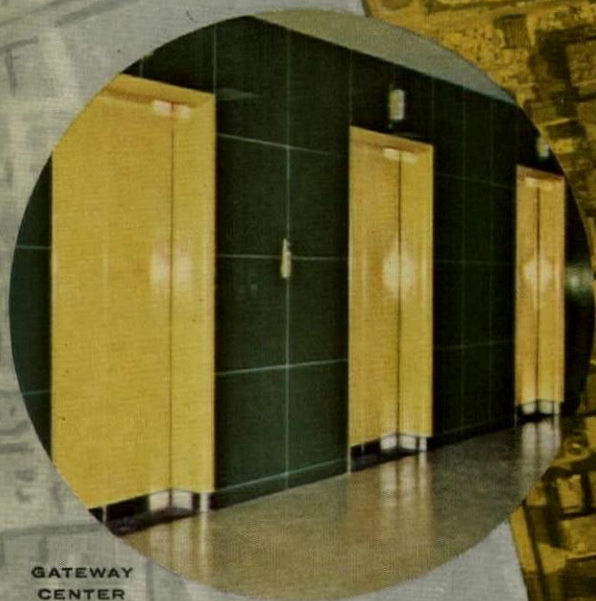


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ART OF ARCHITECTURE

A shimmering set of industrial stacks 88

A delightful contrast to the blackened chimneys of another era, the stacks of an S.O.M.-designed textile plant for Deering Milliken behave like fountains.

Arena for the auto age 98

Detroit's \$54 million Cobo Hall can hold four trade shows, a three-ring circus, and 30 meetings all at once. Architecturally it is not quite so resplendent.

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A split-level studio in Minnesota. . . . A geodesic garden umbrella in Ohio. . . . A tight little school in Washington. . . . A boxed office in New Jersey.

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The expressive roofscape of one of the Middle East's greatest mosques—a gallery.

Fortress of faith 130

The rugged forms and syncopated details of Le Corbusier's "La Tourette" give the Dominicans a stronghold and France an architectural landmark.

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After a minor setback, construction activity will resume its upward climb next year, topping the 1959 record—a FORUM forecast.

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Some experts suggest ways to attack a startling \$3.6 billion worth of obsolescence in U.S. health facilities.

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The theater automatique 90

Harvard's new Loeb Theater wraps three theaters and the gamut of advanced stage, lighting, and rigging systems into a single 515-seat package.

The economy of composite design 136

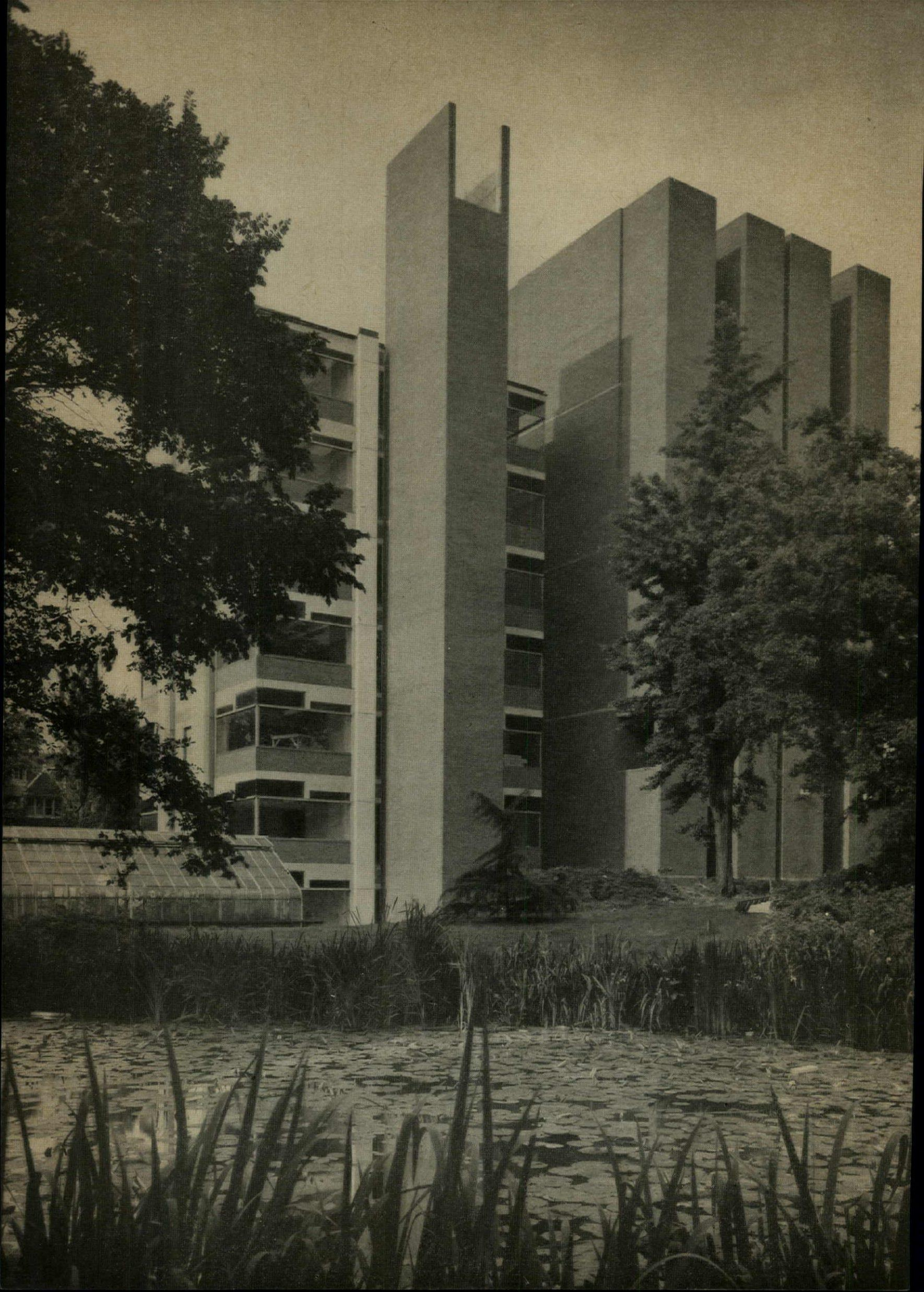
Making slab and beam work together, this relatively new construction technique saves materials, space, and money.

Cover: Photo of Isfahan's Masjid-i-Jami
by David J. Jacob
(story, page 118).

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CONCRETE

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To architect Louis Kahn, the ideal environment for a research scientist is a laboratory secluded from its necessary utility services.

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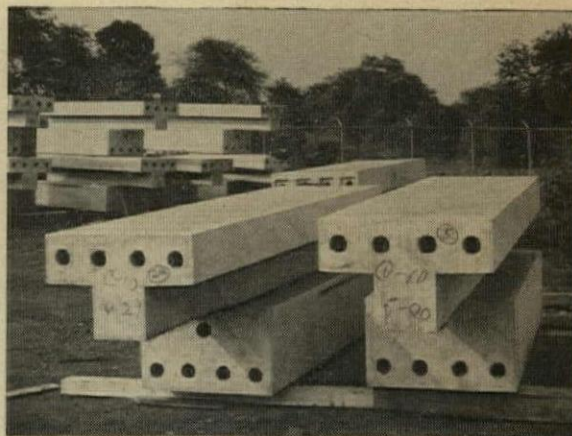
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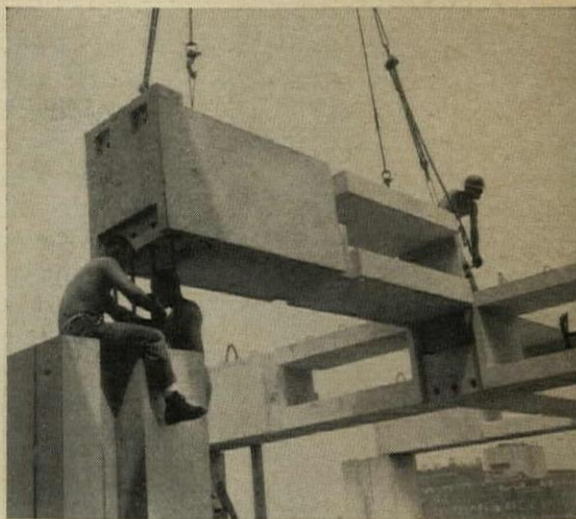
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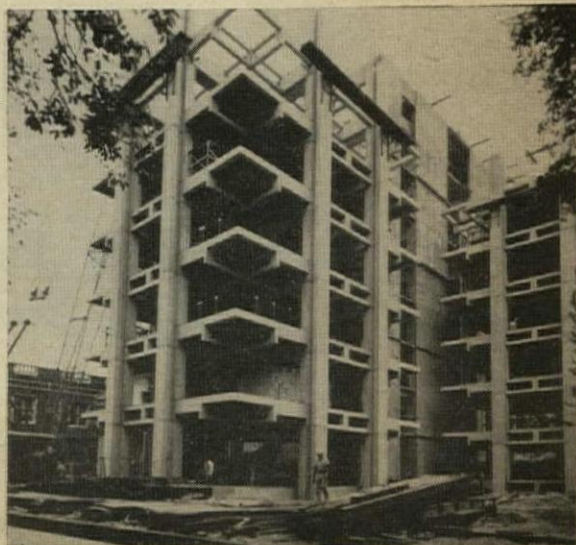
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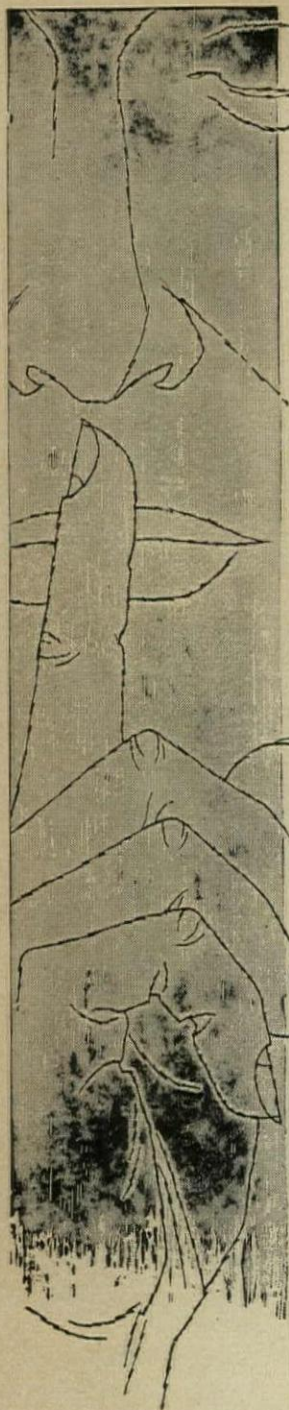


...intricately interlocked at the site to form economical multi-story structural frames.

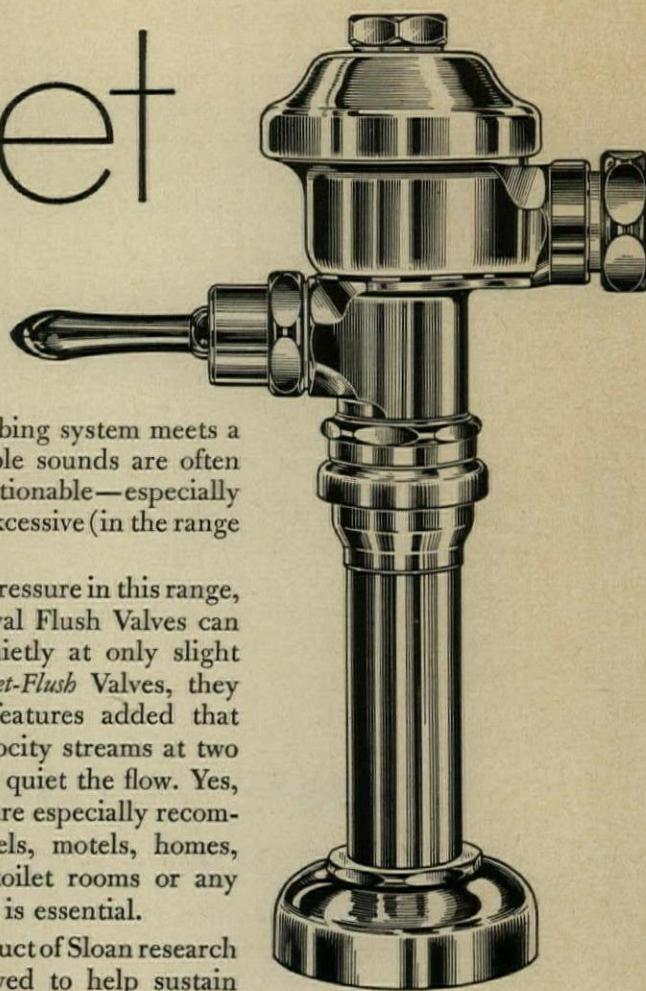


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Tax exemption for realty investment trusts approved —will make financing for new building much easier

In signing a new law last month that authorizes special federal tax exemption for real estate investment trusts, President Eisenhower approved a measure that may prove of incalculable benefit in making it much easier to finance new construction of almost every type as well as the resale of existing properties.

Subject to certain restrictions and requirements, the new law will now give qualified real estate investment trusts the same degree of exemption from federal corporation taxes that is allowed for so-called mutual funds or "conduit" securities investment trusts that regularly distribute at least 90 per cent of their earnings to their shareholders.

The sale of trust shares to the securities-investing public will eliminate many of the disadvantages and complexities of selling stock in ordinary real estate corporations to the public. Realty investment trusts should be able to raise a much greater volume of funds from the public and thus make it generally easier to finance various types of new buildings or their resale.

The investment world was losing little time in planning the creation of such trusts. In New York real estate attorneys are already conferring with leading Wall Street investment firms to establish a number of multimillion dollar trusts that will acquire large office and commercial buildings. In Boston, Ernest Henderson, president of Sheraton Corporation of America, disclosed that his company already is exploring the possibility of putting most of its real estate ownership, as distinguished from its hotel-operating business, into a real estate investment trust because this might be able to give its shareholders greater dividend benefits. The home-building industry also should benefit significantly from the new law, according to Robert Tharpe, of Atlanta, nominee for President of the Mortgage Bankers Association of America. Tharpe is already organizing a Georgia investment trust to hold only FHA and VA mortgages. Similar trusts that would be of great assistance to home builders are being formed in Alabama, Texas, and other Southern states.

New York realtor and syndicate specialist Harry Helmsley cites one of the most important effects the new law may produce. In attracting a greatly

increased volume of public funds into real estate, he explains, investment trusts will probably accelerate a decline from about 10 per cent to 9 per cent in the yields that are now available from many real estate syndications offered to the public in the New York area. Conversely, when capitalized at the lower yield, the price (or value) of a property suitable for purchase by a syndicate or trust would increase 5 to 10 per cent, depending on the ratio of the equity to the mortgage. By the same token, an owner erecting a new building for eventual resale could expect to realize a greater profit when he sold, or in the interim could afford to pay a higher rate to any temporary "partners" or for any portion of his equity funds that he borrowed.

The prime requirement for a real estate investment trust to qualify for exemption from federal income taxes on the "conduit" income it distributes to its shareholders is that its income be "passive." It must not engage in property operations. Nor can it hold properties primarily for sale or for trading in the ordinary course of its business. If it realizes a profit from the sale of a property it has owned for more than four years, it will have to pay capital gains taxes; otherwise it will have to pay regular taxes on such income. The government will still obtain the ordinary taxes that will be payable on the operating profits the property produces for its lessee, or the earnings of an owner who has obtained only a mortgage loan.

In recent years real estate syndicates have anticipated real estate investment trusts in some respects. By "partnership" ownership, instead of corporate ownership, they escaped corporation tax liability in most instances. But there has always been great uncertainty whether the Treasury might claim taxes from some of these syndicates for conducting their activities "in the manner of a corporation." The new investment trust legislation now gives full indisputable sanction to this type of activity. It requires a "regulated" trust, however, under basic rules very similar to those covering "regulated" securities trusts or mutual funds. Quite likely, therefore, approved trusts will now largely supersede public real estate syndicates and fewer of these will be organized in the future.



NEW PROFILE IN LOWER MANHATTAN

Towering over the low, narrow Federal Reserve Bank of New York (foreground), the gleaming, sharp 60-story, 810-foot-high Chase Manhattan Bank Building has changed the sky line of downtown New York and become one of the Wall Street area's most distinctive landmarks even before its completion. The first occupants are expected to move into this \$131 million building in November or December.

Roosevelt Memorial jury names six finalists

The six first-stage winners in the \$50,000 Franklin Delano Roosevelt Memorial Competition (FORUM, April '60) were named last month after the jury headed by Pietro Belluschi had spent three days reviewing 574 qualified entries.

The six successful competitors will receive \$10,000 each and now have until mid-December to develop final drawings. None of their entries will be released until judging for the top award has been completed. The six individuals and teams now competing as finalists are: New York Architect Abraham W. Geller associated with Douglas Gordon, Diana Kirsch, and Claude Samton; Pittsburgh Architect Tasso Katselas; New York Architect Rolf Myller; Boston Architects William F. Pedersen and Bradford S. Tilney associated with

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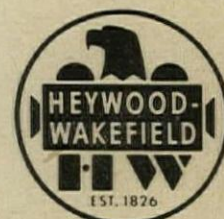
Interior designers for the Lauderdale Ruttger Hotel in Fort Lauderdale, Florida, were Frew and Squier.

The Lauderdale Ruttger achieves distinctive décor with Heywood-Wakefield Furniture

One of the outstanding new hotels in the country today, the Lauderdale Ruttger exemplifies the styling, comfort and flexibility which can be attained with Heywood-Wakefield furniture. Drawing heavily upon Heywood's *Danish Casual* suite for the bedrooms and coffee shop-lounge, the designers also included a number of other regular Heywood patterns plus some custom built units. Rugged as it is handsome, Heywood-Wakefield furniture will help preserve the fresh newness of the Lauderdale Ruttger for many years to come.



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Joseph Wasserman, David Beer, and Sculptor Norman Hoberman; Architect J. Edward Luders, Hideo Sasaki, Don Olson, and Robert J. Reilly, associated as Sasaki-Walker-Luders Associates of Watertown, Mass.; and University of Michigan Architect Joseph J. Wehrer associated with Harold J. Borkin.

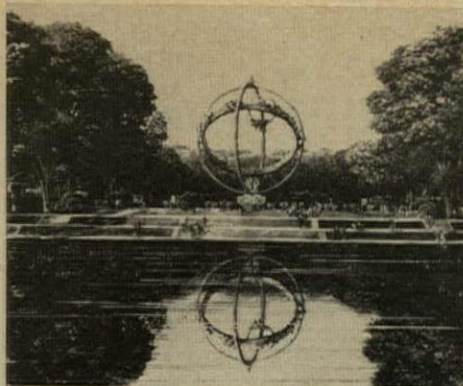
In addition to Belluschi, the competition jury consists of San Francisco Landscape Architect Thomas D. Church; Bartlett Hayes Jr., director of the Addison Gallery of American Art, Phillips Academy, Andover, Mass.; Joseph Hudnut, Harvard Professor of Architecture Emeritus; and Yale Architecture Department Chairman Paul Marvin Rudolph.

Meanwhile an embarrassing snag developed in plans for another memorial, this one for President Theodore Roosevelt, on a wooded island named for him in the Potomac River not far from the Washington Tidal Basin site for the Franklin Roosevelt Memorial. Soon after Congress appropriated \$886,000 last July for a huge spherical monument for the Theodore Roosevelt Memorial, criticism of its design (see photo) erupted in several quarters. Among those recording disapproval of this "celestial sphere," as not expressive of the spirit of the Rough Rider, was his daughter Mrs. Alice Roosevelt Longworth. In the aftermath, President Eisenhower signed an amendment to the memorial legislation last month that requires approval of whatever will be erected by the 26th President's three living children—Mrs. Longworth, Mrs. Ethel Roosevelt Derby, and Archibald Roosevelt. Creator of the ill-starred sphere design now apparently doomed to moth-balling: Eric Gugler.

Philadelphia shows how to keep plants in city

How a central city by joint municipal and private enterprise action can retain many industrial plants that otherwise might migrate to outlying areas was demonstrated graphically in Philadelphia last month. The Philadelphia Industrial Development Corp., a private nonprofit corporation that receives city funds for part of its operating expenses, announced the sale of a vacant, one-story, industrial building that it had purchased and modernized to a manufacturing company that originally had planned to relocate out of the city.

The quasi-public PIDC bought the plant early this year for \$600,000. With \$300,000 borrowed from the Philadelphia National Bank it modernized its



LOST THEODORE ROOSEVELT MEMORIAL

plumbing, heating, and electrical systems, air-conditioned its office area, installed 80,000 square feet of new concrete flooring, new truck loading docks, and created a paved parking area. Then it sold the property to the manufacturer on a 20-year installment purchase plan for its full acquisition and modernization costs.

The buyer's installment payments are lower than they would be under ordinary conditions, however, because PIDC is able to borrow all the capital funds it needs to engage in this type of activity on a tax-exempt basis. It can give no write-down or subsidy, however.

The company that bought the modernized plant has occupied an old six-story building for many years, and was arranging to move out of town. It faced an awkward situation, however, when it appeared that the new building, which it would rent, would not be completed by the time it wanted to move. At that point Philadelphia Realtor Frank G. Binswanger realized that the vacant Philadelphia plant would be a good alternative if it could be modernized and suitably financed, and he arranged for both its acquisition and resale by PIDC.

Highly pleased with the entire operation, and with keeping a 400-employee firm in the city, PIDC President William F. Kelly, who also is president of the First Pennsylvania Banking & Trust Co., said PIDC is prepared to acquire and modernize many more older plants in this manner.

Gain in taxes may offset renewal cost in four years

The increased income a city can anticipate from a successful redevelopment program, rapidly offsetting its heavy initial costs, is highlighted by a study of the six projects being undertaken by Hartford, Conn. Estimates of "before and after" tax revenue from the

projects by Arthur J. Lumsden, general manager of the Greater Hartford Chamber of Commerce, show that in a four-year period after their completion these projects will yield increased taxes exceeding the city's total outlays for them. In less than eight years the largest and most impressive project alone is expected to produce enough extra revenue to equal the city's total capital investment of about \$8 million (excluding interest costs) for all six projects.

Hartford's star project is Constitution Plaza, which will consist of two office towers, a four-story TV and radio building, and an eight-story hotel, replacing a deteriorated downtown commercial and tenement district. The city will contribute about \$1,350,000 for this project. The new construction to be completed by private redevelopers by 1962 will cost about \$35 million. Tax revenue will increase roughly \$1,060,000 a year (from \$90,000 to \$1,150,000), or enough to cover the city's costs for this project in only a little more than a year.

When all six of its projects have been completed (five of them by 1965, and the other one by 1969) Hartford will have gained about \$90 million of new construction, of which about \$60 million will be taxable. By present estimates, taxes from the redeveloped areas will total about \$3,340,000 a year, or a net increase of \$2,200,000 over former taxes that totaled \$940,000.

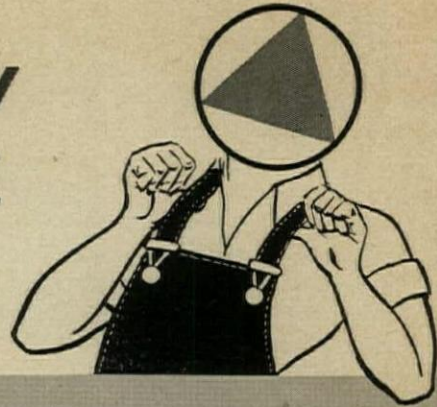
Title I land sale to church upheld by Missouri court

The doctrine of separation of church and state, and constitutional bans against the use of public funds to aid sectarian organizations, do not preclude the participation of religious institutions in publicly assisted redevelopment projects, according to a decision by Missouri Circuit Judge Robert L. Aronson.

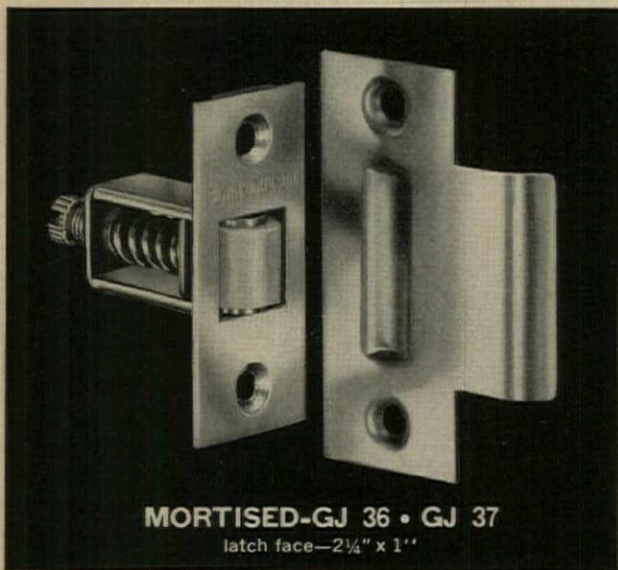
In a 16-page decision upholding the sale of 22 acres in the Mill Creek Valley project to St. Louis University, operated by the Society of Jesus, Judge Aronson ruled that "even as church institutions may not be favored by the state, at the same time they may not be put at a disadvantage." Citing a provision in the Missouri constitution that declares that "no preference shall be given to or discrimination made against" any sectarian group, Judge Aronson found that this Catholic university could not be barred from par-

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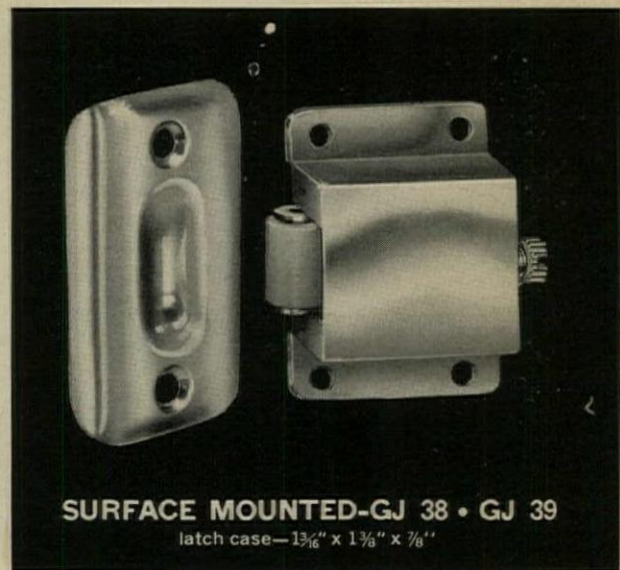
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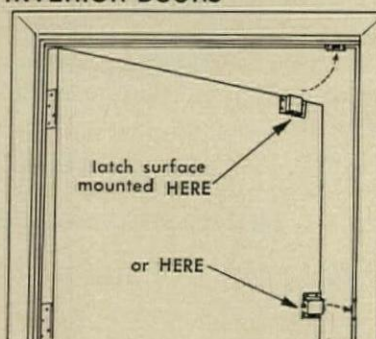
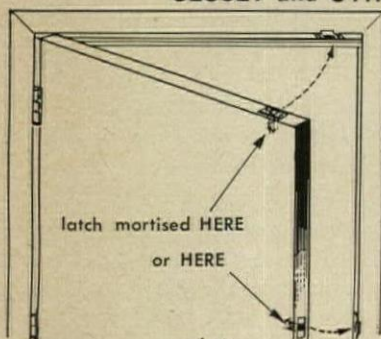


SURFACE MOUNTED-GJ 38 • GJ 39
latch case— $1\frac{3}{16}$ " x $1\frac{3}{8}$ " x $\frac{7}{8}$ "

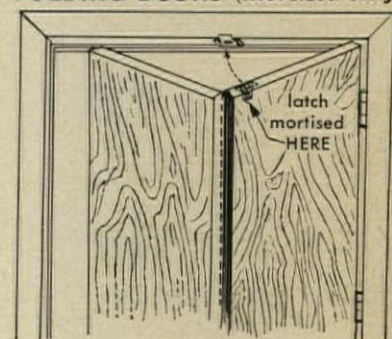
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ticipating in a redevelopment project on the same basis as any other private redeveloper "without denying it the equal rights and status which should be "accorded it." Other sections of his decision rejected supplementary contentions that the St. Louis Land Clearance for Redevelopment Authority had given the university special "advantage" in selling it the property (which adjoins other land that it owns) and, at a price of \$535,800, had sold it for less than its fair value.

Last month, however, the three taxpayers who instituted the suit, two of them representing the Public Funds for Public Uses Committee, Inc., and supported by Protestants and Other Americans United for Separation of Church and State, appealed Judge Aronson's decision to the Missouri Supreme Court.

In San Francisco: Hilton begs for permit to build

For more than a year Architect William B. Tabler and Attorney Philip S. Ehrlich have sparred with a multiplicity of San Francisco city agencies and officials in vain efforts to obtain a building permit to erect a spanking modern \$27 million Hilton Hotel there. Last month the game had been played to its ultimate impasse at the administrative level. Twice the Board of Permit Appeals had approved Tabler's plans and ordered the Bureau of Building Inspection to issue a permit. But three times the bureau had refused to do so, claiming that these plans would violate city and state building codes. Weary but determined, Attorney Ehrlich carried his fight into court, seeking a judicial order that would compel the obstinate inspection bureau to issue the long-sought permit. Fortunately, all parties were willing to waive lower court proceedings. If the state's highest

court would agree to take jurisdiction in the case immediately, the case might be resolved before year's end; otherwise it might be another two years before the issue is settled or construction can be started.

During Tabler's and Ehrlich's patience-straining efforts to obtain a permit through ordinary procedures, San Francisco City Attorney Dion R. Holm has sided with Building Inspection Bureau Superintendent Robert C. Levy, but has done so without challenging or taking direct issue with the Board of Permit Appeals. Twice Holm has advised Levy that he would be violating the building code if he issued a permit based on the Appeal Board's orders. In court Holm is expected to follow the same course and somewhat paradoxically contend that while the Appeals Board may grant variances it cannot compel the Inspection Bureau to break the law, which he holds it would be doing if it granted a permit for plans not conforming to the code.

Superintendent Levy was not the sole opponent to Tabler's plans, however. Just as adamant against them was Albert E. Hayes, chief of the Fire Department's Division of Fire Prevention and Investigation. Referring to the greatest bone of contention—interior fire stairs approved by the Board of Permit Appeals rather than exterior smoke-proof towers specified in the city's fire code—Hayes charged that the proposed structure would be a "17-story fire trap." Countering this, Conrad N. Hilton, in an advertisement in San Francisco newspapers addressed to the public, noted that "outside smoke towers have been eliminated from the building codes of 35 major cities in the nation including Los Angeles, Chicago, Detroit, Pittsburgh, Atlanta, Baltimore."

But statements and counterstatements were not enough to resolve the difference between the hotel chain and the city's bureaucracy, or to end the interagency jealousies and power plays that also complicated the situation. Indicative of the latter, a *Chronicle* editorial declared: "The current battle, in which the Board of Permit Appeals has once again overridden numerous informed recommendations and carefully considered official decisions, has raised once more the question of its sweeping powers. . . . The complaint is heard that this overpowerful board constitutes a five-man supergovernment needing more checks upon its virtual omnipotence than is afforded by appeals to the courts." In its instant case, however, in which it was the Board of Permit Appeals' orders that were overridden, Hilton seemed to have no recourse except to court.



SAN FRANCISCO HILTON (R);
OFFICE CENTER (L)



SULLIVAN TOWER saved by court
as it appeared before cornice removal

Chicago: veto demolition on esthetic grounds

What architectural genius has joined together let no owner tear asunder.

In Chicago last month this esthetic dictum had won the support of law. In a precedent-setting decision, Cook County Superior Court Judge Donald S. McKinlay had refused to grant a writ compelling the city's building commissioner to issue a permit to allow the owners to demolish the 17-story, 68-year-old Garrick Theater and office building of Louis Sullivan—the tallest structure ever built by the architectural father of the modern skyscraper.

But, Judge McKinlay stated frankly that it had been "a difficult decision to make" in trying to decide "whether or not a city can consider the esthetic or cultural value to the public of a building, in refusing a permit to demolish it." In opening remarks he observed that "it is difficult for one who has recently seen the inside of this building to visualize what some artists and architects see in the structure. I don't doubt their sincerity, but I am sure millions of persons have passed and are passing the building without especially noticing it. The interior today looks like a serious fire risk and it should be demolished or put in safe condition quickly."

In making the first known U.S. court decision barring private demolition because of a building's esthetic value to the public, Judge McKinlay leaned

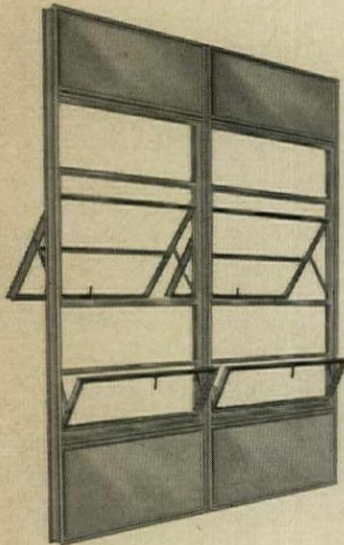
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lower **BUILDING CONSTRUCTION COSTS—**

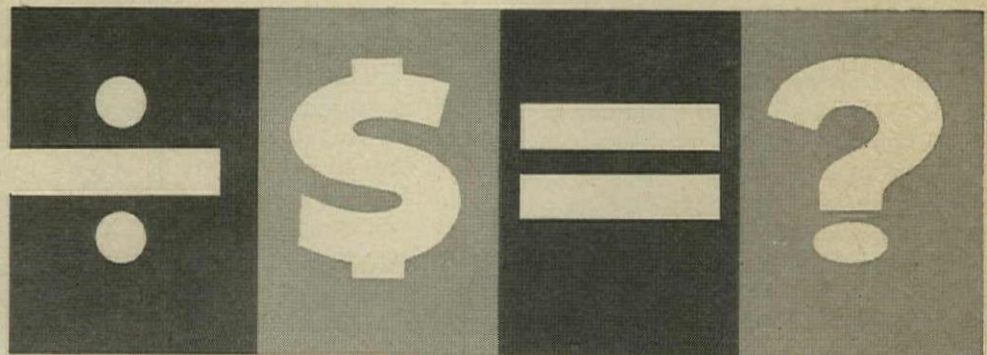
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mainly on the U.S. Supreme Court's famous 1954 Title I decision (*Berman vs. Parker*). In that decision the Supreme Court held that a city may properly consider esthetics in planning a comprehensive large-scale redevelopment project, and can condemn and demolish a nonslum structure to achieve rebuilding so "the community should be beautiful as well as healthy, spacious as well as clean, well-balanced as well as carefully patrolled."

"That court," Judge McKinlay added, as if seeking further shelter, "might well decide that esthetic, artistic, and cultural value to the public could be considered, not only in clearing a slum, but in preserving a landmark. I presume because compensation is awarded to the owner in taking his property by condemnation, some method of purchase or payment would have to be found to compensate an owner who is refused a permit to demolish his own building when it becomes an expense and loss to him. I believe that our Supreme Court should pass on this matter as soon as possible."

In referring to compensation, Judge McKinlay was touching on another extraordinary factor in his Garrick decision. That is the lack of any policy on the part of the City of Chicago to pay the owners anything to compensate for denying them their ordinary right to replace their building with a more modern or more economical structure. Nor was there any city policy to take over or refurbish the relic (i.e., now that the "masterpiece" must be forcibly preserved for the public's esthetic benefit, who will decide what will be done with it next, by whom, and who will pay the piper?)

The city has declined an offer of the property for \$1.5 million, and the owners claim it is costing them \$500 a day to carry the vacated, obsolete structure—"its original beauty," according to Chicago's *Sun-Times*, "long encrusted by the grime of the city and desecrated by commercial expedience." The owners had intended to replace it with a functional five-story parking garage. As the case unfolds, however, in due course and under due process

the city undoubtedly will be ordered to compensate the owners in some manner, and it will then have to establish some basic municipal policy on how often and how much it will be willing to spend from time to time to preserve particular landmarks or outstanding examples of old architecture that private owners otherwise may demolish, and what to do with them thereafter.

The gallant sparkplug for the victorious movement that culminated in Judge McKinlay's decision saving the Garrick at least temporarily was young Architectural Photographer and Historian Richard Nickel, 32, a graduate of IIT now at work on a detailed photo-documentation, *The Complete Architecture of Adler and Sullivan*, to be published in about two years under a \$5,000 grant provided mainly by Edgar Kaufmann Jr., (whose late father commissioned Frank Lloyd Wright's famous Falling Water house). Last spring, Nickel wrote to many prominent architects and university officials begging them to do whatever they could to prevent impending destruction of the building. One result was a letter from José Luis Sert in the *Chicago Tribune* saying that such demolition

continued on page 14

Bright idea: profits from special-assessment programs

? How to persuade property owners to approve special assessments or make voluntary contributions for downtown improvements.

! Have an independent appraiser calculate the extra value that will be added to each property in excess of each owner's actual assessment or contribution.

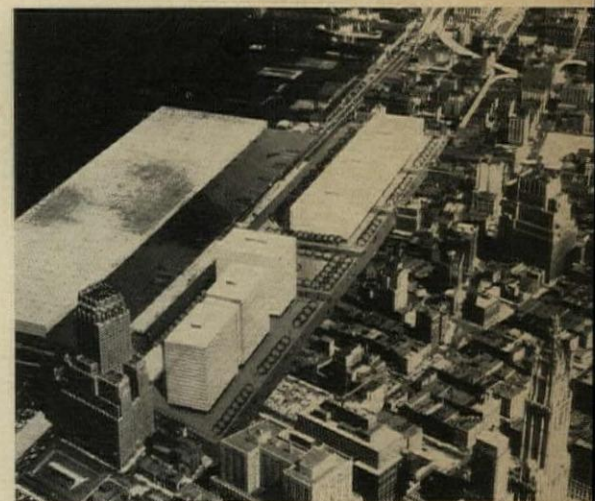
As soon as city and county officials in Denver can juggle their budgets to cover a program to place traffic signal wires underground, property owners in a 44-block downtown area are expected to approve the formation of a special-assessment district to raise about \$450,000 for a new modern street-lighting system that will increase illumination about tenfold.

When the Downtown Denver Improvement Assn. started to promote this project two years ago, it decided that a special district would be the best method for distributing the costs equitably—even though 77 per cent of the affected property owners said they were willing to pay on a voluntary basis. About the same time, the city attorney requested a detailed appraisal of the prospective benefits, and the city council voted \$3,000 for such a study by Denver Appraisal Engineer Andrew F. Chase (the only appraisal of its kind for a street-lighting improvement program that they have ever heard of,

according to Chase and DDIA Executive Director Perry G. Anderson).

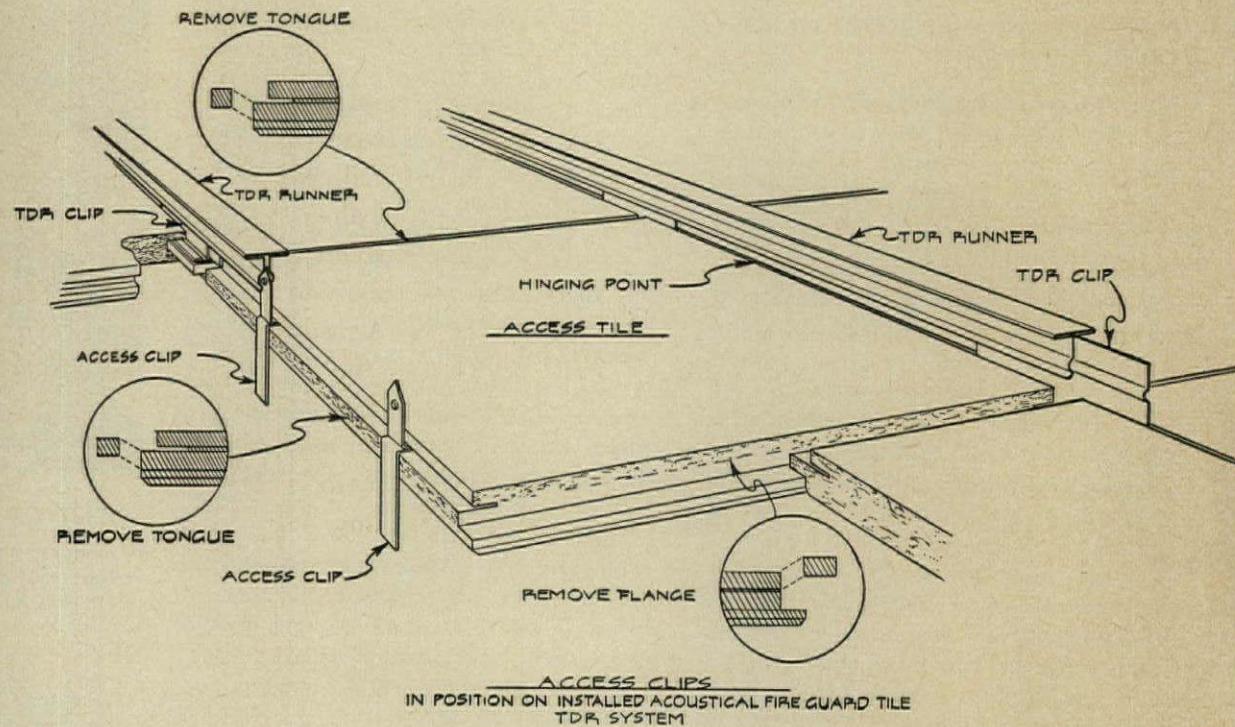
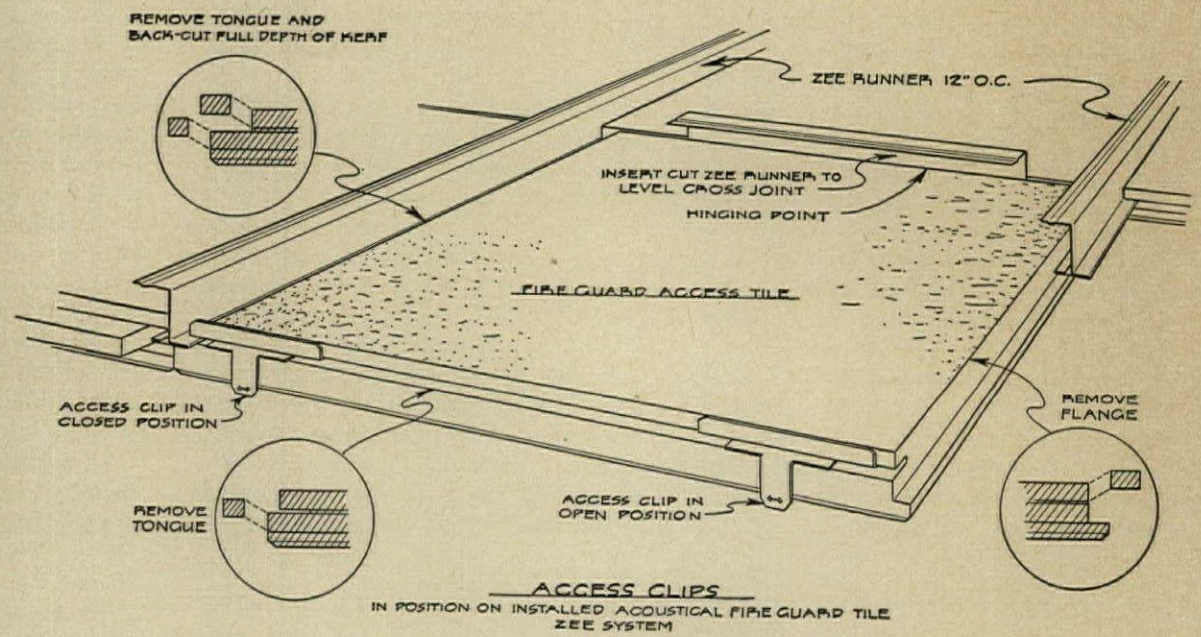
In his appraisal, Chase found that the \$450,000 for new lighting would boost property values in the district a total of \$2,261,400, or about five times the cost of the improvement. This would accrue mainly out of reduced nighttime crime risks in the area, which, as experience showed in many other cities, would make it practical for merchants to keep stores open longer each day. When the project is inaugurated, special assessments will be set, on the basis of Chase's appraisal of the particular increase in value that will accrue to each of the 457 different parcels in the district. Chase aided the city in a reassessment of all Denver real estate in 1958 and 1959, and his formula for estimating benefits from better street lighting is based on the relative advantages it will give each individual property, not merely on street frontage, area, or relative assessed value.

With this kind of an appraisal it is possible to demonstrate the real gains that will come to property owners who might be expecting no benefits at all from a particular improvement program, to which they were therefore indifferent: potentially they could sell their property for an increase in the profit that would markedly exceed their extra assessment expense.



LOWER MANHATTAN TITLE I PROJECT

Preliminary plans for redeveloping New York's congested 24-block wholesale produce market, which will be relocated in New Jersey or the Bronx, call for a group of three 20-story office towers (foreground) and a quarter-mile-long ten-story, 3.2 million square foot industrial warehouse. Later the adjacent Hudson River water front (1) also will be redeveloped. (At lower right in picture is Woolworth Building tower.) Last month the city's new Housing and Redevelopment Board designated Builder Erwin S. Wolfson as the tentative sponsor for this \$100 million project, which would be the first Title I venture for his Diesel Construction organization, now at work starting the \$100 million Grand Central City office tower over the rear section of Grand Central Terminal. Consulting architects to the city in preparing the preliminary Washington Market plans: Skidmore, Owings & Merrill.



How Armstrong Acoustical Fire Guard can provide easy accessibility

Acoustical Fire Guard's new access-clip arrangement
allows access to any part of the ceiling's plenum chamber

BECAUSE OF the maze of pipes, ducts, and electrical equipment installed above the suspended ceilings of today's buildings, accessibility has become an important consideration in specifications. Emergency entry to the plenum chamber of the traditional fire protective ceiling has meant expensive damage or loss of time.

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either the zee or TDR systems—both of which have official fire-retardant ratings from Underwriters' Laboratories, Inc.

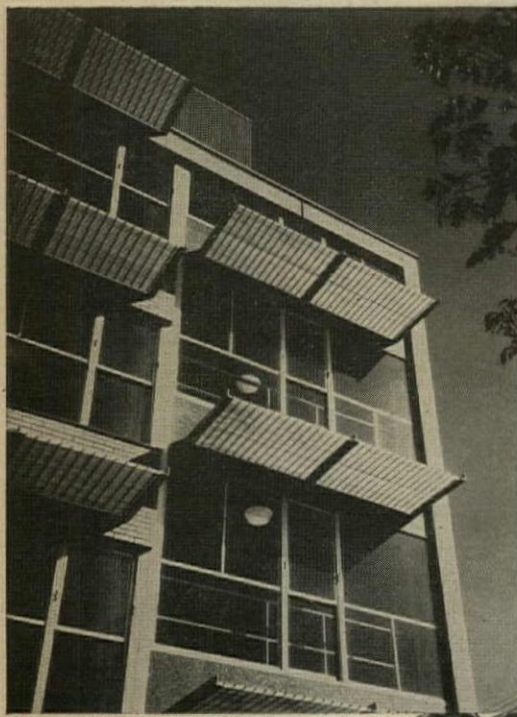
This access-clip system is more economical to install than unsightly access doors in conventional ceilings. When in place, the clips are almost invisible.

To learn more about Acoustical Fire Guard and the many benefits it can offer, call your Armstrong acoustical contractor (he's in the Yellow Pages) or your nearest Armstrong District Office. For further technical information about Acoustical Fire Guard, write to Armstrong Cork Company, 4210 Rooney St., Lancaster, Penna.

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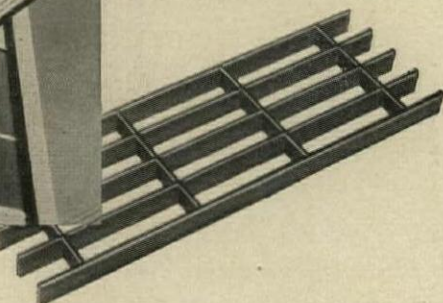
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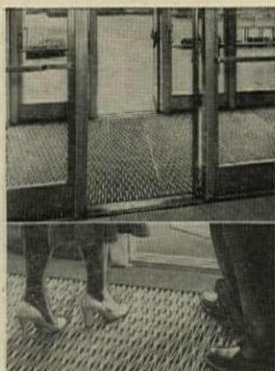
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"would amount to vandalism." Subsequently Nickel led a group of anti-demolition pickets who paraded in front of the old structure in contemporary union style. Then, after a special public hearing conducted by Mayor Richard J. Daley, a permit for the work that was issued on June 1 was withdrawn, and what may become a long course of historic architectural preservation litigation was begun.

People

For their "outstanding record of achievement in the practice of design . . . uncompromising directness in the treatment of materials, inherent logic of structure and form . . . and an approach that takes into account the necessary condition that a creative intelligence must function within the framework of modern industry and technology," Architect **Charles Eames** and his wife and Associate Designer **Ray Eames** were selected as the first recipients of the annual \$20,000 Kaufmann International Design Award. The international jury for the award, appointed by the design committee of the Institute of International Education, of New York, met in Lugano, Switzerland, last month, and also voted a special memorial commendation to the late **Adriano Olivetti**, who died February 28. The Kaufmann Award was established by a family foundation of **Edgar Kaufmann Jr.**, of Pittsburgh, in memory of **Liliane S.** and **Edgar J. Kaufmann**.

NEW TASK FOR ENTENZA

One of U.S. architecture's most engaging and discriminating side-line personalities has been drafted for one of its less sensational but nevertheless significant assignments. The draftee is **John Dymock Entenza**, critic and publisher since 1938 of *Arts & Architecture*. His new role, taking him

ADELE VON SECKENDORFF-GUDENT



ENTENZA

to Chicago, from which he will still conduct his Los Angeles publishing venture, is that of director of the Graham Foundation for Advanced Studies in the Fine Arts. This organization was richly endowed by the late Chicago Architect Ernest R. Graham, who died in 1936. As described by Trustee President Charles F. Murphy, of the Chicago architectural office of Naess & Murphy, the foundation's aim is "to further work in architecture and allied arts, and, by substantial grants, to enable persons with high creative talents to have advanced opportunity in these fields" including sculpture, painting, photography, film making and art criticism. Since it was established in 1956 the foundation's temporary director has been William E. Hartmann, Chicago office partner of Skidmore, Owings & Merrill, and its advisers have included MIT Humanities Dean John Ely Burchard, Mies van der Rohe, James Johnson Sweeney, José Luis Sert and Siegfried Giedion. Entenza discarded an education for the diplomatic service in favor of his career as a patron and critic of architecture and the arts. Through the 30-odd Case Study Houses commissioned by *Arts & Architecture*, Editor and Critic Entenza has perhaps been responsible, single-handedly, for more of the growth of modern architecture in Southern California than any other individual. Last year the A.I.A. Pacific Rim Convention awarded him a distinguished service citation for his editing of *Arts & Architecture*. His appointment is auspicious news for all creative people in U.S. architecture. **END**

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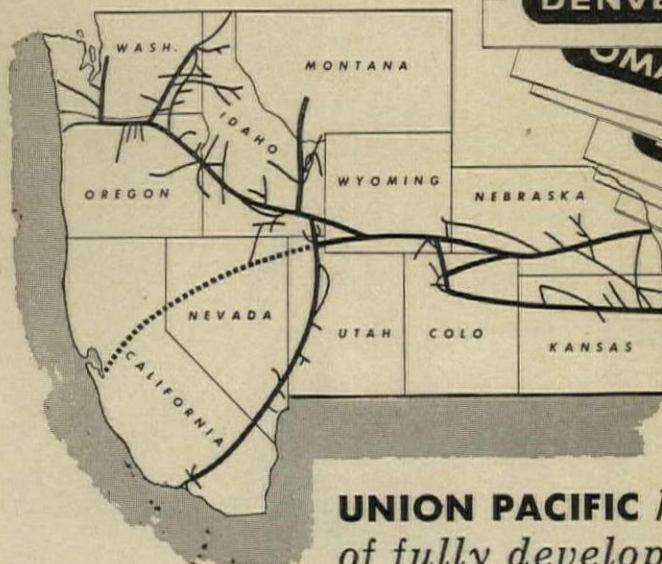
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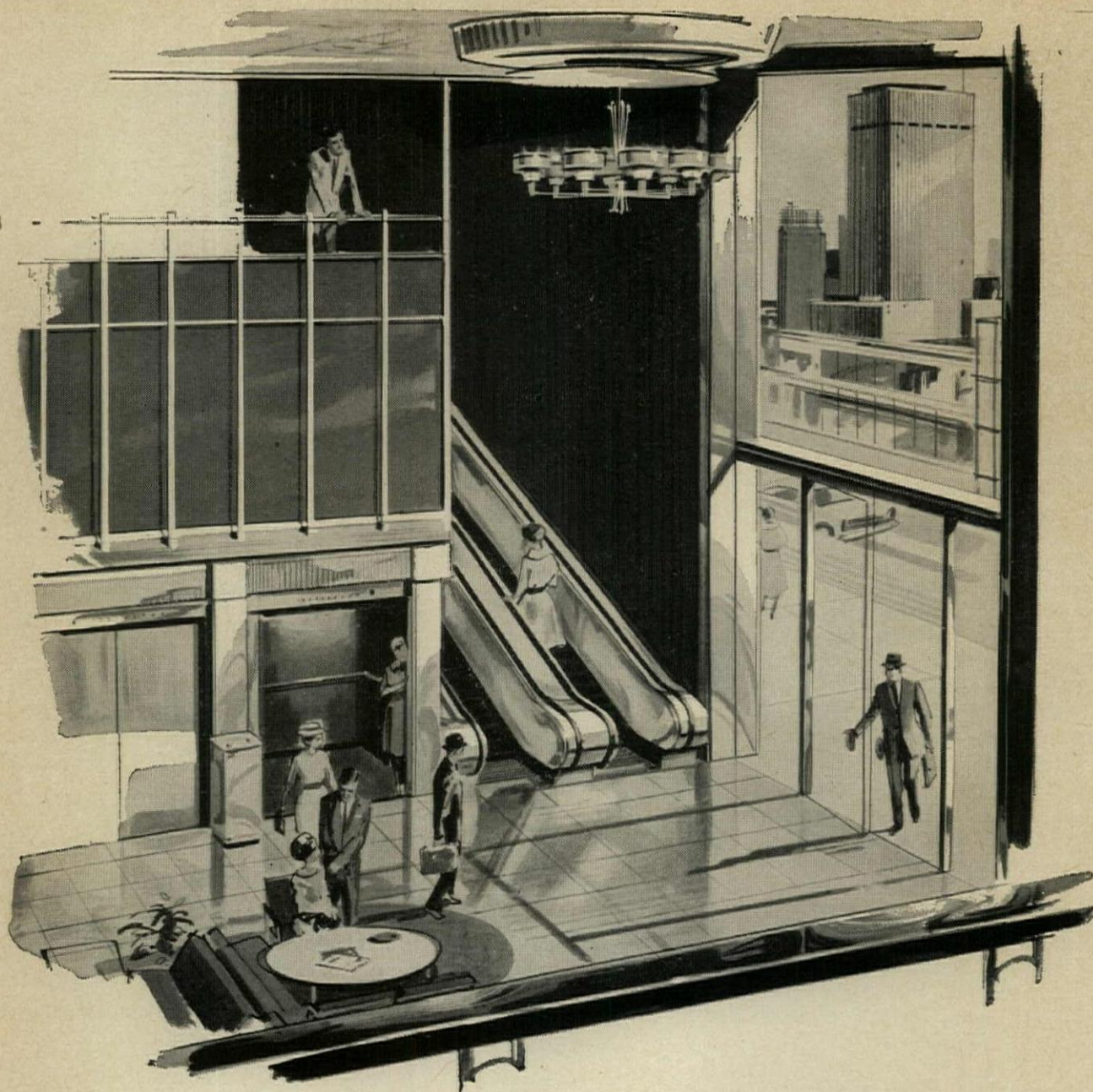
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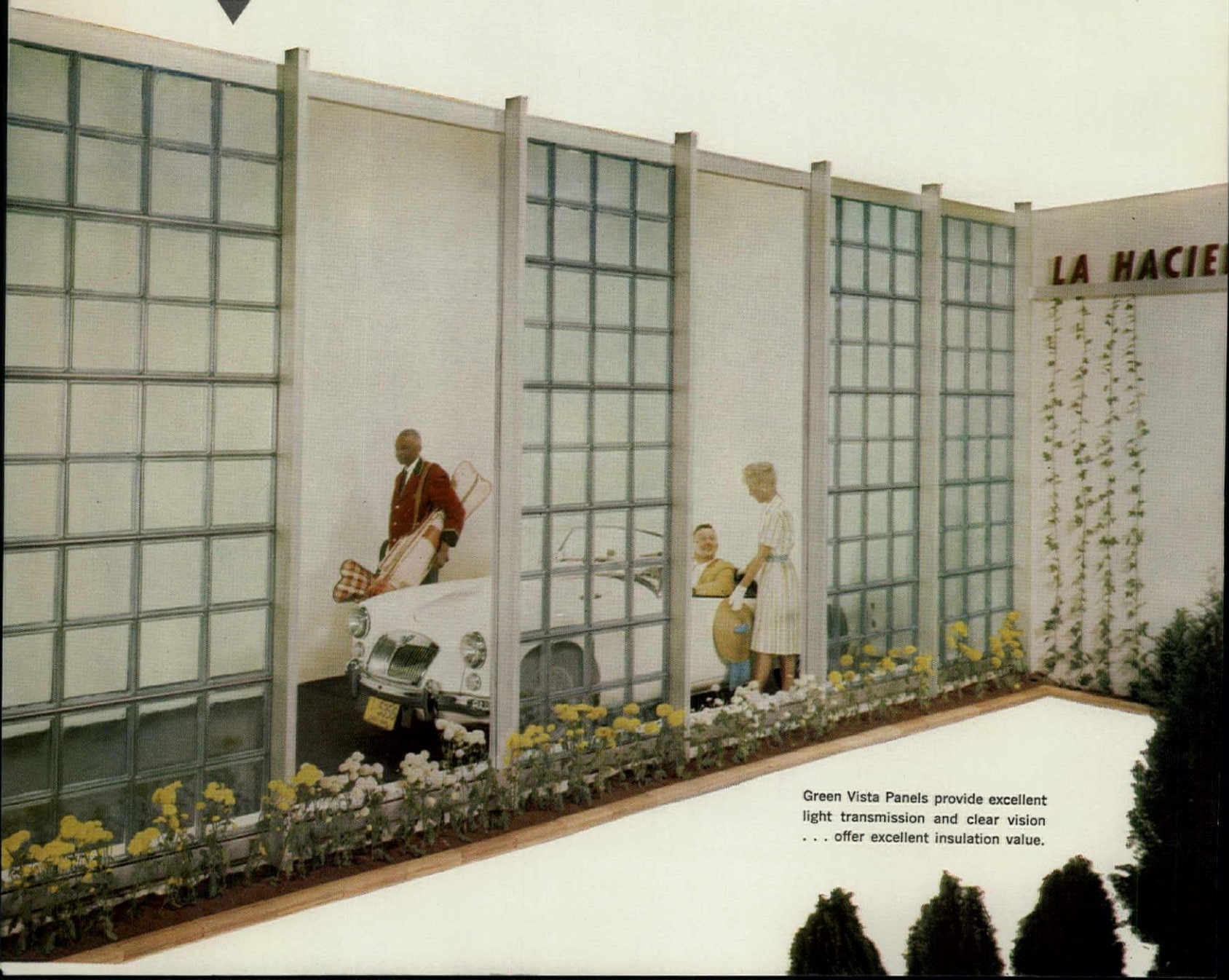
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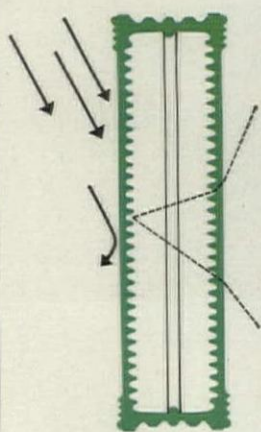
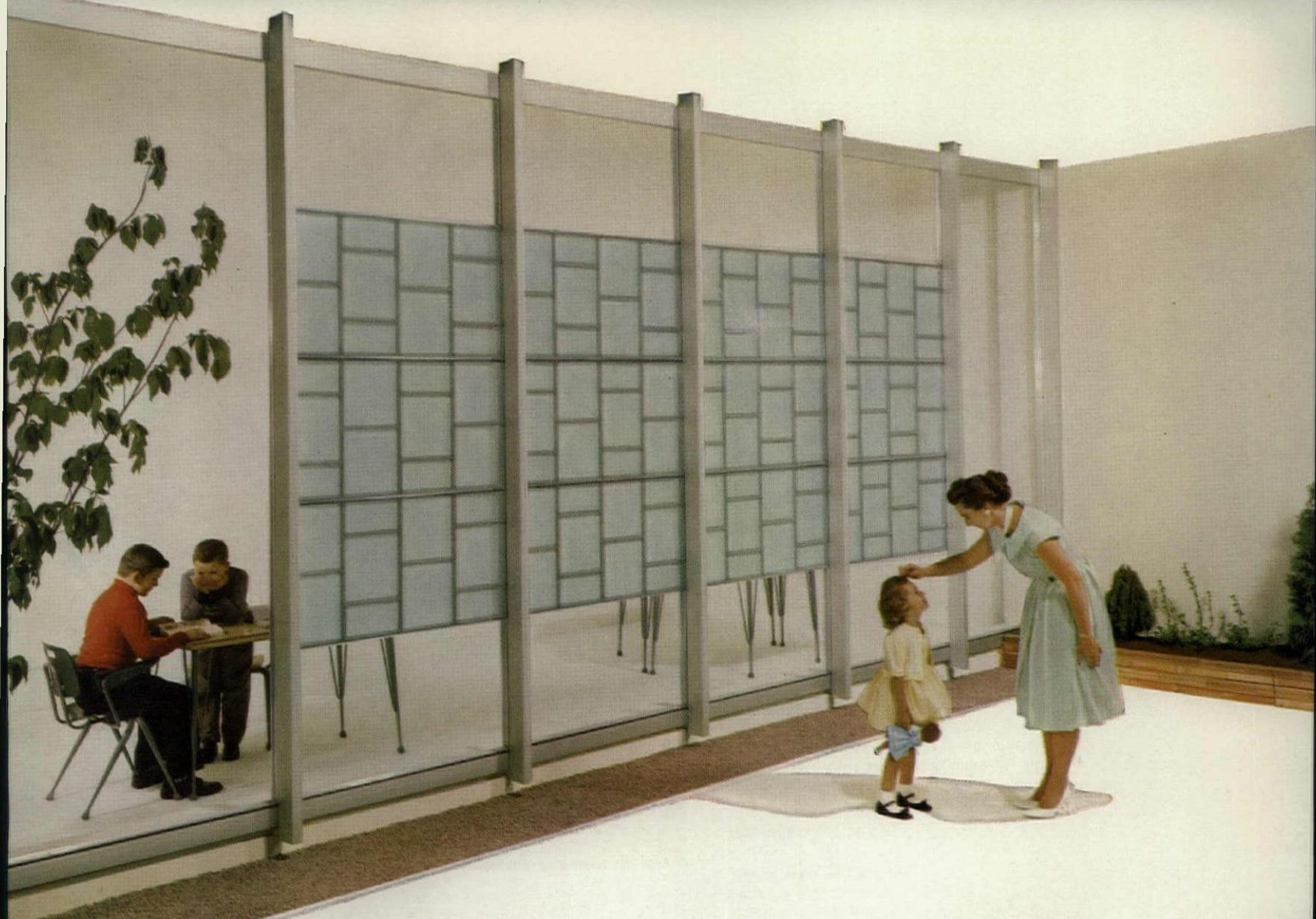
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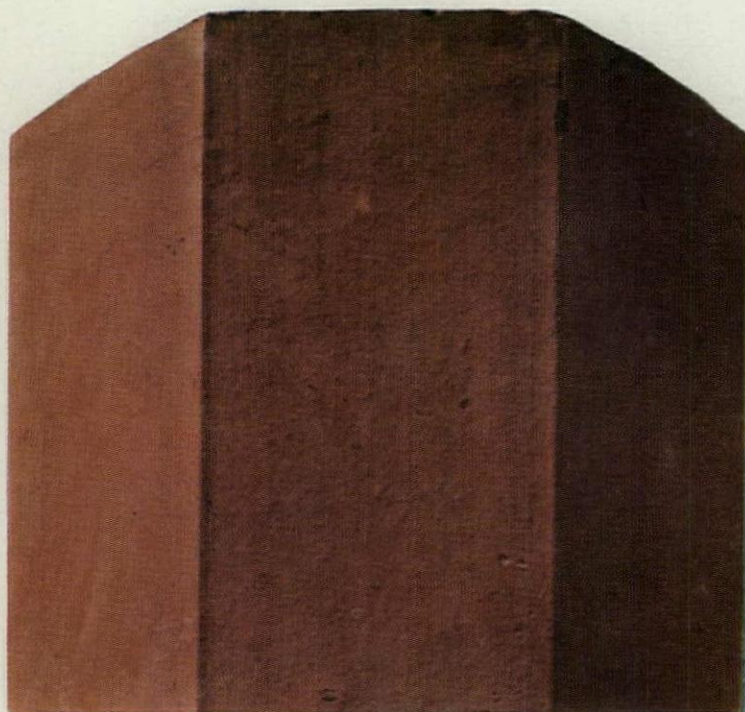
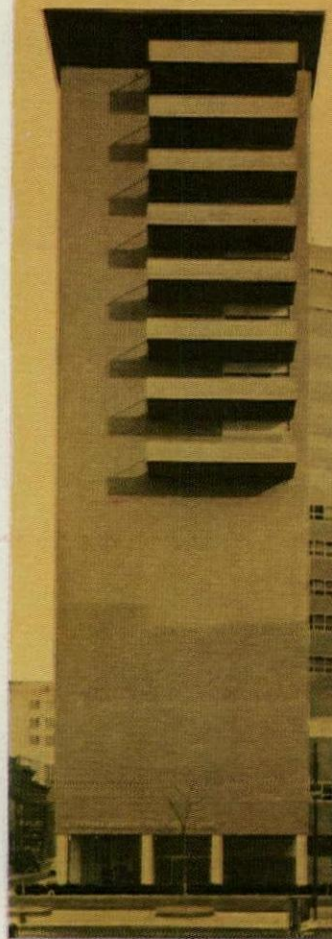
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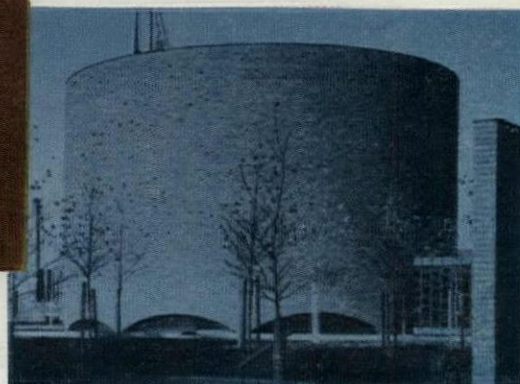
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Chapel, Massachusetts Institute of Technology,
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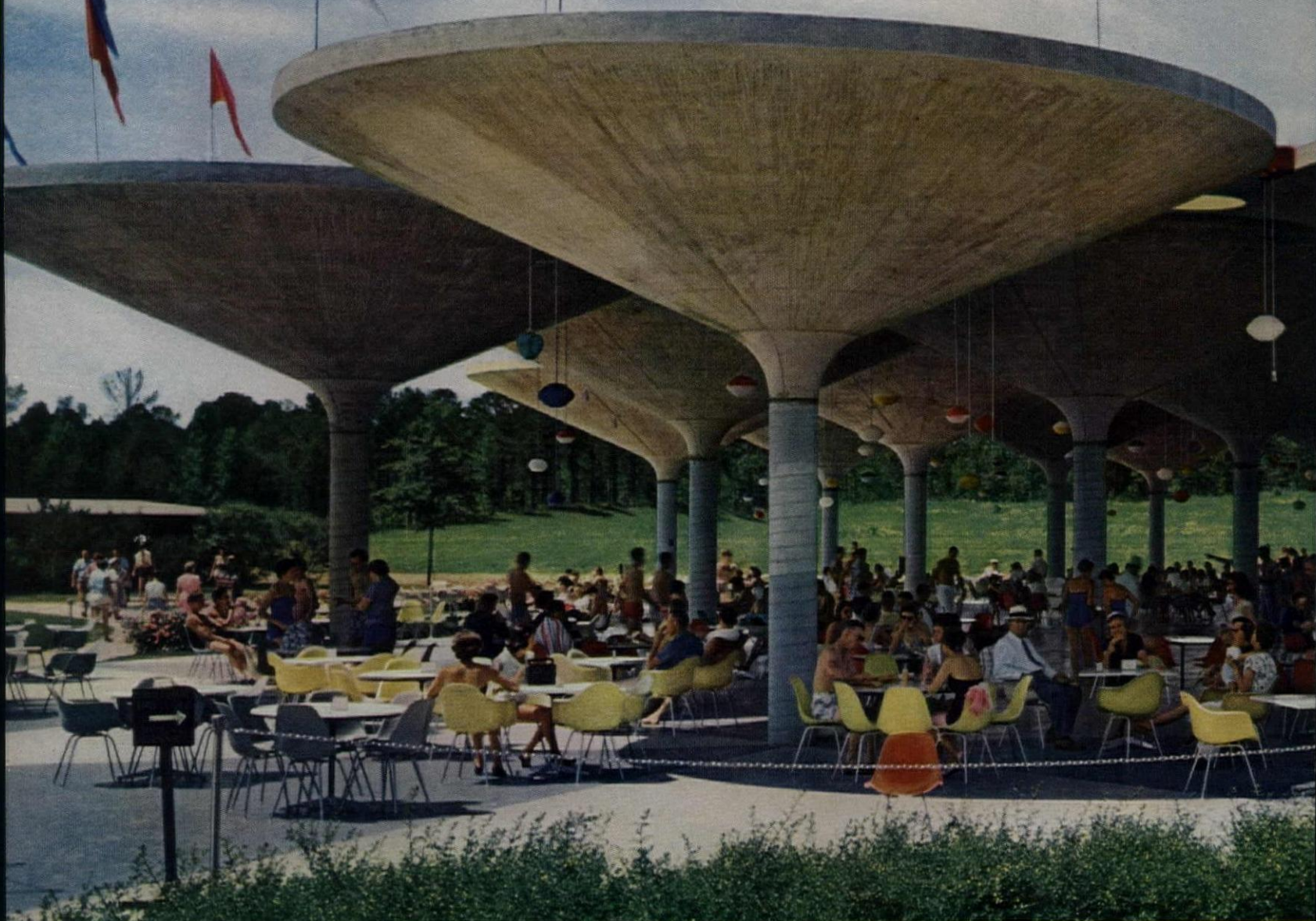


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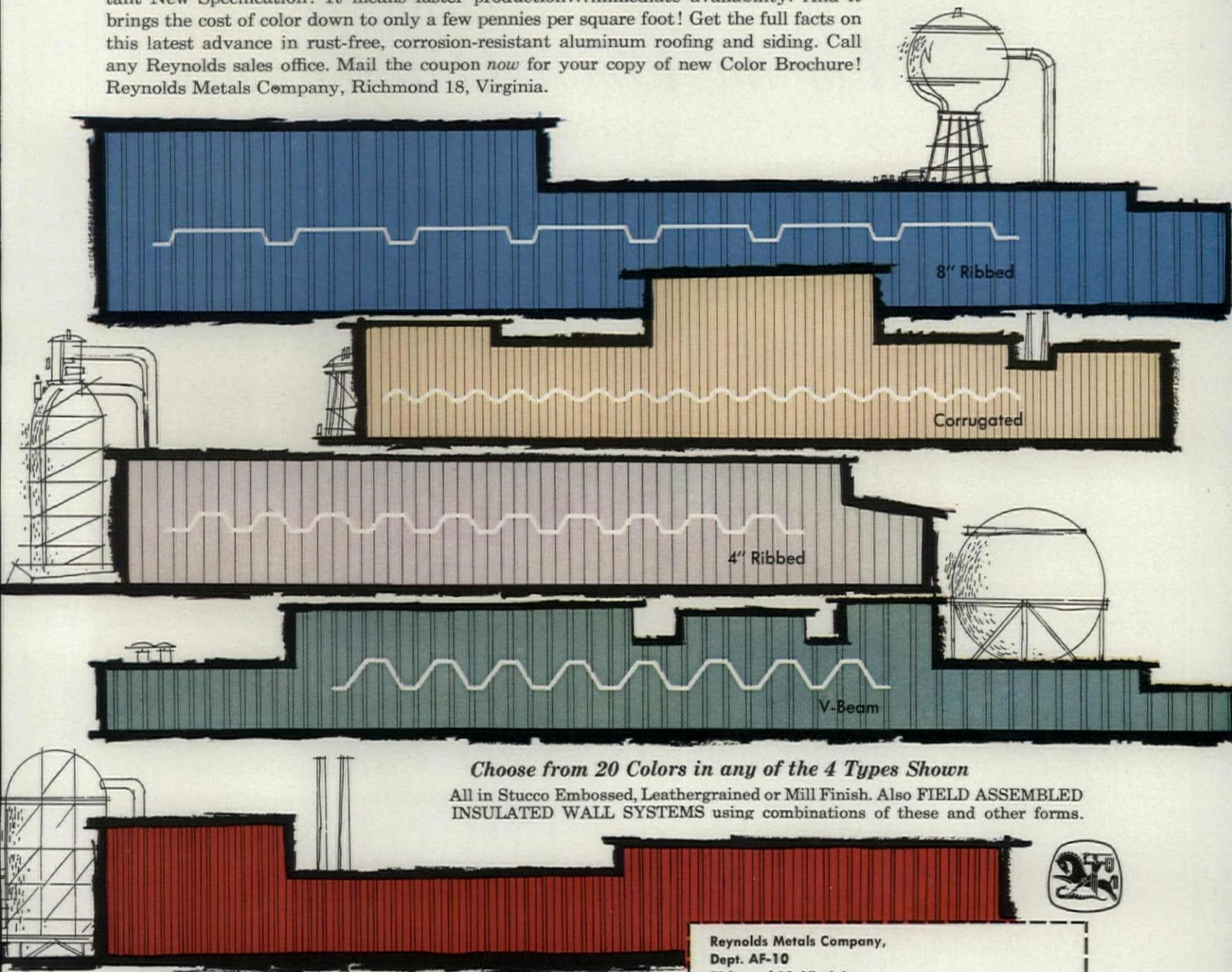
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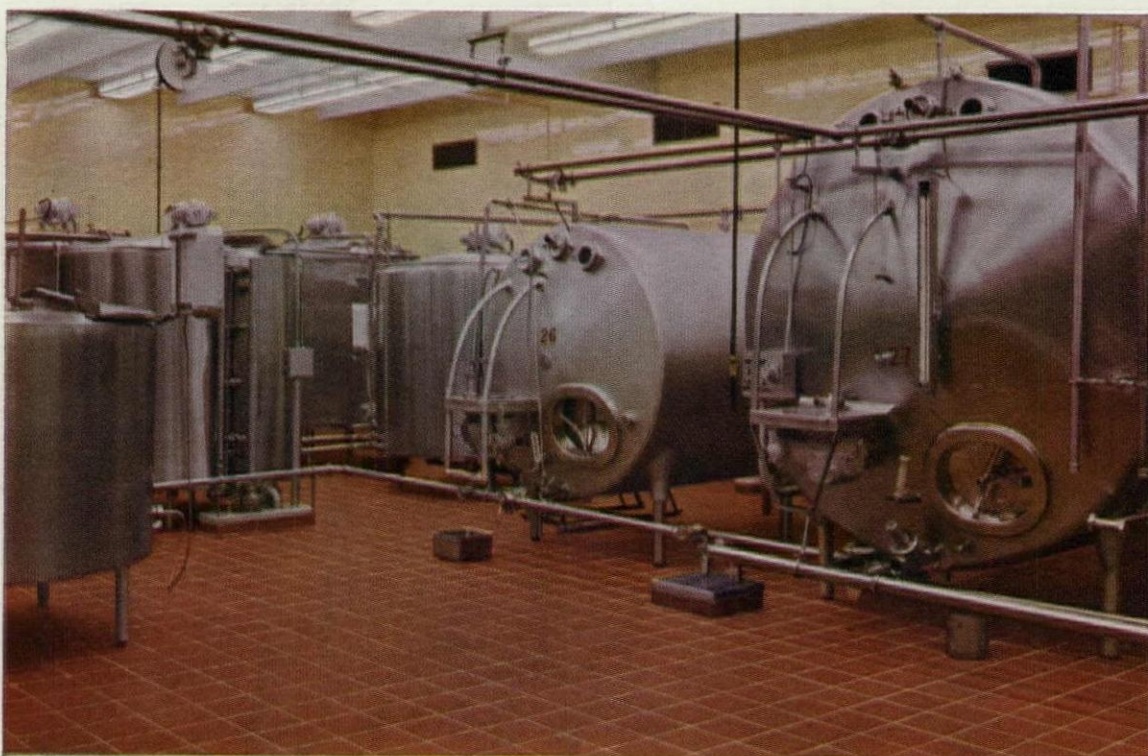
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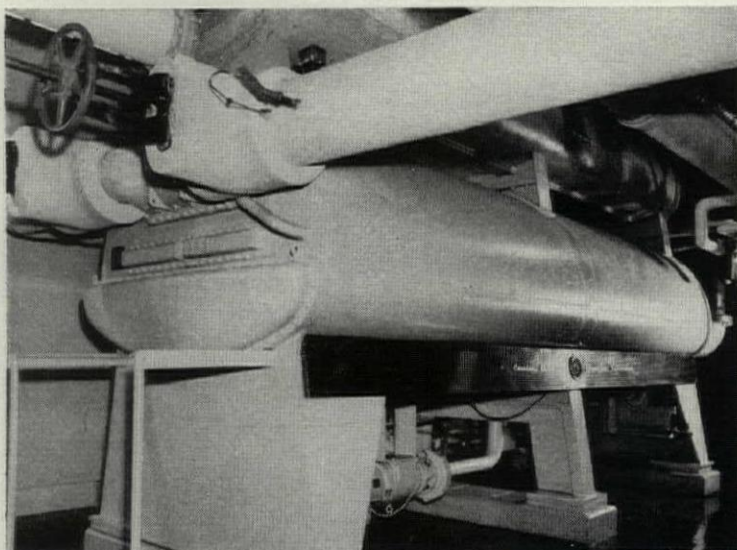
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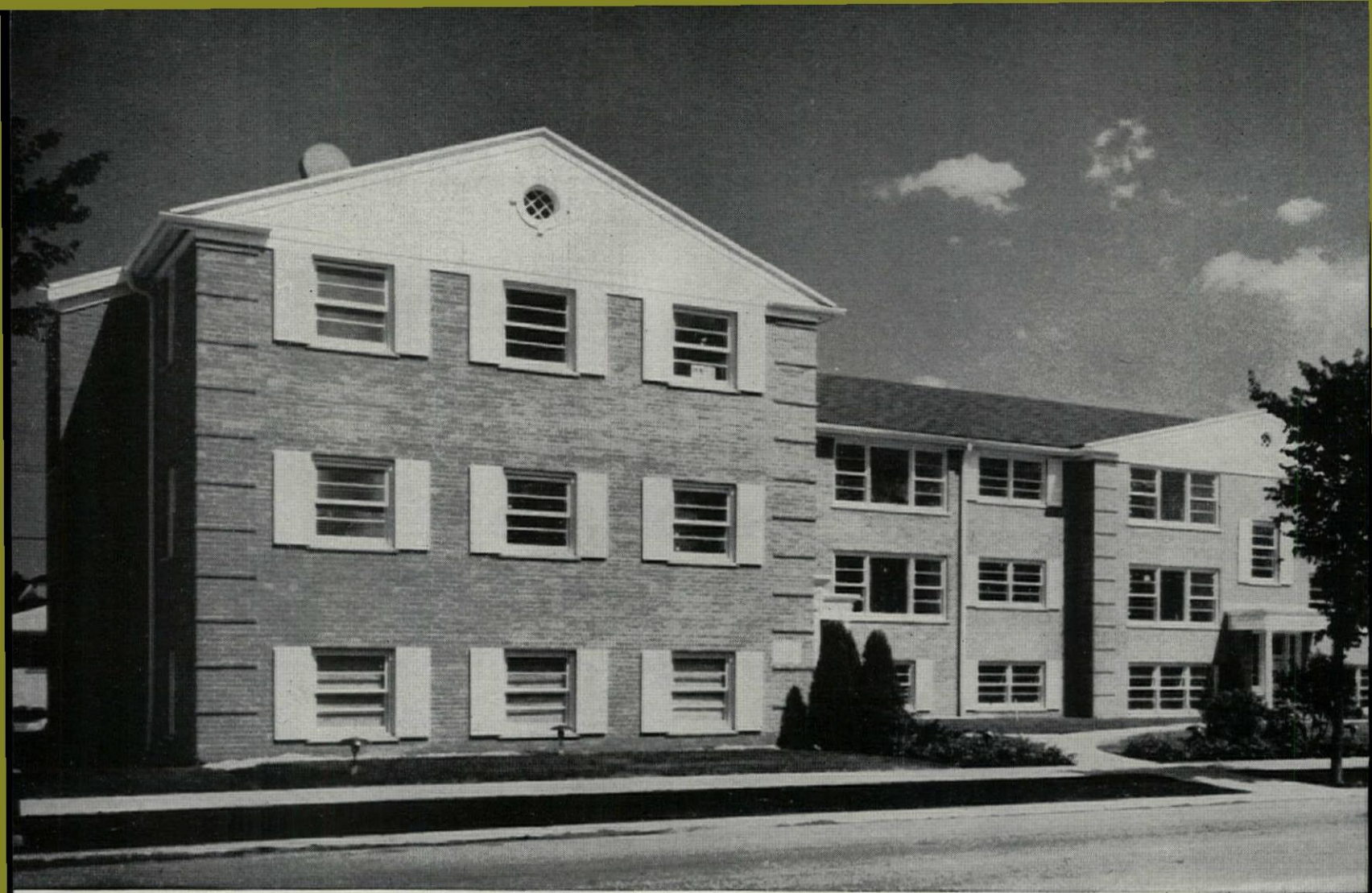
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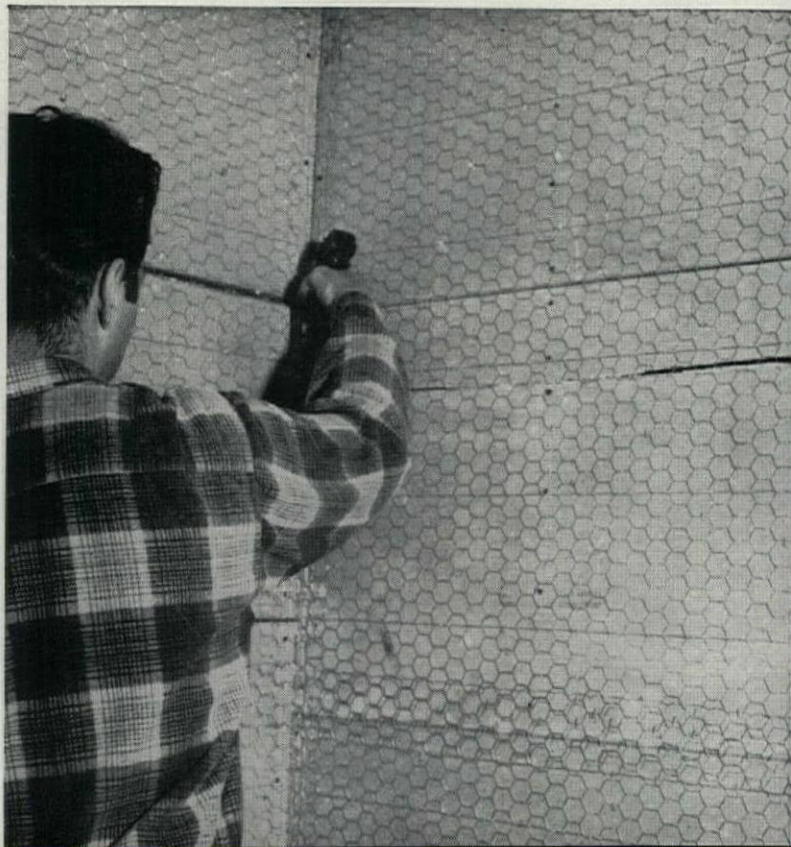
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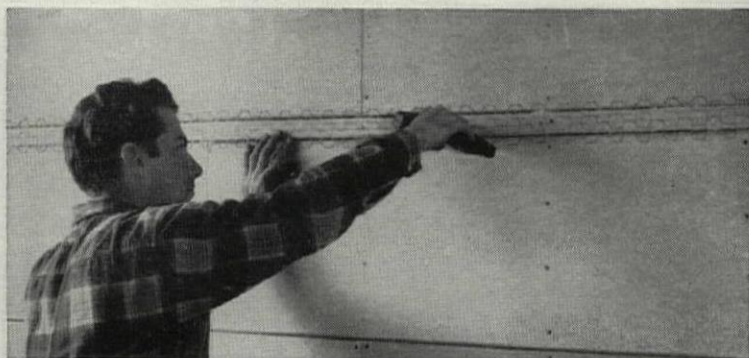
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REINFORCING
LATH**

Inside plaster corners reinforced with KEYCORNER lath have almost twice as much resistance to cracking as corners reinforced with other materials. Recent tests and actual use confirm this feature.

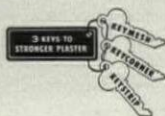
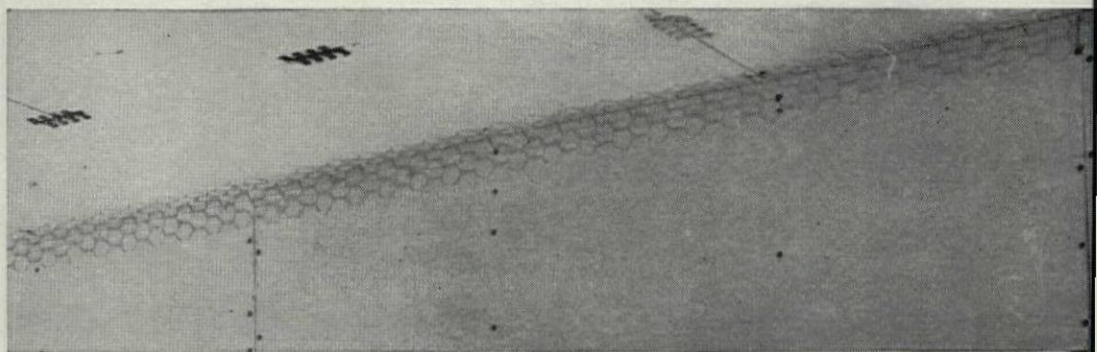
The men working on the Williamsburg Apartments, as on other jobs, found the preformed, 4-foot lengths of Keycorner easy to handle. Keycorner goes into place quickly and can be nailed or stapled. The open mesh design makes it easy to plaster over and assures a complete bond.

Get quality wall construction with lath and plaster at low cost by specifying the three keys Keymesh, Keycorner and Keystrip. Send for more complete information and results of recent tests conducted by leading laboratories. Write Keystone Steel & Wire Company, Peoria 7, Illinois.

KEYSTRIP is a new addition to the Keystone line of plaster reinforcement. Here, this flat strip reinforcement is stapled over joints where narrow strips of gypsum lath are used. This use of Keystrip adds strength where needed.



KEYSTRIP can be used as a reinforcement for plaster in a space too narrow for strips of gypsum lath. A full bond of Keystrip to the plaster is assured. Keystrip also adds strength to points of stress above doors and windows.



KEYSTONE STEEL & WIRE COMPANY

Peoria 7, Illinois

Keycorner • Keymesh • Keystrip • Keywall • Keydeck • Welded Wire Fabric



Wood puts up a good front on this multi-dwelling structure. The wood semi-open facade not only gives a distinctive appearance to the building, but also gives the occupants privacy, light, ventilation and view, all at the same time. Ernest Kump, architect.

Structurally and decoratively, the all-purpose material

for new answers...look to WOOD



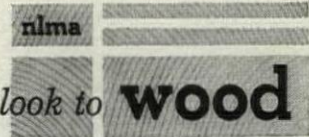
Wood proves again its capability to draw various building materials into a well-coordinated entity. Here wood blends in excellent taste and design with adjacent bricks and glass. Joseph Wythe, architect.

The *versatility* of wood gives you free rein in designing structures that are most complimentary to you and rewarding to your clients. There are practically no limits to your creativity with wood. Vaulted ceilings in places of worship, beamed ceilings in homes that blend with the site, custom features that give any building a luxury look. All such modes of expression can be yours with all-purpose wood.

Outdoors, wood weathers to natural beauty. Indoors, wood finishes to exacting specifications. All-around, wood is the answer to pleasing design. Specify wood to harmonize with any color scheme. Specify wood for siding, floors, doors, paneling, built-in cabinetwork. Specify wood for exposed beams and posts. Let the wonderful world of wood inspire new directions in design. For more information on designing with wood, write to:

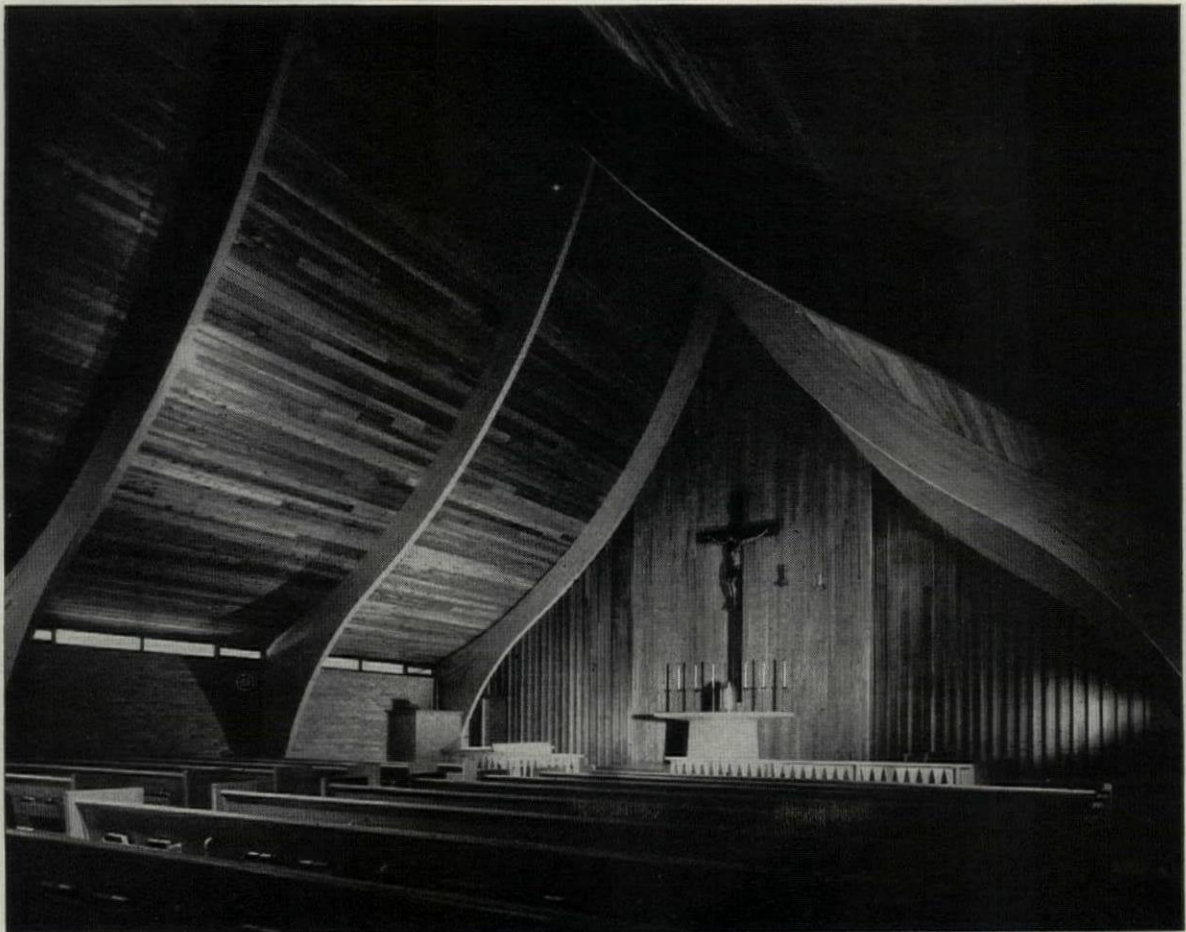
NATIONAL LUMBER MANUFACTURERS ASSOCIATION

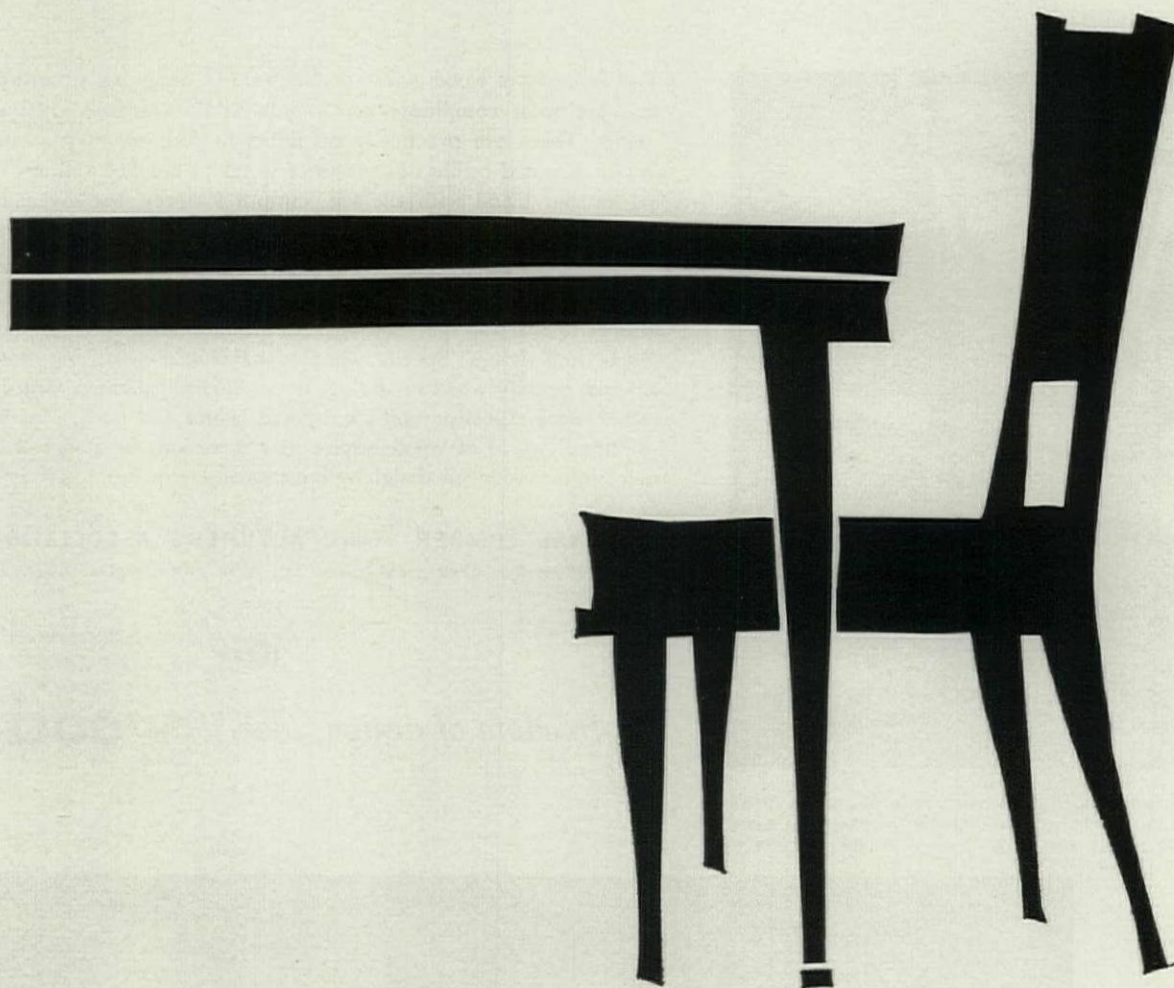
Wood Information Center, 1319 18th St., N.W., Washington 6, D. C.



for freedom of design, look to **wood**

Subdued, yet magnificent, is this combination of wood beams, wood ceiling, wood walls and wood pews. The remarkable acoustical qualities of wood please the ear as well as the eye, reverently receiving hymn and prayer. Edward D. Dart, architect.



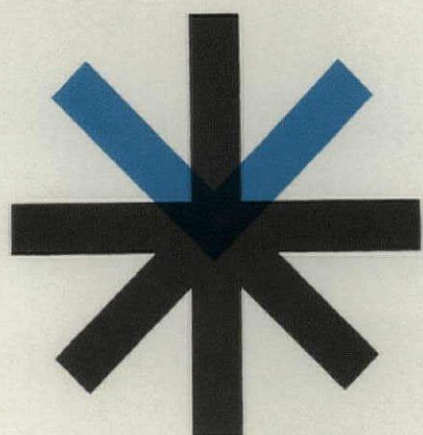


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Acme...the **practical** approach
to air conditioning

Architects: A. L. & S. G. Brooks, Atlantic City

Air conditioning in the summer... ice skating in the winter by **Acme**

And the beauty of it is that this summer-winter combination does *not* require two separate cooling systems with complicated and costly interconnections, change-overs and controls. Here at the Colony Motel, Atlantic City, the 160-ton Acme installation includes two 60-ton packaged chillers, a 120-ton cooling tower, plus a specially designed "combination" 40-ton chiller with tower. In the summer this entire system is devoted to air conditioning the Colony's 270 units. Come winter, the 40-ton system is simply switched from chilling water for air conditioning to chilling brine for the ice skating rink.

That's the Acme practical approach at work. And how well it works is best testified to by those most directly involved . . . J. P. Hartmann, consulting engineer, Havertown, Pa., who specified the system . . . Benjamin E. Labov & Sons, contractor, Atlantic City, who installed the system . . . Tisch Realty Co., owners of the Colony . . . Acme boosts all. Ask them. Or, if you're more specifically interested in details on this unique Acme dual-purpose package, ask your nearby Acme representative to fill you in. He has the complete story and he'll be happy to work with you. Call him, right now, while you're thinking about it.



Acme INDUSTRIES, INC.
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Five-foot circular diffusers of PLEXIGLAS at First National Bank of Marlin, Texas. Architect: Robert W. Maurice, AIA, Houston, Texas

Plexiglas...for lighting that stands out and stands up

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PLEXIGLAS

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Architects: Hudgins-Thompson-Ball & Associates, Oklahoma City, Okla.
Interior Designer: Fred Schmid & Associates, Los Angeles, Calif.



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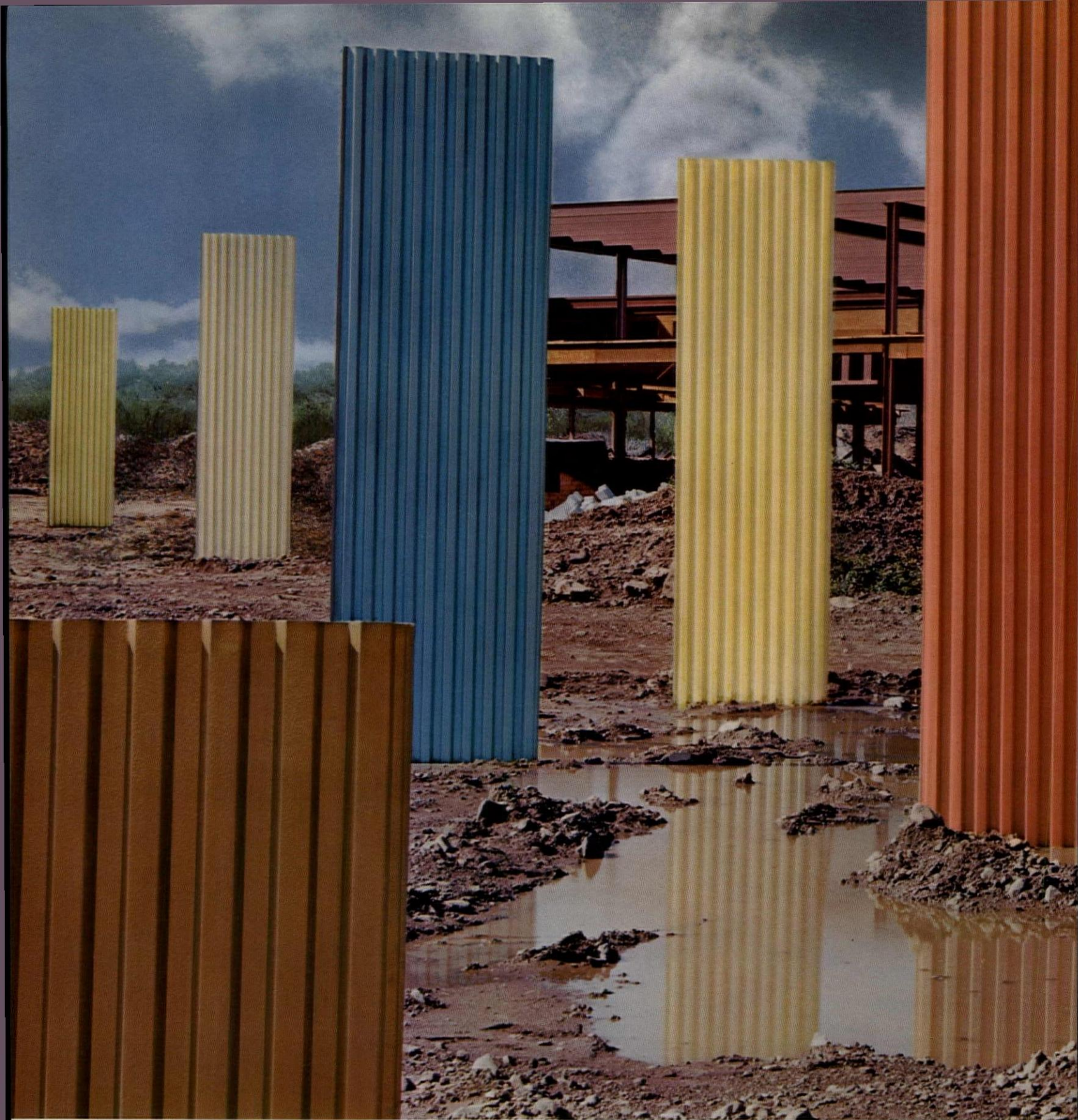
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Get all the construction and long-range economies of Alcoa Aluminum. It comes in sheets as large as 48 in. wide, 30 ft long—covers more area faster. It's strong. It's corrosion resistant, so it needs *no maintenance*. Alunalure, a tough, baked enamel finish on aluminum, already has

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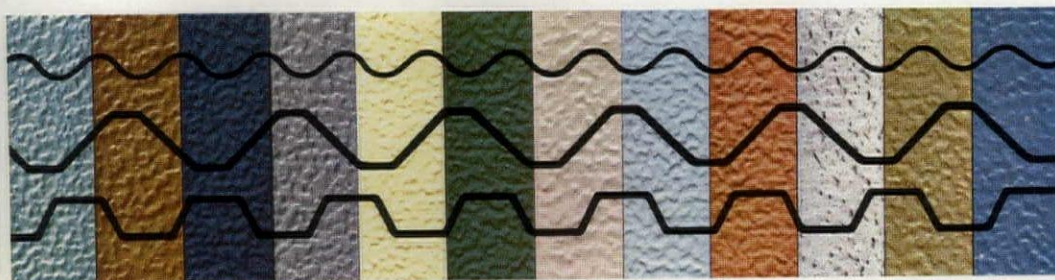
Specify Alunalure finish by name . . . your assurance of the *finest* baked enamel finish, factory applied under rigid quality control. Get samples from your local Alcoa sales office. Get color swatches and full technical data by writing: Aluminum Company of America, 823-K Alcoa Building, Pittsburgh 19, Pa.

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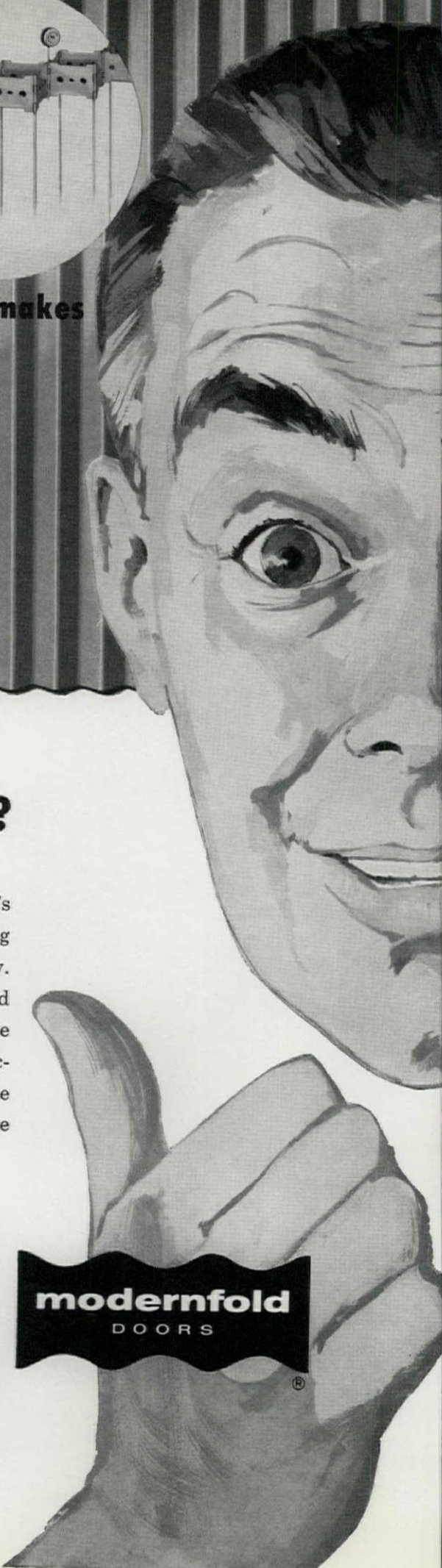
Building site, courtesy J. M. Straus Co., General Contractor, Newark, N. J.

... and holds the line on costs

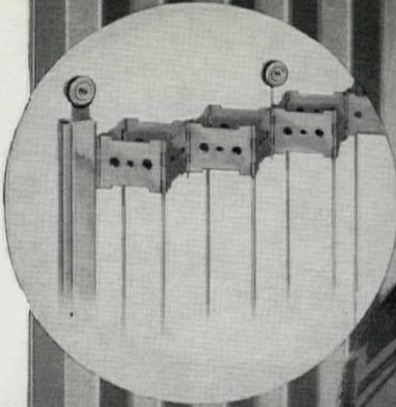


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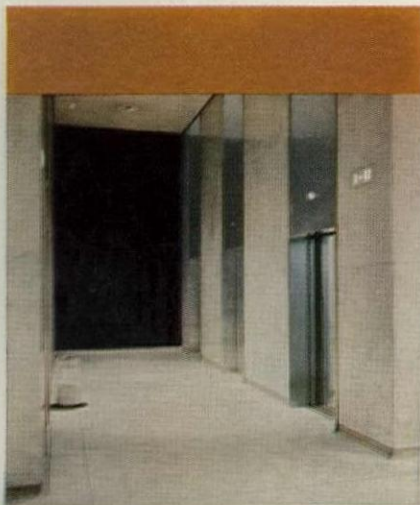
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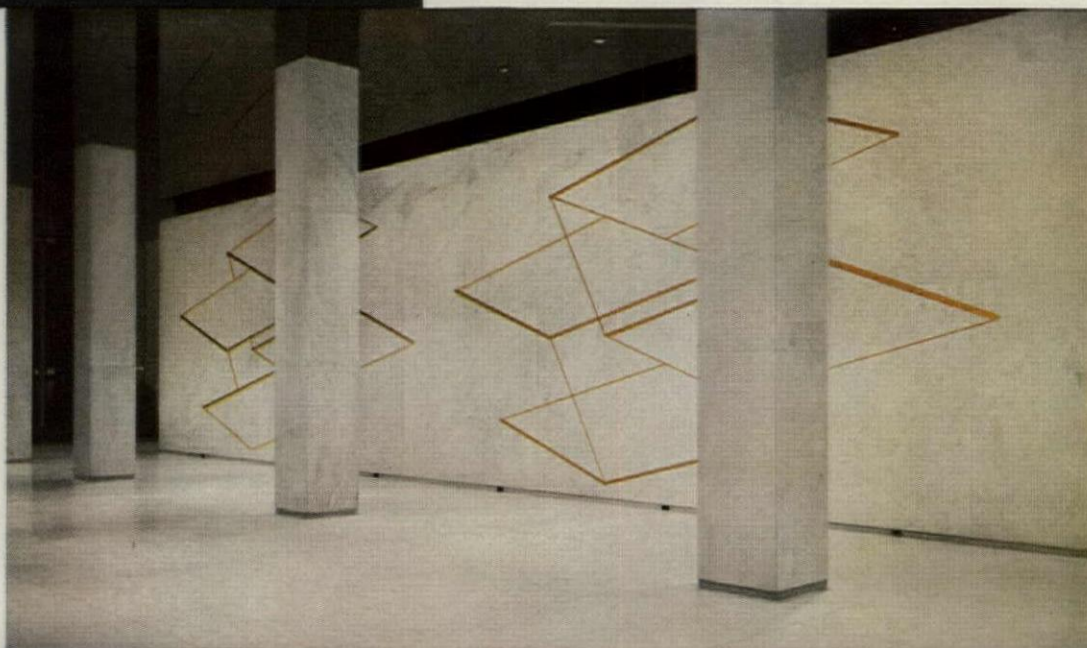


modernfold
DOORS



MARBLE

*...for dramatic beauty
in another major building*



CORNING GLASS BUILDING, NEW YORK, N. Y. • ARCHITECTS: HARRISON & ABRAMOVITZ & ABEE

In New York's new Corning Glass Building, architects Harrison & Abramovitz & Abbe sheathed the lobby columns, walls and elevator areas with the classic beauty of domestic white marble. For the exterior areas above a reflecting pool, they framed diamond-matched sections of dark green marble behind glass panels set in stainless steel frames. The marble will require little maintenance . . . remain an economical and beautiful choice through the years. Significantly, marble is being specified for large and small installations by architects of note throughout the country.

Qualified members of the MIA can give you complete information on the selection and use of more than two hundred marbles. For detailed literature and a list of members, write

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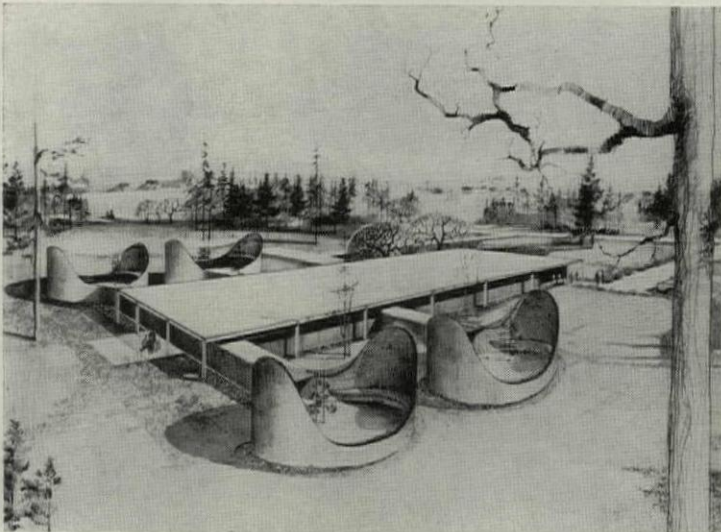
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the exit device that introduced the industry
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A roundup of recent and significant proposals



SOM DESIGN FOR OREGON MONKEYS

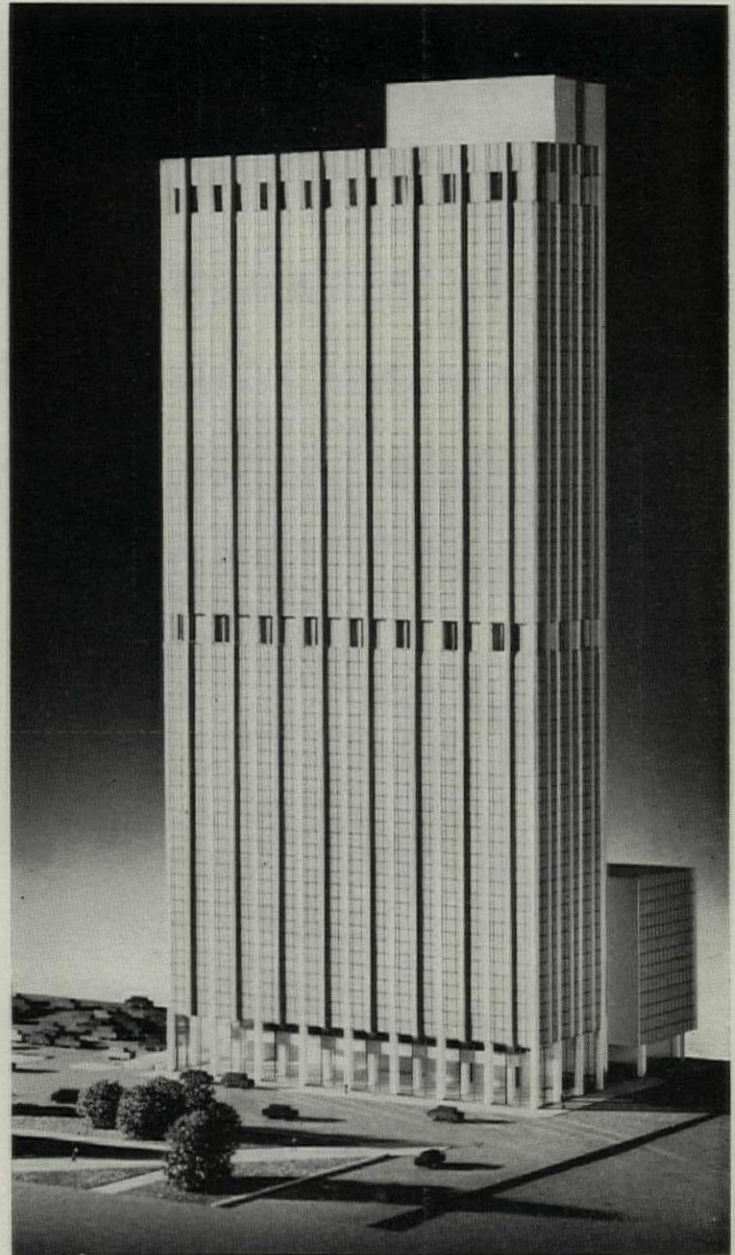
The odd-looking structure above is Skidmore, Owings & Merrill's design for the first section of the Oregon Primate Research Center at Aloha, and the circular appendages are 40-foot monkey runs. High points in the roller-coaster walls will protect the monkeys from sun and rain, support a wire-mesh

roof, and enclose play sculptures, while the low points will afford the monkeys a look at the outside world. Sleeping and feeding stations are to be in the links connecting the runs and the laboratory. According to preliminary plans, the laboratory walls will be exposed concrete aggregate.

DORMITORY FOR MANHATTAN FASHION INSTITUTE

With the help of a \$1.8 million Community Facilities loan from HHFA, the Fashion Institute of Technology in New York City will build a ten-story dormitory (below) to house 292 students and 14 faculty members. The façade will be of cross-shaped precast concrete units, fitted together with

alignment dowels. The back of each unit, where the arms cross, will be notched to receive the concrete floor slabs. At the dormitory base, raised a bit off the sidewalk, a tall first floor will contain a lounge and a caretaker's apartment. Architects: DeYoung, Moscovitz & Rosenberg.



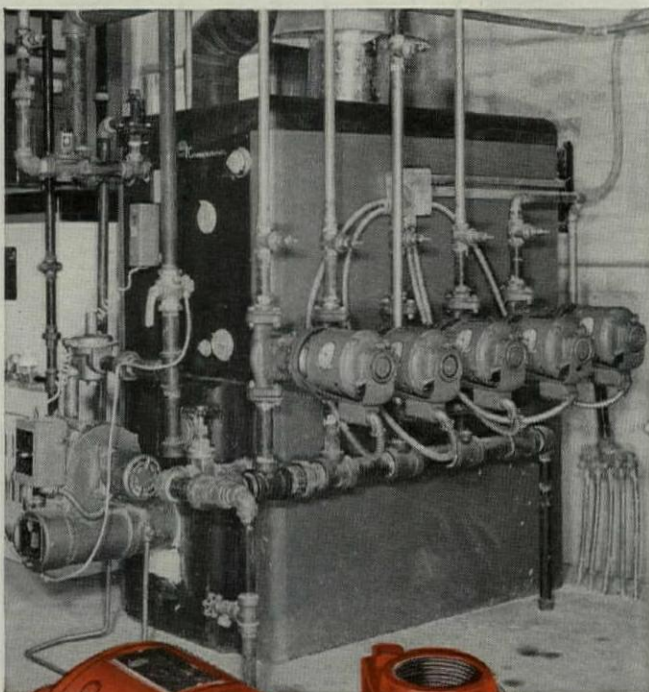
NEW PEAK IN LOS ANGELES: 35-STORY TOWER

As a replacement for the Paramount Theater in downtown Los Angeles, Developer David Shusett decided to build a tower landmark: 35 stories of offices (tallest in the city) and a 14-level garage parking 500 cars at a clip electronically. In designing the skyscraper, Shusett's architects, Charles Luckman Associates, introduced perimeter air conditioning supplied from outside vertical aluminum ducts (dark stripes in photo above), this system's first use in Los Angeles. Pro-

jecting columns on the exterior, faced in marble (light stripes), will yield maximum rental floors inside. Between columns, deep-gray aluminum frames will hold a row of six windows and glass spandrels, both gray. Floor areas, adding up to 615,000 square feet, will range from 15,000 to 22,000 square feet each. Shusett expects both offices and garage to be operating by the fall of 1962 and the total cost to be over \$20 million. Work on the site began in August.



TENANTS SELECT THEIR OWN TEMPERATURE IN 25 APARTMENTS ZONED BY **B&G Hydro-Flo®** SYSTEM



Stratford Manor Apartments, Schiller Park, Ill., attracts tenants with such luxury features as *individually controlled Hydro-Flo Heating* for each apartment.

Five buildings, each with five apartments, are heated with one boiler in each building. Five B&G Boosters, together with auxiliary *Hydro-Flo* equipment, are installed on each boiler to provide thermostatically controlled circulation to individual apartments. Tenants receive all the comforts of *radiant hydronic* heating plus their own choice of temperature. Only a forced hot water heating system can provide zoning so effectively and economically.

The B&G *Hydro-Flo* Systems installed in these apartments have proved so satisfactory that the builder plans to install the same system in 92 additional housing units to be built.

B&G BOOSTER®...key unit of the B&G Hydro-Flo System

Engineered for compactness, silent operation and years of service, this electric pump circulates boiler water for heating. It is built by precision manufacturing methods which translate good design into a superior product. This key unit and other auxiliary *Hydro-Flo* equipment can be installed on any hot water boiler.



B&G BOOSTER

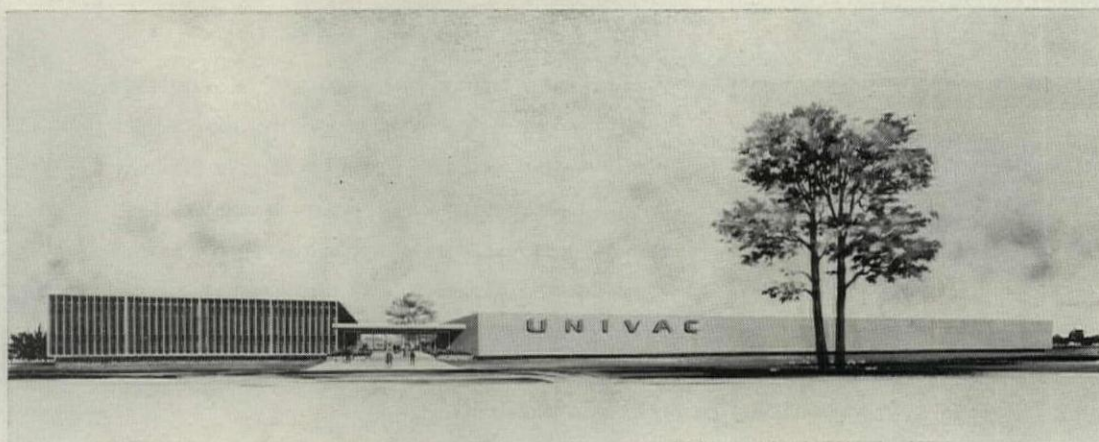


BELL & GOSSETT

C O M P A N Y

Dept. GJ-62, Morton Grove, Illinois

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PENNSYLVANIA PLANT

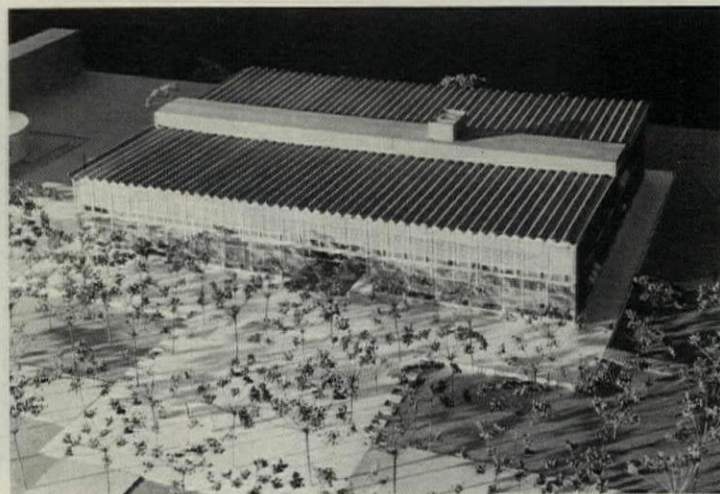
Spelling out Univac in red letters against the light brick background of the manufacturing plant where these machines are assembled, Remington Rand will have, in effect, a large billboard facing the Pennsylvania turnpike at Whitpain Township. Aluminum fins bristling from the office block (left) will pivot automatically with the sun's heat, shielding the aluminum window wall behind. Architects and engineers: The Ballinger Co. of Philadelphia.

LOS ANGELES MUSIC CENTER

Los Angeles music lovers, who have been assiduously collecting money for a music center, feel close enough to their \$10 million goal to disclose the building's design (below). It calls for a five-level pavilion lighted on the exterior by huge globes of glass chips dangling from the roof. Both roof and columns will be of precast white concrete over steel; walls, of dark granite and glass. The design was produced by Welton Becket & Associates, in collaboration with theatrical and musical experts.

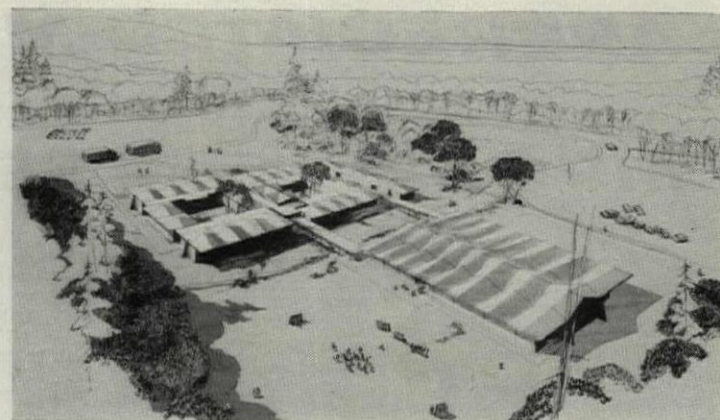
WASHINGTON LIBRARY

A strong spine running the length of the Central Washington College of Education library at Ellensburg (right) will serve three purposes: housing the air-conditioning ducts, stiffening the building against earthquakes, and carrying the roof members between columns. Prestressed, precast, corrugated concrete elements will span 65 feet on either side of the spine, freeing reading rooms and stacks of columns. A clay-tile grille will fill the east and west walls. Architects: Bassetti & Morse.



WASHINGTON SCHOOL

At the top left of the rendering at right are two clusters of classrooms, a library, and shops around landscaped courts, to be built for Mercer Crest Junior High School on Mercer Island, Wash. The rest of the Bassetti & Morse design, under the large concrete-shell roof, is a cafeteria and gymnasium, the two separated by a lobby. Roofs will be of shell concrete except those over corridors and administrative sections.



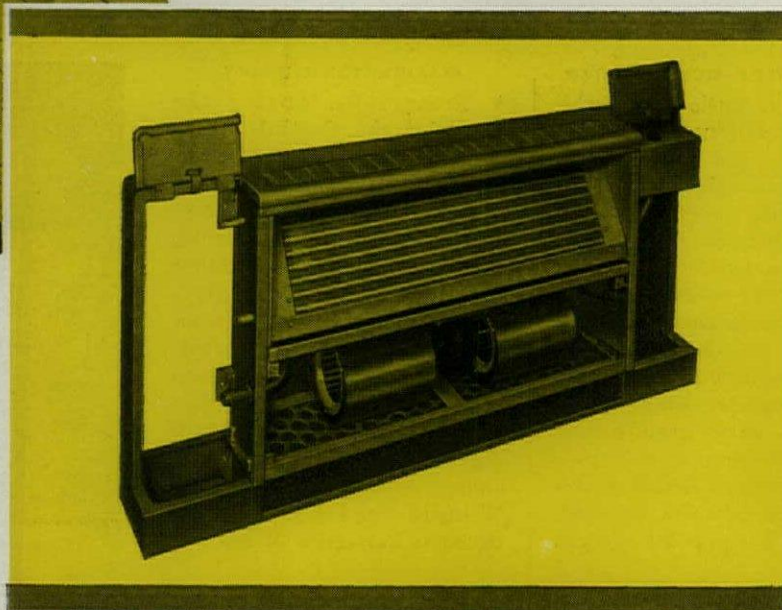
NEW JERSEY OFFICES

When American Cyanamid Co. proposed moving its executive offices to Alpine, N. J., a year ago, residents opposed the necessary rezoning. Soon after that rebuff, nearby Wayne Township offered the company a site where an executive and administrative center would be welcome. For the new site, Vincent G. Kling designed a curved main building four stories high, a single-story cafeteria, and an executive wing, all framed in steel.



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8½" thin, 25" high

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Investigate the many advantages these thin-line design McQuay Seasonmakers can offer you on your next job. Contact your local McQuay representative, or write McQuay, Inc., 1609 Broadway Street N.E., Minneapolis 13, Minnesota.

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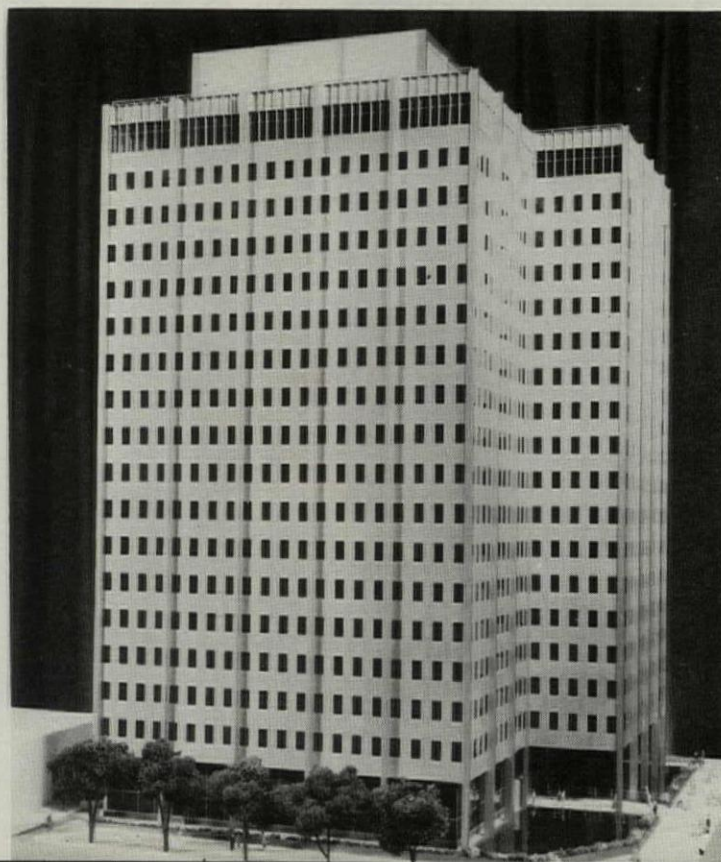
All buildings in Houston's Cullen Center will be tied together visually by the use of precast concrete facings, and physically by a concourse running through the second story of each building. The façade of the 21-story office tower above, first to be started, along with

a garage (left), will be a network of precast concrete frames, each one building module wide. Set a foot behind the frames will be windows of gray glass atop spandrel panels of black tempered glass. Architects: Welton Becket & Associates, Los Angeles.

BELL HEADQUARTERS IN PHILADELPHIA

The Bell Telephone Co. of Pennsylvania is starting construction this fall on a headquarters building in downtown Philadelphia, to be built on land assembled 30 years ago. The exterior of stainless steel and gray glass will be accented by fluted bronze casings around

stainless steel columns. The mechanical penthouse over the 18 office floors will also be stainless, vertically striped in bronze. At the base, Architect Maurice Fletcher arranged large reflecting pools at either side of the main entrance. Cost: \$14.5 million.



Projects contd.

NEW YORK CITY ELEMENTARY SCHOOL

In this Manhattan elementary school by Ballard, Todd & Snibbe, the classrooms will enclose a playground. The classroom unit (left), its hollow center reserved for kindergartners, will share an entrance

foyer with the three-decker lunchroom, auditorium, and gymnasium building (right), these three rooms stacked to save space. Entrance to these public rooms is from stairs in the common foyer.



SUBURBAN FINANCIAL CENTER IN CALIFORNIA

A financial center in a park is what Union Bank Square promises to be. Los Angeles' Union Bank will build the center in suburban Orange and occupy part of the 12-story tower, renting the remainder

to regional offices of industrial and investment firms. Surrounding the center's eight buildings with promenades, trees, and fountains, Ladd & Kelsey added one more dash of shade: deep overhangs.

CRIMPED-ROOF HALL IN CALIFORNIA

Early next year the University of California will start construction of a 900-seat lecture hall, designed by Charles Luckman Associates, on its Santa Barbara campus. Concrete in three forms will be

used for the exterior: its thin-shell concrete roof will be carried on concrete columns infilled with panels of concrete block. Inside, besides the hall, there will be three rooms and a projection booth.

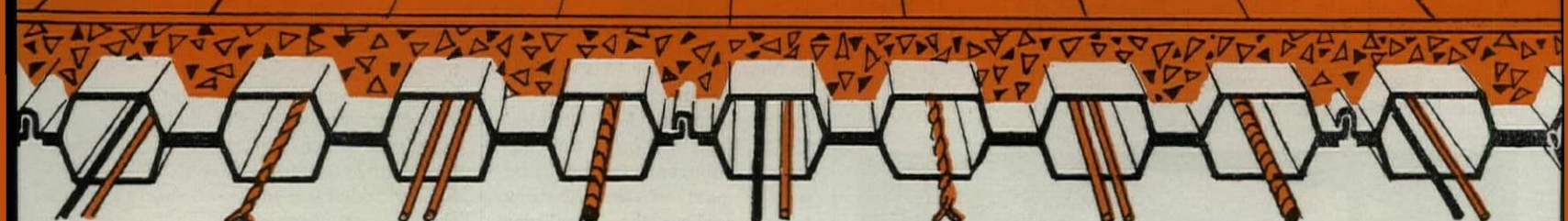




The illustration shows a man in overalls and a tool belt using a hand drill to create a hole in a tiled floor. In the background, two women are seated at a desk with a typewriter, and a man stands near a filing cabinet. The floor is composed of large square tiles, and a circular hole is already visible in the distance.

INLAND CELLUFLO

Quick, inexpensive openings for electrification!



The diagram shows a cross-section of the floor system. It consists of a series of white, hexagonal floor tiles laid in a staggered pattern. Beneath each tile, a white plastic raceway is embedded, containing two parallel copper wires. The raceways are connected by small metal clips. Below the raceways is a layer of brown insulation, and at the very bottom is a concrete slab.

... *whenever you want them, wherever you want them — with Celluflo*

The typical office interior today is streamlined to the nth degree. Big open work areas — a bare minimum of walls.

Where, then do you put the miles upon miles of wire a modern office building needs now — and the additional miles it's sure to need tomorrow? More and more architects are reaching this logical conclusion: *In Celluflo*.

Since Celluflo provides wiring raceways 6" o.c. under every square foot of floor area, no worker need ever be more than inches away from electrical, telephone, and dictation service outlets. Whenever a tenant needs a new connection, he has an electrician drill through the floor and pull up the wires — anywhere in the room! Circuits can be changed — new service outlets installed or relocated — without costly alterations.

Many buildings with a future use this floor with a future — including Union Carbide office building, New York City, and Kaiser Center office building, Oakland, California.

There are other advantages of Celluflo — savings of steel, footings, construction time, and overhead. See Sweet's — or write for Catalog 270.



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EP-3

Sound-muffling glass . . . glowing panels . . . acoustical shell

QUIET GLASS

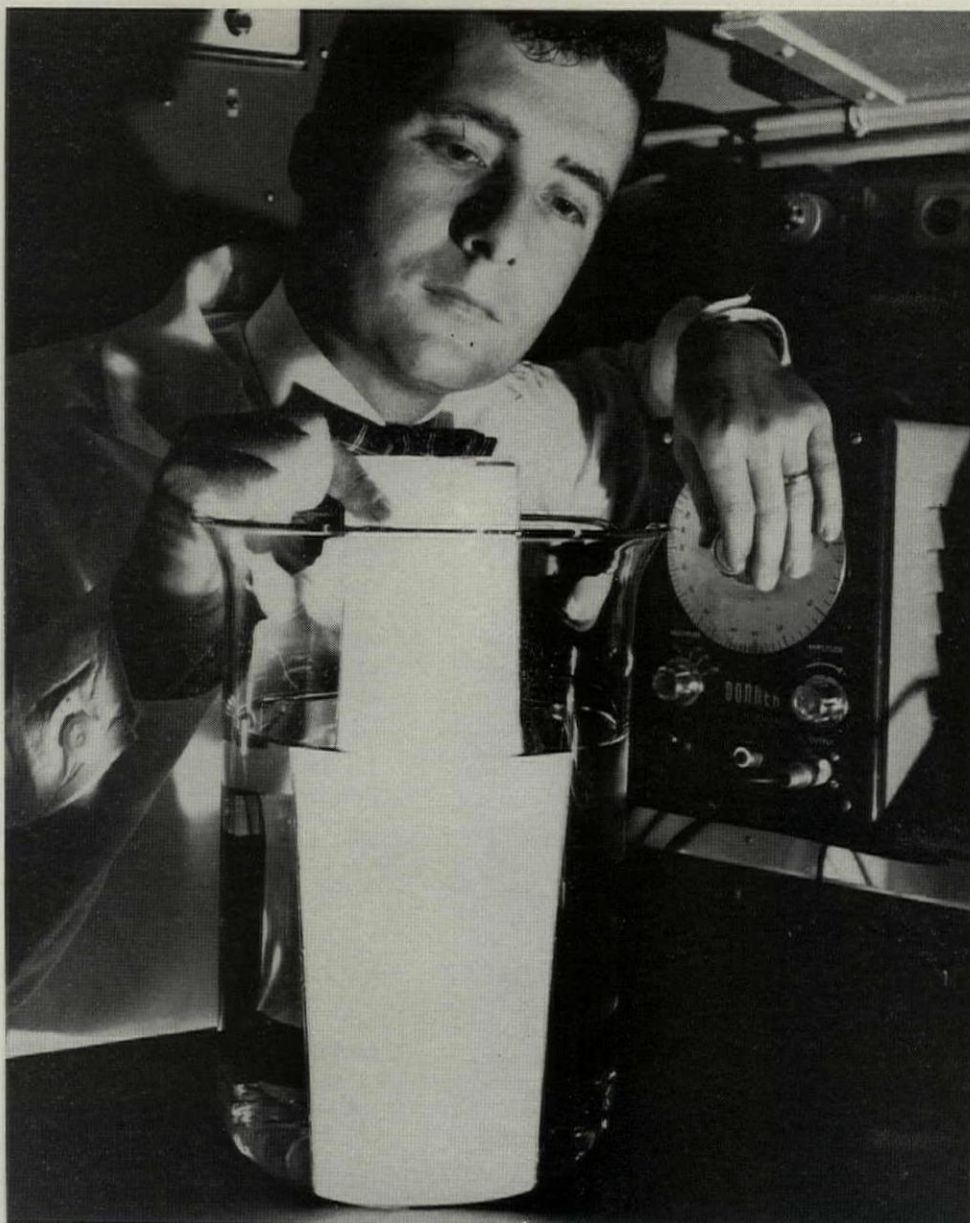
Monsanto has developed a special laminated safety glass which deadens sound, turning thin glass partitions and window walls into invisible sound barriers. By increasing the thickness of the Saflex polyvinyl butyral interlayer in ¼-inch safety glass, Monsanto's Plastics Division has reduced sound transmission in the 1,000 to 4,000 cycle-per-second range to a level 11 decibels below that for plate glass of the same thickness. This cycle range is that of many vocal and mechanical sounds, and according to Monsanto, the glass is particularly effective in suppressing sounds in the 2,000 cycle range, such as the sharp s's and t's of speech. Cutting

these sounds makes conversations unintelligible, substantially improving privacy.

Glass normally vibrates in response to sound waves and transmits the vibrations as noise, but the interlayer in this special glass converts sound energy into tiny amounts of heat instead of passing it through as noise. Monsanto's research in viscoelastic damping—reducing resonant response and vibration—led to the development of this new glass, and work is continuing on acoustical glass for higher sound levels.

Monsanto sells the interlayer directly to glass companies, who will sell laminated glass for \$2 to \$3 per square foot.

Manufacturer: Plastics Division, Monsanto Chemical Co., Springfield, Mass.



GLOWING PANELS

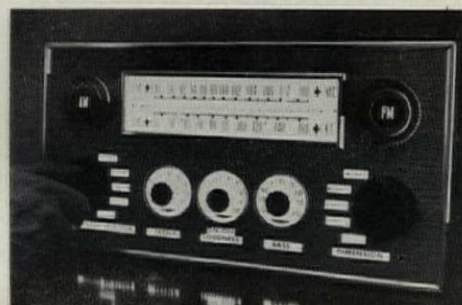
Electroluminescent panels for outdoor use are in production at the Radio Corporation of America plant in Lancaster, Pa., and will be marketed under the trade name *Panelray*. The first mass-produced item will be a night light, but RCA will stock panels in several sizes, and larger ones will be made to order. Particularly useful in consumer products and residential applications, the panels have an even, all-over glow and low power consumption, which make them suitable also for signals and signs on highways, railroads, airports, theaters, hospitals, and schools, and for highway dividers and airport runways.

The phenomenon of electroluminescence (phosphors absorb energy, then give it off directly as light) has been known for some years, but previous panels have not been used outdoors. RCA says that Panelray's glass front seals out moisture (photo, left) and cites its satisfactory use in lighting swimming pools as proof.

RCA's panels are available in five colors (green, blue, yellow, orange, and white) and five sizes (2 by 2½, 3 by 12, 4 by 5, 5 by 7, and 12 by 12 inches), each in voltages of 125, 250, and 600 AC. Stock panels will be priced initially at 60 cents for the smallest size, lowest voltage, up to \$8 for the 12 by 12 inch square, highest voltage.

General Electric is another company, along with RCA, which has recently begun

continued on page 32



KEEP YOUR EMPLOYEES...

ON THE LEVEL!

With a
**LAMSON SELECTIVE
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Simple — dial any floor

Granted, a pretty girl is like a melody. But let one drift around a multi-story building delivering papers and you have a pretty tired girl as well as a pretty expensive messenger.

Multiply this girl by all others in your office building and you'll readily understand the great need for a less costly and more efficient inter-floor light materials handling system.

LAMSON engineers have designed a very successful one, the **SELECTIVE VERTICAL CONVEYOR** — a continuous chain lift capable of servicing all floors, receiving and discharging tray-loads of material *automatically*!

Users report that enough savings result from reduced messenger expense plus more efficient time-use of productive employees to amortize the complete cost of a **LAMSON SELECTIVE VERTICAL CONVEYOR**.

Why not find out more about it? Write today for a **LAMSON** catalog containing full information about Selective Vertical Conveyors, Clinical History Lifts and Book-veyors. Or, simply clip this advertisement to your letterhead and mail to:



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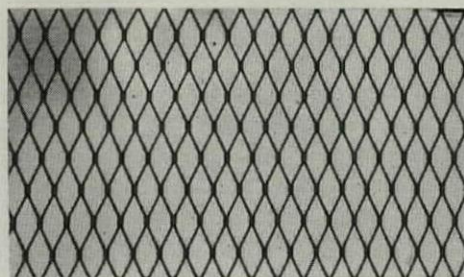
1012 Lamson Street, Syracuse 1, N. Y.

PLANTS IN SYRACUSE AND SAN FRANCISCO
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manufacturing electroluminescent panels. The first GE panels are intended for indoor use—as markers and floor, aisle, and exit lights—but, since they are encapsulated, they can be used outdoors, too. They differ from other electroluminescent panels in that they are made of plastic rather than glass or metal, and are therefore flexible. The panels are only 30 thousandths of an inch thick, comparable in size and flexibility to a heavy magazine cover. GE offers four colors (green, blue, yellow, and white) and sizes from 1 inch square to 11¼ by 14 inches. In sample quantities, prices run from 75 cents for the smallest size to \$14 for the large rectangle. GE claims that these panels are five times brighter than any others on the market. Green is the brightest of the four colors, 4.5 foot-lamberts.

Later this month Sylvania, which was first to market an electroluminescent panel, will announce an encapsulated version used successfully in highway signs.

Manufacturers: R. C. A. Electron Tube Div., Harrison, N. J.; General Electric Co., Miniature Lamp Dept., Nela Park, Cleveland 12; Sylvania Lighting Products, 60 Boston St., Salem, Mass.



ON GUARD

A glass-fiber panel reinforced with steel, *Gardlite* is designed to protect school, factory, store, and warehouse windows (particularly those facing alleys) from vandals. Expanded steel mesh crisscrosses the panel, adding strength without blocking light. The panel is only ¾ inch thick and weighs 18 ounces per square foot.

Standard lengths are 4 and 8 feet, and the width is 4 feet. Available in any of three colors (white, clear, and pale green), the panel costs 41 cents per square foot.

Manufacturer: Alsynite Division of Reichhold Chemicals, Inc., 4654 De Soto St., San Diego 9.

GLASS ART

Rodierglas is a decorative panel in which colorful glass chips are sandwiched between sheets of glass and then fired at high temperatures. Set by hand in any desired pattern, the glass chips sparkle through the enclosing sheets when the panel is backlit. Two recently opened New York City restaurants demonstrate quite different ways of using these panels. In one, a screen around American Air-

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lines' Admirals Club at New York International Airport, Architects Kahn & Jacobs selected a pattern called "milky way," a section of which is shown above. Colorless chips in several sizes, fused to colorless glass, give the enclosure an air of privacy. In another restaurant, multi-colored chips depict a Chinese street scene, the whole panel illuminated from behind to emphasize the bright colors.

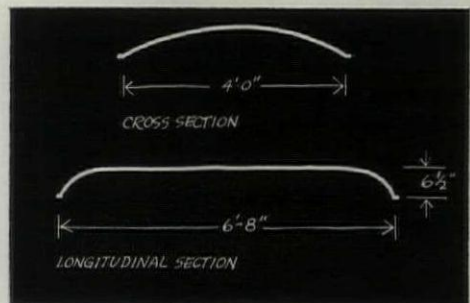
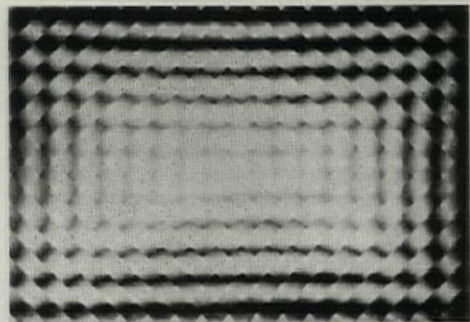
These panels are, of course, made to order, either to the customer's design or the manufacturer's. Panels generally measure 16 by 20 inches, but they can also be made in smaller sizes. Several small ones are joined to make large-size panels or screens. The cost per square foot is about \$7.50.

Manufacturer: Leonard Rodier Co., 336 West 71st St., New York 23.

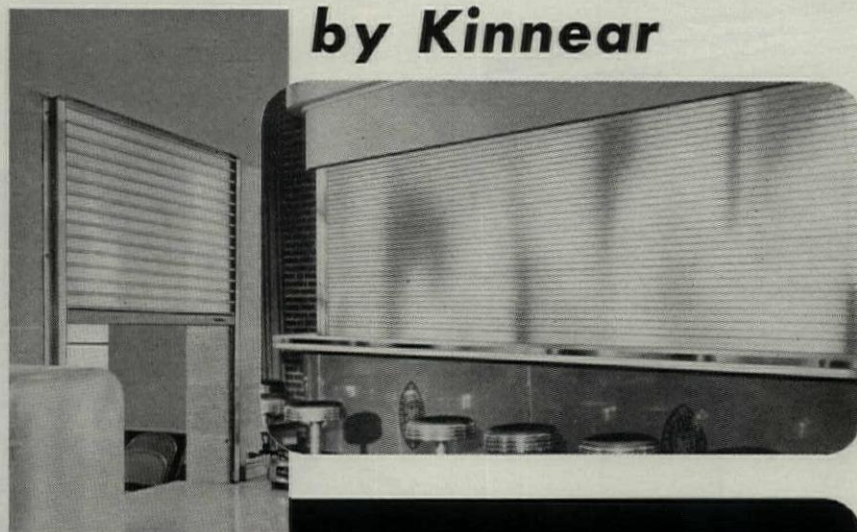
BIG DIFFUSER

Lighting the south concourse in Pan American's newly opened terminal at New York International Airport is a series of huge plastic panels set in the ceiling. The photograph below shows how one of the panels looks from directly underneath, and the cross section shows its shape and its dimensions. The panels are 4 feet wide, 6 feet 8 inches long, and 6½ inches high in the center. Each panel is cast from one vinyl plastic sheet, even though the effect is that of many strips plaited in a basket-weave pattern. The architects and engineers, Tippetts-Abbett-McCarthy-Stratton (Ives, Turano & Gardner, associates), chose to light the panels by hanging one fluorescent tube above the center of each, thus creating a bright strip down the center, fading out to the edges. This lighting emphasizes the deeply cut pattern, but the panels may also be lighted evenly.

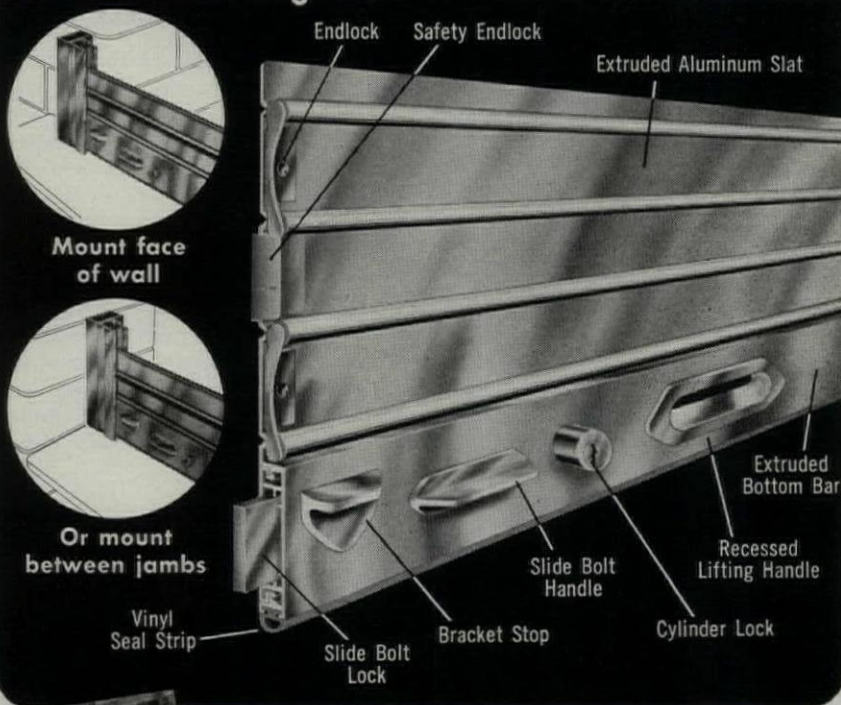
continued on page 64



Rolling Counter Shutters by Kinnear



With Interlocking Slats of Extruded Aluminum



Ideal for counter openings and "pass doors" of all kinds. Interlocking-slat curtain of extruded aluminum, or roll-formed of steel or other metals.

A flexible strip at the bottom of the curtain provides a cushioned seal between the closed shutter and the counter.

Kinnear's new "Midget" straight-profile counter shutter slat combines extra eye appeal with space-saving, coiling-upward action. No usable space is wasted in the interior, exterior, or overhead.

Kinnear Metal Rolling Counter Shutters are built to fit each individual opening, in any practical size.

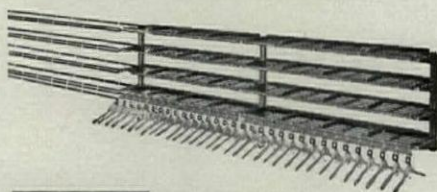
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ROLLING DOORS
Saving Ways in Doorways

The KINNEAR Mfg. Co.

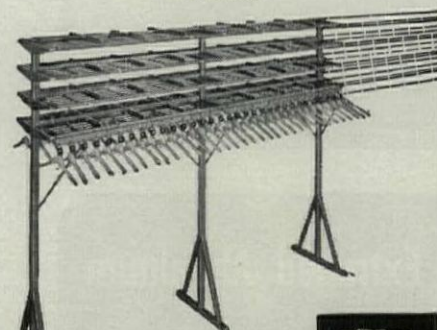
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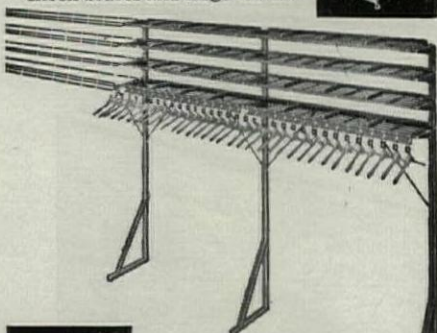
WALL RACKS

Basic 2' 2", 3' 2", 4' 2" and 5' 2" units mount directly on wall. Interlocking add-on sections make racks of longer lengths and greater capacity.



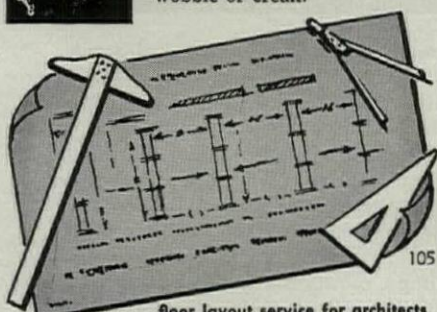
DOUBLE FACED . . .

These standard cloakroom racks (with or without checks) hold 8 coats and hats per foot of length. Also available in 4' 2" and 5' 2" portable racks—with shock braces and large casters.



SINGLE FACE

Stationary or portable racks fit close against wall. Sections snap-lock together to make rigid assembly that will not sag, wobble or creak.



Let our cloakroom and checkroom specialists suggest equipment requirements and efficient layout. Just send outline of available space, capacity desired and nature of load. No obligations, of course.

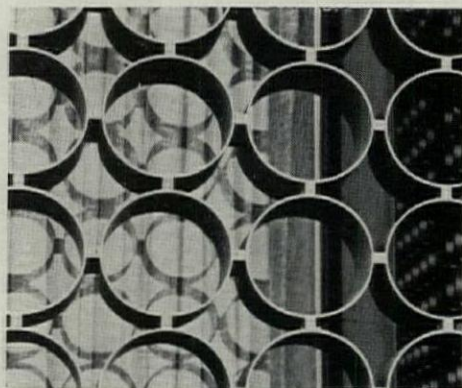
Write for Catalog Sheets, CK-48

VOGEL-PETERSON CO.

RT. 83 & MADISON ST.—ELMHURST, ILLINOIS

Aluminum extrusions which support the panels are shipped cut and mitered in plain, anodized, or painted finishes. The panels and extrusions cost about \$2 per square foot, but the manufacturer says that installation savings result from eliminating cutting and fitting of the extrusions on the site.

Manufacturer: General Ceilings Inc., 248 McKibbin St., Brooklyn 6, N.Y.



RING GRILLE

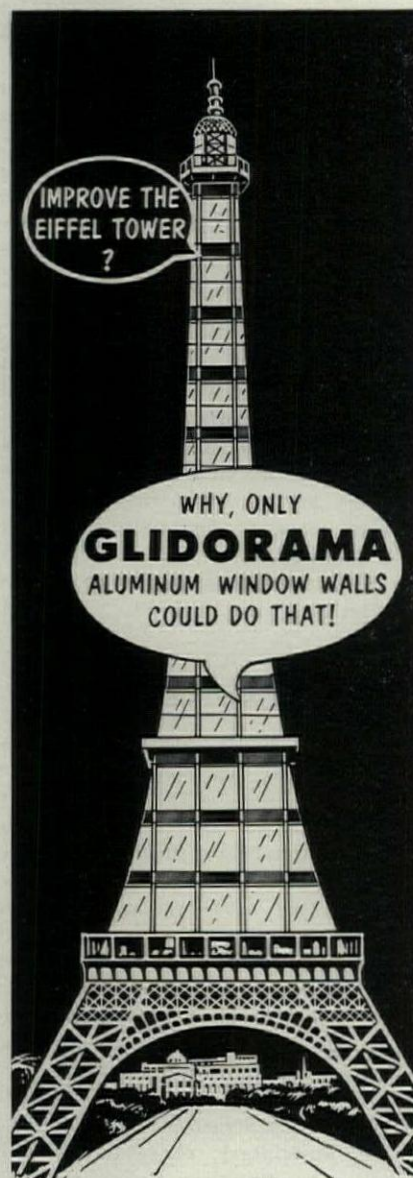
Rings sliced from extruded aluminum tubing comprise the continuous sunscreen called *Grillewall*. They slide together in a dovetail joint and are assembled into panels of the desired size and shape in the shop or on the site by crimping or bonding with adhesives.

Although the rings are available in various sizes, the standard is 6 inches in diameter and 3 inches deep. The cost per square foot (four rings) is about \$4 for anodized satin aluminum; a gold anodized finish costs 20 per cent more.

Manufacturer: Integrated Ceilings & Grilleworks, Inc., 11766 W. Pico Blvd., Los Angeles 64.

PORTABLE ACOUSTICS

More often than not, high-school auditoriums are not perfectly suited, acoustically at least, to concert performances. To remedy this situation, a new company is offering a portable acoustical shell for existing stages which improves the acoustics for performers as well as audience. The *Encotee Acoustical Shell*, developed



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Write for Architectural Bulletin GL-12
Glidorama Division, Whizzer Industries, Inc.
355 S. Sanford St., Pontiac, Michigan

Glidorama
ALUMINUM
WINDOW WALLS

PHILANDER SMITH COLLEGE
LITTLE ROCK, ARK.



Ginocchio-Cromwell & Assoc.
Archts.

© 1960

primarily by Boris Goldovsky, director of the Berkshire Festival Opera Workshop, is a series of modular glass-fiber baffles framed in aluminum. Hinged together in groups of two or three, like folding screens, they enclose three sides of the stage and the ceiling. Ordinarily they stand independently, but if the concert includes singers who move about a good deal, the panels are braced from behind to prevent toppling. The sound ceiling, built of the same materials but with slightly different hardware, is separately hung. Less than an hour's time is required for a four-man crew to erect enough panels for a symphony enclosure; the crew needs 20 minutes for a chamber-music shell.

For about \$5,000, a school auditorium or field house can be turned into a temporary concert hall, a price which includes adjustment to the size and shape of the stage. Although admittedly no substitute for a first-class concert hall, the equipment is said to increase sound fidelity in a multi-purpose hall by as much as 70 per cent.

Manufacturer: Stagecraft Manufacturing Corp., Peekskill, N. Y.



BRIEFS

► Joined without welding or riveting, the aluminum extrusions in the photo above are simply fitted together to form a continuous flat or curved surface. Interconnecting extrusions like these have been used as trailer-truck and refrigerator-car floors and airplane-hangar doors, but Reynolds Metals Co. is working on similar assemblies for building components. These are to be of two kinds: 1) interlocking, as above, a sturdy but detachable method, and 2) snap-locking, a joint as strong as the metal, which cannot be disassembled without deforming it.

► Concrete structural elements reinforced and prestressed by glass fibers are being produced experimentally by the U.S. Army Engineer Research and Development Laboratories in Fort Belvoir, Va. A specially formulated binder, such as an epoxy resin, bonds the fibers to themselves as well as to the concrete and protects them from cement's alkalinity. Although this glass-reinforced concrete is too expensive to compete with steel in most construction, it may prove useful where corrosion resistance, absence of magnetic field, and electrical resistance are important factors. END

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Makes Stairs and Floors PERMANENTLY Non-Slip!

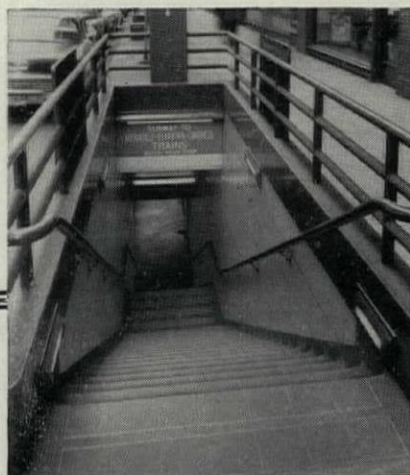
ALUNDUM stair and floor tiles, which have long been acknowledged by architects as providing the maximum obtainable combination of non-slip effectiveness (wet or dry) and resistance to wear, are again available from Norton Company. Installations the country over have proved conclusively the ability of ALUNDUM tiles to provide walking safety, year after year, under the most heavily concentrated foot-traffic conditions.

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ALUNDUM stair and floor tile is providing walking safety and durability on stairways, at turnstiles and along platform edges of the Chicago subways.



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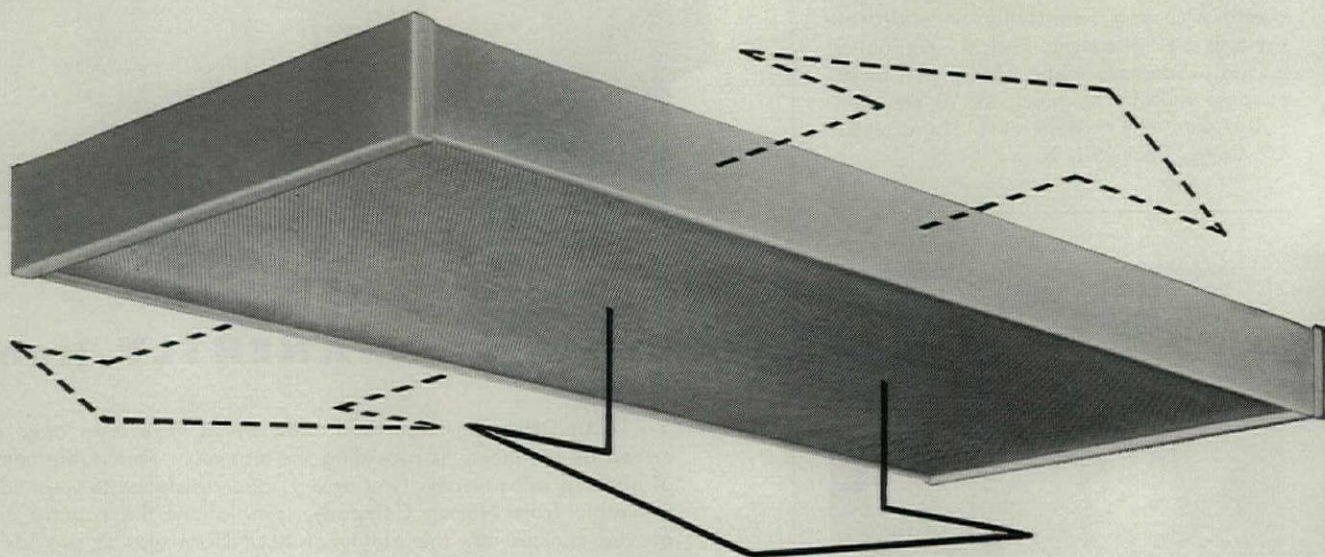
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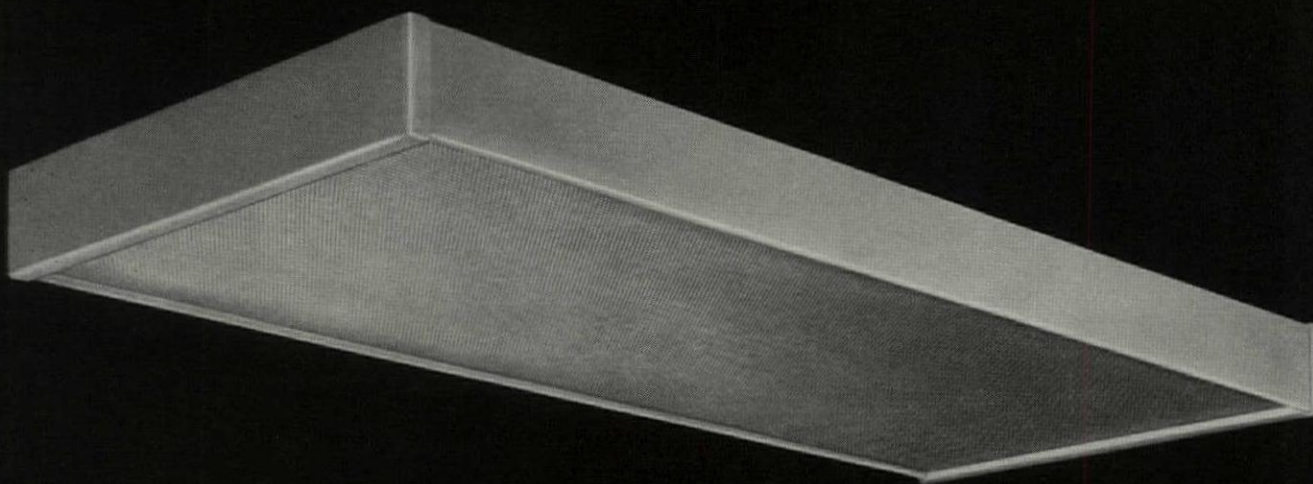
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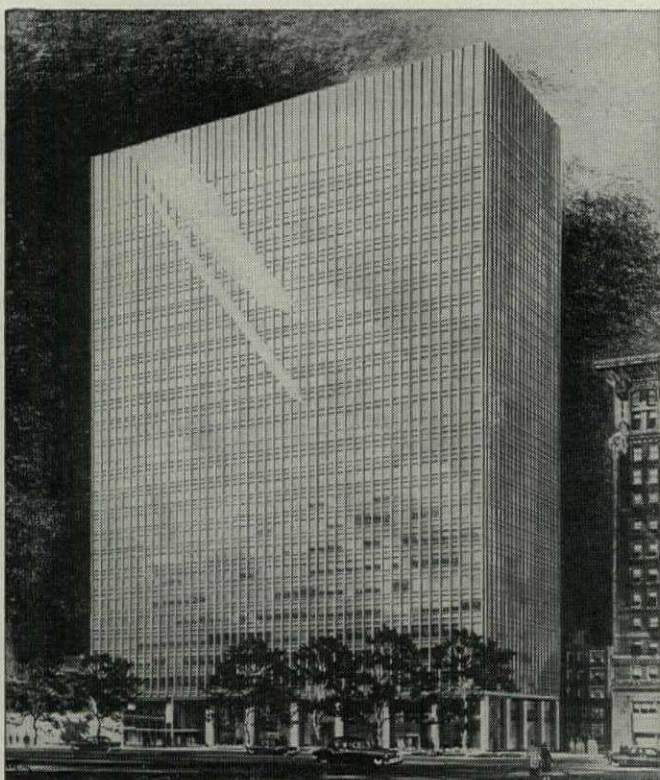
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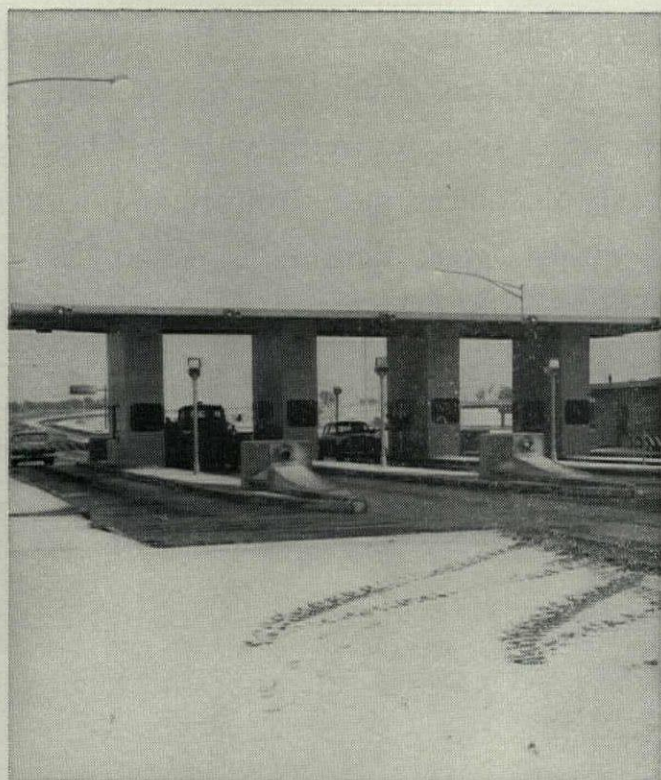
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Toronto Ltg. Studios.

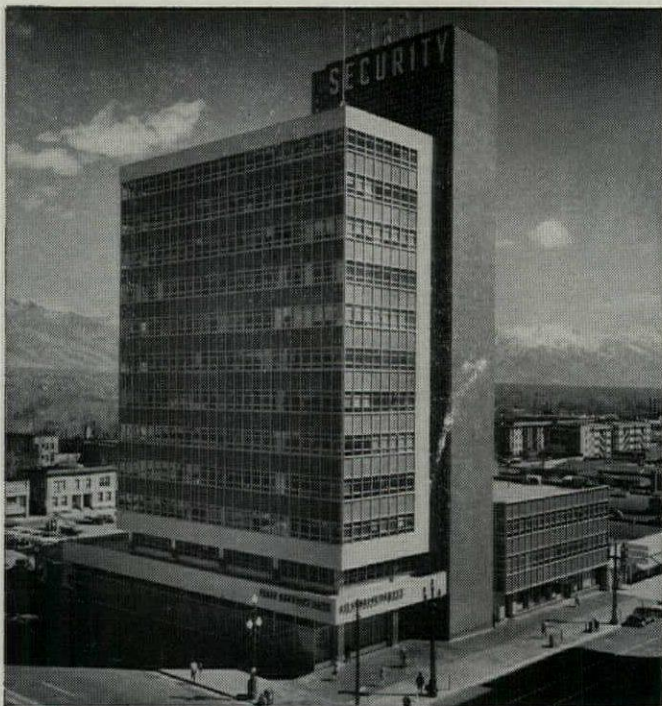


Vent and Drainage—Time-tested galvanized steel pipe gives assured maintenance-free service at low cost. That's why it is specified for drainage and vent lines in major buildings such as Cleveland's Illuminating Building, New York's Coliseum, the Seagram skyscraper and Socony-Mobil and Mutual Benefit Life Buildings.

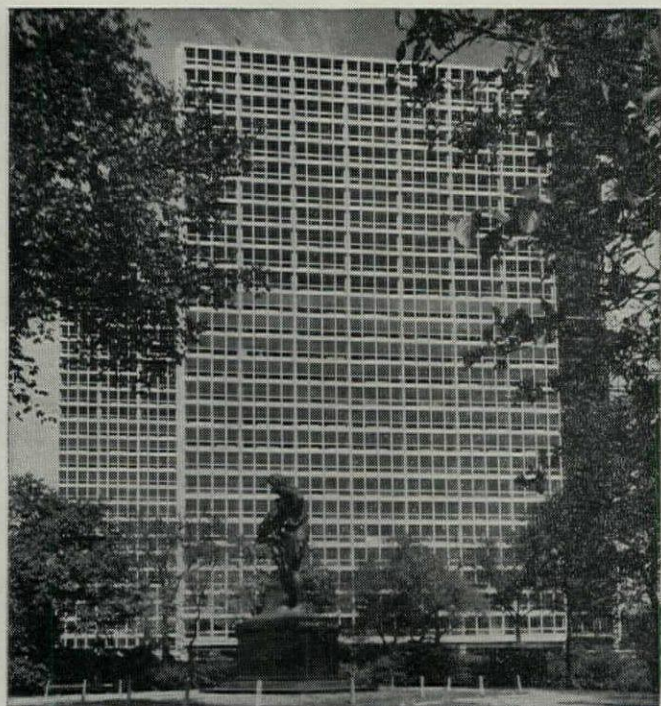


Snow Melting—Beneath the toll gates of the Indiana Turnpike and the Calumet Skyway, as well as on the ramps of the New York Port Bus Terminal and Staten Island Ferry, steel pipe keeps pavement approaches clear of ice and snow for safe and controlled vehicular movement all winter through.

Steel pipe serves best in many ways .



Radiant Heating and Cooling—In Salt Lake City's First Security Building, steel pipe serves a dual function. It carries steam for heating and chilled water for air conditioning. Logically, too, for steel pipe has proved efficient for heating and refrigeration, as well as icemaking, in over 70 years of service.



Electrical Conduit—When vital services depend on electricity, as in Chicago's Commonwealth Promenade Apartments, it's natural to protect this power with sturdy, rigid steel conduit. Imbedded in concrete, enclosed in walls or exposed—rigid steel conduit meets all local, state and national building codes.



Fire Prevention—Much of the nation's \$1,100,000,000 annual fire losses might have been prevented if all structures were equipped with efficient, steel pipe fire sprinkler systems. The cost of such built-in, 24-hour fire protection, when related to potential losses, is truly an economical investment.

many places

Steel pipe is the modern metal tubular product easy to engineer and install.

Indoors or out, overhead or underground, in walls or exposed—*steel pipe* means durability and economy. It's easy to work, economical, readily available. It meets local, state and national codes. Its proved record of performance makes it the most widely used pipe in the world.

Steel pipe serves well and long in vital services affecting American life and business . . . for vent and drainage, fire sprinkler systems, snow and ice melting, radiant and conventional heating, air conditioning and gas, air, electrical and water lines.

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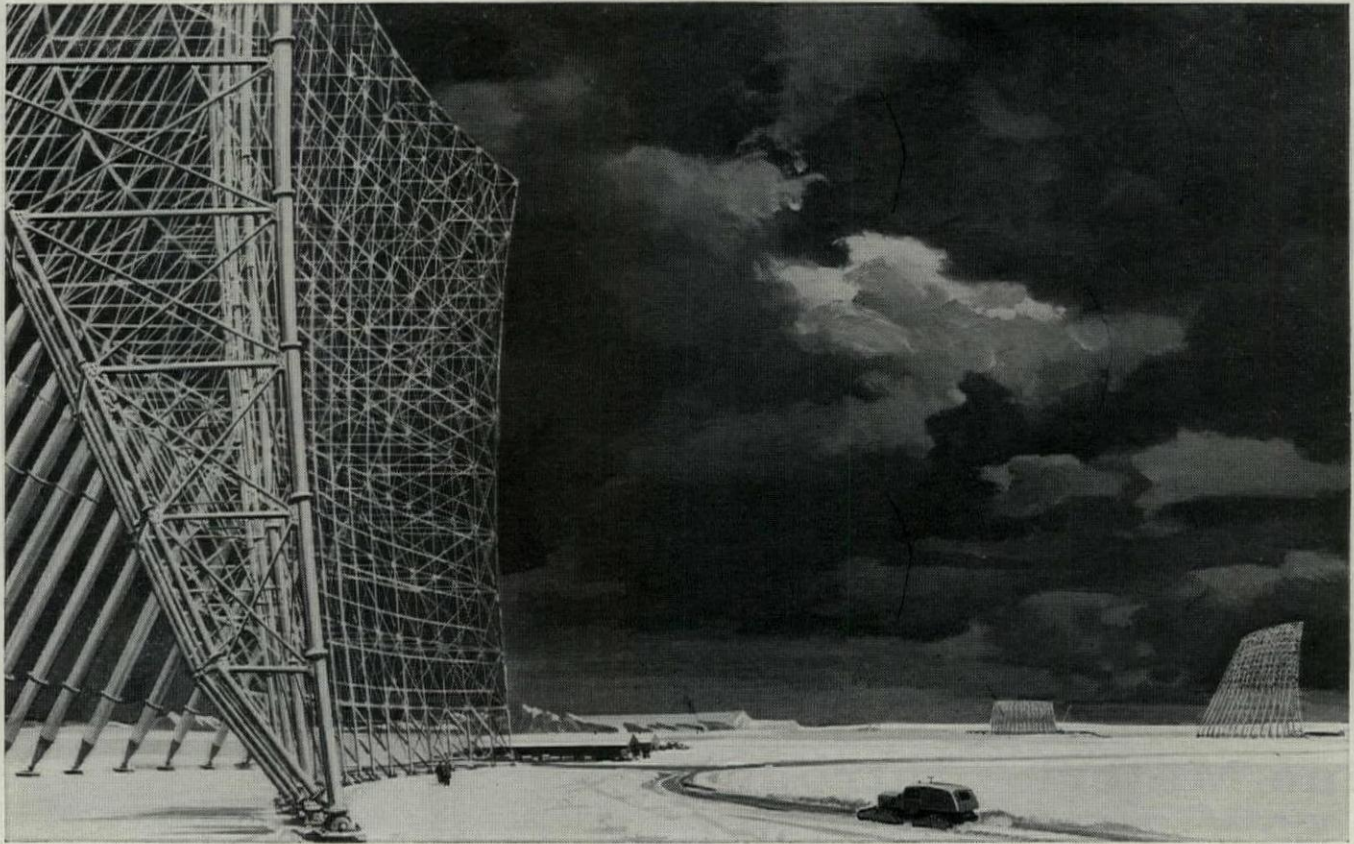
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Somewhere North of Baffin Bay

The Arctic is almost as silent and lifeless as an ice-cube. But, deep inside it, these 400-foot long missile-detection antennas will guard the life of our country.



They're part of a Ballistic Missile Early Warning System (BMEWS). Officially, you'd call them surveillance radar antennas. Yet, they look like over-sized baseball mitts. That web-like framework can detect (or spot) a far-off missile darting through the shivering Arctic sky, and rifle its speed and direction to any of our military bases in seconds.

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materials. It's specified by architects and engineers as structural members in schools, supermarkets, and many types of buildings. For instance, tubular steel is a perfect choice for window and panel support in curtain wall structures, because it has an excellent light weight to high strength ratio, is easy to join and reduces maintenance.

USS National Steel Tubular Products have been used in buildings and commercial structures for more than 90 years. If you'd like some additional facts, write for a copy of our Bulletin No. 2—Pipe For Mechanical and Structural Purposes. National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa. But, for fast delivery of USS National Steel Tubular Products, see your *National Tube Distributor*.

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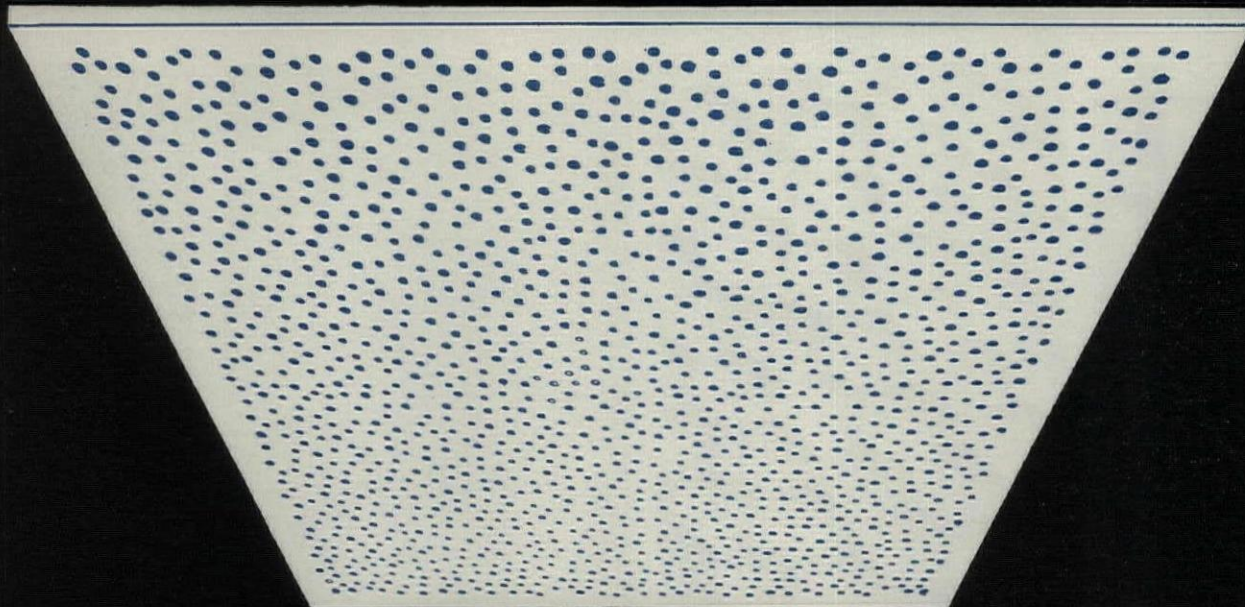
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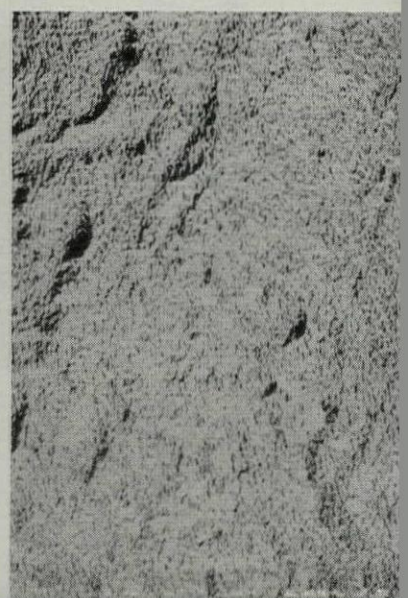
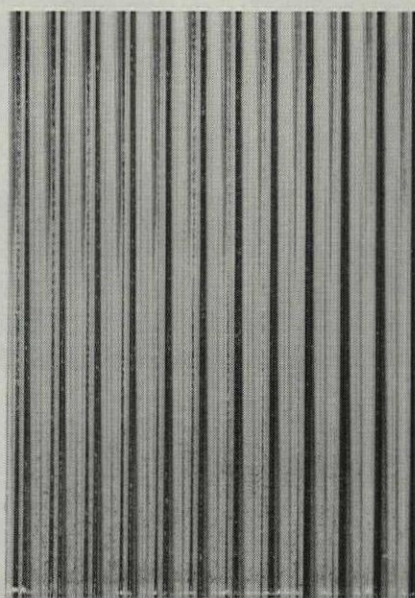
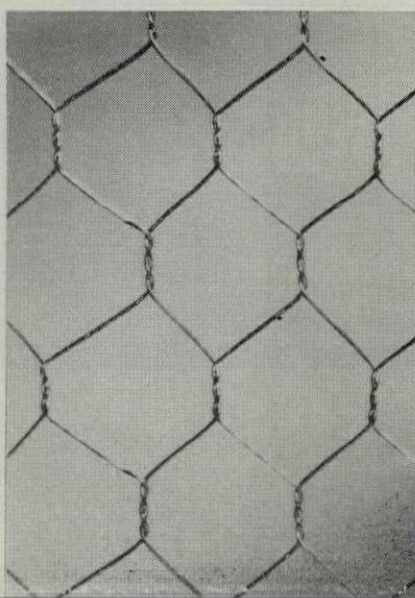
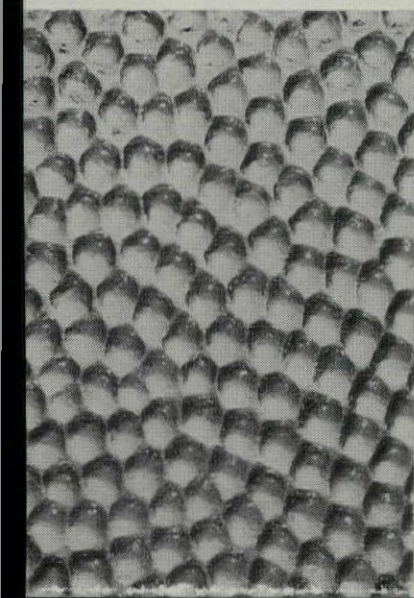
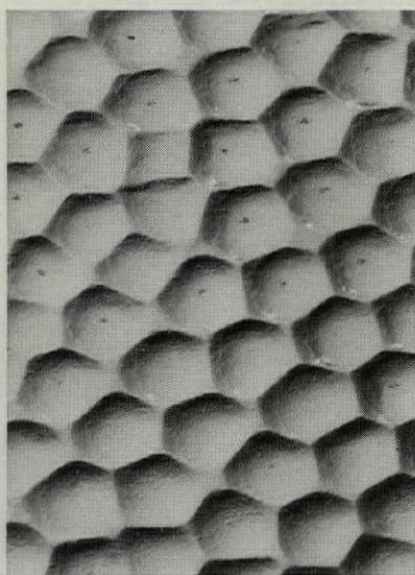
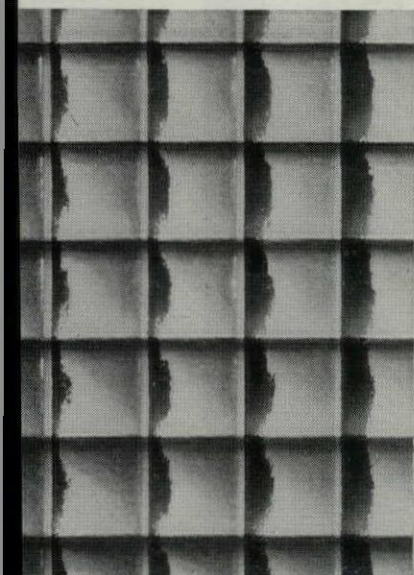
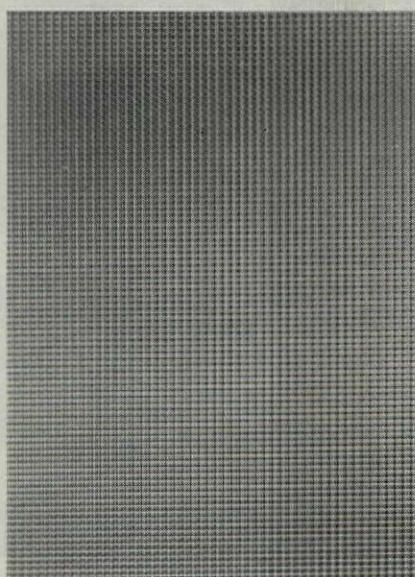
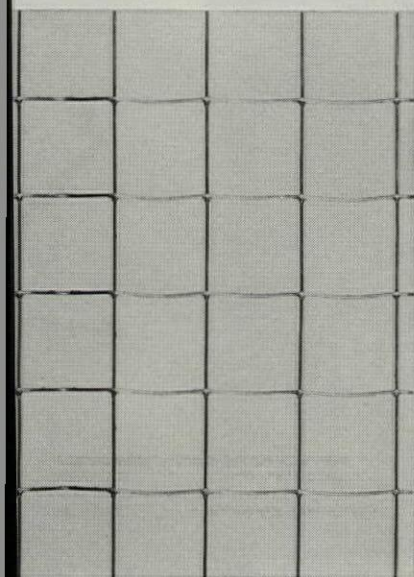
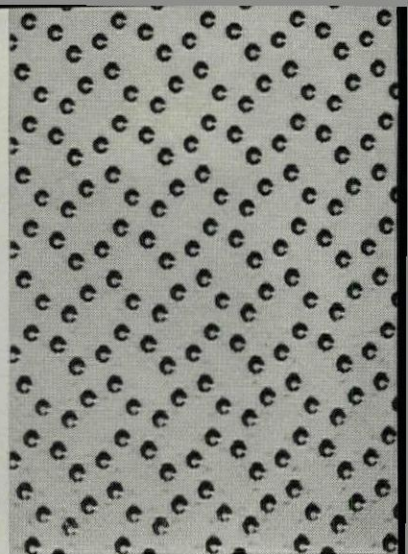
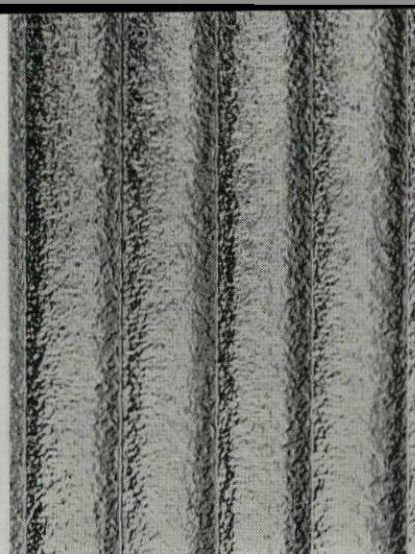
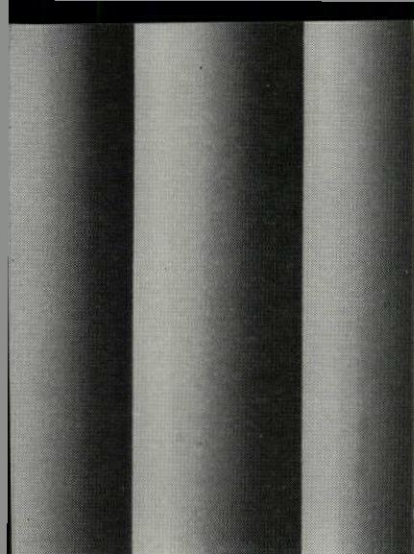
Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
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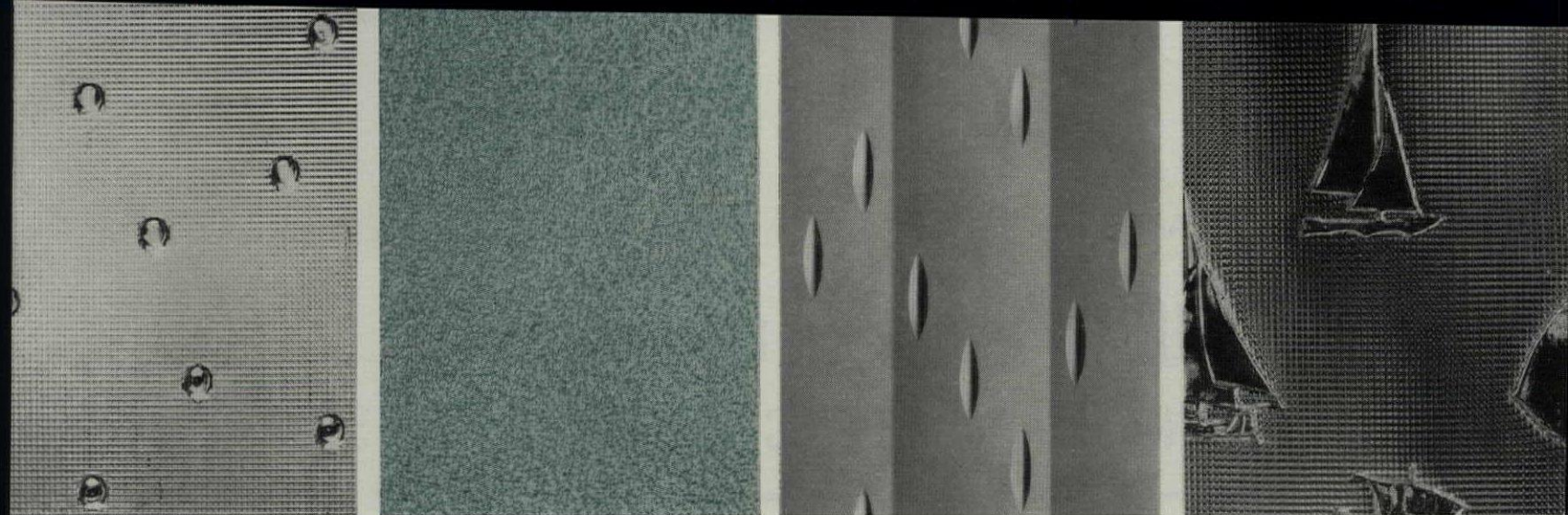
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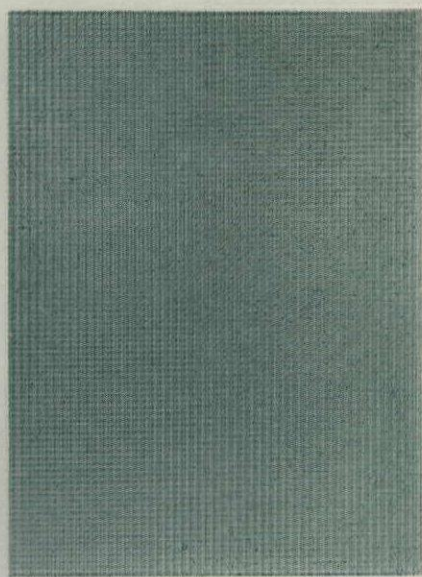
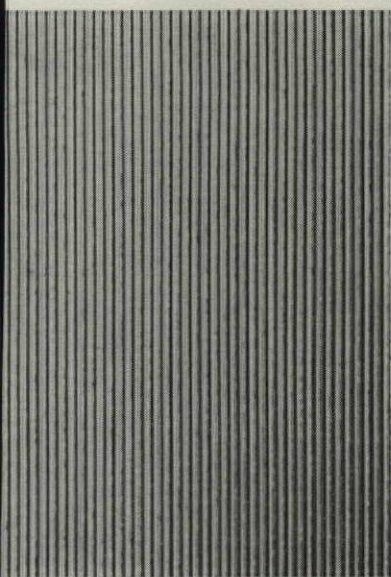
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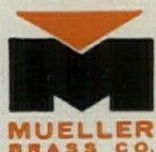
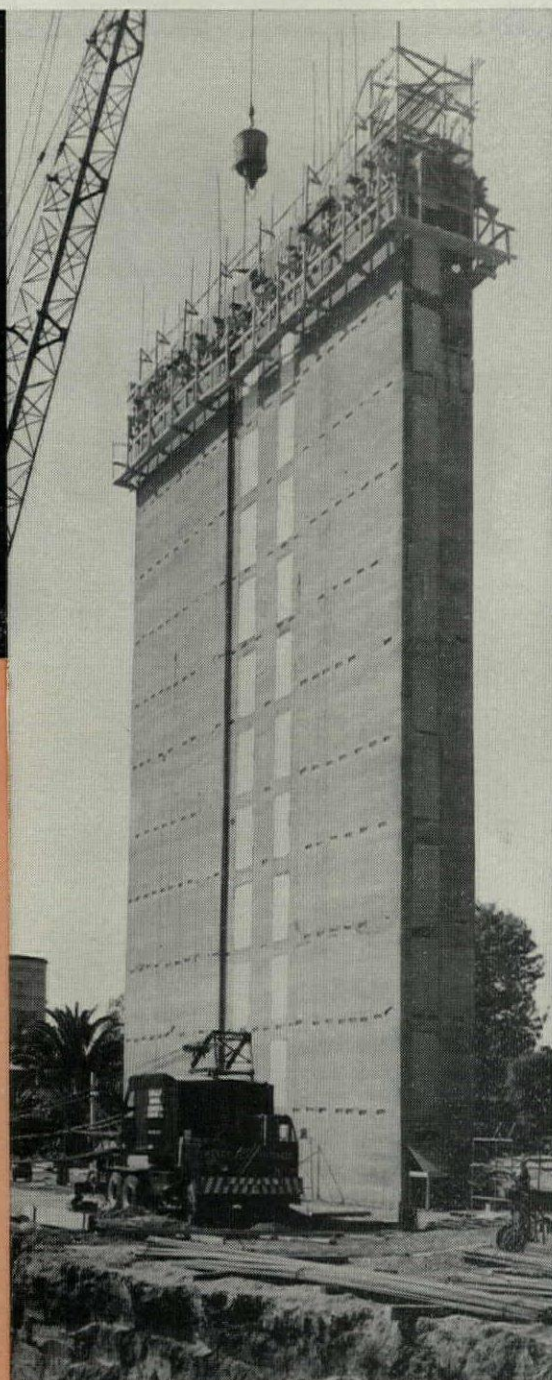
MUELLER BRASS CO. *Streamline*® COPPER TUBE IN THE NEW TYPE "CENTRAL CORE" 15 STORY LUXURY



The first application of "slip-form" central core construction in the United States has been employed in the erection of the new 101 unit Palo Alto apartment building. With this method, the form in which the concrete is poured rides on high strength steel rods equipped with hydraulic jacks. The slip form is progressively lifted to each elevation after the concrete has been poured and allowed to set. By using this system, the 15 story core of the building was completed in 5 working days at an estimated saving of 8% on labor costs. Pre-stressed slabs, poured in place, serve as both floors and ceilings in the core. This Swedish-originated method has been used extensively in this country for bridge piers and storage silos, but is completely new in the construction of buildings.

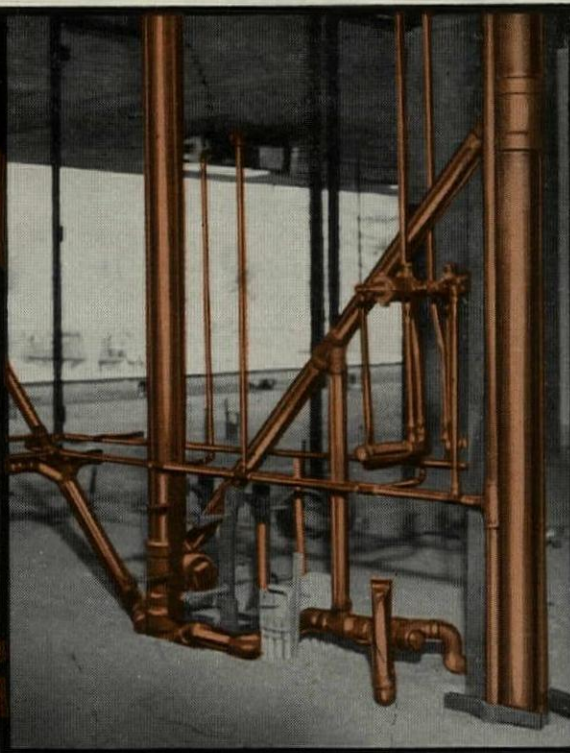
.....

Architect for the new Palo Alto apartments is William F. Hempel, AIA. The North State Builders Ltd. own and are constructing the 15 story building; engineering was by R. B. Welty of Modesto with H. B. Brewster, Fresno, consulting. The plumbing is being installed by the Herman Lawson Company of San Francisco. According to Mr. Hempel, the location of the utilities in the central core of a building sometimes creates problems in relation to local codes. But, in the case of the Palo Alto apartments, the city of Palo Alto changed code requirements so all plumbing in the building could be copper.



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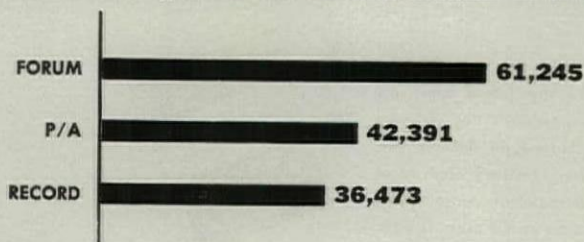
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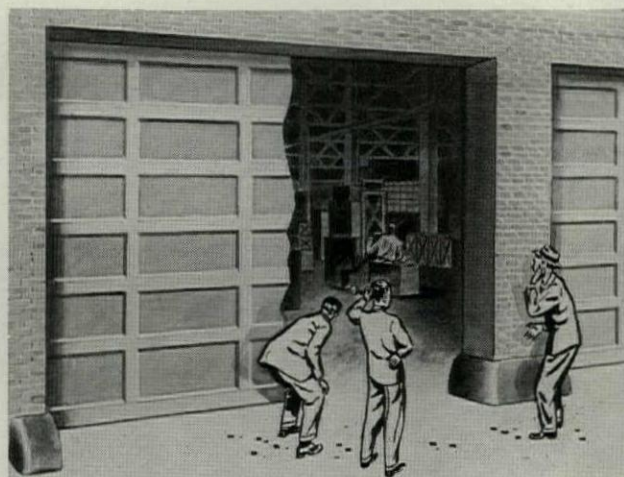
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BRIXMENT MORTAR ALSO COMBINES THESE 8 OTHER ESSENTIAL CHARACTERISTICS



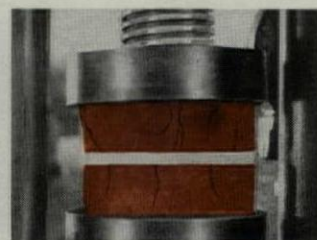
PLASTICITY



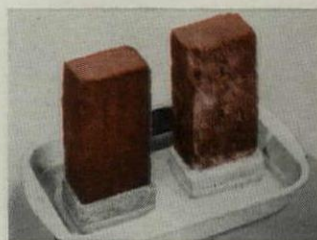
WATER RETENTION



BOND



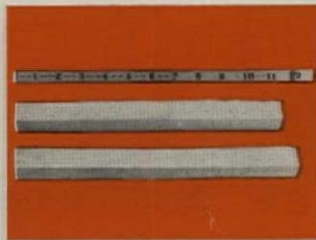
STRENGTH



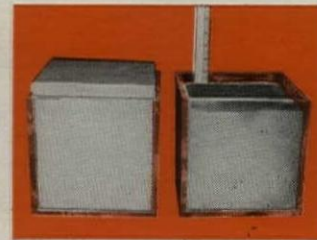
LOW EFFLORESCENCE



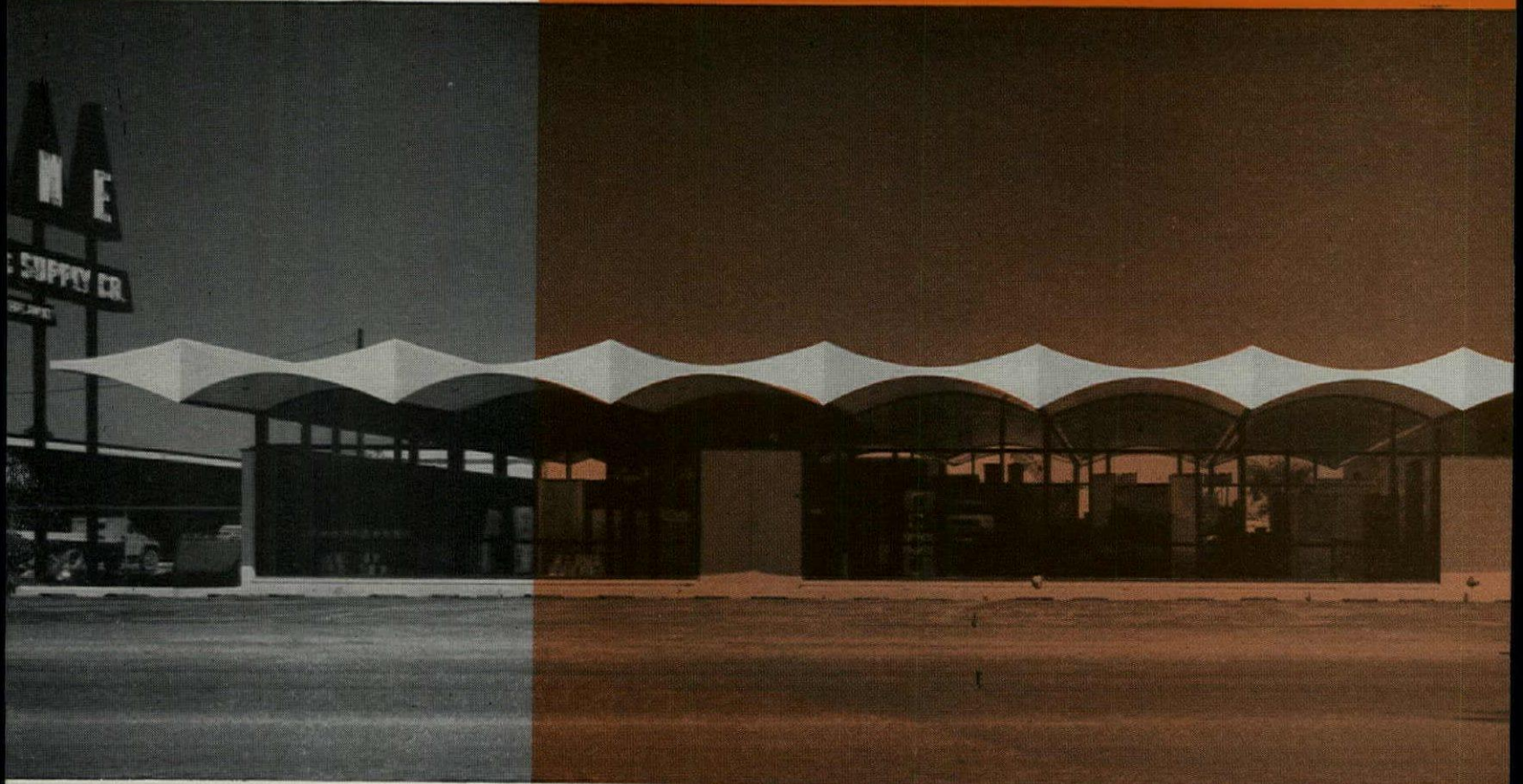
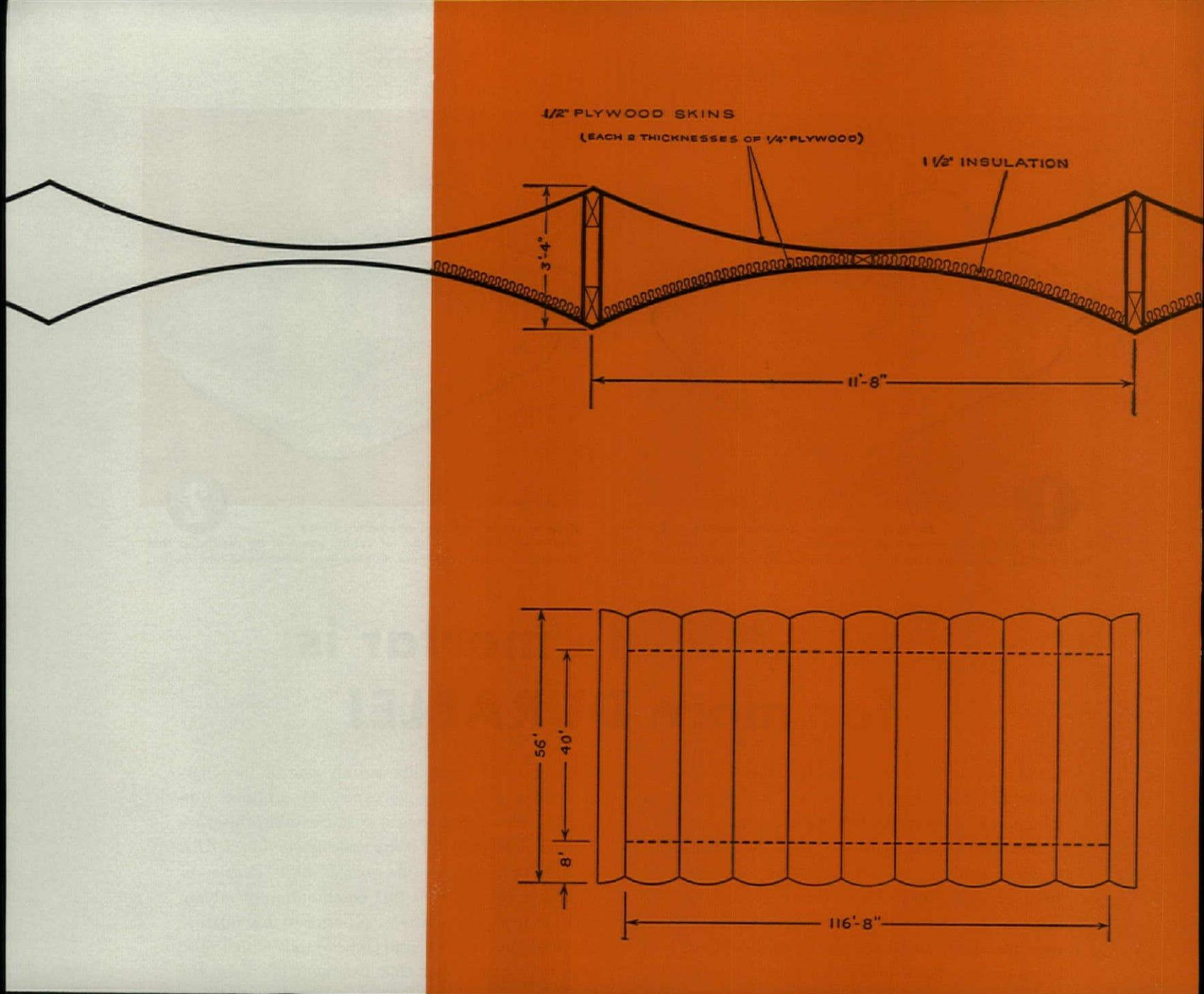
IMPERMEABILITY



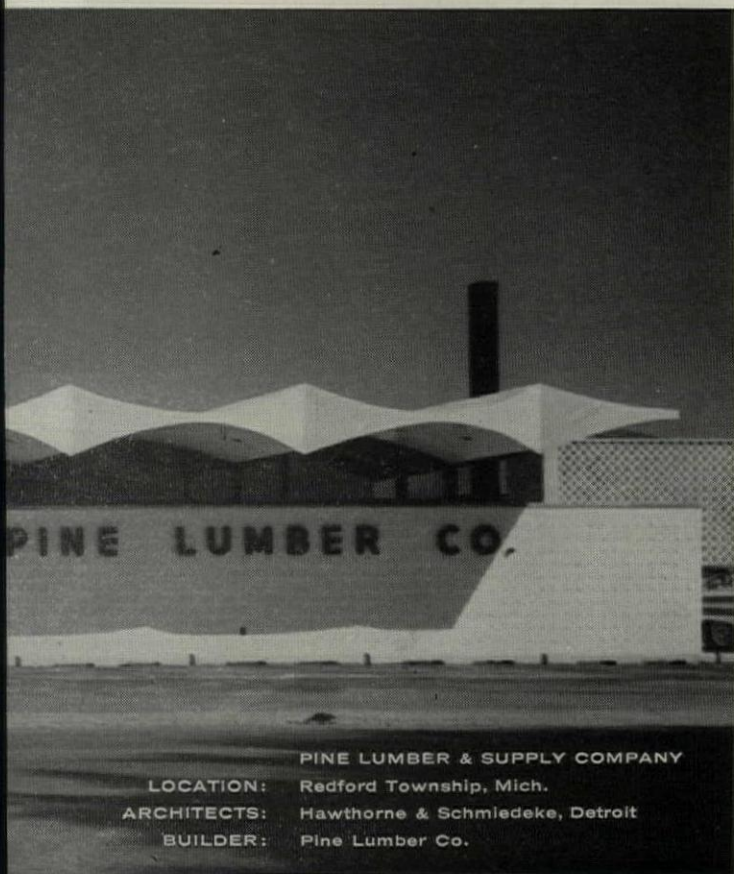
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YIELD



new approaches to structural design with fir plywood



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ARCHITECTS: Hawthorne & Schmiedeke, Detroit
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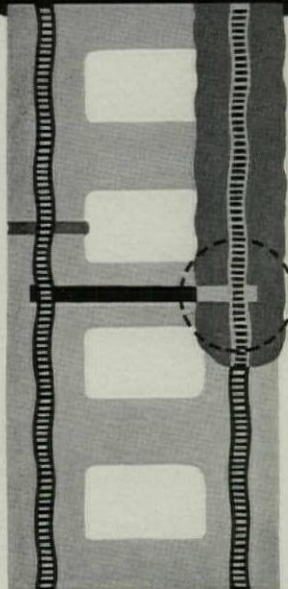
These vaults are of modified stressed skin construction, with plywood glue-stapled at edges to plywood box beams and, at mid-arc, to a continuous 2 x 4. The system provides large clear floor areas which, together with extensive use of glass for exterior walls, contribute to the remarkably light, open look.

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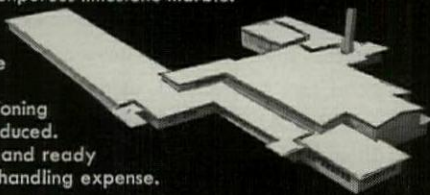
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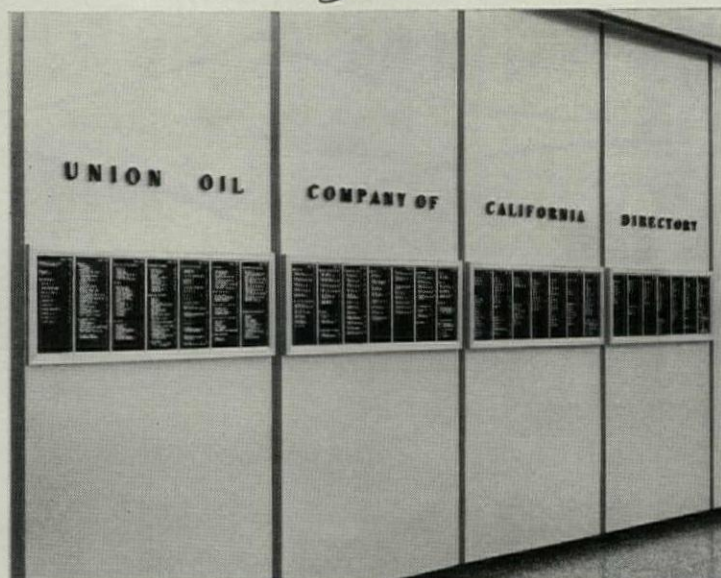
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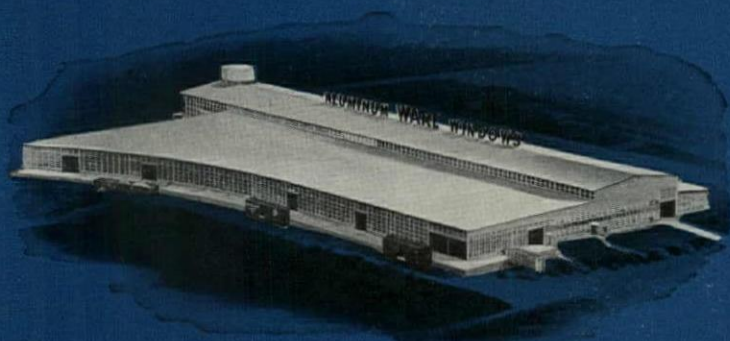
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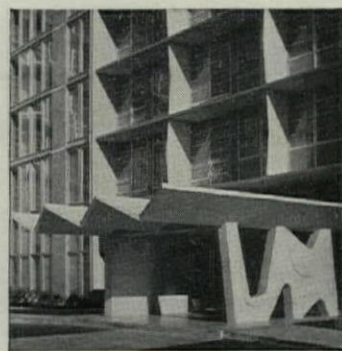


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Editorial

Opportunity for ideas— two world's fairs

Every once in a while our civilization gives a break to small operators in business, or in architecture. Such an opportunity is afforded today by the two expositions now developing in the U.S.: Seattle's Century 21 Exposition (to open in 1962) and the New York World's Fair, 1964-65.

Whatever good may come out of either fair is likely to come out of individual ideas of individual exhibitors, ideas that the world does not yet know about. The fair in New York for example will itself put up no buildings except administrative ones. The fair will make almost no effort at architectural controls or organization. Robert Moses, president of the Fair, has indicated that industry, world-wide, will be allowed to compete with exhibits extolling its wares, and governments with propaganda exhibits, likewise installed in their own buildings. Also, there is to be an amusement area described as an American version of Copenhagen's famous Tivoli Gardens—gay and profitable.

Ideas may be brought in at two levels.

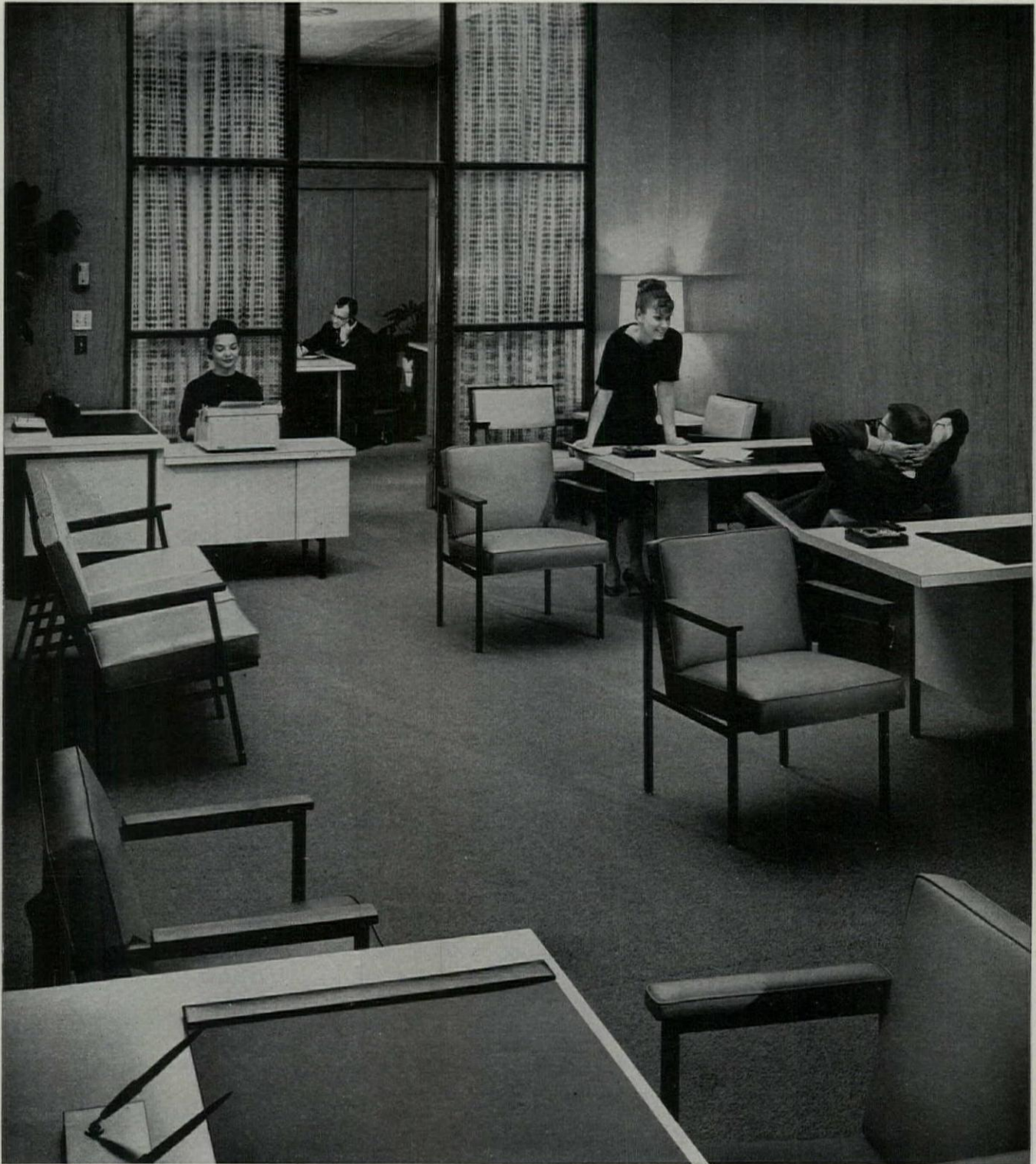
At one level there is the kind of an idea that directly serves any one exhibitor. For example, the 1933 Chicago fair helped establish one American corporation for the first time as a really national institution when two young architects found a small, cheap lot still available, and sold the idea of an exhibit which consisted of no more than an effective sign above a modest building developed as a rest lounge to sit down in. Before the architects came in with this idea, the company had not even thought of exhibiting.

At another level the idea may be one of industrial statesmanship. Thus the General Motors display at the New York Fair of 1939, its so-called Futurama, probably did more than any other event to set up today's national and state superhighway program. The public got the appetite for it at the Fair.

What big idea could be big statesmanship for American industry today? One big idea is the new vision of cities. At the 1939 fair in New York this proved premature. Today it fits wonderfully. A new city system is needed as badly, and promises as much, as the highway system did 20 years ago.

To whom could this idea—or parts of it—be proposed? To industries serving building, yes. But, paradoxically, the kind of an industry that might do the biggest and best job with it, and get the most out of it, might be one dealing in transportation, or in vehicles. Today's cities are enough to enrage everybody who gets into traffic, and today's traffic is enough to enrage everybody who gets into cities; all concerned with building or concerned with transportation and its instruments need a new better vision together: a new vision of the city for the nation on wheels. Blessed will be

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the name of the institution that manages a display as convincing and appetizing as the Futurama was in the narrower field.

It would have to be an expert display, not an amateur one; it should call on all the research resources of organizations such as ACTION (which is industrially supported), and on the architectural leaders who have proved to be men of genius in their ideas for attractive cities.

Visionless enterprise

Railroad people today have a hard time trying not to look like pygmies. They are identified with a situation in which passenger traffic is no longer profitable, the railroads are no longer getting the huge handouts they once got from government, they get taxed on their properties whereas airlines get their airports built by municipalities and operated taxfree.

Railroad men are accustomed to being pitied. Sometimes they are justified. But when two railroads appeal to pity in justifying the continued downgrading of the once-grand interior of the Grand Central Station in New York which they have inherited, and where they now propose to make passengers and others creep to seats in the main waiting room under an 11-foot ceiling height caused by hanging three tiers of bowling alleys down from the high ceiling, the time has come for some hard realism about railroads and real estate.

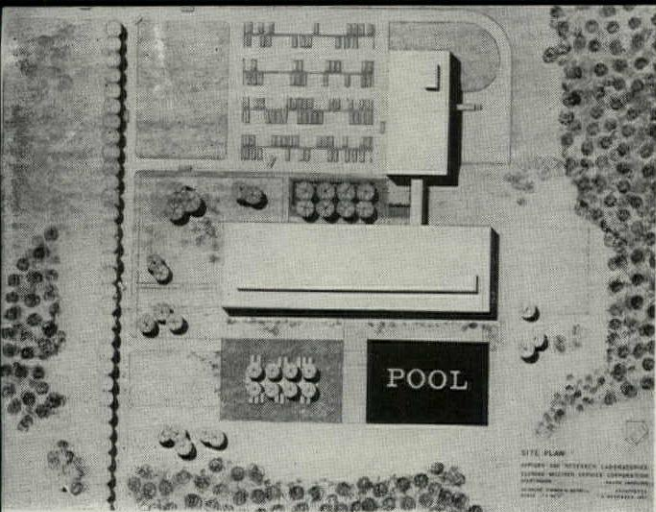
Every one in a succession of recent proposals by the railroads to downgrade the interior architecture of their terminal has been justified on the basis that high taxes on the property are a burden added to declining railroad income. Back in 1954 when FORUM collected the protest of more than 200 top architects against proposals to tear down the open concourse altogether, removing one of America's finest and most needed public rooms for the sake of a new office building, the New York Central System in its reply lumped the taxes on its terminal and those on its yards, etc., as if all pertained to railroading. Now again Terminal Manager S. T. Keiley pleads that the terminal deficit, once more "considered only as a railroad facility," was over \$13.5 million in 1959. He seems to think that this justifies trying to get an exception to the zoning ordinance of New York which forbids bowling alleys in that area. No doubt the progressive cannibalization that has been going on in the great concourse ever since the great room was saved in 1954, filling its once magnificent space with signs, turntables, land-boom selling booths, oversized clocks, and other gimmicks to turn a quick buck, is all meant to offset declining "railroad" revenue because the owners are railroads.

But the real fact would seem to be that the Grand Central Station from the beginning was far less of a railroading operation than a real estate operation. The New York Central System holds, apart from a 70 per cent interest in the station, a big chunk of land on which it and its close associates or subsidiaries own outright three major hotels and two office buildings, and are now

erecting a tower of 2.4 million square feet for perhaps 15,000 occupants as "Grand Central City" which they proclaim the biggest office building in the world. They also have under ground lease four major hotels including the Waldorf-Astoria, and 11 existing office buildings including Union Carbide, and two projected office buildings to replace existing apartment buildings. From the very beginning the terminal was built "grand" as the real estate magnet, the focus, the drawing card, the lobby, so to speak, for all this highly profitable realty flanking it. To deal with it as "railroading money" is a laugh.

If the railroad people had better than pygmy imagination today about their real estate they would foresee that adding another 15,000 people plus those who do business with them will cause rocketing congestion, and that the new "Grand Central City" building will need every inch of breathing space that the terminal next door can provide. If the owners don't think of it that way, the city must; and the city should emphatically veto any added, legally forbidden, bowling-alley clutter and congestion.

What so-called practical men such as these railroaders rarely grasp is the immense business value of great empty space as such. A wonderful environment, believe it or not, draws to it all healthy, normal, dignified people striving to spend their short time on earth as complete human beings. Who knows: if the railroads in their real estate operations got over their present attitude toward the public they might learn some things about getting more favorable public attention for their very real railroading problems.



A shimmering set of industrial stacks



While tall chimneys of another manufacturing era still spew forth their grimy waste over most factory areas, this textile plant in Spartanburg, S.C., has a new kind of stack which discharges a pleasant cargo, if still utilitarian. Standing in a pool before a pair of trim horizontal slab buildings (a research lab and a pilot plant), these small stacks enclose pipes whose heads emit a fine spray of water, a mist among the higher jets rising from the surface of the pool. The design—by Architects Skidmore, Owings & Merrill for Deering Milliken Research Corp.—is an exquisite example of the magic of water play in sight and sound.

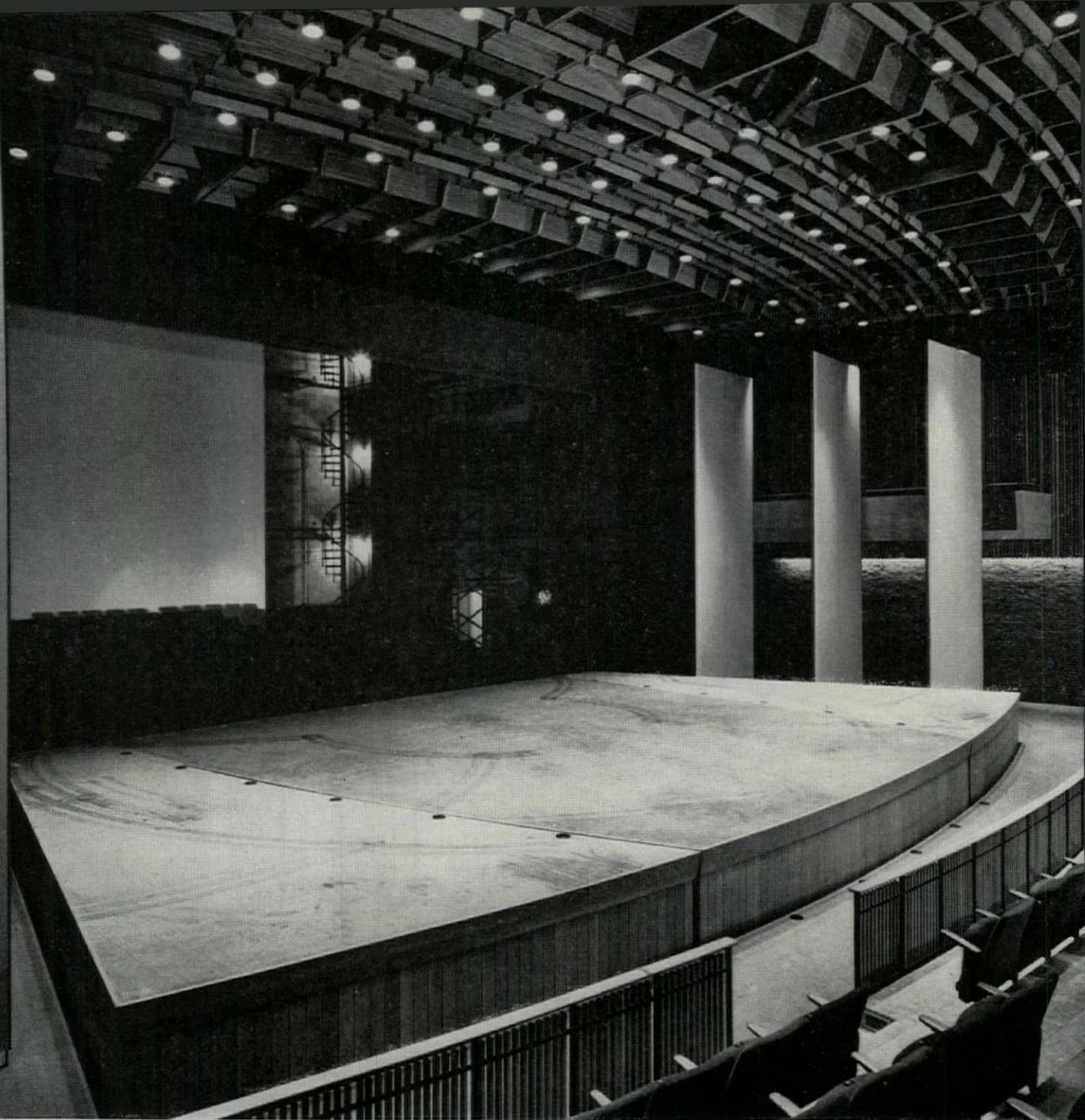
Practically, the 200 by 130 foot spray pool, which pumps 1,486 gallons per minute, is an adjunct to the massive air-conditioning system whose 400-ton capacity serves the two buildings. But in providing this the designers have gone far beyond the tangible technical side of architecture.



PHOTOS: O. KERR STOLLER

Spray stacks vary in height from 4 to 12 feet, in diameter from 6 to 12 inches. Jets rise 20 to 30 feet.





The theater automatique

Harvard's new theater wraps three plans and the gamut of advanced stage, lighting, and rigging systems into a single package.

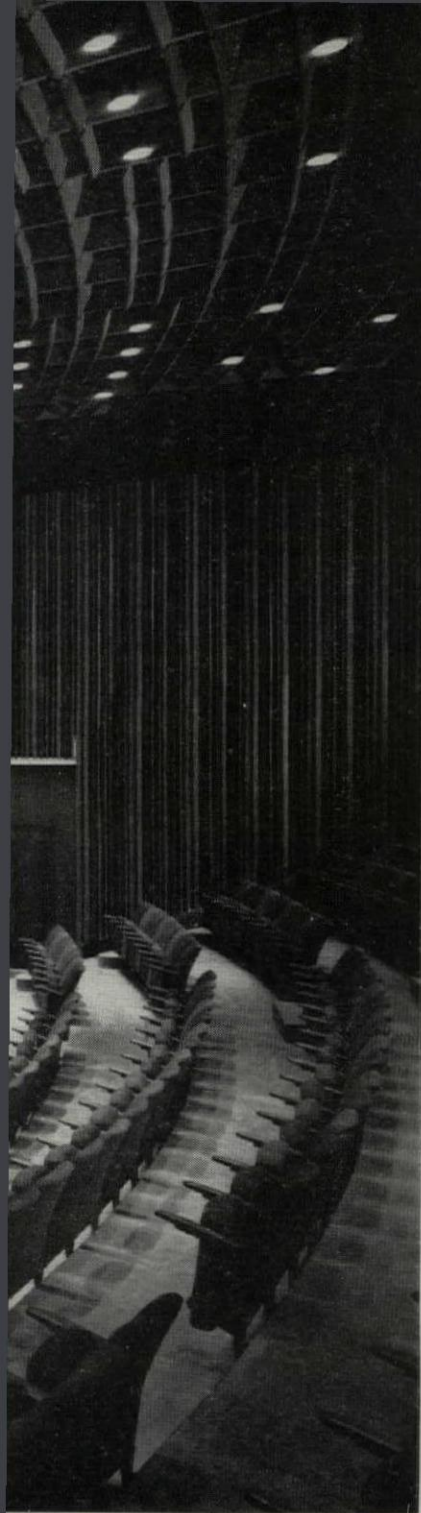
There is little in the unobtrusive and polite exterior of the new Loeb Drama Center on tree-lined Brattle Street in Cambridge to indicate that it encloses the most revolutionary new stage

and equipment in the U.S. today. Indeed, the auditorium itself does not suggest, when seen in one of its incarnations (the modified theater-in-the-round shown above), that it can be changed automatically into two other basic forms—a proscenium and an arena—during a single performance.

These features, arranged with apparent ease in the confines of the 515-seat theater by Architects Hugh Stubbins & Associates, are made possible

by the first complete installation of the systems of noted Stage Technician George C. Izenour (see page 95).

Radical as the means may be, the end was envisioned in the 1957 statement of a Harvard-Radcliffe faculty committee headed by Dean McGeorge Bundy and Professor Archibald MacLeish: "We see this building as an opportunity, not a fixed definition, as a working instrument, and not as a separate institute. We see a theater flexible



PHOTOS: CLEMENS KALISCHER



Concrete frame of the structure is exposed and infilled with panels of traditional Harvard red brick. Behind the projecting metal sun screens are full-bay window panels. The 24-foot-high building is apparently lower because of the projecting roof.



Intermission terrace opens off the spacious lobby at the side of the auditorium. The brick-paved terrace is an extension of the Brattle Street sidewalk and is separated from the lawns around the Radcliffe president's house by a low retaining wall.

and spacious, so constructed that it can adapt itself to future techniques while at the same time maintaining its role as a place of meeting and community for the two colleges."

This goal of having a theater *without* a drama school has been a Harvard-Radcliffe hope ever since the late famed George Pierce Baker took himself to rival Yale to found such a school. Over the years community theater in extra-curricular form has thrived in Cam-



bridge in old movie houses and converted gyms. Occasionally, and with luck, the auditorium of a nearby technical high school was available, but if necessary the play went on in lecture halls and student commons. This long exile from a real theater, perhaps, caused the committee to realize that "the play's the thing." The committee went on: "The building should not be so architecturally exciting and excited, as building, that the plays produced will be overshadowed by their frame."

The newly finished product fits the directive explicitly. Instead of closing itself in a campuslike setting, the building opens right off the sidewalk of Brattle Street by way of deep setbacks off the first floor, forming a porch somewhat like an arcade. The sides of the building are opened, again, to a garden court on the one side, and to a spacious terrace on the other. Because the high stagehouse is backed by lower workshops and by a 100-seat experimental theater and tryout room, the rear of the building, facing directly on a residential cul-de-sac, is almost domestic in scale.

The foyer and lobbies inside continue the simple, yet luxurious, application of concrete, brick, and travertine. The main auditorium is entered from the sides. The area behind the bisecting ambulatory is banked stadium-fashion with 12 rows of fixed seats with a total capacity of 359 persons. The forward seven rows are split into two banks of 78 seats each. These seat banks can be brought up to back-stage level by elevators and then can be pivoted 90 degrees to face each other, or even 180 degrees to face the back bank of fixed seats (see sketches, page 94). In this position, the seats occupy a place on the main stage. In this case, then, a new platform stage is formed in the area originally occupied by the seats. The platform elevators which raised the seats are used to raise the floor in segments to form several patterns.

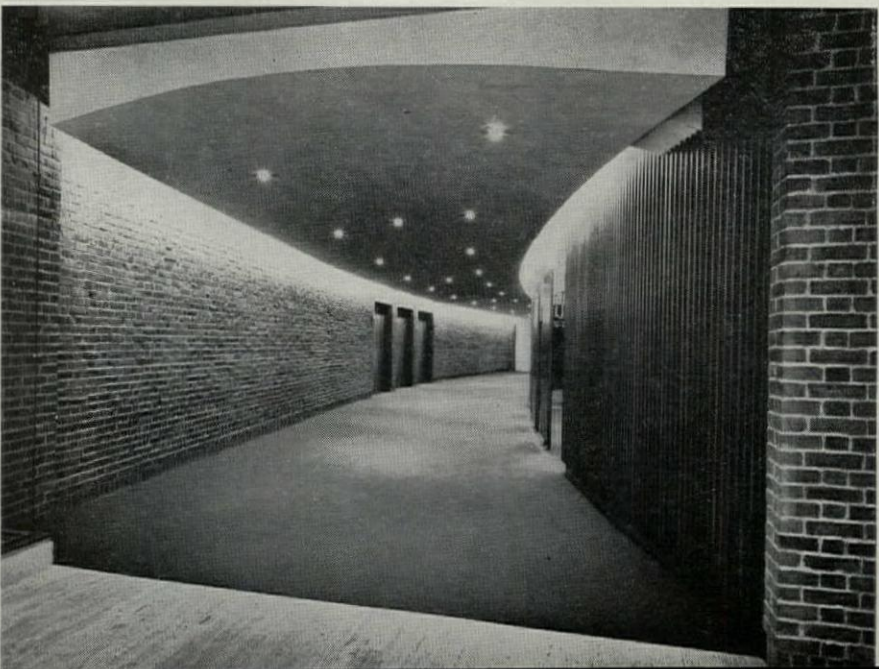
On the second floor of the building are three rehearsal rooms, offices for the director and coaches, and a library, used in conjunction with the Harvard library system. The building contains 53,482 square feet of floor space and is constructed on a 173 by 220 foot site. The construction cost per square foot was \$33.08. Total construction cost: \$1,770,000.



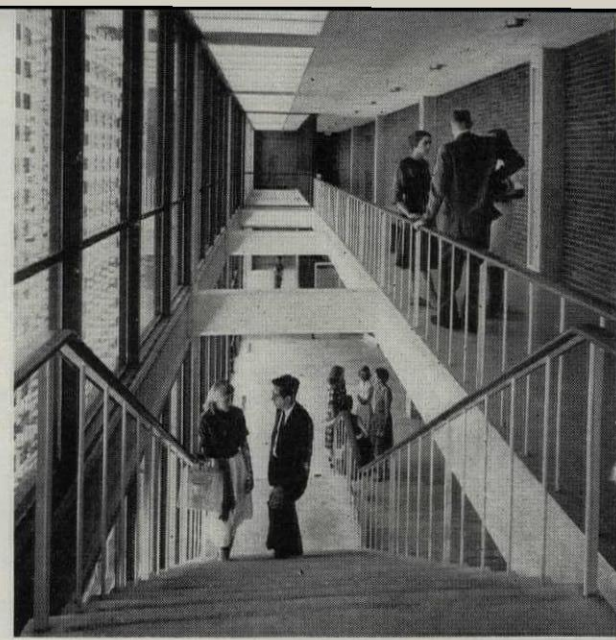
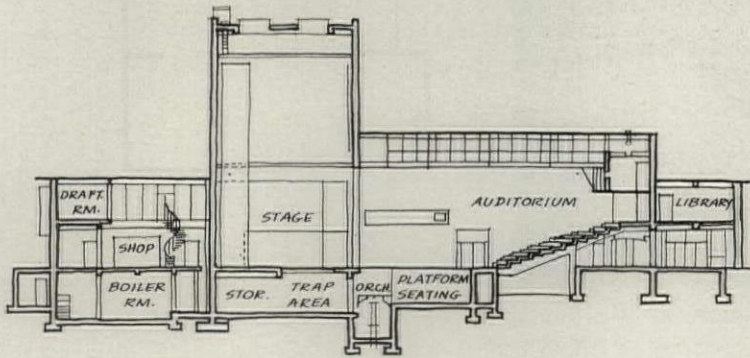
Entrance porch is travertine-paved but opens directly off of the brick-paved Brattle Street sidewalk. To the left of the porch is a garden court walled from the street. Exposed concrete columns are bush-hammered in shadow-line recesses.



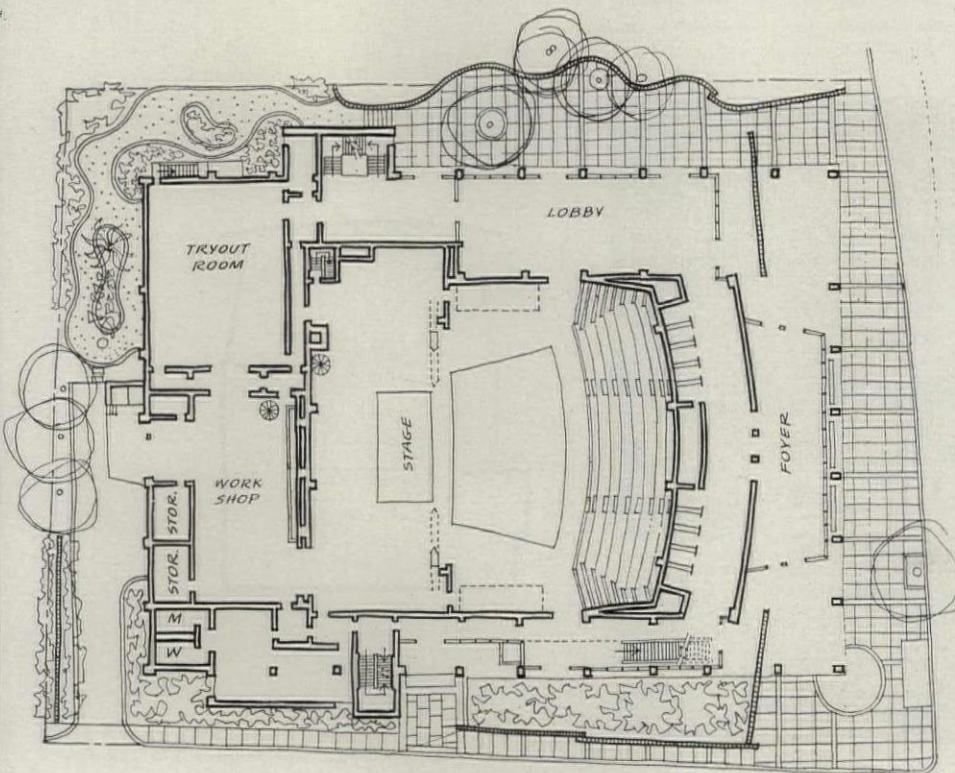
Foyer shows to the street through floor-to-ceiling glass windows. Inside, instead of a traditional ticket booth is a circular desk. Behind the brick wall (below) a passage links the two side lobbies of the auditorium. Coat alcoves open off the passage.



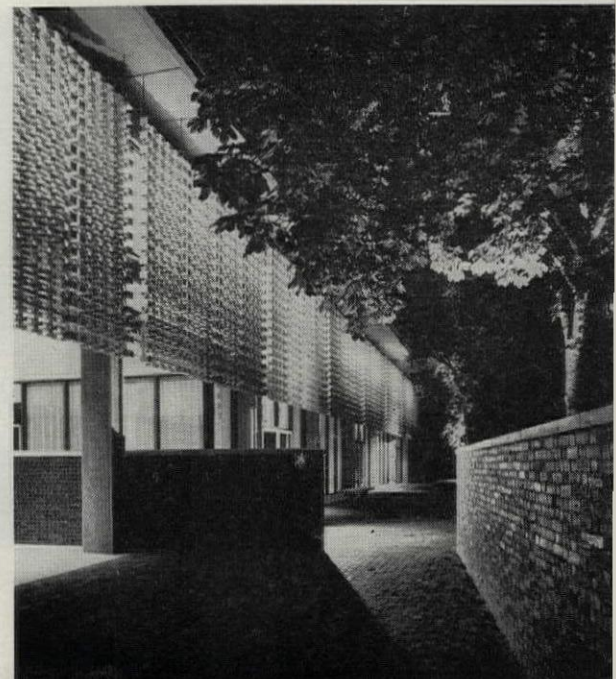
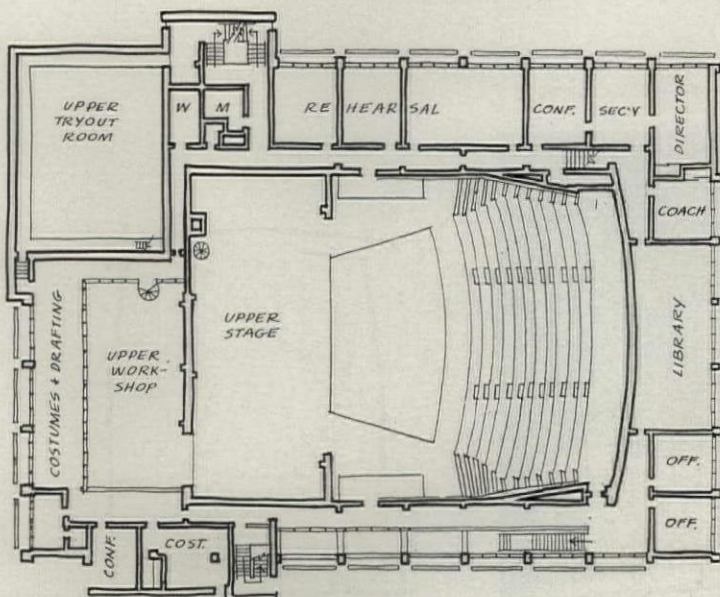
ARCHITECTS: Hugh Stubbins & Associates (George Anderson, job captain, John Wacker, landscape, S. T. Lo, color and furniture). STRUCTURAL ENGINEERS: Goldberg, Le Messurier & Associates. MECHANICAL ENGINEERS: Delbrook Engineering, Inc. ELECTRICAL ENGINEERS: Thompson Engineering, Inc. THEATER LIGHTING, STAGE EQUIPMENT, AND ELECTROMECHANICALS: George C. Izenour. ACOUSTICS: Bolt, Beranek, & Newman. CONTRACTOR: George A. Fuller Co.



Broad stair to second-floor offices, library, and rehearsal rooms is finished with open risers and travertine treads. From the upper level, access to the auditorium is also offered. Beyond the windows can be seen the small-scaled pattern of the sun screen.

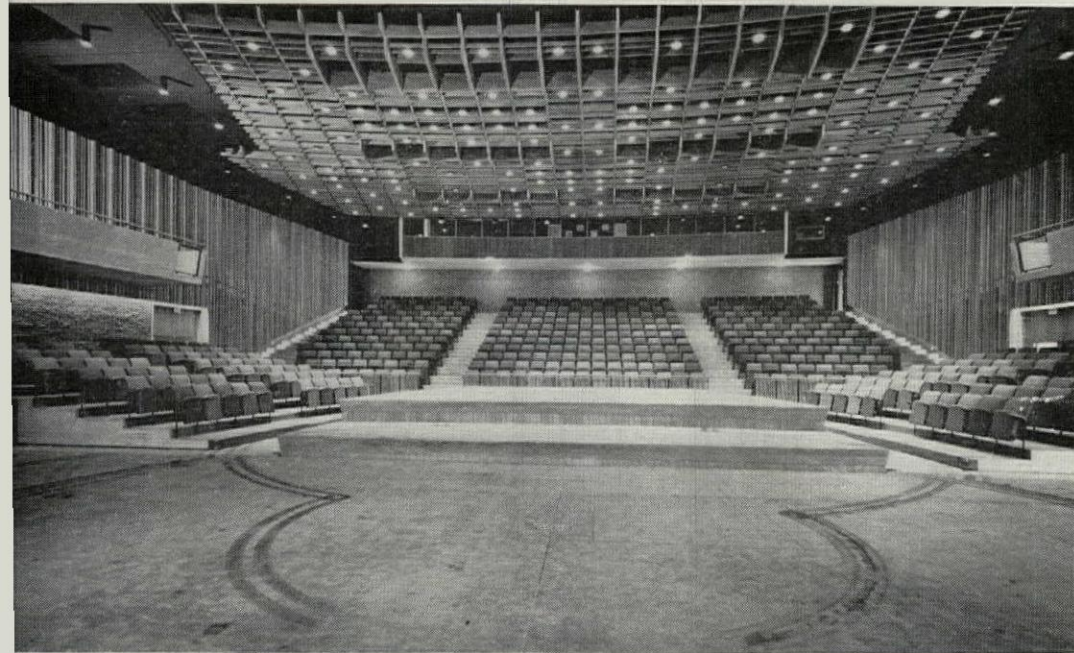
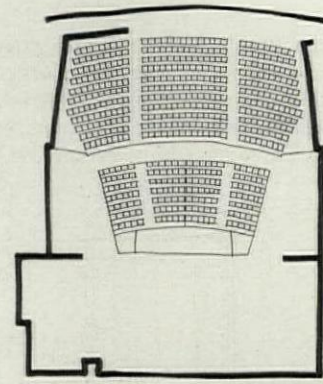


Back-light illuminates the intricate sun screen. Although this screen might functionally have been omitted entirely, it is, unlike ubiquitous cousins, articulated into window areas instead of being applied by the yard.

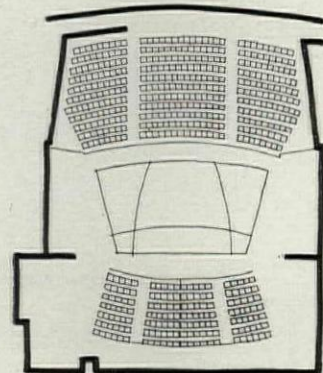
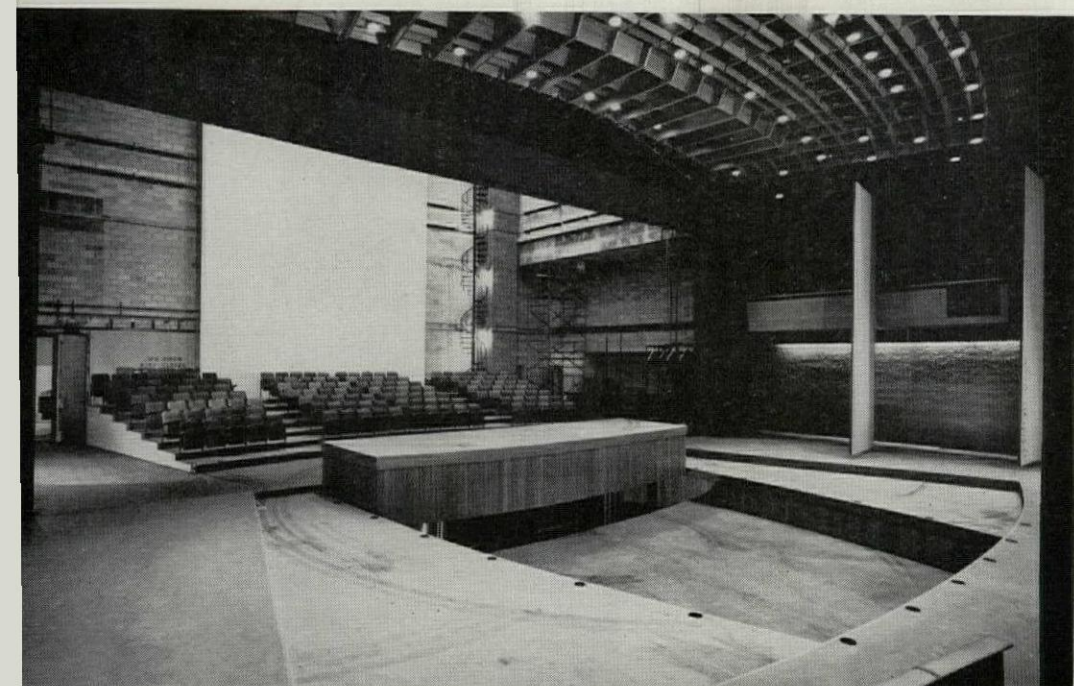
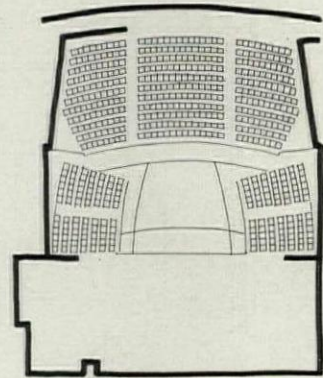


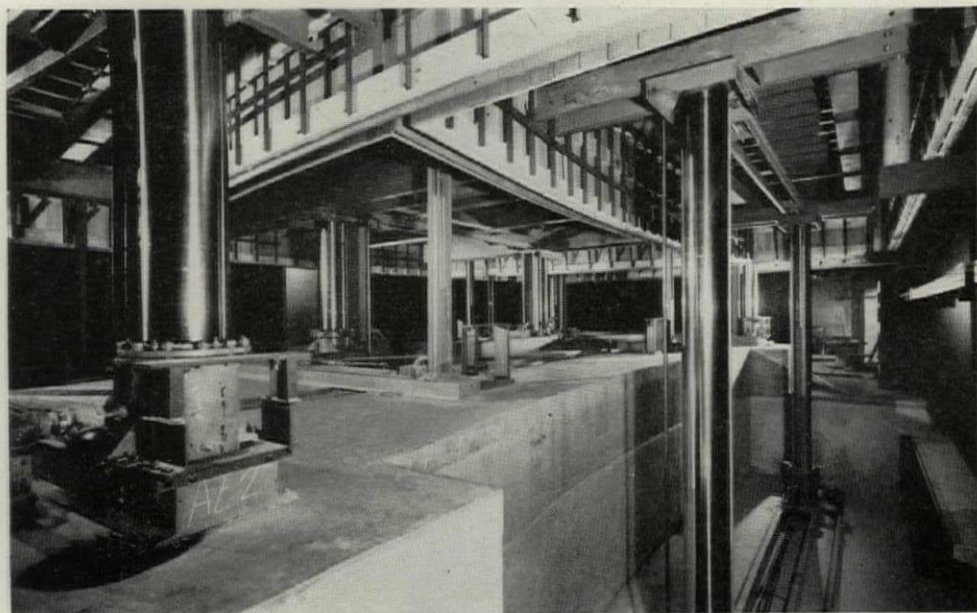


Conventional auditorium of the proscenium type seats 359 persons in 12 rows of fixed seats behind the center ambulatory. The front seven rows of 156 seats are set on platforms which can be raised and lowered to form stage levels (below).



Arena and theater-in-the-round auditoriums are formed by splitting the front seven rows into two banks of 78 seats each and pivoting these banks 90 degrees for the arena theater (above) and 180 degrees for the modified theater-in-the-round (below).





The Loeb Theater's integrated stage systems free the theater of mechanical drudgery and open it flexibly to all forms of drama.

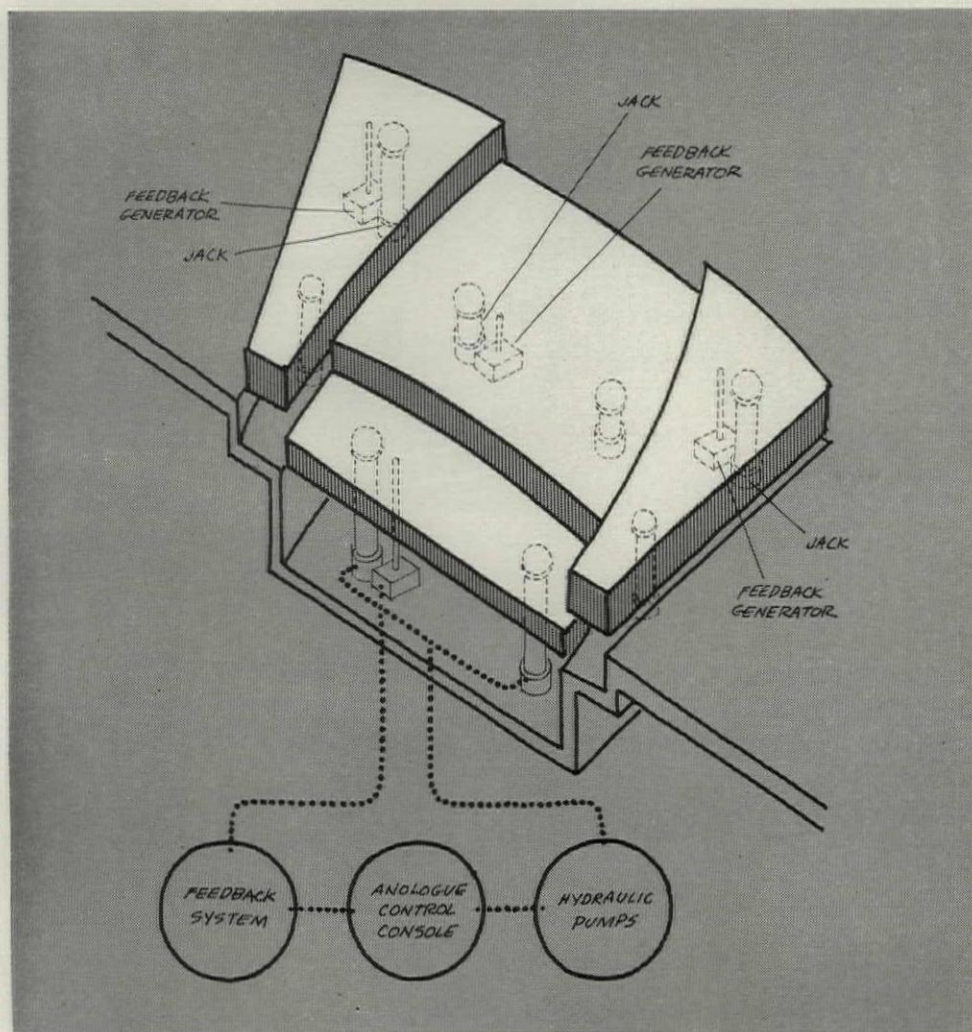
The main feature of the Loeb Drama Center is that it is the first complete integration in a theatrical structure of the revolutionary electro-mechanical systems of Yale's noted theater design-engineer, George C. Izenour. With this building, the U.S. moves well ahead of Europe in establishing the prototype of the flexible, fully mechanized theater of the future, likely to affect theatrical design for years to come. The new mechanics, illustrated on these pages, comprise three separate yet interacting systems.

Lighting. From an electronic push-button console and preset panel, a single operator controls over 400 stage lights, manipulating their color and intensity in any predetermined pattern. By means of the preset panel or "memory" unit, the console operator can follow a lighting score for the drama, molding its moods and settings.

Rigging. From another console, a single operator controls 30 compact, synchronous, electric winches, ranged around the backstage perimeter, to rig and fly all stage sets. This system eliminates stagehands and the old parallel-set, space-consuming maze of ropes and counterweights, unchanged for three centuries, to allow flexible overhead rigging from a grid network, placing sets in any desired position or juxtaposition.

Staging. From two control points, two operators using special analogue controls actuate an underlying hydraulic lift and pivot system, to change the theater in a matter of minutes into any one of three forms: a conventional proscenium theater, an Elizabethan theater with apron stage thrust into the audience, and a modified theater-in-the-round. The hydraulic mechanism lifts or lowers two front sections of seats, which also pivot on aircraft wheels, to accommodate the various stage conformations, these also being hydraulically operated.

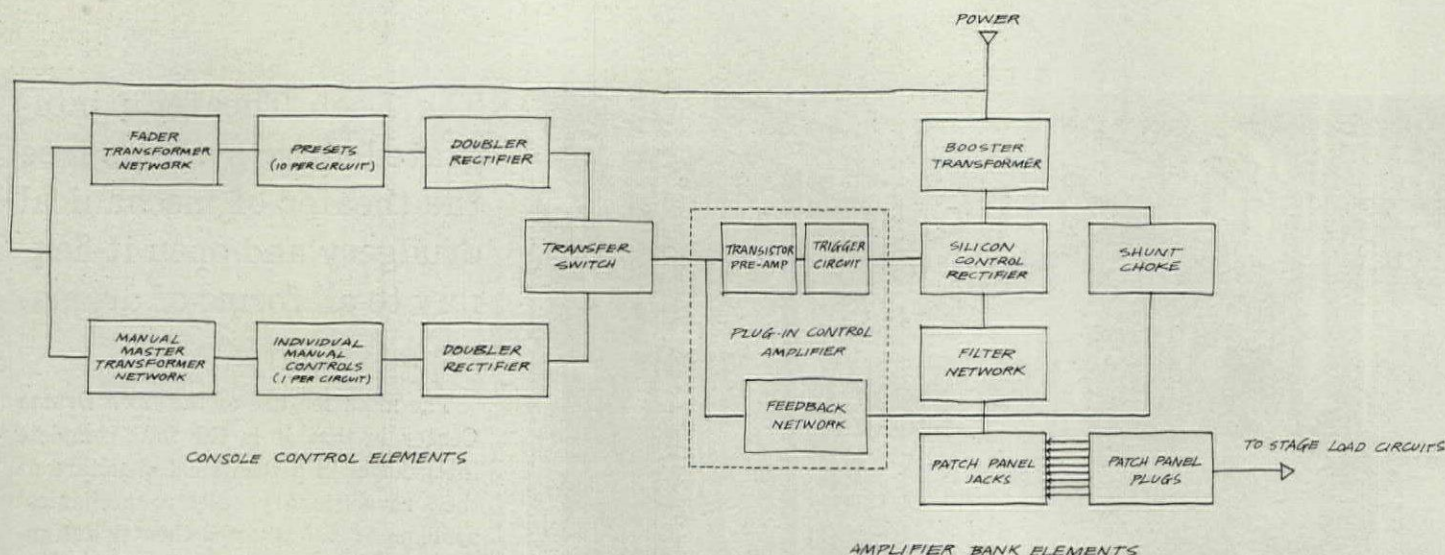
The result is a theater which, leaving all mechanical functions to automation, with lighting as the integrating ele-



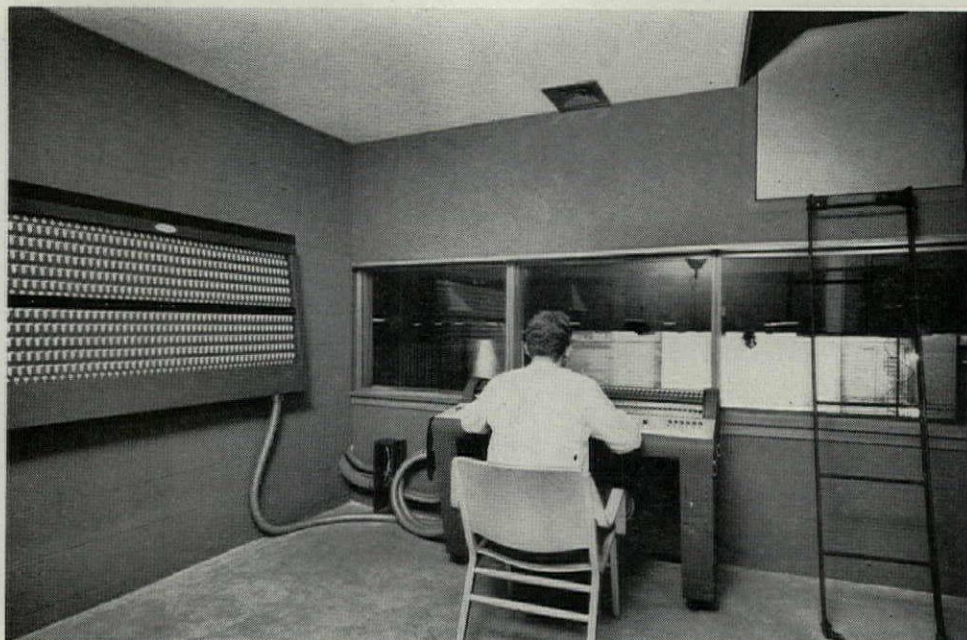
Hydraulic lift system. The three forms of the Loeb Theater (opposite) are activated by the lift system shown in the schematic diagram above. This system was adapted from elevator design principles by Yale's George C. Izenour, with additional features of his own to fit it into the two other electro-mechanical systems designs, overleaf, that make this theater an integral mechanism, operated entirely

from three push-button control panels.

The lift system is operated from an analogue control panel (shown above), which shifts and pivots the front blocks of seats on aircraft landing wheels, lowers or raises three segments of apron stage to form the theater's three basic stage arrangements. The whole theater can be changed over from one form to another in minutes by two operators.



Lighting system. The Loeb Theater's entire lighting system, shown in the block diagram above, is controlled by the operator at the electronic push-button control console (top). At his left is a preset panel which allows the setting up of a predetermined sequence of lighting effects, actuated on cue by the operator, who thus follows a lighting score, molding and orchestrating the mood of the drama. Some 400 lights are controlled, and shifted in color and intensity, from the console, fitted into a control booth overlooking house and stage. This system was the first of the Izenour systems to be developed in 1946, and it has been installed to date in over 100 theaters and television studios.



ment, becomes completely flexible to the purposes of the play. Two or three operators can run the whole show. Though the cost is about \$70,000 over conventional installations, there are other outweighing economies. For one, the rigging system allows a much lighter beamed roof, and saves about a third of the stage's once wasted cubage, which can now be put to such useful purposes as rehearsal rooms. And, of course, the total is three theaters in one.

The long pull

Izenour has been over 20 years in single-minded pursuit of this flexible theater. A husky, blond six-footer, he emerged from college in the depression thirties, an English major with an in-

tense interest in the theater, and went to work for the old, ill-fated WPA Federal Theater Project. It struck him at once that antique stage techniques were rigidly limiting the growth of the theater, that the stage, in fact, was "a technical desert," relatively untouched by all the modern developments in lighting, electronics, and automatic machinery. His first chance to put forth his idea of a flexible theater was in a multi-purpose, quick-changing theater for San Francisco's 1938 Golden Gate International Exposition. This ran only six months, the whole federal arts project being chopped off by Congress, but it was long enough for him to get the attention of the Rockefeller Foundation, which offered him a grant at any uni-

versity of his choice to continue his work.

Since 1939, Izenour has been at Yale, assisted from time to time by various foundation grants, heading an Electro-Mechanical Research Laboratory in the Yale School of Drama. He patiently taught himself step by step the electronics and engineering necessary to work out his inventions. The main problem, as he saw it, was to free the theater from its rigid framework and from slave labor, elevating the human operator as the important element to close the control loop. The ideal was to break down the barriers to the audience, push stagecraft out to the very theater walls, make space and light and mood wholly plastic. No isolated gadgets

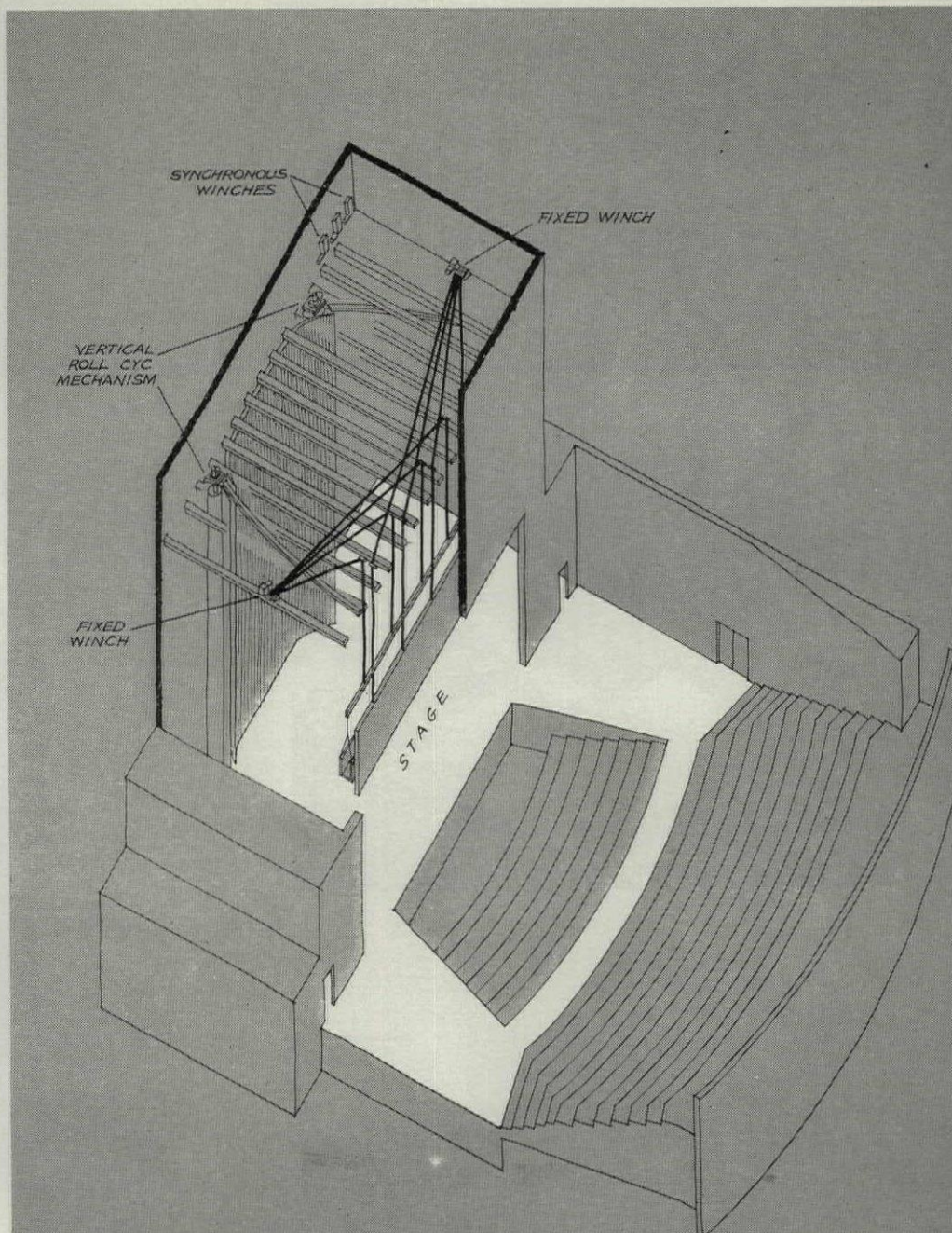
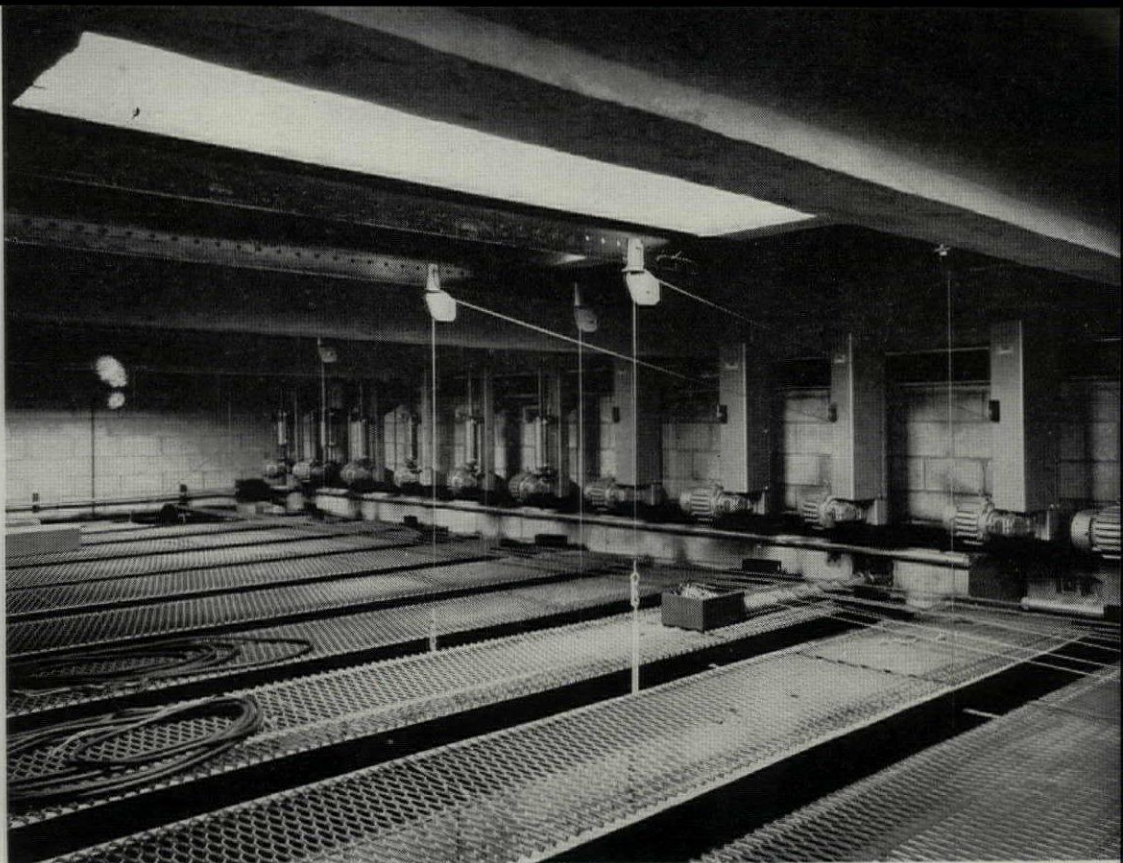
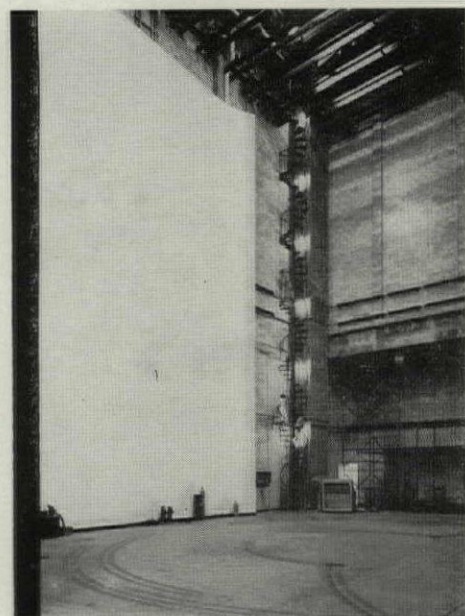
continued on page 132



Rigging system. From the mobile control console, upper left, backstage in the Loeb Theater, a single operator works a synchronous electric winch system to shift and fly all stage scenery. The most ingenious of the Izenour systems, this mechanism entirely eliminates stagehands.

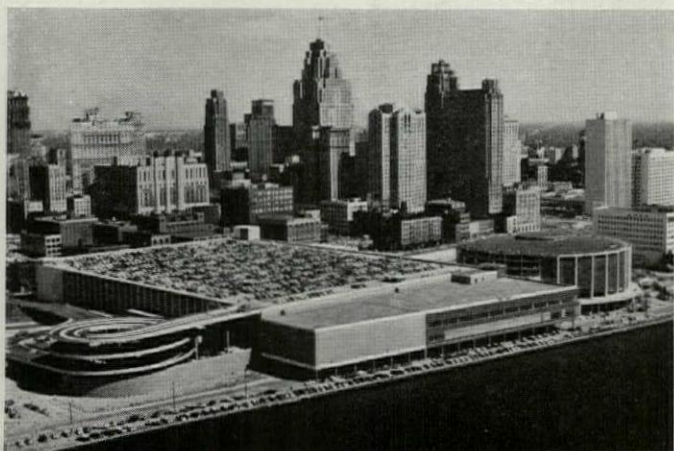
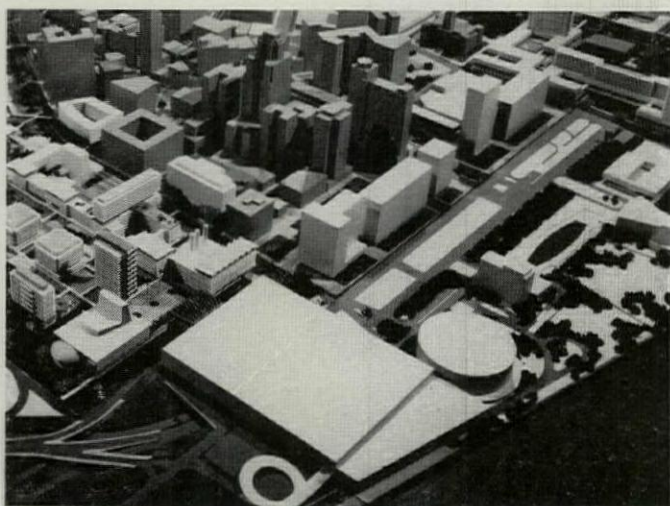
The main details of the rigging system are shown in the diagram (right). There are three elements: 1) two vertical-roll cyclical mechanisms, which rig and move drapes or other props on a semicircular traverse around the backstage perimeter; 2) two fixed winches, which manipulate the curtain and proscenium aperture (shown above); and 3) a battery of 26 synchronous winches, mounted against the backstage wall, which rig and fly scenery from a flexible, overhead grid (upper right) in any position or sequence desired.

This flexible grid and synchronous winch system (run by variable frequency alternators) replaces the old parallel-set, rope and counterweight system of theatrical rigging, saves about one-third of backstage space, and allows all forms of conventional or unconventional stage setting.



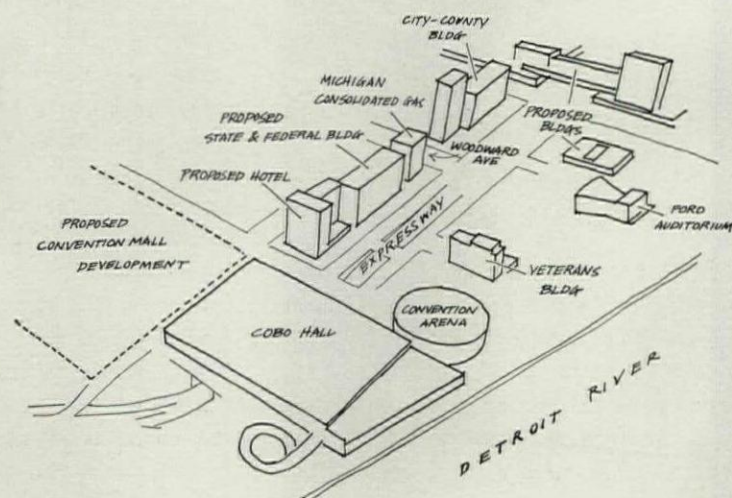


LENS-ART PHOTOS



Spreading over the city's new John C. Lodge Expressway, Cobo Hall forms a bridge between the river front and downtown, and a western enclosure for the civic center. How other buildings, present and proposed, fit into the over-all civic-center plan is seen

in the model photograph and sketch below. Lower photo shows the spiral automobile ramp leading to the big rooftop parking lot, the circular convention arena (right) under construction, and the lower section of meeting and banquet rooms facing the river.





Arena for the auto age

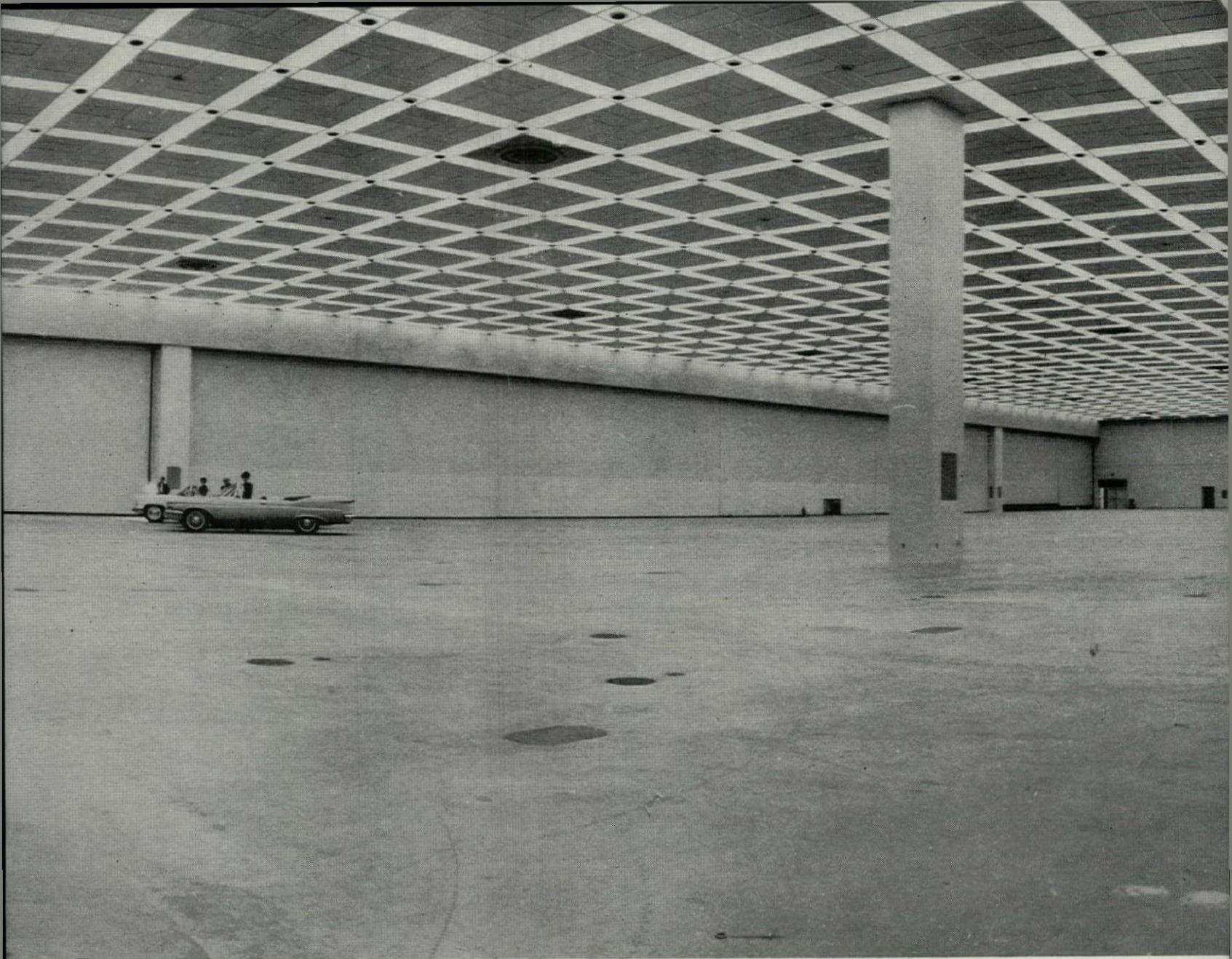
Detroit's new Cobo Hall can hold four trade shows, a three-ring circus, and 30 meetings all at once.

When visitors arrive in Detroit this month for the National Automobile Show—proudly being held at home for the first time in its 60 years—they will drive up to, under, around, and on top of a piece of architecture spectacular even for the auto age: a convention-exhibits-arena building covering 17

acres beneath a rooftop parking lot, sprawling nearly 1,000 feet over a six-lane expressway between the river front and downtown. At 2.2 million square feet (300,000 of it combinable into a single, 7-acre exhibit space—see overleaf), Detroit's new \$54 million Cobo Hall and Convention Arena, named after its late Mayor Albert E. Cobo, easily surpasses New York's Coliseum, and promises to give even the huge International Amphitheater in Chicago a run for the superconvention trade. With a local syndicate work-

ing to get a new hotel next door, Detroit's commercial future would seem to be looking up indeed.

In extending Cobo Hall over the city's new John C. Lodge Expressway, Architects and Engineers Giffels & Rossetti, Inc. successfully linked it with downtown, and also gave the big open space of Detroit's growing civic center a definite western boundary or "wall" such as the late Eliel Saarinen had hoped for in his initial civic-center plan. They were not so successful, however, in facing this wall with a monu-



LENS-ART PHOTO

mental mélange of marble and glass as they were in bringing out the building's own personality on the rear (photo, page 99). Some Detroiters also wondered whether the Saarinen plan would be carried further with another bridge-building bounding the civic center on the east, and whether buildings along the back boundary and in the middle (see model photo) would ever compose into an over-all scheme. (At present the middle buildings—particularly the Veterans Memorial and the Ford Auditorium—look like furniture dropped into a room at random.)

Three-ring circus

Meanwhile, the show was on, in space admirably equipped for it. The photograph above shows Hall "C," a

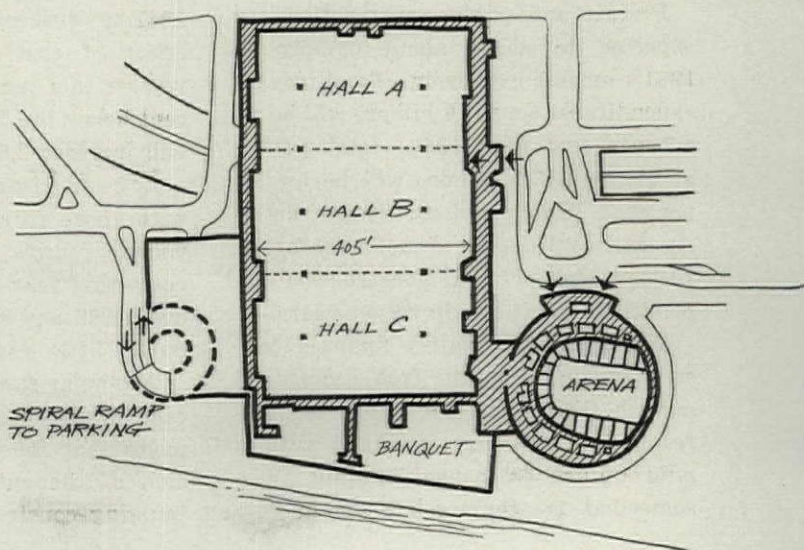
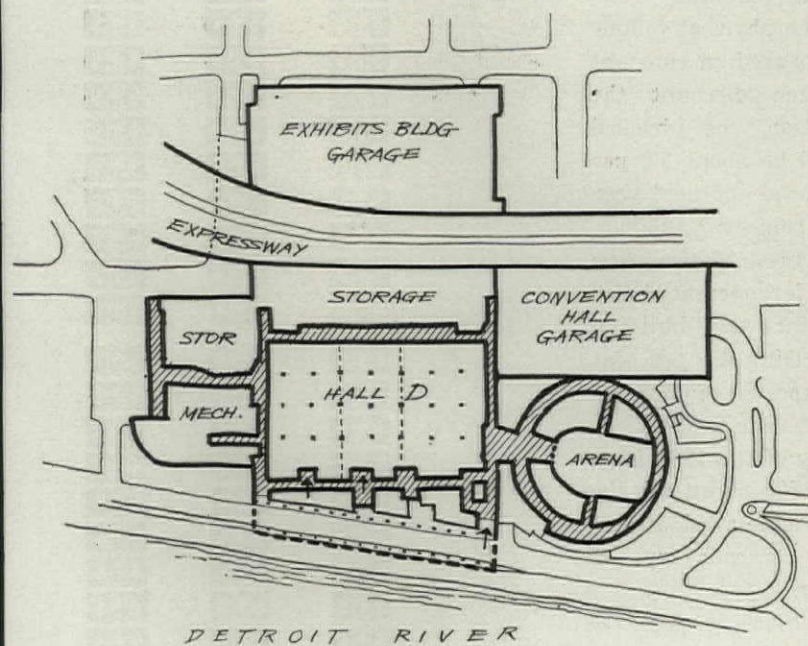
2-acre-plus room which can be tripled in size for major events like the auto show by raising soundproof double doors (seen at left) into the huge truss space above. (Used alone, this one room will accommodate some 50 alleys and 4,000 bleacher seats at the American Bowling Congress next February.) Five columns 120 feet apart on each side of the combined space support clear spans of 240 feet. Fluorescent troffers in the 30-foot gray metal acoustical ceiling can be lighted in various patterns, and are supplemented by 500-watt spots at every 8-foot juncture to give light levels of well over 125 foot-candles. The floor under Hall "C" was built compositely to allow heavy loadings of industrial machinery displays with a minimum of thickness

above a fourth exhibit hall below; floor outlets for telephone, power, water, sewer, compressed air and gas, serve several modules of exhibitors' booths. Nearby is a banquet hall serving 2,800 (with steaks broiled on a conveyor belt); there are also 32 meeting rooms seating from 80 to 1,250, a 1,500-seat cafeteria, 90,000 square feet of exhibitors' storage, and parking garages and lots for 2,200 cars—all supported on 4,500 concrete piles driven to a depth of 100 feet. Joined with the main building at three levels is the circular Convention Hall, which when open next spring will seat 9,500 for sports events, as many as 12,500 with extra seats set up on the floor. Contractor for both buildings was O. W. Burke Co. of Detroit.



Spanning 240 feet between opposing columns, the trussed roof of Hall "C" covers a space 405 feet long (a respectable home run at Detroit's Briggs Stadium) and close to 100,000 square feet in

area. Soundproof twin partitions at left raise in sections to double the hall's vast size; similar walls between Halls "A" and "B" also open, yielding a continuous exhibit space of nearly 7 acres.



1961: a \$58 billion year for building

After a minor setback, construction activity will resume its upward climb next year, topping the 1959 record—a FORUM forecast.

BY MILES L. COLEAN

Shored up by a hefty increase in non-residential building, total construction activity is running close to last year's record and is expected to reach a new high next year. The 1961 forecast for total construction expenditures is \$58.5 billion, up 4.8 per cent from 1960.

This year's decline in house building has proved greater than anticipated—so great that the 1960 total of construction expenditures will fall 0.5 per cent under the 1959 level (instead of 1.5 per cent above, as forecast a year ago). Other important categories of construction which have decreased more than anticipated are highways and military work. On the other hand, private nonresidential building has been running ahead of predictions, almost offsetting the dips in house building and the other wayward categories.

Although over-all construction activity has indeed stubbed its toe this year, failing to expand for the first time in 15 years, a moderate improvement is already in process in some critical areas, and a mildly accelerated general uptrend should continue through 1961. In other words, it appears that the stumbling activity of 1960 represents no more than a leveling off from the dramatic performance of 1959 (up 10 per cent) and that the industry is working its way back to the long-term trend line—as predicted in last year's forecast (FORUM, Oct. '59).

Private and public construction are expected to share about equally in 1961's modest expansion. Total private expenditures, at \$41.6 billion, will be up 4.3 per cent over 1960; total public, at almost \$17.0 billion, will be up 5.9 per cent. Thus, privately financed activity will continue to account for about 70 per cent of total construction expenditures as it has in recent years.

The gain in privately financed construction will result from continued growth throughout the range of non-residential building, combined with a mild upturn in house building. The somewhat greater acceleration in gov-

ernment activity will result from the new push being given the highway program, an expected advance in school building, and increases of modest proportions scattered throughout the list.

Construction of nonfarm nonresidential buildings of all kinds plus apartment and hotel buildings will take the lion's share of total 1961 expenditures and will increase more rapidly in 1961 than other types of construction. It will account for \$21.4 billion, up 5.6 per cent from 1960. (This total includes \$1.5 billion estimated to be the amount which should be separated out of the predominantly nonbuilding categories of construction—public utility, military, highway, sewer and water, etc.—to represent those expenditures which actually go for buildings such as power plants, terminals, army barracks, highway maintenance shops, water pumping stations, etc.). The construction of nonfarm one- and two-family houses will amount to \$20.5 billion in 1961, up 4.7 per cent; farm building and construction in the predominantly nonbuilding categories of construction will amount to \$16.7 billion, up 3.9 per cent (see pie chart opposite).

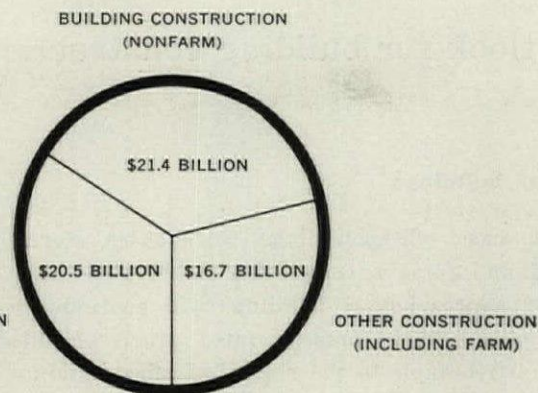
Because it is based on current prices and because cost inflation continues (although at a more moderate rate), the FORUM forecast somewhat overstates the trend of the physical volume of construction. Measured in constant 1947-49 prices, which discount the effect of cost inflation, the physical volume this year will be about 3.3 per cent below the 1959 level and next year will increase 2.5 per cent over 1960.

A comparison of these percentages with those forecast for current dollar volume reflects the fact that building costs this year are rising 2.1 per cent over 1959 and are expected to increase only a little less next year.

A tabular summary of the 1961 forecast is presented at far right. On the pages that follow is a detailed discussion of the outlook for each type of building construction.

continued on page 190





Total construction, charted at the left, is comprised of three major kinds: building construction, house construction, and other construction, including farm. The breakdown of the \$58.5 billion total construction expenditure

forecast for 1961 is shown above, building construction getting the biggest piece of the pie, \$21.4 billion. In the table below total construction is further broken down by type and source of funds, private and public.

	1959 Actual	1960 Estimate	1959-60 Change	1961 Forecast	1960-61 Change
TOTAL NEW CONSTRUCTION¹ (millions of current dollars)	\$56,105	\$55,825	—0.5%	\$58,500	4.8%
PRIVATE TOTAL	39,848	39,825	—0.1	41,550	4.3
Nonresidential buildings	8,859	10,075	13.7	10,650	5.7
Industrial	2,106	2,700	28.2	2,900	7.4
Commercial	3,930	4,200	6.9	4,450	6.0
Office buildings, warehouse	1,954	2,100	7.5	2,250	7.1
Stores, restaurants, garages	1,976	2,100	6.3	2,200	4.8
Other nonresidential buildings	2,823	3,175	12.5	3,300	3.9
Religious	947	1,025	8.2	1,025	0
Educational	525	575	9.5	625	8.7
Hospital and institutional	570	575	0.9	600	4.3
Social and recreational	550	700	27.3	750	7.1
Miscellaneous	231	300	29.9	300	0
Residential (nonfarm)	24,469	22,925	—6.3	24,050	4.9
New dwelling units	19,233	17,400	—9.5	18,300	5.2
Additions and alterations	4,468	4,600	3.0	4,750	3.3
Nonhousekeeping ²	768	925	20.4	1,000	8.1
Farm construction	1,261	1,150	—8.8	1,100	—4.3
Public utility ³	5,052	5,375	6.4	5,400	0.5
All other private	207	300	44.9	350	16.7
PUBLIC TOTAL	16,257	16,000	—1.6	16,950	5.9
Nonresidential	4,514	4,550	0.8	4,800	5.6
Industrial	368	400	8.7	400	0
Educational	2,650	2,650	0	2,800	5.7
Hospital and institutional	428	400	—6.5	425	6.3
Administrative and service	568	575	1.2	625	8.7
Other nonresidential	494	525	6.3	550	4.8
Residential	962	825	—14.2	825	0
Military facilities ⁴	1,488	1,225	—17.7	1,225	0
Highways	5,916	5,800	—2.0	6,350	9.5
Sewer and water ⁵	1,467	1,525	4.0	1,575	3.3
Sewer	906	900	—0.7	900	0
Water	561	625	11.4	675	8.0
Public service	551	650	18.0	675	3.8
Conservation and development	1,130	1,200	6.2	1,275	6.3
All other public	229	225	—1.7	225	0

¹ Includes major alterations and additions.

² Includes hotels, motels, and dormitories.

³ Includes power plants, telephone exchanges, stations, maintenance shops, warehouses, etc., as well as power, telephone, and telegraph lines and other nonbuilding construction.

⁴ Includes mainly warehouses, barracks, theaters, hangars, schools, etc., as well as airport, and other nonbuilding construction.

⁵ Includes sewage plants, pump stations, etc., as well as nonbuilding construction.

Sources: 1959, U.S. Departments of Commerce and Labor; 1960 and 1961 estimated by Miles Colean.

The outlook for building construction—by building types.

Commercial buildings

Privately financed office buildings, warehouses, stores, restaurants, and garages, comprising the biggest single category of nonresidential building, will continue to expand at about their present rate. Much of this advance is attributable to the revival of office building after its gentle slump of 1959. The New York City office building boom, which accounts for about three-quarters of the office building total, will remain strong, and office building activity will continue high in many other big cities. Although revived shopping center activity is also contributing to the expansion of the commercial category, the rate of growth in store building is not expected to be quite so big next year as it has been this year.

In addition to privately financed commercial building, there will be considerable government activity in this field (included under "administrative and service" buildings in the table on page 103), much of it scheduled for Washington, D.C. The balance of public commercial building includes state and municipal stores, dispensaries, garages and restaurants (grouped under "other nonresidential" in the table).

Offices, etc.	1960	1961	Gain
Private	\$2,100	\$2,250	7.1%
Public	350	375	7.1
Total	\$2,450	\$2,625	7.1%
Stores, etc.	1960	1961	Gain
Private	\$2,100	\$2,200	4.8%
Public	85	90	5.9
Total	\$2,185	\$2,290	4.8%
Total commercial	\$4,635	\$4,915	6.0%



Educational buildings

Having remained at the 1959 level for the current year, public school and college building is expected to rise moderately next year. Private expenditures in this field (mainly for the booming college expansion program) are only about one-fifth as large as public expenditures, but in recent years they have been increasing at a faster rate. This will be true again in 1961, reflecting continued unsettlement in the public school situation in many states which are newly confronted with the problems of integration.

	1960	1961	Gain
Private	\$ 575	\$ 625	8.7%
Public	2,650	2,800	5.7
Total	\$3,225	\$3,425	6.2%



Religious buildings

In 1960 expenditures for churches, temples, and related buildings (all private, of course) set a record by exceeding the billion dollar mark. Assuming a continuation of the rise in personal income, at least a repetition of this year's performance is to be expected in 1961.

	1960	1961	Gain
Private (total)	\$1,025	\$1,025	0



Hospital and institutional buildings

During the current year the construction of private hospitals, convalescent homes, laboratories, clinics, and other institutional buildings has increased very little, and public activity of this kind has actually fallen off. However, the need for such facilities is great, and it is likely that 1961 will see a mild revival in institutional building, pushing it above the \$1 billion mark.

	1960	1961	Gain
Private	\$ 575	\$ 600	4.3%
Public	400	425	6.3%
Total	\$ 975	\$1,025	5.1%



Industrial buildings

After declining for two years, private factory and related building stole the show in 1960, advancing more (28 per cent) than any other single building type. Next year it will continue to expand but at a somewhat reduced rate. Most of the government's \$400 million expenditure in this field will be in atomic energy plants.

	1960	1961	Gain
Private	\$2,700	\$2,900	7.4%
Public	400	400	—
Total	\$3,100	\$3,300	6.5%



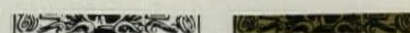
1960

1961

Public administrative and service buildings

Exclusive of public office buildings (which are discussed under commercial buildings, above), this category includes post offices, courthouses, prisons, and other such structures. The dollar amount is relatively small and so is the projected increase.

	1960	1961	Gain
Public (total)	\$ 225	\$ 250	11.1%



1960

1961

Social and recreational buildings

This category includes theaters, bowling alleys, community centers, park recreational buildings, clubhouses, etc. Reflecting the increase of both personal income and leisure time, this type of building has enjoyed an unremitting year-to-year growth since 1952, and still more is forecast for 1961.

	1960	1961	Gain
Private	\$ 700	\$ 750	7.1%
Public	150	160	6.7
Total	\$ 850	\$ 910	7.0%



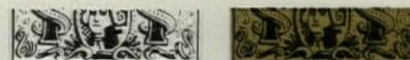
1960

1961

Other nonresidential buildings

In this catch-all category are such projects as privately financed comfort and fire stations, zoo buildings, veterinary hospitals, animal havens and pounds, boat houses, greenhouses, post offices, transportation terminals, and such publicly financed projects as terminals, crematoriums, heating plants, and grain elevators.

	1960	1961	Gain
Private	\$ 300	\$ 300	0
Public	290	300	3.4%
Total	\$ 590	\$ 600	1.7%



1960

1961

Residential buildings

Lumped with house building in the table on page 103, apartment building is in itself a major category of construction. Embracing buildings which accommodate three or more dwelling units each, it accounted for 244,000 units, both public and private, in 1959 and will account for 210,000 in 1960 and 225,000 in 1961. As in the past, most of these apartments will cater to the high rental and high-priced cooperative markets, and will be financed with conventional (not FHA) mortgages. Only 15,000 of the 1961 units will be publicly financed for it seems unlikely that the public-housing program will be stepped up.

	1960	1961	Gain
Apartment buildings			
Private	\$2,200	\$2,300	4.5%
Public	210	210	0
Total	\$2,410	\$2,510	4.1%



1960

1961

Hotel, motel and dormitory buildings

In the nonhousekeeping sector of residential building an increase seems indicated as a result of 1) the current hotel-motel boom (FORUM, Aug. '60), which is being fed by the federal highway program, and 2) the college dormitory boom which is being fostered by the federal loan program.

	1960	1961	Gain
Private	\$ 925	\$1,000	8.1%
Public	145	155	6.9
Total	\$1,070	\$1,155	7.9%



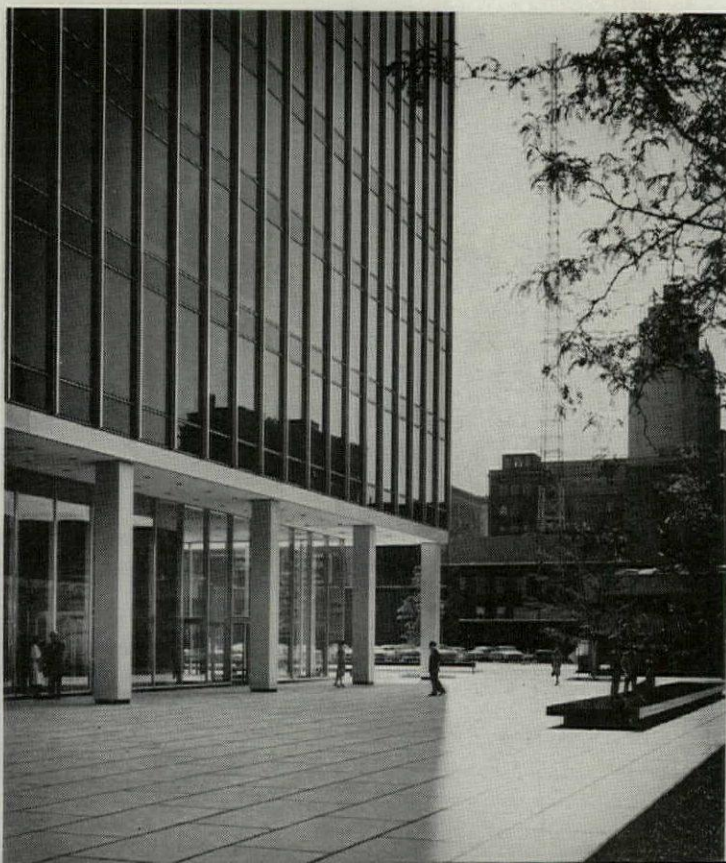
1960

1961

Note: all dollar figures in millions



Toledo gets a plaza



When Libbey-Owens-Ford built its new tower of glass, it not only prepared a handsome demonstration of its products, it showed its pride in home-town Toledo—a demonstration that other corporations should emulate.

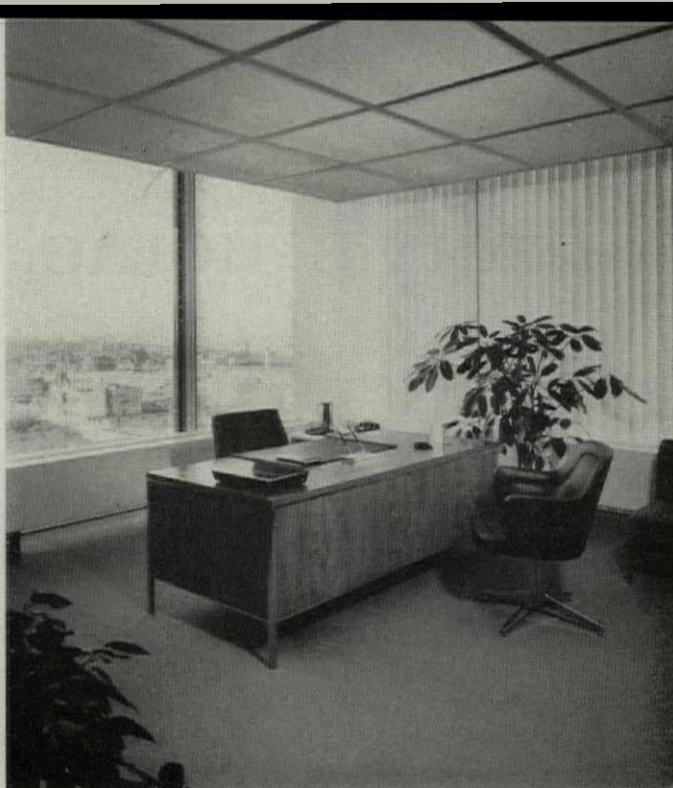
The pride shows first in the handsome sweep of the block-square plaza. In the well-known style of Skidmore, Owings & Merrill it is kept trim and simple, paved in terrazzo, and planted with honey locusts. The 15-story tower is set squarely in the middle of the plaza. An upper enclosure of fixed glass windows and glass spandrels framed in light aluminum is set firmly on a colonnaded base. Fifteen-foot-high sheets of glass recessed 11 feet back of the building face enclose the lobby, which carries the sense of the plaza right through the lobby.

LOF itself occupies seven of the dozen 12,500-square-foot office floors. Within these floors, a look of luxury and brisk efficiency has been established through careful choice of materials and crisp detailing of furniture and partitions to the 3-foot building module. This look of efficiency befits a company whose sales rose from \$12 million in 1930 to \$306 million last year.

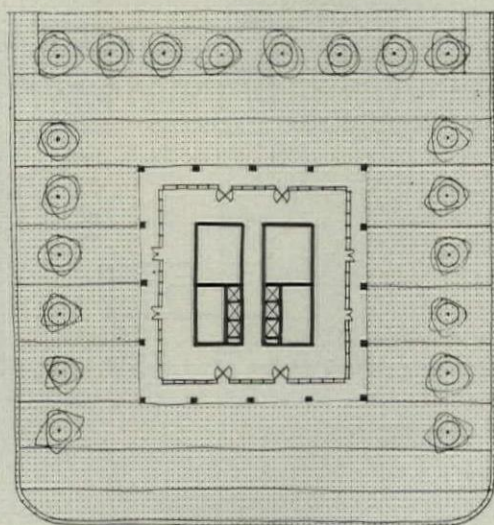
Architects: Skidmore, Owings & Merrill, General contractor: George A. Fuller Co.



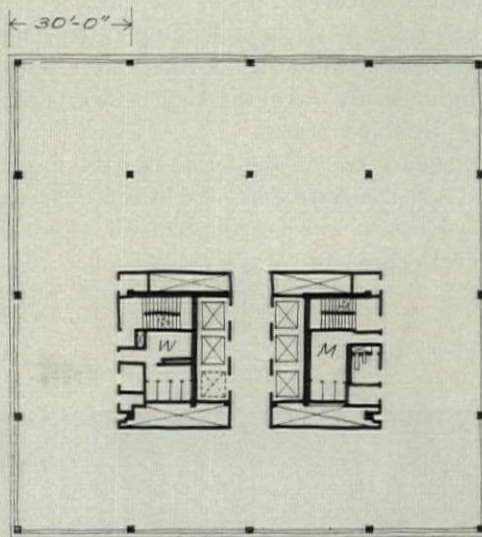
Thirty-foot-square bays form the office floors . . .



. . . and divide into offices on a 3-foot module.



Terrazzo floor panels, 3 by 6 feet in size, march through the lobby . . .



. . . interrupted only by the enclosure of elevators and stairs.



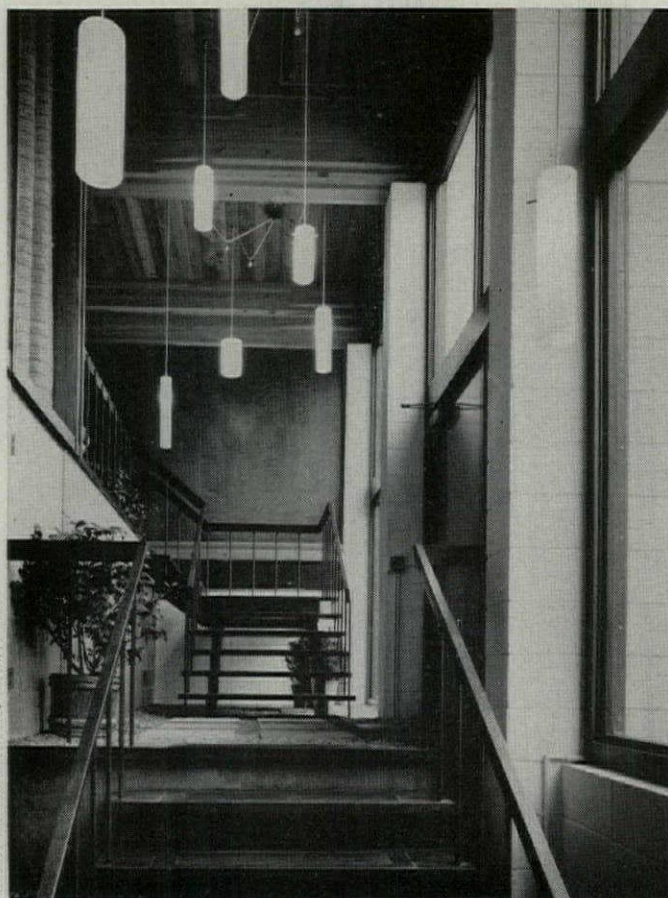
Infinity's home

Infinity Inc., a Minneapolis commercial photography organization, has put its best face forward by constructing an exceedingly simple, economical, and handsomely appropriate building for its own use. One half of the 50 by 90 foot building is used for a two-story studio one-half flight down from the street. The other half has a split-level arrangement with lab facilities on the ground floor, and offices on the upper floor one-half flight up from the street.

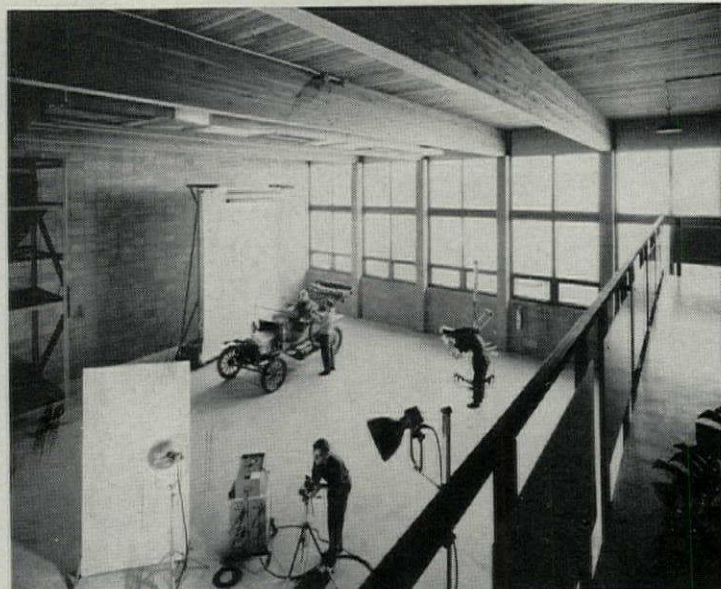
The rear of the building, which faces north, is entirely glass, while the front of the building has glass in the office bays only. The rest of the space between the concrete-block piers is infilled with more block. This perfectly straightforward face is set 20 feet back from the sidewalk to provide a trimly squared-off entrance yard paved with concrete panels and gravel planting beds. The floor pattern is carried inside the entrance lobby, a high-ceilinged space with steps leading in one direction to the offices and in the other to the studio. Overhead, milk-glass light fixtures hang on long pendants from the wood ceiling deck and beams.

The 6,750 square feet in the building were provided at a cost of \$11.30 a square foot. Architects: Graffunder-Nagle & Associates. Landscape architect: Rodney Kelley. Structural engineers: Mayer & Borgman.

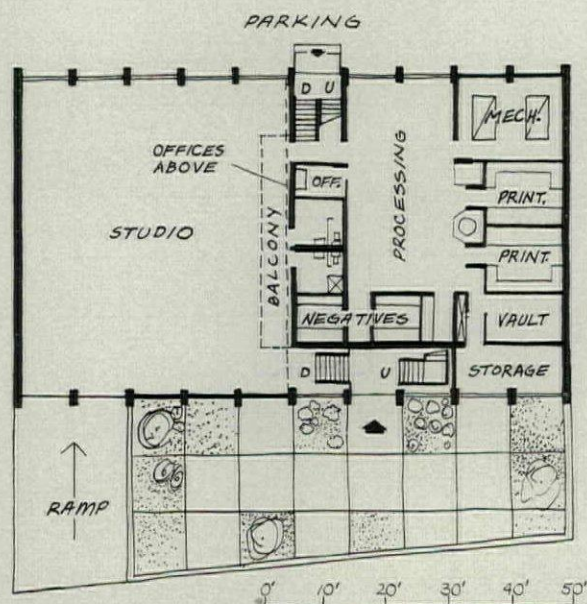
Lobby takes dramatic advantage of split-level entrance.



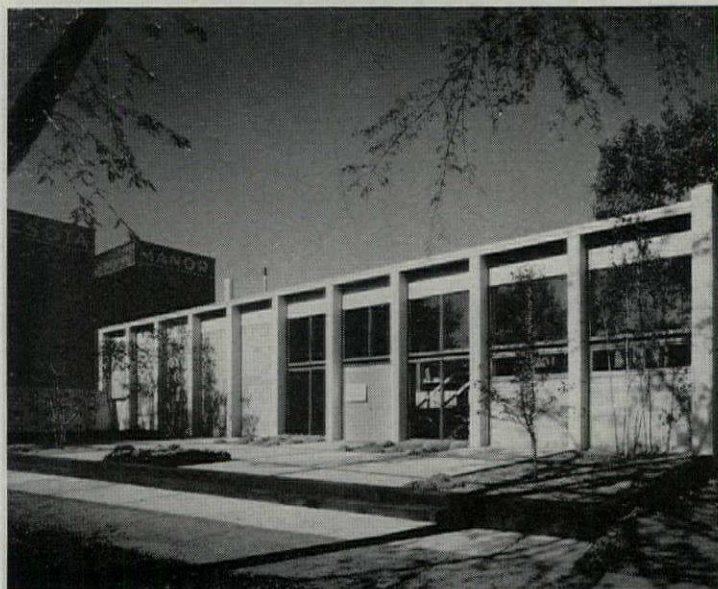
PHOTOS: WARREN REYNOLDS, INFINITY INC.



High-bay studio area can be viewed from a balcony at office level.



Concrete-block piers shape the façade into neatly trimmed bays.



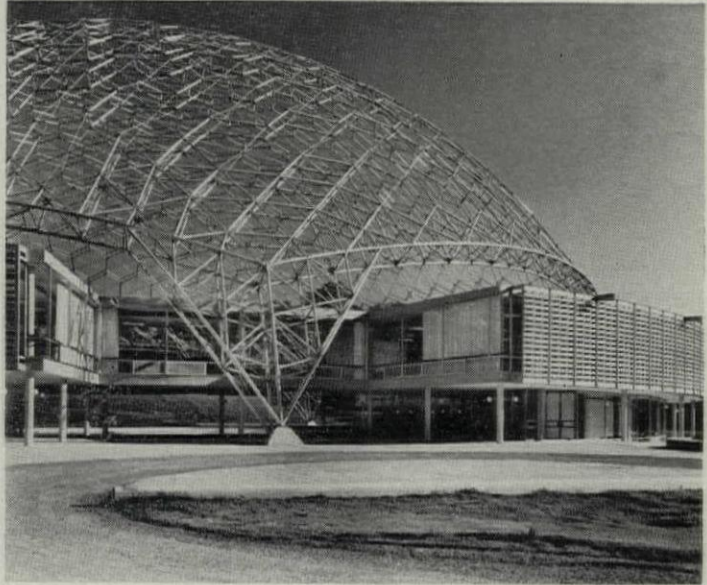
Big geodesic

When the American Society for Metals decided to build its headquarters in the countryside at Novelty, Ohio (near Cleveland), they asked for efficient office and meeting spaces *and* an impressive symbol of man's taming of minerals. The natural answer of Architect John Terence Kelly was an open-latticed Buckminster Fuller dome, 250 feet across and 100 feet high, covering a central garden court where 350 mineral samples are displayed. Ranged around 168 degrees at the edge of the dome is a 50,000-square-foot office building, 53 feet deep, notched out to form two courts where the geodesic supports come down. The building and the dome are set on a platform 400 feet in diameter nudged into the natural slope of the site.

Among the unusual details of the \$2 million building is a stainless-steel sunshade stretched across the 240-foot expanse of west windows. The eyelid-shaped louver pattern cuts the big glass expanse down to manageable units of 14 by 16 inches. Acting in addition to consultants from Fuller's Synergetics, Inc., and the ASM itself, were Heating and Ventilating Engineers Mayer & Valentine and Electrical Engineers John Paul Jones, Cary & Millar. General Contractors: Gilmore-Olson Co.

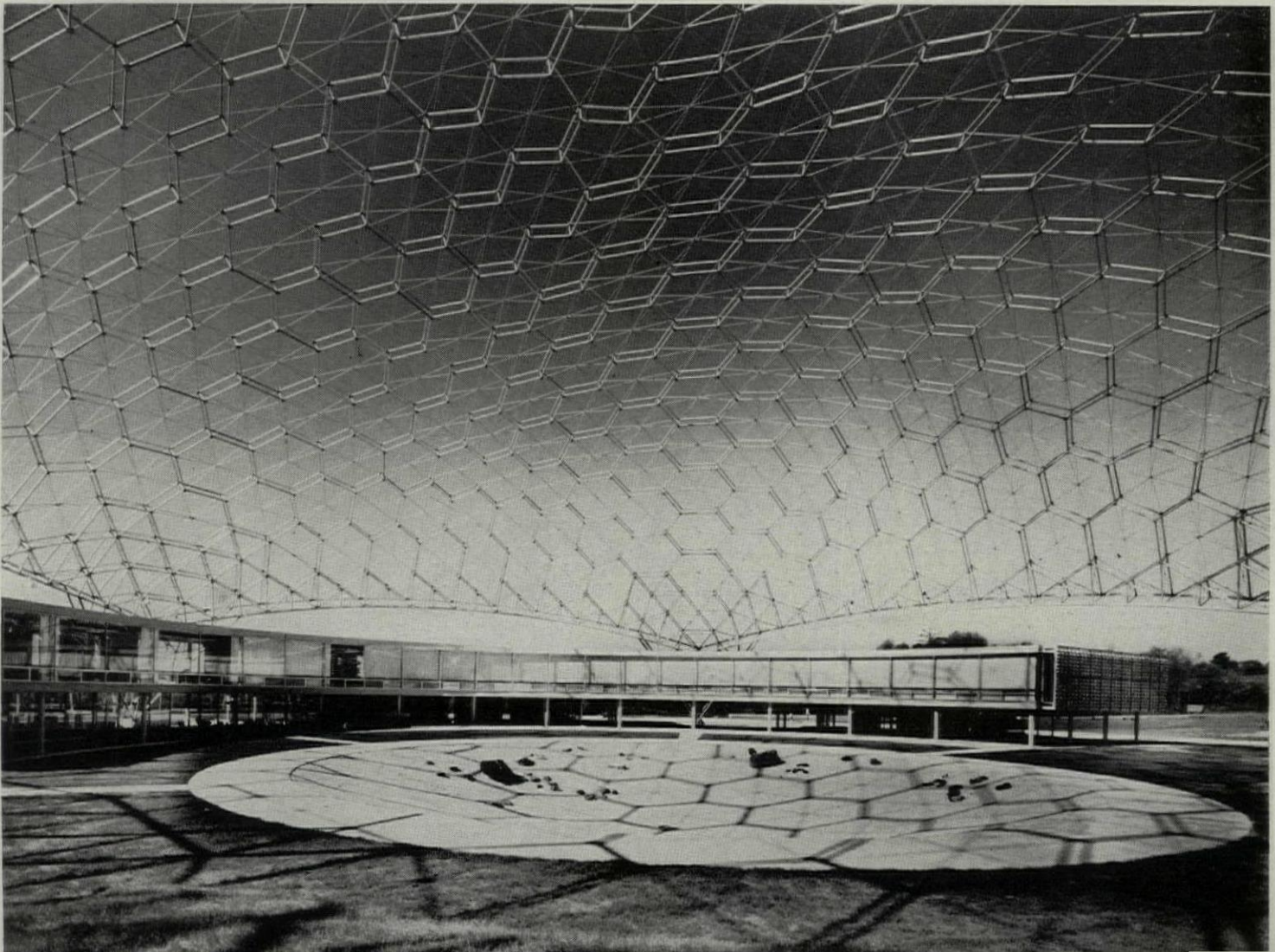


Dome covers a mineral "garden" set on a platform.



Supports fit into courts notched out of the building.

Across the mineral garden: the 240-foot main building.





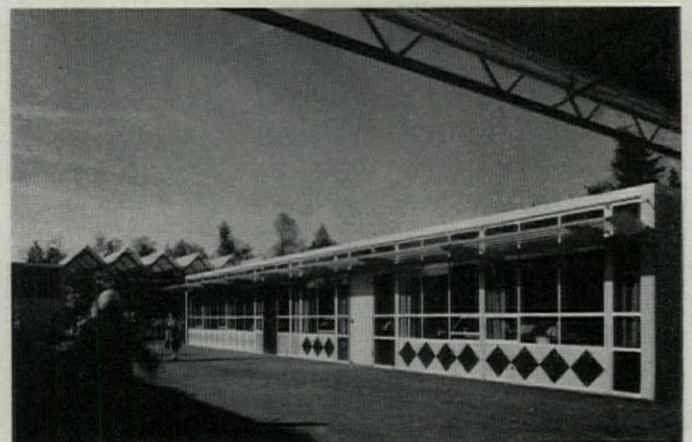
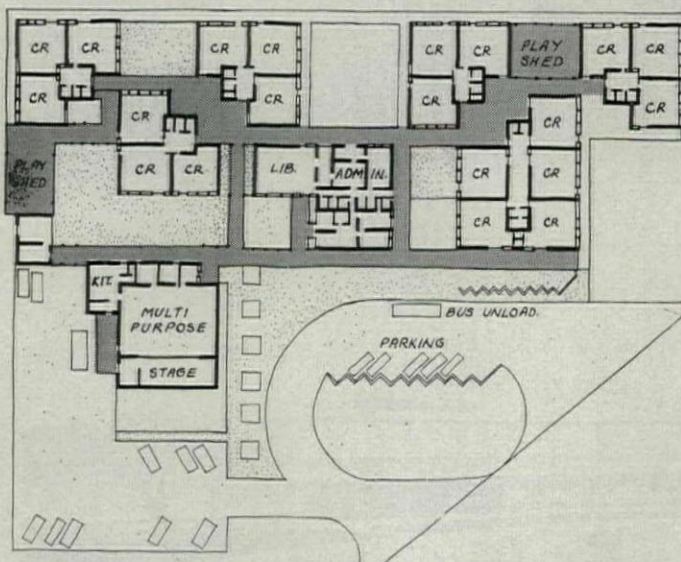
At the end of a classroom cluster, folded-plate roof panels form a sheltered play shed.

Courtyard school

This economical and delightful school owes much of its success to restraint. The smaller-than-normal buildable area available for the Westgate Elementary School at Edmonds, Wash., determined the tight sequence of classroom clusters and courtyards. Economical light-steel-frame construction, infilled with concrete block walls and steel sash and panels, yielded light and busy child-scaled spaces. A tight budget of \$13.30 per square foot for construction and fees (\$517,177.12 against 38,886 square feet) forced Architect Dan Miller to keep close watch for every chance of enrichment.

Some of the enrichment comes from bright panels of paint on panels and walls and from the exposure of structure and mechanics. But a lot more comes from the plan, which makes educational good sense, too. Five clusters of three classrooms and one cluster of five classrooms tuck in around a library-administration unit. Off to one side is a multipurpose room.

Electrical engineer: John Chaffer. Mechanical engineers: Kane & Ervin. Structural engineers: Anderson, Bjornstad & Kane. General contractor: Glacier Construction Co.



Brightly painted steel panels infill below windows.

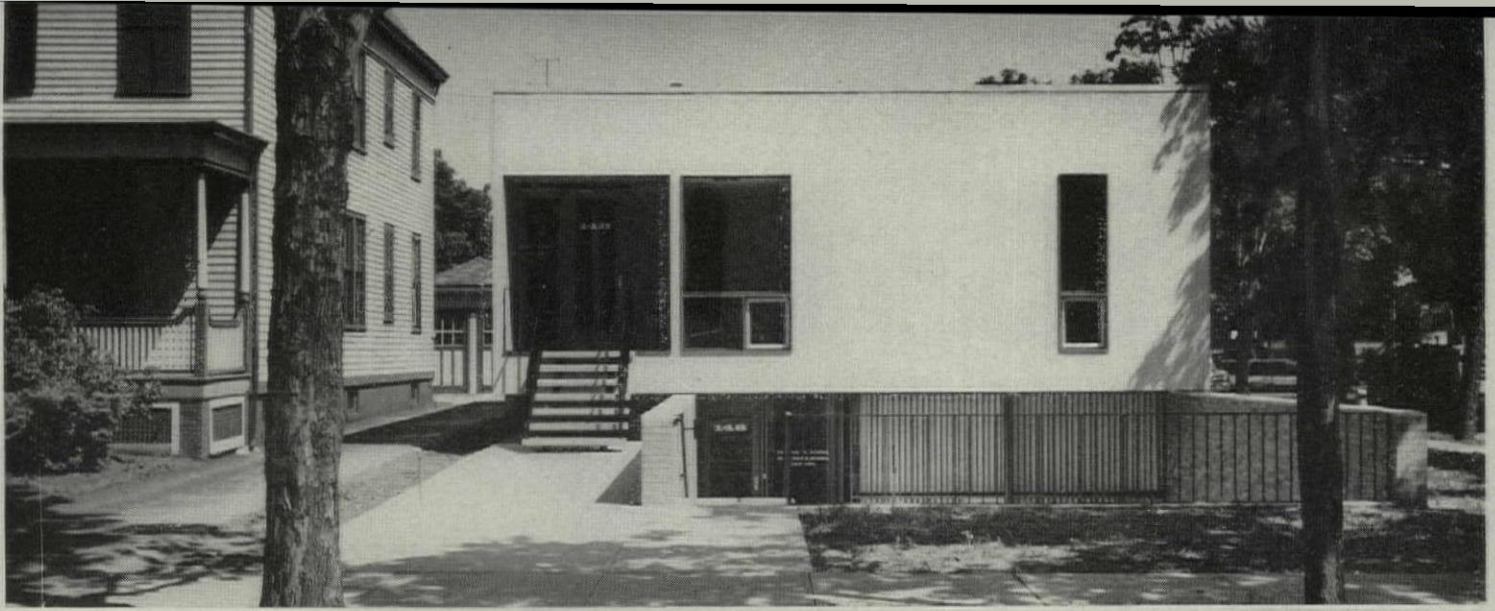


Roof overhangs form corridors between clusters.

Light troffers run perpendicular to open-web joists in library.



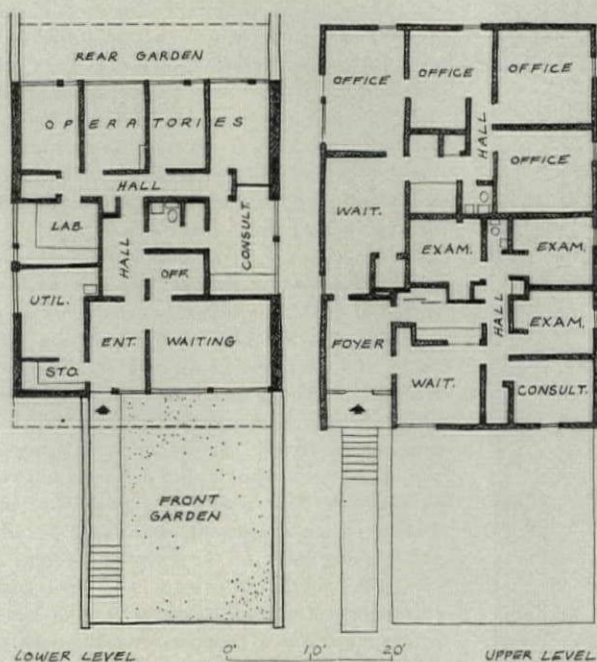
PHOTOS: ART HUPF



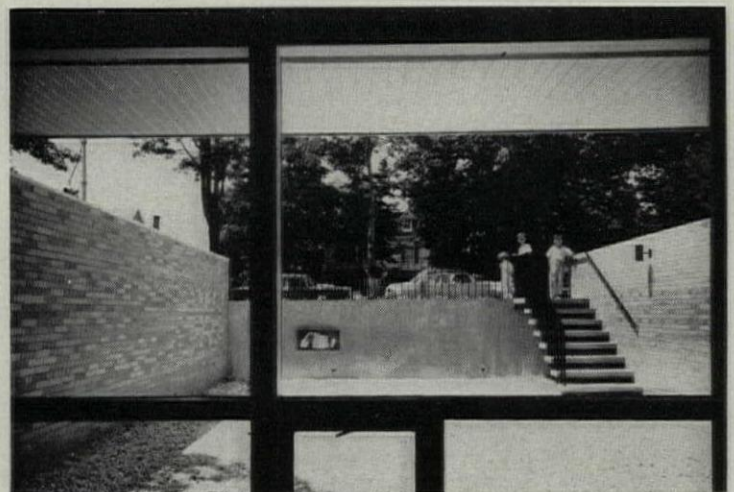
Floor-to-ceiling windows and the recessed base help the line-up with older neighbors.

Box office

Set gently on a corner lot amid turn-of-the-century houses in New Brunswick, N. J., this small professional building offers a solution to the typical problem of inserting new construction into ageing and changing residential streets. By posing a crisply organized wood-frame box on a high masonry base, Architect Julian Neski (of Blake & Neski) obtained a four-operator dental suite for the clients on the lower level and a floor for professional rental above. The split-level system not only reduces to a half-flight the climb up or down, it is the means by which continuity is kept on the street. But instead of terracing ground up against the "basement" walls as the neighbors did, Neski lowered the front yard to the level of the lower floor to obtain a generous entrance court. Cost of the 3,000-square-foot building was \$68,000. Structural engineers: Wiesenfeld, Hayward and Leon. Mechanical engineer: William C. Miller. General contractor: Canonico & Sons, Inc.

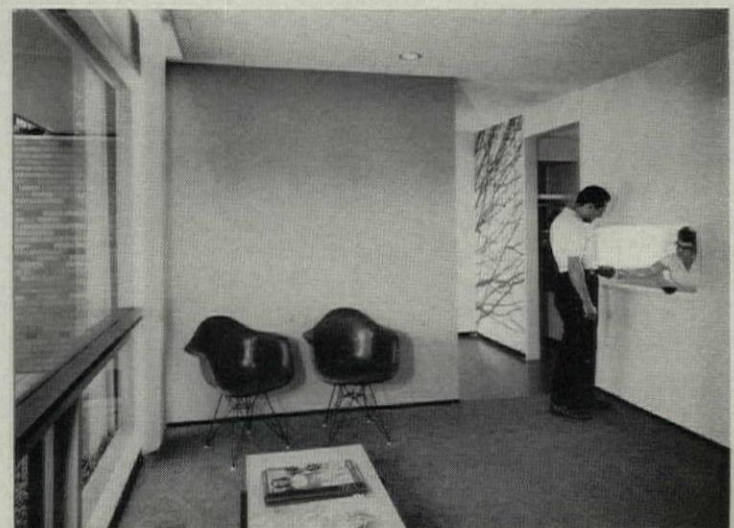


In place of a front porch . . .

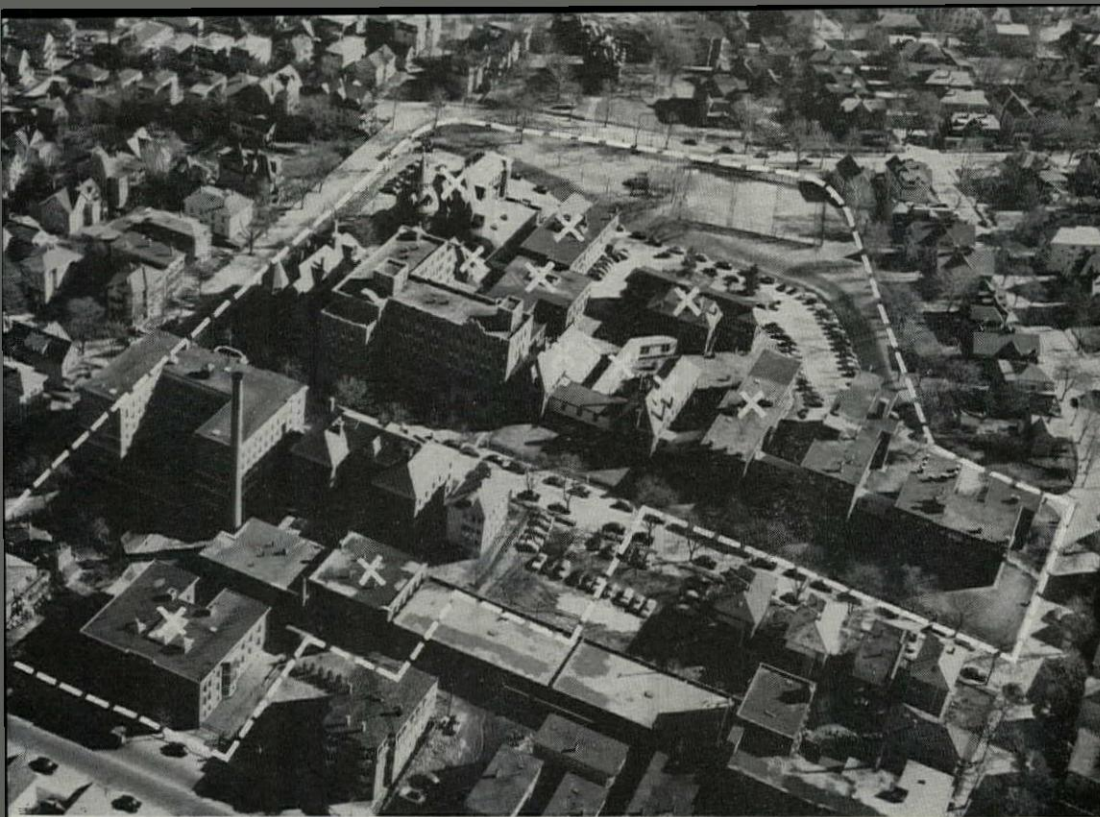


. . . a brick-walled entrance court.

Doctor will see you now.



PHOTOS: BEN SCHNALL



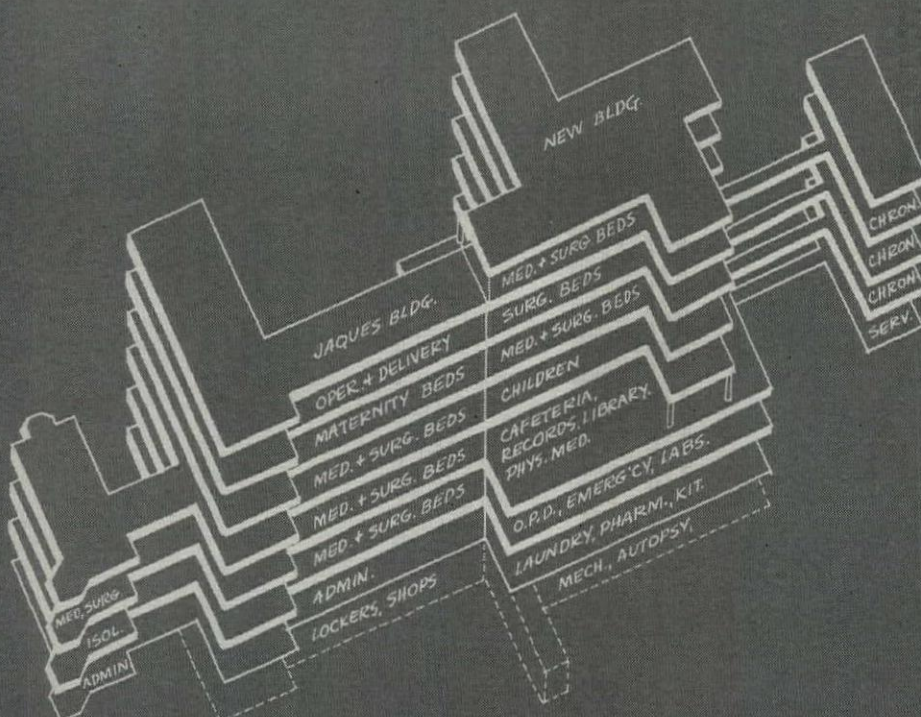
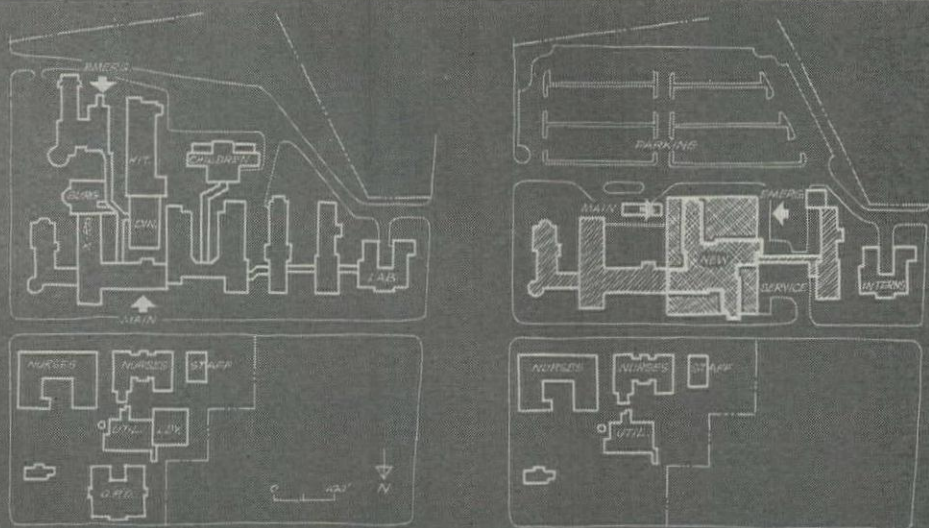
MARTIN RICHMOND



WORCESTER TELEGRAM & GAZETTE

Consolidation in Worcester

Before its remodeling, the 450-bed Worcester City Hospital in Worcester, Mass. was a striking catalogue of the ills plaguing older urban hospitals. Originally laid out on the English Pavilion plan in 1882, it had become still more strung out with the addition of buildings to either side, behind, and across the street. As elsewhere, shortages of professional help, the pressure of more patients, and the growing interdependence of medical departments made Worcester's scattered plant difficult and expensive to operate. Even with sprinkler systems, the older wards were hazards to helpless patients. The \$5 million solution worked out by the Rosenfields, E. Todd Wheeler, and Dr. Albert Snook marked older outlying buildings for destruction (X's in top photo) and transferred their functions to a new central building on the site of the two oldest pavilions. The new building is tied at each floor to a remodeled 1938 building and flanking pavilions to function as a single unit (sketches above and left). Kitchen, storage, laundry, and pharmacy are now grouped on the new ground floor where they can easily service floors above. Emergency and outpatient departments are now together on the first floor where they can share personnel, major equipment, and labs. Surgical patients are next to the operating rooms on the fifth floor. Both main and emergency entrances are now at the rear, facing a new parking lot which relieves congestion on the street bisecting the site.



Aid for the aging hospital

Some experts suggest ways to attack a startling \$3.6 billion worth of obsolescence in U.S. health facilities.

This article was written in collaboration with Isadore Rosenfield, well-known architect and hospital consultant of the firm of Isadore & Zachary Rosenfield, formerly chief architect of the New York City Dept. of Public Works.

Hospital and health officials have long agreed on the acute need for modernization and replacement of older hospitals in the U.S., but it was not until this year that a survey by the U.S. Public Health Service revealed the true scope of the problem. After sampling general hospitals and health centers in 25 major cities and 32 smaller ones, plus state-owned mental institutions in 30 states, USPHS came up with the startling estimate of at least \$3.6 billion needed to bring our decrepit health plants up to date. This figure is nearly four times the current high level of annual construction expenditures for all health facilities, and close to 20 per cent of the \$15-odd billion total assets of all U.S. hospitals. "This bill for obsolescence," says Assistant Surgeon General Jack C. Haldeman, "is a staggering figure when considered in relation to such a vital national resource."

Surveys by the American Hospital Assn. have indicated that nearly half of all hospitals in this country need some form of modernization. In addition,

AHA officials have testified to Congress that the U.S. needs 175,000 more general hospital beds (costing \$3.5 billion at \$20,000 per bed), plus several hundred million dollars worth of new beds each year to take care of an annual population growth of 3 million persons and an increasing number of elderly citizens. Physical deterioration and medical advances, says AHA, render some 9,500 hospital beds obsolete each year. (More than 25 per cent of hospitals built less than ten years ago reported to AHA they needed some form of modernization already.)

The surveys, as might be expected, show the greatest need in the populous, older areas of the country: the Middle Atlantic States (\$487 million according to USPHS), the Great Lakes area (\$430 million), the West Coast (\$395 million). A local survey of the 66 voluntary hospitals in New York City's United Hospital Fund estimated that at least \$180 million was needed there for modernization and replacement, plus some \$50 million for new or extended facilities in the psychiatric, chronic, and nursing-home fields. A team of hospital consultants and architects found some 45 per cent of New York's hospital buildings dating before 1925, and deemed inadequate or obsolete half of their laboratories, and 60 per cent of their surgical, emergency, central sterile supply, and maternity suites.

Flight to the suburbs

The current plight of the aging urban hospital is largely a result of the long lull in health building during the depression and World War II, and the

postwar emphasis on new hospitals built with federal help under the 1946 Hill-Burton Act. While Hill-Burton brought many new hospitals to smaller towns, suburbs, and rural areas where there were none before, and while it introduced systematic state-wide planning of health facilities and new standards of hospital construction, deterioration continued in many older city plants. Writing to House Speaker Sam Rayburn earlier this year to urge revision of the Act, HEW Secretary Arthur S. Flemming cited "the alarming rate of obsolescence of our health facilities in metropolitan areas . . . and particularly in the large facilities providing highly specialized services which cannot be offered in smaller communities." Although modernization projects are now theoretically possible under the Act, said Flemming, these projects get such low priority in most state plans, and have so much competition from projects of other kinds, that needed aid seldom reaches them. "The channeling of funds so largely into new construction," he continued, "has produced a pattern of modern and efficient small hospitals surrounding metropolitan areas, while cities themselves are often served by hospitals housed in structures 50 years old or more, and otherwise so obsolete as to suffer a major loss of efficiency." Amendments urged by Flemming and others would require that each state receiving Hill-Burton aid set forth in its state plan the relative need for rehabilitation and replacement along with the relative need for new construction, and would permit states to give special priority

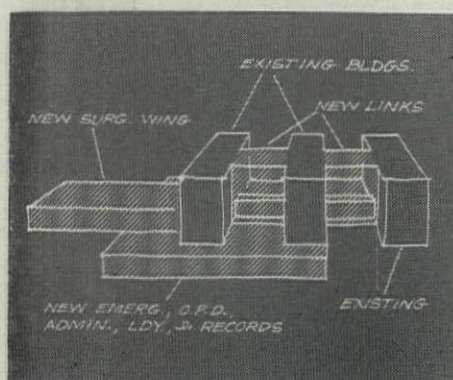
to pressing modernization needs.

While praising Hill-Burton for its considerable accomplishments, AHA has repeatedly recommended its modification to allow modernization loans, particularly loans to the private non-profit institutions which serve some 16 million out of the 23.6 million persons admitted to U.S. hospitals each year. Such loans, says AHA, should not exceed 80 per cent of the cost of renovation, should extend for 30 years at a maximum interest of 1½ per cent, and should be made only on condition that adequate metropolitan master plans be developed in coordination with over-all state hospital plans. AHA points out that the larger, older hospitals of the U.S. are in most cases the centers of medical teaching, and thus are the vital core of health progress in the country as a whole.

Wings are for birds

The financial problems of the older hospital in the city are certainly matched by its architectural ones. In contrast with some European cities, where hospitals are sited with considerable entourage as major public buildings, many American hospitals just "grew like Topsy." Frequently a town's hospital began in an old mansion on Main Street, donated or bought to meet mounting health needs. As demands increased, wings or pavilions were added on, each intended to satisfy a pressing need of the moment, but with little regard to future wings or to the hospital's immediate surroundings. In many cases a single edifice, sometimes charming, has been overwhelmed by a hodge-podge of its own progeny. And now that urban renewal is stripping away the old slums that have grown around it, the city hospital, once seen only from its grand façade, stands unmasked in all its cumulative disorder.

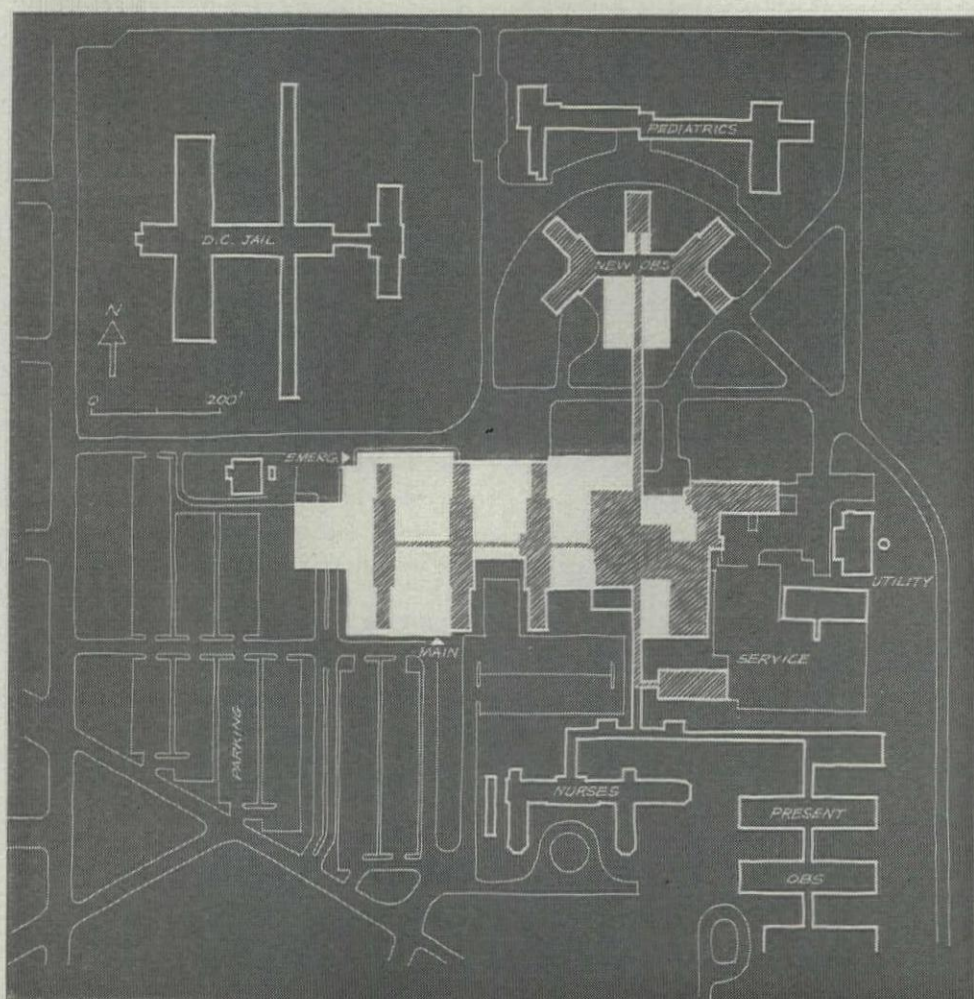
Ugliness, of course, is not the only problem. Floor levels between buildings often do not match. A strung-out jumble of pavilions requires ever in-



Infilling in Washington

Another victim of the strung-out pavilion or "finger" plan is the District of Columbia General Hospital, which had spread all over its 65-acre site since the first buildings were put up in 1921. The recommended \$13 million remodeling (first outlined by the Rosenfelds and Consultant John G. Steinle and now being drawn up by Architects Justement, Elam, Calmer & Kidd) centers on a trio of existing buildings (photo right, above). These will be knitted together into a modern general hospital of 700 beds by new cross-connecting

corridor wings (lined with additional patients' rooms at each floor), by a new base of services and medical departments, and a new operating wing (rendering and perspective diagram above). The further fleshing out of the hospital's old skeleton is indicated in the plan below (new construction shown in white). The old medical annex (top of plan) will be remodeled into a new women's hospital. Traffic through the middle of the site will be removed and big new parking lots supplied toward two major streets.



creasing labor, heating, and maintenance costs. Fire, cross-infection, and death are the ultimate prices some hospitals—and patients—have had to pay.

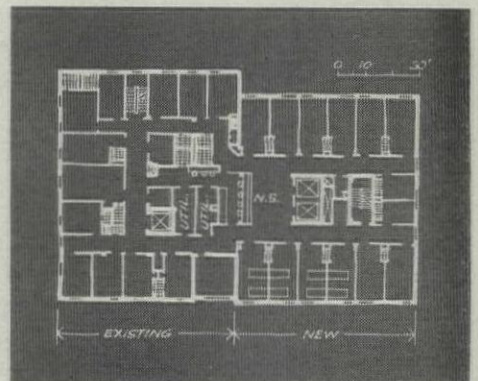
While some of the older in-city hospitals continue to deteriorate, others have followed the flight to the suburbs, placing an even heavier burden on those remaining. In turn, the city hospital has reacted by adding new wings, by invading patients' quarters for expanding services, by going up in the air, by jumping across streets and across still other streets to cover new plots with more pavilions. In all this building the new structures are frequently even less related than their predecessors to the central core, and the hospital as a whole becomes less and less manageable.

Aside from complete abandonment and building anew, a course that many cities feel they cannot carry out, the main countermove to the proliferating older hospital has been partial demolition and consolidation. As in other building types, the modern hospital's increasing need for compact efficiency to offset high labor costs (now 67 per cent of the hospital operating dollar), and for flexibility to meet changing requirements, is tending to pull buildings together. Filling in the space between pavilions, they tend toward the "loft" or "bulk-space" plan.

A striking example of this approach is the Worcester City Hospital in Worcester, Mass. (population 200,000), whose newly remodeled plant opens for service this month. A general hospital primarily for the indigent sick, Worcester was a veritable catalogue of the ills plaguing older U.S. hospitals. Located in the heart of downtown, it consisted of 22 scattered buildings, 19 of which dated before 1905, one dating as far back as 1882. The only fireproof buildings were a large nurses' residence built in 1929 and a central administration and patients' building finished in 1938. Of 436 beds, the state had declared 293 unacceptable by modern standards. The outpatient department

was located a block away from the diagnostic and therapeutic facilities of the main hospital, and was forced to duplicate X-ray, laboratory, pharmacy, and records. Emergency, whose cases had increased 68 per cent in ten years, was almost as far removed in the opposite direction. Operating and delivery rooms were isolated from their corresponding patients, requiring long trips over to the main building, and up and back by elevator to the fifth floor. The main laboratory was in a pavilion 475 feet away from the central building; physiotherapy occupied improvised quarters equally far from patients on the other side. Children were housed in a nonfireproof building connected by a long shed corridor toward the rear. The laundry was across the street, connected by an underground tunnel. The main hospital entrance, combined with a lack of off-street parking, split the hospital in two with a stream of moving and parked cars.

The city was faced with the alternatives of spending some \$1,750,000 to patch up the old buildings, or as much as \$11 million to replace the hospital with a completely new one on a different site. A study by outside consultants (Isadore & Zachary Rosenfield and E. Todd Wheeler, architects; Albert W. Snoke, M.D., consultant) showed, however, that a compromise could be reached by saving the sound older buildings and replacing the unsound ones with a new central building consolidating most of the departments. The Rosenfield scheme, which came to just under \$5 million (including temporary passages to link buildings during construction), replaces the two most ancient central pavilions with a new building of seven stories and basement, tied at each level with the 1938 building to create whole departments out of each floor. This principle of "horizontal contiguity," for example, places new surgical beds directly opposite remodeled surgical suites; it consolidates administration, admitting, emergency, diagnostic, X ray, and labs on the new



Addition in Johnstown

By acquiring a site next door and adding on, Lee Hospital in Johnstown, Pa. was able to stay downtown and increase capacity to 178 beds. Typical floor plan shows how new and old were integrated around a central nurses' station and service core. Consultants were the Rosenfields; architects, James H. Kring and J. Richard Ross.

main floor, and places service functions (laundry, sterile supply, pharmacy, kitchen, lockers and shops) in the basement where they can serve all floors above by chute, dumb-waiter, and elevator. Both the main entrance and the emergency entrance are now at the rear, where obsolete buildings are being razed to create a 450-car parking lot (roughly one space per bed) that will relieve the congestion on the street bisecting the site (see page 112).

As a result of savings through more efficient operation, and the ability to charge going rates for first-class hospital service, Worcester officials estimate they may be able to increase income by as much as \$1 million a year in the new plant, and make it possible to purchase new medical equipment they lacked before (e.g., new cobalt therapy apparatus, a new cardio lab). But, perhaps equally important, they have done much to remove a civic eyesore, and to provide hospital care commensurate with the community's obligations.

Knitting new and old

A similar combining of old and new, on a smaller scale, was completed last year by the Rosenfelds and Architects Kring & Ross for the Lee Hospital in downtown Johnstown, Pa. (population 60,000). At a cost of \$1.8 million, largely raised by a public fund drive, they have integrated a new wing with the existing building so as to increase capacity to 178 beds. Walls between old and new buildings were broken through to create nursing floors which have 40 per cent more space per bed, and revolve about a new central core of services and nurses' stations from which they are in good view (see plan, page 115). Among the innovations made possible: a bright new children's department and playroom on the sixth floor, a new laboratory capable of handling many more tests, a postoperative recovery room, full-time physiotherapy and radio isotope departments, oxygen piped at lower cost to all areas. The

two main nursing floors, with an average census of 50 patients each, are equipped for self-care as well as intensive care, so that the hospital can adopt progressive care methods or develop a program of long-term rehabilitation. The basement location of central supply, with a dumbwaiter to each floor, has eliminated former traffic problems and the disturbing of patients. Hospital authorities are so enthusiastic about the improvements that they are planning demolition of the old annex at the rear (in which the hospital started), and the building of a similar new wing to round out their modern plant.

Among larger big-city hospitals now going through modernization studies is the District of Columbia General Hospital, which started in 1921 on a 65-acre site bordering the Anacostia River. By 1957, when the Rosenfelds and Management Consultant John G. Steinle were called in, the hospital had grown to some two dozen buildings scattered all over the large available area in keeping with the presumed virtue of generous spacing. Long lines of communication made effective supervision difficult: a pedometer indicated that one night-nurse supervisor, for example, traveled 7.2 miles making her rounds. Patient rooms were generally without running water or toilets. Outpatients and records were located in one separate building, emergency and admitting in a second, the laboratory in a third. Traffic created hazards through the center of the site.

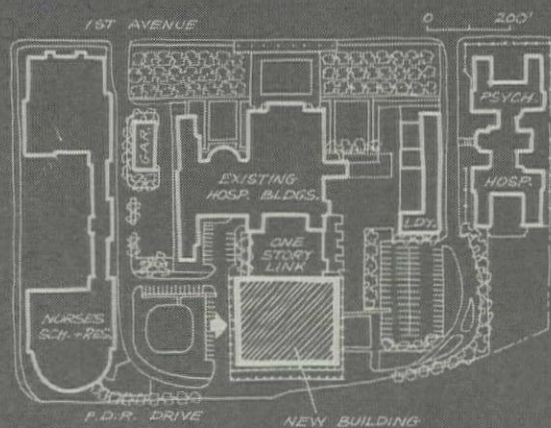
The core of the \$13 million remodeling program recommended for Washington involves consolidating three long central buildings into a single acute general hospital of 700 beds, converting one outlying building into an obstetrical-gynecological facility of 200 beds and developing a rehabilitation center in a former psychiatric building. In plans drawn up by Architects Justement, Elam, Calmer & Kidd, the existing trio of pulmonary medical and surgical buildings will be knitted to-

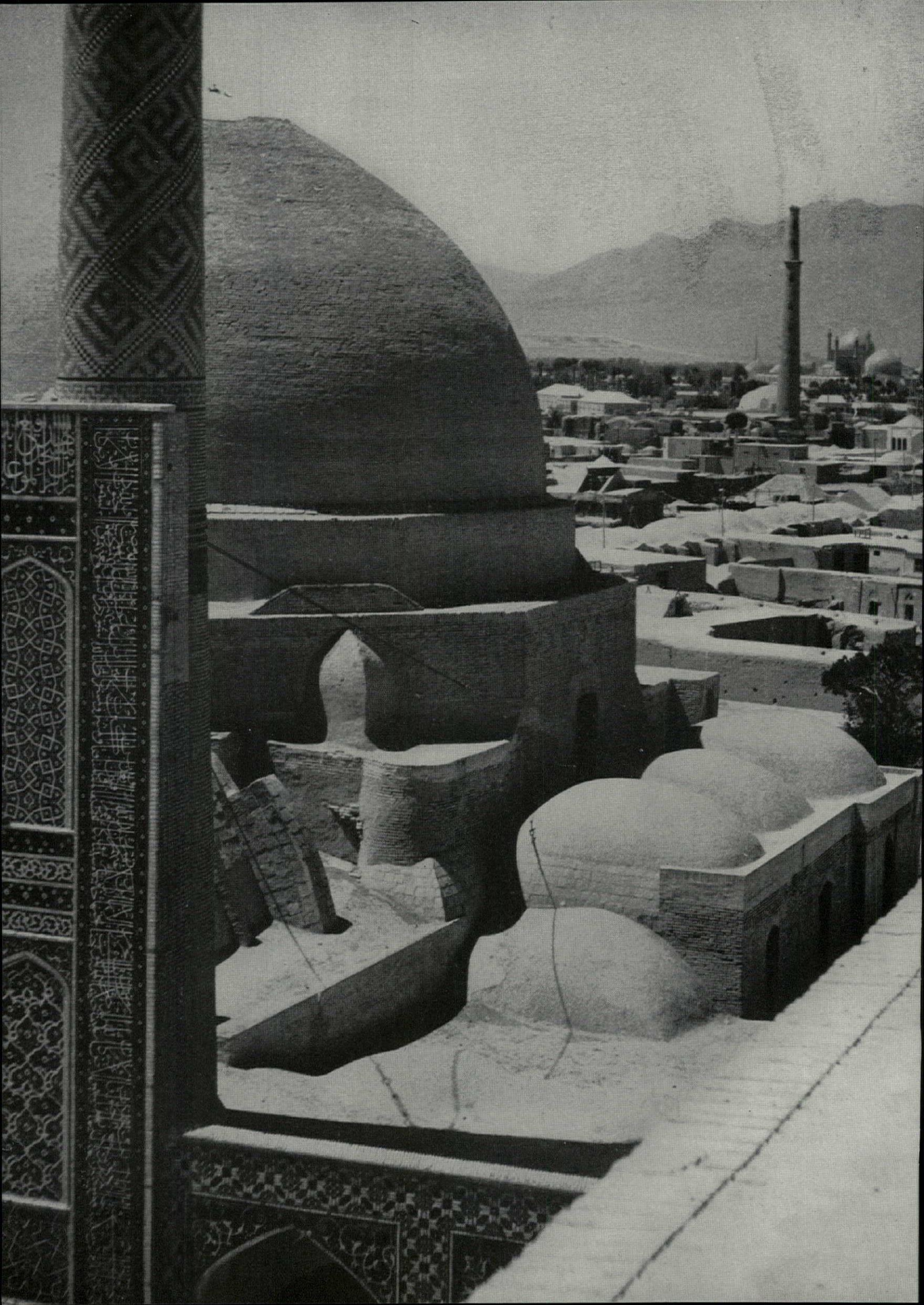
gether at lower levels by new floors containing central services at ground level; emergency, X ray, and outpatient departments at the first floor; and cross-connecting corridors lined with additional patients' rooms on the upper six floors (sketches page 114).

Probably the largest single hospital modernization project now on the boards involves a new 22-story, \$50-million skyscraper proposed as replacement for eight old patient pavilions at New York City's 22-acre Bellevue Hospital on the East River. Outstanding features of Bellevue's plan are big floors of 65,000 square feet each (about 1½ acres) built fully on the "loft" principle so as to combat obsolescence by allowing internal modifications as patient categories and medical technology change. This centralizing of formerly scattered facilities, it is estimated, would reduce Bellevue's \$22 million annual operating costs by some \$1.5 million a year. If built, the 1,500-bed skyscraper hospital would also consolidate some of the most advanced hospital ideas in the country, from a helicopter landing field for accident victims to complete teaching plants for three universities and two special public elementary schools, and from TV monitoring of patients to the washing of surgical instruments by ultrasonic means.

The crisis of the older urban hospital, then, is beginning to command some of the attention it deserves. And as a vital part of the much-discussed "public sector" of American community life, it deserves fully as much attention as the pressing problems of schools, recreation, transportation, and other public and semipublic works. Federal recognition of the older city hospital's needs, along with a regional approach to health planning, will be of significant help. But the final responsibility will lie with local hospital boards, medical men, and architects, who must remake old buildings into integrated, efficient, and pleasant hospitals, and not merely add new slums to old.

At New York City's big Bellevue Hospital on the East River, plans are now proposed to demolish a handful of the oldest buildings and replace them with a single 22-story, \$50 million skyscraper containing some 1,500 beds. The plan of a typical nursing floor for medical and surgical patients (right) is roughly 250 feet square—about 1½ acres. This goes as far as any hospital yet toward the loft, or bulk-space, plan by which modern factories, office buildings, and even schools are hedging against change. Six-bed wards on the perimeter may be divided into private or semi-private rooms by folding partitions. At the head of each cross-corridor, a central nurses' station supervises one whole side. In the big central space are facilities to make each floor practically a hospital in itself: labs, offices, X-ray and minor operating rooms, conference and treatment rooms, a floor kitchen. As medical technology advances or the hospital's own requirements change, partitions can be moved around to create new combinations of spaces. Pomerance & Breines; Katz, Waisman, Blumenkranz, Stein, Weber; Feld & Timoney, associated architects and engineers.





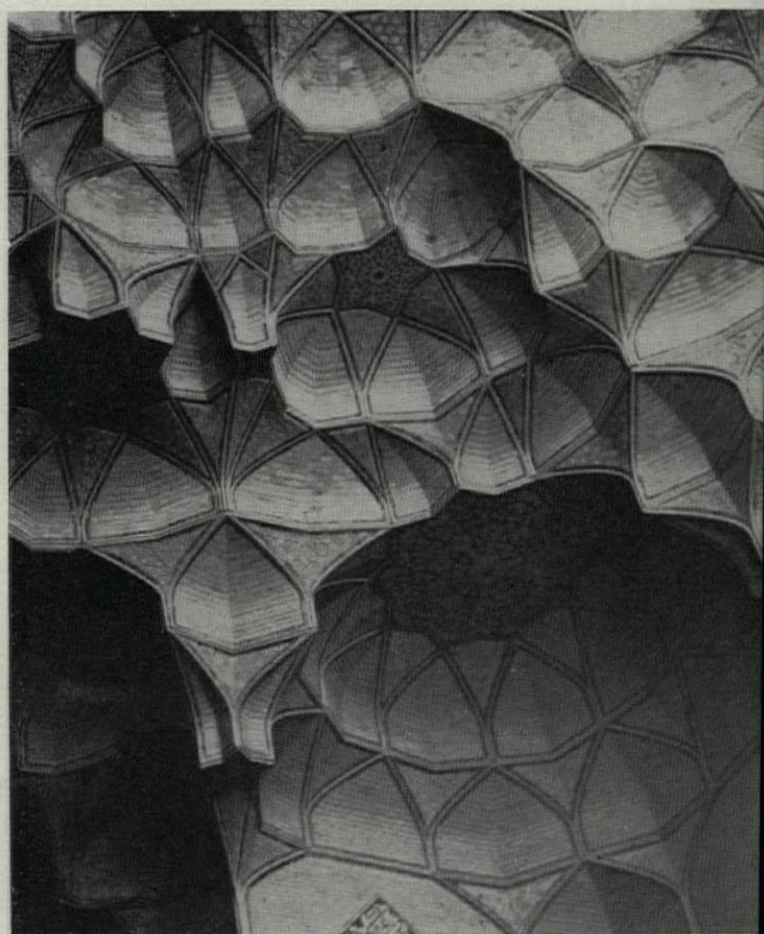
Vigorous roofs on formal facades

The architecture of Middle Eastern mosques is one of strict precedent; the patterned brickwork and geometrical faïence mosaics which make these buildings brilliant in the Saracen sun are derived from pronouncements in the Koran. But, just as in many Western buildings, behind the veil of formality the contractor is the one who has taken over and built the structure in his own improvised way. In the case of the great mosque in Isfahan, it is fair to say that history was the contractor, at that.

For when David Jacob, a young Rome Prize winner who took the long way home from Rome, climbed up atop the famous Masjid-i-Jami of Isfahan, he was confronted by a roofscape that is perhaps as good an example of indigenous ingenuity as exists. Here, 50 feet above the beautiful floor of this oldest of Isfahan's mosques (begun in the time of Omar Khayyám, about 1100 A.D., and not finished until some four centuries later), sits an uninhabited uninhibited Middle Eastern penthouse village. Its exuberantly shaped vaults and domes are finished not in fine mosaic, as are the façades, but in a strawed mud which, with occasional retouchings, has demonstrated a 400-year bond.

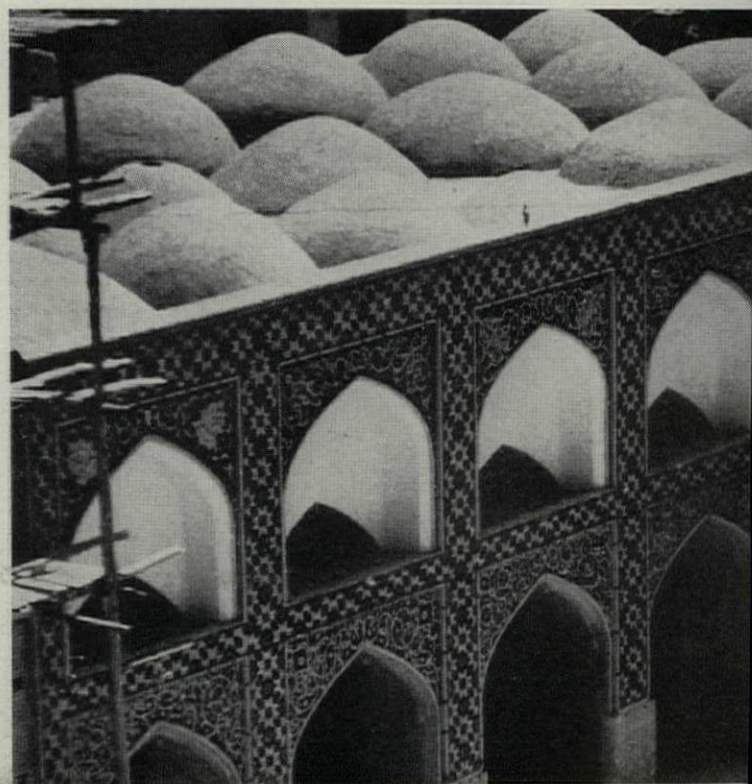
The main purpose of all of these roof structures was to dilute, direct, and sometimes pattern the light admitted to the mosque below—besides, of course, spanning the spaces between vertical supports. (Rain comes seldom in Isfahan—the sun, in a deep Kodachrome sky, is the adversary.) But architectural history can be read in the roof of this monument better than in its elegant façades, for it was not until the 1700's that the Persians began applying formalism and faïence tile in a big way. In the shadow of the big dome, the irregular field of smaller ones prompts nostalgia for the generations of craftsmen who threw the devotional bubbles and vaults.

Jacob carried his camera with him and took these photographs of the great Isfahan roof for FORUM. His considered verdict on the rugged Isfahan roof: "An exciting array of unique ideas, a sympathetic precedent for some of the better known explorations by our own contemporary form-givers."



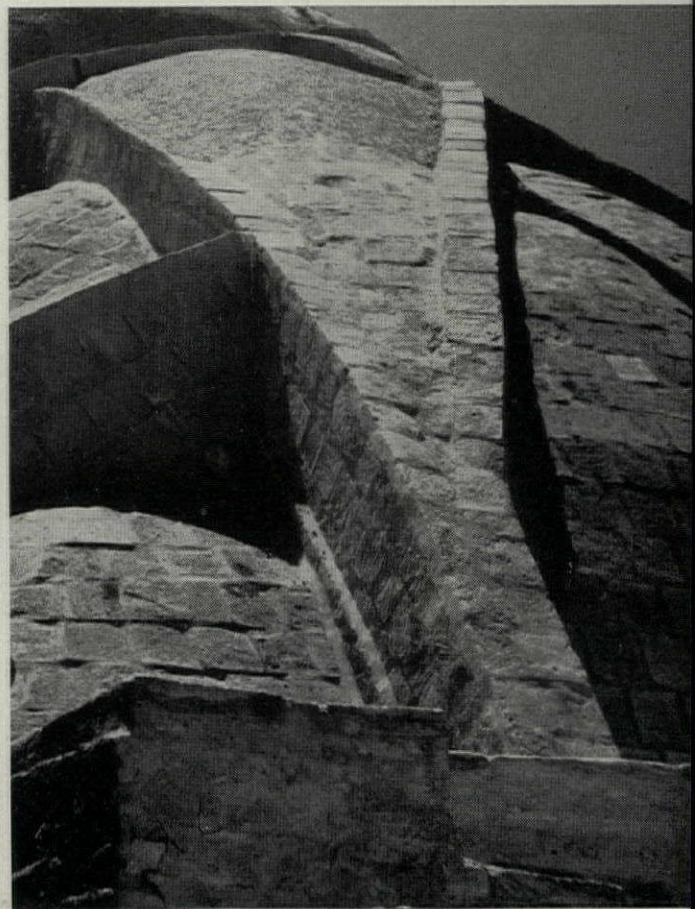
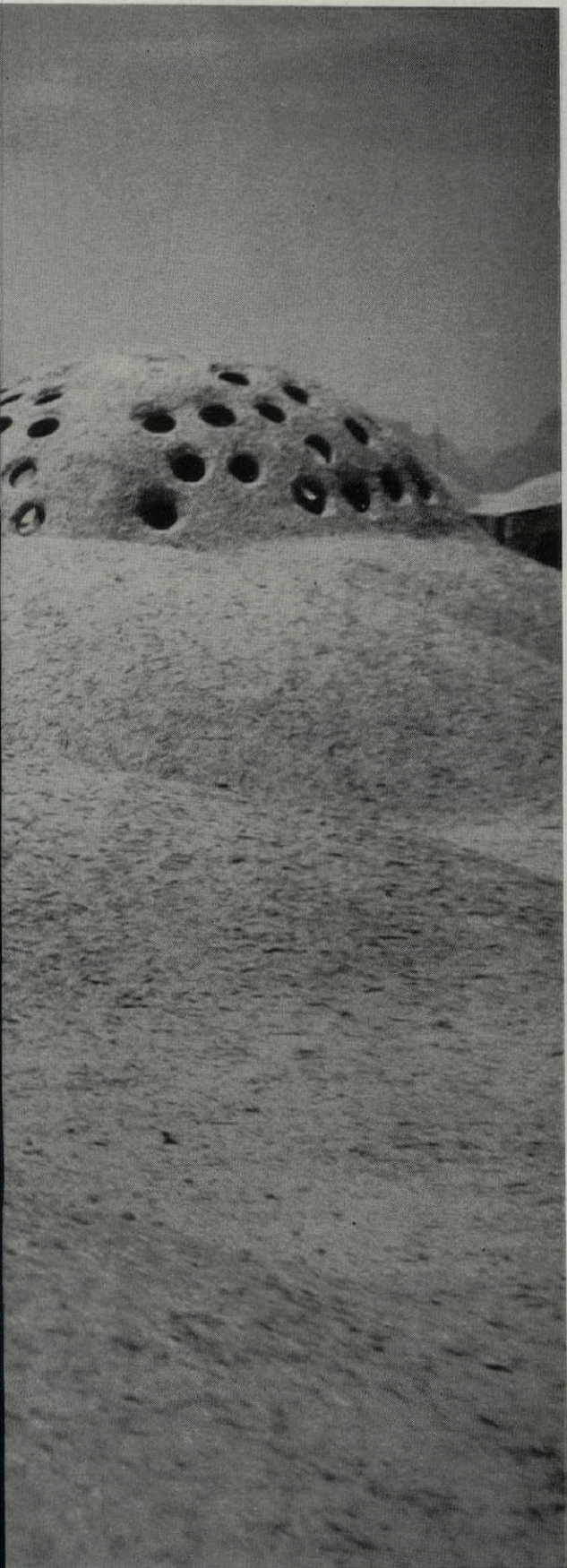
Inside, the mosque's ceiling is elegantly inlaid.

Above the faïence finery, the bumpy roof bakes on in the sun.





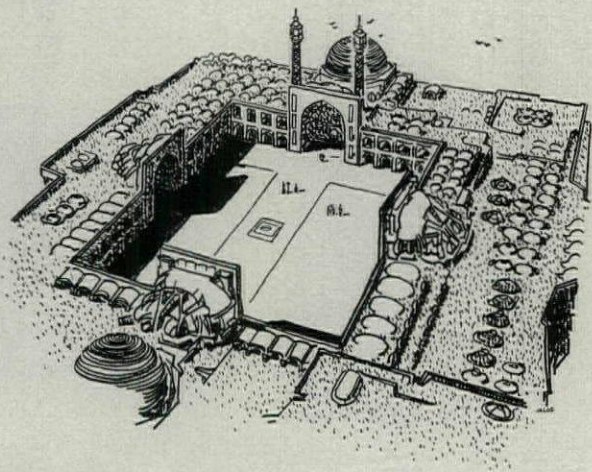
Domes are pierced to admit controlled light to the mosque below, also aid ventilation.



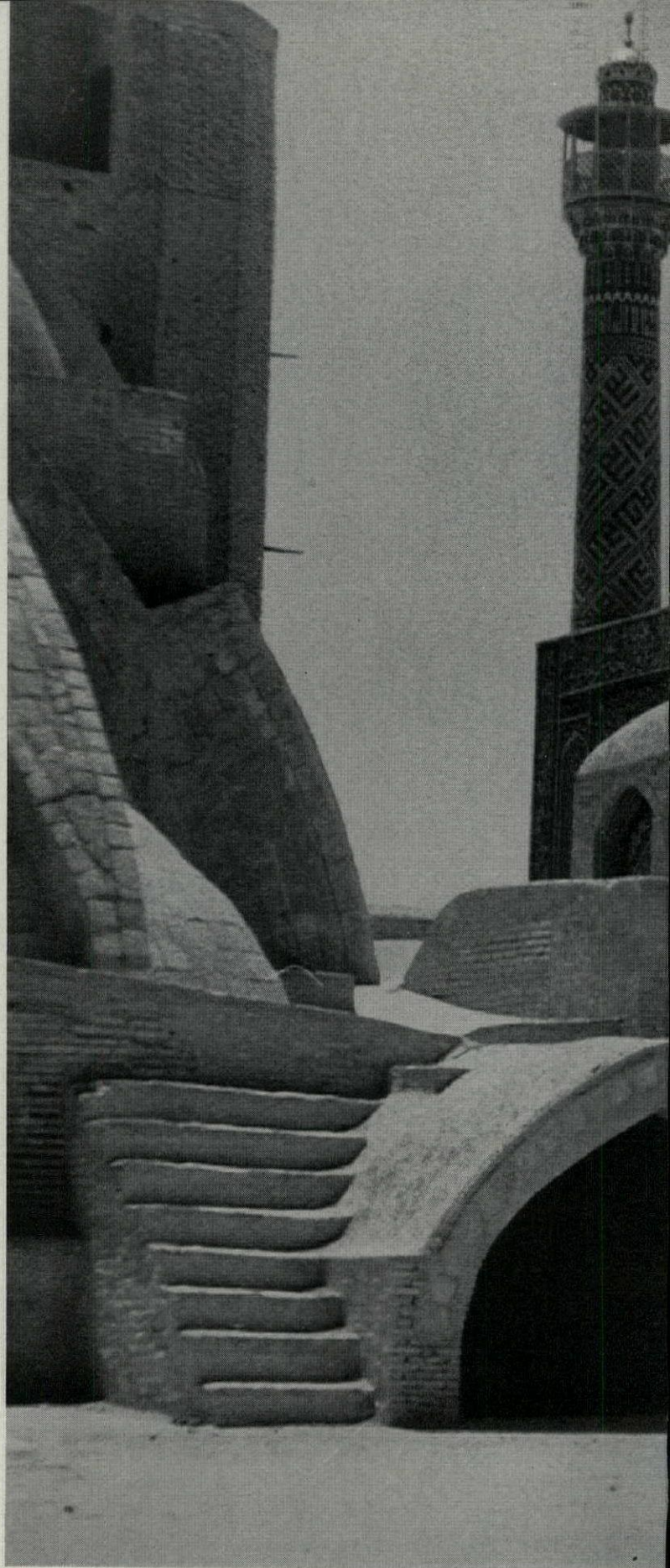
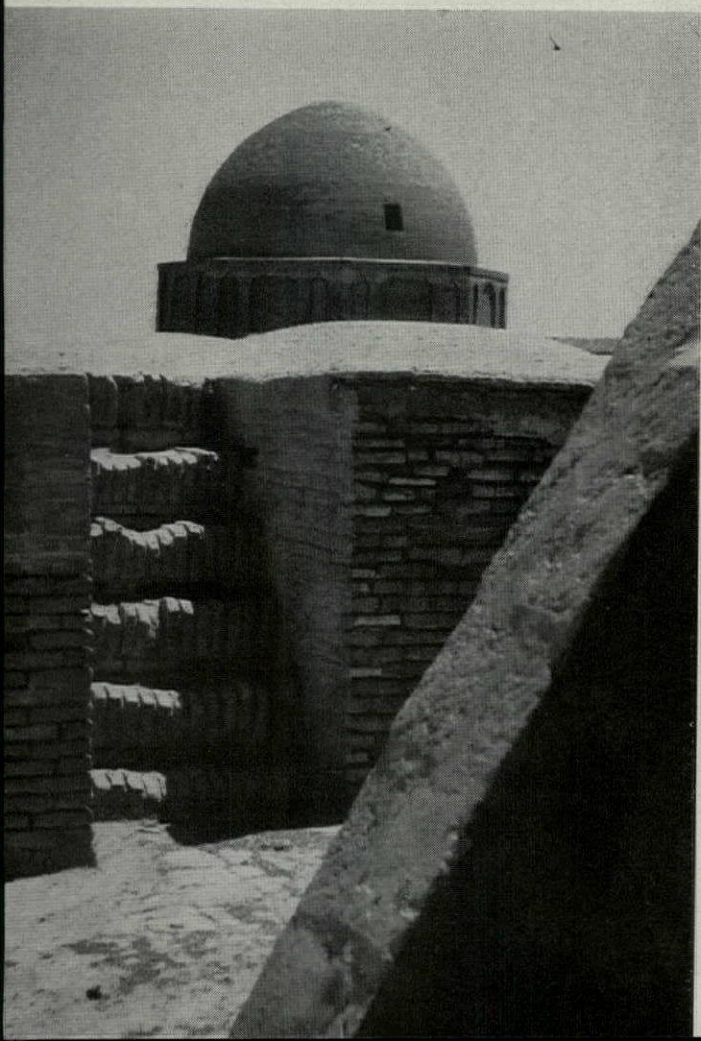
Jerry-building which has endured the centuries.

Using very adhesive mortar, masons threw these vaults without centering.



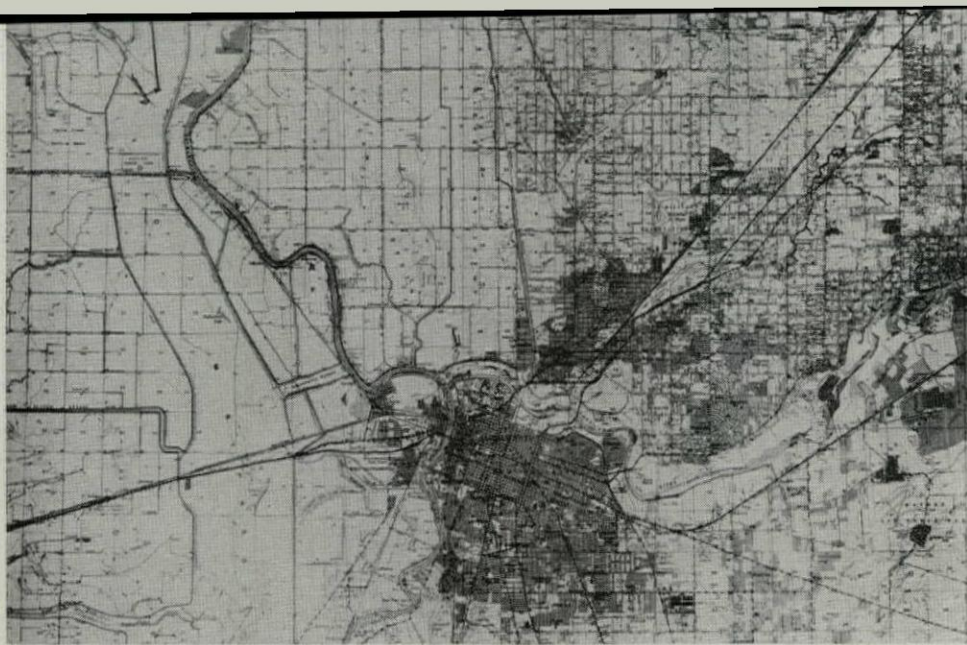


Dome of a smaller neighboring building.





Persian penthouse: clerestories on the roof admit light 50 feet above the mosque floor.



Sacramento's growth eastward from its downtown birthplace, the 100-block gridiron laid out during the Gold Rush on the bank of the Sacramento River (see map at left), has given the enlarged city a character of faceless sprawl. Now efforts are under way to renew the 62 blocks of blight lying athwart Capitol Avenue between the Capitol and the river front (see photo opposite). The first portion of the renewal area, the 15-block Capitol Mall Project (A), has already been cleared; the ten-block Capitol Mall Extension (B) will follow soon. It is not expected, however, that the total area will be rebuilt until well into the seventies.

Sacramento's second gold rush

Threatened by new scattering, California's capital restakes its colorful old claim with an ambitious renewal plan.

BY ALLAN TEMKO

The Capitol dome, lifting above Sacramento's elms into the hot, bright air of the Central Valley, can be sighted miles away on the irrigated plain. If the dome is a symbol of the past, the country it governs belongs unmistakably to the future: over its 450-mile length, between the Sierras and the Coast Range, the Valley is booming. First came the vast mechanized farms, "factories in the field," and now the industrial plants of the Space Age. Every one of the towns spaced at Biblical intervals on the plain—Bakersfield, Fresno, Modesto, Stockton—is growing. Sacramento, not only the Valley's chief city but the ever busier capital of a rich, progressive (and soon the nation's most populous) state, is in the midst of the most phenomenal expansion of all. It is in the midst of it, but curiously apart.

Indeed, this tree-shaded town may prove to be a classic example of a small American city that is subject to rather than master of today's powerful new social, economic, and political pressures. In the last decade Sacramento, which in 1950 had a population of only 136,-

000, jumped 38 per cent to 190,000—partly through annexations. But at the same time the suburbs skyrocketed at a rate of 122 per cent to 310,000, so that no less than half a million people now live in the metropolitan area. In 20 years more this figure will triple.

The prospect of this Brave New World, so frightening in its obvious resemblance to Greater Los Angeles, has spurred Sacramento into imaginative action. For the old city, one of the finer towns in the West, faces the very real danger of becoming merely another bubble in the frothing expanse around it. Like old Los Angeles, which was a pleasant place, it could pop and vanish.

In fact, Sacramento has not much time left to assert its mastery. The centrifugal flow of people and money to the suburbs has already deeply affected its venerable core. Although Sacramento as a whole has gained population, the old city has shown a loss of more than 6 per cent; at the same time the percentage of low-income families has risen sharply in the core.

Business naturally has been affected, too. Though profits are generally higher, the proportion of the area's total retail sales has dwindled alarmingly. The big store vacated by Sears, at a prime corner location, has been empty for two years.

To make matters worse, the city's economic consultants report dourly, nothing can reverse the outflow of people and money to the suburbs, at

least during the next generation; the movement is just too strong. Redevelopment can merely check the trend. But without redevelopment, the old city would be lost. Studies have shown that its business activity would level off in 1963, and remain static thereafter.

The Capitol asserts itself

Precisely because it has wisely undertaken such studies and has been moving toward redevelopment since 1947, Sacramento is now fighting back with vigor and enterprise which other core communities in similar predicaments might well emulate. To the visitor who approaches the city across the Sacramento River on Tower Bridge, with the Capitol at the end of the vista, Sacramento today resembles a battle front (see air view at right). Fifteen blocks have been leveled, with 47 more to follow; and after more than a decade of meticulous preparation, and many unforeseen but frustrating delays, construction is finally under way.

Capitol Avenue, previously a disgrace to California as the main approach to its governmental offices (see following page), is now being transformed into a green-bordered boulevard and will be renamed Capitol Mall. It leads past the nearly completed Federal Building, which is the first element in the 15-block Capitol Mall pilot redevelopment area. Off to the right, in a superblock south of the Federal



Building, 206 low-rise garden apartments are going up, the first units of James H. Scheuer's Capitol Towers project where many government workers eventually will live.

This is only a beginning. Eventually, when all four phases of the 62-block, 250-acre program are completed, a full 25 per cent of downtown will have been renewed—a larger bite out of the central district, proportionately, than most great metropolises have dared to take.

Indeed, Sacramento has found it a very large order. Repeatedly the city has had to revise its target dates. Originally the Capitol Mall project, still a good four or five years from final realization, was slated for completion in 1960. Probably the rest of the program will not be finished until the seventies. By then, the issue of scatteration or order may have been resolved.

A profile for Gopher Prairie

The city had reason for optimism in 1950 when it embarked on a course brilliantly charted by Richard Neutra and Robert Alexander. That Sacramento had the wisdom to engage architect-planners of such stature was in itself evidence of serious purpose, and the city was not disappointed. Neutra and Alexander came up with a preliminary plan as bold as it was sweeping, and it remains the basic concept of Sacramento redevelopment today.

Taking a critical glance at the city, Neutra and Alexander saw at once that Sacramento, in spite of its many physical advantages (tree-lined streets and varied building levels—see photos at right) and its fortunate status as a provincial capital, more closely resembles Gopher Prairie than Aix-en-Provence. The chief business thoroughfare, K Street, is simply a crude American Main Street, fair game for a Sinclair Lewis. Scarcely 10 per cent of the structures in the central district are more than two stories high; very few indeed are as tall as ten; and none in 1950 was modern or distinguished. Although as a city on the plain Sacramento stood in clear esthetic need of a distinctive profile, it had no upright character.

That fountainhead of bureaucratic design—the 900-man State Architect's office, one of the most notorious establishments of its kind in the nation—

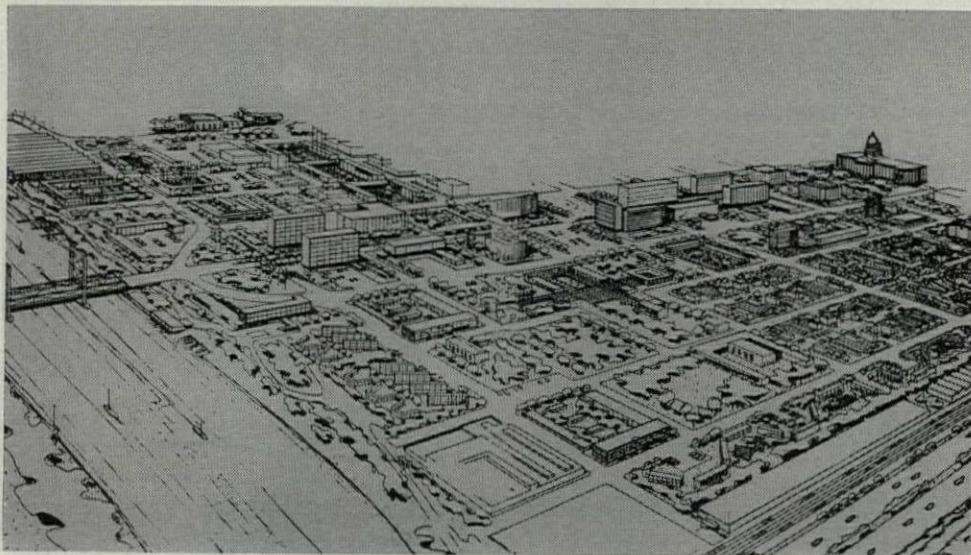


Capitol Avenue forms the backbone both for a plan proposed by Neutra and Alexander ten years ago and for present-day developments. Whereas the plan had called for high-rise commercial and cultural buildings organized on the avenue's axis (see sketch, bottom), the State Employment Building (top photo) is

more typical of what has been built in intervening years. Only recently are projects being realized that will reflect the city's green heritage or take advantage of parking opportunities provided by the topographical fact that early buildings were stilted above ground level to avoid floods (photo below).



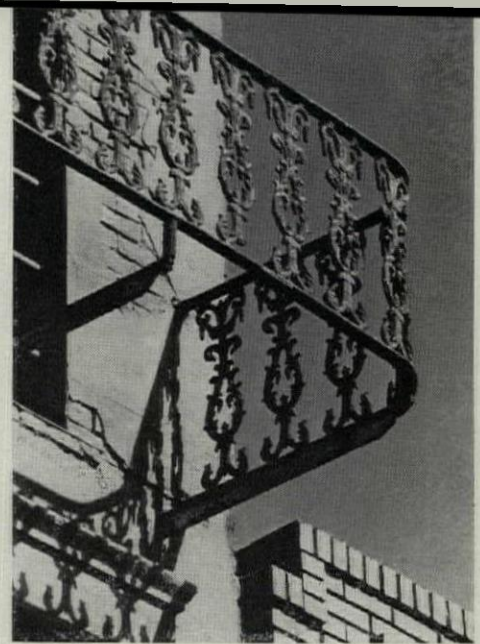
PHOTO: RONALD PARTIDGE



harmed rather than helped matters. As the state's offices multiplied, the official architects housed them in low, bulky office structures jammed together south and west of the Capitol, but with no reference whatever to the Capitol's magnificent grounds. Not even in Washington, D. C., where at least there is usually green space between bureaucratic blockbusters, can more cheerless and banal public architecture be seen.

Stretching westward from the Capitol to the river, however, was an utterly different kind of eyesore which by paradox gave Neutra and Alexander the opportunity they needed: the decaying West End, one of the worst (but also one of the most colorful) slums in California. Like many another U. S. river town, Sacramento in the last century had moved carelessly away from its birthplace near the water. As the city expanded eastward, it left behind the early Sacramento of vivacious buildings which had sprung up beside the river port during the Gold Rush. The old iron-front and brick buildings are among the most precious mementoes of the California frontier (see photos at right). Abandoned, they were soon to be lost in a festering expanse of ramshackle dwellings, battered warehouses, cheap hotels for agricultural laborers, and an astounding number of saloons. The river bank itself, potentially a superb recreational area, had been degraded by a railway right-of-way which received little use. The tax yield for the whole area was extremely low; the incidence of crime and disease, remarkably high.

Here Neutra and Alexander proposed to create a cityscape of the future, organized about the central axis of Capitol Avenue: high-rise apartments, office buildings, hotels, model commercial premises, and cultural facilities such as a long-needed theater. Moreover, even though they recommended that the existing street pattern be retained, they sought to control the automobile by siezing upon a unique special feature of the old city. The buildings here had been stilted up a story above ground level, because of flood danger in the early days, and the space had been filled in after a levee was constructed; but Neutra and Alexander proposed to dip into the low centers of



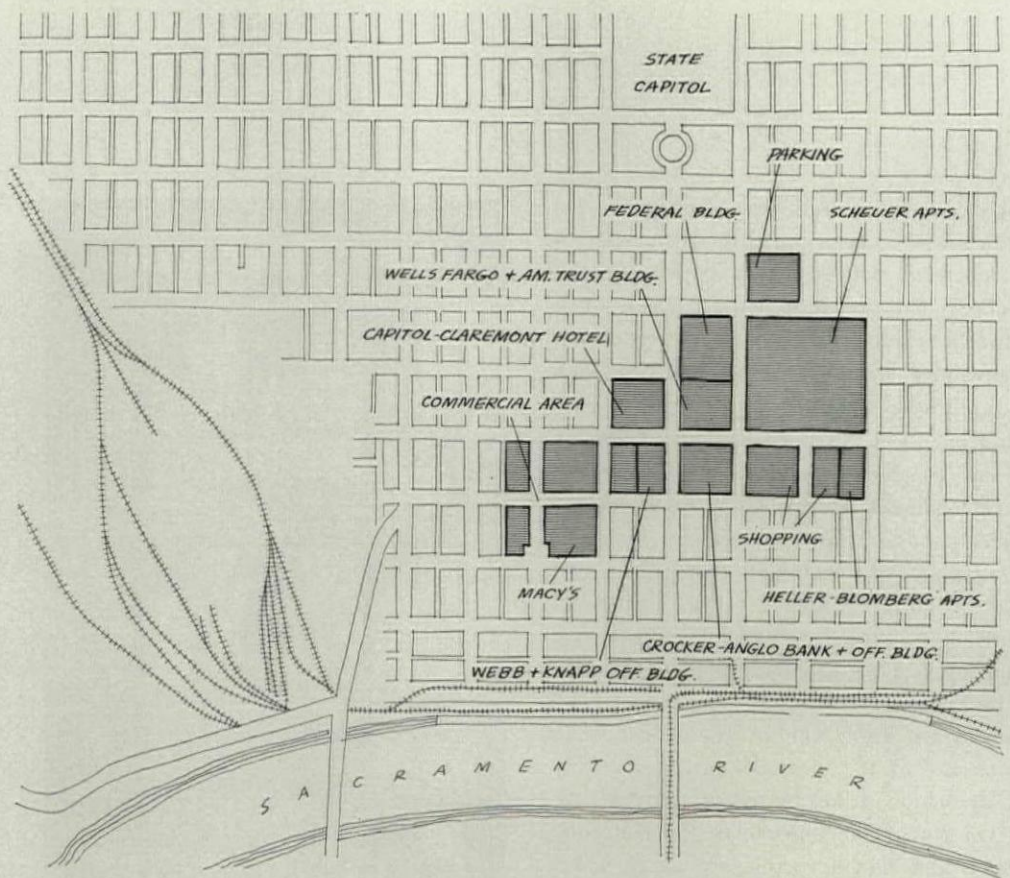
the blocks with ramps, and use them for parking and easy access for shoppers. The particular feasibility of the Neutra-Alexander plan was that it could be carried out in reasonable stages, block by block if necessary, following the existing grid of streets. For a start an irregular 15-block section adjoining the governmental complex and central business district—the healthiest side of the West End—was selected for renewal.

Blind conservatives and red tape

There seemed to be clear sailing ahead. Carried forward on the wave of postwar prosperity, buoyed by a swelling population, ballasted by the promise of a \$364,000 grant from the HHFA, and captained by an exceptionally able (and autonomous) redevelopment agency, Sacramento pushed off bravely on the unpredictable sea of urban renewal. But like so many other enterprising communities which set out at the same time, especially in California where the state redevelopment law is cumbersome, Sacramento found itself alternately becalmed and blown off course during the fifties.

The city's difficulties are worth examining because of the lessons they afford. From the outset many conservative burghers grumbled, and some remain unreconciled. Others, like City Councilman Jack Shelby, who with his father had been a recalcitrant landowner in the Capitol Mall area, have changed their minds. Last spring Shelby declared: "I had a big blind spot. I never thought it was bad for the community, but I could not see the opportunities it had for me. . . . My father is taking part now, and it is one of the finest things that could have happened to him. I have been on both sides, and I know."

Yet conservative opposition was the main reason that the agency moved so cautiously that the project was not put to the voters until 1954, when it hit a snag. Only 58 per cent of the electorate approved an issue of general obligation bonds which required a two-thirds majority for passage. Thanks to the cooperation of the *Bee*, one of the nation's few great provincial newspapers, which has zealously supported redevelopment from the start, an ingenious al-



Capitol Mall pilot area, a 15-block stretch of blight between the Capitol and the Sacramento River, has as its main residential feature a grouping of towers and low-rise apartments (model photo below) which were designed by a group of distinguished architects (see opposite page) for Developer Scheuer but which have been considerably

altered by four years' official delay (bottom photo). The commercial blocks, which extend northward across Capitol Avenue (see project plan, above), are being developed by a number of local interests and by Webb & Knapp. But the key economic element in the project, Macy's, was secured only by the energies of the local redevelopment agency.



ternative method of financing was then promoted and adopted: a tax-allocation bond issue whereby increased revenues (estimated at 400 to 500 per cent) resulting from improvement of the area would be set aside by the city to liquidate the debt. Still another year was lost by this delay, however, and not until the spring of 1956 were a \$8,577,420 loan and a capital grant of \$3,577,420 approved by HHFA.

Under the astute leadership of Agency Director Joseph T. Bill, a first-rate administrator with a background in both planning and landscape architecture, land acquisition now proceeded with success most cities can envy. Only 3 per cent of the purchases were protested; new homes were readily found for those relocated even though many of the dispossessed belonged to non-white minorities.

At the same time the agency selected developers, and found that it was compelled to seek beyond Sacramento for interested parties. Local financiers and real estate men at that time simply could not be convinced of the advantages of the scheme. But out-of-towners such as Herbert Greenwald of Chicago needed no persuasion. He offered to develop the entire 15-block area, and in turning him down, the agency made a decision which perhaps was an error in view of the brilliance of his subsequent projects in Detroit and Newark, N. J.

Instead, the agency awarded a four-block commercial area on the north of Capitol Avenue to William Zeckendorf (see area plan, opposite page) and a similar parcel for residential development on the south to his fellow New Yorkers, James H. Scheuer and Roger Stevens (later Stevens withdrew because of heavy commitments elsewhere). The remaining seven blocks, except for the Federal Building site, were reserved for individual developers, especially former landowners from the area, who might wish to invest in redevelopment after all. Scheuer promptly produced an architectural design of great distinction by a group of nationally known offices: Edward Larrabee Barnes; Wurster, Bernardi & Emmons; and DeMars & Reay. It called for three 15-story towers, adroitly placed in the midst of staggered lines of low-rise

apartments, which will provide urban intimacy in their courtlike dispositions, but which have been left open to breezeways that should be particularly welcome in the Sacramento summer.

Scheuer, however, had not yet reckoned with the Sacramento office of the FHA. It compelled Scheuer to provide working drawings for his low-rise units, for example, before he could receive a commitment, even though "preliminaries" are sufficient in most cities. To add to his difficulties, he was required by the agency to provide first-class housing which would be competitive with structures erected free of governmental restrictions in other parts of the city. In the meantime, local critics caustically observed, a new federal housing bill with provisions more favorable to developers had been passed, but Sacramento was still without its buildings.

Even now, although the low-rise apartments are finally being built, they scarcely appear to be the elegant units depicted in the architectural renderings. Structural costs have been cut to the conservative FHA appraisal (yet the rental schedule remains high: efficiency, \$104; one bedroom, \$138; two bedrooms, \$168); and thrift has brought about the installation of such things as clumsy concrete-block fire walls, marring the original design. At this late date, too, Scheuer has not yet submitted designs for the towers to the FHA.

Macy's moves in

If Scheuer has had difficulties, the rest of the project (with the exception of the \$7 million Federal Building for which ground was broken on schedule in 1959) has been beset with delays and problems of no less a magnitude. In part these delays may be due to excessive changes in agency personnel.

As its third director in three years, the city at last has former real estate man Jerome P. Lipp working for it in the way a devoted real estate agent might act for a fine private client. He has sought out corporations and institutions as likely customers, and has come up with two of the most prominent names in western banking, Crocker-Anglo and Wells Fargo-American Trust, to set up regional offices on Capitol Mall.

His greatest coup, however, has come

in the commercial area, where the Zeckendorf organization, badgered by titanic troubles elsewhere, has been bogged down for four years. Webb & Knapp's main difficulty—and once again a Sacramentan problem finds analogies in other cities—was inducing a major department store to set up in the redevelopment area, and so to act as bellwether for other merchants who would not take part in the project without such a magnet. Macy's—an ideal prospect—was interested, but Webb & Knapp complained to the city that as developer it could not profitably provide all the parking necessary for so large a store. The quandary was solved by Webb & Knapp's return of one block to the agency, which thereupon dealt with Macy's directly, and last June Lipp landed the prize. In exchange for guaranteed freeway access and parking, and for a very reasonable land price of \$427,500 (land, of course, could have been obtained free in a suburban shopping center), Macy's agreed to go ahead with a \$7 million store.

Sacramento, understandably enough, was jubilant, for with this obstacle surmounted, the rest of the project can take shape quickly.

The odds for architecture

How good will it be? Lewis Mumford once remarked that each community gets the architecture it deserves, and Sacramento would seem to be no exception. The city's inexperience in redevelopment, the heavy pressures to which it has been subjected, and the haste with which it has tried, but failed, to bring the project to completion in a decade, are all reflected in this pioneer undertaking. Certainly Sacramento will not achieve in this first phase of redevelopment anything like the resplendent vision offered by Neutra and Alexander ten years ago.

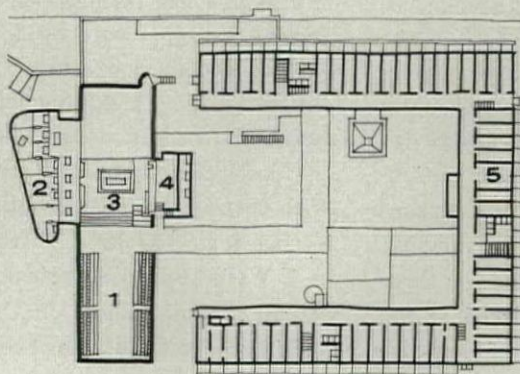
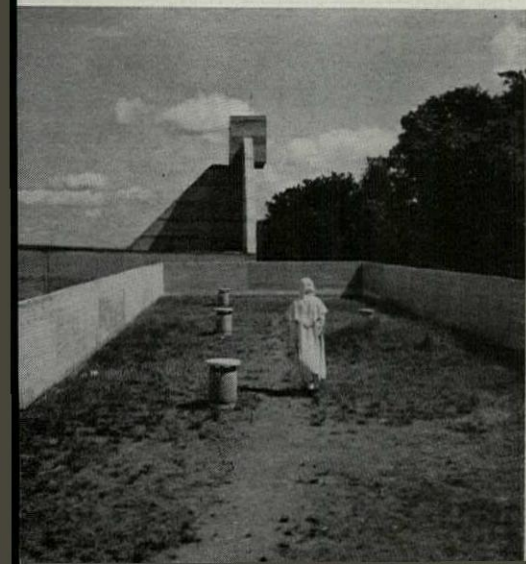
Some serious errors have been made. Although FORUM, in an early glance at Sacramento in 1954, reported favorably that the city had decided not to confine the entire area to a single developer—and perhaps rightly so, for redevelopment at that time was suffering badly from large-scale "projectitis"—one may nevertheless fairly ask today, in the light of the experience at Capitol Mall, whether some sort of over-all architec-

continued on page 194

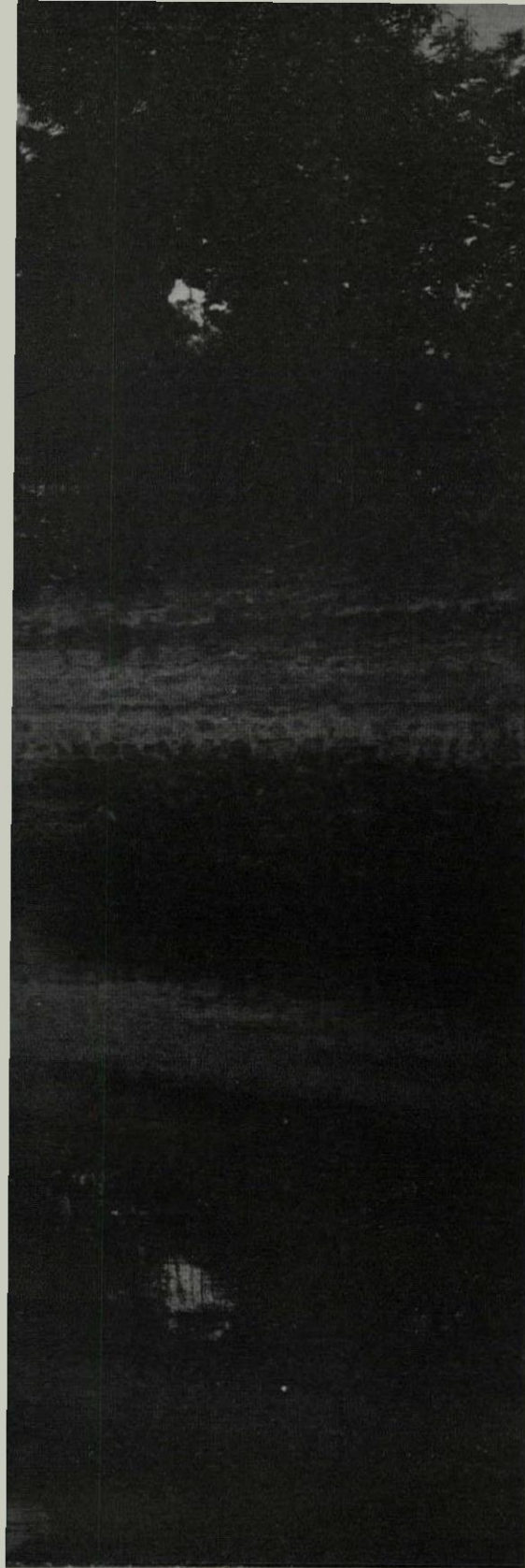


"Le Corbusier constructs the celebrated ruins of the fortieth century," a French newspaper predicted. Above, view from the north.

Roof of the monastery is grassed . . .



- 1. Church
- 2. Chapel
- 3. Altar
- 4. Sacristy
- 5. Cells



Fortress of faith

After first espying Le Couvent* Sainte Marie de la Tourette from afar, high on a hillside over the rolling country of central France, the visitor then loses sight of it as he approaches closer, his view blocked by land shapes and other rural buildings. Le Corbusier has used the countryside as an anteroom for his latest architectural show. Then suddenly the visitor comes upon the strong concrete shape, and it is overwhelming.

What is more, the amazement lasts when the visitor enters. The Swiss architectural genius, as he has added years, has perfected his ability to preserve the sweep, freedom, and fluidity of an intuitive sketch on tracing paper even in as large a building as this. As in his Ronchamp chapel he has again turned this ability to the use of the church, on a budget so low that the building came within the limits of low-cost French housing, enabling the Dominicans to obtain a cheap government loan. The total cost of the massive structure is well within half a million dollars. It is roughly finished in a way that connotes austerity without bleakness, strength without smugness.

Yet, in design, it is also a rather impatient building, a collection of departures rather than a serene whole. In composing it Le Corbusier played strong themes in opposition. He trusted two qualities to control the overall building, to keep it tense: its great weight, and its slightly precarious balance on the steep site. More than that he, of course, trusted his instinct for a kind of architecture which permits this kind of improvisation within a central idea.

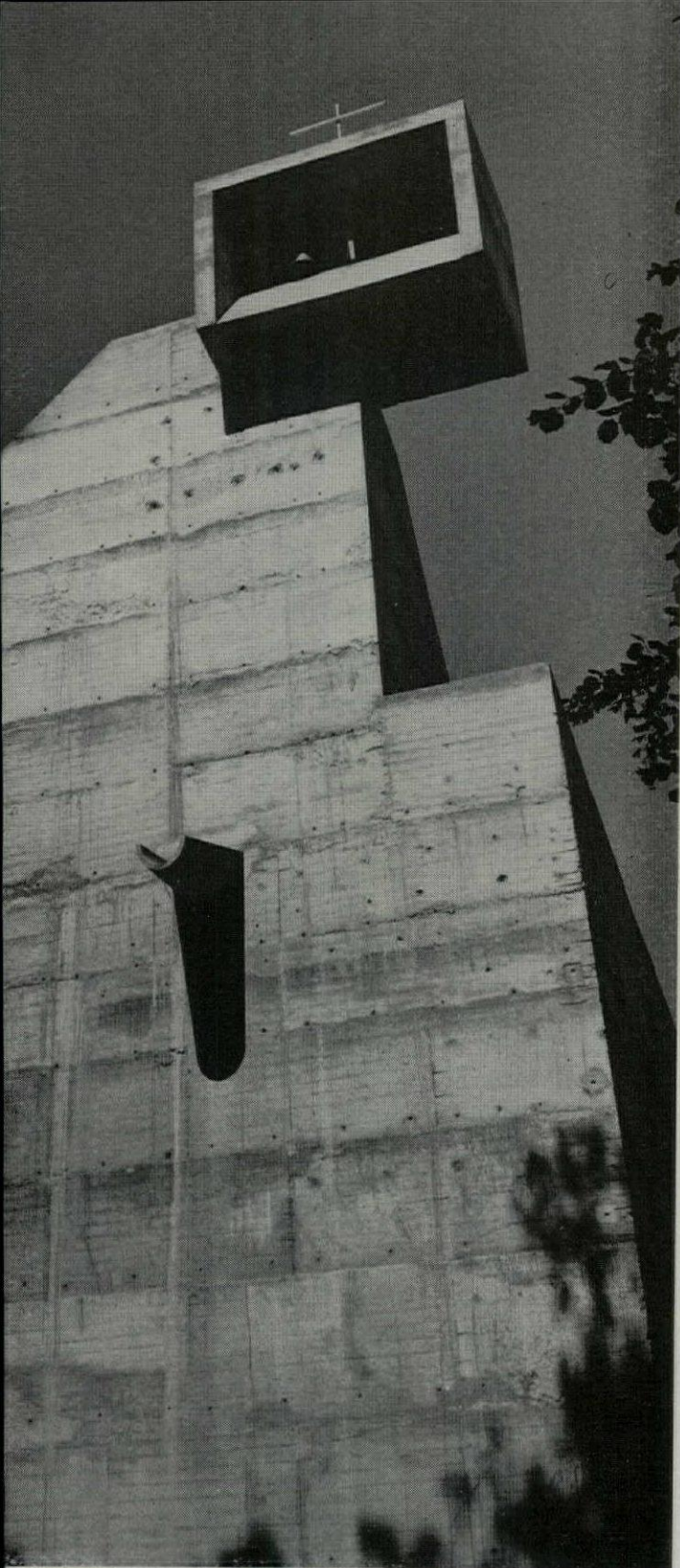
The monks' dwelling is set into the countryside, with many long views over beautiful farmland, but these vistas deliberately are kept out of sight in places where the monks are expected to meditate within themselves. An example: the architect provided a terrace, now grass seeded in the local fashion, atop the outer walls, and planned at first to make this the monastery's cloister, outdoors, "magnificent . . . beautiful because you don't see it." But then he worried: "If I put the cloister up there it will be so beautiful that the monks will use it for an escape which may prove perilous to their religious life." So he enclosed the terrace with a high parapet (bottom photograph, opposite) so that over it a monk who fits into the dimensions of Le Corbusier's famous *Modulor* system of proportions can see only the strip of land off below the horizon. The Dominicans call their new home the "Corbusiere," and it is a building, by all reports, worthy of an architectural pilgrimage.

PHOTO: PARIS-MATCH; (OTHERS) JEAN MARQUIS

... and the near view is screened by a parapet.

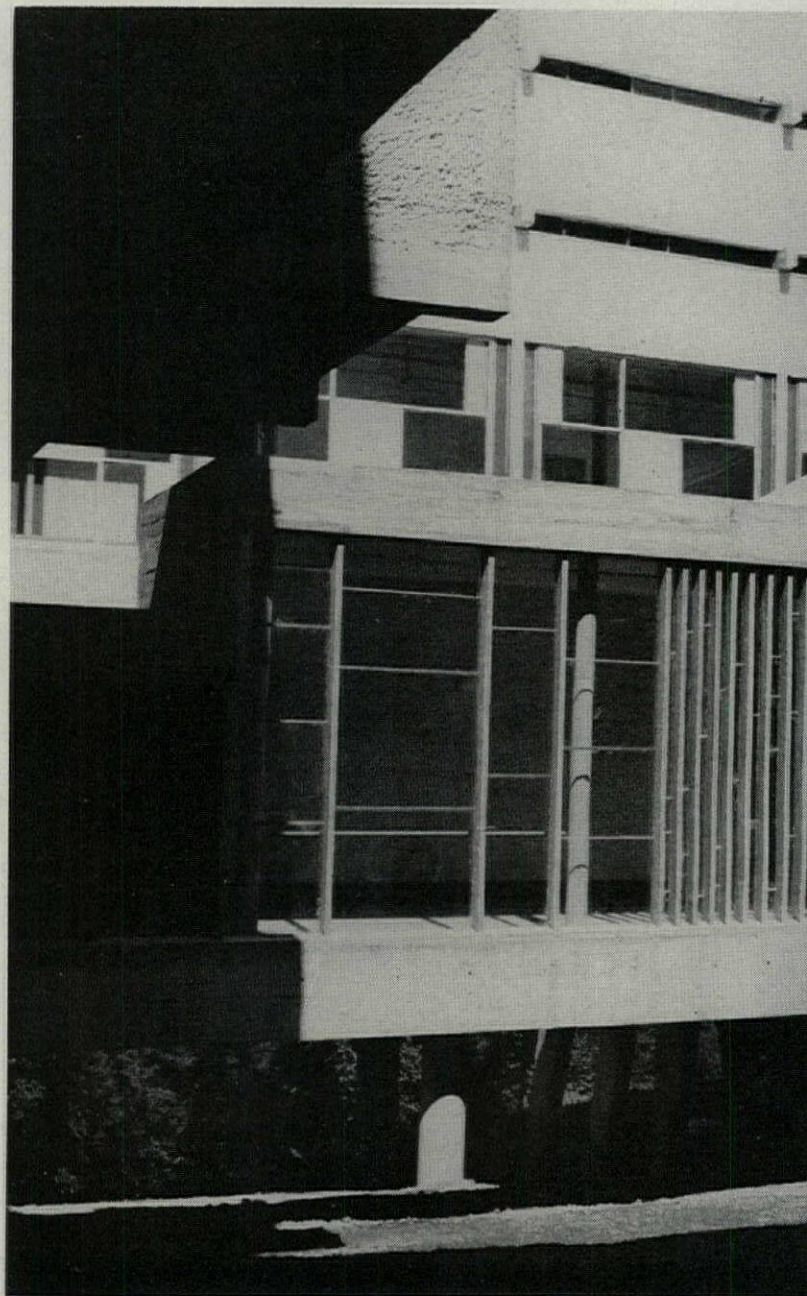
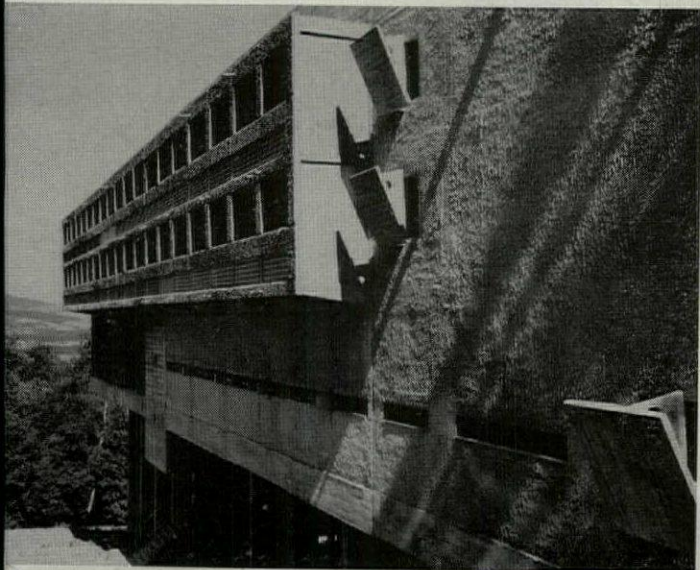


*The French word "couvent" can refer to a monastery, as it does here.



Bell tower is a concrete box jutting from a slab.

Balconies for monk's cells project from the façade.

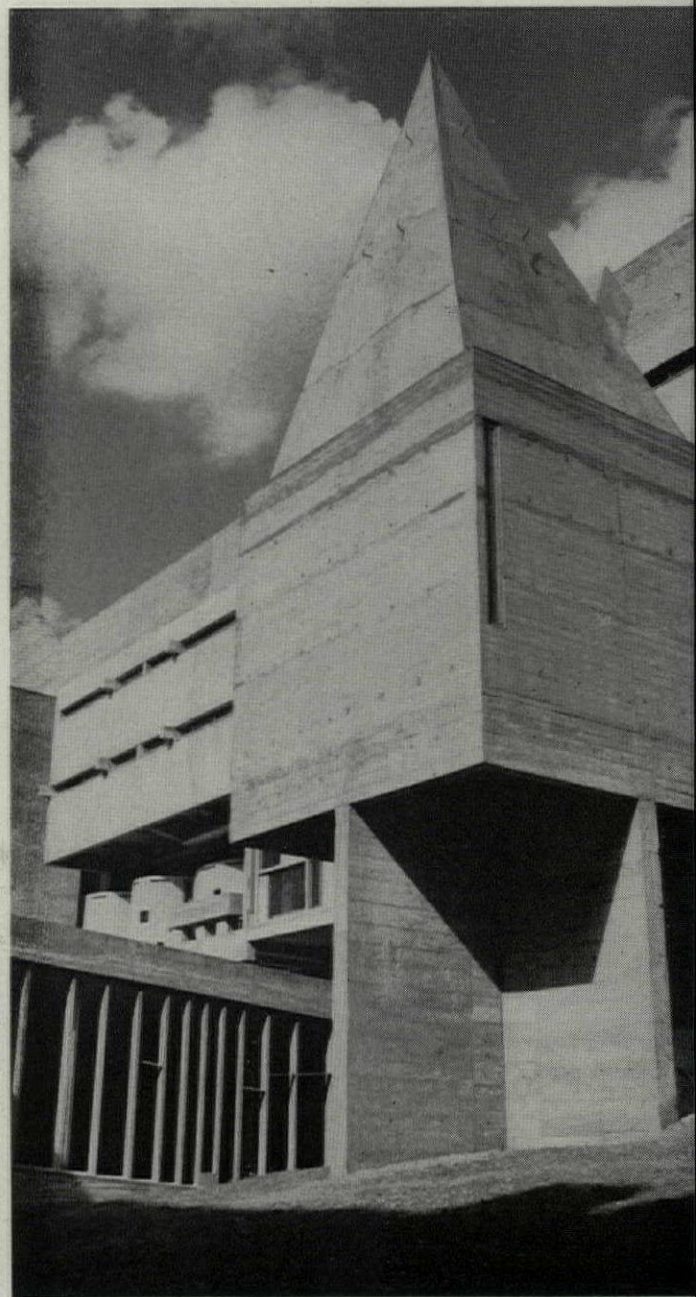


Glass walls are framed in a syncopated composition of concrete verticals.



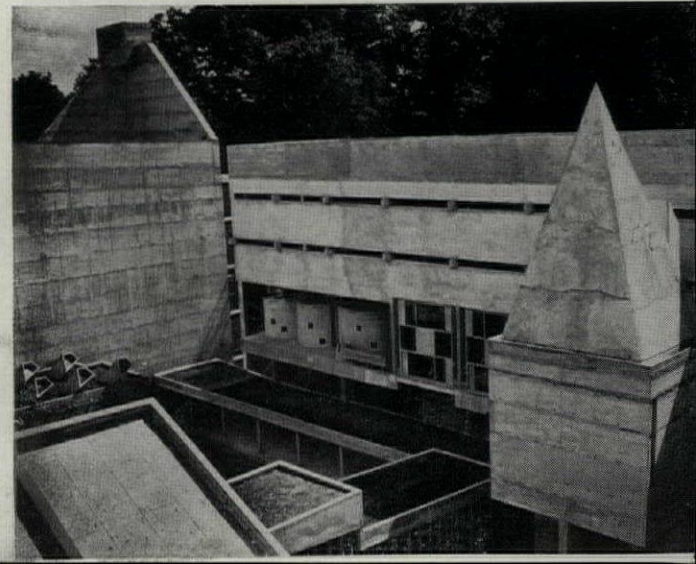
PHOTOS: JEAN MARQUIS; PARIS-MATCH

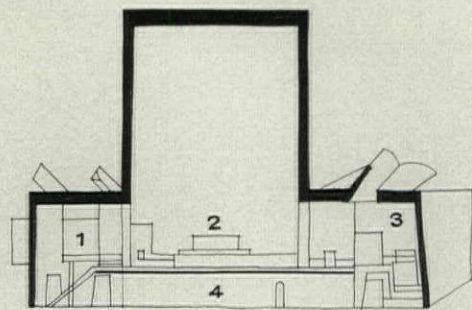
Interior court—a dynamic jumble of shapes.



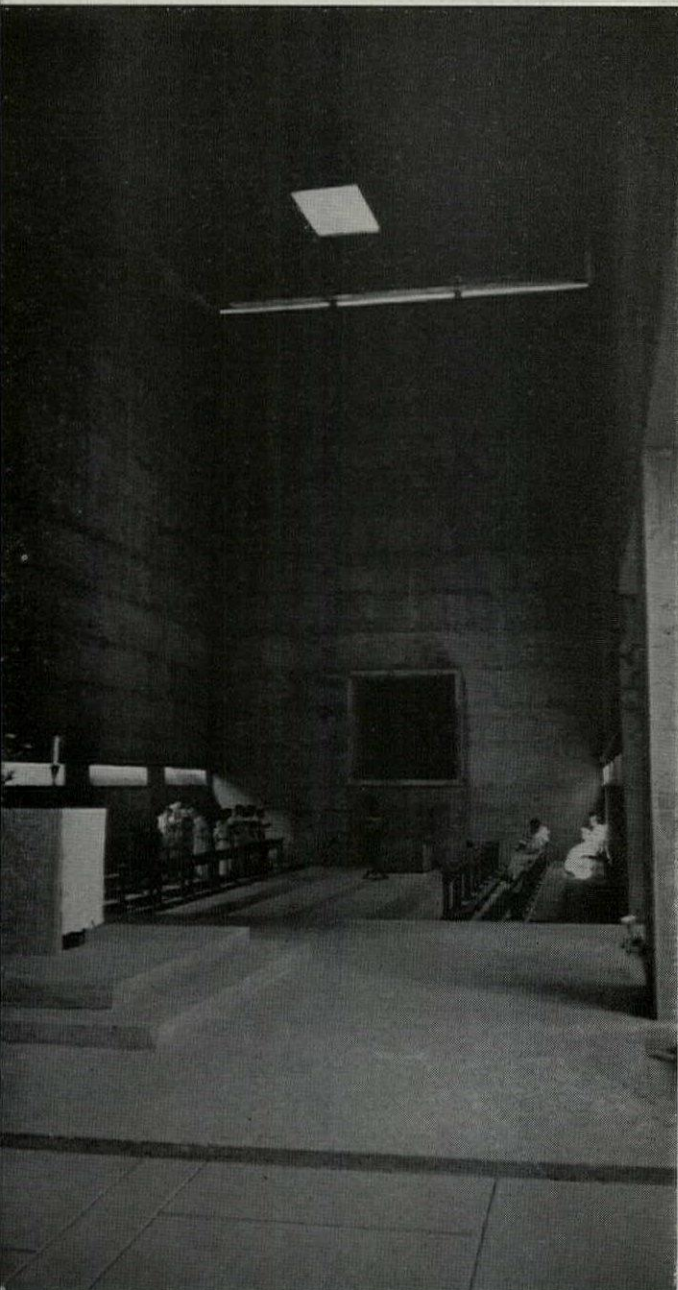
Student monks' oratory: a pyramid atop a cube.

Three cylinders mark the monastery's entrance.



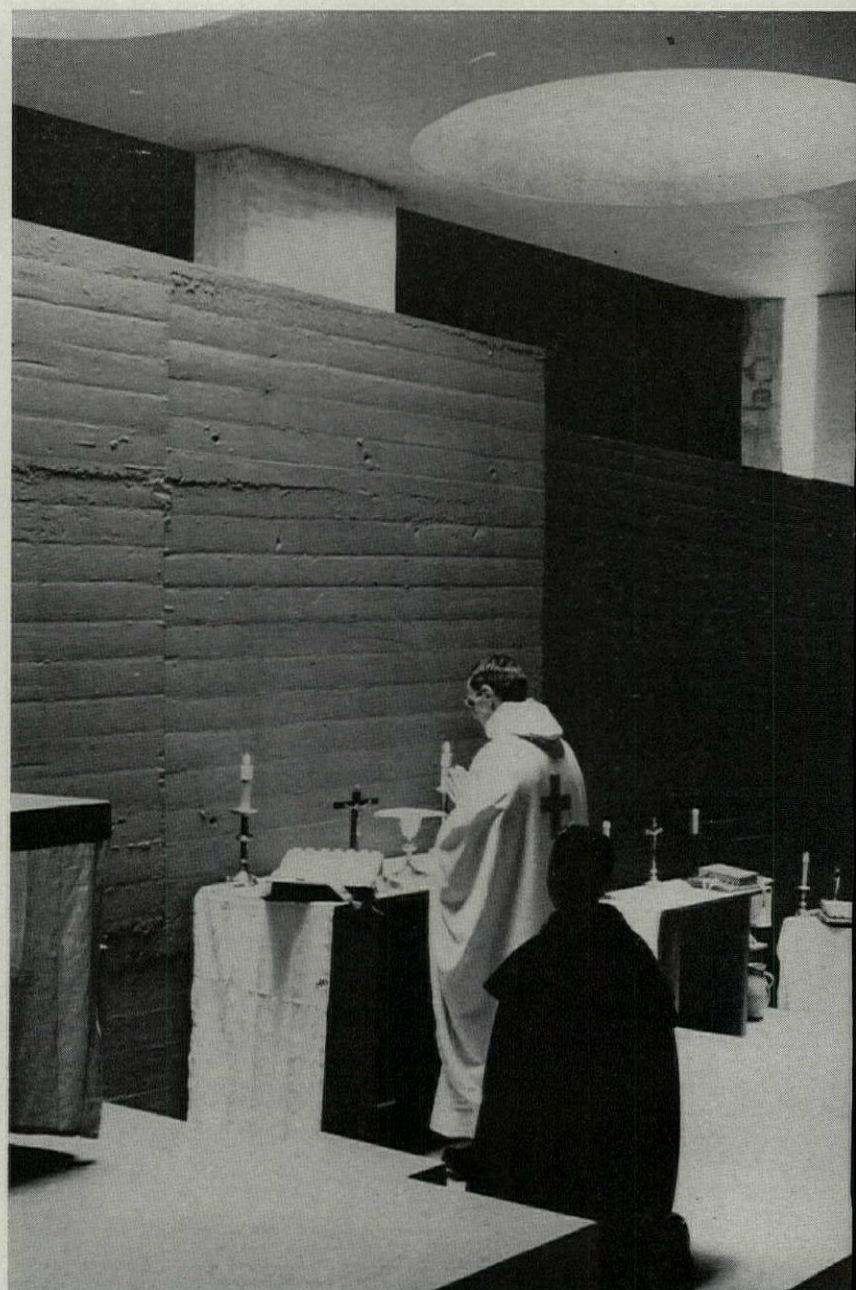


- 1. Sacristy
- 2. Church
- 3. Chapel
- 4. Passage under



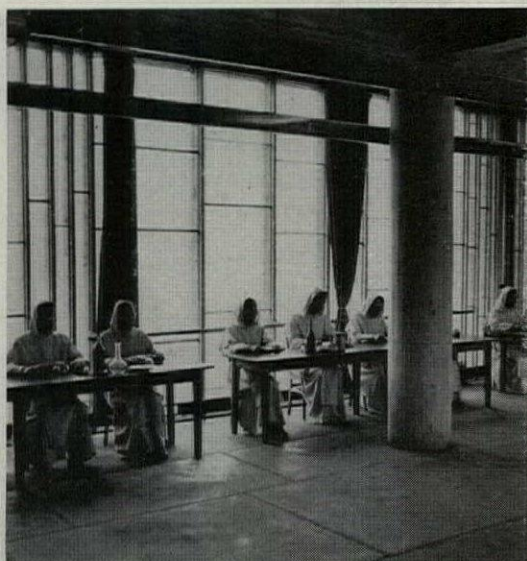
PHOTOS: (LEFT) JEAN MARQUIS; (OTHERS) PARIS-MATCH

Nave of church, with altar in foreground.

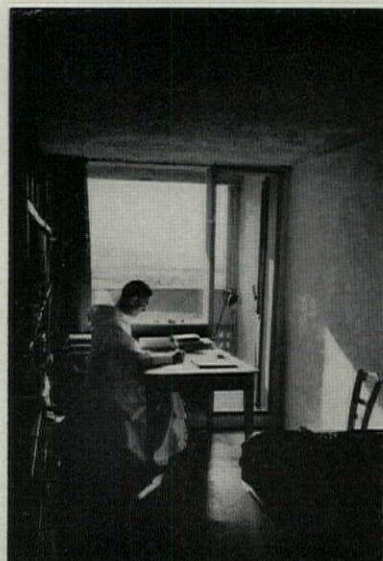


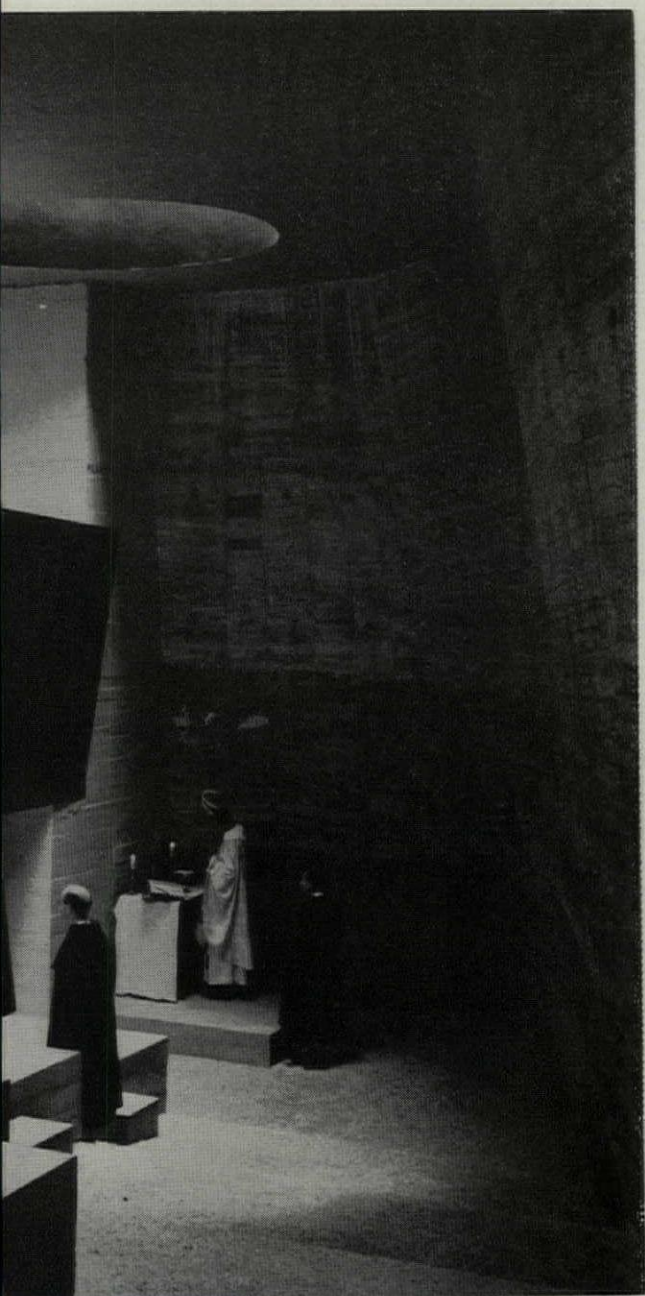
Chapel's blue ceiling is pierced by three huge "light cannons" which project

Monks dine in the glass-walled hall.

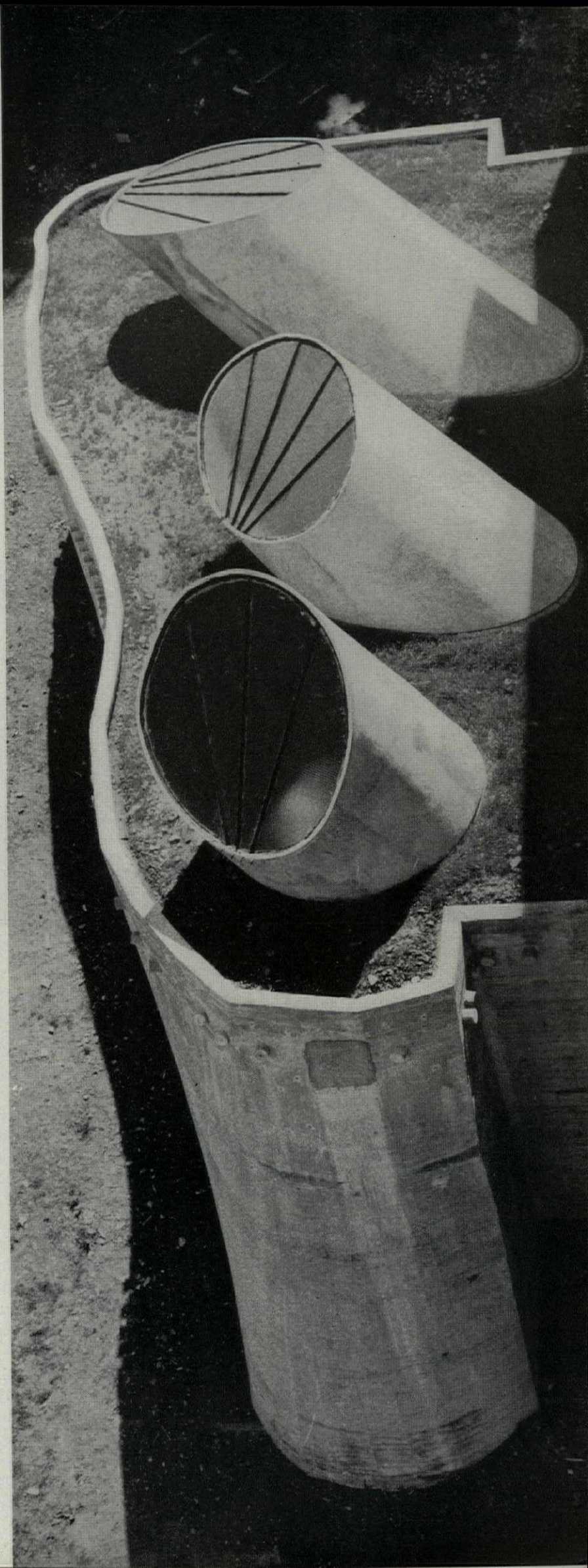


Cells are long, narrow, stark.

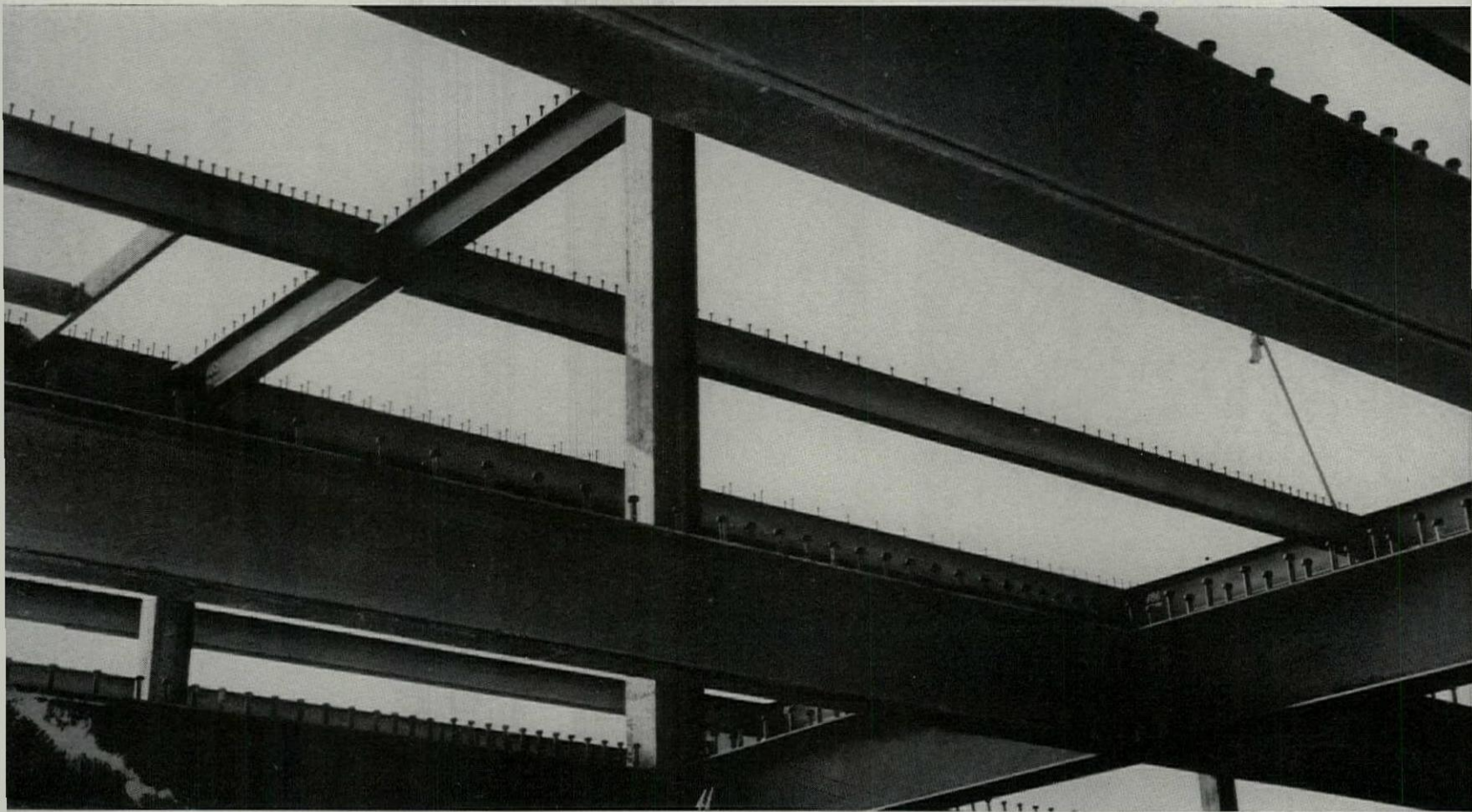




through the roof (right).



The economy of composite design



Making slab and beam work together, this relatively new construction technique saves materials, space, and money.

Composite design is the construction technique, now gaining wider acceptance in building, which makes concrete slabs work as integral parts of supporting beams. By linking slabs and beams together—the substance of the technique—the stiffness and ultimate capacity of a structure is considerably increased: the structure becomes monolithic, its slabs deforming along with the beams. Just in the past few months, composite design has been applied in

buildings of widely different types, illustrating some of the reasons for its growing use:

▶ A two-story manufacturing plant in Grand Rapids (photo, right), with some 600,000 square feet of floor space: a steel saving of 25 per cent was realized because of the efficiency of composite design.

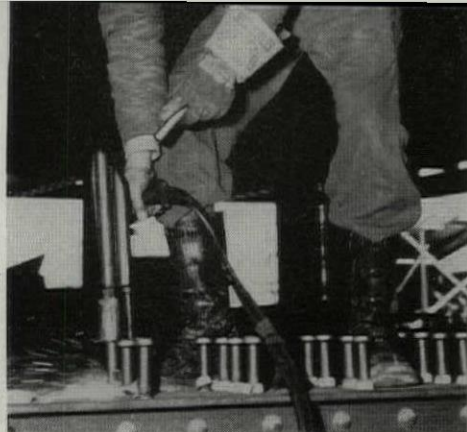
▶ A million-dollar addition to Princeton University's Guyot Hall (photo above): with composite design, the building's steel requirement was 230 tons (versus 350 tons if designed conventionally). This represented a steel-work cost saving of 20 per cent.

▶ Detroit's Cobo Hall (right, above, and page 98) which uses composite con-

struction in about one-third of its 400,000 square feet of exhibition space: composite design reduced the deflection normally expected from beam-and-slab construction, and yielded steel tonnage savings. Conventional design would have required a 25 per cent increase in the weight of some girder beams.

Although for short spans and moderate loading, conventional construction is usually more economical, composite design has four advantages when spans are long and when bay framing is repetitive:

The first advantage is composite design's ability to reduce steel tonnage, usually within a range of 15 to 25 per cent. (A steel saving of less than 15



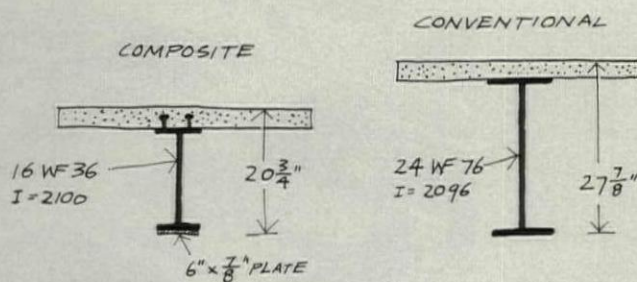
Stud connectors provide the linkage between slab and beam in most forms of composite construction. Top photo shows these boltlike connectors being welded to the top flange of a beam; photo below shows how concrete oozes around the connectors, setting up the composite action. At left, composite beams in Princeton's Guyot Hall, engineered by Seelye, Stevenson, Value & Knecht for architects O'Connor & Kilham.



per cent will usually not justify composite design strictly on a cost basis, although the added structural strength of a composite system may still justify its application.)

Shallower construction, with the shallower beams of composite design, is another advantage, producing lower exterior wall heights, shorter vertical runs for plumbing and electrical conduit, and other economies that come with reduced building cubage. It is often possible to gain an extra floor without exceeding the building height limits prescribed by zoning ordinances.

A third advantage is the ability of composite beams to span greater distances than conventional beams of equal



Basic difference between composite and conventional systems is illustrated in the sketches above: slab and beam, independent in a conventional system, are linked in composite system by a connector.



Channel-shaped connectors were used in the composite design of this huge plant for Steelcase, Inc., in Grand Rapids, designed by J. and G. Daverman Co., architects and engineers. Building uses 3,400 tons of structural steel.

depth, thus increasing the column spacing.

Design flexibility is the fourth advantage: when certain floor areas of a building must have higher load capacities, composite design can meet these requirements without affecting the rest of the structure.

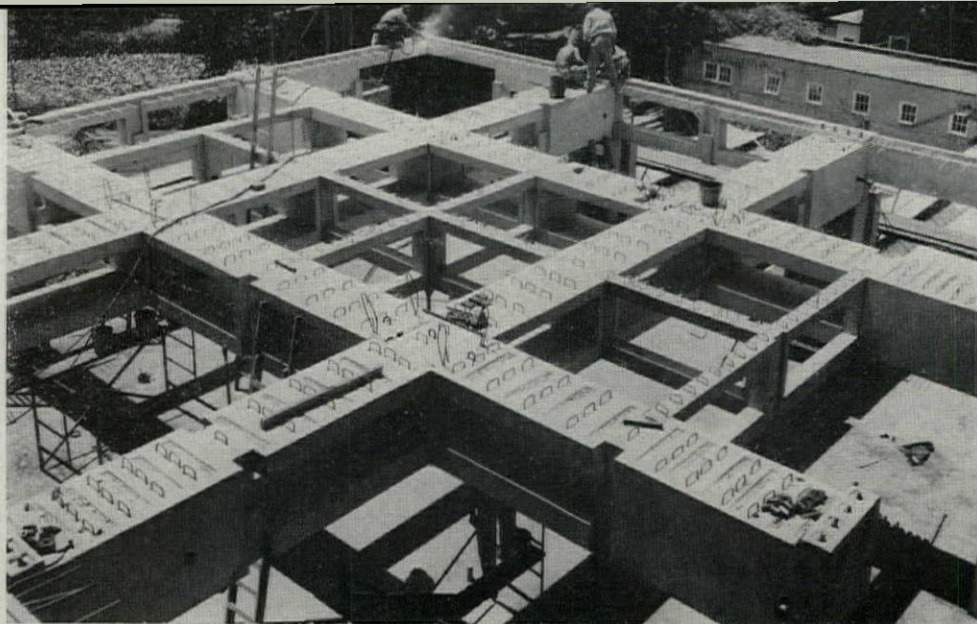
The elements

There are several ways by which a designer can integrate slab and beam and thus set up a composite action in his structure. But whatever the design approach, the structure in every case must have these three elements: a reinforced concrete slab, a beam, and a means of tying the two together and thus transferring the horizontal shear from the slab to the beam.

In most cases the beam is steel, and its linkage with the concrete slab is made with steel connectors (boltlike studs) welded to the beam's top flange. (Examples of these are shown in the photos on the preceding pages.) In many instances, the composite beam is reinforced on its bottom flange with a steel cover plate, as shown in the sketch (page 137); the reason for this is that the concrete slab acts as a heavy top cover plate: to balance the slab and to get an economical steel beam design, the bottom flange is reinforced.

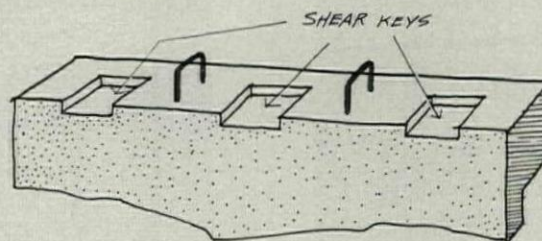
An interesting exception to this approach is Architect Louis Kahn's medical research building for the University of Pennsylvania (photo and sketch, above). Here, precast reinforced concrete beams and poured-in-place concrete slabs were linked together not by steel connectors but by the roughened surface of the beams and indentations—called shear keys—cast into those surfaces (see sketch, above). The structural engineers believe that the application of the technique and the unusual method of component assembly will enable future buildings of similar design to gain considerable cost savings over conventional precasting.

Composite design has a 20-year history in U.S. construction—mostly in bridge design—but only during the past four years has it made much headway in the building field. Several organizations have been responsible for these recent advances, including the University of Illinois and Lehigh University, which have done important research under industry sponsorship.



Unusual application of composite design is Architect Louis Kahn's medical research building for the University of Pennsylvania. Structural engineers, Keast & Hood, and structural consultant, Dr. August E. Komen-dant, designed top surfaces of the precast beams with shallow indentations (cutaway

sketch, below), so that poured floor slabs would form a monolithic structure. Indentations serve the same function as steel connectors in a steel-concrete composite system. (The steel stirrups seen here are not part of the composite system; they were used to lift the precast beams.)



A related development which should now encourage composite building design in the next few years is the work of the American Society of Civil Engineers and the American Concrete Institute. Up to now there have been no generally recognized standards for composite building design. Engineers who have used it have followed the specifications of the American Institute of Steel Construction in their choice of steel beams and connectors and the building code requirements of the American Concrete Institute in their design of reinforced concrete slabs. In another month, a joint committee of ASCE and ACI will issue recommendations for the design of composite beams in building.

One of the most experienced engineering firms in composite design is New York's Seelye, Stevenson, Value & Knecht. In fact one of the firm's partners—the late Gilbert Fish—is generally credited with first proposing its use in U.S. building after seeing European engineers using it in the thirties. This firm has used composite design in a dozen buildings, including the Federal Court House and Office Building, in Brooklyn, the largest composite building on record. It is a seven-story

courthouse and a four-story office building, joined together. The total dead load of the composite structure will be 191 pounds per square foot, versus 241 pounds for conventional construction. According to a study by two engineers—one from Seelye, Stevenson, Value & Knecht, the other from AISC—the selection of composite design in this building will result in a saving of 20 per cent in steel.

Perhaps the most encouraging fact concerning composite design is the speed with which it has won acceptance. There was a period in recent building history when new ideas about structure seldom met with enthusiasm: the attitude seemed to be that little could be done to improve the building skeleton and, moreover, the cost of the structural system was so small in relation to the total cost of the building that only vast savings in this area would yield significant savings in total cost. But the acceptance of composite design, along with the eagerness of many engineers to apply the efficient principles of plastic design to steel frame systems (FORUM, Apr. '57) indicates a healthy receptiveness to the products of a growing technology.

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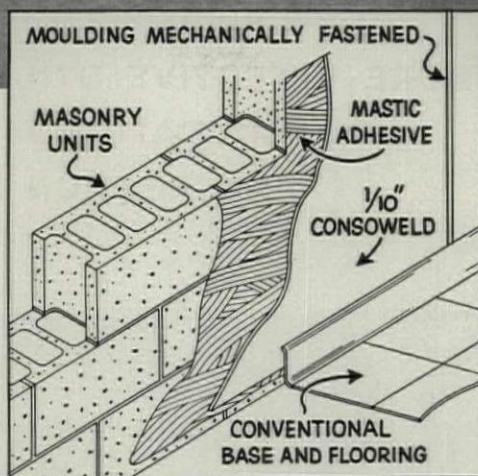
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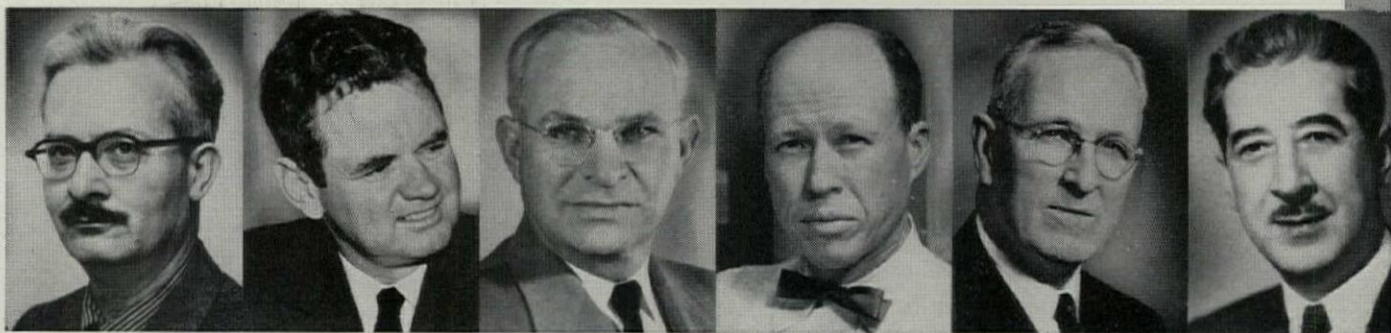
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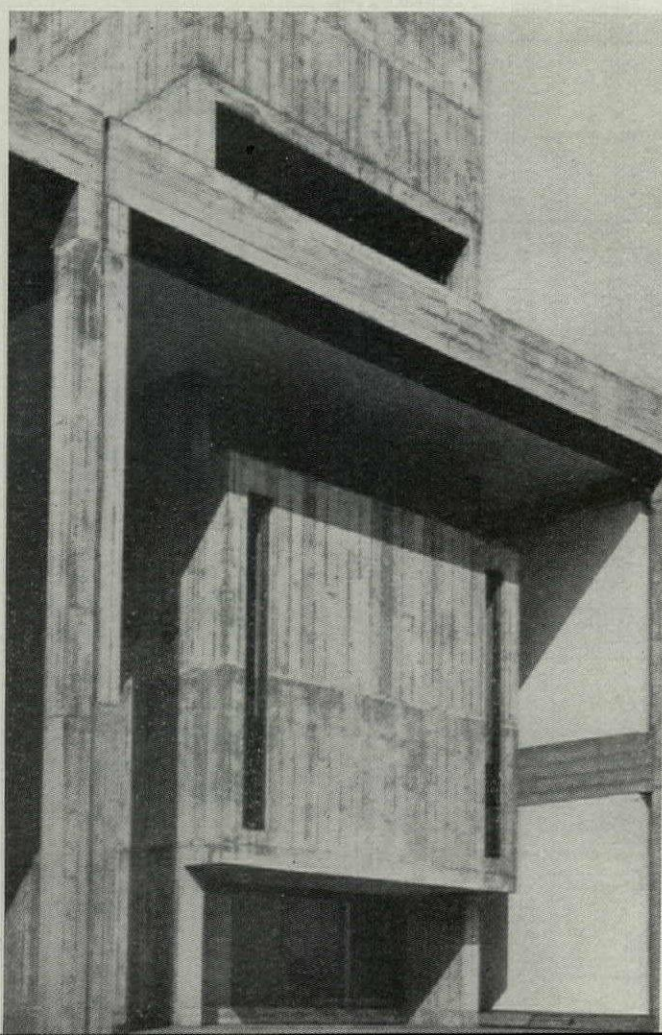
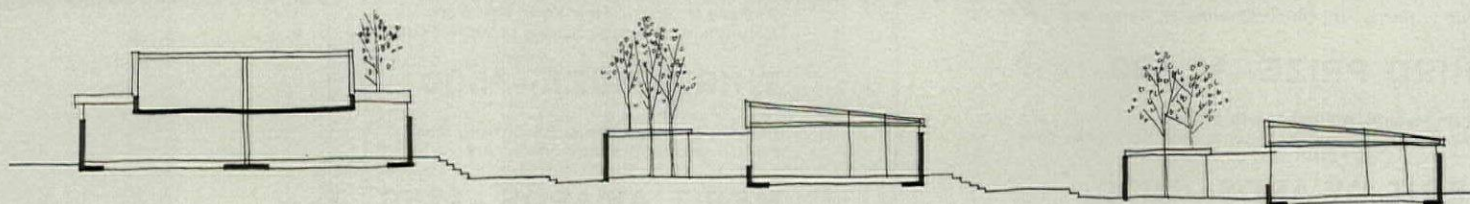
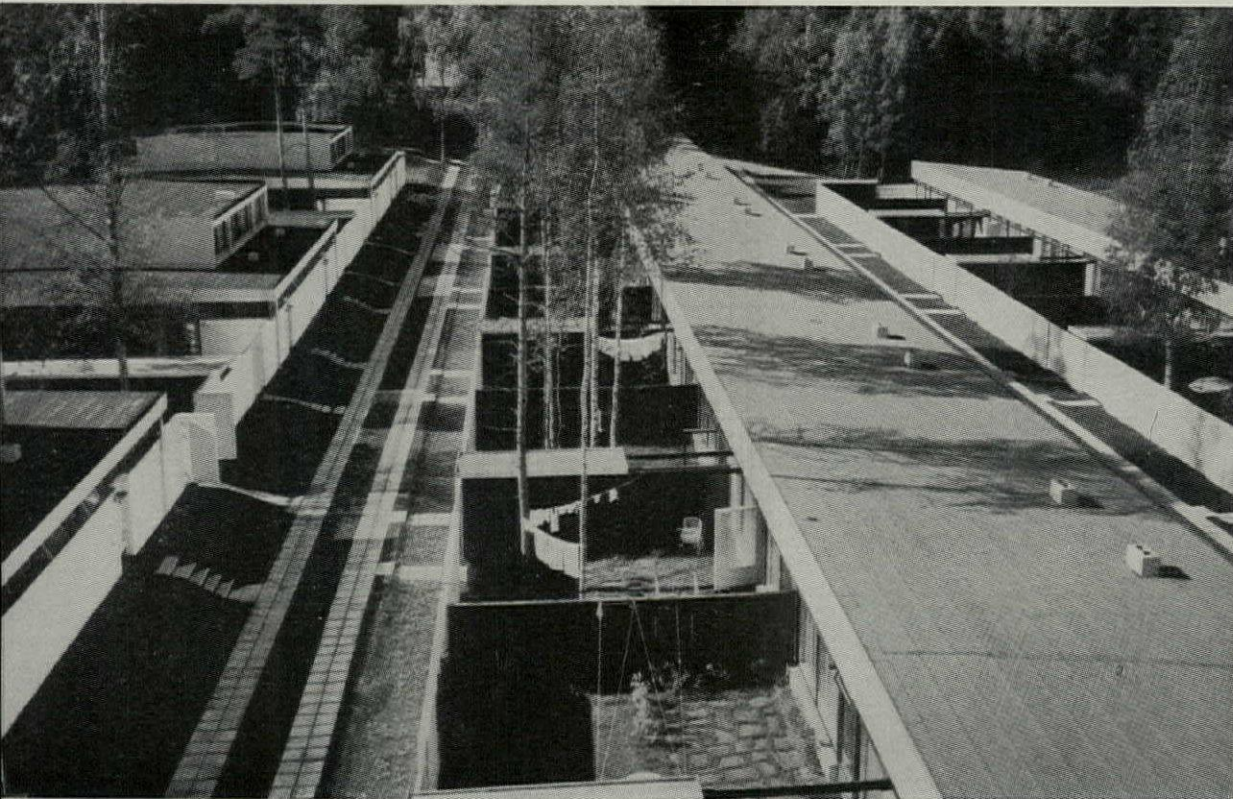
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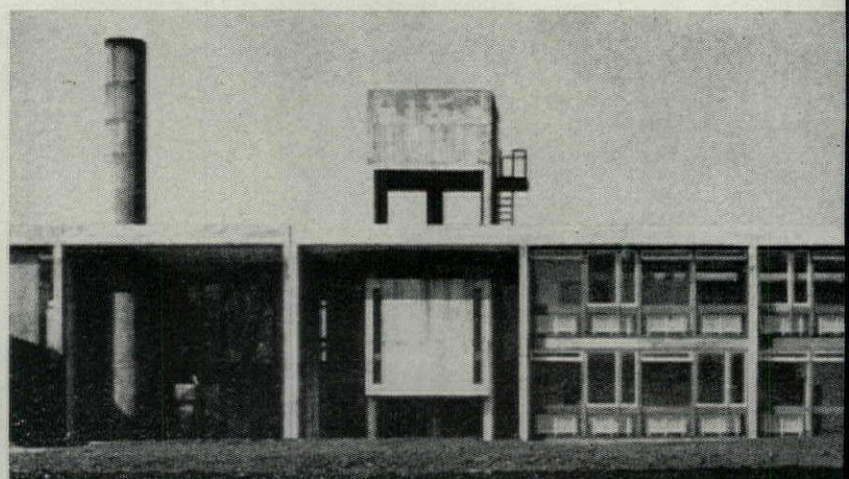
FINNISH ROWS

In Finland there are many convincing proofs of the argument that suburbanites need not live in detached villas to get privacy and to make contact with nature. One of the most convincing is in Espo, a suburb of Helsinki where Architects Toivo Korhonen and Jaakko Laapotti have designed a development of row houses. There is one row of duplex blocks (at left in photo); each block contains four dwelling units and is connected to its neighbors by side yards. Units in the two one-story rows (at right) share common walls and have commodious front yards that are screened from the paved street by walls and trees. Privacy is further assured by the gradual slope, which puts each row on its own terrace (see sketch below).

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PHOTOS: COURTESY "ARCHITECTURAL DESIGN"



SHROPSHIRE GIRL

At first glance this seemingly unfinished secondary school for girls in Shropshire by Architects Lyons, Israel & Ellis seems more appropriate to the training of off-beat musicians than to that of young ladies. That impression results not only from the roughness of its exposed concrete structure but also from the strange syncopa-

tions of its rhythm (the mul-
lions of the classroom windows
—at right in photo above—
beat 8:5:3 against the basic
tempo of the structure). Even
parents who know that jazz is
disciplined may be disturbed
that the school's main visual
elements are the water tank,
the staircase beneath it (photo
at left), and the heating stack.



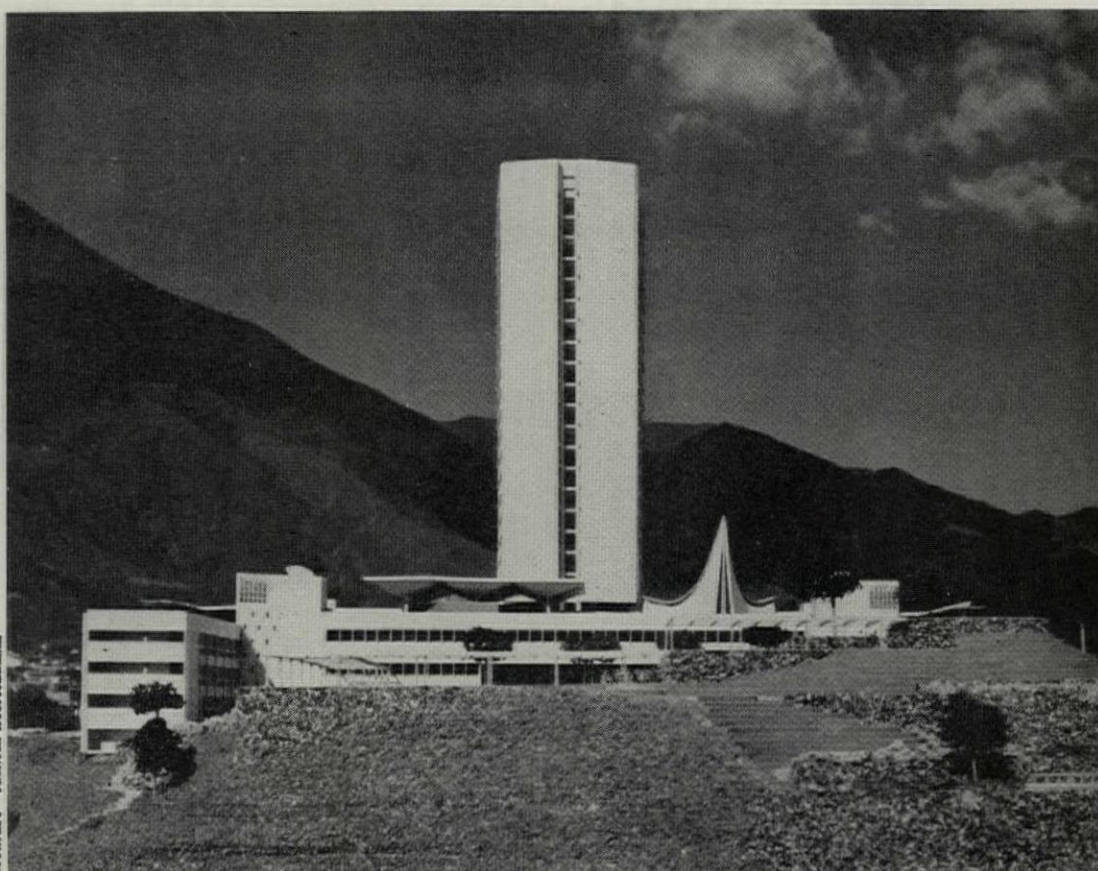
JAPANESE CLUB

A country club, almost by definition, is a bar with a view and a locker room. No exception, the Keiyo International Country Club near Tokyo expresses these fundamental elements in brutal, even bellicose terms. Its bar is contained in a straddled-legged, swept-roof pavilion that stands above an entrance lobby (photo); its locker rooms are in an adjoining two-level wing. The struc-

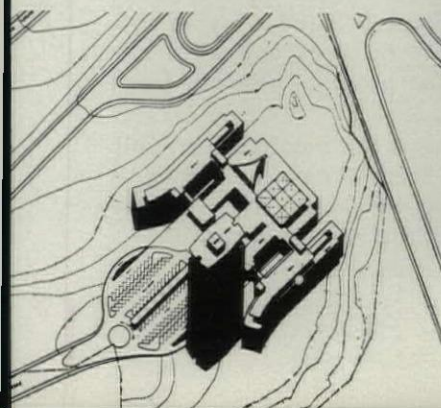
ture of both the main roof and the various floors consists of a concrete grid-girder system which is generally left exposed. The locker wing, with its thick stone wall and slit windows rising from a surrounding moat (photo at left), looks formidable enough to intimidate visiting teams. Architects of the club were the design section of the Taisei Construction Co.

CARACAS MODES

Poised on a hill above Caracas, a 205-bed hospital is being built that manages to combine good hospital planning with a conglomeration of popular architectural styles. On the roof of the horizontal service link connecting the maternity and the general hospital wings is a tentlike chapel and a garden lounge roofed by hyperbolic paraboloids. The tower for doctor's offices is lozenge-shaped in the latest mode. Brazilian Landscaper Robert Burle-Marx is to do the gardens of the hospital, which has been designed by Architects Ernesto Yuenmayor Nava and Manuel Sayago.

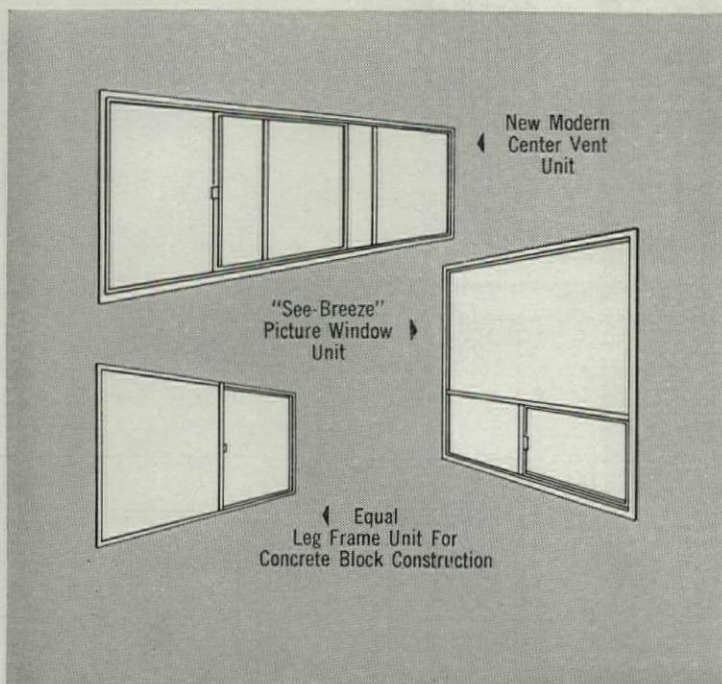


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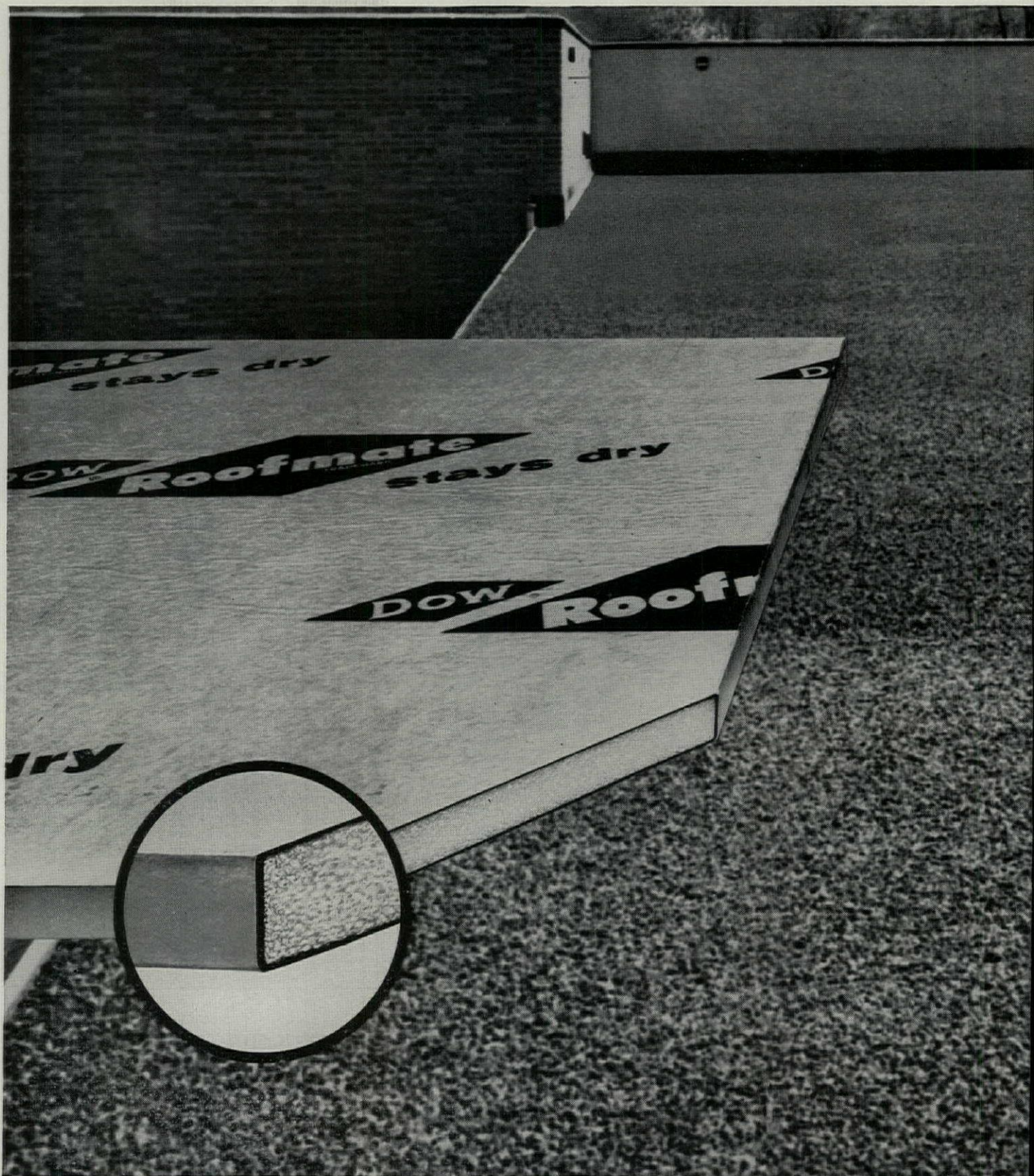
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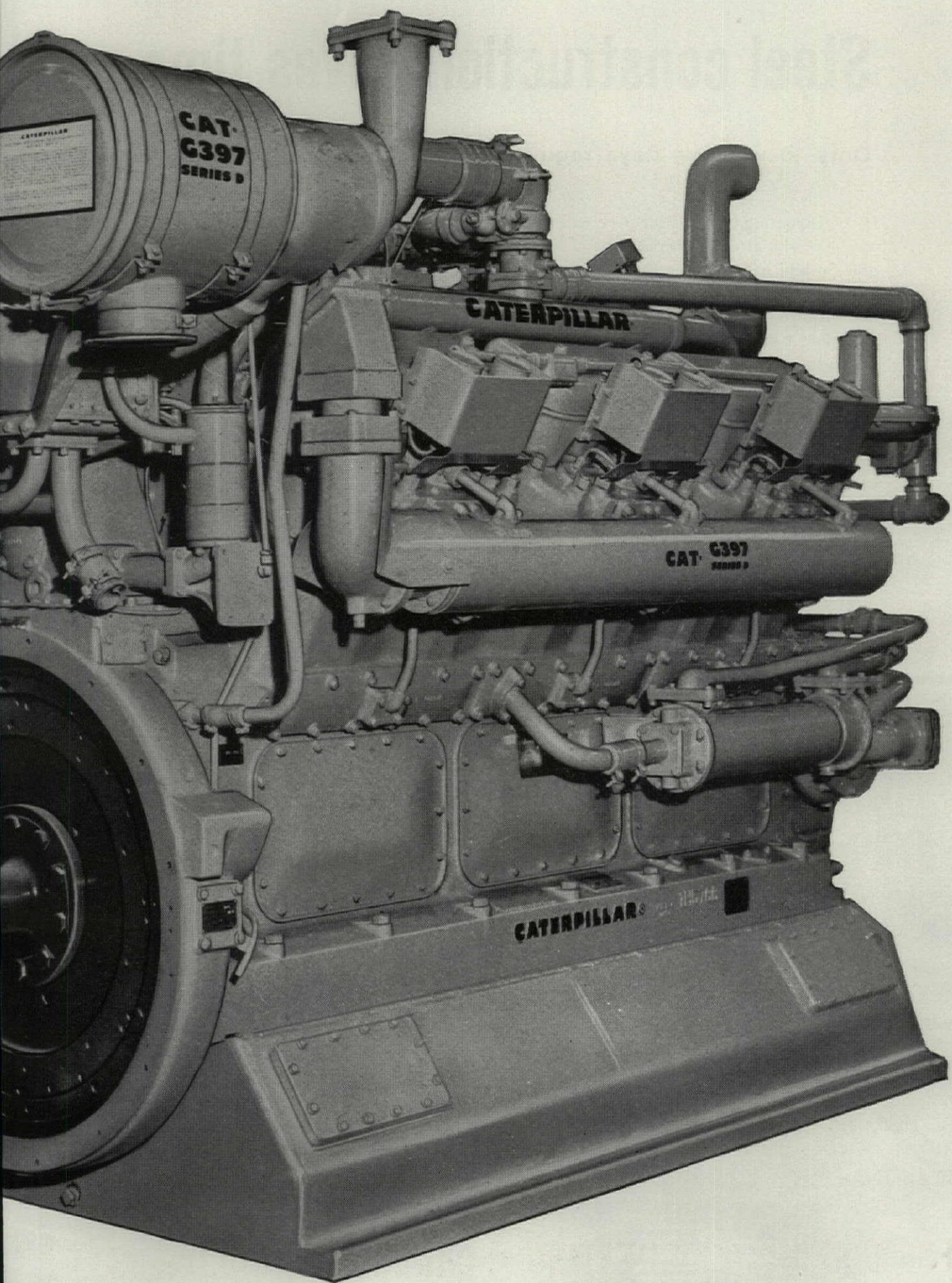
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By constructing this 700-car parking facility of steel, Washington University, St. Louis, was able to add a floor after the first three floors were completed. Also, the steel framing will allow the structure to be converted to other uses if such need should develop.

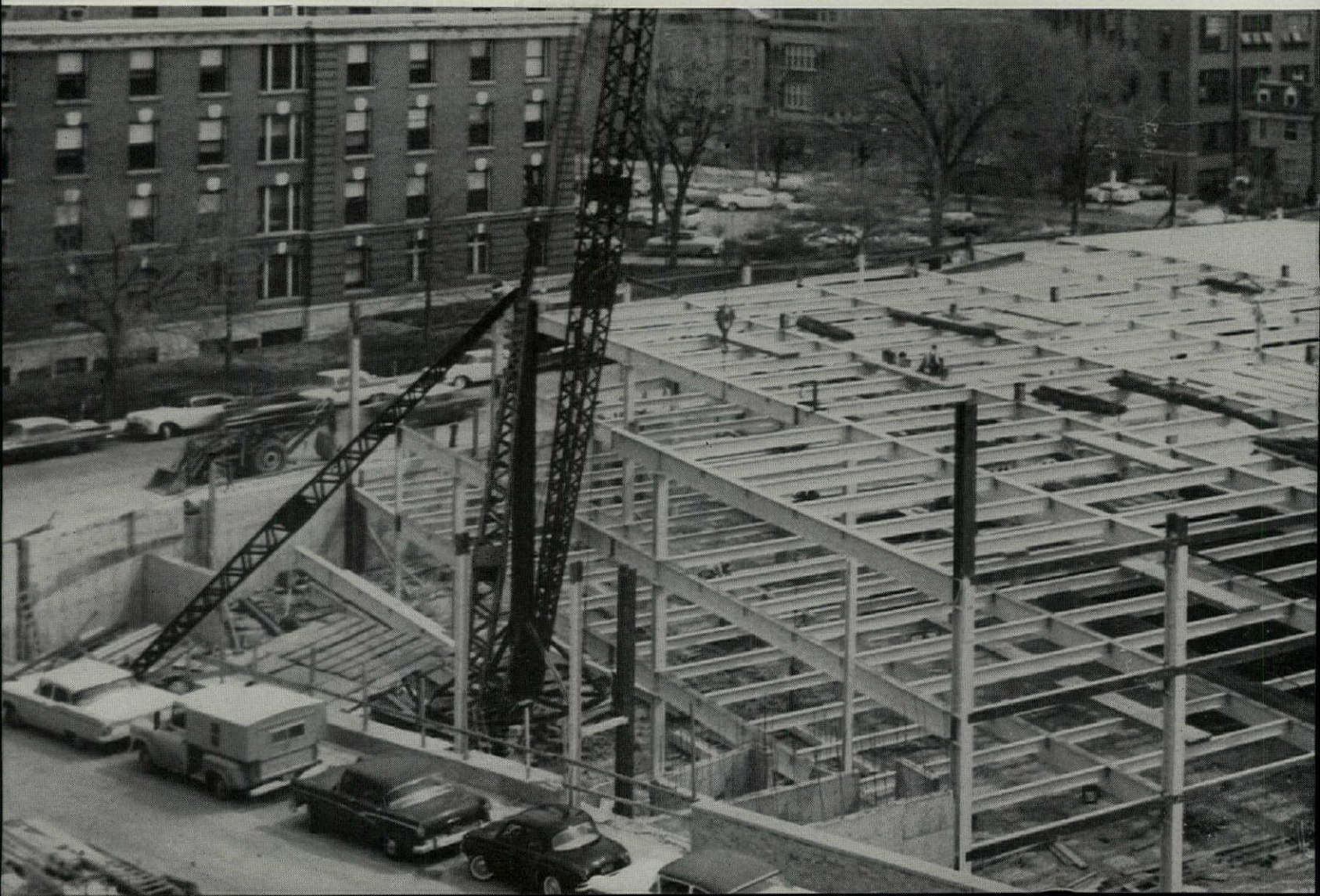
Another big advantage of steel construction was an increase in usable space of 2% to 3% totaling approximately 7,500 square feet in the four floors and basement.

Steel for the new parking facility was fabricated by Stupp Brothers Bridge & Iron Company, St. Louis, Missouri. Specifications called for the use of 975 tons of USS Structural Steel in wide-flange beams for framing and column

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Mr. Elmer L. Deicke, Vice President of Stupp Brothers, says, "We have been using United States Steel products for years, and have always been impressed with their rapid and dependable delivery, a crucial factor in the construction industry. Their excellent service, combined with their attention to even the smallest problems, has established them as an important source of supply for us. The wide range of products available in wide-flange beams is another reason for our turning to United States

\$910,000 four-story parking facility constructed with 975 tons of USS Structural Steel for Washington University Medical Center, St. Louis, Missouri. Architects: Schwarz and Von Hoefen. Contractor: Alport Construction Company. Steel Fabricator: Stupp Brothers Bridge & Iron Co.



money... adds 7,500 sq. ft. of space

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Low construction costs. Mr. Arthur F. Schwarz, Senior Partner of Schwarz and Von Hoefen Architects, says, "Construction costs are running very low for this project. Our original figure for three floors of parking space plus basement came to \$3.48 per square foot for an all-steel structure. With the later addition of one floor, this figure became \$3.67 per square foot, which is still substantially below the normal \$4.00-plus per square foot that we estimate for this type of structure."

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Mr. Morgan I. Doyme, the Erection Engineer (left), discusses erection problems with Mr. Roy Simpson, the Steel Construction Superintendent.

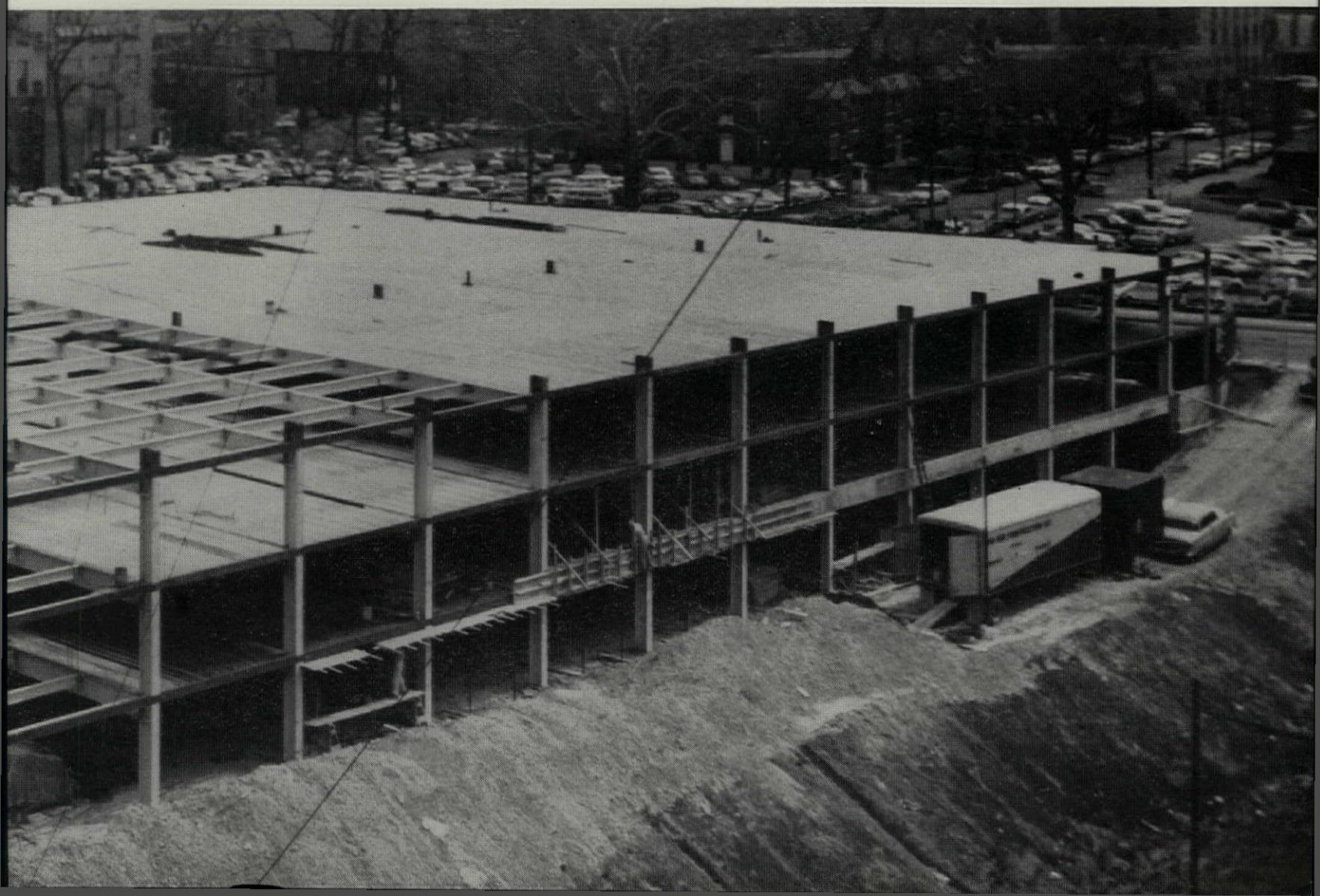


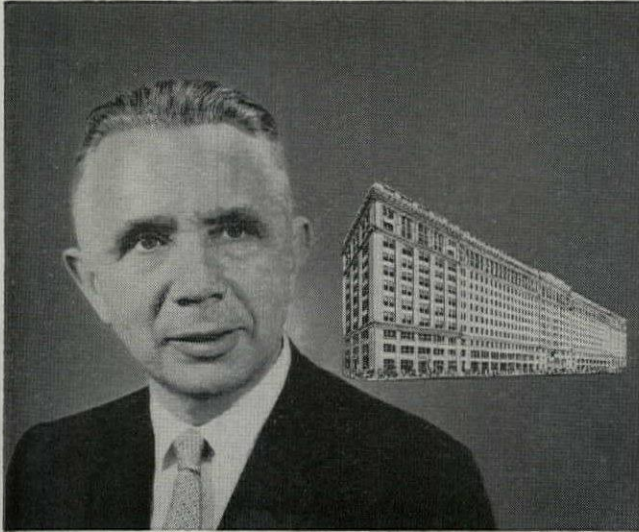
24-inch main carrying members being welded with 100% full penetration butt weld.



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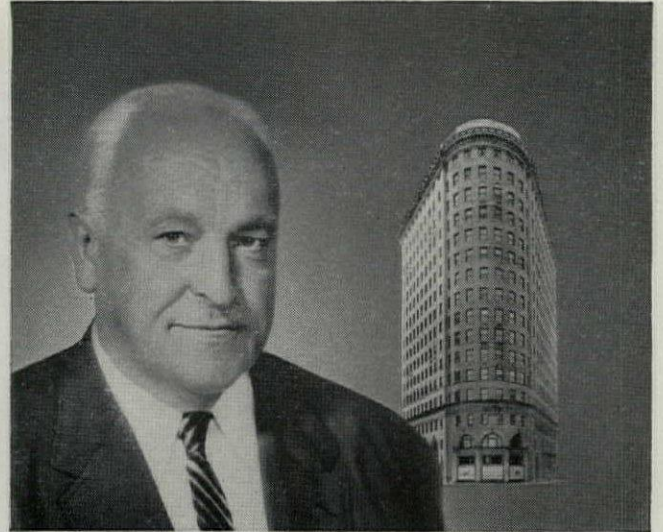
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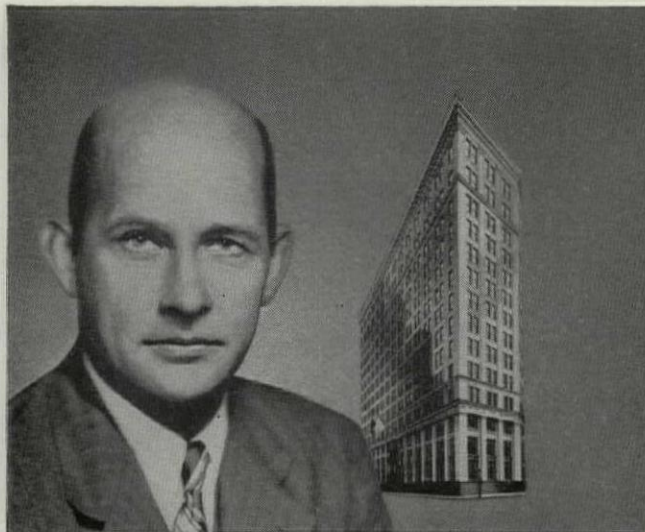
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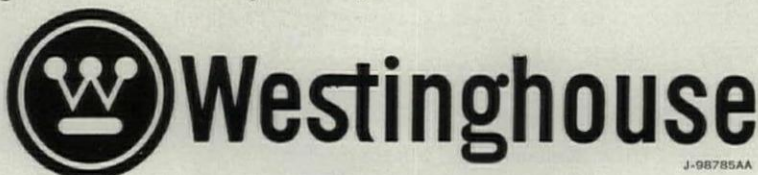
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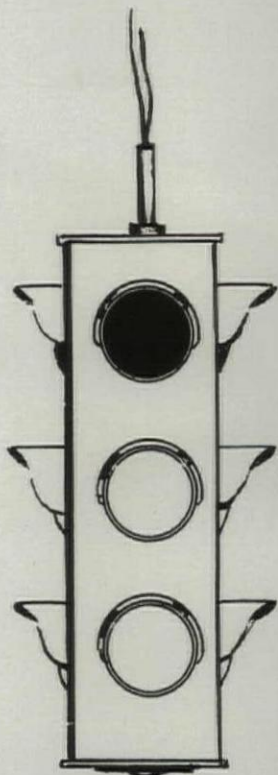
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reasons he outlines, became a style rather than a cultural light bulb that might have helped modern man understand his industrialized environment. The thesis is also supported by a number of illustrations, whose occasional fuzziness can be forgiven for their pertinence and originality.

Near the end of the book, Dr. Banham offers this summary of his thesis:

"...It may well be that what we have hitherto understood as architecture, and what we are beginning to understand of technology, are incompatible disciplines. The architect who proposes to run with technology knows now that he will be in fast company, and that, in order to keep it up, he may have to emulate the Futurists and discard his whole cultural load, including the professional garments by which he is recognized as an architect. If, on the other hand, he decides not to do this, he may find that a technological culture has decided to go on without him. It is a choice that the masters of the twenties failed to observe until they had made it by accident, but it is the kind of accident that architecture may not survive a second time—we may believe that the architects of the First Machine Age were wrong, but we in the Second Machine Age have no reason yet to be superior about them."

GUIDING METROPOLITAN GROWTH. A statement of national policy by the Research and Policy Committee of the Committee for Economic Development, 711 Fifth Ave., New York, N.Y. 50 pp. 7" x 11". Illus. Paperbound. \$2.

In a quiet, academic way this small booklet is a revolutionary document. Its authors, the Research and Policy Committee of the Committee for Economic Development, say in effect that something is radically wrong with the economic and political underpinnings of U.S. metropolitan areas.

They go on from that irreverent (but well-substantiated) statement to make a number of equally revolutionary proposals. Most striking among them: the economic base of each metropolitan area should be thoroughly researched before renewal programs are attempted; urban renewal, as a national effort, should be severely revised (their word is "recast"); government in metropolitan areas should be reorganized to answer new needs and responsibilities; businessmen should personally participate in political reform and public works.

The question is, of course, whether these sound proposals, which have been entertained as ideas by city thinkers for some time but never before put into the businessman's idiom, will now have a real affect upon the actions of conservative business interests in this country. And the answer is: quite likely. For the authors demonstrate that it is only by moving in this direction—not by clinging to the status quo—that U. S. businessmen will be able to maintain both their cash flow and their conservative principles.



THE WORKS OF AFFONSO EDUARDO REIDY. By S. Giedion and Klaus Franck. Published by Frederick A. Praeger, Inc., 64 University Pl., New York 3, N.Y. 143 pp. 9" x 10½". Illus. \$11.50.

The bold contours of his large public buildings have caught the imagination of social thinkers around the world; Affonso Eduardo Reidy is far more than a local Brazilian phenomenon.

The significance of his work lies not in the brise-soleils, grilles, and tricky uses of terrain that have brought him to the attention of international style followers; it lies rather in his organization of social functions through form. Since U.S. architects have generally been so unsuccessful in the design of larger civic works, they would be well advised to note in this book how Reidy proceeds from his first proposition (the famous Ministry of Health building, 1943) through his next ambitious developments (like the Pedregulho Residential Development, 1951—photo above) toward new proposals (the Rio City Center).

In introducing Reidy, Critic Siegfried Giedion asks why no use has been made of his fine talents on the vast new capital project of Brasilia. The answer is that the initial work was deliberately given to one team, but there will be many a chance there yet for Reidy.

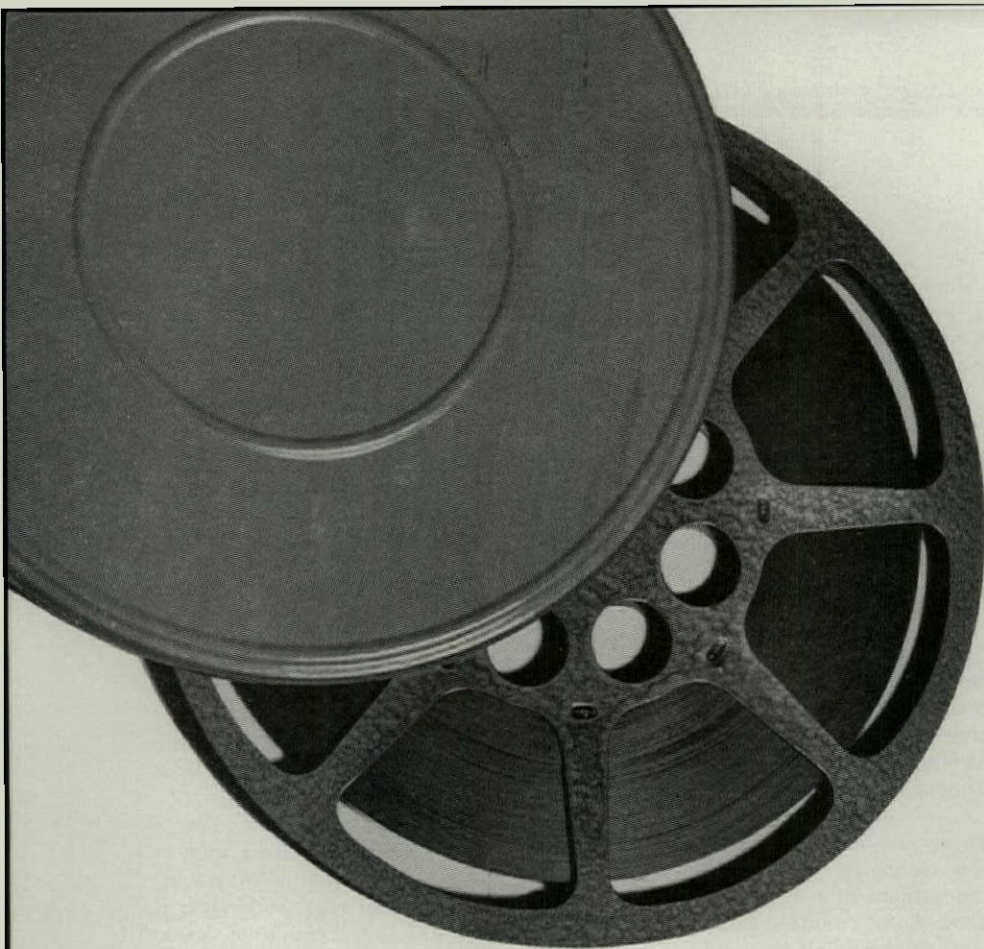
WHAT MAKES SHOPPING CENTERS TICK. By Samuel Feinberg. Published by Fairchild Publications, Inc., 7 E. 12th St., New York 3, N.Y. 121 pp. 11" x 8½". \$2.50.

Women's Wear Daily, that inexhaustible catalogue of recipes for separating women from their money, recently ran a 110-part series on shopping-center operation by Samuel Feinberg. The series has now been published in nonbook form, each page being nothing more than a reproduction of one of Mr. Feinberg's columns.

Although informal, this method is not inappropriate to its subject. The reader can hear the traffic-laden suburban uproar surrounding each of the 40 centers Mr. Feinberg so enthusiastically describes. Facilities, personnel, and pricing are frankly compared from city to city (mostly on the East Coast), names are named and some of the basic problems (such as the desirability of competition within centers) are at least mentioned.

What emerges is not a very coherent picture of the economic or design opportunities of the shopping center but a kaleidoscopic view of its position in the commercial landscape.

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The New Age of Architecture is a 42-minute documentary film in black and white. Honored by exhibition at the annual Edinburgh Film Festival, the film was described by The New York Times critic as "stimulating, provocative and unique." The film has also been highly endorsed by ACTION and the AIA.

The New Age of Architecture will find a wide audience among architects, architectural students, building manufacturers, as well as those who are engaged in and supply the building industry. It is also ideally suited as a major presentation for management meetings, building seminars, and for distributor and dealer meetings.

Copies may be obtained on loan or purchased at cost by writing Architectural FORUM, Room 1826, Rockefeller Center, New York 20, New York.

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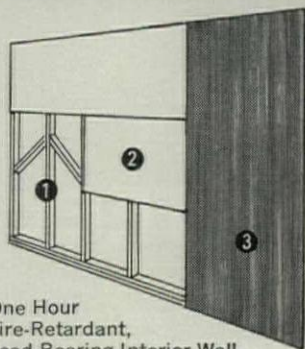
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Urban study . . . regional group . . . Japanese enigma

NEEDED: URBAN STUDIES

One of the best graduation speeches of the past spring and summer season was given at Duquesne in August by David M. Walker, commissioner of the Urban Renewal Administration. He outlined the role education might play in reshaping U.S. cities.

It is not to Washington that we must look first as we continue the task of reshaping urban America. It is not to our city halls and state capitals that we must look. Nor is it to our planners and engineers, our manufacturers, bankers, builders, and all the other elements of private enterprise.

We must, instead, look first within ourselves. Irrespective of individual calling, we have the collective responsibility for producing this more enlightened leadership in the urban age and a greater fusing of the forces already aligned to meet its challenge to our civilization.

Essentially, it seems to me, this is a matter of education. If we are to have more enlightened leaders, we shall have to find them, as always, right among ourselves. And the corollary to that is a citizenry of wider knowledge and deeper understanding of the vast and complex urban problem.

The process of education is not confined to ivy-covered halls of formal learning. It has for a laboratory the wide world we live in, and useful knowledge can be acquired anywhere.

Yet education—as distinguished from training and the teaching of skills—is fundamentally a process whereby the student is stimulated to think, to relate results to their true causes, to analyze, and always to question the traditional learning. It is from our educators, as well as from our homes, that I believe will come the motivation to weld the forces that can save our urban society. It is my hope that the day is not too far distant when awareness of the urban problem will be reflected in the curricula of secondary schools, and that the signposts for the solutions will be discussed, studied, and determined in our institutions of higher learning.

I address myself to all the universities and colleges of the nation. Through your existing media you can develop this deeper awareness, on the part of your faculties and students, of the grave and urgent problems of our cities and metropolitan areas. You can instill a more acute sense of responsibility to assume leadership in the reshaping of their respective communities. Your young men and women

are the ones who, beginning at once, must meet this challenge of the next two decades—the challenge to American civilization.

ARCHITECTURAL MISSION

As an example of the changing and broadening nature of architectural education, Professor Milton D. Lowenstein of the University of Arizona, writing in "The Journal of Architectural Education," quoted the following problem that might be given to an architectural class in the not too distant future:

Given: You are sent from a temperate zone country, A, to a subtropical zone country, B, as one of a coordinated team of technical experts requested by the central government of B to rehabilitate an overcrowded agriculture area (population density about 500 per square mile). It is composed of small, more or less politically and economically independent village units. They have strong age-old cultural traditions which include cooperative enterprise in most of their activities. Though independent of each other and the central government, they are orderly social units with an unsympathetic or resentful attitude toward any attempt at assimilating or otherwise changing them.

Required: The team will operate in three stages or levels: 1) as consultants, free to speak to anyone in the central government or in the villages for the purpose of reaching a decision on what plan to propose for approval of all parties concerned; 2) as community planners; 3) to supervise execution of the plans *in situ*. Discuss your policies, attitudes you advocate, and the definite contribution you will make at one or more stages of the project.

THE ENIGMA OF KATSURA

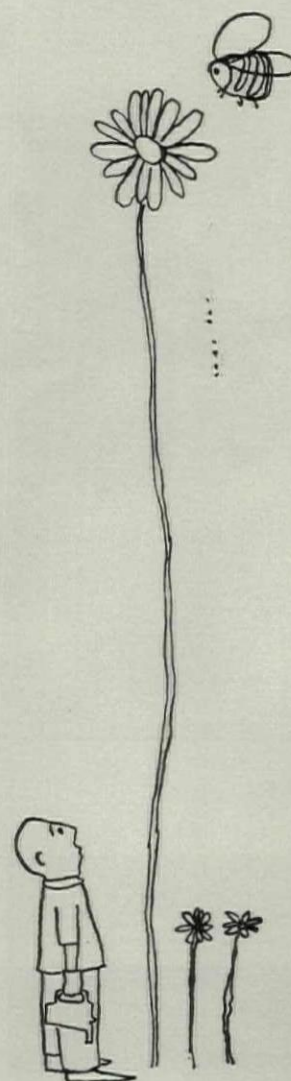
Two recent and eminent American visitors to Japan came away with radically different impressions of what Kyoto's sixteenth-century Katsura Palace may mean to contemporary designers. The two travelers, Walter Gropius, whose views are set forth in a new book on the palace (see "Books," page 158); and Paul Rudolph, whose comments were given to a reporter for "Shinkenchiku."

Gropius: The sublime architectural expression of the Katsura Villa has an impact on the spectator which lifts him unflinchingly onto a high spiritual plane.

continued on page 178

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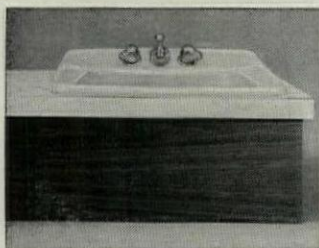
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Details in Sweet's or write for catalog.

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New *Brian* "Uni-Rim" design eliminates conventional metal rim. Lavatory is available in color or snowy white.



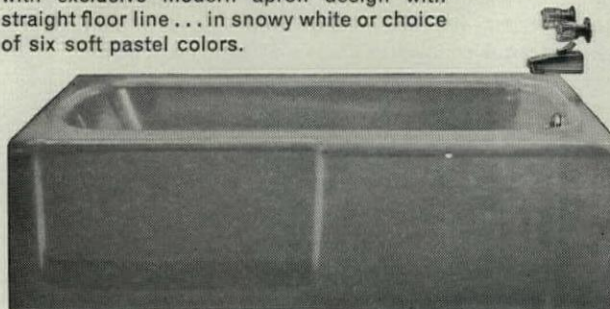
Brian lavatory can be installed on any type counter top—marble, tile, plastic or wood.

Exciting news for architects, builders, plumbing wholesalers and contractors is the revolutionary new *Brian* vitreous china counter-top lavatory . . . another "first" in style and design from Eljer. Exclusive "Uni-Rim" design eliminates the costly metal rim between lavatory and counter top . . . unique "J" clip assembly permits fast, economical installation *without tools!* More than 1,850,000 homeowners and prospective homeowners (*your* customers) are being "sold" on the new *Brian* lavatory through distinctive full-page, four-color advertisements in leading national magazines.

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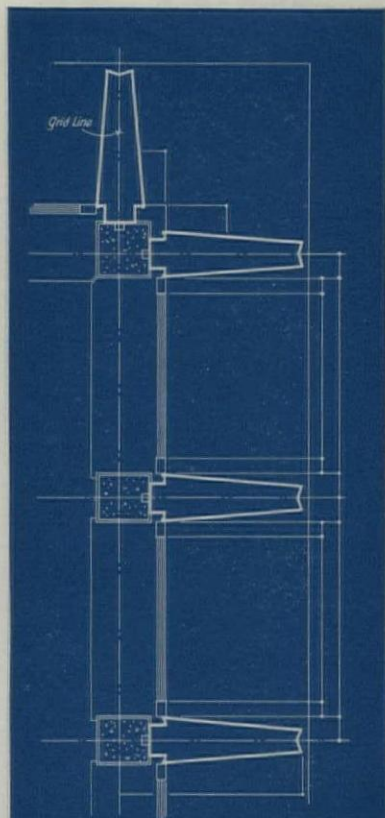
New *Sorrento* 5' enameled iron recess bath with exclusive modern apron design with straight floor line . . . in snowy white or choice of six soft pastel colors.



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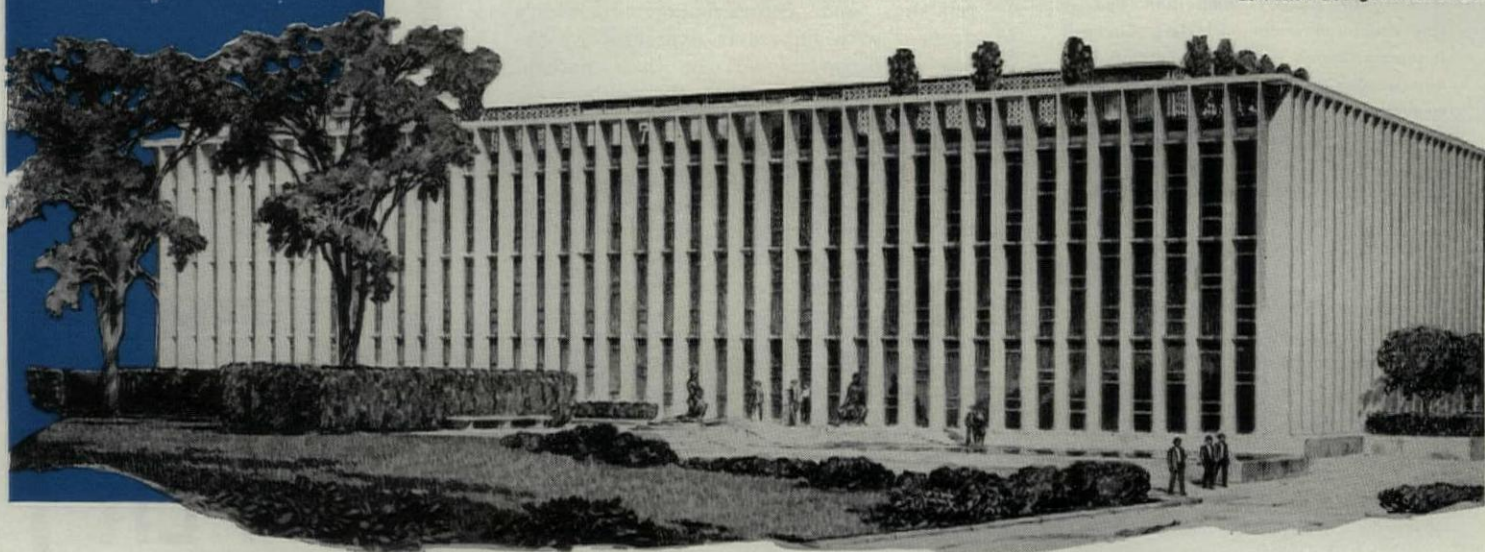


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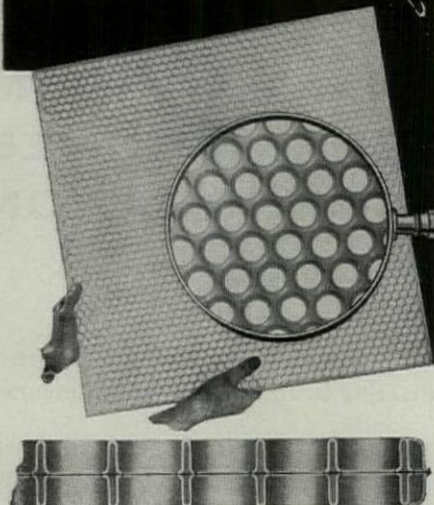
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Representing the human ideals and virtues of Japanese society and its recognized style of living, the villa exemplifies the very peak of architectural development. Perhaps it is the aristocratic tradition on the one hand and the more earth-bound, elemental features of the plain farmhouse on the other which, combined in this unique design, have earned it its fame.

The skill in the workmanship is just as remarkable as that of the methods of design. The structure is a simple skeleton of post and beams, almost all exterior and interior walls being movable and nonstructural. The windbracing is placed invisibly under the roof, while strong hidden joints make the structure typhoon-proof.

The modular coordination used in this period was the most subtle known, more so than that of the Egyptians, even more than that of the Greeks. The rooms were laid out on a multiple of a standard mat, the *tatami* (about 3 by 6 feet); all the building parts were dimensioned horizontally and vertically on a multiple of the column thickness, which varied with the size and spaces and their respective spans.

As in most Japanese creations, we find a predilection for clear contrasts: against the austere purity of the architectural frame, the spontaneous, sketchlike painting and the wealth of magnificent garments; against the light, transparent house construction, the heavy, sculptural roof. The use of contrasting materials which enhance each other in their effectiveness had been developed early, and nowhere does one find an attempt at "matching" identical forms and colors (one of the American preoccupations), but always great care in complementing, relating, and counterbalancing. Man's oneness with nature is expressed by the use of materials left in their natural colors and by a love of the deliberately unfinished detail, corresponding to the irregularities in nature. For only the incomplete was considered to be still part of the fluid process of life; symmetry, the symbol of perfection, was reserved for the temple. The esthetic effect is a pure, architectonic one, achieved by simple contrasts of bright and dark, smooth and rough, and by juxtaposition of plain squares, rectangles, and stripes. However, none of these means are esthetic abstractions; they are all meaningful realities, related to daily life. The builder subordinated himself and his work to the supraindividual idea of a unified environment and thereby avoided the traps of vanity, the *nouveauté*, and the stunt. This is the lofty abode of man in equilibrium, in serenity.

Rudolph: I was very disappointed in the Katsura Palace. It has no unity. It is a collection of details. It looks as if it might have been built in many stages, and perhaps it was. People have said it is the culmination of Japanese architecture. I

continued on page 179

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PAPER
the personal
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don't agree with that at all. I have seen many things that are much finer than the Katsura Palace. One of the criteria of a great work of art is that you can never add anything to it, nor subtract anything from it. I have a feeling that you could add two or three wings to the Katsura Palace and it wouldn't matter; you could take off one or two, and it wouldn't matter. You could add a couple of bridges, and it wouldn't matter, and take out a few stone lanterns and it wouldn't matter. Even in the informal sense, it seems to me that if a building is a great work of art, the same thing still holds true—you can't add or subtract anything.

The spatial conception of Japanese architecture, as I understand it, is one of continuity. You add on to it—it is continuous, one part to another, and there is never really a dominant element. Many architects, including myself, feel strongly that most buildings should have a really dominating space, with subsidiary spaces. By a dominating space I mean a higher, a bigger, a more important space.

I am also fascinated with the fact that in traditional Japanese architecture, the handling of the light (which, after all, is one of the real criteria for handling the space) is almost always done in the same way. This limited lighting concept is partly a result of the post-and-lintel system, because, after all, you can't reflect light from a post or a lintel. Many architects have become much more interested in planes rather than linear elements, for this reason.

Japanese architecture is at its best when it is a pavilion of one kind or another. Unfortunately, in modern architecture, with the problems which we have now, the pavilion does not always answer the question. In a city, in tightly spaced areas, it does not. The great problem in the U.S. is that we do not know how to make one thing go with another. The new thing always brutalizes and hurts whatever has gone before. Look at what is really happening on Park Avenue, where the very best architects built, and where each fights and is in conflict with the others. We know perfectly well how to make a beautiful, individual, single, free-standing building, but that's not the real problem.

If I had come to Japan ten years ago or 15 years ago, I would have been absolutely captivated by the post-and-lintel system and the sequence of spaces, etc. I'm still captivated, but my own interests are now in a very different direction. Now I'm much more interested in space and light. We can't just be beauty-makers. It has to be meaningful. If architecture is just a matter of turning out something to be beautiful, you might as well quit. Architects like Louis Kahn, who often makes ugly things, are much more profound. The great danger to American architecture especially, right now, is that everyone wants to make it prettier, prettier, prettier.

END



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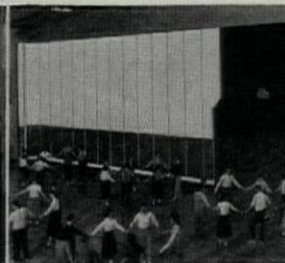
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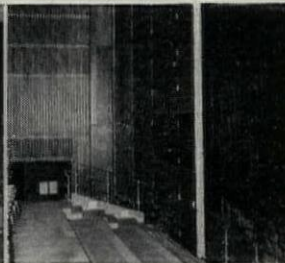
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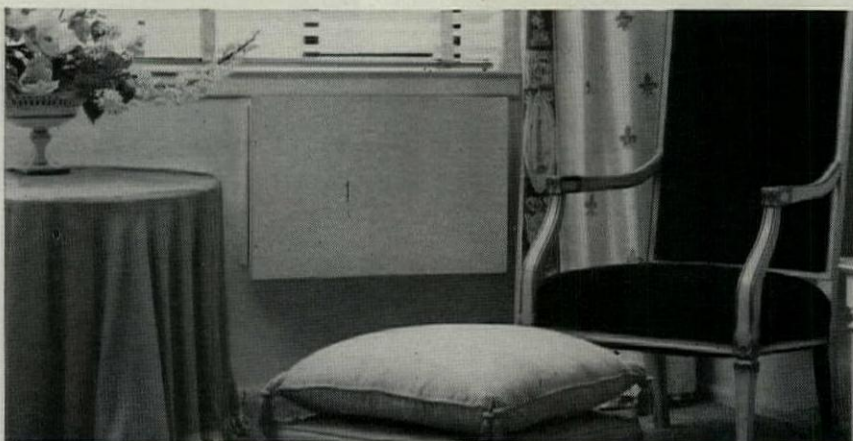
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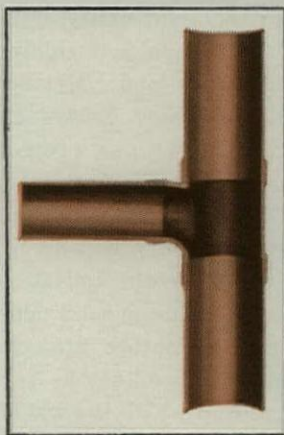
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The neat appearance of the Built-In *Thinline* pleases tenants. Outside, the grille is of rust-proof aluminum.



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could do this, but only integrated systems, foolproof in their automaticity, teachable to almost anyone, and embracing the theater as a whole.

Izenour's first systems design was electronic lighting, installed in Yale's drama school theater in 1946, and since become standard in about 100 theaters and television studios. Next came the synchronous electric winch system, first installed in Hofstra College Playhouse,

and making a major appearance in Frank Lloyd Wright's Dallas Art Theater (FORUM, March '60), whose unconventional drum shape had to be matched by equally unconventional rigging. Finally, he worked out the hydraulic lift system, adapted from elevator design. All systems designs came together in the Harvard theater, and all are now licensed and available from cooperating manufacturers.

The flexible future

The new systems have little chance in the present commercial theater, which has become simply a New York real estate holding operation in a cluster of obsolete, unreconstructable Broadway houses. No new Broadway theater has been built in close to 40 years. Broadway's inflated investments, backward building codes, and featherbedding labor practices preclude anything so radically new and creative. Indeed, the Loeb theater was built over the opposition of Broadway advisors. For, as more flexible theaters are built, it will become only too plain how shoddy, overpriced, and uncomfortable Broadway really is. And Izenour sees in the sharp rise of experimental university theaters, along with the new off-Broadway, community, and summer festival theaters, and centers for the performing arts, a building renaissance that will return excitement, poetry, and substance to the theater, and may eventually topple Broadway.

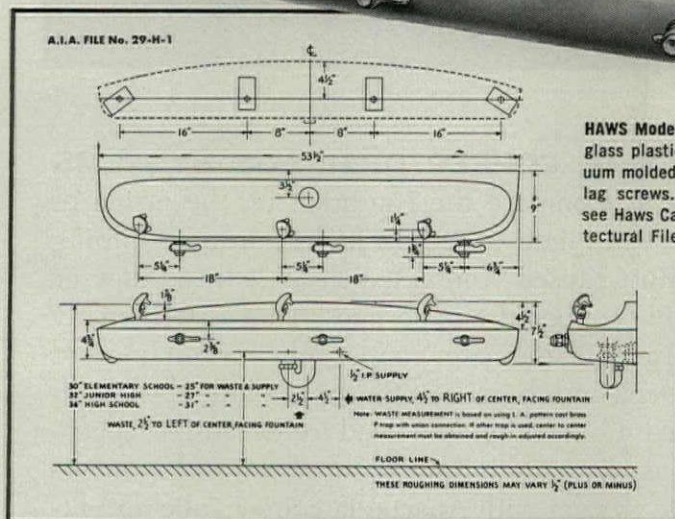
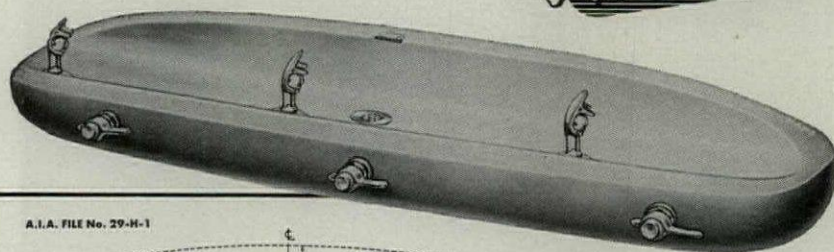
Izenour's own work is a good index. In addition to the new theaters in which his systems already have been built, he is working on 11 more projects, most of them university or art and community center jobs, including the Julliard Theater and Metropolitan Opera House in New York's Lincoln Center. Three of the new projects are posthumous Wright designs, in one of which, the Monona civic art center for Madison, Wis., scenery will fly in on a trajectory, due to height limitations, by a modification of the synchronous rigging system. In another project with Architect Paul Schweikher he is working on a design in which the whole floor of the theater will consist of 178 hydraulically operated platforms for the ultimate in flexibility.

The next big problem Izenour will attack with or without architectural aid is structure, in order to get, along with his mechanical systems, the most economical theater possible. He is ready to experiment with precast concrete systems, Buckminster Fuller's octet truss, and any other ideas that promise a saving in structure. Theaters as presently built cost too much, and any reduction in costs would make it possible to get more of them built. "We've got to get the right kind of buildings," says Izenour. "If we don't, we will just ape the commercial theater, and the commercial theater is a losing proposition." END

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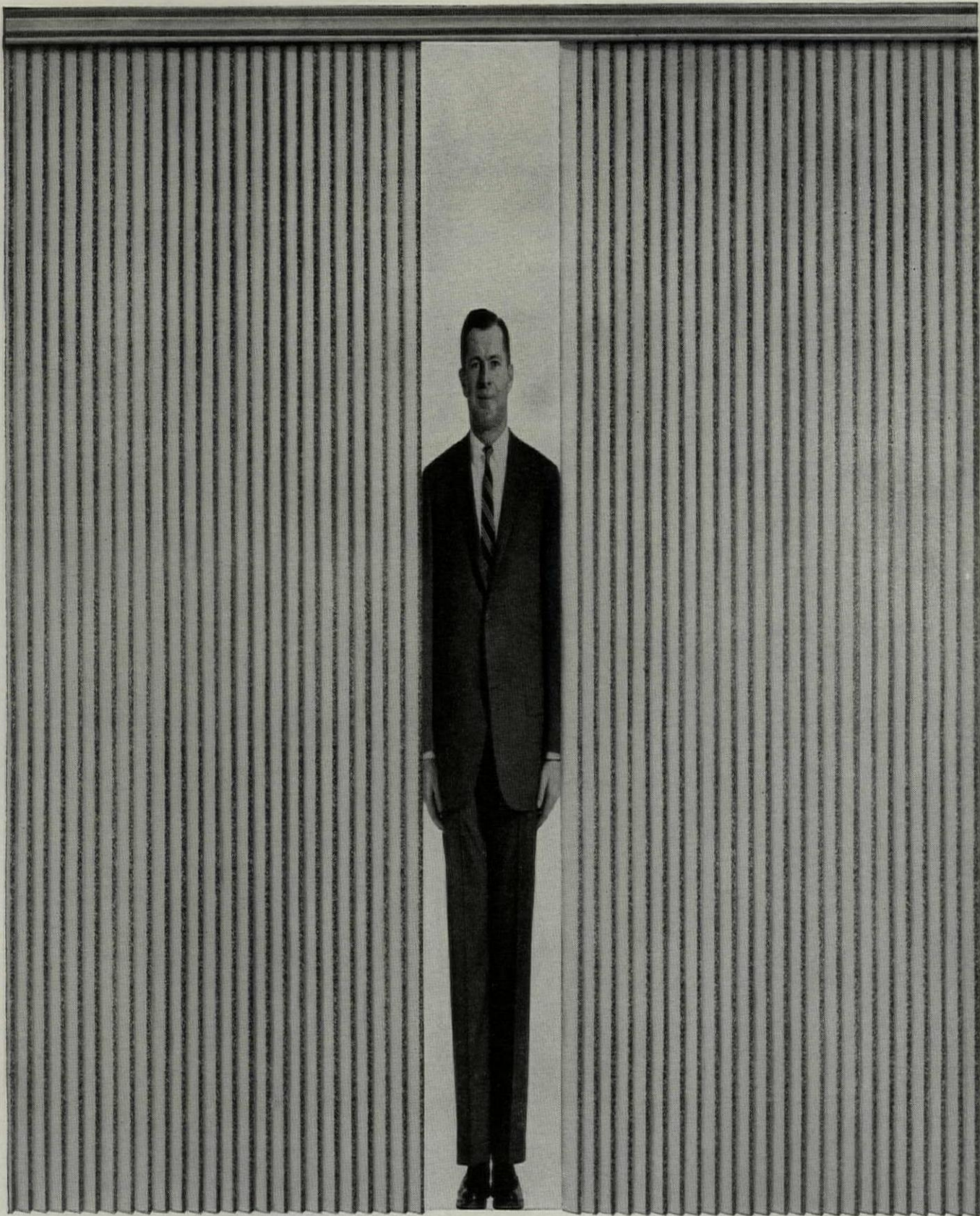
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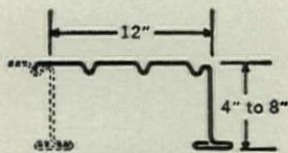
1441 FOURTH STREET • BERKELEY 10, CALIFORNIA



architects and designers go vertical

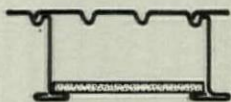
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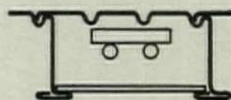


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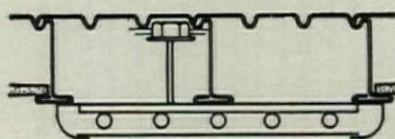
Ceiling Treatments with T-Steel Deck



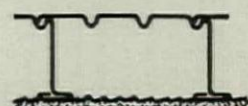
Standard Tile or Board



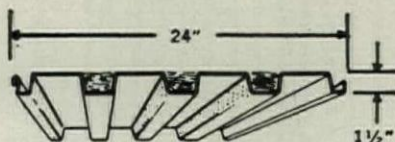
Light Diffuser



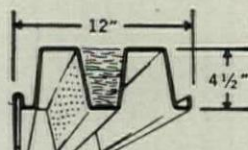
Surface-mounted Fixture



Lath-and-Plaster Fireproofing



TYPE B ACOUSTIDECK — For purlin spacings to 10'. Uses minimum of 1" rigid insulation board.



TYPE C ACOUSTIDECK — For purlin spacings to 24'. Uses minimum of 1 1/2" rigid insulation board.



ACOUSTIDECK

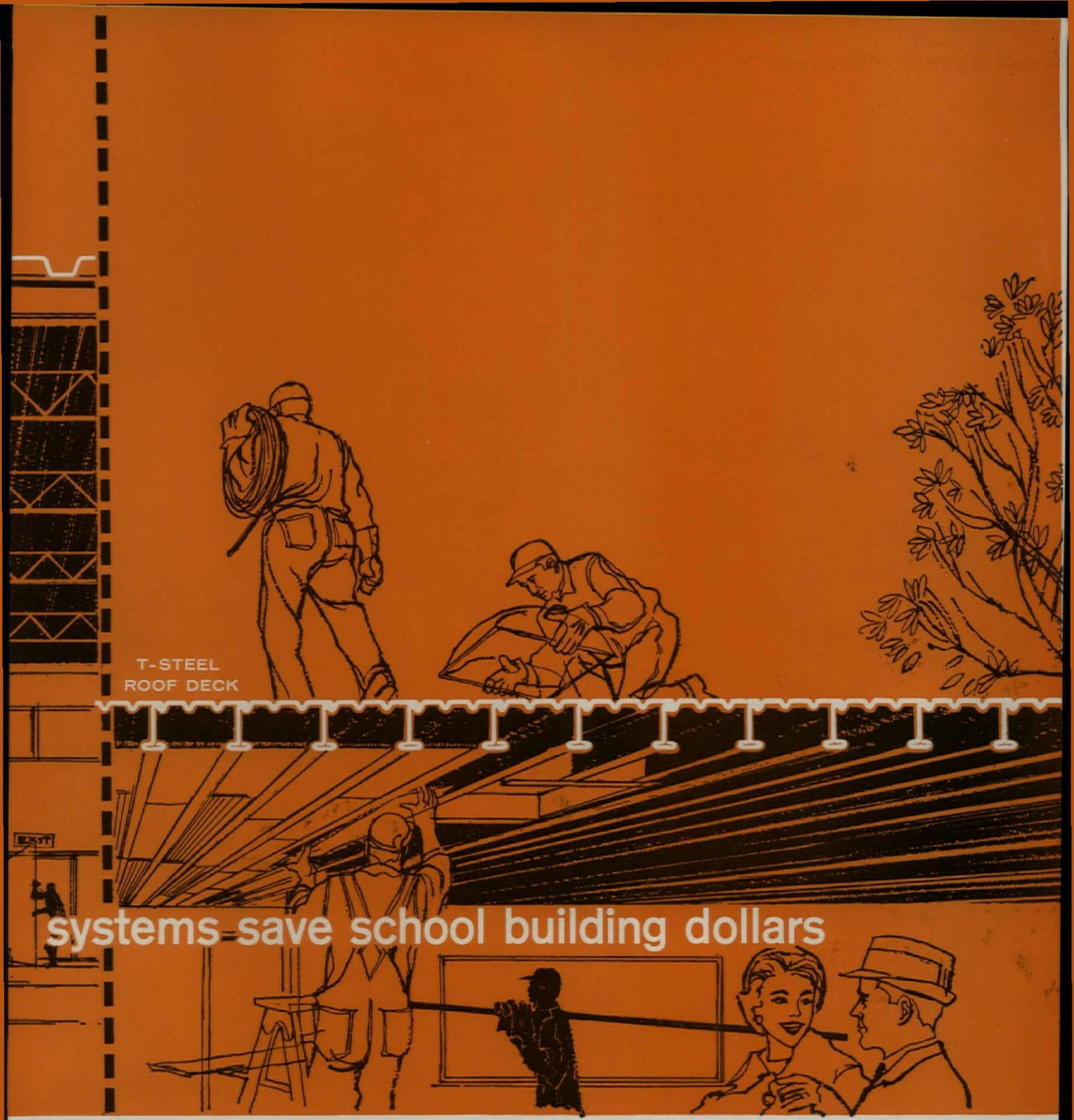


*Complete structural systems
permit a range of ceiling,
lighting, and acoustical
treatments within budget limitations*

Acoustideck serves as a combination steel roof deck and acoustical ceiling having a Noise Reduction Coefficient of .70. It is especially practical over gymnasiums and other areas where it is important to have acoustical treatment not easily damaged.

Panels are erected fast in any weather that a man can work. Since the panels are Bond-erized, then covered with a baked-enamel prime finish, field-painting costs can be cut in half because only one finish coat is required normally. The fluted underside is left exposed as an attractive ceiling.

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ROOF DECK

systems save school building dollars

New T-Steel Roof Deck allows you design freedom in covering classrooms of 26' to 32' spans. You can specify various types of acoustical tile — provide a flush, luminous ceiling — or leave the underside of T-Steel exposed and paint it.

T-Steel deck provides a superior diaphragm to resist seismic and wind thrusts — proved by full-scale shear tests conducted by independent engineering firms.

Write for catalogs 240, 241 and 246 — or see Sweet's sections 2c/Inl and 11a/In for full information on Acoustideck and T-Steel. 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.

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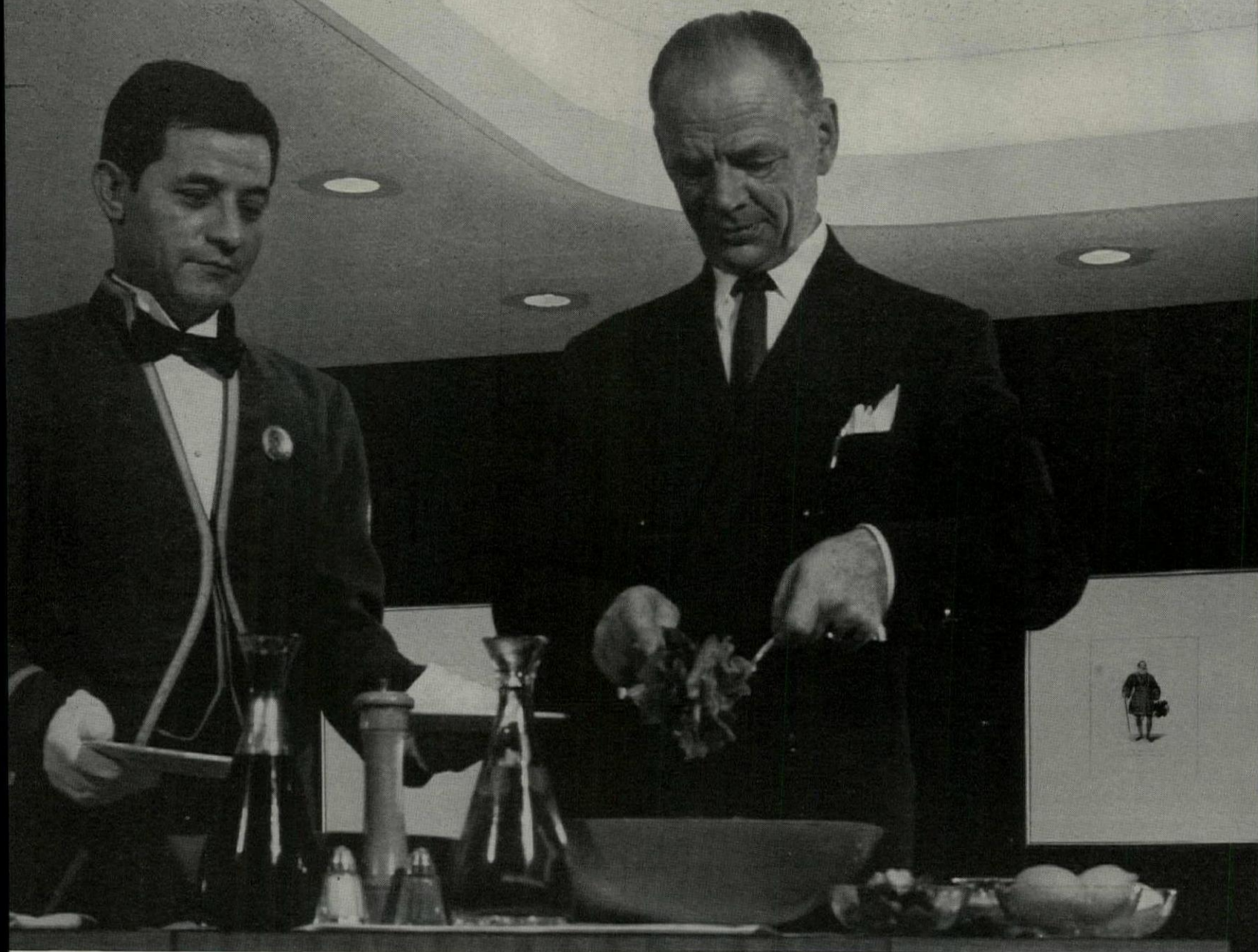
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AIRSON System of Heating and Cooling using ACOUSTONE Mineral Ceiling Tile. George I Room of the Guildhall, Ambassador West Hotel, Chicago, Illinois

control SOUND *control* LIGHT
control APPEARANCE
with a ceiling of ACOUSTONE*

Incombustible Mineral Acoustical Tile

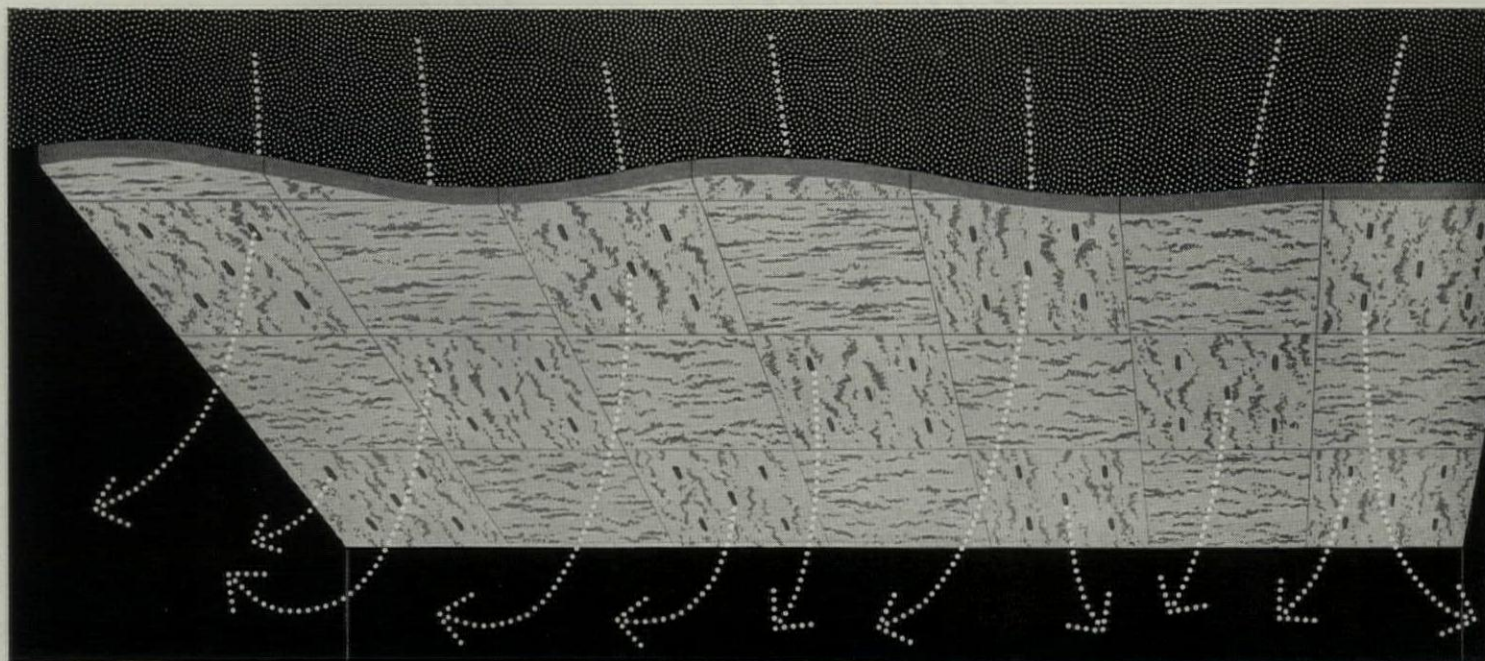


**UNITED
 STATES
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*T. M. Reg. U. S. Pat. Off.

NOW! Draft-Free Heating and Cooling...with ACOUSTONE and the AIRSON* System...

the ceiling itself is a room-wide diffuser



New AIRSON System brings over-all air distribution right through an acoustical tile ceiling—keeps ceiling clean, offers new flexibility in interior design, and cuts cost, too.

Now you can design an acoustical ceiling that controls comfort as well as sound and beauty. AIRSON System uses *the ceiling itself* to provide draft-free heating and cooling, together with full control for balancing and zoning with desired air motion throughout the room.

Uniform Air Distribution— Savings on Ducts, Diffusers

AIRSON uses the space above a suspended acoustical tile ceiling to replace most of the conventional air-supply ducts; delivers air right through adjustable slots cut into special foil-backed ceiling tiles. Thus conventional diffusers are eliminated, as each tile becomes an air-supply vent to provide complete distribution of air across the entire ceiling surface. This uniform "all-over" air entry, under very slight pressure, eliminates drafts with uniform ceiling-to-floor temperatures—even when low room temperatures must be maintained. Return air is handled through regular wall or ceiling grilles.

System Easily Zoned and Balanced

The air supply of individual tile is varied by adjustable slides on the back surface of each tile. Slides are quickly and easily adjusted from below for one-time balancing.

Keeps Ceiling Clean

The downward air flow through the tile, distributed across

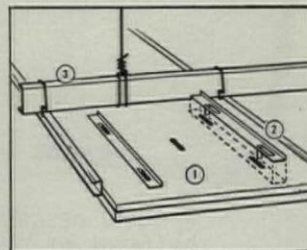
the entire ceiling surface, keeps dust and dirt from reaching the ceiling, preserving the beauty and cleanliness of the acoustical tile.

More Design Flexibility—and Cost Savings

AIRSON eliminates diffusers, reduces air-supply ductwork to lower the cost of the heating and cooling system. This offers complete flexibility in placing lights, partitions and furnishings. Movable partitions may be relocated in any arrangement. All partitions may be ceiling-height for greater office privacy. Maintenance cost is also reduced because AIRSON keeps the ceiling clean.

For more complete information, call your local AIRSON acoustical contractor, or write today to Airson Company, 1109 N. 108th Street, Milwaukee, Wisconsin, or see Sweets architectural file 31-f/AK.

AIRSON System uses: (1) ACOUSTONE* F Mineral Acoustical Tile, specially slotted and sealed with a lamination of foil; (2) adjustable slides for controlling the air-flow openings; (3) conventional suspended ceiling system.



AIRSON

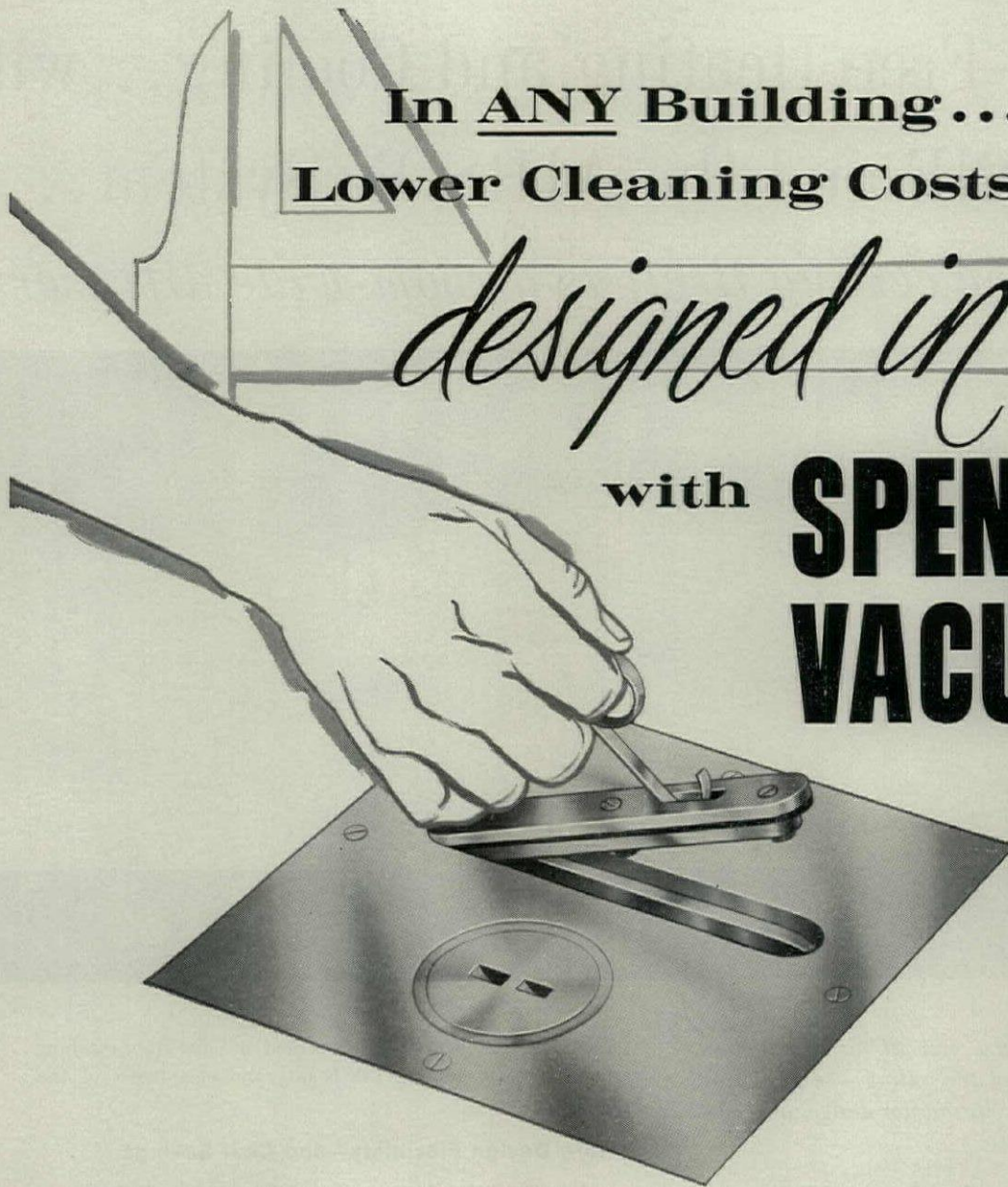
* T.M. Reg. U.S. Pat. Off.

**In ANY Building...
Lower Cleaning Costs can be**

designed in

with

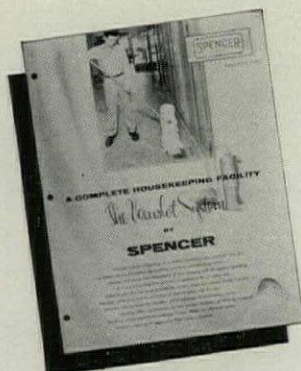
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VACUSLOT®**



... the built-in vacuum system that speeds the handling of so many maintenance tasks, including

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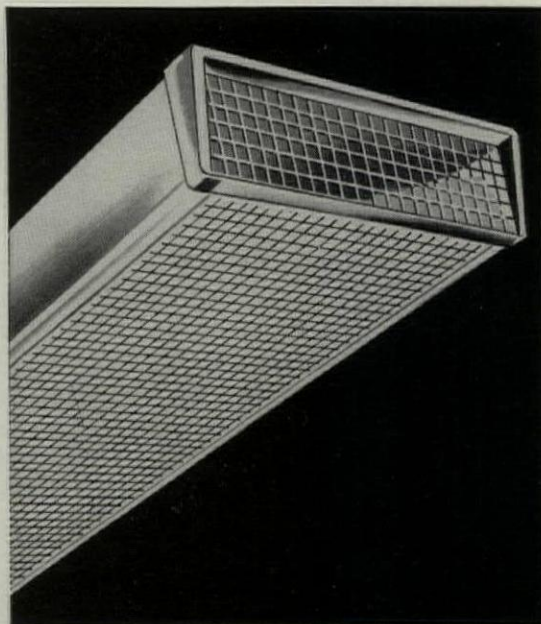
Besides saving on cleaning costs, Vacuslot improves sanitation because dust and germs are carried away through the sealed system ... cannot recirculate into the air. And cleaning is quiet.



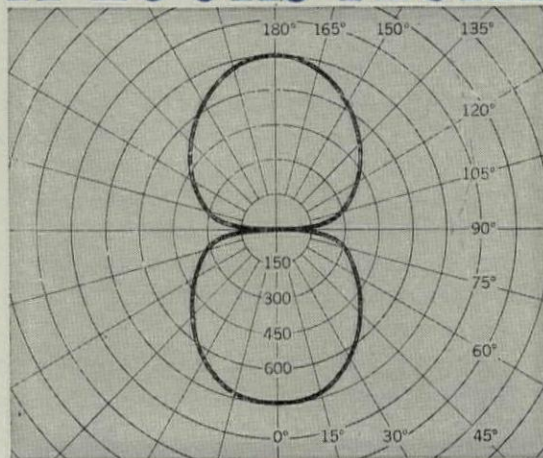
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TURBINE COMPANY
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IT LOOKS RIGHT



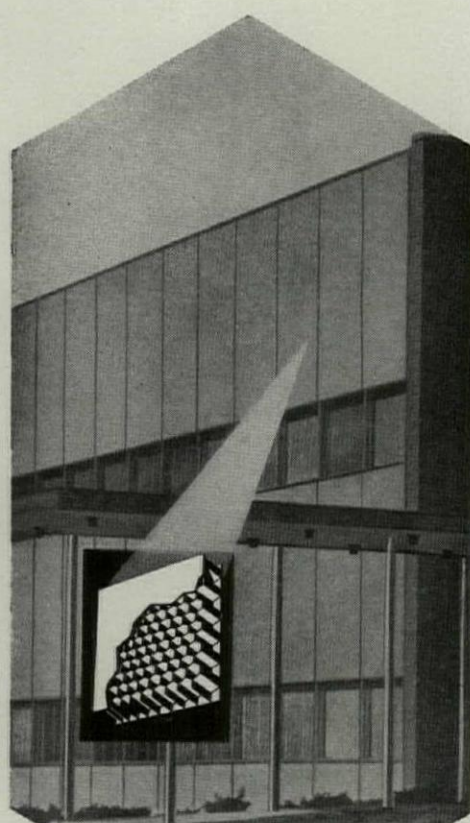
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Benjamin Electric's new Catalina lighting fixture has smooth, uninterrupted lines; there is no visible hardware to mar its clean, sculptured look. **It Looks Right.** The Catalina is only 3½" from top to bottom. It's available in 4' and 8' lengths, both lens or louver bottom. This fixture is easy to install and gives soft, shadow-free illumination. **It Lights Right.** The louvers, side panels, and decorative end caps of the Catalina are made from versatile EVENGLO polystyrene, a Koppers plastic that comes in a complete range of whites and pastels, can be molded or extruded in practically any size or shape. **It's Made Right.** Light-stabilized EVENGLO is tough, lightweight, and dimensionally stable. For more information on EVENGLO polystyrene and for a list of manufacturers using EVENGLO in fluorescent fixtures, write to Koppers Company, Inc., Plastics Division, Dept. AF 100, Pittsburgh 19, Pennsylvania.

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Kraft paper HONEYCOMB sandwich cores add durability and economy to pre-fabricated structural panels. Cores can be bonded to almost any facing material . . . reduce panel weight for easy handling, speedy installation—lower finishing, labor and shipping costs. And they're tough! HONEYCOMB sandwich panels resist moisture, temperature extremes, years of weathering.

Write for free booklet illustrating the many uses and advantages of UNION HONEYCOMB.



1961 FORECAST

continued from page 105

House building. A slow revival in the rate of nonfarm house building (one- and two-family structures) is indicated for the last quarter of 1960, and this will continue into and through 1961. Here is a comparison of anticipated expenditures (in millions):

	1960	1961	Change
Private	\$15,200	\$16,000	5.3%
Government	190	190	0
Total	\$15,390	\$16,190	5.2%

It is expected that these funds will produce about 1,177,000 one- and two-family nonfarm dwelling units next year, compared with an estimated 1,117,000 in 1960 and 1,287,000 in 1959. Difficulty in obtaining financing and a sluggish market (which were related to the credit situation and, in part, to a necessary adjustment from the extraordinary volume of house building in 1959) appear to be the principal causes of the sag in 1960 activity. The gradual easing of credit through most of 1960 and especially in the later months is the principal basis for assuming improvement in 1961.

Altogether, apartment building and nonfarm house building, private and public, will total 1,402,000 dwelling units in 1961 compared with 1,327,000 in 1960 and 1,530,000 in 1959.

Other construction

Utilities. Included in this category is a wide array of work through private and government ownership, including railways and other transportation facilities, electric power and gas plants, and distributing systems, pipe lines, telephone and telegraph, sewage installations and sewage disposal facilities, and water. (In the table on page 103 these are found under the following headings: public utilities, public service enterprises, and sewer and water.) Prospects next year are mixed. Pipeline construction will advance. Telephone and telegraph expansion seems likely to be curtailed. Sewage disposal work will probably no more than hold even, while the construction of water installations will increase. For the whole only a modest advance is likely.

Probably close to 10 per cent of total expenditures in the utilities area goes

for buildings, such as rail and bus stations, power plants, telephone exchanges, office buildings, sewage disposal plants, pumping stations, laboratories, maintenance shops, etc.

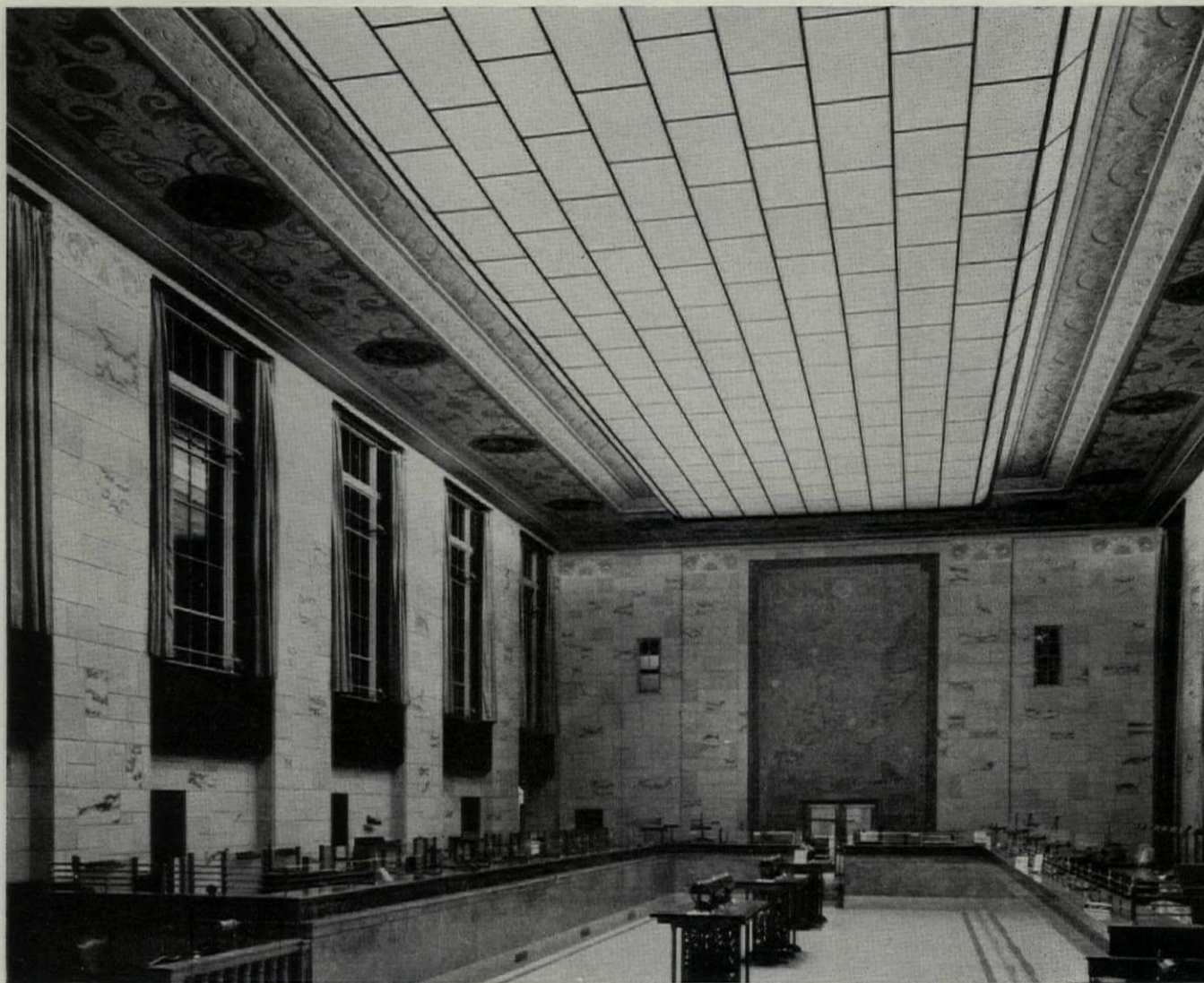
Military. This conglomerate category contains a few unique items like barracks and missile-launching pads along with a wide range of work that includes many common types of buildings: houses, stores, warehouses, theaters, clubs, chapels, administrative buildings, etc. Total expenditures in this area had a marked decrease in 1960. Little, if any, increase in the amount of new work is probable in 1961.

Farm buildings. Data on farm building—houses and outbuildings—is sketchy, and is in the process of revision by the government collecting agencies. However, it seems unlikely that the downward trend will be halted.

Highway construction, after a small (2 per cent) decline during the current year, is expected to revive in 1961. The forecast calls for an expenditure of almost \$6.4 billion next year, up 9.5 per cent from 1960.

Because the forecasting equation at this time has to take into account the possible influence of an unusual number of variables of unknown weight, the outlook must be viewed with a special degree of caution. Both the business and political situations at present contain uncertainties which may have considerable effect on the trends of construction in 1961. Also uncertain is the drift in the credit situation and the actions that the monetary authorities may take or not take in respect to it. FORUM has taken a cautious attitude in the figures it has presented, and, on the whole, the forecast seems conservative. The outcome may be better. As usual FORUM will take another look at the figures at the turn of the year and publish such revisions as may be indicated. At that time FORUM will also present the trend of modernization expenditures which are currently in the process of revision by the Commerce Department.

END



This Bank Gets a Public Relations Bonus For Its Lighting Equipment Money

When a bank's customers become vocal in their appreciation of the new lighting, that's good public relations. When the bank itself is pleased by both the lighting and customer response, that's good business!

This is a remodelling installation. Most impressive is the border of the luminous ceiling which has an upward slope of 30°, giving a picture frame or 3-dimensional effect* — a handsome choice for calling attention to the detail in the handsome frieze adjacent.

More practically, the intensity on the Tellers' Cage is now 100 foot-candles, average before was 5. If desired, intensity can be doubled by adding a row of lamps between existing rows. The equipment provides 45° shielding crosswise and lengthwise while diffusing the working plane with light. Light in weight, aluminum louvers save on installation expense and reduce the weight of the lighting system.

For similar results with standard, cost-saving equipment, specify Litecontrol.

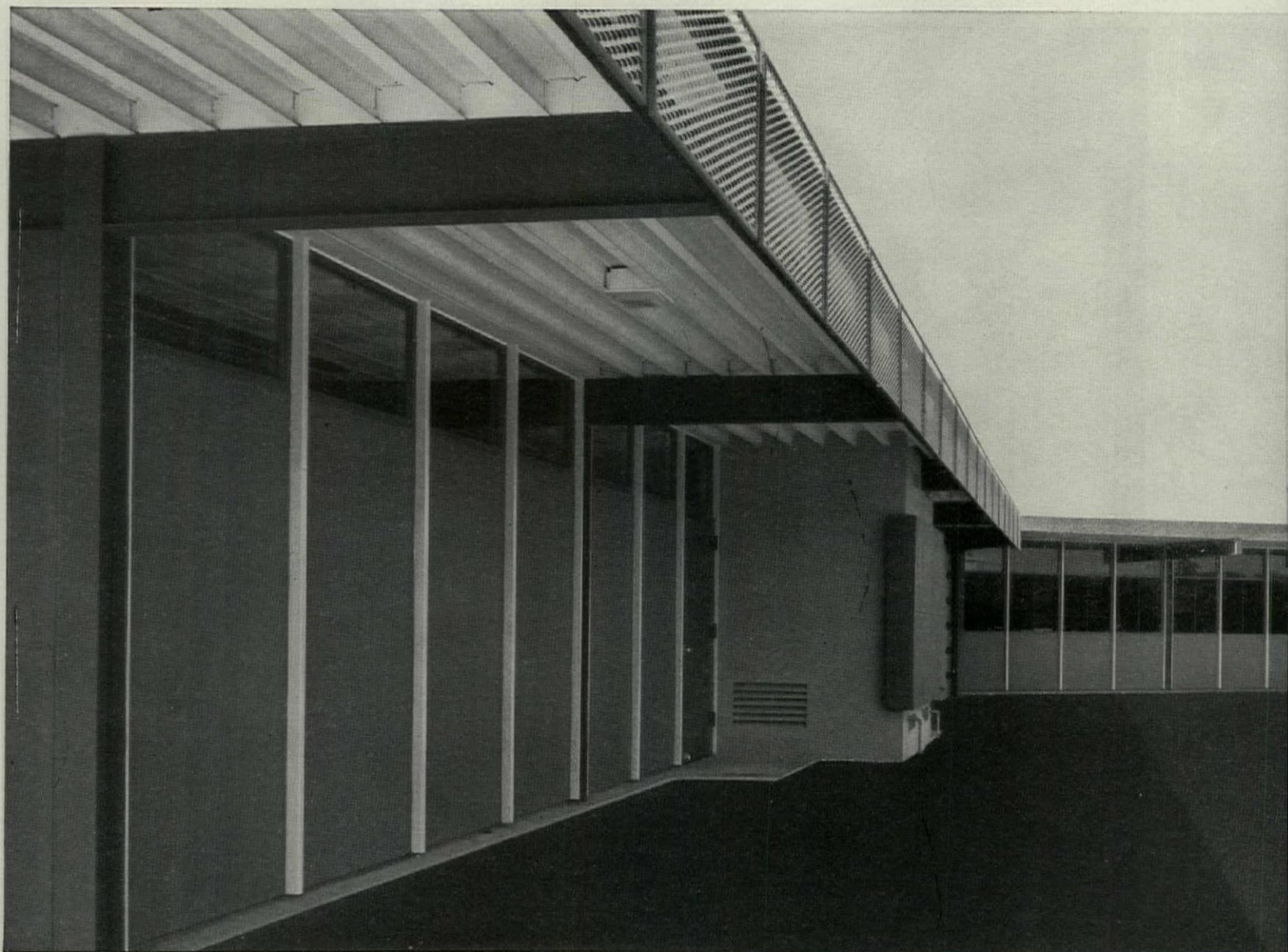
**This modification of the Litecontrol standard ceiling is purely decorative.*

INSTALLATION:
City Trust Company, Bridgeport, Connecticut
ENGINEERING CONSULTANT:
Clark Lighting Services, Waterbury, Connecticut
ELECTRICAL CONTRACTOR:
Eastern Electrical Construction Company, Bridgeport, Connecticut
DISTRICT SALES ENGINEER FOR
LITECONTROL CORPORATION:
Harold R. Young, 6 Pratt Street, Rocky Hill, Connecticut
AREA: Banking Area and Public Area
CEILING HEIGHT: 24'-6"
PLENUM DEPTH: 2'-6"
LUMINOUS CEILING:
2' x 4' white enamel finished aluminum louvers, 3/8" cube on
aluminum inverted T-bars, 40 watt Rapid Start Lamps,
24" on centers, mounted on Kindorf channel.
INTENSITY: On Tellers' Cages, 100 foot-candles in service.

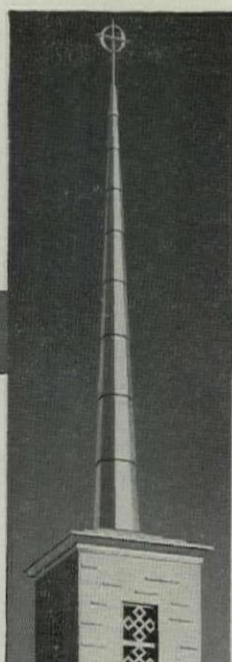

LITECONTROL
Fixtures

KEEP UPKEEP DOWN
LITECONTROL CORPORATION.
36 Pleasant Street, Watertown 72, Massachusetts

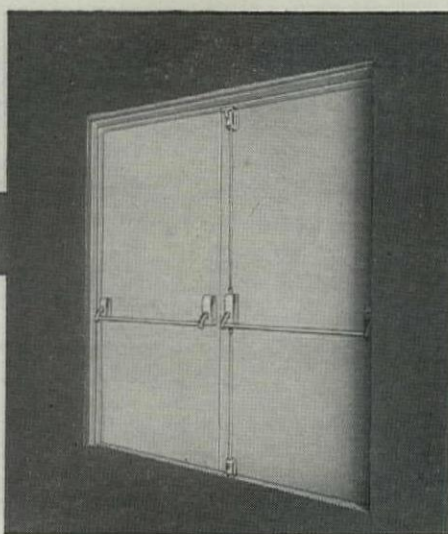
DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS



Vincent Elementary School, Covina, California
 Architect: H. L. Gogerty, Los Angeles
 General Contractor: Berry Construction Company, Ontario, California



Overly Church Spires



Overly U/L Labeled Fire Barrier with Exit Hardware



Overline Stainless Steel Entrances

When is a door not a door?

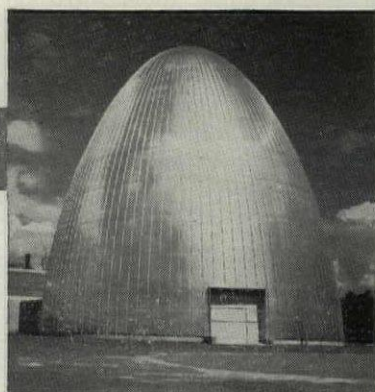
When it's a panel! Economy, utility and design were the primary qualities chosen by architect H. L. Gogerty, F.A.I.A., when he used Overly Hollow Metal Doors and Panels in the design of the Vincent and Mesa Elementary Schools in Covina, California.

Architect Gogerty adapted the economical Overly Door* for a novel use as fixed wall panels, blending the efficiency of mass production, simplified erection procedures and the fire safety standards provided by Overly's U/L labeling program.

Overly Doors and Panels provide these schools with fire safety far beyond that offered by average panel and door products. The construction technique—welding Overly panels to Overly mullions on either side and to steel members at top and bottom—permits savings in building time and materials. Equally important, these panels and doors are heat and moisture resistant, protecting the school against air conditioning loss and water penetration.

Whether your next project be a school, hospital, hotel or office building, it will pay you to consider Overly Doors and Panels. Overly offers the architect the largest selection of door products available today, as well as over 90 different door designs. Other Overly architectural products include Overly Batten-Type Roofs, Overline Stainless Steel Entrances, Overly Tilt-A-Front Construction, and Overly Church Spires and Crosses. For the finest in architectural craftsmanship, why not contact Overly.

**Overly catalogs a larger number of different door designs than any other manufacturer. Overly Doors may be seen at the following installations: First National Bank Building, Fort Worth, Texas; O'Hare International Airport, Chicago, Illinois; Libbey-Owens-Ford Building, Toledo, Ohio; The Beverly Hilton Hotel, Los Angeles, California; and the John J. Kane Hospital, Pittsburgh, Pennsylvania.*



Overly Pre-fabricated Roofs

The Architect's Craftsman

Overly

MANUFACTURING COMPANY

Greensburg, Penna. • St. Louis 19, Missouri • Los Angeles 39, California

SACRAMENTO'S GOLD RUSH

continued from page 129

tural coordination should not have been made mandatory.

Taken as an ensemble, the project promises to be a dreadfully torn affair; and the great theoretical opportunity of redevelopment—for new harmony in civic design—seems to have been wantonly lost. For if the buildings proposed for the area are actually built as designed—John Bolles' dull Crocker-Anglo Bank, Frank Ehrenthal's disturbingly restless Claremont Hotel, the bureaucratic Federal Building—then Sacramento will perhaps get even less than it deserves.

Moreover, the area will still be at the mercy of the automobile. If the buildings on the mall will front on a monumental boulevard, several of them—Bolles' bank and the Federal Building particularly—will have parking-lot behinds. Far from being concealed underground, except in the excellent and locally financed shopping center designed by Leo A. Daly & Associates (below), the automobile thus far seemingly will be very much in evidence on the surface, usurping large areas which appear softly landscaped in the architect's drawings but will actually be rather oppressive blacktop.

And the mall—the single unifying element of the composition, with its 40-foot setbacks on either side, and green central islands—will not be a true mall at all, but a traffic-bearing street with trees. Ten years too late, City Planner Richard Rathfon, another of Sacramento's dedicated public servants, proposed last summer to turn the upper end of the mall into a pedestrians' plaza, barred to traffic, and embellished with fountains. He met with solid opposition from virtually every branch of the municipal government.

The controversy drew attention to the fact that for a decade Sacramento's renewal cart has been without a lead

horse: a core-area plan. Only when the state highway department announced that it was planning to run a north-south freeway near the river bank did the *Bee* become alarmed, and point out to the city the necessity of choosing the freeway route with extreme care. The result was that Leo A. Daly & Associates was selected, over five other nationally known firms, to draw up a core-area study which will be submitted this coming March.

Whatever recommendations the Daly office makes will of course strongly affect the next phase of the redevelopment program, the ten-block Capitol Mall Extension project, which has received federal approval and is going ahead: land acquisition will begin soon.

Here some delicate problems will be encountered which the city thus far has succeeded in evading, for the project will carry the redevelopment to within a block of the river front, which is precisely where the state engineers expect to run their freeway. This historic neighborhood also happens to be one of the most fascinating in California. If Sacramento was content to neglect these lively iron-front buildings (page 127) for decades, the citizenry is now aware of how much they can mean to the city if they are once again brought into its active life, not as museums but as economically sound investments which will remind the city of its stirring past, and enrich its future.

But all this will take the most sensitive civic design—a design, furthermore, which will anticipate the last stage of the program which will go on to the river front itself. This is just the place, as the *Bee* has argued, where Sacramento can create a diversified but ordered environment, mixing the old and the new, taming the raw impulses which have been so painfully evident thus far in the city's development, without needlessly subduing its gusto.

The very fact that the city is finally aware of such considerations is cause for hope. So is the fact that handsome modern buildings, such as Wurster, Bernardi & Emmons' forthright Bank of America, a few blocks from the redevelopment area (at right above), have commenced to take their place modestly in Sacramento, setting a new local standard for excellence. More sig-



Wurster, Bernardi & Emmons' forthright bank.



Dreyfuss & Blackford's S.M.U.D.

nificant still is the appearance of distinguished architecture by such a young Sacramento firm as Dreyfuss & Blackford, whose striking Sacramento Municipal Utilities District building (lower photo, above) is one of the outstanding large steel office structures in the West.

Perhaps it is too much to hope that the State Architect's office will ever approach the quality of Dreyfuss & Blackford's design; but at least that stronghold of mediocrity is now being subjected to some supervision. The Capital Building and Planning Commission, headed by gifted Architect Albert Dreyfuss, who is powerfully seconded by William Wilson Wurster, has engaged John Carl Warnecke & Associates and Planners Livingston & Blayney to study the state's prodigious building program. Among the recommendations to be expected: taller structures, more open space.

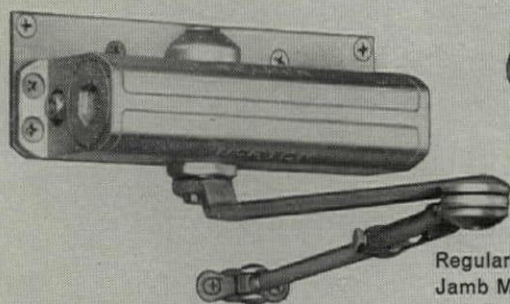
Much is to be done. Inevitably, more mistakes will be made. Some of the damage now being committed will take another generation or more to repair. Yet Sacramento is learning that neither dull complacency nor desperate haste is the course of wisdom; but that, in contrast to the violent rush for treasure at Sutter's Mill only slightly more than a century ago, when men's labors and fortunes were washed away like golden dust in water, the permanent wealth of the community depends—as Thoreau knew in the small town of Concord—on common magnanimity, intelligence, trust, and useful works, as well as the conscious quest for health and beauty.

END

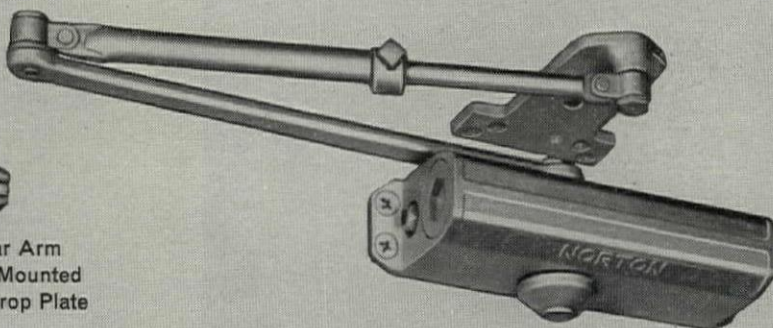


Leo A. Daly & Assoc.'s convenience shopping.

PHOTOS (LEFT & ABOVE) : RONALD PARTRIDGE



Regular Arm
Jamb Mounted
with Drop Plate



Parallel Arm

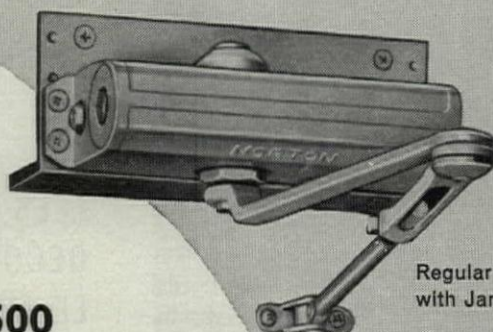
NORTON'S

new Trimline Series 1500

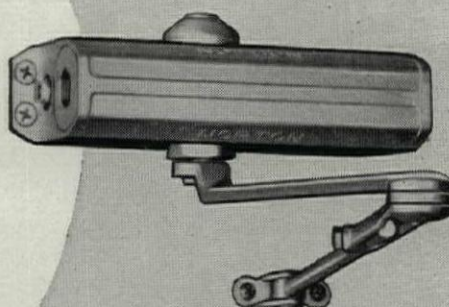
offers versatility

Norton's New Series 1500 Trimline closer is designed and built to provide greatest possible versatility, design harmony, and dependability in door closers.

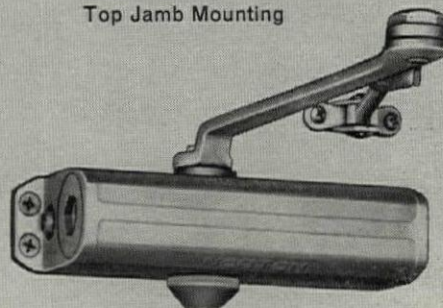
The versatility of this non-handed rack and pinion door closer allows maximum freedom in your choice of door and frame style and closer application. The Norton Series 1500 TRIMLINE closer affords dependable, trouble-free control of a wide range of door types—wood or metal, interior or exterior.



Regular Arm
with Jamb Bracket

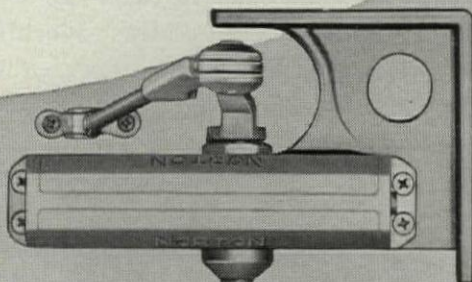


Regular Arm
Top Jamb Mounting



Regular Arm

1010



Regular Arm
with Corner Bracket

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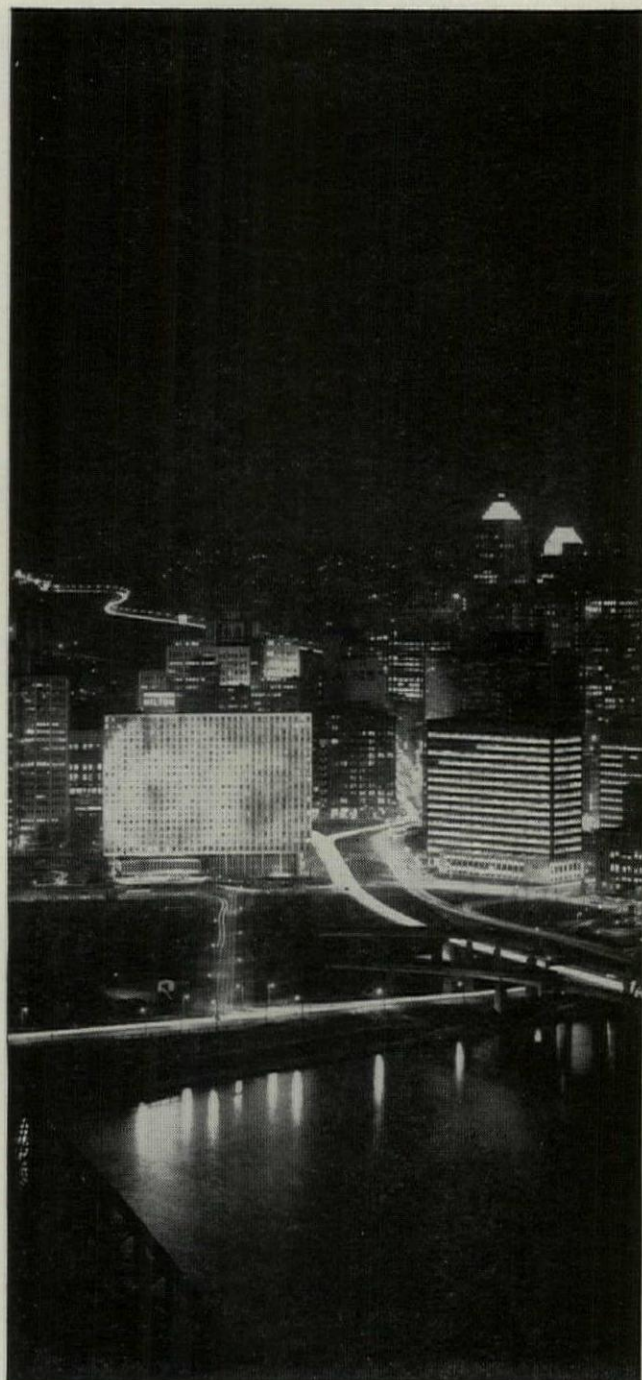
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Solution: Variations on a fine old Aubusson pattern, custom loomed in Lees sturdy Hooksett carpet which takes the yarn through the back; and in Lees extra-heavy-duty Duracord carpet which packs 50% more yarn than conventional weaves into the surface of the carpet for a lot more wear.

Peach, peacock blue and brown underlie the quintuple color scheme devised by Interior Designer Robert Perrin, to combine eighteenth century grace with 1960 practicality high in the sky of downtown Pittsburgh. Of the finished installation (made by Wayne-Weil), Mr. Perrin says, "A beautiful job of interpreting my design ideas. Working under a very difficult time schedule, Lees provided patterns, texture, colors that were precisely what I needed—on time!" *Another reason why decorators, architects and contractors specify Lees!*

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Those heavenly carpets by *Lees*



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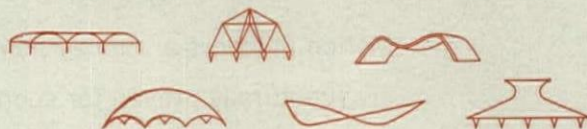
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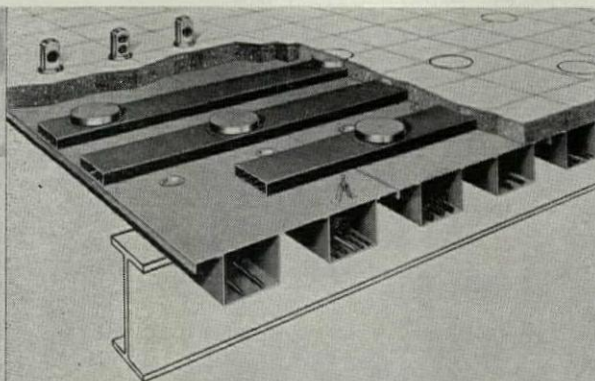
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versatile steel
cellular sub-floor
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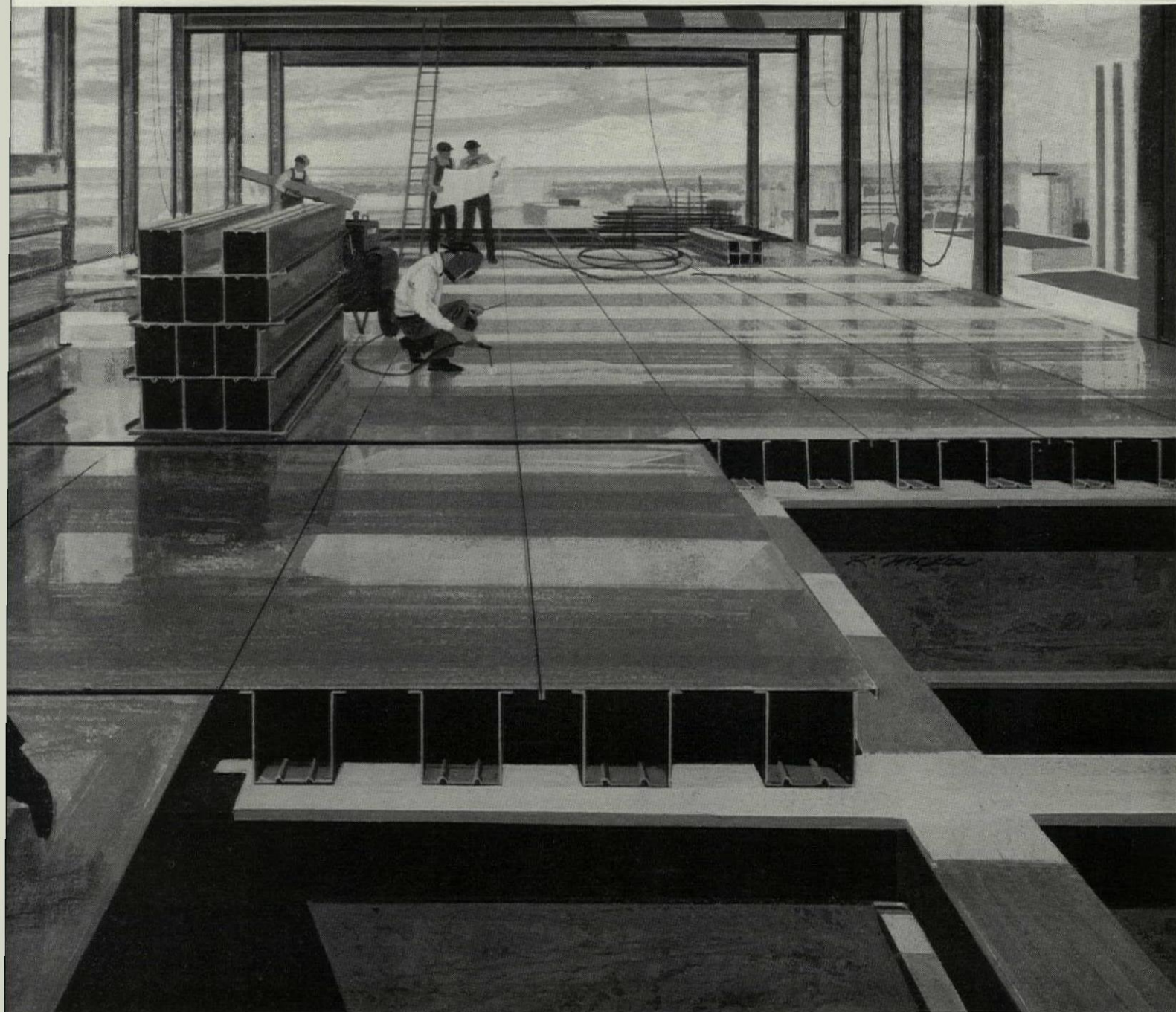
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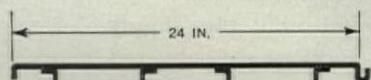
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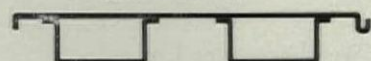
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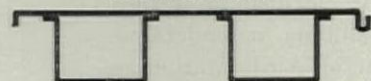
MAHON M-FLOOR SECTIONS



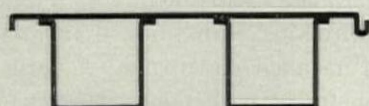
SECTION M2-1.5
CEL-BEAM DEPTH 1 1/2 IN.



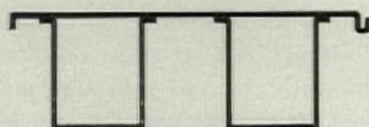
SECTION M2-3
CEL-BEAM DEPTH 3 IN.



SECTION M2-4.5
CEL-BEAM DEPTH 4 1/2 IN.



SECTION M2-6
CEL-BEAM DEPTH 6 IN.



SECTION M2-7.5
CEL-BEAM DEPTH 7 1/2 IN.

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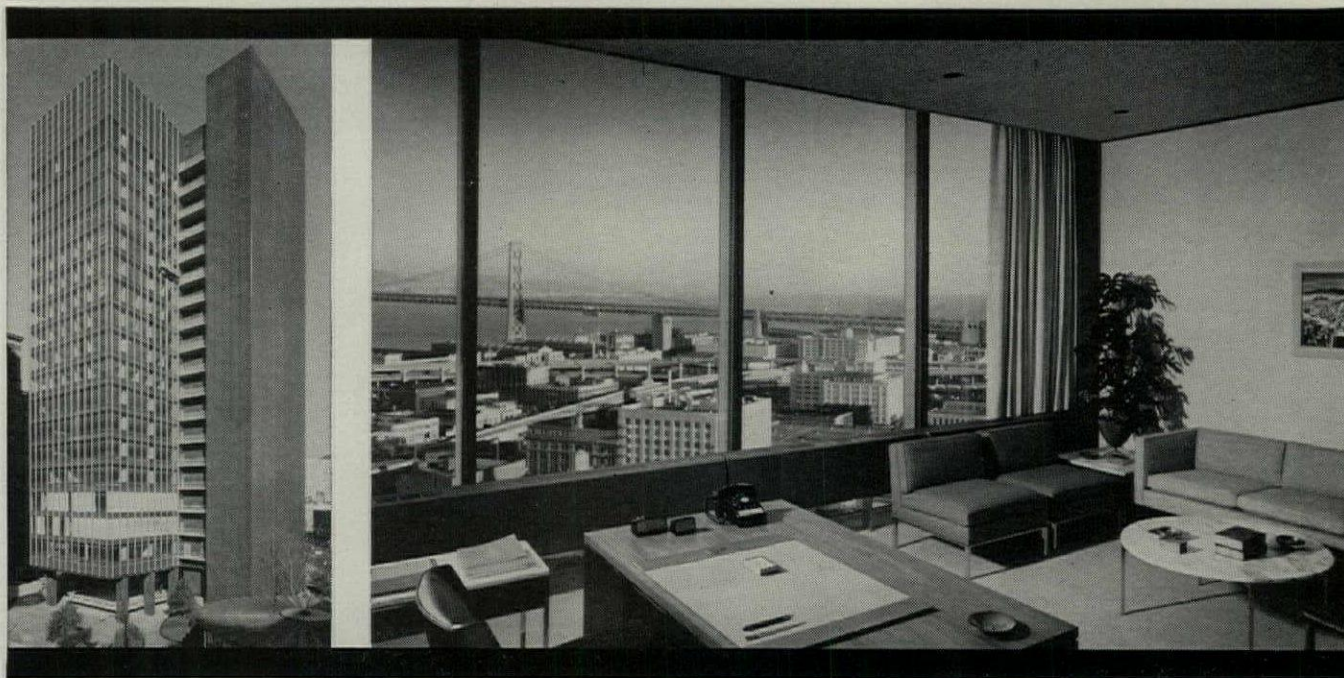
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The magnificent gift of urban space represented by San Francisco's newest plaza-skyscraper would suffer severely from sun were it not for its heat-absorbing green glass walls and the more than 1400 Carrier Weathermaster* Units which blanket them with conditioned air and provide individual room control of temperature and humidity.

Here two Carrier Hermetic Centrifugals with a total capacity of 850 tons supply chilled water for air conditioning. Conditioned air and water services are delivered to Weathermaster Units installed end to end to form a continuous 10-by-12-inch railing around the perimeter of each floor. The smart, tailored look is shown in the office above.

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partitions
that are
movable**



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of the other systems:

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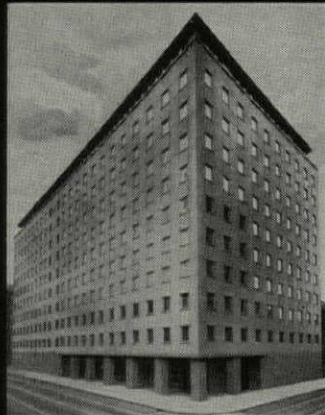
Plants and offices throughout the United States



Quick response to load shifts is required in the employees' cafeteria. Fast-acting pneumatic controls easily compensate for changes in occupancy levels and assure uninterrupted comfort.



Accurate regulation of both temperature and humidity is required for the operation of the large-scale digital computer. Integrated safety controls afford added protection in this vital area.



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Flexible, automatic operation of this equipment is provided by a Johnson Pneumatic Control System. In keeping with today's concept of comfort as a key factor in human efficiency, *individual room* controls were installed to maintain ideal thermal conditions throughout the building. Closely controlled environment also is essential for Procter & Gamble's electronic data processing system, for such equipment must be operated within precise temperature and humidity limits.

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PNEUMATIC SYSTEMS

DESIGN • MANUFACTURE • INSTALLATION • SINCE 1885

The Procter & Gamble General Offices Building, Cincinnati, Ohio. Voorhees, Walker, Smith, Smith & Haines, architects and engineers, New York; A. M. Kinney, Inc., associate engineers, Cincinnati; Frank Messer & Sons, Inc., general contractor, Cincinnati; Freyn Bros., Inc., Cincinnati, and George Koch Sons, Inc., Evansville, Indiana, mechanical contractors.

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JAZZ AND ARCHITECTS

Forum:

Thanks for "Jazz in architecture—it makes more fun and better sense" (FORUM, Sept. '60). But, as for your collection of architects—never saw a smile in that lot of sad sacks.

Trouble with architects is that we have lost our sense of humor. Next time I see an architect at a jazz concert, will wire you.

ALFRED BENDINER, F.A.I.A.
Philadelphia

Forum:

One of my people told another that FORUM had called me a square. The man answered, "No, he isn't a square; he's a hexagon."

MINORU YAMASAKI
Architect, Birmingham, Mich.

Forum:

Might it not be in line also to suggest that in residential design we have some thought given to chamber music? And in what used to be monumental design, could we occasionally expect something symphonic?

FRANK C. GILSON
The Univ. of the State of N.Y.
Albany, N.Y.

INDIANAPOLIS EXCHANGE

Forum:

Your story about Indianapolis redevelopment (FORUM, Sept. '60) illustrates that the people involved, being the political and business leadership, are more important than the organizational setup or the sources of funds.

The Indianapolis program has accomplished as much for the size of the community involved as any other city—with one or two exceptions.

There is no doubt that to raise funds federally does cause delays and tends to restrict the program to a national pattern. Each city has its own individual problems.

I have said for some years that cities must assume more leadership and not rely entirely on federal cash aid plus federal advice. Even in Boston where our fiscal problem is more severe than in any other city I know of, we are carrying forward a small program involving \$1.5 million, using city funds only. This was

done because the business leaders and the city administration both felt that speed in carrying out the job was more important than the federal cash aid.

Between the point of view that the Great White Father must do everything for us and the point of view that it is a city "do-it-yourself" program lies a broad field for more efficient and more comprehensive redevelopment throughout the country.

JOSEPH W. LUND
Chairman, Redevelopment Authority
Boston, Mass.

Forum:

Your September story on the Indianapolis urban renewal program and its unique plan of financing is stimulating.

FORUM's array of solid urban renewal accomplishments in Indianapolis since 1945, when compared to some other notable examples, does not make the rate of progress in Indianapolis seem particularly slow-paced.

Certainly there must be public expenditures in urban renewal. Whether or not a particular city genuinely needs federal assistance in meeting these expenses, the most desirable long-range goal is for a broadened municipal tax base that will gradually reduce and eliminate this independence. Since Indianapolis found the way to attain that enviable status at the outset of its urban renewal program, the city is all the more deserving of hearty congratulations upon its achievement.

CHARLES T. STEWART
Director, Division of Public Affairs
National Association of
Real Estate Boards
Washington 6, D.C.

VITAL BULLDOZERS

Forum:

The article on "Bulldozer architecture" is splendid coverage of a very vital subject.

CAROLINE SHILLABER
School of Architecture & Planning
Massachusetts Institute of Technology
Cambridge, Mass.

Forum:

When talking about earth moving (FORUM, Aug. '60), let's give some credit to the Seabees. They can compete with any record for earth moving in recent times.

Cubi Point, located on the tip of historic Battan Peninsula on

the island of Luzon some 50 miles north of Manila, is perhaps the biggest example of their prowess. They began arriving there in January 1951 to begin construction.

Today, the 8,000-acre Cubi Point airstrip looks as if it had been created with one flourish of a giant knife down through four rugged ridges which once descended to the shores of Subic Bay on a four-to-one slope. The maximum cut made in shaving the hills level to make the landing strip was 135 feet—the height of a 13-story building. The enormous side-hill cuts through the ridges made it necessary to divide the airstrip project into five big earth-moving zones. The Seabees operated 23 different kinds of major construction equipment during the five-year period.

Some 18 million cubic yards of earth were moved; more than a million cubic yards of coral were placed and processed for finish grades; 143,100 tons of asphaltic concrete were used for paving the airstrip and access roads; and some 150,000 cubic yards of Portland cement concrete were used in paving the ends of the airstrip and airplane parking areas.

Match that.

H. G. CLARK
Rear Admiral, CEC, Commander,
Naval Construction Battalions Pacific
San Francisco

■ Wonderful engineering. Not having seen it, FORUM's editors only hope Cubi's architectural effect came out as well.—ED.

Forum:

This is respectfully to call to your attention a slight geographical slip in your bulldozer piece.

In place of being located "near Boulder, Col.," as a caption says, the U.S. Air Force Academy is adjacent to Colorado Springs, Col., approximately 80 miles farther south.

JOE C. RAY
Palo Alto, Calif.

■ FORUM's story checkers slipped indeed.—ED.

AD DESECRATION

Forum:

The August FORUM was interesting, as usual, but I was par-

ticularly pleased and amused at the sketches of Paris and Venice by Lewis Crutcher. I have just seen Virginia City, Nev., where the fine old buildings are being desecrated by advertising in just this manner.

It would be wonderful if more people and places could be exposed to this type of satire. Congratulations to you and to Mr. Crutcher.

JOHN GARDEN CAMPBELL
Architect, Campbell & Wong
San Francisco

MODEL TOWER

Forum:

Your article on the new Time & Life Building, the "two-purpose tower" (FORUM, Aug. '60), was a model of what descriptive architectural journalism should be, but rarely is.

To judge a building fairly it is essential to be informed of the basic planning considerations, specific to the client, that result in the final solution, whether one agrees with it or not. The text was unusually helpful in this respect.

As for consideration of the architecture itself, pictures can tell more than words if they are given the chance; and happily, in your article, they are.

HAROLD E. BUTTRICK
New York City

■ Which gives FORUM a chance to show a more recent view of its tower home (below).—ED.



M. NORTON

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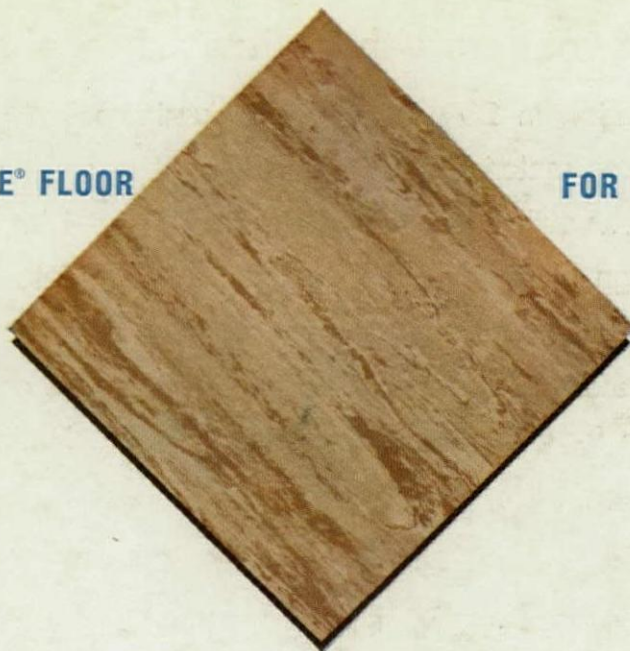


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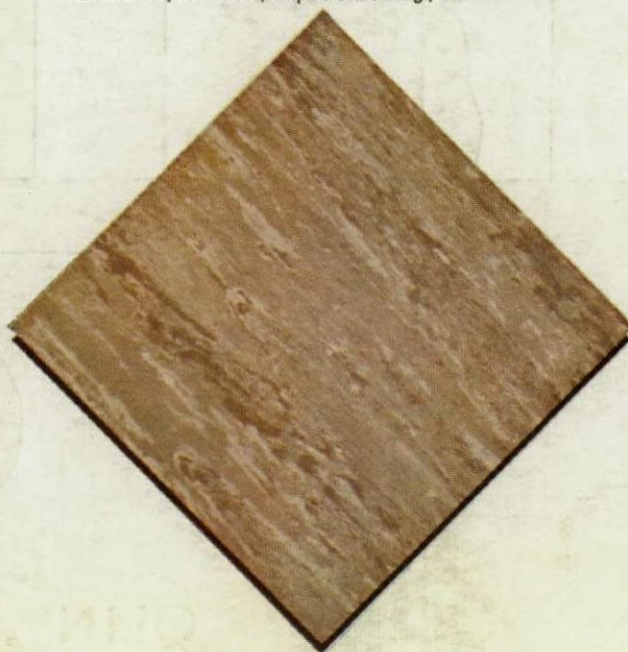
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