answer. On the brighter side it's a mirror that reflects objects in the room. From the darkened observation room, it's a window you can see through, but you won't be seen.

VITROLUX[®]—Used instead of masonry as an exterior facing material, also for interior partitions. Rich color, fused to the back of this clear, heat-strengthened plate glass, adds youthful beauty and cheerful character to any structure. It is resistant to weathering, crazing and checking. Standard maximum sizes of *Vitrolux* panels go up to $48'' \times 84''$. Special orders up to $60'' \times 84''$. Thickness: $\frac{1}{4}''$ plus $\frac{1}{44}''$ minus $\frac{1}{42}''$. Sixteen standard colors, plus black and white. Also in non-standard colors subject to manufacturing limitations.



For information on these L·O·F products, refer to Sweet's Architectural File 26-A, or call your L·O·F Distributor or Dealer (listed under "Glass" in the Yellow Pages). Or write to Libbey-Owens-Ford Glass Co., 608 Madison Ave., Toledo 3, Ohio.

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BUILDINGS THAT USE

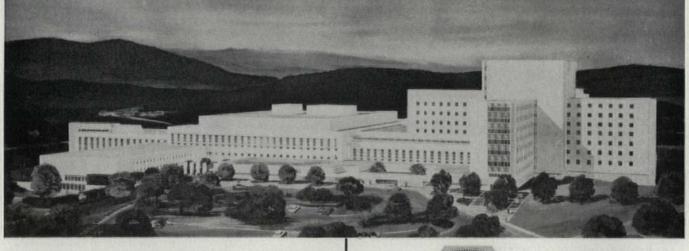


*

get the EXTRA advantages of C.P.D.

MEDICAL CENTER BUILDING West Virginia University Morgantown, West Virginia

Architect: C. E. Silling & Associates, Charleston, W. Ya. Associate Architect: Schmidt, Garden & Erickson, Chicago, Ill. Engineer: John Paul Jones, Cary and Millor, Cleveland, Ohio Plumbing Contractor: Wm. H. Singleton Co., Springfield, Ya.





Eminently modern buildings like the great new Medical Center Building at West Virginia University are planned to give service to countless future generations. To be assured of getting maximum performance and lasting dependability from the plumbing drainage system, Josam Plumbing Drainage Products were used throughout. Since every Josam Product is made to conform with co-ordinated standards, it not only performs its specific function in coordination with the entire plumbing drainage system but with all other structural elements. *Co-ordinated Plumbing Drainage by Josam costs no more than a mismatched selection of products, yet provides the advantage of easy installation, peak performance and maximum life. For complete details on the entire Josam Line send for Catalog K.

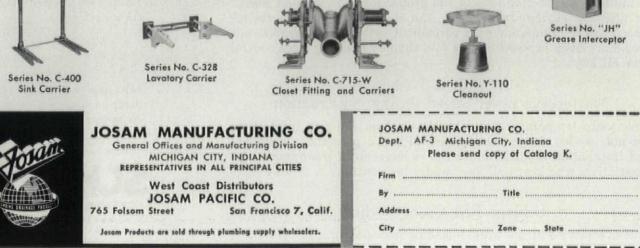


Series No. 5420 Non-Clog Floor Drain



Series No. 1480 Shock Absorber for Pipe Lines





New locking service for commercial buildings

Schlage's unique PSI service uses temporary cylinders to provide these benefits:

- POSITIVE CONTROL OF MASTERKEYS
- FLEXIBILITY IN DECIDING KEYING ARRANGEMENTS
- SAVING ON CONTRACTOR'S HANDLING COSTS

HERE ARE THE PSI BENEFITS

Locks delivered without permanent cylinders

Locks have a temporary plastic plug, which may be turned by a screwdriver. These locks are used to provide free passage through any door.



•SCHLAGE•



Color-coded aluminum cylinders provide on-the-job security

For doors requiring locking during construction, anodized aluminum cylinders can be

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This program simplifies the contractor's work because he can install any plastic-plug lock of the proper function without regard for ultimate keying. In addition, the aluminum cylinders are replaced before occupancy with permanent cylinders which have not previously been exposed on the job, thereby insuring close control over all keys.

Masterkeys never issued during construction

Since only temporary cylinders are used on the job, masterkeys are not needed. Keys are shipped with the permanent cylinders and installation is made under the supervision of the owner's representative, who keeps all keys under his control.

Schlage PSI Costs Nothing

This is a service of the world's leading manufacturer of cylindrical locks, offered at no charge.

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Decisions on keying can be made at any time at the owner's convenience.

No possibility of accidental invasion of security. No masterkeys on job.

Installation of locks is speeded and simplified as contractor need select only proper functions from case stock.

No need to build a keyboard. Schlage shipping carton serves as temporary keyboard.

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Provides positive, easy-to-maintain security security INSTALLATION at every stage of building...and beyond

ADVANTAGES

OTHER SYSTEMS

All detail on keying must be included in original factory order so the complete lock, with key, can be shipped.

During construction masterkeys are used or permanent cylinders employing a form of temporary keying that still allows permanent keys on the job.

Each lock must be itemized and laid out to find the exact lock for a specific door.

Contractor must build a keyboard and tag all keys.



Shipping carton is a temporary key-filing cabinet All cylinders are shipped complete with the key and packaged in a key-control envelope for storage and easy access until actually needed. No need to build a keyboard.



No problem of matching keys to locks

Permanent cylinders and keys are packed together and, when the cylinder is installed, the key is placed back in the file envelope and returned to the shipping container for easy identification and future incorporation into a key-control filing system.

CONTINUING SECURITY

The unique Schlage PSI system has these features which assure the continued integrity of the building's security system:



Security in factory handling

The job name is omitted from factory orders; material handlers know the job by number only. Thus, there is no possibility of anyone retaining a masterkey for future invasion of security.

No unauthorized masterkeys made

Schlage will not issue masterkeys for any existing job without written authorization from the existing owners.

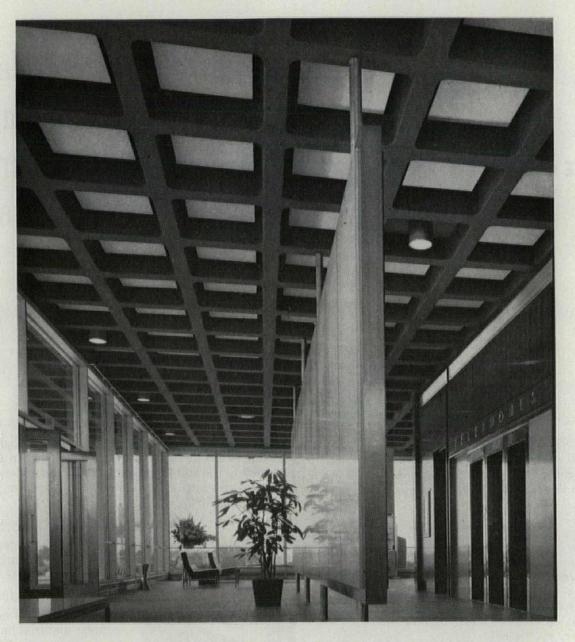


Continued control of keying system

The final decision on keying can be delayed an indefinite time, subject to the decisions of the occupant. When a tenant moves in and determines his keying requirements, cylinders will be shipped from the factory, untouched by construction personnel. Subsequent tenant changes can be handled in the same way.

SEE HOW SCHLAGE'S PSI CAN WORK ON YOUR BUILDING

For complete information on this unduplicated service, contact your Schlage representative or write P.O. Box 3324, San Francisco 19, California.



A NEW WORLD OF DECOR OPPORTUNITY IN CONCRETE JOIST CONSTRUCTION

Ceco Steeldomes Make Possible Unusual Ceiling Treatments ... Provide Wide Open Spaces

In many an architect's office, you'll hear talk about the exciting new effects in ceiling ornamentation now possible with Ceco Steeldomes. Not only are architects talking... they are using Steeldomes to take advantage of this new world of decor in concrete joist construction. Reason: Steeldomes create smooth surfaces in the concrete ceiling, giving an unblemished, high quality finish, because they are removed by compressed air. The decorative treatment can be applied directly to the exposed waffle ceiling. Steeldomes offer other advantages, such as wide column spacings, the rigidity of monolithic concrete, and economy. Ceco Steel Products Corporation. Sales offices, warehouses and fabricating plants in principal cities. General offices: 5601 West 26th Street, Chicago 50, Illinois. Write for full particulars pertaining to Steeldome construction.

The main corridor of a Fred Harvey Oasis Restaurant on Tri-State tollway near Chicago, illustrating a dramatic ceiling treatment possible with Steeldome construction. The exposed concrete waffle ribs are painted charcoal gray, sounding a new note in decor motif.

Architect & Engineer: Pace Associates. General Contractor: Ragnar Benson, Inc.



IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE

Steelforms/Concrete Reinforcing Steel Joists/Curtainwalls, Windows, Screens, Doors/Cecoframe Buildings Roofing Products/Metal Lath

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New ... Shallow Fluorescent Fixtures with HINGED DOORS

Store, Office, Public Building... New Building Project or Remodeling. Whatever the job...consider these Surfaceline *benefits*!

Appearance: Surfaceline's shallow depth and clean, modern lines assure you of pleasant, unobtrusive lighting.

Design Latitude: These fixtures can be economically installed singly, in modular patterns, or in continuous rows. Five sizes, five different plastic or glass closure bottoms.

Safe, Easy Maintenance: Miller's famous, "light-tight" hinged doors are secure, easily operated. Maintenance requires no tools...no handling of loose parts.

Whatever the job...discover how Surfaceline can meet your particular lighting needs! Write Dept. 360 at Meriden, Conn., for catalog information.

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1' x 4'

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LIGHTING BY

4' × 4'

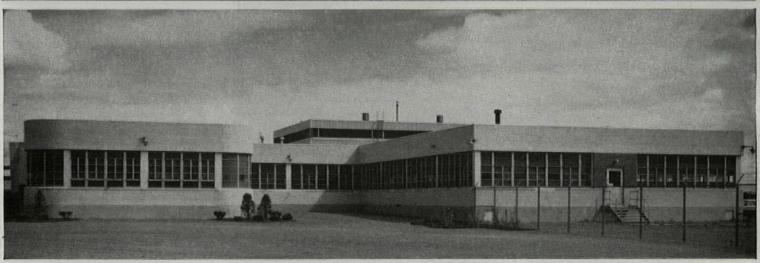
2' x 2

miller



The Square D Company Plant on Good Hope Road, Glendale, Wis., in which 240 lights of 30°x60° ¼° Hammered Coolite have been glazed around the top rim of the building. Grassold-Johnson & Assoc., Milwaukee, Wis.—Architect. Pittsburgh Plate Glass Co., Milwaukee, Wis.—Glazing.

MISSISSIPPI GLASS 171



Speer Carbon Company, Niagara Falls, N. Y. Laboratory glazed with 1/8" Luxlite Coolite, Glare Reduced One Side. Pilot house glazed with 1/4" Luxlite Coolite Wire Glass. Otto Preis, New York, N. Y.—Architect. Walter J. Johnson, Niagara Falls, N. Y.—Contractor. United Glass Company, Buffalo, N. Y.—Glazing Contractor.



Borden Foods Company, Plymouth, Wis. South, east, and west elevations glazed with ½' Mississippi Lux-lite Coolite, Heat Absorbing Glass. Cowell & Robinson, New York, N. Y., — Architects-Engineers. McDonough Construction Company of Georgia—Contractors.



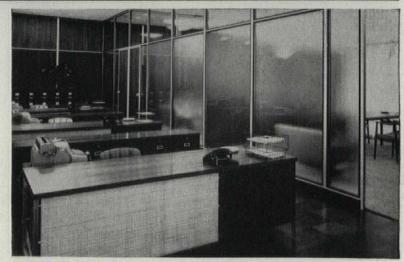


WORLD'S LARGEST

 Is M. Electric Typewriter Plant, Lexington, Kentucky, where 35,000 sq. ft. of W Luxifie Cooline, Glore Reduced, is installed. Fordyces & Hamby, Associates — Architecture and Engineering. Glibone Construction Company—Ceneral Contractor, Plithstung Plate Glass Company, Lexington, Kentucky—Glass and Glazing.

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Partitions of 7/32" Mississippi Factrolite Glass in Mutual Insurance Company of Hartford. Interior by Associated Designers for Interiors, Inc.

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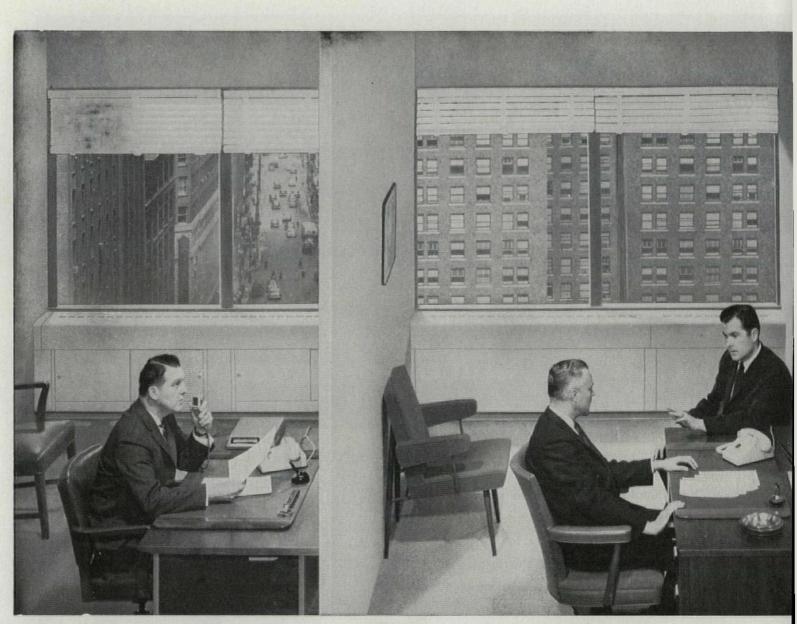
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Here's how one UniTrane unit (center office) air conditions an entire 24-foot bay. Lateral duct extensions in adjoining offices distribute air from this unit. Components go together quickly, easily, with a minimum of on-the-job fitting.

Now! True perimeter with exclusive Trane

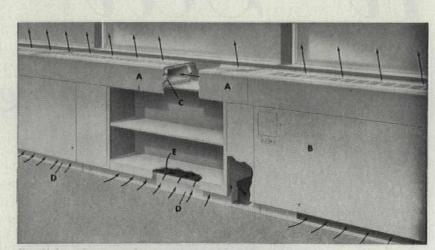
Provides a blanket of comfort around building's perimetermeets changing tenant needs; simplifies installation: cuts piping and control costs

Here is true perimeter air conditioning that meets today's needs for tenant changes—and does it eco-nomically. It's the new, exclusive TRANE "Wall-Line" method of air distribution that cuts installation and control costs, makes it easy to meet the varying and changing needs of every building.

Here's how it works:

Here's how it works: For example, you install one central fan-coil Uni-Trane Air Conditioner with lateral duct extensions in a twenty-foot bay, instead of three individually controlled units. The extensions distribute condi-tioned air from the UniTrane unit (cool in summer, warm in winter) all along the outside wall of the bay. And by linking additional fan-coil UniTrane units with winged extensions in adjacent bays or offices, a blanket of comfort is provided around the entire perimeter of the building. There is more flex-ibility in altering existing walls and partitions— without altering or moving the air conditioning





Conditioned air under pressure rises from plenum extensions (A) and central unit (B)—along entire outside wall. Plenum extensions are heavily insulated (C) to prevent condensation and to reduce noise to an absolute minimum. Return air is drawn through openings at base (D) along the entire installation . . . passes through return air duct (E) to central unit (B).

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- Quieter operation; air distribution ducts are Fiberglas insulated.
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air conditioning "Wall-Line" system !

equipment! In new buildings, there is greater freedom of design than with conventional air conditioning systems: space requirements and floor plans may be worked out *after* the air conditioning has been installed.

worked out after the air conditioning has been installed. Costs are cut because the new TRANE "Wall-Line" system requires fewer individual air conditioning units; in many cases, one unit will suffice where three would be required with a conventional system. And there is a corresponding saving in controls, piping and installation costs. On-the-job labor is substantially reduced because components are factorybuilt, ready to install. And this new, improved system provides space for attractive TRANE shelving below the lateral duct extensions. These shelving units enhance the appearance of any office space.

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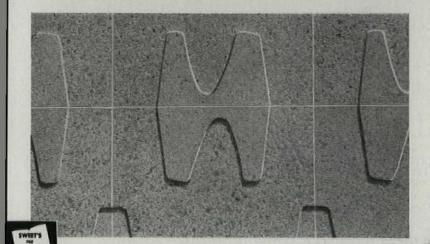
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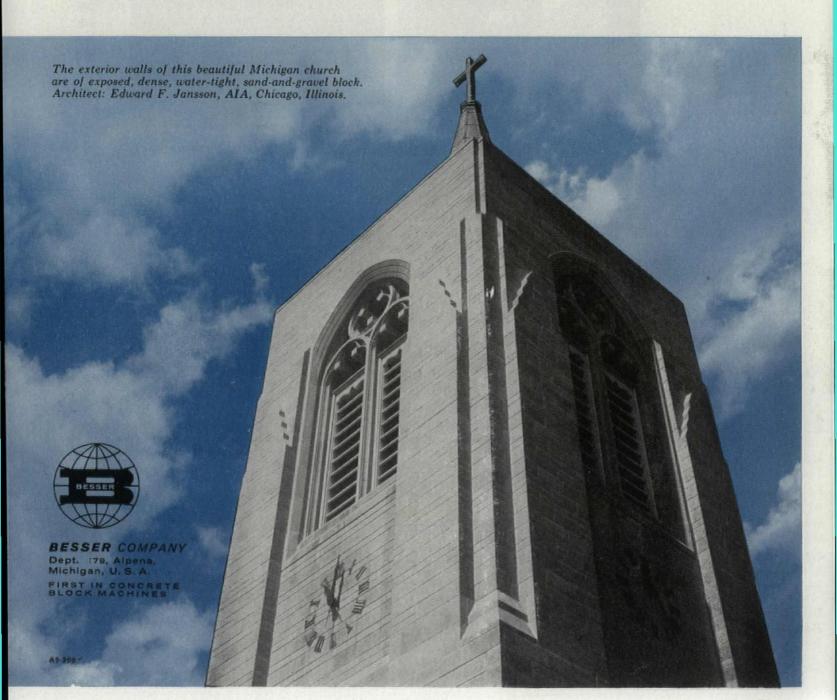
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Editorial

Open space-now

Of all the horrors of urban sprawl, perhaps the most insidious is the loss of the land itself. So far the battle to save countryside within our spreading cities, and to channel growth into less wasteful, more livable patterns, has scarcely been joined. If the assault has been waiting for ammunition, it need wait no longer; two recent documents are loaded.

In "The Law of Open Space," first of four reports by New York's Metropolitan Council and Regional Plan Assn., Attorney Shirley Siegel brings together for the first time a host of scattered legal concepts, procedures, and court decisions on the subject. Lawyer Siegel's brief: there are no serious legal obstacles to an open-space program in America's biggest metropolis; in fact, far more authority exists than many public servants themselves realize. In addition to outright purchase of parkland under eminent domain, a right no longer questioned, she explores many other useful tools at hand: leases with option to purchase for public use; solicited private gifts; transfers of land among public agencies; foreclosure and swapping of tax-delinquent lands; excess condemnation in connection with highways and other public building schemes; reservation of parkland by use of the official map; bold proposals for self-liquidating public land agencies set up to purchase large areas on the urban fringe, plan them comprehensively, and resell them for private development.

In "Conservation Easements," a report for Washington's Urban Land Institute, Author William H. Whyte Jr. concentrates on one of the newest tools, and lays his argument skillfully on the line. Whyte's way, as a growing audience is becoming aware (see *Excerpts*, page 172) involves a new use of the ancient device of easements to buy from owners of key scenic land not the land itself, but merely the owners' right to sell it out to such things as billboards or housing tracts. Attractive open space, as Whyte points out, is becoming a precious public benefit, and that benefit must be paid for by the public. Zoning can and should be employed to keep apart conflicting uses, and to protect the public in such places as flood plains and along airport approaches. But it cannot long be legally or fairly used to force a few owners to keep up the rolling hills and white farms we all enjoy looking at. Straight minimum-lot zoning for subdivisions, furthermore, actually tends to accentuate sprawl without yielding real open space (although average-density zoning shows great promise).

What is needed, says Whyte, is first a clear statement of public intent in new state enabling legislation; he offers California's new act and others as a guide. Next, localities must determine the key physical features which give them their special character and beauty (these often amount to less than 5 or 10 per cent of the total ground area). And finally, backed by the power of eminent domain, land owners must be offered payment for a "conservation easement": equal to the sum remaining after the market

continued on page 101

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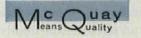
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Editorial continued

value of the land—in its present use as farm, estate, or woodland has been subtracted from the current market value it would have if converted into subdivision or development land.

The time, however, is too short to wait for more studies, more federal help, more metropolitan proposals and superplans. The land is vanishing, and the states and their cities must act to save it now.

Philadelphia aids transit

New Jersey's Governor Robert Meyner blazed some sort of trail last fall when he proposed to shift surplus funds of the New Jersey Turnpike Authority to help meet deficits of commuter railroads. The electorate, unhappily, matched neither the governor's ingenuity nor courage. It vetoed the unfamiliar idea.

In Philadelphia, however, there is hope that more success will attend another scheme to put the elements of mobility into some sort of sensible relationship. The city government has chartered a nonprofit corporation which will subsidize commuter transit within city limits by as much as \$2 million a year, providing new equipment on lease to the Pennsylvania and Reading Railroads and building new facilities. The corporation is the outgrowth of an experiment, started in 1958, to provide commuters with cheap and fast transit from the city limits into the central business areas. The city has been paying subsidies (\$325,000 in 1959) to enable the railroads to reduce fares and provide extra service. The tests, in two areas of Philadelphia, have been successful; they have siphoned more riders onto rapid transit, and coincidentally, have cut down on automobile congestion. Most big cities need to revive, or install, some sort of rapidtransit system. The automobile and

its artery, the highway, have failed badly as devices for urban mobility in central areas. Yet the politicians and planners in Los Angeles, Detroit, and other cities seem to be astride a tiger. Their vast networks of freeways and interchanges breed more traffic, which in turn breeds more demand for more highways.

New York City, at the same time Philadelphia was showing the way to a saner transit policy, was compounding its own difficulties by broaching a \$52.5-million program to build 10,000 new garage spaces in the central city. The idea, according to the city's traffic commissioner, is to attract suburban shoppers. Peculiarly, he seems unconcerned about the multiplication of arterial congestion that cannot help but be a by-product of such a scheme. Whatever gains store owners may garner in sales would be more than offset by the city's losses in terms of further traffic congestion.

The courage and ingenuity shown in Philadelphia must be at least matched in other cities if these cities are to survive as efficient instruments of human enterprise. Moreover, they must be matched by the states and the federal government, both of which share the responsibility for creating and propagating a tragically lopsided urban transit system based on highways, which gobble up too much vital space while moving too few people too slowly at too great an expense.

Poor Princeton

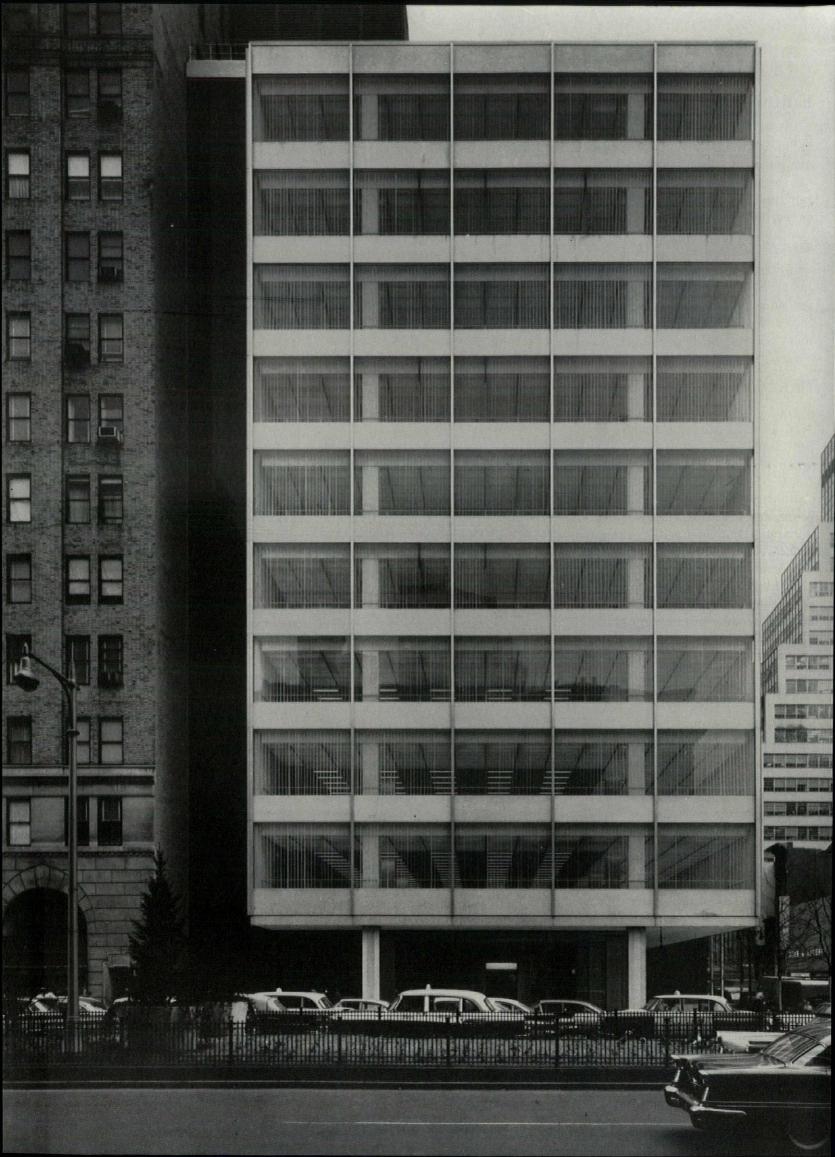
"The young are always right," said George Howe, the grand old architectural dean at Yale; at any rate the young will be the ultimate judges in a quarrel between Architect Enrico Peressutti and his former university, Princeton. Peressutti is an architect whose firm in Milan enjoys renown internationally. He resigned from Princeton's

faculty, as reported in last month's FORUM, because his fundamental ideas as a teacher at the School of Architecture were being "misshaped and completely reversed by the actual developments on the campus." Obviously, he thought that the university's building program was uncoordinated and dull, and that it went against the best of the School of Architecture's teaching; to cap things off, the proposed new building for the School of Architecture itself was being planned as a routine job, and by no such known leader of architecture as Princeton could easily have commanded.

President Robert Goheen promptly accepted Peressutti's resignation as a part-time teacher, with formal thanks for his services and with the acid remark that the Trustees' Committee on Grounds and Buildings did not "propose to argue its views with . . . Professor Peressutti." Nobody else in Princeton's School of Architecture has publicly expressed any concern, but among recent graduates of the school the episode is creating a good-sized if wellmannered intramural furore.

President Goheen may well have meant simply to reiterate the view of a university that separates the teacher from practical affairs; but few educators hold this view any longer. In today's professional schools, teaching is ever closely linked with practice; medical teachers teach in teaching hospitals; engineers engage in engineering; other leading universities are happy to get for their own building programs the judgment of their own architectural teachers.

The ultimate judges in the disagreement will be the young: those deciding where to go to architectural school. These are unpurchasable judges. "Poor Peressutti," exclaimed a Princeton official. Unless things change it may turn out to be "poor Princeton!"

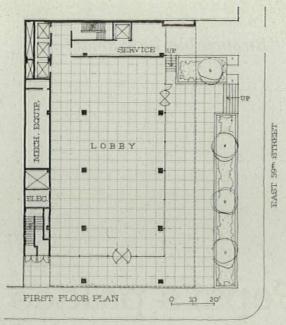


Pepsi's palace

One sunny winter morning last month Miss Lynda Lee Mead of Natchez, Miss., wearing her prettiest Miss America smile, stepped forward to cut the ribbon of the newest, smallest, and possibly the slickest corporate package in New York. The opening of the Pepsi-Cola Co.'s \$8-million "World Headquarters" on New York's Park Avenue (televised to some 2,000 visiting Pepsi bottlers at the Waldorf nine blocks south) was pronounced a generally happy business and architectural event.

In the past ten years, Pepsi-Cola has seen its sales quadruple and its profits bubble up tenfold, largely owing to some sophisticated changes in syrup, advertising, and management. The move to Park, urged by Pepsi's late chairman, Alfred N. Steele, is no coincidence. Nestled elegantly on the corner of 59th, not far from such distinguished giants as Lever House, Seagram's, and Union Carbide (and within the appreciative gaze of Wall Street), the new 11-story, 128,000-square-foot building is not lost despite its relatively small size. One reason is its scale: large, bold, simple. It is probably the glassiest new office building in New York, dressed in great panels of half-inch plate glass 9 feet high and 13 feet wide (enough glass, Pepsi helpfully estimates, to make 159,000 12-ounce bottles). These are set above aluminum spandrels matte-finished and stiffened against the unsightly "oil-canning" that often attends metal panel construction. The Pepsi-Cola building is also one of the handsomest designs born of Skidmore, Owings & Merrill's high corporate style. Carefully set off from older buildings by notches and black "voids" (see left), the structure appears to stand free and foursquare on its modest, 100 by 125 foot corner lot. It is also set back generously from its legal building line, and the open space created is further enhanced by a recessed ground-floor exhibit lobby, and landscaping outside. Upstairs, the company occupies seven floors, leasing the lower three until it needs them. The interiors, too, refresh without filling, showing off Pepsi's new Park Avenue sophistication in design (overleaf).

A delicate, free-hanging curtain is nicely set off from its neighbor by a recessed, black-granite service core.



PARK AVENUE

PEPSI-COLA CO. HEADQUARTERS, 500 Park Ave., New York, N. Y. ARCHITECTS: Skidmore, Owings & Merrill (Robert W. Cutler, partner in charge; Albert Kennerly, project manager); ENGINEERS: Severud-Elstad-Krueger Associates (structural); Slocum & Fuller (mechanical, electrical); Bolt Beranek & Newman (acoustical), GENERAL CONTRACTOR: George A. Fuller Co.

Simplicity and scale lend Pepsi's building remarkable presence for its size. North and east exposures allowed full use of glass.





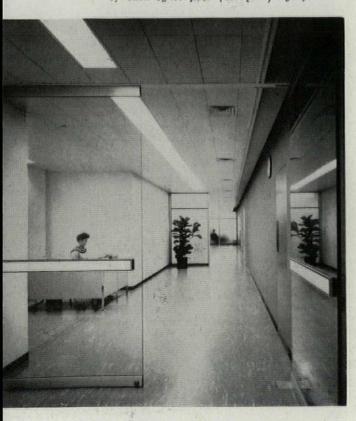
Lobby setbacks of 14 feet on Park and 34 feet on 59th Street (above) create a welcome corner plaza, landscaped on the side.

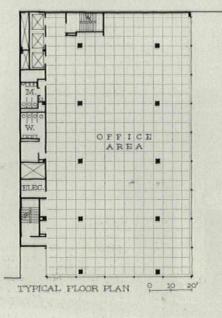
Chaste, spacious lobby, lighted by a "sky" of spots, may be used for small noncommercial exhibits. Note lighted revolving doors.





Well-lighted offices are a restrained buff white with black line accents. Hung ceilings, luminous at the perimeter, are plenums drawing return air in along the core (below), which neatly lines up services at the back of each office floor (see plan, right).





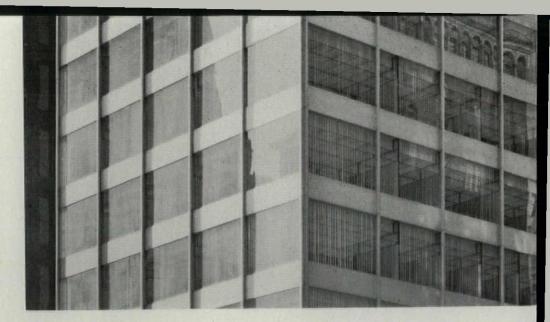


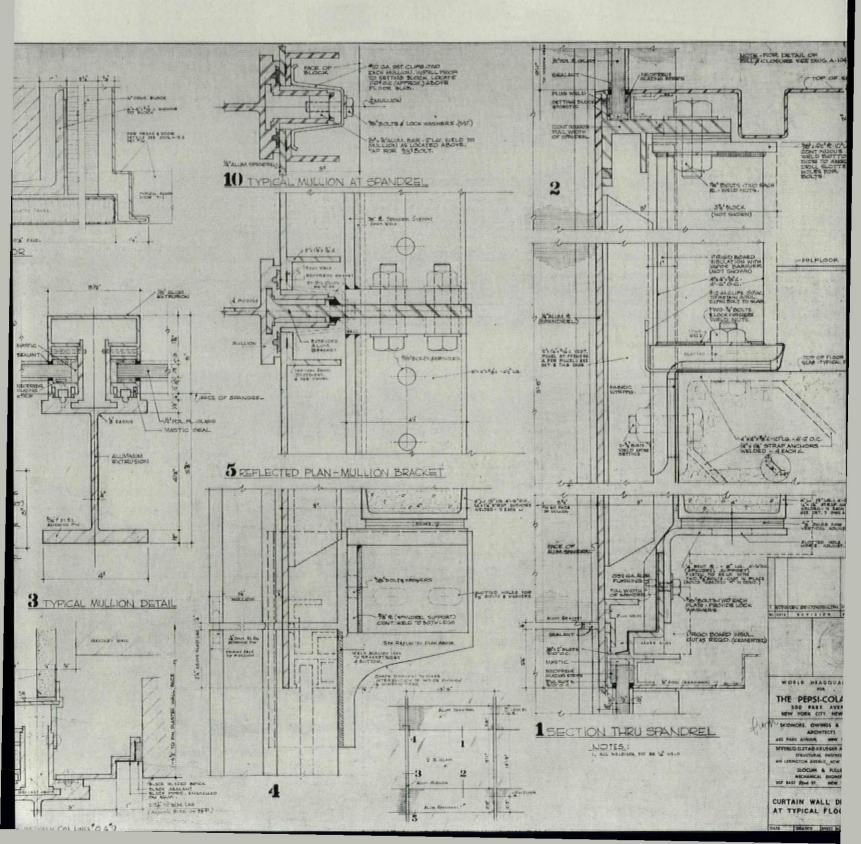
Corner office shows a careful integration of low heating-cooling units, guard rails, blinds, furniture, and ceiling return-air slots.

Board room faces the penthouse terrace; panels at left swivel to reveal exhibits. Furnishings throughout were designed by SOM.



Pepsi's elegant curtain wall conceals the precise, complex detailing often necessary for a simple, bold effect. Spandrels 13 feet long are of etched, anodized aluminum ¼ inch thick, further braced against unsightly "oil canning" by four vertical stiffeners apiece (below, right). Mullions of bright aluminum are guide rails for the window-washing rig, which is ingeniously cantilevered out over the penthouse terrace when in use. The vertical cloth blinds are a carefully considered part of the architectural design.

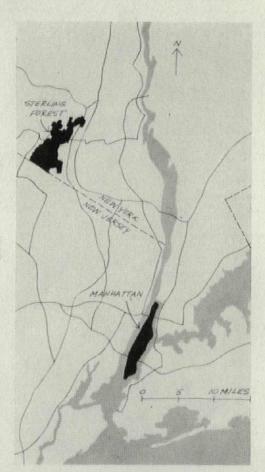




Bob Dowling's woodland adventure

In Sterling Forest, a wilderness tract larger than Manhattan, a big city realtor is building a \$200million community for science-oriented industry.

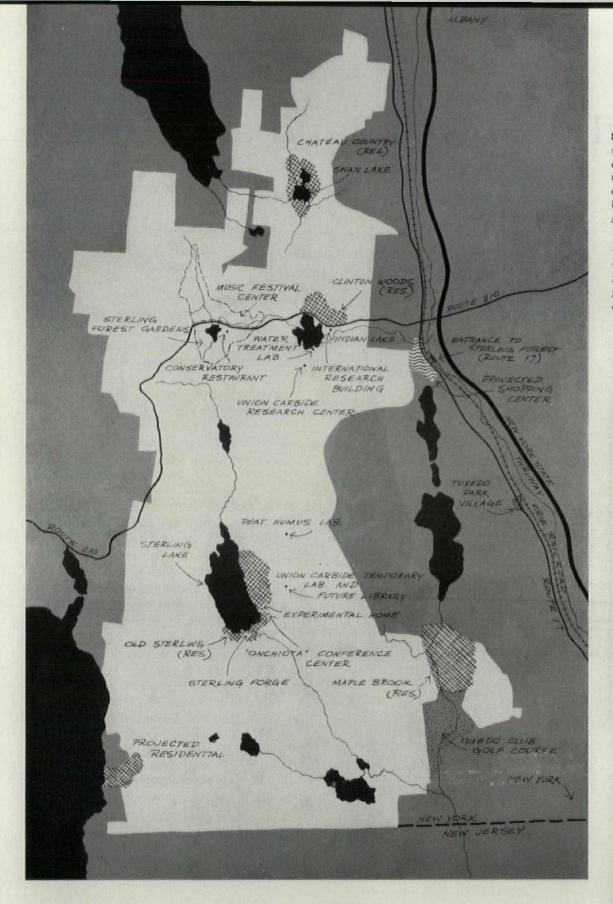
BY RUSSELL BOURNE



The biggest development tract in the world is not in the newly booming Sahara, nor in the Alaskan tundra. It is 40 well calculated miles from the Musak-flavored, Wall Street offices of Realtor Robert Dowling, founder of the Sterling Forest Corp. And the tract is being developed not in the raw spirit of frontier exploitation, but according to the sophisticated theory that sciencebased industries and their sciencedirected personnel will welcome the chance to move to a nature dominated environment. A punctiliously planned community of some 15,000 homes clustered about a few hundred well-established, well-landscaped laboratories and production facilities is what Dowling sees when he gazes across to the aerial blowups on his office wall.

For all their physical nearness to the dollars and dolors of Wall Street, Sterling Forest's 23,000 acres are nearly as unspoiled now as on the day after creation. Steep ridges where catamounts scream at night plunge down into 100-foot-deep lakes where rainbow trout lurk in daytime darkness. Yet the Forest's post office is in suburban, fashionable Tuxedo, New York, and its upland quietude is bordered by one of the east's busiest power and transportation valleys (see map overleaf). Kept intact as a single fief since the Forest was first sold by its Indian owners in 1702, it has the air of a king-sized Sleepy Hollow that is only now waking to its own recreational, residential, and commercial possibilities.

Dowling first heard that the Forest was available when sitting on the board of one of the manifold interests and responsibilities that he juggles with the set smile of a professional entertainer. "I urged the board to take it when the Harriman Family appeared willing to sell," Dowling recalls, shooting his cuffs, "but they weren't interested in rural land. Actually, I didn't think I was either. The Forest, however, was just too good a bet to pass up." How good a bet it





Union Carbide's \$9-million research center (left) is built above Indian Lake Reservoir on a 100-acre site. The \$600,000 reservoir, which is marked by this dramatic plume (right), has a capacity of 220-million gallons, more than enough for the needs of the plant and the nearby residential development. Yet the most dramatic aspect of the reservoir is the low cost (\$100,-000) of its valley-end dam. Sterling Forest's 30 square miles are being opened up according to this general pattern. The Forest's many lakes and wooded glens (below) will be preserved as naturally as possible, no structures being permitted at water's edge or on ridges. More pervading than any other land-use theories, however, is the plan to bring in laboratories and production facilities before residential communities are formed.







was can be better understood by noting that Dowling's City Investing Co., which bought the land two years later for just under \$1 million, paid an average price of \$50 per acre.

Nevertheless, first cost was not the Forest's major advantage from an investor's point of view, as Dowling readily admits. Its chief blessing as a development property was, strangely, that it did not have the built-in mechanical and transportation facilities that most urban properties offer—nor did it have the high taxes that go with these services.

Indeed, wherever the new squire of Sterling Forest turned, it appeared that the land had given him a number of advantages over his urban competitors: (1) topographical and geographical studies showed that with a minimum of damming and dredging, swamps could be turned into scenic lakes; (2) mineral studies showed that the reaches underground of Sterling Forge, sporadically active as a mining operation since Revolutionary times and rebuilt by Dowling for its historic value, might yet yield rich ore deposits; and (3) it was also found that the material dredged from the Forest's swamps could be marketed as peat (selling briskly in suburban stores at this time of year for \$3.87 a familysized bag). Wherever nature did not provide this kind of good fortune, Dowling's native talents were able to come up with something almost as good (such as a tourist-trapping, self-supporting folk festival). It appeared at first glance that Dowling's up-country bet was among the safest that could be made in the tricky business of real estate investment.

Yet recently certain signs have been appearing that the Forest is not that sure a thing. Despite rumors that several tenants are about to announce their entrance to the Forest, the first tenant that Dowling was able to attract in 1957, Union Carbide, has not been joined by another. Also, Dowling's unconventional idea that residential and industrial tenants should own their own buildings but should lease the land (a policy that Union Carbide did not go along with) and should subject their plans to Forest approval seems not to have been immediately attractive to the proudly independent, prestigeconscious companies to which the Forest has addressed its appeal. Similarly, the legal status of these leaseownership properties has proved initially troublesome (one Union Carbide employee who built a home in the Old Sterling section had difficulty getting the terms of his Forest lease approved by either the Forest's or his company's lawyers).

Thus, a full five years after purchase of the land, a closer look at the Forest is needed to judge its prospects as an investment. And in order to get a clear view of the many trees in this peculiar forest, Dowling's well-advertised esthetic intentions must first be sorted out from his investment strategy.

Nobody here but us artists

When viewed from any angle, the Sterling Forest Corp. has clearly done much to enhance the beauty of the countryside. Some of these accomplishments have been so impressive that Dr. C.O. Strother, director of research for the Union Carbide Nuclear Co., speaking of Dowling's and Sterling Forest President Samuel R. Walker's determination to achieve esthetic control, has remarked: "They're not businessmen -they're artists!" The reasons for pushing the Forest's status as a scientific Eden are not, of course, altogether altruistic. The very premise of the development is that its natural charms should pay off in terms of tenants; an ancillary premise is that any improvements on nature should at least pay their own way. An example is the Forest's extraordinary floral gardens.

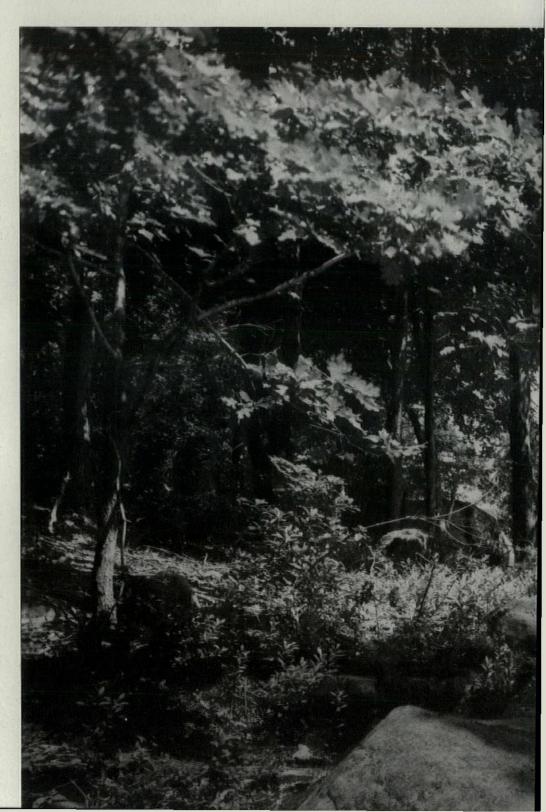
When spring comes this year to Sterling Forest (precisely on May 1, according to invitations already prepared), the first of the gardens' 1.5million bulbs will burst into bloom, a fairly impressive demonstration of what \$1.5 million can do to reclaim a slough. Several hundred thousand visitors are expected to pay \$1.75 to walk through the 125-acre woodland scene. Proceeds of their tour will go to a nonprofit foundation that has been established to "advance the cause of horticulture." The Sterling Forest Corp., for its part, plans to do not badly from sales of peat and other exurban equip-

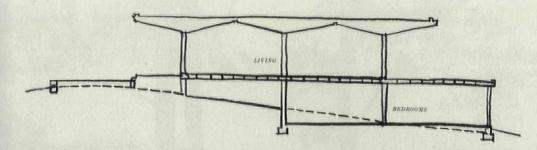
Umbrella house

This glass pavilion on a stone platform is open to views in every direction. In a sense, almost every house is an exercise in relating two dissimilar spaces: a daytime space and a nighttime space, formal and informal areas. This graceful structure overlooking the Essex River in Connecticut is no exception. Its bedroom areas are contained in a stone-and-glass base cut into the hillside, and its formal living areas are sheltered in a glass pavilion set on top of this base (see section). The result is a composition of great simplicity which derives its poetry from the ever present panorama of nature.

The most striking element in this composition is the pavilion. It is con-

structed of nine steel-framed umbrellas, each supported on a steel column, each consisting of an inverted, four-sided pyramid, each linked to adjoining umbrellas to form a series of three-hinged arches. The pyramids measure 20 feet on each side and add up to a "floating" roof 60 feet square. Because the glass walls occur at the outside column lines, the pavilion is protected by 10-foot projecting roof cantilevers on all four sides. Wide decks beyond the glass allow the interior space to extend into the landscape. The light steel that forms the umbrella structure cost only \$5,200, or \$1.44 per square foot in





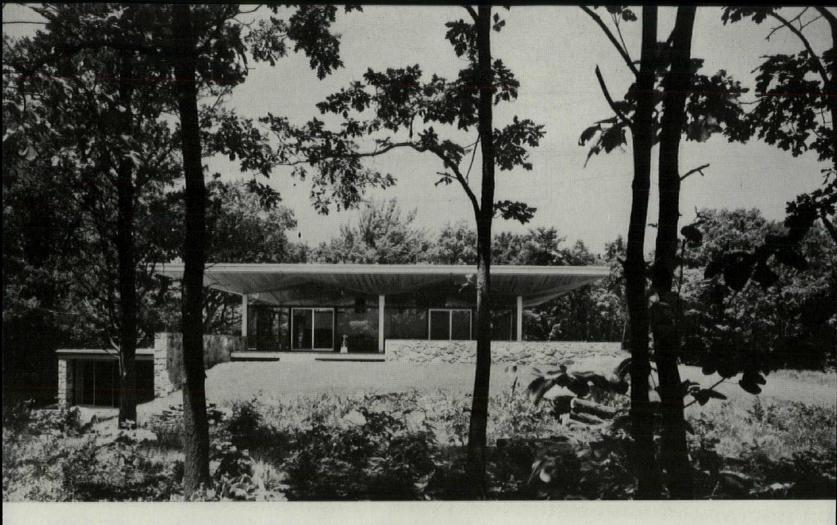
place—i.e., a very small portion of the total square-foot cost (\$20).

Under this umbrella structure, the architect placed various kinds of storage walls to divide the living space into special-purpose areas. These storage walls are only 6 feet, 8 inches high and, therefore, do not touch the ceiling. As a result, the undulating ceiling of the umbrella structure is visible in its entirety throughout the pavilion area. Exhaust fans take care of kitchen odors, and the wood ceiling helps absorb the sound. Because the surrounding property is wooded and extensive (about 70 acres), there was no need for privacy curtains in the glass pavilion. To kill disturbing reflections in the glass walls at night, the architect used elaborate outdoor lighting which, incidentally, supplies the interior with general illumination.

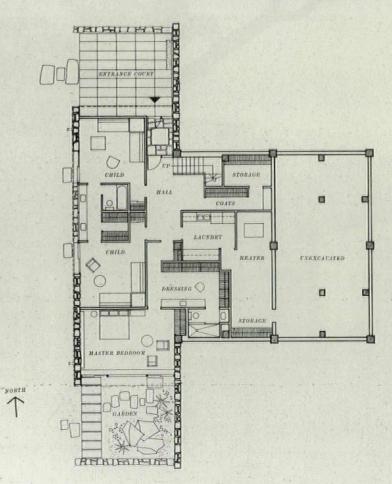
Many formal houses tend to become too stiff for the requirements of family living. Without sacrifice of structural or esthetic discipline, this house has retained the scale and the playfulness of the best in domestic architecture.

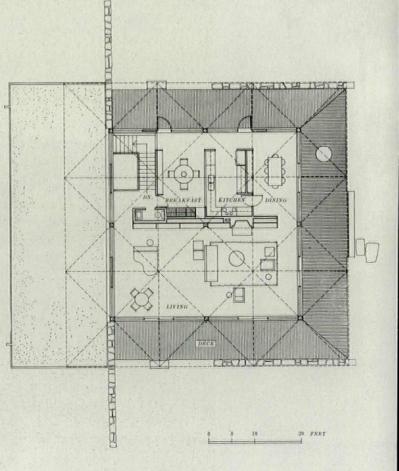
PHOTOS: ROBERT DAMORA

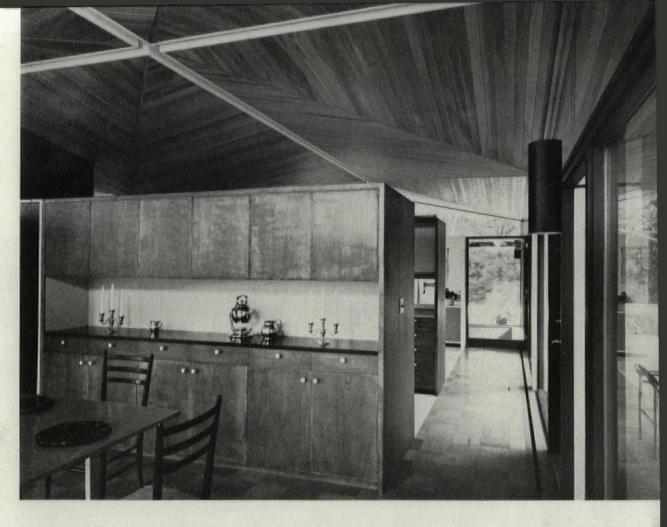




Glass pavilion is shaded by 10-footdeep roof overhangs. The stone retaining walls form protective parapets around the wooden deck that surrounds the main floor. The lower bedroom level is seen on the downhill side at far left. Plans of the 5,000-square-foot house (below) show elaborate storage and service areas on the lower level. Each bedroom has its own outside entrance, and the master bedroom suite was designed to function as an independent apartment.







Storage walls of standard door height divide the upstairs into dining, kitchen, and living areas. The slot in the floor just inside the glass supplies a screen of warm air around the perimeter of the living area. The system is convertible to air conditioning. Living area (below) is centered on a long fireplace wall. All built-in cabinets are painted white or faced with walnut. Floors are a wood mosaic of oak blocks, and the ceilings are finished with cypress boards that help absorb sound.





Spectacular vistas from the living area include the Essex River with its yacht basin, Plum Island, and Long Island Sound. The rail at door height which divides the glass walls helps also to establish the domestic scale of the pavilion. Wooden decks, 10 feet wide (right) which surround the pavilion on three sides, are sheltered by deep roof overhangs. The roof soffits are lit up at night by outdoor fixtures. This system eliminates interior reflections in the glass. ARCHITECT: Ulrich Franzen. GENERAL CONTRACTOR: Wilfred Sevigny.



Three ace schools for

the Trump plan

Education's reorganization man writes the program for producing better students with fewer teachers, and three top architects come up with schools to do the job.

"My job," says Dr. J. Lloyd Trump with a gentle smile, "has really been one of organization. I have put into order concepts which are logical, but which no one had taken the time to organize." With this calm explanation, a mild but unusually articulate educator has placed a hefty charge of explosives under the self-contented, selfcontained classroom structure of American public school society, that concept of American education which has decreed for generations that American children shall come up through secondary school in orderly groups, like wheat fields growing through the summer to harvest time, graduation, each field tilled equally by its own equal farmhand school teacher-the wheat and chaff perhaps to be processed and packaged more individually in college.

Dr. Trump does not feel this is the way education can meet its challenge of shortages, and in preparing an alternate approach through reorganizing high schools, he has primed conventional American schoolhouse construction for exploding. The educator's charge of dynamite was contained in a report published by the Ford Foundation-supported Commission on the Experimental Study of the Utilization of the Staff in the Secondary School ("The productivity push in schools," FORUM, Nov. '59) and last October another branch of the Ford Foundation. the Educational Facilities Laboratories, called together a quorum of experienced school architects and other specialists at the University of Michigan to try to establish which direction the explosion might carry.

Trump's report outlines, to quote the author's own disarming description, "simply a way to save teachers' hours. A good part of classroom time is usually spent in lecturing four or five different classes of 30 pupils on the same subject, right?—when the logical thing to do obviously is to have one teacher demonstrate to 100 or so pupils at the same time. And a class of 30 pupils is, of course, too large for effective discussion. So the logical thing is to have small seminar sections of 12 or so pupils for that."

Four specific proposals occur in Dr. Trump's prescription: 1) big lecture rooms for "100 or so"; 2) private study booths where pupils could get off by themselves and work, alone, possibly aided by such instructors as tape recordings; 3) seminars for "12 or so"; and 4) the usual classroom. The implication clearly is that the more resourceful and responsible the scholar, the faster his progress—thus opening up the curriculum to fast learners.

What does this do to the conventional school design? "Not much, it just outmodes the classroom, that's all," commented one of the participants in the Ann Arbor conference. "The pupils are either studying alone, or in groups of about six, or in bunches of a hundred. The old classroom pattern simply does not fit. You can still use the boys' and girls' rooms, maybe, but most other parts of the plan are shot."

Ten renowned school architects convened in Ann Arbor to discuss this challenge,* most of whom had paired with equally outstanding school administrators. Each had been paid \$1,000 for study time on the Trump report prior to the meeting, and each presented his ideas on the report in one or another form. Several had gone so far as to diagram architectural solutions to the implications of the Trump report, and on the following eight pages, FORUM explores two interpretations, first that of Charles Colbert, then Donald Barthelme's. The two differ in that Col-



DR. J. LLOYD TRUMP

bert's is a comparatively restrained. although thorough translation of Trump's ideas into practical terms of an educational building accepted as feasible for construction at once by Colbert's educational collaborator and client, Roland Nelson, of New Orleans, Barthelme's design is not intended for any specific client, and projects Trump's ideas into architectural terms toward tomorrow. Neither is intended as a finished design, the architects both are quick to qualify. They are offered to stimulate the thinking of some 10,000 other architectural firms in the country who design schoolhouses, and who also may soon be faced with the prospect of cutting patterns to the revised Trump curriculum.+ To complete the treatment, a scheme by Mario Ciampi is shown on page 128 for revising one of his flexibly designed schools to be an accommodating host for the new educational pattern.

^{*}Donald Barthelme; Charles W. Brubaker of Perkins & Will; William W. Caudill of Caudill, Rowlett & Scott; Charles R. Colbert of Colbert, Lowrey, Hess, Boudreaux; Phillip J. Daniel of Daniel, Mann, Johnson & Mendenhall; John C. Harkness of The Architects Collaborative; Samuel E. Homsey of Victorine & Samuel Homsey; John W. McLeod of McLeod & Ferrara; John Lyon Reid of Reid, Rockwell, Banwell & Tarics; and Eberle M. Smith. †Complete notes on the Ann Arbor rehearsal will be

Complete notes on the Ann Arbor rehearsal will be published by the Educational Facilities Laboratories later in the year.

Colbert's school answers Trump with an updated central library, big rooms, smaller rooms and booths.

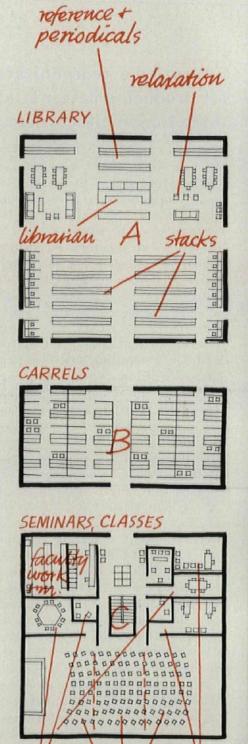
Architect Charles R. Colbert's interpretation of the Trump report into threedimensional environment (evolved with the assistance of Educator Roland Nelson, headmaster of the Metairie Park Country Day School in New Orleans) splits the curriculum-and the building -into three divisions in plan: sciencemath, humanities-social studies, and language. Each of these is to be under the leadership of a department head or senior teacher assisted by a staff including associate teachers, interns, and nonprofessional assistants or clerks-in accord with Dr. Trump's heretical rehashing of the traditional equality system for all teachers. A fourth division of the plan houses administrative and specialist teaching services.

Colbert calls the entire school—with its academic, social, and project areas —a "perception core." However, it is in the architectural plan of each teaching wing that the division of the pupils' seven-hour day is best diagrammed. At the center of the school is the library which has stacks, browsing areas and some mechanized devices. Each of the three teaching wings contains banks of booths, or carrels, into which pupils can disappear for intense comparatively private study. These are in effect study halls with but two desks each.

Separated from the school library and its surrounding hive of carrels by a physical break in the building, bridged by an outdoor sheltered walkway, is a flexible area broken up into spaces housing the various-sized groupings found to work most efficiently in each subject, ranging from offices and seminar spaces to full-scale lecture rooms, including some conventionally sized 25 to 30 student classrooms. The amount of time each pupil in this emphatically college-preparatory high school would spend in each space would vary depending upon his capability and impatience to learn. Colbert and Nelson anticipate that a "capable student, mature and able to carry out individual activities." might live in the carrel and perception core for half his 25 weekly academic hours, spend a third of his time in seminar, and divide the rest between conventional class attendance and listening to large group lectures. At the other end of the scale a "student well motivated with limited academic potential" might spend half his week in seminar meetings, only a third working by himself, and the rest sitting beside the advanced student in class and lecture. The more complicated student, "who has given little indication of sufficient maturity to work without supervision, though capable of good academic performance," would spend twice as long as the others in the standard classroom.

Under the outer ends of the wings, which house the most communal, least silent, and therefore most widely separated activities, are project areas, where the pupils will descend to work out group endeavors. Because the school is elevated, these down-to-the-ground rooms (plan, page 122) could be surrounded with areas for the display of completed projects.

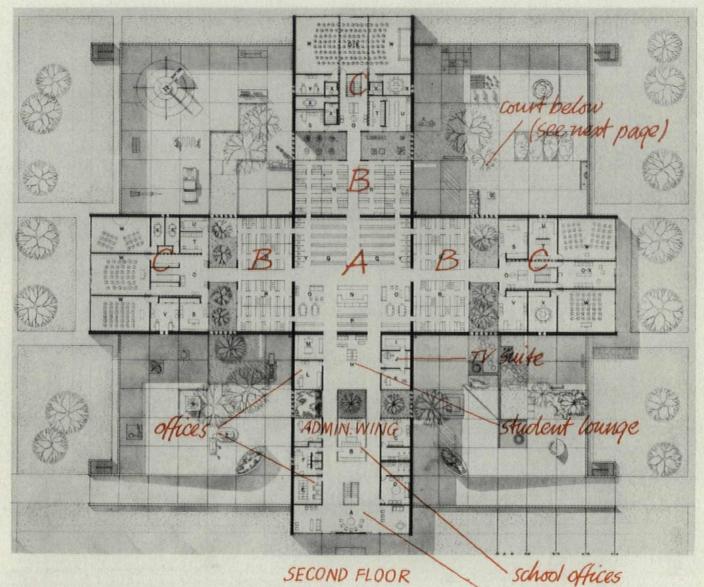
Says Colbert about the architectural character of his scrupulously defined scheme: "Dr. Trump challenged us to create an environment that would lend an ability to learn independently. We hope this building would help develop an inquiring mind, the wish-and the practical possibility-to engage in effective discussion in various-sized groups, the impulse to better relations between people and, most of all, that it might give satisfaction in learning on the part of the learner. We hope it has zest and immediacy, for we think that perceiving is done by associating. Things-including architectural things-are the products of men's minds."



Seminars

lecture of seminars

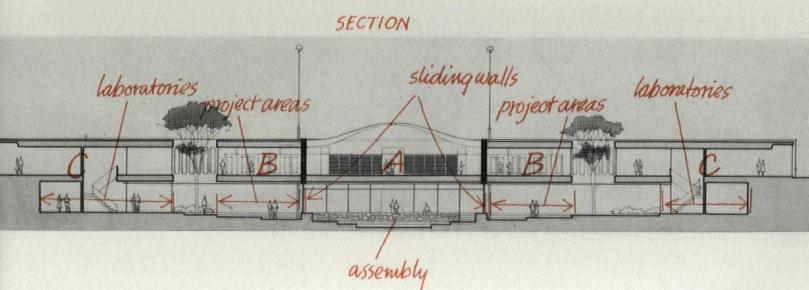
teachers

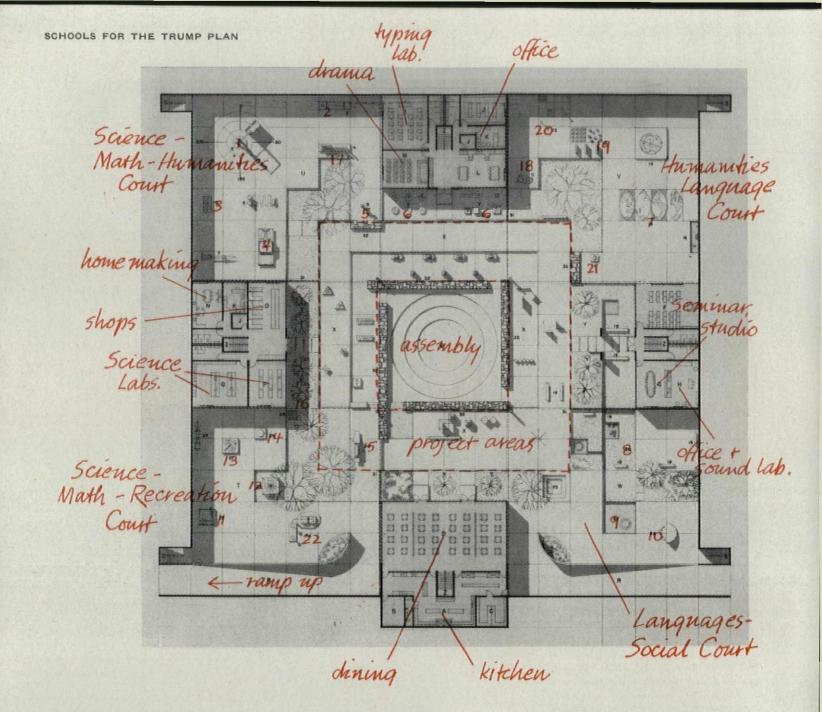


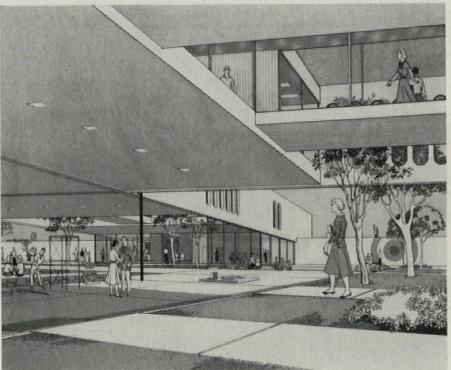
SECOND FLOOR

-lobby

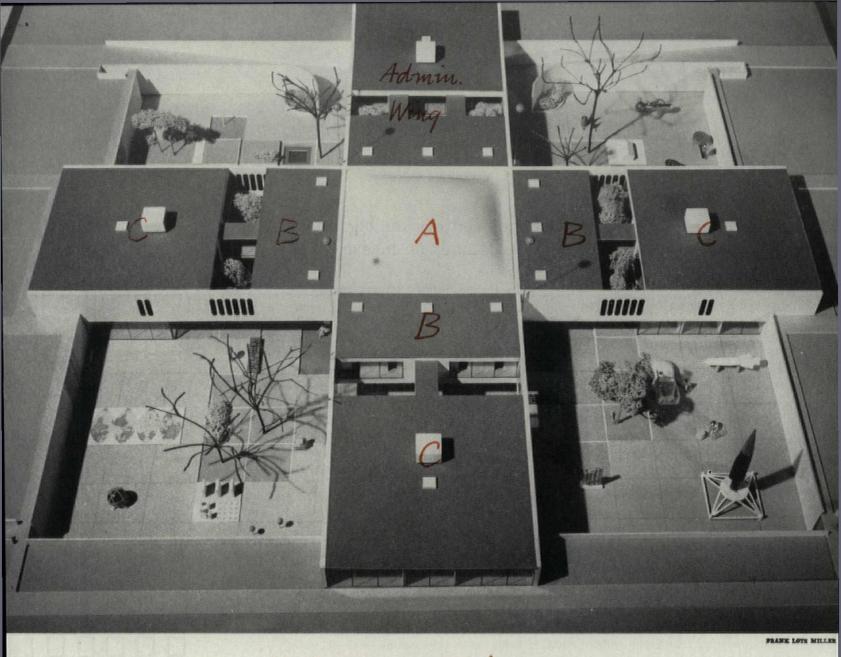
On the top floor of the school (above), suspended over a sunken courtyard, are assembled the components (sketches, left), starting from the central library and growing outward into carrels, then leaping a gap to the groups of other rooms of various sizes. Under each of the latter (see section, below) are the other major components in this teaching system, project areas or laboratories. This school contains less than 118 square feet per student, excluding physical education areas.

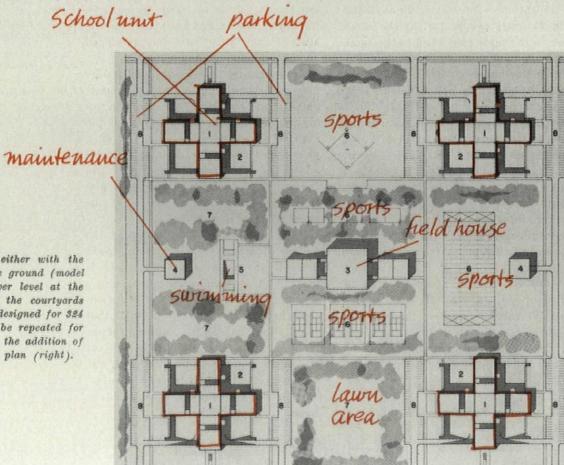






Lower floor of Colbert school is mostly outdoors, except for the dining room and laboratories. In the center of the school, underneath the library, is the assembly space, which can be closed with sliding walls hung from above. Architect Colbert used the outdoor space intensively for social and project display areas and a wide range of educational and esthetic exhibits, including (1) a mock-rocket launching pad, (2) a kiln, (3) a solar-house model, (4) an automobile, (5) tuning forks, (6) a sculptural group, (7) a world map, (8) a cobblestone court, (9) a sunken jet pool, (10) an audio shell, (11) a steam engine, (12) an animal hutch, (13) a radar screen, (14) a satellite, (15) a jet engine, (16) a specimen pond, (17) resonance pipes, (18) abstract sculpture, (19) an urban density display, (20) an anthropology display, (21) a human brain model, (22) a generator and static machine.





School could be built either with the lower level dug into the ground (model above) or with the lower level at the normal grade line and the courtyards fenced. The basic unit, designed for 324 students, is planned to be repeated for larger high schools with the addition of facilities shown on site plan (right).

Barthelme's stimulating school centers on big study halls where pupils would work "alone" en masse.

Architect Don Barthelme went far beport at the Michigan meeting of architects and educators. ". . . Dr. Trump's committee has pushed a door ajar," he said, "and without apology, we have a truck to drive through it."

This preliminary description was no less than accurate. In his exposition of his school plan he went on to fascinate all and amaze some of the experts attending the conference-and to win Dr. Trump's high approbation.

The Barthelme scheme recognizes no compromises, but pegs all learning to group projects among the high school students, all but rejecting the system of isolated carrels urged by Colbert, by Trump himself, and by most of the other architects. He does allow ample time for individual study, insisting that students should seek knowledge and admitting that group endeavor has its limitations-"we rarely do anything with 25 other people . . . at the same time, in the same place, and in the same way. On the contrary, we generally end up having to go it alone. . . ."

But he provides what amounts to large drafting rooms, "work stations," with individual desks in unpartitioned space as the site of the individual's own place to go it alone. His objective in creating this lonely crowd: to make it easier to leap from isolation back to group study, and to put learning further into the context of use. "I never understood why it was a good idea to learn things in fragments. Few of us have ever met a past participle socially, or passed a quiet evening curled up with a good algebraic equation. We rarely encounter these things isolated from the particular situations in which they are meaningful. What we use in business, or with the family, or with students, is the whole language."

In addition to the work stations,

Barthelme includes seminar rooms and yond merely endorsing the Trump re- Blaboratories plus lecture rooms (op- C posite page), but relatively few carrels. The architect points out that carrels as such would be expensive, and limits his in number to the minimum necessary for holding small conferences or using teaching devices which might disturb the "drafting room" group. He points out: "A little analysis will show that spacewise, supervisionwise, and in an administrative way, the carrels will invite a whole series of new problems. . . ." Barthelme also points out that the method of study in the Trump Plan School of the future might resemble that in use in architectural schools today: assigning problems to the students for their independent solution. Each student "programs his direction and develops his solution. Along the way he is led into diverse fields, gets information with or without theory but at the time he needs it. Theory is not taught until the time the student asks 'why?' and has developed an acute interest in the matter. . . .

> "Preparation, development of source material, correlation of subject matter, vertical and horizontal organization, insight and knowledge, is required of the staff. The teachers are employed on a year-round basis; the summer provides additional time for preparation. And the inherently selective process of raising the teachers to professional status provides the talent."

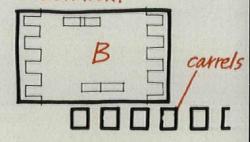
Some educators will question the degree of maturity this process might demand in its students. Barthelme's reply: "The teacher becomes a resource person who possesses information that it is absolutely essential that the student have. The pupil's problem is now to get the information out of the teacher, whereas previously it was the teacher's problem to get the information into the student. And the stage is set for learning."

OFFICES, SEMINARS

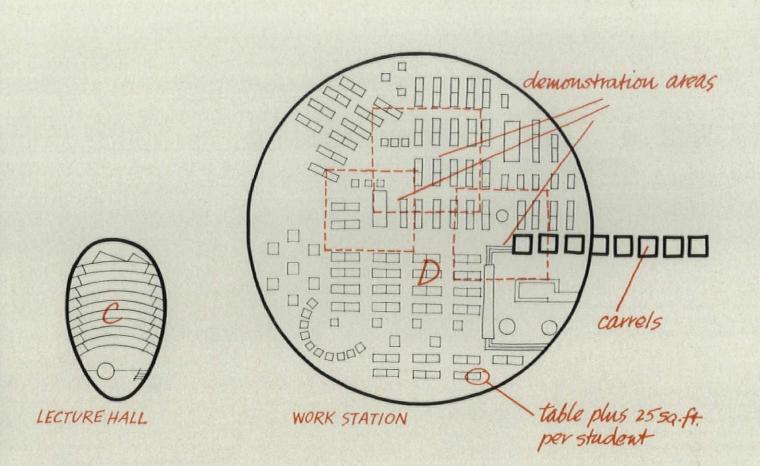


Private offices for top teachers in the Barthelme school serve also as seminar rooms, where as many as eight students may convene comfortably. The tenants of these offices, the "master teachers," would correspond to full professors at the college level.

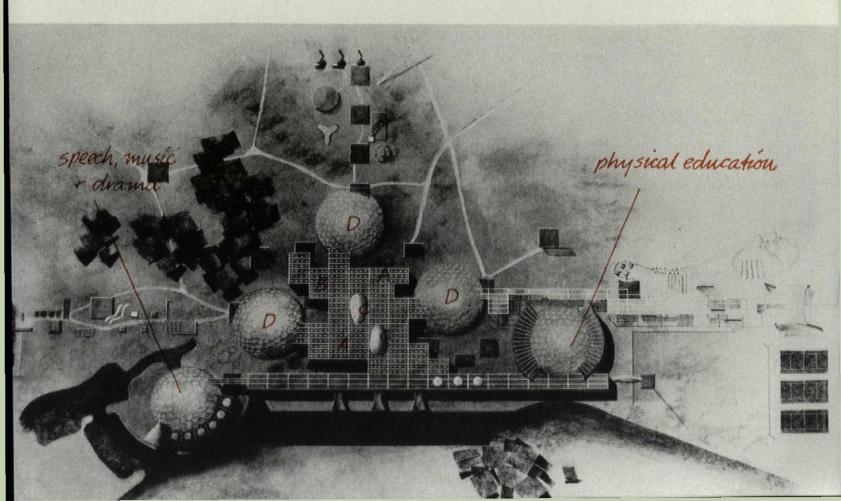
SCIENCE LABORATORY

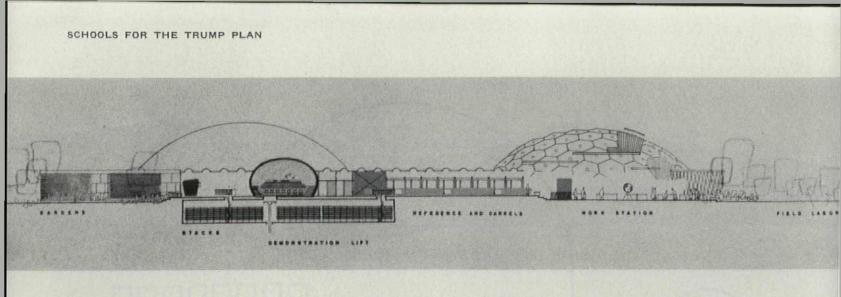


These rooms are provided for the science department, for business courses (with the usual office machinery), and for the domestic sciences. The smaller blocks are carrels used for individual research projects near the science lab.



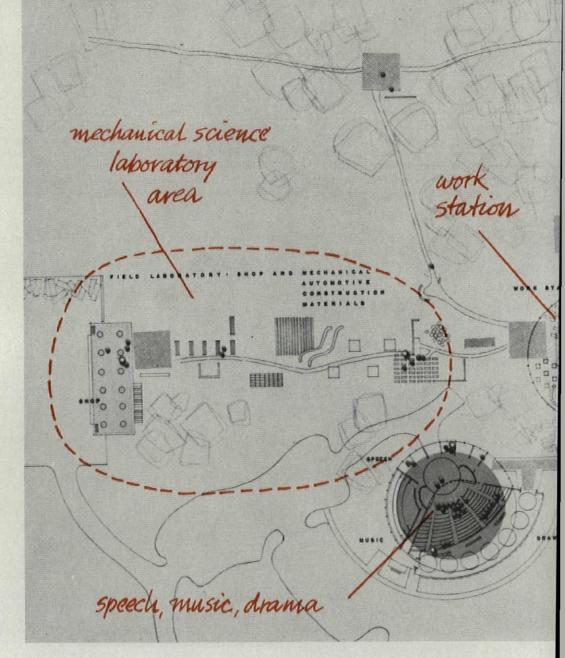
These egg-shaped enclosures are really diminutive auditoriums to seat about 50 students, and will be used not only for lectures or demonstrations, perhaps with audio-visual aids, by the top teachers, but also by visiting experts who are to participate in the instruction. Work stations, under the shelter of widespan domes, will sit 133 students, working separately but as a collective body. The big squares shown on the diagram include demonstration areas. Students would retreat into the nearby carrels to do reference work involving equipment. Grouped components of the whole school are shown below, with the five domes protruding up like golf balls, and the two lecture halls like eggs, all tied together with a flat, skylighted roof. A digrammatic plan is shown on the following two pages.

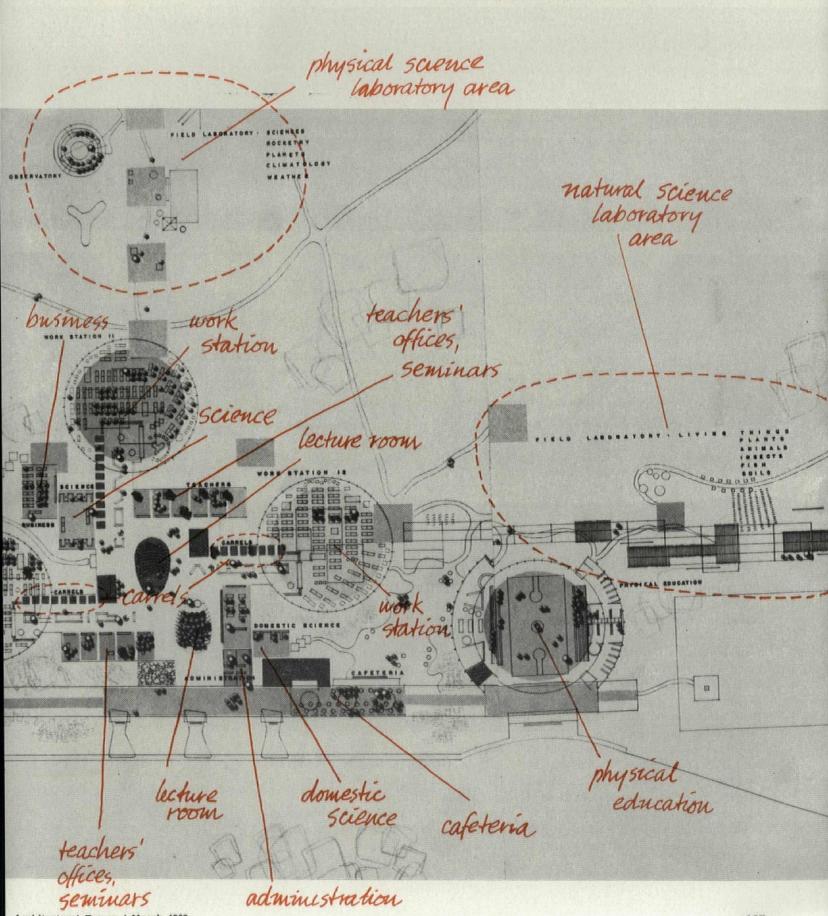




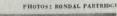
Section (above) through lecture hall and dome work station shows also the submerged stacks and the hydraulic lift system which will be used to elevate demonstrations into the lectures from stack area below.

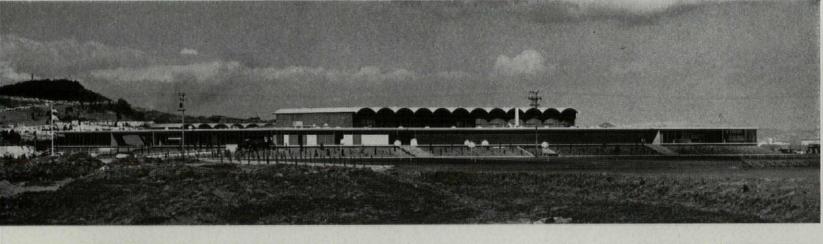
Sprawling school is planned for a 50acre site, and units shown would accommodate an estimated 400 students. Its architect emphasizes that this is not a completed design, but a diagram for a design to follow, and sometimes overtake, Dr. Trump's theories.

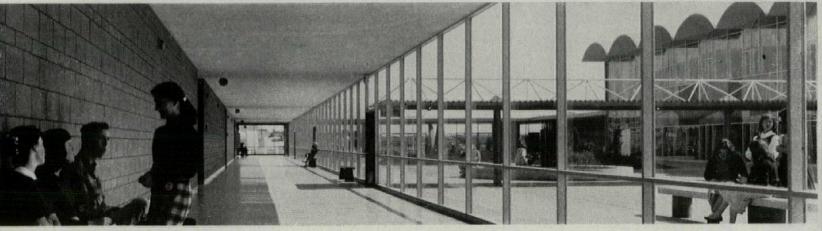




Architectural Forum / March 1960



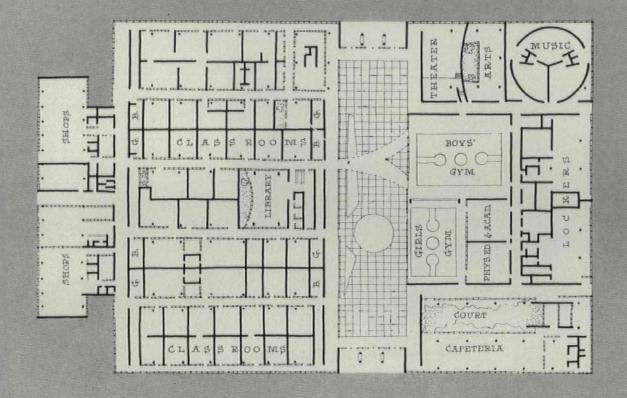


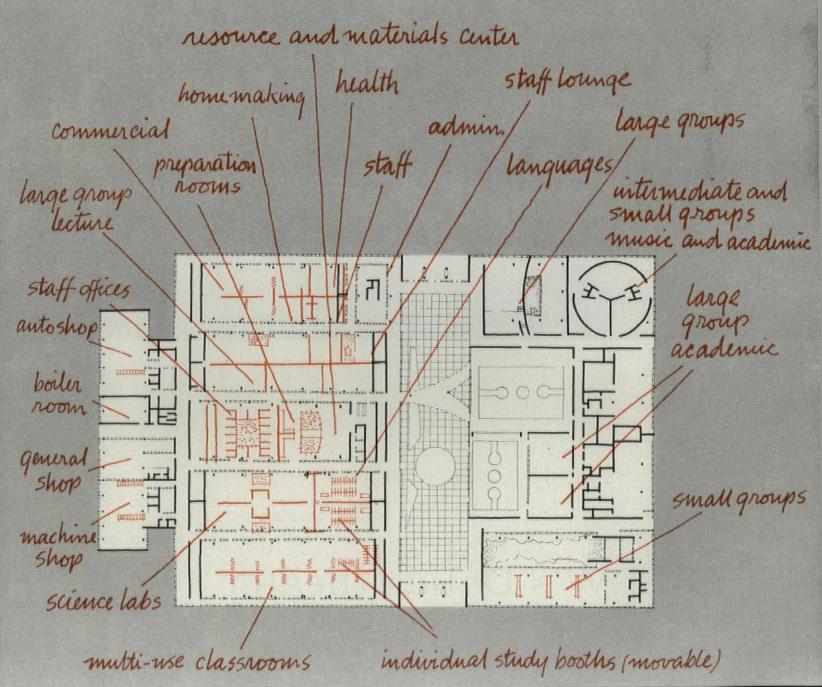


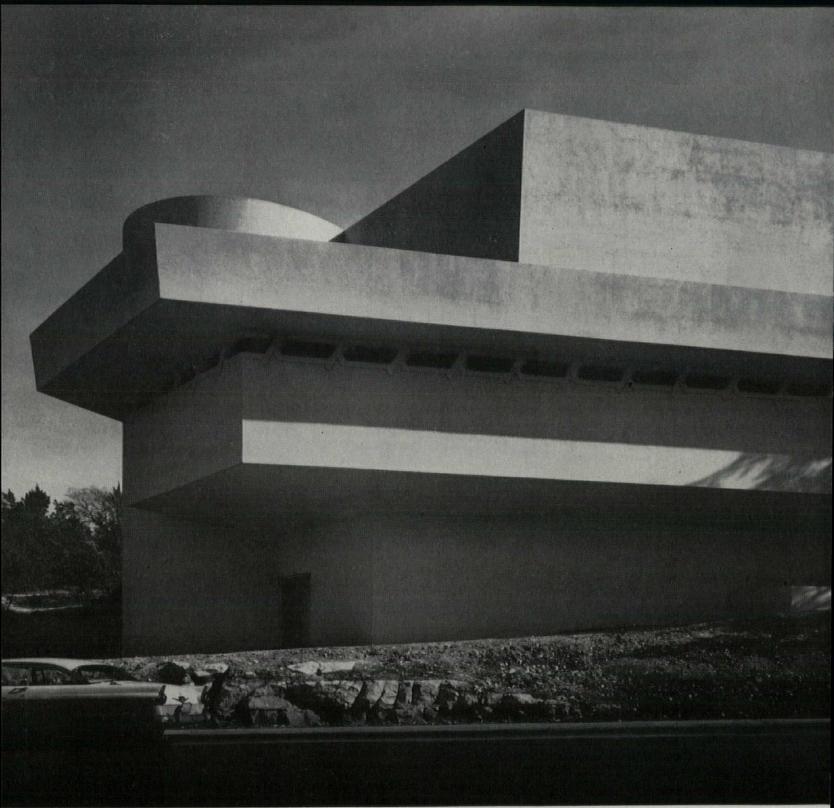
Ciampi's school uses the flexibility of today's loft plan to meet the Trump program—or future programs.

Asked by FORUM to indicate how he would redesign one of his recent loftplan schools to accommodate the demands of the Trump plan, Architect Mario Ciampi rearranged partitions of his Westmoor High School south of San Francisco, and did it with pleasure. "Originally," he said, "we wanted to do this school on an open basis, but as we began to develop preliminary plans there was some criticism, so the result became more conventional." Ciampi had the collaboration of Educators R. C. Schneider and Robert B. Moore of the School Planning Laboratory at Stanford University in programming the transformation of the space.

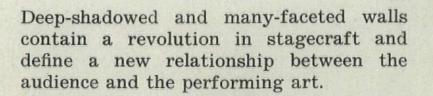
The private study cubicle is the nucleus of this conversion, and Ciampi would make these from movable, eyehigh screens. "The cubicles are the modular unit and can be grouped around to make larger rooms or can be used separately for individual study." The only barrier in the conversion of this loft plan school to Trump's program is the mechanical core. Ciampi wanted to avoid making any structural changes to the school, so he had to design around the utilities. Existing school was planned to be flexible, with a large one-story space for classrooms connected by a sheltered walk to the larger components—gymnasium, cafeteria, etc. On facing page is shown the present plan of classroom wing and the changes which Architect Ciampi would make to house a Trump program.







FLLW's Dallas theater



When a delegation visited Frank Lloyd Wright in 1955 and commissioned him to design the Dallas Theater Center, they had few assets except their own enthusiasm, a rocky 1½-acre site on Turtle Creek, and the services of a director, Paul Baker, head of the drama department at Baylor University. Baker, whose work at Baylor had excited the Dallas group in the first place, had projected a dream of a permanent repertory theater and a graduate school of drama for Dallas. And this dream, persistently fed by Baker and Wright in the four years that followed, proved a formidable asset indeed.

Wright, who loved the theater enough to build three of his own at the Taliesins, had not worked on a commercial house that had actually been built since the Schiller Theater of 1891, the last of Adler and Sullivan's great ones. In fact, except for a few college theaters, precious few houses built since that time had made a fundamental improvement in the U.S. building art. But Wright had worked on a good many theaters that had not been built. Starting with his plans for the abortive Aline Barnsdall Theater in Los Angeles in the late twenties, through the so-called New Theater plan of 1932, to the much-publicized Hartford Theater in 1949, Wright had evolved a basic scheme which he was most anxious to build.

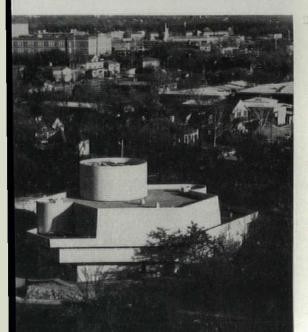
Fundamental to Wright's scheme was the notion that theater should be "in the round." (He may even have coined *that* phrase.) But as the Dallas building took form, it was obvious that Wright did not intend a room where performers were merely surrounded by an audience. Rather, he planned "a simple, workable basis for presenting plays in the round, performers and audience in one room, with staging more like sculpture than like painting."

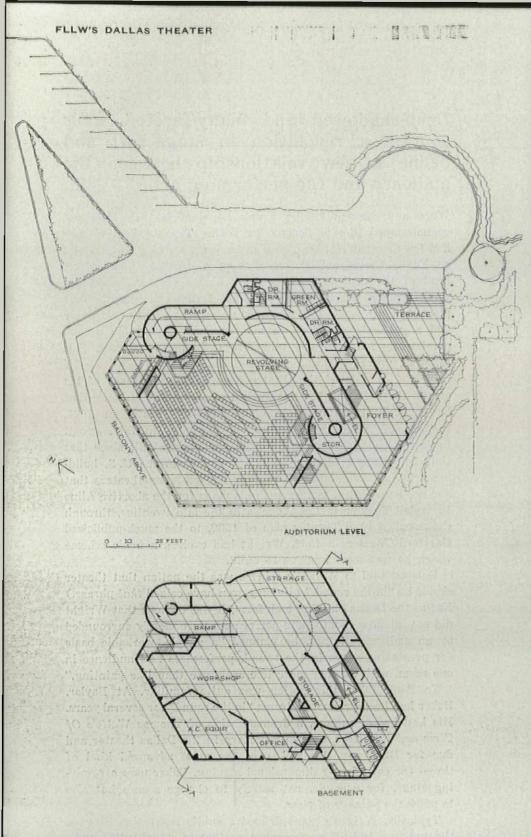
To Paul Baker this notion was quite familiar. At Baylor, Baker had been producing drama "in the round" for several years. His best-known success, a dramatization of Thomas Wolfe's *Of Time and the River*, now in repertory in the Dallas theater and due for Broadway this fall, used the most advanced kind of three- (or even four-) dimensional staging. Baker uses a revolving stage, for example, not merely to change scenes but also to mark the passage of time.

Typically, Wright's plans defined a subtle separation between the audience and the performance, so that in actuality the audience would have a sense of being intimately involved in the performance yet still remain separate enough to contemplate it. Last month, when the theater opened to enthusiastic applause from theater buffs and professionals alike, it was this fine relationship that, more than any other attribute, accounted for the delighted response to the theater as a building.

After the performance, professionals trooped backstage and came away more impressed. Charlton Heston termed it "clearly, the only new theater built in 300 years." But for some, however sympathetic with Heston's enthusiasm they were, the backstage arrangements (which are described more completely on the following pages) somewhat tempered their general enthusiasm. On close inspection, they realized that in reducing the New Theater scheme from a house of 1,000 seats, as projected for Hartford,

PHOTOS: (ABOVE) P. E. CUERRERO; (BELOW) SHEL HERSHORN-BLACK STAR



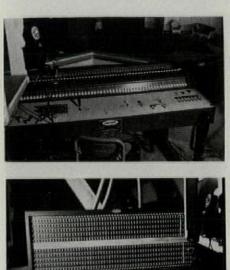




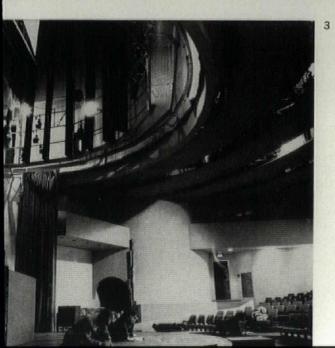
Circular main stage has a 32-foot revolving center section which will be divided into 15 hydraulic lift panels (1). Above the stage is a drum-shaped stagehouse, 40 feet high and 40 feet in diameter. The concrete upper walls, weighing 127 tons, are carried on the curved rear wall of the stage, which doubles as a permanent cyclorama, and on the corners of the walls separating the small side stages from the actor's ramp on stage right and the scenery elevator on stage left.

The 444-seat house banks gently back in three angled tiers to a main promenade (4) at the back of the room. Above is a narrow balcony with one row of seats, which doubles as a lighting balcony. At the rear center of the balcony is a master control room (2) containing equipment (planned by stage expert George Izenour) to operate the 230 possible lighting positions in the house. Three shows can be lit at one time, with controls for any one show activated at the flick of a switch. Similar electronic systems control an elaborate sound system and operate a series of scenery winches (3). 2

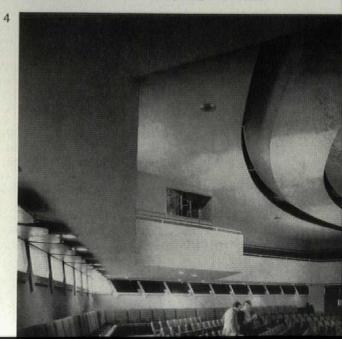
The stage elevator supplants one of Wright's intended ramps. Scenery docks are raised from basement storage by elevator, returned by ramp. The ramp is also used for an emergency auditorium exit and for moving actors on and off stage with dispatch. In addition to providing ample and convenient storage for sets, the basement is used as a workshop.







PROTOSI (ABOVE) ELIOT ELISOFON-LIFE; (OTHERS) P. E. GUERRERO

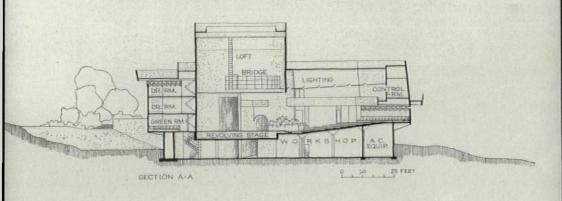


to a 444-seat house, as built in Dallas, and in superimposing the stagehouse (required by stage expert George Izenour's wonderfully automatic scenery-handling equipment) on a stage which Wright had originally thought of as serviced by ramps from below, a somewhat less-than-ideal theater had come about.

Another complaint, that the theater's big stagehouse required the addition of a permanent cyclorama at the back of the stage for structural purposes, bothers Baker not at all. Indeed, this and other features, which impose a degree of rigidity on the staging not contemplated in Wright's original scheme, are being used to stunning effect by Baker's inventive stagecraft.

While general plaudits have come to the building for its interior and technical virtues, the exterior generally mystifies the critics. One, admittedly from Houston, termed the building "an ugly yellow-stucco concrete form with cubes, angular overhangs, and an oversized smokestack circle on top." This harsh judgment was a rather typical layman's reaction to the exterior.

For Frank Lloyd Wright, had he been on hand, the opinion would have merely verified his continued ability to "show them how." The exterior has a powerful and mysterious quantity. Most thoughtful architects are not prepared to pass a final judgment now. As one architect put it: "As architecture, I'd compare the Theater—and the Museum and the Synagogue—to Beethoven's last quartets, if only Beethoven had been on a final triumphal tour while he wrote them."

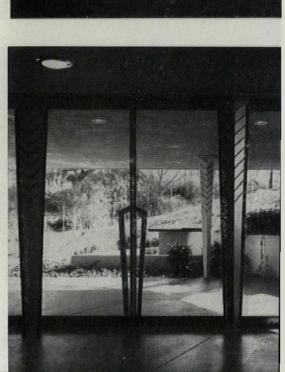


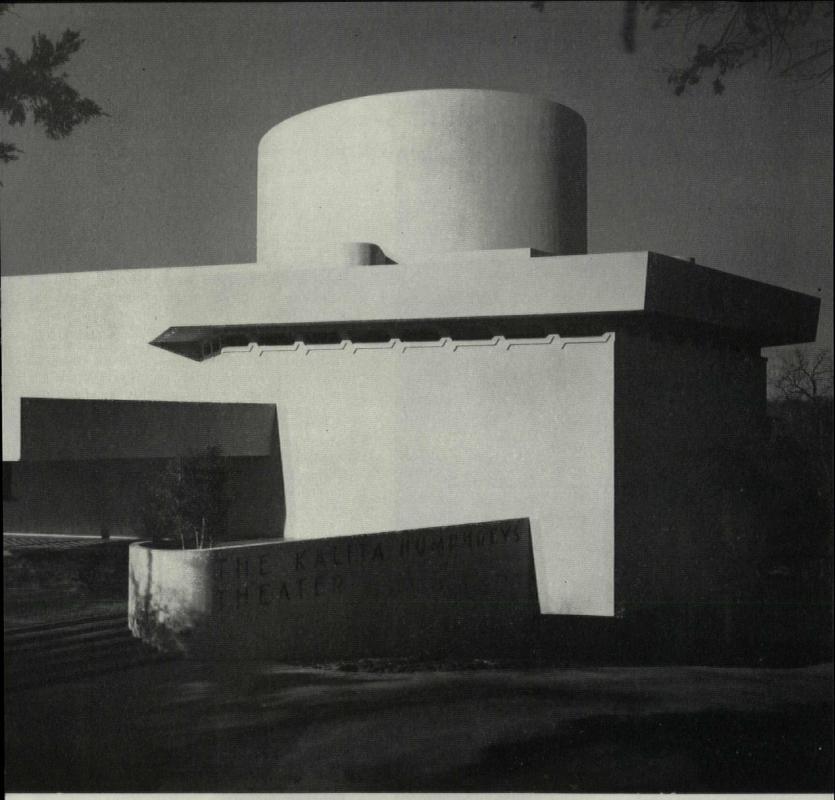
The theater audience, as is characteristic in many other Wright buildings, is brought almost completely around the building before reaching the entrance. From the street, which is widened to provide for parking, the audience climbs to the rear of the site on a ramp which can be used for cars, if necessary. At the top gentle steps lead beyond to a terrace (1) built against the slope, planted as a garden and fitted with a small fountain. Specially detailed entrance doors (2) open to a low-ceiling (8-foot) lobby banked with continuous seats under high windows (3). The circuitous approach is a piece of low-key drama itself, preparing the audience for the high drama within the auditorium itself.

The cost of the 31,188 square-foot theater building, including architect's fee but excluding furnishings and equipment, was \$840,000, or \$26 a square foot. House furnishings and seating cost \$23,200. The revolving stage, sound and lighting equipmet, and scenery winches cost \$63,000.

2

THE KALITA HUMPHREYS THEATER, Dallas Theater Center, Dallas, Tex. ARCHITECT: Frank Lloyd Wright. LANDSCAPE ABCHI-TECTS: Lambert Landscaping. ELECTRICAL AND CONSULTING MECHANICAL ENGINEERS: Herman Blum Engineers. STAGE, WINCH, AND LIGHTING CONTROL MECHANISMS: George Izenour. STAGE ENGINEERS: Macton Machinery Co. GENERAL CONTRACTOR: Henry C. Beck Co.

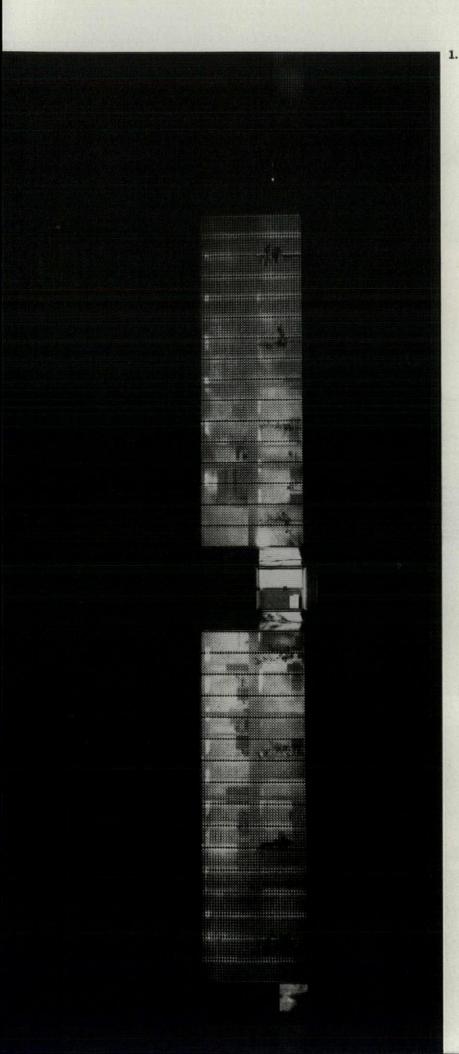




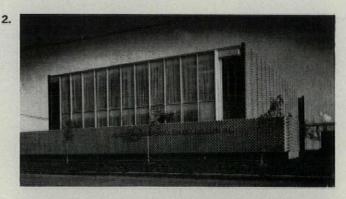
PHOTOS: P. E CUERRERO



Grille for engineers



Not all of today's exuberant experiments with architectural lacework are entirely warranted by function, nor entirely successful in design. The sun-screen façade of Pipe Line Technologists, Inc.'s new office headquarters in Houston, however, earns its keep, and is an unpretentiously good-looking solution to boot. Forced by a shallow corner lot to line up windows facing hot Texas sun on east and west, Architects Neuhaus & Taylor devised two-story panels of 6-inch white octagonal conduit pipe (a not inappropriate trade-mark) set in galvanized steel "I" sections 4 feet out from the walls (2, 3). Keeping sun out of interiors, the \$7,500 screening reduced air-conditioning installation costs \$5,250 (from 50 to 40 tons), permitted less expensive weathertight curtain walls, and by cutting operating costs \$300 a year, more than pay for themselves. Lightly frosted glass for office windows combines with the grille to screen out undistinguished views and to give the façade a strikingly soft, lacy quality at night (1). The north end wall is clear glass (2). The building, which houses engineers specializing in oil and gas lines, won a first honor award from the Texas Society of Architects. Engineers: Ernest Vogt (structural), Gerold L. Davis and Joe E. Lee (mechanical). Contractor: Linbeck Construction Co.





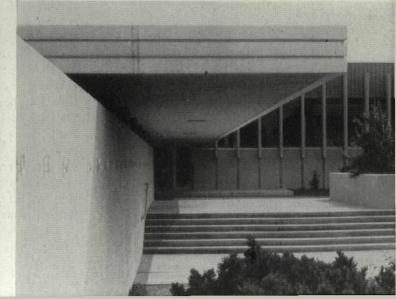
Invitation to research

Not far from Route 128, Boston's much-publicized "Electronics Highway," the new RCA Missile Electronics and Controls laboratory in Burlington, Mass. lures its quota of top scientists and engineers with unusually quiet, handsome surroundings. Instead of trying to express "electronics" in some shiny, futuristic fashion, Architect Malcolm Wells chose to merge his design with a highly worthy site. The long, gentle planes of the New England countryside are emphasized in an extended entrance canopy, in massive retaining walls holding the composition to the slope, and in steps spilling gracefully around a corner (1, 3). Plain concrete walls echo the muted

1.

white of nearby birch forests; the aluminum siding above windows is the soft gray-green of surrounding pines and fields. For pattern, the long, factorylike front is punctuated with slim, precast concrete fins (2), which take the place of Venetian blinds and keep sun out of interiors carefully sealed and air conditioned for delicate research. Construction cost of the 130,000-square-foot building came to \$2.7 million, or \$20.60 per square foot, well in line with equally complex laboratory jobs of far less architectural appeal. Engineers: Paul P. Kopf (mechanical), Louis T. Klauder & Associates (electrical). General contractor: Turner Construction Co.





To rent or to own?

BY STEPHEN G. THOMPSON

Any business or industry that must occupy a substantial amount of building space can muster sound arguments in favor of both renting and owning. Proponents of each type of occupancy have strong opinions on the subject, and sometimes they advance the same arguments for their different points of view.

For instance, a Chrysler Corp. official claims that "in addition to favorable financial considerations, ownership allows greater flexibility in improving, altering, or expanding according to changing requirements. In a highly competitive business it is important to be unrestricted when such changes become necessary. Another factor is the high cost of moving from a leased facility; it is always expensive and at times prohibitive. Less than 2 per cent of total space occupied by Chrysler (exclusive of government-owned facilities) is leased property."

On the other side of the argument, an officer of the giant Du Pont organization uses almost the same words to explain why his company rents almost all its office, warehouse, and nonproduction facilities: "Compared with ownership, renting permits greater ease of expanding or contracting as business conditions dictate. Another factor is obsolescence, although this may be a part of flexibility. If a location becomes obsolete-if, for instance, the customers move away-the particular activity can be moved to another location more readily than if the building were owned."

When it comes to production facilities and plant sites, which account for the bulk of its space requirements, Du Pont joins Chrysler in advocating ownership—but for an entirely different set of reasons. By the very nature of the chemical business, it is not feasible for Du Pont to rent the sort of space it must have for special-purpose manufacturing and research. For other types of production facilities and plant sites, Du Pont favors ownership for reasons of over-all control of the site, labor relations, and simplification of financial aspects, such as taxes.

If companies of the stature of Chrysler and Du Pont cannot agree on the economics of owning vs. renting, what are less experienced companies to conclude? For one thing, they may conclude quite rightly that there is no easy answer. Of course, the new, marginal, or struggling companies are forced to rent, but for those that have a choice, it can only be based on a careful analysis of many factors, the most important of which are these:

▶ Rate of return on invested capital, or the relative profit volume the company can earn by putting its capital in building ownership or by spending it to expand its markets, its research, and its inventories.

Capital reserves and borrowing capacity, which have considerable effect on the financing cost of ownership.

▶ Tax benefits that often can be achieved under the depreciation allowance rules that apply to the ownership of buildings.

▶ Prestige, public relations, and advertising benefits that may accrue to a company as the owner of a landmark building or one of outstanding architectural design.

Rate of return

To a company's treasurer or comptroller, a primary objective is always the most effective use of its capital. To him, one measure of financial success is the rate of earnings on invested capital. A company that already enjoys a high rate of return is less likely to be tempted into real estate investment than one with a lower earnings-toinvestment ratio. For example, last spring a New York realtor submitted

The decision is not easy, but most companies with relatively low profit margins find that it pays to be their own landlords—particularly in the field of office building.

to officials of American Home Products Corp. a detailed proposal based on the advantages of building, rather than renting, a new headquarters office building. Several months later the company announced that it had signed a longterm lease to rent an entire new building. For the realtor there was consolation in the realization that probably no one could have persuaded American Home Products to make a large capital investment in a new building at present, because this company ranks highest among the nation's 500 biggest corporations in terms of return on invested capital. (According to FORTUNE, its rate of return was 33.5 per cent in 1958.) Such companies have little incentive to invest in real estate, as long as they are able to earn much greater returns on their capital by investing it in expansion of their main lines of endeavor and concentrating their entire energies and resources in the fields in which they feel they have their greatest skills and efficiency. Moreover, proponents of renting often cite the fact that mortgage debt always shows as a debit on a company's financial statement, while the same is not generally true of future rent obligations on a long-term lease. As the result of the renting company's better statement, it can borrow more easily for expansion or other purposes.

Among the large but less volatile commercial and industrial organizations, which traditionally earn more modest and usually more consistent returns on their invested capital, the number that build or own their own structures is large. Of the first ten companies on FORUM'S 1959 list of the nation's biggest building clients, all ten had 1958 after-tax profit margins below 15 per cent. One of them (Chrysler) actually recorded a loss for the year. The other nine reported profit margins ranging from 8 to 15 per cent: American Telephone & Telegraph, 8.3 per cent; Western Electric, 9.7 per cent; General Motors, 12.6 per cent; Union Carbide, 14.5 per cent; General Dynamics, 13.4 per cent; Du Pont, 13.7 per cent; Anaconda, 3.8 per cent; Rock-Time (in which Time Inc.—9.7 per cent —is a partner); and Southland Life (data not available).

Thus, this over-all pattern seems to indicate that there are attractive real estate "profits" that a company can earn, or save, by owning its own quarters. To some companies, these profits are so attractive that they build not only enough space to take care of their own present needs but also, in the case of office buildings, extra space for rent to others, as a source of supplementary income and a hedge against future need for contiguous space for their own operations.

In addition, building or owning has special advantages to offer a firm that has large reserves and a high credit rating. In this situation the net aftertax real estate profit that can accrue to the company will almost certainly exceed the net after-tax rate it could earn from any other type of conventional investment of its surpluses. Such a company also may be able to obtain a mortgage at a lower interest rate than the building owner who might be its landlord, and in that case such a company would make an even greater return, or saving, by building or owning its own quarters. Should the need arise, a company can also use its building to raise money by refinancing it with a larger mortgage, or by a sale-and-leaseback transaction that would allow it to recapture practically its entire equity.

Depreciation magic

Probably the greatest advantage of ownership over renting for many companies lies in the intricacies of the depreciation allowance that can be taken on real estate before calculating federal taxes. When the maximum benefits are obtained, depreciation tax rules in effect will permit a company to build or buy its quarters (excluding land) for only 48 per cent of their actual cost, or, in other cases, give the company what amounts to tax exemption on substantial portions of the profits it has earned through its main nonreal estate activities.

The most effective way to dramatize the value of depreciation benefits in paying for a building is to project what would occur if the entire depreciation allowance were telescoped into one year (the fact that it must be taken over an extended period of years does not alter the principle). Assuming that a company that rents its quarters had a \$25 million reserve and earned \$10 million before federal taxes, or \$4.8 million after taxes, its reserves at the end of the year would have increased to \$29.8 million. If, instead, it paid \$5 million out of its reserves to erect or buy a new building and for tax purposes was allowed the full depreciation of \$5 million the same year, its net income after federal taxes would increase to \$7.4 million, in addition to any other profits or savings that might accrue to it as an owner. At the end of the year, on this basis, its reserves would stand at \$27.4 million, or \$2.4 million less than if it had continued as a renter. In return for this \$2.4million reduction, it would own a \$5million building free and clear.

Proponents of renting usually cite the fact that rent payments are fully deductible as expenses, and sometimes encourage those who are unfamiliar with the true nature of tax-depreciation allowances to believe that the cost of building or buying—including mortgage amortization—must be paid for entirely out of precious after-tax income or capital. Actually, the capital cost for erecting or buying a building *is* in *continued on page 218*



Gallery

Water fronts:

bright, breathing edges of a city's life



G. E. KIDDER SMITH

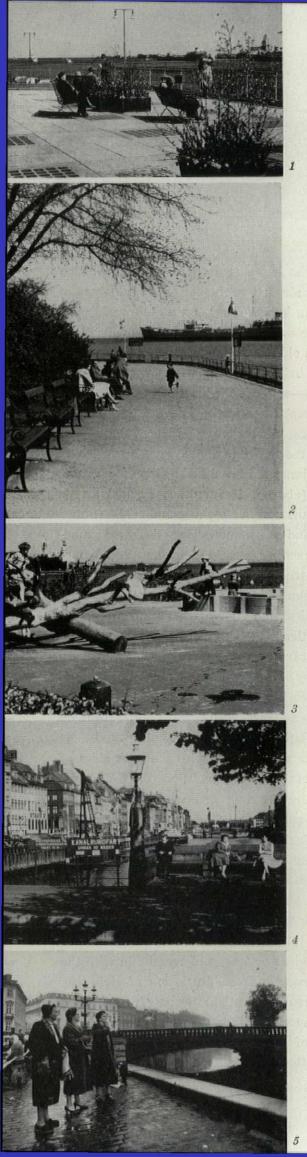
Anyone who has ever stopped to watch a busy harbor, or strolled on the banks of a slowly moving stream, knows some of the infinite fascination of the water's edge. Water-slapping lazily against an old stone wharf, swirling majestically beneath a bridge, dancing with sunshine or distant lights-water is the bright work and delight of most great cities of the world.

In Zurich, for example, water mirrors and magnifies the image of a gray, gay town where cafés overhang the river and sailboats often dot the lake (above). It furnishes Paris with its noblest boulevard (left), a grand river framed by parks and quays and bridges designed grandly to enhance its use. In Volendam and Venice it is both street system and architectural setting; in Stockholm it is half the secret of one of today's loveliest, most lovingly developed cities.

The settlements of Europe, of course, have taken centuries to grow upon the waters to which they owe their life-and to learn to respect them, and cultivate and enjoy them in return. In contrast, many newer cities bent on quick development have all but obliterated their river banks and harbors with the back sides of their industry and the pollution of their waste.

Now, however, many of those cities are entering a second stage of growth. Industry has moved back from the waterfalls and shore; commerce is no longer bound to ships. The dark spinning mills, the shabby dumps and rotting piers, are still there. But gradually they are giving way to more generous new buildings, to parks and promenades where the city dweller can stop to loaf or look, and breathe in with the offshore breeze a fresh dimension of civic life. As they rediscover their water fronts, these cities will surely capture-perhaps even improve on-some of the human patterns and pleasures shown on the following pages.

The Seine: a grand design, enjoyed in many ways. Would Paris be the same without it?

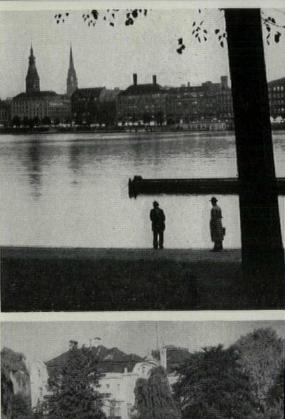


The favorite walk of Copenhageners is Langelinie, a promenade with a lyrical name and an ever changing view. Here sea-loving Danes can sit among flower baskets right on top of busy warehouses, which are daylighted through glass blocks in the pavement (1). Farther on, the broad walk descends into a park, where benches face the harbor traffic and the shipyards across the Sund (2). Along the water front is a playground with a climbing tree (3), and the well-loved statues of the Little Mermaid and the polar bears. Where the Baltic filters into the city itself, it brings with it the activity, and peace, of inner harbors and canals (4, 5).

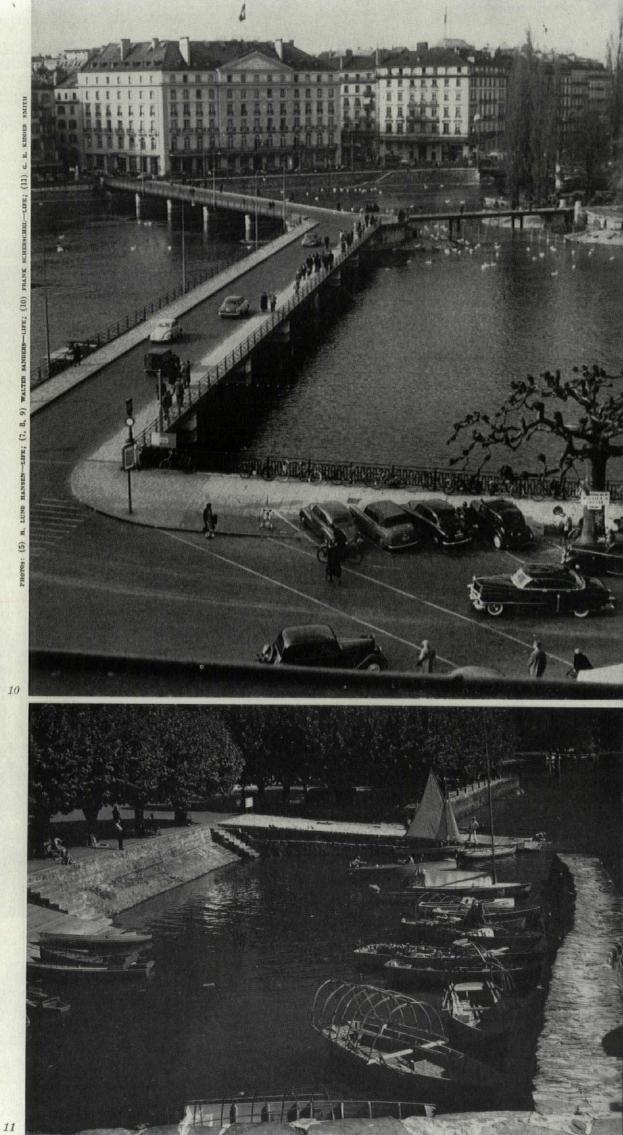
Hamburg, Germany's biggest port, is not so preoccupied with commerce that it cannot please its citizens as well. One of the major shipping lines maintains a balustraded flower park outside its office, a delightful spot for watching the barges moving slowly on the Alster (6). Bordered by parks, a lake created by damming the river gives the city space and sparkle at night (7), enchances its spired silhouette by day (8). Farther out in the suburbs, ferries ply the willow-lined Outer Alster, taking shoppers and workers on a pleasant journey home (9).



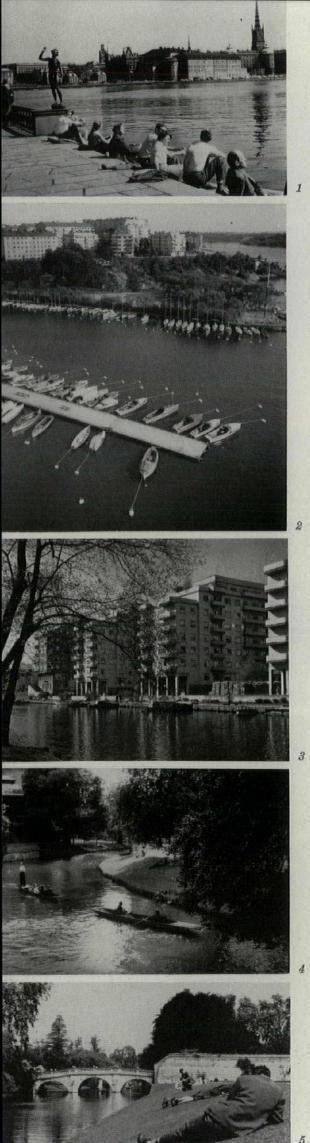




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Where Geneva's lake narrows into the Rhone, the Pont des Bergues elbows elegantly across, detouring to gain a foothold, and a footbridge, on the little Ile Rousseau (10). On Lake Maggiore, a weathered jetty crooks out around fishing boats at Ascona, an old Roman town near Locarno (11).

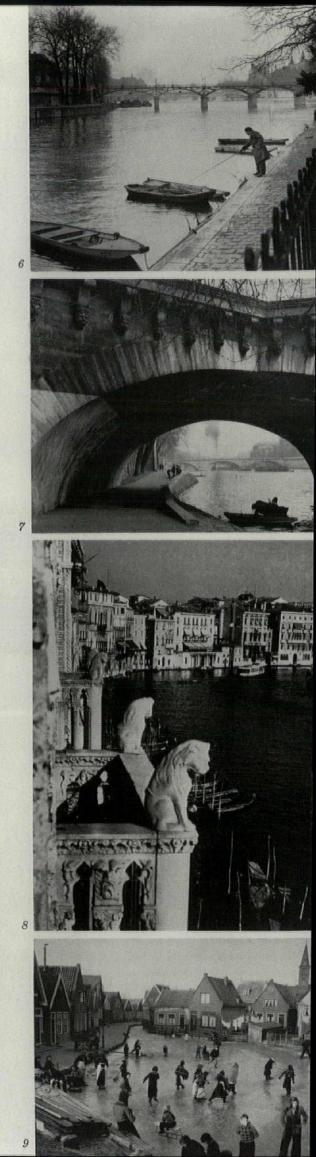


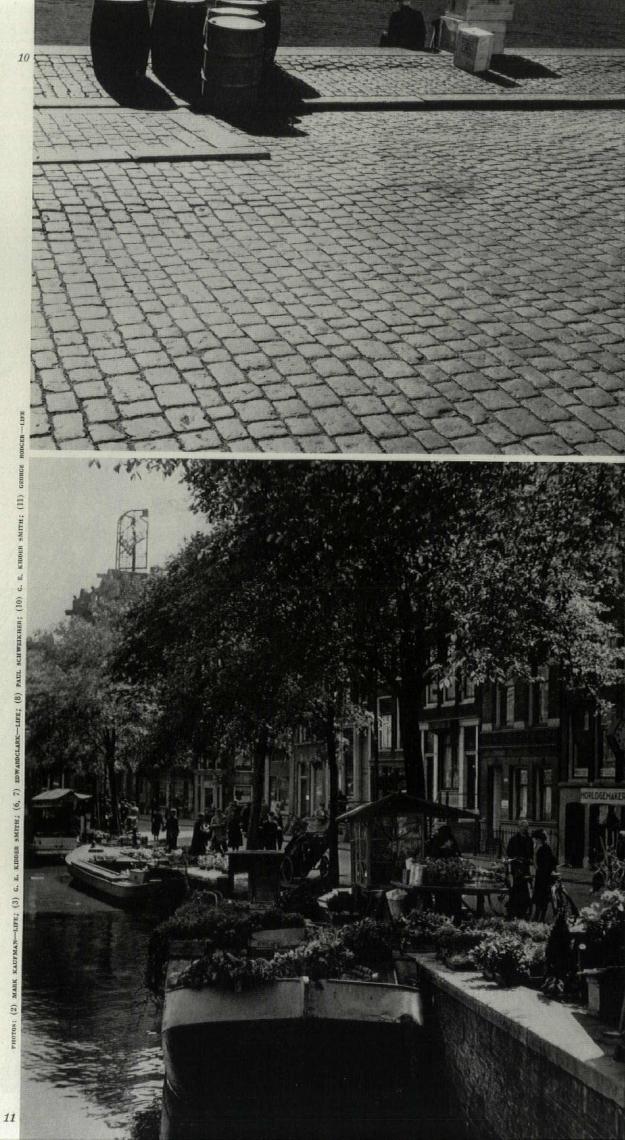
Stockholm: "a city ruled by light, rejoicing in its waters." Downtown, office workers take their noonday sum on the water-front plaza of the celebrated town hall (1). Farther out on Lake Mälaren, apartment dwellers look down on a magnificent view, and a small-boat marina almost at their door (2). Others can motorboat home from work along the quiet waters of the Klara canal (3).

As water tempers climate, so it tempers men. A Parisian, worn thin perhaps by politics or traffic, can always find solitude on the Seine (6). It is a river enjoyed from two levels: the bustling streets and bridges of the city, or the quiet, waterside walks beneath (7).

Smaller cities can cultivate watersides for their leisure, too. In Cambridge, generations of students have punted along the green and pleasant Cam (4), and sprawled on its grassy banks to read, or talk, or sleep (5).

In Venice (8), a whole rich culture rose from water. In Volendam (9), Hans Brinker's protégés still scurry over the frozen canals, themselves frozen for an instant into a scene Breughel painted centuries before.



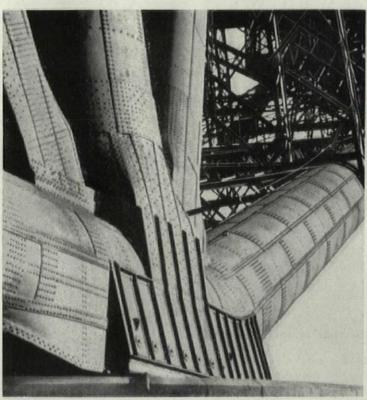


To artists, sight-seers, and other citizens who use their eyes, the water front offers infinite variety and delight: the still patterns of a Stockholm wharf toward evening (10), the shaded flower markets of an Amsterdam canal (11).



The tube goes to work in structure

Pioneered by the great bridge builders of a century ago, and recently refined in its technology, tubular construction is framing a growing number of buildings.



THE TUBE IN HISTORY

Structural strength of tubular construction was demonstrated in nineteenth-century bridge designs, such as the Firth of Forth bridge (above), completed in 1890, and in the tetrahedral tower (left), built by Alexander Graham Bell in 1907.

The bridge is a cantilever type with two long spans of 1,710 feet and two shorter spans of 680 feet. The bottom chords of the cantilever arms are made of tubular sections which were riveted together from steel plates.

Bell's 80-foot tower demonstrated the great strengths to be achieved in a structure composed of many small rods. The tower weighed less than five tons.

Technology

One of the great anomalies of modern building involves the structural use of steel tubing. It has long been known that the tubular form provides outstanding strength in proportion to its size and weight, and in fields other than building, such as furniture, machinery, and automobiles, the tube has been used successfully for a third of a century as a structural element. In bridge construction tubular members were used as far back as 80 years ago, in the Firth of Forth Bridge (photo, left). These were tremendous members, up to 12 feet in diameter, which demonstrated in a dramatic way the compressive strength of tubular forms. And in nature the structure of birds' bones and plant stems (see cover) provide further testimony to the efficiency of the tube.

Despite this evidence, and despite years of intensive investigation by many creative minds, including Alexader Graham Bell whose 1907 tower is shown opposite, the practical application of tubes in building still lags far behind its potential. The only real progress in tubular construction today is being made in Europe. In the U.S., where much of the important research in the field was sponsored, largely under military contract, the development lags 15 or 20 years behind the work of the Europeans, according to the estimates of many engineers.

Structural applications of tubing in the U.S. have thus far been confined pretty much to such things as television towers and radar antennae. In building, most of the uses of the tube have been limited to the pipe column and temporary scaffolding. (Several years ago, the Air Force seriously consideredand sponsored research for-a tubular space-frame hangar-model photo, page 149-designed by Architect Konrad Wachsmann, but the idea has since been dropped in favor of more conventional structures.) In Europe, on the other hand, applications have extended to large arenas, like the sports arena in Bologna, Italy (photo, page 151), and to aircraft hangars and great warehouse buildings. These are mainly the buildings of Tubetal, France's leading tubular design and construction firm, which has completed some 270 projects since it was founded in 1947.

Why have the Europeans advanced beyond the U.S. in this type of construction? The principal reason is that steel is comparatively expensive in Europe and, as a result of this, European architects and engineers have had to develop more economical building techniques, e.g., tubular structures, than the U.S. needs or wants.

The real difference between the European and U.S. approaches to tubular construction stems from the differing ratios of labor costs to material costs on the two continents: As is commonly known, the relatively high cost of materials in Europe has led to one type of design, while the high cost of labor in the U.S. has led us to another type. Of course, this disparity does not mean, necessarily, that a design which was developed in Europe will not find application in the U.S., though it probably does mean that most new ideas in tubular construction are more likely to come from European designers than from Americans.

Indeed, the one American who has violated this probability, R. Buckminster Fuller, illustrates in his work the basic difference between the European and American philosophies of tubular design. The European technique is based on a minimum of metal and metal cost, while Fuller's approach -the American technique-is based on the desire to find an economical solution to a wide variety of structural problems with a single design. While the European designer strives for cost savings by conserving materials, Fuller tries to cut costs by developing standardized parts which are cheap to fabricate, transport, and assemble. Thus a single Fuller space frame or dome, with members of standard sizes, might be used as a roundhouse, theater, or warehouse. Moreover, its appearance would not differ significantly, no matter how its over-all dimensions varied. In Europe, totally different designs would be prepared for these different situations.

The breakthrough

Two technological developments have given impetus to tubular construction. One involves new welding techniques, which make it possible, for example, to connect the total cross section on one tube to another. This results in a more effective transfer of forces within the structure, sometimes yielding a weightsaving of as much as 60 per cent compared with similar structures built of

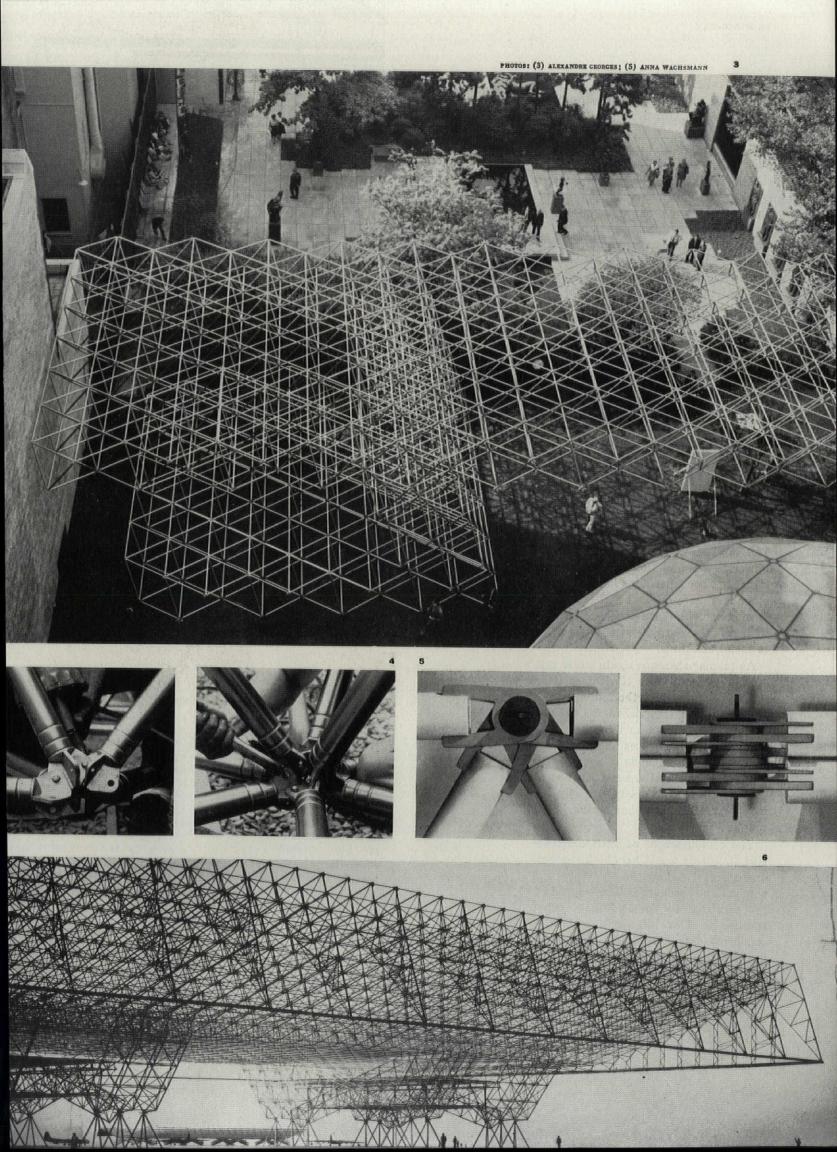




THE TUBE IN THE U.S.

Tubular construction has begun to make headway in the U.S., though not to the same extent as in Europe. Shown above (1) is a shop and warehouse building for Bethlehem Steel, designed with exposed roof trusses made up of pipe sections rather than angles and plates. But a more widespread application of the tube in this country is in such structures as radar antennae; the antenna structure shown here (2), the largest ever built by the U.S .-400 feet wide, 165 feet high-is an element in the Air Force's Ballistic Missile Early Warning System, near Thule, Greenland.

Two of the best-known experiments in tubular design are R. Buckminster Fuller's octet truss (3), and Konrad Wachsmann's "mobilar" hangar (6). Unlike most of the European developments in tubular structures, both of these systems use mechanical jointing techniques, rather than welding. Joints for both are shown in the small photos at right: (4) the octet truss, and (5) the mobilar. Neither of these systems has yet had significant commercial success in American construction.



TECHNOLOGY

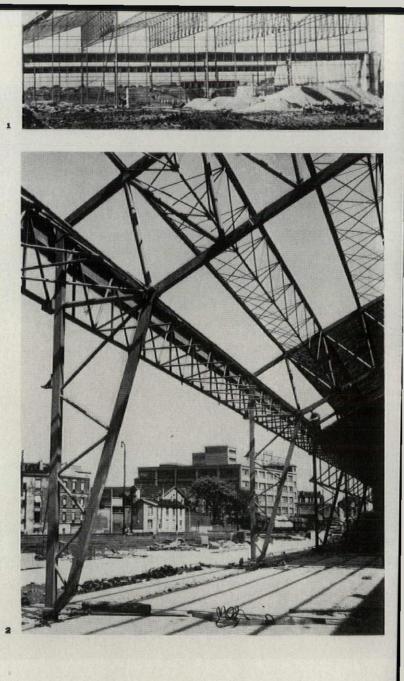
riveted rolled shapes. The other development, still confined to European projects, is a German pipe-cutting machine-the Original-Muller-which allows great savings in tube cutting by making the cuts more quickly and accurately. It eliminates the need for templates, tracings, and the marking of pipe. Pipe is cut in a single operation, after which it is immediately ready for welding. Thus, cost savings of as much as 90 per cent can be achieved in cutting and, because of the accurate preparation of joints, another 30 per cent saving can be achieved in welding time.

Another development which has furthered the broad application of tubular elements in Europe has been the fabrication of an exceptionally wide variety of structural tubes of high quality. In the U.S., on the other hand, the designer does not have this wide selection. Further, virtually all tubing available in the U.S. was designed with other than structural purposes in mind. Some engineers in the U.S. look upon this as a handicap to efficient design. Say A. Quisling and C.M. Cosman of the Welding Research Committee of the Engineering Foundation: "If strictly structural considerations had governed, other and more efficient sections would have come into existence, especially with reference to the ratio of diameter to metal thickness."

As tubular structures gain wider use, of course, these more efficient sections will be produced. Furthermore, specifications will be established for tubular construction as they have been in England and Germany, thus allowing more effective use to be made of them in design. The specifications now in use in the U.S. were developed primarily for rolled structural sections, rather than tubular.

The establishment of such construction standards would help both the producer of tubes and the structural designer. The producer is handicapped by the fact that he does not know what specific kinds of tubes will best meet the demands of building. Meanwhile, the designer must improvise with existing line pipe and other tubular members which were designed for other purposes.

According to Jack G. Bouwkamp, a young engineer from Holland who is doing basic research in tubular struc-

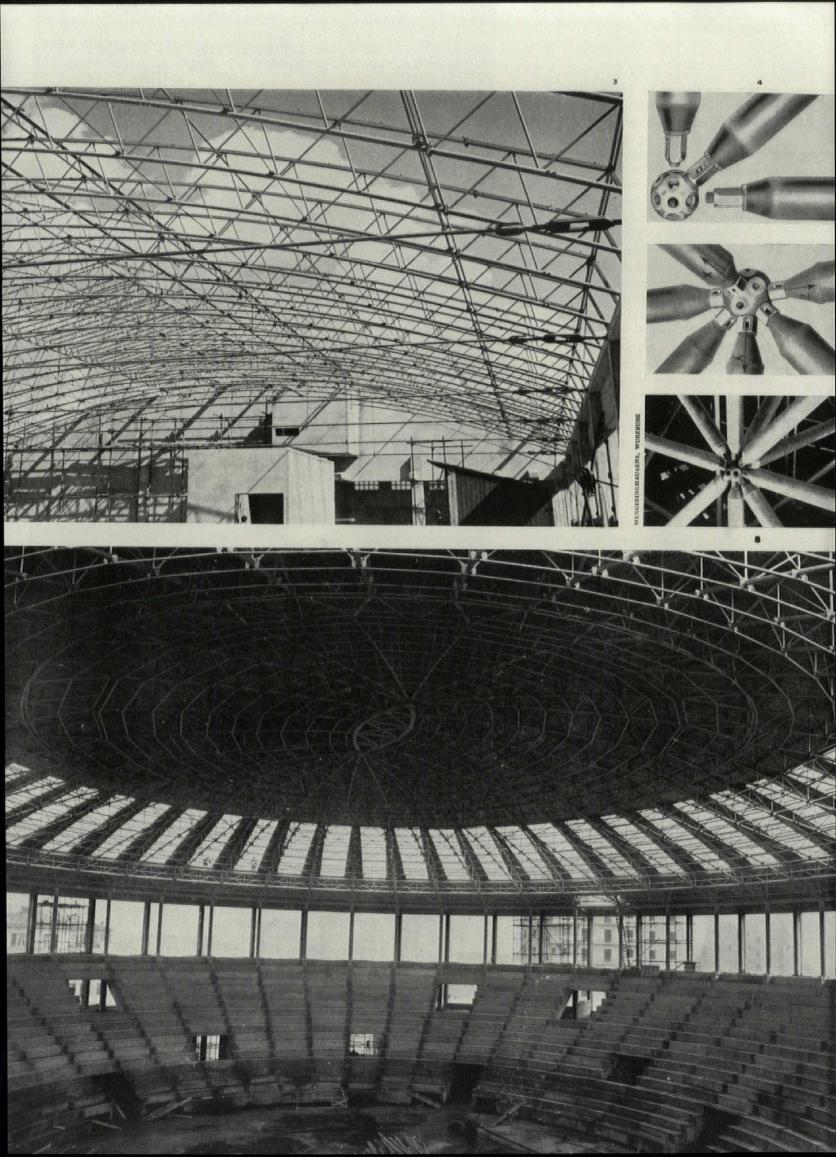


THE TUBE IN EUROPE

Virtually all tubular construction now going on in Europe is formed of welded sections, as in the three French buildings shown here: (1) the atomic energy building, at Saclay, with its 130-foot span; (2) the warehouse building, in Paris—330 feet long, with a clear span of 92 feet; the tubular columns carry the total roof load of the structure; and (3) the Paris Maine-Montparnasse railway station—72 feet wide and 165 feet long.

The sports arena in Bologna, Italy (5) is one of the most spectacular examples of tubular construction: 48 radial trussed arches are the main structural elements of this elliptical arena (its major axis measures 226 feet and its minor axis 204 fect); a steel-pipe compression ring forms the dome's crown and a steel-pipe tension ring circles its perimeter. Each of the 48 arches is supported at its outer end by a steelpipe column.

Perhaps the most notable exception in Europe to the use of welded jointing in tubular design is a system of mechanical jointing developed during World War II by Max Mengeringhausen. This is the well-known Mero system (4), still held by some engineers to be the most exact tubular system yet developed. Unlike most other systems of tubular construction, Mero's advantage is that any single rod can be removed without first removing others. Its disadvantage is its relative high cost. To date, its greatest use has been in scaffoldings and in the erection of temporary structures, e.g., exhibition pavilions. The largest Mero structure yet built was at the West Berlin Interbau Exposition, in 1957; this building was 170 feet wide, 336 feet long.



tures at the University of California's Structural Materials Laboratory, one of the most pressing problems still to be solved in the technology of tubular construction is that of determining the maximum allowable ratio of tube thickness to tube diameter (wall thickness to outer diameter) for tubes connected by welding. Another, says Bouwkamp, is to determine the maximum allowable "D/d" ratio—the ratio of outer diameter to inner diameter. He is probing these and other problems under a research program sponsored by two major U.S. oil companies.

Through developments coming out of other research programs, mainly in Europe, the use of tubular members has extended in the past ten years to roof trusses and trussed frames, and also to giant crane booms, oil-drilling towers, and offshore drilling platforms. Most of these developments have resulted from refinements in welding which has a number of advantages over other jointing methods: 1) being a continuous connection, the welded joint provides excellent resistance to compression and torsion; 2) if properly done, it seals the pipe, assuring long resistance to interior corrosion; 3) when subjected to fire, a welded tube builds up internal pressure which results in an increased resistance to deflection.

The strength of the tube

The relative merits of tubular sections as structural members depend upon the types of stress to which they are subjected. For example, tubular sections do not possess high bending strength and, thus, are not as suitable for beams as, say, rolled and channel sections. On the other hand, tubes possess excellent compressive properties (as the early bridge builders knew), superior to rolled sections of similar weight. This superiority is due to the tubular shape, which is proportionately much stiffer against local buckling. Similarly, the tubular section is ideal for resisting torsion, while rolled sections are markedly inefficient in this respect. Other advantages of tubular materials include the ability of a tubular section to serve a dual purpose (e.g., a structural function as well as that of serving as conduit), and the tendency of a tube to shed water more easily than a section of another shape.

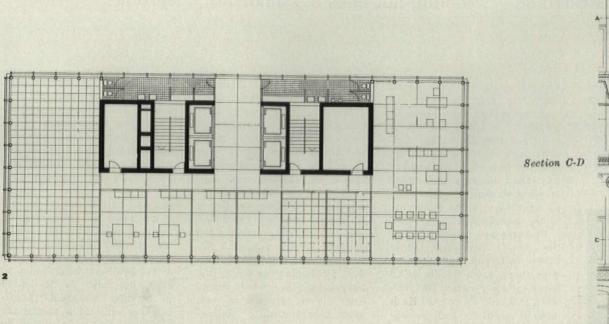
However, these advantages alone will continued on page 228

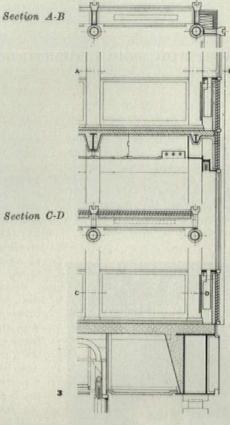


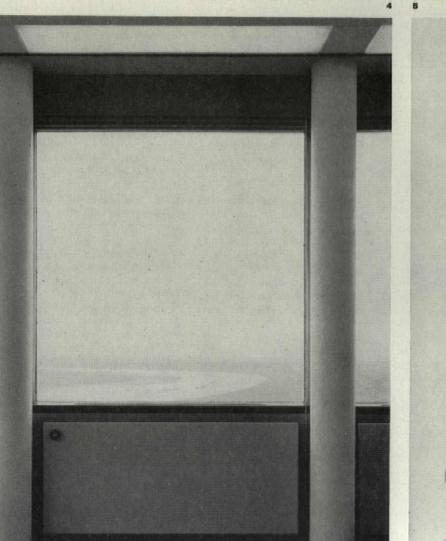
A TUBULAR OFFICE TOWER

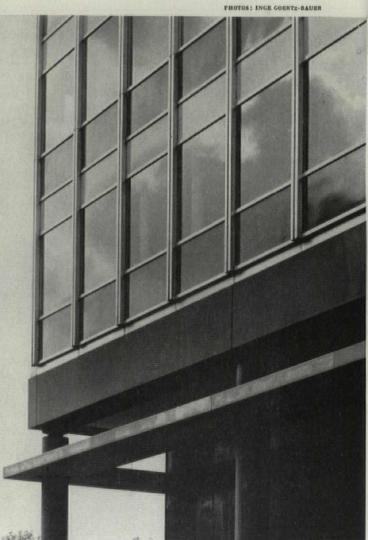
The 24-floor office building of Mannesmann Atkiengesellschaft, in Düsseldorf, Germany, uses round pipes as its exterior columns. A reinforced concrete core, shown in the plan (2), takes up all horizontal forces exerted on the structure. Thus, this tower is not tubular in the strictest sense, though it does extend the use of welded steel tubing into a new area.

In essence, this is the way tubes are used: around the ground floor, 14 large pipe columns serve as supports for a steel box girder, which surrounds the tower's periphery (5). Atop the girder is erected the tubular steel frame, consisting of 56 columns, each rising continuously from the girder to the top floor. These are spaced some 6 feet apart (4) and coated with vermiculite. Each column is made up of tubular segments, each extending over a height of two stories. Steel girders, supporting the floors, are secured to the core and the tubes by hinged connections. Thus, the steel structure might be described as a cage which surrounds the reinforced concrete core. The sketches (3) show cross sections of the wall system: section A-B is taken at window level; section C-D, through the spandrel.









Bright Ideas

Warming cold pedestrians . . . cooling hot ones . . . financing hospitals

? How to warm pedestrians, especially window shoppers, in "hard winter" cities.

Install quartz infrared heat lamps on the exterior of a building to warm the sidewalk, or anyone in their rays.



No matter how attractive a store-window display may be, the colder the weather, the fewer its viewers, and the smaller its chances for boosting sales. But in bitter-winter Chicago's Loop last December, Carson, Pirie, Scott & Co. pioneered a new system for warming passers-by pausing to study its window displays. To dramatize the launching of its permanent outdoor installation of quartz infrared heat lamps designed to take the chill off winter shoppers, this department store used the State Street sidewalk for a Caribbean-cruise bathing-suit fashion show in December (see photo).

Quartz infrared lamps do not heat the air. They heat persons or objects directly by radiant energy. They are akin to heat lamps that many people use to bake sore muscles, but they produce no tan. That requires a sun lamp with different characteristics. Those installed on the Carson, Pirie, Scott front, in a housing designed to complement the architecture of the store, are focused on the sidewalk, which they will help to keep dry and snow-free in inclement weather. A small amount of heat radiates from the sidewalk supplementing the direct heat in warming passers-by; and the sidewalk reflections create a pleasant "golden band of light" said to be flattering to the complexion.

Fixtures are mounted above the store's ten large State Street windows and parallel with them. Each fixture is 16 feet long and contains 13 1,000watt, 208-volt T3 lamps. Each lamp is about 3% inch in diameter and 13 inches long. Rays are beamed slightly away from the store front; there is no need to heat the building or its windows. Tests indicate that their heating is effective 6 to 8 feet from the building. At times lamps have produced an intensity of approximately 80 watts per square foot at the sidewalk, compared with the equivalent of about 10 watts in average home heating.

? How to make pedestrians cooler and more comfortable, simply and inexpensively, in "sun country" cities.

Install black sidewalks, which absorb rather than reflect sun heat, and also reduce glare.

The sun shines brightly in Abilene, Tex., about 350 days a year, and except on rare occasions its heat and glare are of Texan magnitude. Before undertaking a downtown street improvement and rejuvenation program, the city's mayor and its city manager toured some non-Texas cities in search of ideas. In one California city the hotel where they stayed had a black sidewalk in front of it-to reduce both the heat and the sun glare that pedestrians must endure. Rustling this idea back to Abilene, the Texans copied it on a Texas scale: installed sparkling black sidewalks

along 40 blocks of Abilene's central business district.

Since all the sidewalks were being replaced anyway, as part of a \$2-million street-widening and repaying program, the extra expense for the black surface was only about \$100 per block, according to City Manager Henry B. Nabers. That was the added cost for troweling onto the top of fresh regular cement a 1/8inch layer of silicon carborundum. Predominantly black, this top coating glistens with countless silicon crystals in red, green, blue, and white. Abileneans have almost universally approved their new glittering but glare-free walks. And, as an index of heat-reduction benefits, says Nabers, temperature readings taken in full sunshine 3 feet above the surface of adjoining sections of the black walk and conventional sidewalk (in front of the U.S. Post Office) were 10 degrees cooler over the black walk. On the surface itself, however, the black walk was 10 degrees warmer, having absorbed, rather than reflected, the heat. Buffing from heavy foot traffic gives the black pavement a highly polished surface, but the millions of almost imperceptibly tiny crystal teeth keep it from becoming slippery.

? How to provide local public financial aid to build privately operated hospital facilities.

Authorize public funds to construct buildings to be leased to private nonprofit institutions for only a token rent, as long as they agree to certain limitations on patient charges.

Hospital construction costs are very high, and are partly responsible for high hospital charges. In many areas where funds are too short for building privately operated hospitals it has been necessary to establish hospitals owned and operated at public expense, with county or municipal personnel, and subject to political control or bureaucracy.

Long Beach, Calif., however, has developed a system for providing public funds for construction of hospitals that will still be privately operated, and will be subject to only a minimum of public regulation. After a campaign led by the United Hospital Fund, citizens voted eight to one for a \$10.5-million bond issue to erect buildings to be leased to private "nonprofit" hospitals for only \$1 a month for 25 years. The basic control by the city is a right to cancel the lease if a hospital loses its "accreditation" or charges patients fees above the "average" charged by other privately operated hospitals in the area for 12 basic, specified services. The leasing institution agrees to "equip" and operate the hospital. Elevators and heating and air-conditioning plants are considered as parts of the hospital, however, rather than "equipment" for hospital operating purposes that must be provided by the tenant.

The largest portion of the bond issue, \$6,550,000, was used to build a new 400-bed Seaside Memorial Hospital designed by Architects Associated: Jones, Lockett & Poper, Hugh Gibbs, and Kenneth S. Wing. This project, to be completed this May, cost a total of \$10,700,000, with the additional \$4,150,000 for equipment paid for by the hospital -part of it obtained by selling its old facilities to the County Hospital for \$1,650,000 on a 15-year lease-purchase plan. Another hospital was remodeled and expanded from 150 to 325 beds, and a third was enlarged from 100 to 200 beds.

As a result of this successful merger of public and private financing for quasi-public institutions, the Long Beach City Council recently voted to use the same plan to help finance a new Armed Forces Y.M.C.A. building. END

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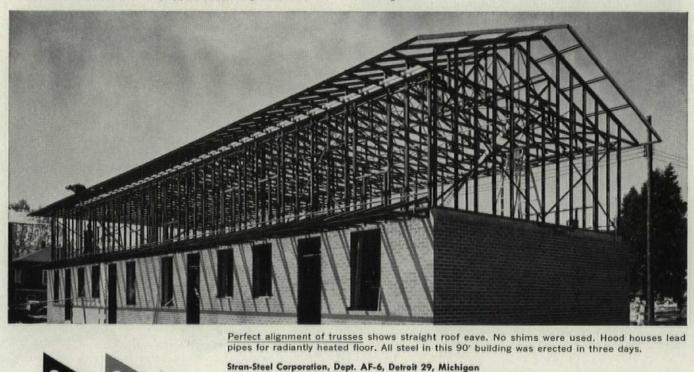
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Eason, Anthony, McKinnie & Cox designed 31 Memphis project apartment buildings with Stran-Steel components. Sidewalls and trusses were assembled on wood jigs near building sites.



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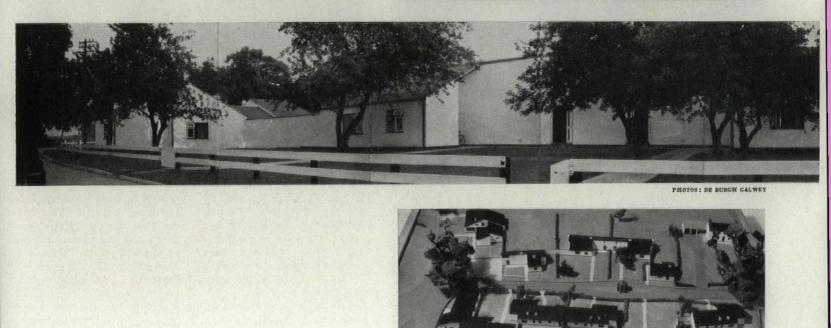


ALWAYS ENGLAND

When Lord Rothschild sought to enlarge and modernize the Suffolk village of Rushbrooke for the local farmers, his architects, Richard Llewellyn Davies and John Weeks, found that the most important element of continuity to be preserved was the village's street sense (model photo, below), a subtle, spatial pattern of solids (onestory houses and sheltering walls) and voids (yards and alleyways). The houses, which are planned as mirror images of each other, share walls and yards (above), yet also have the independence (right) that is also part of English continuity.







FRENCH STARS

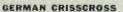
The Bobigny development, designed by Paris Architect Emile Aillaud in the suburb of Abreuvoir, scatters clumps of 11-story towers throughout a 50-acre site bordered by a winding wall of fourstory apartments. The towers are shaped either like cylinders or like stacks of threecorner stars. The cylinders are, of course, circular in plan, permitting a highly efficient layout. Aillaud hopes that the variety of his design will allow children in the development to remember the shape of their homes, although they might forget their house number.







HERMAN OHLSEN



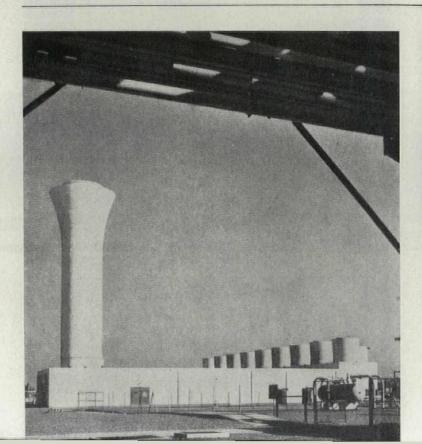
Although photographs of Carsten Schröck's church on the outskirts of Bremen exaggerate its decorative excesses (left), the building has an interesting structural system, consisting of two woodframed vaults that intersect in a crisscross manner. The face of the northern vault (at left in photo) is a skylight which lights the altar.



CUBAN ELEGANCE

In the plush last days of the Batista regime, Cuban Architect Max Borges completed this private mausoleum. A paraboloid veil of concrete is draped over the mausoleum's marble-walled chapel. From the top of the chapel, the veil soars to a triangular, cross-topped peak, covering the altarlike entrance to the subterranean crypts.





minne

PHOTOS: YAN, COURTESY "TECHNIQUES AND ARCHITECTURE"

PYRENEEAN PURITY

In Lacq, beneath the shadow of the Pyrenees, French Architect J. De Brauer has designed a natural-gas purification plant which appears to have fun being functional. Water is stored in the lofty "refrigeration tower" (at left in photo) which can be climbed only by means of a sealed, interior stairway. The low-lying body of the plant contains the purifying processes, and the nine chimneys at the end of the plant are for giving off the gaseous impurities. At night when the chimneys are illuminated, the plant has the festive air of a steam calliope (above).

ROMAN ARTICHOKES

Perhaps the most delightful feature of the Tor Di Valle race track on the outskirts of Rome is its separate woodlaminated seats that somewhat resemble discarded artichoke leaves. The 4,000 seats are sheltered by a 500-footlong series of reinforced concrete hyperbolic paraboloids. Engineer Gaetano Rebecchino, who was largely responsible for the design, estimates total capacity at 20,-000, knows that an investment of \$2 million was made in the track before the first bet was registered last December. Beneath the stands are a bar, shops, and the betting windows.



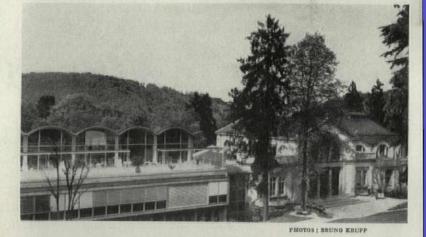


PARISIAN SOCIETY

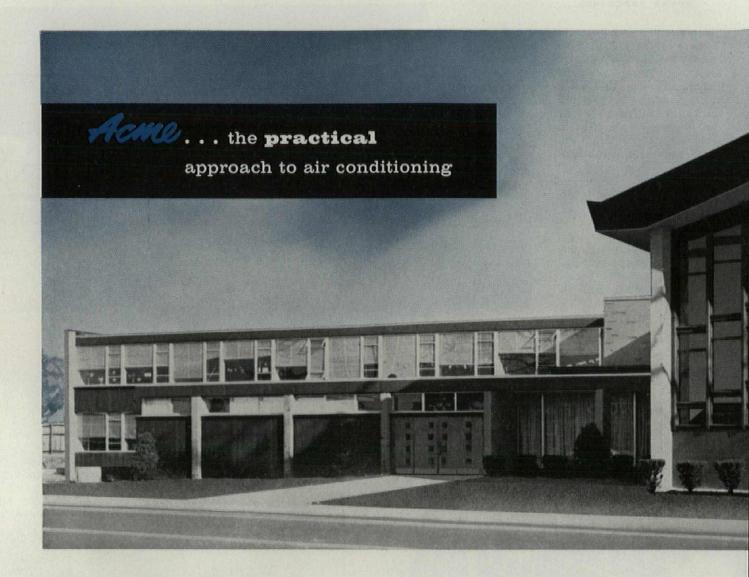
For the Parisian Office of Family Assistance, Architects Raymond Lopez and Marcel Reby provided broad floors and a noninstitutional environment by cantilevering delicately tapered steel beams out from a central, reinforced concrete core (see photo of unfinished building, above) and by hanging a light, decorative, prefabricated curtain wall on the tips of the beams. The wall segments of the eight-story curtain are filled with polyester resin sandwiches (the first in Europe); the window segments of the curtain are filled with operable sash.

BLACK FOREST SWELLS

One of the most popular health resorts in the Black Forest is the spa at Badenweiler, where a Baroque bathhouse (at right in photo below) was built in 1871 to "meet the modern needs of society." Though society may have changed since then, its needs apparently have not; the spa found it necessary last year to build a large addition to house a new pool and health facilities. Architects Horst Linde and Rudolf Geier designed a gently undulating, reinforced concrete roof for the addition that harmonizes both with the arches of the old building and with the waves in the pool beneath it.







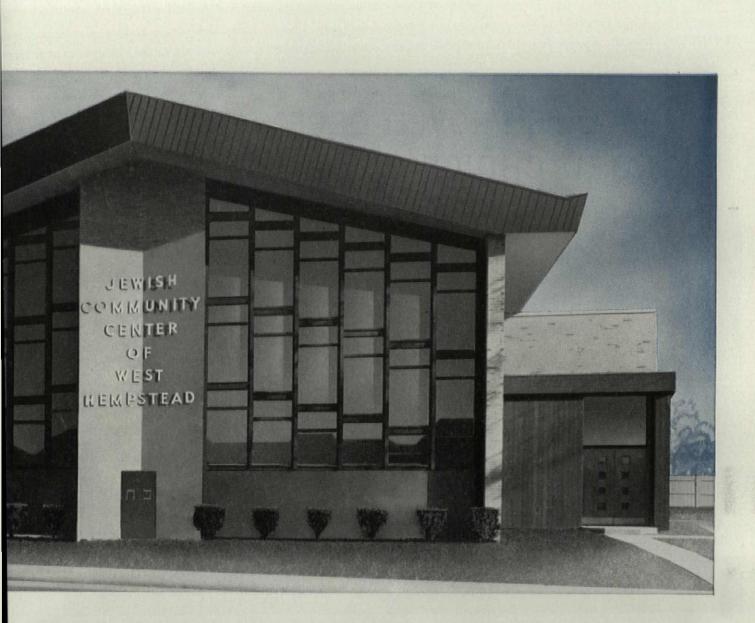
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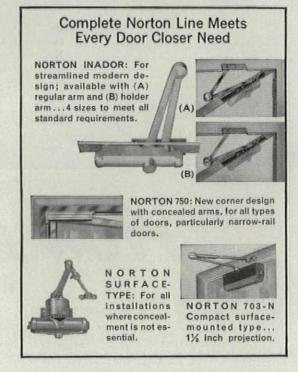
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Books

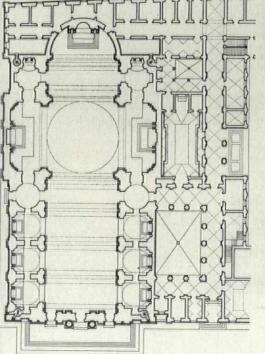
Landscaping . . . footprints . . . drinking . . . schools

THE BOOK OF LANDSCAPE DESIGN. By H. Stuart Ortloff and Henry B. Raymore. Published by M. Barrows & Co., 425 Fourth Ave., New York, N.Y. 316 pp. 51/2" x 81/4". Illus. \$3.95.

As a demand for a wider understanding of landscape planning has grown, it is inevitable that the supply should eventually be provided. This book by two plain-speaking, professional landscapers is a happy augury that publishers are beginning to realize that just another big, slick garden book is not what is wanted by a public that must learn several new tricks fast if it is going to secure its heritage of natural beauty.

Landscapers Ortloff and Raymore do not, however, seem overly impressed by modern pressures. They do not, for ex-ample, feel that the emergency is so acute that they should omit a review of the origins or traditions of Western landscaping. Nor are they ashamed to admit that one of the secrets of landscaping is to achieve a certain formalism, sometimes at the expense of traffic patterns and function. Yet the most important part of their book, the part that future writers are going to have to out-do if they are to give the harrassed citizen a better weapon for fighting off the despoilers, is a section that relates landscaping to planning and zoning. It is one of the best explanations of the aims and limits of these terms yet given in popular form.

Which is not to say that here, either, the authors are swept away with en-

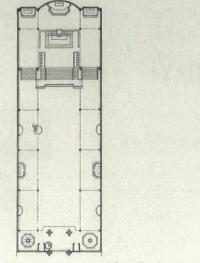


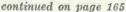
thusiasm for the ways and means of modern life. Witness their comments on the general community practice of survival through an industry-supported tax base: "No matter how attractive the tax revenue from industry is, the fact remains that a community of homes that is invaded by industrial establishments, however attractive their buildings and however well landscaped and maintained, is not so pleasant a place to live in as one where industry is located in an area of its own, removed from residential development, so that the traffic it generates will not disturb the peace and quiet of the residential neighborhoods. The present tendency to attempt to supply each school district with its share of industrial establishments is bound to result in mixed neighborhoods, partly residential and partly industrial, which is the sort of thing zoning was originally designed to prevent."

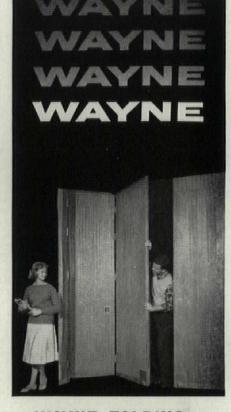
BUILDING FOOTPRINTS. By Eduardo Sacriste Jr. Vol. 9, No. 1 of "The Student Publication of The School of Design," Raleigh, N.C. Available through Wittenborn & Co., 1018 Madison Ave., New York 21, N.Y. 30 pp. 81/2''× 81/2''. Illus. \$1,

A collection of remarkably fine drawings of the world's architectural masterpieces—all to the same scale. The drawings, the work of the students of The School of Design, Raleigh, N.C., are to be included in a book on which the director of the project, Eduardo Sacriste Jr., is now working.

Wandering through the plan of, say, the Pantheon and then going on, in the same context and same scale, to the United Nations Assembly Hall, is a pleasure no architect should deny himself. At left and below the plan of Vignola's sixteenthcentury Roman church II Gesu is contrasted with Perret's Notre Dame at Raincy, France, built in 1922-25.







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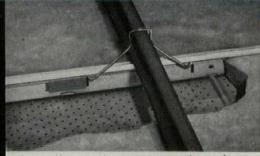
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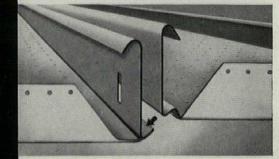
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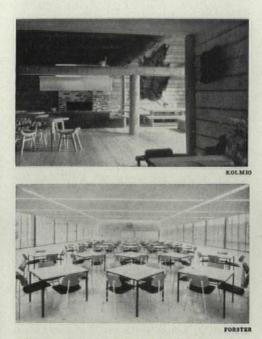
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Books contd.



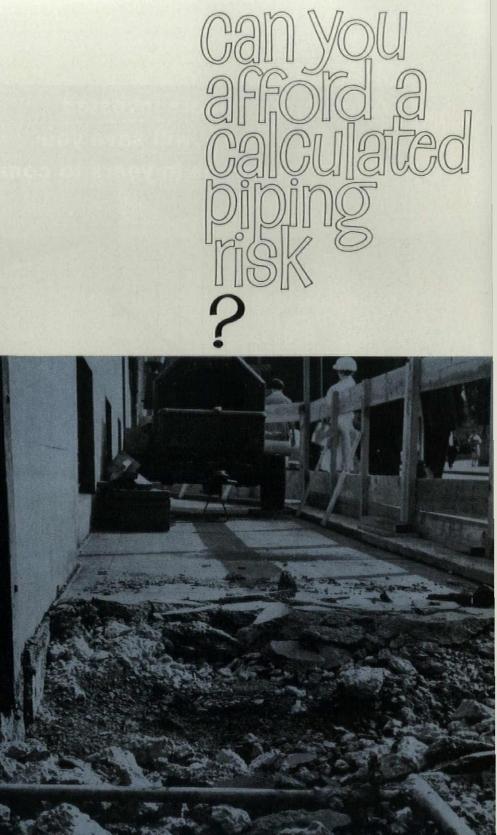
RESTAURANTS CAFES BARS. By Alexander Koch. Published by Alexander Koch GMBH, Stuttgart; distributed by Wittenborn & Co., 1018 Madison Ave., New York 21, N.Y. 407 pp. 8!/2'' x 1134''. Illus. \$26.50.

Whether the reader's preference is for the rough-hewn warmth of a Helsinki "farm kitchen corner" (top photo, above) or the aseptic line-up of a factory cafeteria in Mainz (lower photo), this sleek volume should provide new ideas suited to his eating and drinking tastes. Shown among the 80-odd examples of modern public places around the world are the Red Carpet in Seattle and Barrie's Quick Lunch in New York, an autobahn drive-in near Hanover and a Zurich nightclub called "Tabaris Whisky Galore." Among the more exceptional are Stuttgart's famed "basket" restaurant seating 180 diners atop a 450foot television mast, and the neat galley of a Lufthansa "Super-Constellation" somewhat farther up. Also shown are several handsome theater and museum restaurants, airport and exhibition eateries, company cafeterias (including three at GM's Technical Center and one at Connecticut General), and a couple of unusually cozy bars. All are shown in ample pictures and plans, with some working kitchen scenes thrown in. Text in English.

OFFICE BUILDING AND OFFICE LAYOUT PLANNING. By Kenneth H. Ripnen. Published by McGraw-Hill Book Co., Inc., New York, N.Y. 182 pp. 71/2" x 101/4". Illus. \$10.

If this comprehensive book had been published 15 years ago, many clumsy mistakes in the planning of postwar office buildings might have been avoided. For it is a thorough, step-by-step manual, covering every detail from office layouts to ways of moving into a new building, and from architect-client relationships in the planning of a new building to ways of (and reasons for) modernizing an older building.

Unfortunately, however, this book is being published in 1960 rather than 1945; continued on page 166



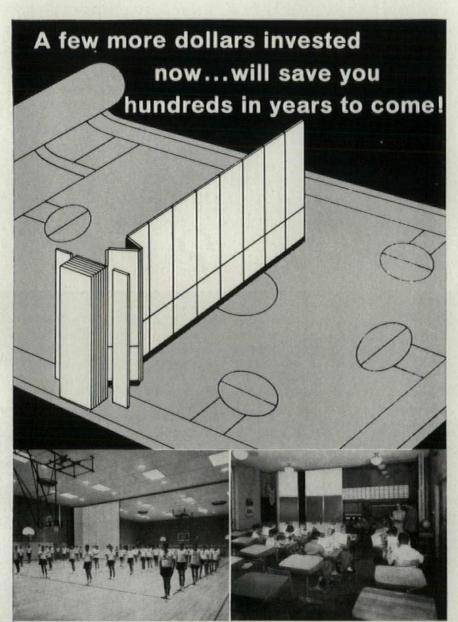
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LEADING MANUFACTURERS OF MANUAL AND AUTO-MATIC FOLDING PARTI-TIONS AND TOP-QUALITY WARDROBES FOR 80 YEARS. and while much of the general information and advice contained in its pages continues to make sense, office planners have learned a great deal more than they knew 15 years ago, and office designers have gone far beyond some of the crude and heavy-handed work shown in this manual. Indeed, looking at the book's illustrations alone it would be hard to guess that there now exist such exemplary structures as Lever House, the Seagram Building, the Inland Steel Building or the headquarters for Connecticut General. What the author needed badly was some up-to-date editing, and he obviously did not get it. Still, in terms of a general, logical approach, this will remain a useful book to those looking for practical hints rather than up-to-

ELEMENTARY SCHOOL BUILDINGS.... Design for Learning. Published by The Department of Elementary School Principals, National Education Assn., 1201 16th St., N.W., Washington, D.C. 198 pp. 71/2" x 101/4". Illus. \$4.

In a foreword to this new NEA publication, Robert E. Willis, president of the National School Boards Assn., aptly points out the advantages of making school planning a community-wide enterprise in terms of the school building which results. Politely, he does not pound the point that if planning, these days, is *not* community-wide, no school may ever be voted, or built. Architects have now found that citizen participation in school building, while being helpful in small details, is essential to the enlightening of the electorate. For participation is persuasive too, not just helpful.

But community participation calls for an informed civic leadership, and it is this idea to which these pages are dedicated. They bind into a sound, interesting—if not steadily seductive—volume, with expert contributions from Architects H. H. Waechter, William M. Peña (of Caudill, Rowlett, Scott & Associates), and Lawrence B. Perkins (of Perkins & Will).

Peña's two-page definition of that bland educational word *programming* has punch, for once. Also, at least one of Waechter's paragraphs bear repeating, and perhaps pinning up on the draftingroom bulletin board:

"Often, in planning a school building, the practice is to make the building subservient to specific requirements and to building codes as interpreted by schoolboard members, superintendents, architects, and various public officials. These varied ideas and requirements are shaped into buildings which are often of a kind and quality which was not anticipated. The building may satisfy a multitude of individual requirements, but the accumulated piling up of answers results in something new and unexpected. The building which was originally assigned the passive role of satisfying multiple requirements coming from all directions, suddenly becomes a whole-an active element, exerting its own influence and character. And often it has become a monster. END

Books contd.

date design.

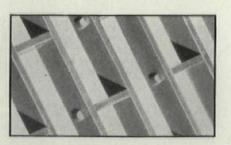
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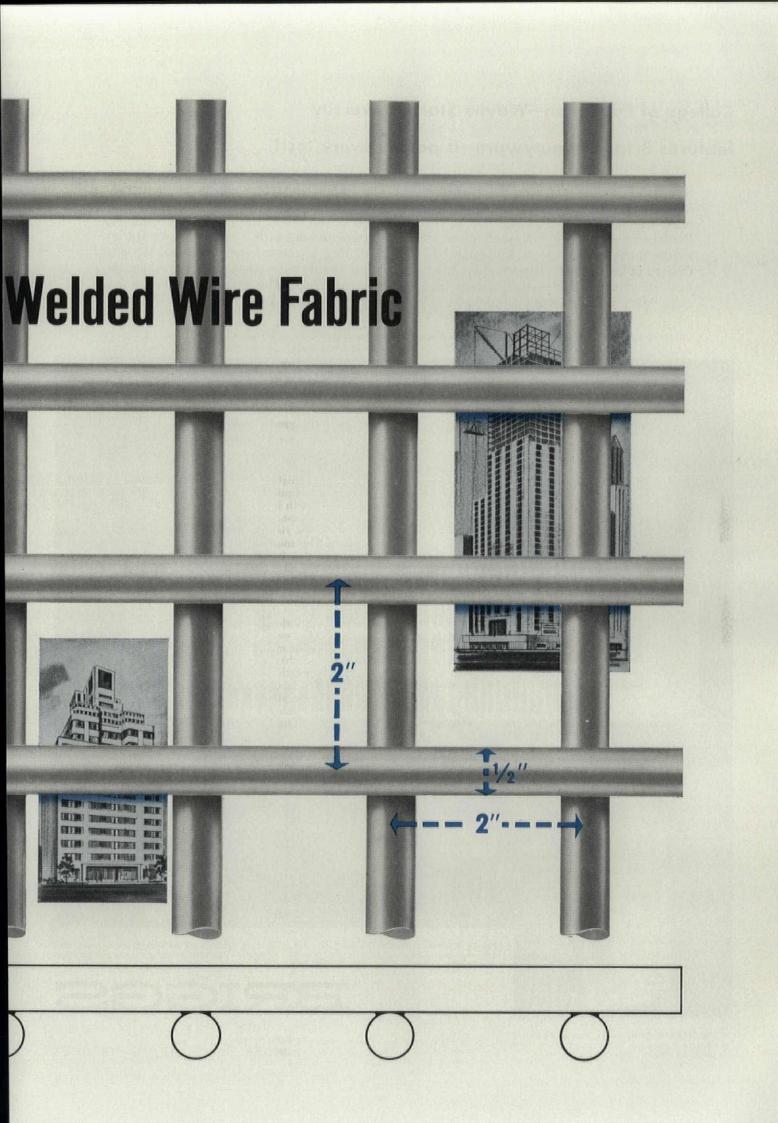
- 1. American Welded Wire Fabric is produced from cold-drawn high tensile steel wire. This wire is carefully produced to conform to the requirements of ASTM Specification A82-58T. The minimum tensile strength is 75,000 psi and the minimum yield point, as defined in this specification, is 80% of the tensile or 60,000 psi. Actually, cold-drawn steel wire has no yield point in the conventional sense—no sudden excessive elongation. This means that cold-drawn wire tends to resist stress practically throughout its entire strength range without revealing any sudden elongation such as develops in a typical hot-rolled bar. This physical advantage of cold-drawn wire makes it the ideal concrete reinforcement.
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Excerpts

Humanation . . . slums . . . nibblers . . . structuralism

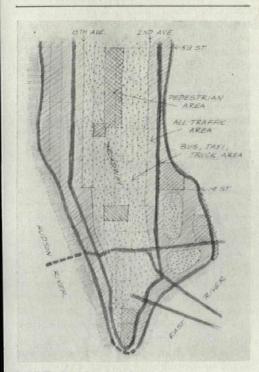
NOW, HUMANATION?

Architect Charles Luckman, when addressing the Massachusetts Building Congress, used a phrase that may mark the apogee of a certain architectural rhetoric.

Today's grotesque and unplanned suburban sprawl must give way to plans for space and grace in cities which reflect the 'humanation of architecture.'

Surely we, as a culture, are not to be judged, or judge ourselves, merely by our capacity to use brick and mortar, glass and steel. Rather, our use of materials, like the use of our skills, should be measured only by the yardstick of human needs and aspirations. Unless these are served, a building, no matter how beautiful, will deny the importance of the human being by failing to consider that buildings are for people—and must therefore be planned, designed, and built to embody the visual and esthetic values of the human scale.

While I will have nothing to do with a project which is deficient in fine design, I do insist that fine design alone does not suffice either today or tomorrow.



PEDESTRIAN ISLAND

Manhattan traffic would assume this pattern if a proposal by Victor Gruen and Herbert Askwith were adopted. Private vehicles would be restricted to a narrow circumferential area. The plan was set forth in the January 10 issue of The New York Times Sunday supplement.

RENT CONTROLS BEGET SLUMS

This theorem was ably demonstrated by Gerald Burns, writing in a recent issue of The Reporter.

In retrospect it seems clear enough that the meaning of rent control has changed since the war. Rent control was then one of the many emergency devices to combat the rapid general inflationary trend of the economy, to ensure a reasonably fair distribution among a reasonably homogenous population of a commodity in short supply, and later, during the years immediately following the war, to help make a gradual adjustment to the realities of economic life possible for both tenant and landlord.

During recent years, however, the meaning of rent control in New York has become, literally, the control of rents at the lowest possible level without regard to the realities either of the market or of the city's special housing problem.

In these circumstances a landlord is under great pressure to devise ways to reduce maintenance costs and increase rents. Ordinarily he will conduct this battle according to the rules laid down by the law and the Rent Commission, and ordinarily he will survive; but often enough—especially in housing where the tenants are transients (e.g., in furnished rooms) or ignorant (e.g., recent arrivals from Puerto Rico), or where rent control and fortune have both been hard—he may be sorely tempted to cheat.

Indeed, almost all landlords of buildings in which most of the housing accommodations are subject to rent control are turning them into slums as fast as the tenants, the Rent Commission, and the Department of Buildings will let them do it.

One might expect that all owners of rent-controlled apartments would favor abolition of rent control, but this is by no means the case. In order to obtain the maximum possible return of their investment, many such owners have already turned their buildings into irreclaimable slum dwellings. To these people, rent control is a shield and sword—in short, their very best friend.

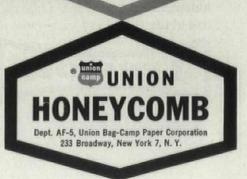
Some attempt should surely be made to arrange for an orderly rise in the general level of all rentals to reflect more realistically the economic facts of life today. Under the law we have seen that wildly differing legal rents often exist for identical accommodations. This, in the name of "rent control," is more than a little absurd. The effect is merely to allow someone to capitalize upon good luck at the expense of others.

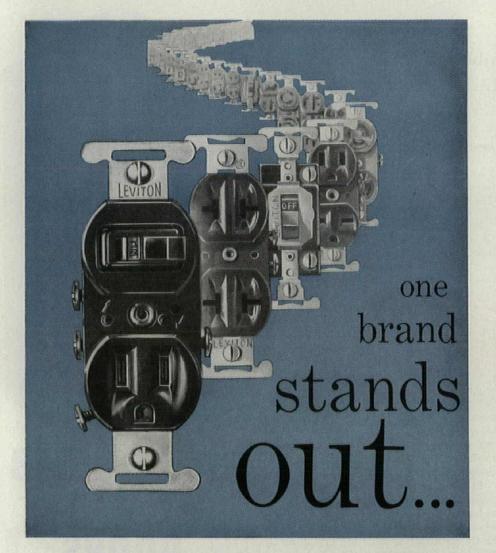
continued on page 172

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BEWARE OF THE NIBBLERS

New York Architect Robert Cutler, a partner in Skidmore, Owings & Merrill, warned against the voracious we-can-doit-cheaper fraternity, when speaking before the Texas Society of Architects' 20th annual convention.

As a professional, I believe that improvement in the quality of architects' business practice is mandatory. The effort to better educate the client must be constant. To coordinate and completely check contract documents, to maintain a realistic relationship between budget and actual construction cost—these are but few of the traps which plague us every day. Beware the nibblers, those who profit by our mistakes. They take over gradually, and we may have no clothes at all before long.

The niftiest nibbler of all, the "package dealer," has done well—in fact so well that we are squeamish, sterile, and stolid in our approach to the problem. We reason that we can't serve two masters at the same time, i.e., designer and builder. We complacently console ourselves that the nibbler does not produce first-rate design, but is primarily interested in the easiest and cheapest methods to produce the turn-key job. Who's lost the control? We have. The nifty one can control the number and size of every commodity which is needed in a given product.

We can assume that control, but it means improved design, a genuine application of better business practices, and a workmanlike approach to properly coordinated construction procedures. We must broaden our base and offer our clients more. We must tighten time schedules through an entirely new set of contractual relationships with the contractors. Above all we must retain control or the nifty nibblers will nibble and nibble.

DEVELOPMENT RIGHTS

William H. Whyte Jr.'s notable plan for the preservation of valuable rural areas was summarized in the latest number of Jersey Plans.

Outside the city limits the problem of providing open space is stalled on dead center. It's been stalled, and it's going to remain that way, until some community or state breaks the ice with action—the type which can be copied by communities all over the country.

The core of an open-space program can be set up through an ancient common-law device enabling a community to conserve key open space by the purchase of development rights from the land owner.

The citizens would say to him: We know you like this land. You are a good farmer, and you want to continue farming. At the same time you're worried about rising taxes, for as these developments come in you are being taxed to *continued on page 174*



This \$5,000,000 fire might have been prevented with a steel pipe automatic sprinkler system

There wasn't much left when this \$5,000,000 industrial property in New England burned to the ground. Yet how different the ending could have been if a *steel pipe* fire sprinkler system had been installed and the fire checked at its inception.

Yes, it pays to have an automatic sprinkler system in any building—store or warehouse, hospital or hotel, theater or school. As to cost—insurance premium savings often more than pay for the fire protection system's installation.

Backbone, of course, of fire sprinkler systems is dependable steel pipe. Architects, engineers and contractors know that low-cost, easily-worked steel pipe provides lasting and dependable service. That's why steel pipe is first choice for fire sprinkler systems, electrical conduit, vent and drainage lines, structural applications, radiant heating, snow melting, refrigeration, ice making and gas, air and water transmission lines.

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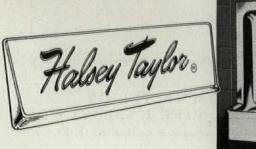
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build the new schools and other facilities to provide for the children and adults that these developments bring.

You don't want to give up anything that is rightfully yours without fair compensation. We don't want to zone away from you the right to sell your land to a developer. What we want to do is to buy away from you the right to cover the land with a subdivision. You keep the title to your property, and as long as this restriction is observed you can pass the property onto your heirs or sell it.

From the community's point of view, a key area along a beautiful stream valley is thus kept open at a very reasonable cost. Just as important, the land is kept alive.

The body of precedent that already exists shows that where development rights have been purchased, the price is usually much less than any combination of outright purchase and lease-back would be.

Let us say we are negotiating a price of \$50 an acre for the development rights of a 140-acre farm in a rural area. The land owner still wants to farm the land; he has not yet become a land speculator. Yet he might say: Why should I settle for \$50 an acre? Right now I'll admit that this land is only worth \$500 an acre as farmland, but five to ten years from now developers will be coming who might offer \$2,000 or \$3,000 an acre.

What do you say to that? I think, first you could point out to him that he gets the money now, \$7,000 cash on the line which would not be taxed as income but as capital gains. What he has got to contrast is not \$7,000 versus a possible killing five, ten, or 15 years from now, but what that \$7,000 would be worth at that time, decently invested in farm equipment, in land, or in common stock.

IS RENEWAL LEGAL?

The dangerous gap between urban-renewal theory and urban law has been narrowed to some extent by Realtor-Lawyers James Scheuer and Eli Goldston, who conducted a major study on the "Zoning of Residential Developments" for the Harvard Law Review.

The generalized requirement that the city have as part of its workable program a "Comprehensive Community Plan" including a zoning ordinance is not sufficiently exacting-from either a planning or a legal point of view. A significant number of U.S. planning and zoning officials are expressing concern as to the adequacy of their existing zoning ordinances to cope with the growing number of privately owned projects and, in particular, with the very large projects they expect to see built in urban-renewal areas. Several cities are presently preparing new zoning ordinances which will continued on page 176

174

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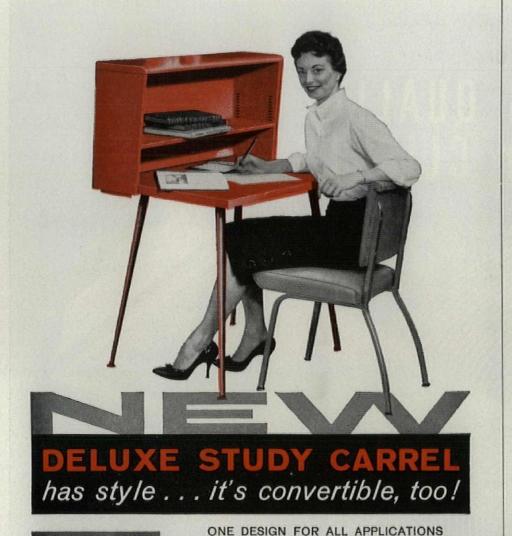
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include some form of planned-development provision.

It might be thought that the modernized zoning ordinances with their more flexible bulk controls would eliminate the need for special planned-development provisions. Even the newest ordinances, however, deal primarily with single-lot units, since most of the city is still so divided. Thus Denver and Pittsburgh, in their very modern ordinances, and San Francisco, in its proposed ordinance, still find it desirable to make special provisions for large-scale projects. There is a fundamental reason for this: In older areas in which many buildings were constructed before the area was planned, zoning can only be the negative tool of a plan which has been conceived too late to dominate the development of the area. In this situation, zoning is used only as an expedient or as a corrective when damage has already occurred or may come about for lack of a plan. In redevelopment areas, or in other open areas for which the planning precedes the construction, zoning can arise from and be integrated with the planning, and many zoning goals can be achieved without the rigid rules needed when individual lots are separately owned and under no general planning control.

There is increasing recognition that the concept of general welfare is broad enough to include a public interest in community appearance and that planning laws can properly include beauty along with the traditional objectives of safety, health, and morals. Law cannot, of course, compel community beauty; it should not, on the other hand, produce ugliness.

STRUCTURALISM TRUE AND FALSE

The master Italian engineer, Pier Luigi Nervi, recently attempted some advice to pseudostructural architects and antistructural critics in an editorial in Casabella.

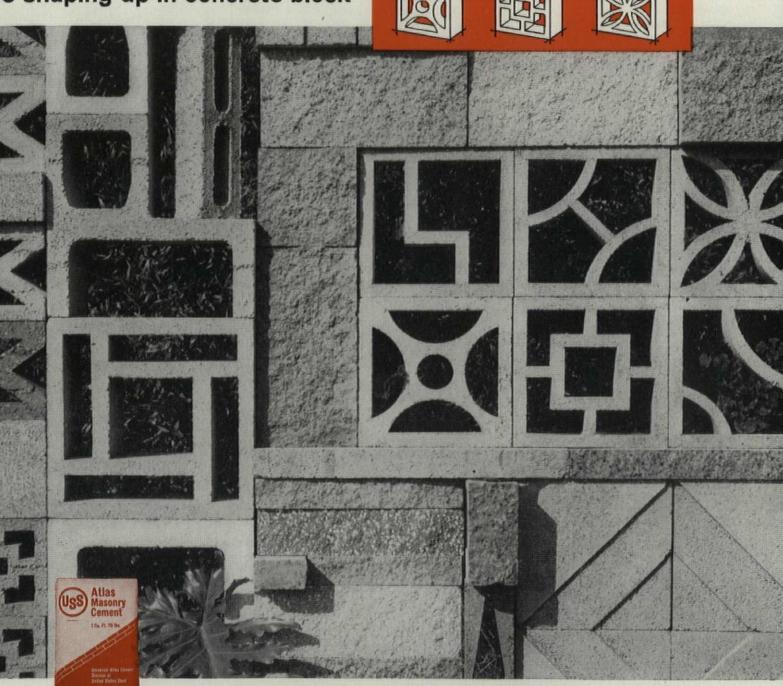
A big structure always represents a victory over contrasting physical facts, a victory which is all the more complete when it is obtained through the exact proportioning of the means available to the forces which have to be overcome; in other words, when it is technically perfect.

In the attempt to establish whether there exists a relationship between technical and esthetic quality, and if so what kind, I have examined the greatest possible number of meaningful structures of the past and present and have come to the conclusion that for all great structures, without exception, the indispensable premise for architectonic beauty is correct technique.

This is probably due to the fact that the intuition and sensitivity to statics which in a more or less confused form may be found in all people, including the layman, are satisfied by those structures which immediately reveal the play of

continued on page 178

are shaping up in concrete block



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whose range of patterns, shapes and textures is suggested in this block grouping by Architects D. Wallace Benton and Donald G. Park of Los Angeles. To lay up these striking new concrete block, Atlas Masonry Cement continues to be the preferred cementing material for mortar. It provides a smooth, workable mortar, assures a stronger bond, gives weathertight joints that are uniform in color. And Atlas Masonry Cement complies fully with ASTM and Federal Specifications. For information write: Universal Atlas Cement, Dept. M, 100 Park Avenue, New York 17, N. Y.

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forces and resistance which define its equilibrium.

The difficulty which architectural criticism faces today for the most part lies in the fact that most critics neither have nor seek to have any clear ideas about structural statics. As a result, they attribute to structuralism in general the faults of works characterized by such false and artificial structures that they might be called true examples of antistructuralism in modern architecture.

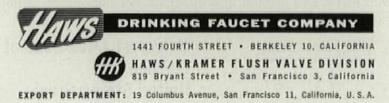
By contrast, the pillars of the Palazzo dello Sport (FORUM, Feb. '60; photo at right) are not the modern interpretation of the long-dated column (which, however, in the true architecture of the past had a clear static function), but essential elements in an organic complex, appearing as a structural unit, both the whole and parts of which perfectly fulfill a precise static finality.

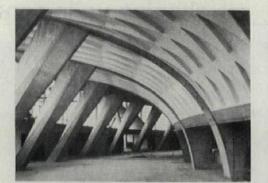


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Even the form of the rotunda does not spring from a more or less rhetorical architectonic premise, but from the circular form of the sports field (which is chosen for functional purposes) and, above all, from the fact that the most spontaneous and efficient covering for an area of almost 8,000 square meters of surface is the dome with circular ground plan.

The dome with an elliptical ground plan would have involved serious construction and economic problems, and the pavilion or cross enormous static difficulties, while a solution with a flat covering (which I have studied with fascination for many months) would be on the very limits of present-day architectural knowledge, and to try it would be dangerous.

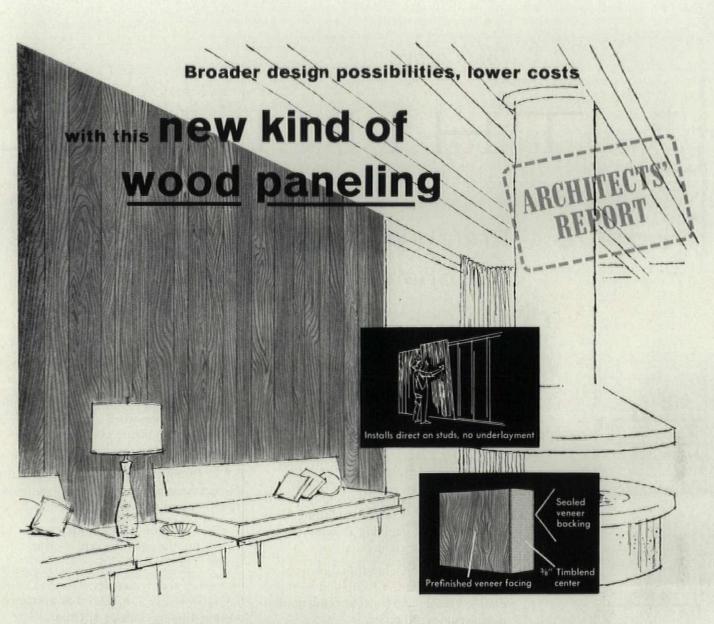
Technical reality—just as soon as we slightly scratch below the surface—shows that with every step forward we take we meet new difficulties inherent in the increase of size; and to try to take too quick a jump is not to be bold but irresponsibly rash. A rashness which, unfortunately, often appears in projects which, owing to the authority of their natural progress of their designers, are confusing and work against the natural progress of constructional technique.

Thus, two recently criticized structures, Eero Saarinen's TWA terminal and Joern Utzon's Sydney Opera House, are eloquent examples of the most open antifunctionalism in statics and construction, a consequence of the arbitrary nature of their forms, which clearly run against the laws of static construction.

One can easily imagine the brilliant feats of calculus, technique, and the waste of materials which will be necessary, even if they succeed, without substantial formal and other modifications, in keeping them standing.

The increasing importance of supporting structures requires that architectural criticism keep in mind, by separating them, the two fundamental aspects of every large work—the structural body and the architectonic spirit—and that judgment of constructional statics be based on a certain minimum of competence.

It will then be seen that, in by far most cases, the technically best structures intrinsically possess all the elements for also becoming excellent architectonic expressions. END



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Prefabricated Curtain Wall resists the onslaught of wind and water

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These are the features that make THINLITE able to withstand driving rain and freezing cold (see details at left and bottom):

The system is double-gasketed throughout with long-lasting Neoprene. No field caulking is required except at building connections.

(2) Only two inches *thin*, hollow glass tiles have the insulation value of double glazing and prevent condensation during cold weather.

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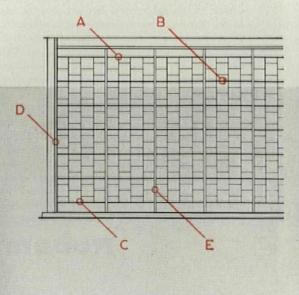
3 Factory-controlled fabrication insures joints of uniform quality and density in the installation.

(4) Built-in guttering handles any condensation which may accumulate in the system during cold weather.

5 Minimum of through-metal. For example, struts are insulated by Neoprene gaskets to prevent condensation on room side of wall.

6 Retaining bolts draw panels up tightly against vertical strut.

For complete details of THINLITE's superior construction features, write to Kimble Glass Company, Dept. AF-3, Subsidiary of Owens-Illinois, Toledo 1, Ohio.





Aircraft engine hurls gallons of water against THINLITE wall at near-hurricane velocity in weather-resistance test.



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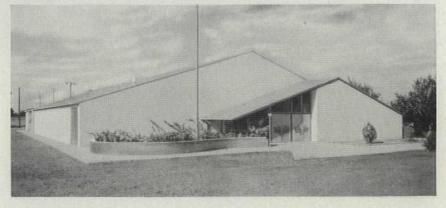


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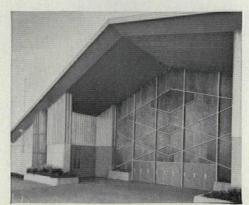
Architects have pointed out limitations in our building system to us, and we take these criticisms to heart. We are confident that we will eliminate



these objectionable elements as our technology develops. Nor do we expect that the Butler "packaged" building will ever be the "grammar" of all lowrise construction.

But the fact remains that our Builders have constructed thousands of buildings *designed* by *architects*. Where the structure calls for it—that's the way we want it, and we help and encourage our Builders to work through architects. Conversely, architects have called on our Builders for assistance. Under these circumstances, the "package" we offer consists of coordinated structural and roof systems, and metal wall systems—both factory and field insulated. The architect takes what is useful and adds what collateral material creates the pleasing finished product.

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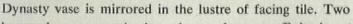


Oklahoma State Fair Grounds Sorey, Hill & Sorey, A.I.A. Architects & Engineers Oklahoma City, Oklahoma

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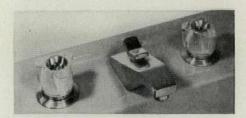


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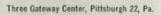
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Weldwood® Glasweld® faced curtain walls in gray offer a subtle contrast to vividly colored sun screens on the Bishop Mora Salesian High School, Los Angeles, Calif. Architects: Yates and Szeptycki. Panels supplied by Colorboard of California.

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VISION PANELS in Weldwood Fire Doors come in five sizes (up to 30" x 36") for Class "C" openings, and in two sizes (up to 100 sq. inches) for Class "B" openings. Paneling shown is new Algoma-made fire-resistant Weldwood prefinished walnut V-Plank®.

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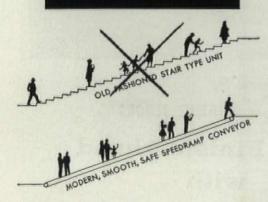
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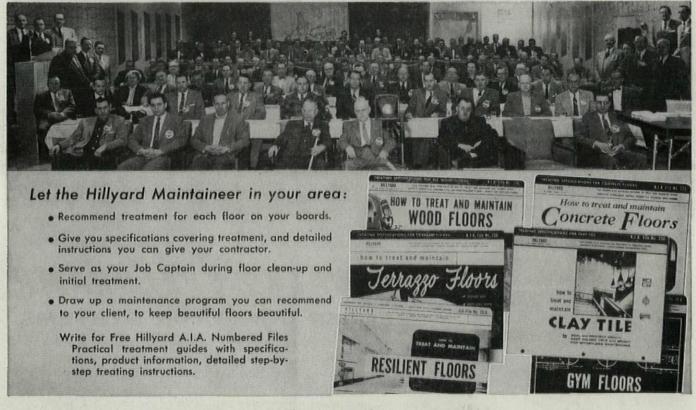
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This elementary school in Hamilton, Massachusetts, successfully puts everything under one large roof classrooms, offices, gymnasium and cafeteria-auditorium. The pitch of the roof places it in the vernacular of surrounding architecture and provides the extra height needed to incorporate major spaces within the single-roof concept. The size of the roof area demanded daylighting to brighten interiors with the warmth of natural light.

SCHOOL BY HUGH STUBBINS... Daylighting by wasco

Wasco Self-flashing Skydomes transparent acrylic domes sealed to base sheets of fiber-glass reinforced acrylic — were chosen because the entire pitched roof is on display. Fastened directly to the deck and flashed into the roof, their low, almost invisible silhouette solved the appearance problem beautifully. The large Skydomes were uniquely positioned to daylight both classrooms and corridor.

Wasco offers a complete line of standard Skydomes, plus many new types suitable for fresh approaches to architecture. See Sweet's Catalog 20/Wa, or write for information.

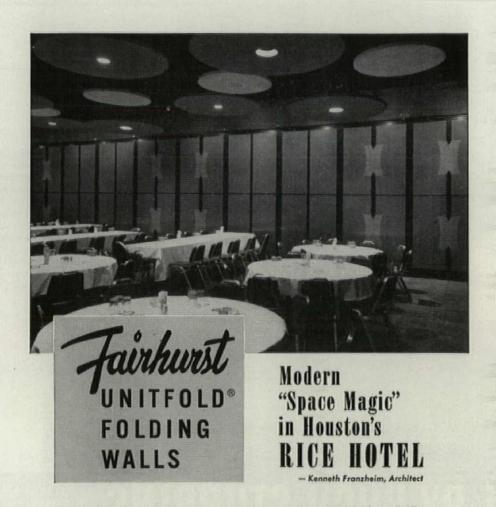


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> Top photo shows Unitfold in place to permit simultaneous use of separated public rooms. Inset at right reveals matching permanent walls through partially opened Unitfold section.



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*Tests have shown that Unitfold walls of this type block sound as completely as a $10^{\prime\prime}\text{-}12^{\prime\prime}$ SOLID BRICK WALL.



STERLING FORESI continued from page 111

ment in a "garden center" placed strategically at the entrance. Beauty is indeed being served here, for very practical ends.

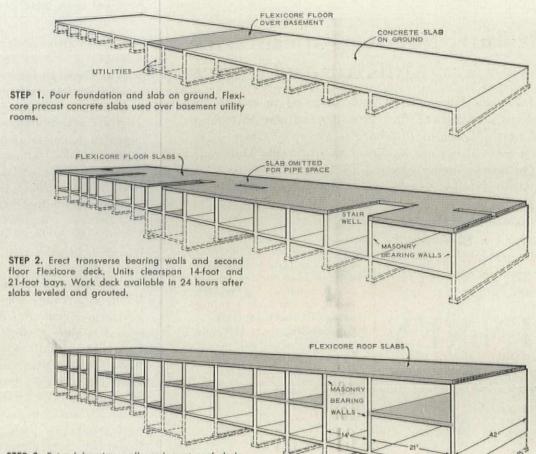
The areas of the Forest that have been developed so far carry out the impression that Dowling's approach is neither that of the pure merchant nor that of the pure artist. The residential areas, for example, could give all builders lessons in imaginative site layout



At Sterling Lake, a sensitive plot.

and in inventive use of new materials. Yet there is a commercial justification for both. By taking sensitive advantage of the land's irregularities, site planning allows a developer to put a maximum number of houses on a given site without actually making it appear crowded. There is art involved, but an art that pays dividends (increased densities). Similarly, experimenting with building materials for lower costs is a worthy objective and one that the Forest has the time and the resources to pursue, yet there is the reasonable expectation that bread thus cast on the waters will be returned. The aluminum gutters and fascia tested by the Forest on one of its five experimental houses are now being used by Builder Henrik Wolters on his houses in the Maplebrook section-for they are regarded as good, long-range features for houses that stand on Forest ground.

Industrial and commercial developments (like the shopping center that Dowling and Walker will soon build near the Route 17 entrance) will also be carried out on the basis that that which benefits the Forest's long-term interests is good. No lakeside laboratory or production facility will be allowed to obtrude through a protective screen of trees that will keep the lake front unspoiled; no elements of the plant may rise above tree height; plants *continued on page 210*

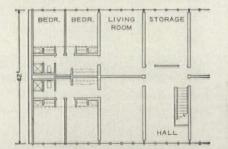


STEP 3. Extend bearing walls and erect roof deck. Building now under cover. Mechanical trades move in without waiting for outside walls. Clear span eliminates shoring.

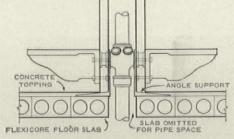
Skidmore, Owings and Merrill, Architects-Engineers

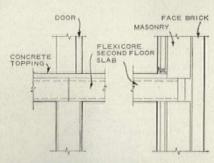
11

How Air Force Academy Got New Buildings Under Cover Quickly



TYPICAL PLAN SECOND FLOOR





INTERIOR BEARING WALL END BEARING WALL



The Bachelor Officers' Quarters and Visiting Officers' Quarters at the new Air Force Academy have precast Flexicore floor and roof decks because they provided fast erection, a fireproof structure and a reasonable cost.

For more information on this project, ask for Flexicore Facts 84. Write The Flexicore Co., Inc., Dayton, Ohio, Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio, or look under "Flexicore" in the white pages of your telephone book.



New Pittsburgh Hilton opens with McKinney Hinges

Once again, McKinney Hinges have been installed in one of the exciting showplaces of America. This time it's the new Pittsburgh Hilton, located at the heart of Pittsburgh's Gateway Center. The hotel's 807 guest-room doors are equipped with durable McKinney Butt Hinges. On service doors opening to 180°, McKinney Wide Throw Hinges were installed to assure dependable operation under the toughest conditions. It is through trouble-free operation on

important jobs such as this that McKinney has built a reputation for fine quality and dependability. On your next job, give your clients the best. Specify McKinney Hinges.



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Hardware Supplier: McKinney Hinges supplied by Hardware Engineers & Contractors, Greensburg, Pa., D. R. Stough, Manager



STERLING FOREST continued from page 208

must be so attractively landscaped that they will be viewed as fixed neighborhood assets when the area is opened up for residential development (this is a novel way of avoiding the standard community fracas caused when industry is moved in to an established residential neighborhood). Unfortunately, the only concrete example of how well these rules work is Union Carbide's unprepossessing \$9-million research building. But perhaps its appearance can be written off as forgivable evidence of Walker's eagerness to get the first tenant in.

For Walker, a rangy ex-Marine and Manhattan realtor who also serves as a vice president of City Investing, is making a sincere effort to develop the Forest respectfully (Syracuse University's forestry department helped him evolve a Forest conservation program which calls for the tagging and plotting of every major tree as development progresses). Yet he must run the Forest as a taut business operation. And if Union Carbide's plant is an indication that economic considerations



The "Hatchery," a dry run in the Forest.

can defeat esthetic purposes in the Forest as well as elsewhere, there are other, more hopeful signs. One of them is the Sterling Forest International Research Building, designed by Ives, Turano & Gardner. Planned as a test area in which prospective industrial tenants might try out life in the Forest, the two-story "Hatchery" has all the advantages of a completely flexible building. It is built with no permanent interior partitions, and with maximum mechanical adaptability. It also makes use of its handsome setting, and is a promise that civilization may indeed be brought to the Forest with skill and sense.

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STERLING FOREST continued from page 210

Slightly less successful are the experimental buildings at "Onchiota," which comprise a kind of conference and community center and serve as a focal point for the intellectual life of the Forest's science-directed personnel. These buildings, by the same architects, tend toward a rustic modern style that is not very impressive. They apparently spring from a desire expressed by Dowling, who earned a reputation as a doit-yourself architect and planner with his design of Pittsburgh's Gateway Center (FORUM, Nov. '49), to evolve in the Forest a "unique architectural style, a sort of blend of Scandinavian,



"Onchiota," a Scandinavian-Oriental blend.

Japanese, and Finnish." Whatever the stylistic and planning defects of "Onchiota," the Center has already proved a popular haven for extra-Forest companies seeking rural quietude for executive conferences.

But the ultimate test of Dowling's and Walker's esthetic intentions is the master plan itself. This, prospective tenants are told, will control all the development proposals and land use within the Forest. And the guardian of the master plan is the Board of Design which, according to Dowling's original theory, is to check out the building plans of every proposed structure to see if they conform to the standards set forth in the master plan.

In practice, however, the master plan proves a fairly elusive document (few of the areas marked on the map on page 110, for example, could not have their uses completely altered if a client of sufficient size so requested), a condition that cannot be reassuring to prospective tenants who would like to know definitely the character of their neighborhoods. Walker explains the plan's vagueness by saying: "We didn't *continued on page 214*



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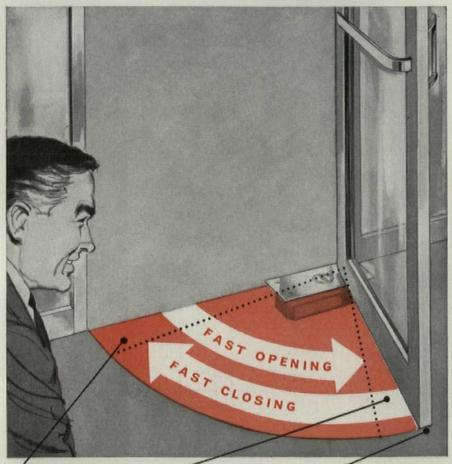
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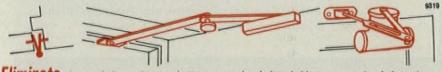
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The new Dor-O-Matic Hydra-Cushion concealed-in-floor door control gives maximum protection to doors and frames. Stops and overhead holders which cause damaging shock when doors are banged open are unnecessary! Now doors are gently cushioned to a stop by an adjustable hydraulic action as they approach open position. No need for expensive, heavy-duty anchor or pivot reinforced hinges because the Dor-O-Matic Hydra-Cushion eliminates the damaging stresses transferred to hinges and door frames when doors are brought to a smashing halt. Positive built-in back stop . . . and built-in hold open . . . eliminate door or floor applied stop devices.

Available for either offset or center pivoted doors. Write for complete information on these new No. 2500 and 2600 series Hydra-Cushion door controls.



Eliminate damaged doors, frames, butts ... overhead door holders ... overhead door closers



STERLING FOREST continued from page 212

want to set up any road blocks to even more advanced land-use ideas." Good enough, but there are now few sitehunting industries that have not learned to be wary of communities that resist growth pressures with ineffective planning measures.

Also, the Board of Design is not really a planning board, or anything like it. It is a collection of experts, each versed in a special field of knowledge that might be of benefit to the forest. Now on the board are: Forester George A. Albrecht; Engineers Gilmore D. Clarke, John B. Dunning, and Malcolm Pirnie; Businessmen John J. Fitzgerald, John A. Gray, and Fenton B. Turck: Bankers N. Baxter Jackson and Serge Semenenko; as well as Dowling, Walker, and City Investing Vice President Alfred Ilch. One of the members has described the Board's functions this way: "Mr. Dowling is definitely in charge. He only seems to appeal to the Board when he's got some kind of problem he can't otherwise resolve." Or, in a more generous estimate, the Board's functions seem restricted to the lesser details of the Forest's plan.

The prospects of the Forest's turning into a scientific Eden are not, therefore, quite so promising as they first appear. That fact alone is no cause for distress to City Investing stockholders, however, who originally viewed Dowling's entry into rural real estate with some wonder. But what may be disturbing to them at this point is how the investment is going to turn out in terms of dollar dividends. To allay some of these understandable fears, a stockholder tour of the Forest via bus and helicopter was arranged last fall.

Stockholders have to live, too

Even if Dowling wished to give his stockholders the most immediate profits that could be derived from the Forest, he would be ill-advised to be that precipitate. It is in their interest, as well as in those of the Forest, for him to establish the venture as a long-term investment proposition. For the realities of the U.S. tax system dictate a degree of caution when approaching real estate revenue: corporate profits that might be taxed at 25 per cent when they accrue from capital gains might, on the other hand, be taxed at twice that *continued on page 216*



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STERLING FOREST continued from page 214

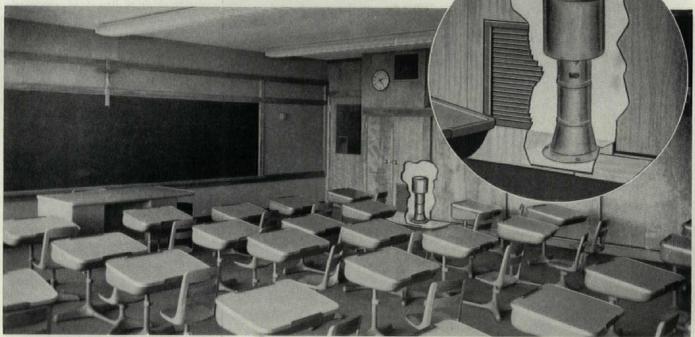
rate if the U.S. Treasury deemed that the profits resulted from ordinary income. One way to tell a capital-gains real estate transaction from one involving ordinary income is to determine whether land has been subdivided for sale (if so, it's income). Another way is to watch the rate of disposition (the slower the pace, the more likely it is capital gains). These two considerations undoubtedly helped Dowling toward the conclusion that, except in certain areas, the Forest's land should not be divided and sold off but should be developed as a gradually appreciable asset of City Investing.

Another factor urging Dowling toward a policy of gradualism is the possibility of increased local taxes. If the improvements made on the land were too spectacular, local assessors would have no choice other than to reappraise their conservative estimates of the Forest's natural growth (current assessment is now set at about the level of the original purchase price, \$1 million). For this reason, Dowling speaks in somewhat muted tones when in the Tuxedo neighborhood. He shifts the emphasis from his claim that the Forest is "worth millions more than we paid for it" to his policy of good-neighborliness (the roads he is building will never cost the town any money; schools will be built as the areas require them).

Although Sterling Forest's rate of development may never look like an obvious boom to anxious stockholders, they need not despair of getting dividends within their lifetime. The prime source of income will, of course, be the leases on the residential land. For there are no indications that home builders and buyers are reluctant to come into the Forest, however softly the industrial tenants may be knocking. Specifically, if current trends continue, it is expected that 1,000 homes will be built next year. Indeed, one of the minor difficulties that Dowling faces is that his original industries-beforehomes theory may be disrupted by the disproportionate demand for residential land.

The Forest's appeal to economyminded home buyers is understandable. In the Clinton Woods section, for example, 200 home sites, zoned according to good site-planning principles, *continued on page 224*

VARI-AIR SYSTEM for schoolroom heating and ventilating



Holy Family Elementary School, Fulton, N. Y. Pastor: Rev. Edward C. Hearn Architect: Edward Roock, Syracuse, N. Y. Contractor: Kenneth A. Taylor, Inc., Syracuse, N. Y

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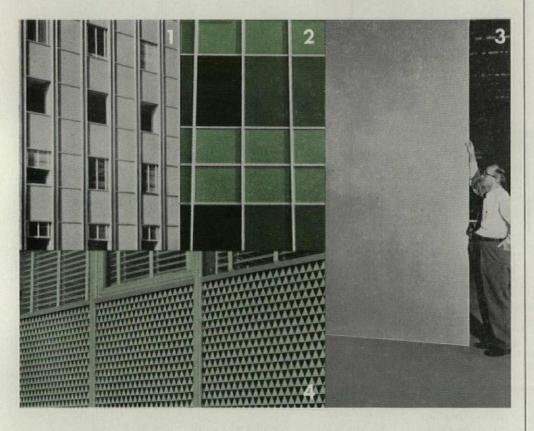
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1960 Sweet's insert

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TO RENT OR TO OWN continued from page 139

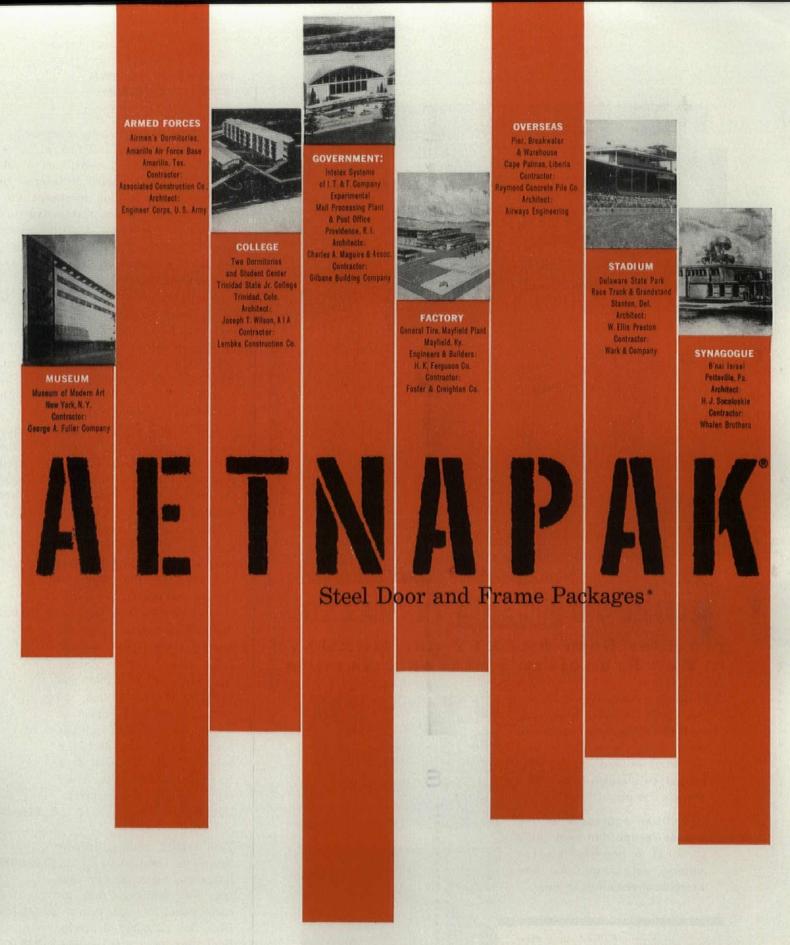
effect a deductible expense for tax purposes; but, as depreciation, only a portion may be deducted each year.

Building-depreciation allowances also can provide a form of tax exemption for income obtained from other operations, whenever the depreciation allowance for any single year exceeds the earnings, or savings, that could be attributed to a building. In the case of a building not showing any profit, or savings, the full depreciation allowance could be taken against a corresponding amount of other profits of the company, and in effect make that amount of that income tax-exempt. Even in a year that a company-owned building showed a loss (up to a certain amount), the company's after-tax cash position would still be better than if it had rented.

The case for owning

Disregarding special factors, the easiest way to measure the relative costs of owning vs. renting is to compare the financial position of a company first as the tenant and then as the owner of the same building.

This requires the making of certain basic assumptions about costs, rents, and financing for the sample building. For the purpose of this comparison it is assumed that an office building containing 200,000 square feet of rentable area is erected at an over-all cost of \$6 million, or \$30 per square foot, including the builder's profit. The escalator-clause rent is assumed to start at \$5 per square foot (the tenant bears all increases in real estate taxes and operating expenses) or a gross of \$1 million per year. Included in this rent is a profit margin of \$1.50 per square foot (or \$300,000 per year) for the builder-owner that must cover his mortgage amortization or capital accumulation (but not interest) as well as yield him a profit on an initial cash investment of \$2 million. A \$4-million mortgage requires payments of 8 per cent constant (53/4 per cent interest and 21/4 per cent amortization). If the ownerbuilder regarded his amortization as an expense rather than a capital saving, as some do, after his initial \$90,000 amortization payment, he would have \$210,000 left out of his \$300,000 profit, or a 10.5 per cent net return on his continued on page 220



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TO RENT OR TO OWN continued from page 218

\$2 million initial cash investment before depreciation and federal taxes. If owned "free and clear," on a \$6million investment, with no interest to pay on the \$4-million mortgage (initially \$230,000 a year) this structure would yield the same \$300,000 profit plus this \$230,000 interest saving a total of \$530,000 or 8.8 per cent before depreciation and federal taxes.

Assume that this entire building is to be rented by a company which, exclusive of occupancy costs, would earn \$6 million before federal taxes. If the rent, as outlined above, is \$1 million, the company's pretax profits would be \$5 million, or a net profit of \$2.4 million after 52 per cent federal taxes.

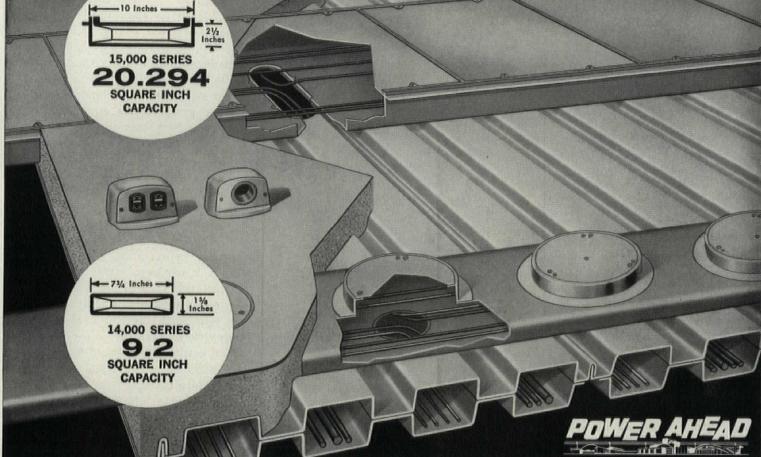
Now assume that the same company had built this building itself under the same terms outlined above or purchased it at the same cost and on the same mortgage terms. How would it fare financially? In bookkeeping fashion: Assuming equal interest and operating expenses, the company's pretax profit would increase by the \$300,000 "profit" earned by the building, and would thus be.....\$5,300,000 But before federal taxes, the tenant could take depreciation on the building. Assuming land at \$600,000 and building at \$5.4 million, the initial depreciation could be 4 per cent of \$5.4 million, using the "double-declining balance" method, based on a 50-year economic life 2 per cent straight-line depreciation rate, or\$ 216,000

This would reduce income subject to taxation to\$5,084,000 After paying a 52 per cent tax, the company's net income would be\$2,440,320 *Plus* the \$216,000 depreciation allowance\$ 216,000

Resulting in gross after-tax income of\$2,656,320 *Minus* the \$90,000 amortization payment\$ 90,000

Or a "net net" income of \$2,566,320 continued on page 222





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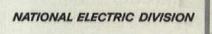
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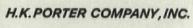
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to RENT OR TO OWN continued from page 220

On this basis, the company would show an increased after-tax profit of \$166,320 on its \$2-million cash investment and would own a building that would liquidate its own \$4-million mortgage in about 23 years. On the initial \$2 million investment, this \$166,320 would represent an after-tax yield of 8.3 per cent, or the equivalent of a 17.2 per cent pretax yield.

All the factors in the computation above, including the depreciation rate, could vary to some extent without producing any drastic changes in the basic outcome. Under favorable conditions of building cost and land cost, the benefits could be substantially greater. Even if depreciation were taken on only a 2 per cent straight-line basis, for instance, then in the example above the owner-occupant would still finish the year with an increased after-tax cash yield of \$110,160 on the \$2-million initial equity. This would be a 5.5 per cent after-tax yield, equal to 11.4 per cent before taxes.

Finally, an established company with a good credit rating would not necessarily need to have \$2 million of its own capital funds available to invest in the building. In normal times it could borrow that, too, on its note or other securities, over and above the first mortgage.

On balance, therefore, unless a company is assured of a considerably greater return by investing the same capital (or borrowed funds) in its regular business, it will usually pay it to build or buy its own quarters, particularly for its office space needs. The increasing number of new headquarters buildings going up around the country designed for, and owned by, major business enterprises bears this out. In New York, for instance, where the tremendous volume of new postwar office construction has kept rents competitive, the latest Real Estate Board survey shows that 34 out of 147, or 23 per cent of the structures already completed or slated for construction through 1962, are owner-occupied buildings. END

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STERLING FOREST continued from page 216

are being offered on long-term (99year) leases. Rental is 6 per cent of land value per year, or approximately \$35 a month for a \$7,000 plot. Although this may seem like a small drop in a large investment bucket, in 25 years monthly income at this rate will have yielded \$10,500. And, at the end of every 25-year period, the value of the land on which the leases are based is subject to reappraisal. Leases for industrial land are by no means this clearly worked out—mostly because Dowling and Walker are not interested at this point in discouraging a prospective tenant from believing he can get a "flexible arrangement" in the Forest. They point out that the tax situation of every potential client is so different that terms must be adjustable.

The general plan that Dowling and

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To operate the system, the operator presses a button for the floor desired. When the carrier is moved into the loading station, the Magnetic Memory device automatically transmits a signal to the carrier tabs or to the tabs on the container (whichever method is used). When it reaches the correct floor, a *reading* head decodes the digital signal and commands the unloading station to deliver the container.

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For complete details, including list of outstanding installations, write STANDARD CONVEYOR COM-PANY, Dept. BB-3, North St. Paul 9, Minn. Ask for Bulletin 151. Stansaction of conveyor experience Stansaction of conveyor experience GRAVITY & POWER CONVEYOR S Sales and Service in Principal Cities Walker have in mind to encourage industrial clients is to use \$10 million as a kind of revolving fund for the construction of model facilities. Should some enterprise want to buy or longterm lease the Hatchery, for example, the funds thereby released would be used to build another trial building. Or should an interested industry not wish to tie up its capital in a new plant, the Forest could supply it on a lease-back basis. Beyond this \$10million fund, and the estimated \$8 million that the corporation has so far put into developing the Forest's facilities, there is a big stretch up to the estimated investment "ceiling" of \$200 million. And this is a gap that Dowling is now becoming more anxious to close.

Between now and the day of maximum investment, Dowling and his coworkers plan to do more than idly watch their property appreciate as a City Investing asset. There is, as mentioned, the garden-sales operation, the peat company, the folk and music festivals, and a number of other "side shows" that will be developed as opportunities present themselves.

One area which will doubtless lend itself to Dowling's inventive touch is that of the subsidiary building venture, particularly as the Forest gets more and more into the building business. One such venture has already sprung up, the Pre-Cast Building Sections Co. This enterprise (which is financially related to City Investing rather than to the Sterling Forest Corp.) had been in operation for several years, but got a new reason for being when Dowling discovered that what he considered the right kind of facing tile for the facade of the Hatchery was difficult to obtain at a good price. He thereupon determined to make it himself. Not surprisingly, the motif of the tile the company now produces is a rampant tulip.

It is primarily because of this adaptability to the peculiar demands of his new property that Dowling appears fully capable of making his \$200million adventure pay off. For even Sterling Forest, one of the safest bets a realtor could make, could be worrisome in the hands of a less capable entrepreneur. It's not everyone who can fall into a swamp and come up with a peat industry. END



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THE TUBE IN STRUCTURE continued from page 152

not yet put the tube in competition with more conventional U.S. methods of construction. The principal deterents are 1) the high cost per pound of tubular materials compared with rolled sections, and 2) the fact that code specifications have yet to be established for tubular construction in the U.S.

In time, both conditions should

change. Further, the initial cost of the material is only part of the total construction cost; as is beginning to happen in Europe, skillful design and detailing can often eliminate or even reverse the cost differential. And, with the wider use of tubular materials, sections particularly applicable to such purposes will be produced at lower cost.



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Although tubular construction has failed thus far to make headway in the U.S., the use of tubular elements is nonetheless expanding in other building areas. Tubular scaffolding, for example, is widely used; millions of feet are currently in use, some three times greater than ten years ago. And in the light construction field, e.g., single-story structures, the tubular column is gaining broad acceptance.

The principal reason for the latter development is the tube's adaptability to modular construction. In single-story structures, the rectangular tube is more often the choice of the building designer, because it integrates more successfully with windows, mullions, and partitions than does a round column. (A notable exception is the new Mannesmann office tower, in Düsseldorf, shown on pages 152 and 153.) Because the tubular columns in one-story buildings can usually be exposed-as in the Wadsworth Senior High School, in Wadsworth, Ohio, by Joseph Baker & Associates (photo, below)-some reduction in building costs can be achieved.

Those who are involved with the developing technology of tubular structure have great hopes for its widespread application in building, both in Europe and the U.S. Frei Otto, for example, calls the prospects "very promising," and others say that the structural use of the tube is really just at its beginning. Indeed, in the tube may be the solution to the problem of finding an economical structural system which is demountable and portable—a problem which has vexed the building industry for many years.



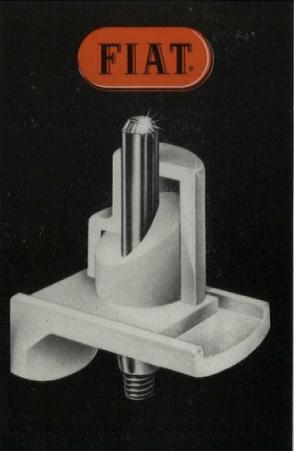
Tubular columns act as load-bearing members in this senior high school in Wadsworth, Ohio, designed by Joseph Baker. END

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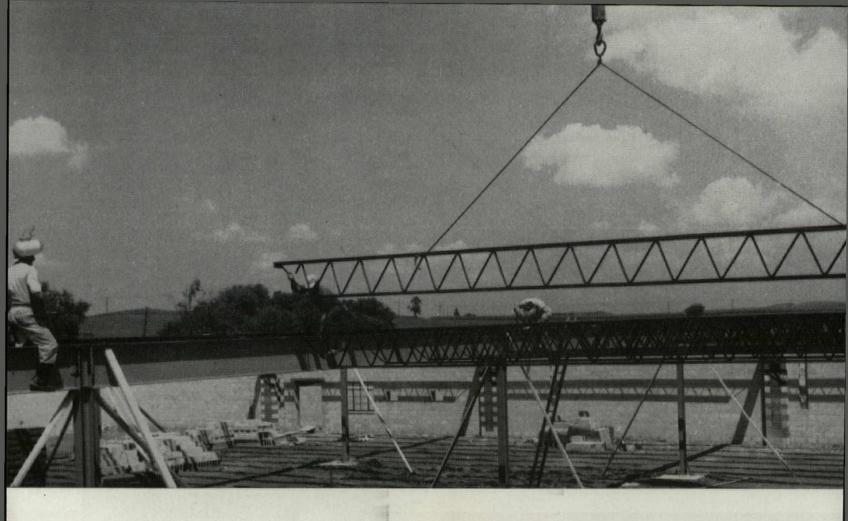
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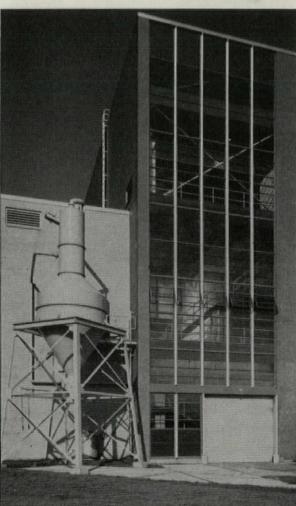
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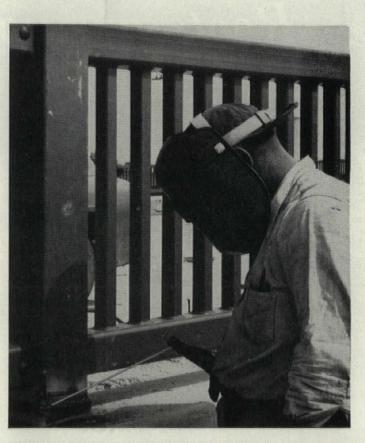
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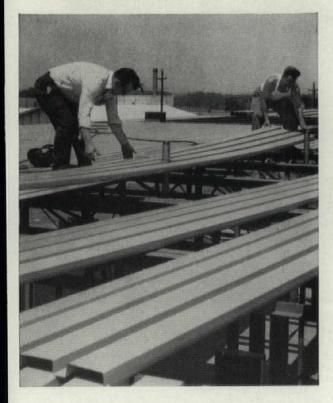
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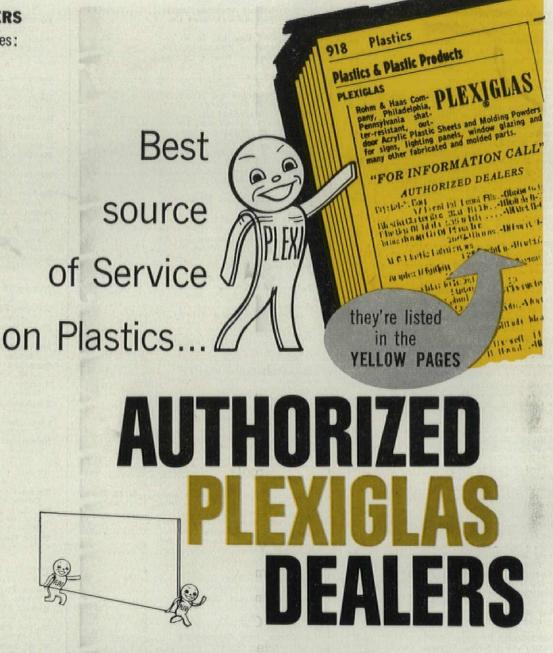
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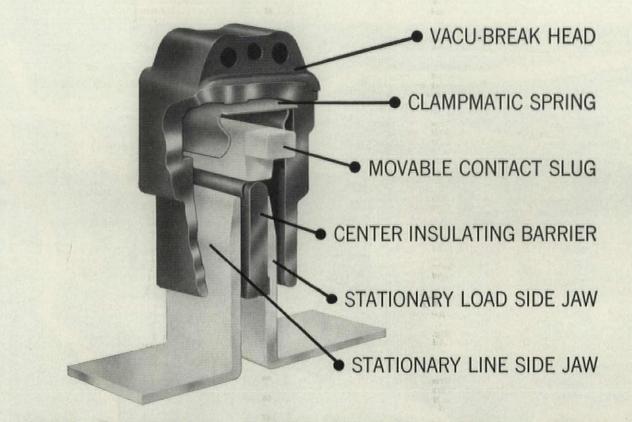
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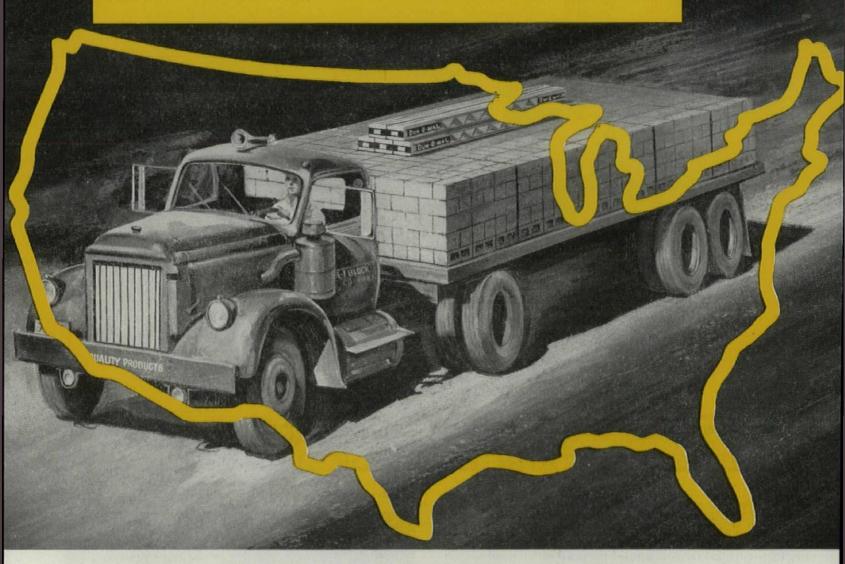


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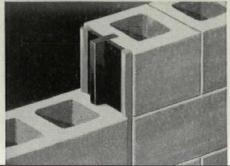


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Forum

Rebuilding . . . profits . . . hospitals . . . caverns

PROVOCATIVE REBUILDING

Forum:

Your issue on "America rebuilding" (FORUM, Jan. '60) provided a provocative picture of the deteriorating urban scene, plus illustrations of opportunities for improvement. Unfortunately, your pictures of deterioration were taken from the Cincinnati scene, and your illustrations of better urban building were selected from other eities. We understand that this is because you selected the "minus" part of the Cincinnati exhibition of "Plus and Minus," but we protest that this is unjust publicity for the eitizens of Cincinnati.

A just presentation would have included pictures of some of the fine examples of rebuilding which have occurred here.

Even Fountain Square, which you pictured from the worst angles, has more beautiful views than displeasing signs. In that connection, you may be interested to know that construction plans are being prepared for a triple-function underground terminal which is to include a new Fountain Square Plaza illustrated in this drawing (at left).

> C. A. HARRELL, city manager City of Cincinnati

FORUM'S "minus" selections were, as stated, negative examples of the unbuilding that is continuously taking place everywhere. It is to Cincinnati's credit that the Contemporary Arts Center presented a show honest enough to recognize these crimes.

Forum:

I agree that American building, as you say, "lacks a controlling philosophy" and is "full of 'fresh starts.'" The Point in Pittsburgh (a futuristic version of which is shown at left) is an example: it gives virtue to newness almost for the sake of newness alone. Any evidence of planning (a good space or two) appears to be accidental or expedient; continuity connecting a past, present, and future is not in it.

I doubt, though, that the kind of continuity that you write of can be imposed other than as planning—planning that is visual and architectural as well as social, ceonomical, administrative, and political.

> PAUL SCHWEIKHER, architect Pittsburgh

Forum:

The January issue of FORUM seemed to be an especially good one. I particularly admire your courage in pointing out examples not to be emulated.

HENRIK BULL, architect San Francisco

WIDENED ARCHITECTS

Forum:

It is high time the architect rethought his position in the community which he serves. There is a history and a continuity of thought and culture in most American cities. The architect must learn to widen his horizons to enable him to view his building not only in relationship to the immediate site, but to the entire community in which the building must rest as a neighbor to all other buildings already built or yet to be built.

Your interest in a more human architecture is a challenge to the schools and to the new architects they will produce in the next decade. Fortunately this is one area where the students themselves have taken a stand. In almost every school visited these past few years the students expressed a real desire and burning interest in not more technology, but in more of the universities' offerings in history, humanities, and the social sciences as a means to their understanding of and participation in the "controlling philosophy" you speak of in your January editorial. So, in my mind there is hope for the future.

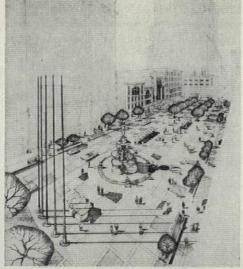
> ELLIOT L. WHITAKER, secretary National Architectural Accrediting Board Columbus, Ohio

PROFITABLE HOUSING

Forum:

The public housing picture used to be a somewhat dismal one because of uninspired agency men who had chosen, for the most part, uninspired architects. Unstudied design is bad enough in one building but so much worse in housing because of repetition. Moreover, this was encouraged by some shortsighted housing officials who felt they had been given a directive to make public housing less attractive than private housing.

To have young, able firms like Meathe & Kessler put fresh ideas and vigor into public housing (FORUM, Feb. '60) promises a more encouraging future for this neglected *continued on page 236*



Rebuilding promised for Cincinnati and for Pittsburgh's Point



field. You should be commended for encouraging this endeavor.

> MINORU YAMASAKI, architect Birmingham, Mich.

Forum:

I am awed by the tenacity of architects Meathe & Kessler and their ability to absorb the grinding punishment of dealing with our archaic housing agencies and still produce designs so sensitive to the needs of people who live in large-scale and low-cost housing. Frankly, I wonder how real their "profit" is, unless they did the work entirely at home on the dining-room table.

Perhaps both these young architects should be awarded a medal for gallantry in action, or at least a Purple Heart.

PHILIP WILL JR., architect Perkins & Will, Chicago

Forum:

A few more projects like that and I might have to stop being a sour old skeptic on public housing policy as currently interpreted.

CATHERINE BAUER WURSTER Department of City and Regional Planning University of California, Berkeley

Forum:

The term "project" is a misnomer and this is perhaps the key to the success of the experiment. Mount Clemens has built some very nice new homes that are not set apart from their neighborhood by size or scale. That they cost less and provide more space than is customary in public housing should spur other local housing authorities and other architects to seek freedom from the regulation book.

DOROTHY S. MONTGOMERY, managing director Philadelphia Housing Assn Philadelphia

HOUSING'S CHALLENGE

Forum:

A comprehensive housing program is not, as it has been characterized, by some, inflationary; on the contrary, it is antiinflationary in its creation of new values and new revenues for city, state, and nation. An adequate federal effort in the housing field is an essential factor in the growth of our metropolitan areas, and in the continued viability of our cities. Compare our housing statistics with the ten or more to a room of the U.S.S.R. and our greater success as a society and emphasis on human values is clear; but look at our slums and it is plain how gigantic a job remains before us. Good government cannot turn its back on this problem which is closest to home.

JACOB K. JAVITS, senator Washington, D.C.

SINCERE SERVICE

Forum:

I strongly support your campaign for excellence in governmental architecture, and generally applaud the State Department and deplore the Post Office. May I point out a federal agency which is maintaining a high standard of architectural excellence-the National Park Service. Working on what I imagine to be a limited budget, it turns out buildings which are attuned to the natural settings which they supplement, and which are clean and sincere architecturally.

NATIONAL PARK SERVICE PHOTO: J. E. BOUCHER



I recommend to you the buildings at Carlsbad Caverns, New Mexico (photo, above), and Bryce Canyon, Utah.

JOHN L. LEONARD Phoenix

OUTSTANDING RENEWAL

Forum:

The 1959 issues of Architectural FORUM were of great interest and help in keeping up with both local and national building trends. Of particular benefit were the various items regarding legislative matters and items from Washington, D. C.

I hope that you will continue to place emphasis on the aspects of urban renewal and their effects on the west, as well as at a national level.

BURGESS S. POOLE, superintendent of building regulations & conservation City of Richmond, Calif.

Forum:

I have followed with extreme interest the articles you have been publishing on urban renewal and its place in the future of our communities and country.

You are doing an outstanding service to the numerous independent groups of civic leaders, businessmen, and architects through your constant research and reports in this field.

> WILLIAM K. JOHNKE, architect Hempstead, N.Y.

Forum:

I have been watching with interest and appreciation FORUM's growing concern with urban design. Urban design, the visual planning of the city, has been neglected for an obvious reason: it has many adherents, but no clients.

Our architects have been concerned with individual buildings, paying little, if any, attention to their relationships with their surroundings. The city planners, on the other hand, have been primarily concerned with the function of the city rather than its appearance.

> DANIEL DRIVER, planner Santurce, P.R.

UNPROFITABLE HOSPITALS

Forum:

The Berlin hospital story (FORUM, Feb. '60) recalls Author E. T. Chase's excellent August piece.

As Chase points out, our hospital system is really not a system at all. Avoidable duplication of facilities constitutes a problem of major significance. Worse, there is nothing yet on the horizon, other than outright socialization, which will correct the situation. Coupled with this is the tremendous sum required for building capital. Needed in 1960-1970 alone is an amount equal to the present total assets of all hospitals-but with the present tax structure and decline of big-scale philanthropy such sums are out of question.

Think of the picture for a moment if hospitals were to become "utilities" legally, taxwise, and in terms of rate and profit structure. Introduce the regulated profit motive and you would soon cure unnecessary duplication and uneconomic small hospitals (via mergers), and make it possible to obtain large sums of capital for expansion and modernization. I appreciate this is very unorthodox but, save for this, socialism is close at hand. I believe our "nonprofit" hospital structure in its present form is obsolete and doomed to fail.

DONALD C. CARNER, administrator Long Beach Hospital Long Beach, Calif.

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