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Cover: Design by Ray Komal
based on Milwaukee's
War Memorial Building (story, p. 90)

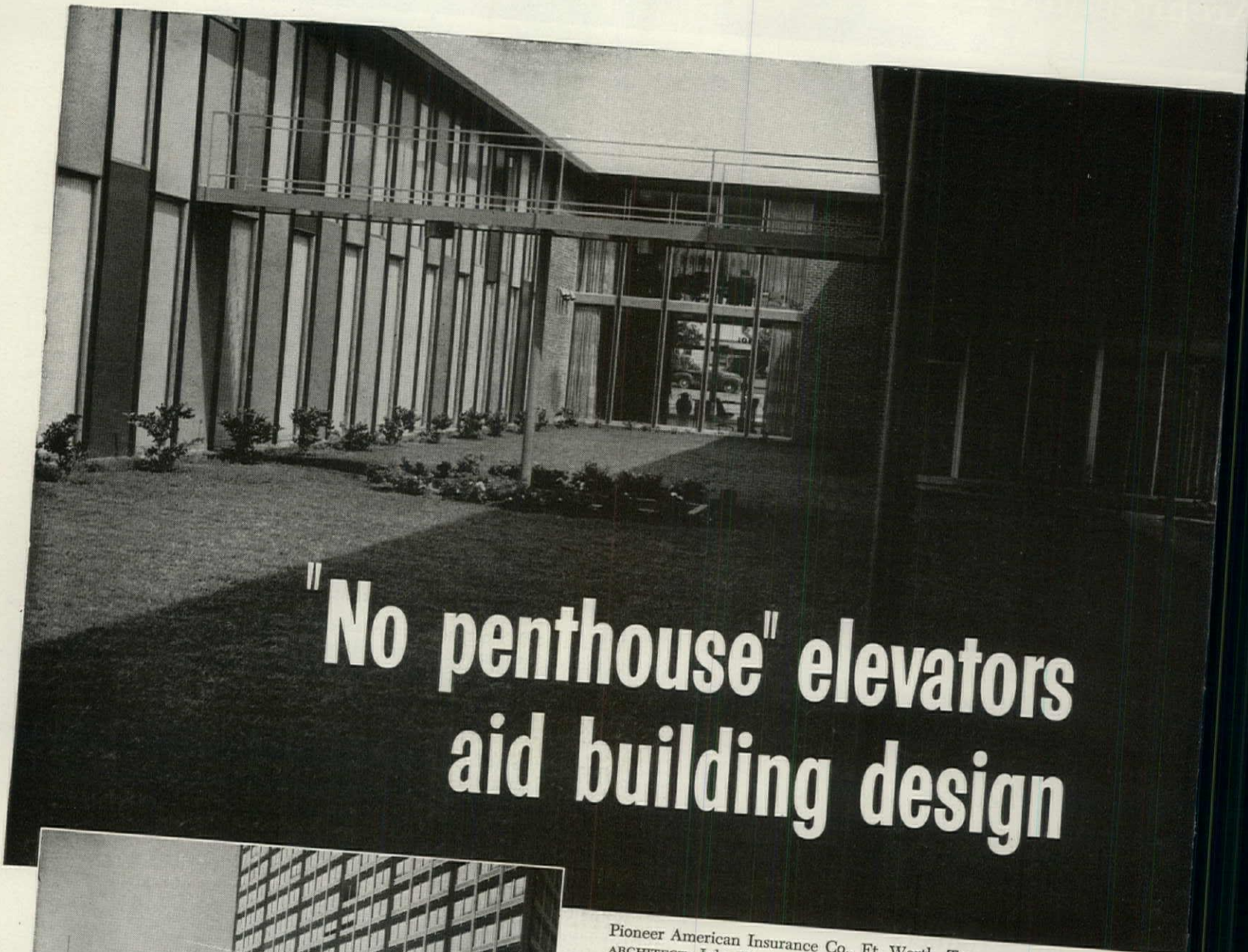
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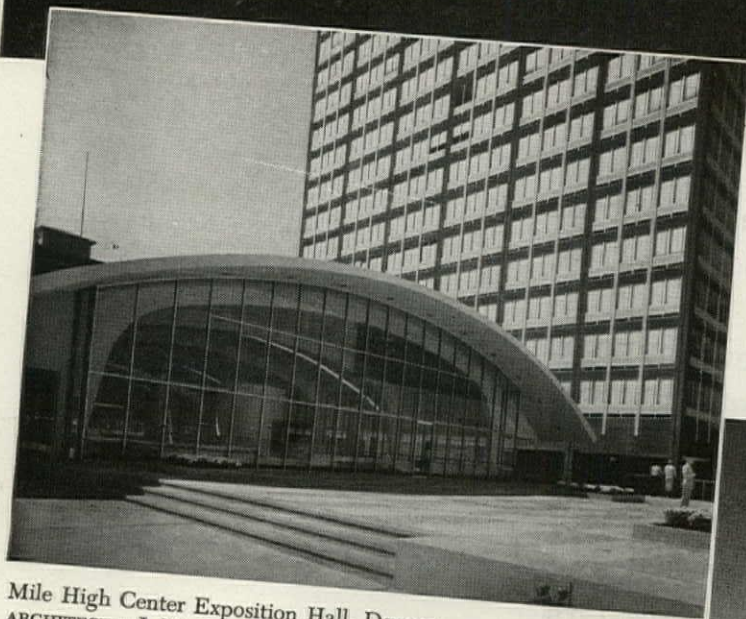
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What it needs most is not more subsidy or government support but a change in the tax laws, says Economist Miles Colean.
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- 144 **Engineering of a monument**
Saarinen's Milwaukee War Memorial Building is a notable blend of architecture, engineering, and lightweight concrete. (For brief accounts of other developments in technology, see p. 147.)



"No penthouse" elevators aid building design



Mile High Center Exposition Hall, Denver
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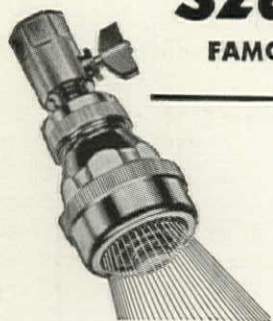


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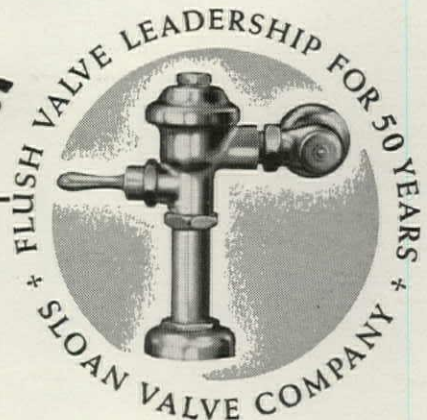


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Missile and satellite programs create new threats

to renewal funds; reserves down to \$49 million

Is federal aid for urban renewal going to be a casualty of US-Russian competition in earth satellites and intercontinental ballistic missiles?

Washington observers were divided last month.

Some who listened to President Eisenhower's special address to the nation on the problem of financing stepped-up scientific and defense programs found ominous significance in his passages that said: "In the federal government's civilian activities we shall have to make some tough choices. Some programs, while desirable, are not absolutely essential. . . . Savings of the kind we need can come only through cutting out or deferring entire categories of work."

Recalling the several pre-Sputnik statements and actions of the President and top White House advisers who have favored turning the entire responsibility for urban renewal over to state and local governments, these observers feared the President might not ask for any further urban renewal authorizations at all in his annual budget message to Congress next month. At best, they anticipated a request for only a token increase for the next fiscal year, and a greater drive for rehabilitation projects, instead of slum clearance and redevelopment.

Other, more optimistic observers thought political realities would deter

the administration from taking such drastic action affecting the nation's largest population centers. They thought it was still possible that the administration would propose further aid to fight blight and decay and help revitalize our cities at a rate close to the current level of \$250 million a year for new authorizations. (Last month federal project reservations totaled \$978 million; project applications awaiting processing amounted to \$223 million; the net effective sum available for additional projects was only \$49 million.)

While the administration's exact program would remain a close secret until the President delivered his budget message to Congress, urban interests were already busy rallying support against any abandonment or major reduction in the program. From Washington, the American Municipal Assn. last month recommended a continuing program with federal authorizations up to \$500 million a year. The AMA pointed out that the original 1949 clearance and redevelopment law was "greatly broadened and enlarged three years ago with very strong support from the President." It would be a mistake, it declared, to throttle the program "just as the cities are getting into high gear."

COMMUNITY PLANNING

Cleveland groups plan big cultural center

Under an ambitious privately sponsored program, Cleveland's east side University Circle district will be developed over the next 20 years into one of the nation's outstanding coordinated medical, collegiate, and cultural centers.

Thirty-four varied institutions now have land and buildings valued at \$125 million scattered through the area, which is bisected by busy Euclid Ave. The three major ones are Western Reserve University, the Case Institute of Technology and University Hospitals. Among the others are the Museum of Natural History, Art Museum, Institute of Art, Mt. Sinai Hospital and the Garden Center.

The 20-year program to be directed

NORTHEASTERN SECTION of Cleveland's University Circle development will have extensive parking lots beside the New York Central tracks so that the main area, served by loop bus service, can be spared "annihilation by asphalt." Euclid Ave. will be depressed for about 1,000' to provide for a large pedestrian plaza overpass (A) between the big landmark Severance Hall (B) and the University Hospitals (C). New garden and high rise apartments (D) would serve the science, technology and medical area between Euclid Ave. and railroad. The section on the other side of Euclid, which includes the Commodore Hotel (E) will be developed into two separate "liberal arts" and "leisure and cultural institutions" areas.



by the nonprofit University Center Development Foundation will cost an estimated \$175 million, consisting of \$5 million for roads, \$30 million for housing, and \$140 million for land and various other institutional buildings, parking facilities, landscaping and a "common core" area.

The master plan for the eventual 488-acre complex was prepared by the offices of Adams, Howard & Greeley and Anderson, Beckwith & Haible of Boston, architects and city planning consultants, under a grant from Mrs. William G. Mather and the three largest institutions. A major feature will be a broad pedestrian plaza over Euclid Ave. (see cut, p. 5) to help integrate the entire area into one large coordinated center. Although plans for specific buildings and improvements have not been made yet, the "big three" institutions have agreed to follow the master plan's land-use recommendations to submit architectural plans for each new building to a central review board, and to act jointly on land acquisition and parking matters.

Philadelphia to start conservation, and a land bank

Philadelphia last month was embarked on two significant renewal and redevelopment projects that other cities might well observe and emulate:

► With a URA planning advance of \$350,000 (and an \$11 million capital grant reservation), the city started working in earnest on a 127-acre combination conservation - and - clearance project for its downtown Center City-Society Hill area near Independence Hall. Preliminary plans of the Planning Commission and the Old Philadelphia Redevelopment Corp. call for about 65 acres to be cleared and redeveloped primarily for residential use, and 62 acres to be conserved and rehabilitated. Work in the latter section will include modernization and restoration of some eighteenth- and nineteenth-century buildings in their original architectural style—in some instances probably with some public "write down" aid if costs can only be justified on esthetic grounds, but not on an economic basis.

► Under a new ordinance, the city also has established a municipal "land bank" to spur the development of new industrial plants within the city limits. To do this it will transfer surplus city real estate to its Redevelopment Authority,

NAHRO convention fights renewal cutback threats, hears of low-rent plan tied to building-cost bids

The mounting threat of severe curtailment or elimination of US aid for urban renewal was the topic of greatest concern at the annual convention of the National Association of Housing and Redevelopment Officials in St. Louis.

The "policy" resolutions adopted by the meeting stressed the need for "a continuing federal program of sufficient magnitude to meet the needs of our cities. To do less is to jeopardize the social and economic welfare of our great urban centers." To improve on the present threatened program, NAHRO recommended: 1) complete elimination of the before-or-after "predominantly residential" redevelopment requirement; 2) speedier processes that would allow project land acquisition and relocation to be undertaken while redevelopment plans are still being drawn; and 3)

greater U.S. financial aid, in keeping with a declaration that "urban renewal is no less important than the [90% federal assisted] highway program."

At a redevelopment section meeting, Chairman Lawrence M. Cox protested that some local URA officials have been



TRIPP

"discouraging" the filing of applications for new projects. Objecting to such tactics and to URA's new quarterly allocation system covering new project reservations, William Rafsky, Philadelphia's development coordi-

nator, suggested that cities insist on submitting their applications whenever they are ready, so they would thus effectively demonstrate the real "volume of unmet need" for renewal funds, in contrast to the new authorization amounts voted by Congress.

President Eisenhower's proposal for shifting responsibility for urban renewal back to state and local governments was criticized as entirely unrealistic. At a press conference, NAHRO President Knox Banner said the Eisenhower plan was "the surest way renewal could be strangled to death, or completely crippled." Devising necessary federal-state tax program reallocations would take too long, he explained, and state acceptance of greater responsibility for aid to cities would be extremely difficult if not impossible to obtain in many states with rural dominated legislatures.

At the annual banquet, Gov. George Leader (D, Pa.), who is a member of the joint federal-state committee studying the Eisenhower proposals, articulated the NAHRO stand: "I shall oppose vigorously any attempt to withdraw the federal government from its established areas of responsibility in redevelopment and housing. To the contrary, I believe the federal program, as we know it, is neither large enough nor aggressive enough; return of sole responsibility to the states would be a death sentence for the struggling cities of America. . . . We also should quit playing cat and mouse with urban renewal, keeping authorizations at such starvation levels that each session of

which, working in cooperation with the city's Commerce Dept., will then sell or lease it to acceptable private industries. New plants will be subject to setback, landscaping, parking and architectural controls. Sale or lease proceeds will go into a revolving fund to acquire other property, principally in slum or blighted areas, that can best be redeveloped for industrial use. The first site suitable for an industrial park to be transferred to the Redevelopment Authority is a 113-acre tract adjoining North Philadelphia Airport. Eventually the city hopes this program will convert about 300 acres a year into campus-type in-city industrial centers.

(Meanwhile a Philadelphia metropolitan region study by the University of Pennsylvania Institute of Urban Studies warned that too much suburban land that would be more suitable for industry is now being developed for housing, thus limiting future economic growth in outlying areas. The study recommends that Bucks, Delaware, Chester, and Montgomery Counties take joint action to preserve and develop adequate areas for future industrial growth, as well as to plan for water and industrial disposal needs on a regional basis.)

Congress must act to insure a continuing program."

Other convention highlights:

► A plan to obtain privately built low-rent redevelopment site housing proposed by W. Beverley Mason Jr., FHA assistant commissioner for urban renewal. Mason would set a fixed land resale price, and have redevelopers bid on the construction and ownership of FHA-backed apartments built to specific architectural plans obtained by the local redevelopment agency. Mason once worked in a contractor's office, he said, and he got this idea to have redevelopers compete on "building costs" rather than on land prices from his observation that "sharp bidding" can sometimes reduce construction costs "as much as 10 to 15%."

► Election of Philip Tripp, executive director of the New Bedford Housing Authority since 1941, as president, and Charles L. Farris, of St. Louis, as first vice president.

Chicago realtors offer conservation prizes

To mark its diamond jubilee next year, the Chicago Real Estate Board launched a year-long campaign against urban decay. The device: a Better Neighborhood Crusade that offered \$20,000 in prizes to neighborhood improvement organizations and community groups that stimulated the most effective block and neighborhood housing conservation and rehabilitation programs.

Through Nov. 20, 150 separate blocks had enrolled in the competition, and late comers were expected to push the number close to 200. Last month each block (which had to be at least 85% residential by area) was "inventoried" and photographed by its block captain and a Real Estate Board member. Records were made of the exterior conditions of all buildings on each block, any apparent housing code violations, and the conditions of yards, alleys and vacant lots, etc. From now through next August, each block and community organization will develop its own improvement campaign and stimulate individual property owners to remedy all unwholesome or unappealing conditions. After Sept. 1 each block will be thoroughly rechecked and rephotographed, and awards given for those showing the greatest improvement.

NAREB meeting is cool to federal renewal program, but urges help for city apartment construction

At its golden jubilee in Chicago last month the National Association of Real Estate Boards registered considerable concern over many urban problems and how to solve them, but it virtually ignored the federal urban renewal program.

The realtors' conspicuous lack of enthusiasm for US slum clearance, redevelopment and renewal assistance, as a matter of fact, struck some observers as almost veiled hostility to it. President Kenneth Keyes in a brief passage in his annual address, for instance, pointedly declared that "one of the most encouraging developments is the effort now being made by President Eisenhower and the Joint Federal-State Action Committee to bring to an end some of the vast and costly federal assistance programs." Even more pointedly, the formal NAREB "policy" statement adopted later also "endorsed" the Eisenhower proposals and "urged" a study of "the feasibility of surrendering present federal taxes on real estate conveyances and estates to enable state and local governments to assume a much greater degree of responsibility for slum clearance."

At a press conference, Keyes said he was "not well enough informed" to express an opinion whether the federal urban renewal program should be continued, or at what level of further financial authorizations. He admitted, however, that there obviously would be some "risk" that gutting the program also might trim federal aid for the neighborhood conservation and rehabilitation type of renewal pushed by NAREB's Build America Better Committee. Agreeing that there was no prospect of achieving NAREB's rehabilitation goal of "No Slums by '60," Keyes said this BAB campaign slogan of 1953 and 1954 had been "overoptimistic," and he would not venture any estimate of when comprehensive slum elimination might be achieved. He does feel, however, that progress is being made, and that the nation's slums no longer are growing faster than they are being eradicated—although he regretted he could not say this was so in his own city of Miami.

In an address to rally support for the Build America Better rehabilitation drive, BAB Chairman Walter S. Dayton declared that "blight has become the nation's Number One domestic economic problem." As a result, he added, "real-

tors who do not get into the rehabilitation field are overlooking a top-notch business bet. . . . Rehabilitation of old homes is the best business opportunity in the US today." Later Dayton explained to reporters that his own office does not contemplate entering this lucrative field because it is located in Bayside, Queens, a part of New York City on the "north shore of Long Island" that has no slums.

The realtor's policy statement opposed any further U.S. public housing funds, and said FHA's relocation aid programs are "proving adequate."

Construction of more privately owned rental housing in cities, however, was one urban problem on which the realtors did seek greater federal assistance. On this score their "policy" statement said: "The need grows more acute, particularly in the large urban centers. It is not being met because the inadequacies in existing financing methods discourage investment in, and construction of rental housing. We call upon Congress and appropriate agencies to consider these inadequacies, and urge approval and implementation of a program to insure financing of privately owned rental housing."

In this connection, FHA Commissioner Mason told a press conference that rental housing had suffered from tight money and from too many "restrictions" imposed on builders through FHA charter requirements. On an encouraging note, he reported that FHA was considering two remedies: 1) a much less restrictive charter, and 2) a plan that "might allow a builder to

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ADAMS & FRANK



INDUSTRY LEADERS at annual award dinner of the Society of Industrial Realtors during NAREB convention included (l to r): Neele E. Stearns, president of the Crane Co.; Philadelphia Harold B. Hess, new president of SIR, and Lester C. Rogers, of Chicago, national AGC president.

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MT-2

erect a project with practically no investment, but receive practically no return—until the mortgage was paid off and he had an attractive long-term capital gain."

At a Brokers Institute session, Harry Fath, of Cincinnati, described an off-beat downtown problem. In appraising a commercial garage recently, he related, he found that it could now accommodate only two of today's bigger cars, instead of three, in each 22' bay between columns, thus cutting its efficiency and income approximately one-third, and its valuation for garage purposes. Institute President Robert B. Collins, of Tulsa, also told of another modern day auto-highway phenomenon: some workers in his area are now regularly commuting 75 to 100 mi. each way daily by auto.

For their 1958 national president the realtors elected H. Walter Graves, of Philadelphia, a dark horse who beat out his close and intimate friend C. Armel Nutter, of adjoining Camden, N.J., who had come to the convention with a large majority of state delegations in his corner. Graves was NAREB treasurer from 1948 to 1953, and this year headed its (legislative) Realtors Washington Committee.

PUBLIC BUILDING

Revised plans OK'd for St. Louis arch park

The tangle of problems that has held up for ten years development of Eero Saarinen's memorial arch on St. Louis' historic waterfront seemed closer to solution than ever before last month. Representatives of all parties concerned—city and federal officials, railroad executives and the architect—had met and agreed on a revised plan for the Mississippi River site that represented a big step toward project fruition.

Recently the biggest stumbling block to getting started on the river-front park site for the 600' stainless steel arch was the balkiness of the Missouri Pacific and Terminal railroads to go along with Saarinen's original plan to relocate their tracks in a tunnel under the full length of the park. That plan would have cost an estimated \$14 million. Now Saarinen and the National

Park Service have devised a plan that calls for only three short tunnels and a tree-screened open cut for the tracks. The cost for this would only be about \$5 million—and the federal government has already agreed to put up \$1,875,000 toward relocation of the tracks as part of its total \$5 million contribution.

Now, all concerned are doubling their efforts to decide how the rest of the track relocation costs will be divided among the city and the two railroads, and to get the arch and its river-front setting finished by 1964—the year of St. Louis' 200th anniversary.

APARTMENT BUILDING

Record Chicago loan made on Greenwald buildings

To get the long-stalled housing section of New York's Pratt Institute Title I redevelopment project moving last spring, the city's Slum Clearance Committee drafted Chicago Redeveloper Herbert S. Greenwald to take over and expedite it. He immediately proceeded with the first portion of the project, three sixteen-story buildings designed for the original sponsor by Architect S. J. Kessler, and expects to have the first units in this, renamed Willoughby Walk, ready for occupancy in about six months. For the second portion, to be renamed The Quadrangles, he now has Mies van der Rohe designing four 20-story structures with Kessler as his associate.

Meanwhile Greenwald is proceeding apace with the first units of his Lafayette Park (formerly Gratiot) redevelopment apartments in Detroit, also designed by Mies (FORUM, Mar. '57). Back at his home base in Chicago this fall, Greenwald and his associate Samuel L. Katzin closed two record mortgages aggregating \$11 million on the four air-conditioned, glass-walled towers they have erected overlooking Lake Michigan, designed by Mies in association with the Chicago firm of Friedman, Alschuler & Sincere. Two of these are at 900 Lake Shore Dr., the two others recently completed and still receiving their first tenants (see cut) at 2800 Sheridan Rd. Said Maurice Nelson, Chicago office city mortgage department supervisor for the Equitable Life Assurance Society: "We believe this to be the largest conventional financing ever made for new apartment construction in Chicago."



NEWEST MIES CHICAGO APARTMENTS

BUSINESS

Court delays Zeckendorf deal on Wall St.

An involved plan of Realty Promoter William Zeckendorf for the sale and prospective repurchase of the large 71-story 40 Wall St. building, New York's fourth highest, was temporarily stymied last month by minority stockholders of the owning corporation, of which Webb & Knapp, headed by Zeckendorf, recently gained stock control.

Led by nationally known Mortgage Broker George W. Warnecke, minority stockholders of 40 Wall St. Building Inc. went into court to block a proposal to offer this financial district landmark at auction at this time for a minimum of \$15 million, and the prospect of W & K then buying it in its own name for that sum from the corporation that it already controls. The 40 Wall minority stockholders say this price would bring them only \$25 per share upon liquidation, and complain that a tender of \$39 a share by Webb & Knapp was closed hastily as soon as W & K had acquired a two-thirds controlling stock interest and many stockholders had no opportunity to tender their stock at that price. (Previously W & K had offered \$32.50 per share.)

In an affidavit supporting the suit, three 40 Wall directors assert that the proposed sale would not be in the interest of the present corporation and its stockholders, but only Zeckendorf, W & K and the Chase Manhattan Bank,

continued on p. 12



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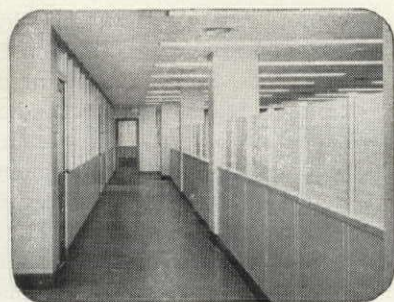
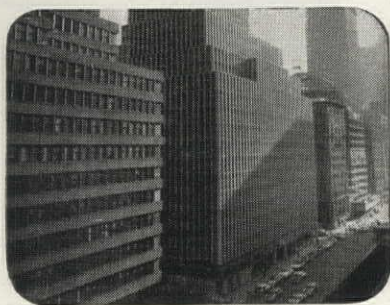


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"which is aiding them and is to be the prime beneficiary of this maneuver." This affidavit says the bank has a 17-year lease at \$1 million a year in 40 Wall St., but would be released from it without penalty by W & K as soon as the bank is prepared to move into its 60-story headquarters tower (FORUM, Apr. '57) being erected in the next block. In an affidavit in reply, Zeckendorf admits that W & K has an agreement to release the bank from its lease

"without cost"—if and when W & K gains control of the building in its own name. He also asserts that all stockholders were given a "reasonable opportunity" to sell above the market.

In temporarily barring the sale of the structure last month, the court pointed out that it was not ruling on the allegation of "self-dealing or special advantage" in the proposed sale, but "sufficient evidence has been shown to call for proof at a trial."



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MISCELLANY

Wright, Sandburg steal Chicago Dynamic show

Chicago, its billion dollar building boom and its history as a center of a genuine American architectural style, was the focus of a lively week-long building and design conference last month. The conference, called Chicago Dynamic, was sponsored by US Steel, which enlisted two of Chicago's—and the nation's—leading professional personalities to spark the proceedings. But the two, Frank Lloyd Wright and Poet Carl Sandburg, so dominated the show that not only the other participants but Big Steel's mild pitch for steel curtain walls was largely lost midst the rumblings of the great minds.

Sandburg spent some time taking a fresh look at the city he called 41 years ago, "The City of the Big Shoulders." After drifting over Chicago in a helicopter, cruising through it by boat and car, and finally casing it on foot, Sandburg tossed off a loose-jointed combination of his old poetry and some new prose singing the praises of the city, steel and the material elements of what he called "our fat-dripping prosperity." (Also see Excerpts, p. 171.)

Before sounding the traditional poet's warning against complacency and conformity, Sandburg momentarily brushed his best form with a stirring bit of imagery. "Everything in the past died yesterday; everything in the future was born today. The future so terribly real waits where it cannot be seen and sometimes comes rushing at us like a wind. What does history say of tomorrow? History says tomorrow waits with a big broom."

The biggest broom-wielded curmudgeon style at Chicago Dynamic was octogenarian Wright. He first appeared with Sandburg and Anglo-American journalist Alistair Cooke on a television show. Cooke asked Wright if there was "anything essentially dynamic about a skyscraper?" Answered Skyscraper-Architect Wright, "I think not. I think there's something in the human spirit that loves something tall and the idea of a tall building is very beautiful. But I think it's degenerated to a mere exaggeration of the box . . . these frames, steel rolled into lumber and framed into these tall edifices. And then they bring in the paper hanger and hang a façade on them. I don't think we can

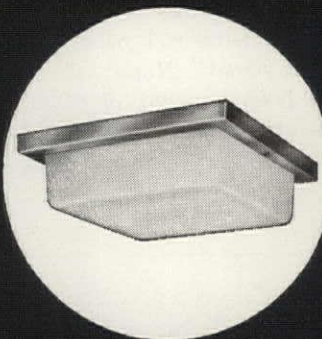
continued on p. 14

for the new Brooklyn Supreme Court Building

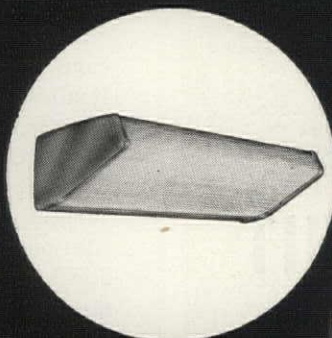


Architects: Shreve, Lamb & Harmon Associates

Electrical Contractor: John G. Hellman Co. Consulting Engineers: Syska & Hennessy, Inc.
N. Y. C. Commissioner of Public Works: Frederick H. Zurmuhlen



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call that really architecture because it's not permanent."

Wright also lashed out in other directions: "If you look at New York when you come into the harbor you see a great series of fingers threatening the sky. All there for one single purpose—rent. All competing with each other for one sole benefit—rent. None of it planned. It has been a negation of all of the human attributes that should make buildings beautiful because build-

ings are not humanly expressive."

As usual, Wright didn't aim all his harpoons at architecture. Of American culture he said: "Americans cannot claim a culture of their own." Of automobiles: "The only thing mobile about an automobile today is the name and perhaps the engine. It's a ferryboat coming down the street gnashing its teeth at you." Of Sputnik: "I'm totally unable to get excited about Sputnik because I'd like to see something of the

human spirit and the soul characteristic of a beautiful expression of human nature rather than this triumph of the scientists. I think scientists have pushed us to the edge . . ."

The following day, a special forum gathered to tackle the topic "Can Good Architecture Pay Off." Setting the stage was FORUM Publisher Ralph D. Paine Jr., who pointed out that almost all of the half-trillion dollars to be spent on building in the next ten years would be spent "in and around cities." But, said Paine, while the city "has re-established its pre-eminence as the logical location for industry and the logical location for business, it has failed as a place to live . . . The challenge to the city is to attract back a few millions of commuting suburbanites who really prefer the city, who would happily return, if city living could once again provide the amenities they have lost."

Participating in this forum were Chicago Planning Commissioner Ira Bach; Realtor Arthur Rubloff; Theodore V. Houser, board chairman of Sears, Roebuck; Otto Nelson, vice president of New York Life, and the irrepressible Wright. After some fairly orderly discussion of the challenge of the future, and how various of the panelists would meet it, Wright picked up where he had left off the night before. "My feeling is that people of the city are going to give up the city in its present form or give up the car."

In a backhanded poke at urban renewal, Wright added: "[Centralization] is growing rapidly to be an impediment to the good life of the American people, and I don't believe in patching and fixing and fussing very much. I believe in finding the line of progress, of growth, going to the roots. . . . With our advantages the curse should have been taken off living in the country. The farmer should be an aristocrat today."

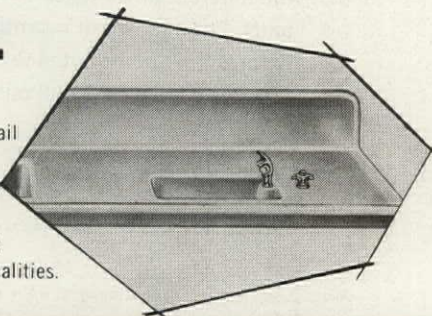
Ultimately, the panel seemed to agree that the city—certainly Chicago—was dynamic, was worth saving, and could be saved if architects, businessmen, realtors, and just people wanted to save it badly enough. But before the whole thing was over, panelists and hosts alike realized that the show had been stolen by Sandburg and Wright. Curtain walls, architecture, and even Chicago itself had to take a back seat to the white-haired wisemen as they pulled off a headline-grabbing coup. Said iconoclast Wright in an unrehearsed, unscheduled quip to Sandburg as they ended their television stint: "We'd better get out of here, Carl, before somebody starts telling the truth."



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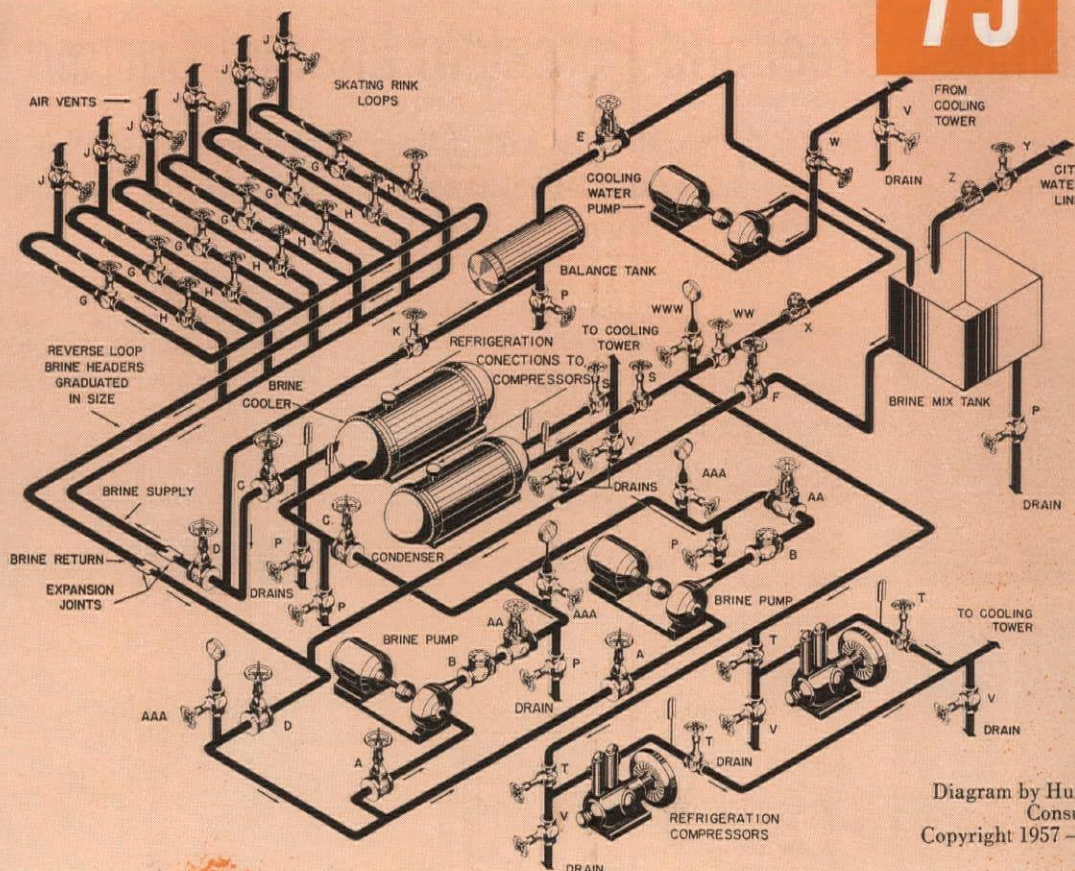


Diagram by Huxley Madeheim
Consulting Engineer
Copyright 1957 — Jenkins Bros.

How to plan piping for

AN ARTIFICIAL ICE SKATING RINK

In the increased construction of skating rinks during recent years, a closed system with a balance tank located at its highest point has been commonly installed. The piping layout presented here utilizes such a system.

This system is suitable for any of the common brines. Calcium chloride brines are the most common, but others of a non-corrosive nature are frequently used. The cooling medium, which is circulated in the rink coils to freeze the water into ice, is usually chilled by a multiple Ammonia or Freon refrigeration installation like the system in the diagram. Coils carrying the ice-making brine are generally 1" or 1 1/4" iron or steel pipe on 4" centers, with welded connections. Each coil loop is shown with a globe valve for control and shut-off at one end. A gate valve provides for shut-off and complete isolation of the individual coil at the other end. Each coil has an air vent.

Either or both of the two brine pumps may be used, depending on specific conditions and requirements. In addition to the brine circuit, the cooling water circuit is diagrammed. Ordinarily, valves in this

cooling water circuit are bronze or iron body bronze mounted.

For systems handling corrosive brines, such as calcium chloride, all-iron valves are specified. For systems using non-corrosive brines, bronze or iron body bronze mounted valves are recommended.

Where gate valves are specified for shut-off services, rising spindle types, which indicate wedge position, have been chosen.

The sturdy Jenkins Fig. 241 O.S. & Y. U-Bolt all-iron gate, is favored by engineers and contractors for corrosive brine systems. Jenkins Fig. 106-A renewable composition disc bronze globe valve is recommended for installation on individual coils, brine coil air vents, and for other regulatory services where accurate flow control and drop-tight closure are essential.

To assure efficiency in the job when planning any major piping installation, consult with accredited piping engineers and contractors, and select your valves from the Jenkins Catalog.

Enlarged diagram and full description of this layout No. 79 free on request to Jenkins Bros., 100 Park Ave., New York 17.

Code	Quan.	Non-Corrosive Brines	Corrosive Brines	Service
		Jenkins Valves	Jenkins Valves	
A	2	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Brine pump flow shut-off
AA	2	Fig. 142 IBBM	Fig. 81 All Iron Globe	Brine pump flow control
AAA	3	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Brine pump pressure gauge
B	2	Fig. 624 IBBM	Fig. 85 All Iron Swing Check	Prevent backflow through brine pump
C	2	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Shut-off chiller brine flow
D	2	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Brine to rink shut-off
E	1	Fig. 142 IBBM	Fig. 81 All Iron Globe	Brine balance tank overflow control
F	1	Fig. 651-A IBBM	Fig. 241 All Iron Gate	Brine flow shut-off at tank
G	(1 each)	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Control brine flow in individual coil
H	(1/coil)	Fig. 47-U Bronze	Fig. 240 All Iron Gate	Shut-off brine flow in individual coil
J	(1/coil)	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Control brine coil air vents
K	1	Fig. 106-A Bronze	Fig. 81 All Iron Globe	Brine balance tank flow control
P	6	Fig. 106-A Bronze	Fig. 75-A All Iron Globe	Control brine drains

Code	Quan.	Jenkins Valves	Service
S	2	Fig. 47-U Bronze Gate	Shut-off condenser cooling water
T	4	Fig. 47-U Bronze Gate	Shut-off compressor cooling water
V	6	Fig. 106-A Bronze Globe	Control fresh water drains
W	1	Fig. 47-U Bronze Gate	Cooling water pump flow shut-off
WW	1	Fig. 106-A Bronze Globe	Cooling water pump flow control
WWW	1	Fig. 106-A Bronze Globe	Cooling water pump pressure gauge control
X	1	Fig. 92-A Bronze Swing Check	Prevent backflow through cooling water pump
Y	1	Fig. 106-A Bronze Globe	Control water supply makeup
Z	1	Fig. 92-A Bronze Swing Check	Prevent backflow into water supply

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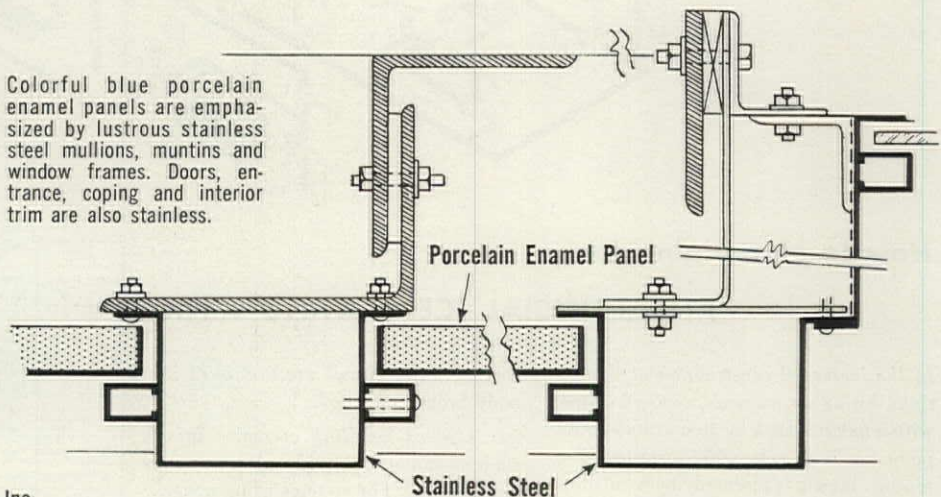
Colorful, lightweight curtain walls of Armco Stainless Steel and porcelain enamel on Armco Enameling Iron combine to solve problems in "face-lifting" design.



General Office, White Castle System, Inc., Columbus, Ohio.



Colorful blue porcelain enamel panels are emphasized by lustrous stainless steel mullions, muntins and window frames. Doors, entrance, coping and interior trim are also stainless.



Architects: Van Buren, Ayers & Blackburn
Porcelain Enamel: Davidson Enamel Products, Inc.
Stainless Steel: The Michaels Art Bronze Co., Inc.
 The J. T. Edwards Co.

New facade on the general office of White Castle System, Inc., dramatically illustrates how stainless steel and porcelain enamel can be combined to give an old building a bright new look.

The architects faced many problems: Building face was out of plumb; floor lines weren't level; walls had to be light because footing-details had been lost. In addition, business had to go on during construction.

But according to architects Van Buren, Ayers and Blackburn, the combination of design latitude, adaptability, lightweight,

ease of fabrication and assembly offered by stainless steel-porcelain enamel curtain walls provided an economical, practical solution for this complex job. Construction was completed rapidly. Work was shut off from the operating business offices by a simple partition only three feet back of the existing wall.

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On new construction or remodeling, early occupancy, durability and low maintenance costs readily convince

clients of the long range benefits of stainless steel and porcelain enamel curtain walls. In this case, the client was "pre-sold." White Castle System has been using porcelain enamel and stainless steel in their restaurants for more than 27 years.

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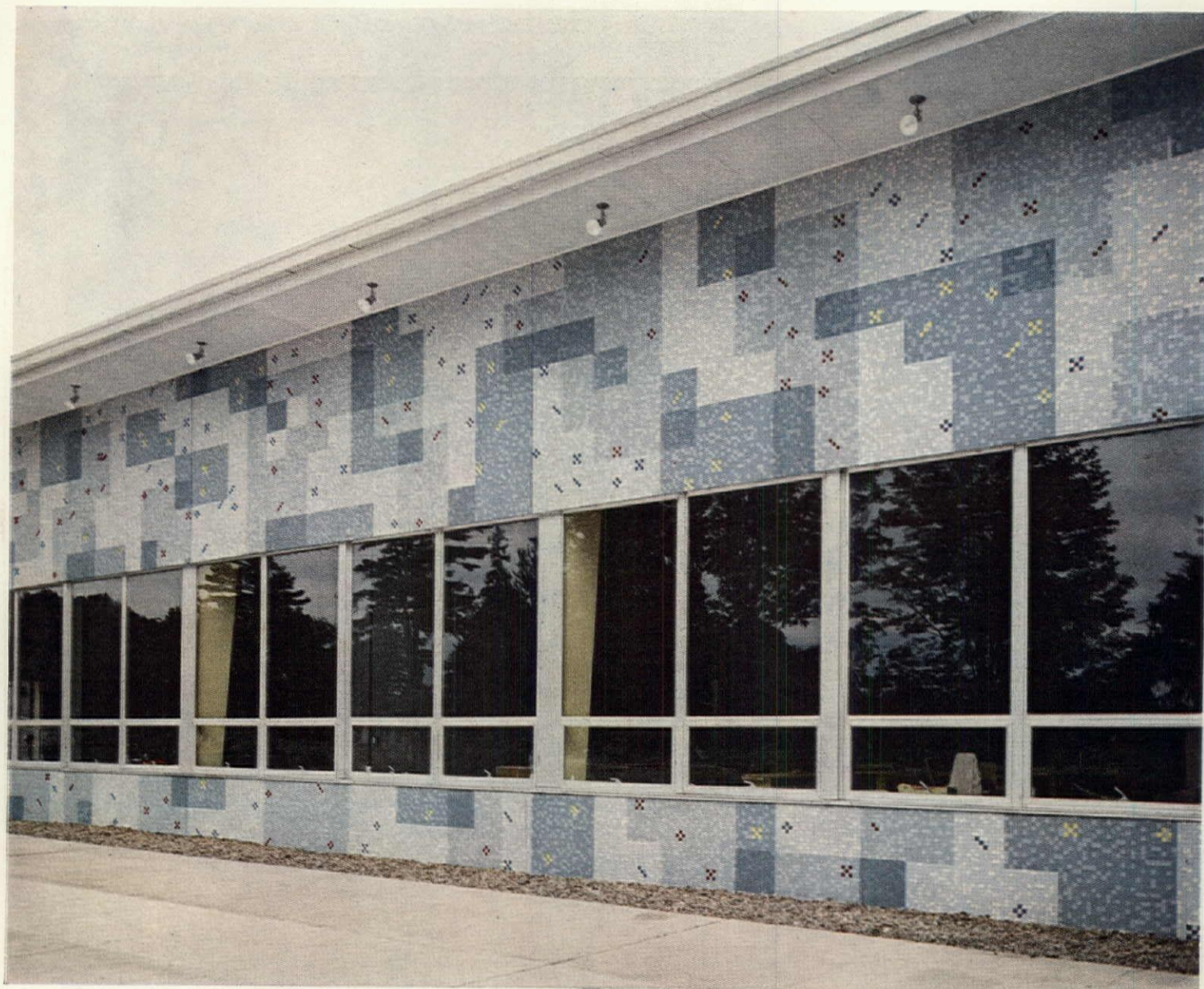
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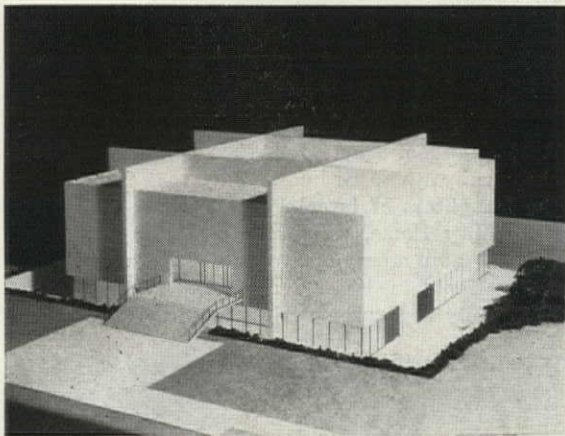
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A roundup of recent and significant proposals

UTICA ART MUSEUM

Faced with the problem of designing a new museum to blend with an existing house (circa 1852) and two carriage houses, Philip Johnson came up with a classically simple four-story rectangle. The new museum, part of the Munson-Williams-Proctor Institute in Utica, N.Y., will be of pier-and-beam construction, its walls suspended from eight giant concrete piers. Associate architects: Bice & Baird, Utica.

H. ERNEST KING



ADDITION TO FAMOUS NEWSPAPER BUILDING

Since 1930, the *Daily News* building has been a New York architectural landmark. A \$20 million expansion and modernization will add an 18-story annex and five stories to the

existing plant section. Harrison & Abramovitz designed the additions (shown in light gray) to repeat the vertical lines of the Raymond Hood-John Mead Howells original.

JET-AGE UMBRELLA

Four interacting vaults of thin shell concrete will form a 300' shelter over TWA passengers at New York's Idlewild Airport. The two cantilevered lateral vaults soar up to 54'. Moving sidewalks inside the terminal's "fingers" will carry passengers to boarding areas at a speed of 120' per minute. Architects: Eero Saarinen & Associates; Ammann & Whitney, structural engineers. This project will be reported more fully in the January FORUM.

—ED.

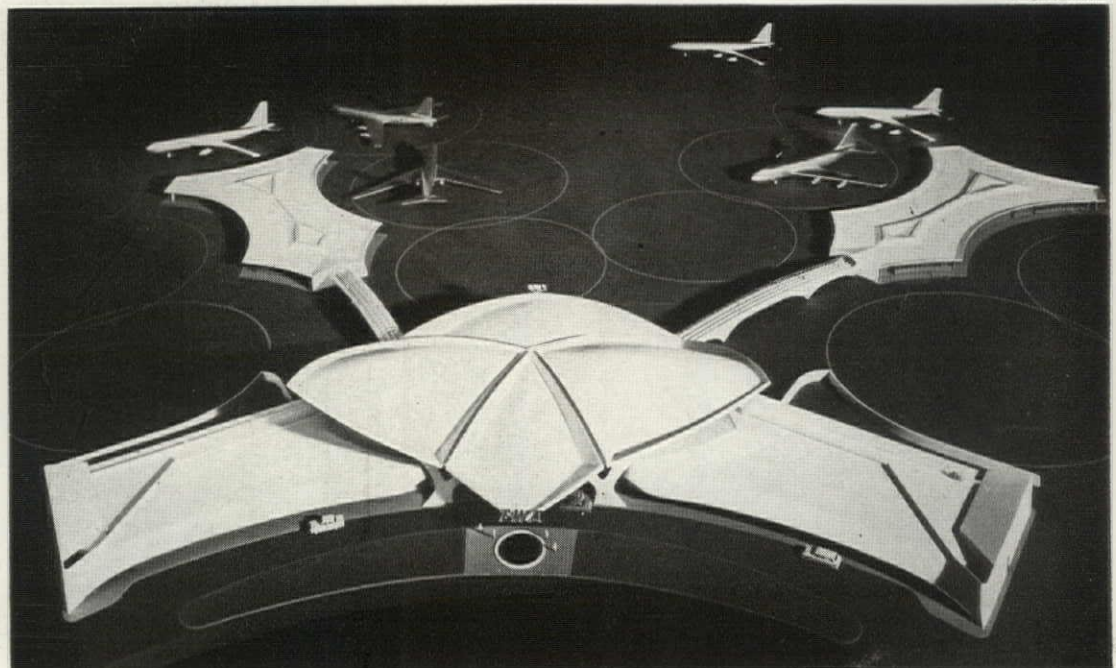
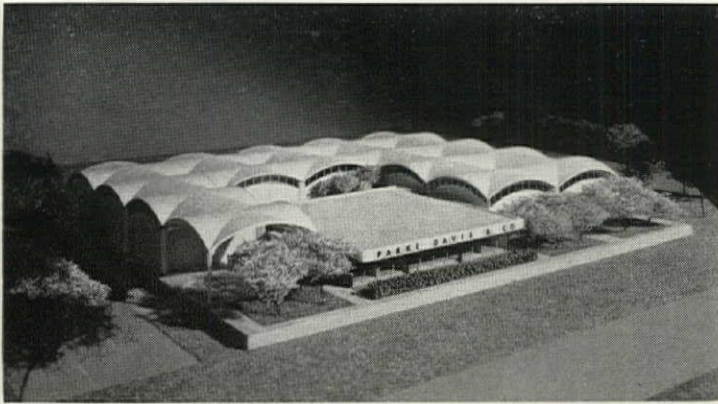


PHOTO: KORAN

MOULIN STUDIOS



QUILTED CONCRETE

Recognizing the public relations value of an outstanding building, Parke-Davis & Co. will erect a radically different warehouse and branch office in Menlo Park, Calif. The poured concrete roof, resembling a giant quilt, will rest on six interior columns and solid concrete walls. The architect, Minoru Yamasaki, designed a concrete podium to lift the one-story building 4' above ground to highway level.

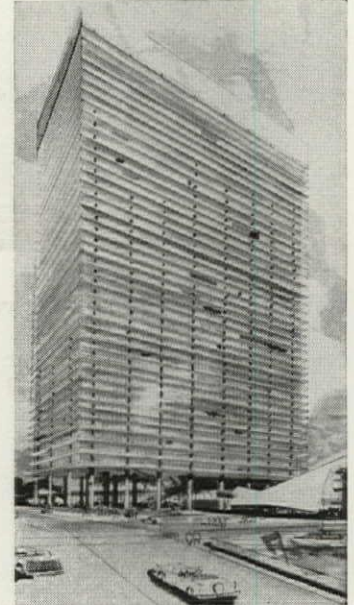
IBM BRANCH OFFICE

Another IBM building, this one a branch office in Hartford, Conn., will be completed in July, 1958. Pedersen & Tilney of New York designed the six-story - and - basement office structure with Prof. Alexander Kouzmanoff as design consultant. The new building will provide 76,000 sq. ft. of space.



WEST COAST'S TALLEST

The 40-story Freeway Center building in Los Angeles (right) will be the West's tallest, according to Richard L. Dorman & Associates, architects, who designed it for Realty Owner John M. Stahl. Costs are estimated at \$23.8 million. Floor area: 720,000 sq. ft. Parking: 1,000 cars.



GREIGH



SQUARE, SQUARE-ROOM SCHOOL

Eight classrooms in this 110' x 110' parochial school in Fox Lake, Chicago suburb, will all be square too, according to Belli & Belli, Chicago architects. Walls will be heat-absorbent glass. Steel framing will be used to trim costs by speeding construction. Center of the square is an open court usable as an outdoor classroom.

NEW JERSEY HOME FOR THE CHRONICALLY ILL

A \$3 million home for the chronically ill, to be known as the Daughters of Israel Pleasant Valley Home, will provide medical and nursing care for 150 patients in West Orange, N.J. Kelly & Gruzen designed

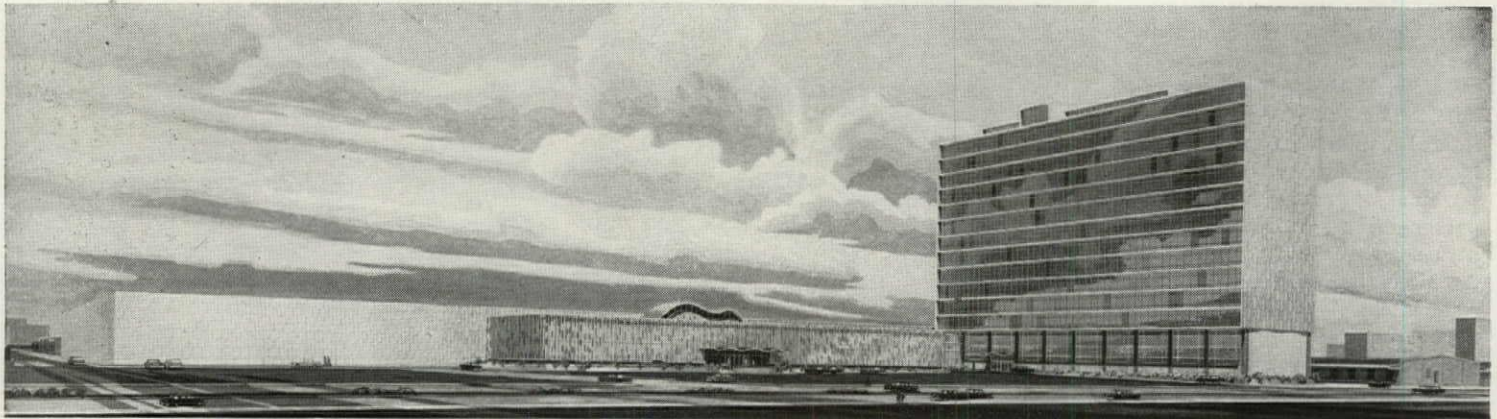
the two-level home, separated into five U-shaped units. Each unit will have its own dining areas, visitors' rooms, and other facilities. A six-sided synagogue and Hall of Remembrance will be in the garden.



GLASS-MASONRY FEDERAL TOWER FOR NEW ORLEANS

In a joint venture, three New Orleans architectural offices participated in the designing of that city's new Post Office and Federal Office Building: Freret & Wolf; August Perez

& Associates, and Favrot, Reed, Mathes & Bergman. The \$20.6 million lease-purchase structure will have a two-story postal section and 14-story office tower with sunshades.





RED BRICK-AND-ALUMINUM STATE COLLEGE

An entirely new campus for Harpur College, the liberal arts section of the State University of New York, is under construction in Vestal, N.Y.

The \$15 million campus was designed by Moore & Hutchins associated with C. W. Larson, state architect, and O. J. Tee-gen, state university architect.

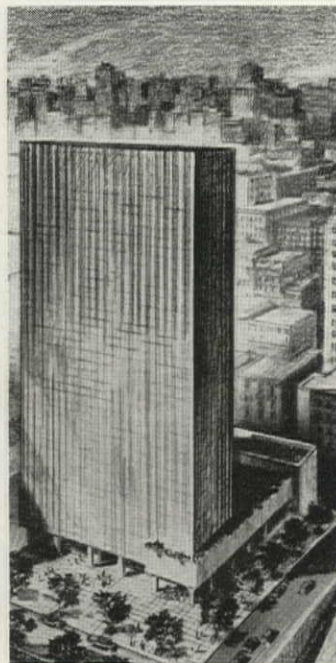


HILLTOP HEADQUARTERS

The National Life Insurance Co. is building a new home office—its seventh since 1850—on a hill overlooking Montpelier, Vt. Hoyle, Doran & Berry of Boston designed the five-story main offices, with a two-story wing.

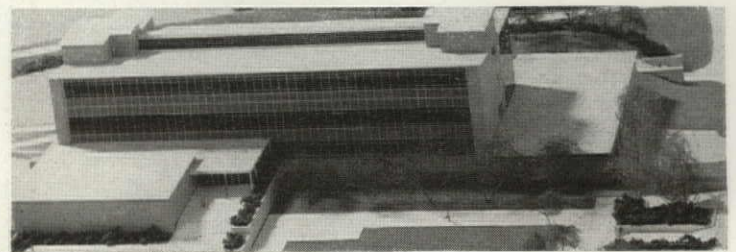
BRICKS IN BOSTON

Boston's first new downtown building since 1929 will be built by the Travelers Insurance Companies. The blue-and-white glazed brick exterior, 16 stories high, will be topped by the central utility section. Architects: Kahn & Jacobs.



ENGINEERS' BUILDING TO HARMONIZE WITH U. N.

For a 37,500 sq. ft. blockfront site facing the United Nations Headquarters in New York, the nation's 16 leading engineering societies paid a land price of \$72 per sq. ft. On



MICHIGAN STATE'S NEW ART CENTER

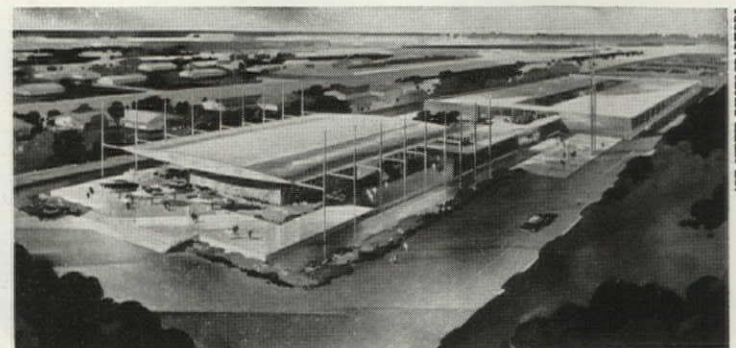
Financed by a \$1.5 million gift from the Kresge Foundation, Michigan State University's art center will provide not only an art gallery but also two lecture rooms, 19

classroom-studios, and seven small offices. The three-story main building and its gallery wings will overlook the Red Cedar River, East Lansing. Architect: Ralph R. Calder.

CALIFORNIA SCHOOL FOR CHRYSLER DEALERS

In full operation, Chrysler's West Coast training center will turn out 4,000 dealer salesmen and 1,600 dealer servicemen each year. The center, designed by James H. Langenheim of Pereira & Luckman,

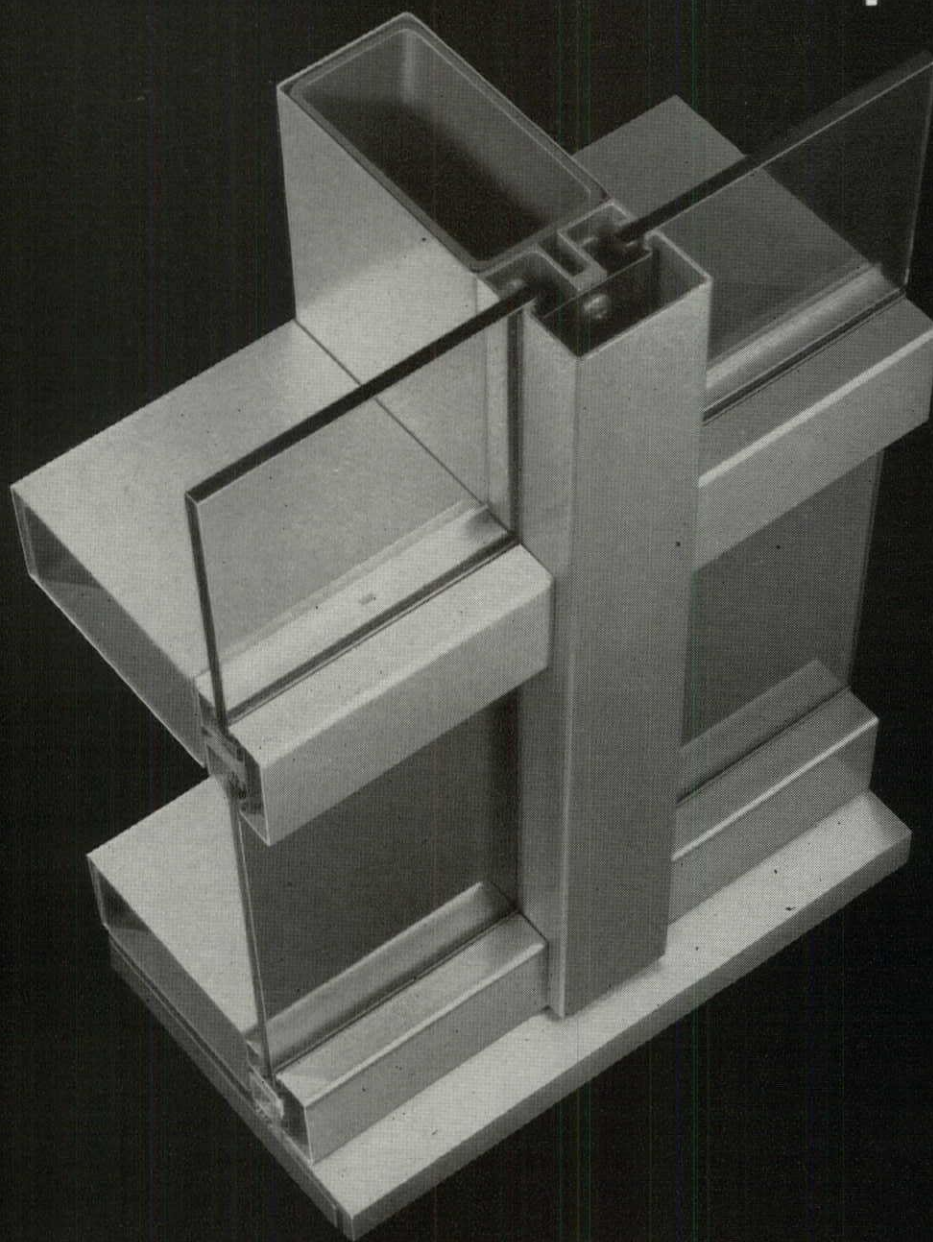
will be built on an 11-acre site in Anaheim, Calif. Included in its 65,000 sq. ft. area will be a 400-seat auditorium, cafeteria, sales classrooms, technical training rooms, manager's office, and plaza display areas.



ART STEER PHOTOGRAPHERS

nearby UN Headquarters tower. It will use much of the valuable site for a landscaped plaza. One feature of the new structure: an Engineering Hall of Fame.

Performance
best proof



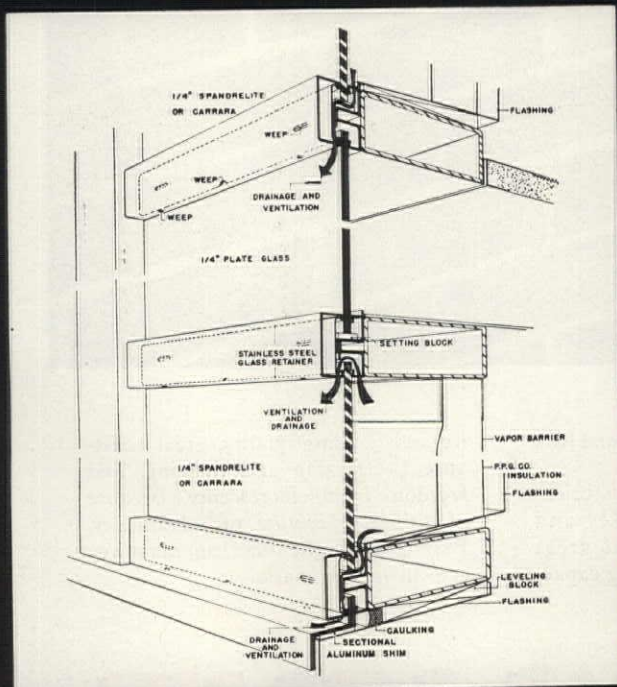
82-x framing
for *Glass-clad* buildings

in the field— we can offer

Proof of what? Simply this. Numerous methods are employed in selling a product like No. 82-X. For example, the use of models is a common and effective medium. The results of accelerated tests have their value, while the efforts of a trained salesman are responsible more often than not for having a product detailed and specified. But when you can point to actual installations that have performed satisfactorily for a long period of time it is undeniably the very best proof of performance that can be offered.

You are invited to visit these installations. Inspect them. Talk to the owners. Find out firsthand how No. 82-X framing, in combination with other PPG products, has functioned as a weather-tight wall of glass and metal.

No. 82-X framing is not large dimension-wise, but it is firm and strong. It provides a full resilient grip on the glass without the use of compounds. Ventilation and drainage are accomplished through a system of carefully positioned holes. It is clean, well balanced and unobstructive in design. No. 82-X was developed in the interest of economy for long service, with a minimum of maintenance.



The perspective above shows a typical cross section through No. 82-X, illustrating its many outstanding features. No. 82-X is available in ALUMINUM, BRONZE AND STAINLESS STEEL, all beautifully finished. The partial list of Pittsburgh Glass Clad Buildings at right is the best endorsement of our construction we can offer.

COMPLETED INSTALLATIONS

National Carbon Research Laboratory
Parma, Ohio
Architect: Skidmore, Owings & Merrill
New York, N. Y.

Education Building for First Baptist Church
Magnolia, Ark.
Architect: Ginocchio, Cromwell & Associates
Little Rock, Ark.

Union Federal Savings & Loan Building
Baton Rouge, La.
Architect: A. Hays Town
Baton Rouge, La.

Colonial Provision Company
Boston, Mass.
Architect: Henschein, Everts & Crombie
Chicago, Ill.

Avon Products Building
Morton Grove, Ill.
Architect: Skidmore, Owings & Merrill
New York, N. Y.

Freeport Dial Office Building
Freeport, Ill.
Architect: Holabird, Root & Burgee
Chicago, Ill.

Motorola Electronics Facility Building
Phoenix, Ariz.
Architect: Edward L. Varney, Associates
Phoenix, Ariz.

D. J. Kaufman, Inc.
Washington, D. C.
Architect: David Baker
Washington, D. C.

North Side Junior High School
Omaha, Nebr.
Leo A. Daly, Architect, Omaha, Nebr.

UNDER CONSTRUCTION

Louisiana State Library
Baton Rouge, La.
Architect: Burk & Desmond
New Orleans, La.

Youngstown Sheet & Tube Co.
Youngstown, Ohio
Garfield, Harris, Robinson & Schafer, Architects,
Cleveland, Ohio

Homestead Hospital
Homestead, Pa.
Press C. and William C. Dowler, Architects,
Pittsburgh, Pa.

Newton D. Baker Memorial Building
Western Reserve University, Cleveland, Ohio
Garfield, Harris, Schafer,
Flynn & Williams, Architects, Cleveland, Ohio

Farm Bureau Insurance Co.
Concord, N. H.
Alonzo J. Harriman, Inc., Architect,
Auburn, Maine

Glenn L. Martin Building
Orlando, Fla.
Architect: Connell, Pierce,
Garland & Friedman & Associates
Miami, Fla.

Continental Can Company
Three Rivers, Mich.
Architect: Schmidt, Garden & Erikson
Chicago, Ill.

Boston University Public Relations
Boston, Mass.
Architect: Richmond & Goldberg
Boston, Mass.

Chevrolet Motor Division
Zone Office and Parts Division
Jacksonville, Fla.
Argonaut Realty Division, Architects, Detroit, Mich.

Hartford County Mutual Fire Insurance Co.
Hartford, Conn.
Sherwood, Mills & Smith, Architects,
Stamford, Conn.

Gibraltar Savings & Loan Building
Houston, Texas
Grecian & Brogniez, Architects,
Houston, Texas

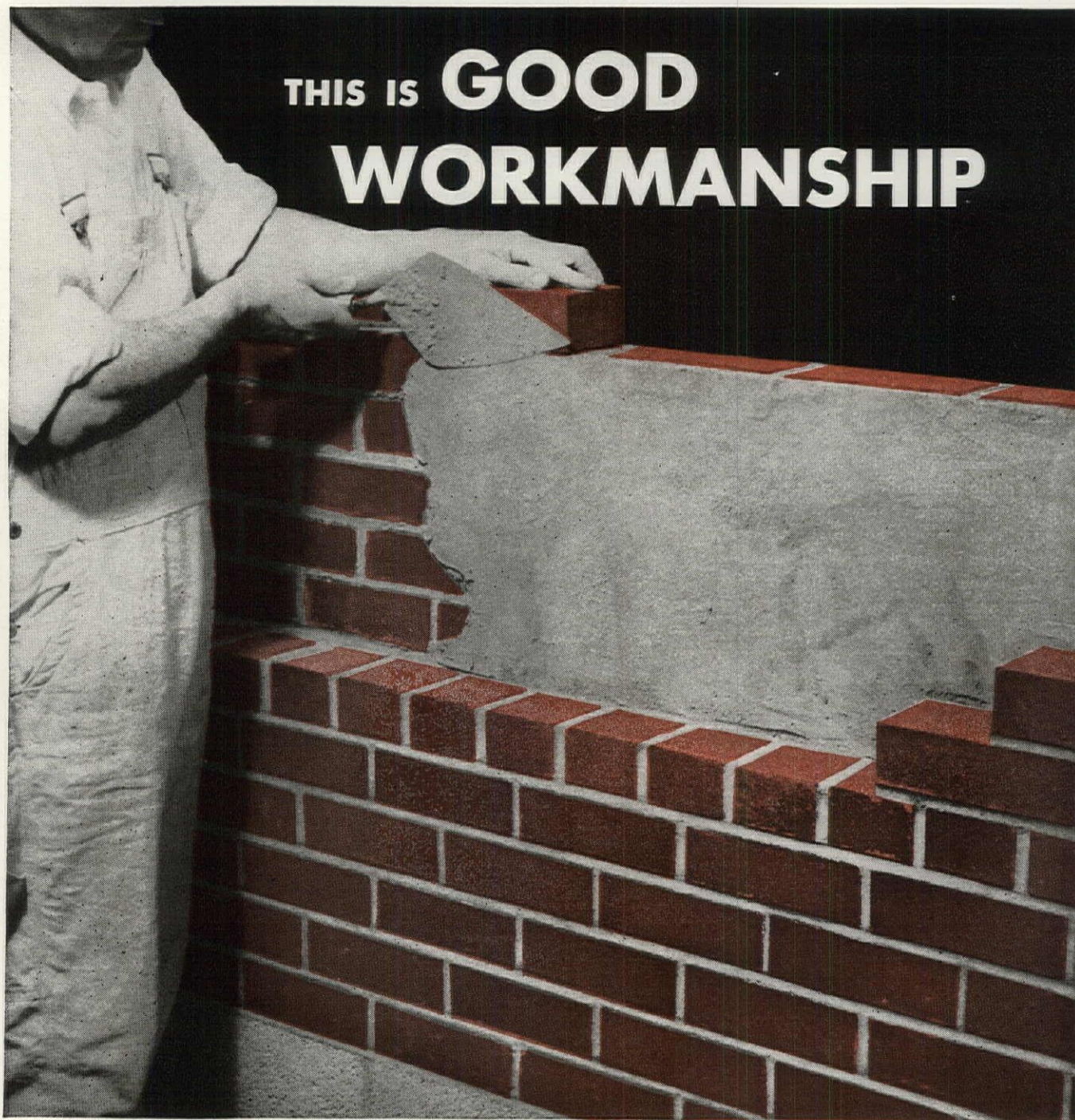
Contact our local branch
for additional information.



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PITTSBURGH PLATE GLASS COMPANY

In Canada: Canadian Pittsburgh Industries Limited



THIS IS GOOD WORKMANSHIP

GOOD workmanship is one of the most important factors in preventing leaky brick walls.

Good workmanship includes wetting the brick—completely filling the head and bed joints—and back-plastering the face brick before the back-up units are laid.

Expect trouble when the face brick are not parged. Even if the space between the face brick and the back-up units is slushed, it cannot be completely filled with mortar. Voids are left between the mortar and the brick, through which

water may enter, trickle down and leak to the inside of the wall.

Brixment mortar enables the bricklayer to back-plaster quickly and easily. Brixment mortar has great plasticity, high water-retaining capac-

ity and bonding quality, great resistance to freezing and thawing, and freedom from efflorescence. Because of this *combination* of advantages, Brixment is the leading masonry cement on the market.

BRIXMENT

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

Construction outlays this year 2% ahead of 1956; government forecasts bigger, 5% gain for 1958

October's seasonal construction spending slowdown meant a slight sag in the ten-month figures. Total activity is still about 2% ahead of last year, but private spending has dropped about 1% behind the first ten months of 1956. The gain in over-all public construction spending has been pared back from 10% at the end of nine months to 8% by the end of October.

The biggest declines in spending this year have been in private residential building, already off 11% from last year, and in stores, restaurants and garages now off 13% from 1956. On the public side, only military building has shown a decline, down 9% from last year. Although smaller groups have racked up bigger percentage gains, the biggest factors in net increase in spending—aside from inflation—have been nonresidential public building, up 11%, public utilities, up 12%, and highways, up 6%.

Next year over-all percentage gains in new construction outlays should be more than twice as good as this year. That's the conclusion of the Bureau of Labor Statistics-Dept. of Commerce forecast for building in 1958. Outlays next year should be 5% ahead of this year, says the forecast, and this year is figured to get no better than it is right now—about 2% ahead of 1956. If, as BLS predicts, spending hits \$49.6 billion next year, it would make 1958 the biggest year ever, in current dollar terms, and second only to 1955 in physi-

cal volume of building put in place.

Almost all of the expected \$2.4 billion rise in spending next year will come in two categories: residential building, both public and private, and highways. Together, these groups will account for \$2.1 billion more in spending than they did this year. BLS figures that next year will see a reversal of the downward trend in private residential spending that marked this year. In 1958, the forecasters expect private spending to rise \$1.4 billion. About 1.1 million new non-farm units will be started, they say, about 1,050,000 of them to be privately financed.

Apartment building will enjoy something of a renaissance next year, if the BLS forecast—or, for that matter, FORUM's own forecast, which is compared with BLS' below—pans out. Next year, apartments will total over 200,000 units, or over 20% of the total number of units started. This will be

continued on p. 45

SPENDING BY BUILDING TYPES

(in millions of dollars)

PRIVATE BUILDING

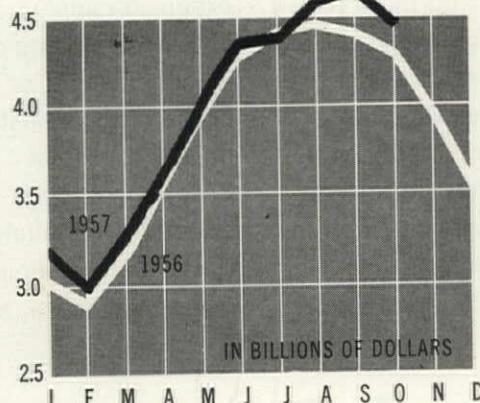
	Oct. '57	1957	1956	±%
Residential (nonfarm)	1,535	13,746	14,749	—7
Nonresidential	802	7,568	7,241	+5
Industrial	256	2,663	2,534	+5
Commercial	332	2,933	2,997	—2
Offices; lofts;				
warehouses	177	1,513	1,362	+11
Stores; restau-				
rants; garages	155	1,420	1,635	—13
Religious	80	716	623	+15
Educational	47	429	443	—3
Hospital; institutions	44	404	264	+53
Public utilities	563	4,747	4,225	+12
*PRIVATE TOTAL	3,050	27,596	27,666	**

PUBLIC BUILDING

Residential	53	395	231	+71
Nonresidential	403	3,769	3,404	+11
Industrial	34	391	363	+8
Educational	262	2,371	2,138	+11
Hospital; institutions	26	282	249	+13
Military	128	1,076	1,180	—9
Highways	555	4,135	3,905	+6
Sewer; water	118	1,143	1,065	+7
*PUBLIC TOTAL	1,402	11,770	10,886	+8
*GRAND TOTAL	4,452	39,366	38,552	+2

* Minor components not shown, so total exceeds sum of parts.

** Less than one per cent.



TOTAL EXPENDITURES for new construction hit \$4.5 billion in October, 2% above a year ago, but slightly behind the record set in September of this year.

BLS VS. FORUM FORECAST

(in millions of dollars)

PRIVATE BUILDING

	BLS est. 1957	BLS est. 1958	Per cent change 1957-58	BLS Forum
Residential (nonfarm)	16,530	17,575	+6	**
Nonresidential	9,155	9,150	**	—1.6
Industrial	3,170	2,875	—9	—4.5
Commercial	3,585	3,775	+5	—2.9
Offices; lofts;				
warehouses	1,870	2,025	+8	0
Stores; restaurants;				
garages	1,715	1,750	+2	—6.2
Religious	870	870	0	+2.2
Educational	525	540	+3	+1.9
Hospital; institutions	505	590	+17	+11.5
Public utilities	5,825	6,150	+6	+4.3
*PRIVATE TOTAL	33,300	34,700	+4	**

PUBLIC BUILDING

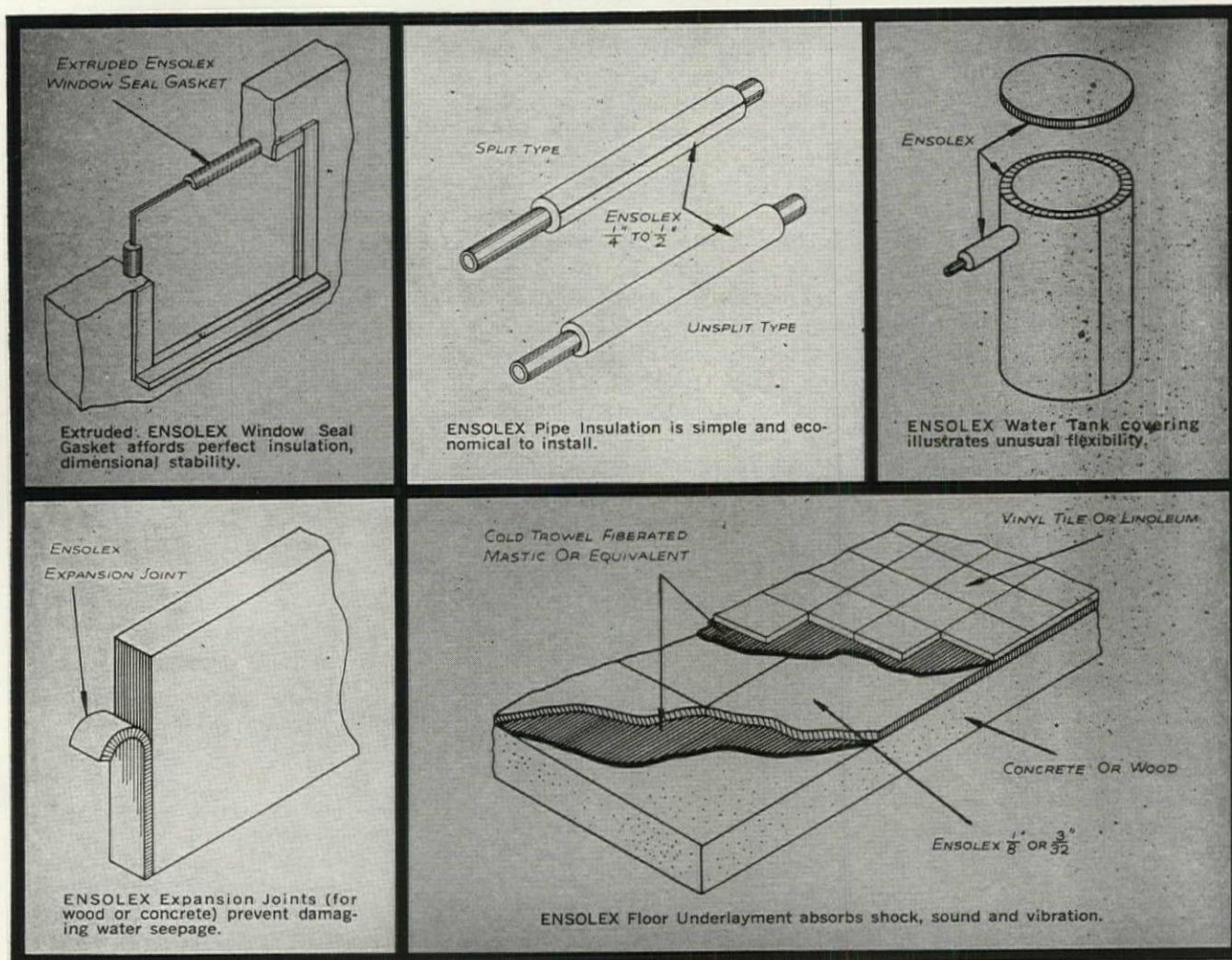
Residential	505	850	+68	—6.7
Nonresidential	4,470	4,710	+5	+6.4
Industrial	455	450	—1	+9.1
Educational	2,830	3,000	+6	+7.0
Hospital; institutions	330	340	+3	+5.3
Military	1,275	1,100	—14	—4
Highways	4,825	5,500	+14	+17.3
Sewer; water	1,345	1,270	—6	+8.4
*PUBLIC TOTAL	13,900	14,900	+7	+8.8

* Minor components not shown, so total exceeds sum of parts.

** Less than one per cent.

U.S. ENSOLEX...

THE NEW NON-ABSORBENT INSULATING MATERIAL WITH UNLIMITED STRUCTURAL USES



Leading architects are finding more and more padding and insulating uses for new lightweight U.S. Ensolex. With unusual flexibility, it molds itself to almost any shape—yet maintains unexcelled dimensional stability. And most important, it practically eliminates damaging water absorption. Its closed-cell structure provides excellent insulation—wet or dry. Meeting ASTM-SAE specifications, Ensolex is perfect for floor underlayment...wall insulation...

expansion joints...plumbing and electrical uses... and most padding and gasketing purposes. Available in either sheet or extruded form, it is simple and economical to install. Shock absorbent...fire and mildew resistant...sound and vibration damping, Ensolex has been job-tested successfully in many structural installations and applications. Write for further information to Ensolex Dept., United States Rubber Company, Mishawaka, Indiana. ■



United States Rubber

the highest percentage of apartments to total starts since the feverish days of the "608" boom. The government forecast notes that, "The rising rate of rental-type home building at present may be attributed to a number of influences, including expanding programs for rebuilding urban core areas; anticipation of greater returns on rental investments; and a large core of demand for convenient, central-city locations from the fastest growing adult segments of the population—both young couples without children and the elderly." (A BLS spokesman adds off the record that another reason may be the high prices being charged for new homes.)

Public residential construction will rise fast next year, too, but not because of any renewed vigor in the public housing programs. The biggest factor in doubling public starts this year will be

Capehart act military housing.

For the first time in six years, private nonresidential building is expected to show a decline, says BLS. This will be primarily because of a decline in capital spending by industry.

School spending is expected to hit the \$3 billion mark next year, and highways will be, as usual, a bulwark of public spending, rising 14% to \$5.5 billion.

All of BLS' forecasts were made "on the assumption that any change in the economic pace next year—as measured by national output, income and employment—will not be great enough to exert a significant push up or down on the total of new construction activity." In the face of the Federal Reserve's move lowering the discount rate (see below), and growing worries over soft spots in the economy, this assumption may get more of a test than expected in 1958.

BUILDING MONEY

Discount rate boost heralds money ease, but also emphasizes economy's soft spots

The Federal Reserve Board's unexpected move allowing four regional Fed banks to lower their discount rates from 3½ to 3% last month caused the building industry to forget, momentarily at least, its own palmy days and take a look around.

What drew so much attention to the Fed's action was that it indicated: 1) that inflation is no longer its chief worry, and 2) that a downturn in the economy is already underway, and the Fed is taking the lead in attempting to fend it off, or at least mitigate its effects. These are factors that influenced the Fed to reverse its two-year tight money policy:

► Its index of industrial production dropped in October to its lowest mark since the steel strike in July 1956.

► Personal income declined for the second month in a row to its lowest level in 15 months.

► A government economist predicted unemployment of 4 million by midwinter, compared to a little over 3 million last winter.

The demand for money has shown signs of easing lately. For one thing, the Treasury bill rate, a prime indicator of short-term money rates, tailed off from a high of 3.66% to its lowest mark since early summer. More important, bank loans by leading New York banks generally declined this fall,

whereas the usual seasonal pattern calls for a rise.

Evidently, construction was not a segment of the economy that particularly worried the money managers (the BLS-Commerce forecast of 1958 volume is bullish enough—see p. 43), but they may have had a few qualms over prospects for business spending on new plant and equipment next year. The McGraw-Hill survey of capital spending indicates a 7% drop in all categories of capital spending for next year, with the sharpest drops to come from the vital manufacturing sector.

Dollar expenditures for expansion in steel, nonferrous metals, autos and machinery manufacturers are estimated from 17 to 38% below this year's levels. (Spending on new plant for construction machinery is likewise predicted to drop—by 20%—in 1958, says McGraw-Hill.)

Because the discount rate is largely a factor in short-term money rates, the Fed's action is not expected to affect mortgage money, at least at first. But it indicates a feeling by the Fed that the demand for money has passed its peak, and its discount rate move could hasten an easing in all rates. If demand for expansion funds from corporate business eases off, then more money would, of course, be available for the mortgage market.

BUILDING MATERIALS

BLS price index dips; further easing likely

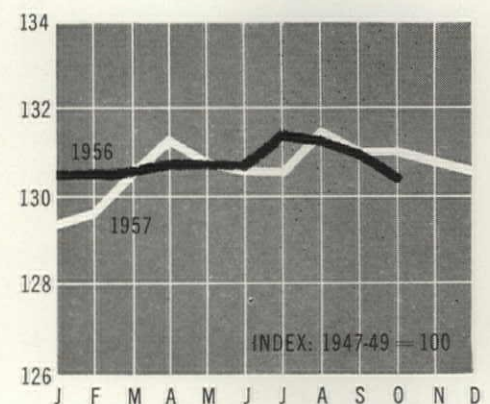
Although few builders would agree that it is especially noticeable yet, the fact is that building materials prices are softening. And indications are that prices for some basic materials are due for further dips.

The BLS index of wholesale building materials prices dropped slightly from September to October and now is slightly behind 1956. Big year-to-year price rises in structural steel shapes (12.8%), prepared paint (4.7%), asphalt roofing (6.0%) and aluminum sheets (5.2%) have been more than offset by drops in the prices of lumber (—4.7%), plumbing equipment (—4.0%), and metal doors and sash (—3.7%).

Lumber production in the Far West has been cut way back, and consequently prices may be somewhat firmer through the winter than they have been so far this year. But at least one pricing service is predicting further slumps, and at best the situation will be one of fragile stability in a period when home building and other construction is at the year's lowest ebb.

Aluminum prices are still holding up fairly well, at least for most construction items. But recent talk of cutting back production at some plants both in the US and Canada, and of curtailing ambitious expansion plans, mirror some industry fears that capacity may have overreached itself at least temporarily.

Copper prices edged up slightly at custom smelters last month, but at the same time Kennecott laid off 479 work-



BUILDING MATERIALS PRICES declined for the third straight month, according to BLS index of average wholesale prices. Drops in lumber, plumbing equipment, metal doors dropped index behind last year's October level.

ers in its Utah and New Mexico plants, and is in the process of closing up completely one subsidiary fabricating plant in Waterbury, Conn. The effects of the almost year-long slump in copper prices showed up strongly in Anaconda's third-quarter report, which showed net income down 59% from the \$85 million for the first nine months of last year. Anaconda officials blamed the slump squarely on the drop in copper prices: During the first nine months of this year Anaconda has got an average price of only 28.7¢ per lb., compared with 41.6¢ for the first nine months of 1956.

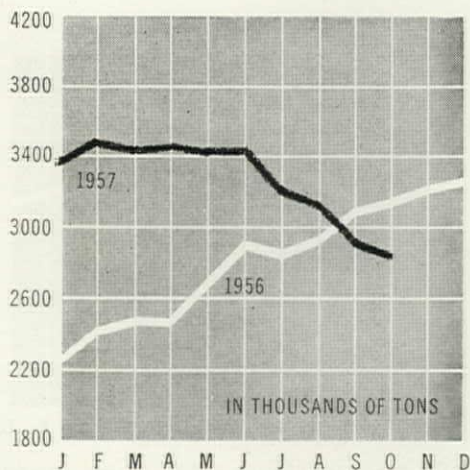
Besides materials that have been experiencing price softness all year, two bellwethers of the postwar price advance lately have started to show signs of slowing down. Cement is one of these. Industry leaders are now complaining that inventories are too high (from 10 to 45% ahead of last year depending on geography), that shipments have lagged behind last year by around 5%, and that capacity has been built up too fast. The result has been some layoffs, and the threat of the first production cutbacks in ten years.

Overcapacity is the biggest worry right now. One industry spokesman said recently that "even with the continued high construction volume, most of the additional 15 million barrels of cement-producing capacity (added in the Midwest and South this year) will not be needed in 1958, or, in fact, in the next two or three years."

Despite these worries, however, it is unlikely that many of the scheduled 15¢ per barrel price increases scheduled for January will be postponed.

There are now more definite signs of

continued on p. 48



BACKLOG of unfilled orders for fabricated structural steel continued its decline, slipping to 2.8 million tons, 8% below last year, and the lowest in 15 months.



THE CEILING: FORESTONE

LaTorre Restaurant
San Francisco, California
General Contractors:
Reliable Alterations
Acoustical Contractor:
Cramer Acoustics

Economical Forestone is available through the following
Simpson Certified Acoustical Contractors:

ALABAMA

Badham Insulation Co., Inc., Birmingham
Shook and Fletcher Insulation Company,
Birmingham
Stokes Incorporated, Mobile

ARIZONA

Fiberglas Engineering & Supply, Phoenix
Hall Insulation & Tile Co., Tucson

ARKANSAS

Buck Hendershott Company, Little Rock

CALIFORNIA

Coast Insulating Products, Los Angeles
Cramer Acoustics, Fresno and
San Francisco
John K. Haas Company, San Diego
H. W. Rivett Company, Sacramento

COLORADO

Construction Specialties Company, Denver

CONNECTICUT

Wilson Construction Company, Hartford

FLORIDA

Anning-Johnson Company, Miami
Anning-Johnson Company, Tampa
Center Brothers, Inc., Jacksonville

GEORGIA

Anning-Johnson Company, Atlanta
Center Brothers, Inc., Savannah

IDAHO

Fiberglas Engineering & Supply, Boise
Idaho Acoustical & Building Specialties
Co., Boise

ILLINOIS

General Acoustics Company, Melrose Park
George S. Grimmer & Co., Champaign,
Decatur and Springfield

INDIANA

The Baldus Company, Fort Wayne
E. F. Marburger & Son, Inc., Indianapolis

IOWA

Lamoreaux and Assoc., Inc., Marshalltown

KANSAS

Ecoff & Co., Wichita

KENTUCKY

Atlas Plaster & Supply Company, Louisville

LOUISIANA

King & Co., Inc., New Orleans

MARYLAND

Lloyd E. Mitchell, Inc., Baltimore

MASSACHUSETTS

Acoustical Contractors, Inc., Brighton

MICHIGAN

Detroit Acoustical Contracting Co., Detroit
Grand Rapids Acoustical Co., Grand Rapids
and Lansing

MINNESOTA

Dale Acoustics, Inc., Minneapolis

MISSISSIPPI

Stokes Incorporated, Greenwood
Stokes Incorporated, Jackson

MISSOURI

Hamilton Company, Inc., St. Louis
B. J. Lutz, Inc., Kansas City
Midwest Services, Inc., Joplin

NEBRASKA

Kelley Asbestos Products Co., Omaha

NEW JERSEY

Connor & Company, Inc., Kenilworth
Kane Acoustical Company, Inc., Fairview

NEW MEXICO

Fiberglas Engineering & Supply,
Albuquerque

NEW YORK

Buffalo Acoustical Corporation, Buffalo
The Cronin Acoustical Co., Stoney Point
Davis Acoustical Corp., Albany
Davis-Fetch Acoustical Corporation,
Syracuse
Davis-Fetch & Company, Inc., Buffalo and
Jamestown
Robert J. Harder, Inc., Lynbrook, L. I.
James A. Phillips, Inc., New York
Rochester Davis-Fetch Corp., Ithaca and
Rochester

NORTH CAROLINA

The Bonitz Insulation Co., Greensboro,
Goldsboro and Asheville
Bost Building Equipment Co., Charlotte

OHIO

Acoustical Contracting & Supply Corp.,
Cleveland and Youngstown
Cincinnati Floor Company, Cincinnati
Riethmiller Acoustic Company, Columbus

OKLAHOMA

Denman Floors Company, Oklahoma City
Harold C. Parker & Company,
Oklahoma City
Midwest Marble & Tile Company, Tulsa

OREGON

Commercial Tile Company, Eugene
R. L. Elstrom Company, Salem
Johnson Acoustical & Supply Co., Portland

PENNSYLVANIA

Acousti-craft, Inc., Philadelphia
Standard Floor Company, Pittsburgh

SOUTH CAROLINA

Bonitz Insulation Co., Columbia

TENNESSEE

Alexander Marble & Tile Company, Memphis
Anning-Johnson Company, Knoxville

TEXAS

Blue Diamond Company, Dallas
Builders Service Company, Fort Worth
Collins Roofing & Sheet Metal Company,
Odessa
General Supply Company, Inc., Houston
and San Antonio
Houser Resilient Floors Co., El Paso
Raymond Rambo Materials Co.,
Corpus Christi

UTAH

Utah Pioneer Corporation, Salt Lake City

VIRGINIA

Anning-Johnson Company, Alexandria
Manson-Smith Company, Inc., Norfolk and
Richmond

WASHINGTON

Elliott Bay Lumber Company, Seattle
Fiberglas Engineering & Supply, Spokane

WEST VIRGINIA

Asbestos & Insulating Co., Charleston

WISCONSIN

Building Service, Inc., Appleton and
Milwaukee

WYOMING

Construction Specialties Company, Casper

CANADA

F. Drexel Company Limited, Edmonton,
Alberta, Vancouver, B. C., Victoria,
B. C. and Calgary, Alberta
Hancock Lumber Ltd., Edmonton, Alberta

The Contractors above also install these
other Simpson acoustical materials: Hol-
lokore-drilled Perforated Tile—standard
and scatter drilled, Acoustical Roof Slab,
Fissured Mineral Tile, Metal Acoustical
Units, Perforated Hardboard, Perforated
Cement Asbestos Board.

AC-78



SIMPSON LOGGING COMPANY

1010 WHITE BUILDING, SEATTLE, WASHINGTON
General Offices in Shelton, Washington



John La Torre, owner, and Martin van London, chef, of La Torre's well known San Francisco restaurant, receive continuous praise from guests who have enjoyed the food, the wine and the quiet and elegant atmosphere.

Attractive, Economical Sound-Conditioning— A Most Important Part of Good Building Design

Simpson Forestone is the world's first fissured woodfiber acoustical tile. Its random textured surface adds beauty and warmth to the design of any building and the decor of any room. Its sound absorption efficiency is comparable to that of standard perforated woodfiber acoustical tile. *And Forestone costs no more than the popular thicknesses of perforated woodfiber tile.*

Forestone is available in 12" x 12" and 24" x 24" tiles, installed by nailing, cementing or hanging in mechanical suspension systems; in 12" x 23³/₄" tiles for exposed Z and T suspension systems; in 12" x 24" flange-jointed tile for

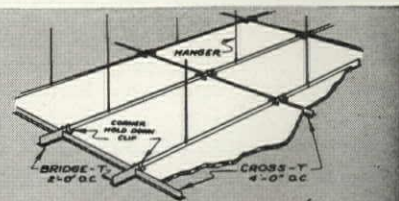
easy nailing or stapling; and as 24" x 24" and 24" x 48" ceiling board to fit exposed grid suspension systems. The La Torre Restaurant installation (shown above) is Forestone Ceiling Board.

Consider Forestone when you are planning or designing your next job. It quiets rooms—beautifully and economically! You can get full information about Forestone from your nearest Simpson Certified Acoustical Contractor (see list on opposite page).



FISSURED WOODFIBER ACOUSTICAL TILE

FORESTONE CEILING BOARD INSTALLATION



Forestone® Ceiling Board is made to fit exposed grid suspension systems, which are composed of lightweight inverted T-sections into which the board is laid. The grid is usually suspended directly without the necessity for 1¹/₂" channels. The individual boards may be removed for easy access to ventilating and utility lines above the suspended ceiling.
*Reg. U.S. Pat. Off.—U.S. Pat. No. 2,791,289

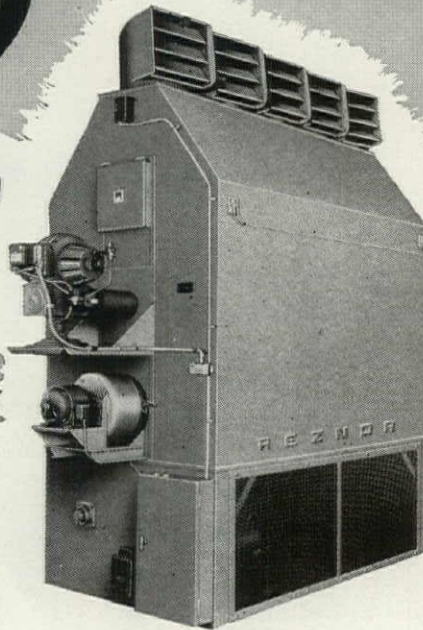
Here's the answer to your

BIG

SPACE HEATING PROBLEMS

Reznor-Olson

**STAINLESS STEEL
DIRECT FIRED
HEATERS**

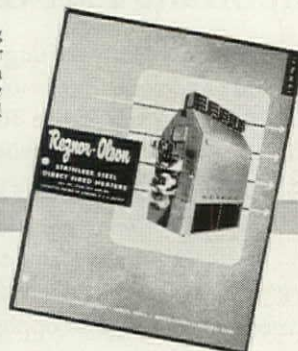


These units are designed for heating factories, warehouses, garages, airplane hangars, gymnasiums and other large open areas. They pick cold air up off the floor, distribute heated air overhead at high velocity—either direct or thru ducts. In addition to space heating installations, Reznor-Olson heaters are well-suited for use in make-up air systems and in drying and other process applications.

Reznor-Olson heaters are available in ten sizes—400,000 to 2,000,000 Btu—with gas, oil or dual-fuel burners. They may be floor mounted for top discharge or suspended for down-blast or horizontal discharge.

New Bulletin gives Complete Specifications

Complete specification information—including dimensions, control details, temperature rise, air delivery and fuel consumption—is included in a new bulletin, F-57A-RO. If you don't have a copy of this bulletin in your files, just fill out and mail the coupon below. Do it today.



REZNOR
WORLD'S LARGEST-SELLING DIRECT-FIRED
UNIT HEATERS

Reznor Manufacturing Company, 40 Union St., Mercer, Pa.

Please send me a copy of your bulletin F-57A-RO which gives complete specification data and construction details on Reznor-Olson direct fired heaters.

Name _____
Company _____
Street _____
City _____ Zone _____ State _____

some ease in structural steel (FORUM, May '57). Last month, two more producers dropped their premium prices for structural shapes. And new orders for structurals picked up only slightly in October, still lagged 21% behind last year. Even more indicative of the easing trend is the fact that backlogs have dropped to 2.8 million tons, representing an 8% drop all year.

Despite these indicators and the fact that over-all ingot production is expected to decline through the first half of next year, industry forecasters still predict good demand—and generally firm prices—for heavy plate, shapes and other structural products for most of 1958.

FINANCE

Voters OK most issues, but civic projects lag

Over-all, voters seemed in an affirmative frame of mind when they voted last month on some \$935 million of bond issues for everything from jails to swimming pools. About 90%, or \$830 million, were approved.

Pre-election indications had been that something less than this percentage would win approval. School bonds, for instance, had not been faring well in special elections all year. In New York State, only 62% of such issues had been approved in fiscal 1957 (compared to 78% for fiscal 1956), and the Investment Bankers Assn. had reported approvals for only 86% of issues for all purposes in the third quarter (only 71% of school issues). Now, the high percentage of ayes throughout the country has considerably encouraged municipal and state fiscal officers.

Although most issues won, a definite pattern to the vote might cause some brow furrowing. In general, roads, sewers and schools fared very well. In general, public buildings and civic improvements fared rather badly, particularly expensive ones pointing to higher municipal taxes. Also, less essential community projects, such as swimming pools and recreation centers, usually were rejected.

Biggest issues approved were \$250 million for expansion and rehabilitation of New York State's University system and \$200 million for dam building and water development in Texas. Louisville voters approved a \$5 million urban renewal issue, and Hartford vot-

continued on p. 50



The **LARGEST** industrial doors with the **LOWEST** maintenance costs



The **BYRNAPERTURE**—an exclusive Byrne aircraft hangar door development. Closes tightly around the plane fuselage, permitting mechanics to work in weather-free comfort inside the hangar.

Byrne Custom Vertical Lift Doors, such as that illustrated, can be furnished almost without limitation in width or height. They have been built for openings up to 80 feet wide.

Being counterweighted doors, no parts ever need replacement. A minimum of power is required for mechanical operation. Their simplicity of design and sturdy, trouble-free construction invariably make them the most economical doors for closure of wide unobstructed openings.


Byrne-engineered doors offer a wide variety of other industrial applications. We'll be glad to send you full information.

BYRNE doors, inc.

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Byrne Doors, Ltd., 381 College St., Toronto 2B, Ont.

DUPLEX RECEPTACLE




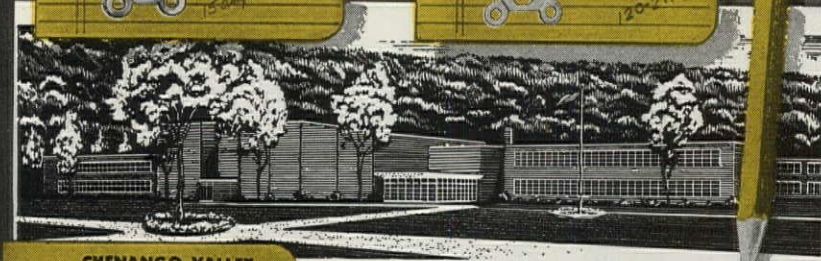
Cat. No. 9595
10amps, 250volts
15amps, 125volts

"TOPPER" A. C. SWITCH



Cat. No. 1221
20amps
120-277volts





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CENTRAL JUNIOR
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each of the above firms is
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**GROUNDING TYPE
DUPLEX RECEPTACLE**



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15amps, 125volts


SCHOOL ASSIGNMENT:

...to build a fine new school at reasonable cost yet using dependable, safe, easy-to-install, good looking and long lasting materials and products.

Quite an assignment—until you stop to think that all of these qualifications are invariably associated with specification grade items, and that specification-grade materials and products are *always* lowest in cost to service.

Hubbell specification grade wiring devices, for example, should be your economical choice for all new building projects because they can be depended upon to meet the rigid requirements of today—tomorrow.

**4-WIRE
STRAIGHT
BLADE
RECEPTACLE**



Cat. No. 7250
20amps, 250volts

HARVEY HUBBELL, INC.

BRIDGEPORT 2, CONNECTICUT

QUALITY WIRING DEVICES

**FACTORY WAREHOUSE
LOCATIONS ASSURE
NATIONWIDE STOCK
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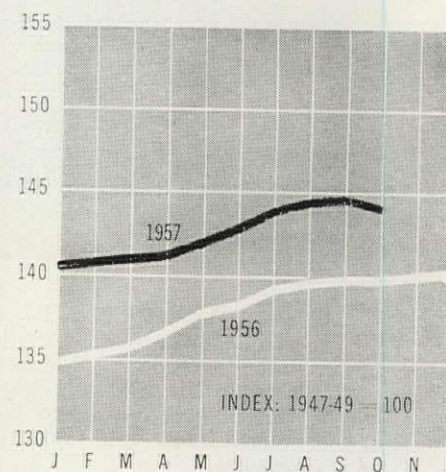
Dallas 7, Texas
1111 Dragon Street

ers okayed four issues totaling \$6.8 million, part of it for redevelopment.

Although small proportionately, issues that were turned down by voters—or failed to win enough yes votes for approval—are significant. For instance, a \$22 million proposal for a new San Francisco courthouse and City Hall remodeling missed getting the required two-thirds vote, largely because 20,000 of those who did vote on other issues abstained from any opinion on this one. The new courthouse had been attacked by some private groups as "costly and unnecessary." (Two years ago, a \$13 million issue for a new courthouse alone fell short of getting a two-thirds majority.) The bond issue if passed would have raised city taxes 13.6¢, and this was another focus of opposition.

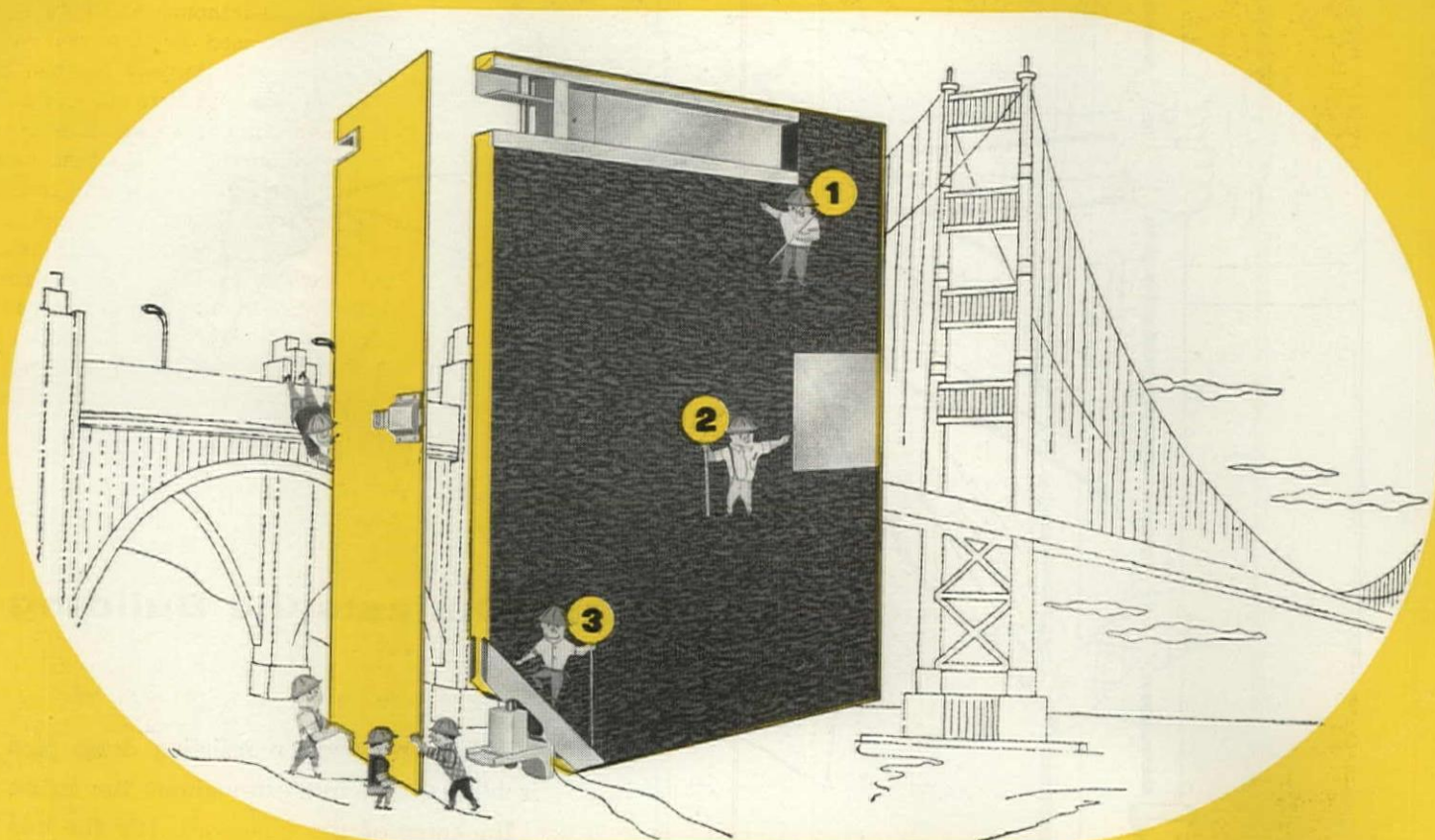
Cleveland's Gateway Center, comprising a new convention and exhibition hall, was at least postponed when voters failed to pile up the 55% majority needed for a \$15 million bond issue. The issue didn't miss by much; 52.4% of the voters wanted it. But it was enough to kill it for now at least, and cause real estate mogul William Zeckendorf to withdraw his proposal to build an adjoining hotel and office building as part of the so-called Outcalt Plan (FORUM, Sept. '57). "Our program," said Zeckendorf, "is dead." Failure of the convention and exhibition hall to get the required votes was particularly puzzling to Cleveland officials because other issues for a library program, freeway and bridge were approved.

An \$8 million airport and building issue in Cuyahoga County, O., was defeated. Detroit officials suffered a disappointment when a \$9.5 million proposal for the development of their port lost by a narrow margin.



CONSTRUCTION COSTS for nonresidential buildings dropped for the first time since November, 1954. The index of E. H. Boeckh & Assoc. stood at 144.05 in October.

Only **FIAT** TOILET COMPARTMENTS have the *Golden Gate* DOOR



bridge-like construction keeps FIAT years ahead in toilet compartment design

(1) LOAD EQUALIZER

Heavy channel reinforcing distributes load away from the top hinge—gives added support to the pintle. Provides permanent protection against unusual loads—specifically, when children hang from or swing on the door.

(2) IMPACT ABSORBER

Formed, heavy gauge plate anchors the slide bolt—distributes shock of severe door "slamming" over wide area. Prevents tearing out of slide bolt or damage to door.

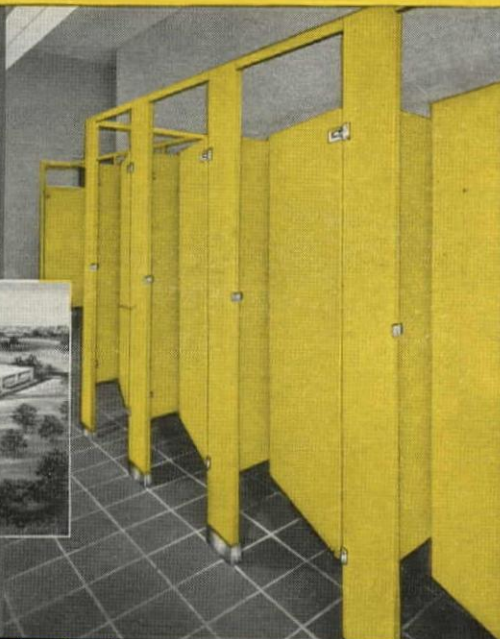
(3) STRESS RESISTOR

Channel type reinforcing unit is interlocked with the panel edges—provides basic side-to-bottom support—anchors Life-Line® Gravity Hinge in position—positively prevents door "sway."

Rhodes School Addition,
River Grove, Illinois

Architect: Eugene F. Stoyke, A.I.A.

Contractor: Arthur Ryberg



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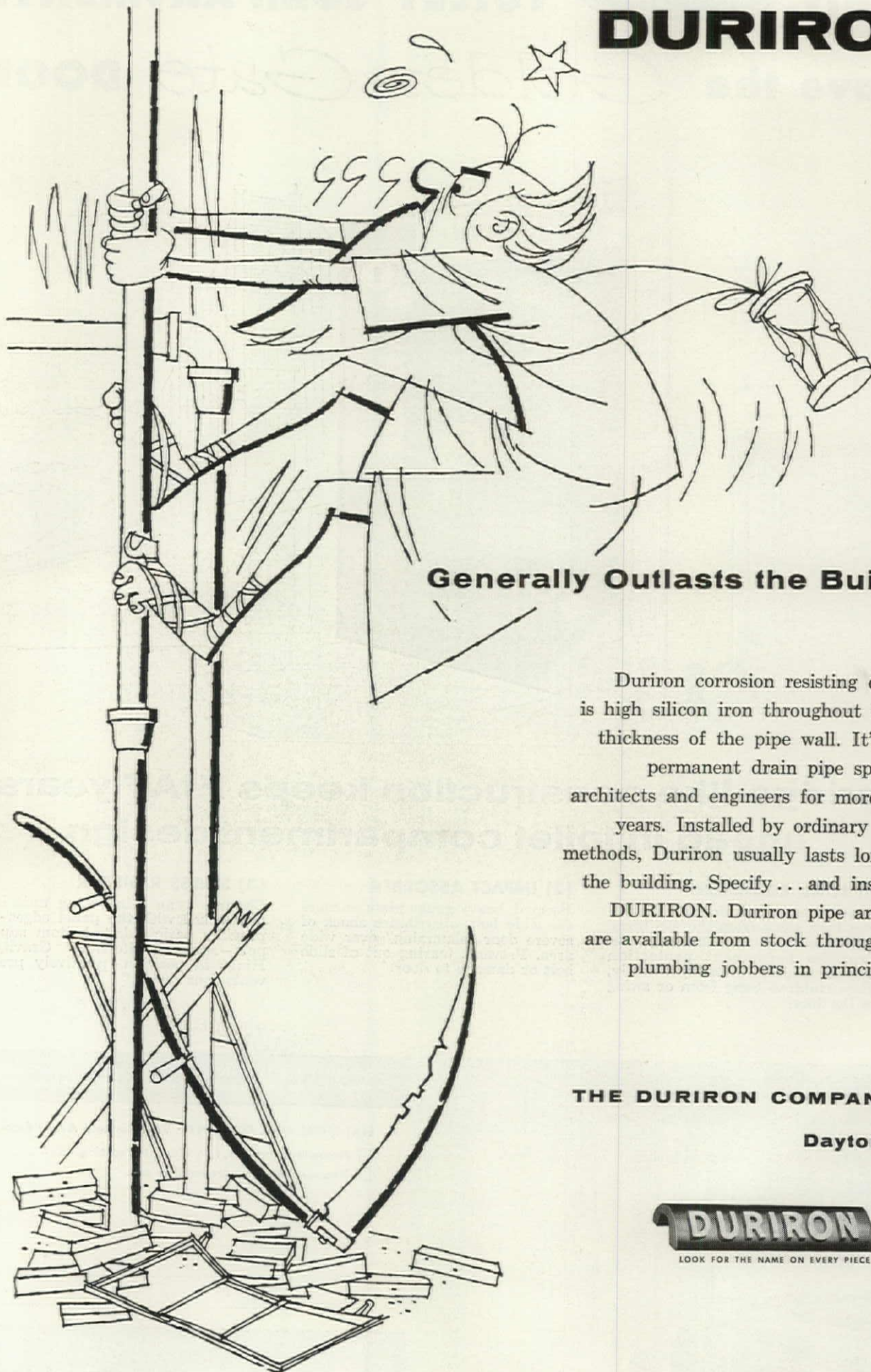
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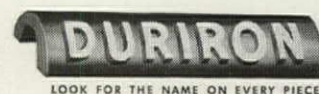
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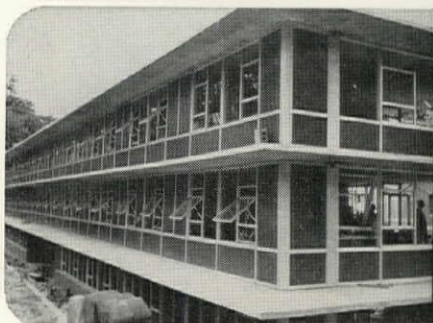
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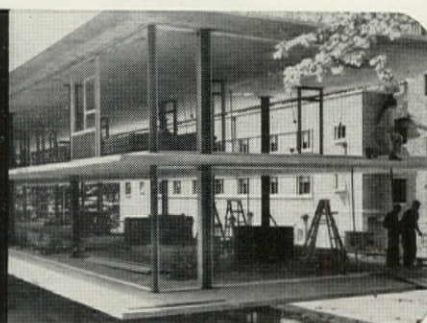


How to simplify and cut costs of
Your wall construction with

BAYLEY CURTAIN WALL SYSTEMS



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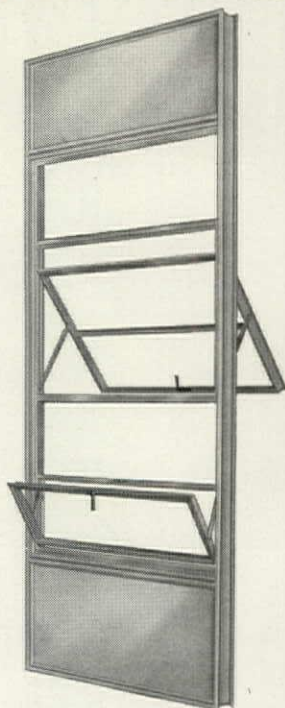
Before Curtain-Wall is installed.

—incorporating BAYLEY Projected Windows and Decorative Panels

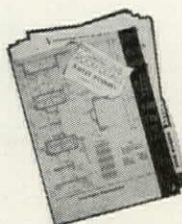
Bayley Curtain Wall Systems—in either aluminum or steel—offer you the maximum economies to be realized from modern curtain-wall construction. Incorporating standard time-proved Bayley Projected Window Units, and a Bayley system of sub-frame assembly, a designer's preference can be met without the costliness of special window designing. Also, as illustrated, installation is reduced to the simplest procedure. Other advantages accruing are:

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- ✓ Provision against condensation annoyance or damage
- ✓ A wall with any desired degree of air, light or vision
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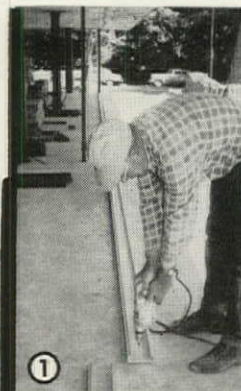
For further information write; or call your local Bayley Representative; or see Sweets.



The Bayley Series A-450
Aluminum Curtain-Wall Unit.



Write To-
day for this
Curtain-
Wall Idea
File.



1. Bolting sill and header plate into position.
2. Bolting jamb plate to load-bearing column.



3. Interlocking window-panel into position.



4. Caulking interlock grooves before positioning mullion.



5. Positioning Bayley adjustable-width mullion.
6. Positioning window-panel — using interlock groove as slide.



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Springfield, Ohio

District Sales Offices: Springfield Chicago 2 New York 17 Washington 16

high fashion underfoot

Color shown:
V-340, Wintergreen

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This tightly-textured vinyl asbestos floor stays beautiful through a long lifetime of service, unmarred by foot traffic, dirt or grime. Shoppers and salespeople like Vina-Lux because it's slip-safe — easy on the feet and legs. Original cost? Moderate. Long-term cost? Extremely low per square foot. Samples of Vina-Lux and color chart are yours on request.



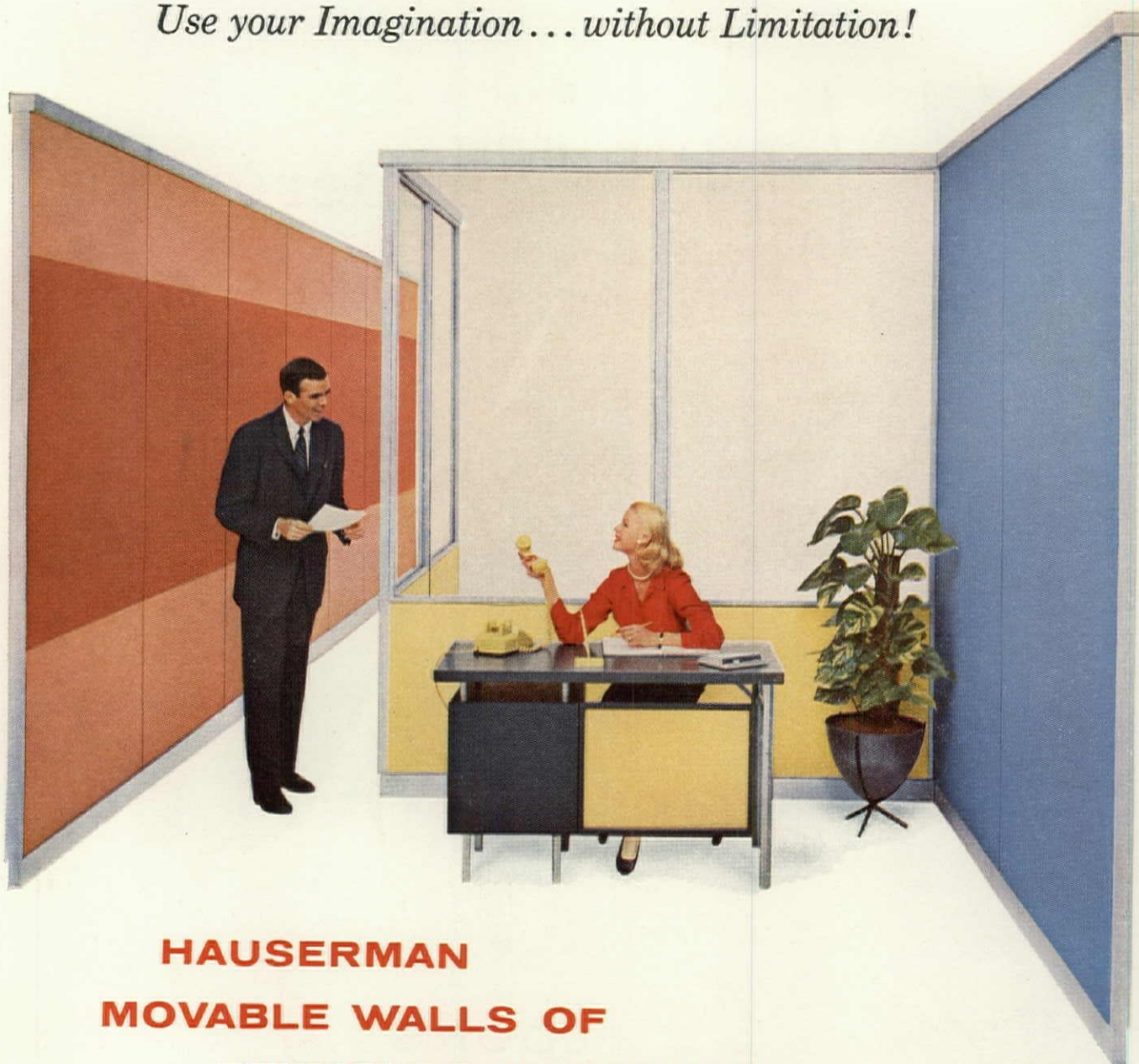
AZROCK FLOOR PRODUCTS DIVISION

UVALDE ROCK ASPHALT COMPANY

506A Frost Bank Building • San Antonio, Texas



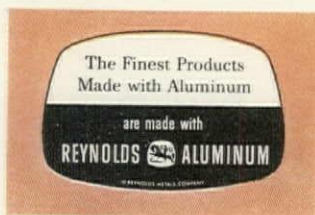
Use your Imagination... without Limitation!



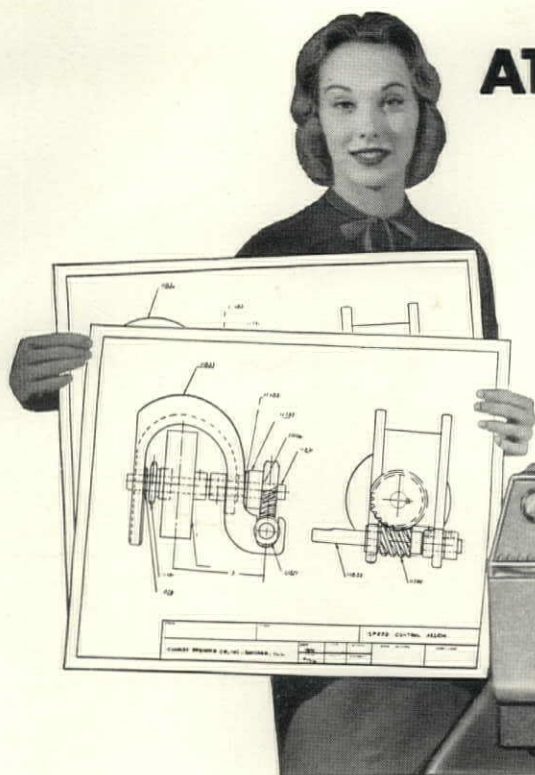
HAUSERMAN MOVABLE WALLS OF REYNOLDS ALUMINUM

Hauserman and Reynolds use the magic of aluminum to *match your imagination* in interior wall treatments. Limitless colors...new embossed textures...stacked panels or solid, in any conceivable combination. And the aluminum extrusions that are the basis of this new concept further multiply your possibilities. Wall sections are joined almost invisibly...or with dividing accents bold or delicate, in gold, silver and anodized colors.

Use your imagination without limitation. And at the same time get these advantages inherent in all Hauserman Walls...earliest occupancy, lowest maintenance, flexibility to meet changing needs, lifetime service. Write for literature. Or consult the Yellow Pages (under PARTITIONS) and call your nearest Hauserman representative. The E. F. HAUSERMAN COMPANY, 6704 Grant Avenue, Cleveland 5, Ohio. Hauserman of Canada, Ltd., Toronto, Ontario.

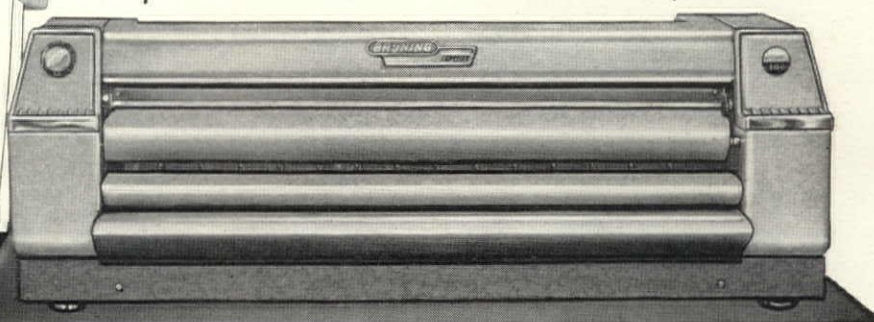


Watch Reynolds all-family show "DISNEYLAND", ABC-TV



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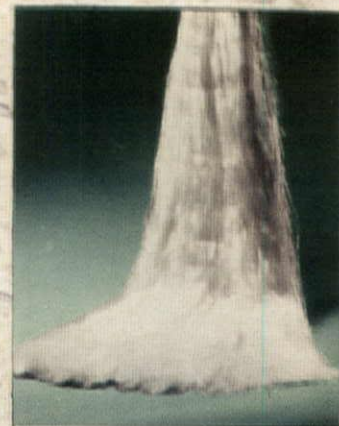
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New Ultracoustic Ceiling Board captures all the rich, classic beauty of Travertine marble . . . opens up a whole new range of architectural design possibilities!

Photo courtesy Nelson Gallery-Atkins Museum (Nelson Fund), Kansas City, Mo.



New Ultracoustic Ceiling Board is the only ceiling board made of long, strong, textile-type glass fibers. It's incombustible and permanent. It's rigid—yet can be bent without breaking!

for suspended acoustical ceilings, an incombustible New type of Glass Fiber Board

It's *incombustible*. It's *beautiful*. It's *tops* in acoustical (and thermal) efficiency. It won't break or chip. It's easier to apply because it's flexible in application, yet rigid in place. It's available in 24" x 48" x $\frac{3}{4}$ " and 24" x 24" x $\frac{3}{4}$ " panels *right now*.

It's Gustin-Bacon's Ultracoustic Ceiling Board, a completely new and different kind of glass fiber insulation board for use with all standard grid suspended ceiling systems of T-bar type. Ultracoustic is the only ceiling board that possesses all these desirable properties:

TRAVERTINE FINISH, now available for the first time in a glass fiber acoustical board. Ultracoustic's sur-

face finish is an off-white with uniformly random-fissured texture.

SUPERIOR ACOUSTICAL EFFICIENCY. NRC rating of .85.

INCOMBUSTIBILITY. Class "A" rating and listed by Underwriters Laboratories as incombustible.

IMMUNITY TO DAMAGE. Ultracoustic is the only ceiling board of long, textile-type glass fibers. It's rigid *but not brittle*—won't chip or break. Its resilient toughness makes it more resistant to damage in handling, shipping and in service than other acoustical materials.

HIGH LIGHT REFLECTANCE . . . averages 85%.

EASY APPLICATION. Ultracoustic can be bent without breakage during application, is easy to cut and fit around diffusers or other obstructions.

OUTSTANDING THERMAL EFFICIENCY — an important bonus benefit. "K" factor is .23 btu at 75° F. mean temperature.

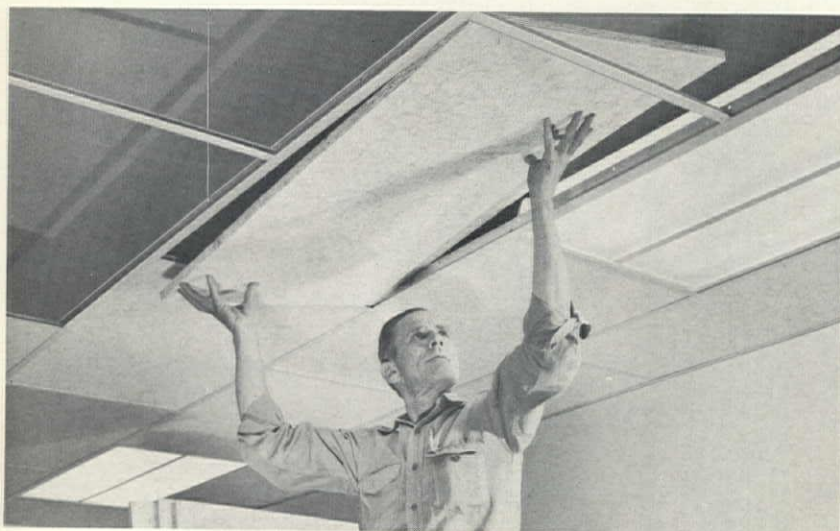
WRITE TODAY FOR SAMPLES AND DETAILS

Far better than words and pictures, a sample of this new ceiling board will tell you how far ahead of the times it is. Write today for samples, prices and complete information.

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New Ultracoustic Ceiling Board goes up faster, easier. It need not be handled with special care, for it won't flake, break or chip.



Ultraacoustic Ceiling Board

Patent Applied For





Over 150 tons of G-E Zone-by-Zone Air Conditioning serve the entire Louise Obici Memorial Hospital in Suffolk, Va. In all, 26 General Electric Packaged Units were installed with no major alteration or structural changes.



Linen closets house and conceal compact General Electric Air Conditioners providing service to another area.



Basement storeroom also houses General Electric Units. These four units serve a section of first floor wing.

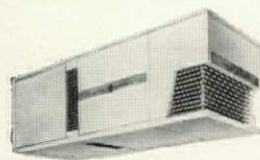
Installation by Mechanical Engineering Corp., Norfolk, Va.

GENERAL ELECTRIC ZONE-BY-ZONE AIR CONDITIONING

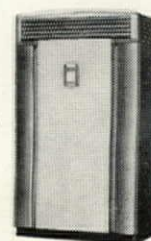
Selected as most practical method for modern hospital

Nobody would ever guess that General Electric Air Conditioning was installed *after* this hospital was completed—so well concealed are the quiet General Electric Units.

Zone-by-Zone Air Conditioning is also a sure way to solve budgeting problems. It is easy to install—no costly interruptions—no major alterations—no heavy initial outlay. Operation is economical and space problem is minimized. Indeed, more and more architects are specifying General Electric Zone-by-Zone Air Conditioning as the most practical answer for every requirement. General Electric Company, Commercial and Industrial Air Conditioning Dept., 5 Lawrence St., Bloomfield, N. J.



Ceiling-mounted units use no floor space—air-cooled and water-cooled.

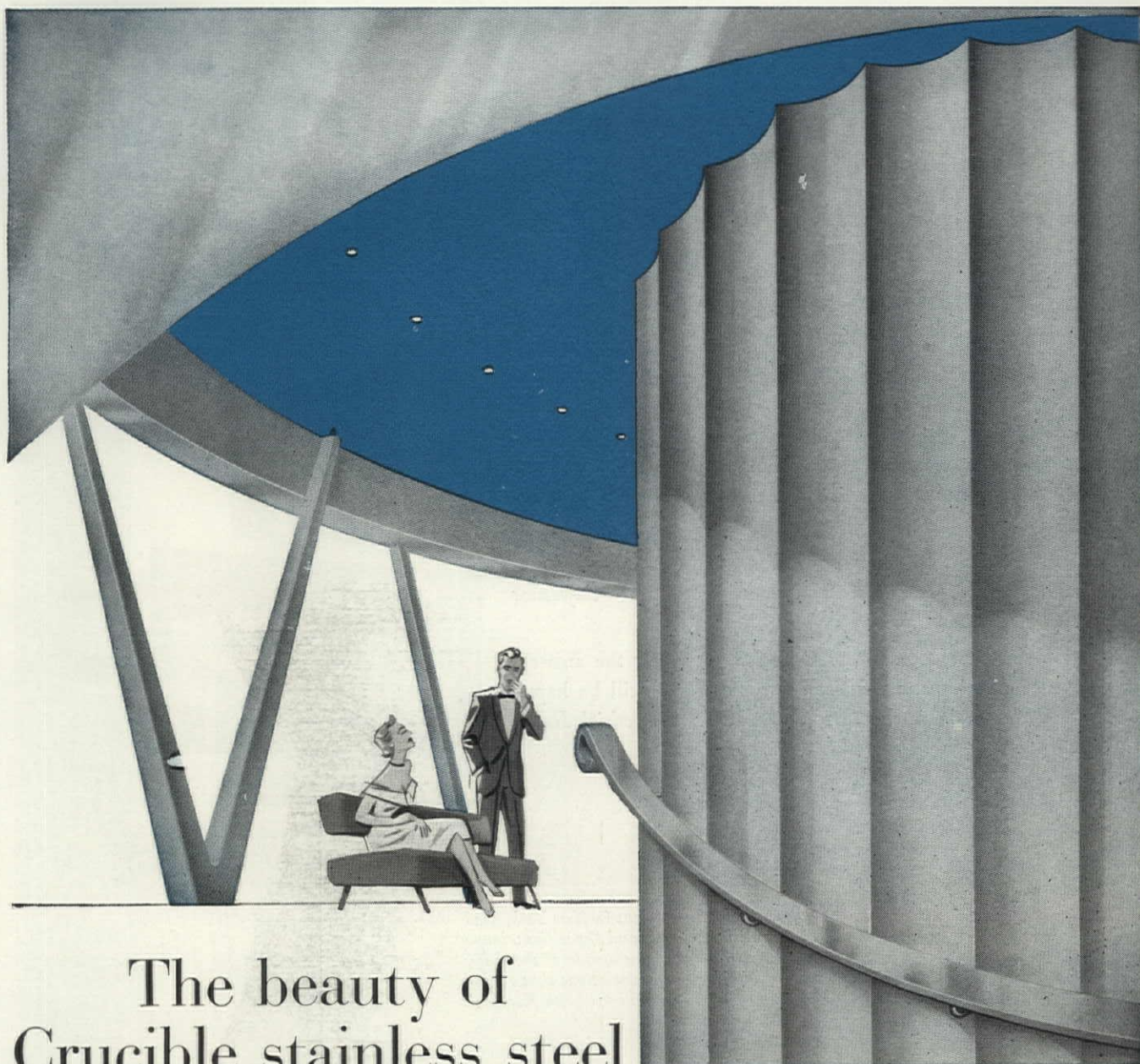


Floor-mounted units may be stationed in or away from area served.

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The beauty of Crucible stainless steel ... it highlights your design

What are the advantages of specifying stainless steel? One advantage is that it is both beautiful and functional. You can use it to build and enhance a skyscraper or a store-front—without introducing new construction problems. And, in either case, its natural dignity and lustre highlight your design.

Then, too, clients quickly approve specifications for stainless steel. They know it gives lifetime service—maximum resistance to corrosion and weathering. They also know it requires very little maintenance; for example, periodic cleaning as required with other

metals is not necessary with stainless steel.

There are hundreds of uses for stainless steel in both the interiors and exteriors of residences, industrial and commercial buildings, no matter what their size. Like to know more about them? Send today for "A Guide to Future Uses of Stainless Steel in Architecture and Building", a free 20-page booklet prepared by one of America's largest makers of stainless steel sheet and strip. Write: *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

CRUCIBLE

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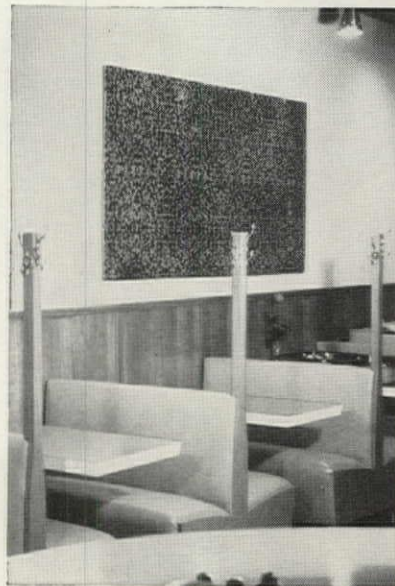
*Add long-wearing glamour to walls and
furniture with KOROSEAL*

B.F. Goodrich

SMART decorators and business owners look to Koroseal flexible material to provide beauty and minimize maintenance problems. The wide variety of patterns and colors give you the range needed to successfully and tastefully decorate in any period or motif. And many of the patterns come in two weights, a light weight for wall covering and a heavier material with an elastic back for upholstering.

Koroseal vinyl material takes the abuse that destroys and defaces many other materials. Easy to apply and work, easy to maintain, and easy on the eyes, Koroseal makes every interior beautiful—stays new looking for years.

Next job you have, look to B.F. Goodrich to supply the answers for your wall covering and upholstery problems. We will be happy to send you Koroseal swatches. Drop a card to *B.F. Goodrich Industrial Products Company, Dept. A-12 Marietta, Ohio.*



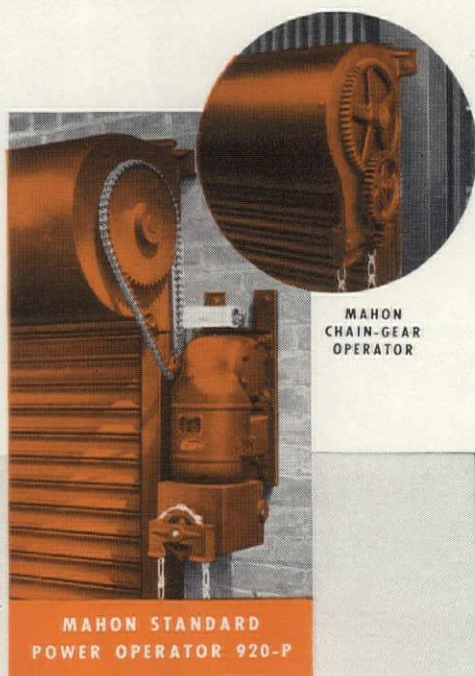
The Southern Restaurant in New York, used White Bali on the walls and Vegas Cantaloupe in the booths. Just one example of the many and interesting variations that can be accomplished with Koroseal.

Koroseal®
UPHOLSTERY MATERIAL
AND WALL COVERING BY B. F. GOODRICH



Rolling Steel Doors

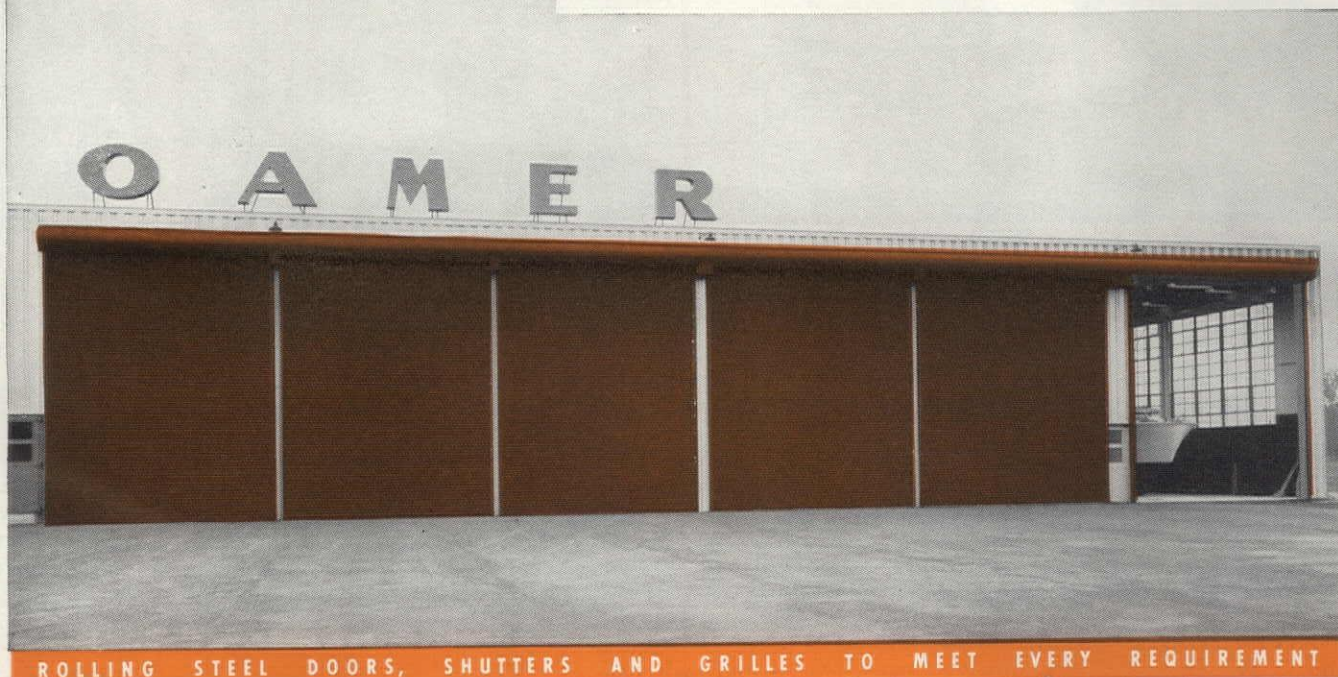
Manually, Mechanically or Electrically Operated



Here is another multiple door installation where only rolling steel doors could meet the operating and security requirements . . . because, the six doors illustrated below are installed in openings at the ends of six production lines where operating space and positive protection against intrusion were primary considerations. Sixteen other Mahon Rolling Steel Doors are installed in this new, modern boat-building plant. No other type of door can match the space saving compactness and the operating convenience of a good, quick-opening, quick-closing, power operated rolling steel door . . . the vertical roll-up action is fast, requires no usable space either inside or outside the opening—no overhead tracks or other obstructions to restrict headroom and interfere with crane handling adjacent to the door opening. And no other type of door can give you the positive security, firesafety and permanence which is an inherent advantage in Rolling Steel Doors . . . all-metal construction reduces maintenance to a negligible factor, and assure a lifetime of continuous trouble-free service. When you buy a rolling steel door, it will pay you to check specifications carefully . . . you'll find that Mahon Rolling Steel Doors are built better to give you better service over a longer period of time—for instance, the galvanized steel in Mahon curtain slats is BONDERIZED and DIP-COATED with synthetic enamel which is baked on at 350° F. prior to roll-forming. This is just one of the extra-value features of Mahon Rolling Steel Doors . . . comparison will disclose many others that add up to a much better investment. See Sweet's Files for information, or write for Catalogue G-58.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

Sales-Engineering Offices in Detroit, New York and Chicago • Representatives in Principal Cities
Manufacturers of Rolling Steel Doors, Grilles, and Automatic Underwriters' Labeled Rolling Steel Fire Doors and Fire Shutters; Underwriters' Rated Fire Walls; Insulated Metal Curtain Walls; Electrified M-Floors; Acoustical and Traffer Forms; and Steel Roof Decks and Long Span M-Decks.



Six of Twenty-Two Mahon Rolling Steel Doors installed in a new plant for the Roamer Steel Boat Division of Chris-Craft Corporation, Holland, Michigan. Owen-Ames-Kimball Company, General Contractors.

MAHON

Compare the Versatility



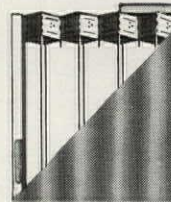
There's no other door that can measure up to Modernfold

For creating space...or for saving space in homes, commercial installations and institutions, there's no other folding door that can measure up to MODERNFOLD for versatility.

Anytime you specify MODERNFOLD, you are specifying the finest for your clients. Because of MODERNFOLD's inner framework of double-strength steel it lasts a lifetime. And its beautiful, sturdy vinyl fabric needs only soap and water to keep it clean. Not only that, but you can specify almost anything you want in a MODERNFOLD from the world's most complete selection of colors, finishes, sizes, tracks and switches. You'll find out why, in detail, when you refer to Sweet's Catalogue.

Only MODERNFOLD, among all folding doors, can serve every need so well. In new construction or remodeling, check your nearest MODERNFOLD distributor; he's listed under "Doors" in the Yellow Pages.

Vinyl covered, wide range of colors. Easily washed while in place. Inconspicuous overhead track needs no unsightly cornice. Double strength, all-steel framework. Available in standard or custom sizes.



**MODERNFOLD
DOORS HAVE BEEN
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ALL ARCHITECTS**

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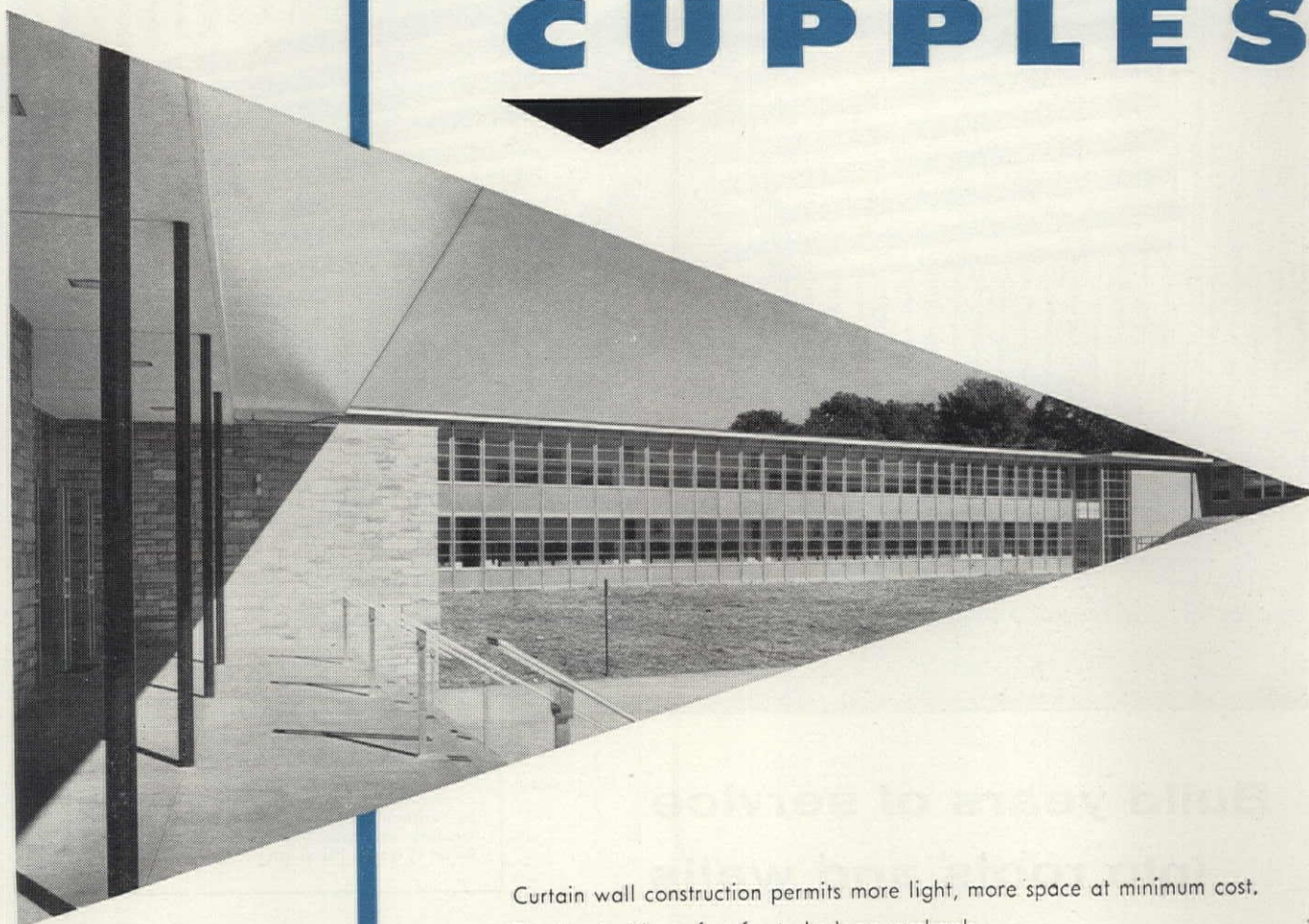
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ANOTHER OF THE MANY MODERN SCHOOLS WITH

ALUMINUM CURTAIN WALLS BY **CUPPLES**



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Ferguson-Florissant
School District R.2, Missouri
Charles W. Lorenz,
Architect, St. Louis

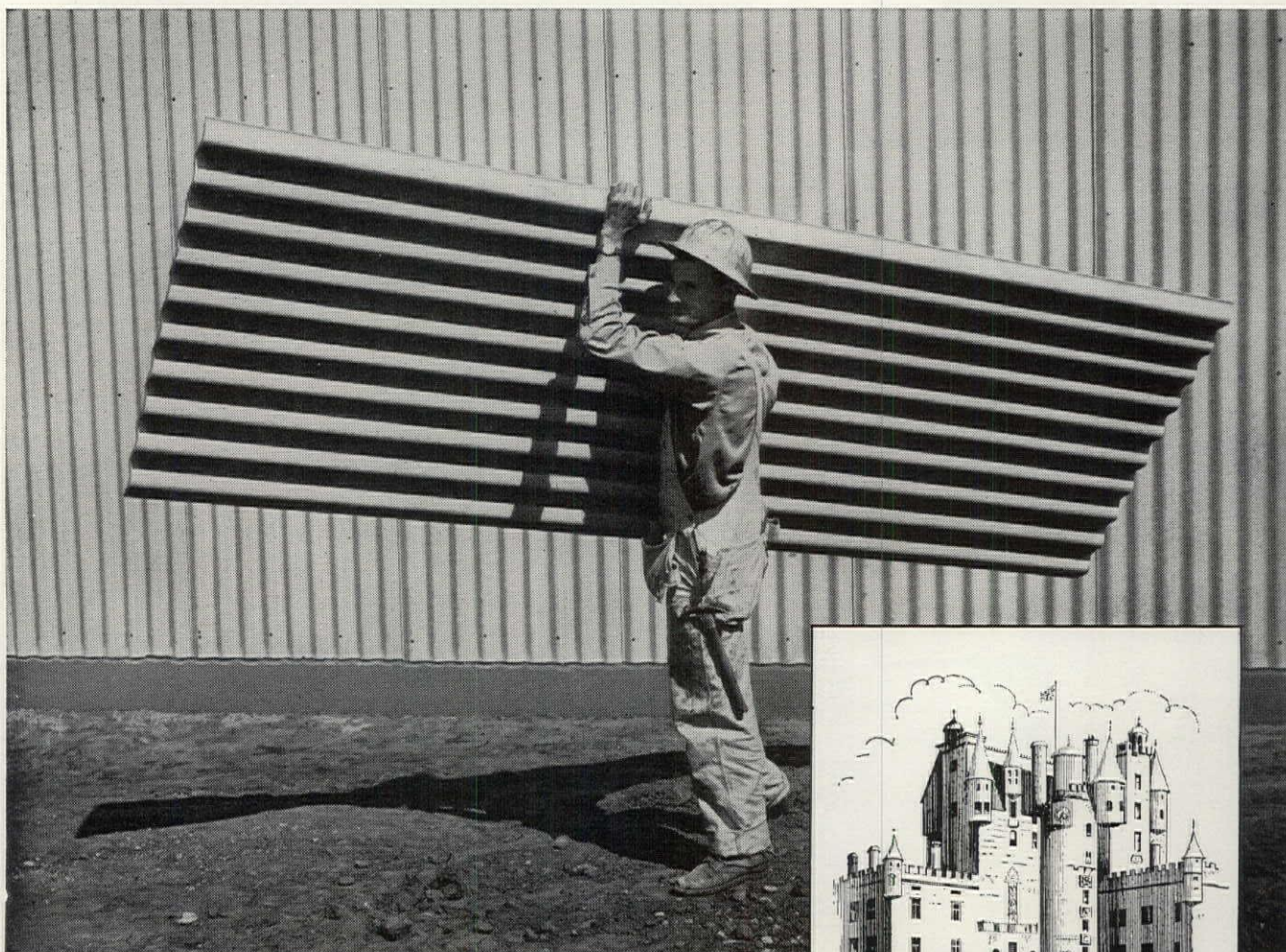
Curtain wall construction permits more light, more space at minimum cost. That's why it's perfect for today's new schools.

The Cupples' aluminum curtain wall system for the McCluer School consists of tubular vertical mullions, double-hung windows and blue porcelain enamel panels. Interior aluminum trim at windows and aluminum sub-sills, also by Cupples.

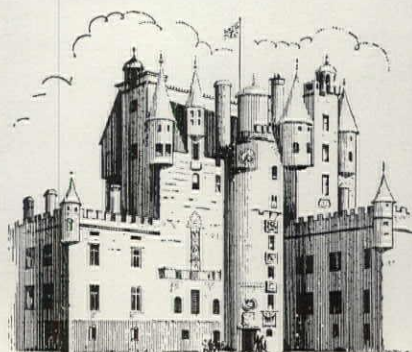
From single-story schools to multi-story commercial buildings, Cupples is foremost in curtain wall design, fabrication and erection. Cupples, also, is one of the nation's largest manufacturers of aluminum windows, doors, Alumi-Cooustic grid systems and special ornamental products. Our catalogs are filed in Sweet's.



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large sheets are low in first cost . . . require no special tools for application . . . can be installed quickly and easily over skeleton frame construction . . . are 100% salvageable.

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This beautiful church with its unique concrete arch roof was designed by O'Kelly & Mendez, Architects and Carl B. Brunner, Jr., Designer. The Contractor was Santoni & Vivoni. For over 60 years, we have provided foundations for the finest structures in America, and for almost as long, offered complete construction services abroad. Investigate the advantages of using

Raymond methods and experience on your next foundation project. For further information, write or call our main office at 140 Cedar Street, New York 6, or one of our Branch Offices across the country, or our subsidiaries in Canada, Central and South America. Our New York telephone number is Cortland 7-7070.

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Quality Control is a daily program in the Macomber plants. Progress through research is normal here. Our aim is to give the purchaser greater value at no increase in cost. You will be interested in how well we are succeeding—how you benefit every time a job goes—Macomber.

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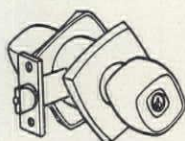
1, OHIO

CLASSIC BEAUTY for modern doors

From classic to contemporary . . . Corbin Heavy Duty Cylindrical Lockset designs add a new dimension to modern door styling . . . make striking new door effects possible for your finer residences, schools, commercial and industrial buildings.



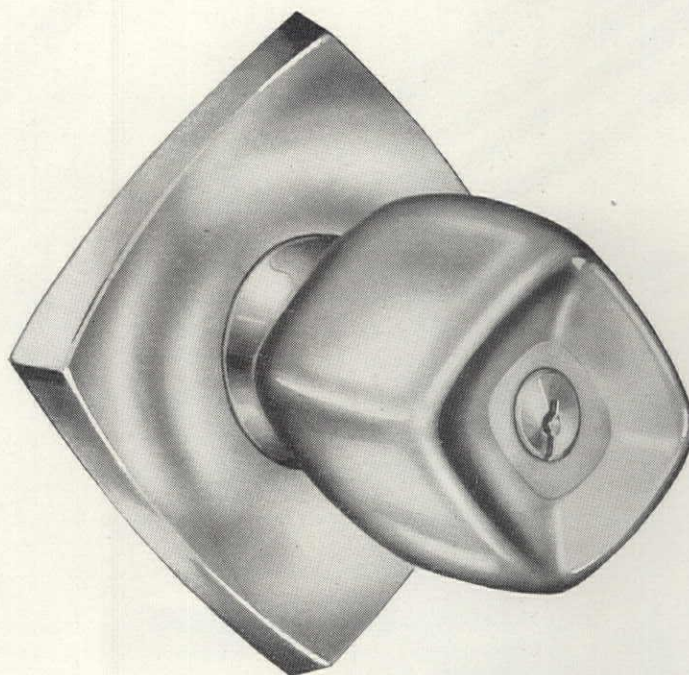
CORBIN heavy duty cylindrical locksets



Precision operation makes this Corbin lockset line the finest of its kind. Compact, heavy-duty construction assures smooth, flawless service over the years. And there's famous Corbin security: each lock features a full $\frac{5}{8}$ inch throw for extra-secure locking, even if doors shrink or warp. See your Corbin dealer for full details.

Other Outstanding Features:

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- 100% reversibility
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- Automatic deadlocking feature
- Approved by Underwriters' Laboratories for B, C, D and E label doors
- Meets Federal Specification Type 161



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P&F CORBIN Division
The American Hardware Corporation
New Britain, Connecticut



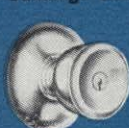
Good Buildings Deserve CORBIN Hardware



CRESTWOOD Design
No. 805 with 8" rose



WINDSOR Design (Colonial)
No. 803 with 8" rose



CHALICE Design
No. 809



MELODY Design
No. 811



HARMONY Design
No. 836



SPARTAN Design
No. 830

All designs available in brass, bronze, and aluminum; except Windsor design, brass metal only. (Spartan also available in Stainless Steel.)

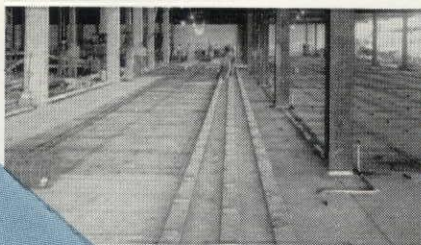
M-DECKS

Span Up To 35 Ft.



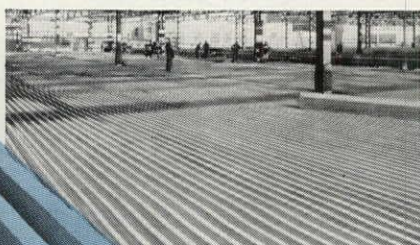
This Cross Sectional View shows another application of Mahon Long Span M-Deck in which the M-Deck Section provides the Structural Unit, the Roof Deck, and the finished Acoustical Ceiling—all in one package. Mahon Troffer Sections are included here for Recessed Lighting.

In a 24 Room Addition to the Reeths-Puffer High School, Muskegon, Mich., Mahon Long Span M-Deck Section M1-OB was used exclusively for the Roof. Illustration shows Roof of Band Room before the Acoustical Ceiling was attached directly to the bottom flange of the Open Beam M-Deck Sections. R. S. Gerganoff, Architect. Muskegon Construction Company, Gen. Contrs.



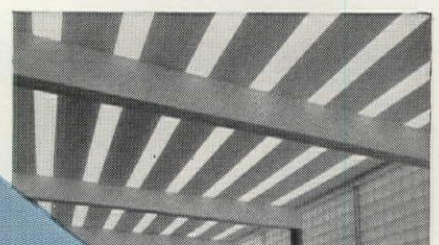
ELECTRIFIED M-FLOORS

Mahon M-Floors provide electrical availability in every square foot of floor surface—safeguard buildings against electrical obsolescence in years to come.



CONCRETE FLOOR FORMS

Mahon Permanent Concrete Floor Forms in various types meet virtually any requirement in concrete floor slab construction over structural steel framing.

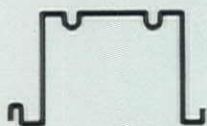


ACOUSTICAL and TROFFER FORMS

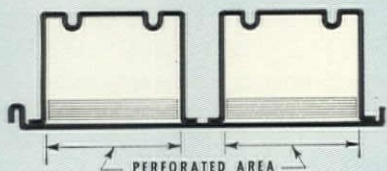
Provide an Effective Acoustical Ceiling with Recessed Troffer Lighting—Serve as Permanent Forms in Concrete Joist and Slab Construction of Floors and Roofs.

... Simplify Roof Design and Construction ... Provide Finished Ceiling Material!

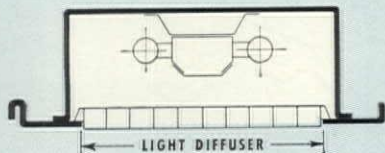
MAHON Long Span M-DECK SECTIONS



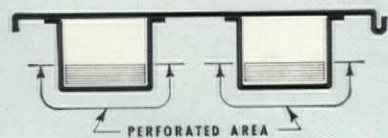
SECTION M1-OB
OPEN BEAM DEPTH 3", 4½", 6" or 7½"



SECTION M2SR (Acoustical)
CEL-BEAM DEPTH 3", 4½", 6" or 7½"



SECTION M1T (Troffer)
DEPTH 6" or 7½"



SECTION M2 (Acoustical)
CEL-BEAM DEPTH 1½", 3", 4½", 6 or 7½"

Mahon M-Decks are now produced in two types of Long Span Steel Structural Sections: One is an economical Open Beam Section; the other is a Cel-Beam Section—both are available in four standard depths of 3", 4½", 6" and 7½". In this wide range of structural roof Sections, the architect is given a versatile building product that permits him to design a simple, economical roof, or a combined roof-ceiling in which the structural supporting members, the roof deck, the finished ceiling material, and the acoustical treatment can all be contained in one light weight, quickly erected unit.

In schools, auditoriums, sports arenas, field houses, churches, or any type of building where the roof is supported by bearing walls, rigid frame or exposed truss construction, Mahon M-Deck Sections provide the structural roof and the finished ceiling material combined. Many arrangements are possible, and many ceiling effects are obtainable.

The long span structural M-Deck Sections span from wall to wall or from truss to truss. This eliminates roof beams and the cluttered effect of roof purlins, and produces a neat, continuous beamed or flat metal ceiling surface which is virtually indestructible. If recessed lighting is desired, Mahon Troffer Sections can be included in this type of roof-ceiling construction in any ratio to meet specific lighting requirements. Exposed metal surfaces of both M-Deck and Troffer Sections, which form the ceiling, can be readily painted to harmonize with any interior decor.

All Mahon cellular, Long Span M-Deck Sections can be furnished with bottom metal perforated and sound absorbing material inserted to provide a highly effective acoustical ceiling . . . Noise Reduction Coefficients range up to .85 in ceilings constructed with Mahon Sections recommended for this use.

See Sweet's Files for complete information or write for Catalogue LSD-58.

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INSULATED METAL WALLS

Three Distinctive Patterns with "U" Factor Superior to that of Conventional Masonry Wall with Lath and Plaster. Erected up to 60 Ft. in Height without a Horizontal Joint.



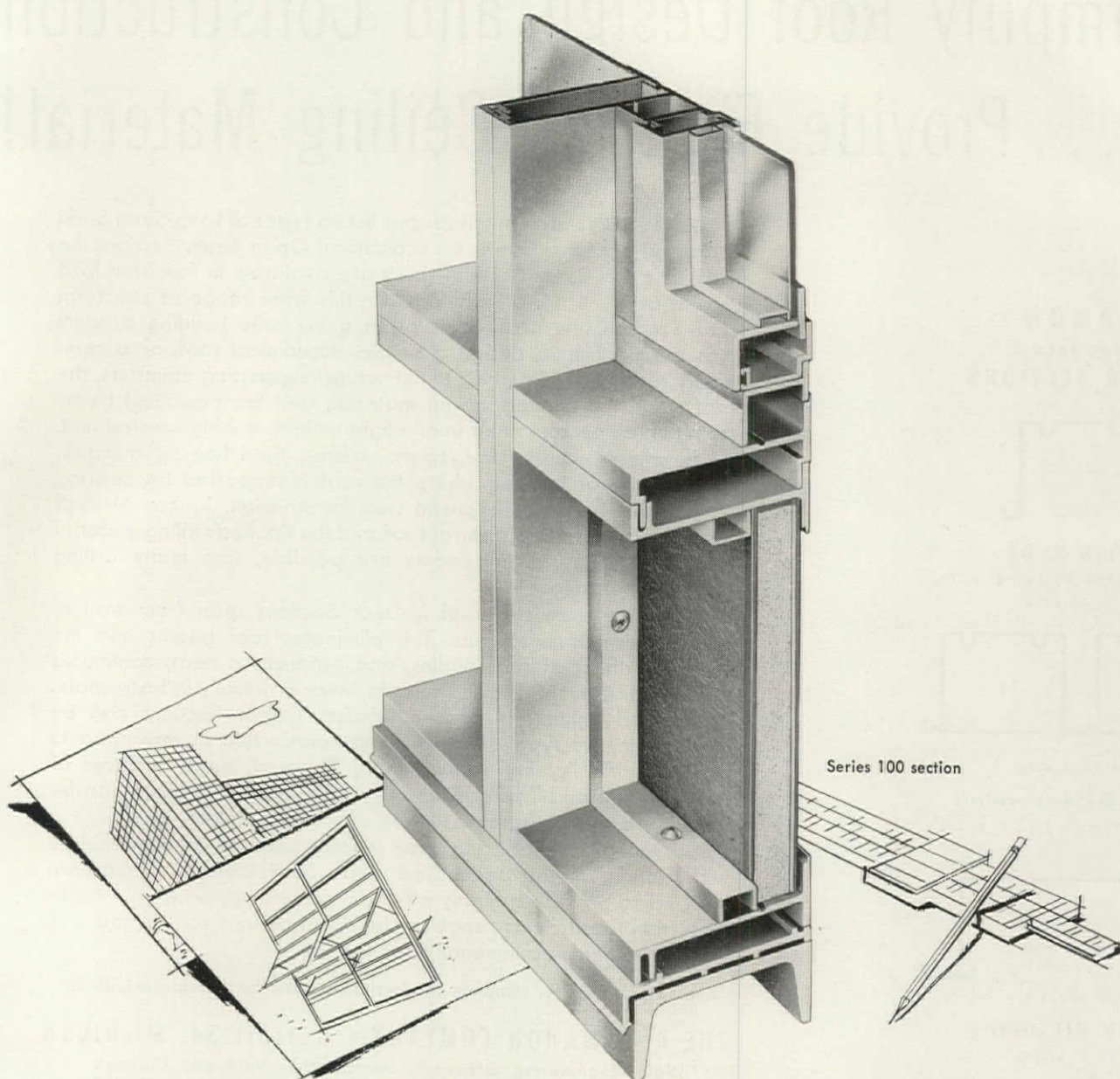
UNDERWRITERS' RATED FIRE WALLS

Mahon Metalclad Fire Walls carry two Hour Rating by Underwriters' Laboratories, Inc., for Use as Either an Interior Dividing Fire Wall or an Exterior Curtain-Type Fire Wall.



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Standard Manually, Mechanically or Power Operated Rolling Steel Doors and Grilles. Underwriters' Labeled Automatic Closing Rolling Steel Fire Doors and Fire Shutters.



NOW A SERIES OF

WARE WINDOW WALLS

ENGINEERED FOR YOUR NEEDS

Four window-wall series, engineered to meet your individual requirements, have been designed by Ware engineers for structural strength, weather tightness and ease of erection.

- Series 100 and 150 4" for one and two floor heights.
- Series 200 Gridwall for multi-story construction.
- Series 300 4½" Customwall for monumental multi-story construction.

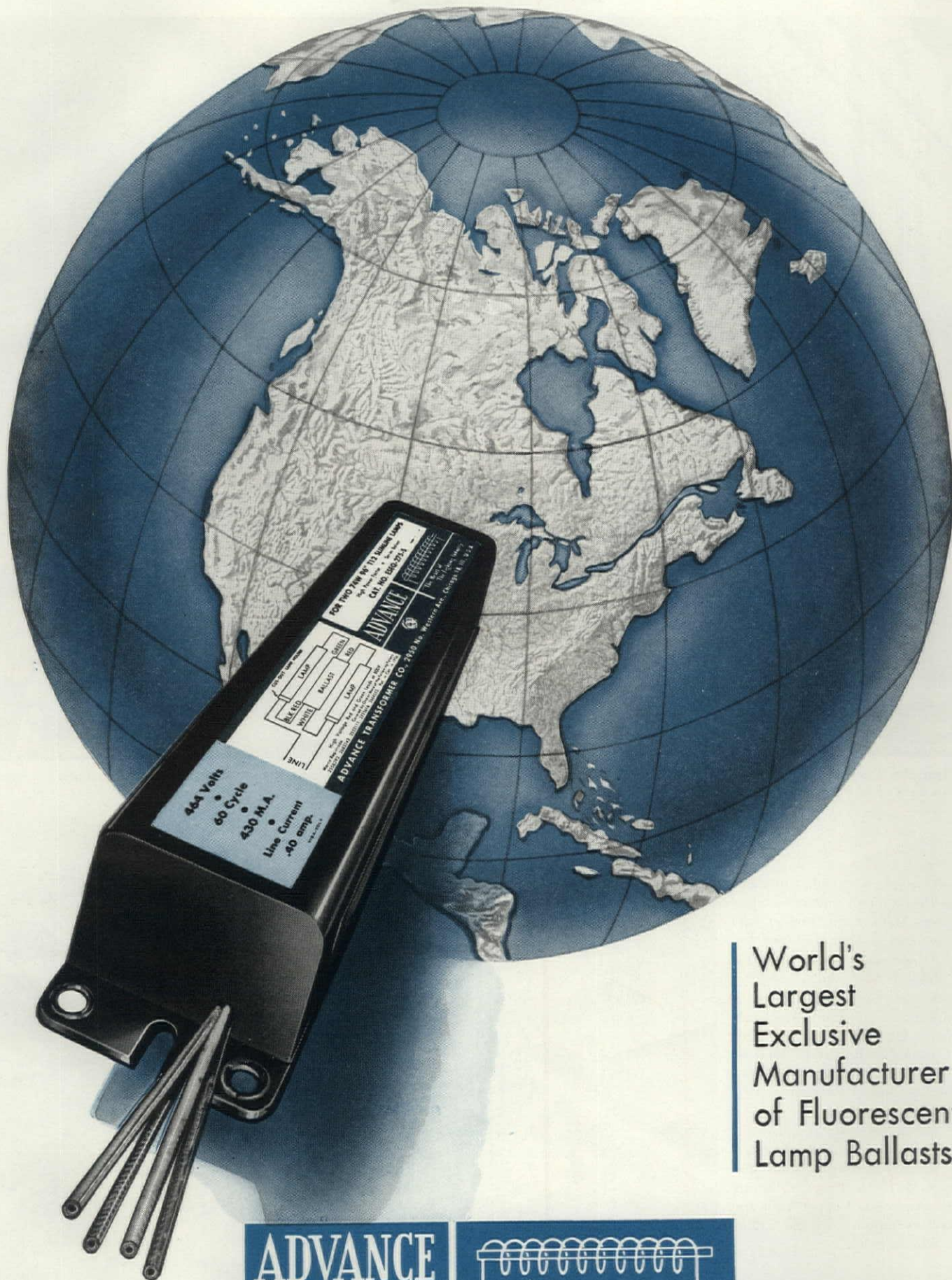
Interlocking mullions on the 100, 150 and 300 series (caulking and weatherstrip rabbet on the 200 Series), eliminating leakage points, expansion and contraction taken up by unit, inside or outside bead glazing, wide variation of panel material and venting arrangement are only a few of the many features. Why not send us the requirements for your next job, today? Write Dept. AF-12.

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TRANSFORMER CO.

2950 NO. WESTERN AVE. CHICAGO 18, ILL. U.S.A.

Compact copper sanitary drainage system gives

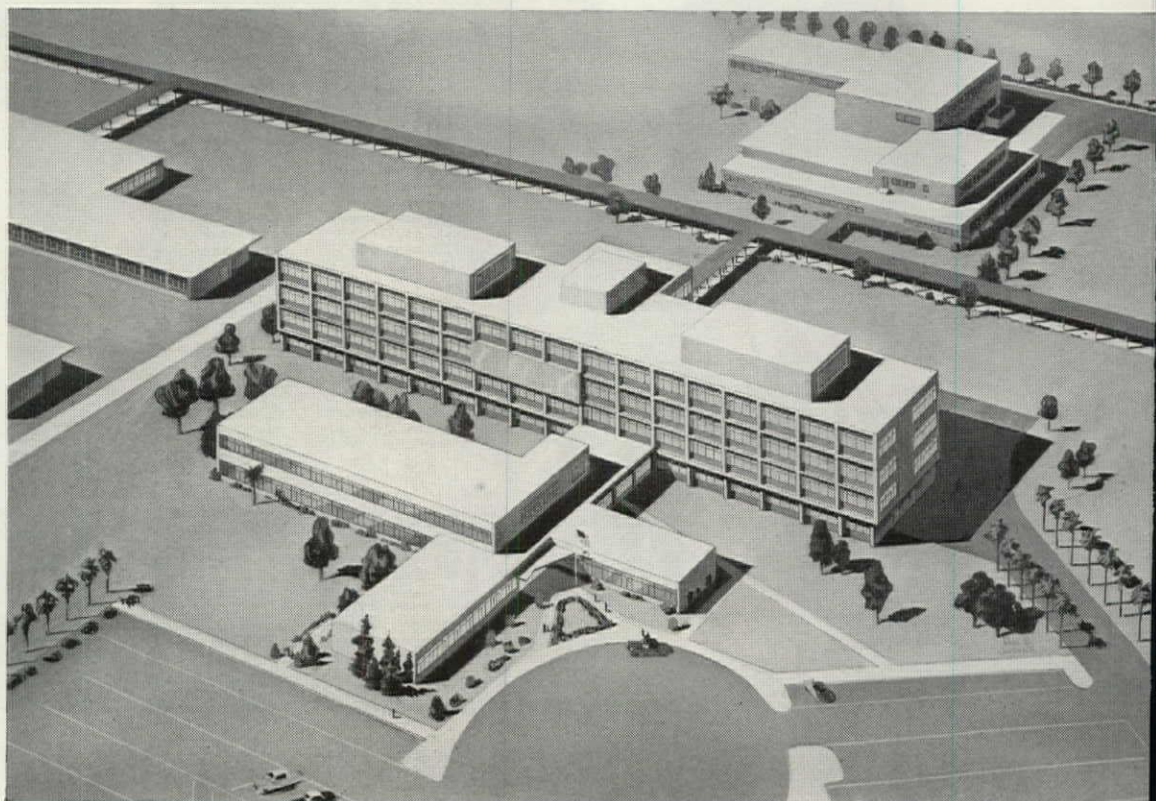


Easy to handle. One mechanic easily lifts and engages a length of 6-inch copper drainage tube. More than 16,000 pounds of Anaconda Copper Tube, Type M, in sizes up to 8 inches, was used for the sanitary drainage systems.

Architect's rendering (right) of Fairview State Hospital now under construction at Costa Mesa, Calif. Project will provide the most modern facilities for the care of more than 4,000 mentally retarded children and adults.

Architect and Engineer: California State Division of Architecture. *Mechanical Engineer:* Division of Architecture. *General Contractor:* Robert E. McKee, Inc., Los Angeles. *Plumbing Contractor:* E. O. Nay Co., Inc., Pasadena.

Anaconda Copper Tube for sanitary drainage and water lines supplied by Grinnell Company of the Pacific, Los Angeles. Radiant-heating system installed by C & H Heating Co., South Gate, Calif. Anaconda Copper Tube for heating system supplied by the Crane Company, Los Angeles.



new California hospital more usable space

Easier, faster installation, long life, and low maintenance also important factors in choice of copper tube for Fairview State Hospital

Copper tube was specified for the sanitary drainage lines in the Hospital Building and Administration Wing of the new Fairview State Hospital now under construction at Costa Mesa, California, to eliminate wasted space in furred areas and to allow ample headroom in the basement. Equally important to the project owners, however, was the fact that copper tube drainage systems are easier to install, are long-lasting, and require less maintenance than other materials.

Copper tube was used also for the hot and cold water lines and for the radiant heating system.

TREND TO COPPER

"The factors important to us as mechanical contractors are the work-saving features of copper tube. It has proved to be easier to handle, more adaptable to space problems, less trouble to test, and, as a consequence, faster to install than other methods considered standard.

"Our firm is of the opinion that copper tube drainage systems will become standard in the place of those now in use, when the people who are associated with the construction industry become more aware of the many advantages."

B. J. Sabin, manager, E. O. Nay Co., Inc.,
plumbing contractor on Fairview State Hospital

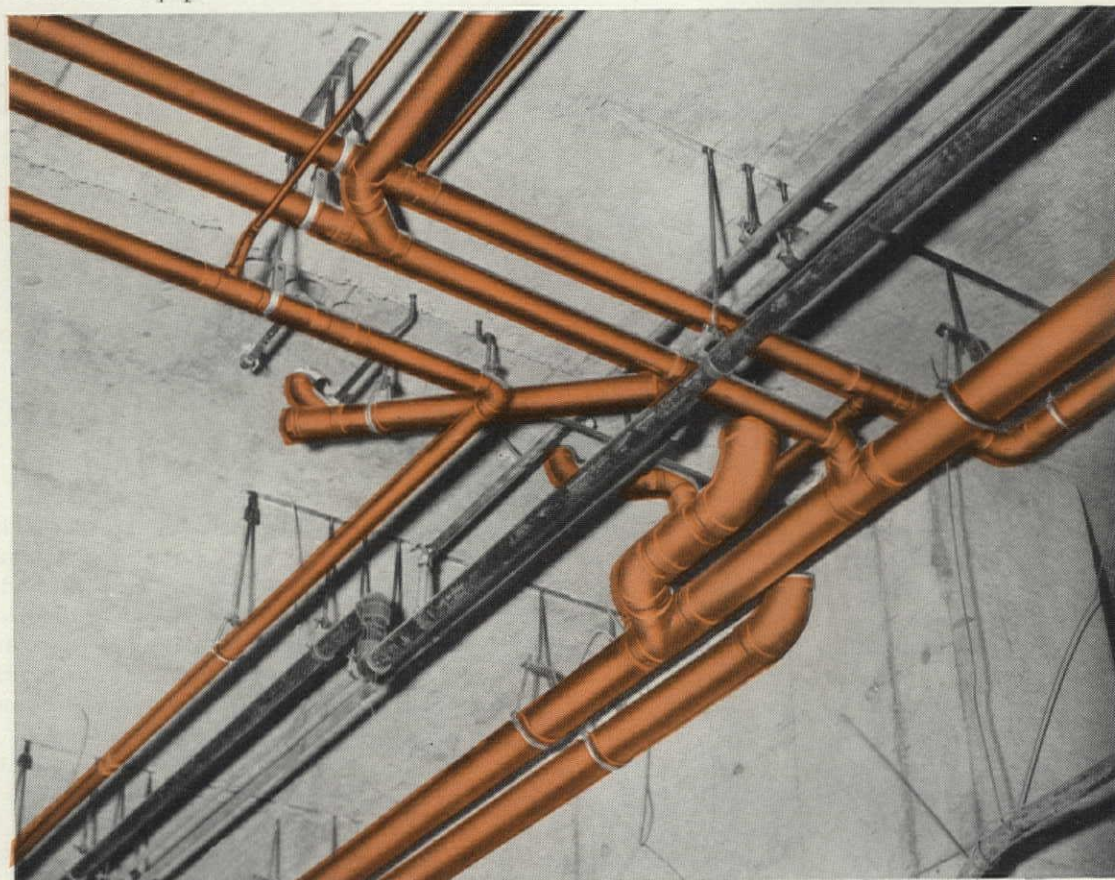
Everyone benefits with all-copper plumbing. Architects have greater freedom in design to locate bathrooms and utilities where desired without sacrificing useful space. Contractors report that installation time has been reduced one-third to one-half—and their men prefer working with copper tube. Owners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

Anaconda Copper Tubes — Types K and L for water supply and heating lines; Type M and the new lighter weight Type DWV for the sanitary drainage system. Anaconda wrought and cast solder-joint fittings in a wide range of sizes and types for pressure and drainage applications. Write for Publication C-33. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

5754



Easy to connect. Preparing to solder an 8" to 6" cast-brass drainage Y-branch fitting. Solder-joint fittings help cut installation time one-third to one-half. No threading, no caulking. No heavy, cumbersome equipment needed.



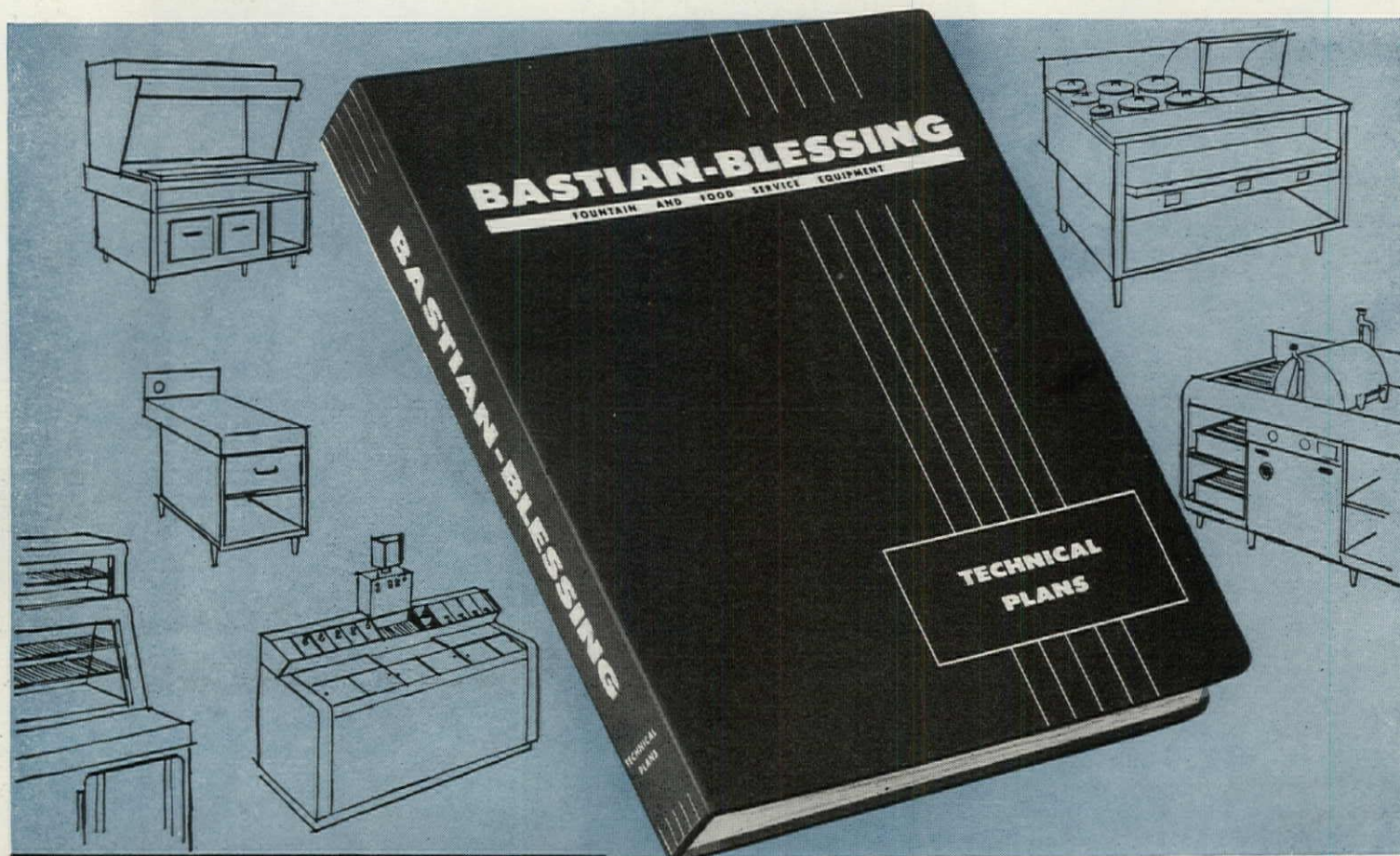
Close work like this is possible only with copper tube. Water and drainage lines hug the ceiling, giving ample basement headroom. Even in tight quarters, connections are easy to make. Sizes in this layout range from 3/4" water lines at top to 4" for drain and vent lines at right below.

ANACONDA[®] COPPER TUBES AND FITTINGS

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Bastian-Blessing also offers you a complete planning, layout and consultation service for fountain-food equipment installations. See your Bastian-Blessing distributor or write the company.

Architects whose practice takes them into the specialized field of counter restaurant design—for drive-ins, drug stores, hotels, hospitals or restaurants—will find this big \$10.00 volume an educational and time-saving aid to their layout and design work. The Technical Plans Book contains scale drawings of both the floor plans and elevations of all items in the Bastian-Blessing line. Complete dimensional data, including size and location of plumbing and electrical connections, are furnished.

The book is loose-leaf so that drawings can be temporarily removed and traced on vellum or cloth as the layout of the complete counter restaurant progresses.

The Technical Plans Book is free to qualified architects who write on their business letterheads. We would appreciate your stating your interest or connection with the fountain-food equipment field. Write The Bastian-Blessing Co., 4205 W. Peterson Ave., Chicago 30, Ill.

See Our Catalog Insert 25d/Ba in Sweet's Architectural File

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World's largest manufacturer of fountain and counter food service equipment

... school costs ... Kahn admirers ... old wrinkles ...

DIGESTED SCHOOLS

Forum:

I liked your editorial "Those Expensive School Palaces" (FORUM, Oct. '57).

There have been so many negative statements about school construction and school architecture that the architect will soon become a much ridiculed person in society. AIA's public relations program apparently is not reaching John Doe.

LOUIS J. DRAKOS, *architect*
West Hartford, Conn.

Forum:

It seems that many writers criticize architects without accurate background information, yet few write any commendation of the hundreds of jobs which architects design to fit requirements of program and budget and in which children live and study comfortably and adequately.

We architects have the responsibility to create pleasant and interesting environments for our school children—inspired and yet meeting the requirements of program, budget, site limitations and other factors. This we are doing.

JOHN N. RICHARDS, *vice president*
American Institute of Architects
Washington, D.C.

Forum:

Thank you for your article on school costs (FORUM, Nov. '57) which I read with interest.

The American Institute of Certified Public Accountants' committee on public school accounting naturally considers school costs in a somewhat broader context. It has refrained from becoming involved in the complex question of how costs relate to quality of education. After all, education of a very high order took place under the trees in Athens, and at Oxford students frequently must go down three flights and across two courtyards to the nearest plumbing facilities.

However, accountants are well aware of the values and dangers of cost comparisons. Public understanding must be considerably broadened.

We therefore greatly value your contribution to the over-all discussion.

CHARLES P. ROCKWOOD
Director of Public Relations
American Institute of Certified Public Accountants
New York, N.Y.

SNAPPY SHEATHING

Forum:

The iconoclastic allusion you made in reference to the Swiss Aluminum-Industrie - Aktiengesellschaft administration building in Zürich (FORUM, Oct. '57) was

appropriate in a sense unintended. The fact is that the aluminum sheathing and the steel frame have been assembled into a building that sounds like the snap-crackle-pop of Rice Krispies in milk. Zürchers stand around the building in little knots, listening to the unworldly concert and cite the situation as proof that what goes in New York will never work in their city. Aluminum industry officials have, I understand, taken to wearing earmuffs.

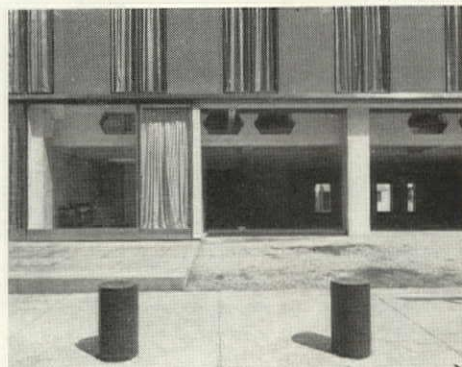
MATTHEW PETERS, *architect*
New York, N.Y.

ADMIRABLE KAHN

Forum:

I have long admired Louis Kahn as a man and as an architect (FORUM, Oct. '57). Whenever I have had a chance to see his work, it has for me a stirring stimulation, by no means only through structural appearances.

RICHARD J. NEUTRA, *architect*
Los Angeles, Calif.



Louis Kahn's AFL-CIO Medical Center in Philadelphia.

Forum:

... A very understanding report on the work of a man who is one of today's most searching, sincere and independent architects.

I hope you will support other men as effectively not only for the professional, but the general reading public, when they so deserve.

JOHN MACL. JOHANSEN, *architect*
New Canaan, Conn.

CITIES AWAKE

Forum:

You did a masterful job of presenting Decatur's problems (FORUM, Oct. '57), and we hope that we are able to solve them as well as you have given us credit for doing in the past.

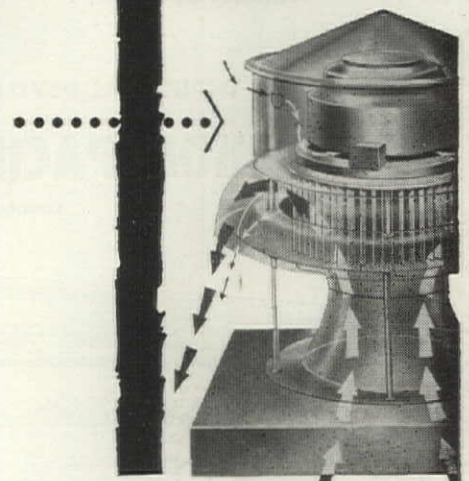
ROGER B. POGUE, *lumber dealer*
Decatur, Ill.

continued on p. 74

All Power Roof
Exhausters have
some
of these features...

Only GALLAHER
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Low Installed Silhouette
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You know what YOU want —better than we do

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If you're a key executive in an industrial concern seeking a new plant site, you certainly know your requirements better than we do.

There's a definite possibility that in the vast western territory served by our railroad, there will be one or more available sites coming mighty close to filling the bill.

Apart from all other factors, however, there's no question as to the importance of *transportation*. That's where we come in. Plants located on or near Union Pacific trackage are assured of a rail service that is second to none.

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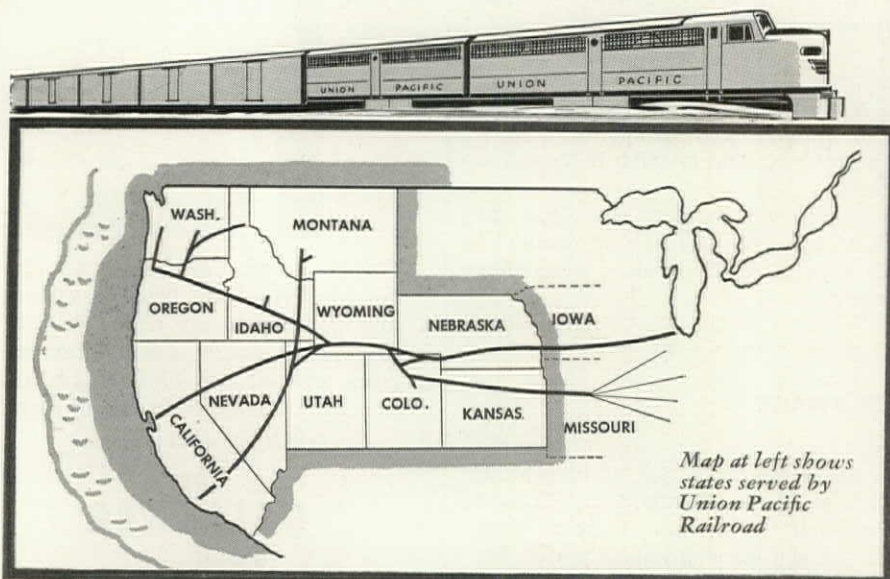
If you will tell us, confidentially, what specific requirements you have in mind, we'll be very glad to be of help.

Just phone your nearest U.P. representative—or contact us direct.

INDUSTRIAL DEVELOPMENT DEPARTMENT

UNION PACIFIC RAILROAD

Omaha 2, Nebr.



Letters

cont'd

Forum:

... We resent having areas in our city containing a high percentage of property owners classed as slums.

Moreover, we find it difficult to believe that FORUM would support public housing and advocate the destruction of private ownership.

F. E. KOSSIECK, realtor
Decatur, Ill.

■ In its story "Decatur Meets Its Challenge" FORUM said: "There are slums, but they are still scattered behind the elms." And, regarding public housing, FORUM merely reported: "... city officers have journeyed to Washington to persuade the government to sell them a decrepit war-time housing project on the north side of town, which they will use for relocation purposes under future land clearance programs."—ED.

©EZRA STOLLER



SIMILAR WRINKLES

Forum:

Anybody who has recently walked down the Paseo de Gracia in Barcelona knows that the Spaeths got more than George Nelson and Gordon Chadwick in their Long Island house (FORUM, Oct. '57)—they got a little touch of Gaudi as well. It happens one of my own snaps of the Casa Mila shows what I mean (see cuts).

PETER BLAKE, architect
New York, N.Y.

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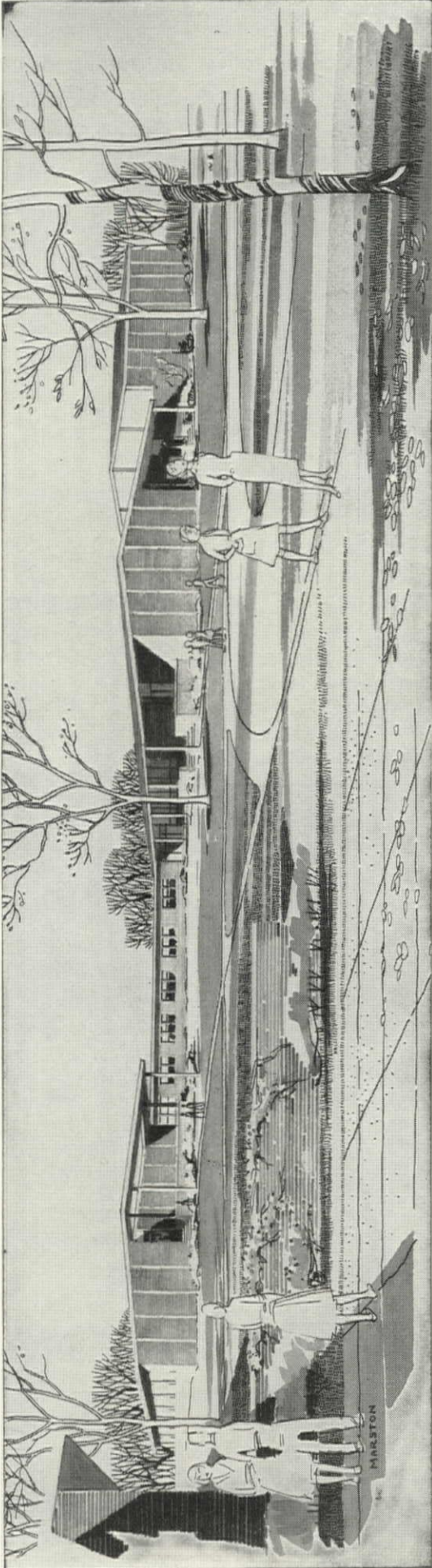
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View looking toward the Chestnut Hill Elementary School. Architects: Sargent, Webster, Crenshaw and Folley, Syracuse, New York

LIVERPOOL SCHOOLS COST 18.6% LESS WITH STRAN-STEEL FRAMING

By using lightweight Stran-Steel framing for construction of the new Chestnut Hill elementary and junior high schools, the school board of Liverpool, N. Y., saved \$286,361 over median cost figures for the state of New York.

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CHESTNUT HILL JUNIOR HIGH SCHOOL

Also designed for 600 students. There are 20 regular classrooms, a cafeteria-assembly room, a library, a home-making suite of two classrooms, two industrial arts shops, one art room and a large separate double gymnasium. It also has administrative and teacher facilities similar to the elementary school, two service rooms and a complete kitchen. Total: 55,835 square feet.

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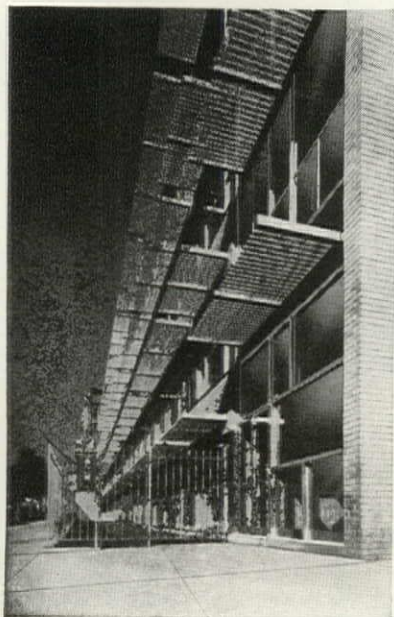
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Building industry men among nation's wealthiest;

Joseph Bill to head Los Angeles redevelopment agency

Who are America's richest builders and realtors? You could get a pretty good line on them in the November issue of *FORTUNE*, which listed 76 of the richest men in the country. Among the 76 were ten whose fortunes derived in part or in whole from either building or real estate. Wealthiest of these, according to *FORTUNE*'s survey, was former Board Chairman of Aluminum Co. of America and Florida land tycoon, **Arthur Vining Davis**, who is in the "\$400 million to \$700 million" category. (As the *FORTUNE* issue came out, Davis announced he had just sold two West Coast Florida islands for \$1.5 million to the Robert E. Lee Co. of South Carolina.)

Other real estate men listed in *FORTUNE* were: **Joseph P. Kennedy**, former Ambassador to the Court of St. James's, in the \$200 million to \$400 million category; **Vincent Astor** and **William Blakley**, both in the \$100 million to \$200 million class; **John Nicholas Brown** and **Leo Corrigan**, both in the \$75 to \$100 million class.

Builders in the *FORTUNE* list included: **Stephen Bechtel** (\$100 million to \$200 million); **George R.** and **Herman Brown** of Brown & Root, Inc., Merritt-Chapman & Scott's **Louis Wolfson** (all in the \$75 million to \$100 million category).

Besides these readily identifiable moguls of realty and building, there were a few fringe candidates among the 76 best-heeled. For instance, the heavy sprinkling of oil millionaires included a number who have in lesser degrees turned their hand at "real estate" (mostly land that proved unproductive for energy sources but still valuable for other purposes). The **du Ponts** and the **Rockefellers**, well represented on the list, all have large holdings of real estate, although their fortunes are not based primarily on land.



STEVENS

The tending and mending of political fences recently involved several leading real estate and building personalities:

Roger L. Stevens, realty broker, investor and urban renewal sponsor, was appointed to head an advisory committee on financing for the Democratic party.

Wilson W. Wyatt, Louisville lawyer and former Truman regime political peripatetic, was appointed to chair a Democratic subcommittee to study problems of metropolitan area growth.

As Stevens and Wyatt take up their chores, another, more famous Democrat, ex-President **Harry S. Truman**, was finding that time may not heal all wounds but it does make people forget. Truman, who in his heyday regularly lambasted "the real estate lobby" accepted an honorary life membership in Missouri's Real Estate Assn., presented by state association President **Al G. Elam**.



MAYBECK

BERNARD MAYBECK DIES

America lost one of its leading architects Oct. 3, when **Bernard R. Maybeck** died in his sleep at the age of 95 at his Berkeley, Calif. home.

Maybeck is probably best remembered for pioneering northern California's open-beamed redwood houses and for his memorable buildings in the Bay area. His houses, with large glass areas, heavy use of local woods and stone and intricate wood carving, patterned a more exuberant Bay area style. Most notable of his larger buildings are the Palace of Fine Arts, built as part of the Panama-Pacific Exposition in 1915 and today one of San Francisco's best beloved buildings, and the First Church of Christ Scientist in Berkeley. The Palace of Fine Arts has been crumbling for years, and San Franciscans have for some time been devising plans to rehabilitate the highly romantic classical structure.

In every respect Maybeck was an individual and an artist. Although educated in the Paris Beaux-Arts, Maybeck never succumbed to the formal pantographism which characterized that school. Rather than simply copy past styles, Maybeck worked and adapted history to fit his notion of American democracy. An old friend, Architect William Gray Purcell, writes: "Maybeck saw that the great old buildings were not styles at all but a crystallized continuity of people's needs, and

continued on p. 79



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that in any one monument of past architecture could be found the forms of half a dozen cultures or social evolutions which often were hundreds, or thousands, of years apart."

Within this ideological framework, Maybeck was more than individual, he was often radical—and could be downright whimsical. For instance, while wooing Annie White, Maybeck distorted the floral ornaments of San Francisco's Crocker Building to look like large A's. Annie, overwhelmed by such structural flattery, married Maybeck.

Other incidents and peccadilloes delineate Maybeck as the type of Bohemian character synonymous with Greenwich Village (where, in fact, he was born). Maybeck and his wife were vegetarians, antivivisectionists, wouldn't eat honey, and vetoed any foods made with milk. They were fretful hypochondriacs, wouldn't let anyone with a cold visit them. Smoking was strictly forbidden in the Maybeck home.

Their house itself provides some clues to Maybeck's artistic temperament—and his eccentricity. It was a small, four-room structure in the woods near Berkeley. Maybeck built it himself of a frame of wires and wood. On this frame he hung gunny sacks dipped in pink, porous cement. These were strung, like clothes on a line, to create a heavy shingled effect on the house's exterior.

One of Maybeck's better known jobs, the Principia College campus in Elmhurst, Ill., was commissioned by the Christian Science Church. After this job, he passed on some advice about the business of architecture: "Christian Scientists always pay their bills—a good thing for an architect to remember."

Maybeck never was sold on modern architecture, despite the fact that some people claim he contributed much to its development. "Modern architecture is functional, it's all right," he said. "But it's engineering, not art. It comes from the brain, not from the heart."

Maybeck's place in architectural history was further secured by his being awarded the gold medal of the AIA in 1951.

ON AND OFF CAMPUS

Upon returning this month from an assignment in Pakistan as a consultant on architecture and architectural education for the International Cooperation Administration, **James T. Lendrum**, 50, will become head of the department of architecture in University of Florida College of Architecture and Fine Arts, in Gainesville. Native of Oxford, N.Y., Lendrum has been director since 1949 of the Small Homes Council at

the University of Illinois, his alma mater. He formerly was president of the Central Illinois AIA chapter, and currently is a member of the executive committee of the Building Research Advisory Board of the National Research Council. Three years ago Lendrum declined an appointment as chief architect for FHA (it would have meant a salary cut).

After one year of teaching, Montgomery, Ala., Architect **Charles M. Kelley**, a partner in the office of Sherlock, Smith & Adams, has been named head professor of architecture at the School of Architecture and the Arts at Alabama Polytechnic Institute, Auburn.

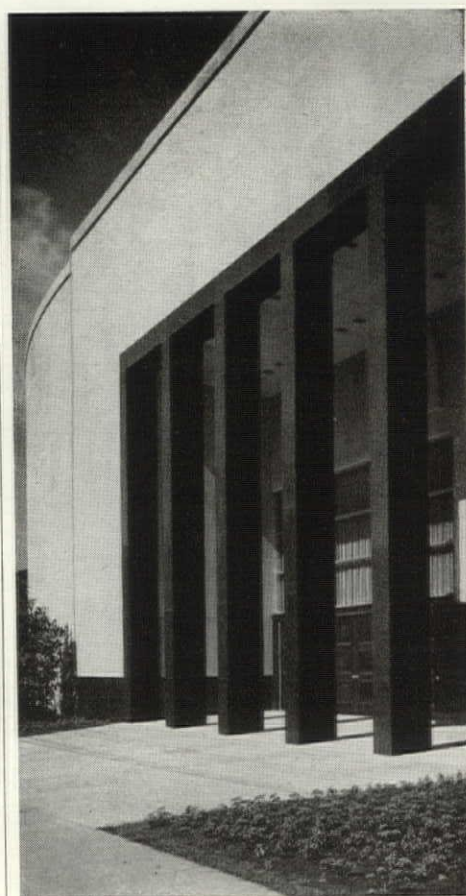


BILL

RENEWAL APPOINTEES

An old pro (at 43) in the new business of urban renewal, **Joseph T. Bill** will leave his job as executive director of Sacramento's Redevelopment Agency on January 1 to take a similar post with the Los Angeles RA. Bill has worked in Sacramento since July, 1951, and is credited with the major role in getting that city's first redevelopment project (FORUM, June '54) into its final stages. Bill also gained the envy of the urban renewal fraternity when he financed part of the Sacramento project with a \$2 million bond issue to be repaid solely from anticipated higher tax revenues from the redeveloped area itself. Bill will get \$18,500 a year as redevelopment head in Los Angeles; Sacramento paid him \$14,256.

In Washington the Urban Renewal Administration named a young newspaper reporter who had specialized in planning and renewal affairs as assistant commissioner for program planning and development. He is **Martin Millsbaugh**, 31, Princeton '49, Baltimore *Sun* 1953-57. Millsbaugh's articles on neighborhood rehabilitation, slum conditions and city planning won a citation from the American Newspaper Guild, and he is co-author (with FORUM Consultant Economist **Miles L. Colean**, and HOUSE & HOME News Editor **Gurney Breckenfeld**) of a forthcoming study of how rehabilitation affects the lives and attitudes of residents of neighborhoods.



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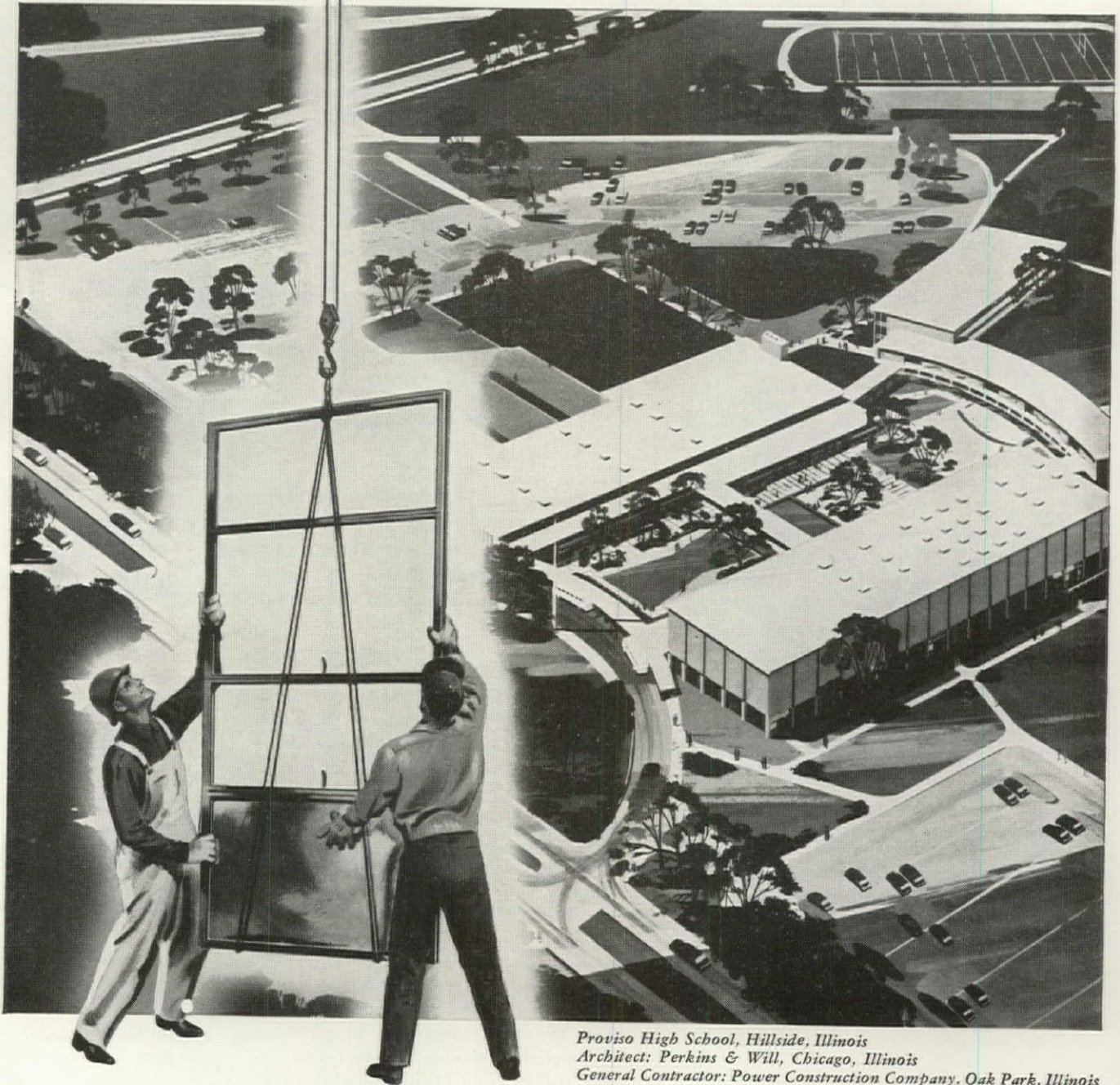
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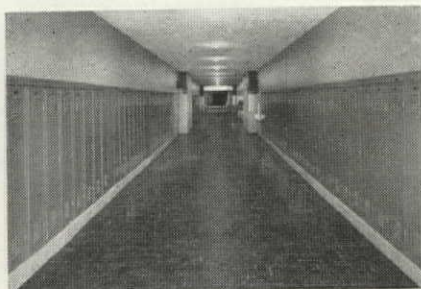
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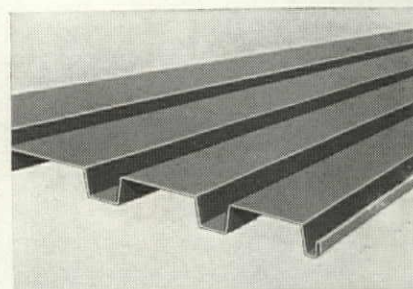
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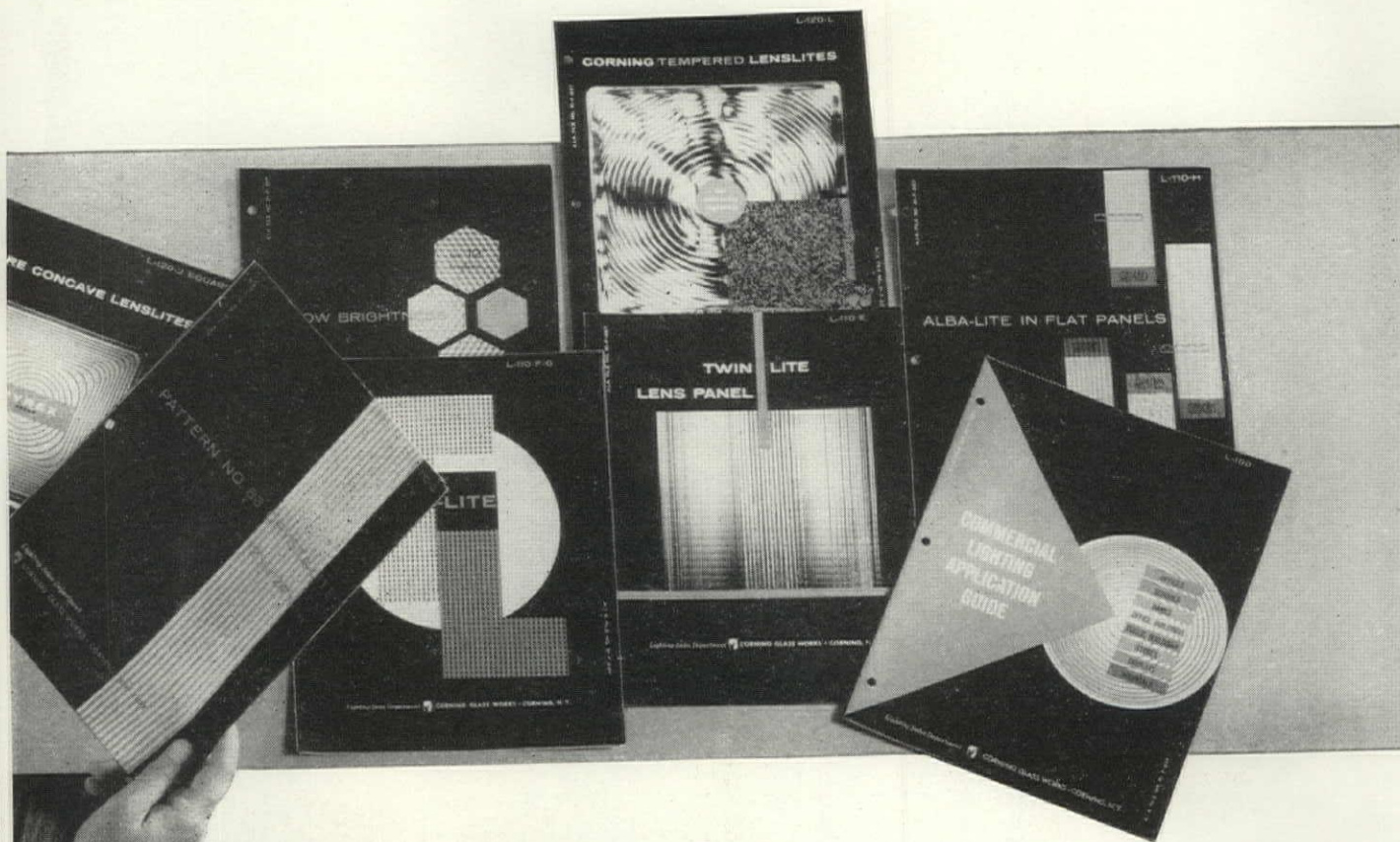
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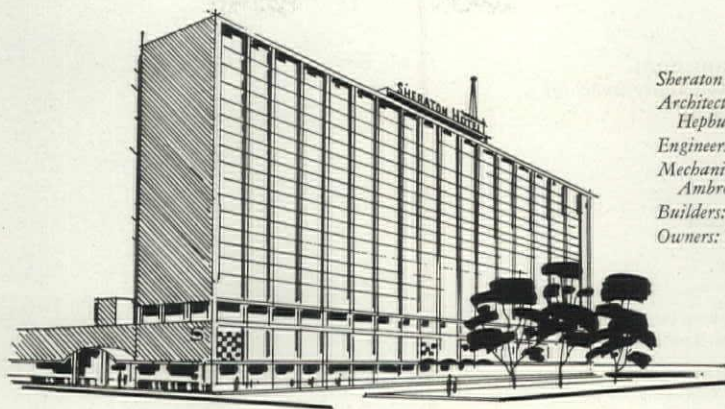
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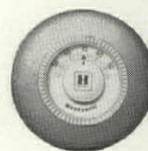
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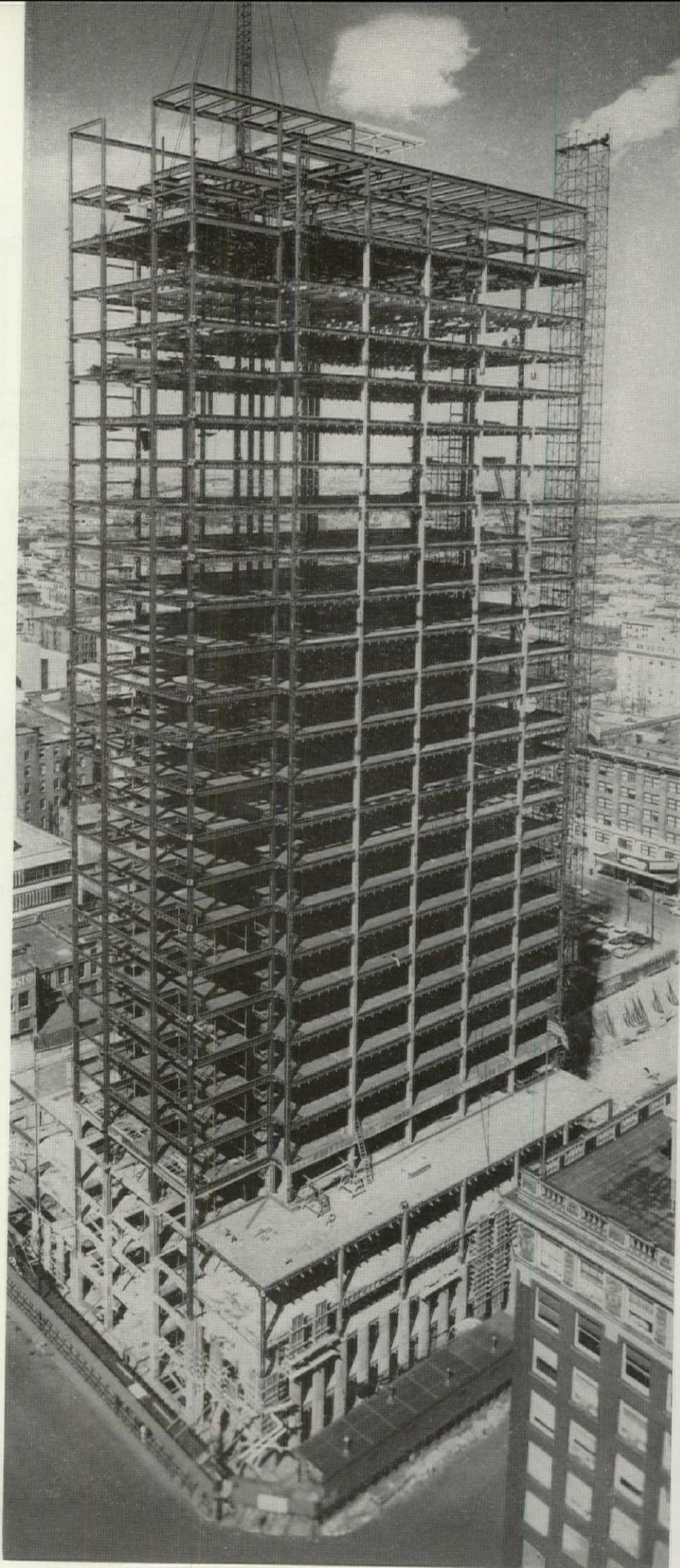
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Editorial

Our arrears in community needs

A good deal has been said lately about the great building age ahead for America, but less has been said about serious arrears. Homes and schools are far behind need. They are a problem. The comprehensive housing and community problem is well worth solving from even a selfish standpoint, for it spells the building industry's unprecedented opportunity.

Let's talk homes. Unless the present rate of construction is nearly doubled, by 1975 American households numbering between 13 million and 14 million will lack proper dwellings. We shall need 19.7 million for new households and 14 for replacement of substandard housing but many get over 20 million total.

Let's talk redevelopment. Despite all complacency, the redevelopment of slums and blighted areas proceeds at slow motion. The urban land area under actual redevelopment is 6,496 acres, which is probably less than 1% of the total blighted area in US cities. The substandard dwelling units that will be removed by these projects number 65,000, or slightly over 1% of all substandard nonfarm units disclosed by the 1950 census. Projects in final stages of planning would increase these figures by about two-thirds: almost another drop in the bucket!

These calculations come from a memo being informally circulated in the industry by Redevelopment Consultant Nathaniel S. Keith, former

director of the Urban Renewal Agency. He adds a good deal more. Our slow motion in housing production and blight removal is matched by our slow pace in producing full community facilities. In 1954, Keith reminds us, the US Department of Commerce Survey concluded that state and local governments would have to spend no less than \$204 billion (1954 dollars) by 1964 to overcome deferred backlog needs, to replace obsolescent facilities, and to meet population growth. This includes \$92 billion for highways, \$41.5 billion for educational facilities, \$25.3 billion for water and sewerage, and \$45 billion for all other community facilities. On this basis an annual investment was called for that would average \$20.4 billion; but actual expenditures, even in the high year of 1956, totaled only \$10.7 billion, or 52% of projected need. "The immensity of the future need for community facilities would show up if the Commerce Dept. estimates were to be projected through the decade 1965-74," says Keith, "when the heaviest impact of anticipated growth will be felt."

Now, despite the inadequacy of progress thus far, states and localities have been financially strained. Total indebtedness of state and local governments has mounted from \$16 billion in 1946 to \$49 billion at the end of 1956; and "if actual expenditures by state and local governments through 1964 kept pace with only



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75% of the needs established by the 1954 survey, the indebtedness of these governments would nevertheless increase to almost \$100 billion."

All this is enough to indicate that plenty remains to be done if we are simply to get this country up level with its need, let alone advancing standards.

All of this reinforces FORUM's belief that a comprehensive housing and communities policy must be envisioned by industry and government, replacing the helter-skelter policies, the patchwork of expedients in use now. If our program were short simply in a few details or in relation to just a few classes of people, we could mend and patch; but so long as redevelopment cares for only a per cent or two of blight, housing production is somewhere around half of what is needed by the nation, and community facilities lag while communities are burdened, the industry will do well to try to think out a concerted program, at a statesmanlike level.

Anniversary

Here's December, and we almost forgot that 1957 marked a multiple round-numbers anniversary for the FORUM:

► 65 years ago, in 1892, *The Brick-builder* appeared, published by Rogers & Manson of Boston.

► 40 years ago, in 1917, THE ARCHITECTURAL FORUM emerged from this, edited by Albert J. MacDonald.

► 25 years ago, in 1932, the great editor-publisher, Howard Myers, modern architecture's staunchest promoter, brought FORUM to TIME INC. (He died just ten years ago.) And...

► One year ago, FORUM was given its new charter, to serve not only the architect and the building industry but America's dynamic force, the independent citizen leader who makes the decisions that build America, especially in its cities.

Capitol nonsense

From time to time FORUM has been giving its readers news of the continuing miracles of the great Capitol renovation.

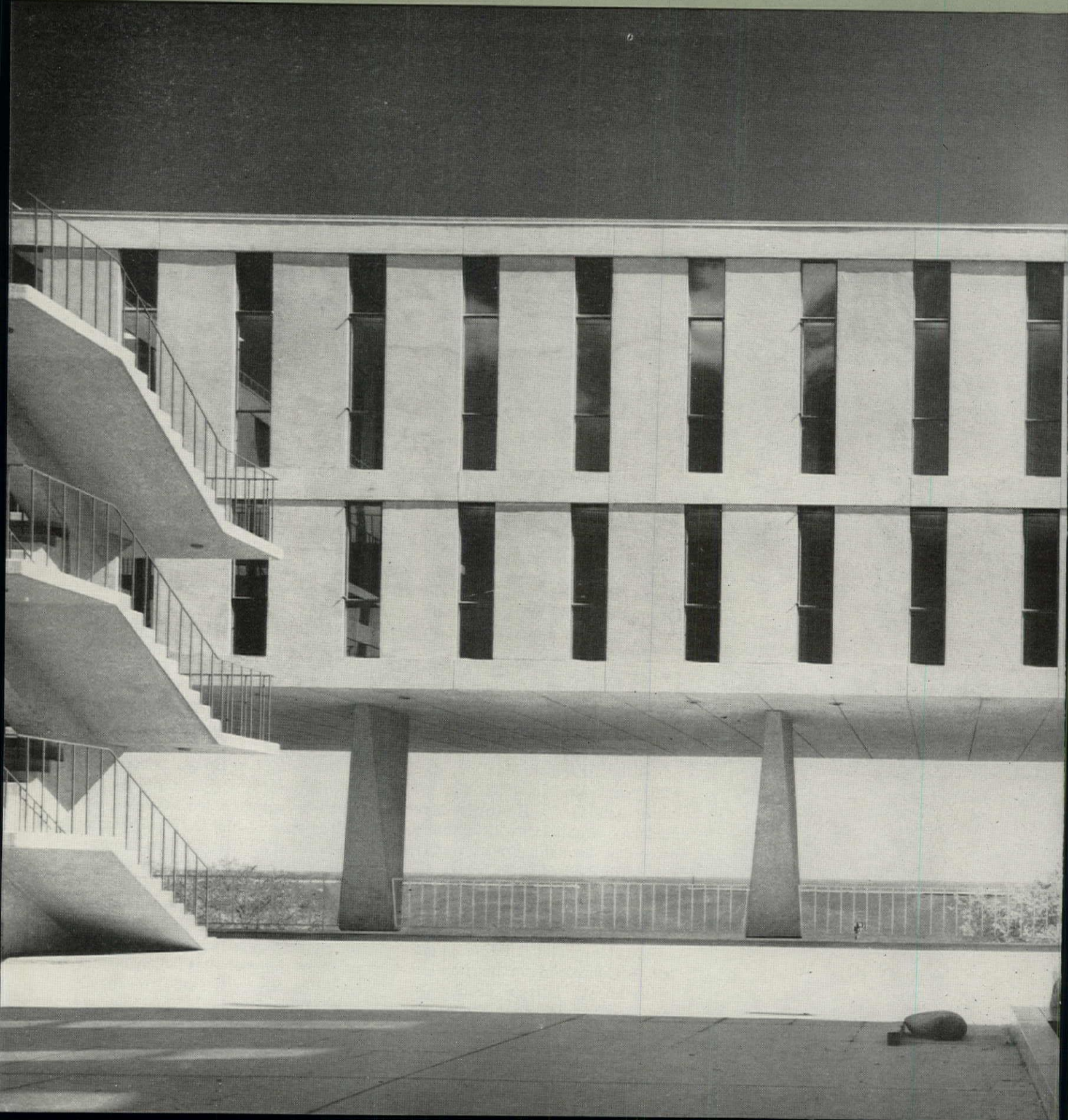
The latest is that the Architect of the Capitol, under attack for proposing to move forward the historic East Front, has responded by proposing to move forward the wings also. This is because his Architectural Advisors deem the second move essential *if* we have to be saved from the ill effects of the first. Give up the first, then? Never! There happens to be no practical need for moving the wings, no interior plan for it, and no money for it, even though the Capitol program has grown already from \$5 million to \$110 million with apparently no end in sight. This is the completely backward approach to architecture, one which starts with façades, not interior plans, and which thinks nothing of spending \$25 million to bail out a mistaken official with no architectural education who wrote a capitol error into the law. But it's consistent at least.

Let FORUM air another deeply guarded secret: there is no real interior planning reason for extending the East Front either. As for the facilities that Congress needs, the essential ones have been planned by the architects for the *West* Front. Under that over-all gray wash with which the East Front extension plans have been covered for the benefit of the public there will therefore be found neither the corridor between House and Senate which is badly needed, nor the new eating space. Just a few hearing rooms. And all that fuss and money.

As for the vaunted need for repairs to the East Front, they can obviously be done cheaper on the wall where it stands. There are now four bills in the two houses to save us from the mule-headed insistence on lily-gilding the East Front at all costs, and we can only hope that one will be enacted.

Out of the complex needs of a community center, a master architect
shapes a powerful tribute to the heroes of two wars

Memorial court, surrounded by a ring of hard-working community facilities, overlooks the vast expanse of Lake Michigan



Milwaukee's living memorial

The heart and meaning of Milwaukee's new War Memorial Building is not found in a cornerstone or a plaque, nor even in the art gallery and community facilities it contains. Instead, it is found in the great empty space at the building's center. Here, carved in the granite edging of a shallow pool surrounding the freestanding stair tower, are the names of the county's war dead.

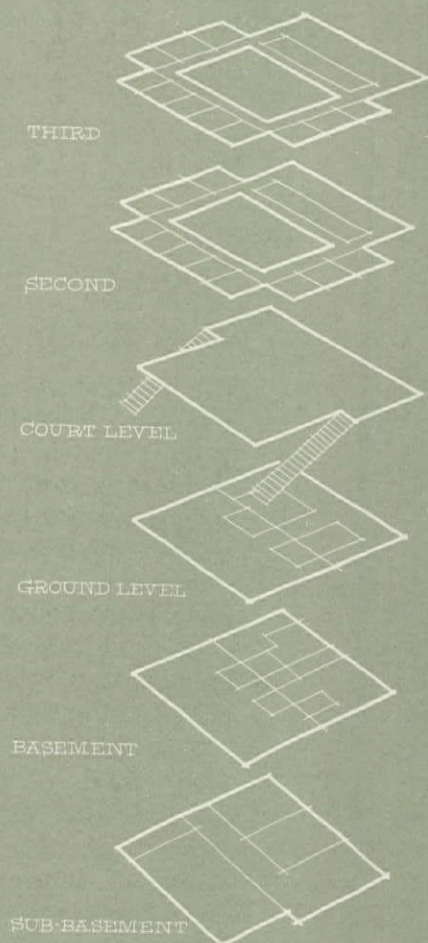
This great and quiet court, lifted high above a surrounding park, overlooks the limitless expanse of Lake Michigan. In the opposite direction, beyond the glass box enclosing the building's lobby, the towering structures of downtown Milwaukee can be seen along the bluff.

Overhead, four wings raised on wedge-shaped columns surround the court, enclosing the emptiness in a ring of community meeting rooms and offices.

Standing there, the court awakes a primeval sense of heroes upon a stage. And, fittingly, the outstretched wings, like Hamlet's four captains, bear a soldier to the stage.

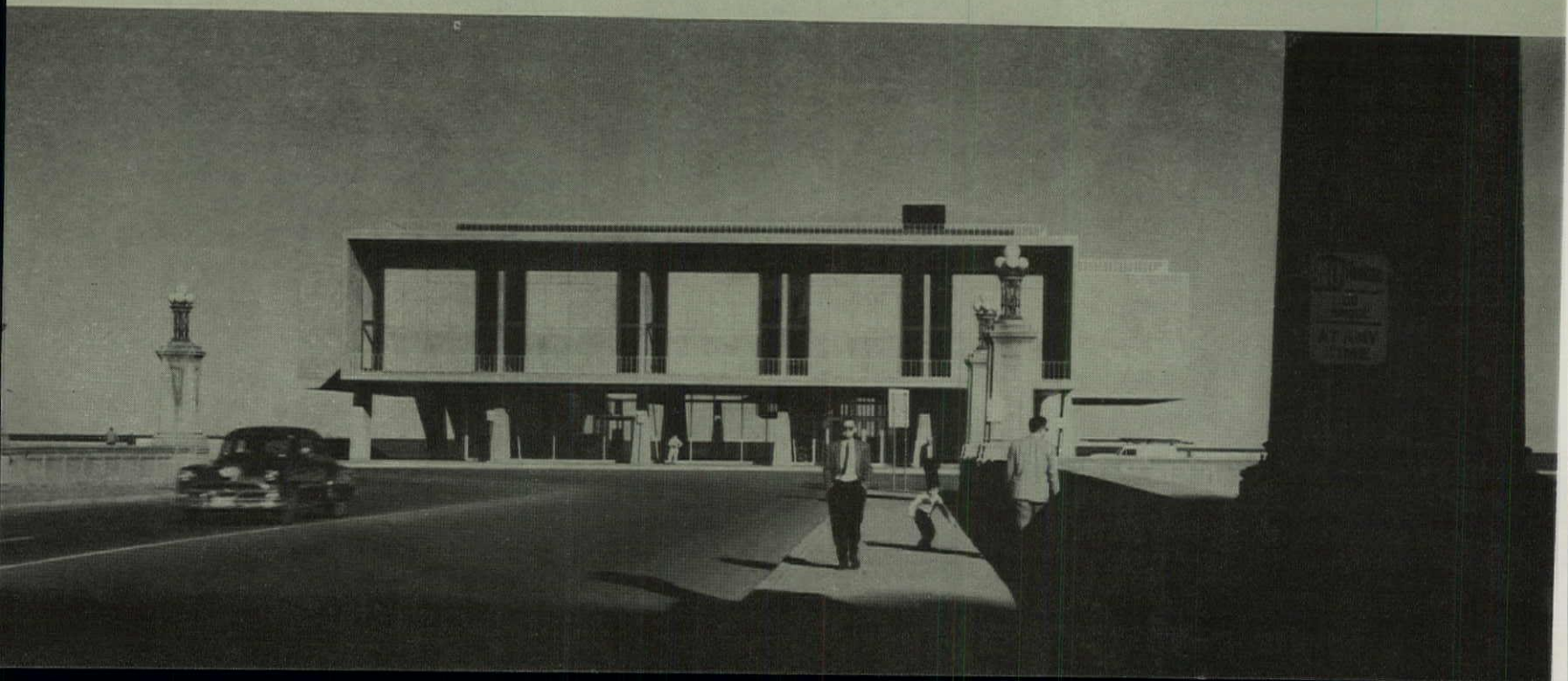
In truth, however, this is only one of many emotions evoked by this platform raised in endless space. Like any achieved form of art, its meaning is many-leveled. Discovery is an individual affair.

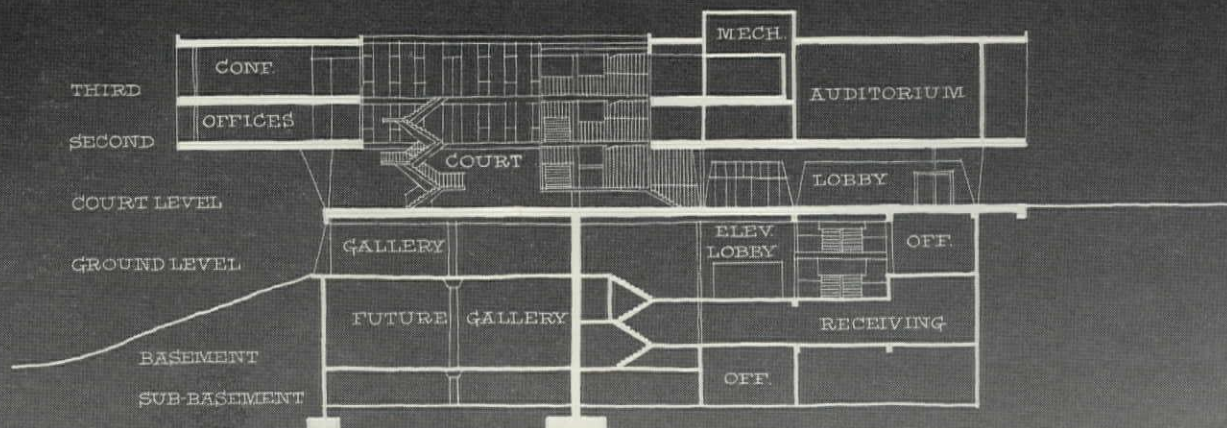
For the moment, this individual discovery waits as Milwaukeeans take to the building in a community way. At night, the lights in the upper wings burn late as clubs and classes meet. During the day, throngs of people move through the lobby and down the stairs to the art gallery below. And from the park, the people of Milwaukee look toward the powerful form of the cross-shaped building raised over and stretched beyond the stone-clad base and enjoy an unmatched feeling of civic pride.



Two buildings with completely different functions are stacked one above the other for maximum effect in the dramatic but difficult location. The existing bridge (extreme right), on the same level as city streets above the park, terminates at a glass-enclosed lobby which opens, in turn, to the memorial court and a view of the lake. From the lobby, access is provided down to the art gallery in the stone-clad base and up to offices and meeting rooms in the pylon-borne cross.

MILWAUKEE COUNTY WAR MEMORIAL, Milwaukee, Wis.
ARCHITECTS: Eero Saarinen & Assoc.
ASSOCIATED ARCHITECTS: Maynard W. Meyer & Assoc.
ENGINEERS: Amman & Whitney (structural)
 Samuel R. Lewis & Assoc. (mechanical)
 Richard Klees & Assoc. (electrical)
GENERAL CONTRACTORS: James McHugh Construction Co.

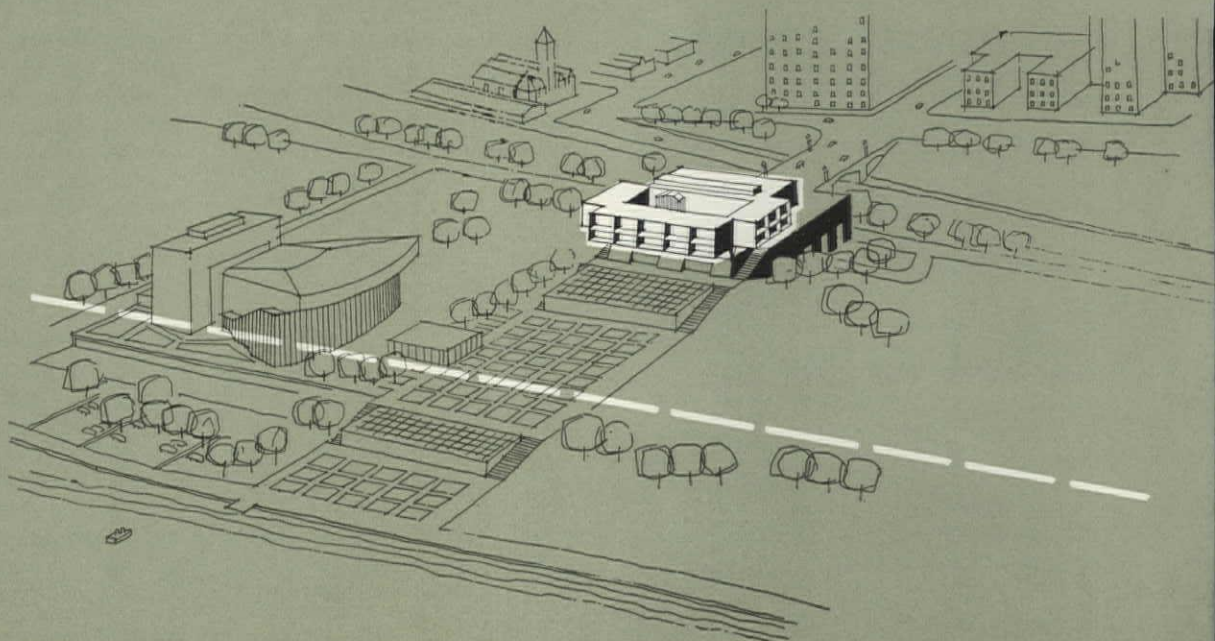




Concrete panels and long glass strips (which mark each side of the structural bents inside) create a monumental face for the city side of the building. Mosaic murals will ultimately cover the panels.



Music hall will be erected on filled land below the Memorial Building. Ramps on each side of the building (now used for access to the park) will link the upper plaza and bridge to a lower mall, which will extend to the lake. Just as the Memorial Building terminates the existing bridge axis, so the Music Hall will terminate the long, grassy sweep of Juneau Park north of the center.



Contrary to what might be expected, the powerful form of the Milwaukee War Memorial was not the product of a mysterious "brain-storm." Instead, it was evolved by Architect Eero Saarinen as the solution to three basic problems:

► Any building or group built at the end of the existing bridge had to be monumental in scale, not only because of the bulk of the bridge itself, but because of the general setting.

► The program logically implied three structures: a veterans' building, an art museum, and a music hall. The functional requirements in each case were individual and unrelated to the others.

► Funds available (raised by a county-wide campaign in 1947) amounted to \$2.7 million of the \$5 million initially estimated as the cost of the center, and from 1947 to 1954 (while the site issue was being settled) building costs had skyrocketed.

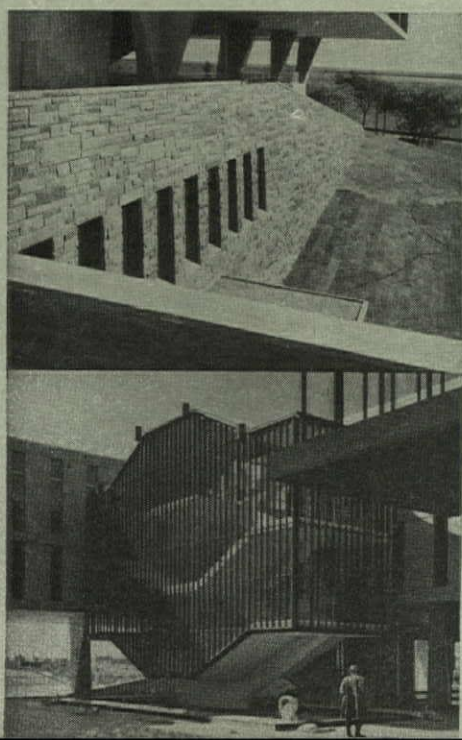
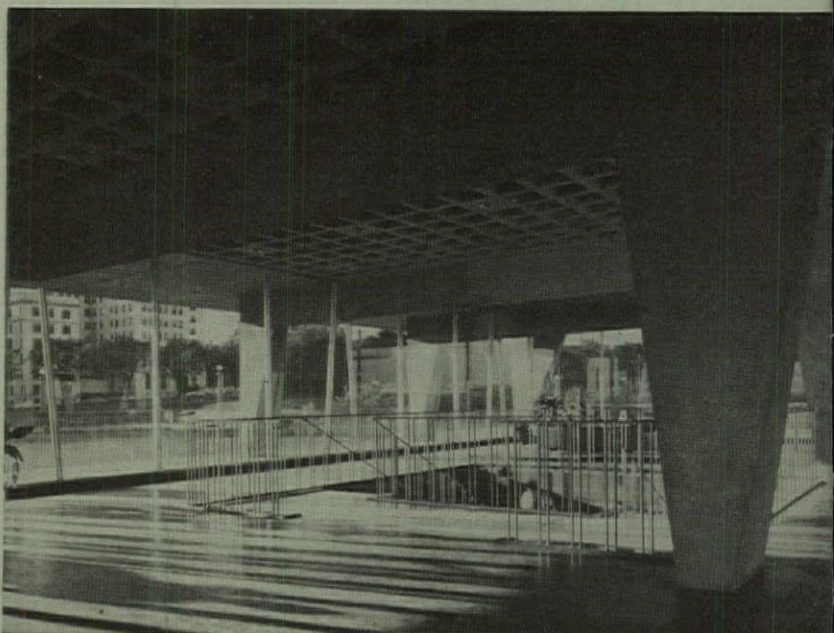
Saarinen's design solved all three problems at once. By putting the veterans' center on top of the art museum, he could provide two of the three needed facilities with funds available. By separating them with a lobby and court at bridge level, he solved the functional discrepancies and raised a form in fitting scale to the site.

For a description of the building's unique structure, see p. 144.



Acoustical ceiling in the multi-use auditorium accommodates troffer lighting for general use and stage lighting for theater-in-the-round.

Glass-enclosed lobby maintains view of the lake from the bridge, offers an enticing invitation to the building. Stair leads to the gallery level.



Critical evaluation of his finished buildings is characteristic of an architect like Eero Saarinen. Passing by the manifest beauty and significance of the building, he found a few flaws:

► The stonework used to cover the base (left above) should have been larger, chunkier to make a more effective contrast with the upper structure and to settle the base more firmly to the ground. The random ashlar stone that was used cost a lot less, but Saarinen now feels this was not a wise economy.

► When building code requirements forced the use of small-size glass units, the stair tower

in the court (left below) became too bulky, too "caged." Saarinen now feels that the closed stairway should have been located in the core of the building and a second open stair should have been located in the court.

► With the stairway removed from the court, the walls above the court could have been faced with mosaic panels like those planned for the front façade.

In general, the form of the building, its scale, and its "rightness" in concrete satisfies him. Because the building has "guts" (something on which observers will agree), he feels the detail flaws are relatively unimportant.

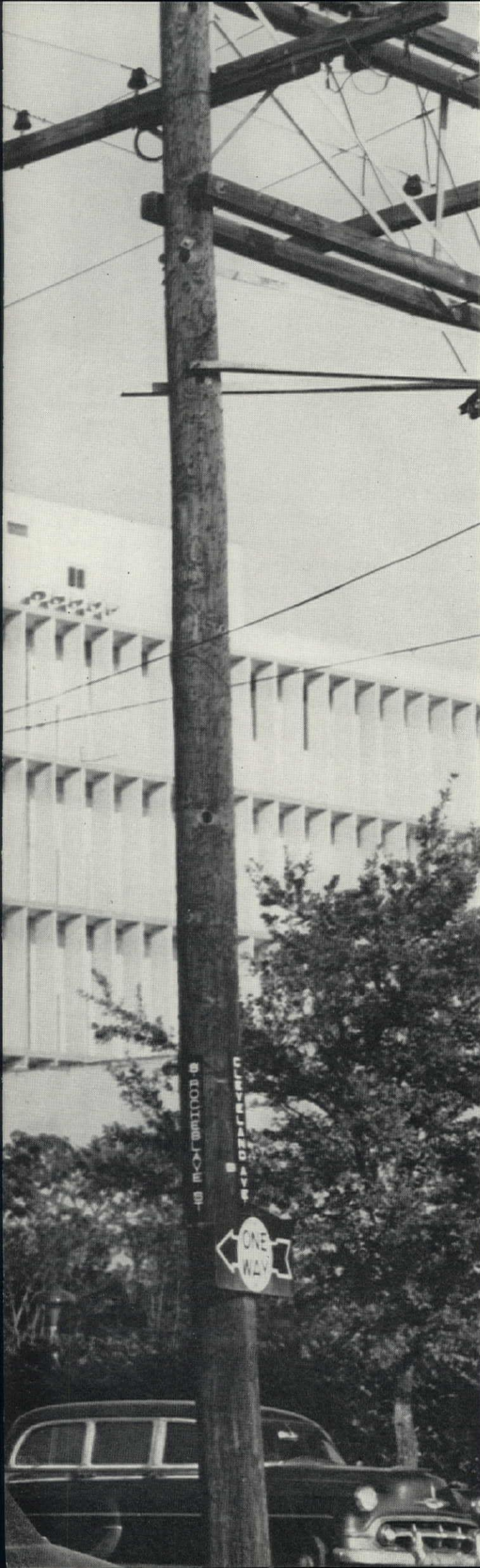


↑ **Double stairway** linking the bridge level lobby (top) with the galleries (midway) and the park entrance (below) is a dramatic adventure in space.

↓ **Balcony** facing the city provides a stage as Milwaukeeans jam the plazalike bridge and the streets beyond to cheer the Baseball Braves.







SKIDMORE, OWINGS & MERRILL AND CLAUDE E. HOOTON, ARCHITECTS; WALLACE LITWIN, PHOTOGRAPHER

Can the architectural quality of this old city withstand the biggest industrial boom in history? The answer lies with its architects, planners, industrialists

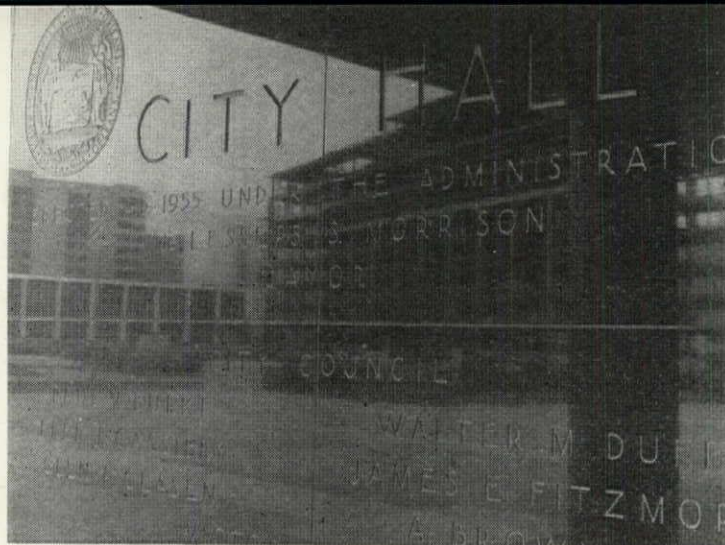
The new New Orleans

BY ROBERT CANTWELL

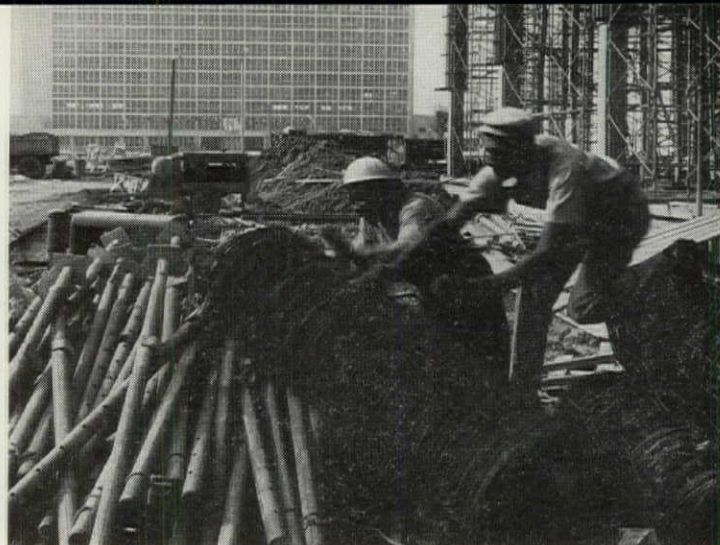
New Orleans is midway in the greatest industrial transformation, change and civic growth in its history. "Behind the palms and the gracious living of this truly Metropolitan City," says a Chamber of Commerce bulletin mellifluously, "smokestacks are rising in ever increasing numbers, utilizing the advantages of transportation, abundant water supply, and the plenteous natural resources such as gas and oil." There would be nothing unique about all this in the booming southland, except that New Orleans is unique, possessing a regional native flavor matched in few US cities. And the city is unique in being deeply troubled and concerned over the preservation of that character, giving its prosperity a typically downbeat touch of the blues.

The flavor is real and goes deep. It goes back to and beyond New Orleans' first enterprising mayor, Count Louis Philippe de Roffignac, an able, virtuous man, whose first act in 1820 was to plant grass in Jackson Square, followed by a girdling of the city in sycamores, some of which still stand. Even today any proposal to cut down any of New Orleans' 100,000 trees gets no further than a violent public hearing. The even more distinctive architecture of the city is indigenous with the trees, and equally fought for. This architecture, stemming from French and Spanish ancestry, fertilized by a 30-year building war between French-Creole and American sections, grew like a tropical flower on the hot river-bottom land of a city in the same latitude as Cairo, Egypt. To meet the social and climatic conditions of the low-lying site, averaging about a foot above sea level, there evolved the style that is New Orleans: buildings on stilts, deep overhanging roofs against the sun, long, lightly hung balconies before ceiling-high windows, deep galleries festooned with lacy ironwork, halls that are breezeways, and, in the French

Old and new clash sharply in New Orleans' sun. Behind the native filigree rises the cool, vertical-shaded Pan-American Life Insurance Building, which, in its geometric anonymity, yet use of solar devices, symbolizes struggle to preserve some native quality.



PHOTOS: WALLACE LITWIN



City Hall (left) reflects in its polished marble new civic center on site of former slum. Right: State Office Buildings rising, with new City Hall's grid in distance.

Quarter, living oriented around light and airy interior courts. Today a Vieux Carré Commission rules over all building, renovation and repair in the French Quarter, which is a state-protected monument, though 954 proud, high-spirited, art-conscious private citizens still own the property. Thus it has been shown that New Orleans' citizens can rise to the preservation of their heritage.

But the great question is whether the present tide of industrial change is simply too overwhelming to preserve more than these historical monuments and whether the local quality can somehow be translated and preserved in modern forms. This article will look at the enormous scope of the new industry, the city's past and future plans, its new buildings, civic center, schools, port and transportation facilities, its pulsing new life and progress, of which all its citizens are proud. But brooding behind all this is the distinctive native architectural flavor of the city, and whether it will live or die. This is one of the great, untouched themes of modern urban renewal, and it can be met nowhere with such force and juxtaposition of the old with the new as in New Orleans.

Scope of the boom

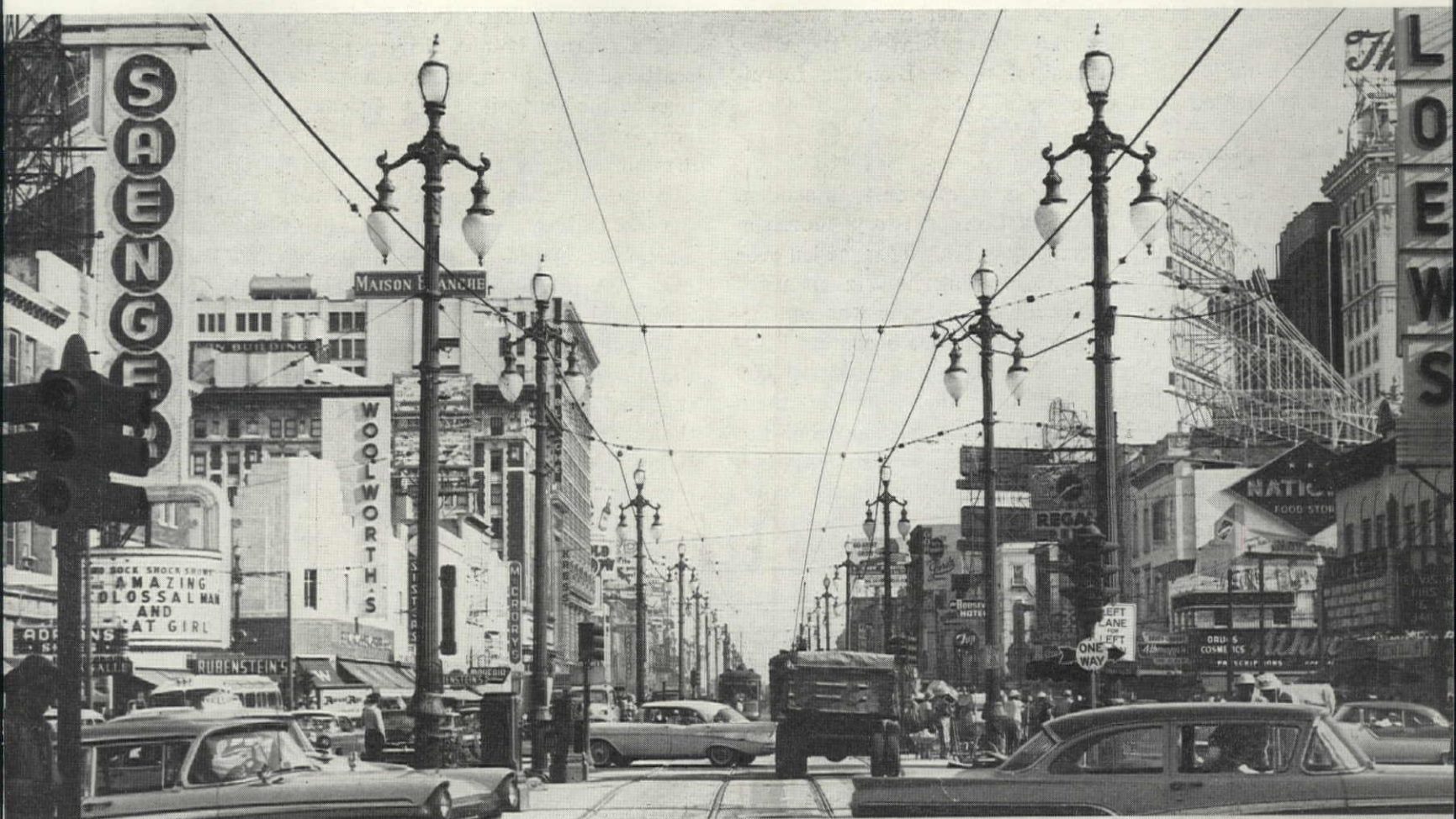
One billion dollars in new industry in ten years is the size of the force moving New Orleans. Every foot of available land along the 5½ mi. Industrial Canal has been taken up for eleven solid miles of factories. Two miles downriver from the canal, adjoining the battlefield where Andrew Jackson won his victory, is the new \$175 million Kaiser aluminum and chemical works. Across the Mississippi is American Cyanamid's \$110 million plant and beyond it the \$31 million Monsanto Chemical Works, the Wyandotte Chemical building farther upriver, and Dow Chemical putting up a \$50 million plant nearer Baton Rouge. On the New Orleans side it is the same: the \$110 million Shell oil refining and chemical works, the Ormet Corp. \$50 million alumina plant, du Pont readying a 600-acre site, and the \$200 million Riverlands industrial-community project of Webb & Knapp, 27 mi. upriver.

By an eerie historical coincidence, the biggest plants are being built on the site of the plantations that were the architectural masterpieces of their day. The Kaiser plant adjoins Bueno Retiro, one of Gallier's masterpieces. Cyanamid is built on Eugene Fortier's old Pelican Plantation, which Napoleon deeded over just before the Louisiana Purchase. The Riverlands project covers some of the once richest plantations in the South. Now in these planned communities, designed for industry and industrial workers, there will be recreation centers with golf courses, swimming pools and parks, as well as interior greenways. When it was announced that Riverlands would house 15,000, there was some local skepticism. The nearest town, Reserve, had never passed 5,000. But in view of the industrial growth, 15,000 may be ultraconservative.

For the whole length of the lower river above and below New Orleans adds nearly another \$2 billion to the total. From Devil's Swamp above Baton Rouge, where Grace is building an \$18 million polyethylene plant, to Cuban-American Nickel's \$30 million nickel and cobalt works just below New Orleans and Delta Chemical's nitrogen plant near the last habitable land before the Gulf, the construction pace has been breathtaking. And this does not count Baton Rouge itself, whose population jumped from 50,000 to 100,000 in a single year, 1948-49, and where Standard Oil and Ethyl alone announced \$200 million in new building last year. Along 200 mi. of winding Mississippi river front, plants are building on both shores, for what the New Orleans *Times-Picayune* cautiously calls, for the moment at least, "the country's fastest-growing industrial section."

Neither Detroit nor Pittsburgh ever grew so fast. Detroit had been making automobiles for 20 years before it had any considerable investment in plants. As late as 1921, Cadillacs were still put together in 77 little shops scattered over Detroit. After 70 years of constant building following the Civil War, the steel industry's net worth was estimated at about \$7 billion. But New Orleans is becoming the center of a multibillion dollar industry springing to life in little more than

Canal St., once boundary of French and American quarters, seen as it is now and circa 1900, when some vestige of local flavor remained in its shops' long galleries.



five years. What brings industry there is primarily water, needed in vast quantities by modern petrochemical plants and refineries. Altogether, American industry consumes 80 billion gallons of water a day, but four times as much as that flows every day in the wide, deep bend of the Mississippi where Bienville fortuitously located New Orleans in 1718.

Movers, planners and shakers

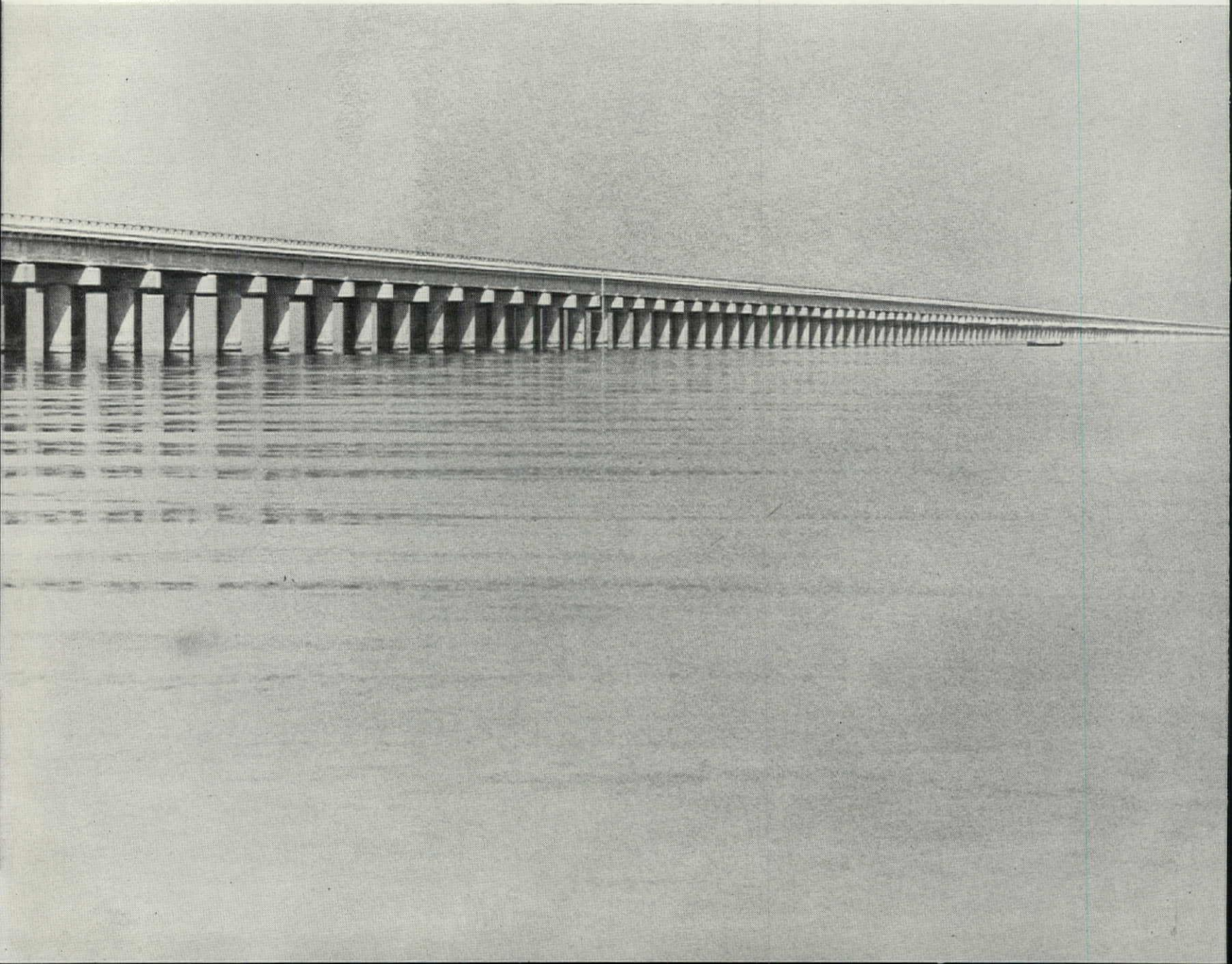
For New Orleans, all this is as new as it is sudden. When the present Mayor deLesseps Story Morrison took office in 1946, it was a city of 500,000 sprawled over 290 sq. mi. No important building had taken place since the twenties. Nearly all retail trade was concentrated in the Canal St. area, which was becoming literally isolated by traffic. The city had over 45,000 substandard and slum buildings, the worst of them in a seven-block, 11-acre area only a step from the busiest stretch of Canal St. The city was so congested that a physician, hauled up for violation of the build-

ing code, protested he could find no other space for his office than the barroom he had opened it in. Municipal business was carried on in seven separate buildings, James Gallier's City Hall having been outgrown half a century before. Five separate railway stations, scattered over town, added a maze of tracks and crossings to the confusion. New Orleans always had been a port, a commercial center, a tourist magnet, but never a manufacturing community. When its population was 216,000, there were only 9,504 factory workers, including 552 children, who worked in 915 little plants inconspicuously operating on side streets and back roads. Now it is a metropolis of 840,500, going thumpingly industrial.

Mayor Morrison is generally credited with the spark that brought new industry and life to old New Orleans, though he merely says: "We had a lot to sell." Nevertheless, preceding and paving the way to this industrial influx, he initiated and energetically put in motion a planned rehabilitation of the city. New civic buildings

A new causeway breaks New Orleans' northern water barrier over Lake Pontchartrain

WALLACE LITWIN



and other projects include an \$18.6 million civic center built over the worst slums, crowned by an \$8 million City Hall, opened last May; a \$16 million Union Passenger Terminal, opened in 1954, consolidating all the old stations and eight railroads, eliminating 144 grade crossings; the building of new expressways on the abandoned trackbeds, plus the widening of 39 boulevards; and, breaking the water barriers that hemmed New Orleans in, a 24 mi., \$45 million Lake Pontchartrain Causeway and a \$65 million Mississippi River Bridge. Meanwhile, with this opening and clearing of the old city, private builders flocked in, six oil companies alone erecting new headquarters in midtown in the last five years, to begin the biggest building renaissance in a century.

There were also other movers and shakers stirring the ground almost simultaneously with Morrison's ascension to office. One of these was International House, a kind of poor man's State Dept., organized by a group of the town's businessmen to aid in expanding the city as a port vis-à-vis South America. It set out to provide Latin Americans with free translators and limitless information about the US, Americans with anything they wanted to know about Latin America, while providing all visitors with a graceful and friendly place in which to relax, an operation so successful that it suggests the sort of institution New Orleans takes to its heart and incorporates into its traditions overnight. Another mover of this period was the famed Mrs. Jackie Leonhard, an ex-newspaper reporter proud of being partly of Cherokee descent, who ran for the school board, with the backing of a handful of people, plus faculty and students of Tulane's architectural school, and won. Tulane's architects were involved because they had drawn up a program for New Orleans schools that Mrs. Leonhard made her platform. The most ingenious and daring of these schools, by Charles Colbert, was a conscious attempt to capture in steel and glass the airy lightness of New Orleans architecture at its best. The program has been so successful that 18 in the same pattern have been built, 16 more are under construction, and another 19 are projected.

But moving behind all these movers was a melodramatist of city planning, who could have happened only in New Orleans, in the person of an obscure city functionary, now dead, named Brooke Duncan, who approached Morrison on his election to office. Duncan was a solemn individual with rimless glasses who had been an engineering student at Tulane, an automobile salesman, a lumber-yard inspector, manager of a Mississippi plantation, and owner of a New Orleans real estate firm until it was wiped out by the depression. Then he became a career fixture in the administration of one mayor after another.

In the course of his duties as a collector of delinquent taxes, Duncan had become aware of a curious pattern linking the seven-block slum area near Canal St. with other strategic locations in the city. It

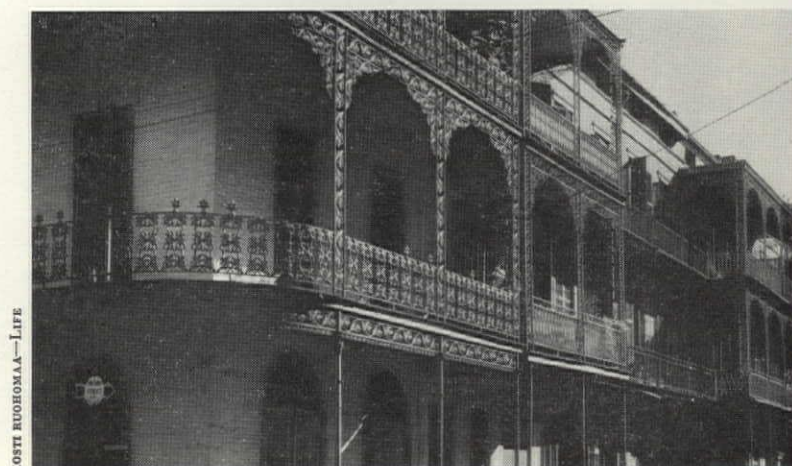
occurred to Duncan that public buildings might be erected in these blighted spots, and the intervening blighted lands be used for new roads connecting them. The biggest slum was the one nearest Canal, where the Civic Center now stands, no less than 1,500 substandard buildings. The city could acquire this land for 95¢ a sq. ft. (where it now costs about \$30), provided Duncan's colleagues in many different administrations did not see the possibility of private profit first.

This was the only remaining area in midtown that the city could afford to buy for what Duncan called "a municipal center." It was the area bounded by Saratoga, Poydras, La Salle and Gravier Sts. But if a civic center could really be built there, a far greater possibility loomed through the tangle of decayed streets. To the west lay a comparable area that might be used for a union terminal which the Railroad Board had been urging for 40 years. To the east lay a similar area that could be developed around the auditorium. A new east-west artery linking them would ease the pres-

FRERET & WOLF; ANDRY & FEITEL; AND RICCIUTI, STOFFLE & ASSOC., ASSOC. ARCHITECTS



Long galleries, vertical rods and building on piles are the architects' attempts to retain a native flavor in the modern Tulane University dormitories (above). But there is still far to go in translating the French Quarter's native charms (below) into modern terms.



sure on Canal St., the abandoned tracks could be used for new expressways, and the city could in a single development end its railroad crossing jam, clear a big slice of its slums, simplify its traffic, and wind up with a wholly new alignment of its midtown life, without disrupting its essential pattern in the slightest.

The subtlety, simplicity, thrift and imagination of Duncan's project appears more wonderful the more one learns of New Orleans. No massive operations were to be undertaken, no leveling of recent structures, merely the clearing away of dead tissue, and the ingenious use of the by-products of engineering change. For ten years—some accounts say thirteen years—he confided in no one. As his obituary says, he jealously guarded his scheme "against what he thought were dangerous political vicissitudes, and finally brought his plan out of the files to the attention of higher authorities when he thought it had a good chance to be realized. . . . 'I kept it from everybody who might use it politically,' he afterward remarked."

His difficult position was made more difficult with his appointment by Morrison's predecessor, shortly before his defeat, as coordinator of city planning. Morrison won the 1946 election by only 4,000 of 150,000 votes cast. Duncan had begun to write a few cautious letters on his project; he now took it to the 34-year-old mayor-elect. Morrison was "impressed by its potentials," and made Duncan his planning director. They took the proposal to purchase the slum area for a civic center to the council. It squeezed past—three votes to two. The city went to the polls on a rainy April day to vote on the bond issue, only 25,000 appearing, and the vote was so close that 500 more opposed would have defeated the renovation of New Orleans.

The Union Passenger Terminal had the highest priority in the chain of public building. But its work went with agonizing slowness, with the filling of the New Basin Canal to provide for tracks (and ultimately an expressway beside them), before any hint of the shape of the future appeared to public gaze. In 1948 Morrison's annual report announced a grade crossing had been eliminated, tactfully refraining from mentioning the 143 still to go. In 1949 he listed high in the achievements of his administration the building of seven underpasses. In 1950 he disclosed to an apathetic public that five more overpasses had been completed. That same year Brooke Duncan died, with the great chain of public buildings apparently in the distant future. But when the Terminal was at last opened in 1954 it emerged as one of the most astute pieces of civic planning in recent American history. It was not merely that its cost was carried by revenue bonds supported by the railroads using the terminal. Its completion broke the civic blockage that had checked public and private building in the central business district for years.

New Orleans' city plan now calls for six more complexes akin to the civic center, which stands on a park named Duncan Plaza. One complex will be beside the Terminal, where a new post office is to be built. The Assembly Center on Beauregard Square will hold the auditorium and related buildings to take care of sporting events, expositions and conventions. A third major complex will center on Lafayette Square, to hold the federal buildings in the city. The fourth, Eads Plaza at the foot of Canal St., will contain the port buildings and new headquarters of International House. The two remaining are less important to the city's structure: a

AIR PHOTOS COURTESY STANDARD OIL CO. (N.J.)





Planning problems that have beset New Orleans for a century are shown on this map. Original city (in upper left-hand corner of photo on right) was densely settled when Americans took over in 1803, and French jealousy blocked normal expansion north, driving American building into crescent. Railroads angled across the then-thinly settled area to five stations. Now union rail terminal combines them all, with abandoned tracks used for expressways. New east-west artery links civic center, terminal, and assembly center, easing Canal St. traffic. And the Mississippi is again shaping New Orleans destiny as the water-supply source of the booming petrochemical industry.





PHOTOS: WALLACE LITWIN

Industrial plants are now building on land saturated with old southern color and legends. Near the levee above New Orleans, the American Oil Co. has preserved a 1790 architectural landmark on its refinery grounds (left).

Mississippi River Plaza, to be built on the river beyond Jackson Square in the French Quarter, and a new criminal court and police department building to be erected on Tulane St., toward Lake Pontchartrain.

Basin Street blues

Pausing from time to time in its vast labors to look about, New Orleans, or at least some of its architecturally conscious citizens, get a real touch of the blues. The new plants in their imposing chemical engineering abstractions might as well be built on the Jersey Meadows or Mars for all the indigenous local qualities they contain. No one really expects these specialized structures to conform to some nebulous standard of regional adaptation, though some of the corporations, more conscious of these things than in the past, have manfully tried to preserve the plantation surroundings. But in the office buildings that accompany these industries, where something might have been done, there is the same modern anonymous blight of barrenness, with no features to distinguish them from Stockholm, Dallas, or New York. And in the civic buildings—the gleaming new marble-faced City Hall from whose lofty mayor's office Morrison can see the framework of an elliptical marble and glass State Supreme Court building going up, a new limestone, glass and aluminum State Office building, and a new library, which will be a translucent rectangle of glass and aluminum-grill sunscreens—it is the same.

Yet both the new industry and the urban growth accompanying it are building a region that retains an exotic quality, purple twilights on the viridian green shutters of old houses, toxic-colored smoke from the chemical plants rising lazily in the southern air over magnolias and live oaks.

Here and there less conspicuous buildings are exceptions to the pattern: Tulane University's new dormitories, with the long galleries of old Louisiana domestic building suspended in air; Charles Colbert's suave Motel de Ville, suggesting a modern version of a roofed southern street, elevated a story above the ground; the fine Crippled Children's Hospital of Italo William

Ricciuti; the Wheatley and Hoffman schools, rising above the ground on steel stilts in a bold return to the earliest form of native Louisiana building; the schools of Curtis and Davis, now culminating in the \$5 million George Washington Carver High School for Negroes, again in the developing native pattern, but, in this instance, extended to an unprecedented length—856' long and 56' wide—that in itself adds a new element to the native architectural equation.

These isolated attempts to fuse modern materials and techniques with indigenous design are scattered, and they are architecturally significant rather than impressive features of the changing appearance of the city. For the most part, New Orleans has never looked so prosperous. But it also has never looked so much like other cities as it does now. In a city where age has laid a mellowing hand on so much architecture, these modern buildings do not age. The first of the new schools built five years ago is just as bright and fresh as when it was opened. The City Hall seems doomed to look new until the end of time.

In recent years, Buford Pickens, former head of Tulane's School of Architecture, drilled into a generation of New Orleans architects the need for incorporating the essential regional quality into modern buildings, not by imitating the past but by equalling "the daring, the ingenuity and the courage" of such forgotten masters of the past as James Gallier, greatest of native architects. "That will mean," he said, "developing a native style based upon the needs of today, using new materials and methods." A great opportunity has been partly lost, but it can be regained by a restudy of the best and most harmonious principles of the past.

Shades of the past

That past rests upon the site chosen for New Orleans, which does not resemble any other in America. Bienville built it on "the most beautiful crescent of the river" because at that point it was only 2 mi. from the Mississippi to Bayou St. John, which connected with Lake Pontchartrain, 5 mi. north, giving him a commanding view of the river and an

continued on p. 186





Europe's great new churches

In a great reaffirmation of faith, Western Europe has been building churches. Some are in new settlements. Some are on the foundations of war-destroyed predecessors. Some show close ties to tradition, while others venture into new areas of form and expression. But, behind this diversity lies a profound movement to find an architecture of contemporary spiritual significance. Here, in a gallery of pictures by Architect-photographer G. E. Kidder Smith, is a report on the progress of that movement, as represented by seven European churches.

Three of the churches are in Germany and represent the postwar work of two famed pioneers: the late Dominikus Böhm and Rudolf Schwarz. After World War II, when they could begin again, Böhm's work was more soft, more cautious than before, while Schwarz's work

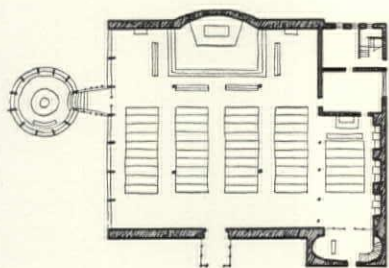
held a symbolism more profound than ever.

One of the churches is an unassuming cemetery chapel in Sweden, representing the continuous growth of the Scandinavian art, pursued in peace.

Three of the churches are in France. The first (below) represents an attempt guided by the Dominican Father Courturier to integrate the arts in contemporary churches. Despite the nobility of its individual parts, this church shows that the integration achieved in the Gothic art is still far from contemporary grasp.

But, in the last, France is represented by two great works. One, August Perret's church at Raincy, built in 1925, still stands as a primary example of the modern art. The other, Le Corbusier's church at Ronchamp, may well become the most influential church of our time.

PHOTOGRAPHS BY G. E. KIDDER SMITH



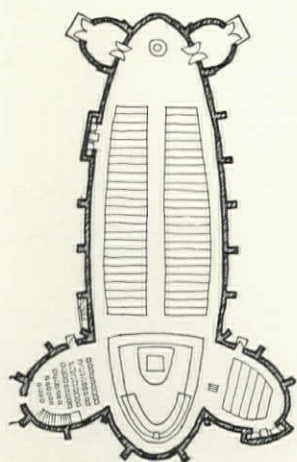
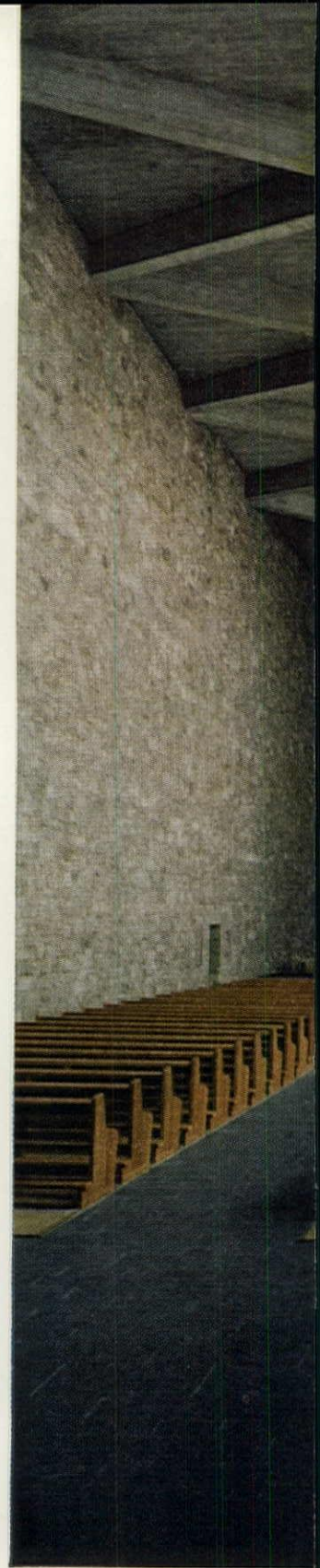
A VEIL OF LIGHT

At the Church of Maria Königin in Marienburg, near Cologne, Germany, a great wall of stained glass is drawn like a veil against the world outside. Patterns of soft light are thus formed on the walls and floor, lending animation to the square room which, by itself, recalls the austerity of the early church. The architect was the late, famed Dominikus Böhm.

A WAY IN COLOR

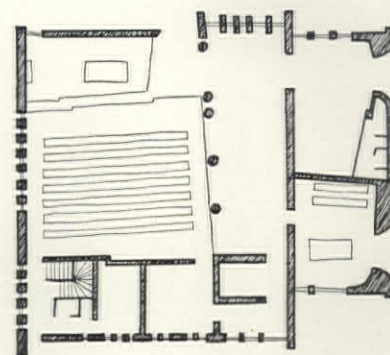
Next to the Church of the Sacred Heart at Audincourt, France, concrete framed panels of brilliant stained glass encircle the baptistery and then fold back to open a way into the body of the church. The baptistery panels, designed by the painter Jean Bazaine, suitably accompany Fernand Leger's windows in the main church. The architect was Maurice Novarina.





A DOMINANT FORM

The elliptic plan of the Church of Saint Michael in Frankfurt-on-Main, Germany, is founded in the traditions of the German Baroque. But the high and noble room erected on the plan excludes the extraneous to emerge as an expressively complete space. In the picture the room is viewed from behind the altar toward the entrance doors. The architect was Rudolf Schwarz.

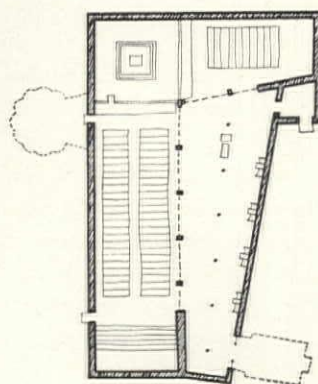


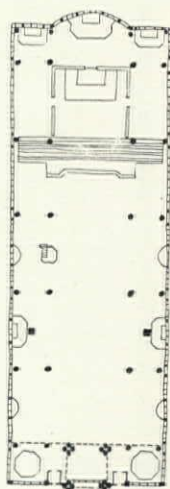
A SYMBOL OF FAITH

A sturdy cross emerges from a field of darkness in the mosaic chancel wall of the funeral Chapel of Saint Michael near Mora, Sweden. On the white brick wall on the left a simple altar shelf surmounted by another cross, slimly formed in steel, is flooded with light from the window at the corner. The mosaic was by Gert Marcus and the architect, Börje Blomé.

A SPACE BEYOND

Obscured in shadows, the lofty ell-shaped form of the Church of Saint Anna in Düren, Germany is only partially revealed by the light which shows beyond the columns separating the entrance area from the nave itself. The contrast between this church and Saint Michael's (left) could hardly be greater, yet both were designed by Rudolf Schwarz.



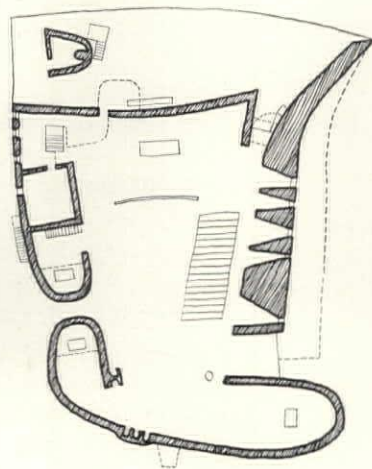


A STRUCTURE WITHIN

The articulate separation of structure and enclosure in Auguste Perret's pioneering Church of Notre Dame at Raincy, France (1922-25) points the way beyond Beauvais Cathedral, where the masonry limit of the Gothic adventure was reached. Taking advantage of the possibilities inherent in reinforced concrete, Perret erected thin vaults on slim columns separating the nave from traditional side aisles. The perimeter of the church could thus be wrapped with lightly cast screens of concrete and glass.

A WAVE OF SPACE

The climax of the hilltop at Ronchamp, France is reached inside Le Corbusier's pilgrimage Church of Notre Dame du Haut. Here, the floor follows the natural contour downward from the entrance at the top of the hill to the altar below the windowed niche for the Madonna. Overhead, the floating curve of the concrete roof lifts at the corner like a cresting wave.



A remedy for rental housing

by MILES COLEMAN

What it needs most is
not more subsidy
or government support
but a change
in the tax laws

Strangely, at a time when the US appears truly concerned about rental housing production, it seems stubbornly reluctant to take the one simple step that could do something to help it. Nothing radical is involved; indeed, no more than a comparatively minor modification of the Internal Revenue Code is required. Yet this change, so mild as to seem innocuous, could have tremendous consequences, not just for housing but for the whole of urban renewal. Painlessly, effectively, it could remedy one of our chronic construction ailments today—the inability to get adequate equity investments.

In the simplest terms, the gist of the tax law amendment is this: give to investment trusts whose assets are real property the same tax treatment extended to investment trusts whose assets are stocks and bonds.

Under present law, the income of an investment trust holding the securities can be passed on to the beneficiaries without tax on the trust income as such. In other words, the trust is merely a conduit for the income from its investments in bonds and stocks; the beneficiaries receive the entire return from these investments, minus only what is needed for management and reasonable reserves.

With a real estate trust it is different. Here the income from investments is subject to the full corporate income tax before it is distributed to the trust's beneficiaries. The beneficiaries' income is correspondingly reduced, and it is this fact that has made the trust device all but unusable as a means of attracting small savings for real property. People who might otherwise favor real estate as an investment have, as a result, channeled their savings, big and small, into other media, and the end product has been that the whole of real estate development and production has been

As long ago as 1953, legislation to correct this discriminatory treatment was introduced in Congress and thoroughly aired in hearings before the House Ways and Means Committee. Not until 1956, though, did a bill get so far as the President and when it did it was vetoed, largely because of objections by the Treasury.

Precedents ignored

To understand the difficulties that have confronted this apparently simple and logical measure, it is necessary to look for a moment at these objections. Partly, they were based on the highly technical question of whether rentals from income producing property were in fact "passive" income or rather income from "unrelated business." (The importance of this distinction lies in the fact that the courts have decided that income from unrelated business is not eligible for conduit tax treatment.) Yet until the real estate investment trust issue arose, rentals from real property had never been considered as income from unrelated business. Throughout the history of income taxation, financial, charitable and educational institutions have not had to pay income tax on the income of real property, even when the direction or management was within control of the institution and operating and maintenance costs were paid by it.

Beyond this, the Treasury maintained that the tax on the income of a real estate investment trust was no more a double tax than the tax on the income of a security investment trust. The Treasury's stand was that since stock dividends are subject to corporate income tax before they reach the security investment trust, there was no discrimination in also taxing rental income at its first stage, even though this stage happened to be a trust. Here

dends are not strictly comparable. Rentals, being a fixed obligation, are actually more similar to bond interest than they are to stock dividends, and bond interest paid to a security investment trust is not subject to a corporate tax either before reaching the trust or while in the hands of the trust.

Finally, the Treasury argued that approval of the plan would open the door for similar treatment for other classes of property; that every real estate company would convert itself into a trust and thus escape taxation (this despite the fact that the proposed legislation specifically excluded purely operating companies from its coverage); and that, in any case, an amendment should wait until the time for another general review of the tax code. This last point was probably the real basis for the Treasury's position, but whatever the foundation, the net effect was a definite setback for rental housing, and a setback that was strangely out of keeping with the rest of government policy.

There is no question that the Administration has tried desperately to stimulate rental housing. By insuring mortgages for all or nearly all of the cost of a property, it has attempted to make possible the financing of housing projects with little or no equity. Going beyond this, it has placed the support of government credit behind rental projects by buying insured mortgages or committing itself to buy them through the Federal National Mortgage Assn.

To the extent that these devices have worked, the government has exposed itself not only to loss through its contingent liability on the mortgages but also to added stretch on its already well-stretched borrowing power. But the really serious shortcoming of these devices has been their built-in elements of self-defeat. Because the government has had so high a stake, it has had

to circumscribe operations with so many safeguards as to make even limited investments unattractive to many sponsors. And because of this, and the failure to produce results in terms of urban redevelopment and apartment building, it has found itself pushed into more and more programs for even greater Treasury support or direct outlay. This fall, for instance, even before Congress has settled down to work, proposals have already been drawn to guarantee income debentures on rental housing, to create a new agency to finance "middle income" housing and to increase the authority of FNMA. What the outcome of these measures will be, no one can say. But the trend is clear.

Single standard

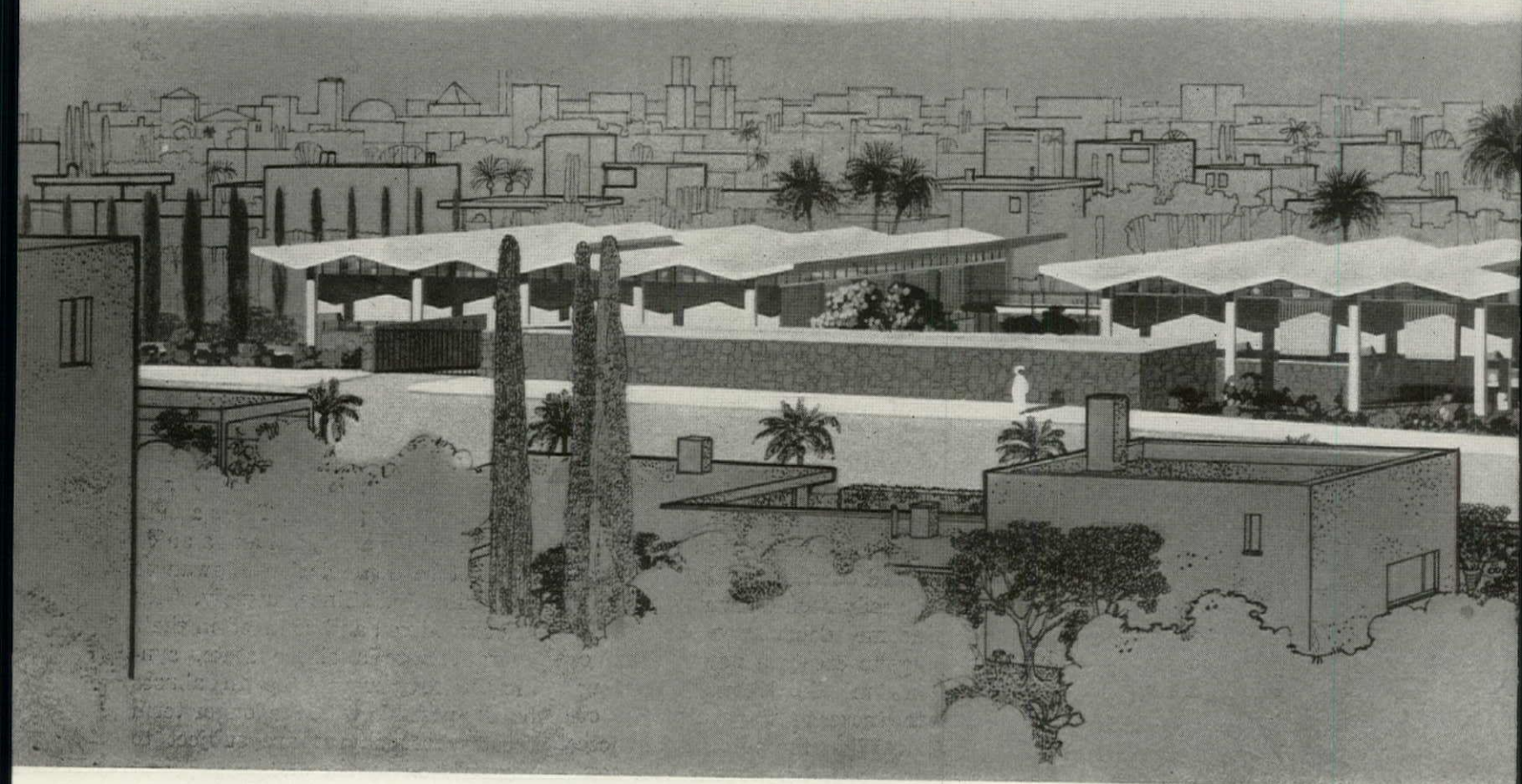
It is just as clear that if income-producing property is to be created at all, it must be on the basis of providing a return to the equity investor comparable to what he can get in other places. Because of the nature of real property, which ordinarily permits only a relatively low yield and a relatively slow return of capital, such a return just isn't possible so long as the investor is saddled with a double tax. Somehow an out has to be found, and to the extent that any substantial investment shows up in real estate, it is found.

One method of escaping the double tax, which, as we have seen, the government itself encourages, is to reduce the amount of equity investment in a project to a minimum. (The government also helps through accelerated depreciation allowances for tax purposes, which are especially effective where thin equities are involved.) Another is to build co-operatively owned, rather than rental, properties. This shifts the investment from the developer to the tenant and at the same time eliminates a corporate income tax. A third approach is the real estate

syndicate, which is legally a partnership and is often not subject to corporate tax. Organized for the purpose of a joint investment in income-producing real property, the syndicate has much the same purpose and function as a real estate trust. But unlike trusts, syndicates are normally put together for a single building project. Their aim is a quick return of capital and a quick exit before depreciation allowances are exhausted. Since, usually, they are short-lived and confined in their operations to a single state, syndicates are susceptible to abuses hardly possible with the longer term trust whose shares are subject to registration by the SEC.

Given these various escape mechanisms, it is easy to see why real estate investment does not now yield much if any revenue to the Treasury. In this sense, conduit tax treatment for real estate trusts would in the end produce far more in taxes than the US is now getting. More important, though, it would provide a solid, nonspeculative source of funds such as real estate has not had in many years. It would do much more to get added rental housing than any of the distorted mortgage and direct financing schemes that have been enacted or proposed. And it would get urban renewal off dead center.

As things stand now, a bill to give some tax relief to real estate trusts has cleared the House Ways and Means Committee and will be before Congress when it reconvenes. This bill, however, confines its benefits mainly to net lease situations, and would be of very limited use in rental housing production. Whether a broader, more useful measure can be enacted, as outlined in H.R. 3780, H.R. 3868 and S. 1876, depends largely on how imbedded the Treasury's objections have become. There is no question of the need. The only doubt is whether the Administration is prepared to recognize it.

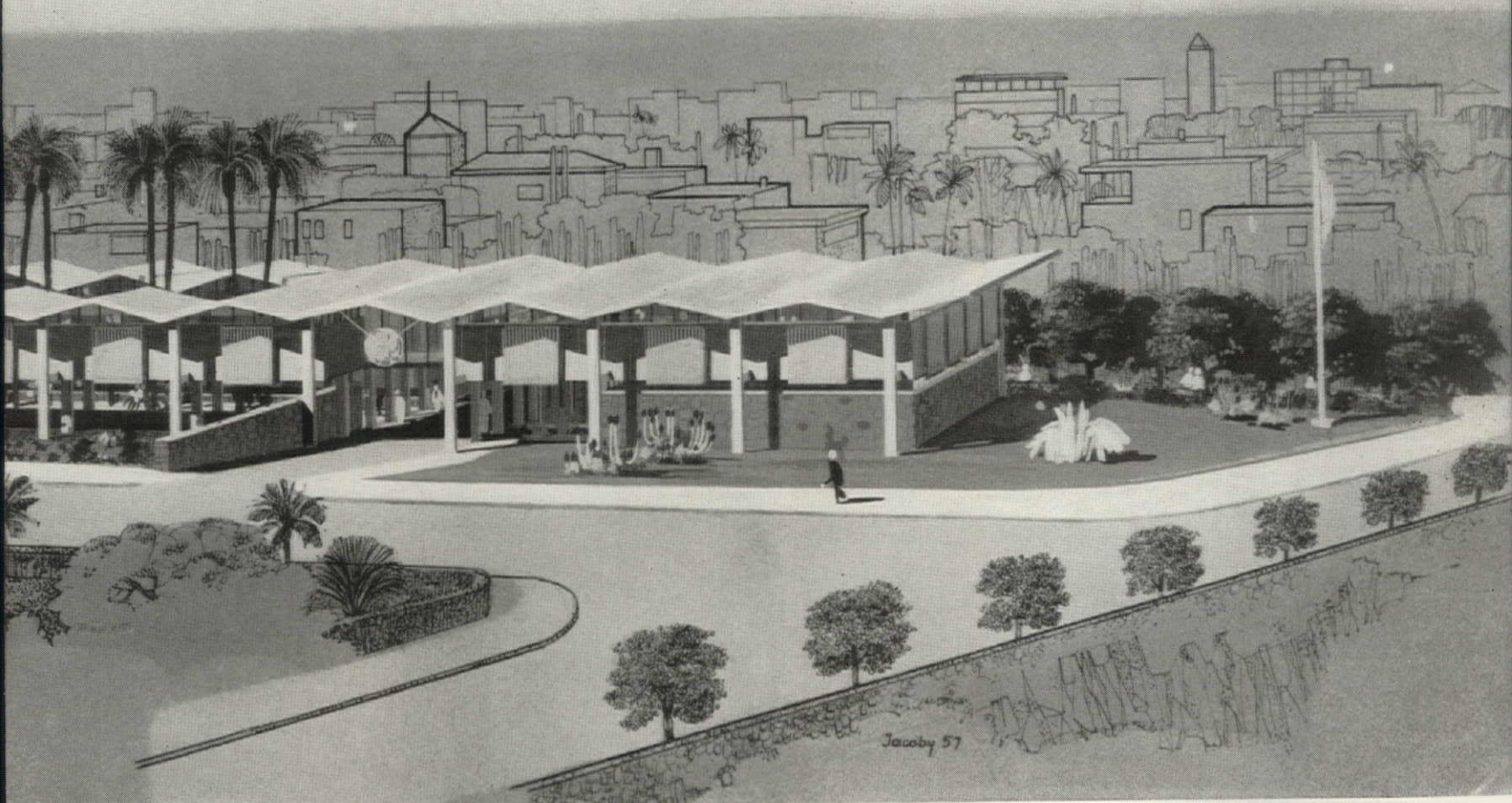


USA abroad

Overseas the State Dept. accepts
the proposition that good architecture
is good government—an idea
too little followed here at home

The 15 embassy and consular buildings shown on the following pages are a sampling of 50-odd current projects in the program of the State Department's Office of Foreign Buildings (FBO). By and large, the overseas face they present for the US is a face of assurance, importance, tact and vitality.

Those last two qualities in particular have been so conspicuously absent from the federal government's architecture at home—and indeed from the official architecture of most modern governments elsewhere too—as to throw doubt on the ability of the contemporary architect to succeed with monumental government buildings. The FBO program, now large enough and solid enough to show it is no fluke, proves one thing: even though the building with governmental symbolic character is still no easy assignment, good government architecture *can* be done by US architects. In most of the examples shown here, the symbolism necessarily has a flavor of the exotic, but to hit this right for Rabat or Accra or Bangkok has been no less



US ambassador's residence and embassy office building for Rabat, Morocco; Ketchum, Giná & Sharp, architects

demanding than it would be to design for midtwentieth-century Washington with vigor and diplomacy.

To get these creative results from its architects, and to raise the standards of its program consistently during four years, as it has, FBO has been pretty creative itself in the administrative realm. It has evolved a technique for operating as an intelligent client that could not only profit other government bodies, but that contains some useful tips for any corporate client.

The key stroke at FBO was the creation in Jan. '54 of an architectural advisory panel, composed of men of real stature* to serve not as a figurehead but as a hard-working, trusted "building committee." Originally the chairman, appointed for a set term, was a former foreign service officer. Now the chairmanship goes to an active top career diplo-

mat while he is on Washington assignment (usually about a year) between foreign posts. FBO has found this combination of fresh field experience with architectural authority the smoothest working arrangement.

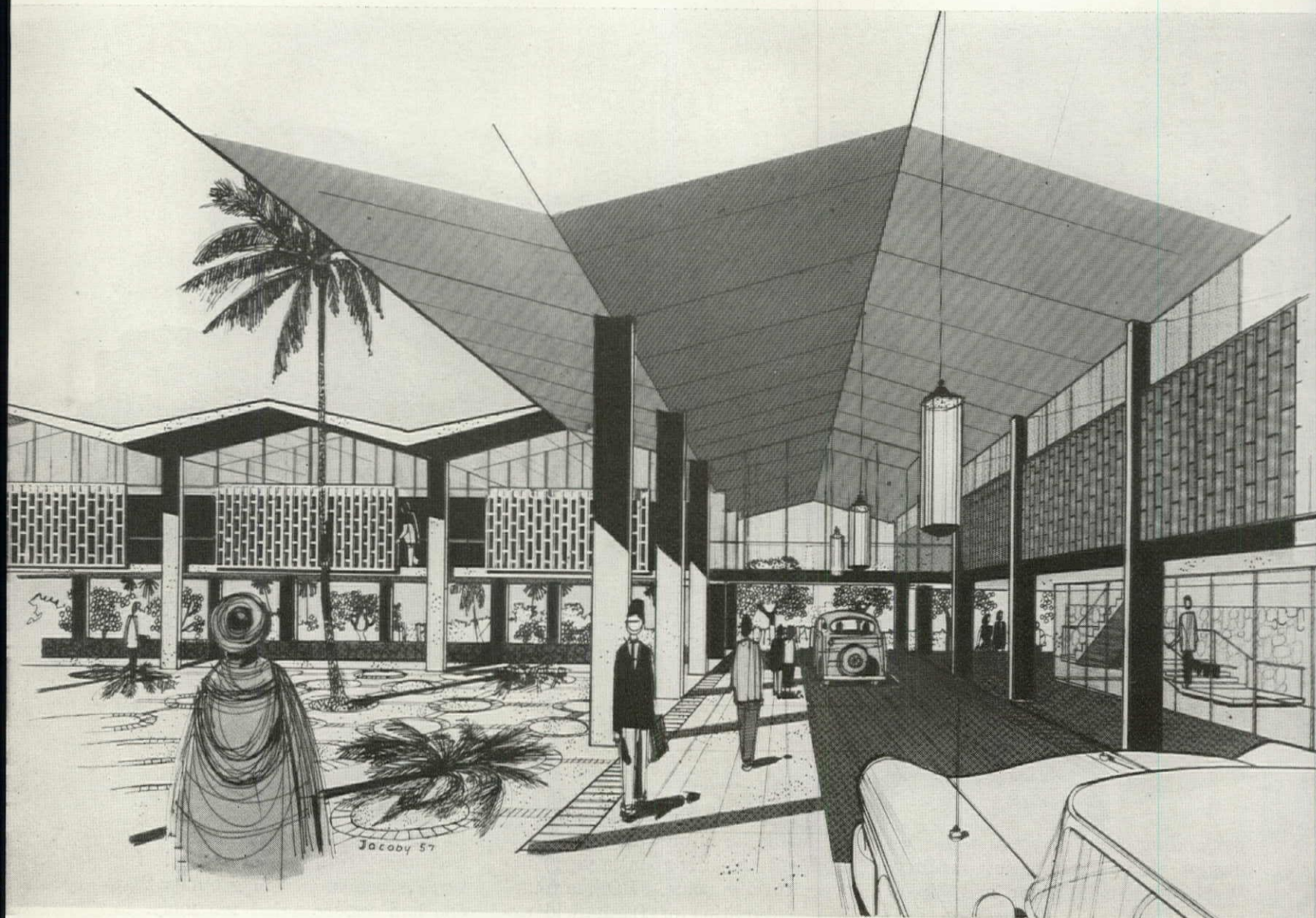
The panel recommends an architect for each project, basing its recommendations on the evidence of brochures which architects who want FBO work must take the initiative of submitting. When congressmen with architect constituents find this apolitical selection hard to understand, FBO's policy and methods are patiently and firmly explained; this has always been accepted and indeed respected. "It is simple to stay unpolitical," says an FBO official, "if you just never, never, never make the first political decision."

The architect gets a full briefing on practical and diplomatic aspects of his project and a trip to the site. Nowadays it is a rare first scheme that does not need revision, perhaps several times, for the advisory panel functions far more as a critical body than in its early experimental days.

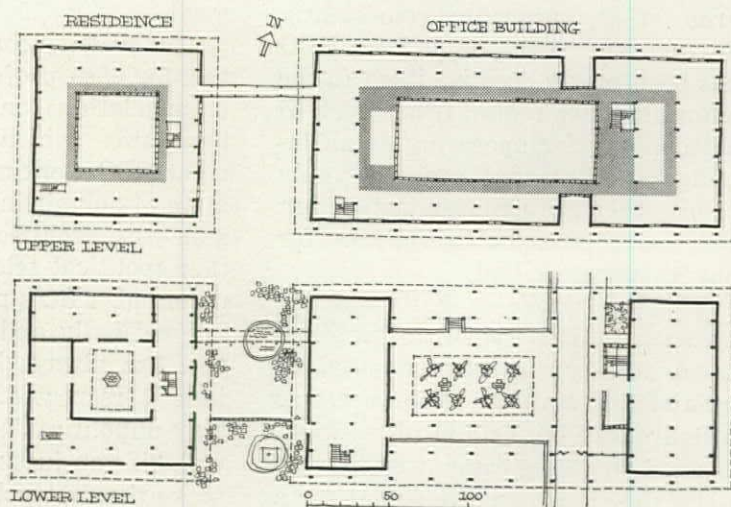
In one round this fall, for example, revisions were recommended for three schemes on the grounds that one had subordinated too much to parking, another had fallen into the temptation of competition with adjacent commercial buildings, the third was considered too overtly exhibitionistic. But the advisory panel steers scrupulously clear of asking for any rubber-stamp solution. After a critical session, the architect is asked to send by letter his understanding of what was said. This is confirmed against the minutes. If he has misunderstood or forgotten a point, he is straightened out at once. This seemingly simple requirement was the fruit of much trial and error and has worked an enormous improvement in the planning process.

Official US building abroad, not many years ago, was a sorry affair. The change came because of foreign criticism sharp enough to worry the State Dept. into the successful solution. Sharp domestic criticism may be the only means that will force similar reforms at home.

* Present members—appointed for two-year terms—are Architects Richard M. Bennett, Edgar I. Williams, and Eero Saarinen. Their predecessors were Pietro Belluschi, Henry R. Shepley, and Ralph T. Walker.



DELINEATOR: HELMUTH JACOBY

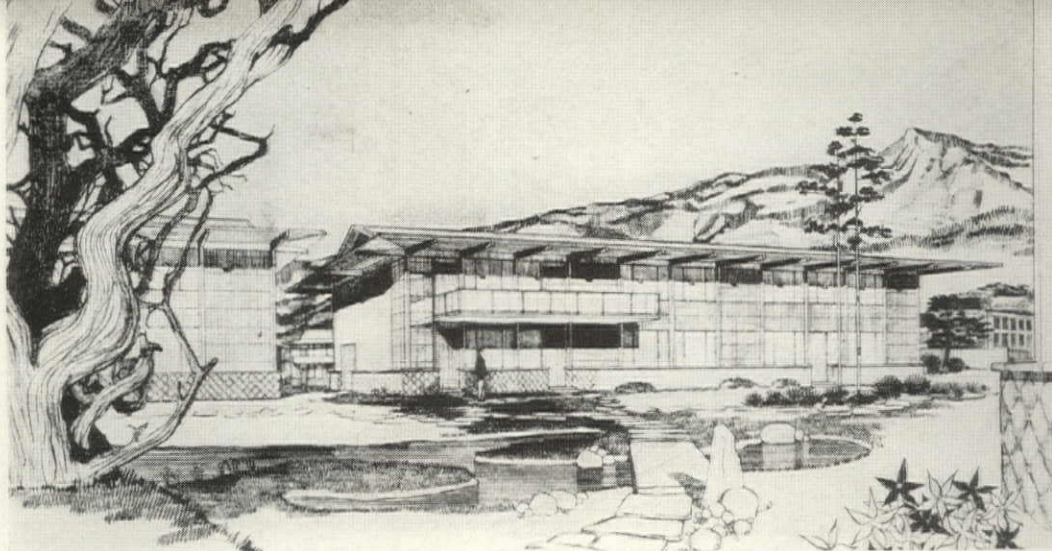


Rabat, Morocco is a city which delights in walled gardens, in intricate play with texture and color, and in surprises around the corner. For it Architects Ketchum, Giná & Sharp have designed an embassy group that overlooks the panorama of the city from an eminence and becomes, itself, a distinctive and harmonious accent in the panorama (p. 114). The embassy office entrance passes alongside a rubble wall, beneath the reinforced concrete roof, and opens into a palm-grove patio (above) with the view of the

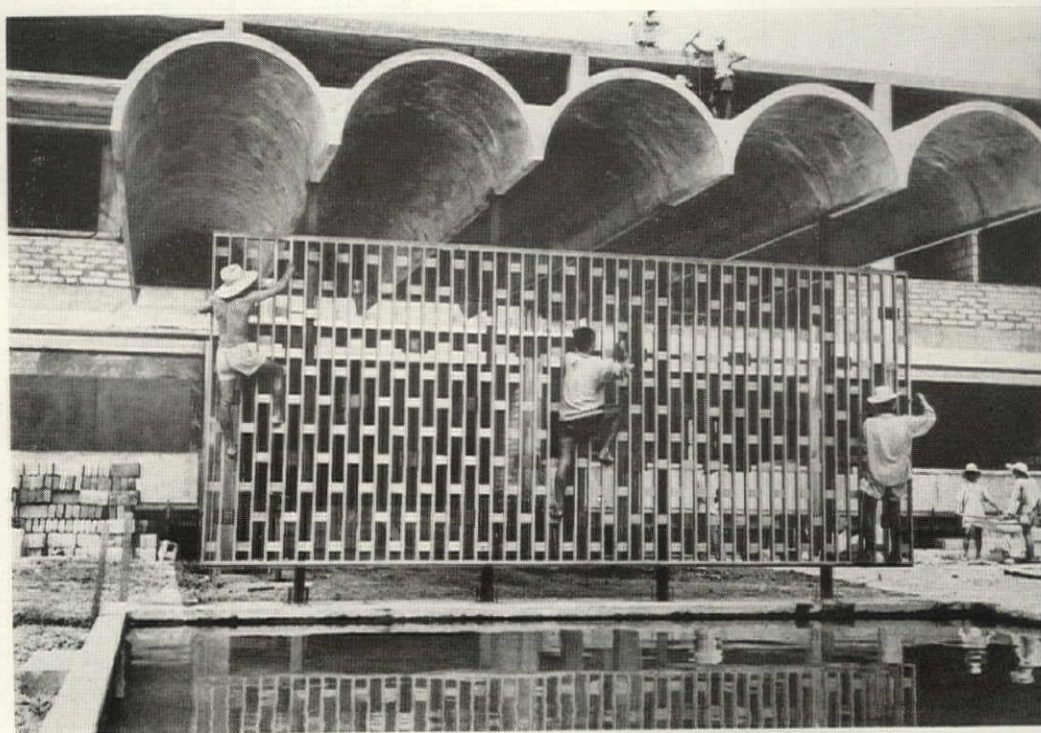
city glimpsed beyond, beneath the open first story. The second-floor office walls ringing the patio are screened with wood grilles set with colored glass inserts. Separated by another garden is the ambassador's residence (left in plan), the center for formal receptions. On the exterior, windows corresponding with the peaked sections of the roof are sun-screened with vertical aluminum louvers. Operating sash (including 40% of transom lights) catch the prevailing Atlantic breeze to make air conditioning unnecessary.

ARCHITECTS: KETCHUM, GINA & SHARP
 PARTNER-IN-CHARGE: MORRIS KETCHUM JR.
 STAFF ARCHITECT: OLIVIER DE MESSIERES
 ENGINEERS: SEVERUD-ELSTAD-KRUGER, ASSOC.
 LANDSCAPE ARCHITECT: THOMAS D. CHURCH & ASSOC.

Seoul, Korea: Embassy staff housing by Architect Ernest J. Kump is designed in small units (four apartments to a building) so groupings may accommodate to oriental gardens, some of which, like the one in the rendering, already exist on the site. Kump designed for common local methods and materials: reinforced concrete, masonry, terrazzo, colored tile. The overhangs anticipate equinoctial rains and summer heat.



Djakarta, Indonesia: This construction view of the embassy office building by Architects Raymond & Rado is the view which will greet visitors, who approach beside the pool and turn behind the dark blue painted iron screen, beneath a thin-shell porte-cochere designed by Engineer Paul Weidlinger. The former US consulate here, like all government buildings, was of Dutch influence, now anathema. The architects did not deem as applicable the indigenous architecture (which features astonishing "buffalo horn" roof profiles). The new embassy is an example, instead, of what might be called international-tropical.

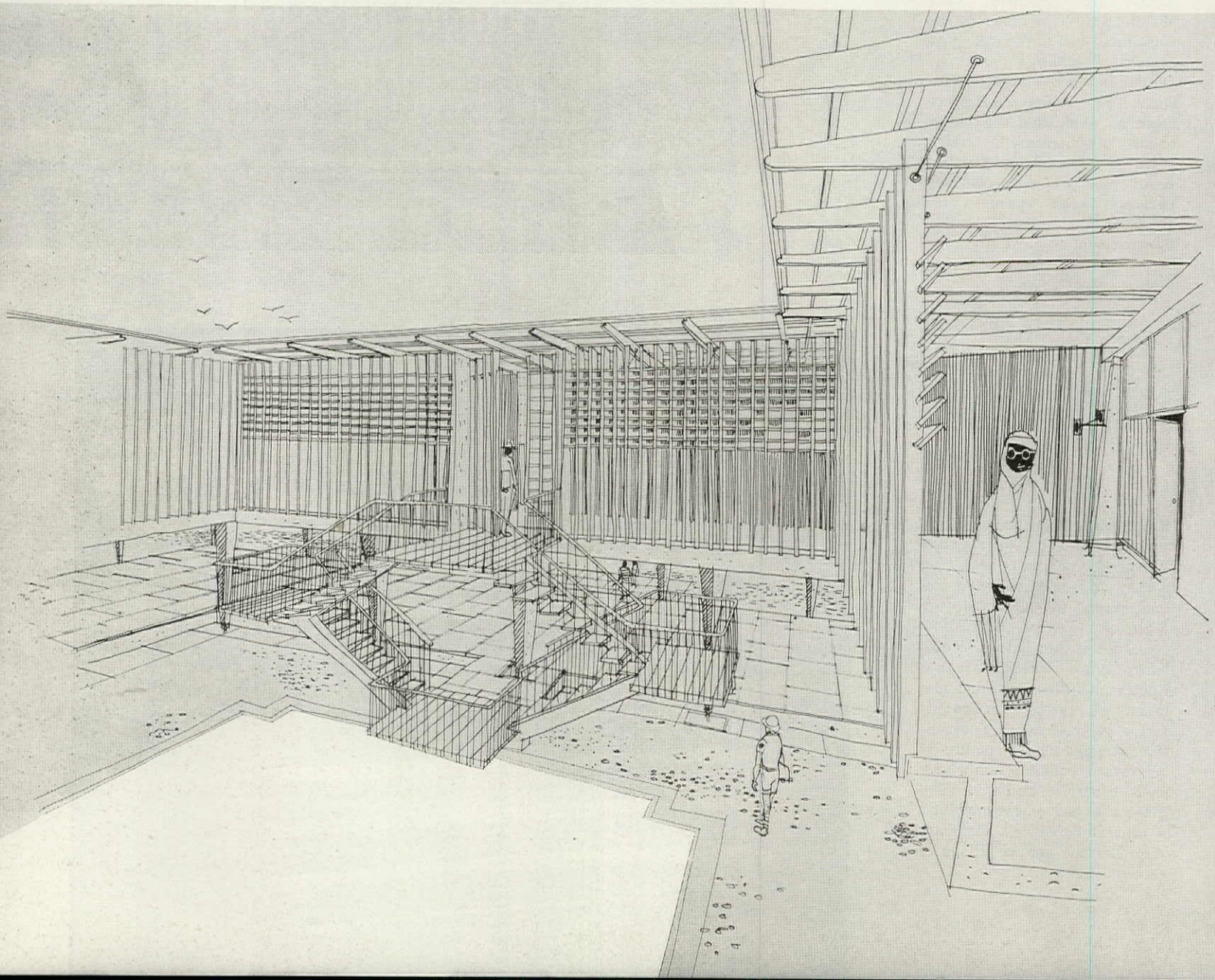
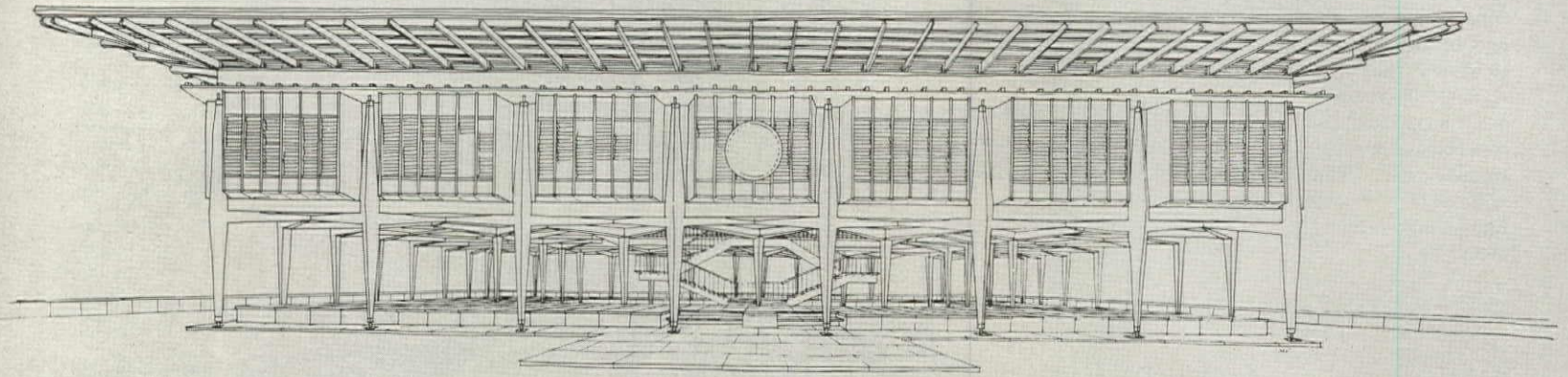


JOHN LAUNOIS—BLACK STAR

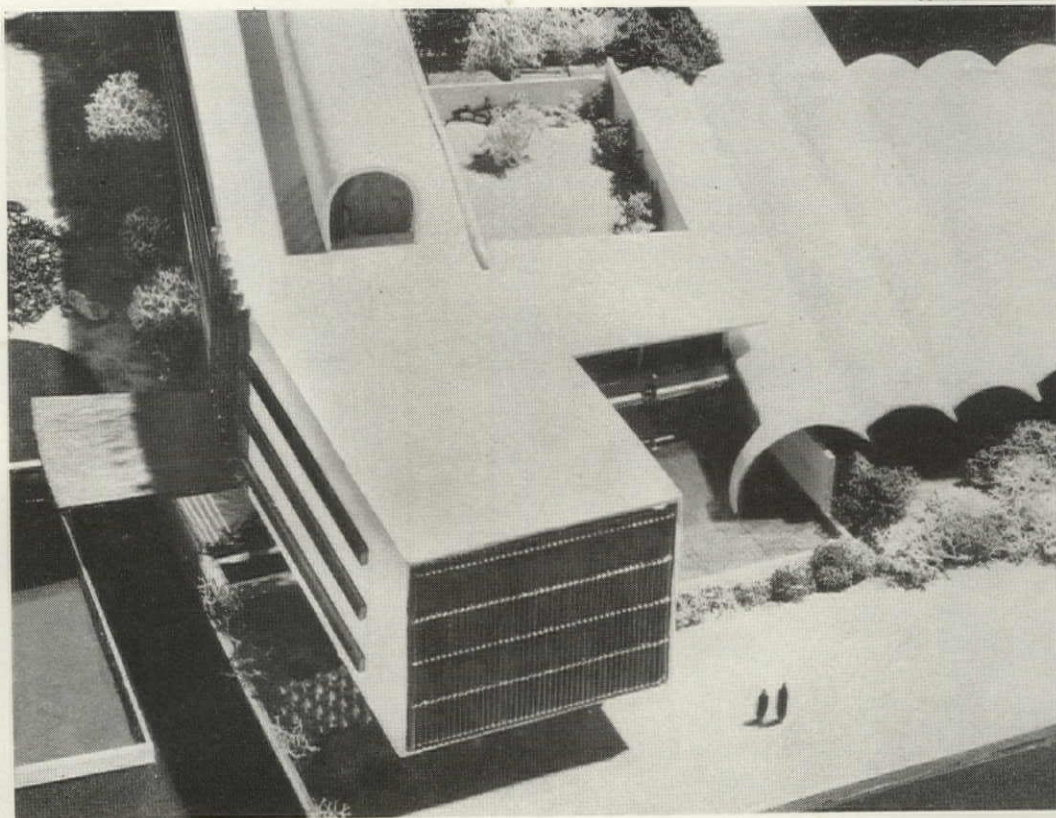
Bangkok, Thailand: Much that Architect John Carl Warnecke admired both for beauty and practicality in the indigenous architecture of Bangkok (FORUM, Sept. '57) is echoed in his balconied embassy office building poised lightly in a *klong* or lake. The result is a distinctly nonimitative, yet sensitively evocative, design. The structure is reinforced concrete with precast concrete railings. The glass enclosed offices surround a central light well. Cars arrive over the arched pilings of causeways.



LOUIS CHECKMAN



Accra, Ghana (left): For this embassy office building, under construction, Architect Harry Weese had to depend on imagination sparked by common sense. Local inspiration was lacking in the monotonous landscape and the architecture, consisting of imported masonry clichés on the one hand, and of tin roofs and mud on the other. Weese became convinced that, termites notwithstanding, a chief Ghana export, mahogany, could be used for building at home if it were raised off the ground and aided by preservatives. His mahogany parasol and richly louvered walls are supported on tapered concrete columns, cantilevered from an earthquake-stable platform. Offices are one room deep for ventilation; the corridor is a patio gallery. The building delights African students who have seen it, as symbolic of a richness found most often in indigenous wood sculpture.

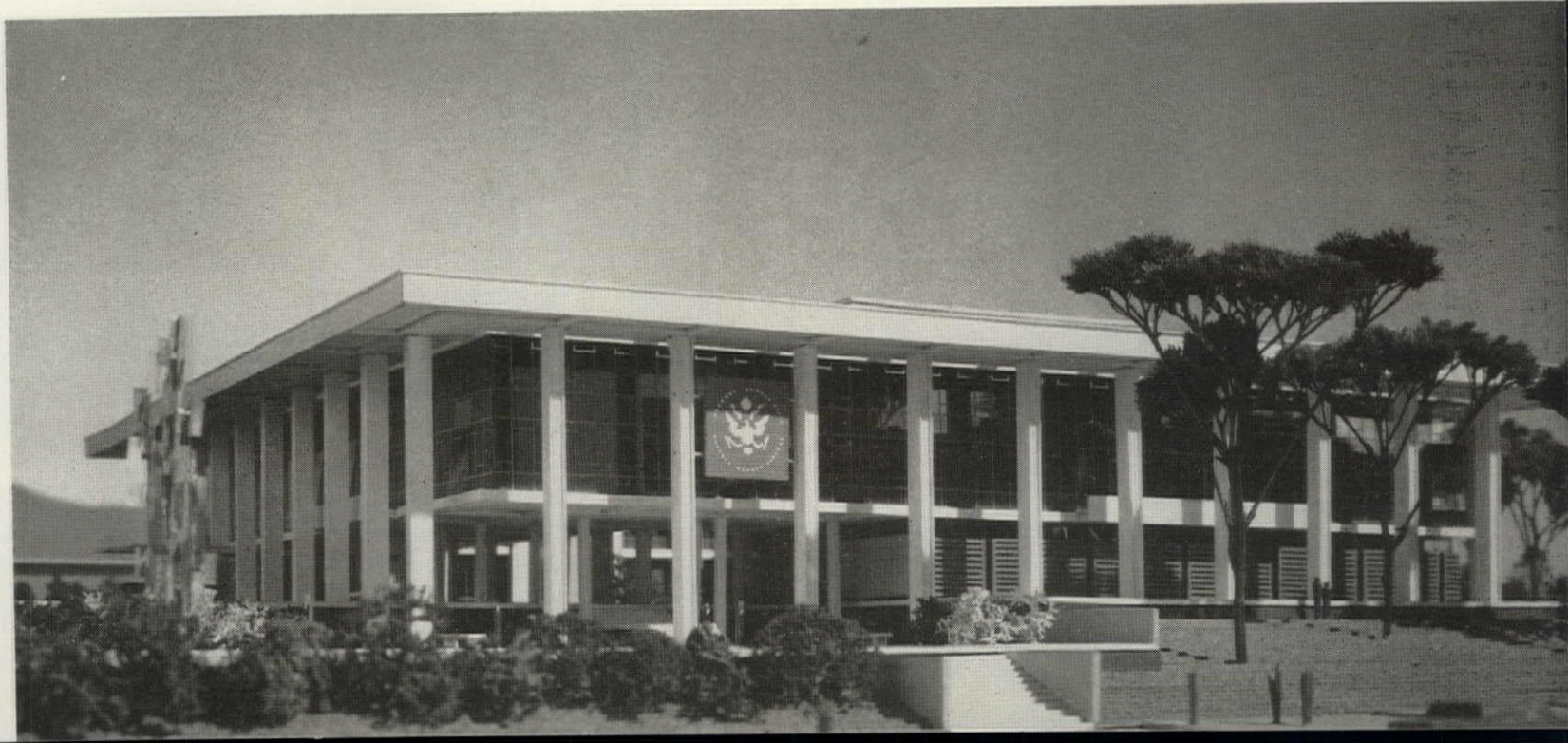


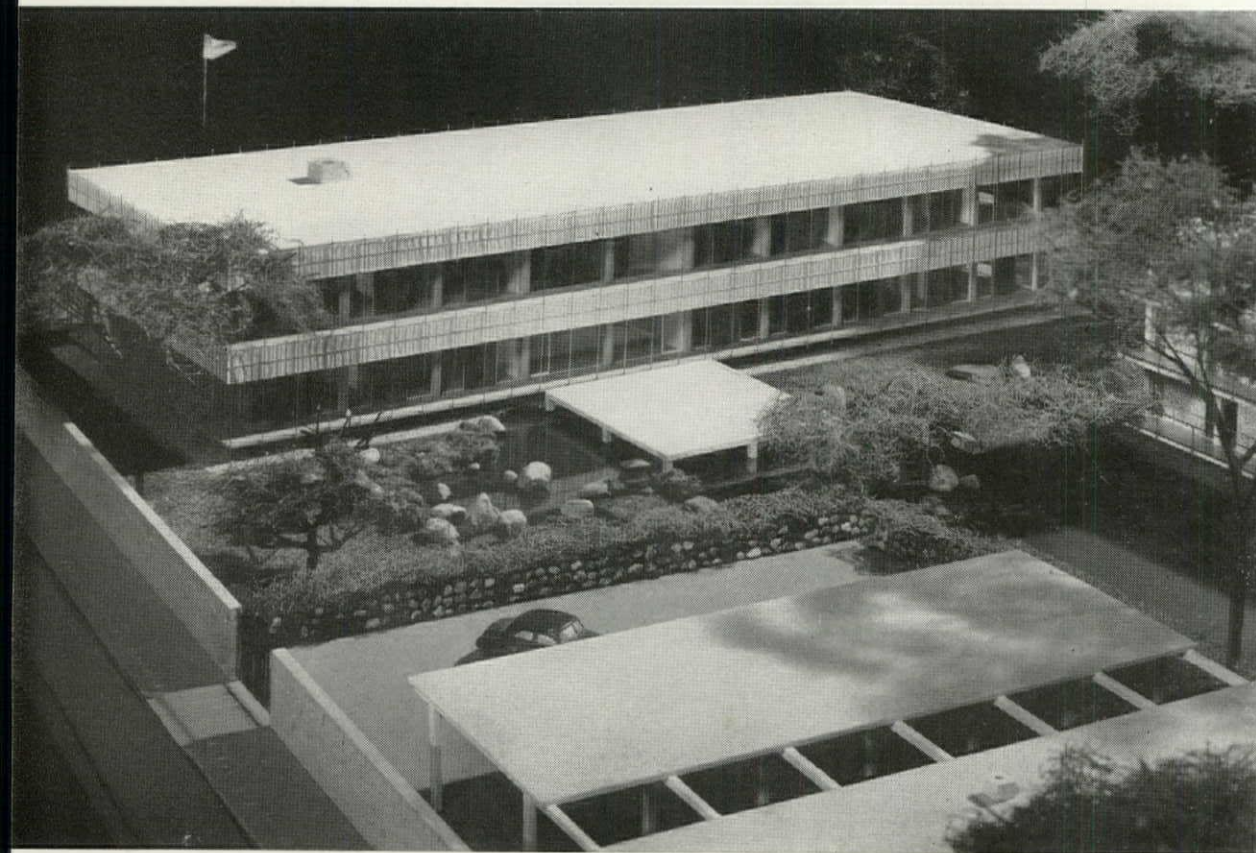
Karachi, Pakistan (above): This embassy office building by Architects Richard Neutra & Robert Alexander is "straight-forward office, stripped for action," to fit the character of a

determinedly modern, young port city. The thin-shell barrel vaults of the adjoining warehouse are echoed by the office penthouse. The warehouse arches into the adjoining pool.

Athens, Greece (below): For an embassy office building in the city of the Acropolis, Architect Walter Gropius' firm, The Architects' Collaborative, naturally enough chose neoclassic. But aiming at a neoclassic expressing freedom, the architects extended the roof, put the walls in retreat, and permitted the interior court to flow all the way out to the entrance.

ROBERT D. HARVEY STUDIO





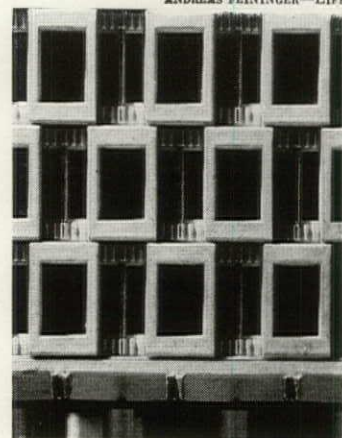
R. SHIRK

Kobe, Japan: In bustling downtown Kobe, this walled compound with garden is a graceful acknowledgment of US appreciation for Japanese culture. Designed by Yamasaki, Leinweber & Associates, the group includes a consulate (center in model photo), servants' quarters (foreground) and staff housing (far right). The completed group will be shown soon in FORUM.

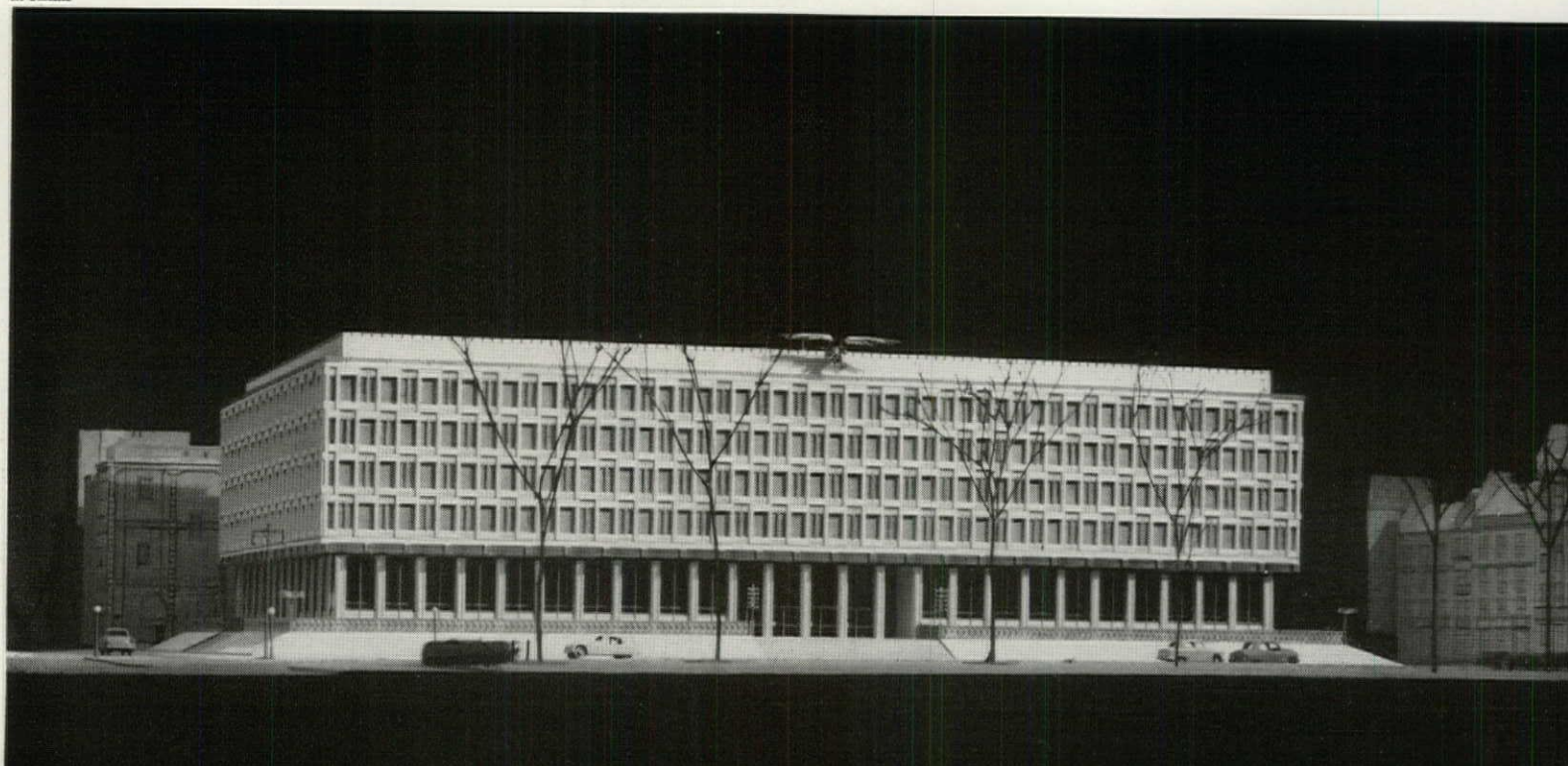
London, England: This is the revised scheme by Architect Eero Saarinen for the embassy project which he won by competition (FORUM, April '56), the only competition, incidentally, which FBO has held or expects to hold. The main change, occasioned both by an 85,000 sq. ft. increase in space needs and Saarinen's discon-

tent with his original proportions, is in the base, which is revised from one projecting story to two recessed stories. Diagonal beams, meeting in points, accent the separation of the base with its public spaces from the office floors above. The original fenestration, staggered precast floor-to-floor box frames, is retained.

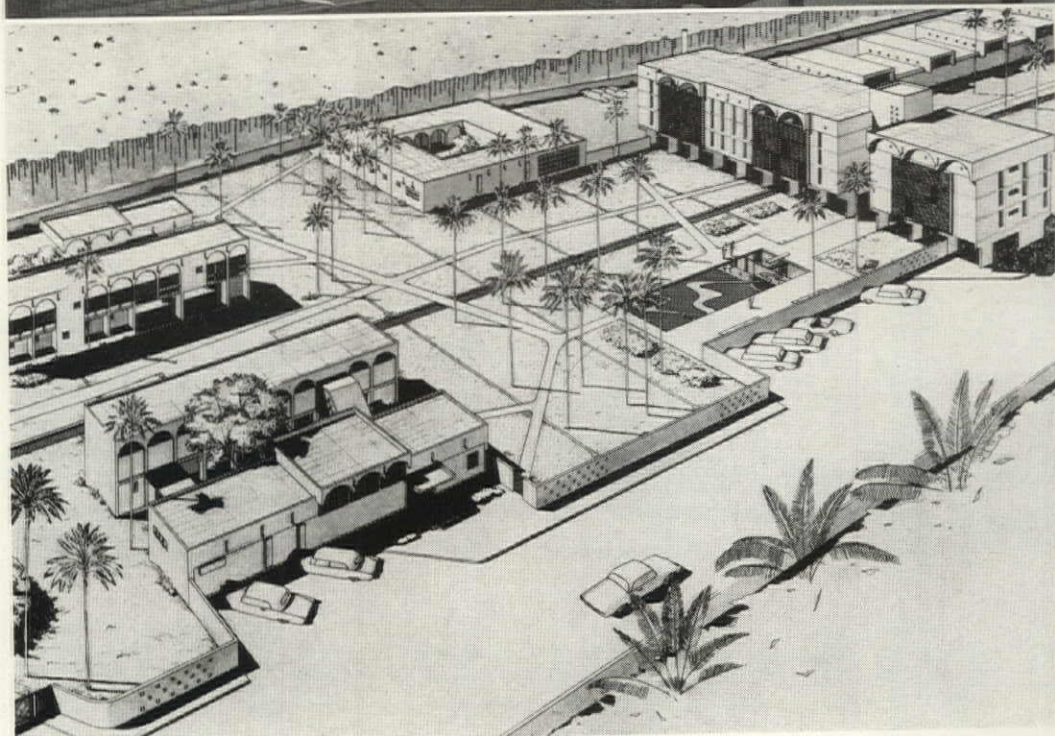
ANDREAS FEININGER—LIFE



R. SHIRK

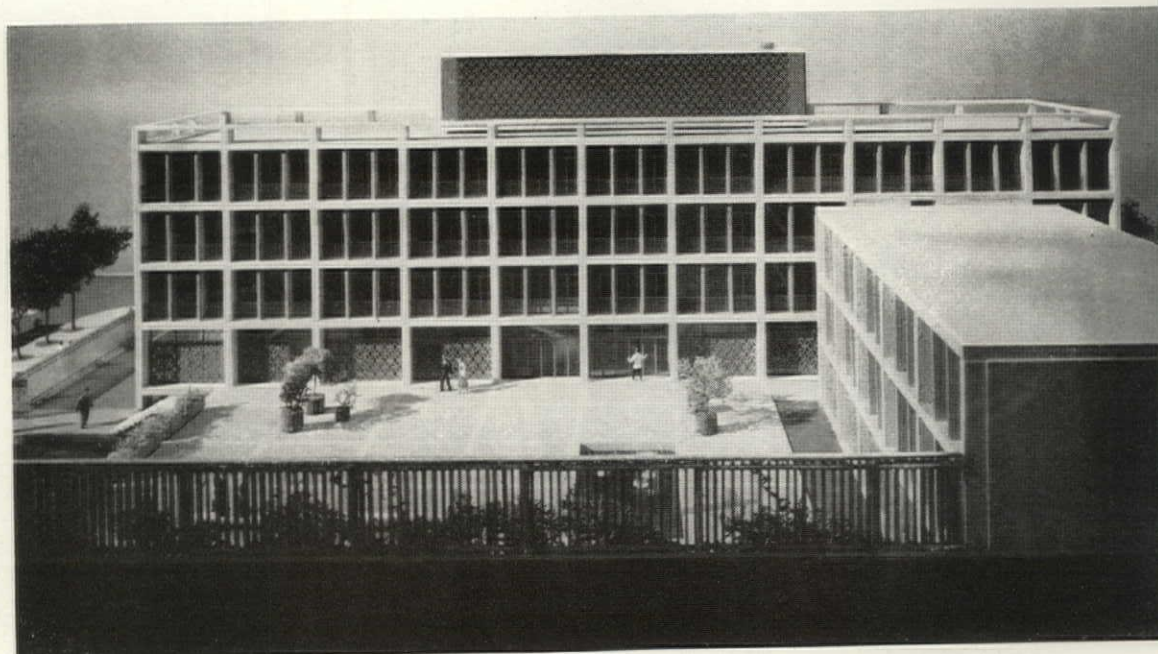


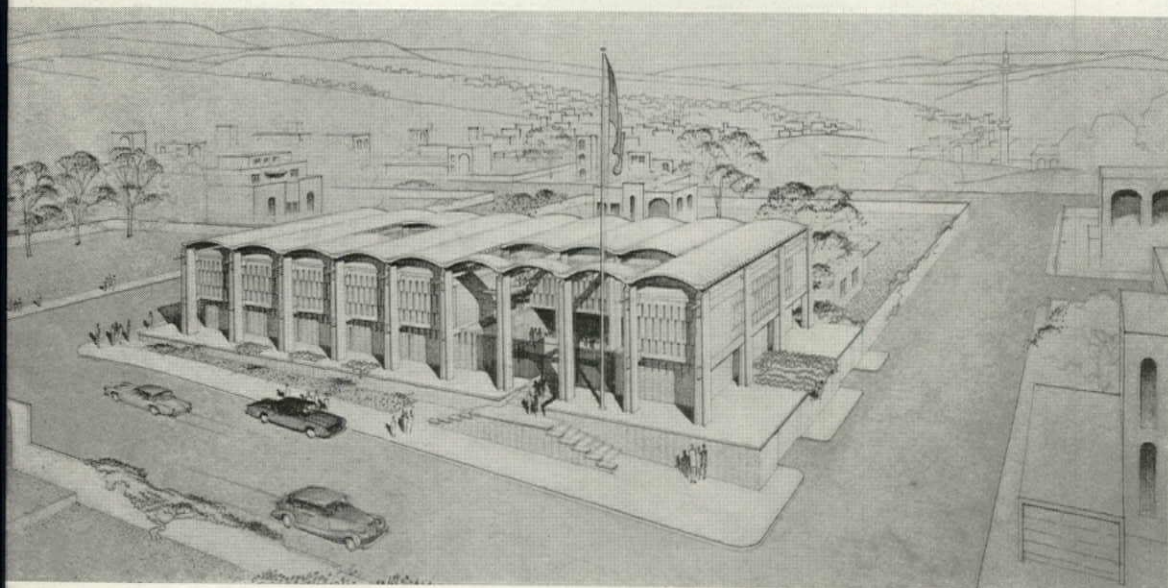
Baghdad, Iraq: Sun control devices create rich, textured east and west walls for an embassy office designed by Architect José Luis Sert. The pierced concrete piers supporting the overhanging third story give vertical shade to the recessed lower stories. White ceramic tile screens and ceramic glazed louvers screen most openings. The double roof consists of troughs of reinforced concrete topped with open joint precast planks; when it rains, which is not often, the troughs become drains. The Baghdad compound is a large project; the site sketch shows its center portion, the recreation court, with two senior officers' villas at left, servants' siesta house at rear, staff apartments at right. The housing has vaulted double roofs. In upper right corner is a portion of the monitor-roofed utility and warehouse building; the embassy office building is beyond this at the narrow head of the compound. At the other end, also not shown, is the ambassador's residence, its gardens running to the Tigris River. The entire site has been conceived by Sert as a series of courts, linked from end to end by the irrigation canal.



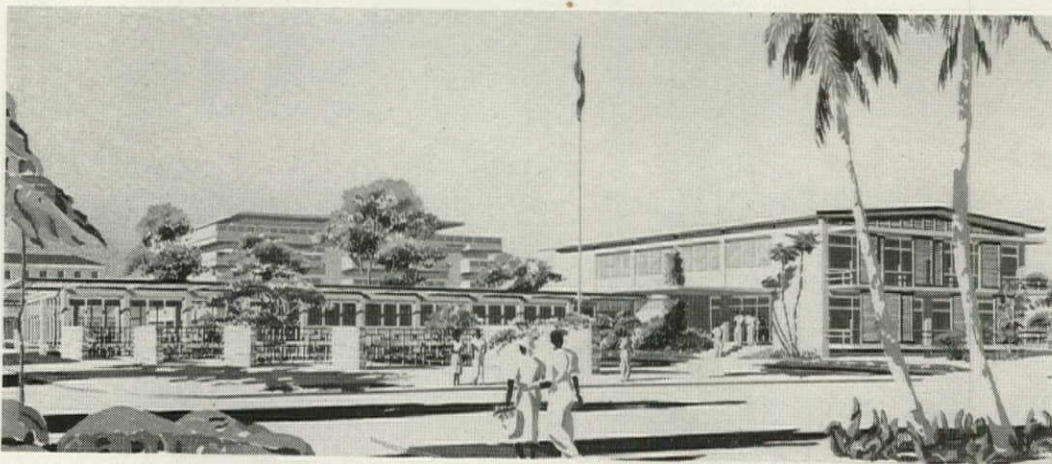
ROBERT C. LAUTMAN

Lima, Peru: Direct and frank-looking, this reinforced concrete embassy office building by Keyes & Lethbridge illustrates the means by which many of these new overseas buildings deal with the troublesome problem of security. Instead of closing up, of becoming a fortress with slits which literal following of security requirements would suggest, these buildings clearly define their public areas and keep them near the ground, then have carefully controlled access to upper security areas, with the whole arrangement unobvious. From the exterior, even the well-guarded areas make no to-do over "Keep Out!"

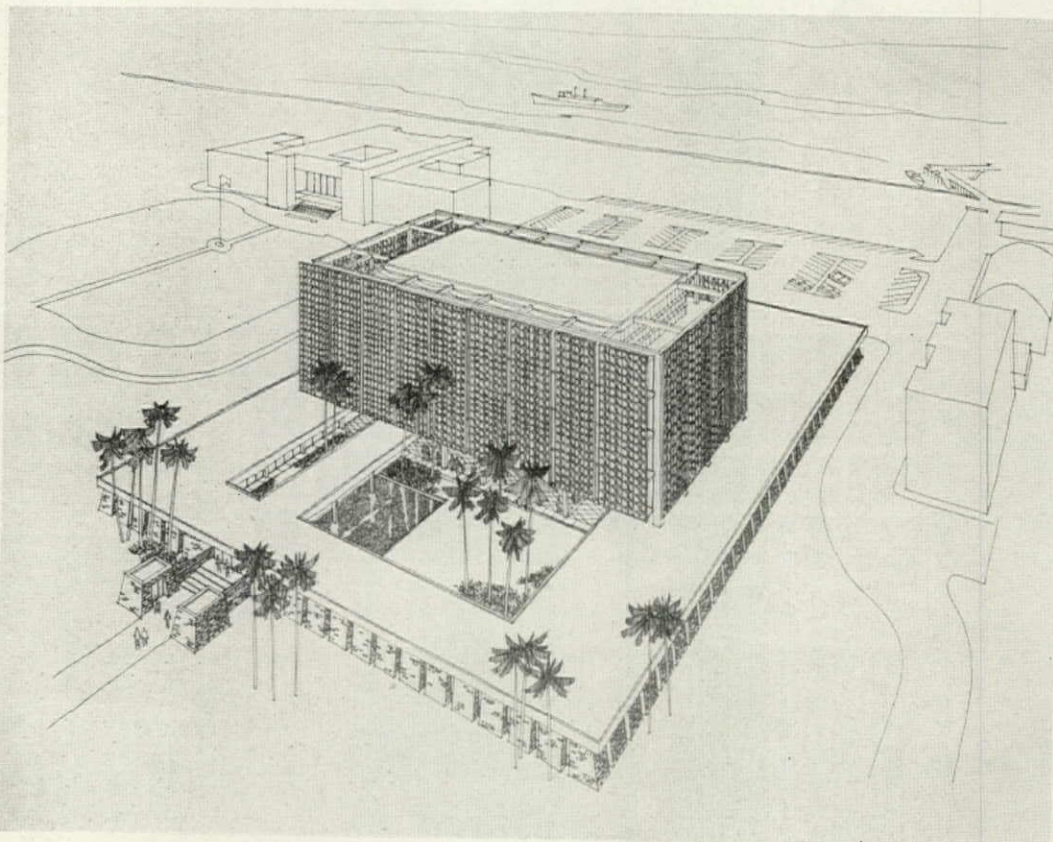




Amman, Jordan: This embassy office project by Architect Paul Rudolph has unfortunately been suspended indefinitely because of Middle East unrest. Security demanded a wall around this site, and Rudolph ingeniously used the wall for a podium, with gated vehicular and service access beneath the platform. The curved precast ribs form a parasol shading the flat roof beneath; the colonnade is calculated also for vertical sun shade.



Lagos, Nigeria: This consular office building by Weed, Russell, Johnson Associates is deliberately relaxed to invite wide use of its library. The climate is much like that of Florida; the favored building material is local stone. Structurally the building is designed for a third story, anticipating the day when Nigeria becomes independent and the consulate is raised to embassy status.

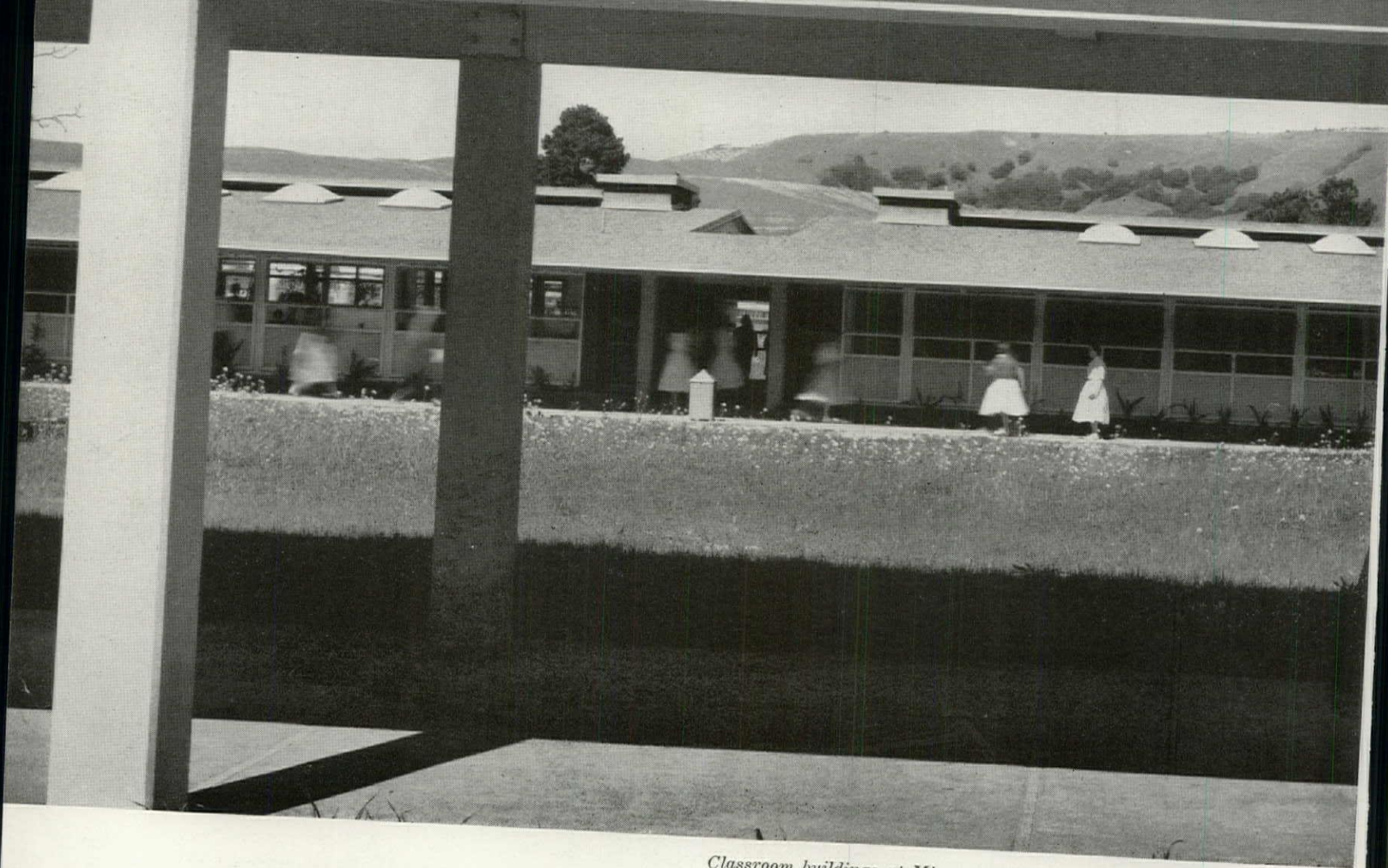


Manila, Philippines: For this supplementary embassy office building (the embassy proper is the existing building at upper left), Architect Alfred Aydelott harked back to the picturesque *Intramuros*, old Spanish-walled Manila. His base is of the same volcanic rock, used in the same rugged fashion. The offices, raised above pools and gardens, are glazed floor to ceiling and screened with precast concrete, inspired by laced bamboo screens which admirably protect huts from the sun.



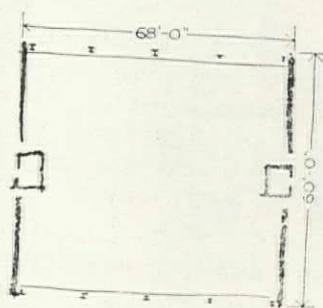
New Delhi, India: Architect Edward D. Stone's already famed (and already ancestral) embassy office building is now under construction. The almost incredible serenity and grace of its façade is fulfilled within by the magical-shadowed water garden at the building's core. (Photos: © Ezra Stroller.)





Classroom buildings at Miramonte High School in Orinda, Calif.

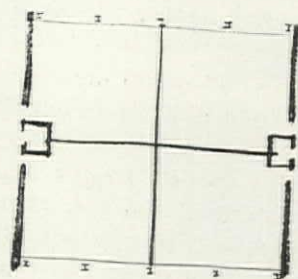
The space-module school



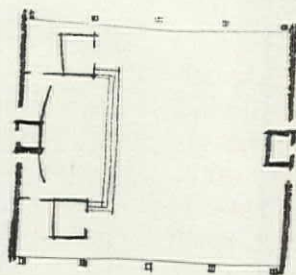
Sample space module ...

How can the full advantages of standardization be had without loss of flexibility and freedom?

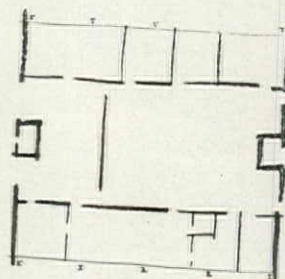
Architect Ernest Kump does it with a new modular concept, using big units of space as his building blocks



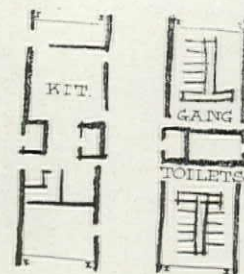
... for classrooms



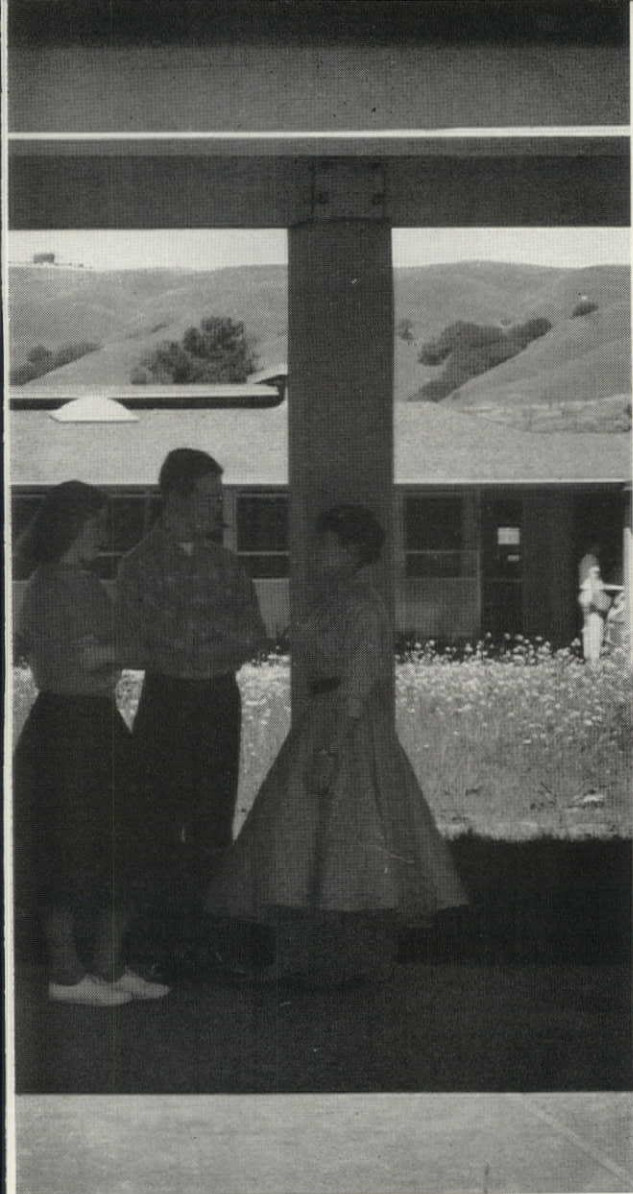
... or multipurpose



... or district offices



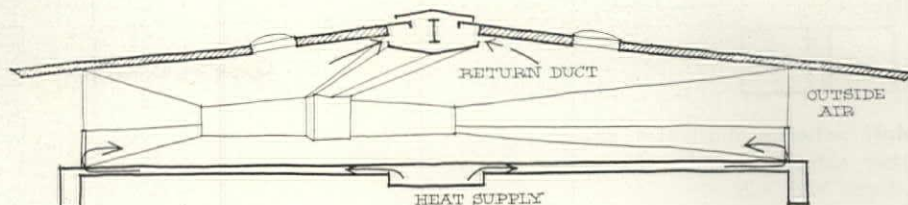
... and in segments



PHOTOS: (LEFT) PIRKLE JONES; (BELOW) ERNEST BRAUN



Cafeteria at Miramonte uses full, undivided width of basic space module. Section below shows framing of basic space module; arrows indicate hot air supply, natural ventilation and exhaust.



West Coast Architect Ernest Kump is one of the pioneers of the module. Since the early Thirties, Kump has been building with modules, teaching modules, thinking in modules. Now he has evolved a new module: a unit of space rather than a unit of building components. Thus far he has applied his new principle to a group of elementary schools and two secondary schools, of which Miramonte High School, shown here, is the first to be completed.

The big point about Kump's basic space module, or BSM, is that it is a means of eating your cake and having it too. It yields the advantages of thoroughgoing standardization (much more thoroughgoing than most prefab schemes) and yet permits a very high degree of freedom and flexibility in plan, design and structure. In Kump's hands, it also results in a pleasing order and harmony rather than monotony. Indeed this was the avenue, Kump ex-

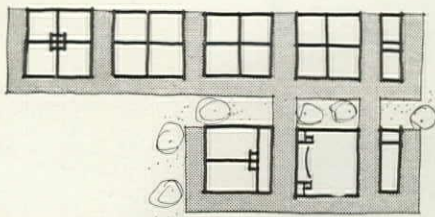
plains, by which he arrived at the idea: realization that "a unit of space is the architectural unit" and that this concept was a key to greater architectural order.

The BSM concept is basically simple. It means 1) fixing upon a space size and shape that will accommodate any combination, or nearly any combination, of the functional spaces needed (and that will also accommodate to a regular component-module of, say 4'); 2) spanning this space so as to leave the interior flexible; and 3) then repeating this identical enclosure of space as often as necessary.

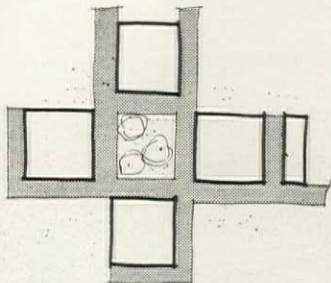
The diagrams at left show how a sample space module for an elementary school is used to house all kinds of rooms: classroom clusters, district administrative offices, multi-purpose space. To get added interior height in assembly or multi-purpose rooms, Kump digs down inside the foundations of the BSM as

well as adding wall height if necessary. Kitchens and gang toilets are repetitive segments of the BSM.

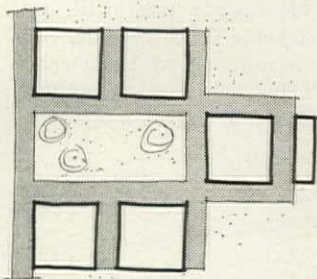
As Kump uses it, the BSM is a principle, not a gimmick. For although a specific space module is exactly repeated over and over in any one job, Kump varies the BSM in dimensions, framing, materials or shape from school to school. These matters are determined by the specific needs and budget of the particular school, and also by relative costs—say as between timber and steel—at the time of bidding. Kump does keep to the same basic design in all his versions: a center girder (supported by reinforced concrete piers which form mechanical and service areas at Miramonte, by steel columns in other schools); center ducts for hot air supply and return (see section); and a 4' component module (in 8', 16' or 20' bays). But Kump emphasizes that there is nothing sacrosanct about



Row scheme shows how space modules are organized in an 18-classroom elementary school.



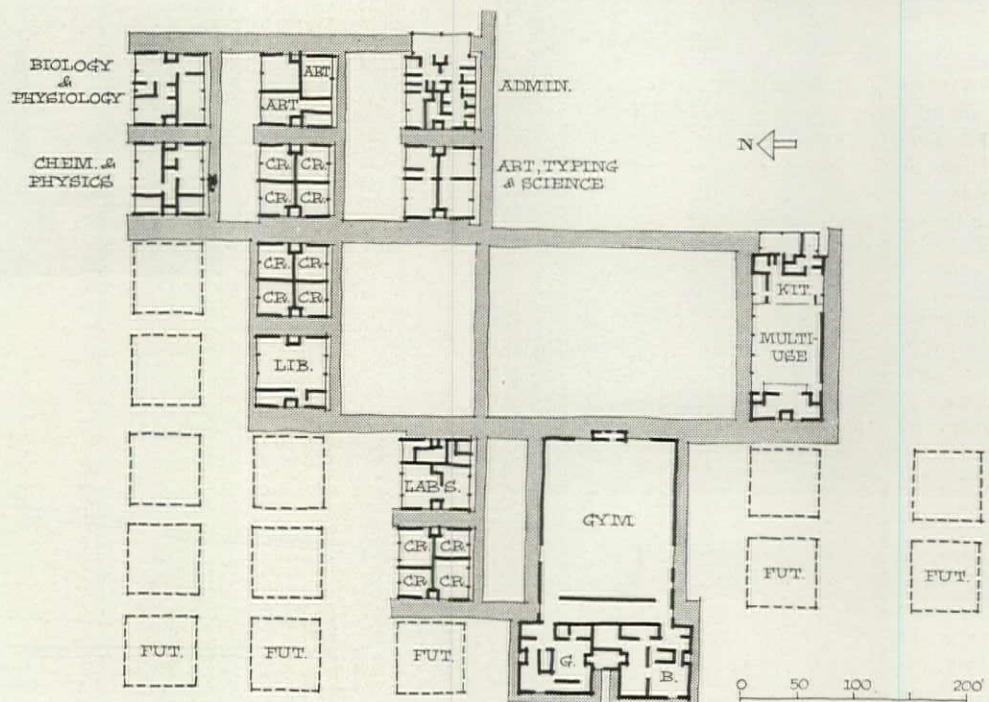
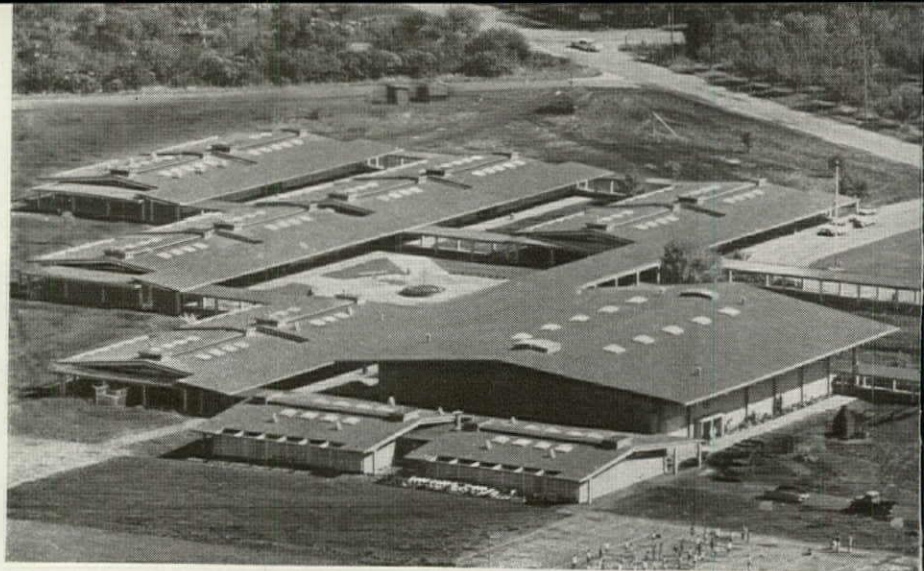
Cluster scheme shows sample classroom and laboratory grouping for a big campus school.



Mall scheme illustrates another sample grouping for a campus high school.

even these arrangements; other designers could use the BSM concept employing entirely different structural, mechanical and component modular design. The point is to hit on a common denominator of space, keep it thoroughly flexible inside, and repeat it exactly throughout the job, whether the BSM is square, round or rhomboidal. However, it should be noted that the trickier the form and mechanics of the BSM, the less apt it will be to suit the full range of internal spaces and functions. The hard-won simplicity of Kump's BSM is, in practice, one of its most admirable and significant qualities. Kump's BSM also embodies the inherent space economy of all back-to-back room schemes.

The flexibility of BSM standardization extends to site planning. The BSMs can be grouped in almost any fashion, forming courts, quadrangles, rows or clusters, depending on the topography and the educa-



tional requirements. The diagrammatic plans at left show a few of the possibilities. When the BSMs are used in rows, Kump carries the roofs across, and frequently uses the interstices for vestibules or lockers. These passage—12', 16', or 20' wide—can be closed or left open at the ends.

Introduction at Miramonte

The first completed example of the BSM school is Miramonte High, the third high school Kump has done in the long-range plan of the Acalanes Union High School district. The first, Acalanes High, became famous as the prototype finger-plan school (FORUM, Oct. '49).

At Miramonte, the BSM is 56' square, and the corridors between BSMs are flat-roofed to make the units stand out individually. In schools planned since, Kump has been using a continuous low-pitched roof line because of its greater sim-

plicity. He also has varied BSM dimensions, going up as far as 60' x 68' for elementary schools.

BSMs at Miramonte are framed in wood, with columns in the plane of the wall. But BSMs in the more recently constructed Kump schools have steel columns, set outside the walls. The gymnasium at Miramonte is outside the BSM system. However, it is mathematically related and uses the same 4' component-module.

Classroom floors are 1' above corridor level, and the lowest of the three glass panes in each wall panel is translucent to keep passers-by and working classes out of each other's view.

The Miramonte plant thus far (bid in four stages from 1954 to '57) has come to \$1,336,300, or \$13.50 per sq. ft. excluding fees and landscaping but including tennis courts, athletic and play fields, paved areas and similar sitework.

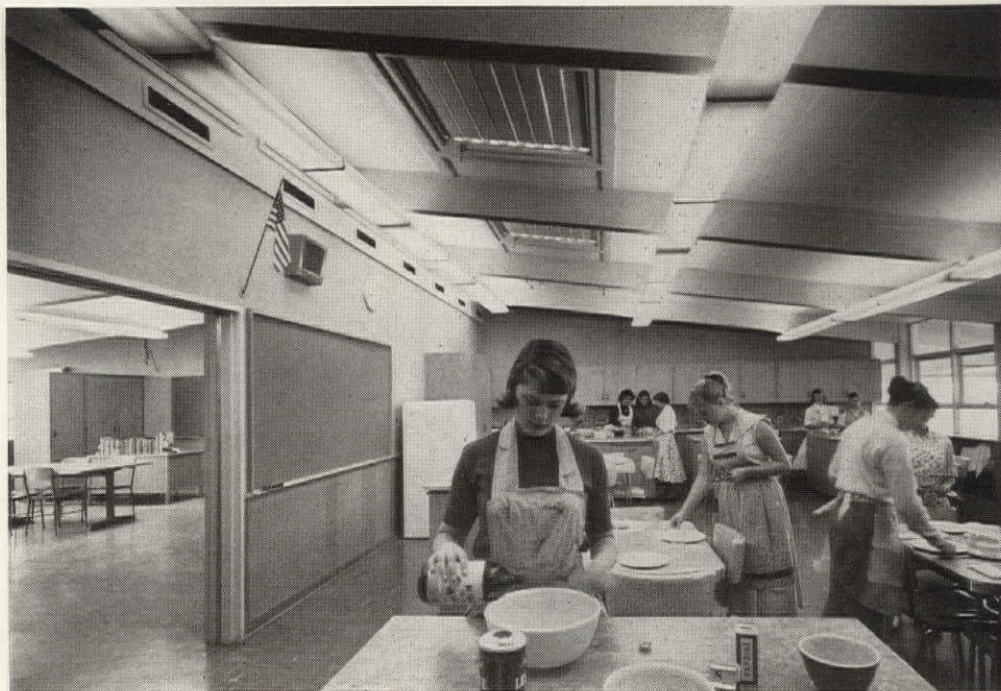


MIRAMONTE HIGH SCHOOL, Orinda, Calif.
 OWNER: Acalanes Union High School District
 ARCHITECT: Office of Ernest J. Kump
 STRUCTURAL ENGINEER: E. O. Moorehead
 MECHANICAL ENGINEERS: Buonacorsi, Murray & Lewis
 (Stage I) and Edward Hill Jr.
 ELECTRICAL ENGINEERS: Buonacorsi, Murray & Lewis
 (Stage I) and George Garthorne
 GENERAL CONTRACTOR: Pacific Coast Builders

Air view of Miramonte High School shows gym in foreground, with basic space modules housing other facilities shown in plan below photo. Kump likens his space modules to Pullman cars, each with its own utilities, hooked to one another.

Domestic science room illustrates use of a Miramonte basic space module divided into two rooms with an opening in the center of the partition. For smaller classrooms, the module is partitioned into three or four spaces.

Corridor roofs are cantilevered from buildings for economy and to eliminate the obstruction of columns. The overhangs are wide enough to permit buffer planting between walks and windows. The walks are 1' lower in grade than floor levels inside.



PHOTOS: ERNEST BRAUN





PHOTOS: YUICHI IDAKA

A well-machined Chicago showroom
folds up to change its scenes

Stage set for business

From the street, Olivetti's new Chicago showroom looks, quite simply, like a slick backdrop for business machines. But inside, the slim-posted display platforms and the satiny-hued folded panels reveal, as well, an inventive scheme for flexibility of display.

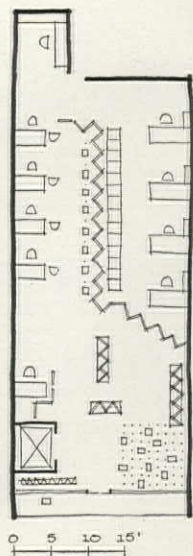
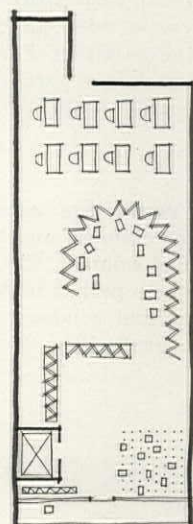
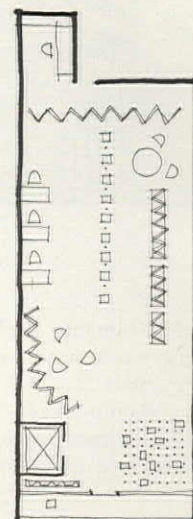
The flexibility is something Olivetti needed badly. Like any growing organization, they have had a hard time keeping showrooms uncluttered and working well as the line expanded and sales increased. And Olivetti, well known for good design, had a reputation to uphold.

Olivetti's consultant designer, Leo Lionni, has been reaching for a completely flexible showroom scheme for a long time. In the San Francisco showroom (FORUM, Sept. '54) he set a grid of sockets in the floor up front to receive the steel pipe pedestals of a changing window display. The device worked so well that in Chicago he decided to set a line of sockets down the middle of the store for interior display as well. Then, to back up this display he designed an uncommon version of the ubiquitous folding screen.

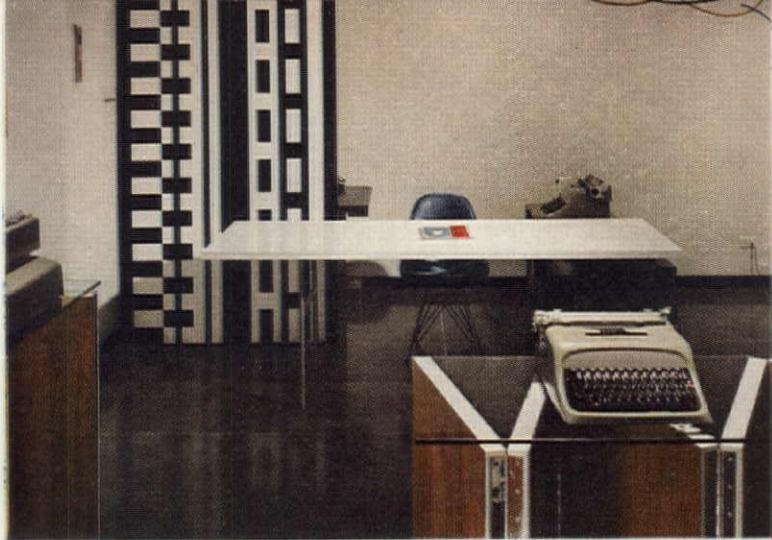
The screens, faced on one side with olive wood (Lionni claims no pun was intended) and on the other with bright-hued geometric patterns, provide two kinds of flexibility: an almost infinite variation of the floor plan (right) and a matching range of visual effects. The screen theme substitutes for casework too: counter-height units are simply topped with a plate glass shelf. These units are also double-faced. But here, the olive wood is backed by a warm white to emphasize the business machines in their lively environment.

From outside, the display "stage" is made to look wider than it is by a simple and symmetrical glass front. To conceal the elevator enclosure and provide a backdrop for the pipe-mounted typewriter outside, Lionni played the accordion theme across a plaster panel set just inside the glass.

In addition to the showroom floor, Olivetti uses three basement levels for warehousing and distribution and the second floor for sales offices. The top floor is occupied by Architects Barancik, Conte & Associates, who planned the building.

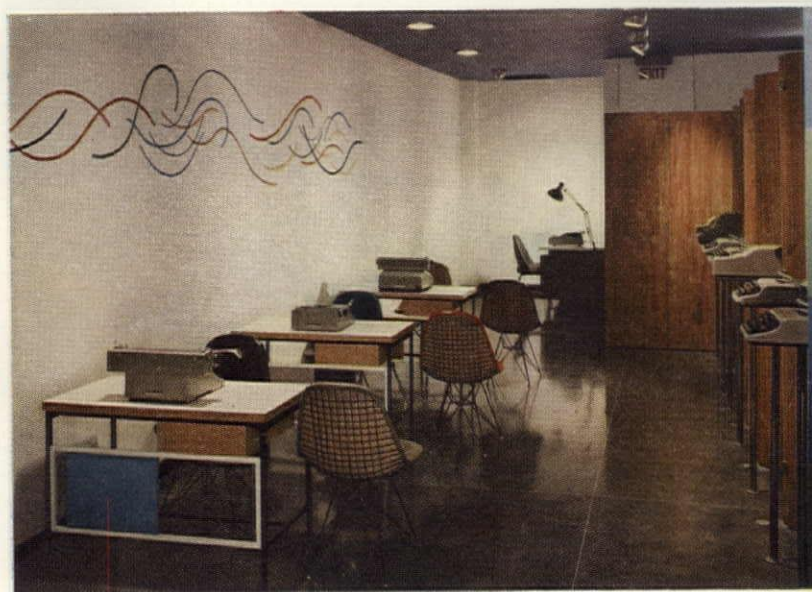


Three plans show flexibility of screens and display pedestals. Lower plan is now in use.



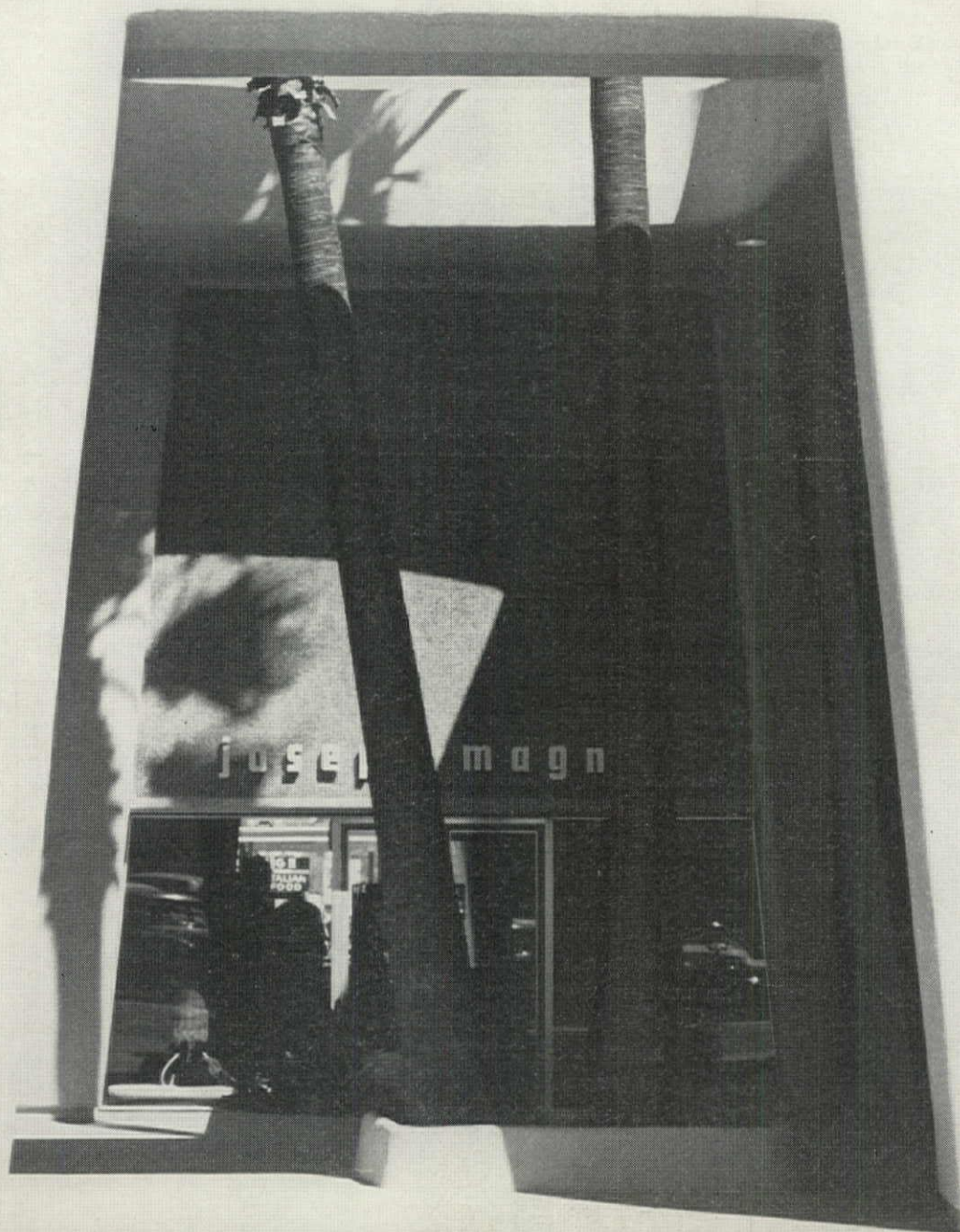
Reception desk is marked by a panel scored in rectangles of black and white. The screen also conceals the wiry clutter of the telephone exchange.

Arced strips of color weave a light touch across a plain white wall. The desks below are used for demonstrating business machines in operation.



Business machines show up like featured players on a set that invites discovery from the visitor. Displayed pedestals are set in brass sockets in floor.







JOSEPH MAGNIN AND JACKMAN'S,
Las Vegas, Nev.

ARCHITECTS & INTERIOR DESIGNERS:
Victor Gruen Associates

ENGINEERS: Edgardo Contini (structural),
Dave Berks (mechanical), Norman
Levenson Assoc. (electrical)

LANDSCAPE ARCHITECT: Neal Butler

CONTRACTOR: Diversified Builders

A well-rounded store
in Las Vegas
makes the most of
quiet contrast

New shape on Main Street

PHOTOS: WALLACE LITWIN



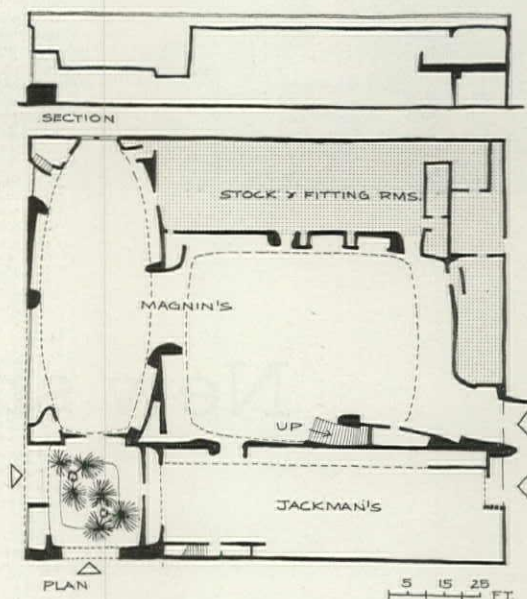
On Las Vegas' Route 91, one of the jazzier Main Streets in America, nobody pays too much attention anymore to a giant billboard or a weird false front. But many of the Buick-borne have been doing double-takes recently as they approached this piece of roadside architecture. Since its smooth adobelike surfaces boasted almost no signs at all, the first impact was one of deafening silence. On second glance, however, it was not so quiet at all. Its walls were slanted, its corners rounded, its openings oddly placed as if shaped by hand. To some it looked like a mixture of early Pueblo and late Corbusier, with a dash of Picasso in its middle eye. At one corner, as an added come-on, was a tall, cool entrance courtyard sprouting palms. Inside: J. Magnin's ladies resort-wear, Jackman's styles for the male.



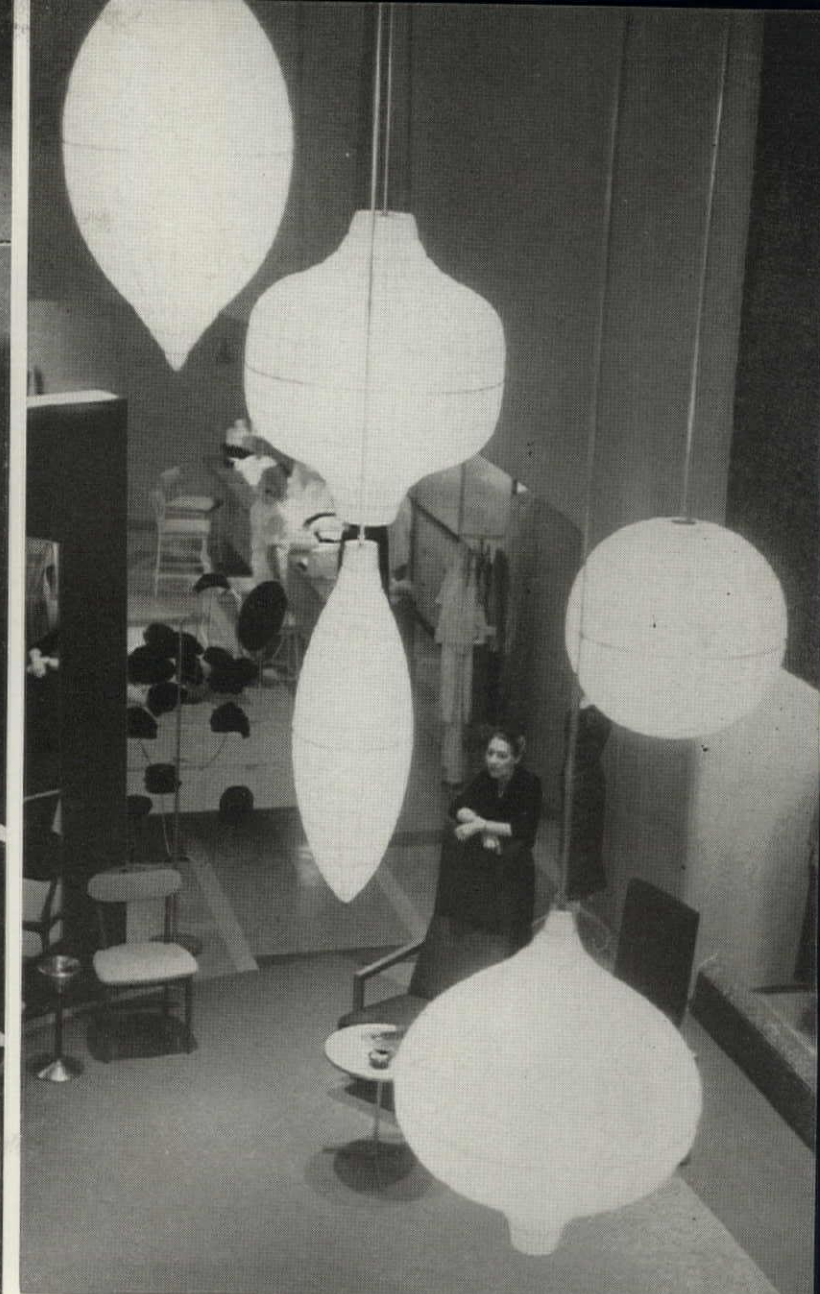
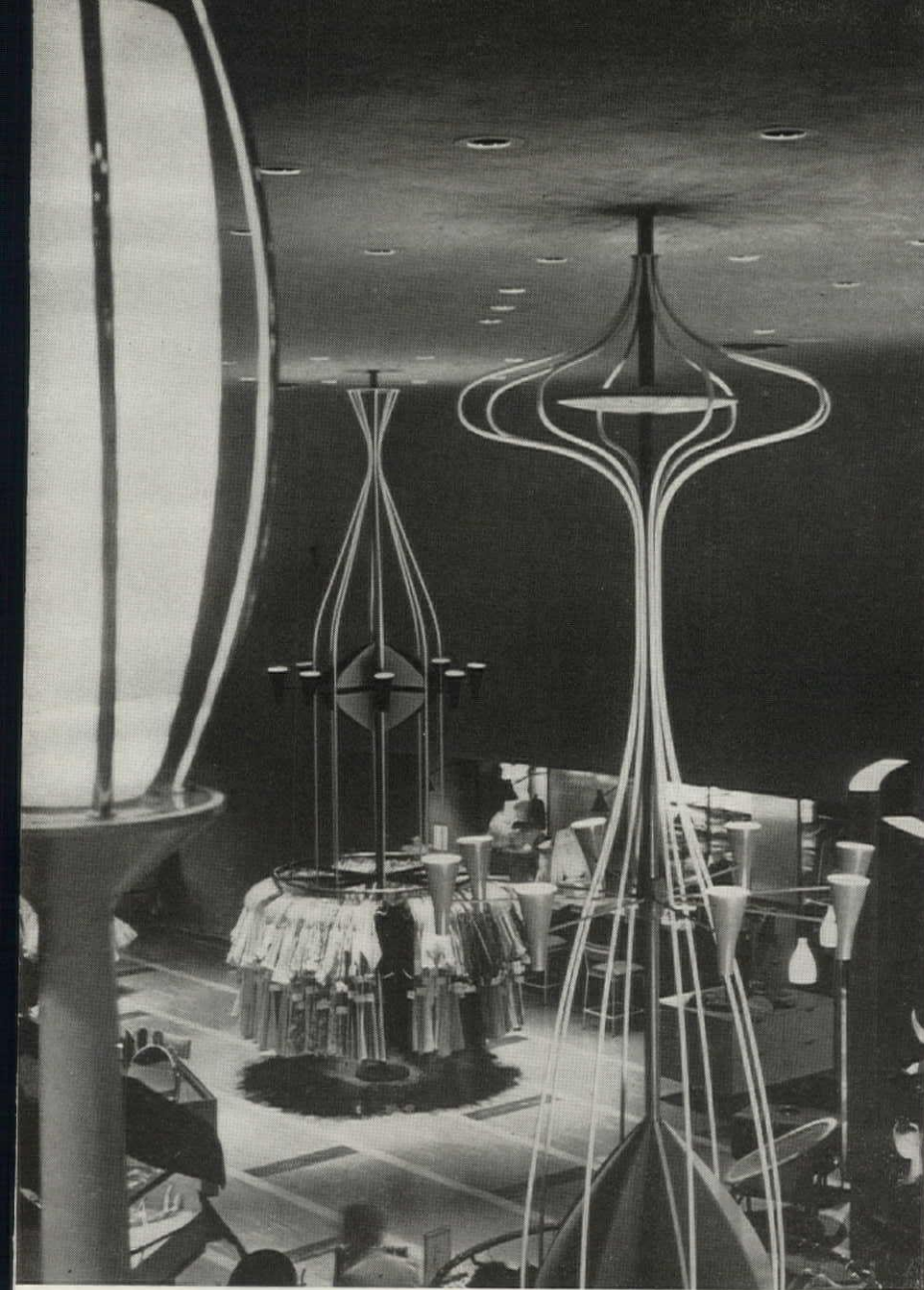
A junior miss in toreador pants visits the hat bar under observation. Elsewhere in Rudi Baumfeld's free, imaginative design, curves for the customers include a floor plan that molds and changes space (drawings below), and some high, fanciful fixtures.



Palm-shaded court facing the side parking lot invites the customer to leave the honky-tonk outside, and enter fashion. From the street (left) a low opening rises into the 20' height of the court. Beyond the green glass mosaic of Joseph Magnin's entrance, the ceiling drops again to 9' above the long oval of the sportswear shop (see plan). Then a 7' dropped ceiling signals another change of space, and the main store soars up to 20' (opp.).



A gentleman ponders, in the narrow no man's land between sweaters and corsets, unmindful of the wild ribbons of color that animate the tan gray wall behind him. As he leaves (opposite), the brightly patterned floor in front of the corset bar is occupied by a size 12 seeking heavier clothing.





Technology A number of new buildings are rising, derived in principle from the economy of the suspension bridge. Many problems, particularly vibration and flutter, remain to be solved

Suspension structures

BY LAWRENCE LESSING

In the suspension-roof structures just beginning to arise in some variety here and abroad, architecture is engaging one of the first basically new engineering principles in building in many a year. For centuries, indeed, the space-spanning job of human shelter has been borne by the beam, the truss and the arch, in which the major part of a building's load is supported by materials bending and bearing down in compression. But in these new structures, some of whose soaring, swooping forms are seen on these pages, a major part of the loads are borne by taut spider-webs of steel cable exerting their strength in tension.

Quite obviously this new form owes its genesis to the suspension bridge, which is not new at all but dates back in the mists of time to the rope bridges slung by primitive peoples over chasms, and which had its apotheosis in steel in Scotland in the 1880s. Nor is the transfer of this suspension principle to buildings as entirely new as it appears. A few clumsy, isolated attempts were made in the past, such as the locomotive

roundhouse pavilion at the Chicago World's Fair in 1933. And tent forms of all kinds, such as the circus Big Tops, are pure suspension structures of even greater antiquity. But in really modern terms the suspension building is little more than five years old and seems destined now to make a substantial, if somewhat specialized, place for itself in the future.

The first big step in the modern advance began with the powerfully articulated, widely discussed Raleigh Arena for North Carolina State College (FORUM, Oct. '52), conceived by the late, brilliant, young European Engineer Matthew Nowicki, tragically killed in an air accident before construction started, and completed by the Norwegian-American Engineer Fred Severud and Architect William Henley Deitrick. More recently, after several intermediate developments, the new form reappeared in the controversial but notable Berlin Congress Hall, designed by American Architect Hugh Stubbins, with Severud again as engineering consultant, and built as a gift from the US to West Germany's International Building Exhibition. Currently, the most dramatic of suspension structures going up is a great hockey rink for Yale University by Architect Eero Saarinen, with Severud as engineer, whose huge cable-ribbed backbone now rises like the skeleton of some enormous dinosaur on the campus. At the same time, ground has been broken for a wheel-shaped, 247'-span auditorium for Utica, N.Y., embodying some important new suspension-roof principles by Engineer Lev Zetlin and Tyge Harmansen. And hardly a major architectural drawing board here or abroad is without a wild flutter of plans and sketches for suspension structures, some just about to break into reality, many more in the realm of dreams.

The force moving behind all this is not mere fad, nor is it, as some are ever ready to charge, the perverse desire of moderns for weird shapes and abstract forms, though there is some-

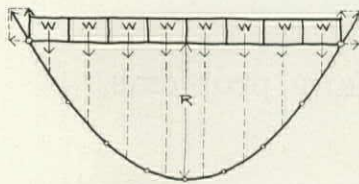
times an element of exhibitionism. The moving force here is the same as that which informs the suspension bridge. It is the simple, hard engineering fact that the most economical means known for spanning large spaces is the cable. And this in turn derives from the unique physical fact that steel cable in tension is, pound for pound, four to six times stronger than steel in any other form, and, given the proper sag, this strength is used over large effective depths, progressing with loads. In the suspension bridge, the great strength factor of steel in tension is put to work to reduce enormously the dead load of structure, while providing ample strength to support the live loads that pass over it. The result of this tension and its economy of means, materials and money is a structure of grace and even of heart-soaring beauty, visible in its vital principles even to a child. Economy, though it is often compromised and prostituted, is still the major drive and passion of engineering, and it is this that lights the strange new structures now rising.

Meanwhile, since the war, the suddenly cumulative knowledge of aerodynamic structures and sophisticated analysis of structures of all kinds has brought a glimpse of a radically new economy in building. Conventional modes of construction, it is now seen, not only fail to use all the strength of their materials, but waste those materials in an excessive way to meet handbook "margins of safety" for which no real need exists. There has come to the fore a dynamic new concept and analysis of building structures as an organic whole, one force leaning and acting upon another, with the point of collapse reached only when the structure fails as a whole, rather than building as a series of beams and columns, each independently withstanding the total load that might be imposed on it. In a dozen allied developments now—ultimate strength design in steel and concrete, use of new materials and joints, space-frame and shell forms—a

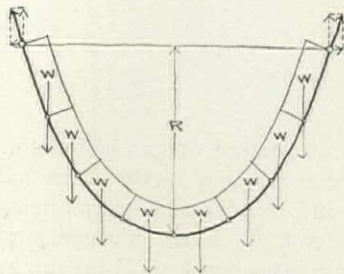


THE SUSPENSION BRIDGE, represented by the historic Cincinnati structure above, the first large suspension bridge in the US, designed and built by the great John A. Roebling shortly after the Civil War, provided the principle of steel-in-tension for the historic modern building (left), the first big suspension-roof structure of its kind in the US. This shows the raising in 1952 of the great cable roof of Raleigh Arena for North Carolina State College, conceived by the late Matthew Nowicki, built by Engineer Fred Severud.

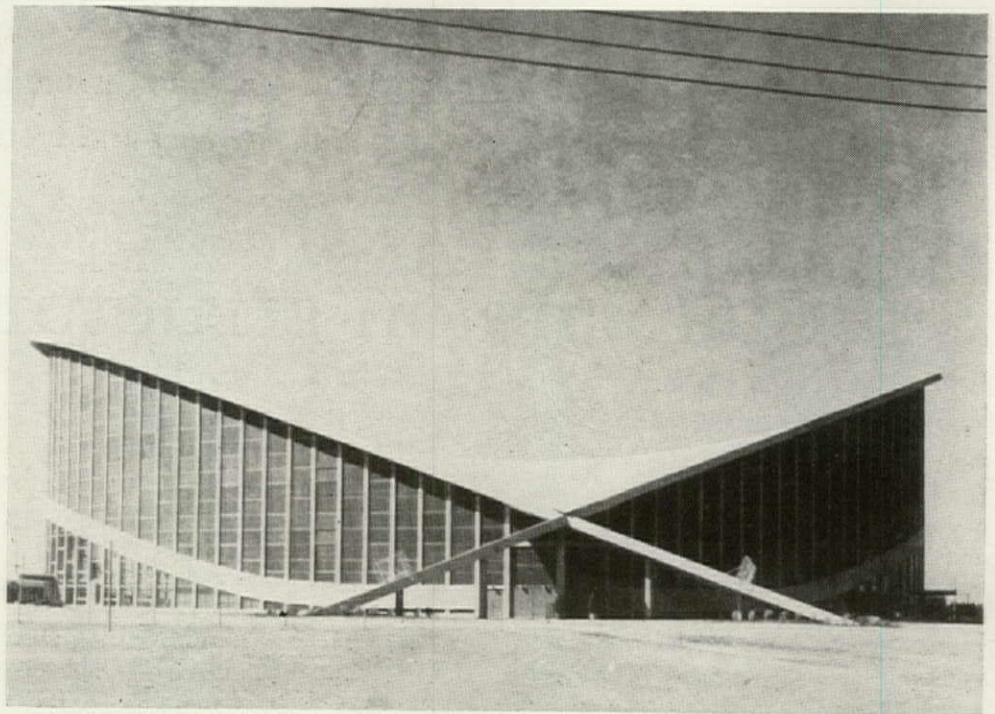
PHOTO (OPPOSITE): LIONEL FREEDMAN



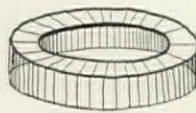
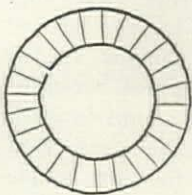
PARABOLIC CURVE of cable held in tension by symmetrically hung weights is the first principle of suspension bridges and structures.



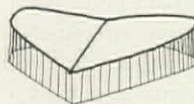
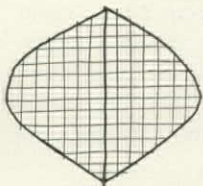
CATENARY is formed by weighting continuously along the slack. Severud shows below how these principles evolve in endless forms.



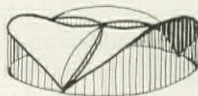
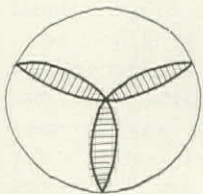
RALEIGH ARENA shows historic use of double-catenary form.



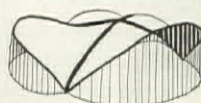
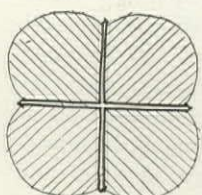
RING-SHAPED suspension roof is the simplest.



DOUBLE-CATENARIES form this butterfly roof.



TRIPLE CATENARIES overlap in graceful form.



QUATREFOIL roof produces wavelike structure.

revolution is rolling up in architectural structures, led by the most creative group of engineers to be seen in a long time. Suspension structures are a part of this revolution.

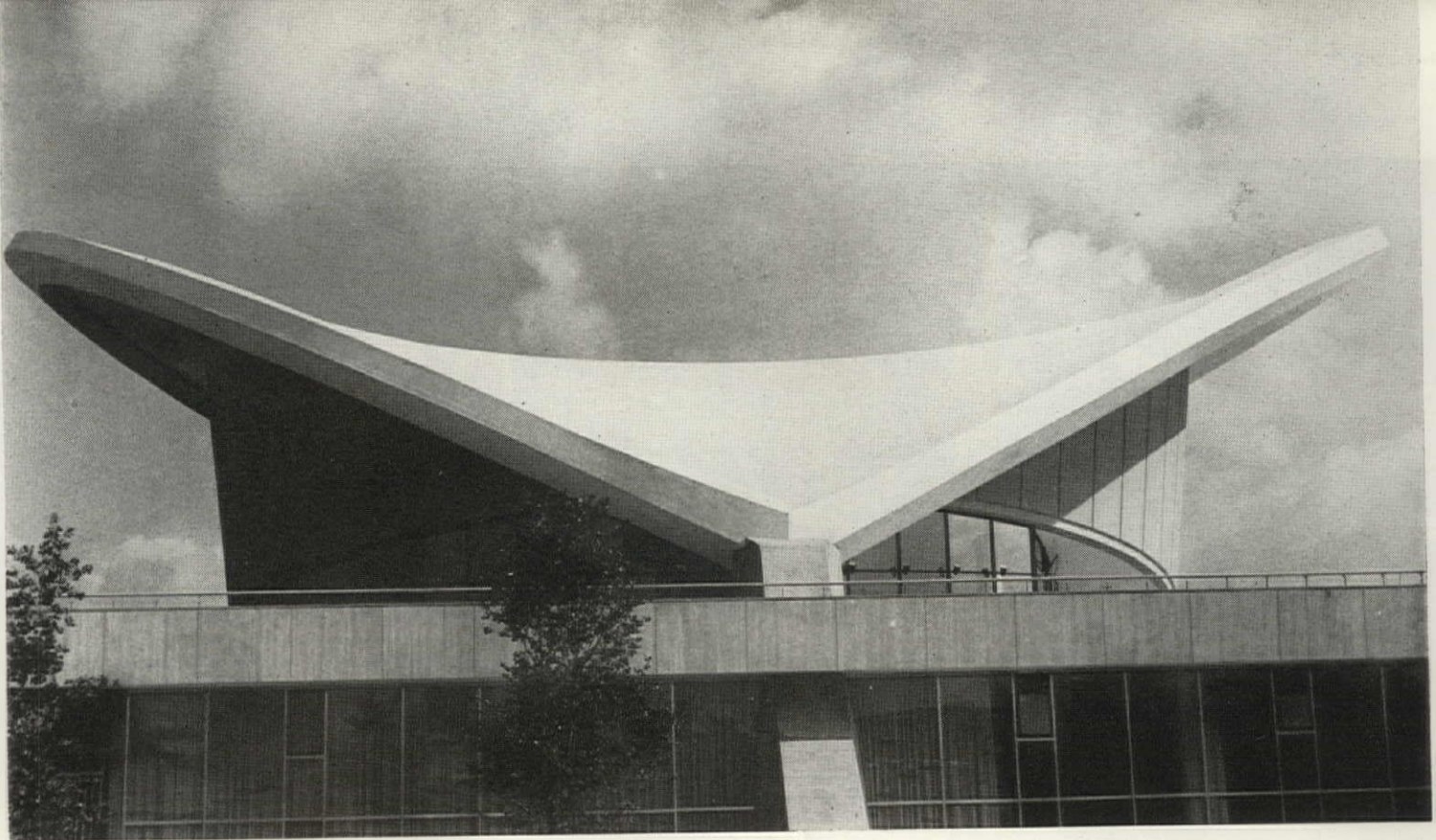
The resonant principle

Buildings, of course, are neither aircraft nor suspension bridges, as the new critics of progress and belaborers of the obvious are hastening to point out, fearful of having to understand new principles. In the transfer of suspension principles to buildings, though all the basic rules of bridge building apply, many additional problems and possibilities of failure arise. Every form of building, like every physical law, has its limitations or breaking points. In the beam, which resists loads by bending, it takes the form of cracking or shearing. In the arch, whose loading is axial, it is buckling. And in the high-tension cable, which resists loads by stretching, the destructive force is vibration and particularly flutter, a complex and until recent times highly mysterious phenomenon that belies the lightness of its name.

It was nearly a century after the first steel suspension bridge before engineers caught up with vibrational effects and flutter. The reason was, in addition to the slow growth of knowledge, that from 1889 to 1929 the span length of suspension bridges was comparatively modest, increasing only 150' from 1,700' in 40 years. But in the next eight years in two bold leaps the span was more than doubled to 3,500'

(George Washington Bridge) and then to 4,200' (Golden Gate Bridge). And on Nov. 7, 1940, the most spectacular and significant bridge disaster of all time took place. The Tacoma Narrows Bridge, a conventional suspension span of 2,800', was hit by a mild gale, began to undulate, and in a very short time was racked to pieces.

Only two years before, the US Engineer David B. Steinman, one of the greatest of all suspension-bridge builders, had isolated and identified the phenomenon. All materials of whatever nature have a natural molecular vibration or frequency range. If an outside force acting upon a material comes within that frequency range, causing the material to vibrate internally or flutter, a vibrational state may be reached where the outer and inner forces are in tune (called resonance) and the material flies apart. It is this force that causes a bell glass to shatter upon being struck by a musical tone of the right pitch. Even without reaching resonance, the uneven loading of outside forces, such as wind, may cause a material to vibrate visibly up and down, building up rhythmically to destruction. It was these allied forces, plus faults in design, that racked the Tacoma bridge to ruins. In heavy, earthbound, compressive structures the natural frequencies are so low that few external forces can bring them to resonance, and sheer weight has the effect of checking vibrations; in aeronautical and cable structures, however, the light, exceedingly strong materials in tension are so



PETER CURLIS

many Aeolian harps to the winds, extremely sensitive to uneven loading, so that vibration and flutter become major design considerations. After Tacoma, a large group of the country's top engineers and scientists, particularly in the aerodynamics field, thoroughly investigated and reported on the phenomena. Steinman worked independently for 17 years, devising an integral system of damping that subtly outwitted the phenomenon without sacrifice in weight or economy. And, as crowning cap to a great career, he is now working on plans to bridge the Strait of Messina, between Italy and Sicily, with a span of 5,000'. Nothing now technically stands in the way of a 10,000' span.

All this is basic to suspension buildings, which pose additional problems in equilibrium. Where bridges are essentially all open length and height, buildings have the added dimension of breadth and must provide weathertight enclosure, making stability and flutter even more critical in design. Where a bridge tolerates a certain flexibility and sway, a building of any permanency can tolerate very little. Essentially, suspension-roof buildings began upon the bridge principle (see diagrams, opposite): a string, a rope, a cable held slackly between two points gained enormously in strength and rigidity when stretched to a parabola in tension by symmetrically hung weights or by weighting continuously along the slack to form a catenary. A network of tied cables in this curved structure added to the rigidity. The form then was essen-

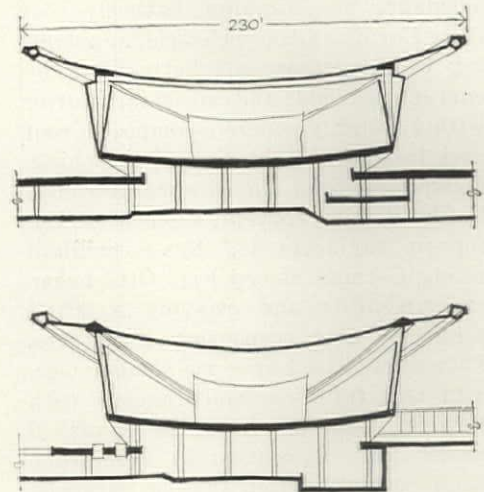
tially that of the suspension bridge, really an inverted arch in cable tension, hung or pivoted upon solid towers embedded deep in earth, for even all the airy tensile strength of the proudest bridge must eventually be transmitted compressively to earth.

In all the engineers' early work thus far of translating these principles to building structures—either directly by hanging cables from wall abutments or pivoting catenary arches horizontally to form roofs—the central problem of vibrational effects has been barely or only passingly mentioned by enthusiasts, and not yet demonstrably solved in suspension structure terms. Yet it is only by frankly meeting and outwitting this phenomenon that these structures will make an economic place and soar. The history of the few suspension structures thus far is an evolution of attempts, often heroic and sometimes clumsy, to get around flutter.

The pioneer history

As originally conceived, the pioneer Raleigh Arena (picture, p. 136) was to be a juxtaposition of two canted catenary arcs, the arc ends crossed and deeply embedded, with a saddle-shaped cable roof, metal-sheathed, hung between them, held up solely by their opposing forces in equilibrium. But even before construction, this design, essentially unstable in its two-point foundation, had to be heavily modified by support columns under the arcs and by adding multiple guy wires with strong earth anchorages to insure stability. The

BERLIN CONGRESS HALL, by Architect Hugh Stubbins and Engineer Severud, shows obvious but faulty genesis from Raleigh. First scheme (below) called for full cable roof connected to auditorium only by slip joints for lateral bracing. Final section (bottom) changed auditorium to solid compression-ring support, roof to prestressed concrete-slab, steel-rod construction, obscuring suspension principle.



problem of flutter was met by inserting damping springs at cable connections. Even so, this roof deflected up to 10" in a high wind, while a fair breeze caused the whole structure to "sing" like some huge celestial or infernal lyre, a fault which had to be corrected by graphiting the cable springs and adding other acoustical treatment. While the arena has now withstood two hurricanes, and will stand for future years as the courageous pioneer of a new art form, all these additional clumsy, costly measures defeated the potential economy of the new form without wholly solving the problem of vibration and flutter.

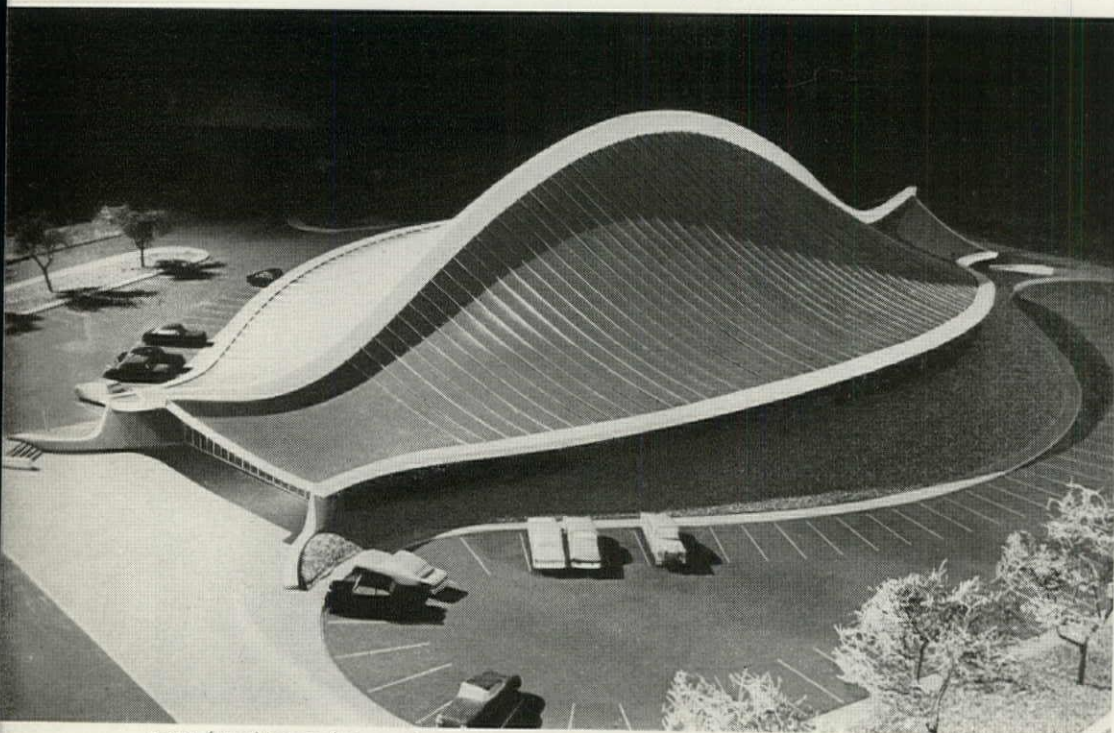
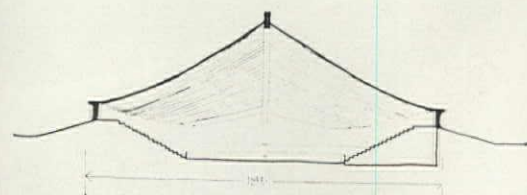


PHOTO: (ABOVE) KORAK; (TOP OPP. P.) BEN SCHNALL



HOCKEY RINK for Yale University, by Architect Eero Saarinen and Engineer Severud, is one of the most clearly expressed suspension-roof structures thus far. Formed by two huge, lyre-shaped compression arcs resting on their sides, which double as wall and buttressing, with a great, reinforced-concrete parabolic arch upright as the roof's backbone, the suspension-cable structure is clear at a glance above. Opposite, the big parabolic arch rises amid formwork on Yale's campus, and, below, the architect's sketch of the shapely interior to come shows the great free-space forms made possible by this new, revolutionary structural mode.

Severud, the engineer who carried forward the project, went on to build an improved variant of the same roof in a smaller, freestanding, butterfly roof for a Corning Glass cafeteria, supplanting the heavy arc-end buttressing by curved tie rods, and attacking flutter with a weighty concrete-composite roof deck instead of lighter metal sheathing. Meanwhile, fired almost simultaneously by the Raleigh concept, a school of European engineers led by a brilliant young German named Frei Otto began experimenting and evolving a whole range of new suspension structures. This work, based on some smaller German structures contemporaneous with Nowicki, took off from the empirical hunch that a continuous membrane might behave better than a parabolic cable arc or catenary. Therefore, why not build space lattices of cables in which curves would be developed internally for a dynamic equilibrium of tensile forces? And out of this work flowed a fertile and amazing stream of swooping, curved and folded shapes, only a few of which have so far been built in any permanent form, for the anchorage and buttressing of such shapes is still excessive and expensive, and flutter, though diminished, remains a problem.

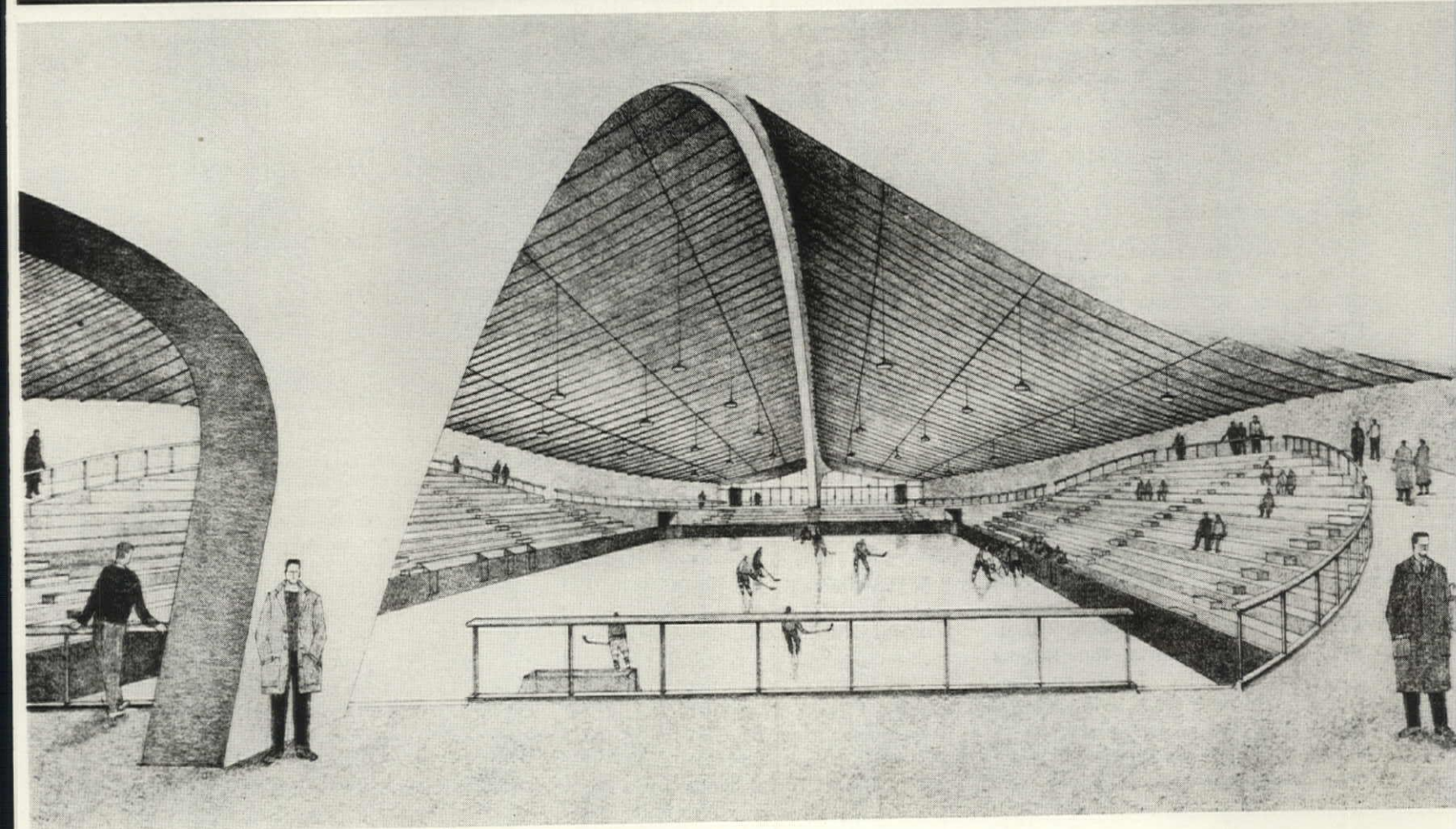
Congress Hall in Berlin, the most recent and widely commented on suspension structure to be built, is a compromise in the line of development, marked by an unholy series of expedients. As originally conceived (see sketch, p. 137), the new roof repeated

the oddity of being supported on only two points, but was to be a reasonably clear suspension of cables, light-metal decked, with a rotund auditorium poised below, roofed in concrete and connected to the roof cables by slip joints to provide bracing against lateral forces, which otherwise would have had to be handled by guy-wire bracing along the roof's perimeter. But as the time required to build this complex structure lengthened, and acoustical engineers ruled out all expansion joints between auditorium and roof, the auditorium's roof line was changed to a solid inner compression ring and the whole roof's sheathing to precast concrete-slab construction. Finally, as the heavy scaffolding and formwork went up, the expedient was seized of casting the roof slabs in place, which allowed prestressing, and the cables were changed to rods to meet Berlin maintenance requirements. All this added great weight, which is one way of combatting flutter, but moved the building away from the suspension principle of lightness, economy and airy form. The result is a technically confused structure, which some writers refer to as a shell-concrete roof and others as a suspension roof, since it is not purely one or the other, and which may account for some critics finding it clumpy where it should soar.

The Yale Hockey Rink now going up is a more happy wedding of engineering principles, given a graceful Saarinen shape, with a huge, arched concrete backbone and oval, lyre-shaped concrete

walls providing heavy buttressing and stability for the cable-hung roof. But again more weight is a factor, and tie rods are inserted through the length of the structure to gain stability, which is still the big problem. Indeed, up to now nearly all attempts to solve this problem have been by the "brute strength" or empirical method, adding weight and multiplying anchorages, which cut into the economy and esprit of the form.

The significance of the Utica Auditorium, just about to go up, is that it is the first suspension-roof structure that attempts to finesse the vibration and flutter problem. This is a modest, undramatic building, designed by Architects Gehron & Seltzer. It is designed in probably the simplest of all suspension building forms: a circular arena, with roof cables strung from a center metal tension ring in midair to an exterior reinforced-concrete compression ring supported by the perimeter wall columns, giving it a huge bicycle-wheel form. But in the roof design, Lev Zetlin, a young Israeli-American construction engineer who came to Cornell to study and remained to practice, has incorporated something new. He reasoned that all the catenary cable and space-lattice systems thus far, being all in a single plane or layer, will be difficult if not impossible to stabilize fully as horizontal shelters. To eradicate flutter in such structure, it must be studied and solved on its own terms. Taking a leaf from the bridge-builders, he has devised a system using a pretensioned double layer of cables, separated



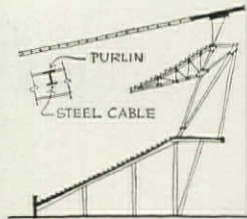
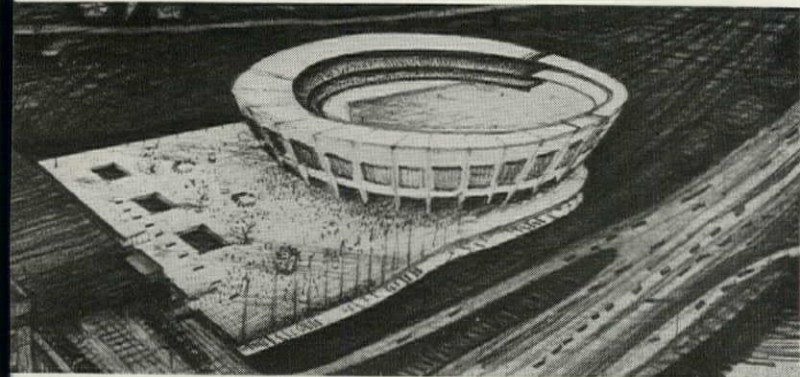
UTICA AUDITORIUM (right), by Architects Gehron & Seltzer and Engineer Lev Zetlin, embodies a new principle in suspension roofs: a double layer of hung cables (see section, opposite) prestressed to different values, so that one layer will damp any flutter that starts in the other.



PHILADELPHIA STADIUM (left), proposed by Architect Vincent G. Kling, has a unique suspension-roof system with cantilevered grandstand supports designed by Engineer Fred Severud, to be raised over Pennsylvania Railroad tracks. A huge project, it is still in talking stages.



STADIUM (right), is Engineer Zetlin's application of his double-cable principle to the big sports arena. A light shell of concrete pulled in tension to a center ring by the cable net, like laces in a football, it would be economic, he estimates, for 250' to 1,200' spans.



by light stanchions, in which the top cables are stressed to one value, the bottom cables to another, thus giving each layer a different vibrational frequency. Thus, as a force starts flutter in the top layer, it will be transmitted via the stanchions to the bottom layer, which, being at a different stress frequency, will immediately damp the action, just as a reverberating bell is silenced at a touch. Some engineers deny that this will eliminate flutter, so the Utica Auditorium's roof system will be watched with great interest by all concerned.

The soaring future

Meanwhile, the planning of new suspension structures goes on apace. Severud has no less than half a dozen projects on the boards, of which the most spectacular are a large butterfly-roofed arena for the University of Indiana by Architects Eggers & Higgins and a huge, donut-shaped stadium proposed for Philadelphia by Architect Vincent Kling, to be built right over the Pennsylvania Railroad tracks. Zetlin, too, has a huge, circular stadium of unique design up in the drawing stage to catch the speculative breezes. And Architects Harrison & Abramovitz are readying another big bicycle-wheel-roofed basketball arena for Illinois State, with the aid of Engineers Ammann & Whitney, who have already adapted the suspension principle to massive new aircraft hangars at New York's Idlewild Airport.

There is no doubt that suspension-

roof structures are off the ground, and will find many more spectacular as well as workaday tasks in architecture. It must be remembered, however, that even the suspension bridge, the glamor queen of bridge engineering, does not constitute all the bridges in the world. Where shorter spans and other site conditions prevail, the trussed beam and girder and solid-web concrete bridges still hold sway, with special advantages in each situation that make them economic over all others. It is only where spans are great and required to be free that the suspension bridge comes into its own. And the same general principles are likely to hold for suspension-roof structures (though some interesting, economic short spans have been developed), being mostly applicable to large free-span needs in largely horizontal dimensions. Only in these will the great potential, but not yet fully realized, economy of this form be reached. Nothing is to be gained economically or esthetically by forcing these forms into uses for which they are not fitted.

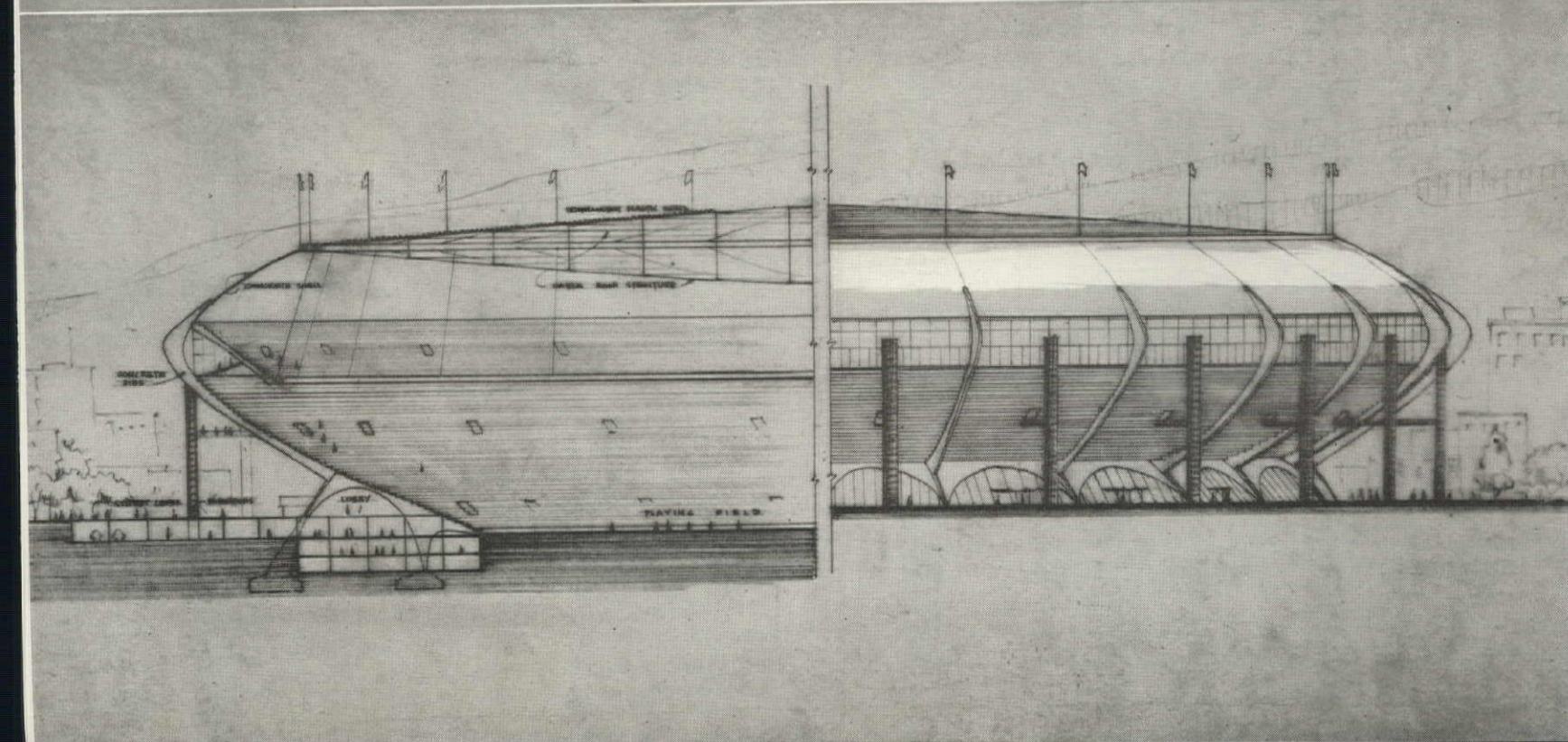
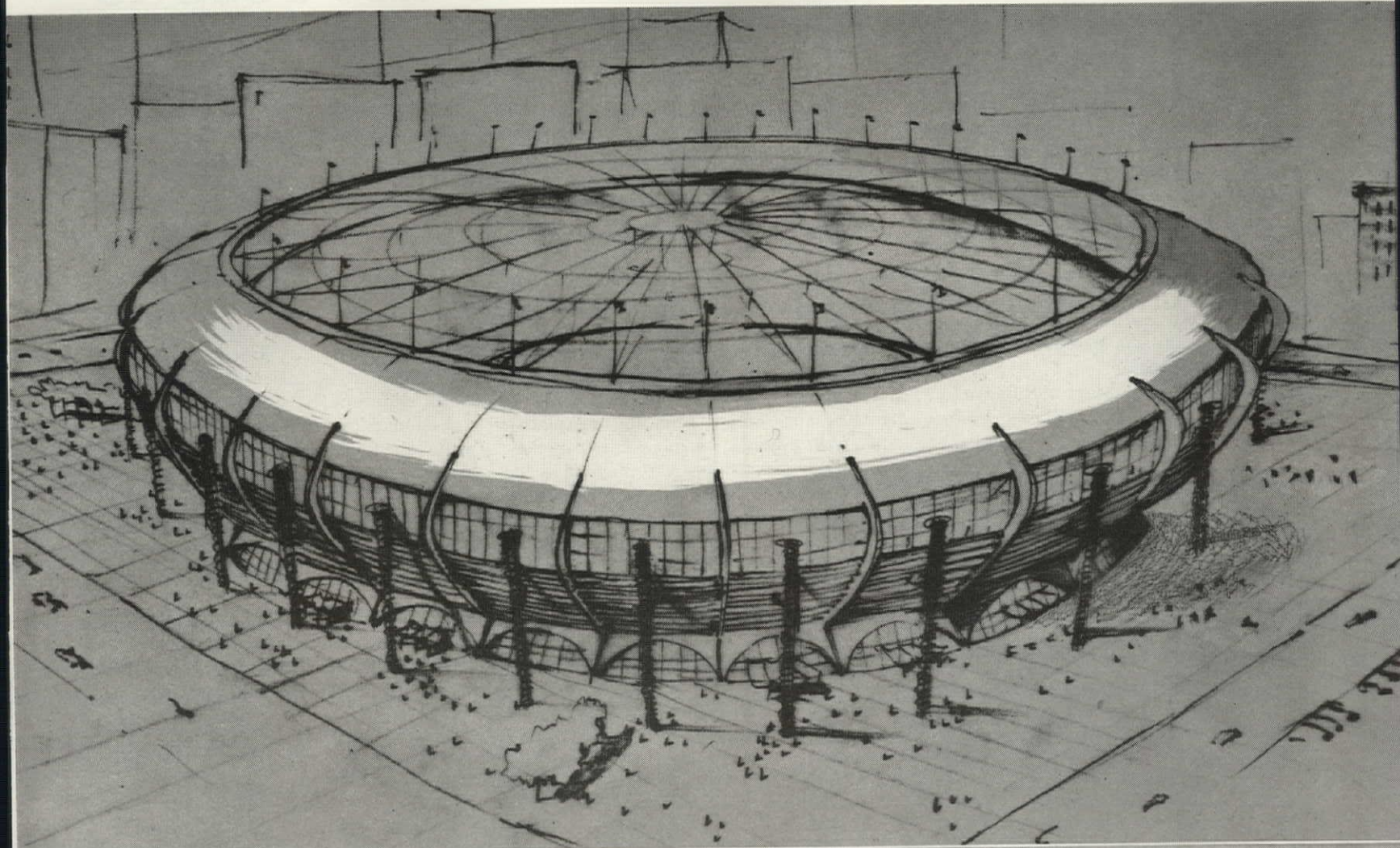
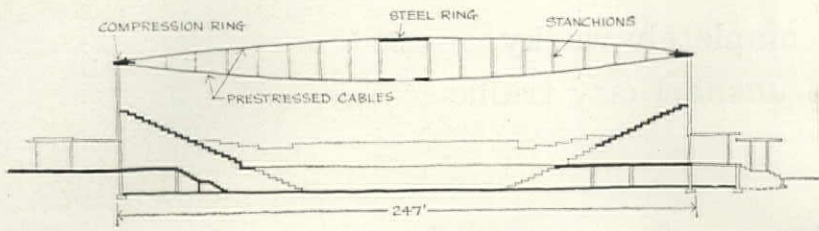
The development of the economy of suspension structures, as of others in this revolutionary new range of building, would go much faster with a little research. A great deal remains to be learned. Neither civil engineering nor architecture has the research resources in this research age to make a comprehensive attack upon such a physical problem as flutter. The amount of basic research in these fields, even in the universities, is pitifully small. Some regular hours at the big electronic com-

puters, for instance, which is beginning in a small way, could solve many of the complex problems of analysis for such structures. Instead, most of the progress in this area is still being made by the age-old, laborious process of building structures and then observing the mistakes. Yet these space-spanning problems will yield as they have yielded elsewhere in man's long history of the conquering of space.



WORKADAY applications of suspension principles are visible in the tentlike, metal-on-cable structures (above), designed by Cargill, Inc., for grain storage, and (below), in the cable-hung, cantilever-bridgelike hangar roofs for Pan Am by Ammann & Whitney.





The proposal to replace the million private autos in downtown Paris with 200,000 coin-operated cars may be completely wacky, but such uninhibited thinking may help unsnarl city traffic

U-drive taxis to the rescue

In Paris, an imaginative engineer named Antoine Martin has advanced what is possibly the most radical solution yet proposed for the urban traffic jam. He would eliminate virtually all private automobile traffic within the city core, require that the motorist park at a lot on the fringe. He bases his proposal, with typical Gallic logic, on the heroic and laconic proposition: "The automobile is paving the way to its own suppression."

Within the city, Martin would allow only through-auto traffic, city busses, taxicabs and commercial vehicles, the latter operating under strict regulations, plus his special new vehicle: the U-drive car. Some 200,000 of these small autos, about half the size of a 1958 Ford or Chevrolet, would scoot about the defined city center. Each would be coin-operated, like a vending machine or a telephone. Martin estimates that the fleet would reduce the city's auto traffic load to one-quarter

its present size. A private car in the city, he finds, is in operation for only about 1½ hours each day; during the other 22½ hours, it parasitically consumes valuable real estate space. The U-drive, on the other hand, would be used more productively, at least 4½ hours each day, while consuming much less space.

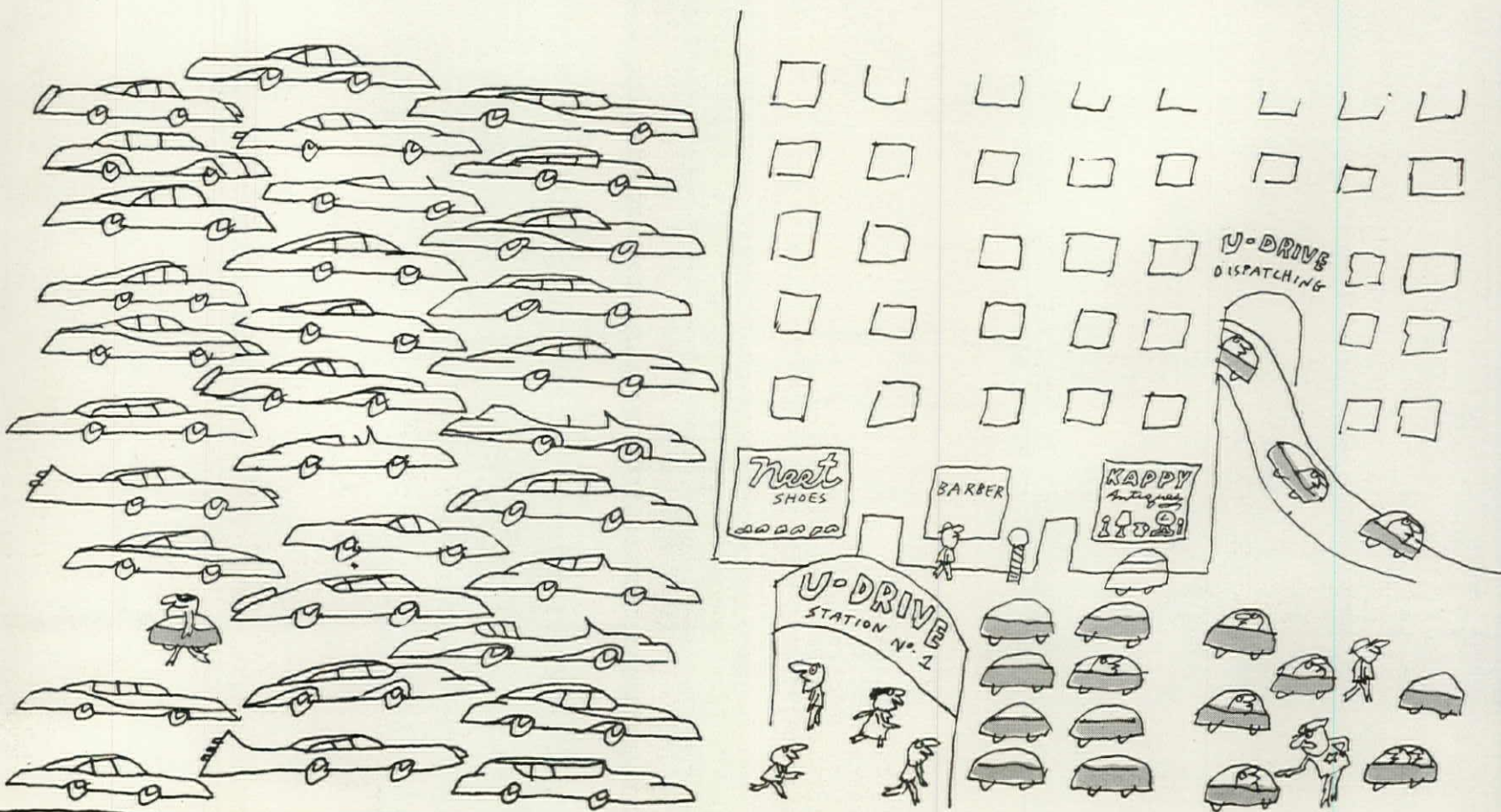
As Martin observes: "A man who now drives to work leaves early to find a parking space close to his office. During the day, he hesitates to use his car once he has found a 'nice place' to park. Should he take his car for some specific purpose, he may have to drive around the block two or three times before he can find a new space." Instead of driving into downtown in his private auto, Martin suggests that the Parisian should drive only part way, to a U-drive station. For the last leg, he travels by U-drive car. (With French accommodation, Martin would allow a private car to drive into the

center city only if it were piled with luggage and if it were immediately garaged or driven through, thus to allow for travelers' convenience.)

Martin visualizes M. Durand leaving his shop on the Champs Elysées, boarding a U-drive car just outside his door. He drives to the rue de la Paix and parks. M. LeFranc, who happens to be passing by, boards the U-drive car and proceeds to his destination. "Life in Paris," says Martin, "would be entirely different."

Visionary Parisians agree. At the same time, however, the city fathers shrug: "How to collect a fine? How to catch those who would abandon the car in the middle of the Avenue de l'Opera?" Thus, the idea has been rejected, at least for now, in favor of a conventional plan of one-hour-and-a-half parking, which has not worked yet in any major city of the world.

The truth is that in any city, whether in France or the US, where the traffic



tangle is just as wretched, the fate of the idea could hardly have been different, for it is a provocative idea amid a field of palliatives, such as the parking meter and the one-way street. But because it is fresh and provocative, the plan merits the attention of US cities.

It has deterrents, to be sure. The initial investment would be high: Martin estimates the cost of a 200,000-car fleet at about \$350 million. Maintenance costs would likely be high, for special night teams would have to handle refueling and a year-around overhaul program would be necessary. On the other hand, gross revenues should exceed \$200 million per year and the return on investment, in Martin's opinion, would be sufficient to attract private capital.

Parking

Initially, of course, an extensive traffic-flow survey would be required to determine the demand for cars at various points in the city at all hours of the day. In the early morning hours, for example, many cars would be driven to the main streets of the downtown area. Unless adequate off-street parking facilities were provided, the swell of idle cars would clog the streets (as private autos do today). To check this problem, Martin suggests a scatter of Traffic Dispatching Units—small garages or parking lots—throughout the city. He says that a building 25' wide, 62' deep, and 62' high could shelter 250 cars. Larger dispatching units would be required at railroad stations

and department stores. Traffic flow at each garage or lot would be simpler than in a garage of private cars, of course, because the driver could board the car nearest the street; thus, cars will be parked bumper to bumper without waste space for traffic aisles.

The car

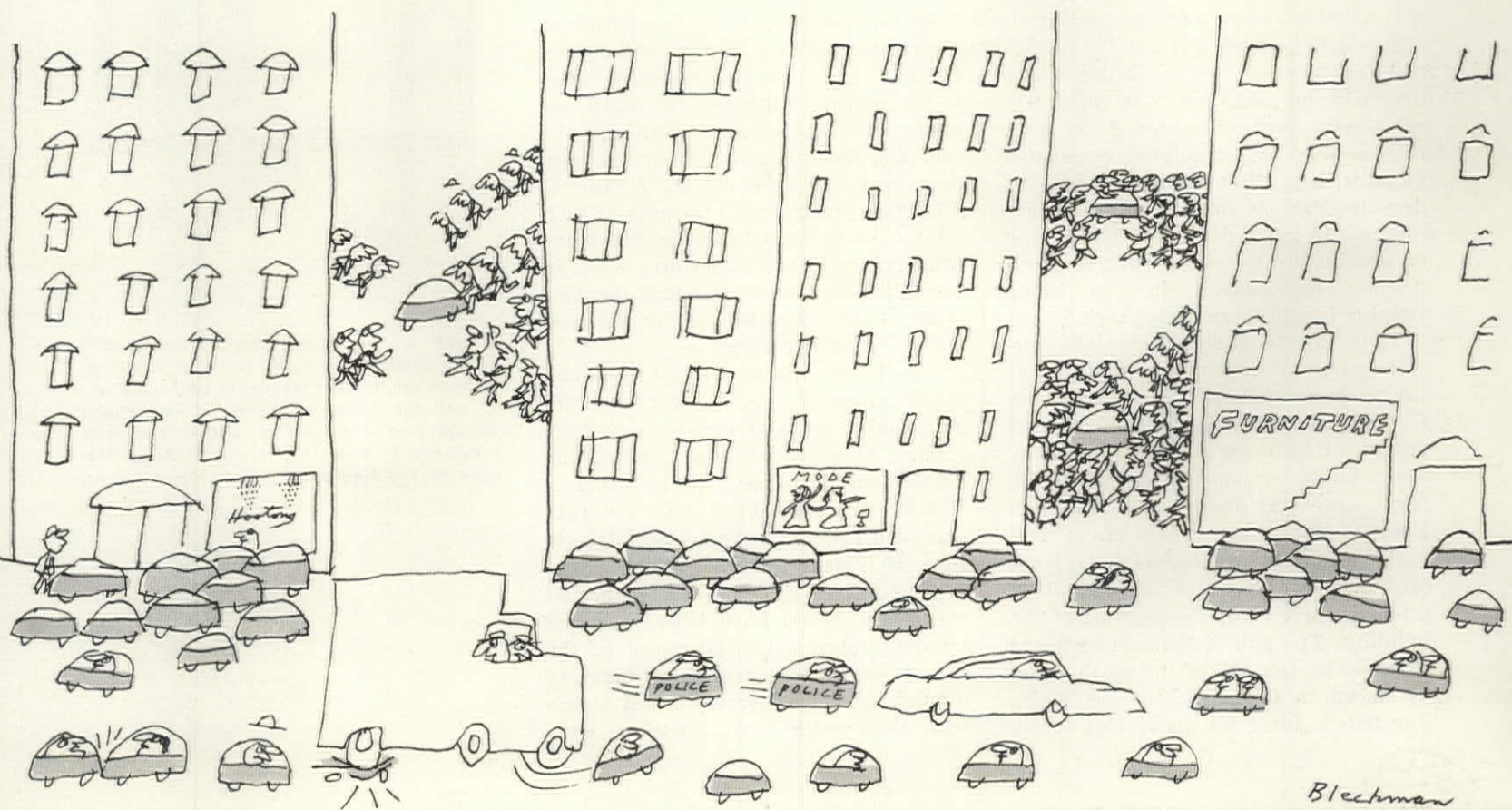
Martin's car would be small and simple, about the size of a French Renault, with four seats. It would have two forward gears, plus reverse, and a speed limit of 45 mph. It would operate on special tokens, rather than coin currency, which would be sold only to licensed drivers. For a 20¢ token, the driver could travel 2½ mi., or for 15 minutes, with an additional token for each additional 2½ mi.

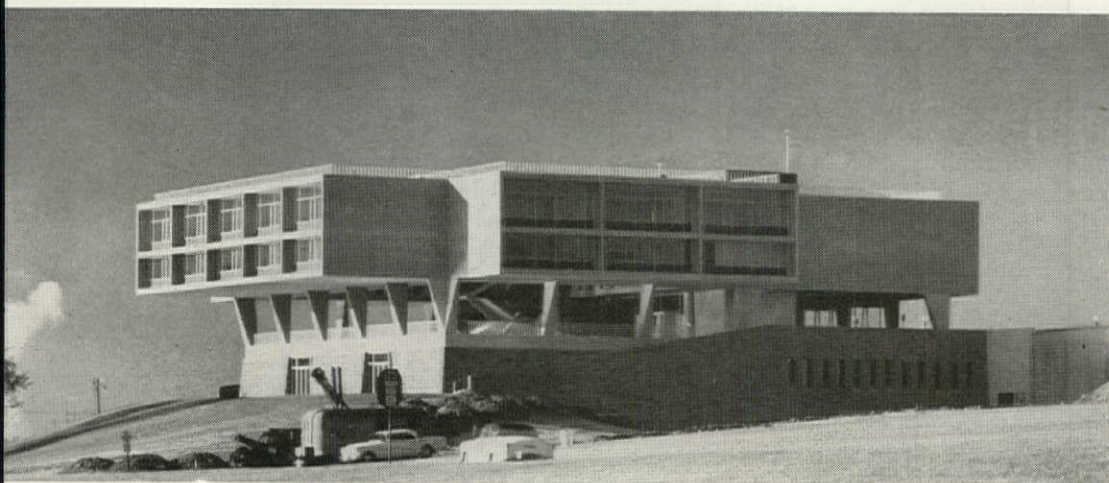
In evaluating the merits of Martin's proposal, it is well to evaluate simultaneously the alternate plan which won out over it. The city's municipal authorities call it the "Blue Plan" and are applying it in central Paris, where traffic is heaviest. Within this zone, parking will be limited to 90 minutes. Car owners will receive small cardboard dials which they must attach to their windshields whenever parking in this congested section of the city. On the dial, the motorist must set his own time, indicating the exact hour his car was parked. If he has not driven away after 90 minutes, he will be fined. On the one hand, this scheme, with its honor system overtones, would seem to be a slur on the ingenuity of the French citizen. Who, for example, will keep

watch on those who would inadvertently set their dials ahead one hour, and thus gain additional parking time? On the other hand, of course, the Blue Plan is no gamble, for if it fails one has only to discard the windshield dials and try something else.

In comparison, the Martin idea with its fleet of 200,000, made of steel rather than cardboard, may seem as wild and as implausible as a Frenchman without political convictions. Far from being the isolated idea of an impractical individual, however, the Martin approach comes quite close to the methods suggested by men of established rationality. One such ally, for example, is *New Yorker* Writer Lewis Mumford, who criticizes European city planners and administrators for being as reluctant as Americans "to treat the problem of the motorcar on the only terms that will prevent it from making city life first unendurable and finally impossible." He proposes a renaissance of public transportation within the city, as well as the restriction of huge cars in the city core. Says Mumford: "The right to have access to every building in the city by private motorcar, in an age when everyone possesses such a vehicle, is actually the right to destroy the city."

When city officials, in Paris, New York, Chicago and elsewhere come to recognize this swelling fact, then proposals such as the Martin Plan will begin to stand out. And panaceas, such as the Blue Plan and others, will go the way of cardboard.





PHOTOS: © EZRA STOLLER

Engineering of a monument

With befitting modesty, the engineering of architecture is seldom boastful of its great strength and ingenuity. But, in the case of the Milwaukee War Memorial (above and p. 90), the engineering is so outstanding as to prohibit obscurity. Indeed, this building is perhaps the best example to date of a proper blend of architecture, engineering and a relatively new building material, lightweight concrete.

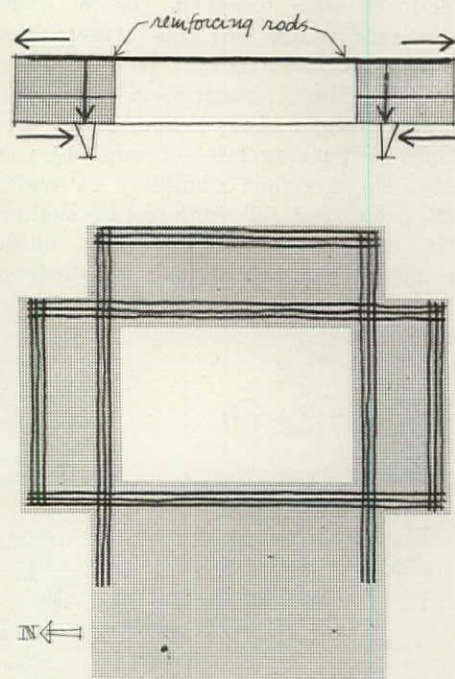
A number of new buildings have arisen in the past year or so which use this lighter-weight material to gain considerable construction economies (FORUM, Sept. '57). But few have yet demonstrated the further ability of this concrete to make possible a new range of architectural designs, for the engineering development in the lightweights is still in an early stage.

Thus, the Milwaukee Memorial's egg-crate wings of concrete, which cantilever on three sides of the building, are forerunners of a new type of structural design. Engineers Ammann & Whitney, who are responsible for the building's structural design, and Architect Eero Saarinen used the north and south wings as counterweights. Each cantilevers a distance of $29\frac{1}{2}'$, creating a tensile force along the top side of the building. The pull of the north wing is balanced by the pull of the south wing, as shown in the sketch at the right. The tensile force set up by this action

is taken up by the reinforcing bars which extend across the top of the building. Along the lower side of the wings, forces tend to push inward in compression, as the sketch shows. Here, the inherent compressive strength of the concrete is used to advantage. Within each wing, a series of parallel walls, called diaphragm walls, extend from the face of the wing and back to the court enclosure. These walls carry the floor and roof-load reactions back to the support columns; the walls are maintained in a vertical position by the roof and floor slabs, which act as long, deep beams in carrying the horizontal diaphragm reactions to the ends of each wing. At these points, the loads are delivered to the roof and floor slabs in the adjoining wings, causing the tensions in the top slabs and the compression in the lower slabs.

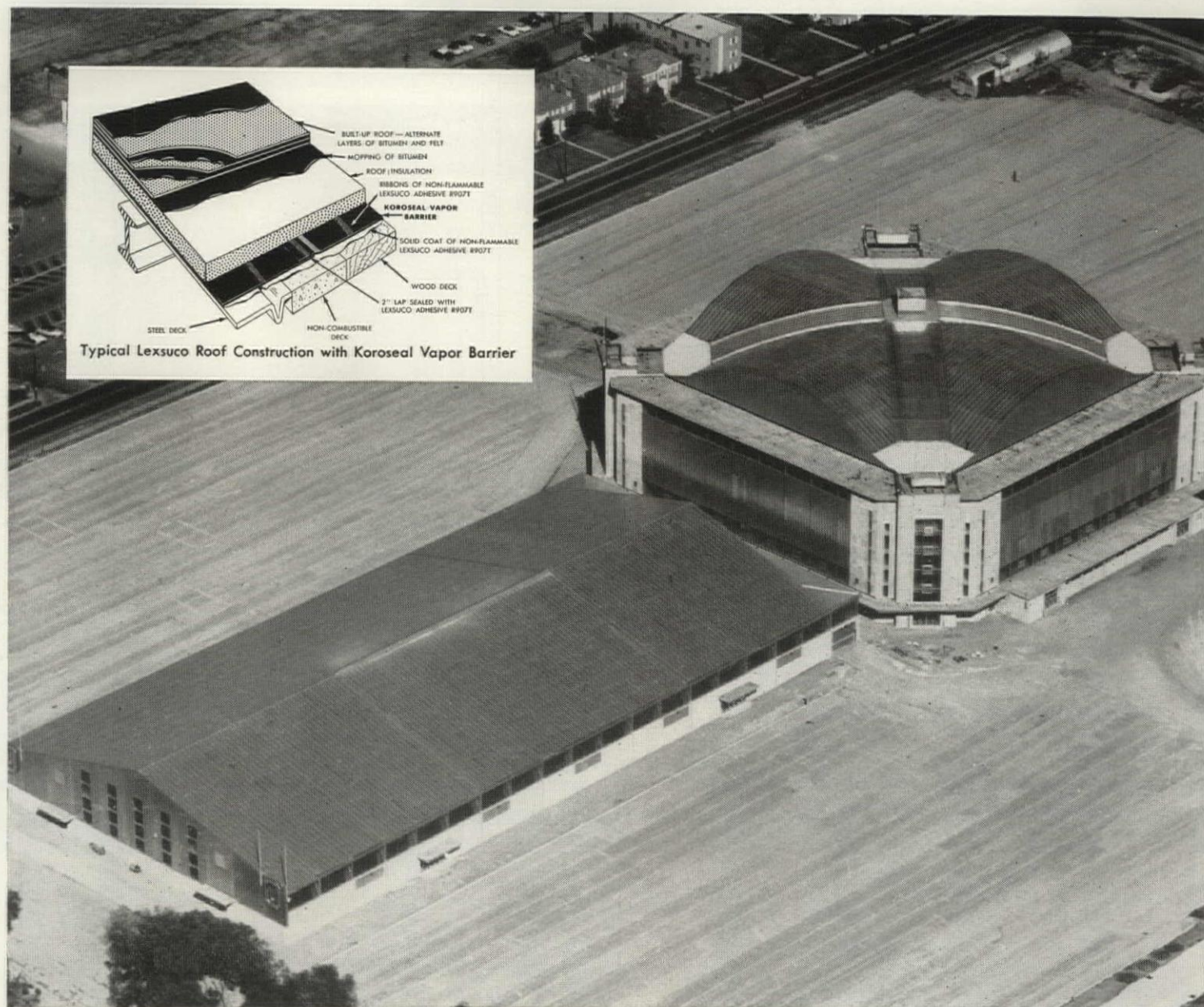
The lower section of the building, below the cantilevered wings, is of conventional stone concrete, since weight-saving here would have yielded no particular advantage. In the top section, on the other hand, where weight was critical, the engineers calculate that, if it had been necessary to use regular-weight concrete, the weight of the wings would have been increased by 40%, plus a 12% increase in the volume of concrete used, thus dictating a much more obese architectural design than that which now stands.

MILWAUKEE WAR MEMORIAL is a notable structural advance. Using lightweight concrete, Engineers Ammann & Whitney stretched the cantilever (below) to $29\frac{1}{2}'$.



WINGS on north and south (top sketch) counterbalance one another, with steel reinforcement taking tensile forces along the top of the building. Below: a rectangular tension ring is formed in each of the three cantilevered wings. The east wing ties back to the legged auditorium on the west.

B.F. Goodrich



Lexsuo with Koroseal defeats fire dangers at Ohio State Field House

OHIO STATE UNIVERSITY's new field house group, pictured above, is one of the finest indoor sports centers in the nation. The St. John Arena seats 13,000 . . . the Indoor Practice Section 3,000. Lexsuo Roof Construction with Koroseal Vapor Barrier provides protection against fire disaster.

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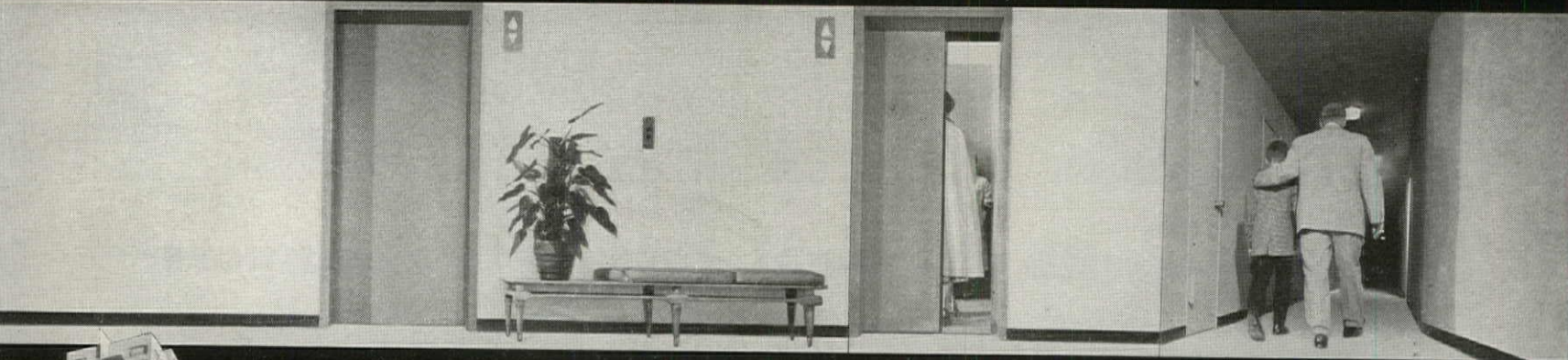
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Doors stay open until last passenger leaves



No door threats here—doors remain motionless until car is loaded



Doors close promptly when all are safely aboard



Beautiful Harrison Park Apartments in East Orange, New Jersey, feature Westinghouse Operatorless Elevators with tenant-pleasing Traffic Sentinel doors. Photos taken on location.

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Harrison Park, Inc.—A. H. Padula, Pres.
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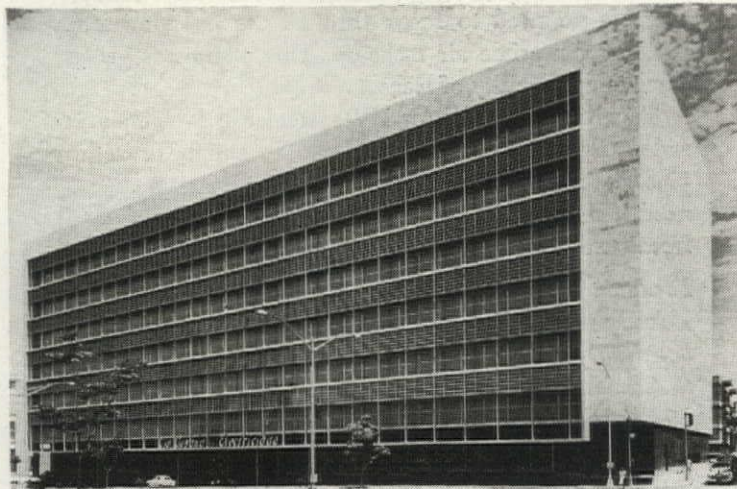


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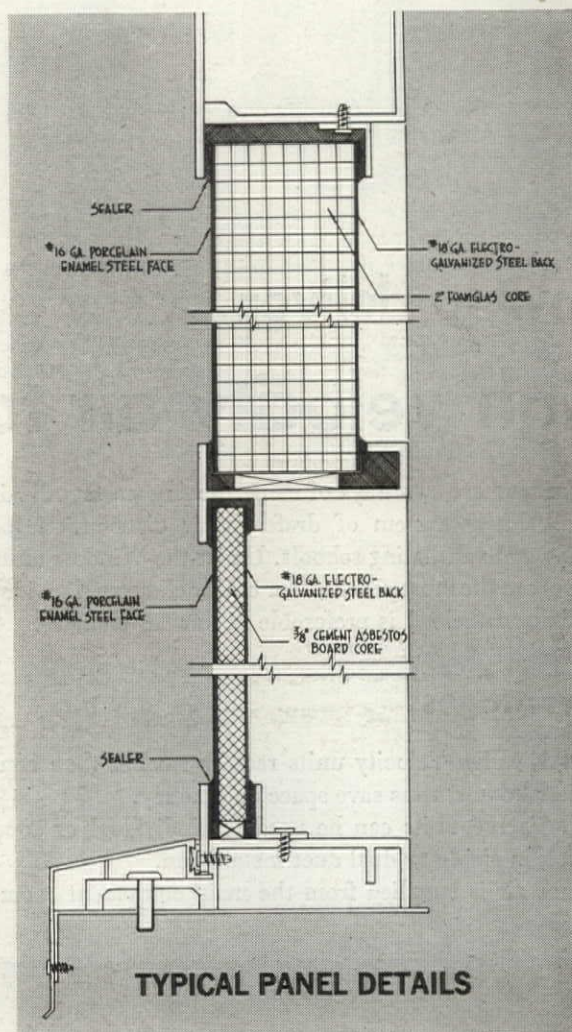
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For more information about Seaporclad, send for brochure 126.



Colorful Seaporclad insulated panels give the Cuban Electric Company building a distinctive appearance. Beautiful bluish-gray and rippled texture complement the over-all design.

Architect: Jorge Luis Echarte, Havana, Cuba
Contractor: Pan Am Products Co., Havana, Cuba



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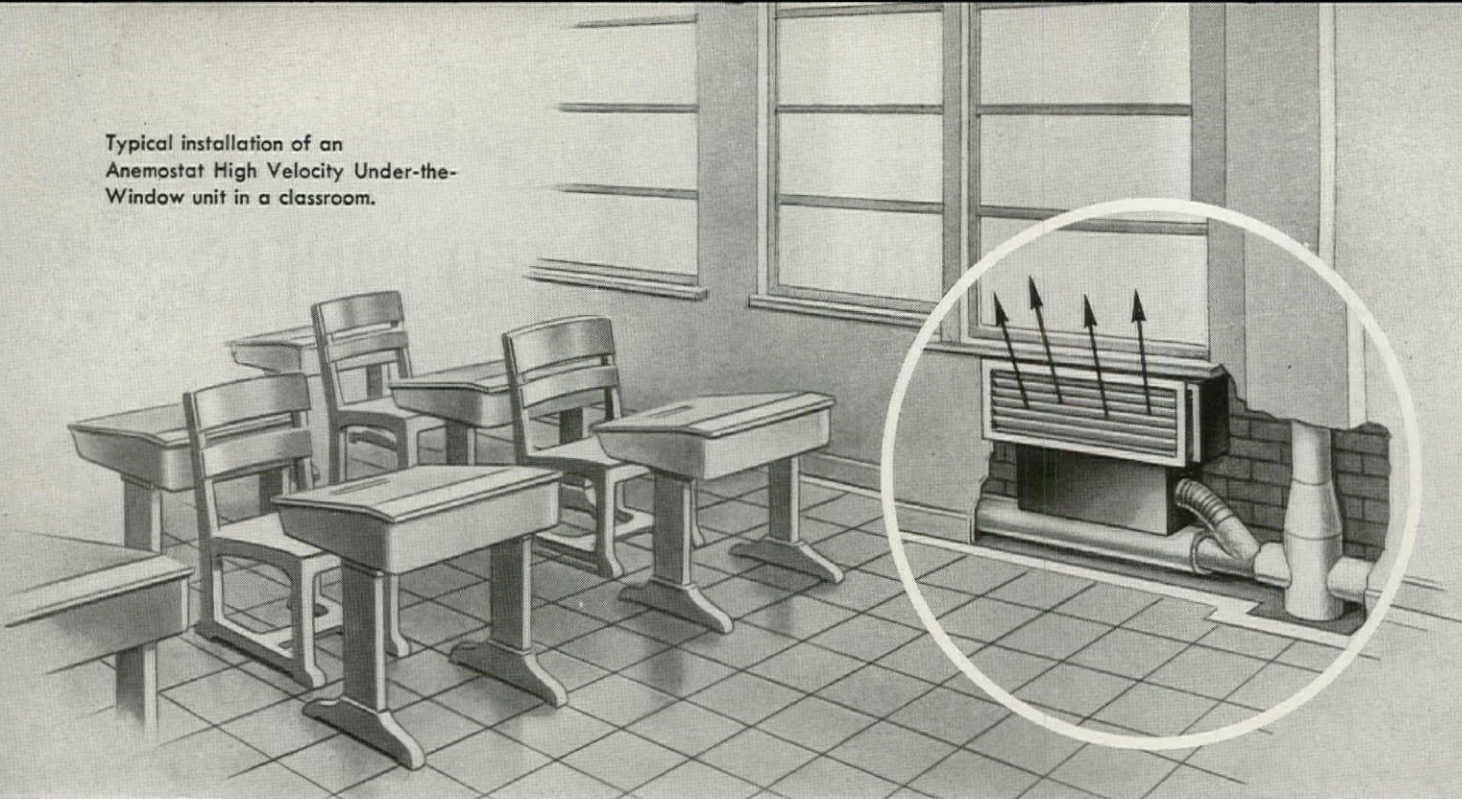
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IN FRANCE: Societe Equipement Menager Japy, Paris
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Typical installation of an Anemostat High Velocity Under-the-Window unit in a classroom.



How to deliver high velocity air to schoolrooms

Shown here are two ways of using the Anemostat All-Air High Velocity system of draftless air distribution for heating and ventilating schools. Under-the-Window units (above) are the most practical for colder climates. Corridor distribution (below) is preferable in warmer climates.

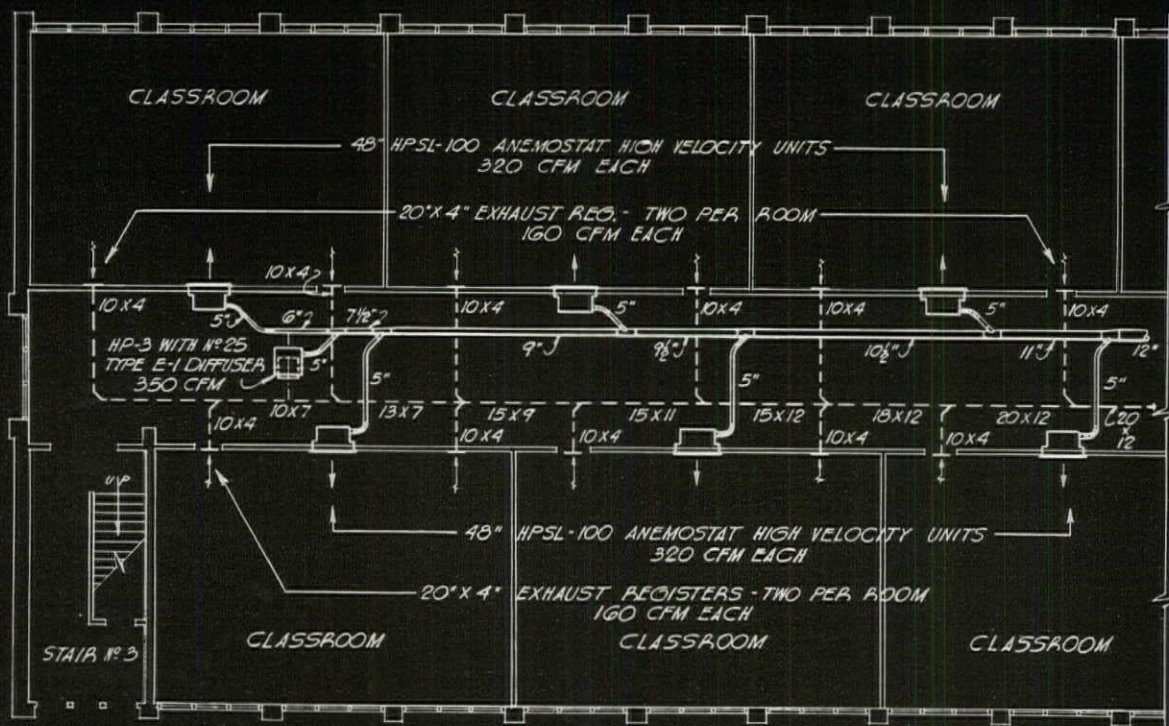
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Diagrammatic layout shows corridor distribution of high velocity air for wing of school.

Brief accounts of noteworthy developments

SAM SPIRITO



OUTDOOR LIGHT

For New York's new International Airport, Lighting Consultant Abe Feder has developed an outdoor lighting plan which "creates the illusion of never ending daylight." In the Plaza of the Central Terminal Area (pictures), covering 160 acres, the level of illumination never varies out of the range of three to eight foot-candles. Says Feder: "The pedestrian or motorist moves in an even field of light. It is possible to read one's watch without twisting one's arm toward a light."

In 1955, when his work began on the airport project, Feder felt that existing light sources and lighting methods were inadequate or too expensive for the lighting effects he wanted. But during the past two years, lighting technology has moved rapidly (FORUM, Feb. '57) yielding such devices as a new kind of mercury lamp, set in a new fixture. By using 338 of these 1,500-w. lamps, believed to be the world's brightest floodlights, it was possible to equal the intensity of 1,000 incandescent floodlights of the same power—1,500 w. Both the lamp and the fixture were developed from Feder's basic design by General Electric.

With the new lamp, mounted on 75' high towers, Feder designed for the following objectives: a daytime and nighttime appearance which would blend with the total architectural design; a minimum of glare for motorist and pedestrian; unimpaired visibility and minimum glare for men in the control tower and incoming pilots; maximum and economical use of power, in terms of lumen output (the new

lamp is rated at 81,000 lumens, unusually high for a 1,500-w. lamp); minimum maintenance. Unfortunately, these tall lights were supplemented by an array of low ones so they do not relieve the field of glare and clutter.

ALFRED AND THE ISOTOPE

Alfred is a pile driver. In 1954, during construction of San Francisco's Equitable Life Assurance building, Alfred struck the earth with more than 300,000 blows—each with a force of some 50,000 ft.-lb.—causing what some have described as miniature earthquakes in the vicinity. Indeed, certain residents of the area claim that their buildings were damaged by Alfred's activity; at least four court suits are now pending.

In one suit, which already has been tried in San Francisco's Superior Court, the pile driver was found guilty and \$15,000 was awarded to the owners of a two-story building, located just across the street from Equitable



(picture). Damage to the building's concrete walls was determined by use of radioactive isotopes, fission by-products of an atomic reactor. This is believed to be the first time that evidence of internal damage to concrete walls has been established by use of atomic energy and accepted as valid evidence in a court case.

During 1954, as Alfred pounded, the quaking neighbors watched the plaster on the walls crack away. It was disturbing. But the only known way, at that time, to find whether the concrete behind the plaster was also cracking was to knock off the plaster and drill

holes through the walls. However, a local seismologist, H. Bolton, suggested that the building owners call in W. W. Offner, a specialist in the use of X and Gamma radiation. Offner's use of radioactive isotopes, a very sensitive radiation counter and 14" x 17" film established definitely that the walls were defective.

HIGH TEMPERATURE FOAM

An important advance has been made in the foam plastics, that new class of promising construction materials (FORUM, March '57) for the integral insulation of wall cavities or sandwich panels. It happened in the field of the urethanes, the newest and most versatile of these plastics.

In virtually every way, the urethanes are superior materials: tough, strong, abrasive resistant, good thermal insulators, good sound absorbers, and with a remarkable ability to adhere to wood, metal, glass, fabrics, other plastics. One shortcoming, until now, had been a rather poor showing at high temperatures above 250° F. In October, a new production technique was announced which appears to shore up this weak point. V. V. D'Ancicco, technical service manager of Carwin Polymer Products, Inc., told members of the Society of Plastics Engineers in Minneapolis that a new basic material—polymethylene polyphenylisocyanate—now makes possible a urethane foam which can retain 70% of its room-temperature strength at temperatures as high as 400° F. with a shrinkage of only 2%. In curtain wall production, the foam can now be applied to the sandwich panel before application of the enamel finish, since the insulating foam will be unaffected by the baking process. It also means better heat resistance and fire ratings for such insulations in place.

By blending the new basic material, the polymethylene polyphenylisocyanate, with the other chemicals which go together to make up the various urethanes, D'Ancicco believes that a whole new range of end products can be created. He said that the basic compound may also be applied to improve the temperature resistance of coatings, elastomers and rigid, non-cellular plastics.

Where Tomorrow Begins..



Lambert - St. Louis Air Terminal
Architects: Hellmuth, Yamasaki & Leinweber

*In the beautiful functional buildings
now rising, tomorrow is already
here . . . and so are tomorrow's
floor problems.*



The past 50 years has seen unbelievable progress in the development of new forms, new materials, new harmony of design — and the unveiling of new concepts of floor treatment which makes the modern functional floor practicable.

Hillyard, celebrating its 50th Anniversary, pledges significant contributions in continuing development of safe, economical floor treatments with proper built-in light reflective beauty. Limitless research, farsighted management and a nationwide staff of experts in floor treatment will guide Hillyard's second fifty years to new heights of service. Working closely with architects, builders, administrators and custodians, we are confident we shall help achieve yet higher standards for functional floor use and beauty in buildings "Where Tomorrow Begins."



HILLYARD CHEMICAL COMPANY
DEPT. A-1, ST. JOSEPH, MO.

Passaic, N. J.

San Jose, Calif.

BRANCHES AND WAREHOUSE STOCKS IN PRINCIPAL CITIES.

Alloy steel reinforcement . . . turbine concrete mixer . . . elastic flashing . . . a review of new developments

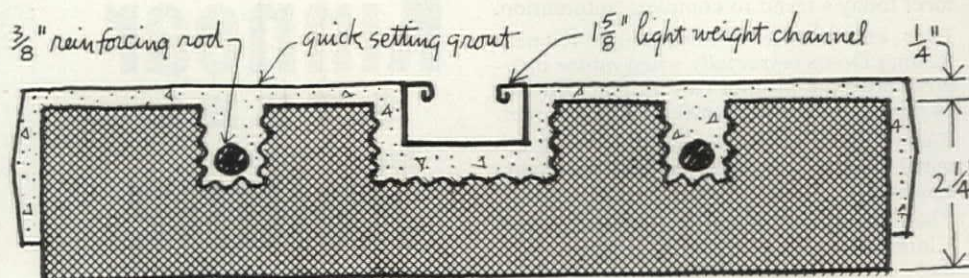
MACHINE-STEEL BARS used economically as reinforcement

Chicago Architects and Engineers A. Epstein and Sons, Inc. approached steel reinforcement fabricator Ryerson with a novel but sense-making idea: would there not be a structural advantage in multi-story buildings in having deformed reinforcing bars for concrete rolled of machine alloy rather than low carbon steel? Could less steel be used pound for pound if the



bars were thick instead of skinny? And might not the savings in column size also help compensate for the additional cost of the high tensile metal? The 23-story Borg-Warner building now snuggling up to the Chicago skyline proves that it pays to ask reasonable questions, and that what is good for automotive shafts can be good for construction. The 1 1/2" and 2" diameter bars of AISI 4140 alloy cost about 27% more initially than common steel, but, because 25% is lopped off the girth of the supporting columns, cost of the over-all structure will be only about 2% higher because of savings in other materials. Also, the narrower columns present an indirect advantage, less tangible immediately: extra rentable floor space. Alloyed with small amounts of molybdenum, chromium and manganese, the machine-grade metal has a yield point of 75,000 psi—almost double that of the low carbon steel usually used. The bars are being furnished for the Chicago building in 30' lengths (463 tons' worth), saw-cut flat at one end and sheared to a V at the other. Instead of lapping and tying the reinforcement (and so losing strength and taking up more space at lap points) the joints are welded to make continuous runs of reinforcement the full length of the column. (No new dies were needed for the big No. 18 and 14 bars; the manufacturer had made up those sizes in carbon steel 3 years ago—for a dam site.)

Manufacturer: Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80, Ill.



STACK BOND BRICK precast into load-bearing panel



One of the nicest things about the materials developed by the Structural Clay Products Research Foundation is that the brick people themselves take them seriously. A product that proves successful in laboratory experiment on the research-fertile bank of the Fox River is as good as in the construction industry's lap. The sponsors of the Foundation might throw a few special orchids this time to Director

continued on p. 152



In Your Constant Search for LOWER COSTS Are You Overlooking DOORS?

Whether seldom used or in constant action, doors can affect other plant costs in ways that may escape management's closest scrutiny.

For example, note these cost-cutting features of the door with the interlocking steel slats (*originated by Kinnear*).

They coil above the opening! Whether opened, closed, or in action, Kinnear Rolling Doors waste no usable space anywhere.

They clear the entire doorway! When open, Kinnear Rolling Doors stay out of the way, out of reach of damage by wind or vehicles.

They save time and labor! Kinnear's coiling upward action, the key to highest operating efficiency, is also ideal for motorized door convenience — with push-button operation, remote switches, and other controls that meet today's trend to complete automation.

They cut heating, cooling costs. Kinnear Rolling Doors (*especially when motor operated*) promote prompt closing that cuts loss of heat in winter and cooled air in summer.

They give extra protection. Kinnear's all-metal curtain assures added protection against fire, wind, weather, vandalism.

They last longer! Records show that many Kinnear Doors have been in continuous daily use 40 years or more.

Extra-heavy galvanizing! 1.25 ounces of pure zinc per square foot of metal, ASTM Standards, give the Kinnear curtain highest resistance to corrosion.

Built to fit any opening, with motor or manual control, Kinnear Rolling Doors assure the right answer to your needs. Write today for details!

The KINNEAR Mfg. Co. *Offices and Agents in All Principal Cities*

Factories: 1640-66 Fields Ave., Columbus 16, Ohio; 1742 Yosemite Ave., San Francisco 24, Calif.

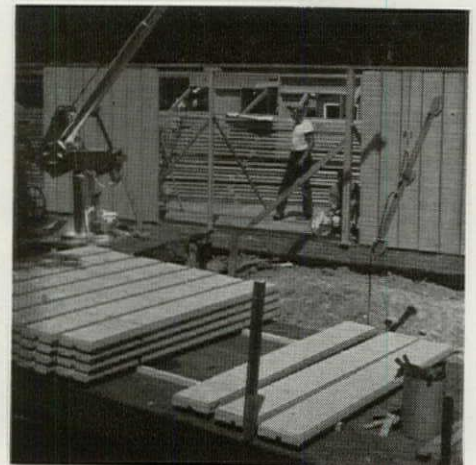


Be sure to get the facts on

Kinnear STEEL Rolling Doors

KINNEAR
ROLLING DOORS
Saving Ways in Doorways

Robert B. Taylor and his staff for putting brick's traditional values of strength, longevity and tactile interest into a modern prefab panel that goes up fast and easy. The precast SCR building panel is made up of 2 3/8" thick brick, glazed structural clay or terra-cotta units 1' or 2' wide, assembled in a stack bond in a trough up to 12' long. Quick-curing mortar is then poured over the brick or block. Inflated rubber diaphragms protect the surfaces from concrete splashes and keep the mechanically aligned joints tidy. Panels are ready for erection just 6 minutes after casting. The brick or structural clay units are specially formed with three recesses for 3/8" reinforcing rods and a center metal U channel. Designed to meet California's earthquake requirements, the wall unit is amazingly strong for its 2 1/2" overall thickness; its lateral wind capacity is 100 lb. per sq. ft. The 1' wide, 8' high panels pictured each use 36 Norman-face brick. Five men put up 1,200 sq. ft. of the load-bearing wall units in 8 1/2 hours. A device fitted with suction cups (such as those used to handle plate glass) is



used to hoist and place them on the foundation. No mortar is used for setting; each panel is bolted to steel angles along the top and bottom of the wall. One bolt is used at each end of the channel set in the middle of the panel. (All manner of electric fittings, utility lines, bracket attachments can be connected to these sturdy steel U sections, which run vertically 1' on center over the entire interior wall area. After grouting the vertical joints with a power mortaring tool, the wall is furred out 2", insulated and finished with plaster. Erection costs run less than 30¢ a sq. ft. Depending on the type of brick used and local labor, SCR panels should cost about \$1.30 to \$1.80 a sq. ft. in place. Although capable of taking on loads in one- and two-story construction,

the panels have tempting possibilities as cavity partitions (set back to back) and for curtain walls because of their low cost, strength and well-disciplined look.

Information: Structural Clay Products Research Foundation, 1520 18th St. N.W., Washington 6, D.C.

ACRYLIC SHEETS

cast in prismoid shape 12' long

Like the chef who dines in his own kitchen, Wasco Products proudly is using the first production of its big acrylic sheets on its



own new office building. The attractive 12'-long panels are cast flat and then vacuum drawn into a stark four-faceted contour. The shallow shaping gives the plastic sheet added rigidity as well as visual interest. Large panels will be made available flat and in the new contour pictured in clear colorless or white translucent material in $\frac{1}{8}$ ", $\frac{3}{16}$ " and $\frac{1}{4}$ " thicknesses. The $\frac{1}{4}$ " runs about \$1.50 a sq. ft. The same angular pattern can be drawn somewhat deeper for skylight or ceiling light diffuser installations.

Manufacturer: Wasco Products, Inc., Cambridge, Mass.

FOAM INSULATION

prescored for easy fitting on the job

Scorboard, Dow's rigid polystyrene foam developed for cavity wall and perimeter insulation, can be applied in about half

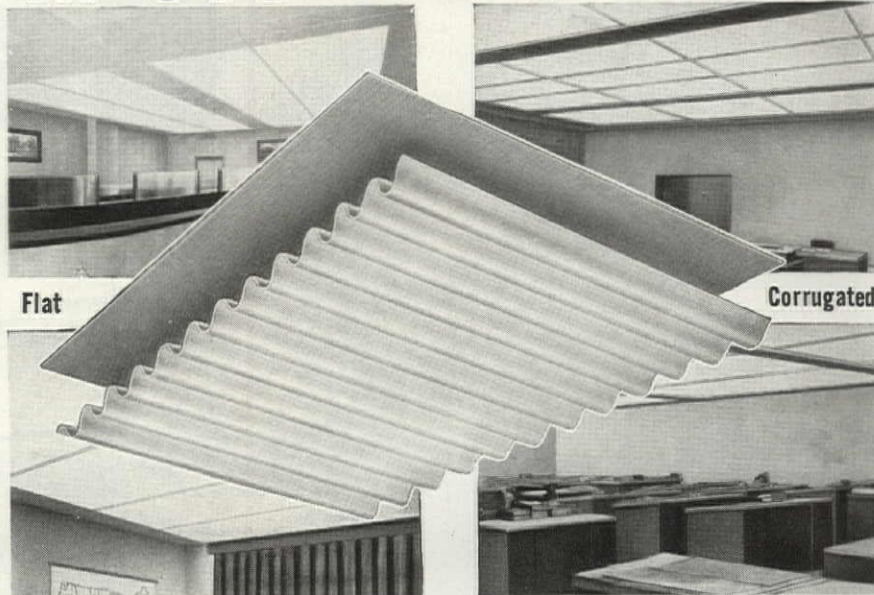
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NEW

sensation-

IN SOUND and SIGHT!



SOUNDSHEET Translucent Acoustical Element

for Over-all Lighting Systems. For the first time acoustical and light diffusing properties have been successfully combined in one translucent element — Soundsheet by Contrex. Because of its excellent lighting characteristics, Soundsheet can be used effectively with most wall-to-wall or area lighting systems for remodelling or new construction — as a direct substitute for standard vinyl sheeting. Because of its efficient acoustical properties, Soundsheet can replace or supplement other acoustical treatments. Here are just a few advantages of Soundsheet that enable new layout and installation freedom:

Noise Reduction — more balanced sound absorption at low frequencies than the average of commonly used types of acoustical treatment. Good absorption at higher frequencies. N.R.C. = 0.70 by independent test for corrugated Soundsheet. **Quality Illumination** — compares favorably with that of any illumination shielding now used in over-all lighting systems . . . softly diffused lighting free of shadows and reflections at high efficiency. **Easy To Install** — light in weight, yet strong and durable. Can be installed in large areas quickly, using corrugated or flat sheet. Available in standard widths. **Low Cost** — Initial and operating expenses are very low; compare with ordinary light diffusing media. The important difference: Soundsheet brings the cost of effective acoustics and efficient light transmission within easy reach of everyone!

Soundsheet harmonizes perfectly with any of today's modern or traditional interior concepts. Learn more about Soundsheet's advantages and how they can benefit you!



CONTEX COMPANY
CHELSEA 50, MASS.

AVAILABLE FROM COAST TO COAST THROUGH LICENSED MANUFACTURERS OF LIGHTING EQUIPMENT

MAIL TO:
CONTEX COMPANY
CHELSEA 50, MASS.

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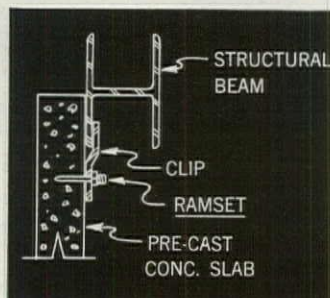
CITY _____

- ☐ Please send me literature and a sample of Soundsheet.
- ☐ Please have your representative call.
- ☐ Please send me a list of licensed manufacturers who include Soundsheet in their lighting equipment.

STATE _____



Two 3-inch RAMSET threaded fasteners hold each of these pre-cast concrete curtain-wall slabs . . . some weighing as much as 2 tons!



Ramset® carries a lot of weight in Milwaukee!

Thanks to RAMSET, this new warehouse was completed with a savings of over \$2,500 and 50 hours of labor.

Workers for The Watson Construction Co., Milwaukee general contractor, found RAMSET to be faster, more dependable, easier to use. No time-consuming drilling and chipping; with RAMSET, operators merely load—ram—set!

Make sure you specify RAMSET

Austempered fasteners. They give you initial strength, holding power, permanence . . . for *any* fastening job in concrete or steel.

Get the full story from your RAMSET dealer (he's listed under "Tools" in your phone book). Ask him for your free copy of the new RAMSET booklet, "How To Find The Right RAMSET Fastener For Any Job".

Ramset Fastening System

WINCHESTER-WESTERN DIVISION
OLIN MATHIESON CHEMICAL CORPORATION

12157-L BERE A ROAD

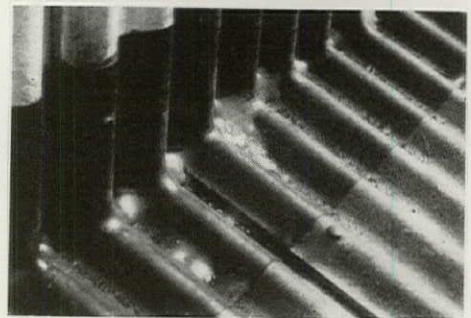
CLEVELAND 11, OHIO

the time of conventional materials. Deeply striated at the 3", 1' and 1'-8" marks along the full length of each 2' wide, 1" thick board, the rigid foam is merely snapped apart at the most convenient width. Manufactured by a combination foaming and extrusion process, the new black-pigmented *Scorboard* has a heat toughened skin somewhat more puncture resistant than regular styrene foam cut from "logs." Like other *Styrofoam* products, the material is lightweight (2 lb. per cu. ft.), waterproof and rotproof. It costs about 12¢ a bd. ft.

Manufacturer: Dow Chemical Co., Midland, Mich.

ELASTIC FLASHING follows odd contours with ease

Cut with sturdy scissors or knife on the job, *Saraloy 400* elastic flashing needs no shop fabrication. The black sheet of vinylidene chloride copolymer matches its easy application with excellent flashing behavior. Seams are smoothly and permanently sealed with solvent, giving unbroken protection to critical areas around vents, stacks, drains and fascia. The 1/16" film is reported to be impenetrable by water and highly resistant to oils, acids and alkalis. Self sealing, it tends to close up tightly around nails pierced through it. Thermoplastic by nature, the material conforms to irregular shapes and yields to thermal expansion and structural movement without breaking the weather seal. *Saraloy 400* costs about 50¢ a sq. ft.—less than copper or lead but more than aluminum or galvanized metal. The simple tailoring required around narrow pipes



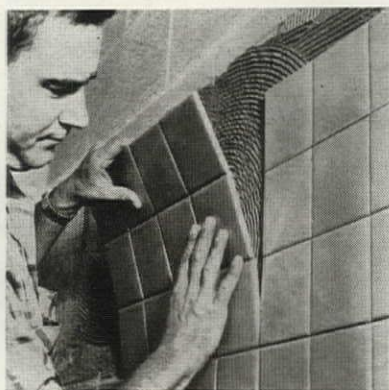
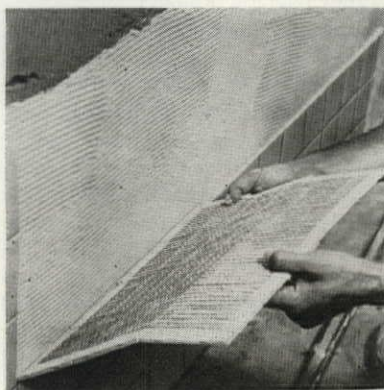
and other oddly contoured building protruberances makes it even more economical on many kinds of flashing applications. It is effective as expansion-joint material as well as for cap and base flashing.

Manufacturer: Dow Chemical Co., Midland, Mich.

CERAMIC TILE

installs 40% cheaper by the dozen

Because labor on almost any ceramic tile job amounts to more than half the cost, Cambridge devised a simple means of speeding up the placement technique. *Setfast*, a ribbed back-up sheet holding 12 regular 4 1/4" x 4 1/4" tile in a single pre-spaced unit is, according to contractors who have used it, an amazing time saver. On one Cincinnati installation of 564 sq.



ft., a mechanic and helper did the whole job in 5 hours—including lunch and coffee break. (The sheets of tile need no soaking and thus can be grouted almost immediately.) A Minneapolis contractor figured a job for tile applied conventionally one-by-one would run one day and 2 hours for each room having a 75 sq. ft. area to be surfaced. With *Setfast*, his two-man crew—working at their own pace—covered two rooms in a day. Under supervision, they finished a room in 2 hours.

Besides cutting down on labor, the fiber-mesh backing helps the mechanic adjust the tile to minor surface variations. Its deep cross ribs imbed firmly in the adhesive or mortar, creating a bond that can cope effectively with vibration, building movements and temperature changes. Either adhesive, self-curing mortar or Portland cement with a mortar bond coat can be used as bases for *Setfast*. Sheets of 4 1/4" size *Suntile* come in 16 glazes. Cambridge's small mosaic tile are also produced with the new mesh backing in sheets 1' x 2', and are available in solid colors and in the distinctive motifs designed by Muralist Max Spivak (FORUM, April '56).

Manufacturer: Cambridge Tile Mfg. Co., Box 71, Cincinnati 15, Ohio

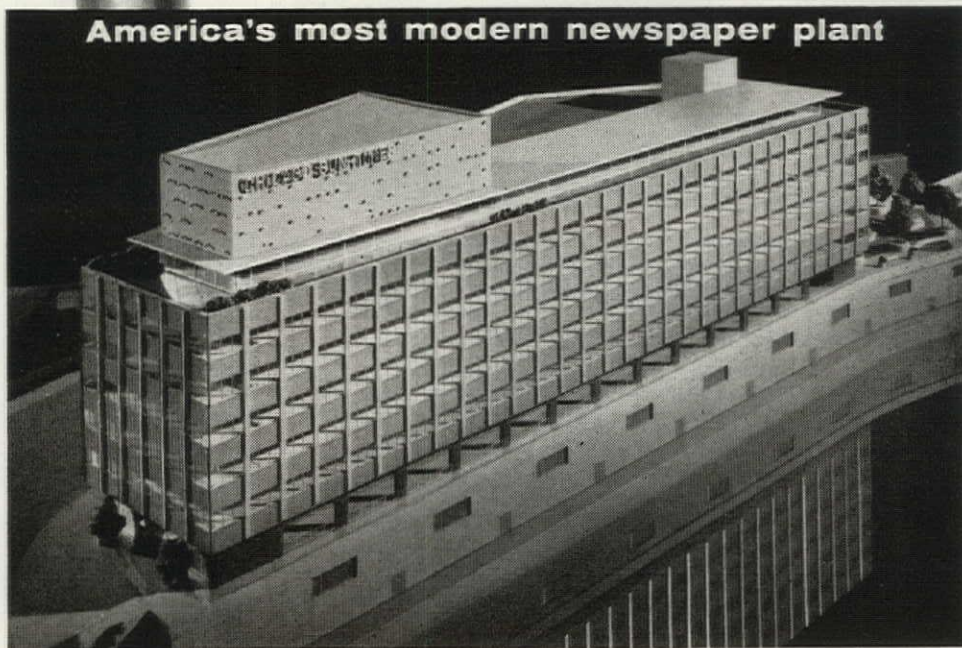
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New as today's newspaper,
but . . . to last the life
of the building

CLOW

I.P.S.* cast iron pipe
was chosen for

America's most modern newspaper plant



CHICAGO SUN TIMES

Owner: Field Enterprises, Inc., Chicago

Architect: Naess and Murphy, Chicago

General Contractor: George A. Fuller Company, Chicago

Plumbing Contractor: G. F. Connelly Co., Inc., Chicago

Like the latest edition on the street, Clow I.P.S. cast iron pipe is as modern as today, yet has proved itself in hundreds of important installations. In this new \$15,000,000 Chicago SUN TIMES building, replete with up-to-the-minute materials and equipment, Clow I.P.S. cast iron pipe is used for all non-pressure plumbing lines: downspouts, vents and waste lines. It is chosen because it is permanent piping, assured to last the life of the building. Clow I.P.S. Cast Iron Pipe has the same O.D. as steel pipe . . . and is available with plain, threaded, or hub ends in sizes 3, 4, 5, 6, 8, 10, and 12". Installation is fast and economical.

Clow Cast Iron Pipe can be . . .



on the job, with
ordinary tools of the
piping trade.

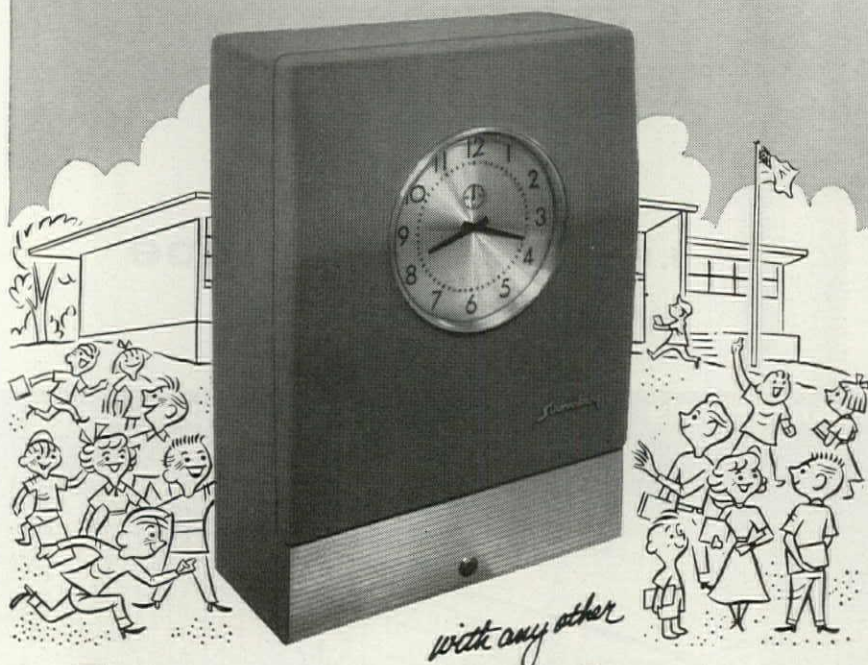
*Iron Pipe Size O. D.

JAMES B. CLOW & SONS, Inc.

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Manufacturers of Cast Iron Pipe
Wholesalers of Plumbing
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You can see the difference!



Just compare [^]the new Stromberg Electronic Time System . . .

*Here are some
(just a few)
of the many
PLUS features*

- Jewelled Master Clock movement with automatically wound 72-hour spring power reserve.
- Secondary Clocks standard with hourly and 12-hour supervision — correction cycles completed in 60 seconds.
- Program Unit, capable of 1440 signals daily on each circuit, immediately resets following power interruption.
- Manual signals sound instantly on depressing program key.
- Seven-channel transmitter — one for clock supervision, six for program signals.
- Installation and maintenance service available throughout U.S.A. and Canada.

A product of the laboratories of one of the largest clock manufacturers in the world—YOUR GUARANTEE of performance, quality and dependability.

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details, write:

Stromberg



SUBSIDIARY OF GENERAL TIME CORPORATION

**TIME
CORPORATION**

Thomaston,
Connecticut

TURBINE MIXER

blends materials thoroughly and fast

Whipping up a batch of concrete about six times faster than conventional mixers, this doughnut shaped turbine mixer is an impressive piece of machinery for plant and sitework. Licensed to T. L. Smith for manufacture here by its Swedish inventor, Erik Fejmert, the mixer is said to be so effective that it actually homogenizes materials. Part of its efficiency is due to its squat shape; part to the blade action. The mixer's design is quite simple: drive mechanism is in the middle of the drum, putting all the mixing space to work; there is no dead center. The blades are positioned to braid at the rate of 9 cu. ft. per second. Cementitious materials whip quickly into a strong, thoroughly blended batch. The center-located drive motor transmits power to the blades through a series of reduction gears that work with special bearings to absorb stresses and shock. The entire top of the drum opens for direct charging from any angle and may be operated by hand or an air ram. One or more discharge doors can be located in the bottom. Discharge is fast



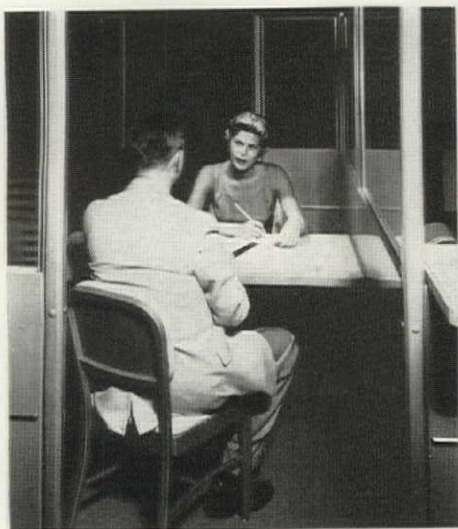
and complete. Although basically a stationary mixer, the turbine unit can be lifted by crane and transported to the site where it acts as its own pouring bucket. Practically vibrationless, the mixer does not have to be tied down. (It actually has been operated while resting on planks over two saw horses.) Smith will make the turbine-type mixer in ½ yd. (17½ cu. ft. dry batch) up to 1½ yd. sizes. The smaller unit weighs about 3,100 lb., the largest, 7,750. Prices start at \$5,500. In addition to its usefulness in concrete work, in precasting and prestressing operations and block manufacture, the fast mixer also is suitable for assignment in the glass, refractory and chemical industries.

Manufacturer: T. L. Smith Co., 2835 N. 32 St., Milwaukee 1, Wisc.

INTERVIEW OFFICE

pared to minimum by bewalled desk

Everything but the personnel are compressed into this 4'-wide packaged interview booth. Designed for use in hospitals, insurance firms and small (sic) loan companies, the entire "officette" can be put



up and dismantled with a screwdriver as the only tool. Side panels are 5'-8" high and are affixed to the desk. End strips provide a modicum of privacy with a partial cut-off at front and back. One of the corner posts in each unit is prewired for light and telephone connections. A single booth costs \$450; additional sections for tandem arrangements are \$250 each.

Manufacturer: Aetna Steel Products Corp., Arnot-Jamestown Div., 730 Fifth Ave., New York 19, N.Y.

PORTABLE TRACING BOX fits under straight edge on board

A draftsman can use this lightweight illuminated tracing unit right on his drawing board, instead of standing over a tracing table. Called the Porta-Trace, the thin box fits under a standard straight edge, a string-type parallel rule or a drafting machine. Rubber feet help keep it from slipping. The acrylic face top is set flush so that oversize drawings can be used on it, a portion at a time, without



wrinkling. The plastic diffuser plate is opal white for glareless surface over the fluorescent lamps housed inside. Porta-Trace units come in sizes from 11" x 1'-6" up to 2' x 3', and retail for \$32.50 to \$94.95. All electric components are Underwriters' approved.

Manufacturer: Ozalid Div., General Aniline and Film Corp., Johnson City, N.Y.

MET-L-WOOD

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DUCT and RISER ENCLOSURES

- ... faster, cleaner installation
- ... lasting finished beauty
- ... complete accessibility

Installing Met-L-Wood riser enclosures, air ducts, convector covers and paneling benefits everyone connected with the job:

Architects and contractors plan on substantial installation time savings and know that smooth, uniform Met-L-Wood needs only paint to finish after installation.

Building management not only gets a clean, durable installation, fast; but is also assured of low-cost accessibility to pipes and other equipment without enclosure replacement expense.

Met-L-Wood units are pre-formed, ready to install with minimum labor. When finished, Met-L-Wood sections match perfectly with conventional walls and ceilings.

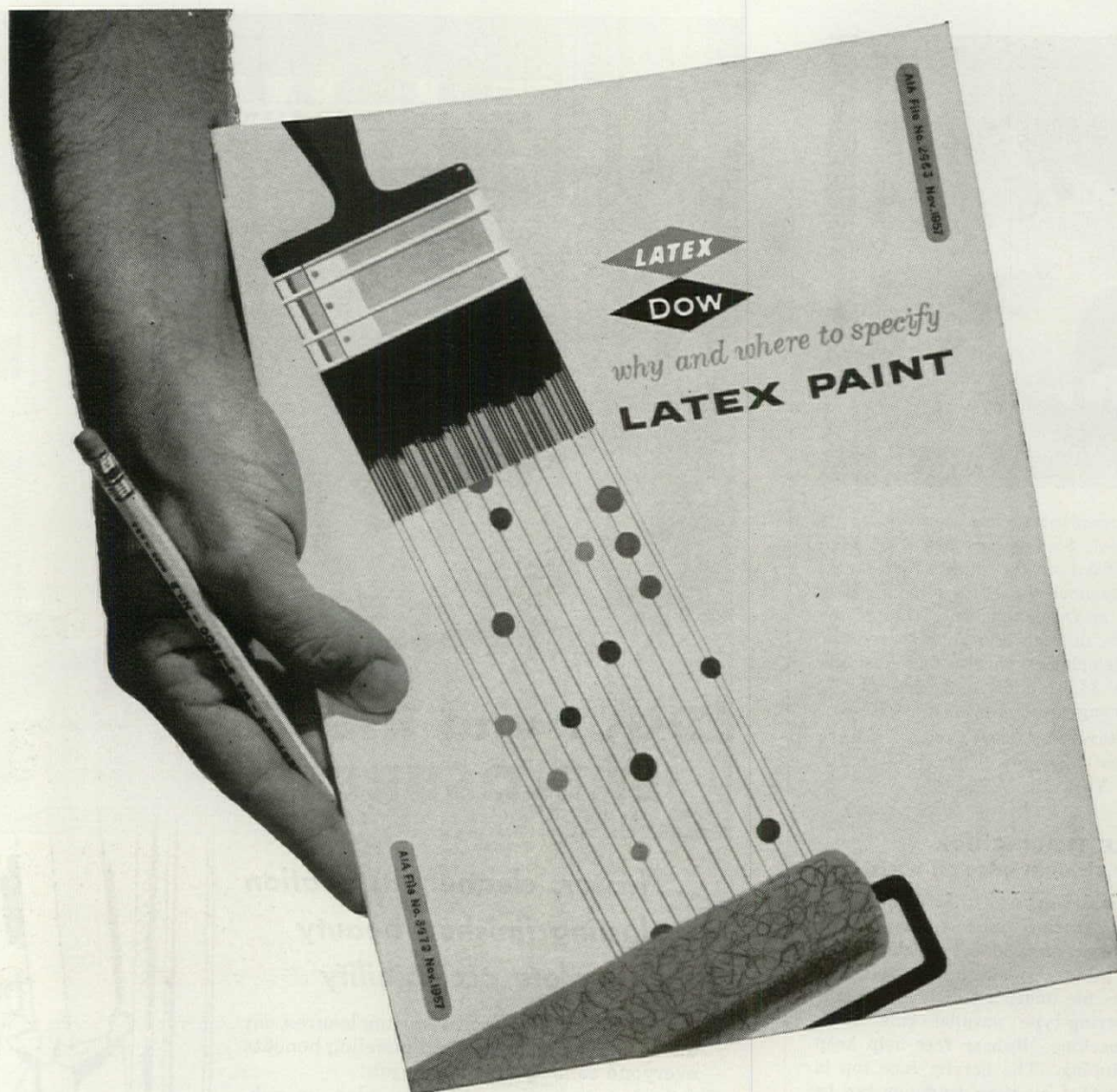
Whether you plan new construction or remodeling, write for literature now and learn all the advantages and economies you gain with Met-L-Wood.



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CORPORATION

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Chicago 38, Illinois



LATEX PAINT FACTS FOR ARCHITECTS

New 16-page booklet tells why and where to specify latex paints

Now in one easy-to-use booklet you can get answers to your questions on latex paints—their uses, benefits and limitations. "Why and Where To Specify Latex Paints" was written to serve as a helpful guide for architects, specification writers and contractors.

This booklet answers such questions as: On what interior and exterior surfaces can I specify latex paints? Where should they not be specified? Why can they be applied over freshly dried plaster? Why don't surfaces

need to be primed before latex paints are applied? Can coats of latex paints and oil paints be applied alternately in successive coats? What controls chalking in latex paints?

Get the answers now to these and the other questions you have about latex paints. For your copy of this booklet write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1836R-1.



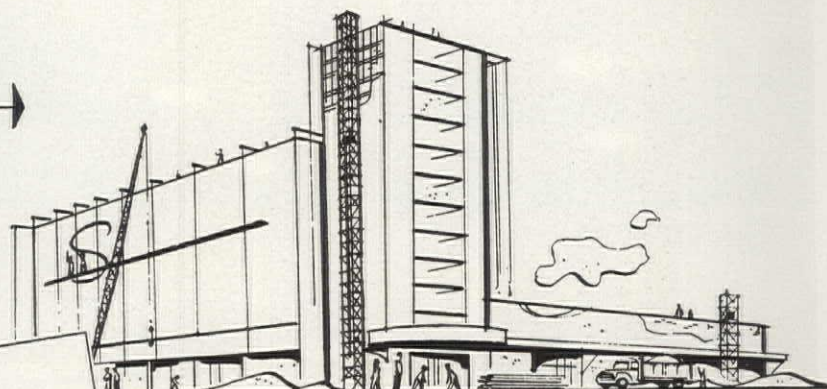
YOU CAN DEPEND ON



**Why is "A" →
ready for use**



**...while "B" →
is incomplete?**



BECAUSE

John Watts
Electrical Contractor

WAS CONSULTED EARLY

Consider two buildings of identical appearance. Plans for both were begun at the same time. Yet one is ready for use while the other still is days — perhaps weeks — from completion. Why?

Because, in the initial stages of design of building "A", the architect supplemented the electrical know-how of his engineer and specification writer with the specialized knowledge of "John Watts" — a qualified electrical contractor.

To expedite the construction of every building you design, check with "John Watts" early. His organization has the latest product information and the installation know-how — plus on-the-spot knowledge of local codes, power supply, and working conditions — to give your electrical people valuable help on plans for wiring, lighting, signaling, and power-driven apparatus — for industrial, commercial, or residential buildings.

Well informed electrical contractors — the "John Watts" everywhere — obtain equipment and supplies via Graybar. This sound practice means you can count on them for the newest and best in "everything electrical", *when and where you want it.*

647-3112

Here are 7 ways in which
QUALIFIED ELECTRICAL CONTRACTORS
can be of real help to **ARCHITECTS,**
CONSULTING ENGINEERS, and **BUILDERS**

1. Providing information on the newest developments in specified electrical equipment.
2. Sharing experience on details of installation.
3. Furnishing first hand data on local practices, regulations and preferences.
4. Supplying practical facts on availability of equipment.
5. Offering "related items" experience with units and supplies they require.
6. Contributing his years of experience as a coordinator to help on material delivery schedules and project completion dates.
7. Using Graybar's nationwide warehouse stocks and facilities to deliver the smallest to the largest equipment anywhere, fast.

GraybaR ... serving the nation's building industry
through electrical contractors

GRAYBAR ELECTRIC COMPANY, INC., 420 LEXINGTON AVENUE, NEW YORK 17, NEW YORK, IN OVER 130 PRINCIPAL CITIES

Effective use of Pittsburgh's Herculite and



HERCULITE®

This remodeled structure houses the Commercial National Bank of Santa Ana, California. Here, indeed, is an outstanding example of the effectiveness of HERCULITE Doors in achieving a modern, progressive, open-vision feeling. An entrance such as this attracts more customers—whatever the type of business may be. HERCULITE is a high-quality Tempered Plate Glass. It has four times the strength of ordinary glass of the same thickness.

Stiles Clements, Architects-Engineers, Los Angeles, California.

The PITTCOMATIC® — recognized as the nation's finest automatic door opener — opens HERCULITE and TUBELITE Doors at a feather touch. It is the safest automatic door opener to operate . . . the easiest to install and maintain.

See Sweet's Architectural File — Sections 16a and 16d — or write direct to Pittsburgh Plate Glass Company, Room 7388, 632 Fort Duquesne Boulevard, Pittsburgh 22, Pennsylvania, for detailed information on Pittsburgh Doors.

Tubelite Doors in new and remodeled buildings



TUBELITE®

This new building is occupied by Jacobson's, Inc.—prominent ladies' ready-to-wear store in Grand Rapids, Michigan. The selection of TUBELITE Doors for this entrance underscores their wide adaptability to almost any architectural design. TUBELITE Doors and Frames feature clean, simple lines. An impressive advance in hollow metal entrance design, they have a unique interlocking feature, giving them extreme rigidity. Here is superior value at the lowest possible cost.
Architect: Arthur O. A. Schmidt, AIA, Detroit, Michigan.

PITTSBURGH DOORS

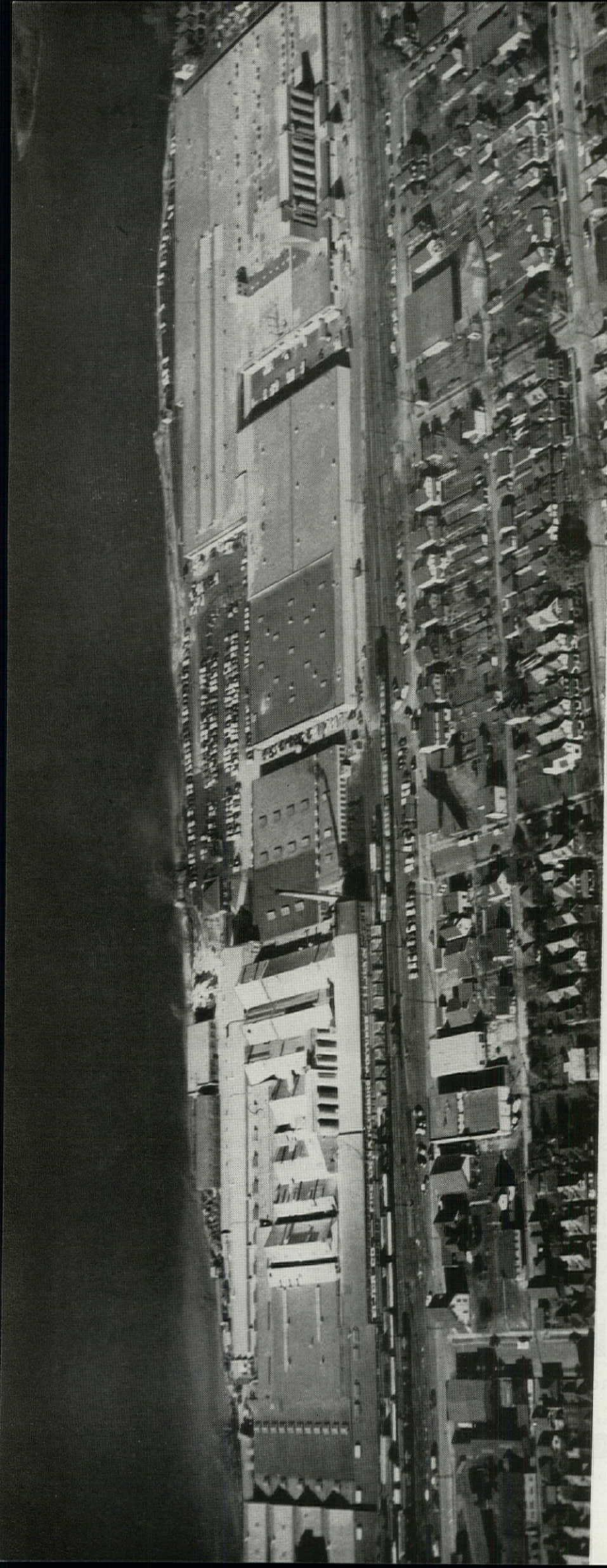
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PITTSBURGH PLATE GLASS COMPANY

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THE LARGEST AND MOST MODERN SANITARY-WARE POTTERY IN THE WORLD

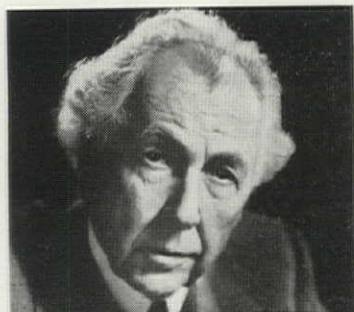
Now, giant additional modern facilities at Eljer's Ford City pottery assure you maximum quality and service on all your vitreous china bathroom fixture needs. Here, in one location, skilled workmen and skillfully engineered equipment produce vast quantities of vitreous china fixtures . . . all made to the traditionally high Eljer quality standards. Contact your Eljer Plumbing Contractor now to determine how Eljer can help solve your bathroom fixture problems in vitreous

china . . . and, from three other up-to-date plants, in cast iron, formed steel and brass fittings. Eljer Division of The Murray Corporation of America, Three Gateway Center, Pittsburgh 22, Pa.

ELJER

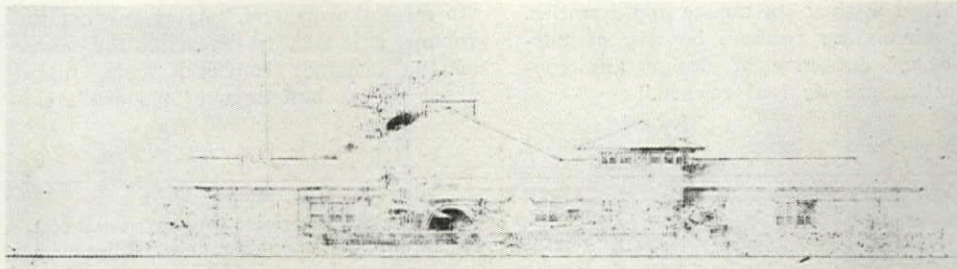
DIVISION OF THE MURRAY CORPORATION OF AMERICA

... Wright ... Dudok ... Ketchum ... Reid



A TESTAMENT
BY
FRANK LLOYD WRIGHT

Published by Horizon Press, 220 W. 42d St., New York 36, N.Y. 256 pp. 9 1/4" x 12 1/4". \$12.50



"Drawing shown to Lieber Meister [Louis Sullivan] when applying for a job"—1888

This new book by the world's foremost architect first appeared before the public eye on the Mike Wallace show. Mike, the notoriously hard-boiled TV interviewer, handled it with the same ginger-carefulness that marked his treatment of Wright himself.

And, when one reads the book, it becomes clear why.

It is beautiful, it is solid, it is loaded for bear. Some of the bears, to be sure, are pretty old and slow-moving: the AIA ("I still believe that architects are all that is the matter with architecture"), the Chicago World's Fair ("modern architecture's grand relapse"), and the "common man." But others are more elusive, such as the enduring values which Wright intuitively understands as underlying both democracy and art.

All he bags with equal skill. It is true that parts of the book are echoes of thoughts he has treated more profoundly elsewhere; it is also true that other parts of the book repeat themselves. But that is the way of conversation with a master—the repetitions and recapitulations of an exquisite tapestry.

Included in the book are some drawings rarely seen, like those above and below, as well as a fairly complete record of Wright's recognized marvels.

A Testament even contains a well-

thumbed Wright musical-philosophical-literary library. He describes it by saying: "As for inspiration from human nature, there were Lao-tse, Jesus, Dante, Beethoven, Bach, Vivaldi, Palestrina, Mozart. Shakespeare was in my pocket for the many years I rode the morning train to Chicago. I learned, too, from William Blake (all of his work I read), Goethe, Wordsworth, Dr. Johnson, Carlyle (*Sartor Resartus* at the age of 14), George Meredith, Victor Hugo, Voltaire, Rousseau, Cervantes, Nietzsche, Unanimo, Heraclitus, Aristotle, Aristophanes."

It is truly a Testament—to all who would read and learn.

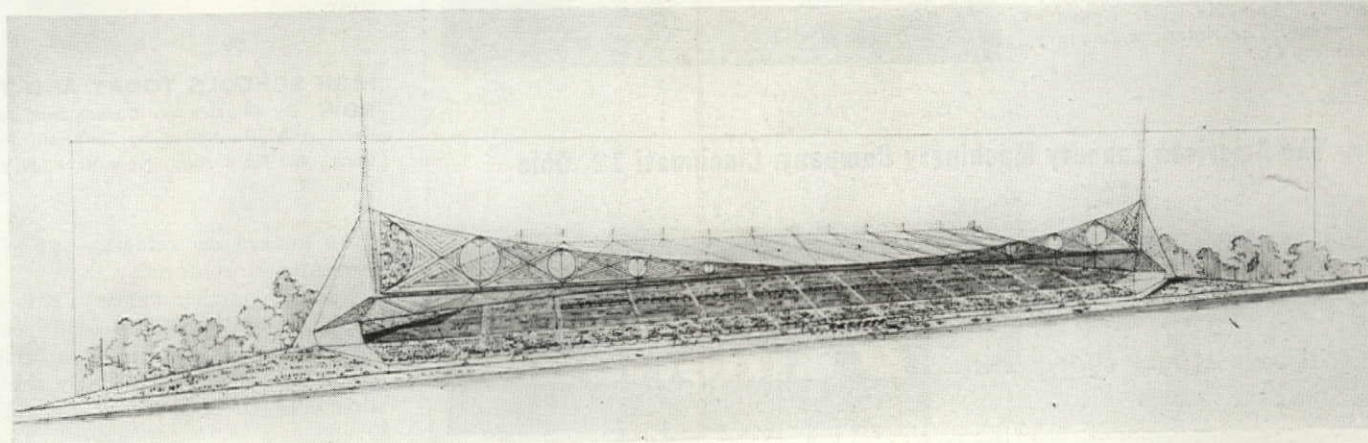
SHOPS & STORES. Completely revised edition. By Morris Ketchum Jr. Published by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 263 pp. 9" x 12". Illus. \$15

This is more than an updating of the original edition: it is, in many sections, a highly original commentary on the most significant developments that have taken place in shop architecture within the last ten years. Particularly valuable is the entirely rewritten "Shopping Environment" section.

Author-architect Ketchum does not take

continued on p. 164

1956 project for a track-side sports pavilion in New York



all the credit due him as a successful missionary for better work in this branch of commercial architecture. But it is good to hear him say, at least, that he has derived some professional satisfaction from his activities among the savages. He reports: "Store design's tedious routine, endless detail and frequent clashes of personalities and prejudices can only be balanced against its unique opportunities. Its stimulating realism, honesty of purpose and integrity of design and construction are its real reward."

W. M. DUDOK. Material collected by R. M. H. Magnee. Published by G. Van Saane, Herengracht 406, Amsterdam-C., Holland. 168 pp. 10 1/4" x 11". Illus. \$8

First published in 1954 to honor the 70th birthday of the great Dutch architect, this review of Dudok's works and words has now been re-issued in English "to meet the demand." After reading the volume, it is easy to determine the source of the demand: confused souls, tossed about by the buffeting of modern archi-



De Bijenkorf revisited: Dudok's original store was built in Rotterdam in 1929-31 (above); his plan for a postwar reconstruction (below) was not undertaken.



tecture's articulate extremists, are ready for the soothing voice, the unfreakish talent, the high opinion of order that a man like Dudok is able to impart.

This is not to say that Dudok is an architectural Norman Vincent Peale, or that his buildings are compromises. On the contrary, he has maintained a standard of honesty and a readiness for progressive liberalism.

But he has also been able to take a second look, to reflect, in a manner that is extraordinarily helpful to those who are struggling along in the wake of the architectural revolution of the last three decades.

To hear him debate the redesign of his famous "De Bijenkorf" store in Rotterdam, for instance, is a completely refreshing experience. His conclusion: he would not use that much glass a second time, natural light being just not sufficient to illuminate the interior of a large city store.

HIGH SCHOOLS TODAY AND TOMORROW. By Charles W. Bursch and John Lyon Reid, AIA. Published by Reinhold Publishing Corp., 430 Park Ave., New York, N.Y. 128 pp. Illus. \$8

An unusual book for an age of alleged "educational conformity."

Radical, yet thoroughly fair, it proposes a high school program coolly calculated to enrage all who value group thought or group activities (particularly the athletic director). All is sacrificed for the educa-

continued on p. 166

A hospital laundry planning service for architects



Send for your copy of American's ARCHITECT'S REFERENCE GUIDE showing our complete line of laundry equipment. Also ask to see our new motion picture, "Within These Doors," on hospital laundry planning and operation.

Providence Hospital, Washington, D. C. Architect: Faulkner, Kingsbury & Stenhouse. General Contractor: Chas. H. Tompkins Co. Laundry Equipment: The American Laundry Machinery Co.

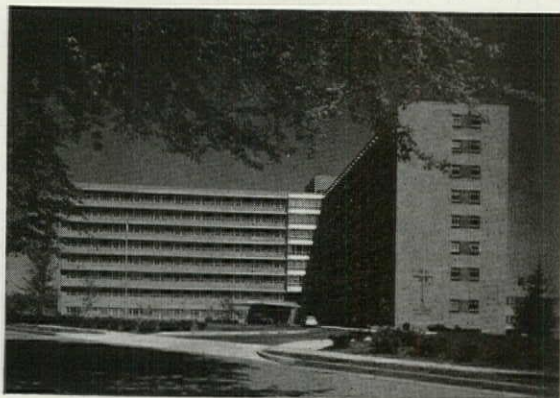
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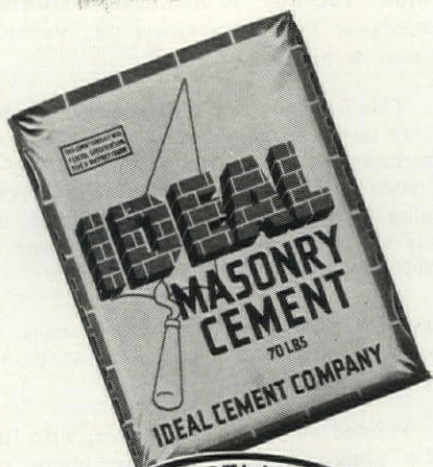
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tion of the individual pupil, at his own pace, for his own ends. In another day a similar thesis was called "the Random Falls idea" (FORUM, June '56).

But the most remarkable thing about this book is its continuing emphasis on the design significance of each aspect of the program. Architect John Lyon Reid does not let an educational idea emerge without pinning it down to a physical possibility. Educator Bursch (a much respected West Coast school consultant) takes full advantage of each educational

opportunity offered by Reid's flexible architecture.

The result is a highly creative book well worth winter contemplation.

AESTHETICS. Lectures and Essays by Edward Bullough. Published by Stanford University Press, Stanford, Calif. 158 pp. 5½" x 8¾". \$4.50

The news of Edward Bullough's appointment as an Honorary Associate of

the Royal Institute of British Architects was greeted with some astonishment in 1924. He was, after all, "merely an aesthete."

But the RIBA was wise to recognize that this distinguished scholar (professor of Italian at Cambridge University until his death in 1934) had made an outstanding contribution to the active world of architecture. For it is because of his work that thought does not have to come to a full stop when the remark is made that "architecture is, after all, an aesthetic problem." He went on from there.

Of the three essays reprinted in this volume, the least well known, "Psychical Distance as a Factor in Art and an Aesthetic Principle," is perhaps the most notable contribution to modern inquiries into perception.

TECHNICAL PUBLICATIONS

A selection of new handbooks, textbooks, technical reports, brochures and commercial leaflets, noteworthy for their information content or pictorial format or both

SUBSOIL INVESTIGATIONS FOR FOUNDATIONS. Raymond Concrete Pile Co., Gow Division, 140 Cedar St., New York 6, N.Y. 12 pp. Illus.

Explains importance of exploratory test borings in determining foundation requirements. Describes Gow borings and the information they yield and methods for making borings, taking soil samples. Several types of rigs are pictured.

CURRENT LITERATURE ON HIGH FREQUENCY HIGH VOLTAGE FLUORESCENT LIGHTING. Published by The Wakefield Co., Vermilion, Ohio. 50 pp. Illus.

This brochure contains four comprehensive technical papers on the elements and techniques of high-frequency lighting, reprinted from *Illuminating Engineering*, plus a complete catalogue with cost data on all Wakefield lighting equipment for this new system of lighting.

JAFFE'S SUNCHART. Jaffe Publications, 634 San Vicente Blvd., Los Angeles 46, Calif. 1 p. (5 copies). \$1.95

Printed on translucent paper, with lines for placement over building plans, this chart indicates the direction and altitude of the sun at various times of day throughout the year. It should be especially useful to residential architects and builders for planning window arrangements and landscaping. Radial lines plot the position of the sun for latitudes 34° N. (Los Angeles to Atlanta, Ga.) and at 42° N. (Medford, Ore. across to Boston). Other areas can be estimated quite closely.



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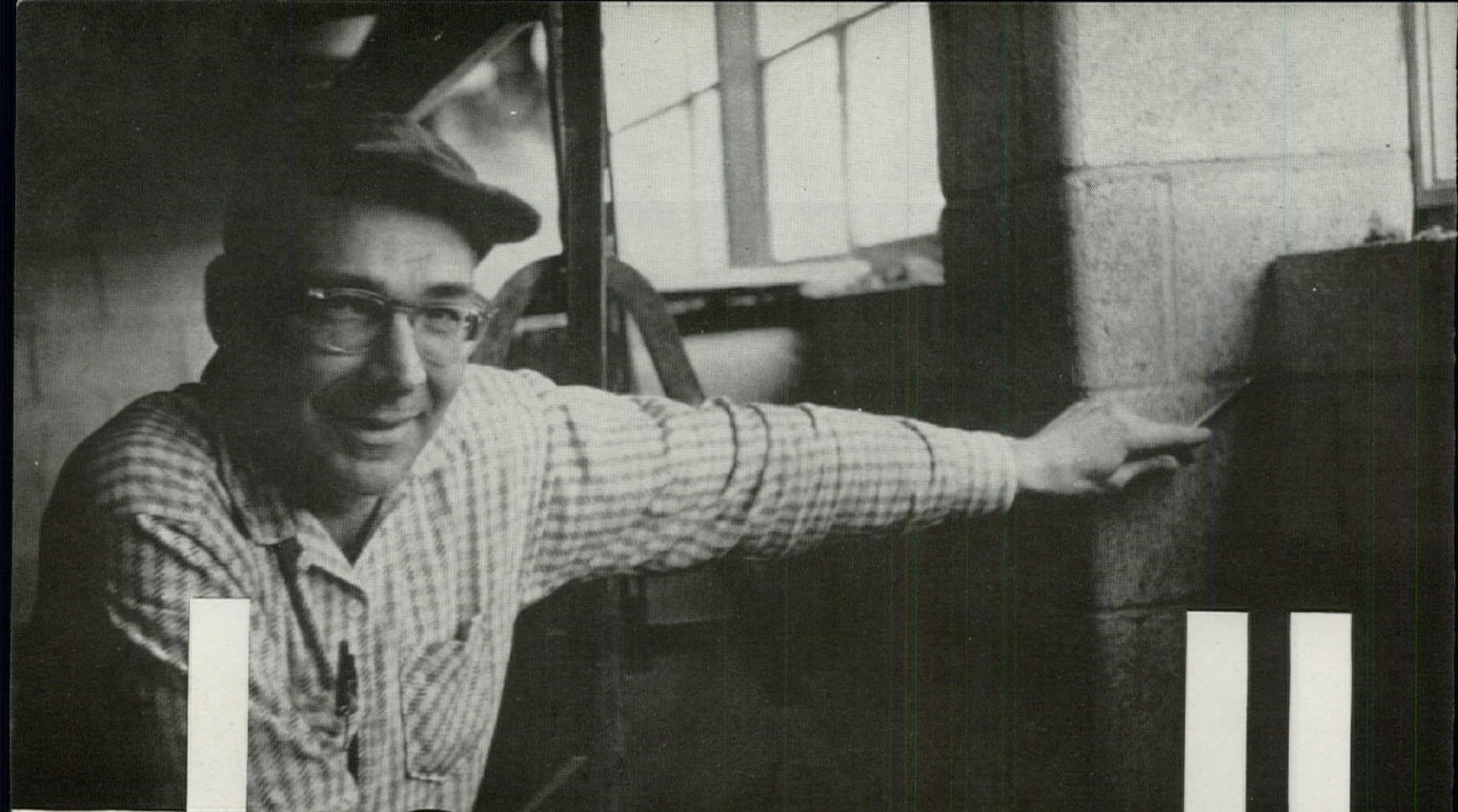
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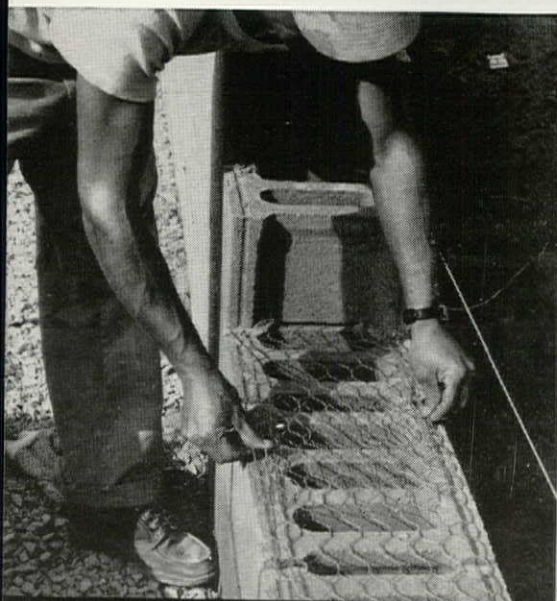
427 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.



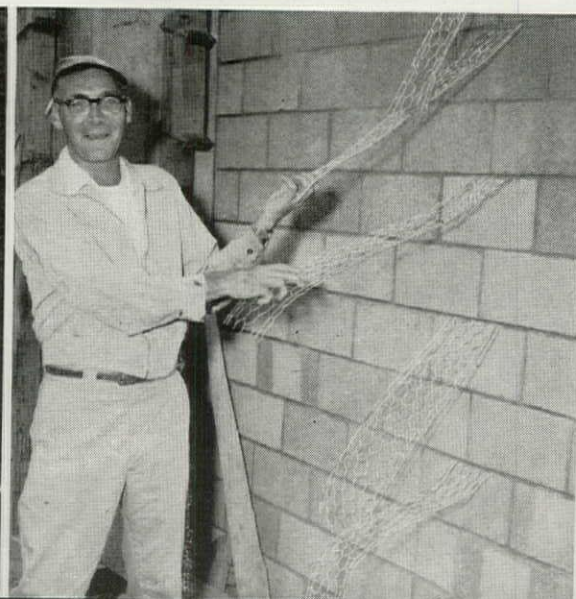
KEYWALL

Galvanized

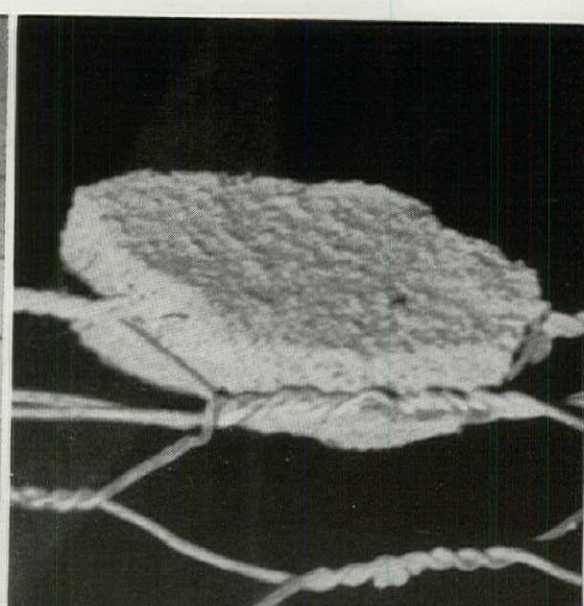
Masonry Reinforcement



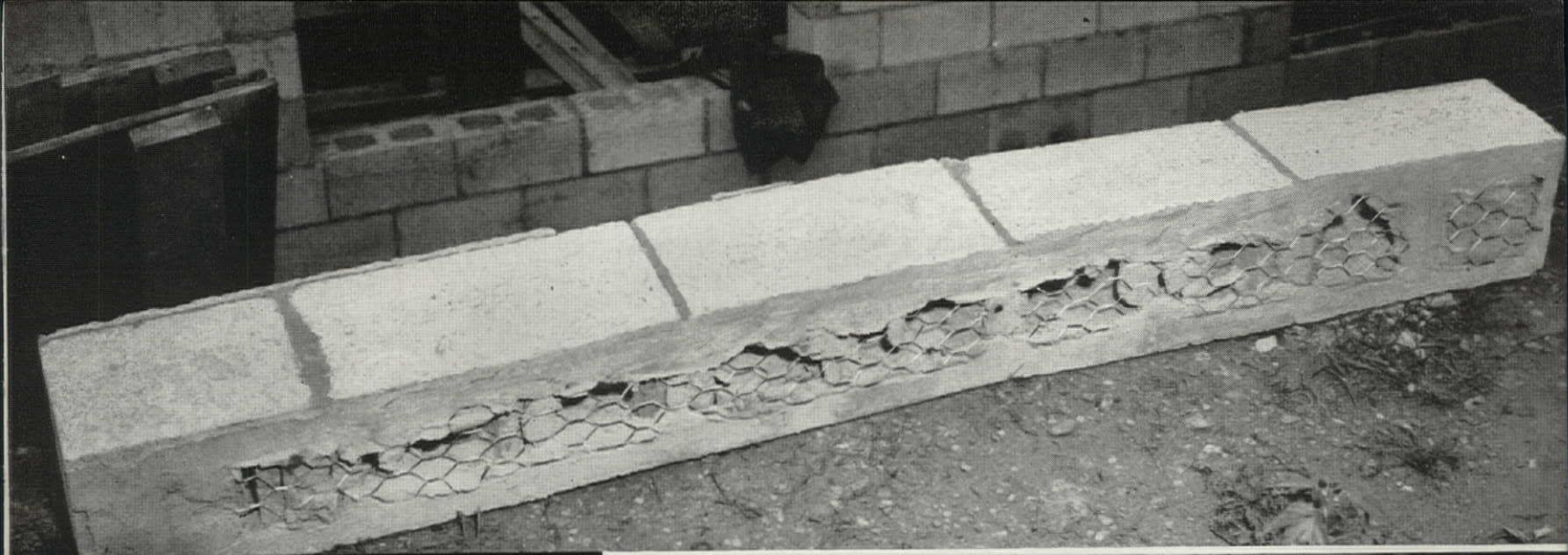
"I have no problem getting masons to lap KEYWALL. I prefer a 2-foot lap. When it's lapped, it doesn't interfere with the embedment. Yet it gives the full reinforcement value of continuous wire," Mr. Gans points out.



Wherever walls intersect, Mr. Gans uses KEYWALL to tie them together. "It is easy to place in alternate joints as shown," he explains. "And KEYWALL bends out of the way, removes the hazard of projecting rods or wires."

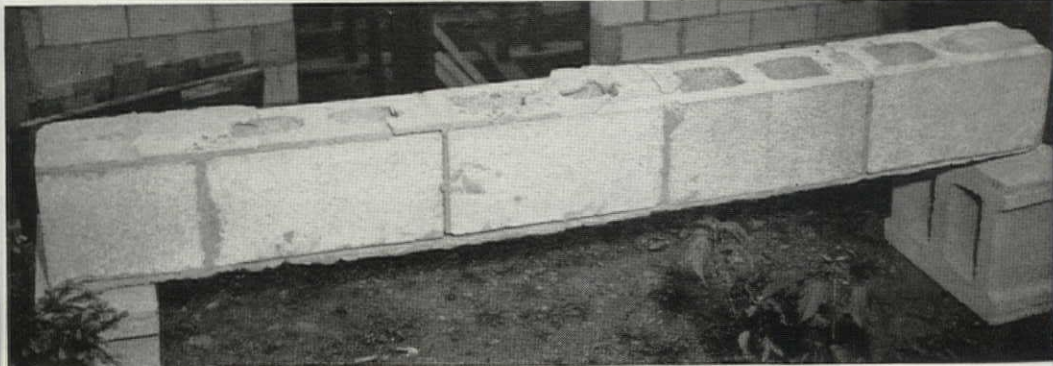


"Reinforcement is only as good as its bond. This section of joint shows how KEYWALL is fully embedded in the mortar to provide an exceptional bond. Actually, the hexagon mesh becomes locked into the mortar," says Mr. Gans.



Note the full embedment of the face shell of these units. KEYWALL helps hold mortar in place, giving a stronger, more weather-tight wall.

When a 2-day-old course of masonry was removed from the wall this section of five units came out in one piece. The load of this beam is carried by the KEYWALL reinforcement in the mortar joint.



"EXCLUSIVELY, NOW"

says Al Gans, Masonry Superintendent
R. S. Ursprung Company
Cleveland, Ohio

"I believe in reinforced masonry," says Al Gans. "In fact, I was one of the first in Cleveland to use it. But I was never satisfied with results until Keywall came along."

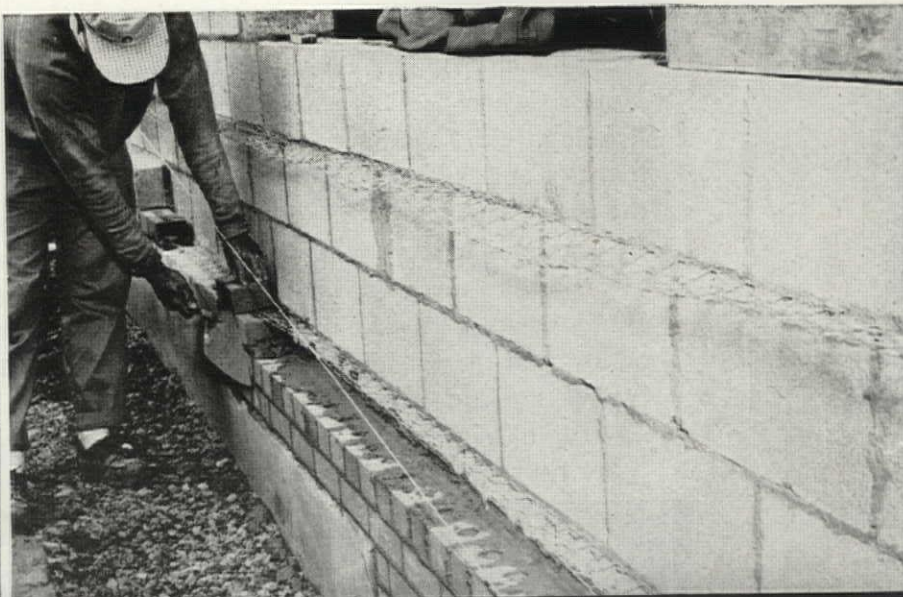
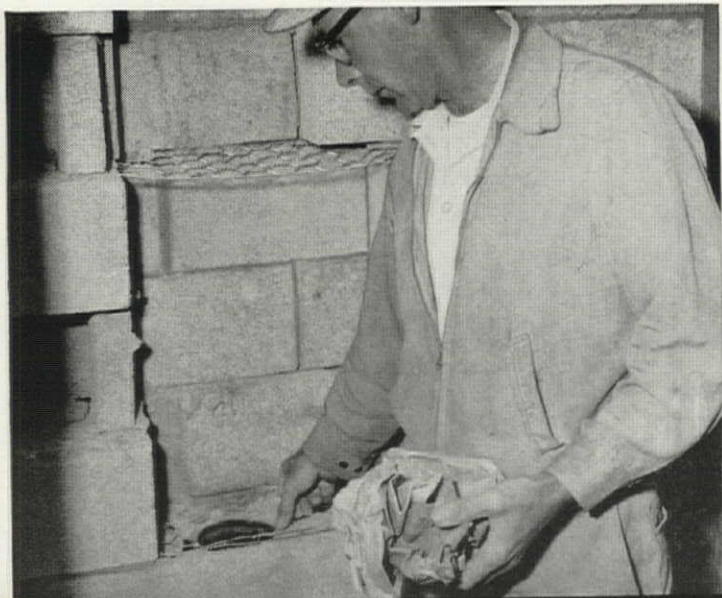
"It looked right to me. I tried it out. It solved the

problems I had with other types. The results in the wall have lived up fully to my expectations. Today, I use no other type."

Here you see some of the ways Mr. Gans is using KEYWALL to get better, stronger walls.

KEYSTONE STEEL & WIRE COMPANY

PEORIA 7, ILLINOIS



"I build a chase in the wall. Pipes, ducts and conduits are easy to install when KEYWALL is used. I run the KEYWALL right through the chase," Mr. Gans explains. "The center mesh can be cut away as required without destroying the reinforcement value."

"You can't beat KEYWALL as a wall tie," according to Mr. Gans. "It does everything a wall tie should do, and does it better. In addition, it gives reinforcement. What's more, this double-duty product costs no more in the wall than the ordinary non-reinforcing type of wall tie. With KEYWALL I omit header courses, too. KEYWALL doesn't shear when walls move, as header brick do. It's easy to see why I'm so enthusiastic about KEYWALL."



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What other people are saying

POETRY IN CHICAGO

In October, "Chicago Dynamic Week" was celebrated on the shores of Lake Michigan. Poet Laureate of the occasion and "Climax Banquet" speaker was, appropriately, Carl Sandburg

We live in the time of the colossal upright oblong. We are meeting in the city where the skyscraper was born. The first one, the Home Insurance building of more than 70 years ago and its later companion of that early period, the Rookery, are now overtowered by far taller ones who laugh at how far they gaze and what they see in the daytime across Lake Michigan and the Illinois prairie. Chain supermarkets from coast to coast, concrete highways spanning the continent for a motorized America, millions of horses vanished into horizons of thin air to be replaced by millions of steel tractors, skyways and airport timetables, towels and kerchiefs of tissue replacing linen and cotton, millions of outdoor privies banished in behalf of indoor plumbing and flush toilets, the candles of the early Lincoln generation and the later kerosene lamps replaced by the Edison light bulbs, the sweated trades and slum needle workers amalgamated and moving into middle-class comforts. And now the people, the vast millions by printer's ink and billboards, by neon signs and show windows, by radio and TV mandates over the airways night and day, the vast millions told to live better, to want more, to live more easy, to have more fun and comfort and even luxury.

Always the path of American destiny has been into the Unknown. It was never more true than now.

Portentous were those words from Lincoln in a message to Congress on December 1, 1962: "The dogmas of the quiet past are inadequate to the stormy present. We must think anew, we must act anew, we must disenthral ourselves."

TRANSIT IN THE CITY

Henry K. Norton, retired board chairman of the New York, Susquehanna & Western Railroad, added several memorable phrases to the debate concerning aerial transportation in US cities when he appeared recently before the Metropolitan Rapid Transit Commission, New York City. Among them was this judgment

The major objection to aerial transportation does not come from the passengers, who in tremendous majority would rather ride in sunlight and air and where they

can see the city than in subways. It does not come from the majority of city residents, who do not own motorcars but see overhead structures for such cars all over the city removing millions of dollars worth of property from the tax rolls. It apparently is confined to the large real estate interests who are still haunted by memories of the Third Ave. "El." However, even among those vehemently opposed to overhead structures, there is a gradual appreciation of the tremendous saving in cost in the use of overhead structures compared to subways and a doubt as to whether their objections are worth the additional cost of going underground.

NO PENCE FOR SCHOOLS

This is the paradox. We cheerfully pay \$125,000 a night to a man who entertains us with frivolities on TV, but can't spend one dollar on the adornment of a building in which our children are to acquire much of the taste and culture for their mature lives. The building must be shorn of everything except what is practical, however devoid of charm that may make it. Such is our opinion of ourselves.—*Architect Roger Greeley in a recent issue of the AIA Journal.*

INDUSTRY IN WHITE PLAINS

Like many residential cities, White Plains, N.Y. (20 mi. from New York City) has had to re-examine its views of the advisability of accepting industry. In a speech before the October meeting of the Regional Plan Assn., Mayor Edwin G. Michaelian told of White Plains' conclusions

In White Plains the most profitable enterprise from the standpoint of municipal income versus municipal out-go for services is the commercial zone. The least profitable is the one-family house zone. About midway between the two is the apartment zone.

Commerce and industry, per se, do not contribute directly to school population. And both, of course, are subject to school taxes. In White Plains, they pay 45% of the total tax bill.

In one instance a company requested that 46 acres be rezoned for purpose of establishing a home office. These 46 acres could have been developed to contain 300 one-family homes, which would probably be assessed at \$4.5 million. On the basis of the average number of children in new

continued on p. 172

developments in White Plains, such development would have added a minimum of 450 children to our school population. Instead of this, the company established its home office on the site—which is now assessed for more than one and one-half times the potential assessment for a residence development. Yet the site does not contribute (directly from these 46 acres) a single child to the school system.

With proper planning we have been able to retain, despite postwar expansion, the

basic residential character of our city.

In some instances zoning problems have been involved, public hearings have been held and objections raised by home owners in the neighborhood. Such objections are predicated largely upon allegations that rezoning will change the character of the neighborhood and cause a deterioration of property values. It has been our experience, however, that with safeguards in height restrictions, setbacks, side and rear yard limitations, commercial and residential areas can live side by side.

WHO HE?

A recent issue of England's respected The Builder viewed with editorial alarm the fact that many contemporary buildings are hard to recognize for what they are

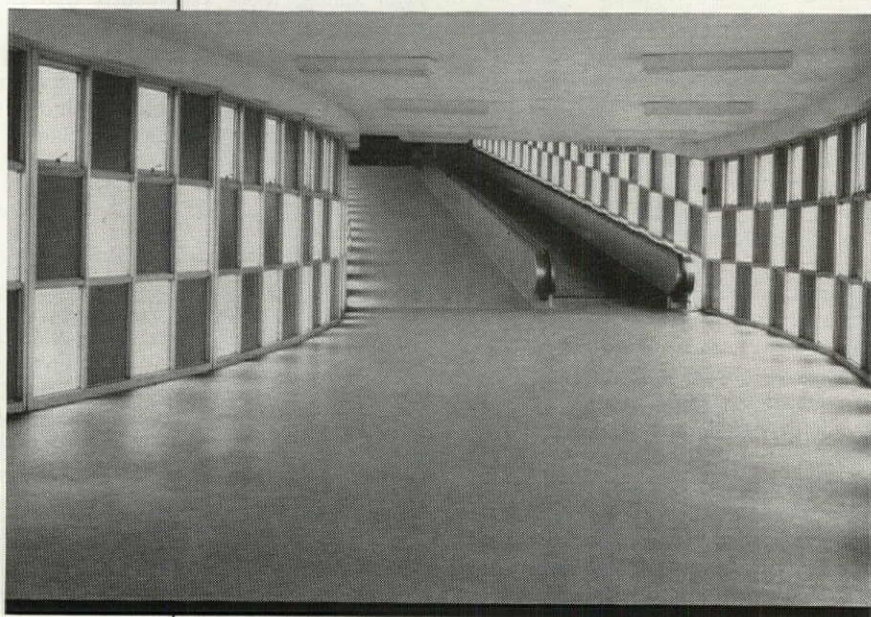
It is not to be thought that contemporary architects are deliberately trying to make their buildings look like something they are not, and one must search deeper for an explanation of this peculiarity when it occurs. One need not look further, we feel, than frame construction, which has become so dominant a feature of contemporary building. When traditional building methods were almost universally followed—and that is up to some 60 or 70 years ago—association of ideas was a powerful influence in design and consequently in public appreciation of architecture, and it was easy to stamp some buildings externally with their purpose. In the case of a church, for example, pointed arches, traceried windows and steeply pitched roofs were obvious clues, and when a steeple was added there was hardly any room for doubt about the purpose of the building. With the virtual abandonment of historical stylism things are not so easy. Many a "nontraditional" church would be unidentifiable were it not for the symbol of the Cross in the gable of the entrance front or on a side wall.

In buildings where the load-bearing wall has been abolished and the structural frame is doing all the work it would be absurd to revert to unnecessarily solid walls with traditional fenestration and decorative trappings. On the other hand, if some sort of familiar treatment is thought to be desirable, one shudders in the case of a church at the possible alternative of prefabricated Gothic cladding, if some misguided manufacturer should be criminal enough to produce it. If contemporary design is to flourish it must use contemporary construction and materials honestly.

We are all pretty well agreed that as far as possible a building should express its purpose in its elevations. It would be untrue to suggest that the architect generally fails in this aspect of his work. In some classes of building using contemporary techniques and materials he has succeeded in evolving unmistakable new types—schools, apartments and office buildings are instances—and his very success has involved him in criticism about "sameness," "dullness" and "lack of decorative embellishment." It seems to be forgotten that he is generally working within strict economic limits. He would be better praised for the success he has achieved than blamed for any comparative failure.

In any case, "contemporary" techniques and materials are in their infancy. It took a long time for masonry construction to evolve from the static calm of Classic to the dynamic vitality of Gothic. We should not expect too much too soon. At the risk

continued on p. 174



Bridge from parking lot to Houston Coliseum.

Walking Safely Over the Bayou in Texas

Thousands will walk safely over this ramp and passage way, bridging the bayou that separates the Houston Coliseum from its parking area. The surface has been made permanently non-slip—wet or dry—by ALUNDUM (CF) Aggregate in the cement. And there will be no sign of wear after years of heavy foot traffic because ALUNDUM Aggregate acts as reinforcement to concrete—making it stronger.

Whether ramp, level surface or stairways, places of public travel should be free from slipping hazards, as was wisely done by the authorities who specified ALUNDUM Aggregate for the great new Houston Coliseum.

Architect: Golemon & Rolfe, Houston, Texas
General Contractor: Fisher Construction Company, Houston, Texas

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**Architects for the Beacon
Mutual Indemnity Company's
new home office building:**
*Benham, Richards & Armstrong,
Columbus, Ohio*

of casting a deeper gloom over the "expressionists," however, the possibility has to be pointed out of buildings being even less amenable than they are at present to revealing purpose through elevations. Light cladding and curtain-wall techniques are on the increase, and their use is not limited to any particular class of work. Ultimately we may have to fall back on old-fashioned labeling or some system of symbolic devices for the identification of some of our buildings.

BUILDERS BEWARE

With tongue held stiffly in cheek, Professor C. Northgate Parkinson gives a rather morbid analysis of history's various building booms in his new book, Parkinson's Law. The more relevant sections follow*

It is now known that a perfection of planned layout is achieved only by institutions on the point of collapse. This apparently paradoxical conclusion is based upon a wealth of archaeological and his-

torical research, with the more esoteric details of which we need not concern ourselves. In general principle, however, the method pursued has been to select and date the buildings which appear to have been perfectly designed for their purpose. A study and comparison of these has tended to prove that perfection of planning is a symptom of decay. During a period of exciting discovery or progress there is no time to plan the perfect headquarters. The time for that comes later, when all the important work has been done. Perfection, we know, is finality; and finality is death.

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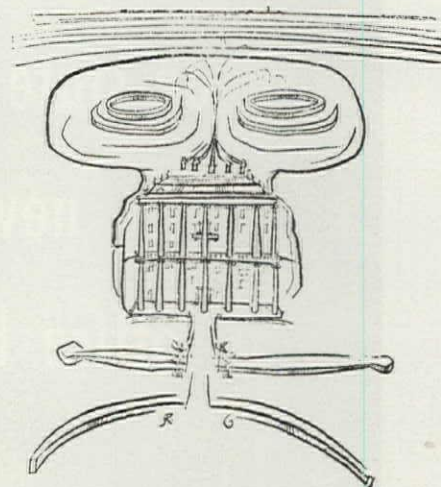


ILLUSTRATION BY OSBORN

Thus, to the casual tourist, awe-struck in front of St. Peter's, Rome, the Basilica and the Vatican must seem the ideal setting for the Papal Monarchy at the very height of its prestige and power. Here, he reflects, must Innocent III have thundered his anathema. Here must Gregory VII have laid down the law. But a glance at the guidebook will convince the traveler that the really powerful Popes reigned long before the present dome was raised, and reigned not infrequently somewhere else. The great days of the Papacy were over before the perfect setting was even planned. They were almost forgotten by the date of its completion.

The elaborate layout of the Pentagon at Arlington, Va., provides another significant lesson for planners. It was not completed until the later stages of World War II and, of course, the architecture of the great victory was not constructed here, but in the crowded and untidy Munitions building on Constitution Ave.

Even today, as the least observant visitor to Washington can see, the most monumental edifices are found to house such derelict organizations as the Departments of Commerce and Labor, while the more active agencies occupy half-completed quarters. Indeed, much of the more urgent business of government goes forward in "temporary" structures erected during World War I, and shrewdly pre-

*Parkinson's Law, Houghton Mifflin Co., Boston (1957).

continued on p. 176



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served for their stimulating effect on administration.

It is by no means certain that an influential reader of this research could prolong the life of a dying institution merely by depriving it of its streamlined headquarters. What he can do, however, with more confidence, is to prevent any organization strangling itself at birth. Examples abound of new institutions coming into existence with a full establishment of deputy directors, consultants and executives, all these coming together in a build-

ing specially designed for their purpose. And experience proves that such an institution will die. It is choked by its own perfection. It cannot take root for lack of soil. It cannot grow naturally for it is already grown. Fruitless by its very nature, it cannot even flower. When we see an example of such planning—when we are confronted for example by the building designed for the United Nations—the experts among us shake their heads sadly, draw a sheet over the corpse, and tiptoe quietly into the open air.

FINNISH MASTER

Each year the Royal Institute of British Architects hears an "Annual Discourse" by the recipient of its Royal Gold Medal. This year's medalist and speaker was the distinguished Finnish architect, Alvar Aalto. His remarks were published in The Journal of the RIBA

There are only two things in art: humanity or not. The mere form, detail in itself, does not create a sense of humanity. We have today enough of superficial and rather bad architecture which is modern.

The speculator in real estate is the No. 1 enemy of the architect. But there are other enemies too who may be even more difficult to defeat. For instance, we have the big question of building economy: "What form of house is most economical?" If we consider an eight-floor apartment building there is the question: "How wide should it be? How long? What is the cheapest way we can give people the badly needed housing?" This may be called science. But it is not. The answer is very, very simple—the widest house is the cheapest. One can go further and say that the most inhuman house is the cheapest; that the most expensive light is daylight—let us keep that out, and then we get cheaper housing. The most expensive thing is fresh air, because it is not only a question of ventilation, but also a question of city planning. Fresh air for human beings costs acres of ground and good gardens and forests and meadows.

Real building economy cannot be achieved in this ridiculous way. The real building economy is how much of the good things, at how cheap a cost, we can give. We should never forget that we are building for human beings. It is the same in all business—the relationship between the quality of the product and the price of the product is what sets the economy. And it is most truly thus in architecture.

ANOTHER SATELLITE

The Russian word for "satellite" can, it seems, also be applied to towns in urban orbits. The September issue of the British Town and Country Planning carried an article by D. Hojaye, secretary of the USSR Union of Architects, in which the word was defined even more exactly

In connection with the coming construction of satellite towns in the USSR, Soviet architects are showing a great interest in the work done in the postwar period to depopulate London.

The experience in building new towns around London like Harlow, Crawley, Stevenage and Basildon, among others, is being thoroughly studied. What interests us in particular is the solution of city-traffic problems, and also the organization of a single center of commerce isolated

continued on p. 178



Aquinas College
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Michigan

Sister M. Angus, O.P.
Manager, Cafeteria

Architect
D. A. Bohlen
Indianapolis



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★ The College is "delighted with the new Van equipment" . . . found Van "most helpful in planning cafeteria kitchen and serving counter . . . in keeping down cost."

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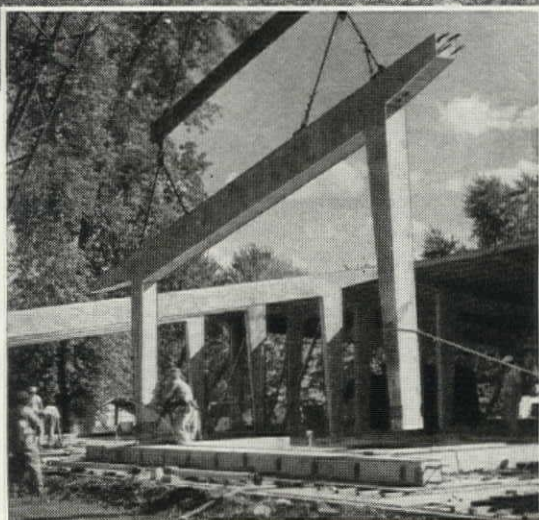
The John Van Range Co.

EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

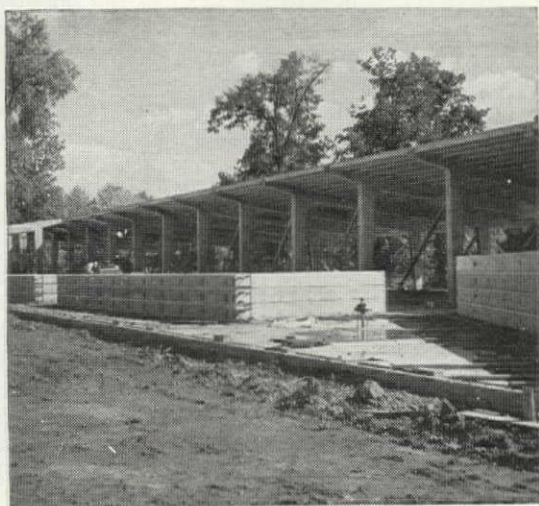
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Large photo shows one wing of the Linton-Stockton School. Small photo above shows a close-up view of one of the precast concrete bents while photo below shows method of stockpiling concrete bents before erection. Designed by Thomas C. Dorste and Spiros G. Pantazi of Indianapolis. Structural engineer was Floyd E. Burroughs, also of Indianapolis.



Precast concrete members make low-cost school possible

The new Linton-Stockton Elementary School in Linton, Ind. has been widely acclaimed in educational circles. It is an example of the speed and economy with which urgently needed classrooms can be provided quickly and economically.

Saving in time and money resulted from the use of precast concrete construction. The frame is formed by precast concrete bents supporting precast channel slabs. Integral parts of the bents are arms for cantilevered sections. Both bents and roof slabs were precast on the site. Careful planning, standardization of members and utmost re-use of forms held down costs and construction time.

As a result the 80,000-sq. ft. school was built for \$870,000. Its 36 classrooms, averaging 1200 sq. ft. in size, will accommodate 1,200 pupils. The restrooms and halls are floored with terrazzo, which was also used for wainscoting in the building.

Modern precast concrete schools such as this not only have low initial cost but also low maintenance cost, long life and low annual cost. And they're fire-safe, too! So make your next school precast concrete.

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from transport traffic and of smaller trading centers in the residential districts. However, on the whole Soviet satellite towns will differ considerably from their counterparts abroad and be laid out according to our own principles of town building.

The type of satellite town widespread in Europe, and especially in America, does not have any industrial enterprises or offices. Hence the population of such a town is compelled to commute daily to work in the big city. A town of this type

has come to be known as a "dormitory town."

Soviet satellite towns cannot for the most part be modeled after a type like that, inasmuch as daily distant commuting to work is a source of great inconvenience to the population. It is therefore intended to transfer certain enterprises to the satellite towns.

In choosing a location for the satellite towns, a necessary condition is the availability of convenient means of communication with the city, best of all being an

electrified railway line and a good automobile highway.

If it is taken into consideration that, even when there are some enterprises and offices of its own in the satellite town, a certain portion of the population may still work in the city, Soviet architects are of the opinion that the town and city should not be more than an hour's commuting distance apart.

On the basis of plans and estimates already completed, Soviet town builders have now come to the conclusion that it will be most feasible in the USSR to lay out satellite towns for a population of from 40,000 to 80,000.

A town of that size provides all the opportunities for creating the healthiest possible conditions of life and furnishes the conveniences for public service. On the other hand, it does not require expensive transport and capital construction in the water-supply system. The road network and town planning and organization of public services in general come to much less than in a big city. The building of smaller towns is therefore, as a rule, unprofitable.

What types of dwellings should be built in the satellite towns? Should they be private one-story houses with nice plots of ground around them or four-story dwellings of the urban type? Or, finally, should the prevailing type of building be a two-story house with small gardens attached to the apartments?

There are differing points of view on that score among Soviet architects. It seems to me that all the types of buildings mentioned will find a place for themselves in the satellite cities.

However, one thing is clear, and that is that the private one-family house, for example, which to a certain extent may be recognized as the ideal type of house from the standpoint of living comfort, cannot be taken as a basis for building up the satellite towns. Besides boosting construction costs of the house itself, it involves very big expenditures on engineering equipment and improvements. This type of house may be accepted only for erection in separate parts of the satellite town set aside for those who wish to build their own homes. The bulk of the territory, on the other hand, which will be built up at the expense of state funds, should have either four-story or two-story houses.

The four-story house is the most economical. But the two-story dwelling made of prefabricated blocks in which each apartment has a separate exit, is acceptable as far as construction costs go, and makes better use of the advantages of location amidst nature that lie at the basis of the very idea of a satellite town.

The four-story dwellings, as the cheapest and the ones that best lend themselves to industrial methods of construction, will likewise find extensive application, especially in the neighborhood of Moscow, where experience in industrial methods of construction has already been accumulated.

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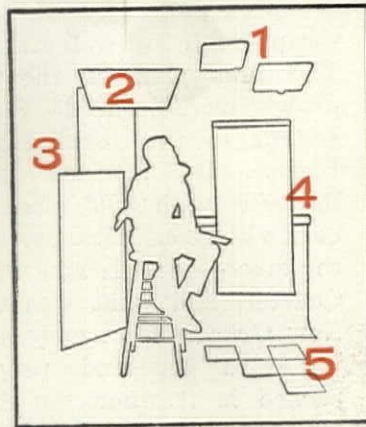
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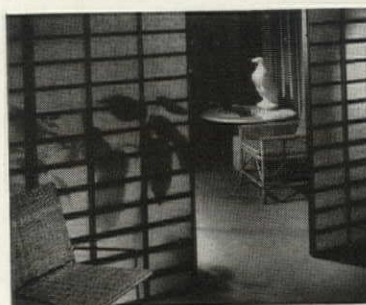
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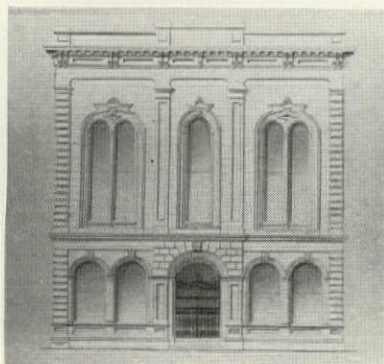
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French Quarter



Garden District home

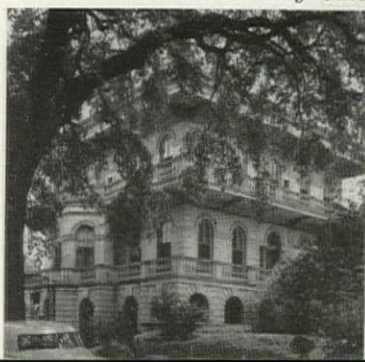


Louisiana National Bank



Customs House

Louisiana Jockey Club



escape route by water at his rear. The first plan of the city was drawn by Adrien de Pauger, assistant to the royal engineer of France. He modeled it on La Rochelle, with 300' blocks moving back with geometrical precision from the river—what is now the French Quarter, and what was the whole New Orleans for nearly a century.

Twelve thousand people were packed in it when the Americans took over Louisiana in 1803. Fifteen years later New Orleans' population was 41,000, still largely in the single square mile of the original town plan. Meanwhile plantations had been built up and down the river as fast as chemical plants in the present. Something had to give, and in 1822 James Caldwell, an English-born actor who had become the leading builder, and Sam Peters, one of the wealthiest merchants at 28, devised the first plan for expansion.

Their plan was magnificent. They proposed hotels and terminals on Lake Pontchartrain, for the steamers crossing the lake, with an American Quarter like the French Quarter on the Mississippi, and a railroad connecting them. Drainage, waterworks, gas works and street paving at the beginning were to prepare for a city with room enough to become a world metropolis.

The land required was owned by Bernard de Marigny, one of the wealthiest Creoles, who agreed to sell. At the last moment de Marigny backed out, saying that his wife, whose signature was needed on some of the documents, was unable to be present. Enraged, Peters accused him of planning to exploit the plan himself, swore that nothing but weeds would grow in his development if he did, and bought the quagmire on the opposite side of the French Quarter, across the Canal, for the American colony.

In the building war that began immediately, the French had such architects as Jacques de Pouilly, who built the St. Louis Hotel in the French Quarter, the finest in America, at a cost of \$1 million. But the Americans acquired James Gallier, who, in the considered opinion of Buford Pickens, was the greatest designer of the age. Gallier was an Irishman who studied architecture in Dublin while supporting himself as a carpenter. He accepted a \$10,-

000 fee to build the \$800,000 St. Charles Hotel in the hope that it could make his reputation. It made the American section of New Orleans. St. Charles Ave. became "the gayest and most animated street in the US, if not in the world," and Gallier became the Christopher Wren of the city.

In his 15-year practice in New Orleans, Gallier built the City Hall, the Boston Club, the Commercial Exchange, the Robb House that became Sophia Newcomb College, and so many of the architectural monuments of Louisiana that it is generally a safe guess, if an old building appears perfectly adapted to its setting, that it was his work or derived from his influence. He pulled together the varied forms of native building into a distinctive New Orleans architecture of great originality and charm, deep verandahs behind groves of pillars, heavy columns combined with the imponderous, elevated, West Indian plantation space and grandeur. He became an authority on matters of harmony of design and setting, studying the location of Coptic monasteries in Egypt, and the genius shown in the selection of the site of Carthage. But he was above all practical, operating his own sawmill for ten years so he could get the kind of cypress he needed for his building, and starting the ten-hour day in New Orleans so he could attract good workmen to his side. Of all his magnificent structures, Gallier was proudest of having built the first industrial smokestack in New Orleans to remain standing. The three previous ones had fallen in the soft mud on which New Orleans is built.

One result of the building was that the Creole aristocrats began to leave the dense French Quarter (where a 50' frontage on Chartres St. brought \$50,000 as early as 1835) for the American. There, in the Garden District, the mansions were half-hidden in magnolias and live oaks, surrounded by gardens a block in extent. The Baroness Pontalba (whose father had built St. Louis Cathedral on Jackson Sq., then the biggest in the US, out of his personal funds) tried to stop the exodus by building the finest living quarters in the New World. Gallier had already retired because of fail-

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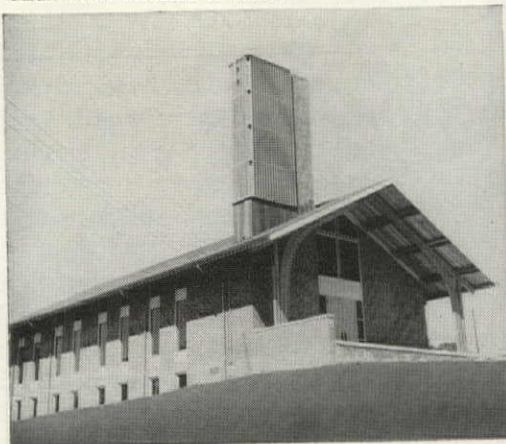


Aetna Life Insurance Co., Denver, Colo. Architect: Thomas J. Moore



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ing eyesight. He made all his own drawings, exquisitely finished, and works of art in themselves. Moreover, he was a stubborn Protestant, a little suspicious of the worldly French. But his son had married a Creole girl, and built the Pontalba apartments from Gallier's design, matching structures on opposite sides of the square, red brick and black ironwork, wide galleries running the entire length of the second and third floors, immense rooms, high windows, the last great effort of the French to retain their dominance.

The Baroness Pontalba failed; the exodus from the French Quarter continued, and it passed into a state of trancelike decay, to reawaken nearly a century later as a haven for writers and artists, and presently a tourist mart. Meanwhile the physical appearance of New Orleans, although in places it is just as raw and ramshackle as any other quick-growing American city, is touched in a great many spots with a quality that makes it different from any other city in America. In part its distinctive quality lies in leisurely attention to surface and decoration—there was a great deal that came down from the plantation houses apart from the wrought iron which makes a quick sale to the tourists—and a good deal resulted out of the resolution of ancient conflicts in social life. Traditionally, for instance, all doors and trim in New Orleans were painted green. In the long economic blight that followed the Civil War, an inferior local paint came into use. Under the sun and rain it turned blue, yellow, violet, or even remained green, but it was a green found nowhere else on earth, "not a bottle green, but a sort of arsenical viridian," and this unique shade took its place among the qualities contributing to New Orleans, just as reflections from the canals give a special air to Venice, or the ubiquitous tile walls still subtly color Lisbon.

Restless future?

Morrison believes that New Orleans must now prepare for a popu-

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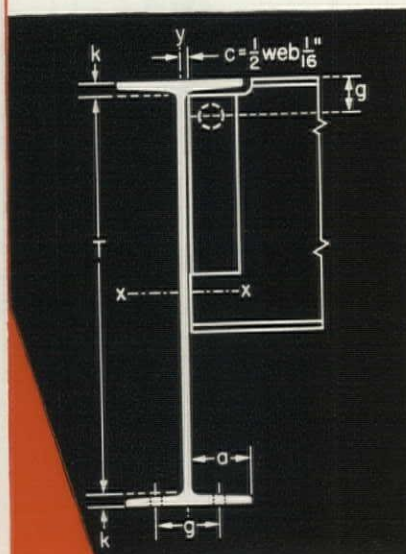
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Flange—Width	4.0 in.	Mean thickness	1/4 in.
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r	5.40 in.	k	9 1/16 in.
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S	1.32 in. ³	c	3/16 in.
r	.72 in.	Max. flange rivet	3/4 in.
		Usual gage—g	2 1/4 in.



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lation of two million. His personal interest in its many-sided development is in the port—he was an Army port director in England and Germany during the war—and each year since his election he has appeared at Washington hearings for the development of the waterways below New Orleans, which he describes as second in size only to the

St. Lawrence seaway, and just as important. There is to be a 70-mi. straight waterway to the Gulf, the Tidewater Channel, running beside the 117 winding miles of the Mississippi. Work has already started on the development of the Intracoastal Canal, over which barges now move in endless streams in the general direction of Mobile. It is being deep-

ened from 12' to 40', and widened to 1,500', providing still another route to the Gulf, with a terminal that will add another hundred berthing locations to the hundred that the port has already built on the Mississippi.

Then there is what Charles Nutter, the director of International House, called "the hottest thing around here right now"—the Mississippi River Economic Council, chartered May 10, 1957, with powers and objectives as broad as the Mississippi. It can do about everything except issue paper money. Formed of the twelve parishes, the Louisiana equivalent of counties, in the area of industrial growth, its purpose is "to increase the economy along the lower river and to take such steps as are within its means to provide an economic, political and social climate to the enhancement of the area's productivity." The Council is to secure the passage and enforcement of the laws to promote the economy, and to plan for construction of streets, roads, water systems, water and air purification systems, drainage, sewage, planning, zoning and education.

An even more recent development is that New Orleans' business leaders and government officials have been meeting informally within the past two months to discuss some fundamental matters: what sort of a city New Orleans really is, and what its citizens want it to become. In these discussions one point was evident at the beginning. With all its recent growth and progress, no one wants any essential change to alter the character of the city. Everyone wants it to remain New Orleans. It would not be too much to say that everyone is determined that the native flavor of the city is going to be preserved, though every foot of land nearby is steaming and bubbling with chemical vats and fractionating towers. Meeting these specifications will mean a greater test of its imaginative spirits than New Orleans has ever faced. It needs a James Gallier of industry, a James Gallier of landscape and of large-scale planning as well as architecture.

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WELDWOOD PANELING makes a pleasant background for eating, is easy to keep clean even near cooking areas. Shown: antiqued Weldwood walnut Paneling, B/G Restaurant, 10 E. 44th St., New York. Architect: Herbert B. Beidler, Chicago. Cabinet Contractor: Equipment Manufacturing Company of Chicago.



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FREE WELDWOOD BOOKLET. "Functional Beauty for Business and Institutional Interiors." Write for your copy. We will be glad to have a Weldwood Architects' Service Representative consult with you—no obligation. United States Plywood Corporation, Dept. AF12-57, 55 W. 44th St., New York 36, N. Y.

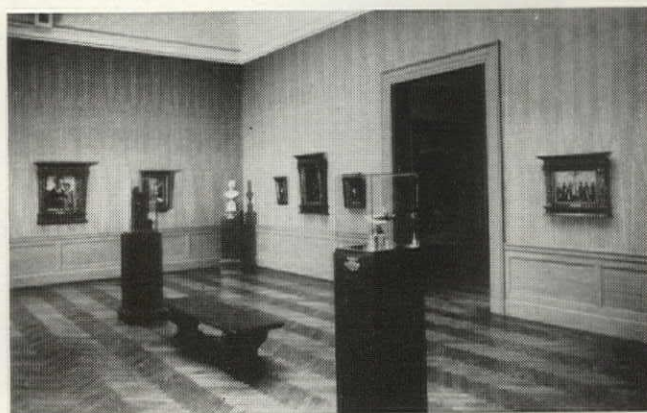


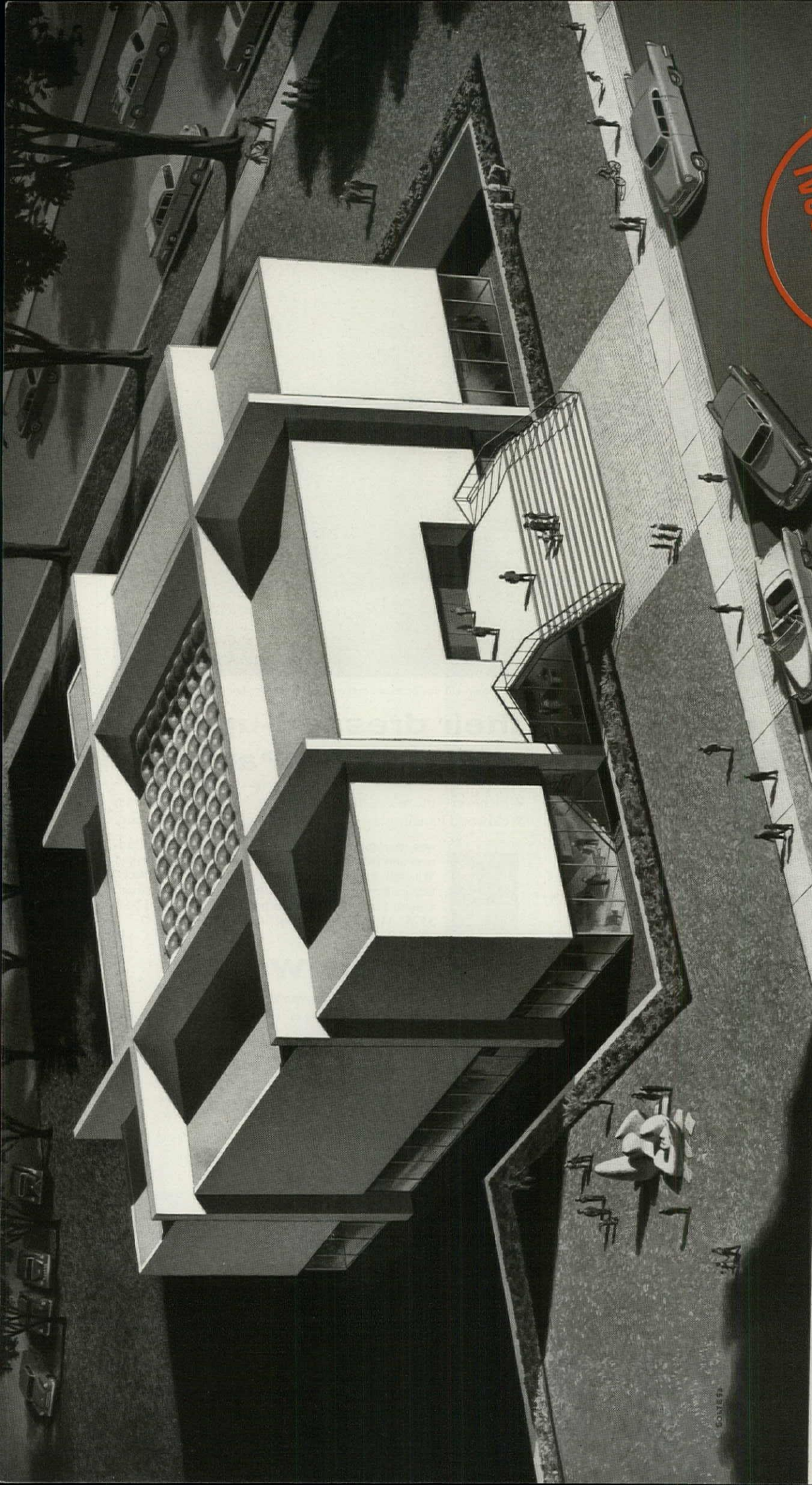
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WELDWOOD FLEXWOOD®—selected wood veneer backed with cloth—comes in more than 40 woods, can be hung quickly on curved or flat walls for low maintenance, real wood luxury. Shown: Korina® Flexwood, Altman Galleries, Metropolitan Museum of Art, N. Y. Installed by Kalflex, Inc.





Design for Munson-Williams-Proctor Institute, Ulica, N. Y.

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"The firm line and compact form of a concrete cube give this house of art beauty without ornament. Concrete makes the walls clean and sheer. They are prestressed to prevent cracking. Concrete is also used for the supporting columns and girders, prestressed for strength to support the fundamental cube. This plan eliminates the need for internal supports, allows staircases and balconies to hang from the roof for airy spaciousness. Here simplicity of architecture made possible by concrete is used as a setting for works of art."

PHILIP JOHNSON, *Architect*

■ One of a series of advertisements being presented in national magazines by Universal Atlas — to promote interest in architectural contributions for a greater America through the medium of concrete.


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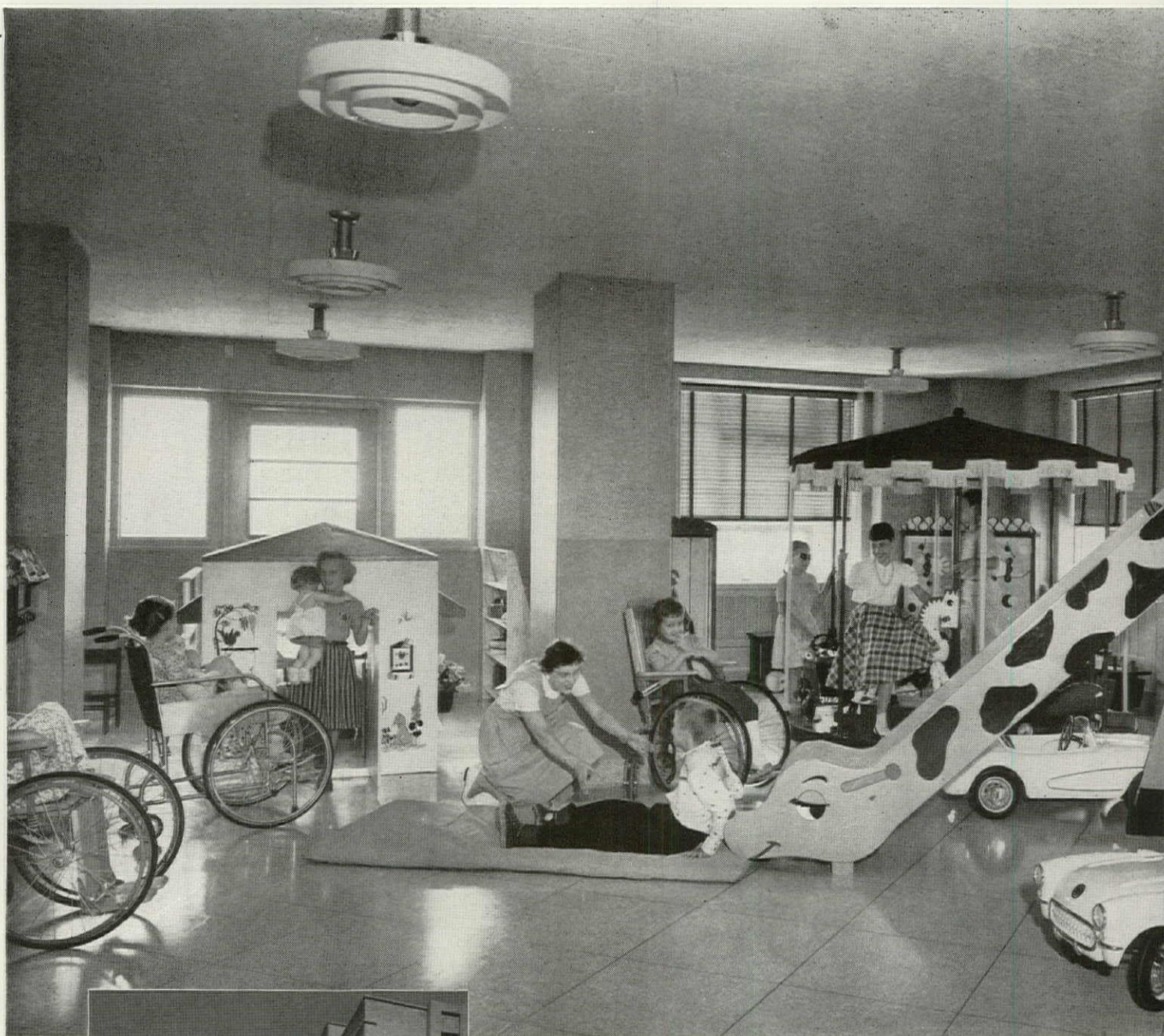
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*Cardinal Glennon Memorial Hospital for Children, St. Louis, Missouri. Maguolo and Quick, architects, St. Louis; Harry F. Wilson, mechanical engineer, St. Louis; John B. Gutmann Construction Company, general contractor, St. Louis.

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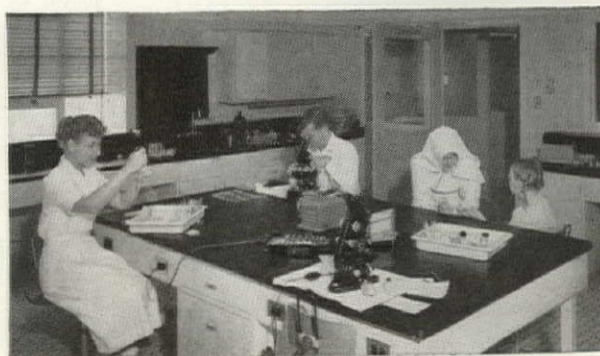
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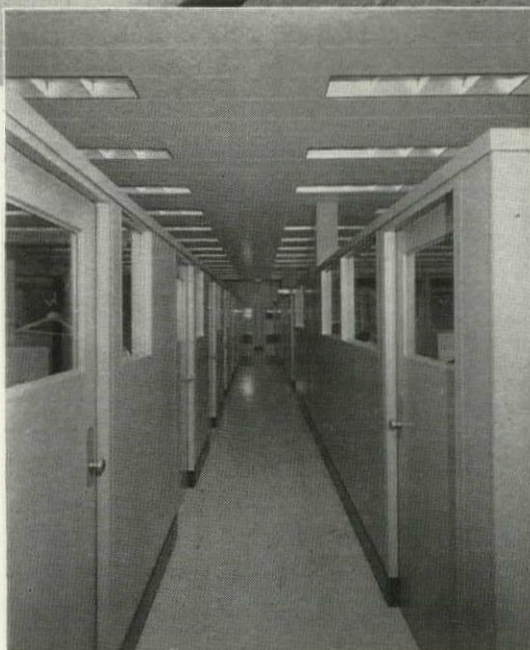
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... *at rock-bottom cost!***



**Write for your copy
"STAINLESS STEEL for STORE
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Sure, the owners will need a good chef and good management in their kitchen and dining-rooms—but first of all, they'll need stainless steel equipment! That's where to start for the highest sanitary standards—the easiest, quickest cleaning and lowest-cost maintenance. And that's where to start for the greatest long-term economy, too—because stainless steel can't chip, crack, peel or wear off. It costs a building owner much less than anything else in the long run because it literally lasts for a lifetime . . . stands up under the heaviest service and stays beautiful all the way. ● In the kitchen, in the dining-room (and for structural details, too) specify *stainless steel* . . . it pays! *Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*

Make it BETTER-and LONGER LASTING-with

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**Round columns of concrete
an architectural feature
of Albuquerque
Civic Auditorium**



Albuquerque Civic Auditorium, Albuquerque, N. M.
Ferguson, Stevens and Associates, architects.
Lembke, Clough and King, Inc., contractors
Photos by Herbert W. Crittenden.

**Specify low-cost
SONOCO SONOTUBE® FIBRE FORMS
to erect columns like these**

Design round concrete columns into a structure and save construction time and money!

The architects for the municipally-owned Albuquerque Auditorium utilized round columns of concrete to achieve an architectural feature as well as to serve a functional purpose.

These columns were formed with cost-saving 16" I.D. Sonoco SONOTUBE Fibre Forms.

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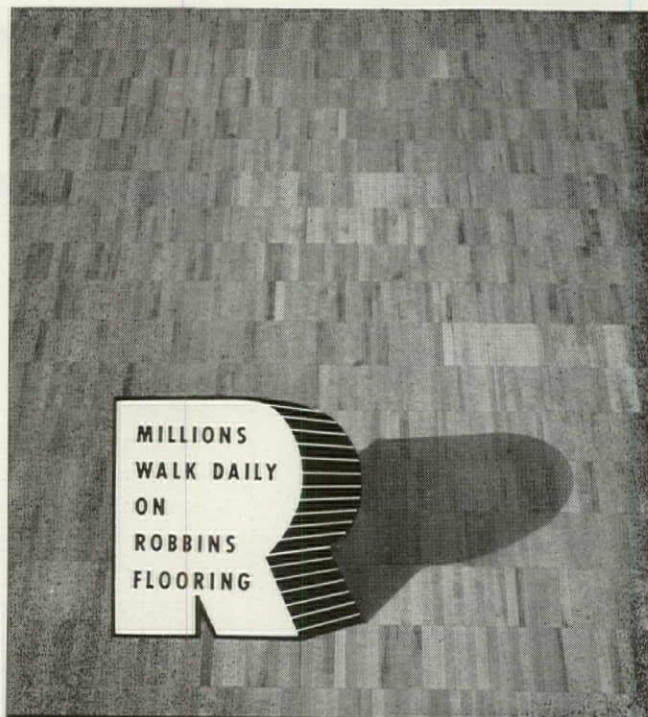
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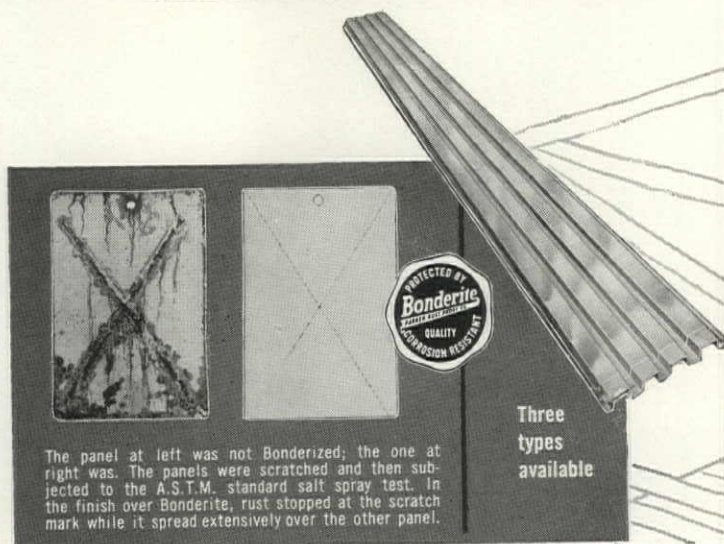
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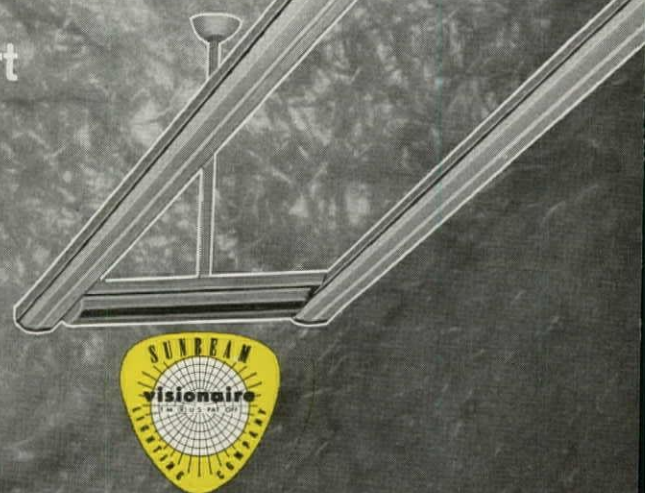


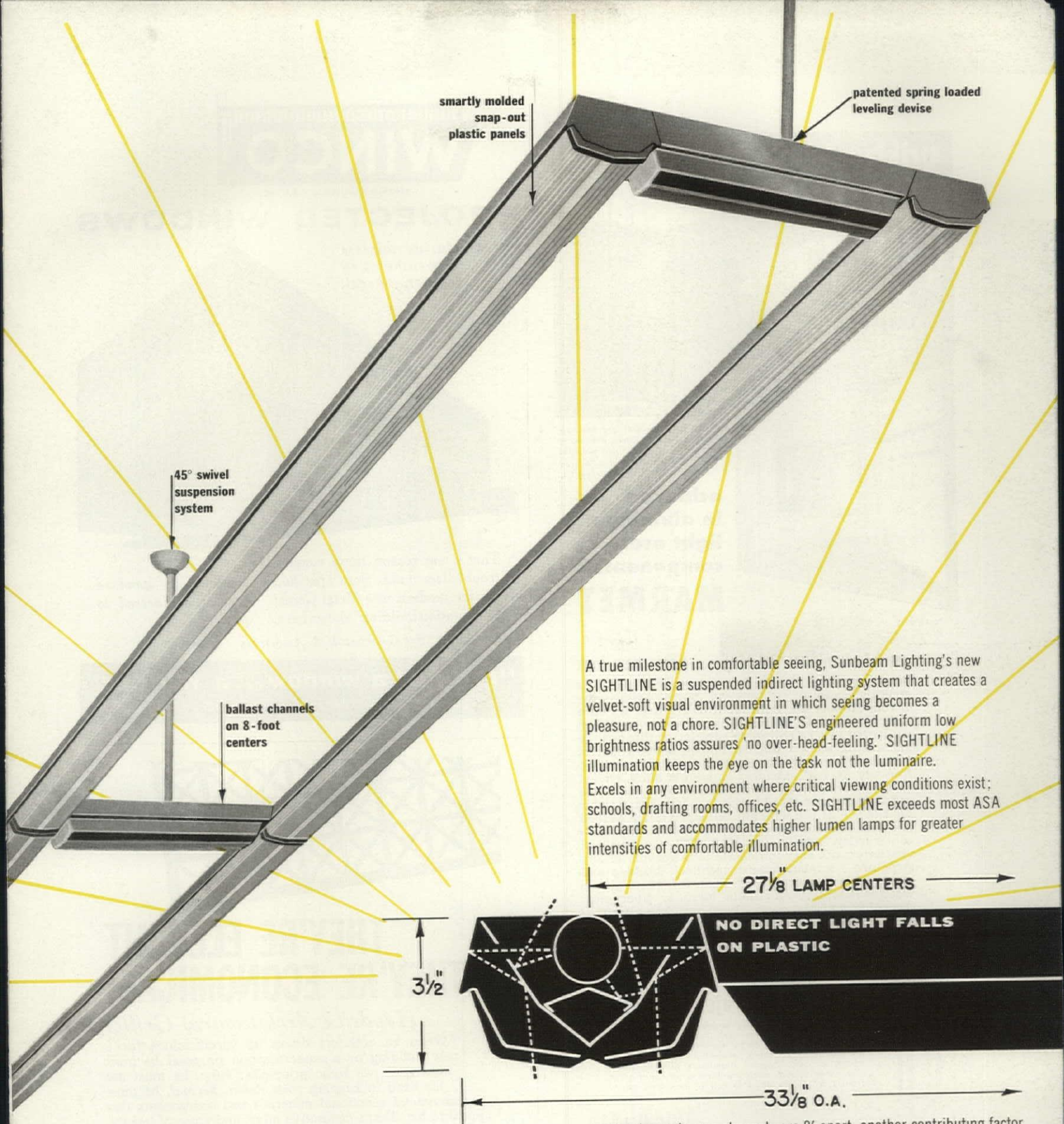
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RD-3

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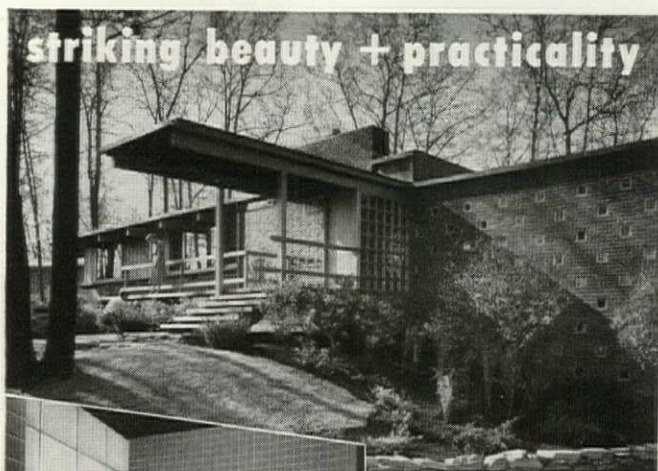
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33 ¹/₈" O.A.

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Decorator—Marion Quinlan
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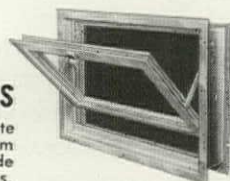
special aluminum finishing . . . keeps new look

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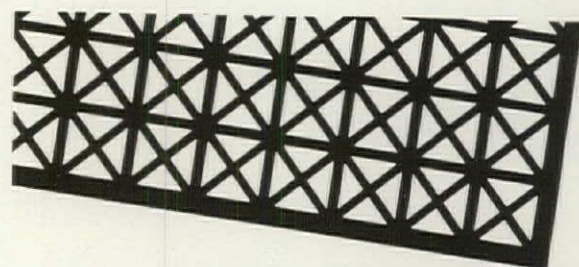
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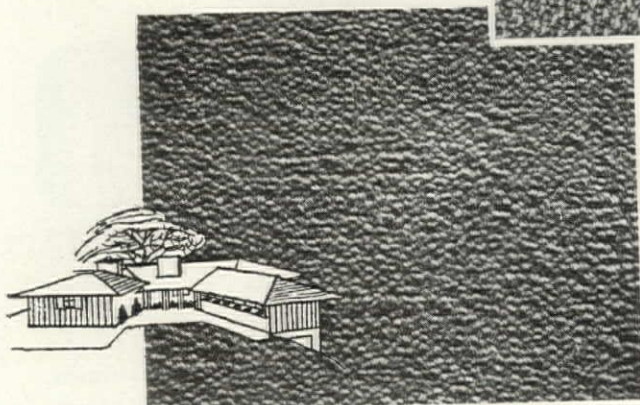
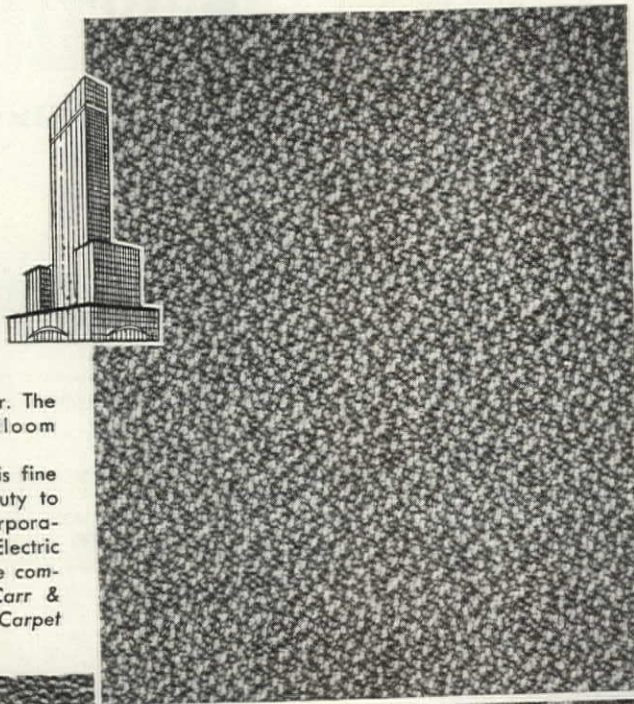
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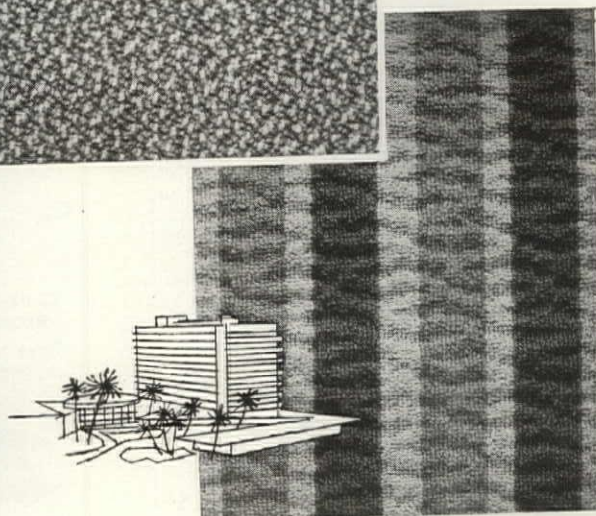
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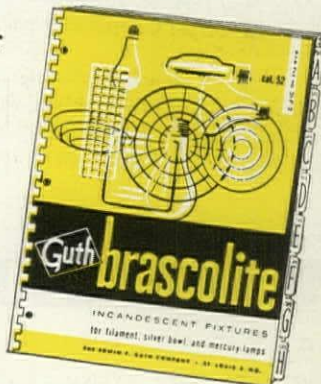
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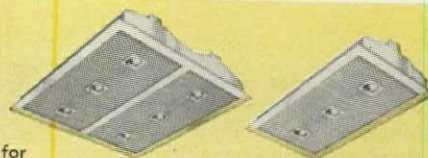
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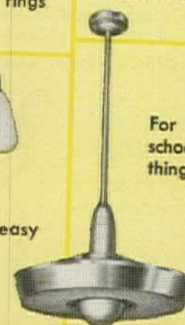
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Excerpt from Article in
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Duo Washfountains

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John H. Lyons,
President
International Association
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Ornamental Iron Workers

Last year we had the pleasure of sending you the Iron Workers Calendar. Your immediate response to it was gratifying. This encouraged us to create our 1958 Iron Workers Calendar, which will be mailed to you this month.

We hope that it will, in a good measure, pay tribute to the world's greatest architects, designers, builders, industrialists, and to all men of vision, for their continued contribution to world progress.

Our 1958 Special Calendar again features full color reproductions of some of the outstanding buildings of "Metal Curtain Wall" construction in our country...glorious examples of man's ingenuity geared to progress.

The International Association of Bridge, Structural and Ornamental Iron Workers extend to you and your organizations Best Wishes for a Happy New Year.

John H. Lyons, President

INTERNATIONAL ASSOCIATION OF BRIDGE, STRUCTURAL AND ORNAMENTAL IRON WORKERS
SUITE 300 - CONTINENTAL BUILDING, 3615 OLIVE STREET, ST. LOUIS 8, MISSOURI



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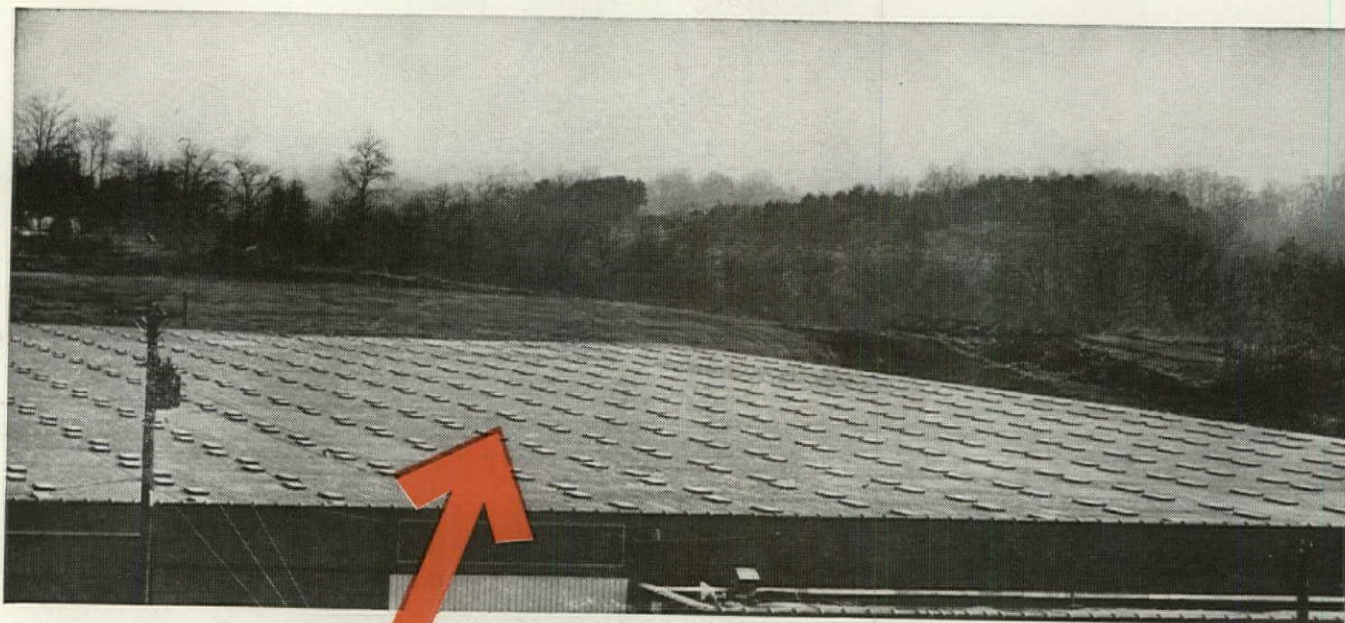
Pictured above is a typical example of what can be done to give a building a new, modern look.

By removing the old masonry exterior and substituting a new light-weight aluminum curtain wall, the architects, Sylvan Bien and Robert Bien, not only improved the appearance of the building, but also increased the rentable floor space.

In this particular case, the owners also enlarged the building by adding 6 additional stories in the front and 12 in the rear to further increase rental income. Because of the light-weight of the aluminum curtain wall and by using light-weight flooring, only slight reinforcing of the original structural framing was necessary.

The Curtain Wall (100,000 square feet) consists of 850 Permatite Single Hung, 850 Fixed Windows, Extruded Mullions and Spandrels, Pier Facings and Copings.





It's a roof and a ceiling in one . . .



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Notice the broad, open interior. Provides more usable floor space, easier vehicular travel and more efficient materials handling. All this is possible because lighter, stronger Tri-Rib Roof Deck permits fewer supporting columns as well as shallower footings, no sub-purlins. Tri-Rib also made it easier to install and frame the skylights and ventilators . . . and improved visibility throughout the entire warehouse without artificial light.

By painting the underside of Wheeling Tri-Rib white the owners were also afforded a functional, efficient ceiling at the same time. A considerable savings in itself.

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A continuing review of international building

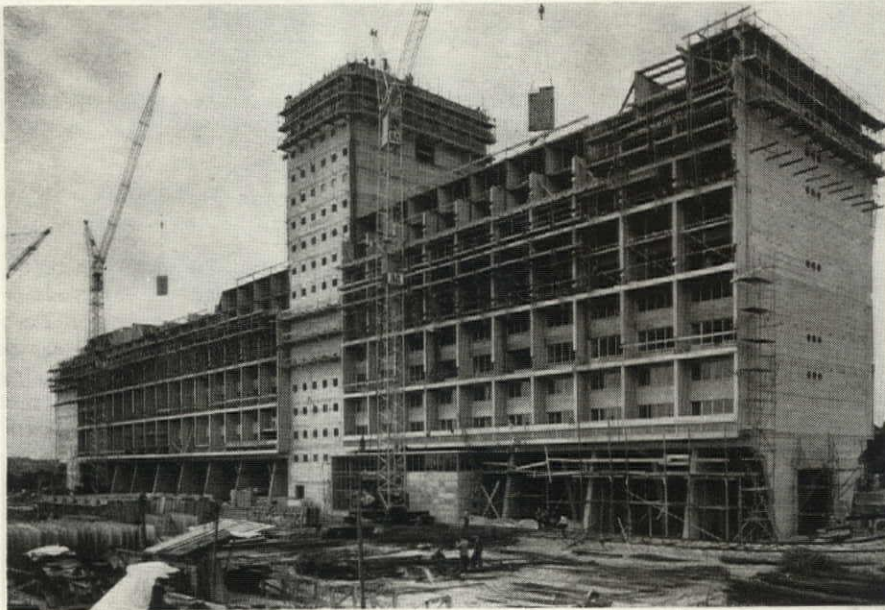
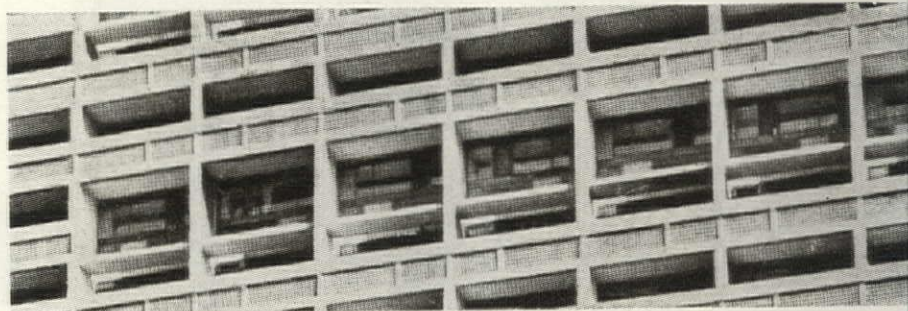


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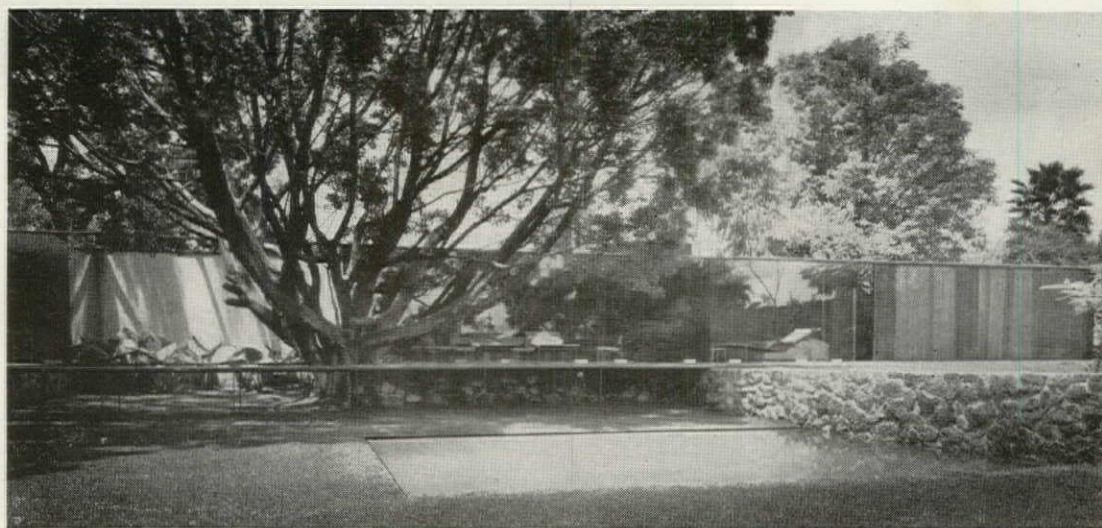
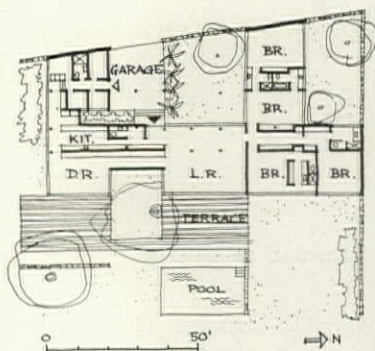
SCANDAL IN BERLIN

Because detailed plans were arriving slowly from Paris, the expeditors and managers of Berlin's international building exhibition (FORUM, Sept. '57) went ahead with a surprising interpretation of Le Corbusier's ideas for a 17-story apartment building. Surprises: the façade, which "Corbu" had developed from his Nantes *unité d'habitation* (below) was given short shrift (no horizontal louvers, no special window pattern); the power plant, which he had wanted separately housed, was set prominently between the building's stilts. A battle for the architect's basic rights is now raging.



COLOR IN CARACAS

Above its surrounding workshops and exhibition areas the new home of Caracas City University's Faculty of Architecture and Urbanism rises like a flashily dressed professor. Heavily sunshaded and weirdly roofed, the building holds its own as a sight worth seeing even in Caracas, where modern architects seem to have taken over the city. It was designed by Dr. Carlos Raúl Villanueva, who credits the polychromatic exterior to Painter Alejandro Otero.



MEXICAN LOOKING GLASS

In fashionable, residential Cuernavaca there is the same admiration for the slim line that exists in other style-conscious suburbs of the Western World. For his Cuernavaca clients, Mexican Architect Victor de la Lama therefore designed a

house that takes thinness seriously, almost to the vanishing point. Its finely drawn lines and glass panels seem to contain nothing, exclude nothing, support nothing, like a house encountered halfway through the looking glass.

F. MURA SAWA



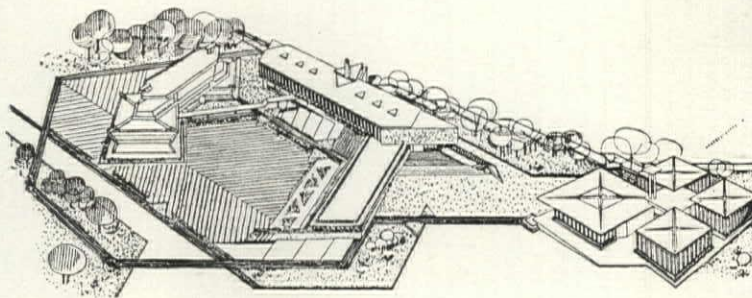
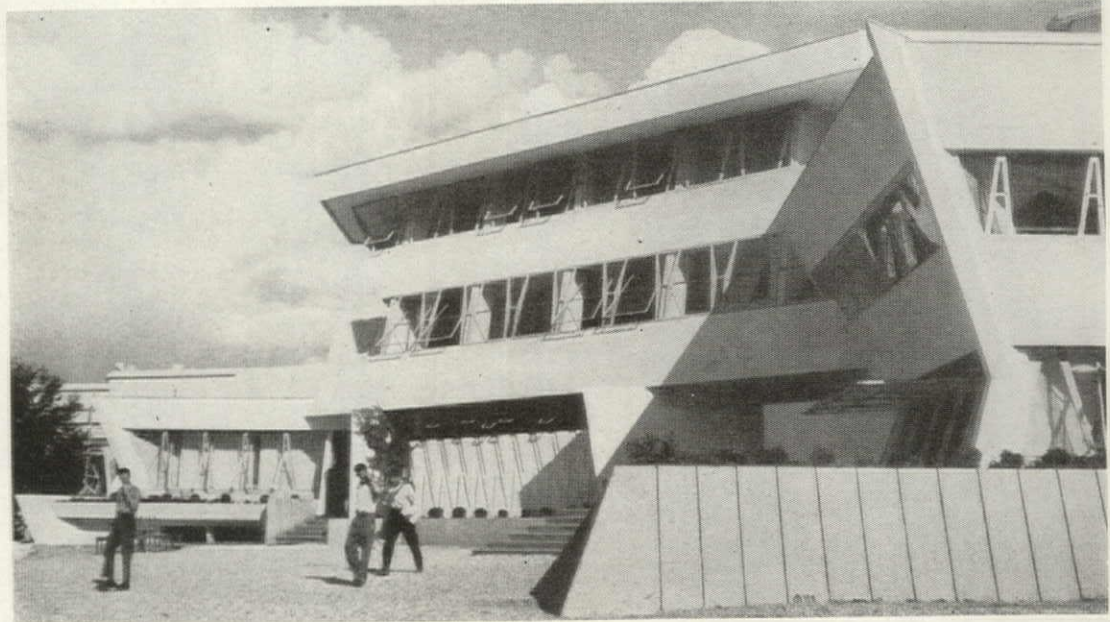
TOKYO DOWNDRAFT

Beneath an electrical billboard that flashes news over downtown Tokyo is a 13-story building purported to be both windowless and doorless. But the whole truth has not been told. Light filters into the building through three walls made of blue glass blocks (above)—but there are additional “vents” that work windowwise. People

come in through “air doors”—but there are also a number of supplementary, old-fashioned doors. The building’s major tenants are the Yomiuri newspapers and the Sogo Department Store. Minor tenants include two theaters, a ceremonial tearoom and a spacious roof garden. Architects of it all were Murano & Mori.

TRIESTE BOYS' TOWN

For the past eight years a complex of prestressed concrete buildings has been going up outside Trieste that looks neither Italian nor Yugoslavian. The well-spread-out "Boys' Town" for the region's orphans looks, indeed, as if it could only have been the work of one of Frank Lloyd Wright's more devoted if less understanding students. The angular design, the rough-patterned surfaces, the generous use of prefabricated elements, point to Taliesin. The fact is, however, that 36-year-old Architect Marcello D'Olivio went no farther than Venice for his architectural studies. At this point in its construction the complex consists of a dining hall (right, above), a 120-boy dormitory and school, and a print shop for vocational training (right, below).



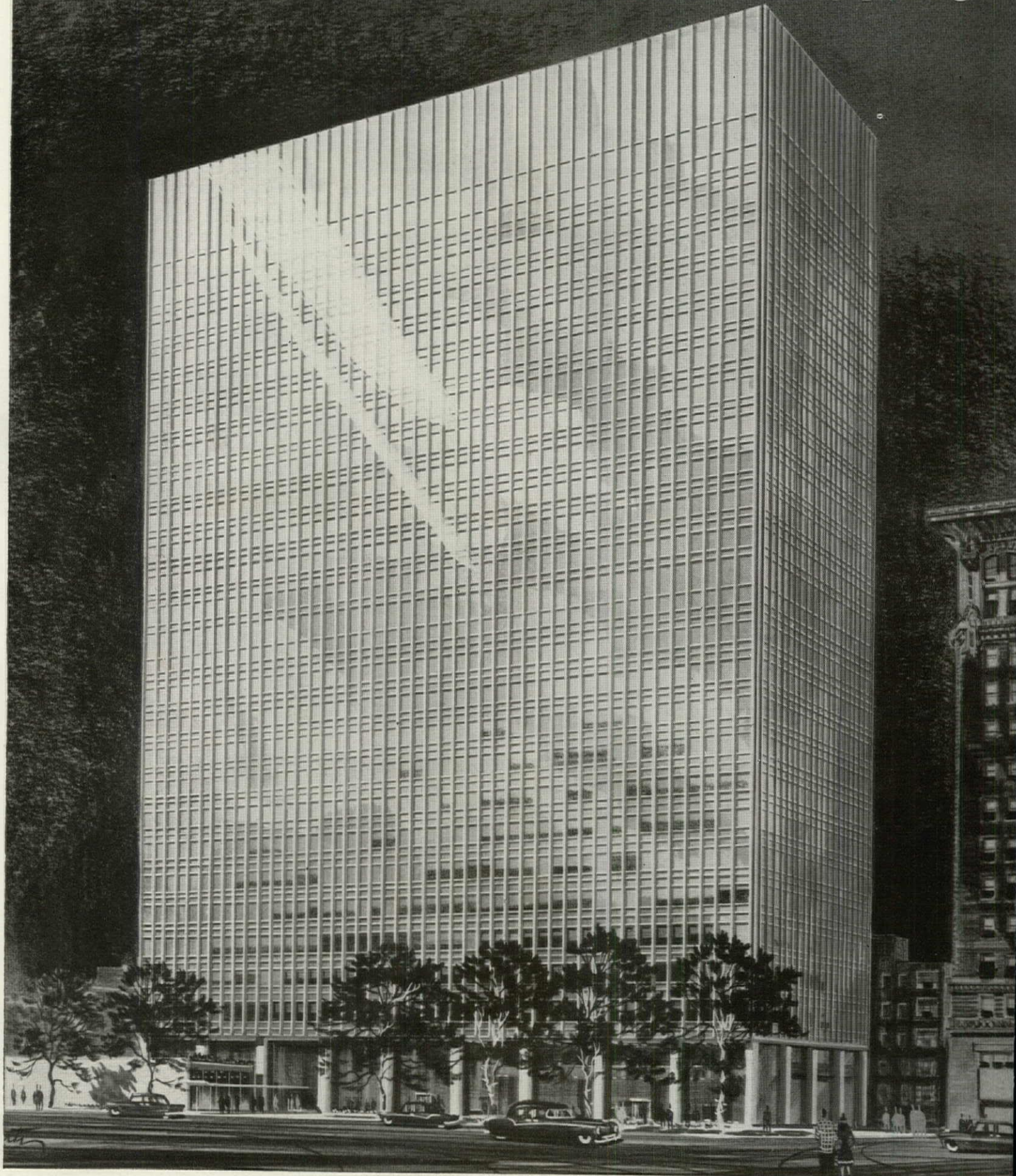
FERNEX

FRENCH DOOR

Le Havre, West Europe's front door, has been ringing to the sound of building ever since the war. Ambitious plans for the city-wide lintel-lifting were originally sketched by France's late, revered Auguste Perret. After his death in 1954, with most of the job done, one large area remained: the waterfront along the inner harbor. Architect P. E. Lambert now reports that his Perret-inspired reconstruction of the waterfront is nearing completion, its severe formality broken only by one of the few standing towers of the old town.



In the new Cleveland Electric



Illuminating Company Building

concrete joist floors are reinforced with

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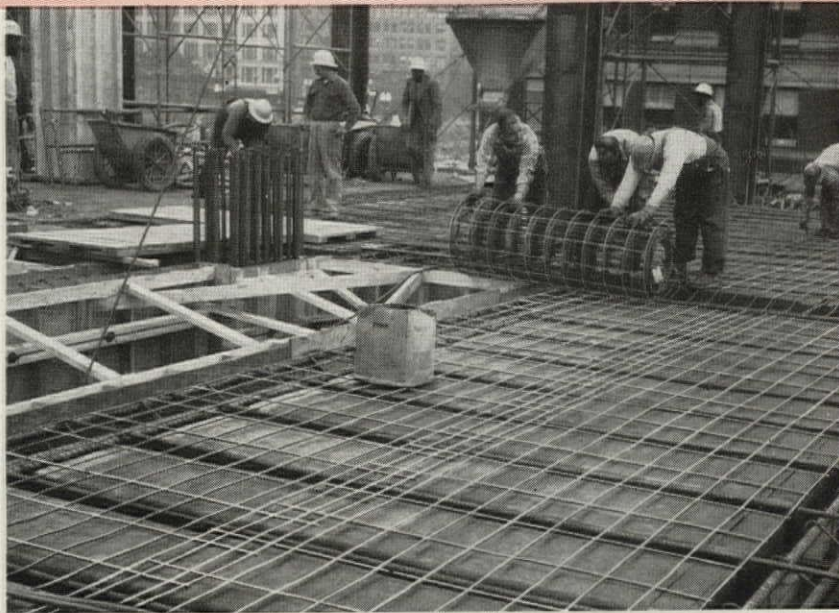
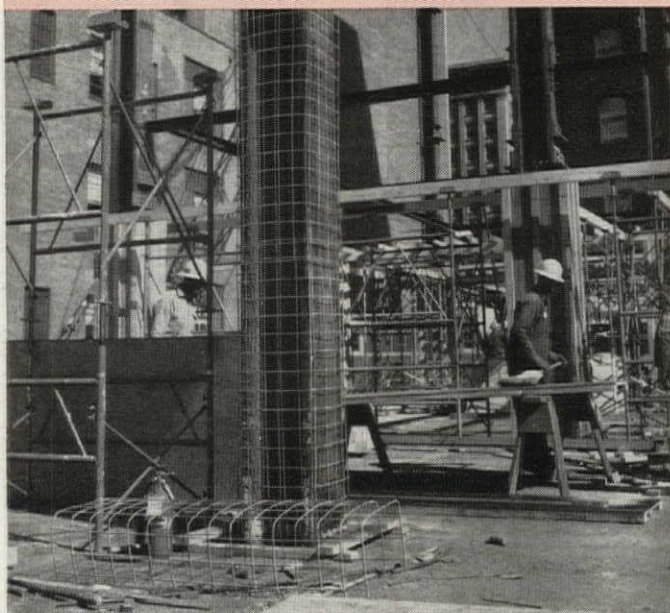
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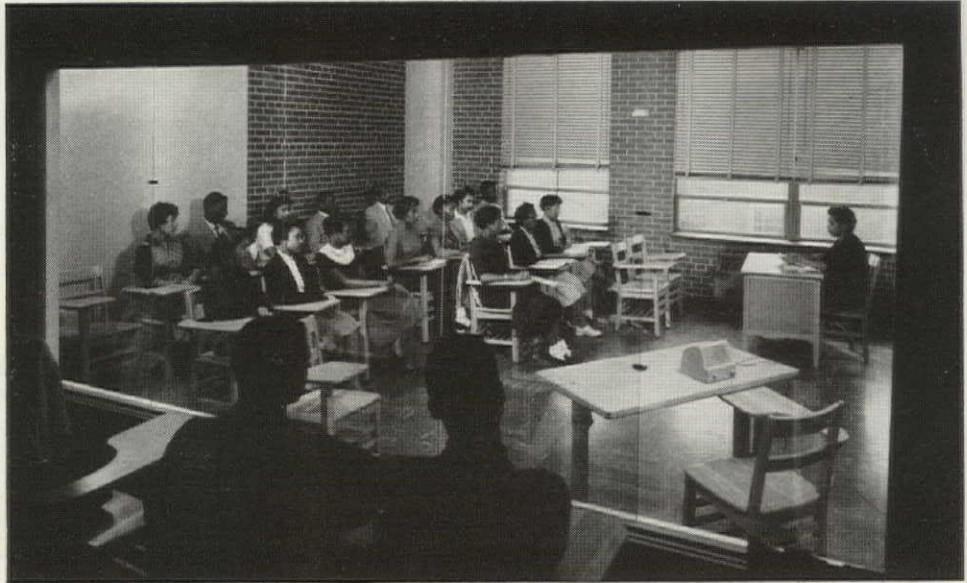
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