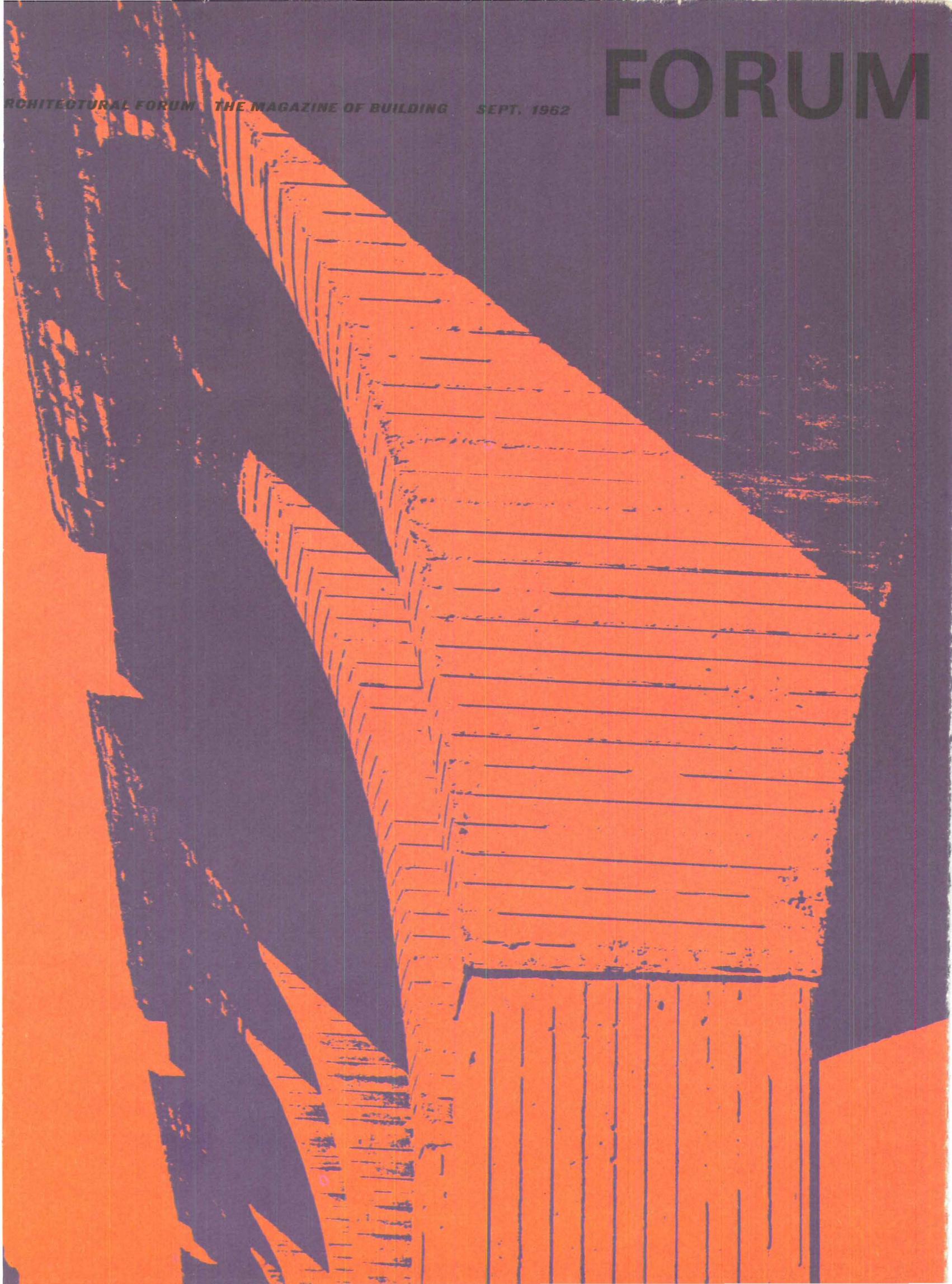


ARCHITECTURAL FORUM THE MAGAZINE OF BUILDING SEPT. 1962

FORUM



THE OLDEST KNOWN BUILDING CODE

More than 4,000 years ago (about 2250 B.C.), provisions like this were promulgated as part of the Code of Hammurabi, King of Babylon:

"If a builder build a house for a man and do not make its construction firm, and the house which he has built collapse and cause the death of the owner of the house, that builder shall be put to death."

The Code of Hammurabi was a complete set of rules governing the ethics and behavior of ancient Babylonians. It was inscribed on a black diorite monolith which stood for centuries in the famed Tower of Babel. The tablet was unearthed in 1901. This exact replica, framed here by a reconstruction of Neubuchadnezzar's Ishtar Gate, is displayed at the Oriental Institute of the University of Chicago.

(Color photograph by Hedrich-Blessing, Permission of Oriental Institute)



HOW LONG MUST WE BE SHACKLED BY CODES OF THE PAST?

by William B. Tabler, Fellow, American Institute of Architects

As a nation, we pay heavily for waste inherent in thousands of outmoded and conflicting local building codes—waste that increases construction costs by as much as one-third!

Architects, engineers, builders, code officials and investors are constantly frustrated by obsolete specification-type manuals adopted decades ago and never brought up to date. Requirements vary enormously, and unpredictably, from city to city and from state to state.

To many of us the examples are painfully familiar: Complex and unnecessary requirements for water piping, vent stacks, and traps; excessive demands for ceiling heights, egress, stair enclosures, and smoke towers.

Satisfying this welter of peculiar and arbitrary demands takes a tremendous toll of time and efficiency, not only for manufacturers whose products must be designed to meet hundreds of varying conditions, but also for the professionals who put these materials in place.

On one job alone, our office had to redraw or substitute 124 items disputed by a local code, and take an additional 17 items to court before we could start construction.

What is the solution? Obviously we need a fresh, concerted effort by architects, builders, and other citizens to require their cities to adopt modern performance-type codes.

A single national building code is probably impossible, and undesirable in any case. It would not only remove the police power from the local level, but it would inevitably overlook the very real differences in building between various regions, and between rural, suburban, and highly urbanized areas.

There are, however, a handful of proven model codes of a national or regional nature which any town, city, or state would do well to examine closely and adopt in whole or in part. These are the codes prepared by the National Board of Fire Underwriters, and those of the International Conference of Building Officials, the Southern Building Code Congress, and the Building Officials Conference of America. Two other valuable and established guides are the National Electrical Code and the National Plumbing Code.

Virtually all building codes adopted locally in recent years have followed one or another of these models, and they have been tested and proved useful in many cities. One of their greatest virtues is that they are under constant study and receive periodic revision by competent specialists.

A modern code for any town must meet these tests:

The acceptability of a material or method should be determined by its performance: its ability to meet requirements for strength, safety, durability, wind and fire resistance, and other objective criteria — as determined by qualified impartial agencies.

Legislation should require that the code be modernized on a regular, systematic basis.

Code officials should be given sufficient staff, funds, and discretion to keep up with new materials and methods and to authorize their use.

Manufacturers and suppliers, as well as architects, builders, and owners, should be given opportunities for appeal, and for achieving acceptance of products on their merits.

Legislation should allow adoption of model codes by reference, bypassing the substantial cost of developing an original local code (and the cost of reprinting it in full in the newspapers).

Code reform will involve a major battle against apathy, public ignorance of the situation, and certain vested interests, inimical to change. Through their own associations, architects, builders, and businessmen must dramatize the need to civic officials, citizen groups, labor unions, newspapers, and others influential in the life of the community.

Unless we can make our building rules more uniform — and more uniformly sensible — the American building industry is never going to realize its full potential. And the consumers of building, the public, are not going to get their money's worth.



As a service to the architectural and engineering professions, the building industry, and the general public, Inland Steel Products Company has published these challenging remarks of Mr. Tabler, and will provide reproductions suitable for framing, without charge. Additional information on the code of Hammurabi will also be sent. Write to Inland Steel Products Company, P. O. Box 393, Milwaukee 1, Wisconsin.

PUBLISHER'S NOTE

This month the editors wind up their current series on urban renewal with a final chapter on the architecture of city redevelopment (page 125). End of a particular series, yes; but end of the subject, no. FORUM's coverage of urban renewal is long standing and continuing.

This coverage actually began way back in 1943 with the publication of the article "Planning With You," which was reprinted in booklet form for distribution to thousands of people outside the magazine's industry audience. FORUM might even claim partial credit for invention of the phrase "urban renewal," for it seems to have first appeared in the writings of FORUM's contributor-consultant, Miles Colean.

Since 1949, when FORUM launched a series of city case studies about Philadelphia, Pittsburgh, Norfolk, etc., city redevelopment has been reported almost monthly—even though for a long time it was not recognized by the industry as an integral part of American architecture and a growing part of the business of architects, contractors, developers, and investors. Not until 1961 was this early missionary work fully rewarded—when the American Institute of Architects chose urban renewal as the subject of its annual convention and when other publications adopted the subject as part of their editorial fare.

With recognition of urban renewal by the public and the industry established, and with the current state of the art recorded in the series of articles concluding this month, FORUM's consistent coverage of the subject moves forward. The next major urban renewal article will be a report on the redevelopment of the nation's

capital. In this FORUM has a particular interest: its Editor, Douglas Haskell, has been appointed by the White House to serve with nine architects, designers, planners, and artists on the Advisory Council on the Redevelopment of Pennsylvania Avenue, the capital's—and perhaps the nation's—major thoroughfare.

* * *

Being more than a strictly architectural magazine (only 15,700 of its 62,500 subscribers are architects), FORUM covers regularly and almost exclusively other subjects which, like urban renewal, its editors consider important to all who participate in the creation, production, and ownership of buildings. Among these subjects are:

▶ The business of building—see, for example, this month's article on two building booms by Economist Ernest Fisher (page 105).

▶ The rebuilding of individual structures—like this month's article on a trio of small office buildings (page 129).

▶ Office interiors—as witness the above and the new department on office furniture (page 57). (If there is any subject which should personally interest all subscribers—architects, engineers, contractors, and client-owners alike—it is the office, for, while they may not all build offices, they all occupy them.)

▶ Building abroad—a regular two-page department, expanded this month to make room for a report on the rather amazing architecture of the Iron Curtain countries (page 108), and for a report on the new Assembly Building at Chandigarh, India, by the man widely acknowledged to be the world's architectural leader, Le Corbusier (page 97).—J.C.H., Jr.

CONCRETE: A SPECIAL REPORT

| | |
|---|----|
| <i>Today's "universal" material is actually a complex process</i> | 78 |
| <i>Cast-in-place concrete—form, continuity, and surface</i> | 83 |
| <i>Precast concrete—building-block logic and precise control</i> | 90 |
| <i>The ultimate test: How will it look in 30 years?</i> | 96 |

CORBU'S CHANDIGARH ASSEMBLY

| | |
|--|----|
| <i>The Indian capital completes its third major concrete structure</i> | 97 |
|--|----|

HAS THE BUILDING BOOM PEAKED OUT?

| | |
|--|-----|
| <i>Economist Ernest Fisher compares today with the 1920s</i> | 105 |
|--|-----|

COMMUNISM'S NEW LOOK

| | |
|--|-----|
| <i>The surprising architecture of four East European nations</i> | 108 |
|--|-----|

A TEMPLE FOR INSURANCE

| | |
|---|-----|
| <i>Yamasaki's latest design is tailored to a key civic site</i> | 117 |
|---|-----|

TWIN THEATERS

| | |
|---|-----|
| <i>Manhattan's Cinema I-II: a flexible showcase for films</i> | 121 |
|---|-----|

IN RENEWAL, WHO MANAGES DESIGN?

| | |
|---|-----|
| <i>How good appearance can be helped by good administration</i> | 125 |
|---|-----|

REBUILDING: THREE SMALL OFFICES

| | |
|--|-----|
| <i>New interiors from a warehouse, a factory, and a brownstone</i> | 129 |
|--|-----|

5 NEWS

Cover: Detail of concrete parking garage by Paul Rudolph; (See page 89)

19 LETTERS

20 Editorial, subscription, and advertising data.

45 PROJECTS

172 Advertising index.

51 PRODUCTS

57 FURNISHINGS

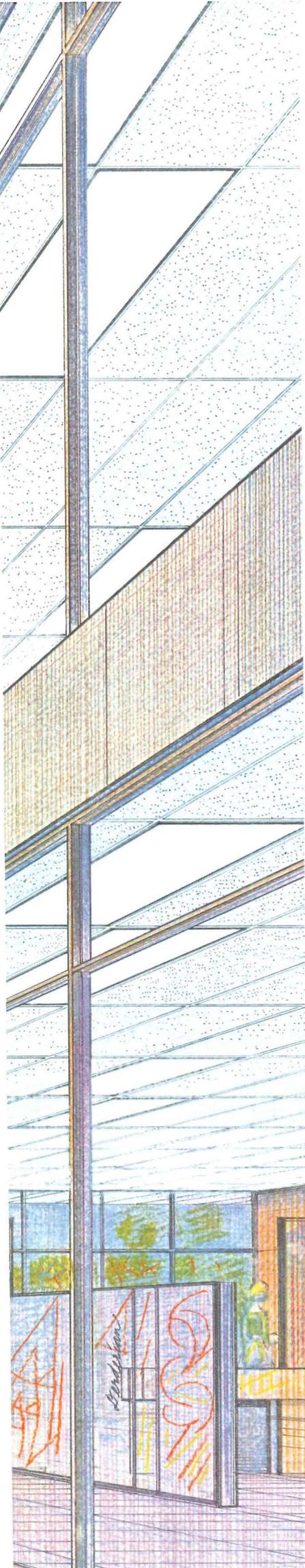
77 EDITORIAL

132 EDITOR'S NOTE

145 BOOKS

Published monthly by TIME INC., Time and Life Building, Rockefeller Center, New York 20, N.Y. This issue is published in national and separate editions. Additional pages of separate editions numbered or allowed for as follows: Western edition: W1-W12. Entered as second-class matter at New York, N.Y. and at additional mailing offices. Subscription price \$7.00 a year. © 1962 TIME INC. All rights reserved. Member, Audit Bureau of Circulations and Associated Business Publications.





SACRAMENTO: ARMSTRONG VENTILATING FIRE GUARD CEILINGS DIFFUSE AIR, BLOCK FIRE, ABSORB SOUND -WITH LAY-IN UNIT FLEXIBILITY

These ceilings give this California office building complete flexibility of room layout—and do three other important jobs. Ventilating Fire Guard has eliminated almost all supply ductwork by using the plenum to feed conditioned air to the perforated ceiling, which diffuses it to the room below. And scientific plenum-engineering, based on Armstrong's exclusive calculations for Ventilating Ceilings, solved all problems of proper air distribution before the ceiling went up. The Ventilating Fire Guard Ceiling easily meets local fire code requirements for one-hour fire protection of steel joists. The ceiling provides excellent acoustical control, too. And because these Ventilating Fire Guard Ceilings are of large, movable lay-in units, arrangement of office spaces to suit tenants is highly flexible: lighting fixtures are easily rearranged; partitions go anywhere; the Ventilating and Fire Guard functions are unaffected. Moreover, these Ventilating Fire Guard Ceilings cost about \$8,000 less than the combination of a duct-and-diffuser system and intermediate fire protection of steel joists.

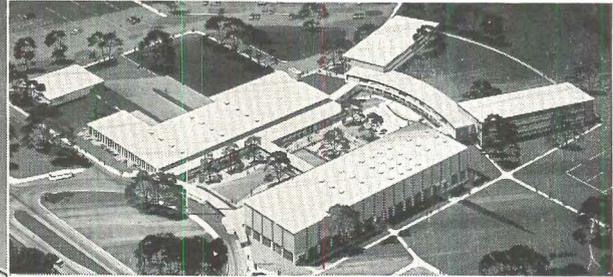
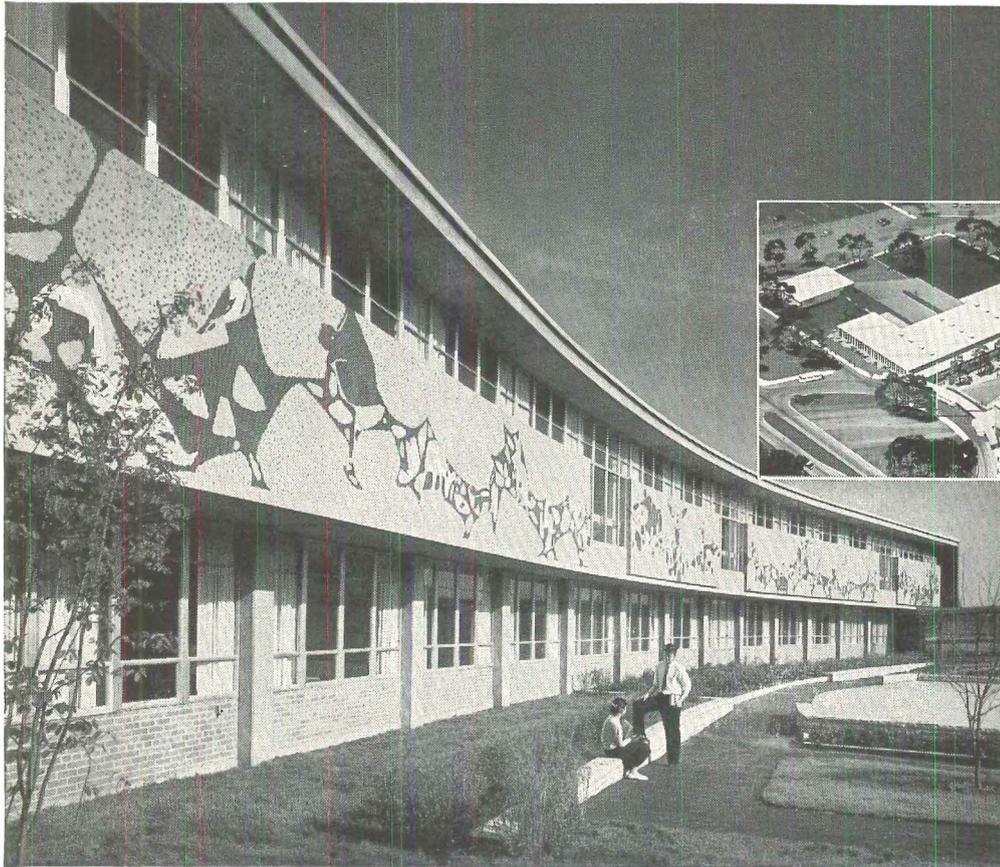
Driver and Hunt Office Building, Sacramento, Calif. ARCHITECTS: Rickey & Brooks, Sacramento, under the direction of Benedict Adams, Architect, Associate. MECHANICAL ENGINEER: Leonard Stecher, Sacramento. GENERAL CONTRACTOR: Guth & Schmidt, Sacramento. ACOUSTICAL CONTRACTOR: L. D. Reeder Company, Sacramento.

TECHNICAL INFORMATION: Armstrong Ventilating Ceilings have been thoroughly lab- and job-tested to assure proper performance; are available in five materials (both tile and lay-in units), including Fire Guard, with three different patterns; and are compatible with all conventional supply-air systems. They offer considerable savings by cutting supply ductwork and eliminating conventional diffusers. Ventilating Fire Guard offers up to four-hour-rated fire protection; saves up to 30¢ per sq. ft. by eliminating intermediate fire protection, up to two months' construction time through dry installation; often earns lower insurance rates. Special plenum-engineering data is available, giving all factors and formulae for the correct design of this ventilating system, ensuring that it delivers the required cfm of conditioned air in the manner and quantity designated by the ventilating engineer; contact your Armstrong Acoustical Contractor or Armstrong District Office. For general information, write Armstrong, 4209 Rooney St., Lancaster, Pa.

Armstrong ACOUSTICAL CEILINGS

First in fire-retardant acoustical ceilings

RENDERINGS BY ARA DERDERIAN



PERKINS & WILL
architect and engineer
 POWER CONSTRUCTION COMPANY
general contractor
 CARUSO PLUMBING COMPANY
plumbing contractor
 JAMES B. CLOW & SONS, INC.
plumbing wholesaler

PROVISO WEST, newest high school in Proviso Township, was constructed at a cost of \$6,000,000. It is located on a 60-acre site in the Chicago suburb of Hillside, the western half of the Proviso Township School District. Destined to become one of the largest high schools in Mid-America, Proviso West was designed for easy expansion beyond its initial 2200 student enrollment just two years ago. Proviso West High School will accommodate over 4000 students when the addition now under construction is completed.

Performance records of millions of Sloan Flush Valves
 indicate that
 when Proviso West High School is 50 years old
 its Sloan Flush Valves
 will still provide dependable service.

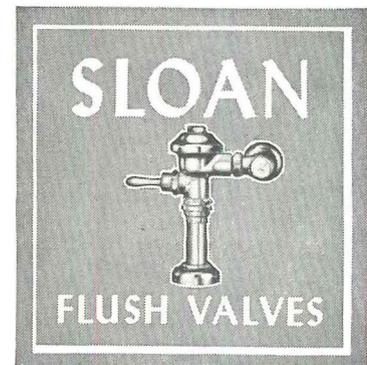
Moreover, Sloan Flush Valve maintenance costs are likely to be among the lowest in the building maintenance budget...
 (as little as 1½¢ per valve per year)

• • •

Because the Sloan ROYAL is acknowledged as the world's most successful flush valve,

attempts have been made to imitate some of its most important features. But why gamble with substitutes when you can plan for the life of the building confidently with Sloan? Specify and insist upon performance-proven, time-tested Sloan Flush Valves.

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



Can AGBANY save Penn Station? (below)

Ruberoid competition reaps renewal ideas (page 7)

Boston plans new waterfront area (page 9)

Rhode Island's Low House to be wrecked (page 11)

AGBANY VS. APATHY AT PENN STATION

On August 2, more than 150 architects and critics surprised evening commuters at Manhattan's Pennsylvania Station with what local papers called "the best-dressed picket line in New York history." Their signs read: "Don't Amputate—Renovate"; "Progress Is Quality—Not Novelty"; and more simply: "Shame," and "Grr." The reason for the picketing, of course, was the threatened demolition of McKim, Mead & White's architectural landmark.

Unsatisfactory compromise may save the Doric columns

Not everybody feels so strongly. Most New Yorkers think of the station as where the trains are. A minority recognizes that the building is a fine piece of architecture, but believes that "you can't fight Big Money." And lastly, a few hundred people militantly say that New York is much better off in every way with the existing building than with the complex of office, commercial, and sporting structures proposed to take its place.

While the second group weakly deplores the plans to demolish Penn Station, it has limited its salvation efforts to saving the 84 granite Roman Doric columns which line the exterior. Included

among these sympathizers are the executive committee of the New York Chapter, AIA, and New York Parks Commissioner Newbold Morris. They have been assured co-operation by Irving Felt, president of the Madison Square Garden Corp., which will tear down and replace the station.

The proposal endorsed by the AIA and Morris would place 18 of the columns, each surmounted by a perched eagle, in a double row in Battery Park. Another scheme, advanced by Manhattan Architect Sal Grillo, would use 80 of the columns to flank the Mall in Central Park.

Infinitely preferable to saving the columns, thinks the newly

formed Action Group for Better Architecture in New York (AGBANY), is saving the building itself. Not only was the picket line organized to this end, but specific suggestions have been made.

AGBANY Leader-Architect Norval White feels that the Port of New York Authority should buy Penn Station and administer it as it does the other major gateways to the city. Members also believe that New York's new Landmarks Preservation Commission should report on "the architectural and historic importance" of the station, thus postponing—and per-

haps preventing—demolition.

Meanwhile, the developers, who have already started renting space in the proposed office tower, await their demolition permit and another permit required under the zoning law to build the two sports arenas planned for the complex (FORUM, Sept. '61).

It is between the apathy of the majority and the fervor of AGBANY that the final answer is likely to fall. And with this sad result: the loss of an architectural masterwork, and the much-ballyhooed retention of some columns.

CONSTRUCTION: STILL BOOSTING ECONOMY

"The economic indicators which have been reported to me for July," said President Kennedy in his August 14 speech, "do not warrant the conclusion that we are entering a new recession." Mainstays of the satisfactory economic condition, according to JFK: a high level of personal consumption, and the thriving construction industry.

Led in the public sector by the huge highway building program and in the private sector by housing units, 1962 should be a record building year. In July alone, the dollar volume of new construction came to \$5.7 billion—up about 8 per cent from a year before. Public expenditures increased by 7 per cent over July 1961, and private expenditures 9 per cent.

Housing, a major component of building, continues strong—71,000 units ahead of July 1961. And the Department of Commerce predicted 1,450,000 new starts this year, a record. However, the director of economics and planning for the National Association of Home Builders, Nathaniel H. Rogg, entered a strong dissenting

opinion. The Commerce Department's forecast, he said last month, is "overoptimistic." Among his bases for a lower figure: a slow sales market, high vacancy rates in rental housing, a modest rate of family formation, lower prices and slower sales for used housing. Rogg reckons that a more realistic figure would be between 1,350,000 and 1,400,000.

With the year well beyond the halfway mark (in which 720,000 units were started), other economists are also revising their figures. While many agree with Rogg, some, like Gordon F. McKinley of the F. W. Dodge Corp., point to the strong advances in apartment building and the unexpectedly high number of starts recorded during the second quarter, and place their estimates even beyond the 1,450,000 units predicted by the Department of Commerce.

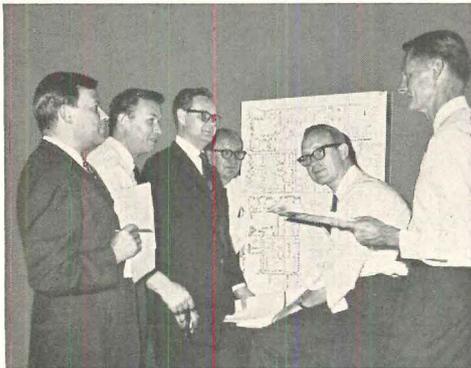
The government's highway building program draws no such controversy. One third of the 41,000 mile, \$41 billion grid of superhighways is already built and another third is under construction. Military construction is

continued on page 7



Pickets Aline Saarinen, Philip Johnson, Mrs. Bliss Parkinson

The RUBEROID Co. Announces the 4th Annual
\$25,000 Awards
Ruberoid/Matico
Design Competition



THE JURY, left to right, James J. Hurley, Taylor-Hurley Assoc., New York, N. Y.; Prof. Vernon DeMars, A.I.A., Chairman, Dept. of Arch., Univ. of Cal., Berkeley, Cal.; William L. Slayton, Commissioner, Urban Renewal Admin., Wash., D.C.; B. Sumner Gruzen, F.A.I.A., Professional Advisor, New York, N. Y.; Ralph Rapson, A.I.A., Head, School of Arch., Univ. of Minnesota, Minneapolis, Minn.; Edmund N. Bacon, A.I.A., (Chairman) Exec. Dir., Phila. City Planning Comm., Phila., Pa.

*“Improved Human Environment
 through Urban Renewal”*

The 4th Annual Ruberoid/Matico Competition was designed to stimulate the interest of architects in urban renewal. The winning submissions, in each group, were most excellent. In the Grand National Award category, the Jury decided to combine the first three prizes and make equal awards. The prize winning plans will be reproduced in a brochure to be available before the end of the year. If you desire a copy write to the Ruberoid Company on your letterhead.

AWARD WINNERS

GRAND NATIONAL AWARDS (3)

Stephen N. Abend, Kansas City, Mo.
 Ralph Lewis Knowles, Auburn, Ala.
 Stuart Kenneth Neumann, Chicago, Ill. and
 Donald L. Williams, Fern Creek, Ky.

NATIONAL MERIT AWARDS (6)

J. D. F. Boggs, Jr., Herman F. Goeters and
 Robert F. Lindsey, Houston, Texas
 Jean-Michel Charnet, St. Louis, Mo.
 John C. Dyer, Boston, Mass., Thomas S. Marvel,
 Puerto Rico and John W. Shenefield, Jr.,
 Cambridge, Mass.
 Jan Lubicz-Nycz, San Francisco, Cal.
 F. Kempton Mooney, Columbia, S. C. and
 Joseph L. Young, Clemson, S. C.
 Minoru Takeyama, New York, N. Y.

SPECIAL STUDENT AWARDS

FIRST PRIZE

Edward Z. Jacobson, Pittsburgh, Pa. and
 Kenneth Schwarz, Kew Garden Hills, N. Y.

SECOND PRIZE

Michael Marczuk, Minneapolis, Minn.

THIRD PRIZE

Daniel E. Green and Eugene J. Mackey, La Due, Mo.

STUDENT MERIT AWARDS (4)

H. Stow Chapman and Richard A. DeVine, Champaign, Ill.

R. Alan Forrester, Tadeusz M. Janowski, Ilmar Reinvald
 and Donald E. Sporleder, Urbana, Ill. and Elam L. Denham
 and Anthony Pellecchia, Champaign, Ill.

Melvin Leon Ford, Glendale, Cal.
 Duk Won Lee, Edward Richard Niles and
 Jay Barton Walter, Los Angeles, Cal.

Terrence Andrew McCormick, Champaign, Ill. and
 Ilmar Reinvald, Urbana, Ill.

The RUBEROID Co. Manufacturers of Ruberoid/Matico Floor Tile and **RUBEROID®** Building Products

733 THIRD AVE., NEW YORK 17, N. Y.

continued from page 5

also rising, and last month the House approved almost \$1.4 billion in new appropriations for this purpose. The largest item, as expected, was \$529 million for expansion and modification of missile facilities.

While building volume remains high, costs have been relatively steady. Construction materials price indexes remained about level, with lumber and wood products a depressing factor and window glass and gypsum products somewhat higher than in mid-1961. Construction costs, overall, rose 1.4 per cent since July 1961, according to the Department of Commerce. The E. H. Boeckh indexes for construction costs indicate slight rises in apartment, hotel, and office building as well as in commercial and residential construction.

The cost of money, which continued somewhat easier, has become a debatable point. Mortgage Banker Alfred J. Casazza believes that interest rates will decline in the near future, because the supply of money probably will continue to grow while the demand for it will remain stable. Federal Reserve Board Chairman William Martin, testifying before Congress last month, said, however: "it is certainly our intention to continue to supply" all the lending power required by the banking system.

WRITE-OFF HELP?

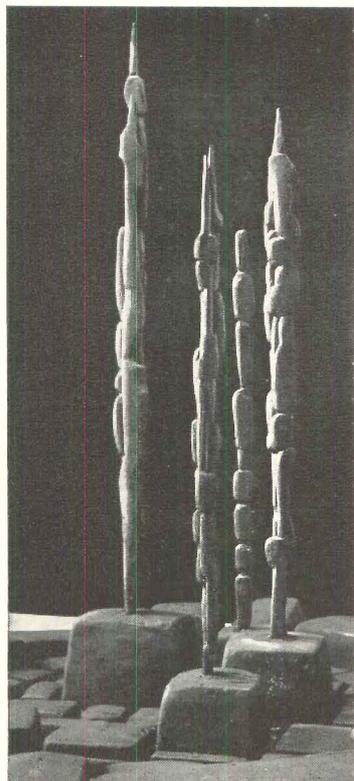
The Treasury Department's "liberal" new depreciation schedule might not really benefit building owners, according to some tax experts. Although the new rules permit lumping a building (the structural shell) and its equipment (elevators, air conditioning, etc.) and writing off the total amount in a shorter time than before, they do not allow owners to write off both the building and its component equipment in the shortest possible time. Example: using the new schedules, an office building has a depreciable life of 50 years (instead of 67 under the old rules). To gain advantage of the shorter life, however, the owner must depreciate the building's equipment over the same 50-year

period—and equipment usually depreciates faster than that. Thus, it might be better for owners to continue under the old Bulletin "F" write-off rules with their many separate depreciation rates.

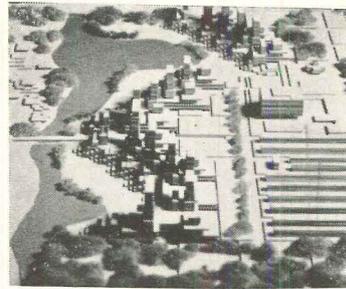
GATEWAY FOUNTAIN

The four tall bronze shapes shown below will be capable of erupting into cascades of water or subsiding to a stalagmitic trickle when this imaginative fountain is built. Termed a "water garden" by its creator, French Sculptor François Stahly, the work also includes a labyrinth of stones on which children might play.

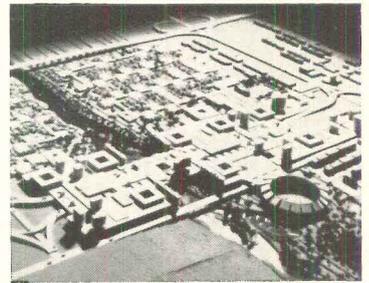
The 20-foot fountain was recently named winner in an international competition for a sculpture in San Francisco's Golden Gateway project (by Architects Wurster, Bernardi & Emmons, DeMars & Reay, with Pietro Beluschì and Milton Schwartz). It was specifically designed for a square in the huge redevelopment area, and will account for part of the one per cent of the project's total cost (\$85 million) set aside for the purchase of art works. Developers of San Francisco's Diamond Heights renewal project may follow suit.



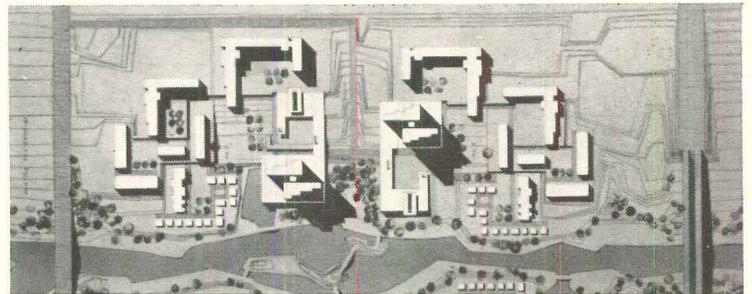
JERRY STOLL



Knowles' river-front scheme



Abend's civic-office center



Neumann and Williams' self-contained neighborhood clusters

RUBEROID'S URBAN RENEWAL COMPETITION

The Ruberoid Company's Fourth Annual Architect's Competition took its cue this year from HHFA Administrator Robert C. Weaver's remark: "In the next 15 years, our population will rise to 235 million, with most of the increase in and around urban areas." Result: the \$25,000 competition aimed to discover new ideas on "Improved Human Environment through Urban Renewal."

The 158 contestants faced this problem: a hypothetical renewal site, split by a river in a slight valley, at the heart of a theoretical city whose original reason for growth, the textile industry, had left the area and was supplanted by an electronics boom.

The general quality of the submissions was "most encouraging" said the competition's professional adviser, Architect B. Sumner Gruzen. Indeed, the jury (Architects James J. Hurley, Vernon DeMars, Ralph Rapson, URA Administrator William L. Slayton, and Planner Edmund N. Bacon) found several individual features of nonprizewinning entries merited publication in Ruberoid's forthcoming brochure on the competition. The jury also decided that the nature of the problem was so broad that they could not approve one solution, so three grand prizes of \$5,833

each were awarded.

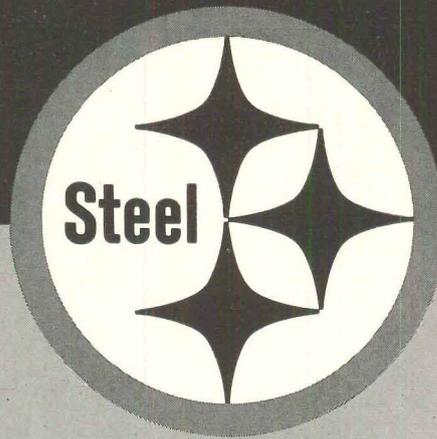
One winner, Auburn University Architectural Professor Ralph L. Knowles, widened the river in an effort to create a cool, scenic effect. Buildings themselves range from low-rise housing near the water to tower buildings and a civic center (above). This scheme impressed the jury for its "clear differentiation between what is nature in the park and what is related to man in the structure."

Washington University Architectural Graduate Stephen N. Abend presented a more daring concept. He spanned the river with a rigidly planned civic center-office area, and clustered low-rise housing around this central core (above). Automobiles received special treatment: they traverse the core area under ground level and are parked in strategic garages in the residential sections. The jury also praised the incorporation of small industry in the residential area.

The third winners, University of Illinois Graduates Stuart K. Neumann and Donald L. Williams, stressed flexibility. Their project could be completed piece by piece, each subject to change (photo above). "Its strong statement of clusters of housing with open space in-between has great potential," said the jury.

continued on page 9

announcing
the
“Design
in Steel” Award Program



The “Design in Steel” award program has been created to foster a better understanding of steel as a versatile and modern material for the creative and imaginative designer, architect and engineer.

A series of awards will be made for the design or re-design of products or structures completed or offered for sale after January 1, 1960.

Industry recognition will be presented to the award winners at a dinner on March 13, 1963 at the Waldorf Astoria, New York.

SPONSORING ORGANIZATION • American Iron and Steel Institute.

COORDINATING ORGANIZATION • National Design Center.

ELIGIBILITY • Any individuals practicing in the fields of industrial design, architecture and engineering in the United States employing complete or partial use of the following carbon steel product categories are invited to participate: Concrete Reinforcing Bar; Galvanized Sheet; Hot Rolled and Cold Finished Bar; Hot Rolled and Cold Rolled Sheet and Strip; Rod and Drawn Wire; Steel Plate; Structural Steel and Welded Wire Fabric Reinforcement.

JUDGES • National Design Center Board of Design. This distinguished jury will be composed of three architects, three industrial designers and three engineers.

FOR COMPLETE SUBMISSION DETAILS

Write: National Design Center, 415 East 53rd Street, New York 22, New York.

continued from page 7



IT IS RATHER FOR US THE LIVING . . .

The elliptical 18-story glass and steel tower (above) with its two black, polished, granite wings is slated to be constructed on a portion of Manhattan's Union Square, if the eight veterans' organizations sponsoring the astonishing edifice can raise the required \$7 million by Jan. 1, 1963. Termed by the staid *New York Times* an "atrociousity," the structure was conceived by Draftsman William S. Luttrell and designed by Architect Maurice Warder Bacon. Across the granite façade will be engraved Lincoln's Gettysburg words: "It is rather for us the living to here dedicate ourselves that these dead shall

have not died in vain." Unhappily, the living (who happen to be the owners of Union Square) seem to prefer to keep the present open park and parking space than to be faced with the proposed memorial. Meanwhile a few of the living—those who were elected to serve the rest of their fellow-Manhattanites—are apparently engaged in giving away the park area nevertheless. As Mr. Lincoln also said: "It is true that you may fool all of the people some of the time; you can even fool some of the people all the time; but you can't fool all of the people all of the time."

HOUSE RAPS GSA'S EXPANSION PLAN

In a move that might drive design-conscious taxpayers to despair, the House Appropriations Committee last month slashed funds for the GSA's 1963 building program. In reporting out its Independent Offices Appropriations bill, the Committee:

- ▶ Eliminated a \$155 million provision for fallout shelters in 33 new federal buildings across the nation.
- ▶ Denied funds for three new office buildings in Washington, one of which, for the FBI, was the basis of the hopes of the Ad Hoc Committee on Federal Office Space to improve Pennsylvania Avenue.
- ▶ Restricted the agency's proposal to acquire a million additional

square feet of space through lease construction by allowing it to lease only buildings costing less than \$200,000.

Unless the Senate restores the authority GSA was seeking, the nation's capital would retain the many unsightly "temporary" office structures presently in use. Rep. Albert Thomas (Dem.) of Texas noted while slashing the GSA budget that the "tempos" still have many years of useful life left in them.

The specific objection to the lease construction proposal (where the government would sign a 20-year lease and take over the whole building) was voiced by Rep. Thomas: it is, he said, "clearly the most expensive

method of providing government space." He also expressed another objection on the same subject: the GSA "is going out on [its] own without consulting Congress, and with the rankest type of backdoor spending, to build one million square feet . . . without any authority from Congress."

If the Senate does not reconsider the budget, the planned centralization of scattered federal agencies will be impossible. Whether the Senate will reconsider is hard to tell. As one Washington observer put it, this is "like predicting what the Delphic oracle would say."

NEW FUTURE FOR BOSTON'S WATERFRONT

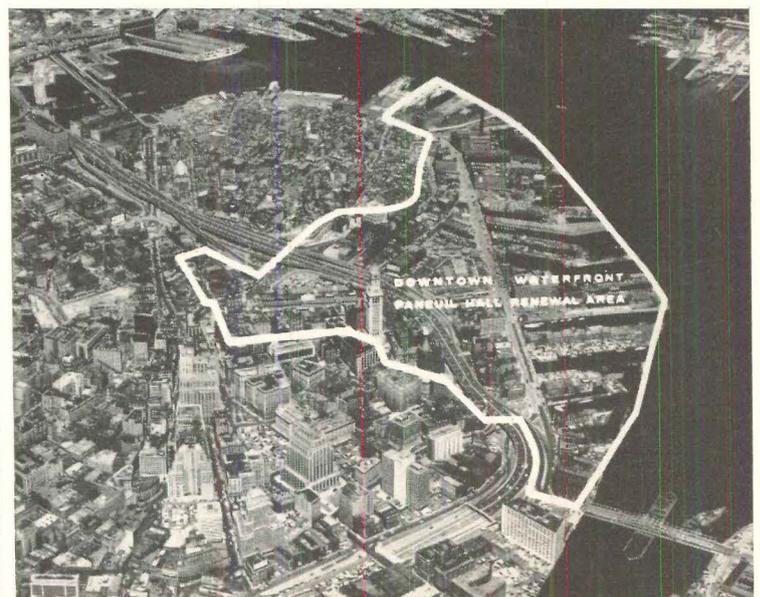
Several weeks ago, Mayor John F. Collins of Boston gave his blessings to the Downtown Waterfront—Faneuil Hall Renewal Plan prepared by the Greater Boston Chamber of Commerce. Toward the end of July, the City Council, although it has not officially endorsed the renewal plan, approved an application for a \$666,707 federal loan for planning and survey work on the project.

For one thing, the Chamber of Commerce reckons that the redevelopment of Boston's waterfront and market area (presently "slumbering in blight," according to Mayor Collins) will bring the city over \$1 million per year revenue from increased tourist and port activity. Furthermore, adds the Chamber hopefully, some \$70 million in new private investment will be attracted to the rejuvenated area. All of which makes the proposed \$22 million (net project cost) investment seem attractive over the long run.

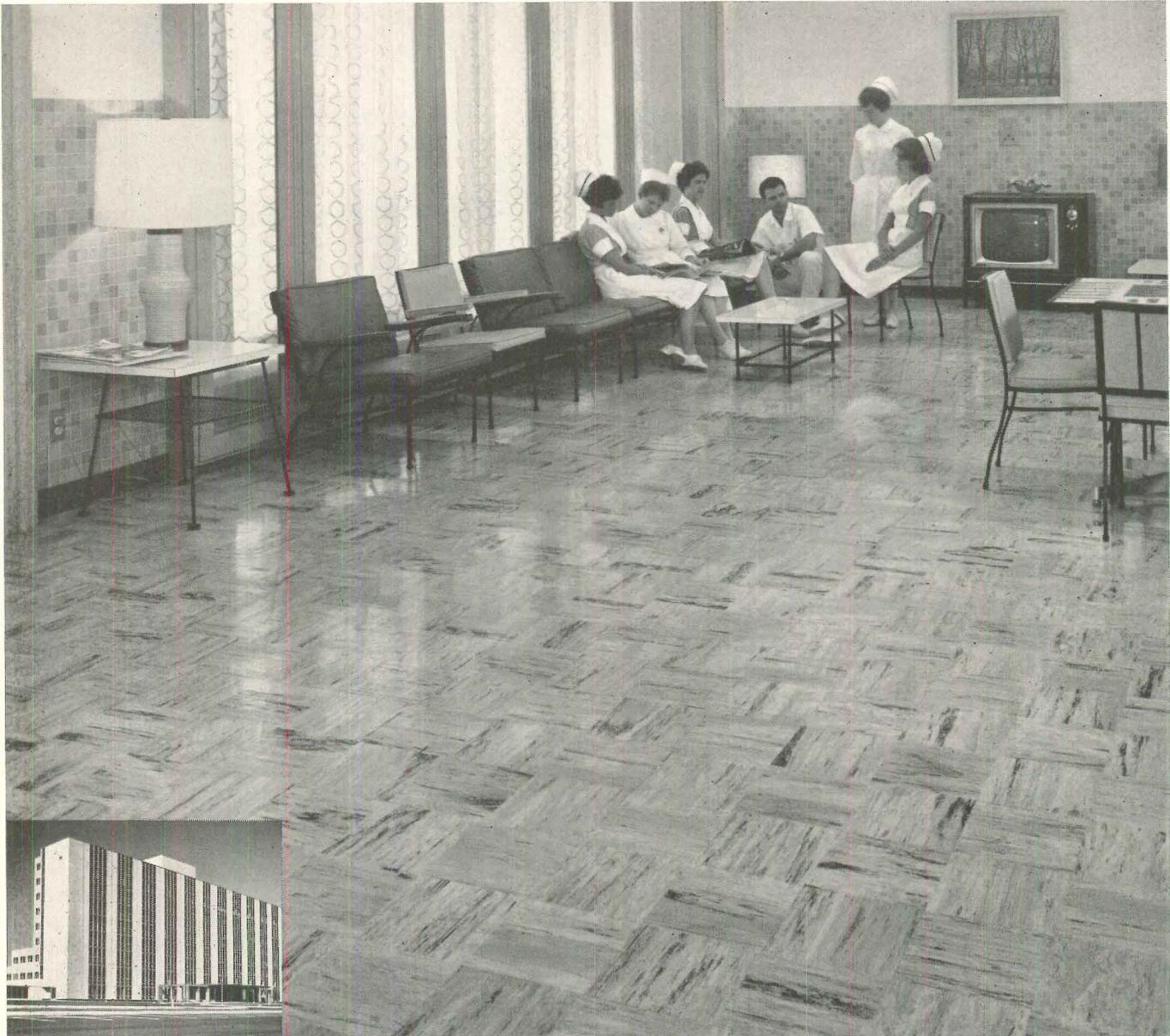
Another aspect of the Chamber's plan is its provision for new

and rehabilitated housing. In other Boston renewal projects, a total of 5,707 housing units has been wiped out to be replaced by a mere 462 new units of substantially higher average monthly rent. Under the Downtown Waterfront Renewal Plan, however, 2,200 new units will be built (in the \$25 to \$60 per room rental range), replacing 150 units.

Beyond these objectives, the proposed plan hopes to preserve historic buildings, reorganize traffic so that the city is connected with its waterfront, and aid neighboring districts—including the nearby government center—by removing the pressure of waterfront blight. To realize these goals, the Chamber of Commerce points out that local and national real estate investors have already indicated their interest in developing the area. The biggest problem confronting the renewal plan so far, according to a Boston spokesman, is the relocation of the more than 500 businesses in the waterfront and market district.



continued on page 11



Architect: Schmidt, Garden & Erickson, Chicago, Ill. Consulting architect: Insko, Brand & Insko, Columbus, Ohio. Flooring installed by: Wilson Floors Company, Columbus, Ohio.

Goodyear vinyl floors are paying for themselves in maintenance savings at Riverside Methodist Hospital

More than a year ago this Columbus, Ohio, hospital completed the installation of 130,000 sq. ft. of Goodyear DeLuxe Vinyl Floors.

Today, there's virtually no sign of wear or abrasion. They still gleam brilliantly with minimum care. In fact, the building engineer believes that the Goodyear floors are paying for themselves in maintenance savings.

You can give your clients the same, or even greater, savings with new DeLuxe True Vinyl Flooring. Its solid vinyl quality—and pattern—go all the way through. Its

high gloss can be easily maintained by regular polishing with a commercial buffer. It doesn't require waxing. And it's the lowest-priced homogeneous floor on the market.

DeLuxe True Vinyl is available in a range of handsome, new, multiple marbled colors. In $\frac{1}{8}$ " gauge for commercial and heavy traffic use and in $\frac{1}{16}$ " for light traffic areas. Now recommended for on-grade as well as above-grade. For specifications, see your nearest Goodyear Floors Distributor, or write: Goodyear, Flooring Dept. U-8110, Akron 16, Ohio.

GOODYEAR
FLOORING PRODUCTS

continued from page 9

UDALL WORKS TOWARD A GREEN LEGACY

When Interior Secretary Stewart L. Udall came out in May for "a higher order of conservation statesmanship," he indicated that recreation and wildlife should have "a seat at the head table in the Federal Government." Since then, however, he has been confronted with one problem after another, each demanding his opinion and action. Among them:

▶ The Indiana Dunes issue, in which Udall, naturalists, and neighboring city dwellers want to preserve a lovely, unspoiled section of the Lake Michigan shore line. Indiana politicians and businessmen want to build an artificial deep-water port in the dunes area. Udall's plea: investigate the possibilities of an alternative port site. Congress last month seemed to be doing just that when the House Appropriations Committee approved a \$50,000 study of other possible harbor sites.

▶ The parochial problem of the splendid Potomac Palisades in McLean, Va., which are threatened by a high-rise apartment complex on the Merrywood estate. Udall stepped in where McLeanites had failed; he effectively stymied the project by refusing to allow the developers to build a sewer line across a public parkway.

▶ The Fire Island, N.Y., dispute over a Robert Moses-sponsored road extending over two-thirds of

the length of the narrow island. Udall agrees with local residents and says that the road will not prevent erosion and will defile the unspoiled area with cars. He is opposed by the Temporary State Commission on the Protection and Preservation of the Atlantic Shorefront and the Suffolk Planning Commission.

▶ The Point Reyes, Calif., National Seashore Area, where Udall is running into trouble with his "buy now—pay later" plan. Developers reportedly are acting at top speed



Interior Secretary Udall

to raise the price of land.

Through these and several other controversies, Udall always sides with conservation interests, always tries to preserve a "green legacy" for coming generations.

YES, A WORLD'S FAIR CAN MAKE MONEY

The vital ingredients of a "successful" world's fair—hard-eyed business planning and tasteful exhibitionism—are paying off in Seattle. Fair President Joseph Gandy put it this way: "I doubt if any other business in the Pacific Northwest is doing so well."

With only a few weeks to the October 21 closing date, the compact Seattle fair has long since paid off its underwriters at 6 per cent interest. Most concessions are thriving, and operating expenses to cover the last weeks are virtually assured by the 1.7 million advance tickets which have been sold but not yet used.

Seattle businessmen have also reaped benefits from the fair's 7

million visitors to date. Retail sales are 19 per cent higher than last year, and hotels, motels, and restaurants are prospering. Beyond these short-term gains, the city will receive from the fair 6 per cent of the value of the land rented for the fair by the city. Seattle will also keep the monorail and 85 per cent of all fair buildings and facilities for a permanent civic center.

Can the Seattle formula be repeated elsewhere? Apparently three California cities think so. Long Beach, San Diego, and San Francisco have already started to make vague noises about having a "world's" fair of their own in the late 1960s, after New York's in '64.



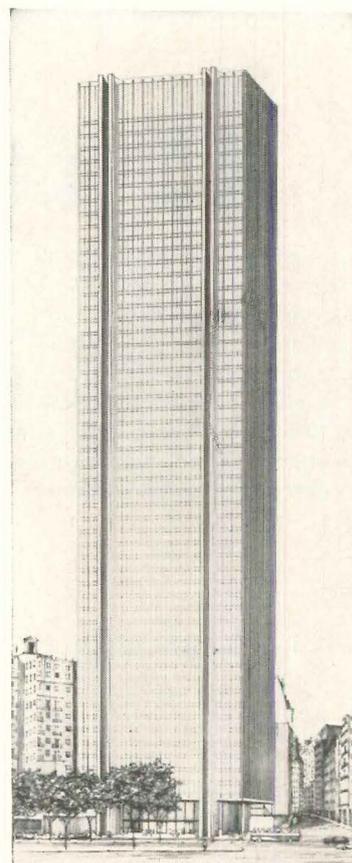
WAYNE ANDREWS

THE WILLIAM LOW HOUSE IS NOT A HOME

In 1887, the firm of McKim, Mead & White designed the monumental William Low House (above) for a bayside site in Bristol, R.I. Most critics have praised the building for its strength and simplicity of conception, and Architectural Historian Vincent Scully has said that "it has a truly classic unity without classicizing detail . . . the great slope defines the mass with majesty and calm."

When admirers of the house, including the National Trust for Historic Preservation, heard that the present owners were contemplating demolishing the structure, they protested, saying that the

Low house was an important architectural landmark. The owner, unmoved, pointed out that "its small windows neither take advantage of the splendid view nor let in much air, and the long sloping roofs create an incredibly hot attic space despite exhaust fans, so that in warm weather the second-floor bedrooms are most unpleasant. The house was designed in the days of five or six servants . . . and winter and spring use is impossible." In its stead, the owner will build his Eldredge Snyder-designed "dream home," which, presumably, will be more comfortable.



B.A. AWARD WINNER

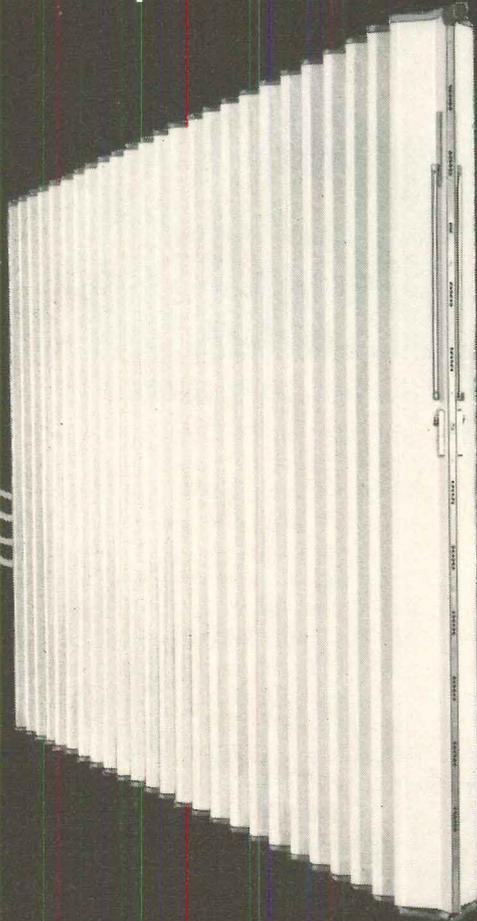
Bold, elegant lines and daring engineering techniques characterize the winning submission (see sketch, left) in the competition for the Peugeot Building in Buenos Aires. Designed by Brazilian Architects Roberto Claudio Aflalo, Plinio Croce, and Gian Carlo Gasperini with Eduardo Suárez of Argentina, it was selected from 226 entries by architectural teams of 30 nations.

Using four pairs of massive columns for exterior support, the building will contain office, commercial, and residential space as well as two amphitheatres, three restaurants, plus conference and garage facilities. A great amount of unobstructed space is obtained by using cantilevered floors.

The international jury praised the building, which, if constructed, will be the tallest in South America, for its harmony with the architecture of Buenos Aires and its "sensible volume, simply and clearly expressed."

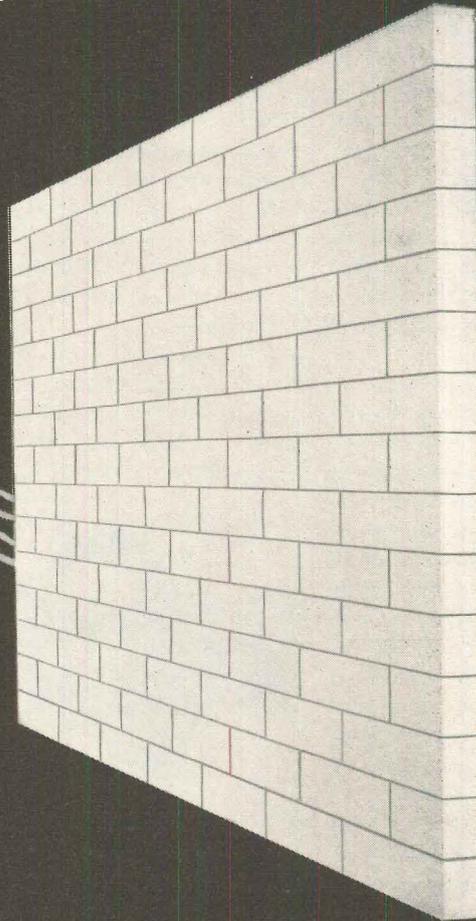
continued on page 13

**The Soundmaster
240 Operable Wall**



38.2 decibels

**4" cinder block,
painted 2 sides**



34.1 decibels

NO CONTEST

● This is no mere comparison of 5' x 5' pilot models, but data established by full-scale tests* of 14' x 9' partitions under simulated field conditions. The Soundmaster 240 not only is the better sound barrier by four full decibels . . . but it gives you space flexibility that no permanent wall can offer. With this new Modernfold operable wall, you can design any area in any building for instant di-

vision, expansion or consolidation. Let us give you the details . . . show you how twin walls of steel panels and effective perimeter sealing can produce such superior sound privacy. Just fill out the coupon below.

*Tests based on ASTM E90-61T procedures and conducted by Geiger & Hamme Laboratories. Reports on request.

NEW CASTLE PRODUCTS, INC.
Dept. A192, New Castle, Indiana

Gentlemen: Please send full information on your Soundmaster 240.

NAME _____

FIRM _____

ADDRESS _____

CITY _____

STATE _____



NEW CASTLE PRODUCTS, INC. • NEW CASTLE, INDIANA

In Canada: New Castle Products Canada, Ltd., St. Lambert, Que. Manufacturers of "Modernfold" Operable Walls, Partitions and Doors; "Air Doors"; "Modern-Cote" Wall Coverings; "Peabody" School Furniture; and "Pyrox" Sheathed Thermocouples.

People in the News

QUOTE . . . UNQUOTE

"We do everything rapidly in this country, and it has taken only 50 years to convert it from the most beautiful country in the world to the ugliest."—*Architect Edward Durell Stone.*

"More people visit the Capitol than any other place in the world—up to 41,000 a day. . . . We can't think in terms of dollars and cents the way we do on other bills; we're like priests who have to preserve their temple."—*Congressman Tom Steed (Dem., Okla.)*

"We have plenty of know-how; where we are lacking is in know-what."—*Prof. Thomas W. Mackesey, Dean of the Cornell faculty.*

"Architects would be well advised to stick to designing structures . . . and refrain from trying to solve city traffic problems about which they know little or nothing . . . Los Angeles, thanks to the freeway system launched many years ago, is now enjoying one of the most ambitious and far-reaching programs of downtown revitalization and renewal."—*American Automobile Association Executive Vice President Russell E. Singer.*

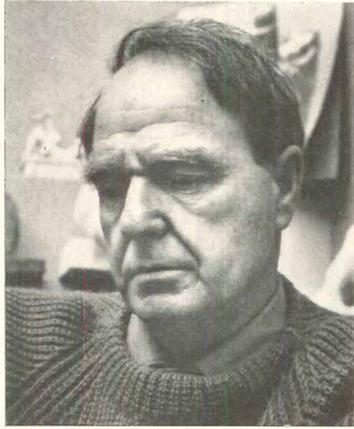
"We see that the city streets and freeways are congested with vehicles . . ."—*Governor Edmund G. Brown of California.*

"If cities are allowed to decline we all will be the poorer, for throughout history cities have been the centers of civilization . . . the creativity, the vitality, the diversity of a society finds expression in its cities."—*N.J. Governor Richard J. Hughes.*

"Central city populations remain fixed while our suburbs have grown. Yet the central city provides increasingly more of the services which the small suburban community cannot afford . . . our cities have become city-states."—*Architect Bertrand Goldberg.*

"For the time being we can't build homes for people in love."—*Fidel Castro.*

DAVID MOORE—LIFE

**HENRY MOORE, NATURALLY**

A few weeks ago, the Amon Carter Museum of Western Art in Fort Worth, Texas, acquired three 11-foot-high bronzes by British Sculptor HENRY MOORE to complete the design of the museum's plaza. Everybody in the area, as well as PHILIP JOHNSON, architect of the building, was "delighted." And last month, New Yorkers had similar cause for rejoicing: a Moore sculpture of "heroic proportions" will adorn the North Plaza Pool in the Lincoln Center for the Performing Arts by 1964. President of the Center DR. WILLIAM SCHUMAN announced the projected work, saying: "The center is being created to encourage and support the performing arts, but we have been anxious that it also represent the highest artistic standards in the field of the visual arts. When we began to think in terms of sculpture, our thoughts turned naturally to Mr. Moore." Two other New York organizations have also turned naturally to Moore for outdoor sculptures: Columbia University's new Law School, and the owners of the Seagram Building, whose plaza was always meant to include two pieces of sculpture.

GEORGE ROCKRISE RESIGNS

Architect GEORGE ROCKRISE last month found it necessary to resign his position on San Francisco's City Planning Commission because of a possible conflict of interest between his practice and his work as a commissioner. Local reaction was one of regret. Commented TV station KPIX: "The resignation . . . demonstrates how the law in

its present language can work against the best interests of the community." Added Rockrise: "As architects we feel a sense of responsibility in the public sector. When one of us is chosen as a member of a public committee, we have our best opportunity to act for the public benefit. The loss of that opportunity is a great shame." Already named as his successor on the commission is young Lawyer ALVIN H. BAUM Jr., who has studied city planning and is strongly

IMOGEN CUNNINGHAM

*George Rockrise*

backed by the same urban-renewal-conscious citizens' group (SPUR) that supported Rockrise.

COMPETITION WINNERS SIGNED

Last month, Architects GERHARD KALLMANN, NOEL MCKINNELL, and EDWARD KNOWLES signed the contract to design Boston's new City Hall (FORUM, Aug. '62). Final plans will be presented next May. Thus ended the uncertainty about the realization of the competition-winning design.

MASTER OF FAIRMANSHIP

Builder, Real Estate Tycoon, and Socialite NORMAN K. WINSTON is, in his own words, "an inveterate fairgoer." Presently acting as New York Mayor Wagner's representative at the Seattle World's Fair, Winston was a special adviser for the 1959 American National Exhibition in Moscow and represented New York City at fairs in Paris, Poznan, Vienna, and Zagreb. In view of his demonstrated fairmanship and wide acquaintance in New York and Federal circles, he was appointed last

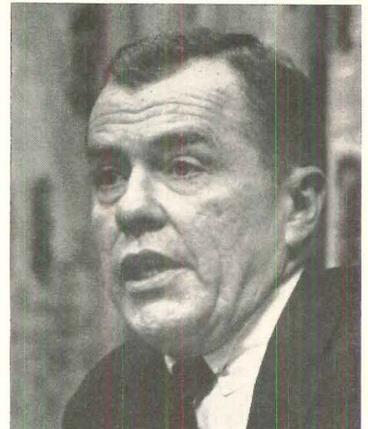
*Norman K. Winston*

month by President Kennedy to a new post—that of U.S. Commissioner to the 1964–65 New York World's Fair. As such, Winston will supervise the development of an exhibit of American achievements in art, science, industry, and culture generally. (For some comments on Winston's problems, see Editorial on page 77.)

LEE HEADS MAYORS' GROUP

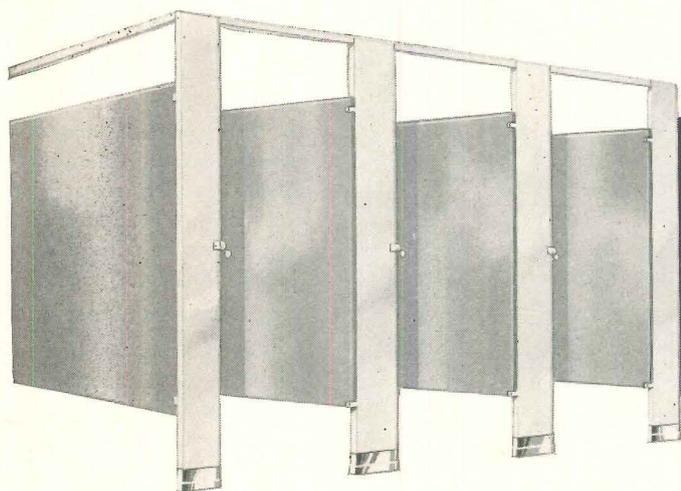
"What I bring to a job is an impatience with the present and a concern for the future," said Mayor RICHARD C. LEE of New Haven, Conn., a few years ago. His newest job: replacing Cleveland's ANTHONY J. CELEBREZZE (now HEW Secretary) as president of the United States Conference of Mayors, a sort of clearing house for municipal problems. Under Lee's guidance over five consecutive terms, New Haven has be-

ROBERT KELLEY—LIFE

*Richard C. Lee*

come a model for U.S. cities in urban renewal and rehabilitation. He can be expected to emphasize these solutions to urban problems in his new position.

continued on page 15



THE IMPORTANT COST IS
“IN-PLACE”
 COST

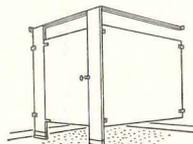
How can Sanymetal provide the finest quality and the most advanced engineering at lowest in-place cost?

The answer is in the question . . . engineering.

Engineering that provides fewer, far fewer parts for easier, faster assembly.

Integral hinge brackets eliminate drilling; snap-in-place concealed latch eliminates on-site assembly, pilaster shoe snaps in place . . . again no drilling.

This is how progressive engineering provides the finest quality and faster, more economical installation. At the same time, Sanymetal provides longer trouble-free life, easier low-cost maintenance, higher sanitation and uncluttered beauty. Write for full story.

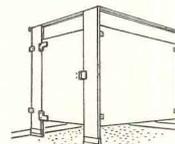


Sanymetal

| TO MOUNT DOOR | NO. OF PIECES |
|---------------------|---------------|
| Set Door in Place | 1 |
| Drop in Top Pin | 1 |
| Place Stop & Keeper | 1 |
| Thru Bolt | 2 |
| Pop on Latch Handle | 2 |
| TOTAL | 7 |

| SECURE DOWN SHOE | |
|------------------|----------|
| Snaps in Place | 1 |
| TOTAL | 1 |

SANYMETAL GRAND TOTAL **8**



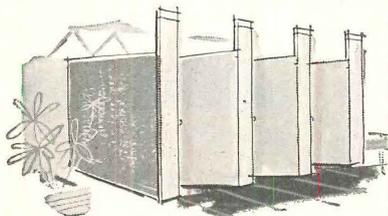
Others

| TO MOUNT DOOR | NO. OF PIECES |
|------------------------------------|---------------|
| Mount Hinge Brackets | 2 |
| Apply Thru Bolts (3 pcs. each set) | 12 |
| Set Door in Place | 1 |
| Drop in Top Pin | 1 |
| Mount Stop & Keeper | 2 |
| Apply Thru Bolts (3 pcs. each set) | 6 |
| Mount Latch | 1 |
| Apply Thru Bolts (2 pcs. each set) | 6 |
| TOTAL | 31 |

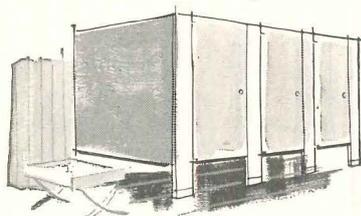
| SECURE DOWN SHOE | |
|--------------------------------------|----------|
| Pull Down Shoe (some use 4 pc. shoe) | 1 |
| Drill 2 Holes | |
| Drive 2 Metal Screws | 2 |
| TOTAL | 3 |

OTHERS GRAND TOTAL **34**

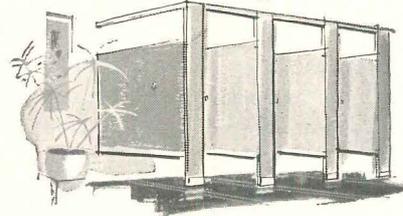
Century



Normandy



Academy



THE SANYMETAL PRODUCTS CO., INC. • 1687 URBANA ROAD • CLEVELAND 12, OHIO

continued from page 13

JFK PICKS HORSKY AS ADVISER

President Kennedy is deeply concerned with the municipal workings of Washington, D.C., but since the city is administered by three District Commissioners dependent upon the largesse of two Congressional committees, the White House has little influence over city affairs. To maintain the Executive branch as an integral factor in District doings, the President last month selected Lawyer CHARLES A. HORSKY as the first Presidential Adviser on National Capital

HARRIS & EWING



Charles A. Horsky

Affairs. Horsky, who has served on several District of Columbia committees and commissions, will act as liaison between the White House, the Board of Commissioners, and Congress. He will also help prepare legislative and administrative proposals throughout the metropolitan area.

HUNTER JOINS WARNECKE

Assistant Commissioner for Design and Construction of the GSA LEONARD L. HUNTER resigned this title last month to become Executive Vice President and Partner in the San Francisco architectural firm of John Carl Warnecke and Associates. At the GSA, Architect Hunter directed a program of federal construction which has amounted, since 1955, to approximately \$2 billion. He was honored by the AIA in 1959 for the high standards of GSA building, and in 1960 by the GSA itself for "outstanding leadership." Just how good was federal architecture over the period? "It was not great architecture," Hunter reminisces, "but



Leonard L. Hunter

it has been good architecture." Hunter reportedly will not be working on the Warnecke project for Lafayette Square. "My territory will be west of the Mississippi," he has announced. His first concern: the Hawaiian State Capital at Honolulu.

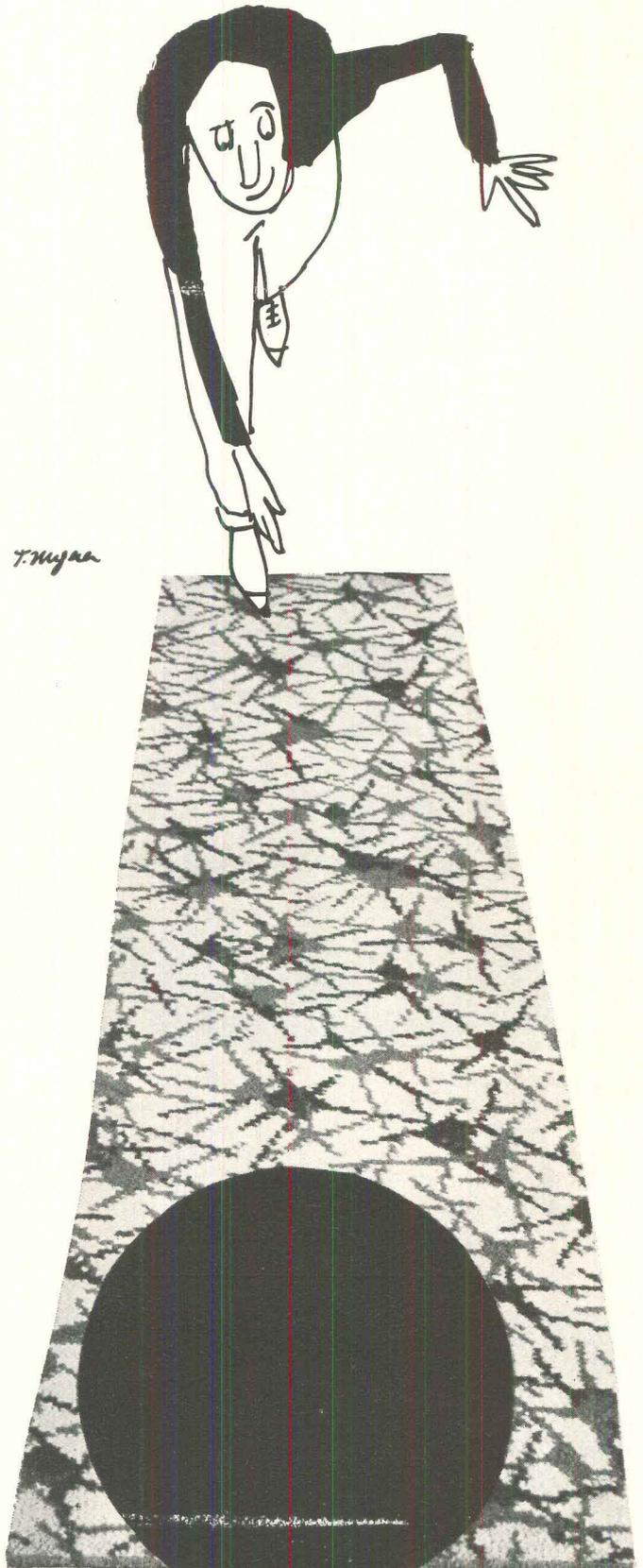
APPOINTMENTS

Architect CROMBIE TAYLOR, former acting director (1952-55) of IIT's Institute of Design, will move to Los Angeles to head USC's School of Architecture. While continuing as consultant on the restoration of Adler & Sullivan's Auditorium Theatre in Chicago, Taylor will assume his duties in L.A. immediately.

ZEL KELVIN, 47, has been selected as the president of the Futerman Corporation after a year-long search for "the right man." Highly experienced in the real estate field, Kelvin was vice president and secretary of Benenson Management Co., Inc.

Seattle Architect LLOYD LOVEGREN was appointed last month as a consultant on a bridge to be built across Lake Washington. Commented the *Seattle Times*: his employment "represents the most significant advance esthetic forces have scored on a [Washington] state level."

"To assure a high level of competence in architectural design," ROMALDO GIURGOLA was appointed as consultant to the Philadelphia Planning Commission. Architect Giurgola was a finalist in the recent Boston City Hall competition. **END**



MAGEE SCORES '300' with a line of carpets made to follow through on bowling lane needs. Under any handicap, in any area, Magee delivers... with high-scoring weaves, patterns, fibers... with specification recommendations to assure top carpet form in any wear tournament. And, Magee puts you in the "bowl-'em-over" league with custom designs and colors. Get rolling with the '300' line... contact the carpet kingpin, **MAGEE**
The Magee Carpet Company, Commercial Division, 295 Fifth Ave., N.Y. 16

Building in the News

BEDRICH-BLESSING



MILWAUKEE OFFICES. A seven-year tax concession worth \$2 million has brought Milwaukee its first major office tower in 25 years: the 22-story Marine National Exchange Bank building, seen here on the downtown river

front flanked by its birdcage entrance and six-story garage. The \$17 million project was built by Architects Harrison & Abramovitz and Robert E. Rasche, Developer John W. Galbreath, and Turner Construction Co.

F. E. GUERREIRO



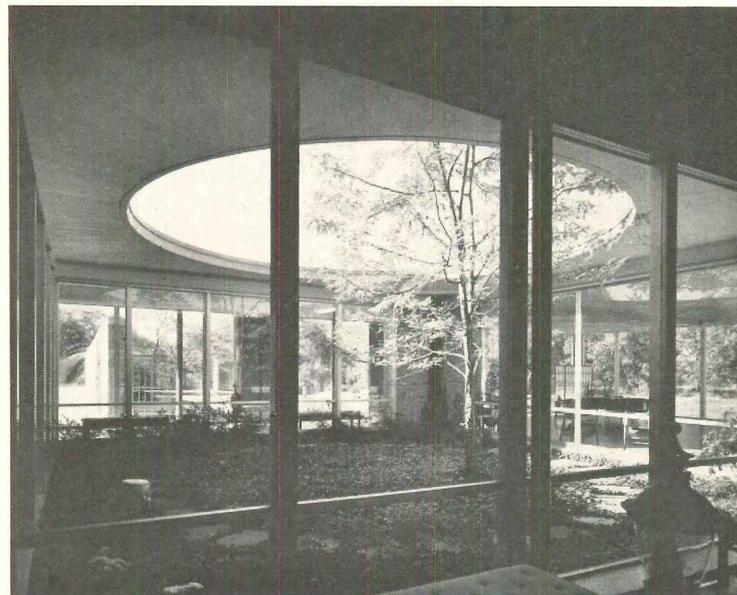
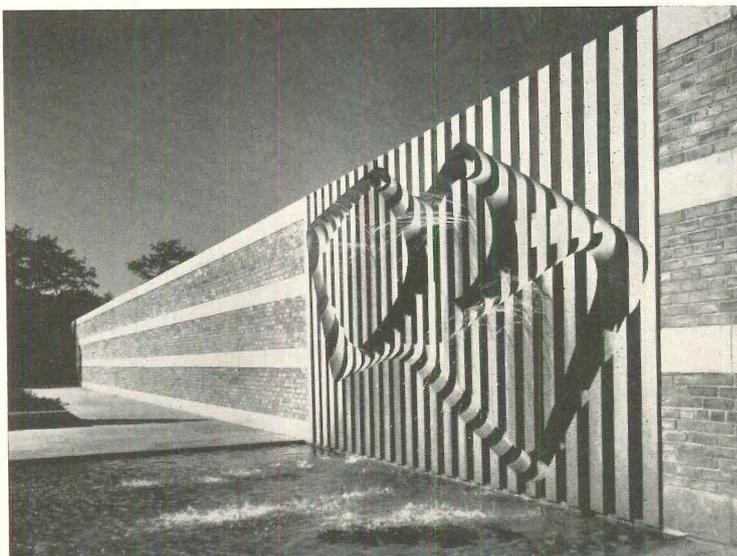
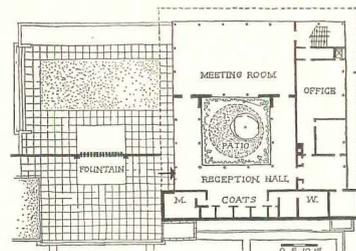
NEW JERSEY ADMINISTRATION. Moved from Rockefeller Center to Wayne Township, N.J., American Cyanamid's head offices now nestle in a rolling site overlooking a lake. The serpentine main building has four stories (on the high side, shown above, only three are

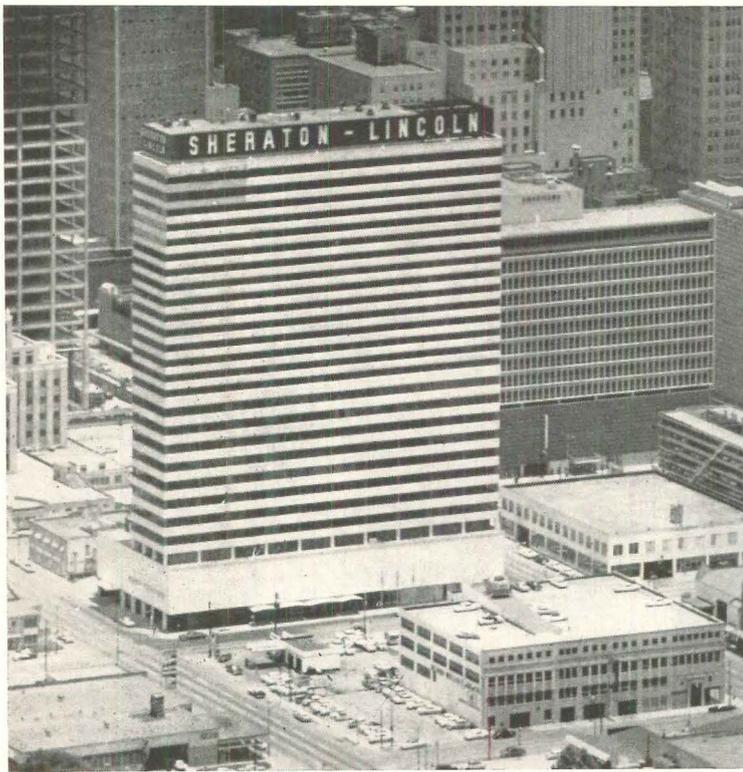
above grade). Sculptural stair towers stand free at each end of the 940-foot-long, steel-frame building. Architect: Vincent G. Kling. Engineers: Severud-Elstad-Krueger (structural), Meyer, Strong & Jones. Contractor: Frank Briscoe. Cost: \$11 million.



ST. LOUIS GARDEN CLUB. The new home of the National Council of State Garden Clubs, by Architect Frederick Dunn, turns blank walls to the outside to gain bower-like seclusion within. A concrete fountain by Sculptor William Talbot (below) empties into pools beside a long, low wall; inside, space flows freely around a skylit patio (bottom photo). Landscape architect: Emmett Layton. Engineers: William C. E. Becker (structural), Rebman &

Gay (mechanical). General contractor: Gamble Construction Co. Cost: about \$400,000.





TEXAS OFFICE-HOTEL. Broad stripes and a big sign make the 28-story Sheraton-Lincoln an assertive part of Houston's skyline. Public areas are housed in a three-story marble base. The next eight floors are offices, with guest rooms

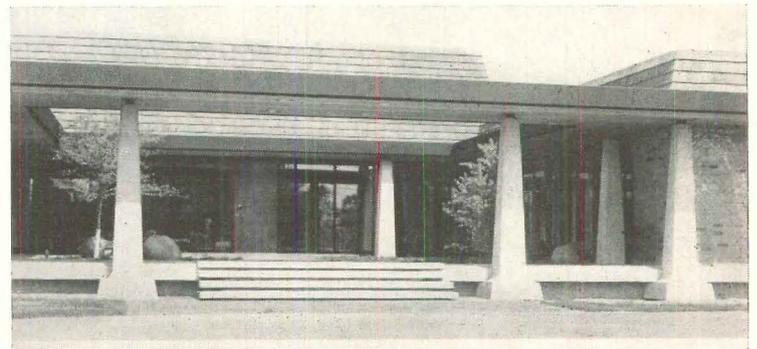
above. Lincoln Liberty Life Insurance Co. built the tower under leasing arrangements with Sheraton. Architects: Quinn & Christiansen, Kenneth E. Bentsen. Contractor: Manhattan-Bell (a joint venture). Cost: \$16 million.



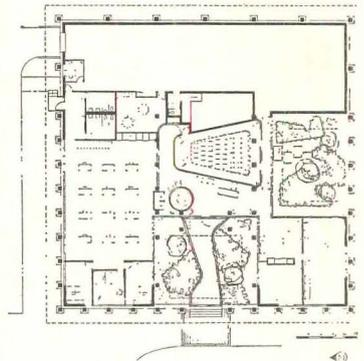
SHEEDY & LONG

LOS ANGELES GAS STATION. A big cantilevered steel parasol, 120 feet across, shelters this \$130,000 station for Standard of California at Los Angeles International Air-

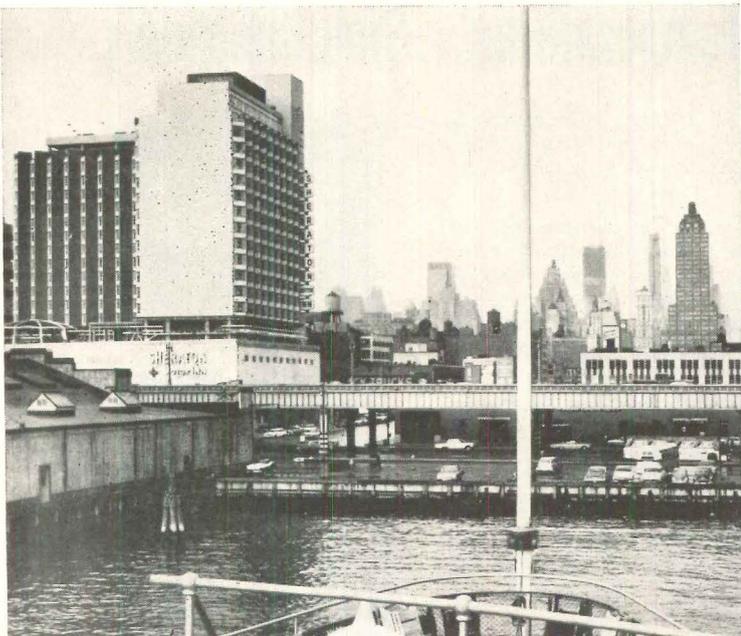
port. Architects were Charles Luckman, Welton Becket, and Paul Williams. Engineers: Richard S. Bradshaw, S. B. Barnes. Contractor: Miller & Miller.



CHICAGO CREDIT UNION. Precast concrete columns, shaped like inverted golf tees, support a sloping roof of gray tile in this building for the Illinois Credit Union League. Architect Edward D. Dart's design has other hints of far-off Japan: two landscaped courts for entrance and interior views (below). Engineers: Samartano & Robinson (structural), Frank Riederer (mechanical). Contractor: Pepper Construction Co. Cost: \$260,000. END

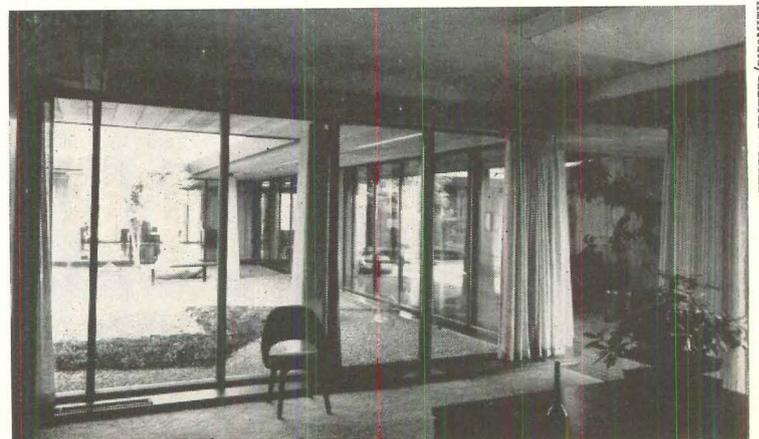


A. F. SOZIO



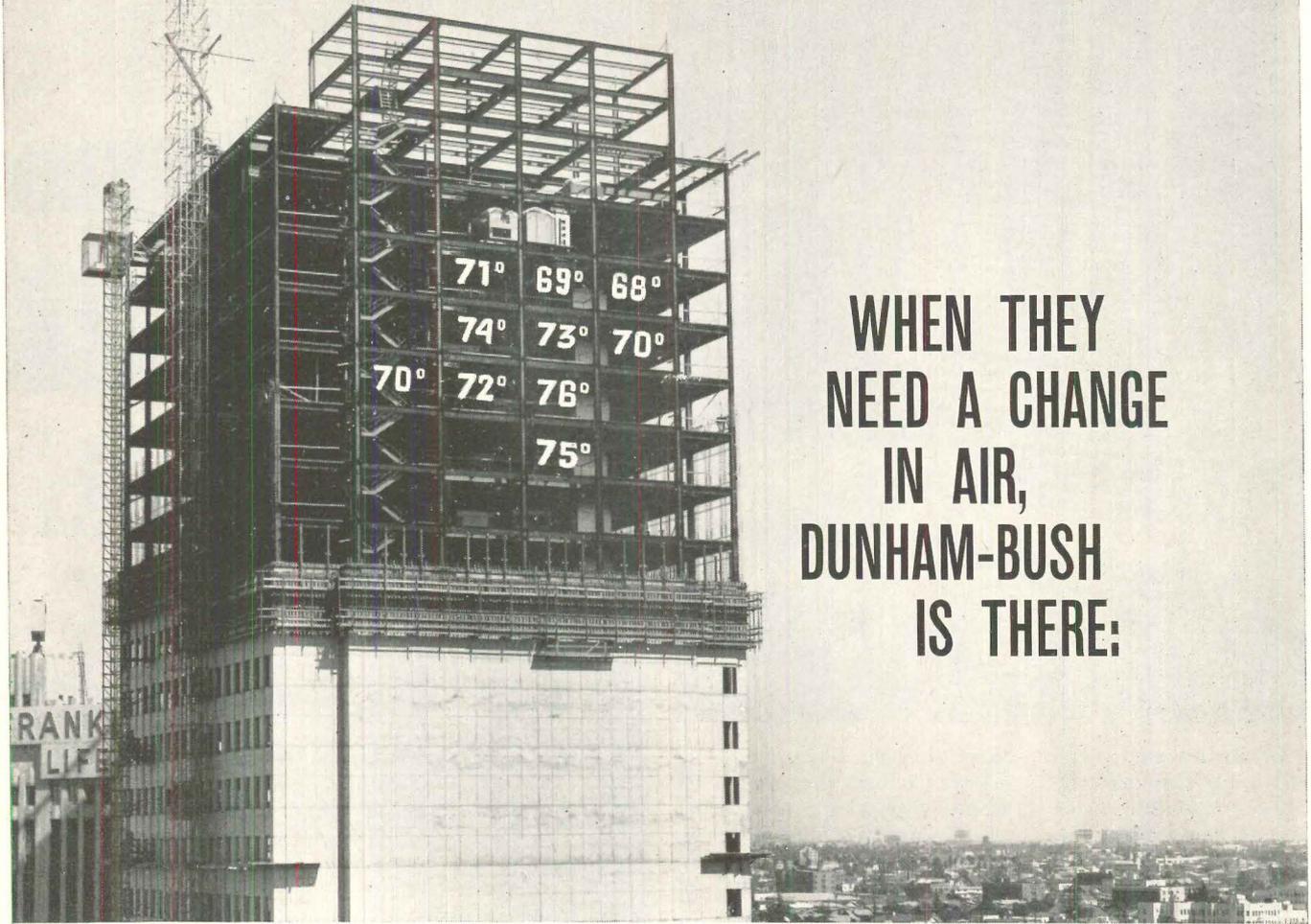
MANHATTAN HOTEL. Having scored, Miami-style, on New York's East Side (the "Summit" hotel), Architects Morris Lapidus, Harle & Liebman seem out to prove that the West Side can be a carnival too. Their Sheraton

Motor Court lifts faceted guest floors above a four-story garage. Also atop the garage: the Carrousel café, offering "a magnificent view of the Hudson from a tier of revolving banquettes." Contractor: Venada Corp. Cost: \$12 million.



PHOTOS: CROTZER/DANSMITH

within the NEW Union Bank Center skyscraper . . .



**WHEN THEY
NEED A CHANGE
IN AIR,
DUNHAM-BUSH
IS THERE:**

Owner: Getty Realty Co. Architect: Claude Beelman and Associates General Contractor: Dinwiddie Construction Co. Mechanical Contractor: Kilpatrick Company

22 Floors...418 Different Room Temperatures...Simultaneously



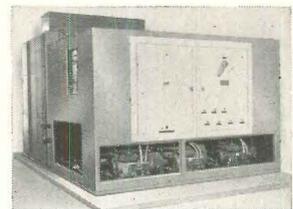
Cecil Boling, President
Dunham-Bush, Inc.

"Very often these days a manufacturer's capability is measured by the application range of his products . . . a fact which explains our pride in this significant installation of Dunham-Bush air conditioning equipment.

"Commanding one of the world's most famous corners, Wilshire Boulevard at Western Avenue, Los Angeles, this distinctive structure is designed for single or multiple tenant occupancy, and demands an air conditioning system sufficiently flexible to permit its off-hour use in a few areas and independent control of temperature in every room at any time. Each of the 22 floors has 14,000 sq. feet of floor space, and if the typical floor plan were followed, there could be as many as 418 rooms, each with individually determined air conditions.

"This floor-by-floor, room-by-room air conditioning is made possible by an effective combination of Dunham-Bush equipment: a special package air conditioner fabricated by Kilpatrick Co., Inc. comprises three Dunham-Bush Brunner-Metic compressors, three Dunham-Bush Heat-X 'CSTC' condensers, three Dunham-Bush evaporator coils, and a supplementary condenser coil for heating requirements.

"Today, air conditioning is no longer a luxury . . . it's necessary to our way of living and working. Dunham-Bush can satisfy your needs. Write for information on our air conditioning, heating, refrigeration, and heat transfer lines."



Special
Packaged Air Conditioner



'DDWC'
Dual Dry Water Cooler

DUNHAM-BUSH

DUNHAM-BUSH, INC.

WEST HARTFORD 10, CONNECTICUT, U. S. A. AND IN CANADA

SALES OFFICES LOCATED IN PRINCIPAL CITIES THROUGHOUT THE WORLD

AIRPORT DESIGN

Forum: The July FORUM is about the best issue I've ever read.

Maybe that's not good coming from a nonprofessional. But I just put it down after a cover-to-cover reading and that's how it hit me.

New York City
FRANK STANTON
President, Columbia Broadcasting System

Forum: Donald Canty's compilation of airport problems is condemning, sympathetic, and understanding. I hope everyone is listening.

New York City
HENRY DREYFUSS



Forum: I object to your statement that Saarinen's TWA terminal "looks, from the air, more like a giant horseshoe crab than a bird in flight." This would depend entirely on your perspective position in the air.

Please have Mr. George Cserna add to his excellent portfolio this snapshot from the Idlewild control tower. A soaring eagle might resemble a horseshoe crab when photographed from the rear end at a thousand feet.

Flat Rock, N.C.
NEWTON D. ANGIER

Forum: What is required to relieve the air traffic burden of international airports, and make it unnecessary for the short-distance traveler to waste time going miles out of town to the airport, is some new system of transportation that will cover the few hundred miles between large urban centers at about the same speed as the DC-3. Would it not be possible to develop a monorail car that could travel at 200 miles an hour? Its design could be based on air-frame principles, with rudimentary plane and control surfaces. Traveling at sufficient speed, it could develop enough lift to reduce friction. The car would in effect be almost flying.

Urbana
JOSEPH M. HEIKOFF, Director,
Bureau of Community Planning
University of Illinois

Forum: "The Confusion in Airport Planning" is interesting and comprehensive. The airline passenger and the airport neighbor, however, should be more concerned with plans affecting their safety than with some of the conveniences and inconveniences to which they are subjected.

Rational noise abatement procedures, airport siting and zoning, air traffic control, runway lengths and directions, fire and rescue facilities, clear zones, overrun and underrun areas, and lighting are a few items which can enhance the safety of passengers and

airport neighbors by proper planning.

Chicago
THEO. G. LINNERT
Air Line Pilots Association

Forum: "Architecture for the Jet Age" should be read by everyone who is intimately associated with the business of aviation.

Washington, D.C.
P. A. HAHN
Federal Aviation Agency

WASHINGTON'S ARCHITECTURE

Forum: Have heard a great deal concerning your editorial on Washington's architecture (Aug. '62) and thought it was exceptionally well done.

Washington, D.C.
WARREN G. MAGNUSON
United States Senate

Forum: . . . most interesting.

Washington, D.C.
JAMES HARVEY
House of Representatives

Forum: I hope to play a small part in achieving "a fuller realization in Congress that the city cannot do with less."

Washington, D.C.
FRANK W. BURKE
House of Representatives

Forum: I agree with most of what Peter Blake says in the June issue ("Architecture in Decline"), though the remedies he proposes are large and difficult. It is not quite true, however, that the federal government has been quite as backward as he suggests. In the Chicago issue you showed the handsome building which Mies is doing, and I believe that elsewhere there are office buildings that promise to be first-rate. We even hope to brighten the Washington scene with some distinguished buildings, nonmonumental but effectively portraying their public character.

However, and this may only reinforce Mr. Blake's point, without some kind of patron it is difficult under present circumstances to undertake building on a large scale that is not concocted rather than conceived.

Washington, D.C.
AUGUST HECKSCHER
Special Consultant on the Arts
The White House

PAINTS

Forum: "What's New in Paints" (June '62) is most informative. There is, however, one statement which should be clarified. Urethanes are being used in the finishing of clean or dust-free rooms in the electronic industry because they do not chalk indoors.

Los Angeles
W. W. MARSH
Magna Coatings & Chemical Corp.

BIG CLIENTS

Forum: Your July article on "The 100 Largest Clients" is interesting and thought provoking.

As we all know, there are other kinds of new big clients today, including the large college and university. We have indications that the Council of Ten and the University of Chicago, 11 large mid-western universities,

are involved in a building program aggregating about \$1.85 billions of dollars of new construction for the period 1946-1970 and that \$1.1 billion of this is yet ahead of us.

Chicago
W. S. KINNE, JR.
Architect, Consultant
University Facilities Research Center

FORUM'S COVERS

Forum: Your covers are a credit to both the architectural and graphic-arts professions. This letter is written to give your art department the credit and praise it deserves.

Houston
ALSEY W. NEWTON, JR.
Architect

RENEWAL DEFENDED

Forum: David B. Carlson's very interesting article on urban renewal (July '62) calls attention to a number of problems that have had to be worked out in the light of experience.

The general criticisms expressed are much less applicable now than formerly. Satisfactory relocation housing, housing for moderate- and low-income families, attention to good architectural design, use of materials and equipment which afford good maintenance characteristics, and capable management of completed projects now do receive consideration in local program development from the early planning stages.

Local public agencies and prospective redevelopers hold early, informal meetings with local FHA staff. Fair land values, rent ranges, number and types of housing units in relation to market factors, relocation of displaced families—all these matters are considered and practically resolved before urban renewal sites are under contract.

Washington, D.C.
NEAL J. HARDY
Commissioner, FHA

■ As FORUM has indicated throughout its series on renewal, federal agencies, including FHA, are meeting the problems with more vigor than ever before. However, judging by a considerable body of research, it seems there is still some way to go before "all" the matters discussed in Mr. Hardy's letter "are practically resolved before urban renewal sites are under contract."—ED.

Forum: "The Unrealized Profits in Urban Renewal" was a fine article. Keep on doing more of them.

While it is true that cities have not always thought through their renewal problems in terms of social objectives, it is also foolish to abandon opportunities for high dollar and high tax returns when the market can support these and when good design can be achieved. Why should luxury housing sites in a firm and clear market be sold at a non-luxury price? The price can be augmented because of design values added to the site and the neighborhood. At least this has been San Francisco's experience.

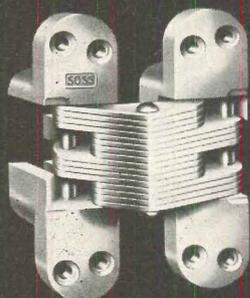
Regardless of the temptations of the lux-

continued on page 20

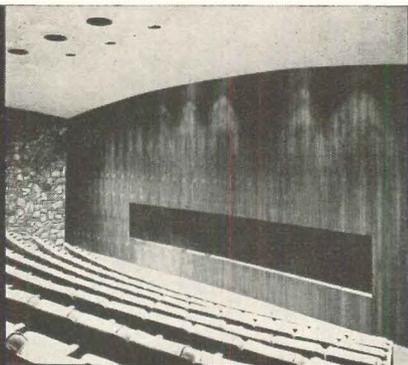
Action in Architecture

...by **SOSS**

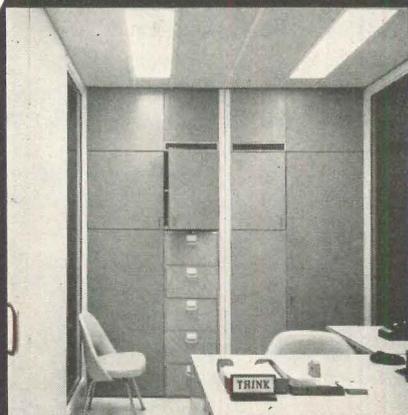
Acclaimed as one of America's outstanding architectural triumphs, the new IBM Research Center, Yorktown Heights, New York, designed by Eero Saarinen, AIA, makes extensive use of SOSS INVISIBLE HINGES to achieve total unity of form without sacrifice of utility. From the massive auditorium divider to the smallest metal wall cabinet, Soss Hinges perform a function that cannot be duplicated by any other hinge.

**SOSS**
INVISIBLE HINGES

Discover how SOSS INVISIBLE HINGES can enhance the beauty throughout any building calling for smooth, unmarred openings.



Auditorium can be divided into two sections by huge double folding doors that utilize SOSS INVISIBLE HINGES.



Modular offices 12 feet deep are each separated by a colorful wall of storage units, all fitted with SOSS INVISIBLE HINGES.



Dramatic executive dining room, shown here as one room, can be divided into several private rooms by closing any one or all of the SOSS hinged sliding panels along right wall.

ury market, however, the sale of most residential land should be oriented to the moderate-priced market. The federal people with the help of Congress should sharpen up their tools for moderate-priced private housing. The present FHA formulas are rigid and practically deny high-rise housing in high-cost urban centers to families of moderate income.

The FHA room-count "numbers game" should be abandoned for more practical formulas.

And, aside from esthetic considerations, cities had better build design objectives into their land marketing programs in sheer self-protection. Design requirements add value to land.

M. JUSTIN HERMAN
Executive Director

San Francisco

Redevelopment Agency

■ See "In Urban Renewal, Who Manages Design?" page 125.—ED

SEATTLE FAIR

Forum: Regarding the Theme Exhibit at the Seattle Fair (FORUM, June '62), while Donald Deskey Associates did indeed create the original design concept for the exhibit structure, our firm conceived and produced the exhibit itself in cooperation with Radio Corporation of America, based on an original theme concept by Herbert Rosenthal and Alfred Stern. My associate, Jack Robinson, served as chief project designer and Paul John Grayson was project architect for Deskey and the State's fair commission.

ALFRED STERN

President

New York City

Robinson-Stern Associates, Inc.

ARCHITECTURAL FORUM is published monthly by TIME INC., Time & Life Building, Rockefeller Center, New York 20, N. Y.

SUBSCRIPTION SERVICE: Address all subscriptions and correspondence concerning them to: ARCHITECTURAL FORUM Subscription Dept., 540 N. Michigan Ave., Chicago 11, Ill. Subscription rates: in U.S., U.S. Possessions and Canada, one year \$7; elsewhere, one year, \$12. Single copies, if available, \$1.

CHANGE OF ADDRESS: Four weeks is required for change of address. When ordering a change please name magazine and furnish a label from a recent wrapper. If no label is available please state as exactly as possible the address to which magazine has been sent. Changes cannot be made without old as well as new address.

EDITORIAL CORRESPONDENCE should be addressed to ARCHITECTURAL FORUM, Time & Life Building, Rockefeller Center, New York 20, N. Y. FORUM will not be responsible for unsolicited manuscripts or illustrations submitted, and it will not return such material unless accompanied by postage.

ADVERTISING CORRESPONDENCE should be addressed to the advertising director, ARCHITECTURAL FORUM, Time & Life Building, Rockefeller Center, New York 20, N. Y.

TIME INC. also publishes TIME, LIFE, FORTUNE, SPORTS ILLUSTRATED, and HOUSE & HOME and with its subsidiaries the international editions of TIME and LIFE. Chairman of the Board, Andrew Heiskell; Chairman, Executive Committee, Roy E. Larsen; Chairman, Finance Committee, Charles L. Stillman; President, James A. Linen; Executive Vice President and Treasurer, D. W. Brumbaugh; Senior Vice President, Howard Black; Vice President and Secretary, Bernard Barnes; Vice Presidents, Bernhard M. Auer, Edgar R. Baker, Clay Buckhout, R. M. Buckley, Arnold W. Carlson, Allen Grover, Jerome S. Hardy, C. D. Jackson, Arthur R. Murphy, Ralph D. Paine, Jr., P. I. Prentice, Weston C. Pullen, Jr.; Comptroller and Assistant Secretary, John F. Harvey; Assistant Comptroller and Assistant Secretary, Charles L. Gleason, Jr.; Assistant Treasurers, W. G. Davis, Evan S. Ingels, Richard B. McKeough.

For complete information & prices, write:

SOSS MANUFACTURING CO.

AF-119, P. O. BOX 38, DETROIT 13, MICHIGAN



"The Gizmo", Students' Snack Room, Knox College. Architects: Perkins & Will. Plate 451.

What to use for a "Gizmo" Floor?

Murray Quarry Tile was selected for this student eating area because of its warm earthy colors and its well-known durability. These new Ember Flash tiles give a pleasing mottled effect, and the 8" x 3 $\frac{7}{8}$ " size was used to achieve a subdued feeling of pattern. Quarry tile was preferred, too, in this heavy traffic area, because it is rugged, yet so easy to keep clean. Write for Murray Quarry Tile catalog 861.

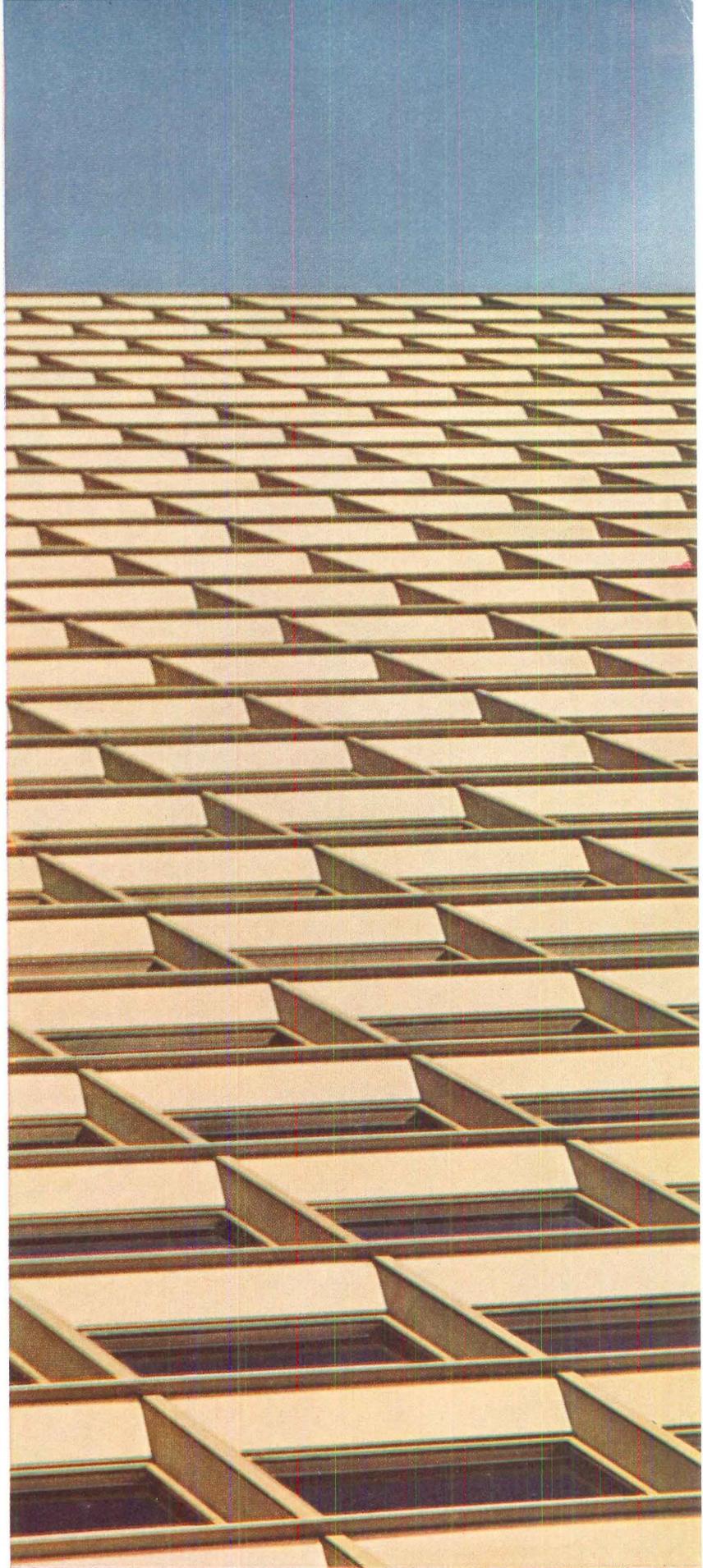
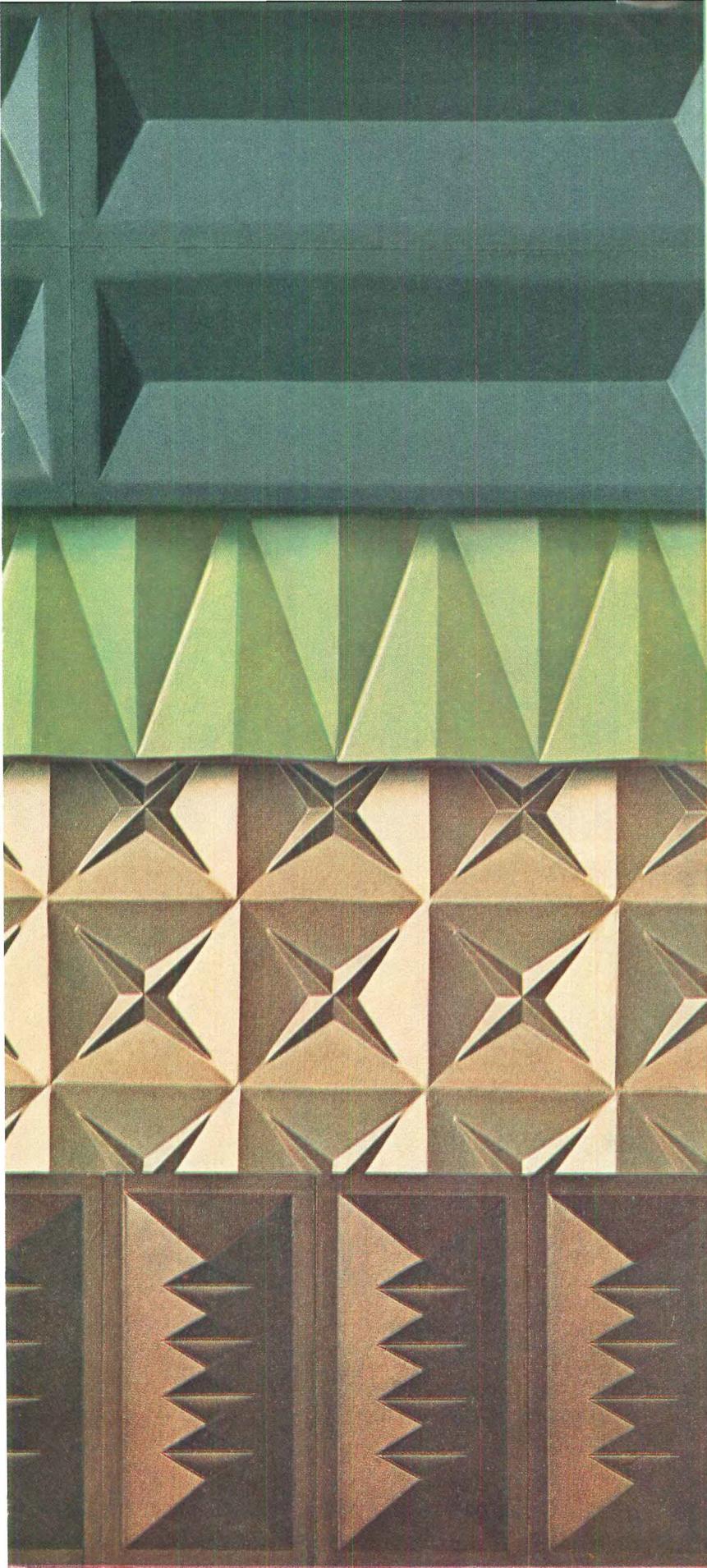


MURRAY TILE COMPANY, INC. • 149 MELANIE DRIVE • LEWISPORT, KENTUCKY



For buildings that sing with colors to rival Nature's own...call on Alcoa Aluminum's facility for expression...

it is the nature of aluminum to be **resplendent**



in every dimension of color, line, form or texture ... and build for splendor ... for strength ... for permanence

There's a way to build a building to banish drabness, to relegate the skyline of mediocrity to yesterday. Structures sheathed in Alcoa® Aluminum with Duranodic* finish are vibrant pillars of color—warm, glowing colors veiling hidden strength. Alcoa's satin-smooth Duranodic finish is muted elegance, come rain or shine. Elegant, too—and as tough—is Alcoa Aluminum with porcelain enamel. Porcelain, creator of beautiful buildings, adheres better on aluminum than on other metals; withstands greater impact deformation without chipping. You who design for tomorrow's cities . . . avoid the tired, the dull, the outmoded. Use Alcoa Aluminum. Call your nearest Alcoa sales office or write Aluminum Company of America, 1822J Alcoa Building, Pittsburgh 19, Pa.



Entertainment at Its Best...ALCOA PREMIERE
with Fred Astaire as Host... Tuesday Evenings, ABC-TV



PHOTO: GERMAINE KRULL

WE COULD HAVE KEPT THE NOSE FROM PEELING.

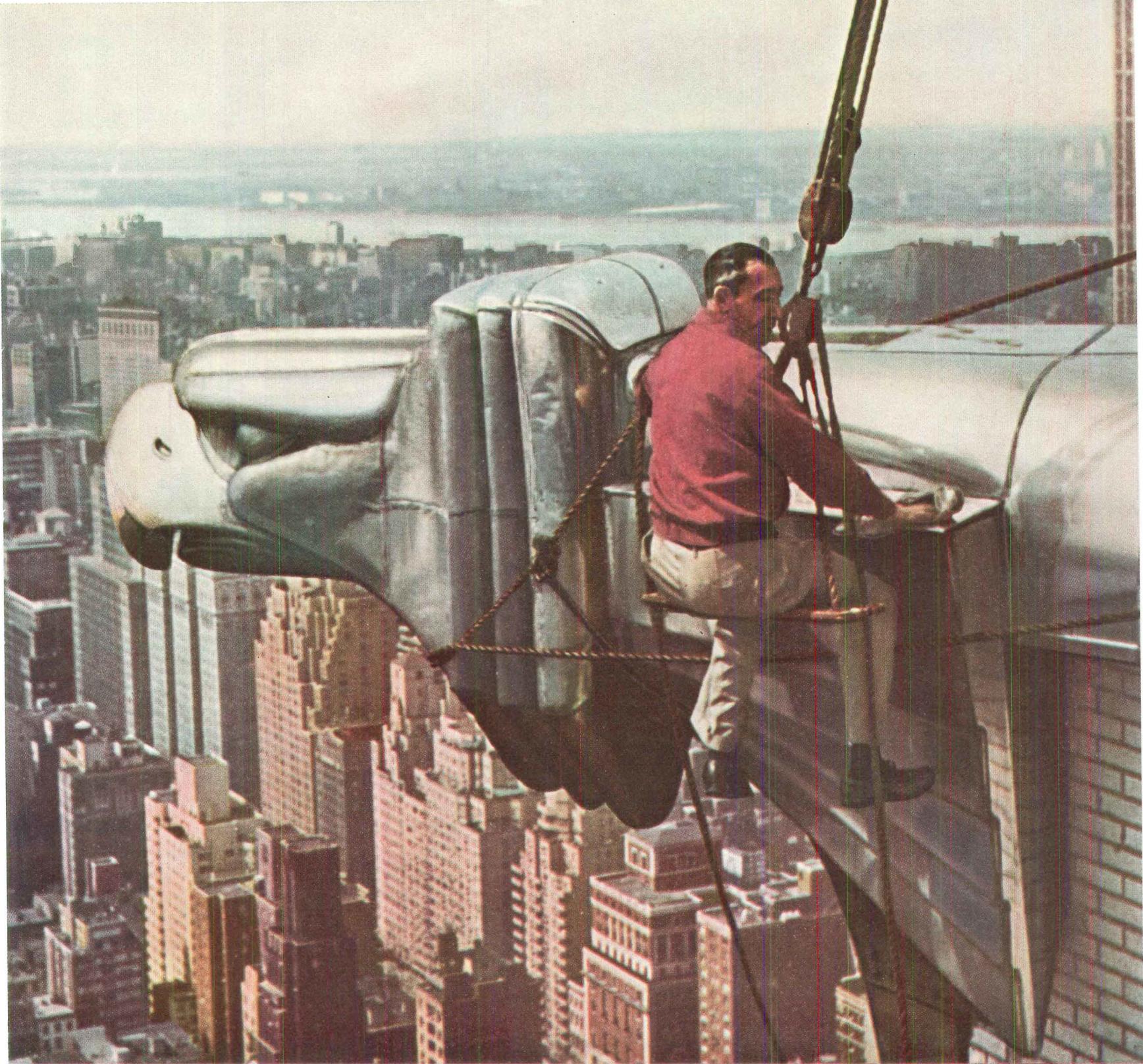
Like the old, the new age of concrete will still face the problems of time, weather and wear. Concrete, once confined to strictly structural and utilitarian uses, has emerged as a beautiful and versatile building material. An important step forward in concrete development has been the use of chemical additives, surface treatments and finishes that provide increased strengths, durability, ease of application and installation.

As concrete technology further advances, you can look forward to many more new and improved specialty products researched, designed and manufactured by Sonneborn to protect, preserve, and maintain the exacting requirements of new designs and new architectural concepts.

Sonneborn maintains a nation-wide network of sales engineers, offices, laboratories and distribution facilities, ready to service the architect of this new age of concrete.

For information on concrete floor treatments, admixtures, sealants and dampproofings, consult your local Sonneborn representative or nearest Sonneborn branch office.

 **SONNEBORN**
CHEMICAL AND REFINING CORPORATION
Building Products Division/300 Park Avenue South/New York 10, New York



61 Stories Over Manhattan

Part of the first major test of stainless steel in American architecture, this gleaming gargoyle took its place on the New York skyline in 1929.

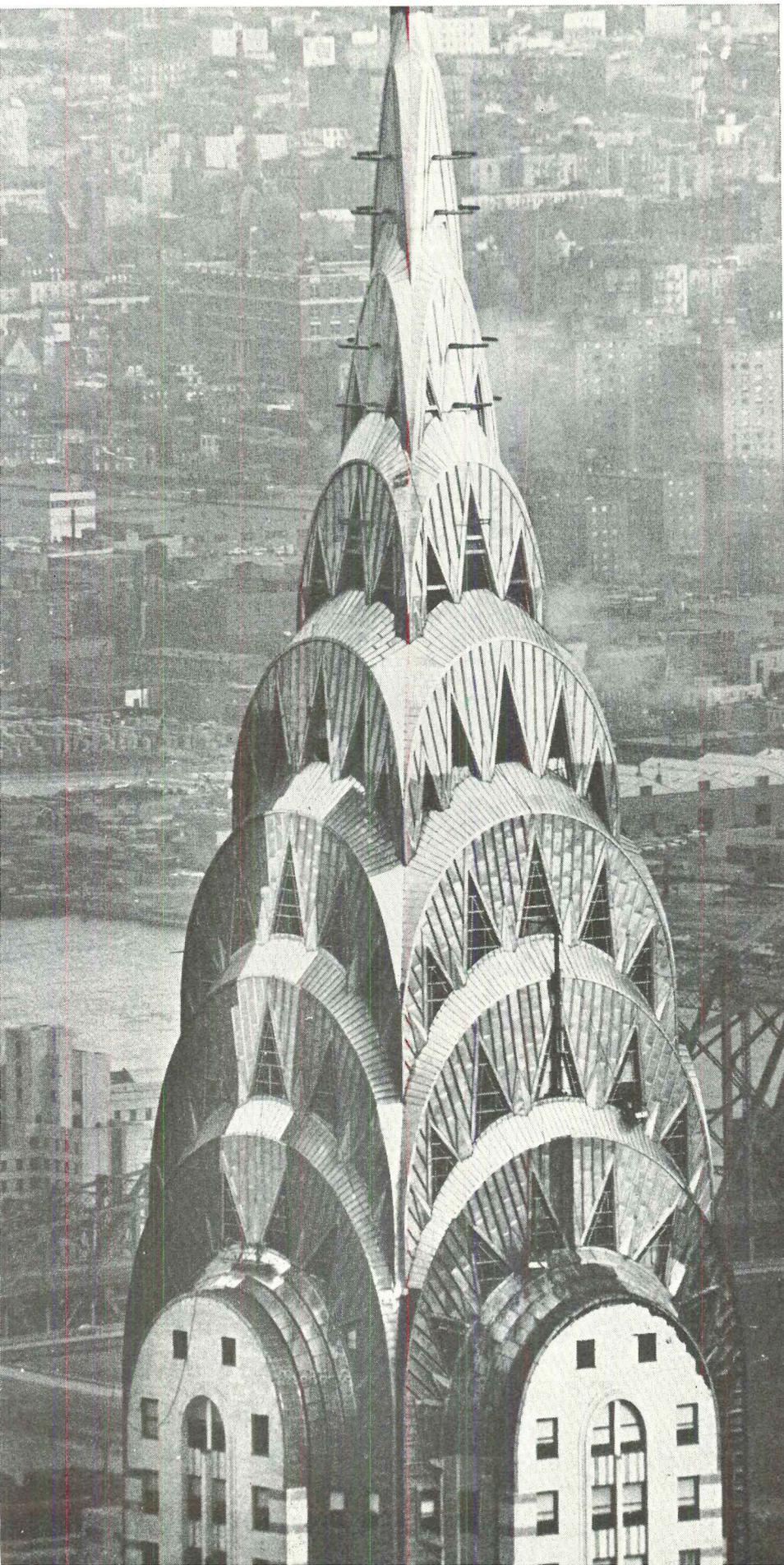
Architect William Van Alen specified stainless steel for the dome, cornices, entrances, street floor shop windows, and gargoyles of the beautiful new Chrysler Building.

Would stainless steel resist the combined attack of rain, ice, snow, soot, smoke, and grime?

Continued next page...

... from preceding page

Stainless Steel passes the difficult test of time



The Chrysler Building's stainless steel dome (seen at left) and eight stainless gargoyles were cleaned for the first time in 1961.

Despite 32 years of exposure to corrosive smoke and moisture, the beauty of the original installation was quickly and easily restored. Gotham Building Cleaning Co., Inc., reports: "No evidence of corrosion or deterioration of any kind."

The use of stainless steel in architecture began with the Chrysler Building (1929) and has increased steadily through the years. The metal offers stubborn resistance to corrosion, abrasion, scratches, and dents. It is easily fabricated and erected, blends with other materials, and is available in many standard types and forms.

Stainless steel is seen on exteriors in curtain wall panels, mullions, spandrels, windows, railings, sunshades, doors, and entrances. Inside, plain and textured stainless steels are observed in walls, ceilings, column panels, stairways, elevator cabs, and countless decorative effects.

Republic ENDURO® Stainless Steels are produced in all popular types, in widths to 72 inches, and in finishes ranging from soft matte to mirror-bright. Republic offers expert metallurgical assistance. Call your nearest Republic representative for information or check Sweet's Architectural Catalog File, Section 6c/Re.



REPUBLIC STEEL

Cleveland 1, Ohio

Shedding 32 years of dirt and grime: Stainless steel dome of New York's Chrysler Building was cleaned for the first time in 1961. Original bright finish was quickly and easily restored.

Architect: William Van Alen, New York.

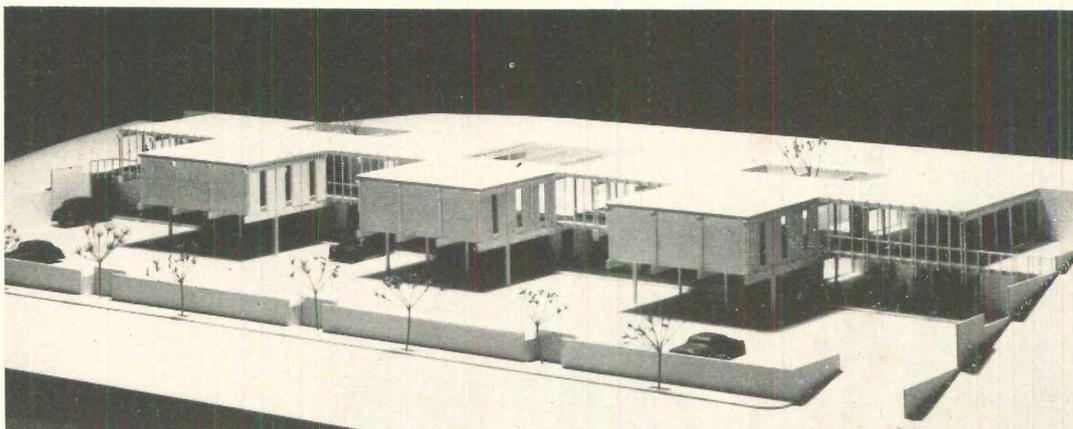
General Contractor: Fred T. Ley & Co., New York.

Stainless Steel Sub-Contractor: Ben Leisner, Inc., New York.

State centers for Boston and Trenton (below)

Seven-acre floors in Manhattan (page 47)

Federal buildings in Juneau and Cleveland (page 49)



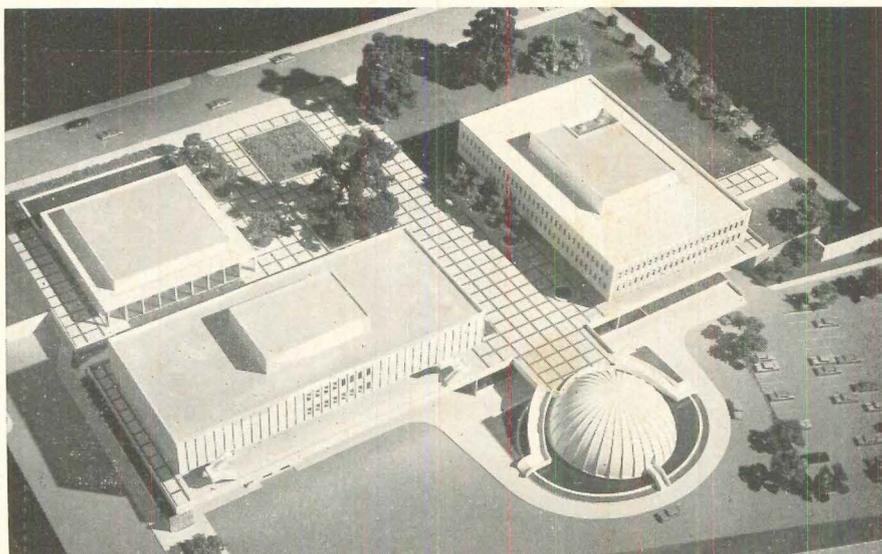
1



2



3



4

1. SEATTLE OFFICES. A staggered arrangement of office blocks and open courtyards will give every office plenty of daylight in this design for a small rental building to be built on Mercer Island by Ned Nelson, a Seattle businessman. One-story offices in the foreground will stand above open parking spaces, while those in the back half will have specialty shops underneath. Architects: Kirk, Wallace, McKinley & Associates.

2. MULTIPLE NEW YORK TOWER. The notion of wrapping an apartment house, a medical center, a

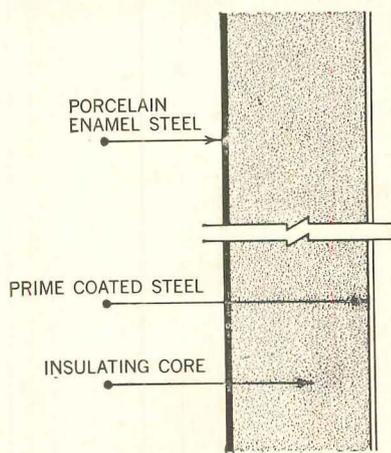
school, and a garage into a single package indicates pretty graphically that land in New York City is at a premium. The City and Country School, a long-established private organization, is undertaking this commercial venture in hopes of paying for its new quarters. Architects Shilowitz, Shilowitz & Nagasawa have provided a design that separates each function: apartments in the 12-story tower, school in the base, medical offices, the school's gymnasium, and a commercial garage underneath. Cost: \$1.8 million.

3. STATE OFFICES IN BOSTON. Boston's Government Center, replacing the shabby Scollay Square area, already has two prime tenants: the prize-winning City Hall and the recently announced Federal Building (FORUM, Aug. '62). A third, the State of Massachusetts, will build this 22-story office building designed by Emery Roth & Sons. Floor-to-ceiling window frames will be of precast concrete. Cost: \$18 million.

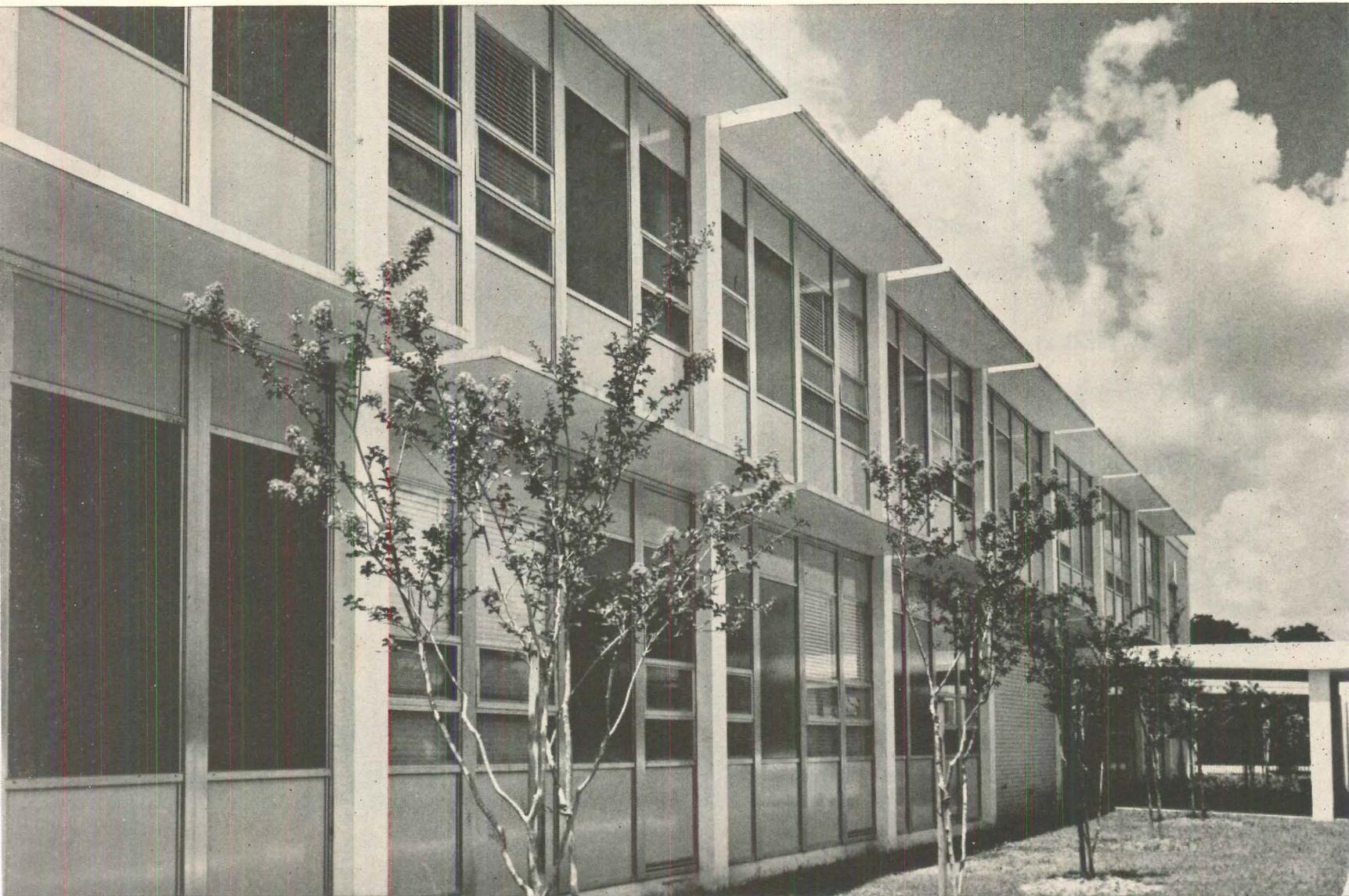
4. STATE CULTURAL CENTER. Along with other plans to celebrate its 1964 tercentenary, the

State of New Jersey is dusting off its museum and library collections, preparing to move them out of the State House Annex and into new buildings of their own. The museum and library (rectangles at left and right in model photo) will be part of a \$6 million cultural center in Trenton built by the Teachers' Pension and Annuity Fund for lease to the state. The square building will be an auditorium for the performing arts; the ribbed dome is a planetarium. Architects-engineers: Frank Grad & Sons of Newark.

continued on page 47



Laminated panels bonded with Armstrong adhesive give this new hospital more usable floor space



New building of St. Joseph Hospital, Thibodaux, Louisiana. Panels by Architectural Porcelain Division, Caloric Corporation, Topton, Penna. Architect: Roth and Olivier.

Usable floor space is precious in a hospital. The new St. Joseph Hospital in Thibodaux, La., gets more of it with space-saving laminated panel construction.

These durable panels give architects wide design flexibility and color selection. Beauty is served with a unity of appearance and a trim modern effect.

In these panels, skins of porcelain enameled steel are bonded to an insulating core with an Armstrong Contact Adhesive. Both

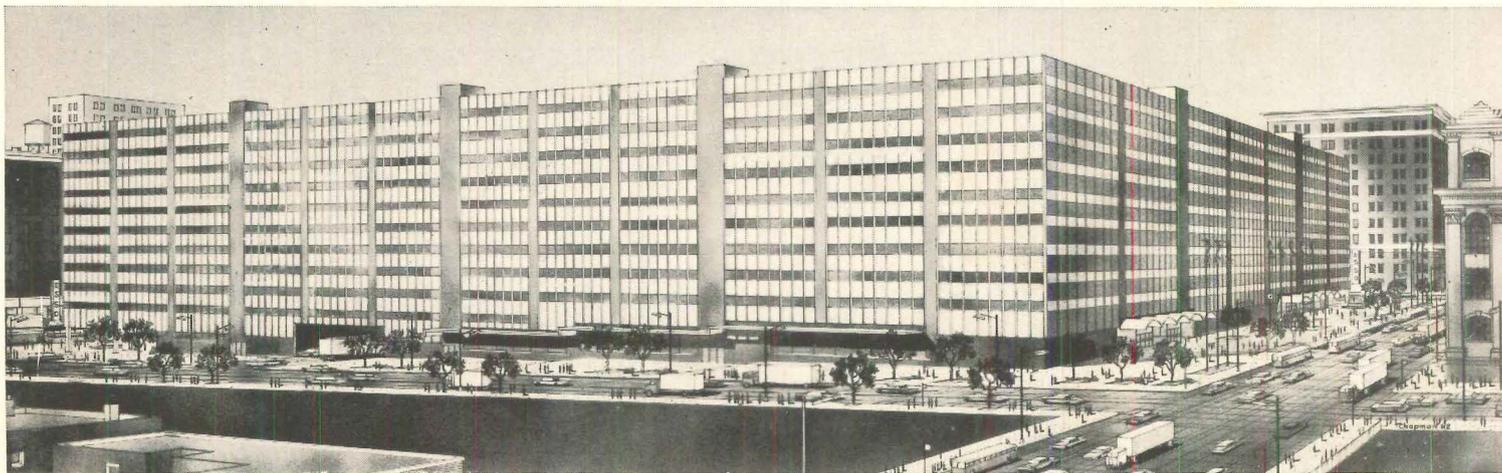
exterior and interior sides blend handsomely with the decor. The panels are strong, rigid, and virtually maintenance-free.

Armstrong Contact Adhesives can be used to form panels out of almost any core and skin materials. These adhesives provide a superior bond with high resistance to static load and heat. And they have excellent aging and weathering properties.

Find out how contact adhesives can help you in design problems. Write Armstrong Cork Co., 8009 Drake St., Lancaster, Pa.

Armstrong ADHESIVES

continued from page 45



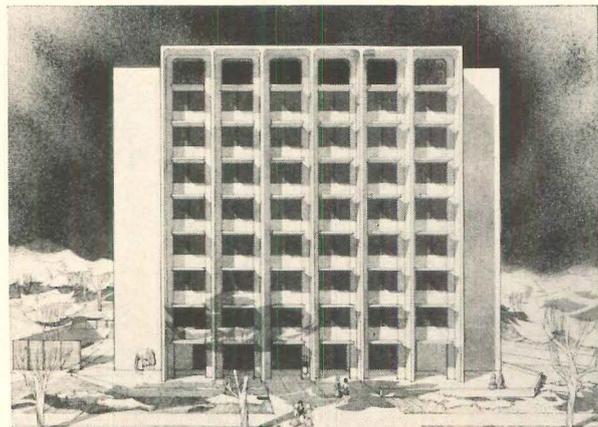
5



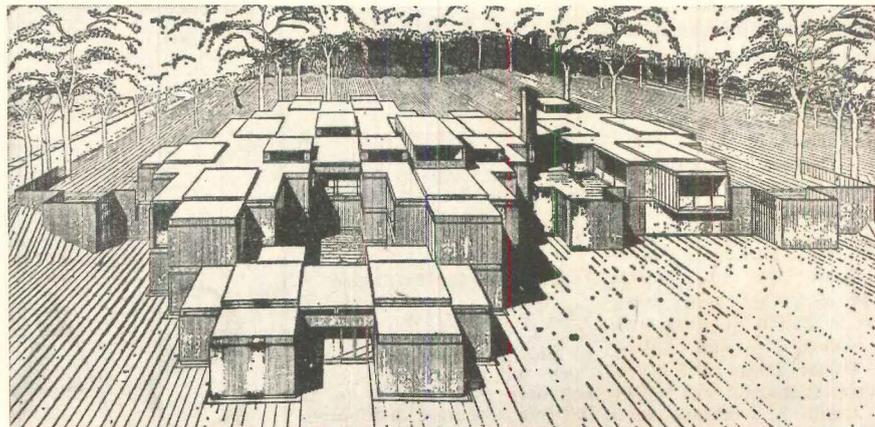
6



7



8



9

5. NEW YORK CITY GIANT. Sprawling over the better part of two blocks on Manhattan's West Side close to Pennsylvania Station, Webb & Knapp's new blockbuster will provide the biggest office space in Manhattan: 15 single floors of 7 acres each, to rent as office, light manufacturing, or warehouse space. Architects: David & Earl J. Levy Associates, John Harold Barry.

6. VIRGINIA CHURCH. Deep in the woods of Fairfax County, Va., three little glass pavilions are taking shape, the first of nine

buildings for the Fairfax Unitarian Church. The first to be built, classroom clusters (left), will be followed by a children's chapel, administration building, fellowship hall, and the sanctuary (right), all accessible from a circular drive. Architects: Anshen & Allen of San Francisco.

7. YALE MEDICAL BUILDING. The Rockefeller Foundation Virus Laboratories, for 30 years part of the physical plant of the Rockefeller Institute in New York City, will move to New Haven in 1964, taking the top three floors of this

new building for Yale's Department of Epidemiology & Public Health. The Laboratories will support the building project with a grant of \$1.5 million toward the expected cost of \$4.2 million. Associated architects for the nine-story glass and concrete building are Philip Johnson of New York and Douglas Orr of New Haven.

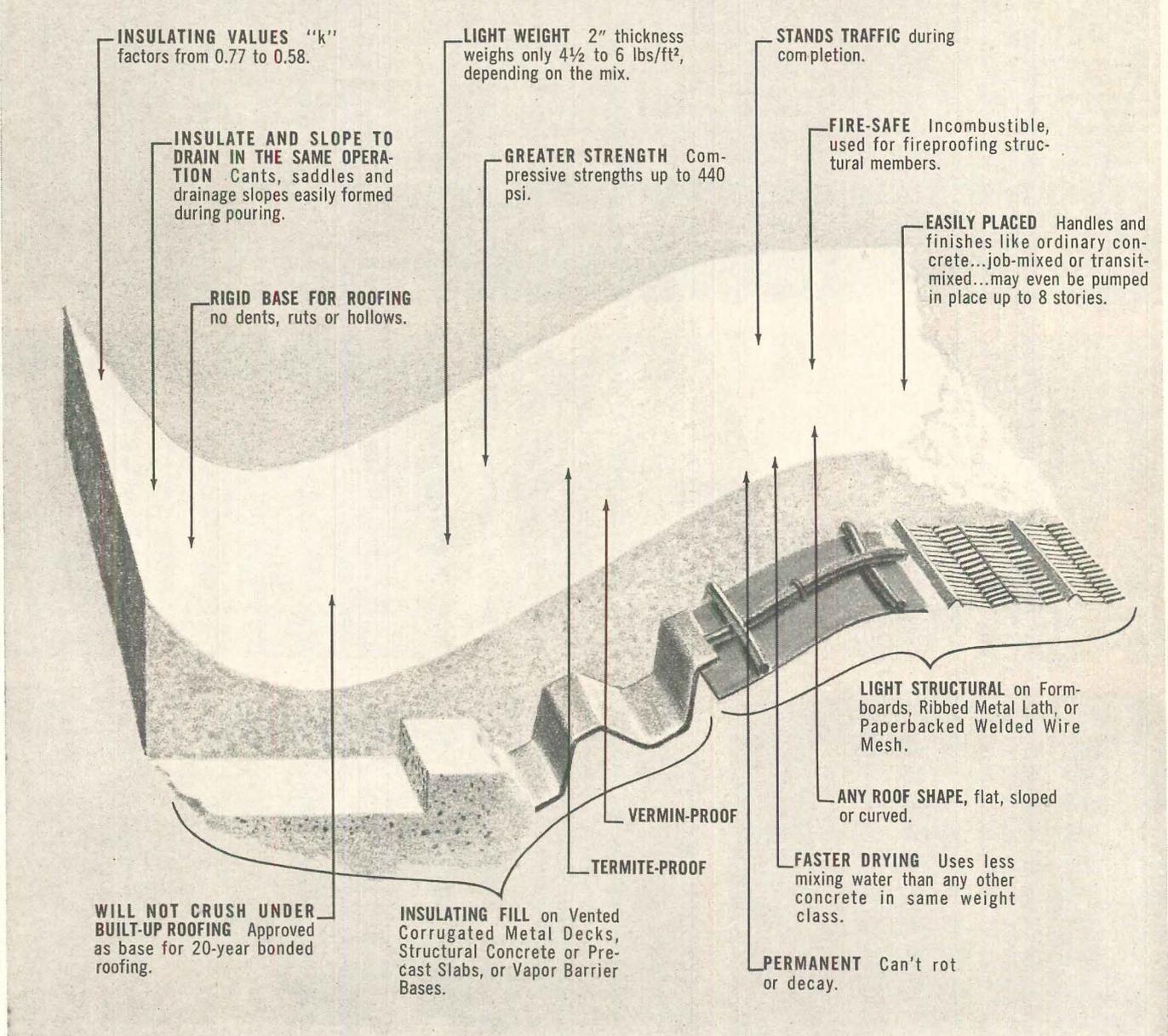
8. NEW ORLEANS DORMITORY. Sophie Newcomb College in New Orleans expects to spend about \$1 million for this 8-story dormitory, now under construction. Inside the structure of reinforced

concrete: 134 double rooms, three apartments, a communal lounge on every floor. Burk, LeBreton & Lamantia of New Orleans are the dormitory's architects.

9. CONNECTICUT CLINIC. Outside Bridgeport, Conn., a new school and clinic for mentally retarded children will replace one built several years ago by volunteers. The new Kennedy Center for the Retarded will be a collection of two-story precast concrete units, designed by Architect Charles Brewer Jr. of New Haven. Cost: \$346,122.

14 ROOF DECK BENEFITS

you get with Permalite perlite concrete:



INSULATING VALUES "k" factors from 0.77 to 0.58.

LIGHT WEIGHT 2" thickness weighs only 4½ to 6 lbs/ft², depending on the mix.

STANDS TRAFFIC during completion.

INSULATE AND SLOPE TO DRAIN IN THE SAME OPERATION Cants, saddles and drainage slopes easily formed during pouring.

GREATER STRENGTH Compressive strengths up to 440 psi.

FIRE-SAFE Incombustible, used for fireproofing structural members.

EASILY PLACED Handles and finishes like ordinary concrete...job-mixed or transit-mixed...may even be pumped in place up to 8 stories.

RIGID BASE FOR ROOFING no dents, ruts or hollows.

LIGHT STRUCTURAL on Formboards, Ribbed Metal Lath, or Paperbacked Welded Wire Mesh.

ANY ROOF SHAPE, flat, sloped or curved.

FASTER DRYING Uses less mixing water than any other concrete in same weight class.

PERMANENT Can't rot or decay.

WILL NOT CRUSH UNDER BUILT-UP ROOFING Approved as base for 20-year bonded roofing.

INSULATING FILL on Vented Corrugated Metal Decks, Structural Concrete or Precast Slabs, or Vapor Barrier Bases.

VERMIN-PROOF

TERMITE-PROOF

NO OTHER ROOF DECK INSULATION GIVES YOU SO MUCH!

Permalite[®]
WORLD'S LARGEST SELLING PERLITE AGGREGATE

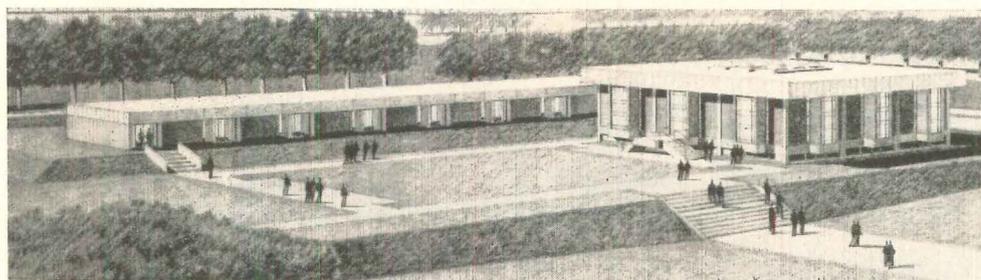
Write for Your Copy of Permalite Concrete Bulletin C-13-1961.

PERMALITE EXPANDED PERLITE AGGREGATE IS PRODUCED BY THESE LICENSED FRANCHISEES FROM PERLITE ORE MINED BY GREAT LAKES CARBON CORP.

| | | |
|--|--|--|
| COLORADO Persolite Products, Inc., Denver | FLORIDA Airlite Processing Corp. of Florida, Vero Beach | ILLINOIS Silbrico Corp., Chicago. Ryolex Corp., Champaign |
| INDIANA Airlite Processing Corp., Scottsburg & Vienna | MASSACHUSETTS The Whittemore Products Co., Cambridge | MICHIGAN Gregg Products Co., Grand Rapids |
| MINNESOTA Minnesota Perlite Corp., Minneapolis | MISSOURI J. J. Brouk & Co., St. Louis | NEW JERSEY & NEW YORK CITY Certified Industrial Products, Inc., Hillside |
| NEW YORK Buffalo Perlite Corp., Buffalo | PENNSYLVANIA Pennsylvania Perlite Corp., Allentown. Pennsylvania Perlite Corp. of York, Pennsylvania, York. Perlite Manufacturing Co., Carnegie | TEXAS Perlite of Houston, Inc., Houston. Texas Lightweight Products Co., Irving |
| VIRGINIA Virginia Perlite Corp., Hopewell | CANADA Western Perlite Co., Ltd., Calgary, Alta. Perlite Products, Ltd., Winnipeg, Manitoba. Perlite Industries, Reg'd., Ville St. Pierre, Quebec | MEXICO Materiales Carr, S. A., Mexico City. |

PERLITE DEPT., GREAT LAKES CARBON CORPORATION • 612 SOUTH FLOWER STREET, LOS ANGELES 17, CALIFORNIA

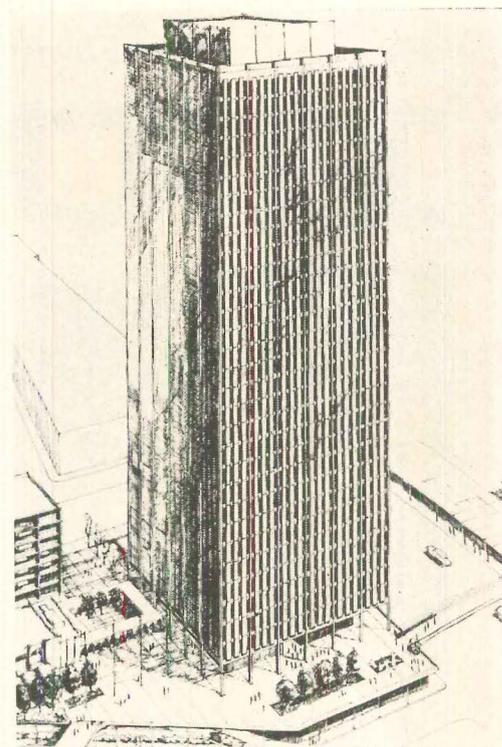
continued from page 47



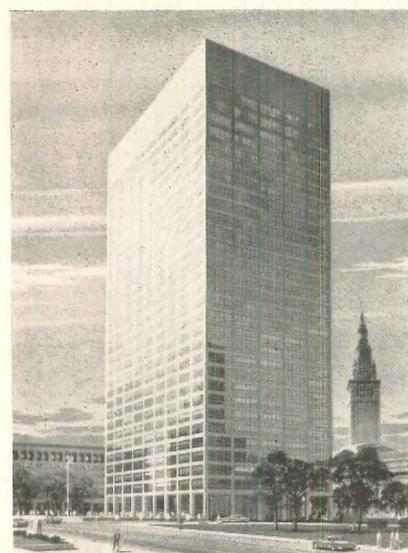
10



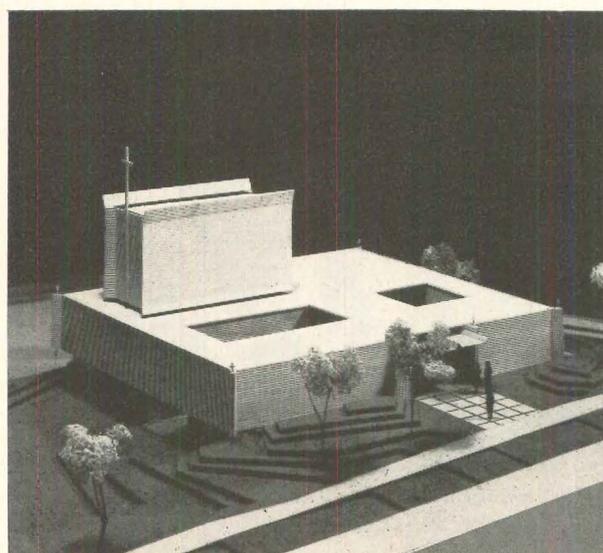
11



12



13



14



15

10. MINNESOTA SEMINARY. Carving a theological seminary out of 68 acres of undeveloped land in New Brighton, Minn., The Cerny Associates Inc. planned this library and long, narrow classroom wing to be finished first. Client is United Theological Seminary of the Twin Cities, a merger of existing seminaries.

11. JUNEAU POST OFFICE. Sculptured crosses of precast concrete, deep-set windows, and a glassed-in wing distinguish the new U.S. Post Office and Courthouse in Juneau, Alaska. Allowing for in-

evitable shifts in space requirements, the associated architects—John Graham & Co., Linn A. Forrest, Sr., and Olsen & Sands—specified fixed partitions on only two of the eight floors. Cost: \$12.3 million.

12. NEWARK TOWER. In a bid to lure tenants out of nearby Manhattan's costly towers, the Newark Plaza Development Corp. is putting up a tower of its own a block from downtown terminals, touting lower rents and taxes and a favorable labor market. Oskar Stonorov's design is a square tower of

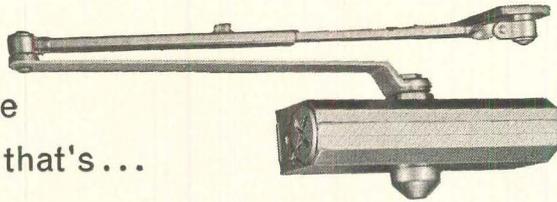
30 stories, its exterior a mosaic of glass and precast concrete panels.

13. OHIO FEDERAL BUILDING. Like Juneau's Post Office (11), Cleveland's new \$41.2 million Federal Building will divide most of its space with movable partitions for the two dozen agencies sharing the building's 1.5 million square feet. The 32-story structure is of steel, as are the column covers and spandrels, both of stainless. Architects and engineers: Outcalt, Guenther, Rode, Toguchi & Bonebrake; Shafer, Flynn & Associates; Dalton-Dalton Associates.

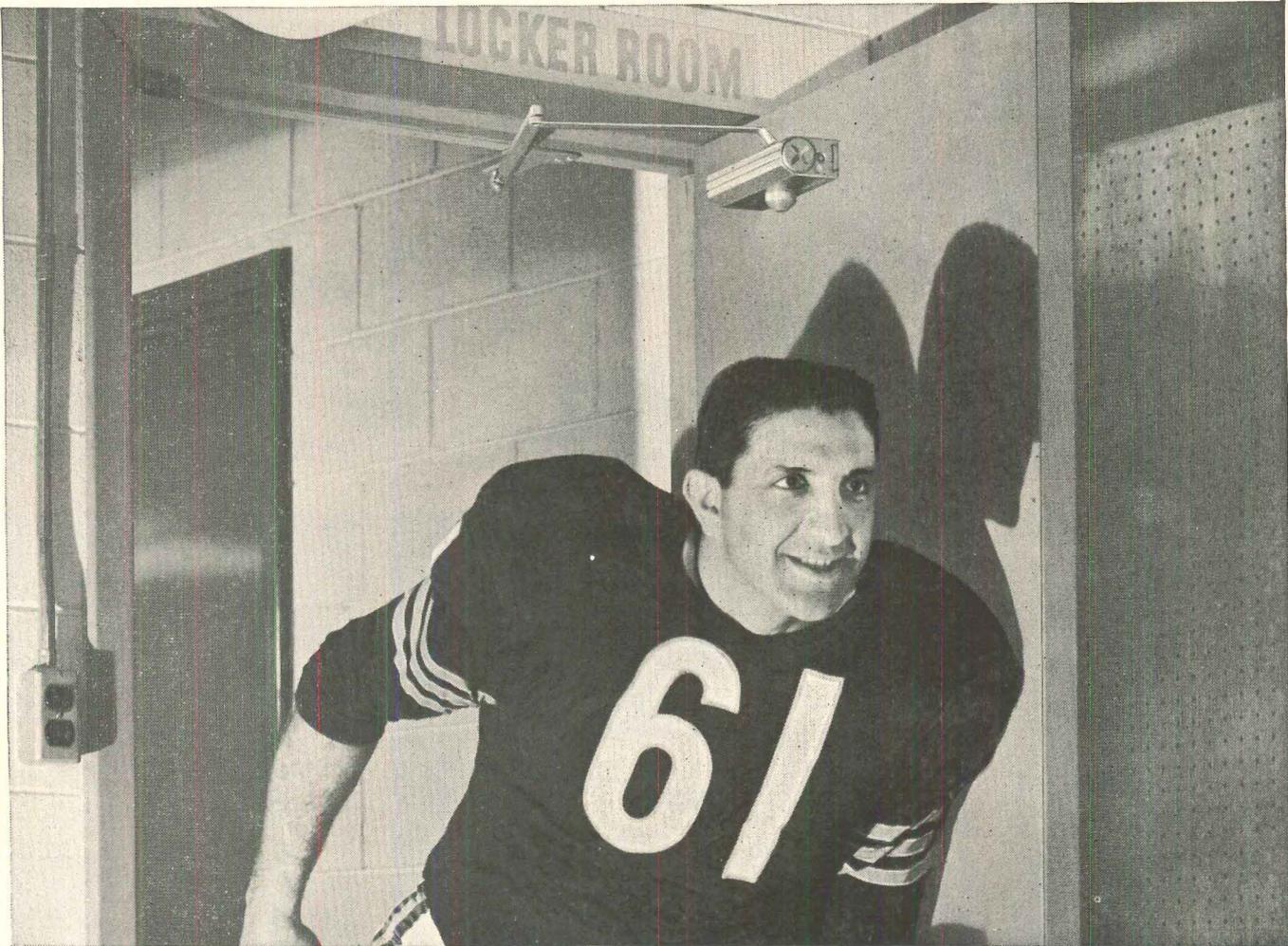
14. CHURCH IN SEATTLE. Cedar shingles will enclose Seattle's new Japanese Presbyterian Church, which will be windowless except for clerestories around the sanctuary and windows around small interior courts. Architects: Kirk, Wallace, McKinley & Associates.

15. COLUMBUS MOTEL. Pie-shaped rooms and furniture to fit them are planned for the Christopher Inn in Columbus, Ohio. In the lower levels there will be a pool, convention hall, dining room, and lounge. Architects: Louis F. Karlsberger & Associates. END

Norton® Tri-Style Closers
 with exclusive Perma-Hold plate
 features invisible mounting that's...



RUGGED



Bill George, All-pro line-backer and co-captain of the Chicago Bears, provides the impact to illustrate the holding ability of the Tri-Style Perma-Hold plate.

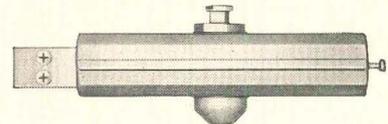
Tri-Style Closers with the Perma-Hold mounting plate are another result of Norton Door Closer development. The Perma-Hold plate is simple and fool-proof. The plate is mounted to the door or frame with flathead screws. The Tri-Style Closer is then secured to the plate by means of a taper-acting locking anvil.

Norton Tri-Style Closers with invisible mounting stay where you put them. The Perma-Hold plate and closer are locked together by the taper action between them, the strongest mechanical binding force. Both impact tests and continuous life tests have proven the holding ability of the Perma-Hold mounting plate.

1036



Perma-Hold plate is mounted with four flathead screws.



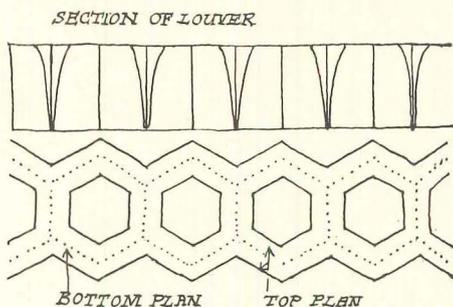
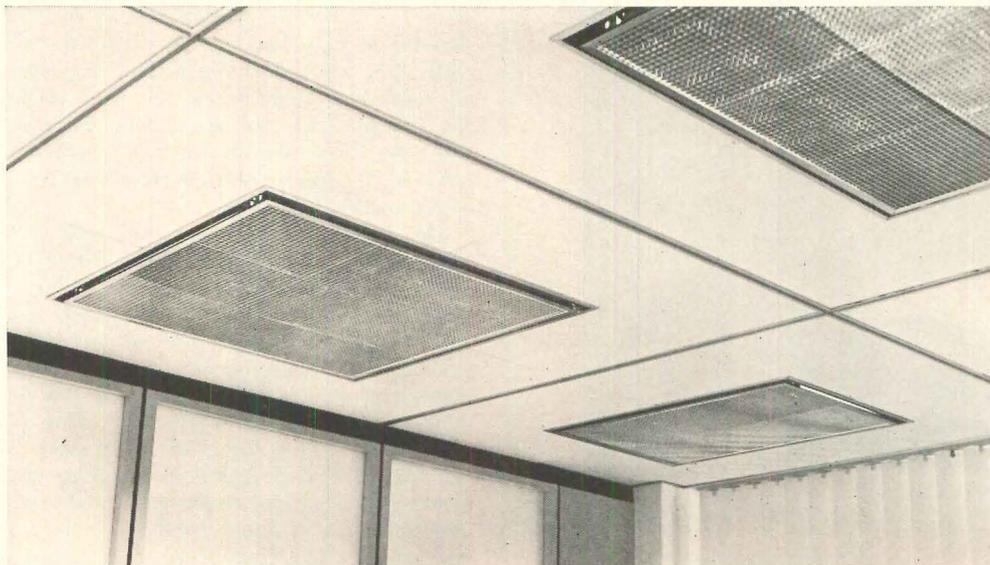
Closer slips on Perma-Hold plate and locks into place.

NORTON® DOOR CLOSERS
for Complete Architectural Compatibility 372 Meyer Road, Bensenville, Illinois

Two low-brightness louvers (below)

First Tedlar roofing (page 52)

Modular paper ceiling (page 53)



PARABOLIC LOUVERS

A new honeycomb louver with parabolic cells controls brightness in ceiling lighting fixtures for more efficient light with less glare. When seen from an angle, as in the photograph above, it is hard to tell whether the lamps are on or off.

Based on a principle developed by General Electric's Large Lamp Department at Nela Park, the cell's wedge blades may be either squares or hexagons; both provide

shielding of 45 degrees or more. Shielding of this magnitude makes the lighted louver appear dark to anyone not directly underneath it and gazing straight up into the lighting fixture. To the work surface below, it gives greater efficiency by directing all the light down. GE holds the patent and is licensing manufacturers to produce louvers based on this principle.

First major installation will be in the Bankers Trust Building in New York City (photo of mock-up, left). For that job the Kent Lighting Corp. is having its *Para-Wedge* louver (a square grid) fabricated by the Proton Division of the Prophylactic Brush Co. in metalized plastic finished in gold. The louver size will be 3 by 3 feet; the grid openings, 1/2-inch wide. Cost: about \$1.25 per square foot in quantity.

Another lighting fixture manufacturer, Sinko, recently introduced *Parahex*, a hexagonal grid louver with cells 1/2-inch deep and 3/8-inch wide at the base (drawing, left). The shielding effect is most marked in Sinko's mirror-finish aluminized plastic version, although a translucent white finish is also available, both in 2 by 4-foot size or modular fraction thereof. Cost: about \$2 per square foot.

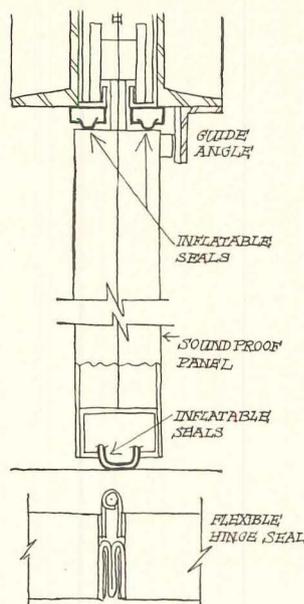
Manufacturers: Para-Wedge Louver Co., Inc., 450 Seventh Ave., New York 1; Parahex, Sinko Manufacturing & Tool Co., 7310 W. Wilson Ave., Chicago 31.

SOUND-RETARDANT FOLDING WALL

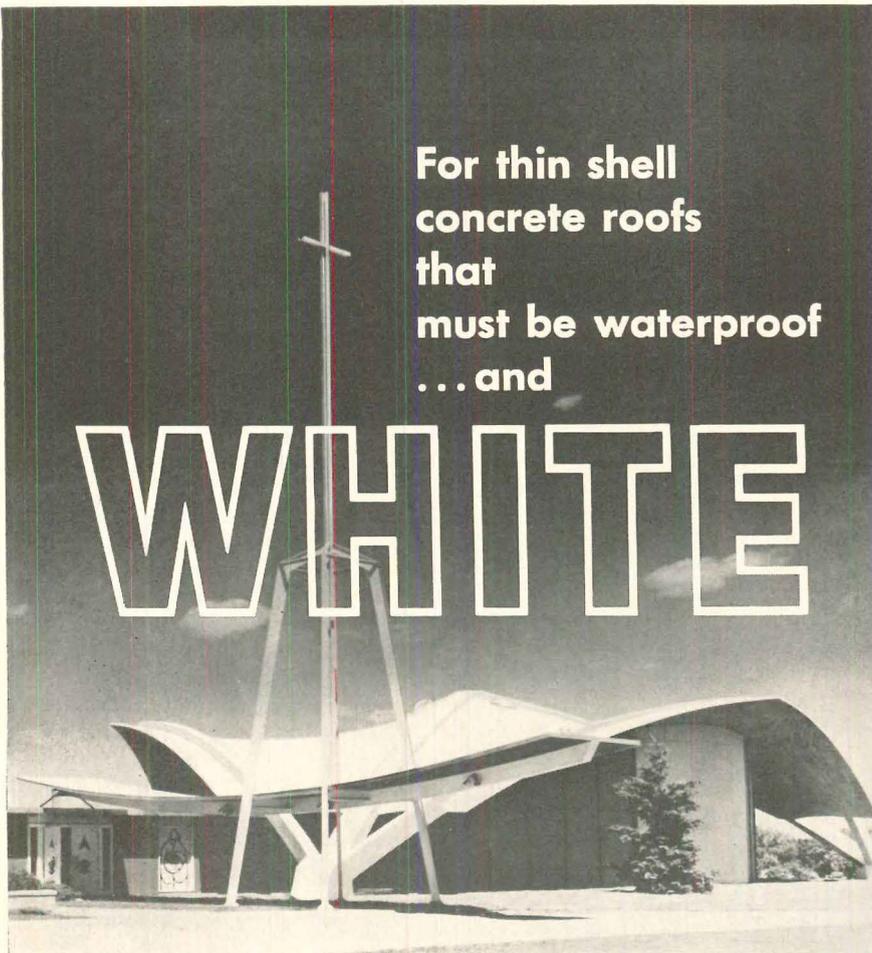
More flexible classroom space is one of the basic tenets of the team-teaching concept put forward by the Trump Plan (FORUM, Nov. '59). Since then, several manufacturers have been working to develop movable walls good enough acoustically to transform a large room into multiple classrooms.

One manufacturer who has invested considerable research and testing time in a wall designed specifically for schools is Koppers, whose *Silentwall* is shown unwinding in a classroom at the Sarasota (Fla.) Junior High School, an early installation. Conference rooms in office buildings, hotels, and motels are other places where *Silentwall* can be used.

The chief problem in walls of this type, which have to be light enough to move easily, is that noise is bound to seep through the panel joints and the edge of the wall—no matter how good the panel's acoustical



continued on page 52



For thin shell
concrete roofs
that
must be waterproof
...and

WHITE

St. Timothy's Methodist Church
Cedar Falls, Iowa
Architect: Ralston & Lorenzen

Specify the materials that do both jobs best:

**ADDEX COLOR-SHIELD® over
ADDEX HEAVY DUTY ROOF SHIELD®**

HEAVY DUTY ROOF SHIELD has a well established reputation for providing highly durable waterproofing for thin shell concrete roofs. It can't be cracked by stresses caused by small surface cracks in the concrete. Unlike ordinary roofing asphalts Roof Shield weathers without alligatoring and resists moisture deterioration even on dead level sections. It conforms perfectly to all contours without sagging on steep slopes and without creating unsightly lap lines. Neat feather edging at eaves and edges eliminates the need for metal edgings. Roof Shield provides a stable and durable base for Addex Color-Shield decorative and heat reflective white surface.

COLOR-SHIELD is a highly pigmented white resin emulsion developed specifically by Addex for application over Roof Shield. It forms a brilliantly white, weather resistant, tightly-bonded decorative surface. It resists soil penetration and chalks off at a controlled rate to retain its high reflectivity. Its smooth white surface permits only one-fifth the amount of heat to enter through the roof as a conventional black surface and only one-half as much as a bright metallic surface. Color-Shield helps keep interiors cool in hot weather and cuts air conditioning costs.



ADDEX MANUFACTURING CO., DEPT. F-1
30060 LAKELAND BLVD., WICKLIFFE, OHIO

Please send Roof Shield and Color-Shield specifications.

Name

Firm

Address

City..... Zone..... State.....

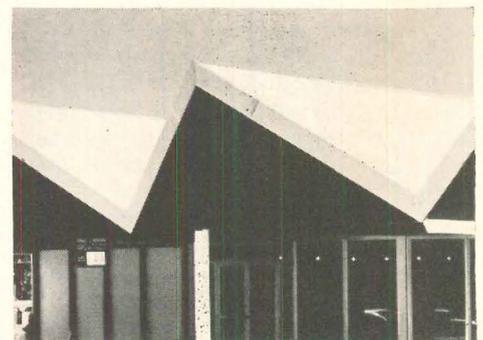
rating may be—unless very special precautions are taken. A snug fit all the way around is assured by Silentwall's double seals: pneumatic gaskets at the outer edges and soft M shapes at panel joints (see drawings). The pneumatic system is tied into the controls that operate the wall: at a turn of the key in the control panel, the motorized wall moves across the floor until it touches the far wall, when a switch inflates the pneumatic seals. The other seals are neoprene gaskets, shown in the drawing as they look in the extended wall when they are squeezed together; they fold out over the hinge when the wall stacks for storage. The two seals, Koppers says, give the wall sound-retarding characteristics equal to those of a concrete-block wall 4 to 6 inches thick.

The hanger for the overhead track is a structurally rigid member attached to a beam, supporting panels up to 12 feet high. There is no floor track. The panels are steel facings sandwiched around an acoustical core of plasterboard and glass fiber. Depending on the length of the space to be filled, they may be anywhere from 30 to 48 inches wide. The width of the panels is 3 1/8 inches, yet the gaskets expand to 3 3/4 inches to take care of chalkboard, tackboard, veneers, vinyl, or other finishes applied to the facings. The amount of storage space needed for the folded wall is determined by the number and width of panels; for example, a wall 29 feet long stacks into a space 4 1/2 feet wide, projecting 3 1/4 feet from the wall. Koppers has not yet set a price on the wall.

Manufacturer: Metal Products Division, Koppers Co., Inc., Baltimore 3.

ONE-PLY ROOF

Ruberoid cheerfully predicts that this white roof—atop the steep folded-plate roof of a new motel in Hyattsville, Md.—will still be in active service in 1992, and looking nearly as pristine as it does now. Ruberoid's new roofing is T/NA 200, the first made from Du Pont Tedlar, a long-lasting polyvinyl fluoride film (FORUM, June '61). Tedlar is laminated to asbestos felt by means of an elastomeric binder, the two materials forming a pliable and somewhat elastic sheet. It is a single-ply, built-up



KEMIKO

PERMANENT CONCRETE STAINS

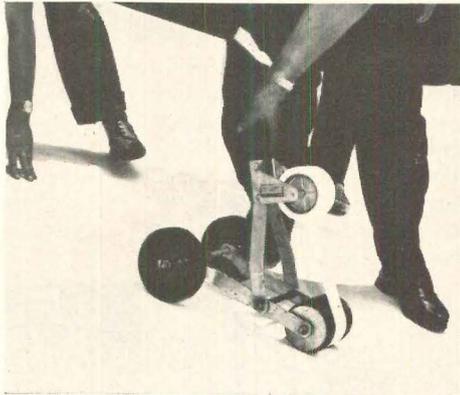
Color in Concrete / Ageless as Nature

Only KEMIKO can bring to concrete color with all of the naturalness, beauty and permanence of Nature's own stone colorations.

KEMIKO is unique. Not a dye or paint, it is an inorganic chemical stain that reacts upon the calcium to form permanent color. A product of 30 years research, KEMIKO Stains and companion products have been specified by leading architects throughout the world.

roofing designed to waterproof unusual shapes, particularly shells, folded plates, and hyperbolic paraboloids.

T/NA's thinness—20 mils complete—and light weight make it easy to handle and install. Although preparation of the surface beneath differs a bit with the kind of roof deck it is to cover, T/NA application is similar to, but easier than that for conventional built-up roofs. T/NA is unrolled on the roof, lapped 3 inches over the selva edge, smoothed down, and mopped



at the edge with asphalt or cement. Side and end laps are finished with pressure-sensitive Tedlar tape, a Minnesota Mining & Manufacturing Co. product (above).

By itself, Tedlar is resistant to weather, flame, chemicals, solvents, and abrasion. The addition of an asbestos backing makes it firmer and stronger, but leaves it pliable enough to turn sharp corners for neat detailing. It remains flexible through a wide temperature range, from -50 to 250 degrees F. The glossy finish keeps dirt and dust from sticking to the surface.

At present white is the only color, although others are in the works. Results from the first few jobs, however, indicate that white T/NA has a good deal to be said for it: its reflecting factor is 88 per cent, effective in cutting air-conditioning costs and keeping interiors cooler in hot weather.

The new roofing costs about \$20 per 100 square feet, or about double the cost of a conventional flat roof of the built-up type. Ruberoid believes, however, that it is at least competitive, and perhaps even cheaper, than fluid-applied systems on roofs of more dramatic contours.

Manufacturer: Built-Up Roofing Department, The Ruberoid Co., 733 Third Ave., New York 17.

CARDBOARD CEILING

According to distracted tenants in a smattering of new offices and apartments, a favorite building material these days, especially for walls, is cardboard. As a decorative ceiling material, however, cardboard is proving highly successful in an exhibit hall at the Seattle World's Fair. Seattle Architects Waldron & Dietz specified paperboard for

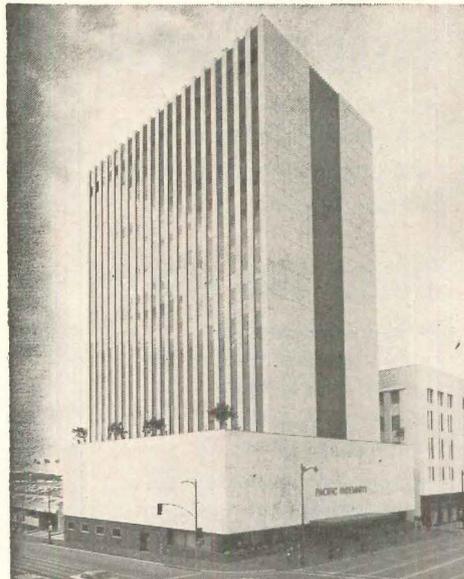
continued on page 54

1. *A beautiful building deserves beauty underfoot.* To produce a non-skid, beautiful, and glare-proof sidewalk, black Kemiko Stain and Col-r-tone were called upon for this job at Pacific Indemnity building at Los Angeles, California. The dramatic black and white of the building itself was picked up in the black sidewalk and mall, scored for striking design.

2. *Tennis courts for champions.* These courts are treated with Kemiko Stain and Kemiko Col-r-tone to produce an ideal, non-skid, dust-free playing surface. Tennis courts may be full treated with solid or two-tone effects of rich, uniform color which withstands not only the elements, but heavy use as well. To date, more than 25 million square feet of tennis court surfaces have been finished with Kemiko products.

3. *More color for the land of color.* When Honolulu's beautiful International Airport was designed, color became an integral part — and all concrete floor surfaces were toned with Kemiko Stain, and wax-finished for aesthetic as well as practical reasons. To withstand the exceptionally heavy foot traffic, over 300,000 square feet of floor, stair, and walk area were Kemiko-treated in this application.

4. *Maintenance-free color for 75 years.* Twenty-five years ago, the concrete exterior walls of Sun Valley Lodge were stained in a natural wood color . . . neither hot summers nor sub-zero winters have affected this remarkable, maintenance-free finish. Conservative estimates place the life expectancy of this finish at another 50 years.



1. Pacific Indemnity Building/Claud Beelman, Architect.



2. Southern California championship tennis courts.



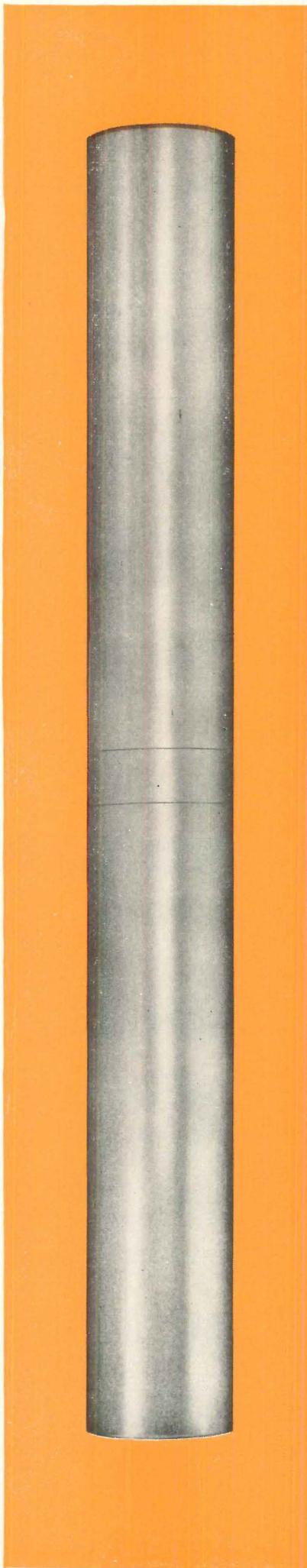
3. Honolulu Intl. Airport/Theodore Viera, Architect.



4. Sun Valley Lodge/Gilbert S. Underwood, Architect.

For a FREE booklet showing other uses and product information, or for detailed specifications suited to any job, write to the Architectural Service Department, Rohloff & Company, 918 N. Western Avenue, Hollywood 29, California.

KEMIKO



McKINNEY MODERNE HINGE HAS BOTH!

Modern Design ...
Lifetime Quality

CHECK THIS DESIGN

- Fewer horizontal lines
- Smooth clean barrel
- No protruding pin or plug
- Flush bearing

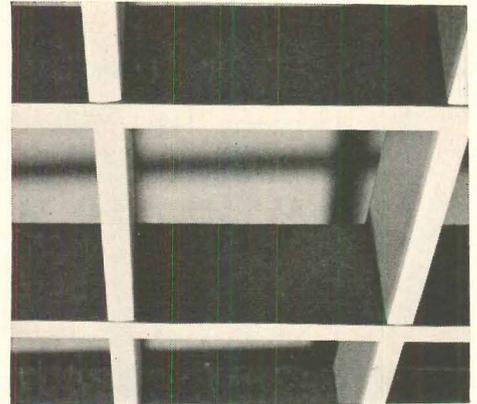
CHECK THIS QUALITY

- Stainless steel oil impregnated bearing for less vertical wear
- Stainless steel pin for less horizontal wear
- Door leaf stainless steel bushed at bearing point
- Takes more wear by actual test

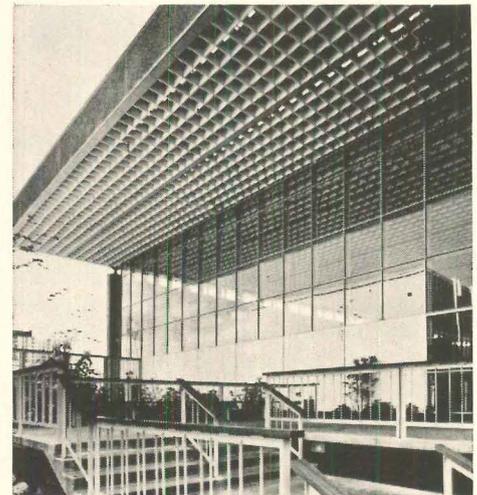
Expect more from McKinney? You get it for sure in the Moderne Hinge ... choice of quality-conscious consultants—and architects, too.

McKINNEY

PITTSBURGH 33, PENNSYLVANIA / IN CANADA:
McKINNEY - SKILLCRAFT LTD., TORONTO 3, ONT.



the ceiling of their Industry and Commerce Building and took their idea to the Container Corporation of America for design and fabrication. Scored, slotted, and installed in 8 by 8-foot sections, the ceiling hangs below the lighting fixtures and extends outdoors beneath the overhangs around the building.



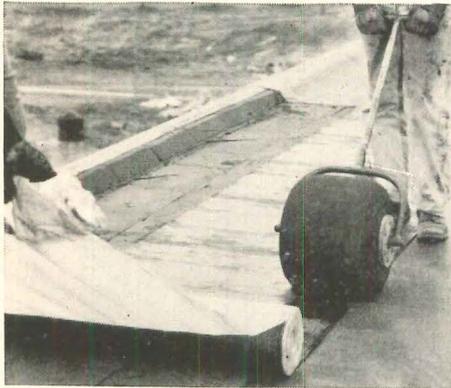
A chemical added during the paper-making process made the paper fire retardant, but, to make sure, the finished paperboard was treated again with fire-retardant paint. The double treatment paid off, and the ceiling passed all requirements, including a blowtorch test.

Because of high development costs, the special treated liner is available in very limited quantities.

Manufacturer: Container Corp. of America, 4634 E. Marginal Way, Seattle 4.

ROLL-ON ROOF TAPE

Bitumagic is the name of a new roofing in tape form, applied cold, which Koppers has in pilot-plant production. It is a water-proof membrane of asbestos or glass-fiber mat impregnated with mastic tar. Sturdy release paper prevents the rolls of tape from becoming hopelessly tangled before they are laid in place, for the adhesive strength of the tape is said to be so great that it bonds itself permanently to concrete, brick, wood, steel, or insulation, even on vertical surfaces.



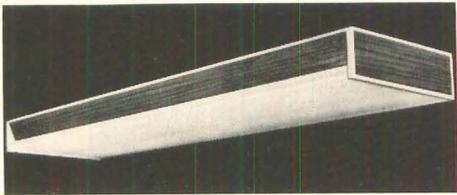
Bitumagic goes down quickly, then is rolled or brushed to assure uniform adhesion (see photo), and topped with a coat of cold-applied emulsion. It may be used as a continuous roofing-flashing system or as waterproofing for foundations.

The tape is 3 feet wide, 50 feet long, and weighs 80 pounds per roll. The manufacturer claims that it offers substantial cost savings over other built-up roofing systems due to simplified installation.

Manufacturer: Tar Products Division, Koppers Company, Inc., Koppers Building, Pittsburgh 19.

WOOD-TRIMMED LIGHT

Bound all around in wood veneers, the *Madera* fluorescent lighting fixture is designed for store, bank, and office interiors. It may be surface or stem mounted, either individually or in continuous rows. A matching, narrow wall unit may be hung



singly above bank counters or hospital beds.

Both *Madera* units come in oil-finished birch or walnut, a choice of lens materials, and two- to eight-lamp fixtures in several sizes. Sample prices: a two-lamp wall unit, \$31.90; an eight-lamp unit, 16 by 96 7/8 inches, \$116.25.

Manufacturer: Silvray Lighting, Inc., 100 W. Main St., Bound Brook, N.J.

SELF-REFLECTING BULBS

A silver lining inside the new *Kleen-Beam* mercury lamps from Westinghouse does away with separate reflectors and projects all useful light from the front of the bulb.

The first two sizes to be produced, 400 and 1000 watts, are for high-bay factory lighting and floodlights for building exteriors, parking lots, and airports. List prices: \$28.80 and \$58.

Manufacturer: Westinghouse Electric Corp., Bloomfield, N.J. END

At the SEATTLE FAIR

Halsey Taylor

provides refreshing
health-safe water
to fair visitors



Seattle . . . home of the 1962 Fair, symbolizing the spirit of the great Northwest and envisioning the Space Age of tomorrow . . . a veritable exhibition of education and entertainment.

For refreshing the thousands of visitors on its brilliant Gayway, Halsey Taylor provides an abundance of health-safe drinking water.

Today, as fifty years ago, Halsey Taylor is the favorite specification, whether it's a fair or a public building, a school or a hospital, a theatre or a store!

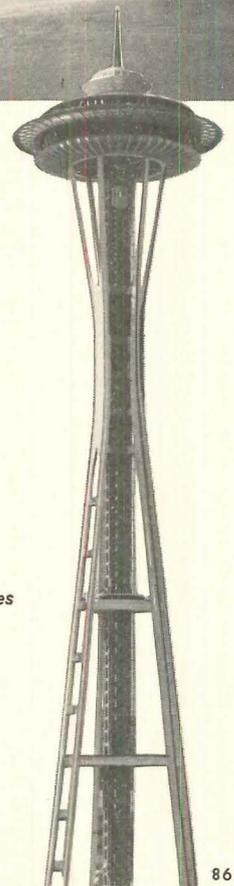
The Halsey W. Taylor Co., Warren, Ohio



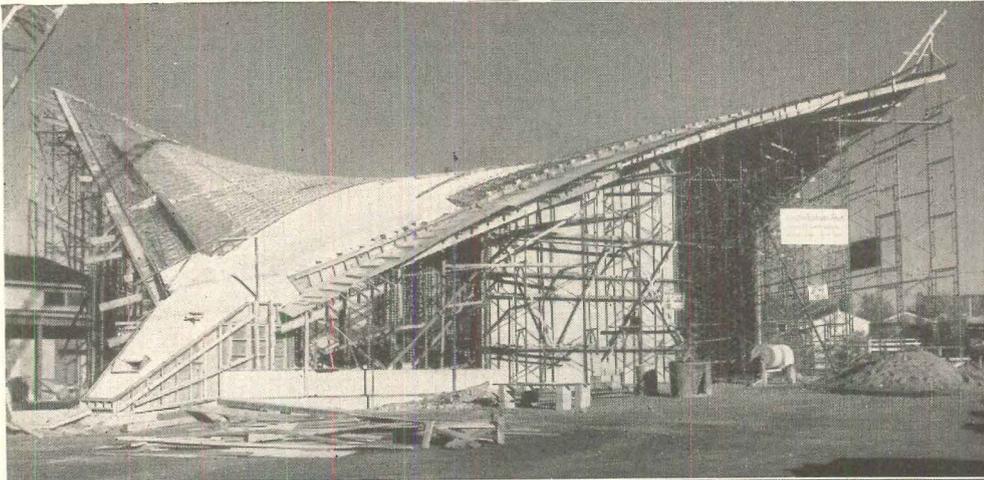
See Sweet's or
the Yellow Pages

Halsey Taylor[®]

QUALITY DRINKING FIXTURES FOR OVER 50 YEARS

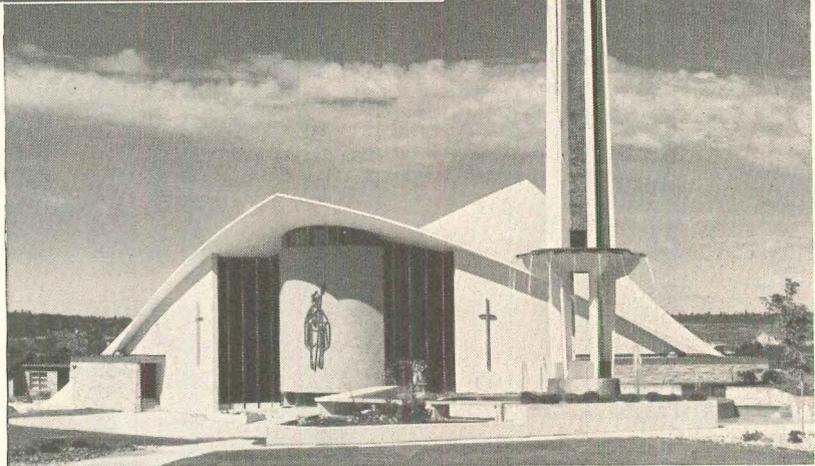


862

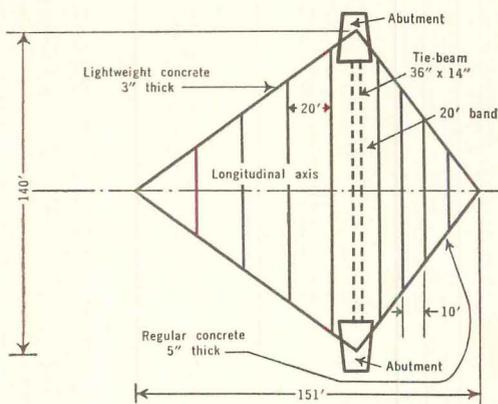


In the photo above, the portion of the shell with lightweight concrete is to the left of the abutment. To the right—the portion with the regular concrete (see diagram below). After shell was complete and concrete had attained 3000 psi compressive strength, it was post-tensioned both longitudinally and transversely. Below-grade tie beam between the abutments was also post-tensioned. Rigid insulation serves as the surface of the formwork, thus becoming an integral part of the shell.

With its sweeping concrete h/p roof and 96' high illuminated tower, the church is a dramatic sight. In addition to its esthetic appearance, the use of a modified h/p made the building economical in comparison to many others holding the same number of persons.



“UNBALANCED” CONCRETE H/P ROOF ALLOWS SEATING FOR 800 ECONOMICALLY IN SPOKANE CHURCH



This sketch shows the “unbalanced” design of the h/p roof. Concreting sequence started with the placing of the 36" x 14" tie beam below grade. The 20' band of the shell between abutments came next. After tensioning both tie beam and 20' band, abutments were poured. Concrete for the rest of the shell was placed by alternating pours of lightweight and normal concrete. Lightweight pours were in 20' bands, normal pours in 10' bands.

Though not yet commonplace, perfectly *symmetrical* hyperbolic paraboloid roofs are not totally new either. But this one for the new St. Charles Church, Spokane, Wash., is different. It's “cut off” a little beyond the halfway point of its longitudinal axis. The result is a kite-shaped roof that's symmetrically “unbalanced.”

To build this roof *in balance*, an ingenious technique was used: Bands of *lightweight* concrete were placed on the larger section of the roof alternately as bands of *regular* concrete were placed on the smaller section. This kept a balanced deadload throughout construction.

To the church congregation, it means an economical, no-waste-space and column-free structure that seats 800. A beautiful structure that is fireproof and requires little or no maintenance.

Lehigh Cements contributed to the special mixes that helped make this complex job a success. Here is another example of the complete versatility of concrete in any type of modern construction. Lehigh Portland Cement Company, Allentown, Pa.

**LEHIGH
CEMENTS**

Owner: St. Charles Catholic Parish, Spokane, Wash.
Architects: Funk, Murray, and Johnson, Spokane, Wash.
Contractor: Vern W. Johnson & Sons, Inc., Spokane, Wash.
Consultants for Prestressing: T. Y. Lin & Associates, Los Angeles, Calif.
Ready Mix Concrete: Acme Concrete Co., Spokane, Wash.

Shallow-drawer desk, open coat closet



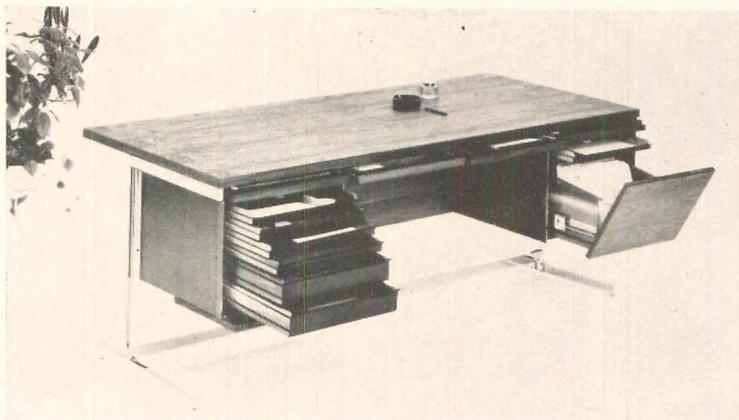
1



2



5



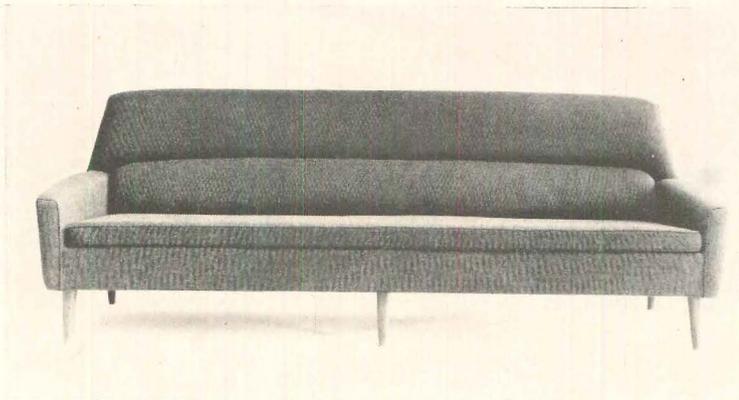
3



6



7



4



8

1. Jens Risom has introduced a line of chairs, tables, and planters based on squat pedestals of cast aluminum with a plastic finish. This one, a high-backed armchair with wrap-around upholstery, costs from \$439 to \$535 in Risom's own fabrics.

2. Pacific Furniture's tufted-back swivel chair is upholstered in a new expanded vinyl that tailors well and has a soft texture. The base is steel in mirror-finish chrome. Cost: \$230.

3. For the executive who likes crisp detailing and clutter-free

storage, Hugh Acton has designed this desk with a tilting file drawer and a bank of tray drawers covered by a panel, which drops out of sight underneath the desk. The desk's frame is mirror-finish chrome. Cost in oiled walnut: \$1,150.

4. This sofa for four, a new design by Sylve Stenquist for Dux, has a long foam-rubber seat cushion and a separate pillow that fits into the small of the back. Legs are solid walnut or teak. Cost: \$545 to \$671 in fabrics, \$581 in plastic, \$1,028 in leather.

5. New matching conference table and armchairs are solid walnut or rosewood (the chairs also come in wood and steel). These were designed for Dux by Sven Dysthe. Cost for the table, \$744; chairs with leather seats, \$317 each. Less expensive chairs of the same design, covered in fabric, are \$266 to \$294, and \$277 in plastic in a choice of two heights.

6. Hugh Acton's wall-mounted storage unit is a neat solution to the coat-rack problem. It has an oil-finished walnut panel, a mirror-chrome steel luggage and hat

rack. The solid panel is 24 by 72 inches; it projects 12 inches from the wall. Cost: \$165.

7. A fully padded glass-fiber shell on thin steel legs is the first chair upholstered front and back by Burke, Inc.'s new process for attaching padding to the frame. Upholstery may be fabric or plastic. Cost: \$86.

8. This new leather lounge chair from JG Furniture Co. has two polished legs bent in such a way that there seem to be four. The cushions are foam rubber. Cost in muslin: \$450. END



SALES

SPECIFICATIONS FOR ATMOSPHERE MUSIC BY MUZAK®

1. **The Music** shall be soft and relaxing. It shall be arranged and recorded specifically for the purpose, avoiding all attention-getting musical devices, as well as extreme highs or lows.
2. **The Musical Program** shall be planned by qualified musicologists; it shall change subtly hour-by-hour to offset static environment and create a warm, pleasing atmosphere.
3. **The Music Source** shall include selections sufficient in number to minimize repetition. With exception of highly popular current favorites, no selection shall be repeated in an eight-hour program sequence within nine days.
4. **Currency of Music** shall be maintained through regular additions of recordings of latest popular tunes and modern renditions of standard favorites. All additions shall meet requirement number one, above.
5. **Objectivity in Programming** shall be maintained by avoiding individual preferences and requests. All selections shall be incorporated into an objective pattern which meets specification number two, above.
6. **Continuous Music** shall be avoided to prevent development of its own monotony. A silent recess of not more than 1½ minutes shall be provided at the end of each 13½ minutes of music.
7. **The Sound System** shall be capable of faithful reproduction of 40 to 10,000 c.p.s. It shall

Now architects plan stores to *sound* right as well as *look* right... to increase sales and to please clients. The method is Muzak. "Controlled Dynamics" enable Muzak, at low volume level, to penetrate and mask noise, to replace awkward silence and create a pleasantly stimulating atmosphere.

Scientifically arranged and recorded, the Muzak program changes subtly throughout the day – creating a dynamic acoustical environment. In shopping centers, stores, terminals and restaurants – Music by Muzak eases the natural tension of crowds and bustle, puts people at ease, stimulates buying and impulse purchasing...important benefits for architectural clients.

COMPLETE SOUND SYSTEM

The Muzak system is a versatile communications tool, applicable to Muzak distribution, public address, warning and protection, and paging. Store owners rely heavily on the paging feature to move merchandise in special sales and promotions. A valuable Muzak "extra" for your clients!

and MUZAK

include provision for paging or signaling and zone control of volume.

8. **Equipment Maintenance** shall be the responsibility of the music supplier.
9. **The Music Player** shall not be located on the subscriber's premises. The subscriber shall not be responsible for operation or maintenance of any music-playing source.
10. **A Signed Warranty** shall be provided by the music supplier. It shall specify that the service is provided subject to the above mentioned requirements. The music supplier shall provide proof that his service and equipment have been tested and proven under conditions similar to those under consideration.
11. **Performance Licenses** shall be obtained by the music supplier. The subscriber assumes no liability in connection with performance or mechanical license obligations.

A.I.A. File No. 31-I-7. Sweets Catalog File 33a/Mu. Additional details and literature available on request. Write Muzak Dept. F-1. Or contact your local Muzak franchised distributor.

music by *Muzak*[®]

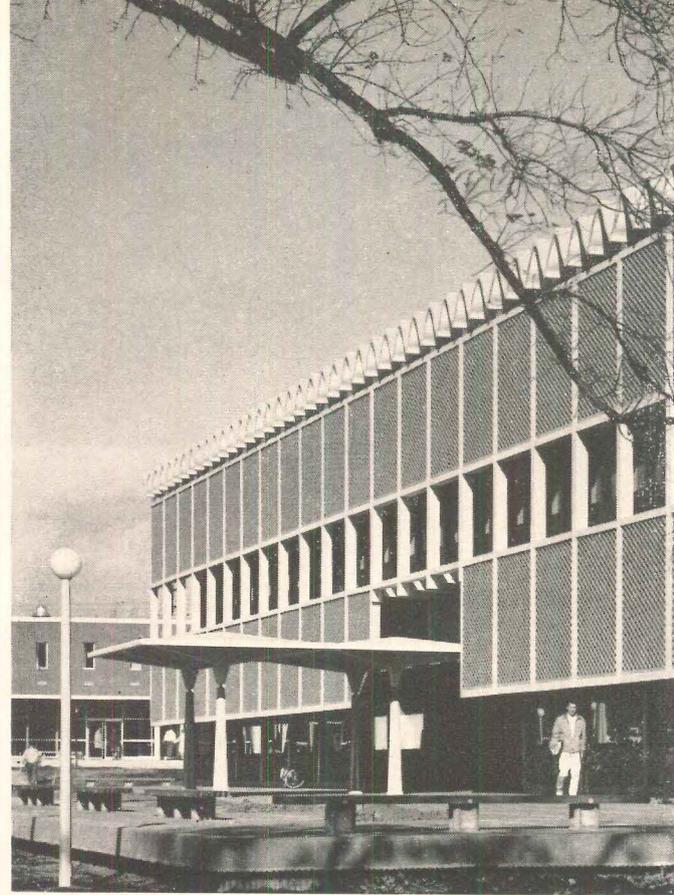
Muzak Corporation
229 Park Avenue South
New York 3, New York

 an International Subsidiary of Wrather Corporation

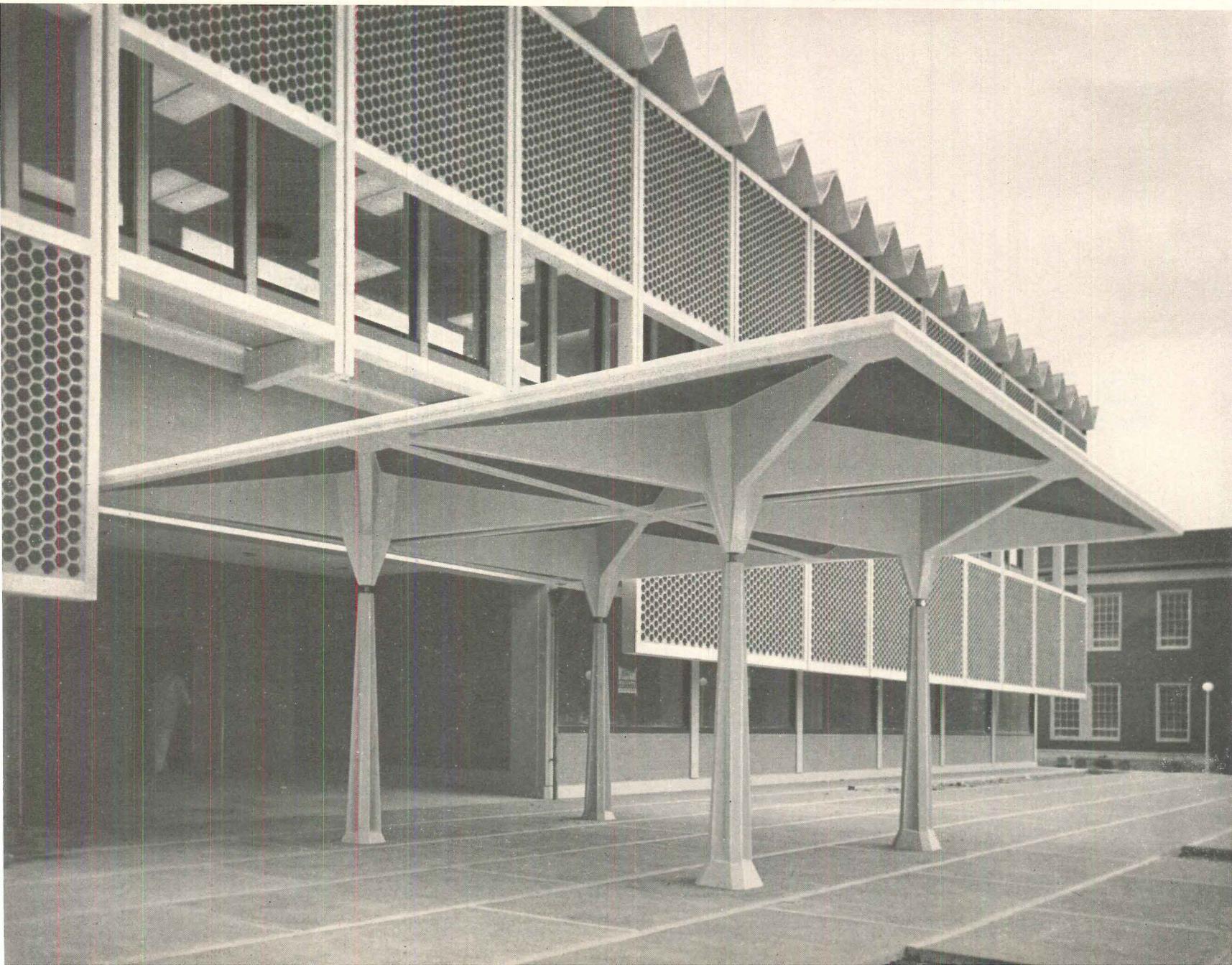
United States • Canada • Mexico • Argentina • Brazil • Colombia • Peru • Great Britain • Belgium • The Philippines • Australia • Finland

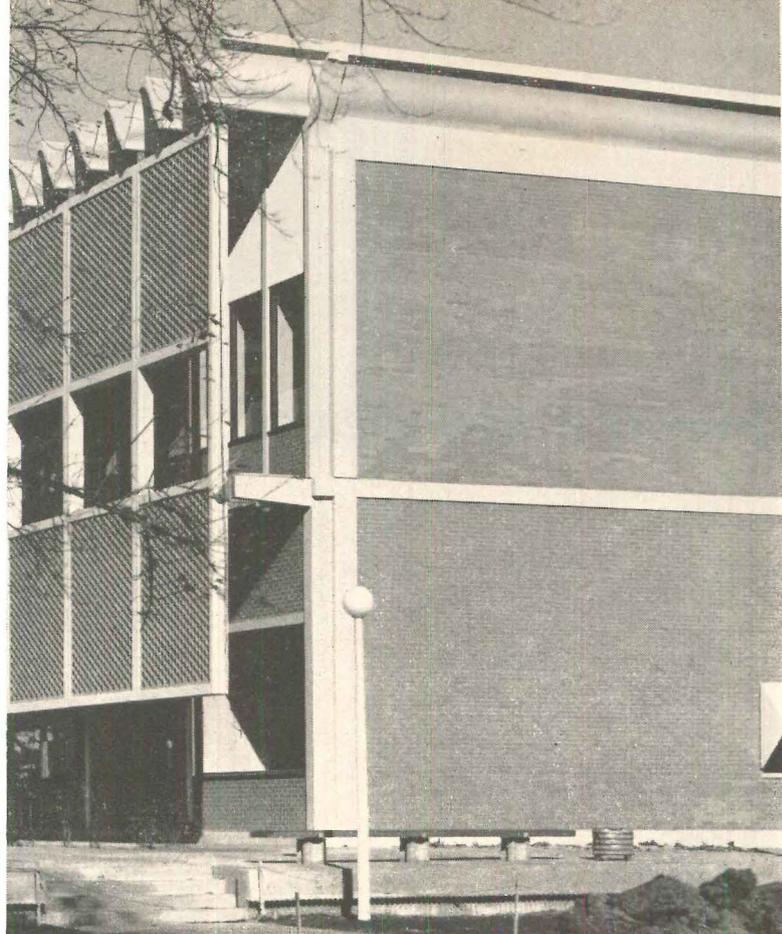
CENTRAL
WASHINGTON
COLLEGE
OF EDUCATION
LIBRARY
BUILDING

*Expensive
Shapes*
**Produced
Economically
with Incor[®]
24-Hour
Cement**



The attractive and unusual entryways are made of precast concrete elements manufactured at the job site, using Lone Star Portland Cement.





A high spot of Central Washington College's comprehensive construction program is the new Library Building. Design and materials were carefully teamed to produce this strikingly attractive structure with every provision for initial and long-term economies.

Note how the curved lines of this structure's prestressed concrete roof units contrast with the straight lines that otherwise predominate.

But note, too, that curved sections like these can be unduly expensive unless the precaster can make the most efficient use of his forms. This he did—and in the most economical way possible. He cast the entire series of 98 elements using only two forms—and concrete made with "Incor" 24-hour portland cement. Units were produced on a 48-hour cycle, with one unit being cast each day . . . convincing testimony to the time- and money-saving qualities of "Incor," America's *first* high early strength portland cement.

Lone Star cements were used exclusively in this beautiful and significant structure. Lone Star Portland Cement was used in concrete for foundations, entryways, window frames, etc. All masonry was laid up with ready-to-use Lone Star Masonry Cement.

Library Building, CENTRAL WASHINGTON COLLEGE OF EDUCATION, Ellensburg, Washington.

Architect: BASSETTI & MORRIS, Seattle.

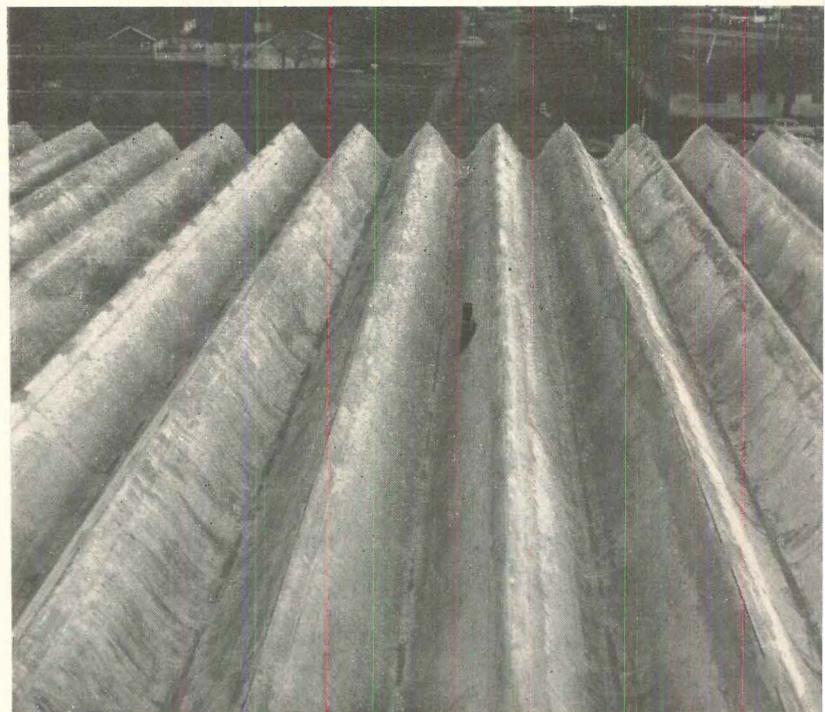
Contractor: NEWLAND CONSTRUCTION COMPANY, Everett

Masonry Contractor: FRODESEN MASONRY COMPANY, Seattle

Ready-Mixed Concrete and Lone Star Masonry Cement Supplied by: ELLENSBURG CEMENT PRODUCTS COMPANY, Ellensburg



Prestressed concrete roof units were cast at the job site, using two casting beds. Prestress cables were placed first, followed by the cap form section. The concrete was form-cast by vibrating the lower form. The units were then covered with canvas and cured by using steam from college utility system. Roof utilizes 98 prestressed concrete elements with spans of 65 ft.

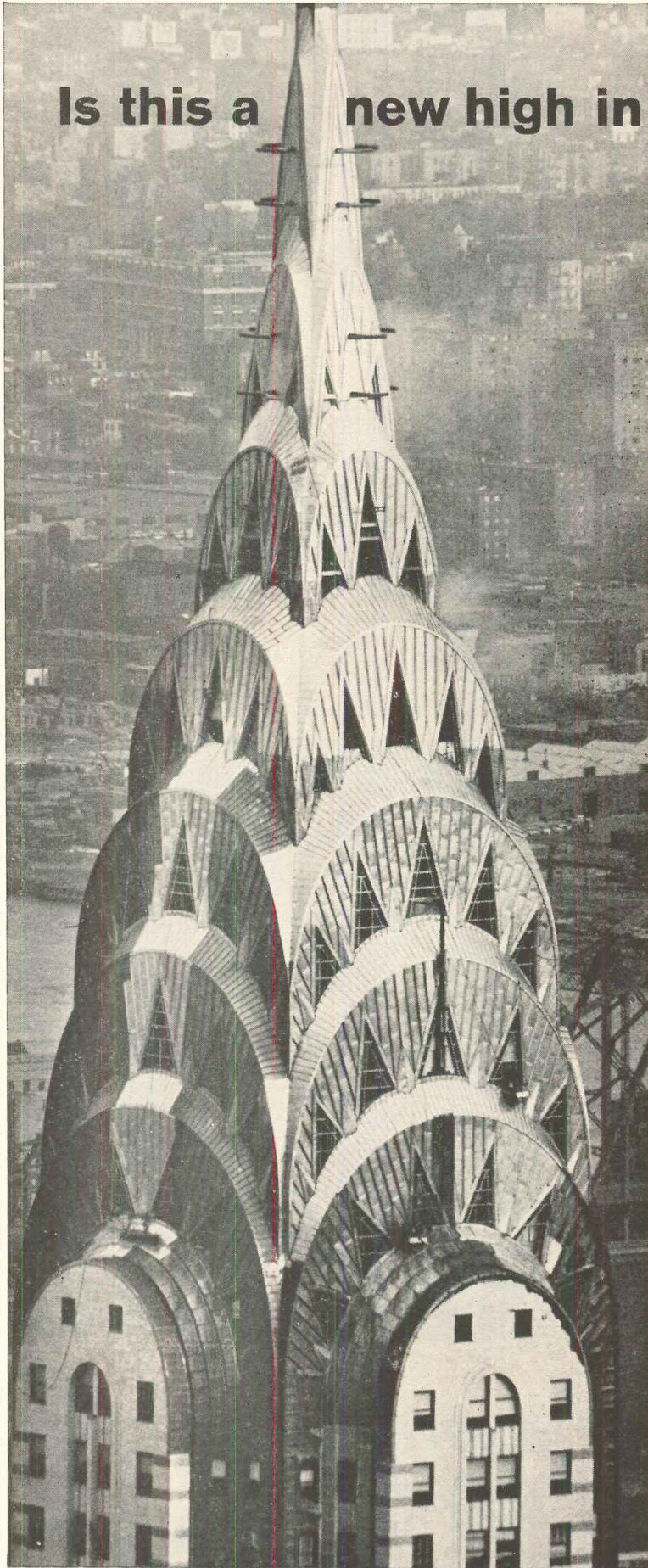


**LONE STAR
CEMENT
CORPORATION**



100 Park Avenue, New York 17, New York

Chrysler Building, New York City. Architect: William Van Alen.
General Contractor: Fred T. Ley & Company. Sheet Metal Contractor:
Benjamin Riesner, Inc.



Is this a new high in low maintenance?



You're looking at the start of the first face-washing ever given this famous Nickel Stainless Steel tower. The sheathing is still as good as new—after 31 years of sooty proximity to a battery of New York City power plants.

When the Chrysler Building was finished in 1930, ten large sheets of Nickel Stainless Steel, similar to Composition AISI Type 302, were kept on hand, just in case New York's weather and smoke proved damaging to the gleaming tower and gargoyles. Recently these spares went to the scrap pile. They were never needed.

Maintenance savings have multiplied year after year because the building's entrance, window frames, store fronts and flashings are all Nickel Stainless Steel. No architectural metal can match its record of maintenance dollars saved. It's corrosion resistant all the way through...needs no paint or other coating. It's compatible with adjacent materials, and won't stain them—even under long exposure to an electrolyte. Other advantages? They're detailed in the booklet *Architect's Guide to Nickel Stainless Steel Flashings*. A copy is yours for the asking.

THE INTERNATIONAL NICKEL COMPANY, INC.

67 Wall Street



New York 5, N.Y.

INCO NICKEL

MAKES STAINLESS STEEL PERFORM BETTER LONGER

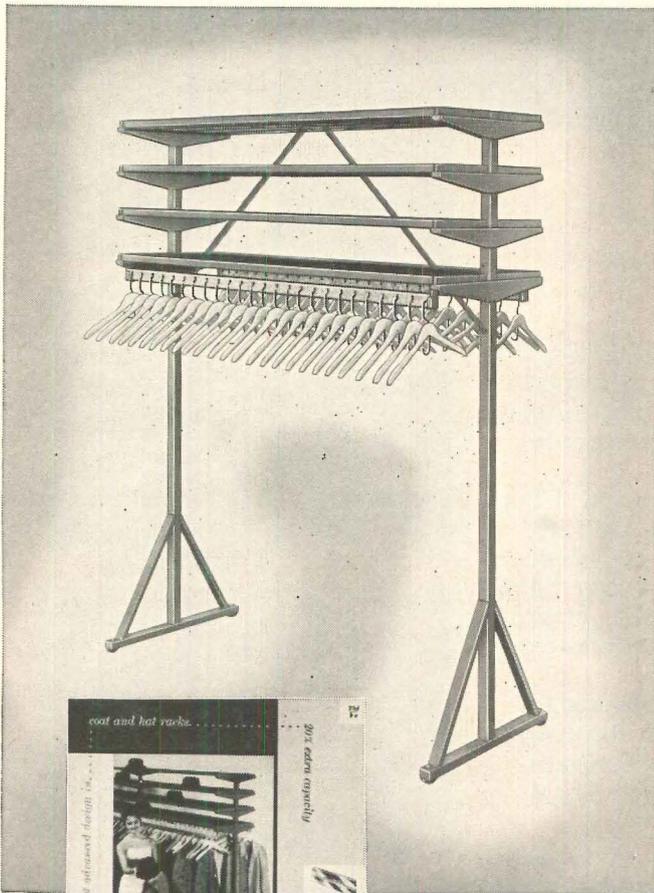
don't take our word for it
when we say...

BORROUGHS OF KALAMAZOO

Century LINE
OF FINE CHECK RACKS

offers the best values on the
market...compare...see all others!

YOU'LL understand why Borroughs is one of America's leading check rack designers when you study the merits of the "Century" line. In graceful styling and beautiful finishes—in sturdy construction and functional features—in the wide choice of standard models—Borroughs Racks are an excellent choice.



the only rack with
the "Wonder Bar"
Reverses to hold more hangers

send today
for literature

BORROUGHS
MANUFACTURING COMPANY

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

3093 NORTH BURDICK ST. **amp**® KALAMAZOO, MICHIGAN

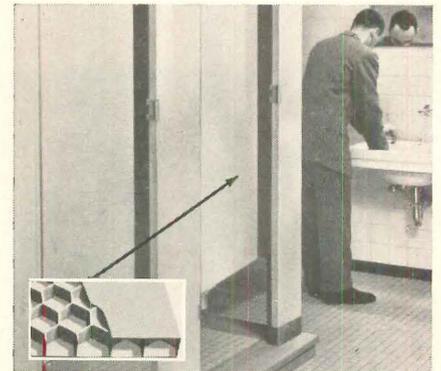
A. I. A. NO. 17
SWEET'S LIGHT
CONSTRUCTION FILE 9A
UN

Architect's guide to Union Honeycomb core:

[[USES]]

On a weight for weight basis, economical UNION HONEYCOMB is the strongest core material known. Write today for full information and the names of fabricators near you.

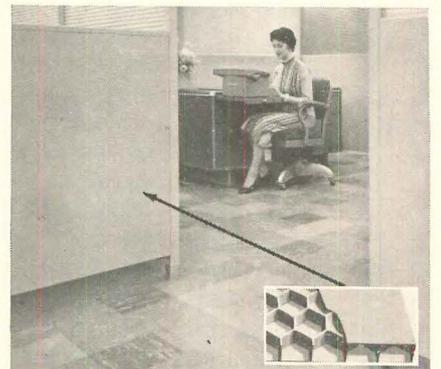
UNION-CAMP.
HONEYCOMB CORE
Union Bag-Camp Paper Corporation
Dept. AF-4, 233 Broadway, New York 7.



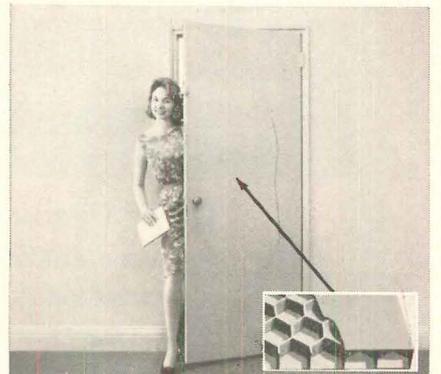
SANITARY PARTITIONS made with UNION HONEYCOMB core go up fast, resist impact, require minimum maintenance. Exceptional flatness facilitates installation and finishing. Light weight reduces shipping and handling costs.



STORE FRONTS. Save on store front modernization and construction with UNION HONEYCOMB. Decorative lightweight panels are extremely durable. They can be faced with stainless steel, aluminum, porcelain enamel, etc. HONEYCOMB store fronts combat moisture, resist temperature extremes and weathering.



OFFICE DIVIDERS. Solve space problems with interchangeable, attractive divider panels. UNION HONEYCOMB cores add rigidity and sound deadening to easily erected partitions permitting privacy and flexible floor planning.



FLUSH DOORS. Another popular and practical application for UNION HONEYCOMB core. Cores weigh approximately 1 to 2 lbs. per door, depending on the size. This light weight and simple construction ensures flatness.

IBM



Over 130 Million Square Feet of **PLASTER-WELD®** applied in Buildings Like These...

WITH NO COMPLAINTS!

Need we say more?



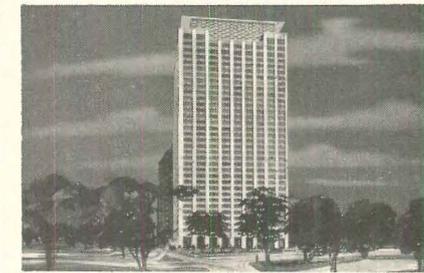
• Coliseum Apartments, New York City



• Miami Valley Hospital, Dayton



• Park Towne Place, Philadelphia



• 1550 Lake Shore Drive, Chicago



• Beverly Hilton Hotel, Los Angeles

In this, our Tenth Anniversary year, we are proud to look back upon the many important buildings where the leading architects in the United States specified Plaster-Weld to bond lime-putty coat to concrete ceilings, columns, etc. for a *permanently* beautiful plaster finish.

Today, as always, Plaster-Weld is your *safest* specification. The Plaster-Weld method costs less than grinding and painting, and you get the unbeatable beauty and permanence of plaster.

Plaster-Weld®, the original "Pink Stuff", may be sprayed or brushed over any structurally sound surface—cement, brick, ceramic, gypsum, metal, painted surfaces, etc. . . . and followed up with plaster coat any time within minutes or days.

A complete technical explanation of Plaster-Weld is planned for the Producer's Council Seminar on Ceilings scheduled for early 1963. Meanwhile, we suggest you write for the original "Specifications for Bonding Agents," prepared by Ben H. Dyer, A.I.A. We shall be glad to mail you a copy.

LA-104



LARSEN PRODUCTS CORPORATION

BETHESDA 14, MARYLAND

"Look to Larsen for Progress"

Other Products in the Larsen Line:

WELD-CRETE® for bonding new concrete to old.

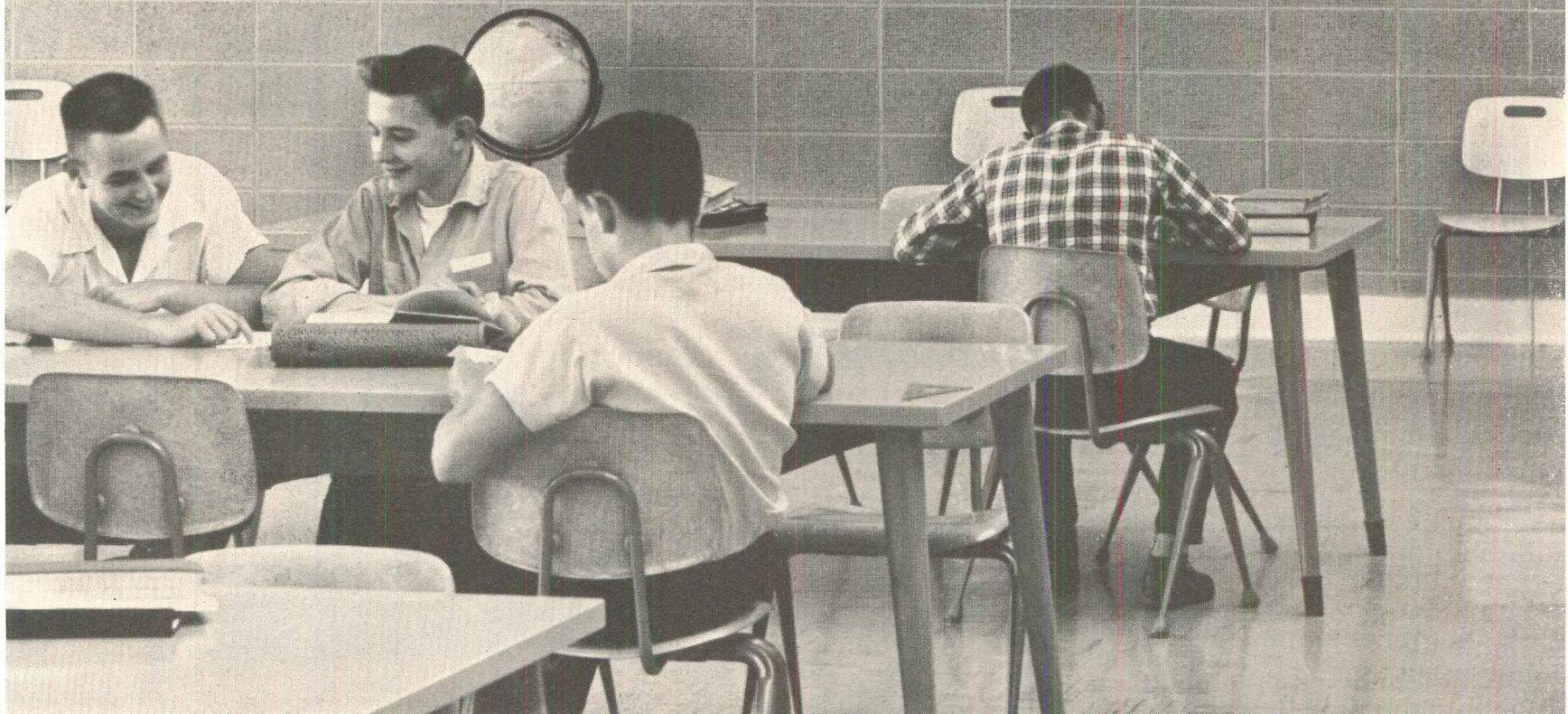
LARSEN-MIX™ a "perfecting" compound for leveling, patching, etc.

TILE-WELD®, LARSEN-SEAL™

LARSEN: METALLIC FLOOR HARDENER, METALLIC GROUTING COMPOUND, METALLIC WATERPROOFING COMPOUND



• Burdine's, Fort Lauderdale



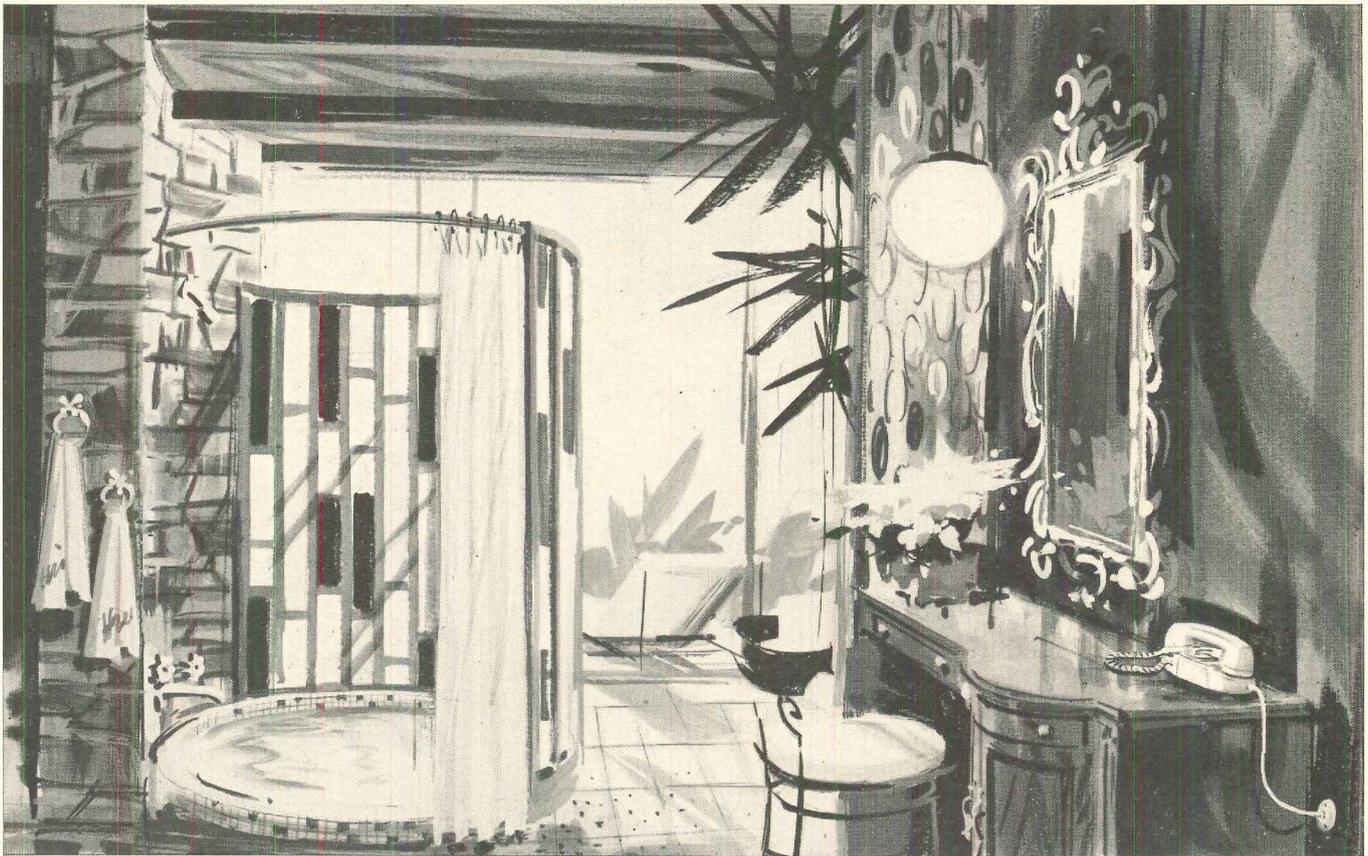
Architect: Frank N. McNett

block becomes

YOUR WONDERFUL SCHOOL FOR THOUGHT These students study in sanctums of silence. Block's high sound absorption sees to that. You'll find that block requires very little maintenance over the years. With this wear comes flair, for, with concrete masonry, you select from a countless array of block shapes, sizes, textures and colors. Cost? Your taxpayers get more school space per dollar than with any other building material on the market. And the priceless security of fire-safety is yours because block simply cannot burn. Aren't these sound reasons to add block to your schools of thought? Then contact your local NCMA member for a wealth of construction details.

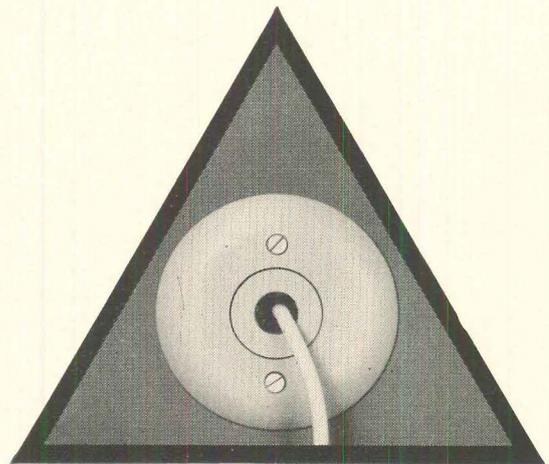
NATIONAL CONCRETE MASONRY ASSOCIATION • 1015 WISCONSIN AVENUE, N.W. • WASHINGTON 7, D. C.





PROVIDE for telephone
 convenience and homes become
 more livable, more salable.
 Built-in telephone outlets
 with concealed wiring protect
 interior beauty, offer
 flexible telephone service
 for a family's
 present and future needs.

▲
 The PRINCESS phone, stylish and compact, adds a charming note of luxury and convenience in this dressing room. For help in telephone-planning your homes, call your local Bell Telephone Business Office and ask for a Communications Consultant. See Sweet's Light Construction File, 11c/Be, for other residential telephone installation ideas.

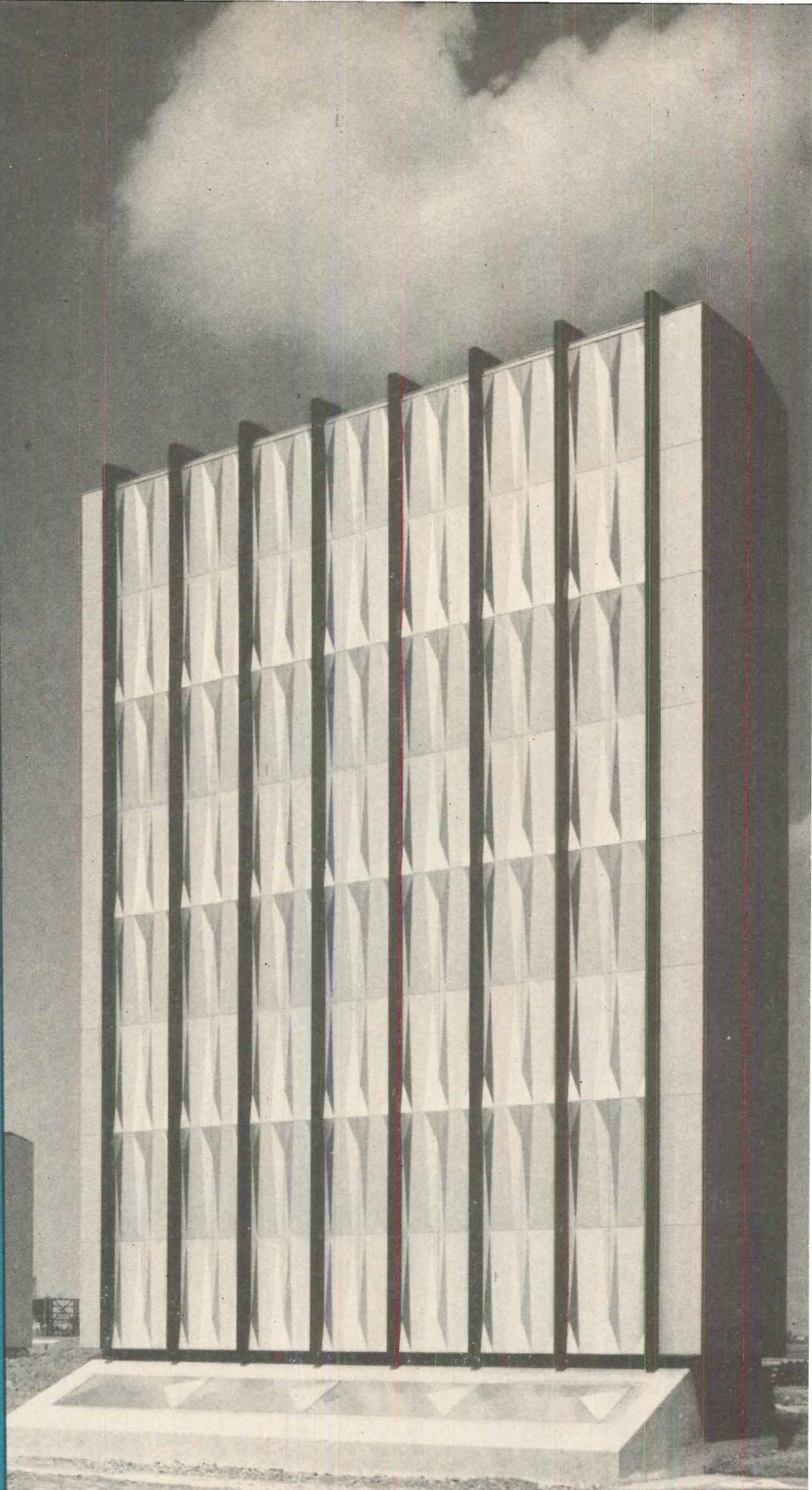


Bell Telephone System

Another of
 today's
 trend-setting
 designs—crafted
 and clad by
GENERAL BRONZE



**NIAGARA POWER
 PROJECT'S STAIN-
 LESS TOWERS
 SHOW GB'S SKILL
 WITH PATTERNED
 CURTAIN WALLS**



These monumental intake gate structures are new landmarks on the Niagara River. The functional severity of the two 100-foot towers has been softened and humanized by brilliant stainless steel curtain wall envelopes, accentuated by black enameled aluminum columns. The structures were designed by Uhl, Hall and Rich—Engineers and Architects for the N. Y. State Power Authority. Contractor: Merritt-Chapman & Scott Corp.

In these unusual towers, many recurring problems in curtain wall treatment were amplified. Corrosive atmospheres were present. Harsh reflections and "oil-

canning" in the all-metal facades had to be avoided with extreme care. Maintenance had to be held to a minimum. General Bronze helped solve these problems by applying the skills of a half-century in architectural metalwork... 16 years in curtain wall construction.

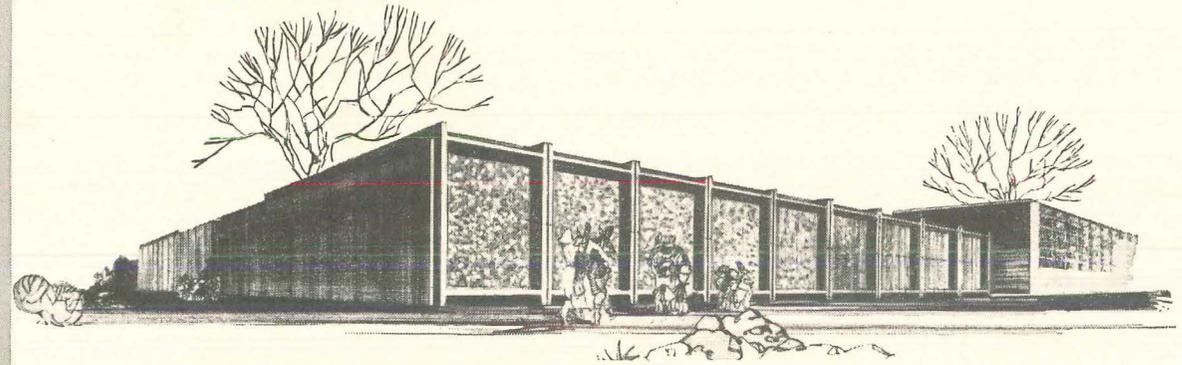
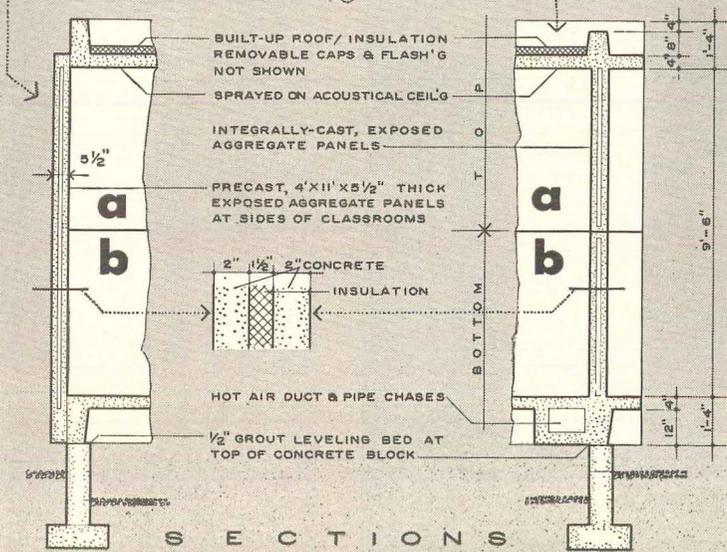
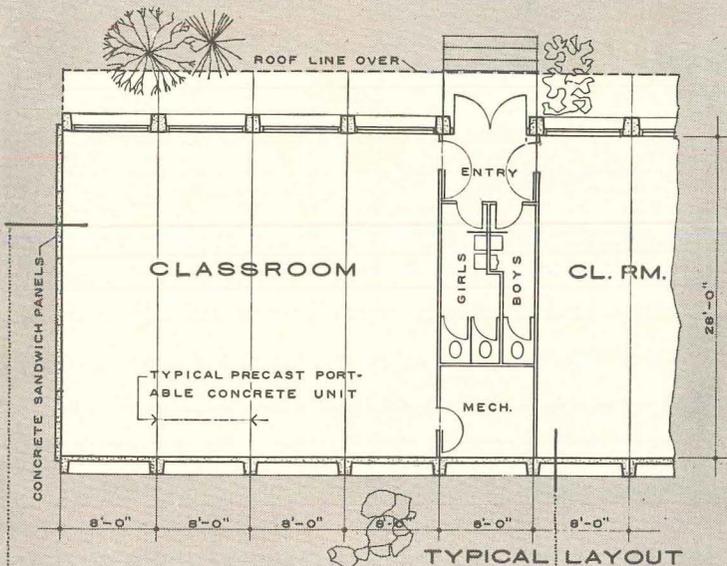
For information or assistance on your own design problems, consult your Sweet's files . . . call in the General Bronze representative nearest you . . . or write to: GENERAL BRONZE CORPORATION, Garden City, New York. • Sales Office: 100 Park Avenue, New York, New York.

PERMATITE DIVISION—Custom-built Windows, Curtain Walls, Architectural Metal Work and Revolving Doors. ALWINTITE DIVISION—Stock-size Aluminum Windows and Doors. BRACH MFG. CO. DIVISION—Radio, Television and Electronic Equipment. STEEL WELDMENTS, INC. DIVISION—Custom Fabrication in Steel and Iron.

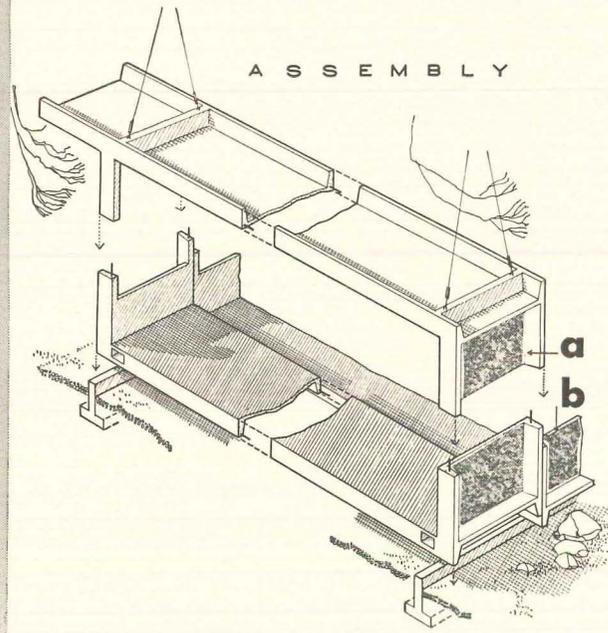
No. 5 demountable classroom

a.i.a. file: 4-a

Prepared as a service to architects by Portland Cement Association
 Clip along dotted line



Pittsburgh Architects: John Pekruhn, A.I.A., Deeter and Ritchey, A.I.A., and Lawrence & Anthony Wolfe, A.I.A.
 Consulting Structural Engineer: R. A. Zern, Pittsburgh

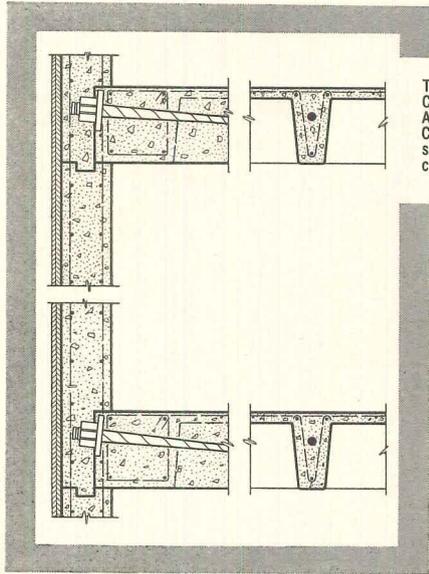


Entire classrooms precast in concrete make up the new addition to the Homewood Elementary School, Pittsburgh, Pa. The design brings beauty, extra utility and easy upkeep to what is usually a "temporary" type of construction. Moreover, a degree of portability is achieved which allows future transportation to another site at very nominal cost.

The concrete segments—each 8' wide by 28' long—include a roof or floor section combined with half of each side wall. The precast units were designed for mass production and contain all the essentials of classroom planning. Air ducts, concealed conduits and pipe chases provide a finished room without unsightly exposed utilities.

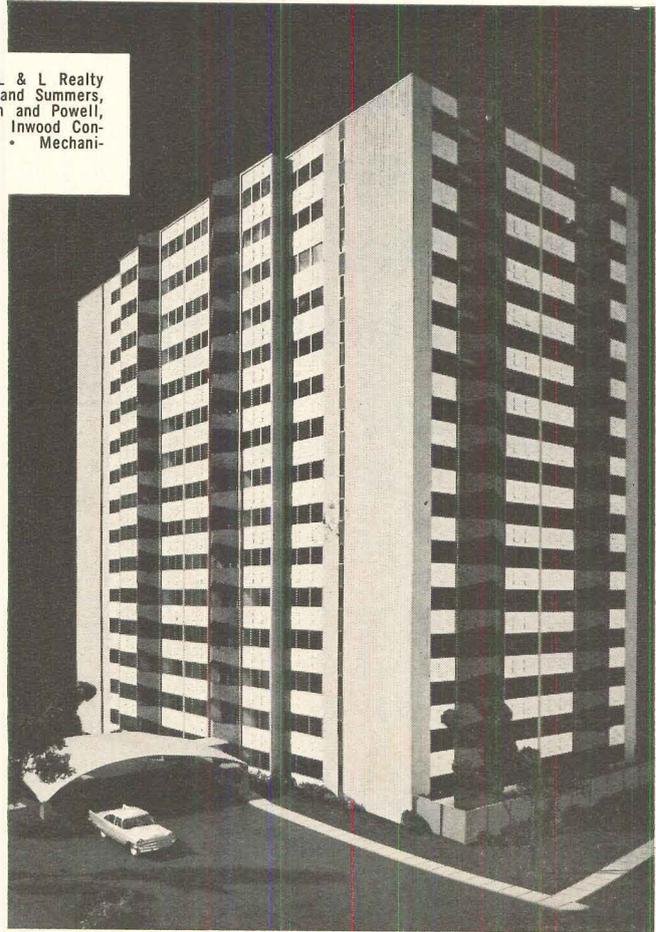
Oriented to enclosed, planted playgrounds, the structure is completed by a street facade of integrally cast exposed aggregate panels that enhance aesthetic values... keep out dust and noise... discourage vandalism.

PORTLAND CEMENT ASSOCIATION
 A national organization to improve and extend the uses of concrete



The Terrace House • Owner: L & L Realty Corporation • Architect: Stinson and Summers, Architects • Engineer: Mullen and Powell, Consulting Engineers • Contractor: Inwood Construction Co., General Contractors • Mechanical Engineers: Ratliff, Irby & Purdy, All of Dallas, Texas

← Schematic showing typical details of tendon placement on two floors at an outside wall.



16-STORY COLUMN-FREE DALLAS BUILDING USES PRESCON SYSTEM* OF POST-TENSIONING

This 120-unit luxury apartment project has for its floor system, a construction of post-tensioned, lightweight concrete, employing the pan-joint system. Concrete shear walls provide the means for resisting wind loads, and also serve as effective sound barriers between apartments.

Use of the Prescon System allowed spans of 45' 9", with pan-joint members of only 18½" in depth, spaced 36" on center, and carrying live loads of 70 to 100 pounds per square foot. The total height of the building (195 ft. from basement to penthouse roof) was reduced by the equivalent height of one story with a resultant savings in wall material, elevator height, mechanical, electrical, etc. costs, and an overall reduced dead load. Post-tensioning allows the contractor to pour and prestress a monolithic structure on the job, thereby taking full advantage of the structure to resist wind and other loads.

Complete flexibility in room size and arrangement for

each of the 2250 square foot apartments is possible since there are no columns or other obstructions.

You can gain these additional benefits for your clients, by designing with the Prescon System for: (1) greater useable and unobstructed floor space within a given building volume, (2) more economy in construction time and money, and (3) reduced finishing costs.

*The Prescon System consists of the following components: (1) high tensile-strength carbon steel wires with cold-formed button-heads for positive end anchorage encased in (2) slippage sheathing, and (3) threaded-thru end anchorages (steel spread plate at fixed end and stressing washer and bearing plate at the stressing end) plus shims for maintaining tension.

YOUR FILES should include the new Prescon brochure giving the complete information and listing many types of structures across the country using the Prescon System—write for your copy today.



THE PRESCON CORPORATION

P. O. Box 4186 • Corpus Christi, Texas
Albany • Atlanta • Memphis • Dallas • Denver • Los Angeles
St. Louis • San Francisco • Seattle

MEMBER OF PRESTRESSED CONCRETE INSTITUTE

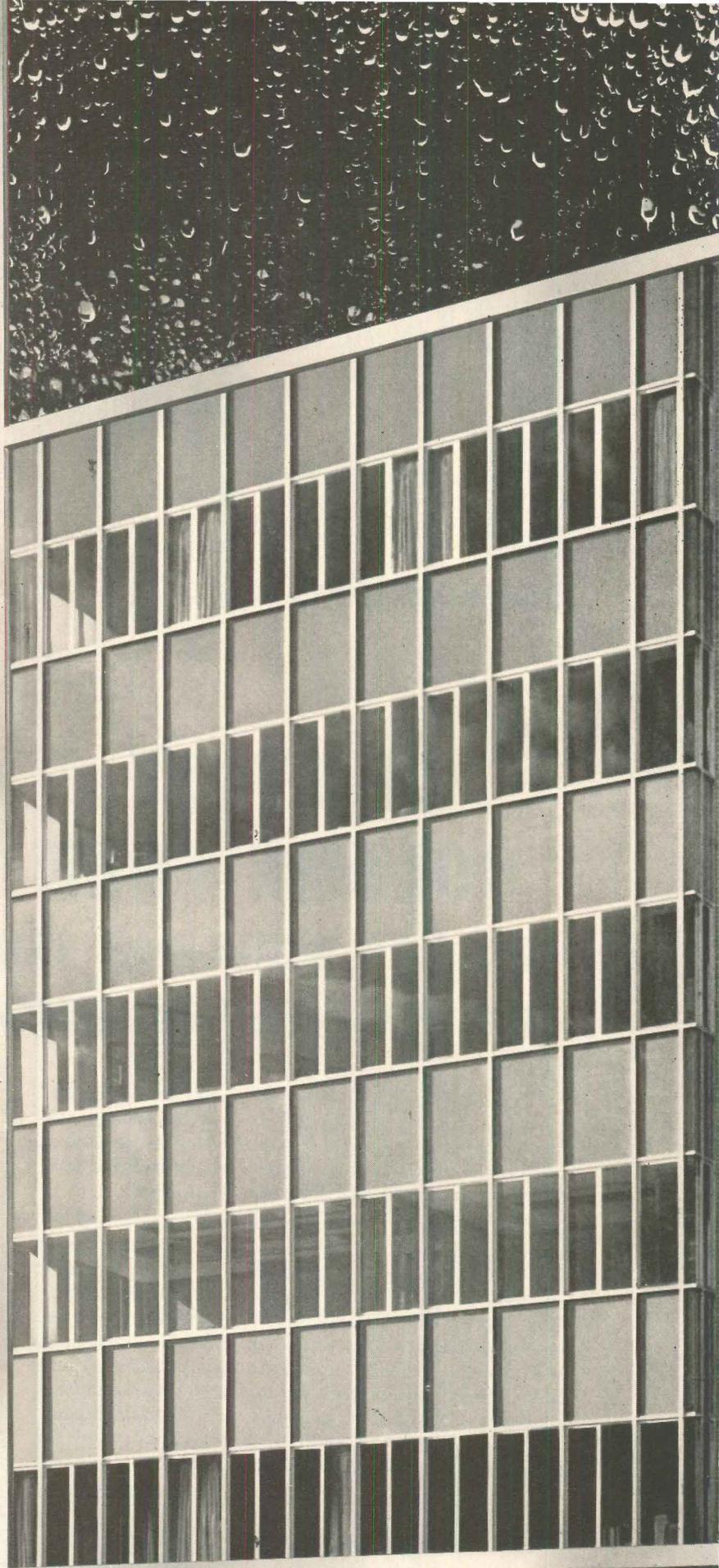
PITTCO[®]

curtain wall
framing systems
keep water
where it belongs
...outside!

DESIGNED specifically for glass-clad curtain wall construction, PITTCO Framing Systems provide reliable protection against water penetration. To achieve this, the components used in every PITTCO System have been individually designed and precision-engineered to accommodate varying temperature, wind and weather conditions, while maintaining over-all design flexibility.

Metal-to-metal joints are weather-sealed with No. 1072 DURIBBON[®], a special compound developed by our own laboratories for curtain wall glazing. Glass is dry set, with or without Neoprene glazing channels, depending on the system selected. A unique weep-vent system provides the necessary condensation drainage and spandrel ventilation.

In addition, PPG assumes full responsibility for the manufacture, fabrication and erection of the complete curtain wall. For complete details on the patented 82X, 25X, 670 and "900" Series PITTCO Framing Systems, call your PPG Architectural Representative or consult Sweet's Architectural File—Section 3e.



PITTCO
ARCHITECTURAL METAL



PITTSBURGH PLATE GLASS COMPANY

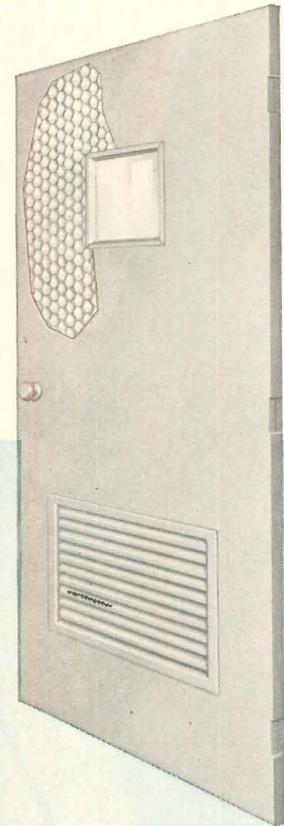
Paints • Glass • Chemicals • Fiber Glass

In Canada: Canadian Pittsburgh Industries Limited

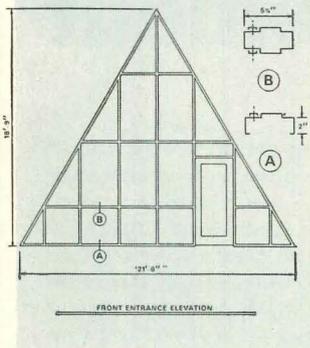
STEELCRAFT

The finest name in...

METAL DOORS and FRAMES



Another suggestion
from the Steelcraft
Architectural
Detail File.



Honeycomb core—A Steelcraft development that provides new strength! A honeycomb core is permanently bonded to two layers of steel . . . deadens sound, adds ruggedness.

Steelcraft's Dallas distributor, Samuel A. Ellsberry Co. fabricates locally this unusual job using standard sections for a lodge owned by Owens Country Sausage, Inc.; Richardson, Texas; architect, Billy R. Keller.

Steelcraft offers unmatched versatility in unusual frames for doors and glass lights through a system of stock sections called sticks. These stick sections are stocked locally by authorized Steelcraft distributors. All Steelcraft doors can be used interchangeably on any Steelcraft frame. Call a Steelcraft distributor for professional assistance in coordinating hardware and approval drawings. Save time—cut costs.

THE STEELCRAFT MANUFACTURING COMPANY

9017 Blue Ash Road, Cincinnati 42, Ohio



2

Outstanding developments in the field of Concrete...



perma > glaze®

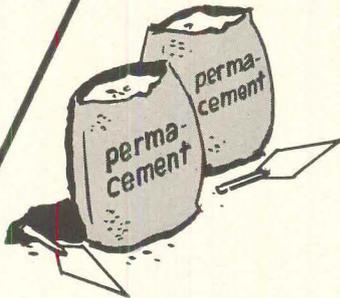
The super cement glaze with qualities beyond the scope of stucco and paint, tile, porcelain enamel panels, etc. Developed in Europe, and successfully used for 40 years on interior and exterior masonry surfaces of industrial, commercial, residential buildings and swimming pools.

Economical Perma-Glaze cuts maintenance to the bone, ends need for painting, adds permanent value and beauty to buildings inside and out.

Currently being used in all climates on federal and state buildings, factories, hotels, apartments, hospitals, FHA projects, schools, public and private pools. Sprayed on masonry surfaces by trained technicians using special spray equipment.

VALUABLE
TERRITORIES
AVAILABLE
FOR BOTH
PRODUCTS

BOTH PRODUCTS ARE AVAILABLE THROUGHOUT MOST OF THE UNITED STATES AND IN MANY OTHER PARTS OF THE WORLD



perma > cement

The instant-setting concrete that bonds permanently to wood and steel, as well as masonry even under water!

Perma-Cement sets in only four to five minutes, and has no heat of hydration.

Perma-Cement has *two times* the compression strength, *three times* the bonding strength and *four times* the acid resistance of normal cement.

Streets, sidewalks, concrete floors, and even airport runways, can be repaired with Perma-Cement, then re-opened to traffic in thirty minutes.

Annual Report available upon request

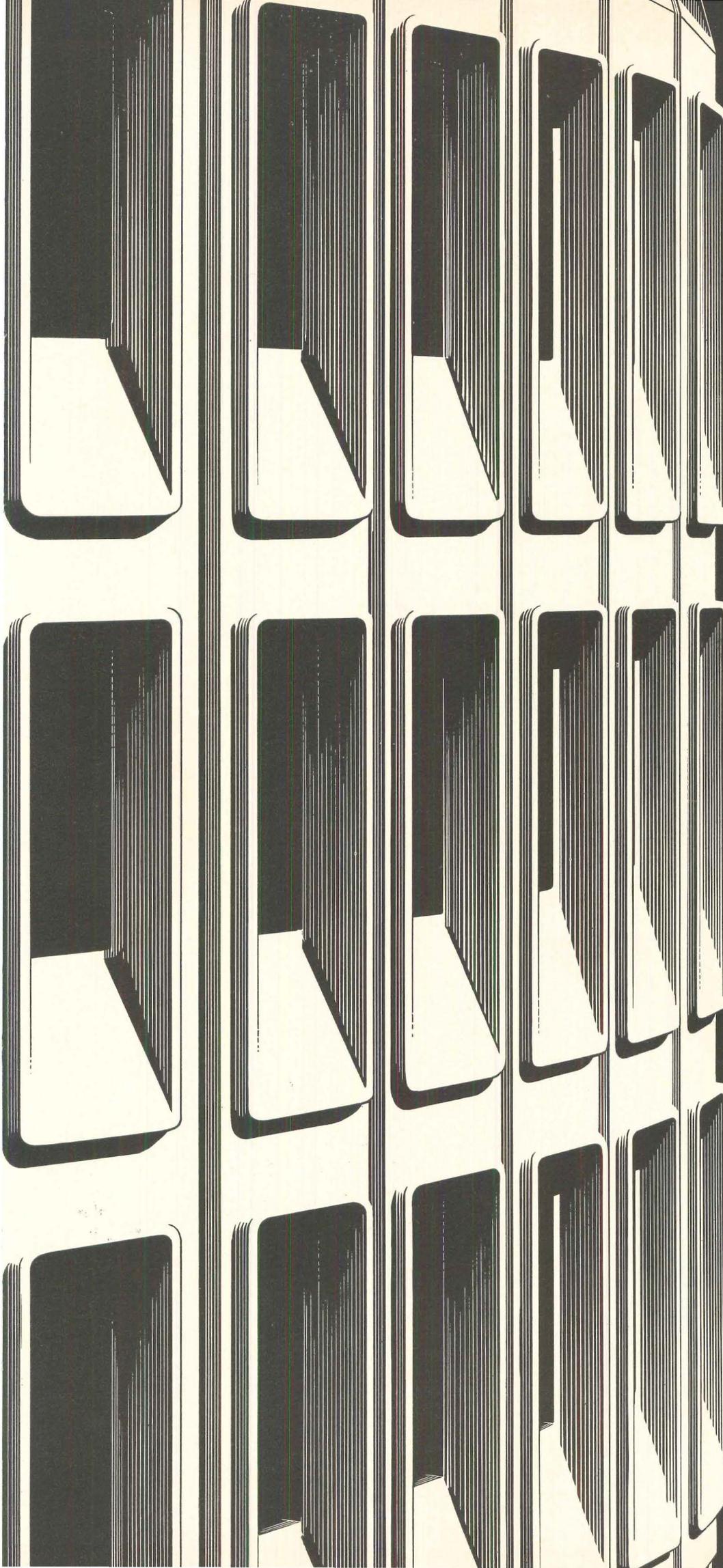
Dept. AF

For the applicator nearest you; or for details on a profit making dealership write or phone today.

L. F. POPELL CO., INC.

2501 N. W. 75th Street ■ Miami, Florida
Phone: OX 1-8551

AREA CODE 305



An application of Schokbeton demonstrating its design and structural properties. This wall is composed of three-story, load-bearing Schokbeton pre-cast window elements.

Police Administration Building, Philadelphia, Pa.
Architects: Geddes-Brecher-Qualls-Cunningham
General Contractor: Sovereign Construction Co. Ltd.
Schokbeton by Eastern Schokcrete Corp.

SCHOKBETON®

The finest in architectural, structural, precast concrete by the exclusive Schokbeton process as originally developed in Holland.

SCHOKBETON PRODUCTS CORP.
18 East 41st St., N.Y.C. 17, N.Y.

Now available through the following:
EASTERN SCHOKCRETE CORP.
441 Lexington Ave., New York 17, N.Y.

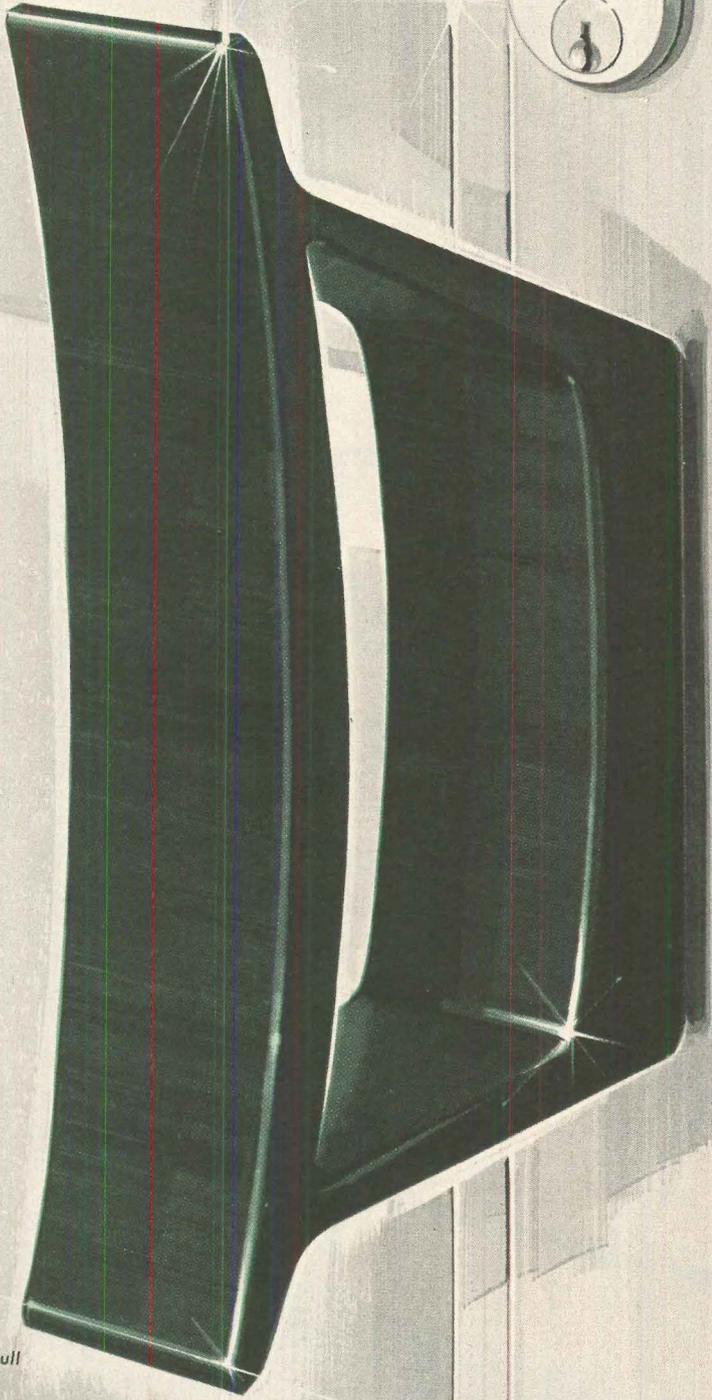
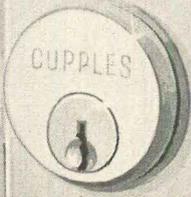
MIDWEST SCHOKBETON CORP.
P.O. Box 328, Lemont, Ill.
Subsidiary of Crest Concrete Systems, Inc.

SCHOKBETON-PITTSBURGH, INC.
37 South 20th St., Pittsburgh, Pa.
Subsidiary of The Levinson Steel Co.

SCHOKBETON PRODUCTS DIV.
Concrete-Structures, Inc.
12825 Northeast 14th Ave., North Miami, Fla.

SCHOKBETON QUEBEC, INC.
P.O. Box 278, St. Eustache, Quebec

STRUCTURAL CONCRETE PRODUCTS CORP. (P.R.)
P.O. Box 7 Carolina, Puerto Rico



Exterior Pull



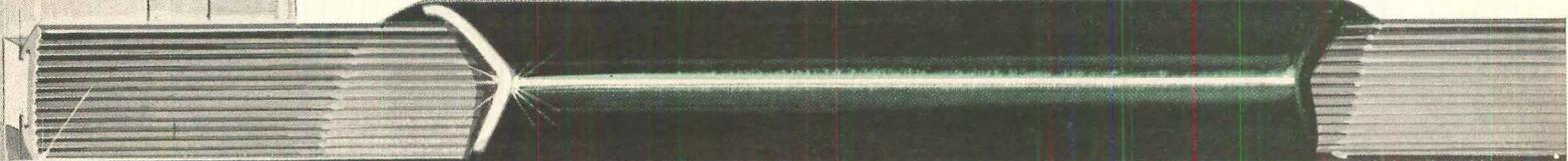
DEPENDABLE *Cupples*

ELEGANT NEW STYLING

IN PUSH-PULL HARDWARE

gives distinctive, "custom-look" to CUPPLES ENTRANCE DOORS

Available in new scratch-proof Duranodic,[®] hardcoat finish
or attractive Alumilite[®] natural aluminum finish



Interior Push Bar

Want your entrance doors to have a real "custom-look" without a custom price? Then specify Cupples "40 LINE" of stock entrance doors with this smart-looking, new hardware. While the special Duranodic hardcoat finish in medium black costs a few cents more, you can get the same beautiful styling in Alumilite natural finish without extra cost.

Cupples new push-pull hardware reflects the graceful design and high quality workmanship that is evident throughout the entire Cupples line. Cupples doors and entrances are precision made from heavy gauge extruded aluminum sections with hairline joints and a beautiful anodized finish that is guaranteed under bond. Available as single or double doors with many variations in frame, you have complete design flexibility. Double acting doors on floor closers, as well as stock panic device doors are also available.

In addition to the many product features your clients get when you specify Cupples, you also have the assurance of **DEPENDABILITY** of quality, service, delivery and company behind the product (Cupples is a division of ALCOA). Write today for our catalog or see Sweet's, Section 16a/Cu.

CUPPLES PRODUCTS CORPORATION

A DIVISION OF ALUMINUM COMPANY OF AMERICA

DOWAGIAC, MICHIGAN • CORONA, CALIFORNIA

Warehouses at Dallas, Texas and Spring Valley, N. Y.



ALCOA

CUPPLES PRODUCTS DIVISION
ST. LOUIS, MO.

A complete line of custom and standard doors, store front metal, custom and stock curtain walls, stock projected windows, stock and special sliding glass doors. All Alumilited finishes are bonded and guaranteed.

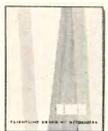
®Registered Trade Marks, Aluminum Company of America

Desks

Steelcase desks really aren't custom made; they just look that way. These are standard desks from the Steelcase line — a line so complete that you can readily office-outfit everyone, from the mail clerk to the president. Here you see only a few of the available models. There are many more—and with attachable Convertible tops and cabinets, the variations possible are almost unlimited. So are the color combinations you may select . . . 23 sparkling, durable finishes of our own. In addition, we can match any special colors you wish. Specify Steelcase furniture for your next building project. Steelcase Inc., Grand Rapids, Mich.; Canadian Steelcase Co., Ltd., Don Mills, Ont.



Our new full-color brochure on Steelcase desks is now ready; for your free copy, address Department A.



STEELCASE INC

Now in our 50th year

FORUM

EDITOR-IN-CHIEF: Henry R. Luce
CHAIRMAN, EXEC. COMM.: Roy E. Larsen

CHAIRMAN OF THE BOARD: Andrew Heiskell
PRESIDENT: James A. Linen
EDITORIAL DIRECTOR: Hedley Donovan
ASSISTANT DIRECTOR: Albert L. Furth

EDITOR

Douglas Haskell, FAIA

MANAGING EDITOR

Peter Blake, AIA

ART DIRECTOR

Paul Grotz

ASSISTANT MANAGING EDITOR

Ogden Tanner, AIA

SENIOR EDITORS

Donald Canty, David B. Carlson
Walter McQuade, AIA

ASSOCIATE EDITORS

Marshall Burchard, Philip Herrera
Anne Peyton, Mary Elizabeth Young
Richard Saunders (Washington)
Allan Temko (West Coast)

TECHNOLOGY EDITOR

Bernard P. Spring, AIA

ASSISTANT TO THE EDITOR

Mary Jane Lightbown

RESEARCH STAFF

Benita G. Jones, Anne Le Crenier

ART STAFF

Martha Blake
Charlotte Winter, associates
Graham Rust, assistant

EDITORIAL ASSISTANTS

Charles Bryan
Henry Martin Ottmann, Ann Wilson

CONSULTANTS

Miles L. Colean, FAIA, Jane Jacobs
Lawrence Lessing, Richard A. Miller, AIA

PUBLISHER

Ralph Delahaye Paine Jr.

ASSOCIATE PUBLISHER

Joseph C. Hazen Jr., AIA

GENERAL MANAGER

John J. Frey

ADVERTISING DIRECTOR

S. C. Lawson

ADVERTISING MANAGER

John Beard

PRODUCTION MANAGER

John R. Wheeler

U.S. architecture and the 1964 fair. On August 8, the Kennedy Administration announced that the architectural firm of Charles Luckman Associates had just been named to design the U.S. Government Pavilion for the 1964 New York World's Fair.

The architectural quality of the U.S. Government Pavilion for 1964 is a legitimate, public issue; in discussing it, some of the usual polite conventions may have to be abandoned, and some harsh things may have to be said.

To begin with, however, it should be made clear that the announcement of August 8 did not tell the whole story: the facts are that the Luckman firm began work on the U.S. Pavilion quite some time ago and that, as of the end of July, the Luckman design was officially considered more or less "frozen." Just who commissioned Luckman, who froze his design, and who decided not to have an open, architectural competition—in the democratic manner—for this important symbol of our democracy cannot be easily ascertained.

One thing, however, proved to be fairly simple to obtain: a detailed description of the "frozen" design. If this were not a serious matter, the description might sound like a rather poor joke. It appears that the U.S. image is to be three giant flying saucers, seemingly suspended in mid-air, and looking rather like the familiar pawnshop sign known to every inhabitant of every skid row. We can see the headline in *Pravda* now: "America—Pawnbroker of the World." Is that the image the Administration wishes to project?

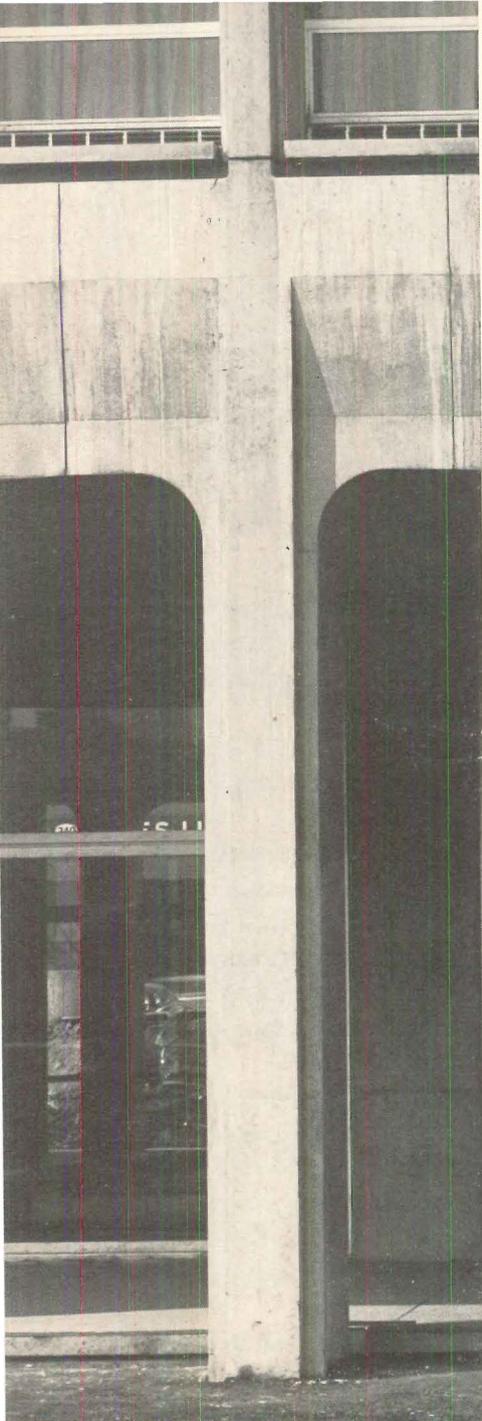
Needless to say, it is not. Only last month, on this page, we praised the Kennedy Administration for its insistence upon selecting "nothing less than the very finest" in U.S. architectural talent to project America's cultural image. We are still convinced that this is what the Administration is determined to do.

Moreover, we are also convinced that modern American architecture can produce a fitting symbol of our aspirations. The theme of the U.S. Pavilion is to be "Challenge to Greatness." It is a noble theme, deserving a noble building. Charles Luckman is an enormously successful architect, and no decent person begrudges him the size of his success. But there is a difference between "bigness" and "greatness," and it is most apparent in the arts.

Throughout the world, American architecture is admired as perhaps our finest contemporary cultural achievement; and names like those of the late Frank Lloyd Wright and Eero Saarinen, of Louis Kahn, Paul Rudolph, I. M. Pei, Mies van der Rohe, and many more are universally respected. These men have not done the most architecture in America; they have only done the best.

Throughout the world, also, two U.S. Government Pavilions of the past few years have earned us admiration: the 1958 Pavilion at Brussels, by Edward Durell Stone; and the 1962 Pavilion at Seattle, by Minoru Yamasaki. Both of these buildings helped to enhance our cultural image in the world.

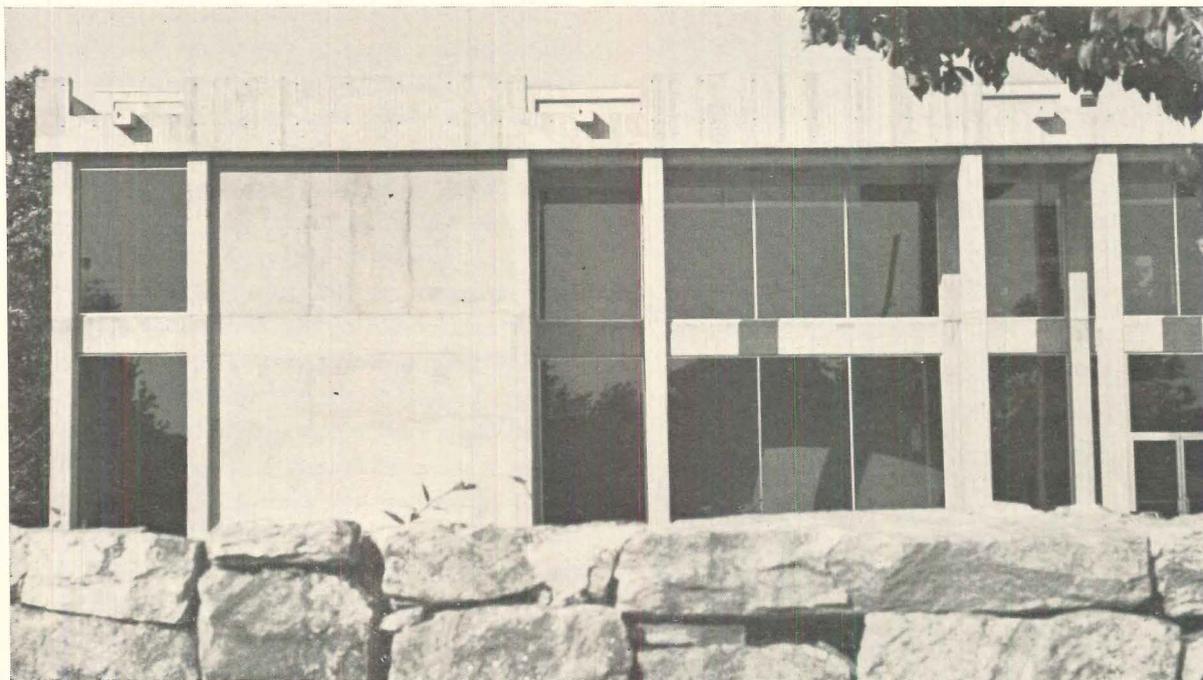
A great deal is at stake in 1964. The Kennedy Administration has pledged itself to support the finest in U.S. architecture—not because the Administration is looking for a gimmick with which to "sell" America to the world, but because (we believe) it is conscious of its leadership responsibilities in all areas of national life. Now is the time to prove the seriousness of these professed intentions.



1



2



3

CONCRETE

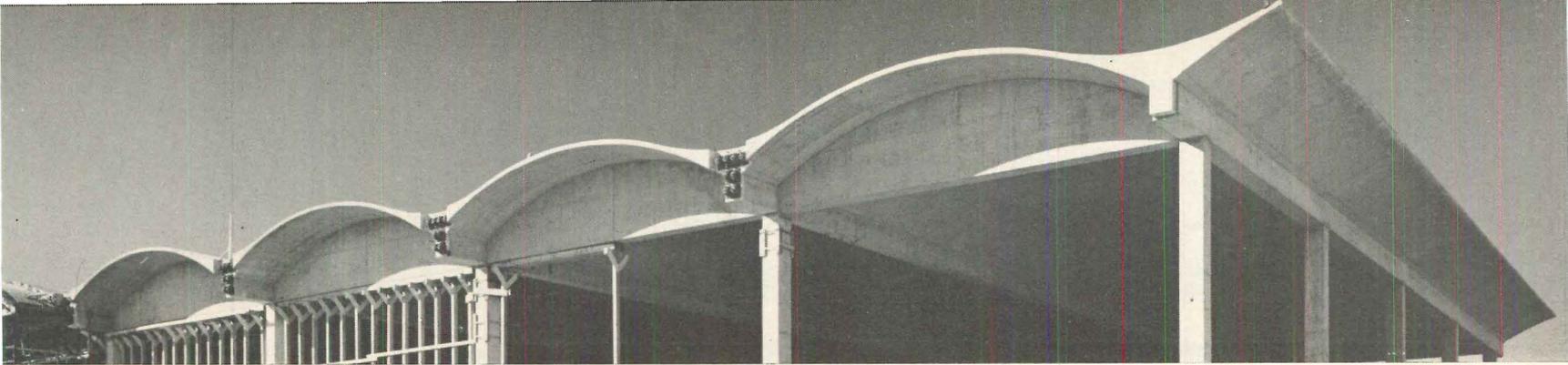
The material that can do almost anything

The slightly fantastic shapes and forms reproduced on these pages have only one thing in common: each is a part of a building constructed of that oldest of miracle materials, concrete. Other than this common denominator, these structures bear little relation to one another: they range in function from a "junk-art" pavilion in India to a polished apartment building in New York City.

These forms do, however, share one further quality: each is part of one of the more significant modern buildings erected anywhere during the past few years. For, suddenly, it seems as if the most striking new buildings the world over were being built of concrete, boldly and expressively exposed.

Perhaps the most significant change in the use of concrete is this increasing exposure. Even the most important, new monumental structures (like the General Assembly Building at Chandigarh, on page 97, or the gateway to Manhattan, page 84) are built of raw, unfinished concrete, and with stunning effect.

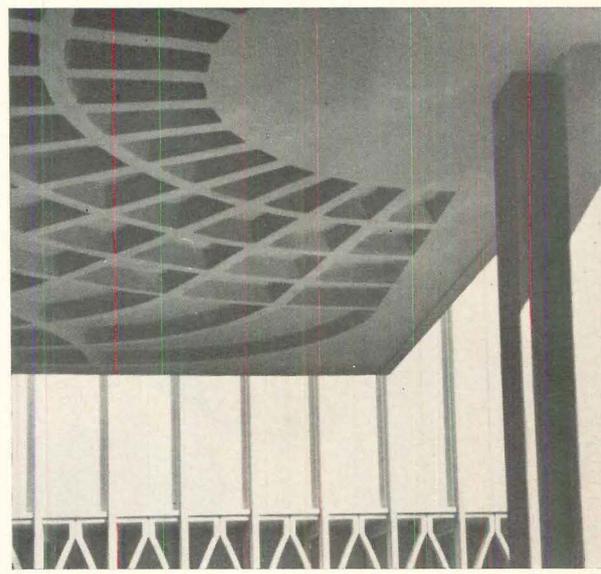
BY BERNARD P. SPRING AND DONALD CANTY



4



5



6



7

For behind the growing interest in the esthetic potentialities of concrete, there is now a reassuring body of technical knowledge built up over the past 60 years. We now know enough about the strength, the durability, and the appearance of concrete to use it with a high degree of confidence.

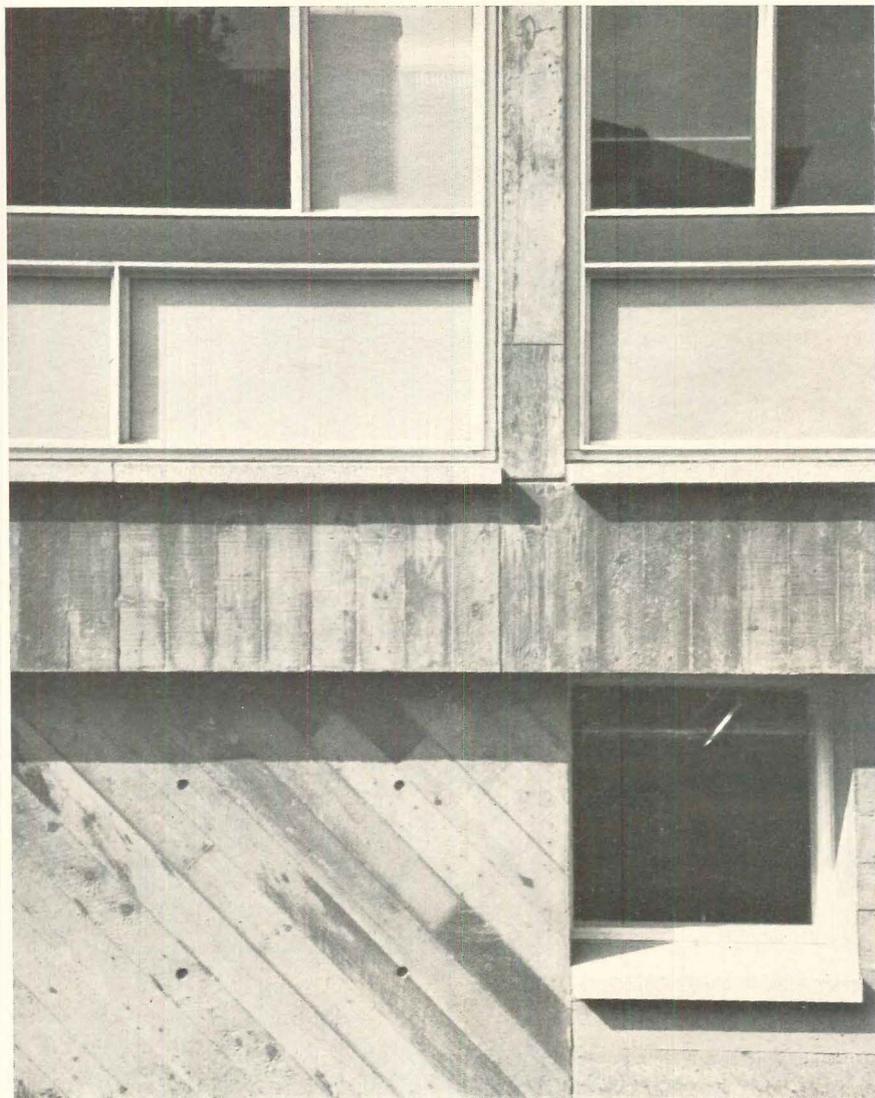
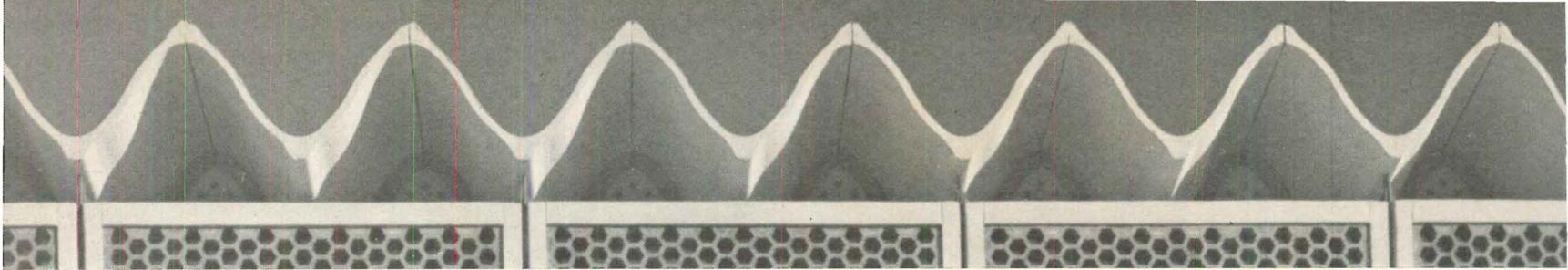
Knowledge, however, is not enough. It has taken a second indispensable development to overcome our lingering hesitation about the use of exposed concrete: better job management. In the past few years there has been a striking improvement in the contractor's ability to control quality and costs, and, thus, dependability.

The basic contribution to the predictability of concrete was made by the structural theorists; without their mathematical models to reveal stresses and strains before the start of construction, concrete could never have progressed beyond its early use as a substitute for stone masonry. From scientific analysis of the interaction of concrete and steel reinforcing, to similar analysis of thin shell structures and of prestressing,

the theorists have greatly advanced concrete technology. And most recently, they have developed ultimate-strength design procedures based on the fact that concrete remains a plastic material, with a bearing capacity far beyond the limits that were once thought safe.

But theory alone can do nothing to improve the inherent strength and durability of concrete. Equally important is a growing understanding of the ingredients and proportions of the mix plus the realization that the best concrete can be ruined if allowed to dry too fast after placement. Perhaps

1. Kips Bay Apartments, N.Y.C., I.M. Pei & Associates, Architects (George Cserna—photo). 2. Lever Pavilion, New Delhi, India, C.M. Correa, Architect, (Studio New Light—photo). 3. Museum, Fairfield County, Conn., John M. Johansen, Architect. 4. High School, Phoenix, Weaver & Drover, Architects (Beinlick—photo). 5. TWA Terminal, Eero Saarinen & Associates, Architects (George Cserna—photo). 6. Science Pavilion, Seattle, Minoru Yamasaki, Architect. 7. Fire station, New Haven, Earl Carlin, Architect (Bruce Cunningham-Werdnigg—photo).

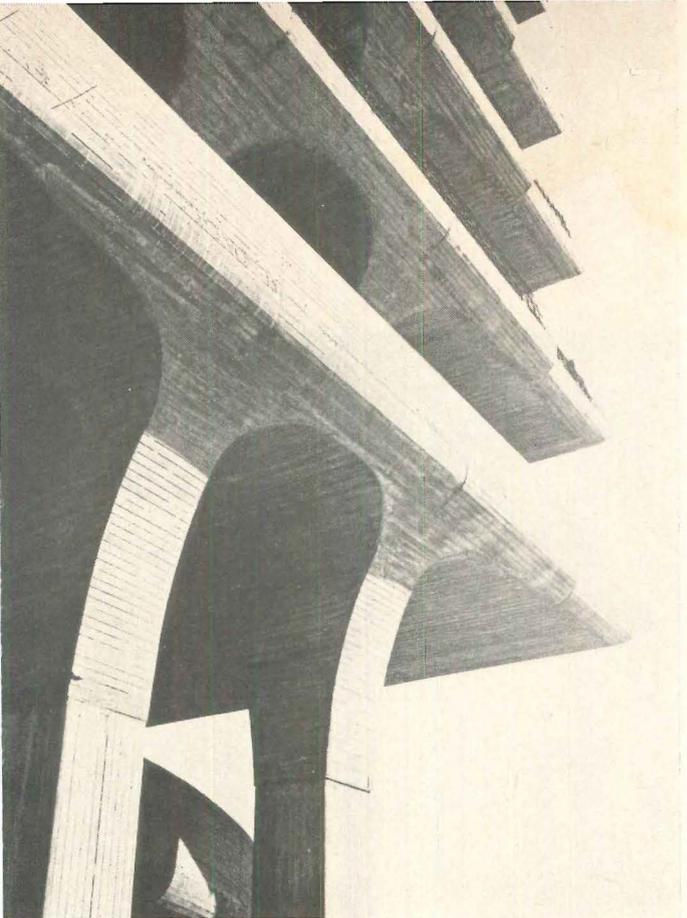


More a process than a building material

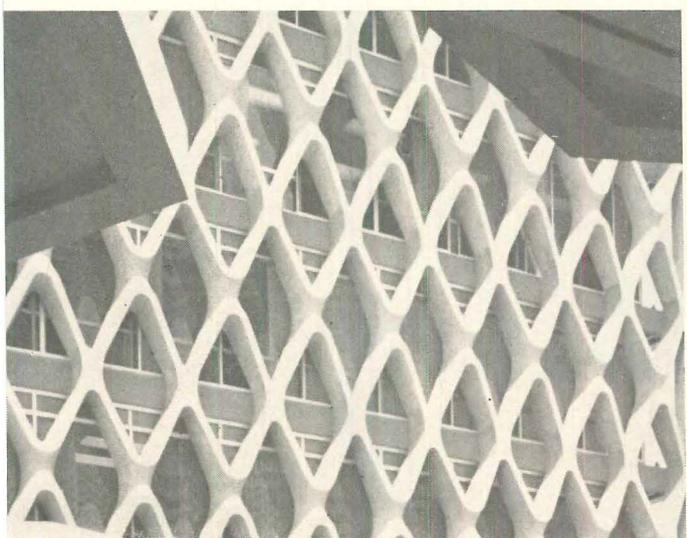
the century's most dramatic break-through in concrete technology came in the 1920s, when it was proven that the ratio of water to cement was the main determinant of compressive strength.

Civil-engineering research, meanwhile, has thrown new light on the importance of purity and size grading of aggregates. During the past decade the use of lightweight aggregates increased tremendously. Even in places still blessed by an ample supply of good stone, the one-third savings in weight made possible through the use of manufactured aggregates in long spans and tall buildings easily offsets the 25 per cent additional cost. Highway research also introduced air entraining agents to the mix, and these have been followed by a wide variety of other additives.

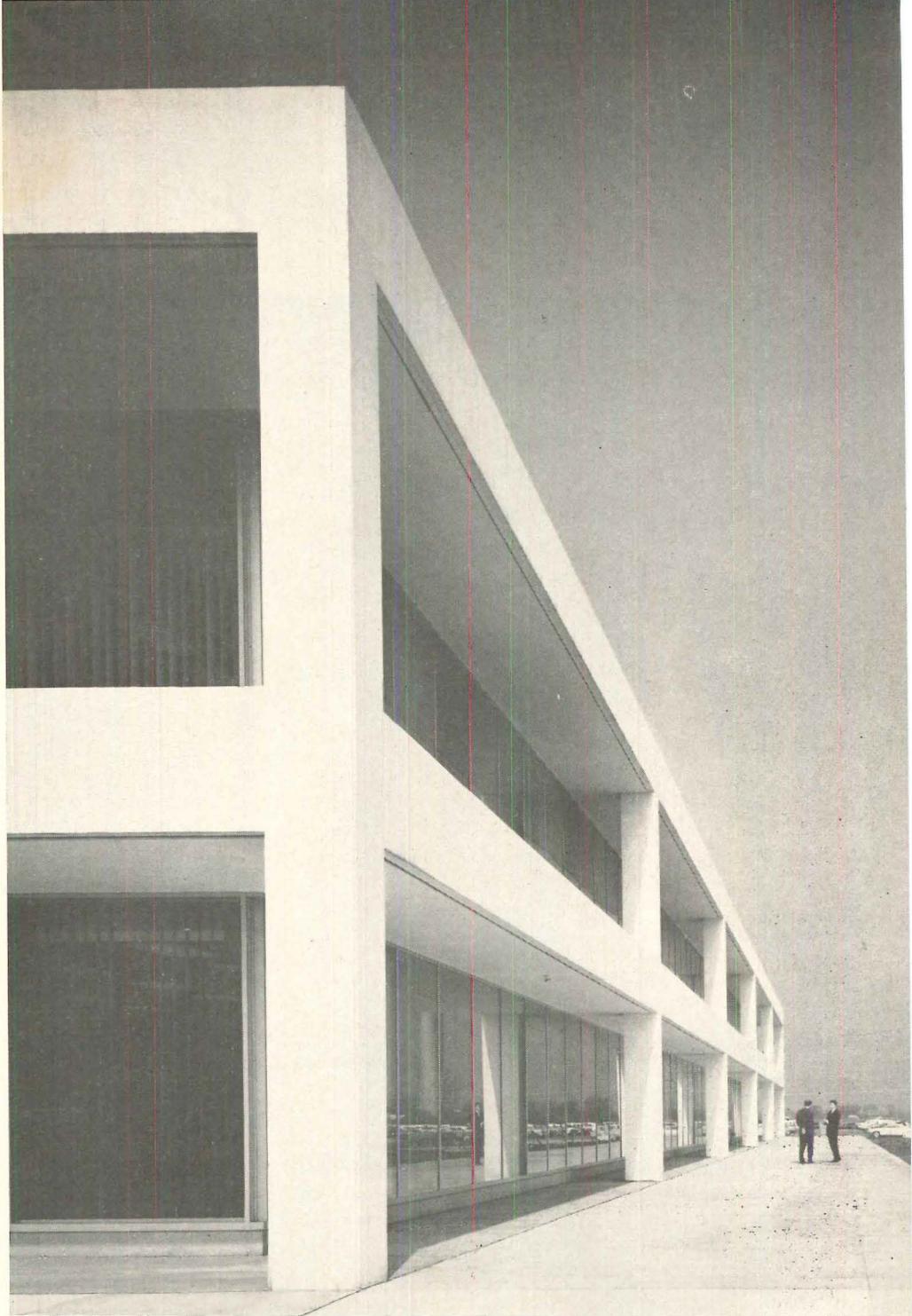
During the past 60 years, progress in concrete construction has been hindered by a time lag between theory and practice. Now the gap is being closed to within an irreducible minimum. The learning process goes on daily in the field, in the



4



5



6

plant, and at amazingly well-attended conferences (900 are expected at the Prestressed Concrete Institute convention this month, and another 1,000 will take part in the World Conference on Shell Structures in San Francisco in early October).

The enormous flexibility of concrete is an open invitation to trickery, and its successful use calls for a craftsmanlike care hard to find in this age of mass production.

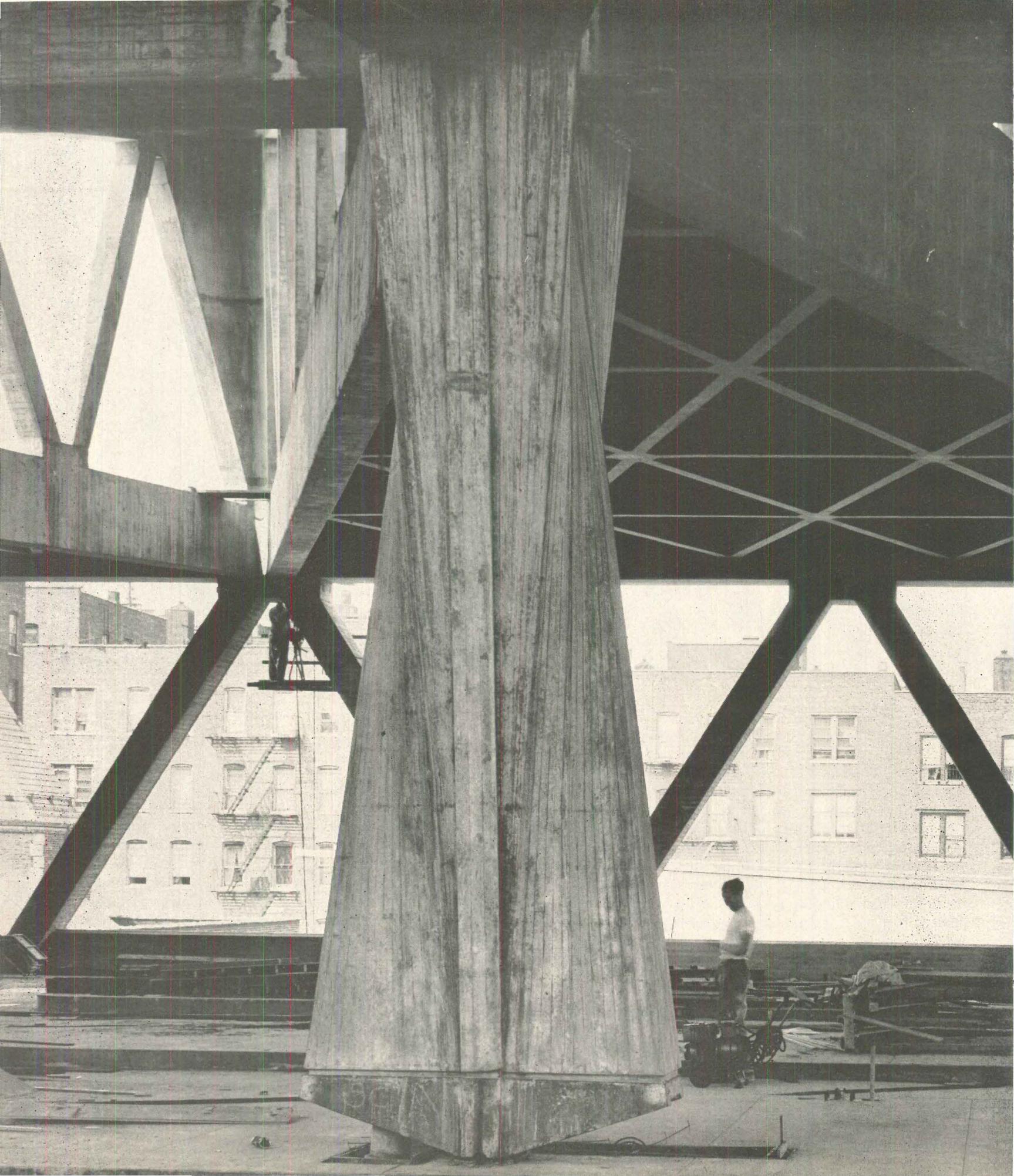
An understanding of concrete begins with the realization that it is more a process than a material—an intricate series of decisions and actions rather than a ready-made tool. From mix to finish, all decisions are design decisions and all actions remain the responsibility of the designer.

Generally, his first choice is between two broad alternatives: whether to pursue the possibility of form and continuity inherent in cast-in-place concrete, or the building-block logic and precise control of precasting. Relative costs of the two still vary widely with time and place, but inevitably the basic construction-and-design concept for the building

must control the final choice. Once this is made, the designer must seek the shapes and details which flow logically from the chosen method.

If this is a new age of concrete, it is an age of exploration, as the photographs above amply show. Out of this time must come convictions strong enough to give a sense of direction to the intense energies being devoted to a deeper understanding of concrete construction. The following 15 pages show how individual designers are seeking such convictions in the nature of the material itself.

1. *College Library, Ellensburg, Wash., Bassetti & Morse, Architects (Hugh Stratford—photo).* 2. *Commercial Credit Building, Philippine Is., Leandro V. Locsin & Associates, Architects.* 3. *Holyoke Center, Harvard University, Sert, Jackson & Gourley, Architects.* 4. *Parking Garage, New Haven, Paul Rudolph, Architect (Perron—photo).* 5. *American Cement Headquarters, Los Angeles, Daniel, Mann, Johnson & Mendenhall, Architects.* 6. *United Air Lines Offices, Chicago, Skidmore, Owings & Merrill, Architects (Hedrich-Blessing—photo).*



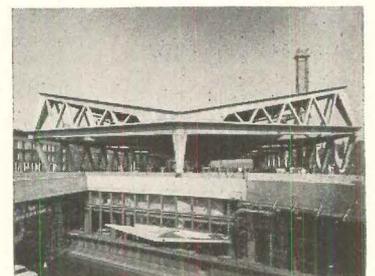
Nervi's new gateway to Manhattan is a cast-in-place trusswork of concrete, full of strong detail and fine surfaces.

Pier Luigi Nervi's first U.S. building, the Port of New York Authority's mammoth new bus terminal now nearing completion at the end of George Washington Bridge, will come as a surprise to the master's many admirers in this country.

For this is a building very different from his European work: a vigorous, jutting boldness of form has replaced the familiar lacy delicacy; and his favorite device, the closed shell, was obviated by the program requirement for a sweeping stream of natural ventilation through the loading platform. So Nervi turned instead to a trussed structure that seems an extension of the bridge itself.

Perhaps the most unexpected change—and one that shows how concrete technology is shaped by time and place—is that the structure is entirely cast in place. The 12 by 18-foot triangles that comprise the pie-shaped wings of the terminal roof were initially conceived as precast sections. After experimenting with the casting of the triangles and investigating transport and placement, however, the contractors found that it would cost less to cast the entire roof on the job. Nervi accepted their findings.

One Nervi trademark that does appear is in the top deck's six central columns (opposite). They rise 17½ feet in an ever-changing cross section shaped to provide maximum clear floor space for the



buses at the base and maximum bearing area for the four trusses which come together overhead. A single form was used for all six columns; it was made with thin boards lovingly tapered and fitted in a cabinet maker's shop.

Prior to this, the Port Authority had never used exposed concrete on a building. So Chief Engineer John M. Kyle Jr., who deserves

Before putting trust in exposed concrete, the Port of New York Authority tested many mixes and procedures.

the great credit for engaging Nervi for the terminal project, sent his staff out to make exacting inspections of other uses of structural concrete as architectural finish. They came back convinced that concrete would stand exposure to extremities of climate only if the surface were very hard and dense. Most important, there could be no small bubbles of moisture left to create unsightly pits.

The Authority's testing laboratory then launched an intensive research program. A total of 129 different concrete mixes were tried in the search for the ideal proportions and ingredients. The tests soon focused on the bubbles.

Globules of moisture that gather against the formwork or behind thin layers of cement leave surface pits when they evaporate. The Authority's materials engineer, M. E. Pitman, found that these bubbles are not caused by poor compaction of the material in the form, as was often suspected. Instead, in the two hours after the concrete is placed, the tiny beads of water force themselves to the surface through even the best-congregated mass.

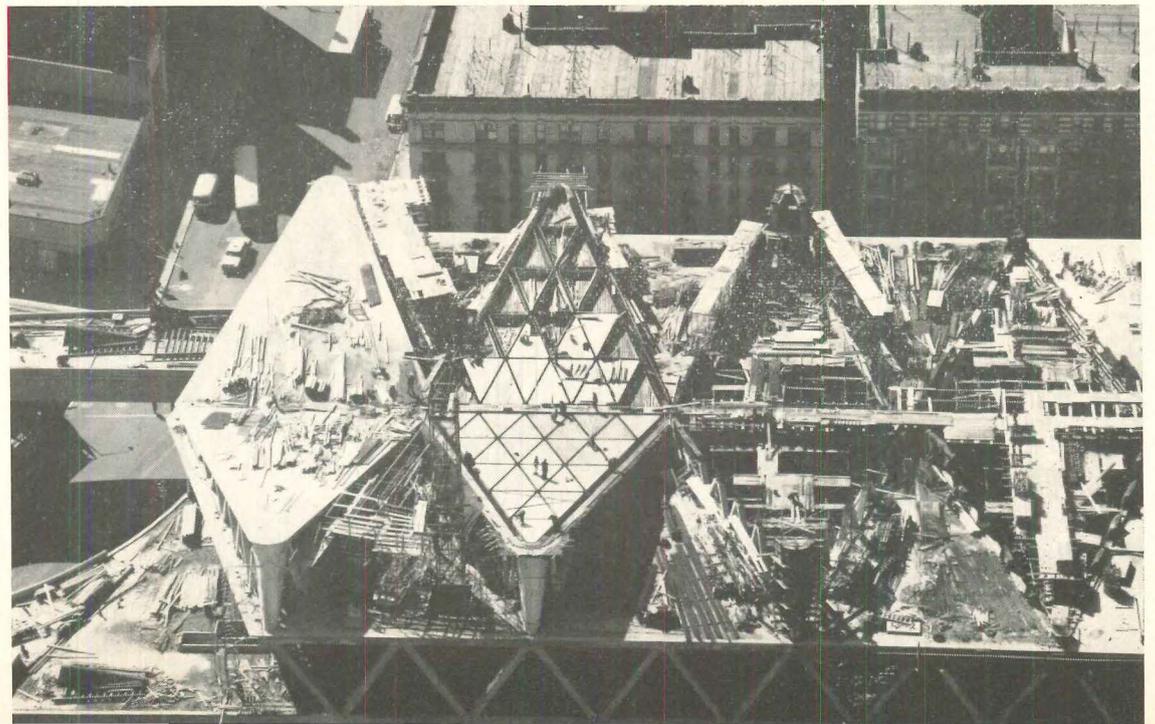
Pitman tried a variety of remedies (including addition of "Mr. Clean" to the mix). The final recipe for the concrete specified included air entraining agents; a rounded, well-graded pea gravel for large aggregate; a 40 per cent proportion of sand in the aggregate; a slump near four inches; a mix of seven bags of cement per yard, with only $5\frac{3}{4}$ gallons of water per bag; and filling forms completely before vibration.

Casting was completed last month (see opposite page), and the resulting surfaces are spectacular in quality. Partly this was due to the research, and partly to the fact that Kyle had specially trained inspectors on the job, at the mixing plant, and even at the cement plant. By happy accident most of the workmen were of Italian origin; they were inspired by two visits Nervi made to the site. The 72-year-old master climbed the scaffolds with amazing agility. "Bene, benissimo," he said, smiling broadly at their work. "It couldn't be better."

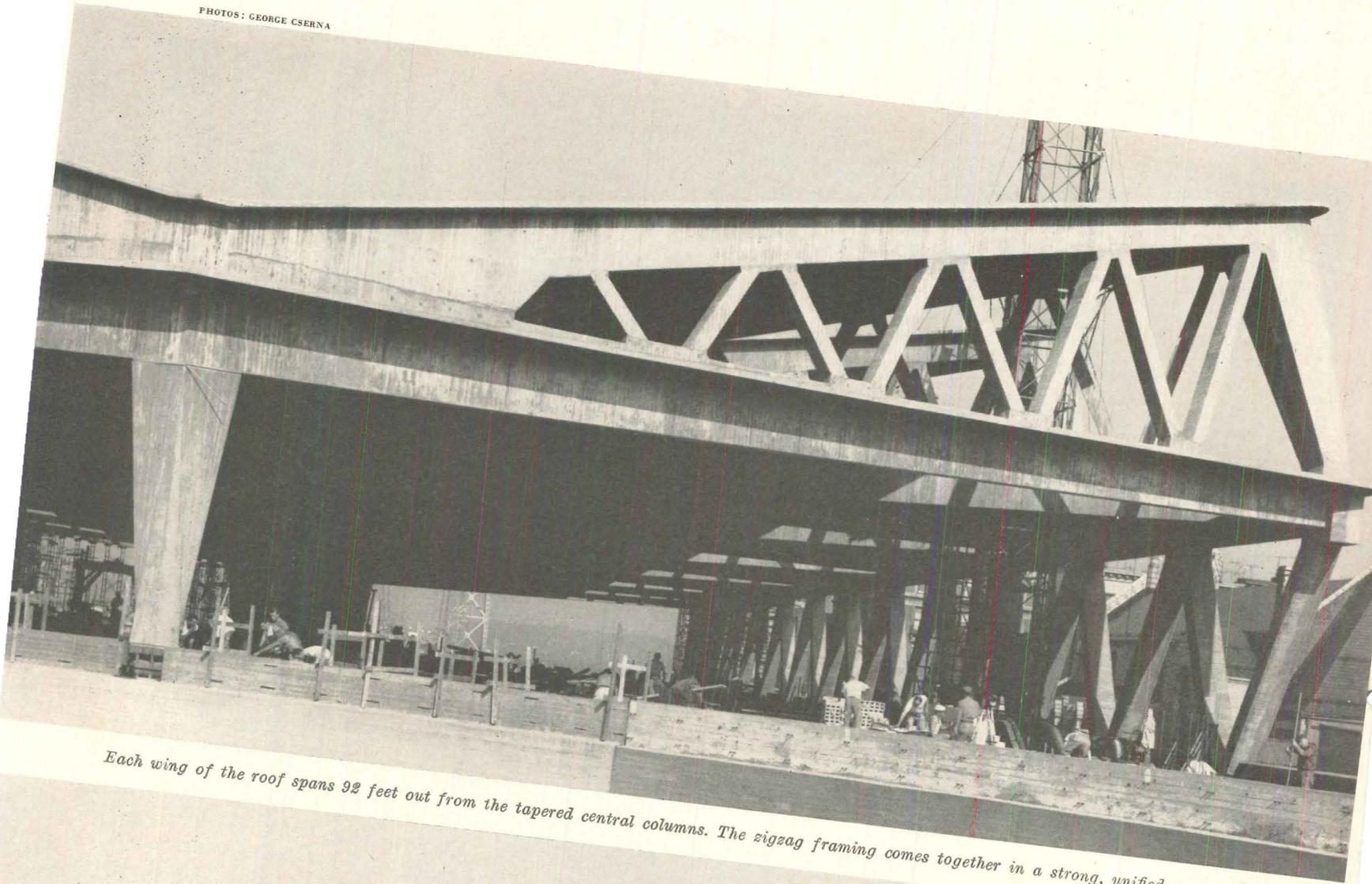
PHOTOS: COURTESY THE PORT OF NEW YORK AUTHORITY



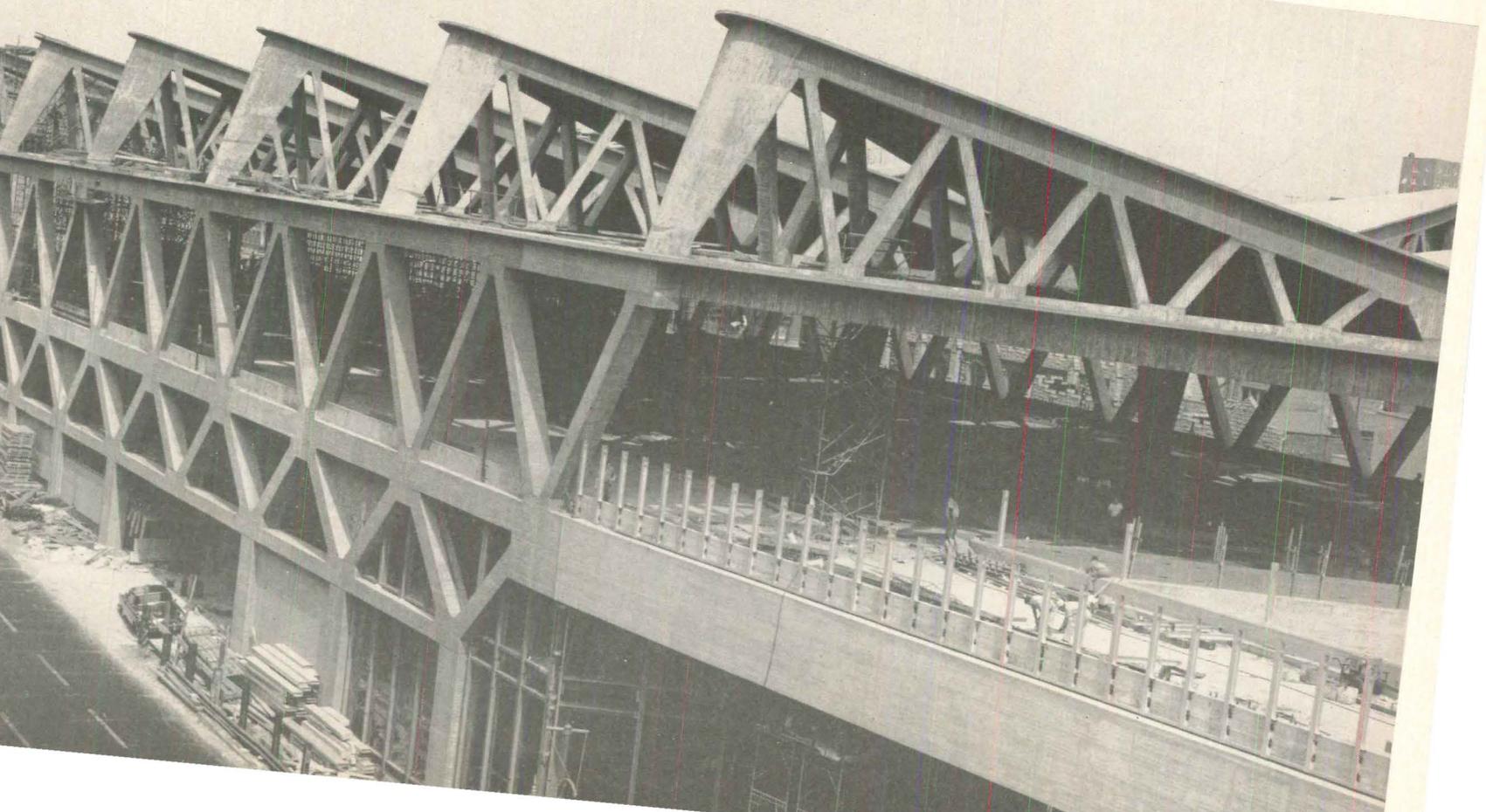
The terminal grows organically from the bridge. Early photo below shows casting of roof sections.

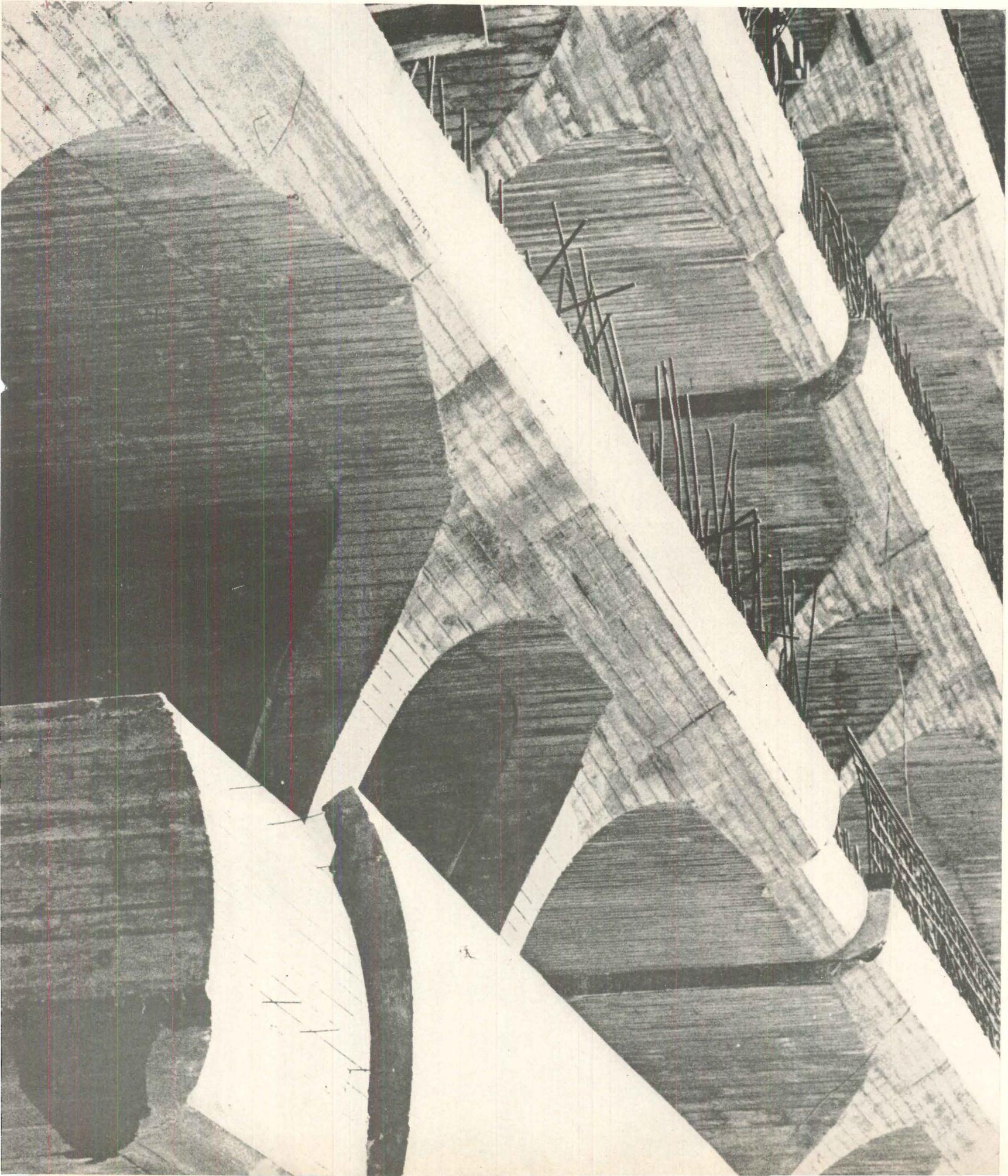


PHOTOS: GEORGE CSERNA



Each wing of the roof spans 92 feet out from the tapered central columns. The zigzag framing comes together in a strong, unified composition.





Rudolph employs special formwork to produce rugged textures that add depth and scale to concrete surfaces.

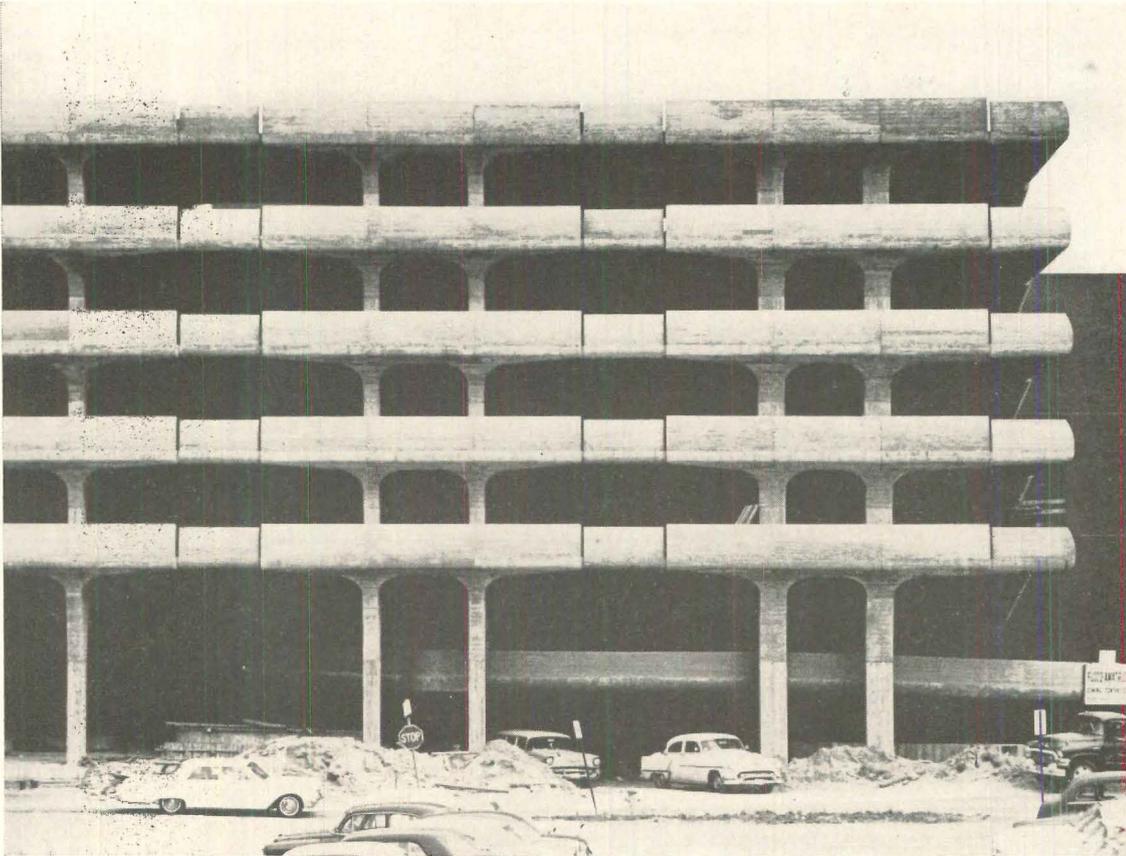
No phase of the process of concrete has more impact on the building's final appearance than formwork. Design of the forms, the precision with which they can be built, and the technique of placement all must be closely investigated by the architect who wants to design in the spirit of the material.

He must be familiar with the new forming materials—plastic, steel, coated plywoods—and the distinct design expression that flows naturally from use of each. Will he have just a few forms built and reuse them? Can placement and vibration be done carefully enough to prevent surface defects, or should irregularities be accepted as unavoidable and hidden in a rough texture? Should the formwork be so carefully crafted that it creates the final surface, or should it be built in a less costly way and the savings spent on a surface treatment?

In a pair of recent projects, Architect Paul Rudolph has used his forms as a primary design tool. He regards concrete as an essentially continuous and rough material, and believes that both characteristics should be expressed. He does so with considerable frankness in the city of New Haven parking garage (opposite and top, left), a building that is soft in shape and hard in surface. Here plain board forms emphasize the structure's two-dimensional curves, impart a bristling texture, and in Rudolph's view, establish the desired scale for this kind of construction.

But the pockmarked, striated walls of Rudolph's Arts and Architecture building at Yale (left), just beginning to rise, make the garage look almost smooth by comparison. Under a patented process, the forms are standard plywood panels bearing parallel wood strips of a truncated triangular cross section. Within 20 hours after the low-slump concrete is placed (the timing is critical), the protruding fins left by the vertical strips are knocked off with claw hammers, exposing the large aggregate. The irregular surface is then wire brushed, and the form re-used down the line.

ROBERT FERRON



Boards striped the curves of the New Haven garage. Below, slotted forms lean against the Yale walls.

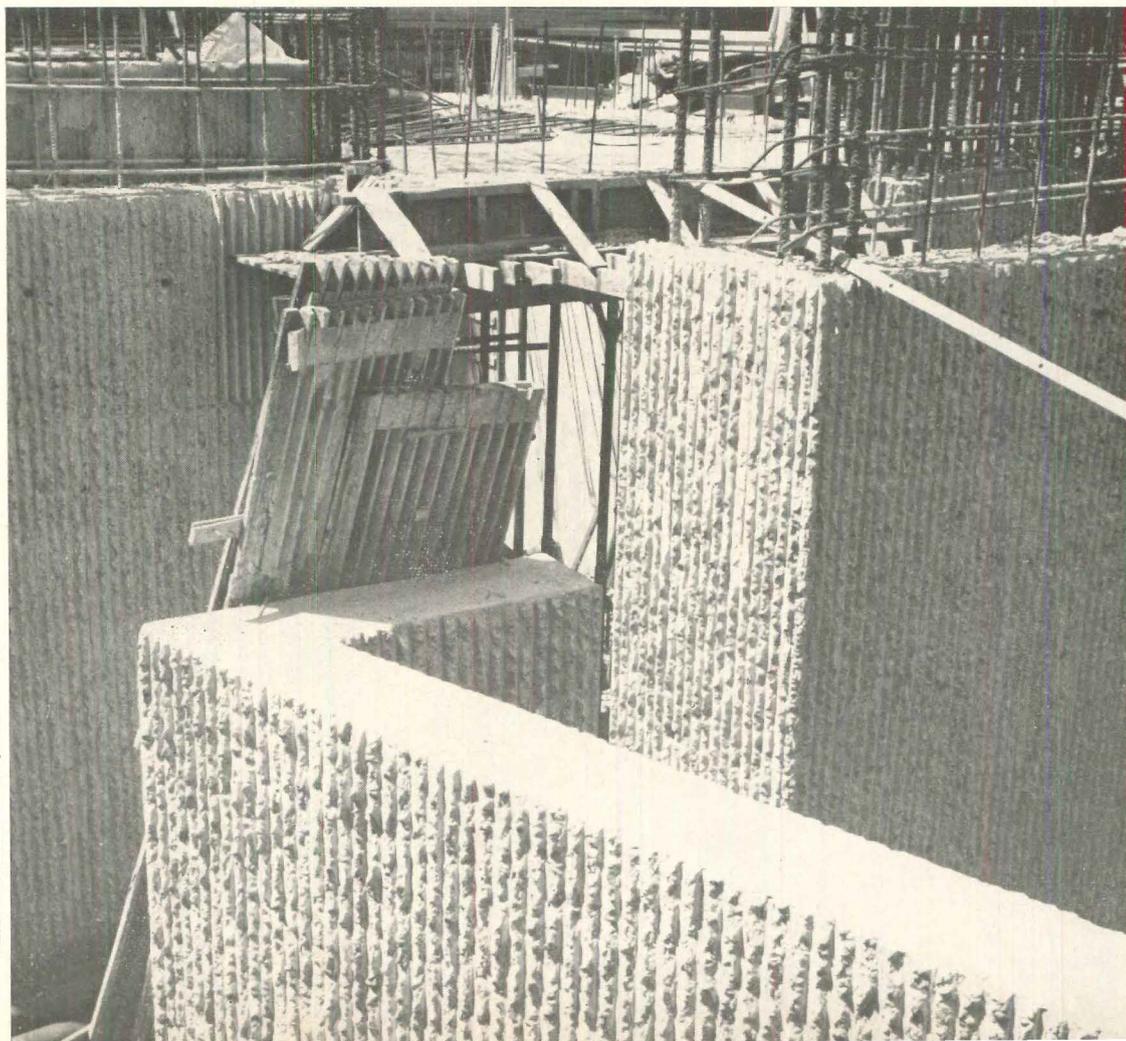


PHOTO OPP.: ROBERT FERRON; RIGHT: DER SCOTT

Several architects have used precast concrete for a variety of curtain walls that offer bold texture and solidity.

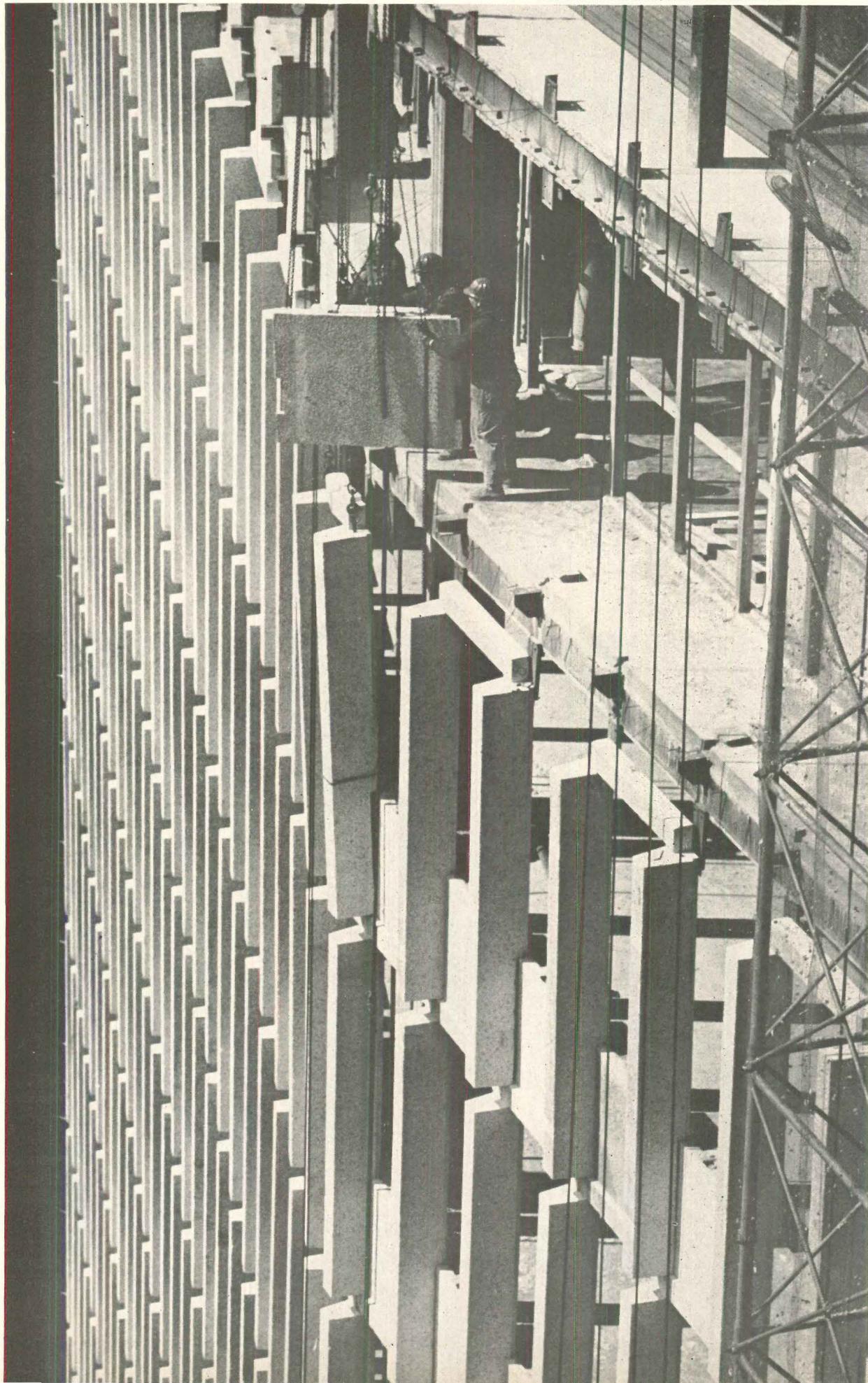
In mid-town Manhattan, the last of 9,000 precast concrete panels are being hoisted to top floors of the Pan American Building (right). In Houston, 2,300 precast frames are being placed across the broad face of the Jefferson Building (below). All across America, precast curtain walls are bringing new spots of brightness to the skyline.

In part, their sudden popularity is due to the same esthetic reasons that have turned architects to other uses of concrete—a desire for visual solidity and texture. But there are other, deeper reasons as well.

Cost of precast concrete curtain wall has been brought down to the point where it is competitive. Precast panels easily meet code requirements for fire resistance, can be prefinished inside as well as out. The surface absorbs some moisture, relieving pressure on the joints. Shipping the panels is no longer a major problem. Big new cranes allow erection directly from the truck without rehandling.

The handling process, in fact, often puts more stress on precast wall panels than they will ever feel after erection. They are far stronger than their ultimate use demands, prompting some designers of curtain walls to switch to using precast pieces as load-bearing elements. In short, we may be coming full circle—from bearing wall to curtain wall and back.

ARCHITECT: EMERY ROTH; PHOTO: J. ALEX LANGLEY



ARCHITECTS: WELTON BECKETT & ASSOC.; PHOTO: LOU WIT

Others are pursuing the great potential in precast units for integrating structure, enclosure, and services.

The adjoining photos show samples of the wide range of structural shapes that are today coming from the precasting plants. These shapes demonstrate that designers are beginning to bring precast members out from behind the skin and make them the building form.

Precasting is the industrialization of the concrete process, a partial realization of the ancient dream of the philosophers of building to move work from the job site to the factory. But it remains a far cry from the economy and efficiency of large-scale U.S. mass production.

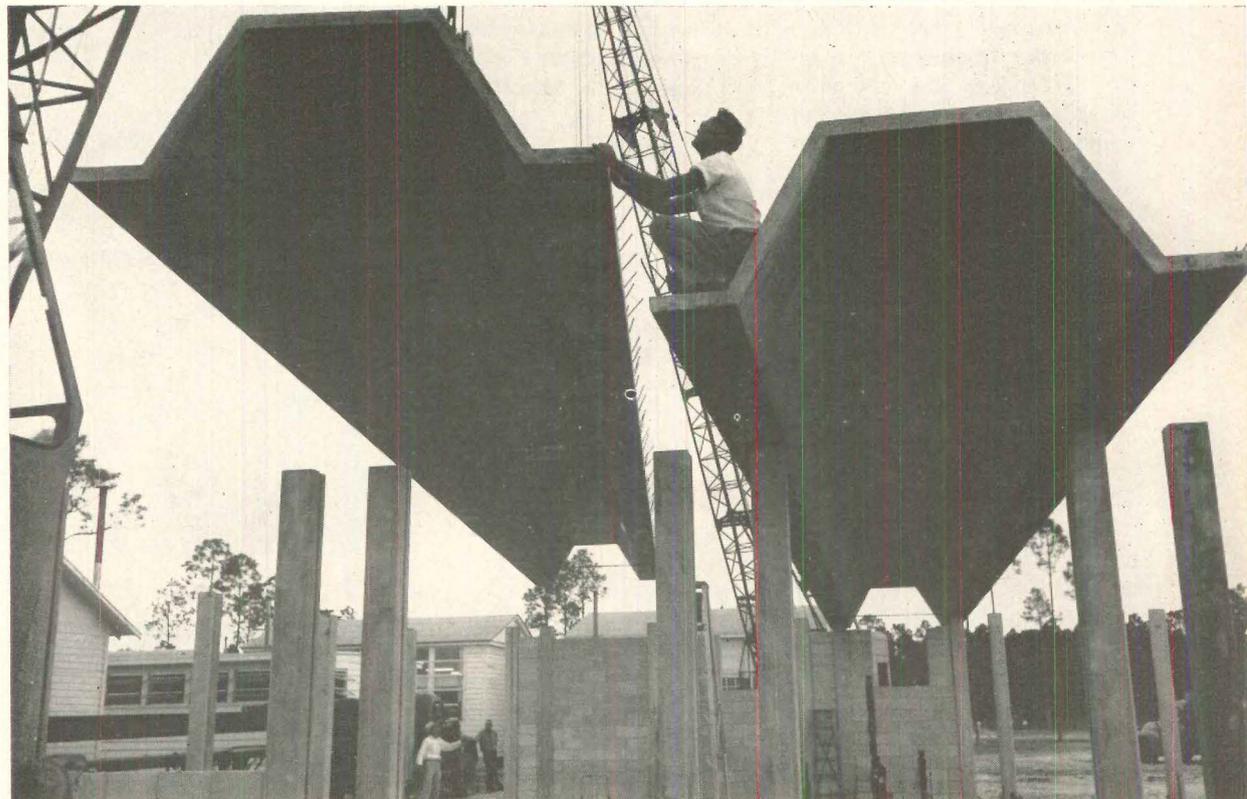
Typically, the precaster's plant is a small one and his trade is in tailor-made shapes. The upshot is that the total cost of research, development, and design—and above all the premium price of crafting special forms—must be charged to a single project. Obviously the unit cost could be sharply cut if the producer were able to sell standard items out of stock, but he is loath to make them without evidence that they will find acceptance among designers. For his part, the designer is unwilling to give up his flexibility.

The result is a stalemate that must be broken if precast concrete is to keep up its headlong progress. There are two possible answers: to put an all-out push behind standardization, or to accept custom shapes as a fact of life and develop machines to make them cheaper. It's time that both designer and producer got together on which to follow.

But an even more pressing challenge lies in further development of the opportunities in the fantastic precision of precasting. The kind of refined members that precasting can turn out are eminently worthy of expression; in precast concrete, the distinction between skin and bones no longer makes much sense. Moreover, the process is precise enough to permit the further step of integrating mechanical services.

On the following pages is a report of how some designers and producers are pursuing these directions to move precast concrete toward maturity.

ARCHITECT: ROBERT BROWNE; PHOTO: JACK HOLMES

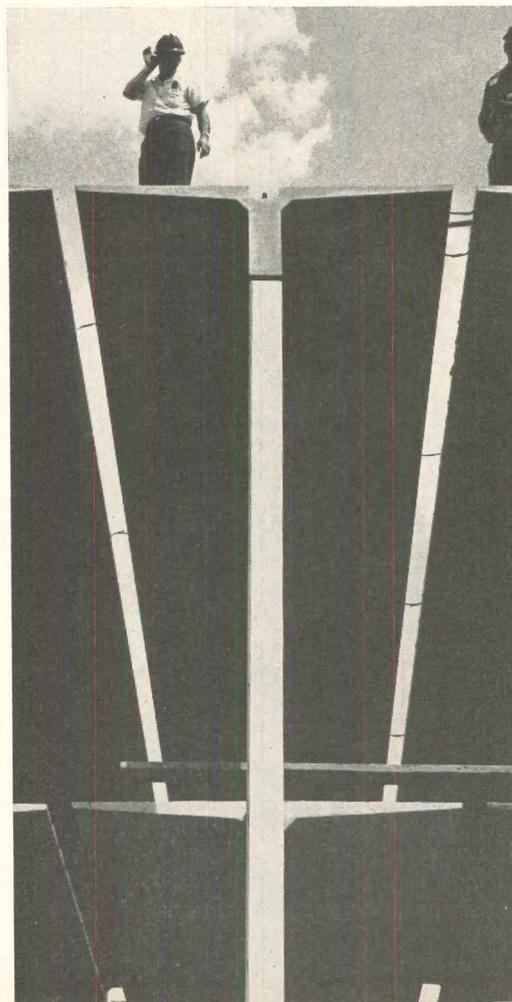


Today the shape of a precast concrete structural member is limited only by the designer's imagination.

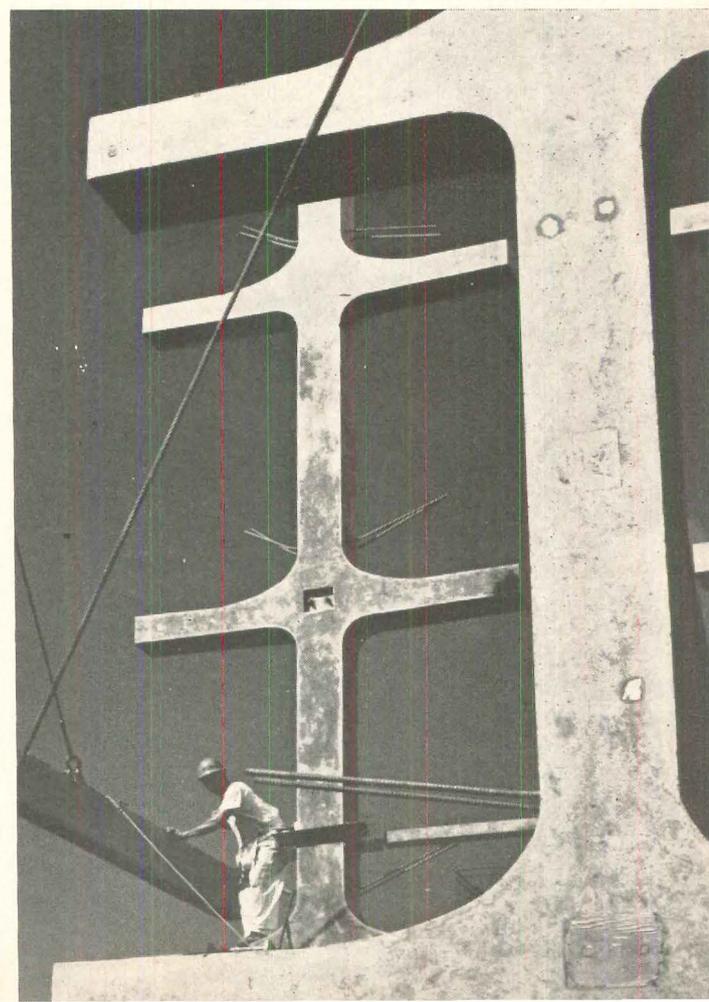
Above, blunt-nosed folded plates for a Florida school. Below left, clean and classic T beams for a

Connecticut office building. Below right, exotic column trees for an apartment house in Hawaii.

ARCHITECTS: CAPRONI ASSOC.; PHOTO: ROBERT STAHRMAN



ARCHITECTS: MORSE & TATOM; PHOTO: BEN RENADA



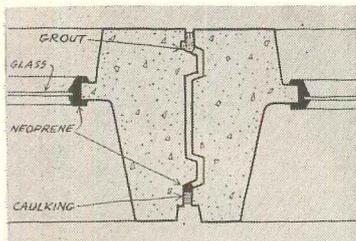
**SOM's Banque Lambert
in Brussels uses cross-
shaped units of Schok-
beton to form a grille
of columns and beams.**

With the Belgian bank building shown at right, the Schokbeton process has completed a round trip to the U.S. and back to its home territory. It has picked up a steadily increasing number of admirers along the way.

Schokbeton arrived in the U.S. in 1959, just 27 years after it was discovered by a man pushing a wheelbarrow over a bumpy road in Holland. In principle it is uncomplicated: A very stiff mix (zero to half-inch slump) is compacted into the forms by giving it a sharp jolt at the rate of 250 times a minute. Yet the material thus produced has such unusual properties that its full potential can only be realized through a thorough re-examination of many of the old limitations on concrete design.

In most of its first uses in this country, Schokbeton was chosen for what might be termed its fringe benefits. One is that it produces exceptionally dense water-tight surfaces with ease and unerring certainty. Also, it is capable of reaching very high 28-day compressive strengths. Specifications generally call for a 6,000-pound compressive strength for a 6-inch test cylinder, but Schokbeton could probably double that if asked to.

But the qualities of Schokbeton



that could mean the most to the designer are only beginning to be plumbed in actual practice. The most challenging of them derives from the fact that Schokbeton sections can be cast in dimensions up to 12 by 40 feet. Their sheer size is a logistical challenge, but allows economies of production that can balance the extra shipping and handling costs. The minimum content of cement allows a tolerance range from plus zero inches to minus 3/32 of an inch. And within these wall-size building blocks, the architect has close control of line and detail.

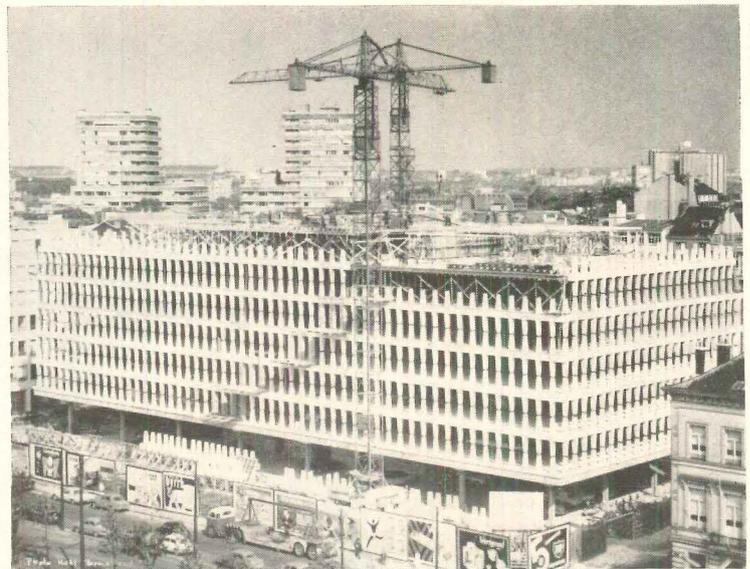
Reinforced sections of Schok-

beton can be shaved down to as little as two inches in thickness (the Dutch have gone so far as to use these thin sections for glazing bars). Projections not requiring reinforcement can be even more delicately detailed, just so long as a one-in-five slope is held on surfaces from which the formwork must be stripped.

Beyond the opportunities for crisp articulation of form, the refinement of shape possible with Schokbeton opens up new ways of looking at the critical design problem of detailing joints. Use of window frames between the concrete wall and its glazing can be totally eliminated by casting in a projecting lug around the openings; it is then fitted directly with a gasket to support the glass (see drawing). Simple tongue and groove joints lined with a strip of gasketing offer a much more secure barrier to weather than the more complex details required when panels are simply butted.

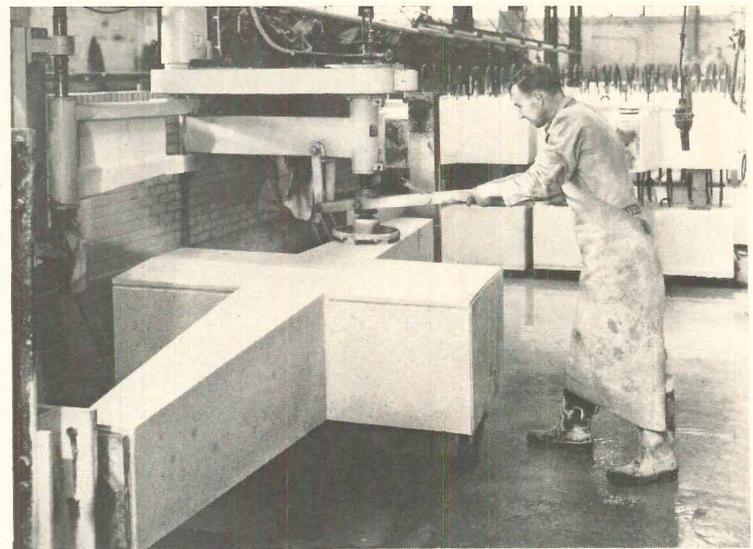
Schokbeton was brought to the U.S. by George J. Santry, an international trade expert who had been impressed by its use in rehabilitating war-torn Dutch cities and subsequently spent several years there working with the parent company. After a brief period of market testing (during which Santry excited the interest of such architects as Yamasaki and Belluschi) and a search for qualified franchisers, the first two U.S. Schokbeton plants went into operation, one near New York and, last year, a second near Chicago. From the start they have been busily producing parts for major buildings. This fall others will open in Pittsburgh, Miami, and Montreal.

One of the most impressive uses of Schokbeton by an American firm, however, is taking place back in Brussels. The structural grid of Banque Lambert, designed in the New York office of Skidmore, Owings & Merrill, is composed of cross-shaped Schokbeton units joined by a jewel-like stainless-steel connector at a point halfway between the floors and ceilings. The crosses were lovingly honed to a granite-like finish at Schokbeton's Rotterdam plant.

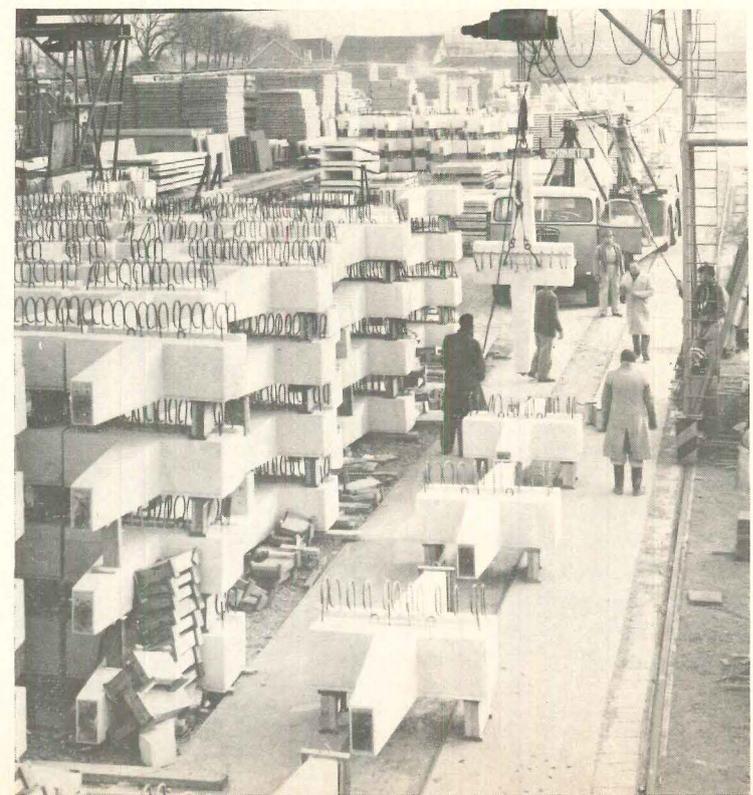


CH. HULEY

The crosses of Banque Lambert: erection, manufacture, and storage.



DU PARANT



DU PARANT

Chicago manufacturer shows how producers can advance the technology of prestressed structural concrete.

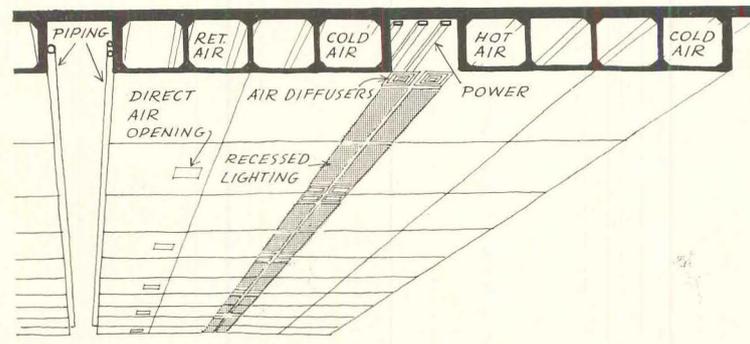
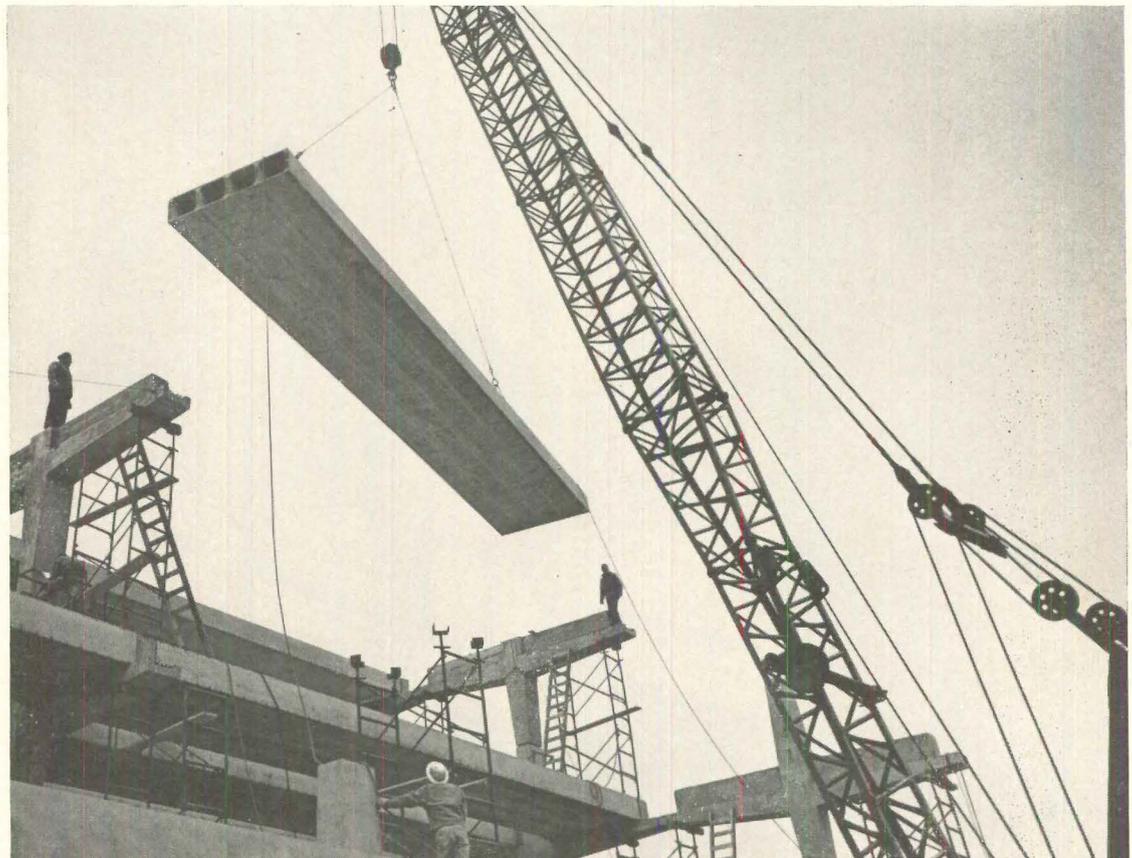
It takes extensive research to develop the tools to make the most of the break-through in concrete technology, and it takes real money for research. In many areas, producers of concrete ingredients and components simply cannot afford the cash, so advances occur at a snail's pace.

Elsewhere, however, well-capitalized companies are acting as prime movers of rapid progress. One such is Material Service Corp., since 1960 a part of General Dynamics. Bulwarked by gross annual sales well over \$100 million, Material Service has spent the last decade bringing a highly advanced technology to the six-state area around Chicago.

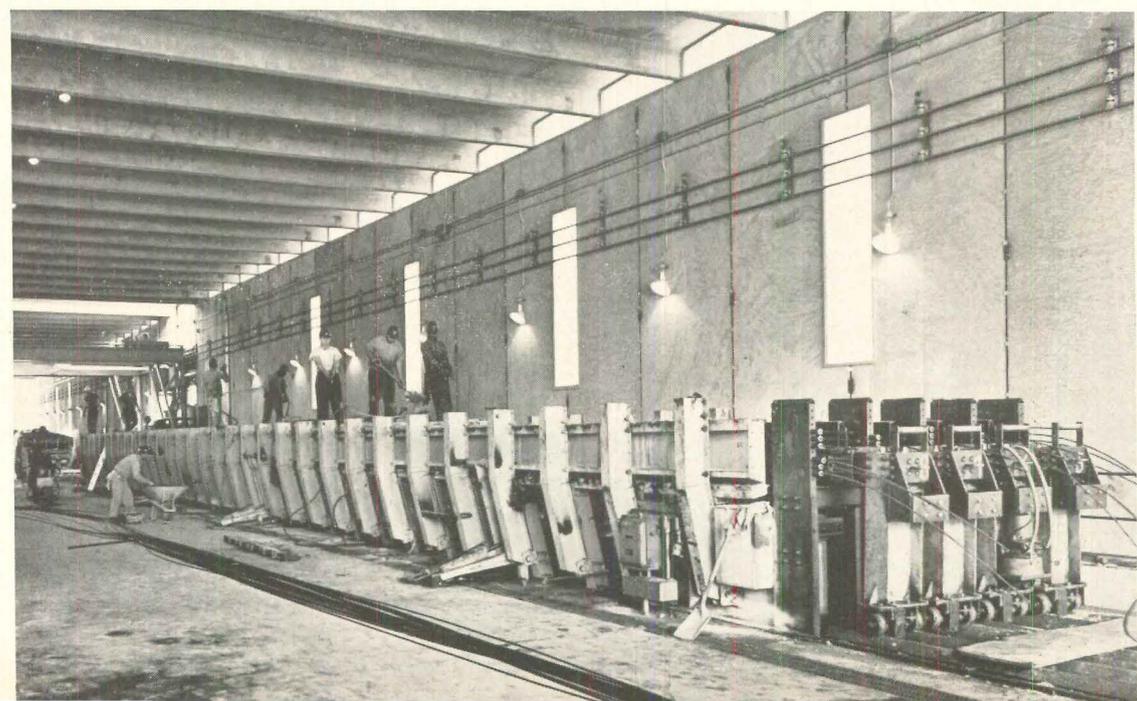
In the mid-1950s, the company began an intensive geological search for a shale deposit which would yield a superior lightweight aggregate. It found the stone, then built a plant in Ottawa, Ill. The plant is automatic to the point of functioning like a single, giant machine. The resulting aggregate would delight the most meticulous designer—smooth, round, and watertight.

But the company's most spectacular contribution is its deceptively simple-looking precast, prestressed cored slab. The 8-foot-wide slabs eventually will be made in depths ranging from 8 inches to a 24-inch unit spanning up to 100 feet. They are detailed like a series of connected I beams, using concrete near its ultimate efficiency. The 1-inch thickness of the top and bottom flange areas is made possible by use of a casting bed that allows 0.183-inch-thick wires to be stretched transversely as well as lengthwise.

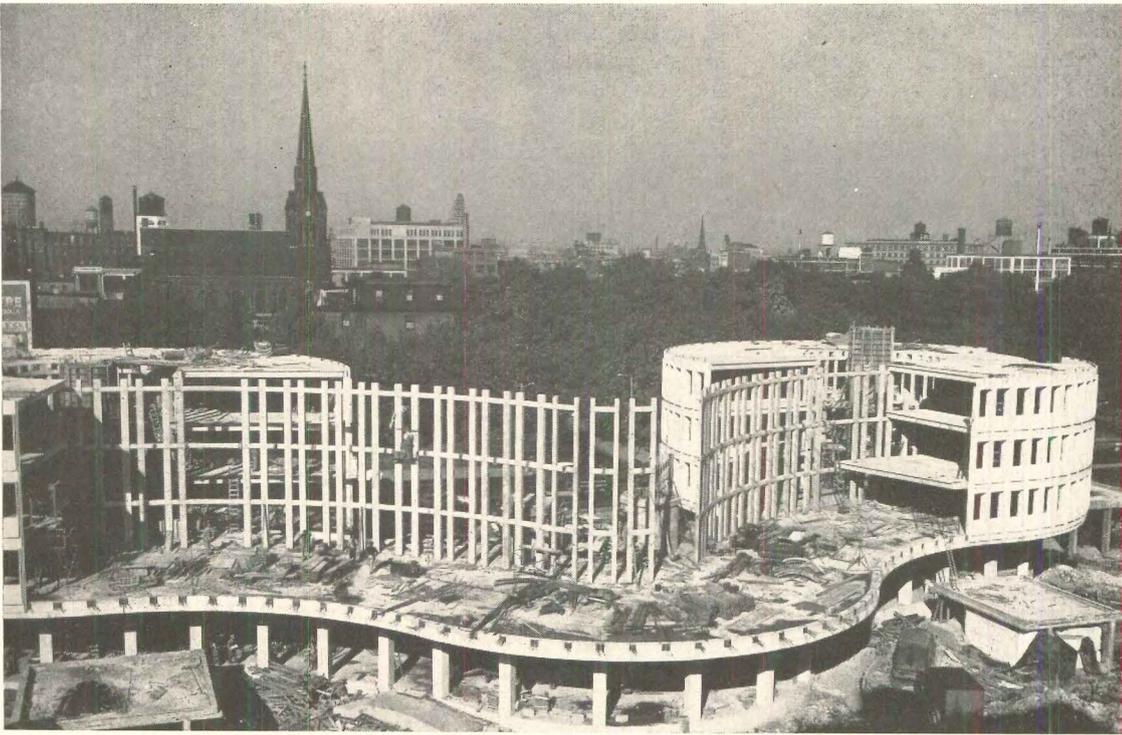
Some 100,000 square feet of the cored slabs are being used in the extension of Evergreen Plaza shopping center in suburban Chicago. SOM's Chicago office, the architects for Evergreen Plaza, made full-scale load tests to see how the 20-inch-thick slab would stand up under the 100-pound-per-square-foot design loading over 49½-foot spans. It took the first 100 pounds easily—then went on to support an additional 300 before collapsing when deflection reached an astounding 23 inches.



Above, a crane lifts one of Evergreen Plaza's cored slabs into place. Twenty inches deep, they span 49½ feet. Left, Material Service's next development: a completely integrated building system based on its prestressed members. Air handling, piping, wiring, and recessed lights all are accommodated within the structure. Below, giant casting machine can produce beams up to 100 feet long.







Assembly of the superstructure went from both ends to middle. Cantilever below bears the crucial steel strands.



Philadelphia architects develop a precast concrete system of 2,000 load-bearing units that do three separate jobs.

In Philadelphia's new Police Administration Building, Architects Geddes, Brecher, Qualls, & Cunningham have drawn a curvilinear form from a process normally associated with a prismatic approach to design. Moreover, they made each of the 2,000 pieces of precast concrete work hard for them as major structural elements and matrices for the mechanical systems.

The lone portion of the superstructure cast in place was the latticework of columns at the building's core (see photo at left). This went up first, creating a permanent scaffolding used as the corridor wall. It serves as inner support for the deep-ribbed, wedge-shaped floor panels, each of which spans 32 feet.

It is the outer wall, however, that most clearly shows just how much freedom and structural interdependence can be extracted from precast units. The three-story window sections (opposite page) actually carry the lion's share of the loads from the two upper floors and roof; they are taken on vertical ribs which are



formed to leave space for the air-conditioning system's pipes and ducts. The integral window spandrel acts as a web.

The tall panels rest on the ends of precast sections cantilevered 12 feet from a line of columns at ground level (left). Strands of high-tensile post-tensioning steel knitting the overhang into the body of the first-floor slab actually hold the building together.

All panels exposed to the weather were given the Schokbeton treatment (see page 92). Those exposed to exterior view are of a distinguished mix of white cement, white sand from Maryland, and white quartz from Georgia. It cost six times as much as the gray concrete used for the coffered floor slabs.

But, in the end, the one question asked by all is: how will concrete look after 30 years? Here are 10 empirical answers.



HENRY MILLON

Roman ruins, like those above, give mute evidence after 18 centuries that concrete can be made to stand the test of time and weather. Unhappily, some later experiments in the U.S., after the turn of the century, proved less convincing: there were so many conspicuous failures of surface that most architects and engineers were certain it was folly to bare concrete to the elements.

But these experiments also produced some surfaces which somehow stayed sound as time passed. A few hardy scientists and engineers were intrigued, and over a period of 30 years assembled bits and pieces of information about the durability of exposed concrete. There was little evidence of how the occasionally brilliant results were achieved. So the investigators had to concentrate on what not to do, painstakingly examining specimens of deteriorating concrete to isolate the exact source of every type of failure.

Their findings add up to a reliable body of highly empirical rules for making concrete that can be depended upon to last through the useful life of the building. They can be summarized as follows:

1. Cement content of the mix has to be kept within fairly narrow limits. Too little will leave particles of aggregate unbonded to

the mass; too much will produce a concrete which shrinks and swells with changes in the weather.

2. Pure, well-graded aggregates must be used. The cement paste holds up best if it is reduced to a thin film surrounding a dense, completely interlocked mass of stone and sand—the kind of mass that can only result from just the right percentage of each size of aggregate. Unsuspected impurities in the aggregate can result in small, delayed-action explosions; it is vital to know the pedigree of the quarry.

3. Probably the single, most powerful influence on durability, as it is on strength, is the water-cement ratio. It is also the most troublesome. To make the mix workable, far more water must be used than is required for the hydration process which hardens the cement. The excess water evaporates, eventually leaving pores. If the water content is increased too greatly, the pore structure grows large enough to leave the surface vulnerable to attack.

4. Job-site conflicts over the water-cement ratio have raged for years. Today they can at last be simply resolved by introduction of air entraining agents. A few ounces in a truckload of concrete is enough to create some 500 billion tiny bubbles per cubic yard, amounting to 3 to 6 per cent of the total volume. Unlike the pores caused by excess water, these bubbles act as safety valves to relieve the hydraulic pressures developed in the microstructure of the concrete when moisture penetrates, freezes, and thaws.

5. Mechanical vibrators have done much to insure proper compaction of the mass in the forms, but timing has to be just right. Vibration after the concrete has begun to set can be ruinous.

6. Careful curing is indispensable. The clear summer days that seem so ideal for casting concrete in the field have their drawbacks. Water evaporates rapidly from the surface of newly cast sections left unprotected, and the top layer is parched for even the small amount of moisture needed to complete the set. The surface will look fine at first, but after a

few springs and winters it will suddenly disintegrate. In cold weather, of course, the same thing can happen if the freshly cast concrete sits unprotected and the water is allowed to freeze.

7. Spears of rusty reinforcing poking through an old concrete surface are a depressingly familiar sight. Here there are no magic remedies; only conscientious attention by both the designer and the men who place the bars and cast the concrete will prevent this from happening.

8. Prestressing, in addition to its structural contributions, can serve to keep cracks closed on exposed precast sections.

9. Much of the pressure for exacting control of workmanship can be eased by use of one of the many protective surface coatings now available. But careful investigation of the coating's performance is essential.

10. Finally, the designer must keep constantly in mind that concrete structures are always in motion. He must create smooth transitions of shape and relieving joints if the building is not to be broken up by its own internal stresses, meeting the dismal fate of the one below.

Laboratory tests have shown that concrete continues to harden almost indefinitely, gaining strength and durability. (Some test cylinders are found to be 50 per cent stronger after ten years than in their 28-day tests.) If concrete is protected from deterioration in its infancy, it will be able to take care of itself later in life.



A. D. DIJKSMA

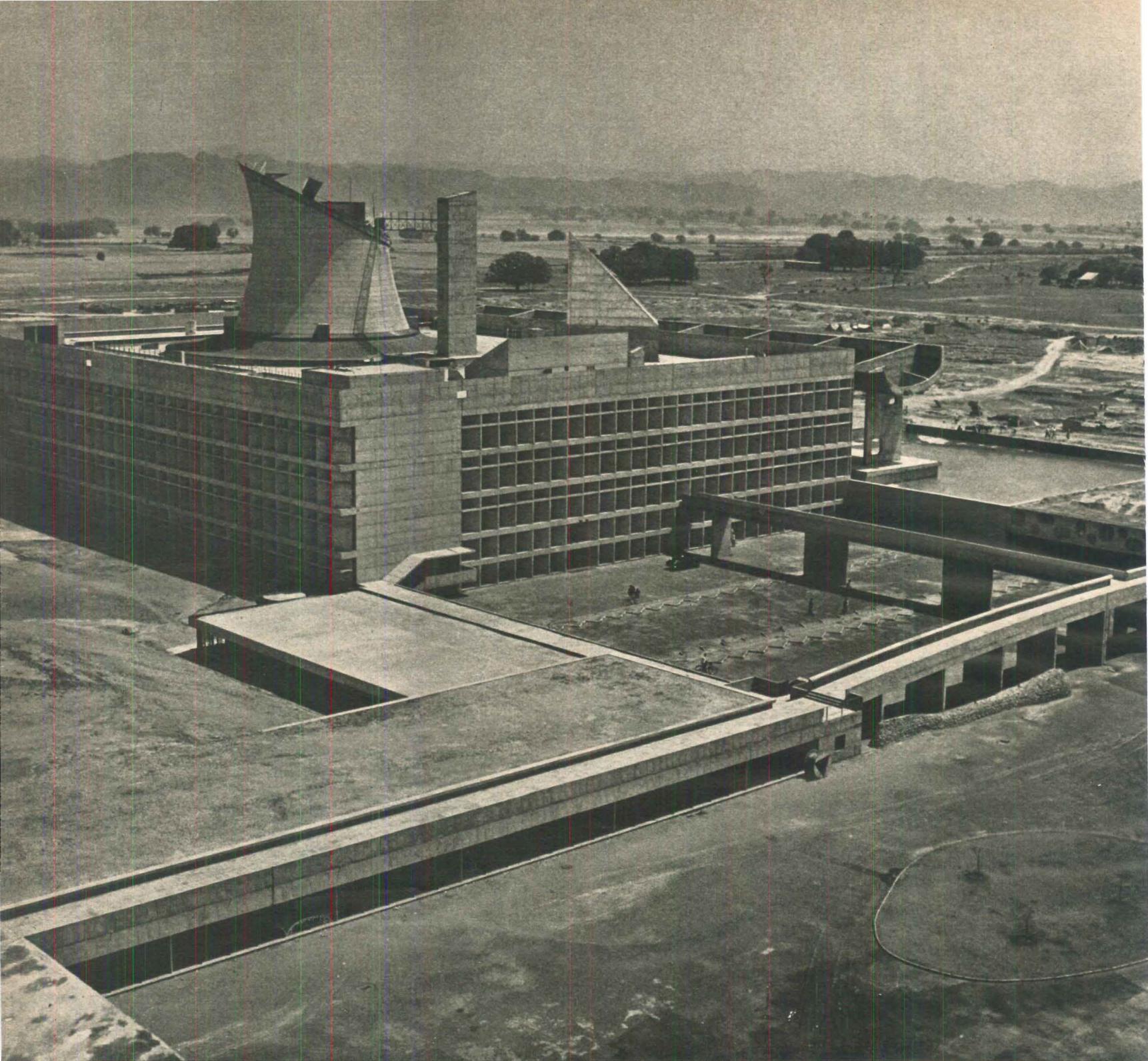


LE CORBUSIER'S NEW MASTERPIECE IN CONCRETE

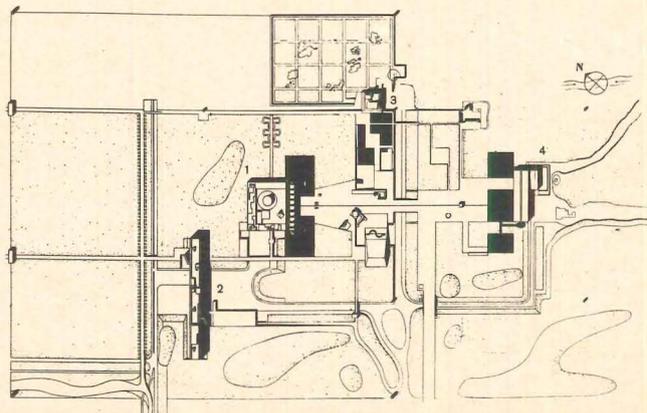
The great concrete parasol shown above shades the 300-foot-long, 50-foot-high entrance portico to the new Assembly Building at Chandigarh, capital of the Punjab. The Assembly is Le Corbusier's third major structure completed at the core of the new Indian city (the first two were the Palace of Justice and the Secretariat—FORUM, April '61). The Assembly is also quite possibly his best.

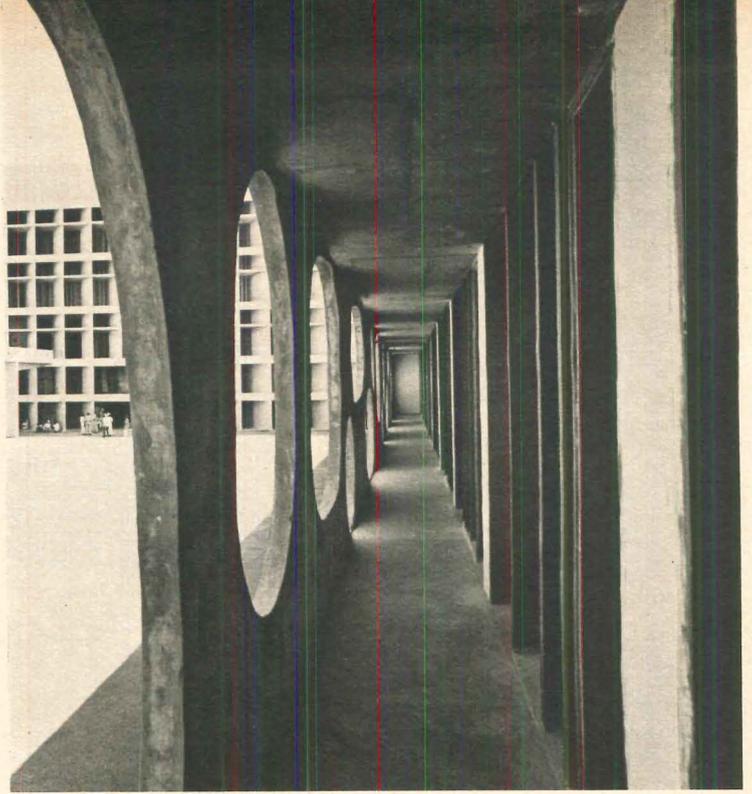
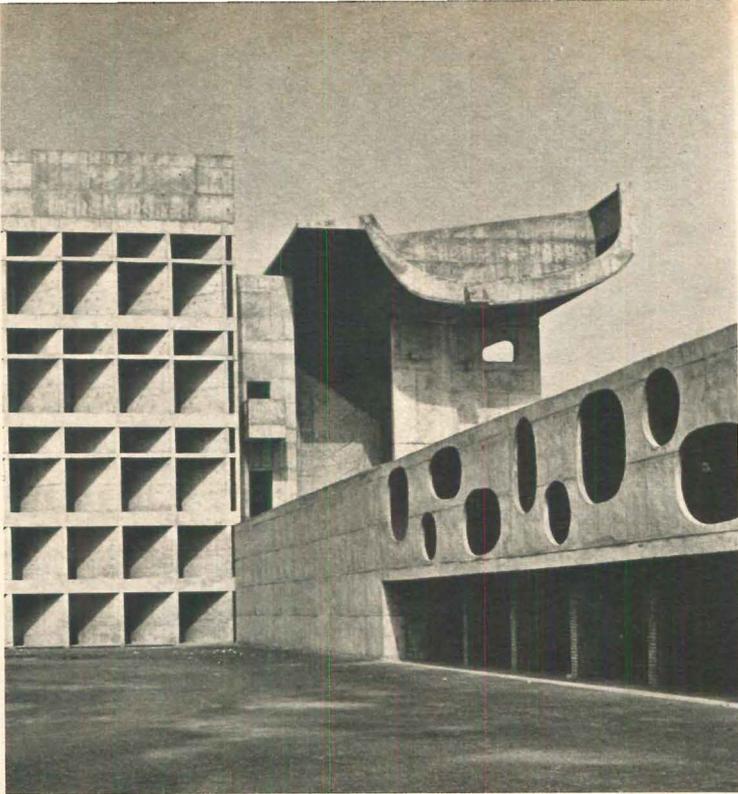
It is not really a single building at all: it is, instead, a framework into which the architect has placed forms and spaces so complex that no plans can do them justice.

To the south, facing the Palace of Justice a quarter of a mile away, is the huge ceremonial portico. Behind this portico is a kind of walled city: the walls are honeycombed with offices and galleries on three or four levels, and these galleries overlook a great interior court, about 200 feet square, which Le Corbusier calls "the forum." Within this forum, he has placed the two most important elements of the building: the Assembly Chamber—a hyperbolic form that penetrates the roof—and the smaller Council Chamber, which is topped by a pyramidal concrete-and-glass skylight.

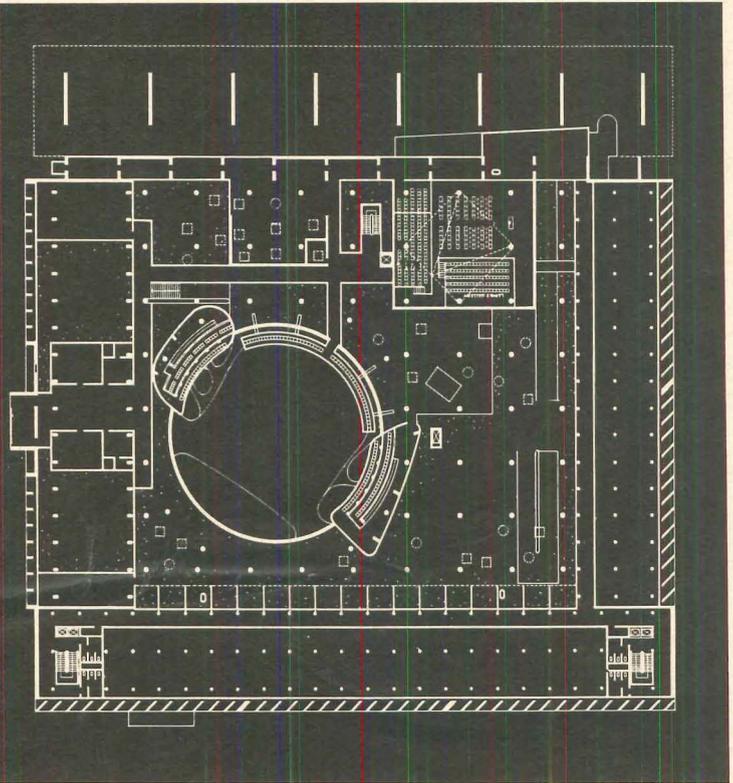
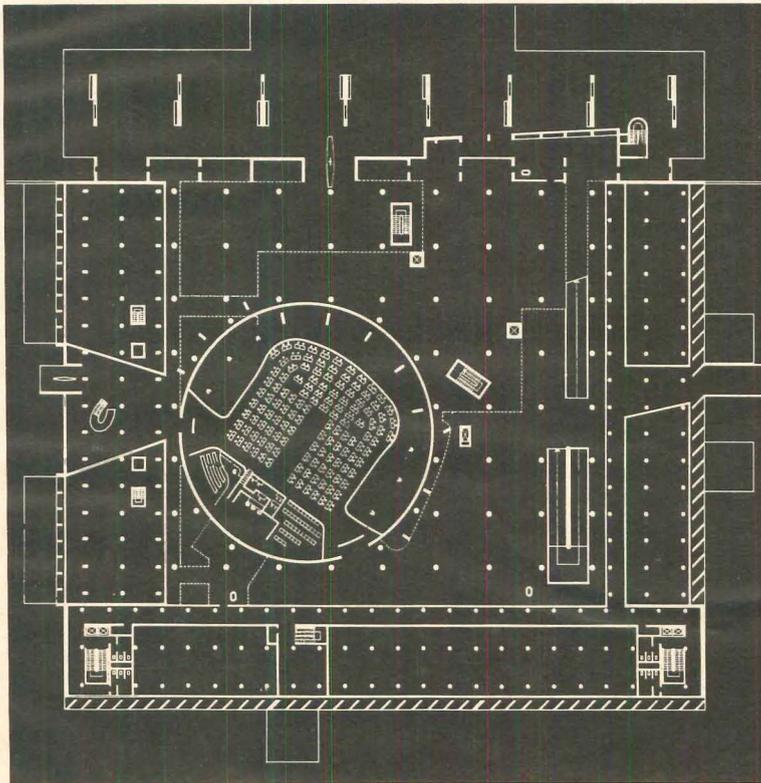


View from roof of the Secretariat Building shows honeycombed walls of Assembly containing offices protected by sunshades. Hyperbolic Assembly Chamber and pyramidal Council Chamber are seen penetrating the roof, which doubles as a delegates' terrace. Automobile entrance is located under the elevated pedestrian walk at right. Below: site plan of center of Chandigarh: (1) Assembly, (2) Secretariat, (3) Governor's Palace, and (4) the Palace of Justice.





Above: Automobile court and passage into main building. Below: plans of entrance and second floors, with connecting ramps and stairs.



THE EXTERIORS OF THE ASSEMBLY BUILDING are of raw concrete poured into a rough sheet-metal formwork. The bird's-eye view (opposite) shows the intricate complex of sculptured elements contained within the framework of the building, and the organization of the site into various levels.

When the center of Chandigarh is complete, these various levels will become as important as the buildings themselves. There are two principal levels: the lower one, serving automobile traffic, and terminating in large, depressed parking courts at each of the major buildings; and the higher level, for pedestrian traffic, which is quite independent of the automobile pattern and crosses it by means of bridges and

ramps wherever necessary. Both traffic levels connect all the major structures of the civic center. Some of the service facilities related to cars and supplies have been tucked away under pedestrian plazas and pools. Thus the usual automobile clutter of a modern city can be kept out of sight.

In addition to separating automobile from pedestrian traffic by using different levels for each—an idea he first proposed around 1920—Le Corbusier has used great mounds of fill to break up the scale of his civic center, and to conceal the surrounding residential areas. These man-made hills are beginning to rise all around the center of Chandigarh, echoing the foothills of the Himalayas visible in the distance.



Maze of ramps and stairs connects levels of the hyperbolic Assembly Chamber (left) to offices and lounges around the perimeter of building.

THE "FORUM" is a space approximately 200 feet square and varying in height from about 30 to 45 feet. Within this space are set the two principal rooms for which this building was designed: the great, hyperbolic Assembly Chamber, and the smaller Council Chamber. (These correspond to our House and Senate, respectively.) The massive forms of these rooms are clearly visible within the forum and become symbolic of the functions within.

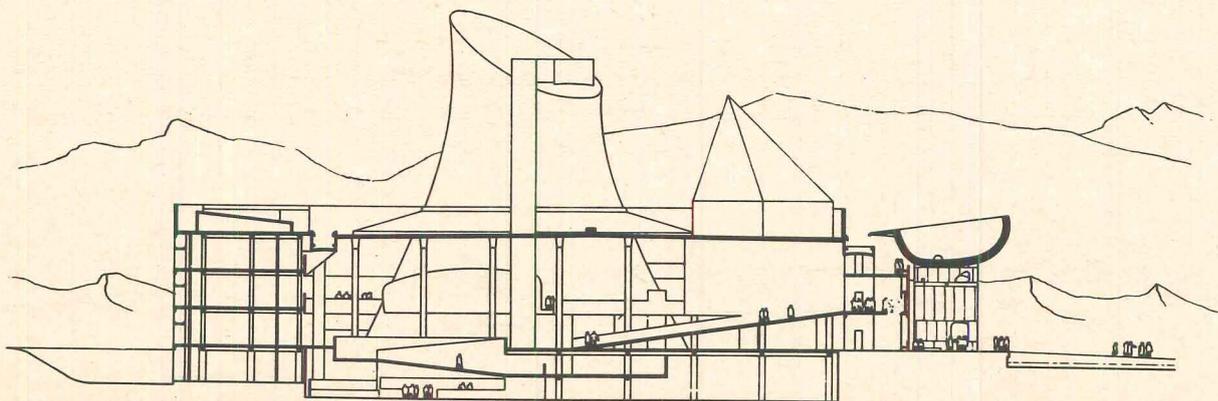
There is an extravagant play of secondary forms as well. While these compositions show Le Corbusier at his sculptural best, they are by no means arbitrary: by use of ramps, bridges, and levels, the architect has kept members of the

Assembly and the Council separate from the press (which has its own galleries) and from the visiting public. Furthermore, there is still another system of entrances and stairs that serves the offices and committee rooms.

Like many intricate buildings, this one is more easily understood in section than in plan: one of the sections (opposite) shows the ramps and levels within the forum, the offices around its perimeter, and the powerful forms of the two chambers. It also suggests the subtlety of the natural lighting provided by Le Corbusier: a continuous strip of clerestory skylights runs around the perimeter of the ceiling and sends a wash of light over the rough concrete walls.



The "forum" is three to four stories in height. Far ramp leads to automobile entrance below; near ramp leads up to the Council Chamber.





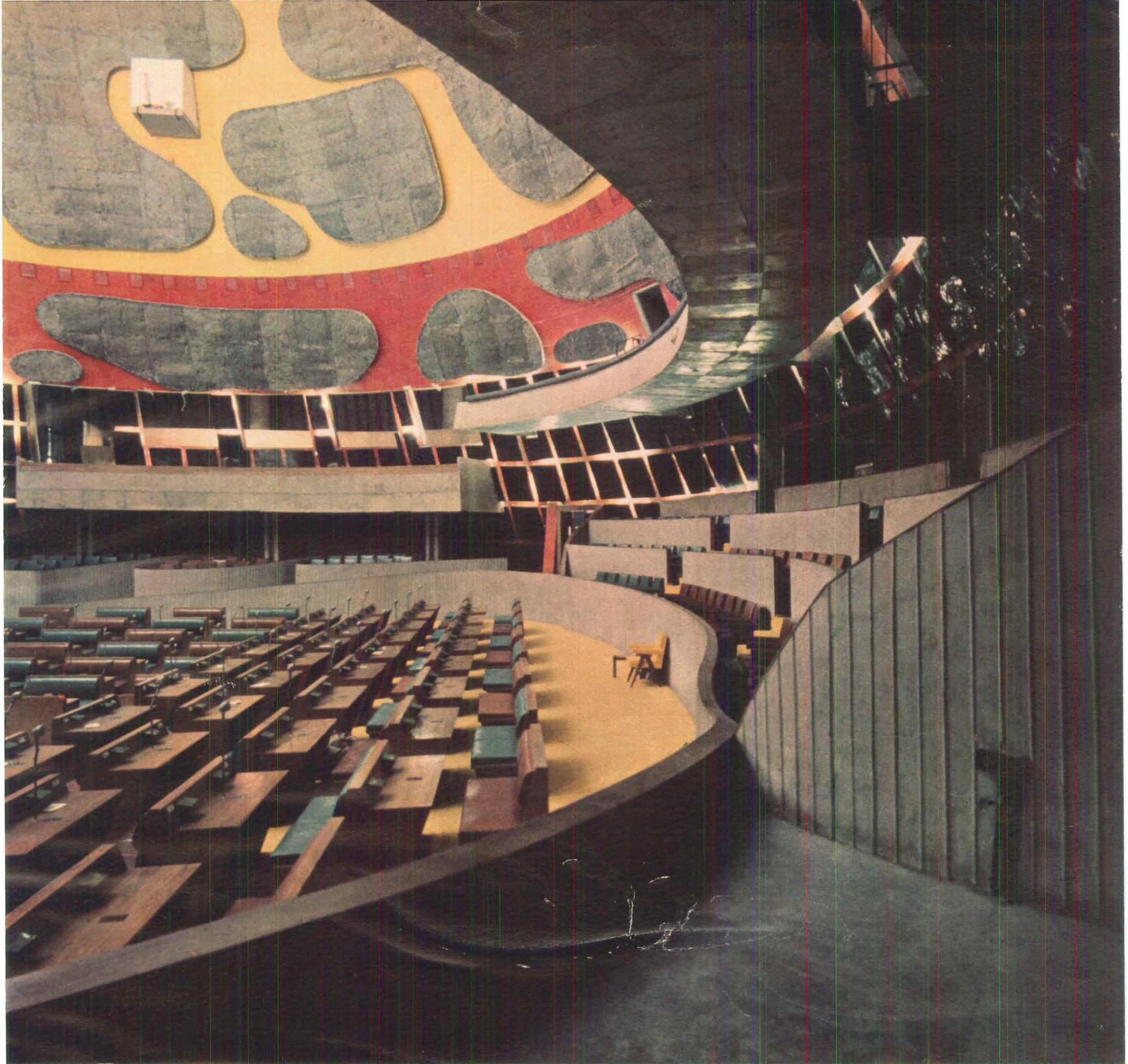
Hyperbolic Assembly Hall is lit through a great skylight at the top of its funnel shape. Funnel contains ventilation and sound equipment.

THE ASSEMBLY HALL is a concrete shell less than 6 inches thick. Its form is similar to that of a hyperbolic cooling tower, cut off obliquely at the top (see section, opposite). Within this oblique top are contained a skylight with various sun-control devices, including mirrors, artificial lighting, and ventilating equipment. This equipment can be serviced from outside: a freestanding elevator tower with a connecting bridge gives access to the roof of the Hall.

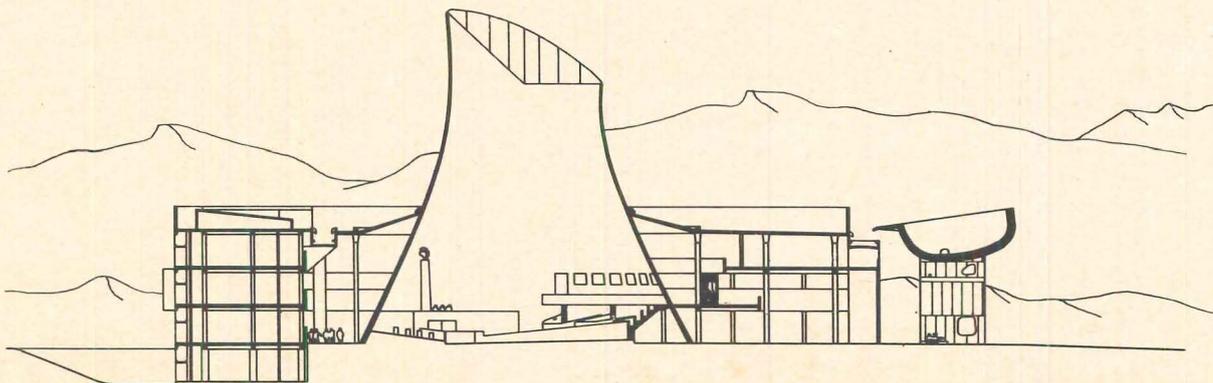
The Assembly Hall seats 180 legislators, plus government officials on either side of the speaker's rostrum. Galleries for visitors and for the press have been provided at upper levels. Dedicated last year, the Hall has been in operation now for

several months—a striking addition to the new sky line created at Chandigarh. When the fourth important building of the center—the Governor's Palace—is completed, and when the roads, the landscaping, the paving, the pools, and the sculpture are all in place, Chandigarh will have what one U.S. architect has called "the first city center that is twentieth century in scale."

Parts of this center do not, as yet, function very well. These defects can be fixed in future years. But unlike other, more efficient groups of buildings, Chandigarh has some built-in qualities that could never be added by future modifications: a sense of history, of aspiration, and of grandeur.



Visitors' galleries ring the Assembly Hall. Brightly colored forms of perforated sheet metal by Le Corbusier make a sound-absorbent mural.





HAS THE BUILDING BOOM REACHED A PEAK? BY ERNEST M. FISHER

The question "where are we in the building boom?" is likely to be answered by comparison with the last major one. Quite obviously answers saying that "the situation somewhat resembles 1928" are vague and likely to be misleading. And yet the effort to compare the factors now and then is illuminating.

There are three cardinal characteristics of the construction industry that largely explain its erratic behavior: it produces one of the most durable of all economic goods; its processes are very roundabout—that is, they take a long time from start to finish; and its product is immovable.

The latter factor, the basic immovability of buildings, is in many respects the most important of all. There is no single market for buildings, but rather as many markets as there are local building situations. Thus figures which measure building for the whole nation mask significant trends occurring in local building markets.

Because of the durability of this product, the industry chiefly adds to the standing stock, rather than replacing structures that wear out. While we speak glibly of the "life" of a structure as fifty years (and with the consent of the Collector of Internal Revenue, forty), actually very few of our structures have so short a life, and many of them will probably stand (as they have in some of the older Western European countries) for centuries.

Because of the durability of most buildings, only a small proportion of any year's construction actually goes toward replacement of structures. This is very different from the production of consumers' nondurable goods, for instance, where the bulk of output is for replacement. The more durable the commodity, the more inflexible its supply; and the more inflexible the supply, the more difficult it is to adjust supply to changes in demand. This combination of a fixed supply and a volatile demand lies at the heart of building's boom-or-bust cycle.

In trying to gauge his market, the producer of construction attempts to adjust his volume of production to conditions which will exist some six months to three or four years in the future. It takes this period of time to produce houses, office buildings, power plants, telephone lines, switchboards, central

Despite a record year for the nation's biggest industry, recession talk continues to hang heavy in the air. Building's immediate outlook will be assayed by FORUM's Miles L. Colean in November, but another of the nation's leading economists, Dr. Ernest M. Fisher, Emeritus Professor of Urban Land Economics at Columbia University, has written a probing analysis of the basic economics of construction, pointing up parallels between today's building boom and that of the 1920s. This article extends the approach used in the book, "Urban Real Estate."

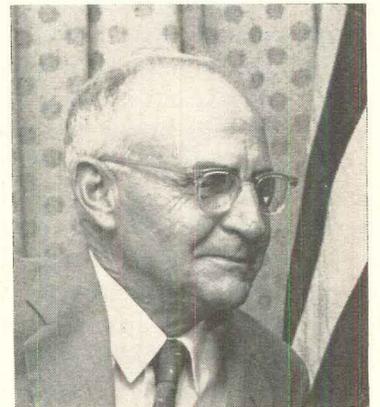
buildings, and so on. During this period, the market situation may change quite drastically. Inability to foresee clearly these changes in the market complicates the producer's problem and confuses the producer himself when he arranges his production schedules. Sometimes the changes in the market are such as to intensify demand for new construction, and the producer prospers by these changes. This was the situation through much of the land in the "roaring twenties," at least until after 1926 or 1928. And it seems to have characterized many of the markets for real estate in much of the 1950s, the late 1940s, and even in 1960 and 1961.

Working off the backlog

Pent-up or "backlog" demand had certainly accumulated during both world war periods, and the pace of production was stepped up substantially to fill the backlog. In the boom of the 1920s, total new construction hit its peak in 1926, with a \$12 billion total, just double that of eight years earlier. Over half of this private expenditure in 1926 was in the residential category. Nonresidential building reached its peak of \$2.7 billion three years later, in 1929.

Paralleling this spectacular performance, total expenditures in the post-World War II period began at almost exactly the level of the peak years 1926 and 1927 with an expenditure in 1946 of over \$12 billion, and then tripled in the next eight years. Whereas the first boom had been interrupted by a decline in total expenditures for one year, 1921, the expenditures in the second increased every year and continued to do so without interruption for another seven years, until 1959. In that year, some sort of peak was reached, with a total of about \$56 billion, as the following year fell slightly below that figure. But 1961 came back with a new peak expenditure of \$57.4 billion, nearly five times the expenditure in the first postwar year.

As in the 1920s, residential nonfarm construction was by far the largest single component. In the second postwar year, 1947, expenditures on homes rose 40 per cent from the previous year, and by the end of an eight-year period (the same amount of time it took the earlier boom to reach its peak) spending on new homes had almost tripled, to \$15.4 billion



Dr. Ernest M. Fisher

The key contrasts of two construction booms:

in 1954. And it is the residential series that leads building upward for the next seven years, with minor interruptions.

Nonresidential building also rose, with only slight setbacks, to over \$10 billion (not counting public utilities) in 1961, over three times the expenditure of the first postwar year.

How to recognize the peak

Has a peak been reached in the building of any of these types? The level of production over the past three years is tantalizing. Since the residential nonfarm market dominates the whole and since it led all others in the 1920s, reaching its peak and consistently leading the decline to the depths in 1933, it may be worth while to examine it in more detail.

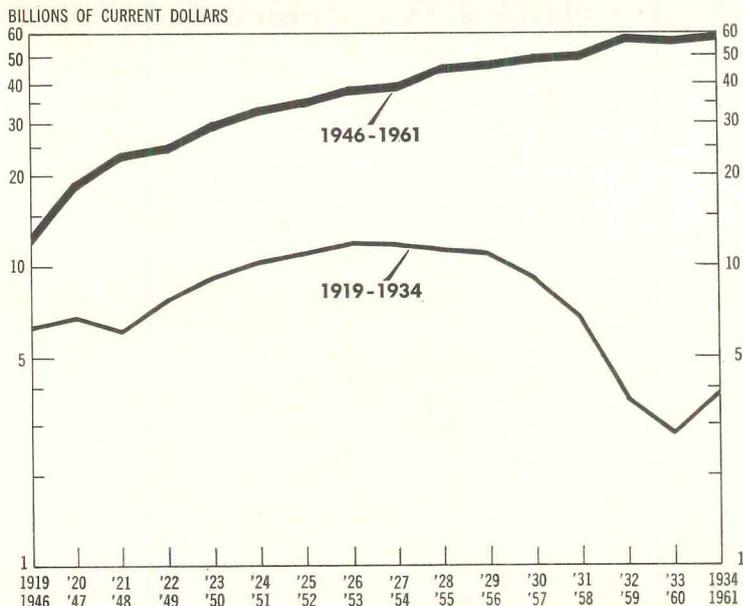
In the 1920s, the volume of residential construction rose from 247,000 starts in 1920 to a peak of 937,000 in 1925. In 1920, about 81 per cent of all units were single family, but this percentage dropped to 61 per cent by 1925. Apartment units hit their peak two years later, in 1927, when 257,000 dwellings (about 32 per cent of total units) were built. (This was the record until last year, when 325,000 apartment units were built.)

Thus, the number of single-family units reached its peak in the same year that both the number and percentage of apartment units began to mount.

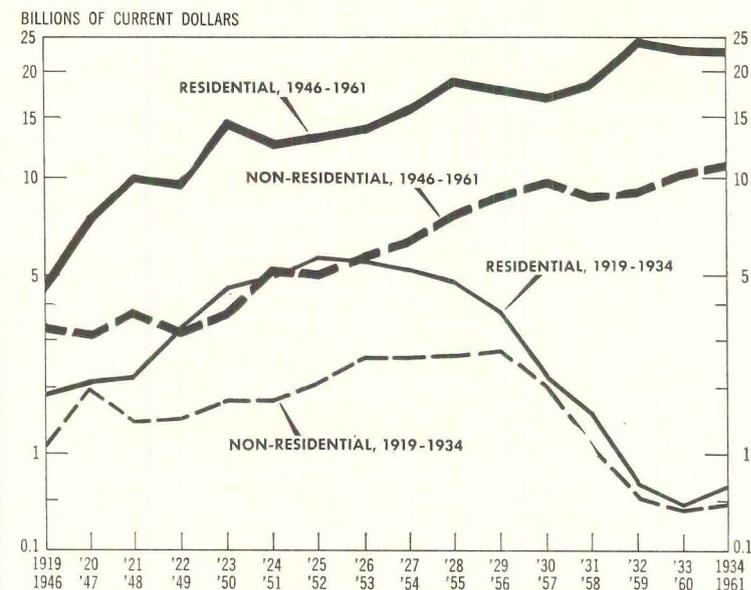
In the past decade and a half, single-family structures have again dominated. In 1946 only 8 per cent of all new units were apartments. The percentage of apartments rose in 1949 to 19 per cent, but declined again to 8 per cent by 1955, when single-family units set a new high. Since then, however, the percentage of apartments has risen steadily, to over 18 per cent in 1960 and to 24 per cent last year. So far apartment construction has continued strong, and may total as much as one-third of all residential units this year.

Although the present relationship of apartments to single-family houses parallels in several important respects the experience of the 1920s, it is still not clear whether the backlog of demand that accumulated during World War II has been worked off. One puzzling element is that the index of rents is still rising. In the 1920s, the rent index reached its peak in 1925, the same year that residential construction topped out. But a continuous rise in the vacancy rate indicates that the peak is more imminent.

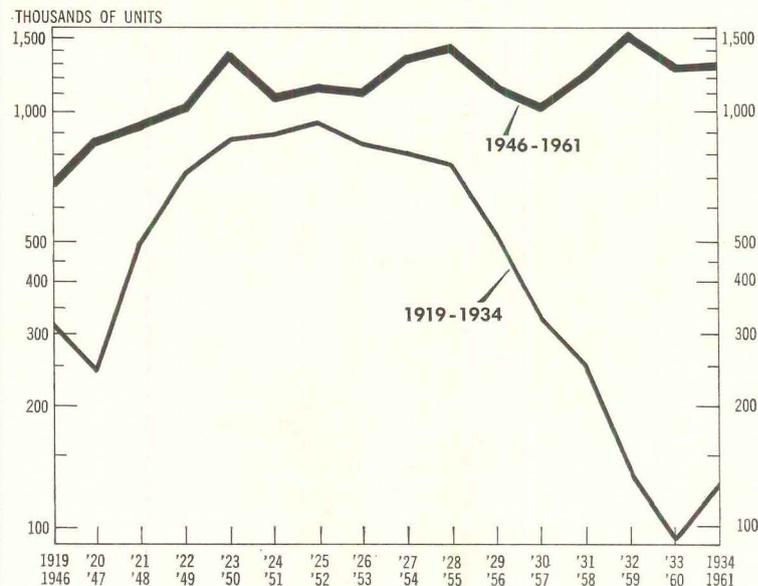
The peak is, of course, close to the point where the backlog of demand has been worked off, and building is only for additions to the stock in response to current demand alone. When the backlog has been filled, the industry can either continue to build at the same rate, thereby creating a surplus condition as it did in the 1920s, or simply reduce its pro-



NEW CONSTRUCTION doubled from 1919 to 1926, then leveled off until 1929. In the post-World War II period, however, total construction doubled within three years, and had tripled in another five years. Since then, the rate of growth has slowed, although building in 1961 scored a record high of \$57.5 billion.



RESIDENTIAL AND NONRESIDENTIAL CONSTRUCTION showed different patterns in the two periods. In 1919-1934, residential construction hit its peak in 1926, three years before the record for nonresidential building. By contrast, both residential and nonresidential construction rose together from 1946 to 1961.



TOTAL HOUSING PRODUCTION hit a peak of 937,000 units in 1925, six years after the end of World War I. Following World War II, housing production rose fast for four years, but then leveled off and subsequently did not approach its 1950 peak for another five years, nor finally top it until 1959.

duction. One problem is that the peak itself cannot always be very easily discerned. Another is the aforementioned immovability of the product—and the fact that building is basically a local market situation. There is also the difficulty that large projects cannot so easily be halted. Thus, the Manhattan office boom hit its peak after World War I in 1934, despite the fact that the economy was obviously in trouble four or five years before. Even though the demand picture had changed radically, builders were too far committed on projects taking four years or more to complete to stop them.

The pattern in offices and hotels

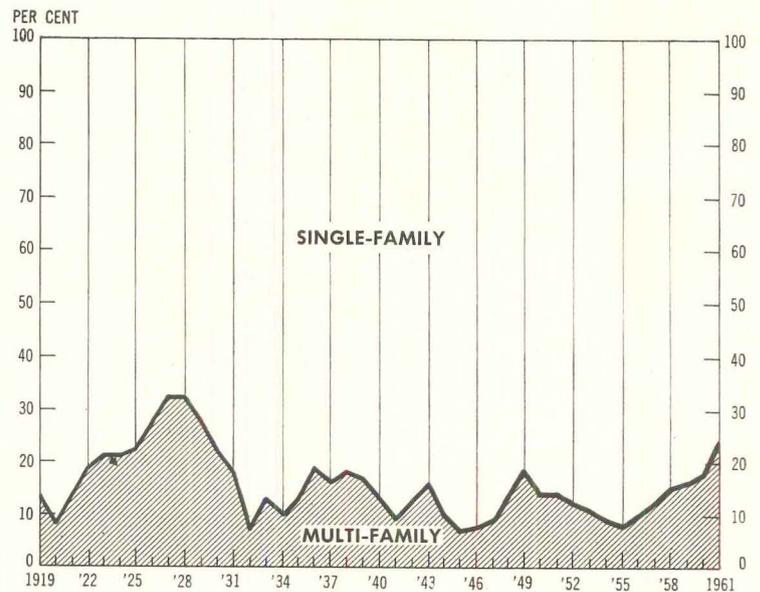
In certain nonresidential building types, similar patterns can be seen in the indicators of demand. For instance, the office vacancy rate, as reported by the Building Owners & Managers Association, rose rapidly from 1925 to 1933, while rental rates fluctuated only slightly, rising somewhat until 1931, then declining until 1934 at a more rapid rate. Then occupancy rates began to increase, but rentals remained level until 1945, though occupancy rates hit 100 per cent.

There was little fluctuation in the occupancy rate in the 1950s; it stayed at 98 per cent or higher. There was not enough increase in office space to work off the backlog of demand that had accumulated during the war and postwar period, when vacancies were negligible. This was so despite record levels of construction of new office space until the peak of \$2.1 billion last year. Throughout this period of increasing production, the square-foot rent of office space rose from an average of \$2.86 in 1950 to \$4.05 in 1960. Thus rents of office space, like those of residential space, were still rising over the nation as a whole, although there may have been local markets in which they were beginning to soften.

Hotels also show how the price and utilization of space can become dislocated. For instance, room rents declined along with occupancy from 1929 to 1932, as would be expected. But from 1933 to 1940, room rates stabilized despite a continuing decline in occupancy, and from 1940 to 1943, rates did not rise even though the occupancy rose sharply. Since the end of World War II, room rates have risen steadily while occupancy has declined to 65 per cent. This would indicate that producers of new hotel space have increased their stock past the point where the backlog has been worked off.

The relationship of rents to costs

Of course, implicit in any consideration of construction levels and the *price* of new facilities is the *cost* of building itself. Construction costs have behaved much differently during the second boom from the way they performed in the



HOUSES VS. APARTMENTS: A shift in demand for housing occurred from 1920 until 1927, when 257,000 apartments were started, representing 32 per cent of all starts. Apartment production also rose rapidly after World War II, but then declined, in percentage terms to prewar levels. In the past six years, apartment construction has risen again. In 1961, a record 325,000 units were started, representing almost one-quarter of all new housing starts.

1920s. It is striking that in the first period, both the consumers price index and the index of construction cost remained fairly level. They both declined after the end of the boom, but the index of costs began to drop a year earlier than the consumers price index and declined somewhat less. Costs then began to rise again, in the recovery, earlier than did rents.

However, from 1946 to May 1962, both costs and rents have risen each year with almost no exception and are still pointing upward. And, what may be more significant, the two indexes begin to diverge from 1949, and the spread between them widens until to the present. The index of consumers prices increased 53 per cent from 1946 to last year, the cost of construction by 82 per cent. This indicates that building has been growing relatively more costly since 1947.

The most difficult problem for the producer of buildings is to know when a turning point in the cycle has been reached. Consequently there is some similarity in questions to be asked now and those that should have been asked in 1928. Once again a big backlog has been worked off. But continuation of construction at such a rate, after the backlog has been worked off, may result in creating a surplus. The durability of the product, in such a situation, prevents shrinkage of supply to adjust to the dimensions of demand, and an increasing portion of the inventory falls vacant or stands idle. END

A SURPRISING NEW LOOK IN COMMUNIST EUROPE

An architectural revolution, almost unnoticed by the West, has swept the other half of Europe. Over the dead body of Joseph Stalin, the modern movement has finally taken solid hold in Russia and her satellites. Some of the surprising results are shown in this first of two reports on the new architecture of Communism.

The change stemmed directly from the purge of Stalin's memory in the mid-1950s. When Krushchev threw away the portraits of his old mentor, he also discarded Stalin's peculiar brand of pseudoclassicism. In the partial political relaxation of the Red regimes which has followed, no aspect of culture has been given more freedom than architecture. Debate continues on how much latitude should be allowed writers and artists; but the design of new buildings is, for better or worse, both modern and Western.

Even so the climate is not always ideal for the practice of architecture. Wartime devastation has combined with an immense urban migration to create a housing shortage of staggering proportions. Putting roofs over the heads of people is the first order of business. Architects are literally mobilized for the task, generally in huge bureaus of building design. Even for those who practice independently, there are rigid standards and restrictions. It is as if an American architect did 90 per cent of his work in the field of public housing.

Some satellite architects say that all this is stimulating. "A long way has been covered from the individualistic conception of the architect obliged to solve an isolated order of a private client, to the conscience of the town-planning architect, organizing the material frame in which the social life of a human being will develop collectively," Architect W. Juster testifies. "Following attentively the activity of their colleagues from abroad, the Rumanian architects endeavor, through passionate and enthusiastic activity, to make their

own contribution."

Just how much interested the architects of Eastern Europe are in "the activity of their colleagues from abroad" is demonstrated in the accompanying photos. The work of Communist architects, at its worst, may be a drab and somehow disturbing reflection of Western clichés; at its best it is representative of the main stream of modern building, competent and occasionally exciting. But so far, despite their progress, there is a notable lack of the few brilliant individualists who give impetus to architectural growth.

RUMANIA

The paradox of Rumania is composed of a culture that has traditional ties with Western Europe, a regime that retains vestiges of Stalinism, and an economy that is booming. Economically, in fact, it is the shining star of the Communist bloc, the place where industrialization is actually working. Rumania's architecture is the proud face of this relative prosperity. Even after financing an unprecedented program of housing in the densely packed centers (Bucharest's population went from 350,000 to 1.4 million in 10 years), there is money left for great ceremonial halls and, yes, a state circus.

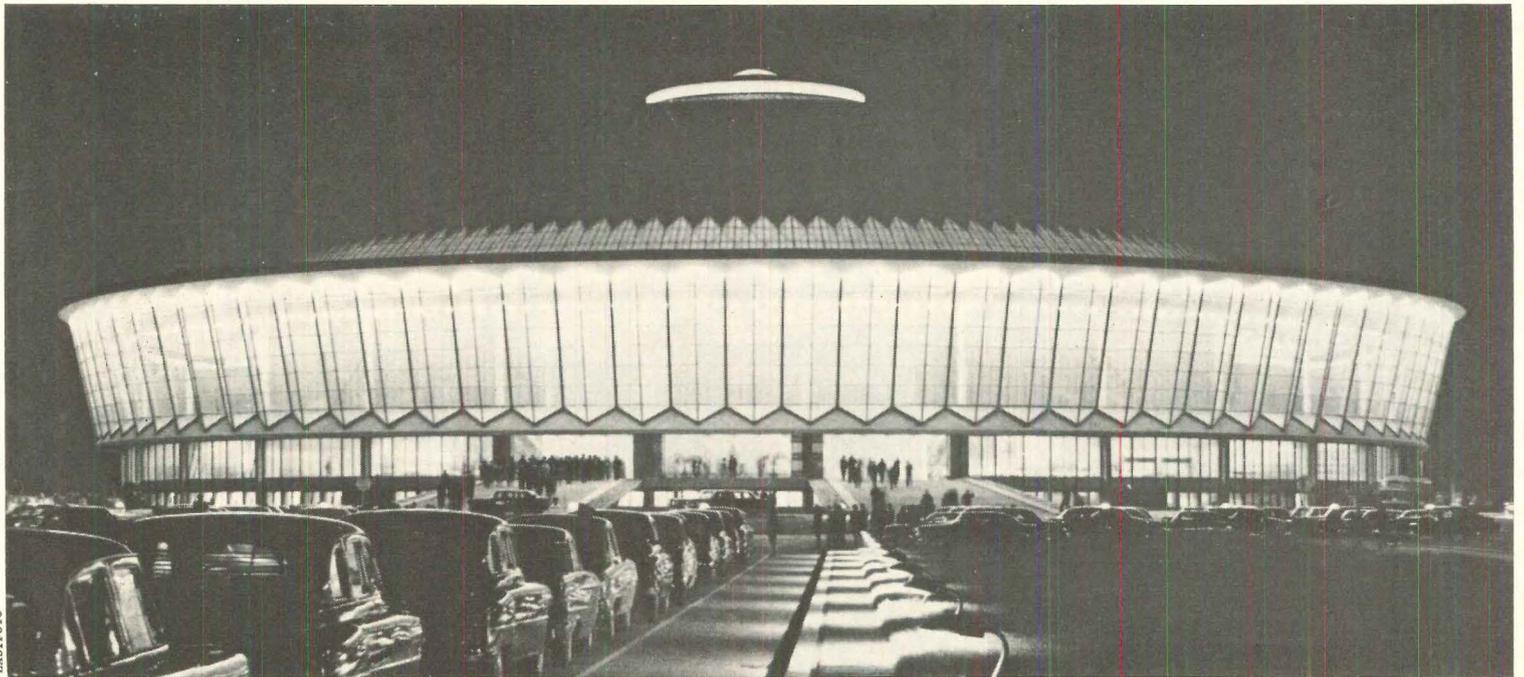
The rapid pace of development in the cities is more than matched on the Black Sea shore. Since the late 1950s rows of sizable resort hotels have sprung up along the beaches of Agagia, Eforie, Constantza, and Mangalia; at Mamaia (Rumanian for Miami?) a vacation center of 15,000 beds has been created from scratch. The Black Sea resorts are an effective device for attracting foreign currency to the isolated nation.

Economics explains the heavy volume of construction, but not the flashes of vitality and even refinement that appear in current Rumanian architecture. Rumania is producing Eastern Europe's most venturesome buildings.



A tall, vaulted foyer leads into the 2,100-seat arena of the new State Circus in Bucharest (above and left). The roof is composed of 16 parabolas. Architects: N. Porumbescu, C. Rulea, S. Bercovici, N. Pruncu. Below, housing at Bucharest's Palace Square.





EASTFOTO



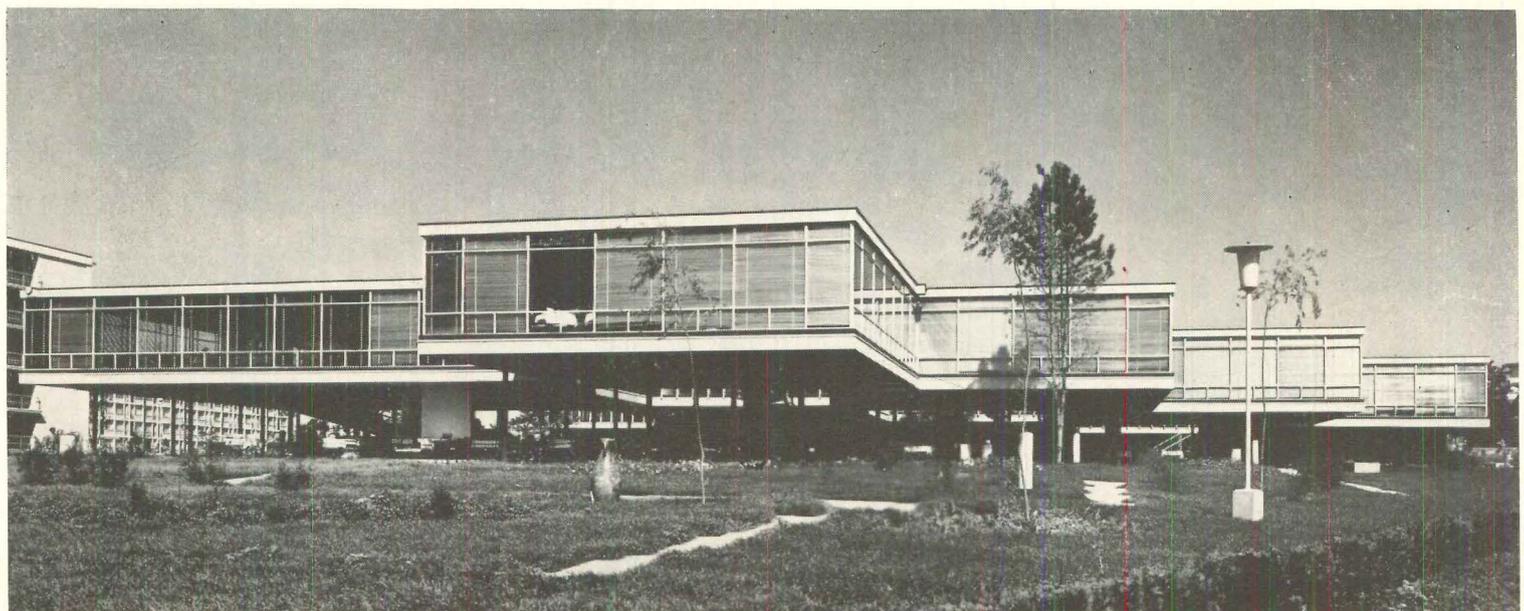
EASTFOTO

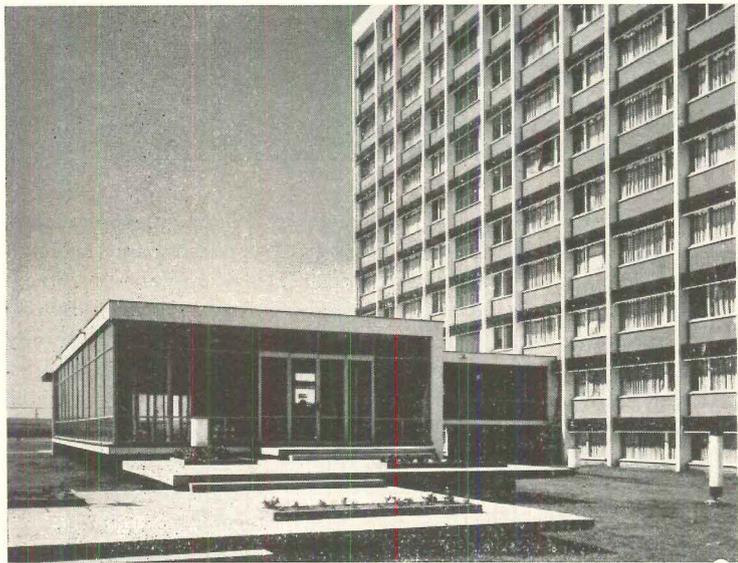
Above the great glazed circle of the National Economic Exhibition Pavilion in Bucharest (above and left) is a huge dome, its delicate metal skeleton sheathed in sheet aluminum. The dome was assembled on the floor and raised in four days by hydraulic winches. The area itself, covering 2½

acres, is framed by two concentric rows of 32 concreted steel columns each. Heavy exhibits are brought in by a standard-gauge railroad spur which enters at ground level. The building is the work of the Designing Institute for Building and Building Materials, with Ascanio Damian as chief architect.

Somewhat startling in its sophistication, the Pearl of the Sea restaurant (below) is the core of the new resort center of Eforie. A staggered slab perched on slender columns, the building has glass walls running around nearly all

of its irregular perimeter. Architects: C. Lazarescu, L. Popvici. Eforie has trebled resort capacity in four years; nearby cliffs were reshaped into planted terraces, and breakwaters erected to widen the long but narrow beaches.





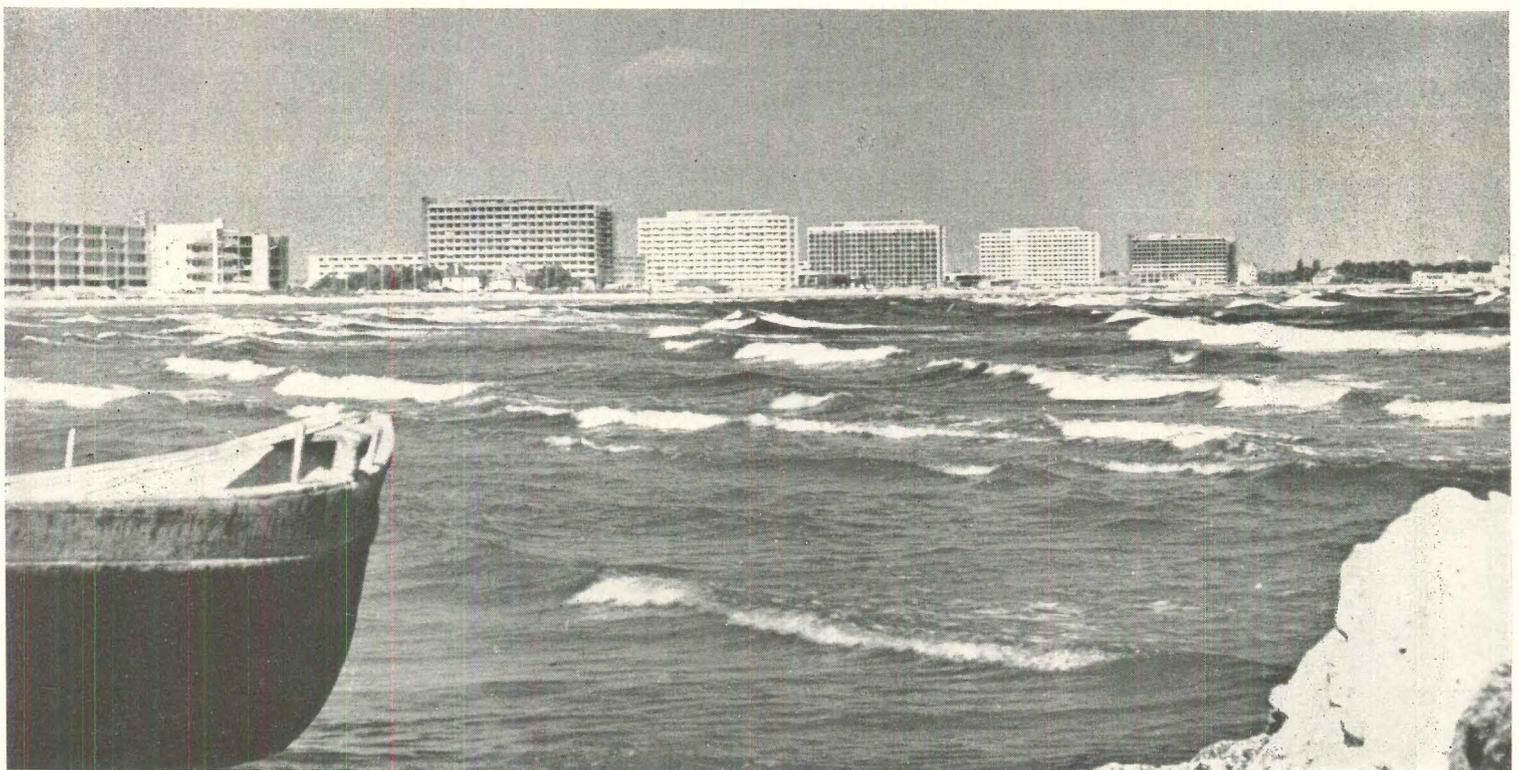
The cliff at Mangalia (above) is a catalogue of current idioms in concrete: wedges, vaults, folded plates, even the sculptured col-

umns of Brasilia. This row of hotels has gotten somewhat out of hand, but the Mangalia sanitarium (below) shows more restraint.



A refined little glass pavilion sprouts from a 10-story hotel in Mamaia (left), newest and most ambitious of Rumania's resort de-

velopments. Below, a row of 11-story hotels rises on a strip of beach that had been a marsh five months before construction began.



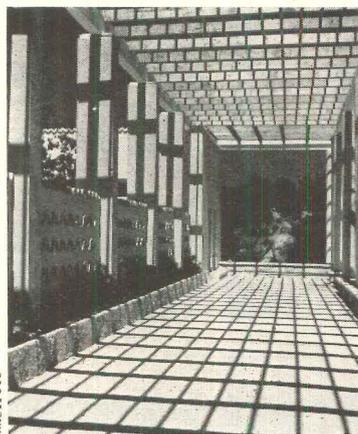
BULGARIA

Smaller and poorer than her sister satellite on the Black Sea, Bulgaria is making an equally energetic effort to bring tourists to her beaches. The once-closed (and still tightly restricted) country now has a travel office on Piccadilly Circus and a string of new hotels and restaurants along the shore. Most were designed by a new generation of Bulgarian architects (one of the largest of the hotels is the work of a 23-year-old graduate of Sofia Institute) whose eyes are turned toward the West but whose hands are heavy.

The same blunt interpretation of Western fashion is evident in the new buildings of Sofia itself. They became simpler and more colorful almost from the day that de-Stalinization of the satellites was proclaimed. Until then Sofia was well on its way to becoming a miniature Moscow, complete with a replica of Lenin's tomb in the central square. The bulky legacy left by Russian technicians still dominates the city, in fact. Bulgaria does not share Rumania's boom, and there is not yet enough new work to have an impact on Sofia's Soviet-imported character.



EASTFOTO



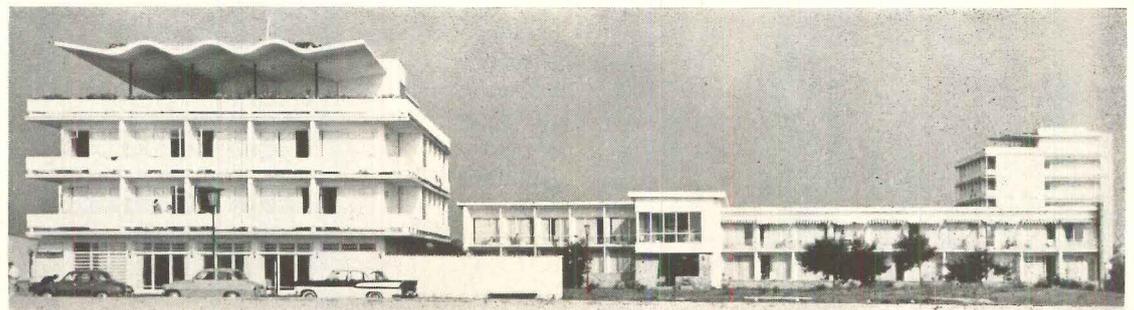
EASTFOTO

Unhappily, the new "thaw" is sometimes abused. Caution was thrown to the sea breezes when it came to the design of the stair tower above; still, it is worth closer scrutiny for its remarkable miscellany of shapes and surfaces. The hotel at right is more straightforward, but so far simplicity seems to become stolidity in the hands of Bulgarian resort architects. Both are at "The Golden Sands," site of Bulgaria's most extensive effort to create her own Florida along the Black Sea shore.



EASTFOTO

A concrete canopy waves forlornly over the Nessebur Hotel (right). Bulgarian beach resorts may be ungainly next to those of Rumania, but they are comfortable and inexpensive. Last year they helped draw an unprecedented 250,000 visitors to the little country. The government's goal is to net 30 per cent of its foreign trade revenue from tourism.



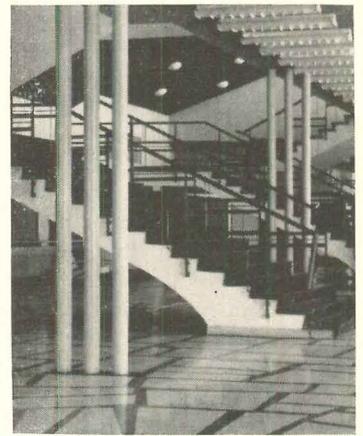
EASTFOTO



EASTFOTO

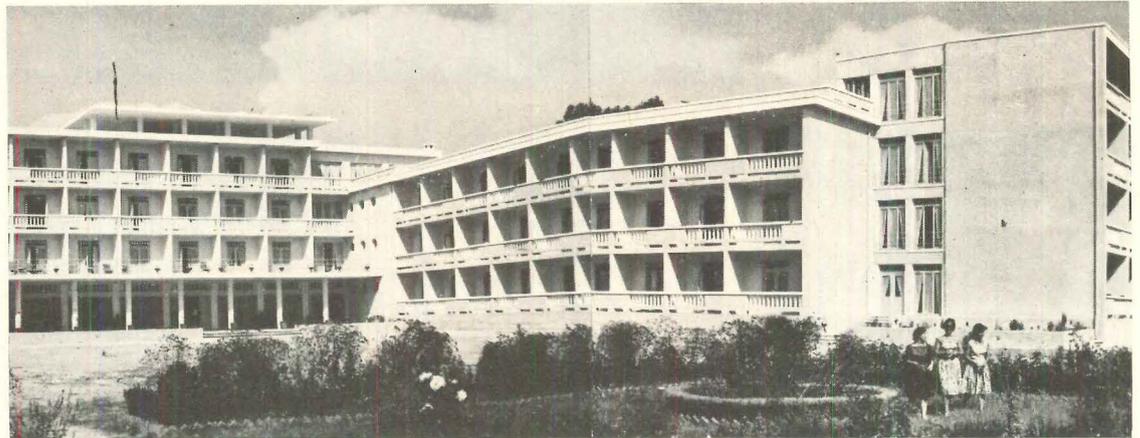


Meanwhile, back in Sofia, the Bulgars continue to move ever-further away from the architectural residue of Stalinism, although a sluggish economy prevents their moving very quickly. Many of the new apartment buildings, like the pair framing the sun worshiper at left, are brightly colored and pleasantly varied. Some of the recently constructed public buildings, like the Universiade Sport Palace above and at right, are strong in basic form if unrestrained in their interior finishes.



ALBANIA

Sprawling, ramshackle Tirana, capital of this tiniest of Balkan states, has a doubly dismal architectural heritage. First came the Italian occupation and Mussolini modern, then Stalinist monumentality. In the days before Albania's alliance with Red China, the Russians offered their standard gift of a towering Palace of Culture. Construction stopped at the second floor: Albanians can't stand tall buildings.



Even Albania, which still makes it rather difficult for outsiders to get in, is making a bid for the tourist trade. Above is the new hotel at Durres on the Adriatic Coast, a drab and sprawling Albanian version of holiday architecture. At right, a sanitarium on the outskirts of Tirana, one of the handful of large buildings added to the seedy capital in recent years. Note the composition of stone bulkheads below the protruding semicircular entry.



PHOTOS: EASTFOTO

POLAND

Polish architects look back on the postwar decade without nostalgia. The first five years were a time of hurried rebuilding of gutted cities to house a swelling population; whole sections of Warsaw were painstakingly restored piece-by-piece from drawings found in the ruins of a museum. In the second five years, when architecture again became possible, "the forces directing the groups of experts got into a blind alley," Jerzy Czyz, first vice president of the Association of Polish Architects, reports with surprising frankness. "There emerged a thesis, for example, of the need 'to express in architecture the greatness of the political epoch.' There began to dominate in town planning axled, rigid compositions on classical principles, and an architecture reminiscent of former styles." Czyz characterizes the period as a "flirtation with anachronism."

Then came Gomulka's loosening of the political leash in 1956, and with it a considerable degree of freedom for what Czyz terms the "new wave" of Polish architects. Planning standards are still somewhat rigid by U.S. measure—project housing is almost always in four-story building with 400 persons per 2½ acres, 11 to 15 square meters of "green area" per person, and one 15-classroom school to every 500 inhabitants—but within this framework Polish architects choose their own direction in design. More important, the standards themselves may now be challenged "when our work makes out new paths requiring new solutions," Czyz says.

The motto of the new wave, according to Czyz, is "simplicity and moderation." What he terms "the extreme modern Italian or South American trends" are consciously rejected: "In our opinion, these do not correspond to Polish requirements." Yet traces of an almost romantic experimentation in form are beginning to appear among the sturdy apartment blocks. A recent visitor placed current Polish architecture "somewhere between Scandinavia and Brasilia." Certainly it has gone a long way from Red Square.

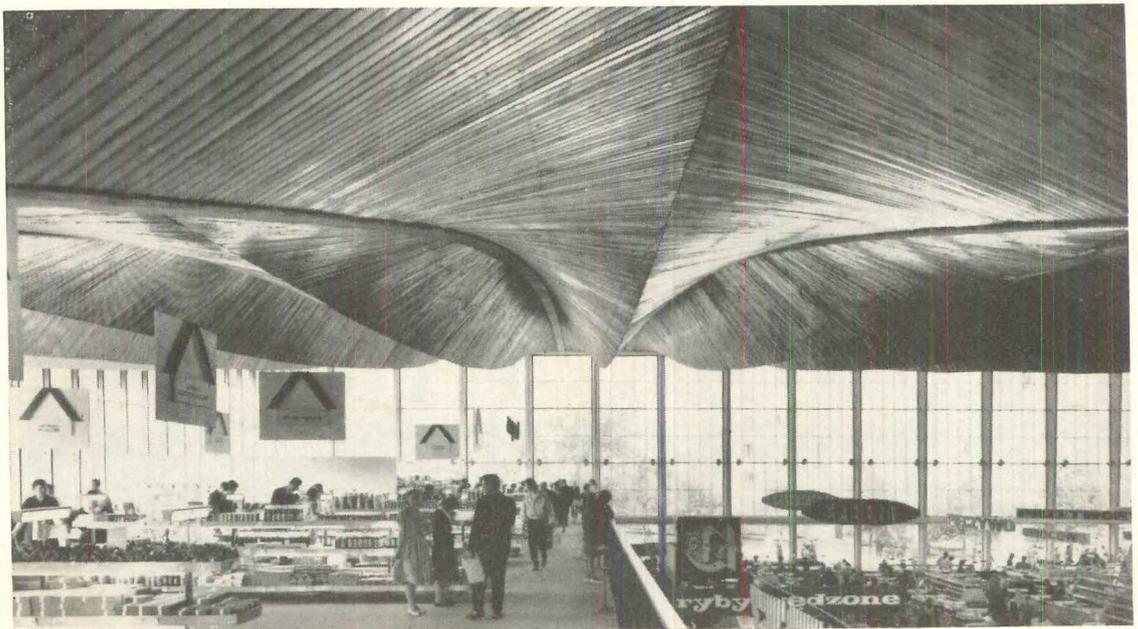


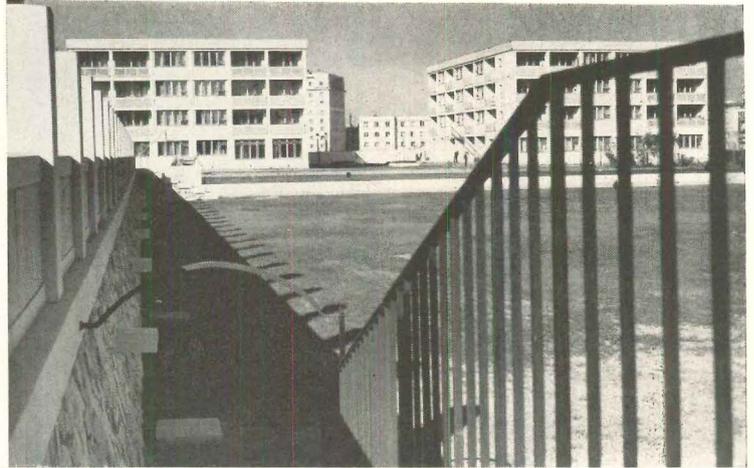
PHOTOS: ZBYSKO SIEMASZKO



There was a near riot on June 6, Super Sam's opening day. Rumor of an impending rise in food prices combined with excitement over Poland's first supermarket to send Warsaw housewives crowding through the glass doors. The excitement was justified: Super Sam (Sam is short for *samego siebie*, which means "self-service")

is as handsome and convenient a supermarket as can be found. Folded roof planes sweep upward from the entry to give the building a sleek, zestful form. The ceiling is composed of narrow boards, emphasizing the voluptuous curves, and from it hang unusually tasteful signs. Architects: Jerzy Hryniewicz, Maciej Krasinski.

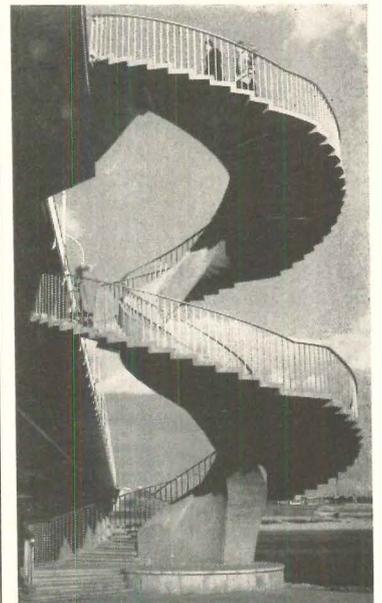




POLAND CONTD.

Though perhaps not representative of the best in Polish architecture, the sturdy concrete buildings above are typical of Warsaw's project housing. They are clean and soundly proportioned, but stringencies of time and budget generally prevent further refinement. Heavy reliance is put upon the interplay of solids and voids. Polish farmers love to visit Warsaw, but in the past they found it hard to find a place to stay; there is still a severe shortage of hotel space. So the Farmers' Self-Help Organization decided to build a hotel of its own. The site they were allocated is precisely in the center of the city. The building, called "The House of the Peasant," is a four-story, U-shaped affair enclosing an inner court (below). The narrow slot windows, regular here, are staggered on the street-facing façades; with

the wavy roof, they make a busy but not unpleasant composition. Interiors are lavishly appointed (left). Architects: Bogdan Pniewski, Handzelewicz-Waclawkowa.

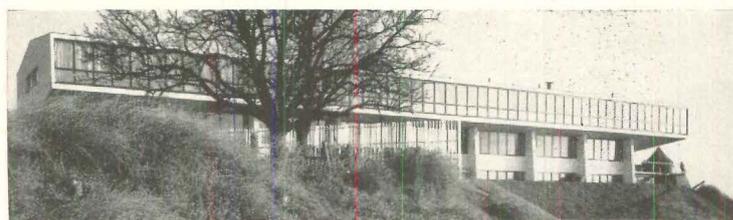


PHOTOS: ZBYSZKO SIEMASZKO



Warsaw is a city of surprises. Some are unpleasant, such as the rubble which remains along whole blocks despite the massive effort to rebuild; no other European city was so thoroughly devastated in World War II. Others are pleasant, such as the stairway leading down from the Gdansk Bridge across the Vistula (above). The bridge itself is undistinguished, but this curlicue of concrete is almost sculpture. Concrete is the universal material in Eastern Europe. It is used with a high degree of technical skill, but poor workmanship remains a problem, partly because of the great pressures to build rapidly.

Each apartment in this broad building on Ulica Zamenhova in Warsaw has its small balcony, giving the long façade a certain rhythm (right). Space standards in Polish housing are tight, but its architects try to provide compensations. Many of the units now have a profusion of built-ins. Increased use is being made of easily movable partitions to allow some degree of individuality in room arrangements. Large buildings have club rooms, reading rooms, coffee shops; the emphasis is on communal recreation.

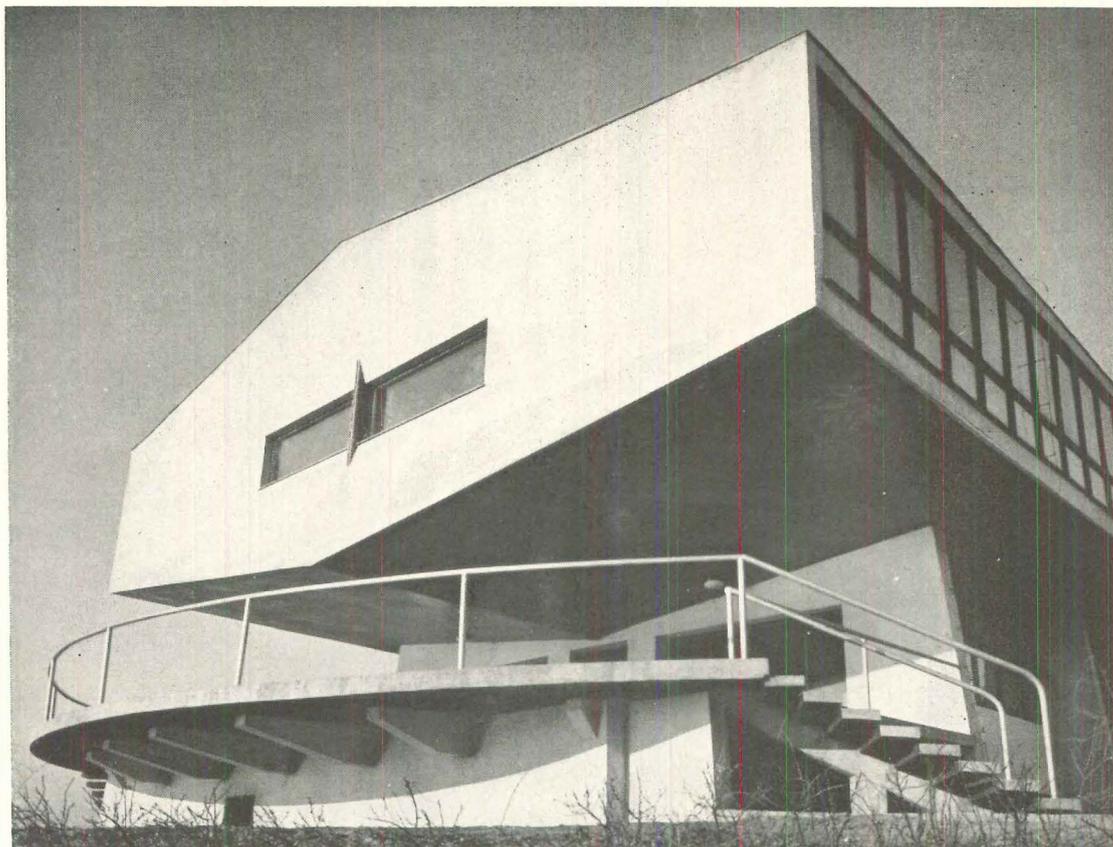


Dug from its site, Warsaw's Ten-Year Stadium (left) was built in 1955 to commemorate the war's end. It was a precursor of the simplicity and occasional grace of current Polish buildings. Capacity is 70,000. Architects: Jerzy Hryniewiecki, Marek Leykam.

Perched dramatically on a hillside overlooking a wide river, the Tourist Center at Plock (above and below) shows Polish architecture at its most sophisticated. Glass is a costly and scarce material in Poland; such lavish use of it is seldom seen.



A growing number of high-rise apartments, like the one above by Architects Kliener and Przybylski, now punctuate the low project blocks. There are signs of a trend toward larger buildings, more compactly grouped, allowing larger areas of open space.



PHOTOS: ZBYSKO SIEMASZKO



A TEMPLE FOR INSURANCE

Behind the walls of this formal, temple-like structure one might expect to find a great civic auditorium or perhaps a major public library. Actually the design, by Detroit Architect Minoru Yamasaki, is another in a swelling roster of American corporate monuments. Scheduled for completion in the summer of 1964, it will be the new home of the Northwestern National Life Insurance Co. in Minneapolis; and it will be an impressive addition to that city's ambitious, 35-acre Gateway Center, a commercial and residential project for redeveloping 40 per cent of the downtown area at a cost of \$80 million. The complex includes a hotel and garage, and apartment towers (foreground and background, right).

Such a key site demanded "an inspiring and monumental building as a climax," in Yamasaki's words. One block of Nicollet Avenue, a major shopping street which bisects the site, is being closed (arrow in photo, right); the rest will be redeveloped as a shopping mall. Rather than designing a tower to terminate the street, or lifting a building up on stilts with a ground-floor passageway beneath, Yamasaki raised his monumental portico 80 feet high to allow the street to continue visually, as well as to give pedestrians access to the park and river area beyond. At the same time, the portico provides the building with a noble entrance on its major axis.

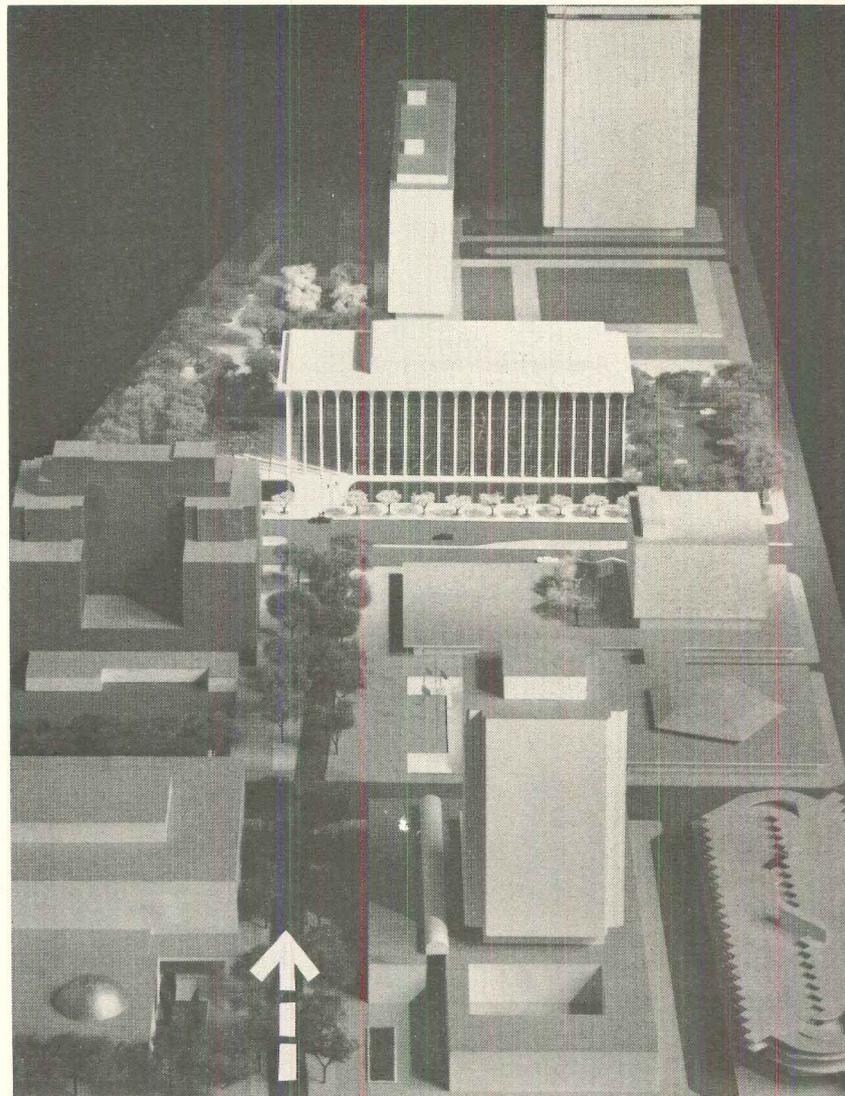
Behind the portico is a six-story block containing 200,000 square feet of office space, topped by a low mechanical penthouse. The structure is reinforced concrete, poured in place except for the columns and roof of the portico, which will be precast and prestressed to form a coffered framework spanning 56 by 120 feet. The perimeter columns, faced with a white quartz aggregate, have flaring capitals which set up a rhythmic pattern of delicate arches, mirrored in the long reflecting pools which flank one side.

Glass was deliberately held to a minimum because of the range and severity of Minnesota weather. The building is enclosed by panels of dark-green marble and narrow bands of gray glass which sharply outline the white columns and reveal the floor slabs (see wall details, overleaf). A bearing-wall service core, slightly off center, and 11 inside columns leave the building with 80 per cent usable interior space (plan, right). "We are pleased with the efficiency of this new structure," says Company President John Pillsbury, Jr., "but we are even more pleased that we will be making a major esthetic contribution to downtown."

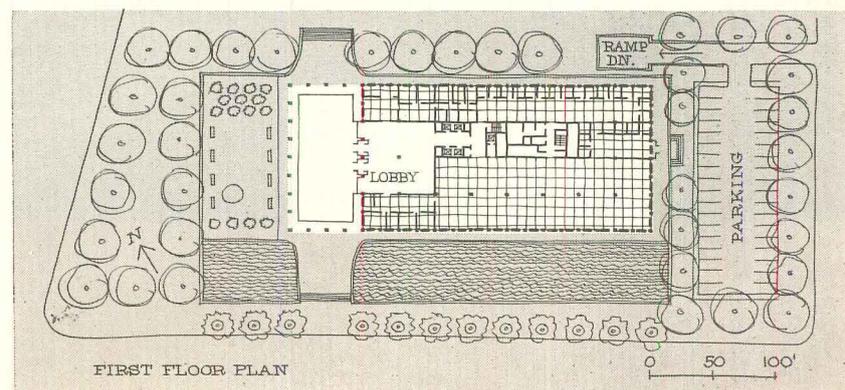
Architect: Minoru Yamasaki & Associates. Structural engineers: Worthington, Skilling, Helle & Jackson. Estimated cost: \$5.5 million, including sitework.

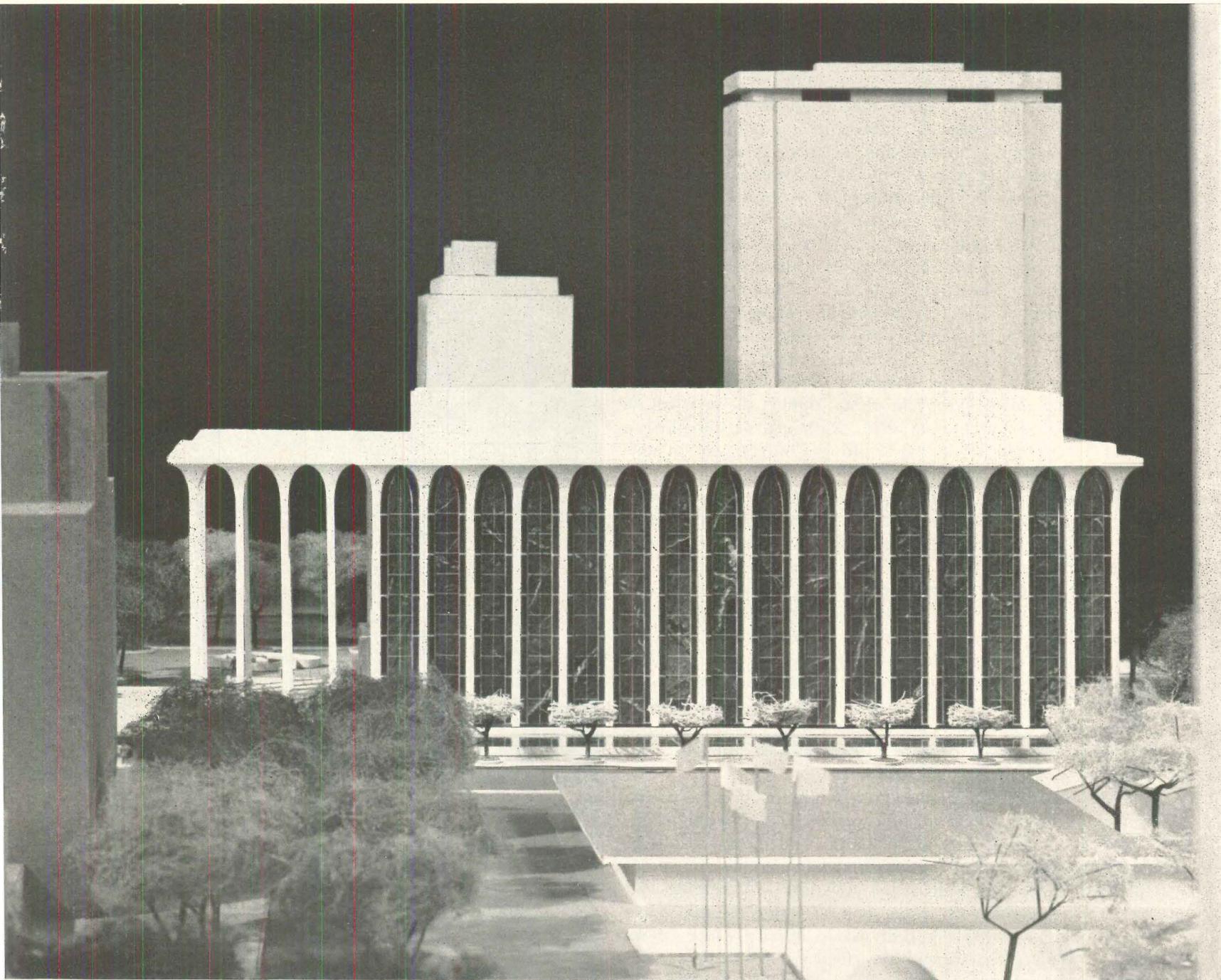
PHOTO OPP: BALTAZAR KORAB

WARREN REYNOLDS, INFINITY INC.



Monumental office building is climax of Gateway Center redevelopment

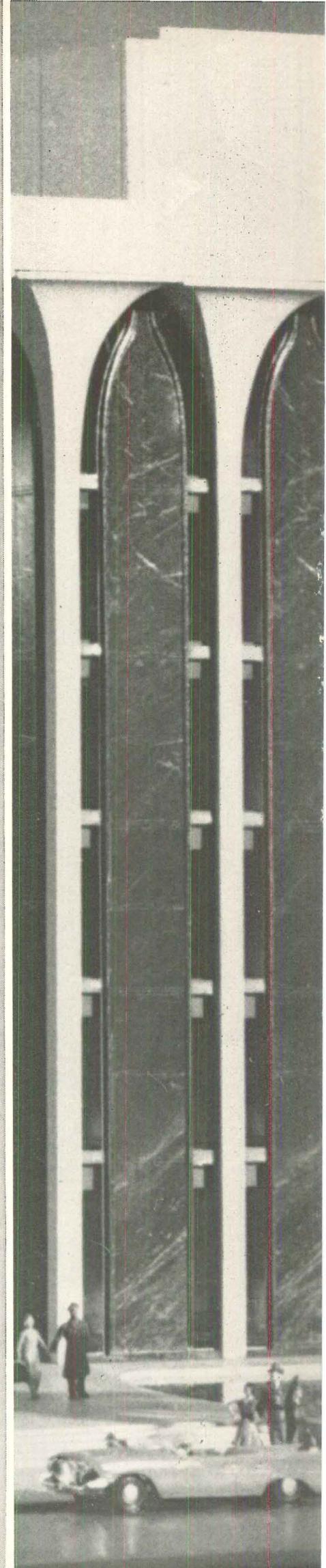
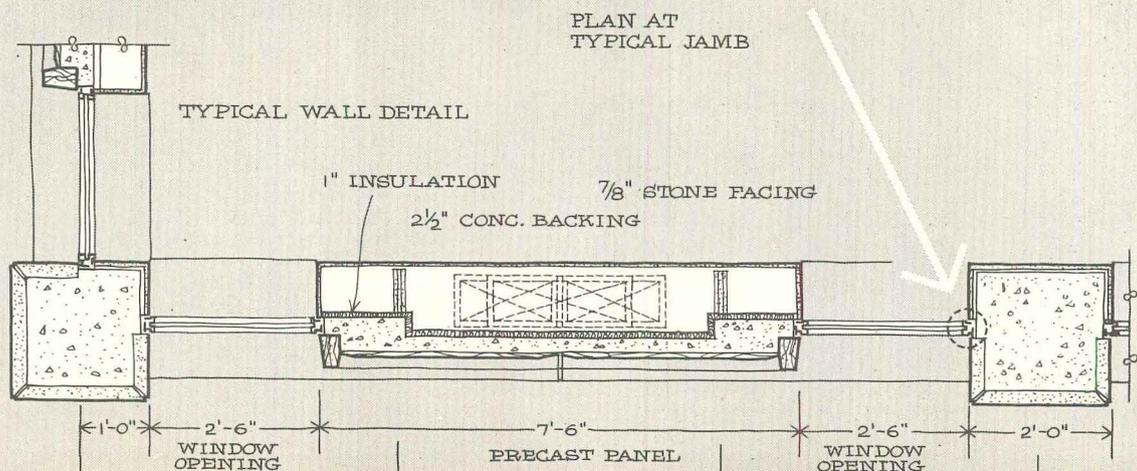
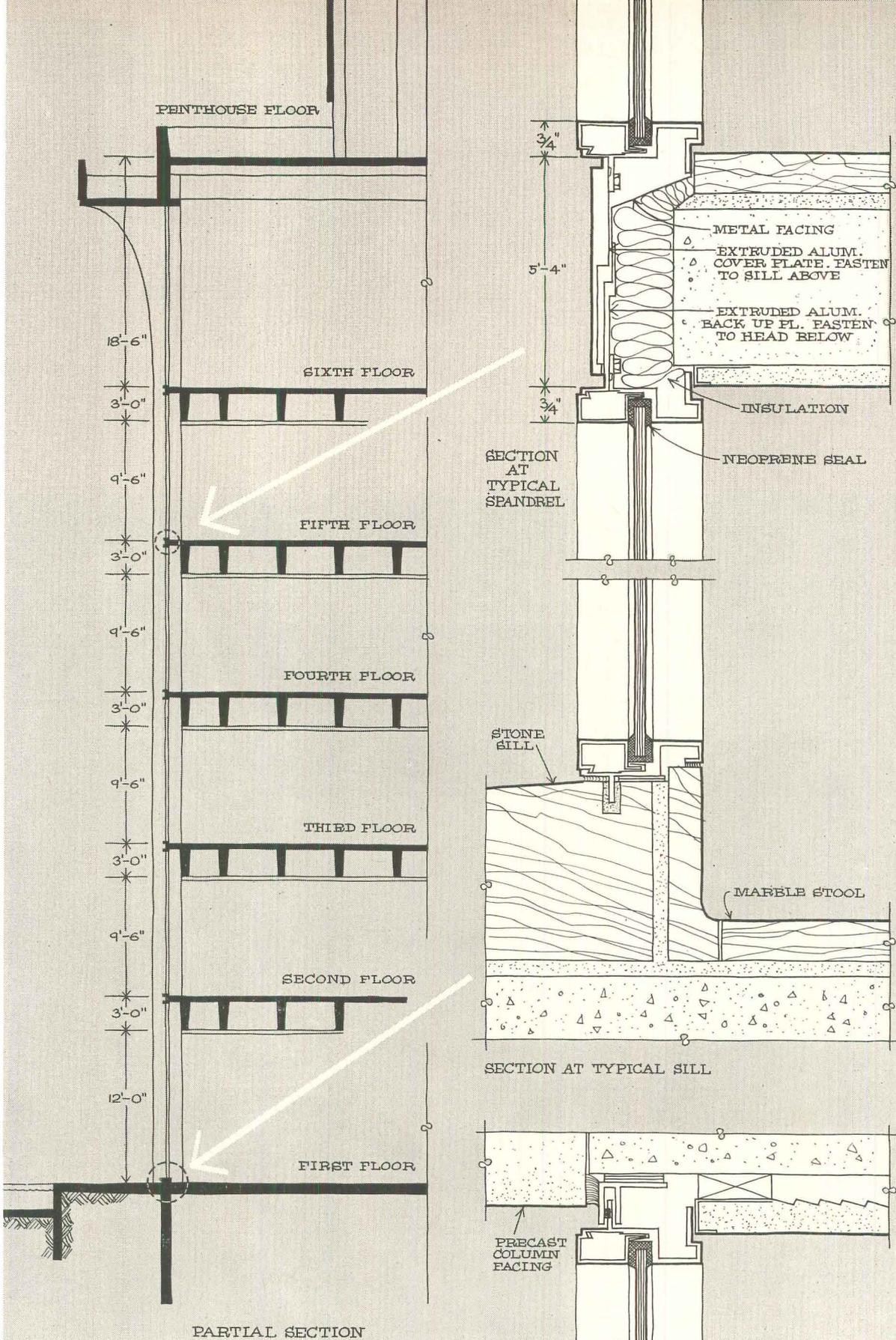




WARREN REYNOLDS, INFINITY INC. ; PHOTO OPP: BALTAZAR KORAB

Slender white columns establish a rhythmic pattern of delicate arches above a long, side reflecting pool. The quartz aggregate column facing will itself be used as formwork for the concrete structure.

Between the arches, the building will be enclosed by panels of dark-green marble and narrow bands of gray glass, outlining the columns and revealing the edges of the floor slabs (details, opposite page).





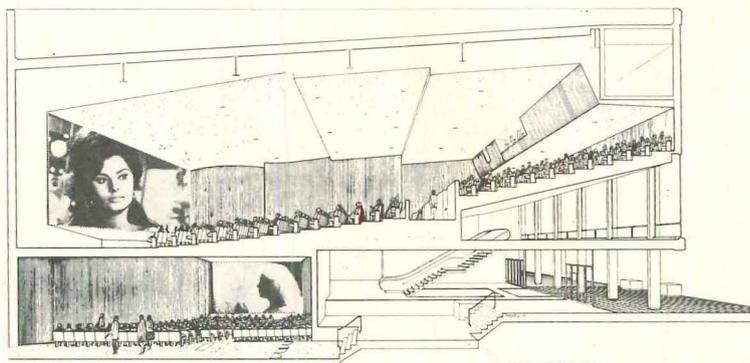
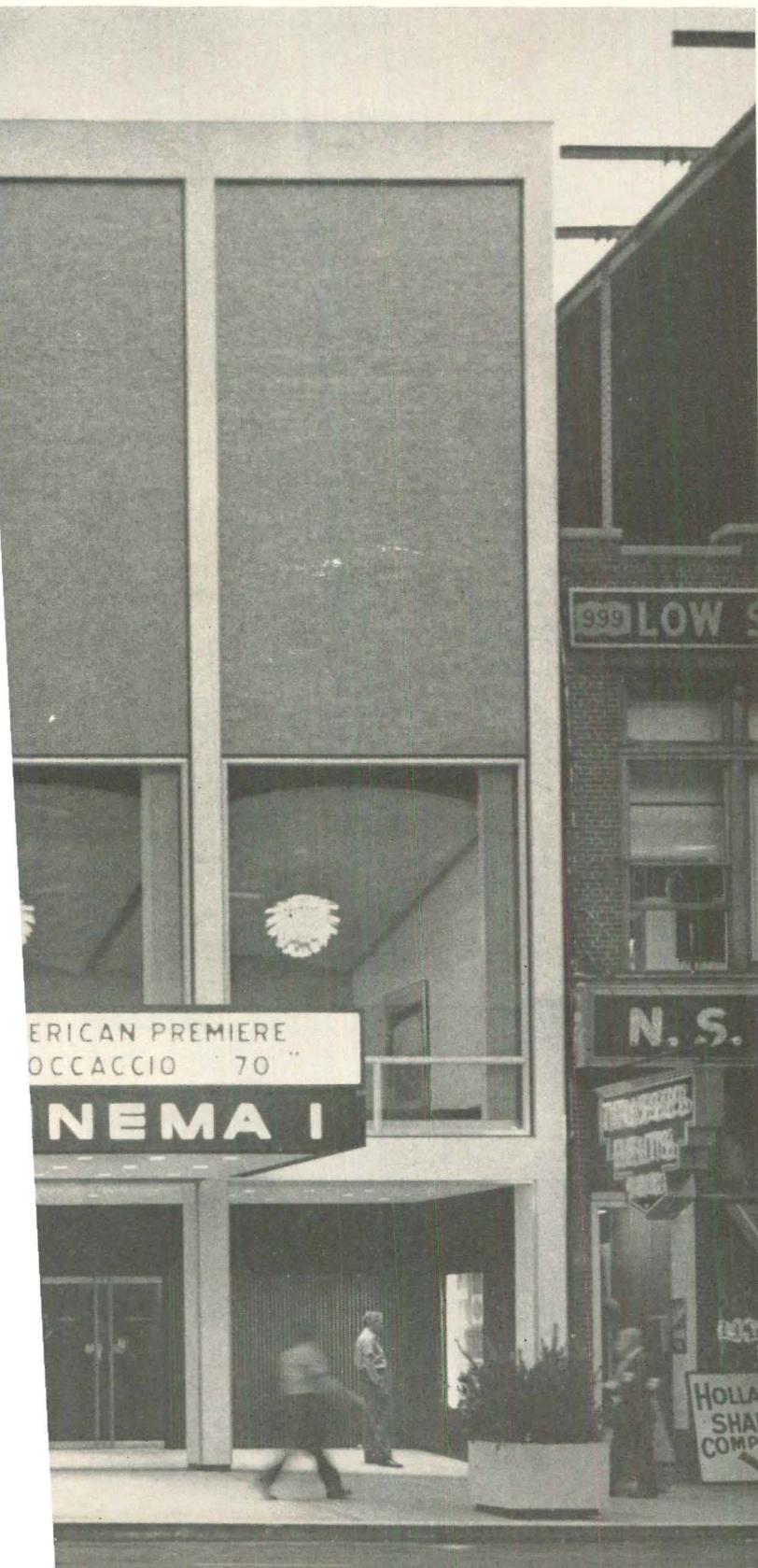
AMERICAN PREMIERE
"BOCCACCIO '70"
CINEMA II

AMERICAN PREMIERE
"BOCCACCIO '70"
CINEMA II

SPORTS
OTHER
ODS



GEORGE CSERNA



TWIN CINEMAS: FLEXIBLE SHOWCASE FOR FILMS

Profits may be gloomy news in Hollywood, but not in Manhattan's mushrooming "art"-movie district on the upper East Side. Fellini, De Sica, and Ingmar Bergman are "In" and so are Cinema I and Cinema II, an unusual pair of theaters designed by Architects Abraham Geller and Ben Schlanger. Since the theaters opened a few weeks ago, around-the-block lines have been waiting nightly not only to see "Boccaccio '70," an Italian import with Sophia Loren, but also to ogle the first double-decker cinema with continental seating to open in the U.S. Both of these concepts were incorporated by Architect and Theater Expert Ben Schlanger (who designed both auditoriums) into an overall design created by Architect Abraham Geller.

The twin theaters have already proved to be a remarkably flexible arrangement for both moviegoers and management. A big-name film can be shown at both Cinema I (capacity: 700) and Cinema II (capacity: 300); an added draw is that the starting times are staggered so that audiences have twice as many chances to arrive at the beginning. At the same time, the owners can try out a new movie in either one of the theaters when the reigning film begins to lag in attendance, or simply schedule two different features of different drawing power at any given date (each theater has its own entrance, marquee, ticket counter, and lobby). This way the Rugoff theater chain, which is leasing Cinemas I & II from the owning corporation, can offer the small, intimate theaters that art-film patrons seem to prefer while leaving the management free to schedule as demand indicates.

In the larger Cinema I (at top in section above), seating is continental style on the orchestra level. One aisle runs up each side of the theater with unbroken tiers of seats between. The prime space usually taken up by a central aisle has been saved and put into a 40-inch back-to-back clearance between rows, which allows people to enter from the sides and find seats quickly without climbing over each other. Cinema II has a more conventional aisle arrangement.

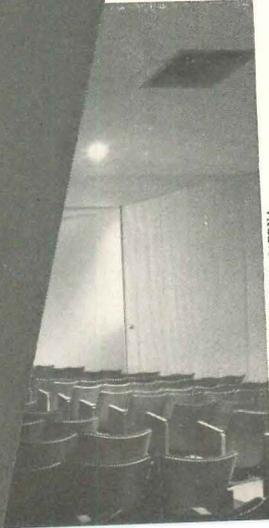
Chandeliers, coffee, and blue Venetian tile

The first theater building with an open façade in New York City, Cinema I has a second-floor lobby which is an open-air showcase for passers-by (photo left). In the evening, when the vertical blinds are drawn, outsiders can look in at the row of copper chandeliers and a constantly changing display of patrons coming and going and being served coffee and drinks on rolling carts. The glass wall is framed by marble shea

This final article in a series on urban renewal examines the numerous obstacles to more attractive



orium, below.



PHOTOS: GEORGE CSERNA

IN URBAN RENEWAL, WHO MANAGES URBAN DESIGN?

The picture on the opposite page is not Tobacco Road. It's a morale stopper for the people of St. Louis. They were promised that urban renewal would make their city ever so much more prosperous because attractive: but look at Mill Creek! Its slums were razed five years ago, yet there it stands, a scar, miles long, of dust, weeds, and cracked pavements that thousands on their way to the city center just can't miss. "To listen to them talk," wryly remarks a member of the Civic Progress Committee, "you would think it had been wonderful with the old slums."

St. Louis is not alone in displaying the kind of progressiveness, combined with lack of skill, which hangs a fine necklace in the shape of a Jefferson memorial arch over a city fabric that it treats like a dress of patched gunny sack. For this reason one of the strongest urban renewal problems for the federal government is now the design problem. Washington, D.C., had a prolonged "desert" period of the same kind in its Southwest area, except as Nature saved it with the surprising growth of the leftover trees. New Haven was a wreck while it gathered funds.

Raw ugliness, unredeemed by later uncorrelated action

Unhappily the raw ugliness of urban renewal, in the first ravaged phase, has not even been redeemed by later action in every instance. The ensemble of what was rebuilt, as a final answer, has too often been as repellent, though in a different way, as what it replaced.

The plain fact of the matter seems to be that America has had a new art to learn, beginning with the past 13 years. If cities before that "just grew" and depended entirely on accidental beauties and attractions provided by individual citizens, this was in part because the city *as such* had as yet no need to "sell" itself. Up to now we have had only 13 years in which to relearn the "urban design" art, which is all new to us, although it was familiar to predecessors as diverse as our Colonial ancestors, or the Roman popes, or the French Bourbon kings. This

explains the gaudy mismatching of random architectural designs, on redevelopment schemes without a guiding concept.

This explains also that even good architects, indeed even the best, have often fallen short on urban renewal jobs. For example Mr. Paul Rudolph, dean of the architectural school at Yale, has produced for New Haven a huge central parking ramp so enthusiastically designed as to suggest that worshipping at a temple for Jaguars, Thunderbirds—and Ramblers—is New Haven's prime objective. In Detroit, the superb Mies van der Rohe, working on Lafayette Park, fell into the hands of a planner who vastly overestimated the waste of land with which individual families might cope, while Mies overestimated the amount of publicity to the street that family life could take. At Nashville, Tennessee, the

trouble is different: lack of control by one organ of government over the rest. Consequently Mayor Ben West finds that the acropolis which is built as Tennessee's state capitol is festooned with highway spaghetti. The state highway department has grabbed the chance to prove that our real rulers today are not the occupants of the Capitol on the Hill but the moguls of Detroit—they and the gods of utter ugliness (photo, page 126).

Lack of guidance would seem to have been the common denominator in all these various defaults. Balanced against this discouragement there have been some successes. Many are on the side where there was less to learn: for example the spreading rehabilitation areas in Philadelphia which renewal did as much to set off as to create; some of the South-

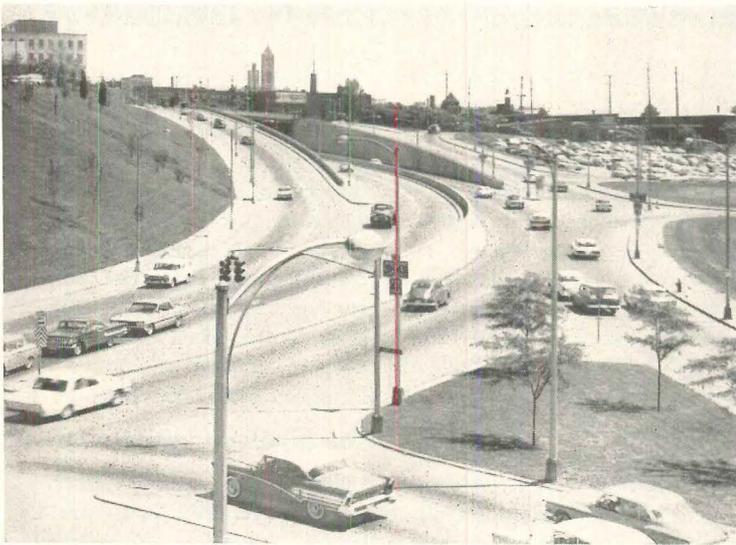
west area in Washington that is now rounding into shape; and, of a different sort, Philadelphia's Penn Center, a shining example that the art of urban arrangement can triumph over even the worst ineptitudes in some of the constituent parts. Penn Center will be very nice indeed within ten years, if the urban designers can keep it up. And cities like San Francisco also carry promise.

The problem: administration

The nubbin of the whole problem was recently laid bare by Urban Renewal Administrator William L. Slayton in an epoch-making talk at Eugene, Oregon. The immensely important base on which he took his stand was that the problem of urban design is an administrative one. It could not be solved by architects and plan-



The two St. Louis views (opposite page and above) show the fearful look of the razed Mill Creek redevelopment area and the happy look of housing in it by James H. Scheuer, redeveloper, with Mayer, Whittlesey & Glass, architects. But owing to lag in adjacent renewal these houses are still wilderness-surrounded, making them more difficult to fill.



Nashville, Tennessee: Unsophisticated highway engineering design has led to an urban design scramble through which a state capitol on its acropolis has lost dignity, overwhelmed by coiling concrete.

ners unless public administrators gave them a framework.

"We all speak of urban design, and yet we have not fashioned the handle with which to grasp it," was what Slayton said to NAHRO officials gathered in a "workshop" conference. "It is frightening that the administrator has to act as client, and as client has the responsibility for good design." The possibilities of what the city is to become are in his hands. This, said Slayton, meant that the administrator must create five things:

- 1) Design guidance in plan preparation by the city
- 2) Design emphasis in renewal plans
- 3) Design-oriented disposition of project land
- 4) Design guidance in selecting redevelopers, and
- 5) An experimental approach to urban renewal design.

The all-encompassing basic approach, regarding which he quoted HHFA Administrator Robert C. Weaver, his boss, was that "we

should give the *d* for design at least equal standing with the *d* for dollars in urban redevelopment."

In all of this, although the values to be created were undoubtedly economic, there was insufficient guidance to be found in the traditional "market acceptance" approach. The best inventions of urban renewal are unfamiliar to the public as yet, and the public cannot judge benefits which it has not seen. "The greatest obstacle to seemly cities has become the low standard of demand and expectation of their present inhabitants," Slayton quoted Frederick Gutheim as saying: "This is a direct expression of their having become habituated to the present environment and their incapacity to conceive of any better alternative."

Fortunately for Slayton there was a first-class example of renewal values created by coupling the two *d*'s, and effective in a new way which the public had not yet seen, in Eugene itself where the workshop gathered. Eugene's

much-touted, renewed Courthouse Square, first sponsored by the local architects, was carried out, though not by strictly urban renewal procedures, yet with the aid of federal funds. The payoff was that the latest land sale alongside the square, where land had originally been acquired at \$5 a square foot, was at the phenomenal rate of \$62. This was paid by a bank which felt that it simply had to be on that popular site: clear proof that urban attractiveness can be an economic good.

Design ahead of disposition

As an administrative procedure, "design guidance in plan preparation" was well described by Slayton in adequately generalized terms. But the clearest exposition of it comes from Philadelphia, where the best "handle" thus far has been supplied.

Here again the ultimate outcome, in design as otherwise, is assured, as Planning Director Edmund Bacon of Philadelphia has constantly stressed, by an orderly cycle of administrative operations.

In all of these there is intercommunication between the Redevelopment Authority, the Planning Commission, and the private Old Philadelphia Redevelopment Corporation.

First the city administration establishes *comprehensive top goals*, which come out of discussion with all the city's leaders. These are set down on an orderly *comprehensive city land-use plan*, which, as Bacon stresses, there are no areas left to vagueness.

Second, "design" in its broadest sense goes to work by fitting into this a "functional" plan covering



Washington, D.C.: Handsome redevelopment of the Southwest area results from design competitions, disencumbered of economic complications by the pegging of land at the same price to all developers.

all the various networks of city service, such as transportation, water and utilities supply, waste disposal, recreation. Superimposed on one another and fitted together, these make the plans work.

Third, the plan is brought into sharper detail, within city districts, where focal areas can then become *project areas*.

Fourth, the project area is worked up, in workable architectural detail, in advance of any disposition of land to developers. In this connection the art of architecture serves:

- a) to superimpose the functional plans for the area upon one another so as to make goals comprehensible; e.g. to correlate the transportation system into proper relationship to the pedestrian.
- b) to stimulate the public and secure support for projects by giving them an "image." Architectural renderings and models have been indispensable at this stage, where knowledge is disseminated to the public through outlets like newspapers.
- c) to give the basis for cost estimates and to establish the project as a financial entity—"a money drive that then takes its place with all other demands on city financial policy."

Fifth, and finally, there is annual review of the accomplished projects of the past year for the purpose of revising the provisions for work yet to be done, under a six-year capital program with an annual budget. Then the cycle turns again.

Upside-down architecture

In administrative routine such as Philadelphia's, there is a complete reversal of the accustomed architectural procedure.

"The procedure which is almost

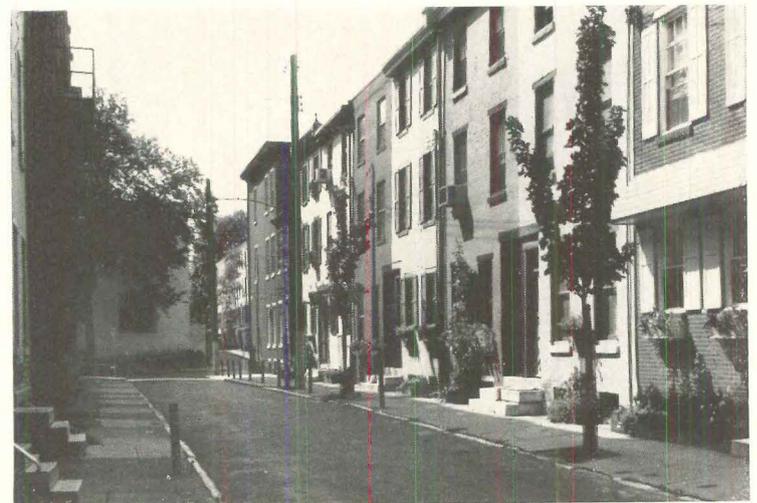
universal," says Bacon, "is that the client prepares *for* the architect a program which is then given to him. But in development at city scale, the program must be clarified by an architectural interpretation (meaning a three-dimensional scheme) even before the area is divided into parcels that can be apportioned to different developers." This voids the need for a lot of grinding work which still has to be done by wise administrators in cities where procedures are less developed. For example Redevelopment Administrator Justin Herman of San Francisco has had to rely on numerous persuasive sessions with developers and their architects to iron out the horrible disjointedness that could occur to a city district in renewal areas like the Western Addition where different redevelopment projects abut against one another.

In either case, whether all the preliminary work is done, as in Philadelphia, by an architectural department in the city planning commission, or more piecemeal as in other cities, it has been found wise in this phase to engage the best possible architectural consultants. Philadelphia itself, which operated for a long time with a full-time chief architect, Willo von Moltke, changed after his departure to obtain one day a week of critical reviewing by Italian-trained Architect Aldo Giurgola (already discovered by FORUM as a "comer"). On the preliminary schemes for individual project areas there has worked a whole gallery of well-known Philadelphia architects: Oskar Stonorov, Vincent Kling, Roy Larson, C. Preston Andrade, and others. Right now the young firm of Geddes, Brecher, Qualls & Cunningham is developing the preliminary plan for University City.

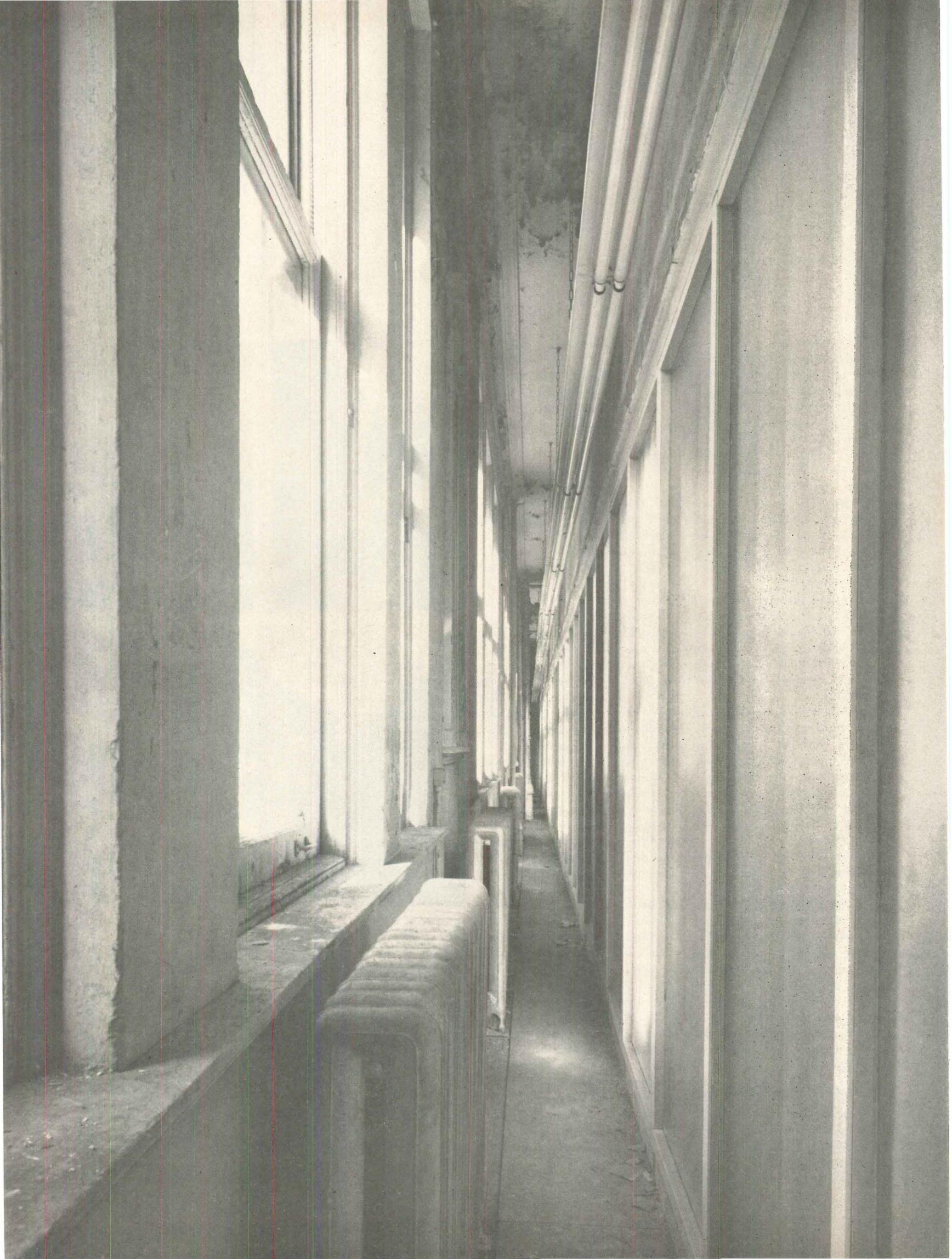
continued on page 140



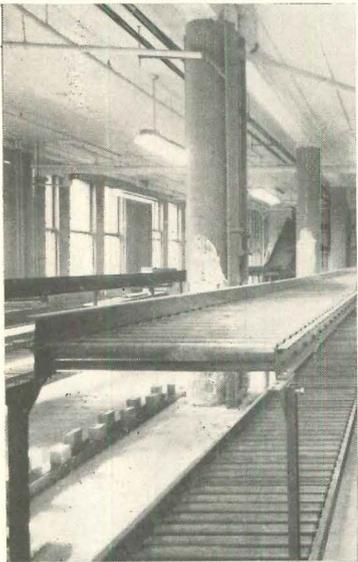
PHOTOS: DOUGLAS HASKELL



Philadelphia: A series of private projects of building or rehabilitation stimulated by the firmly designed city plan, serving the comprehensive city program: top left, Addison Street; top right, apartments built for Negro occupancy by Negro enterprise on Lombard Street, in a mixed population area, creating "positive integration." Center, Ringgold Place. Left, Penn Center proves that urban design can transcend individual building design: unambitious office buildings frame an exciting civic view. Ten years will be needed for completion of this ensemble of civic and commercial facilities.



THREE WAYS OF CREATING NEW SMALL-OFFICE SPACE



Warehouse floors (above) were automated. Offices (above and below) use movable steel partitions.

These days, space-hungry clients and their architects seem capable of rebuilding just about any kind of structure into efficient modern offices, often at a considerable saving under the cost of conventional new office space. The techniques are as varied as the buildings; and so, too, are the results.

BUILDING WITHIN A WAREHOUSE SHELL

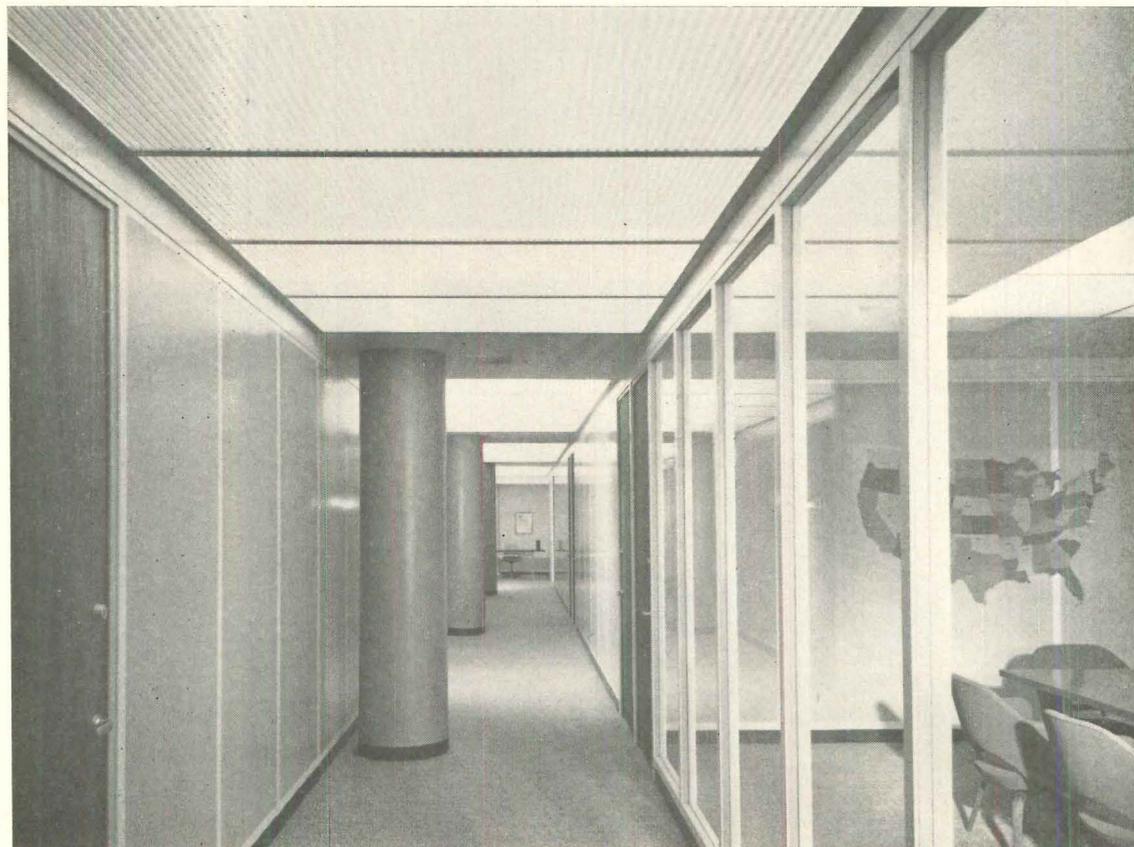
To construct a new office-warehouse in the heart of Manhattan would have cost Mangel Stores \$15 to \$20 per square foot for the building alone. Through clever remodeling, however, the New York-based chain of clothing stores got off lightly at about \$10 per square foot—including furnishings and equipment.

The architects accomplished this saving by taking an old six-story warehouse and using it as a shell to contain a modern building-within-a-building (photo, opposite page). Some floor area was sacrificed; but the technique completely eliminated the need to touch the building's exterior walls. And the old windows now serve as back lighting for the new offices, creating luminous walls.

The executive floor, sandwiched between warehouse floors, is fully air conditioned. Movable modular partitions enclose the luminous-ceilinged offices.

Warehouse floors were almost completely automated at a cost of \$500,000 to provide efficient storing, checking, and sending.

Architects: Davis, Brody, Juster & Wisniewski (now Davis, Brody & Wisniewski). Engineers: Wiesenfeld & Leon (structural), Bernard Greene (mechanical, electrical), Dasol Corp. (automation). Contractor: Mangel Stores.



PHOTOS: BEN SCHNALL

SPACIOUS OFFICES FROM A BROWNSTONE

The focus was on interiors in this conversion of a dilapidated Manhattan brownstone into offices for a charitable organization, the New York Friends Group. Once splendid, with spacious rooms and crusty cornices, the dwelling had long since been cut up into a rooming house. The object was to restore the original and preserve the fine old moldings and plasterwork as much as possible.

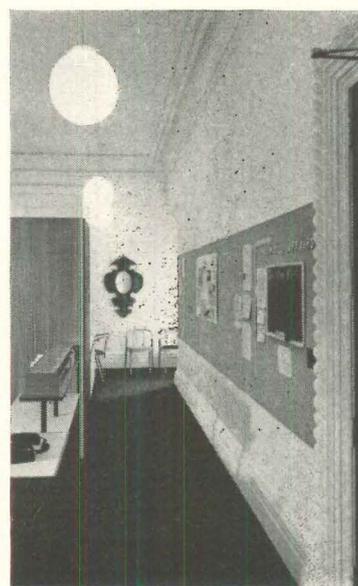
Partition removal, paint, and built-in furnishings were the chief methods. Three floors of offices resulted; the topmost accommodates two meeting rooms which open up to form one larger room. Here, a new dropped ceiling provides cove lighting (photo, right).

Architects: Van Summern & Weigold. Associate designer: J. H. Hall. General contractor: John Thatcher & Son. Remodeling cost: \$90,000 (\$16 per square foot), including built-ins and structural strengthening for office loads. The building was given anonymously in its remodeled condition.



PHOTOS: CHARLES N. PRATT

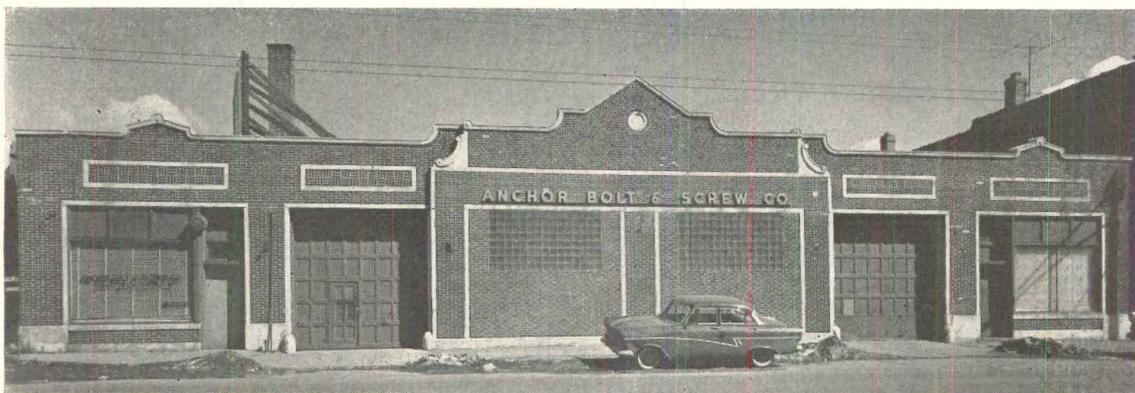
Conference floor is divisible by folding partition (above). Below: entrance stair, views of typical offices.



A FACTORY SECOND-DECKED FOR OFFICES

The one-story Chicago factory shown at right already occupied its entire site when management decided it needed additional modern office space. In adding a partial second story at the front of the building, the architect had to avoid interrupting the plant's busy production schedule.

The problem was solved by digging new footings individually, punching holes through the roof to accommodate new columns, enclosing the second story, and, finally, ripping out the old vaulted roof to make way for the new second floor. The façade was then stripped down and resurfaced with face brick (right). A sus-



HERMLIN STUDIO



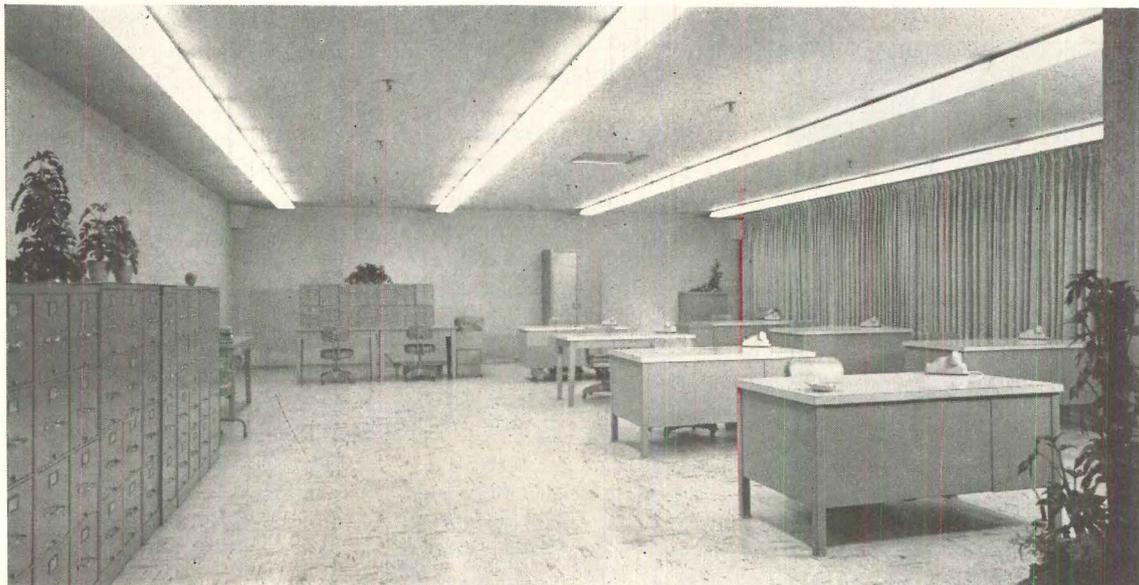
One-story factory (top photo) got a second deck for offices and a new face for the street (above)

HERMLIN STUDIO

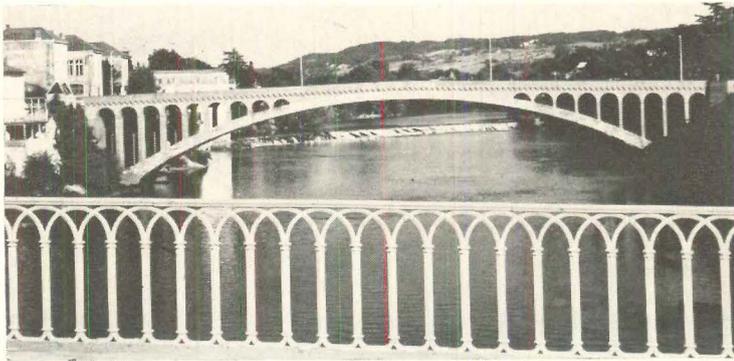


ended circular stair (above) was added inside, leading gracefully to the office floor. Luminous ceilings were originally planned for the office area (right). But, when the city required sprinklers, the additional \$9,000 expense was met by shifting to strip lighting.

Architect: Don Erickson. Engineers: Kolbjorn, Saether & Associates (structural), John Cartland (mechanical, electrical). General contractor: Anchor, Bolt & Screw Co. (owner). Cost: \$48,000.



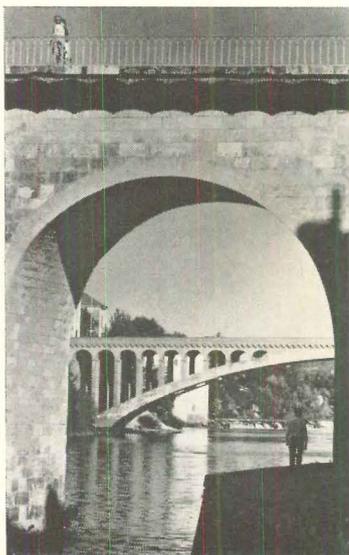
HERMLIN STUDIO



LOOK MA, NO RAILINGS!

The joys of civilization rest largely on little things, and one of them is the habit of building low, light railings or none at all in places where there are good views to be left unobstructed. The fine old bridge at Villeneuve-sur-Lot in France (foreground, photos top and bottom) has a low cast-iron spindle rail, acquired perhaps 50 years ago during a skillful widening. It not only dresses the heavy stone delicately against the sky as seen from below, but almost disappears entirely out of the view at normal car speeds on the road on top. A stroboscopic effect wipes out the spindles, and the low rail stays well below the outlook, so the view is fine. By contrast, American bridge engineers to a man build heavy railings or parapets to a height that blocks out all right-angle views, exactly up to the horizon.

No one has told American engineers—or code authorities—that a fine bridge deserves a good outlook even more than it deserves



good looks. The kind of view that opens up from a well-placed bridge cannot be equaled from any other vantage point. In earlier days, spindle rails prevailed throughout the U.S. as well as Europe, succeeding the Renaissance balustrades. Why not again? (By the way, some thruway engineers have learned how to minimize accidents with inconspicuous V-shaped ditches instead of pillboxes and fortifications. Congratulations!)

As for Amsterdam's charming "lack of protection" on its canal fronts (photo right), it is easy to imagine how these lovely streets would fare at the hands of a good, virtuous U.S. traffic safety director. Big pillbox constructions of masonry, pipes, and wire would fill the scene to protect the community, less against any real danger than against the get-rich-quick artists in damage claims.

Holland gives people who have silly accidents short shrift: those who drive drunk into the drink, or who leave the brakes off so the car rolls into the canal, must pay a fine of \$200 to the police, on top of their dredging costs.

THE HAPPY GRIDDLECAKE

The British are about to turn large parts of London into the gridiron street pattern, as I learn on secret evidence. This comes by deduction from a paper, as yet unpublished, by a younger British critic, criticizing the gridiron street-and-city pattern in America. This kind of criticism is simply the technique of wise British caution, feeling out new ideas Britain is reluctantly concerned with. Thus for a long time the British criticized America for building skyscrapers and producing con-

gestion: then Britain got skyscrapers. It is the same with many another "American horror."

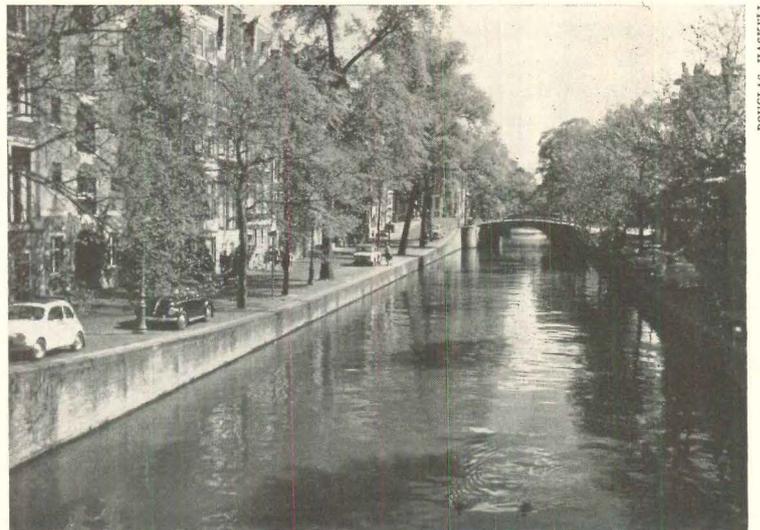
Would that British criticism would go after the faults of the gridiron plan the right way, not the backhanded way! They could then make a real advance on us. It's quite useless to pretend trying to get the grid abolished, for its conveniences are too overwhelming. The young American idealists of the 1920s inveighed against the dullness of existing gridiron schemes, which was real, but what did they get us? The FHA pig's-tail scheme, that's what they got us! It has streets that meander. They start nowhere special, they end nowhere special, they curve no way special, they reduce cityscape to nothing special—or indeed nothing at all—but how they do meander! So do

by overhead bridges, by point accents, and even by being bent where that is sensible.

How to design a good grid city is a fit subject of international competition. For Europe too will soon have many more grids, along with some of the other newer devices. Efficiency is a need of cities.

FEDERAL BEAUTY

Recent months have been wonderful: listening in Eugene, Ore., to a NAHRO workshop based on the stipulation that urban renewal projects must have design quality to be federally acceptable; learning from Architect John Warnecke in San Francisco how a western architect approaches the first Washington, D.C., square (it's Lafayette, of course) not given over to the Beaux-Arts gang; learning about Pennsylvania Ave-



DOUGLAS HASKELL

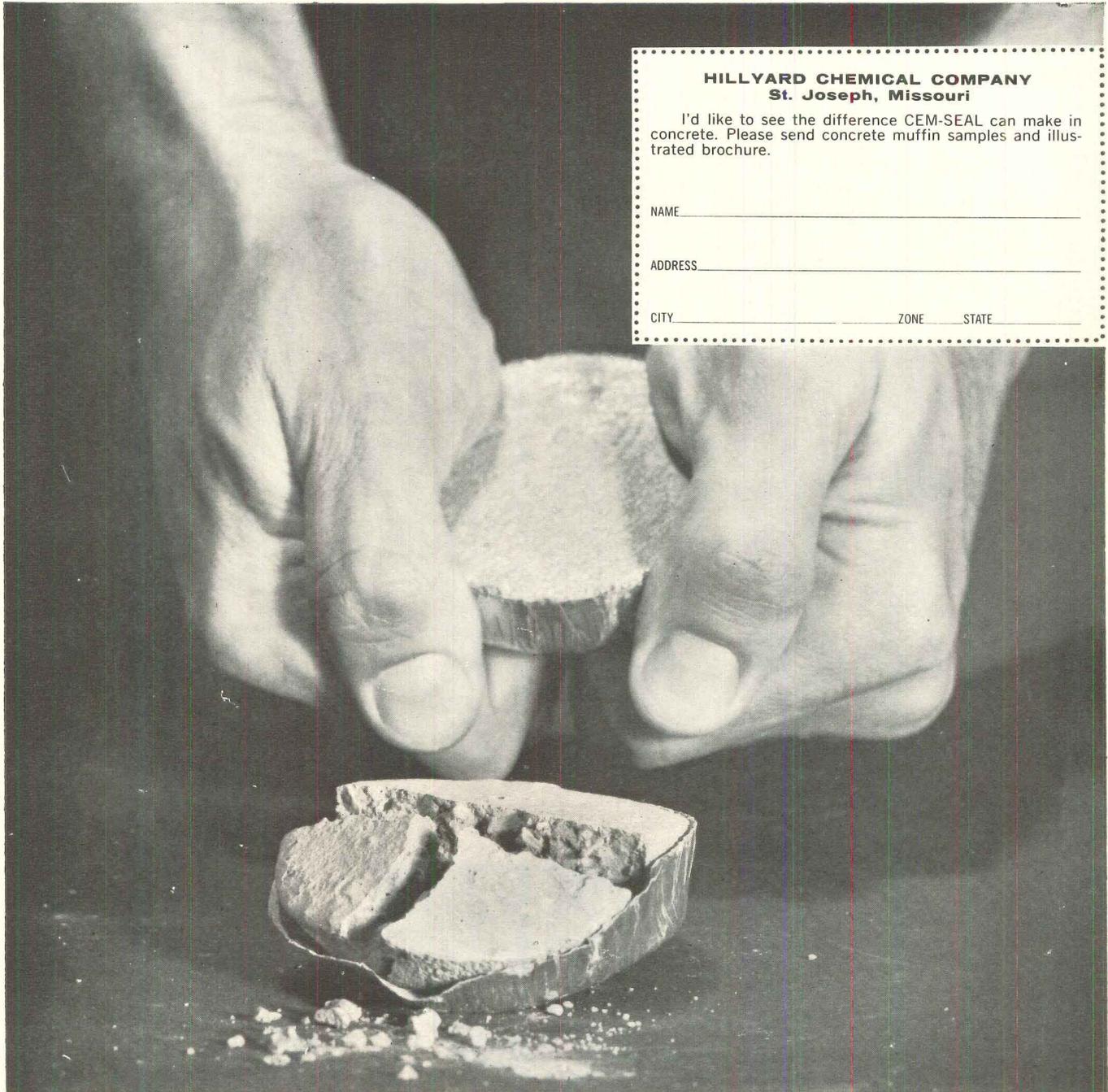
people, wandering those streets holding in their hands addresses which the confusion renders all but unfindable.

No, the criticism the gridiron plan needs is criticism in the light of what the grid *could* be like. There never was a law that blocks of buildings erected on the grid must follow the grid slavishly or, in other words, be designed by blockheads. (Nor need chess be dull because played on a chessboard.) Frank Lloyd Wright drew all his plans on paper ruled in squares—and look how wonderful his buildings were! A grid exists both to be there and to be broken: broken by levels, by varied street boundaries, by alleys and squares,

and a wonderful challenge in the joint federal-and-business renewal of the capital.

With action, such as the administration has inaugurated, there comes new knowledge, too. For example: believe it or not, those ugly "temporaries" out there on the Mall have friends; those wrecks are not just derelicts, the way you too must have thought they were. Just who these friends are, and why, the news columns of FORUM will be bound to divulge to you, as action exhumes them out of obscurity.

Douglas Haskell



**HILLYARD CHEMICAL COMPANY
St. Joseph, Missouri**

I'd like to see the difference CEM-SEAL can make in concrete. Please send concrete muffin samples and illustrated brochure.

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

try our concrete muffin test . . .

HILLYARD CEM-SEAL makes concrete denser, stronger. CEM-SEAL works three ways: Retards evaporation of moisture to prolong curing time... prevents dusting which occurs when moisture evaporates too rapidly... protects against staining during construction.

To assure greater density for the concrete in structures you design, specify CEM-SEAL, the *one-step* curative agent which prolongs natural chemical action.

CEM-SEAL makes fresh concrete ready for traffic hours earlier without cumbersome, costly, inconvenient covering . . . simply spray it on at a fraction of a cent per foot. CEM-SEAL adds years to the life of old concrete, too . . . a one-coat application resists the natural dusting of age and renews the surface for easier maintenance.

Test CEM-SEAL yourself. We'll send you concrete muffin samples for comparison, plus our CEM-SEAL brochure with technical data. Write, wire or call collect today.



**HILLYARD
FLOOR
TREATMENTS**

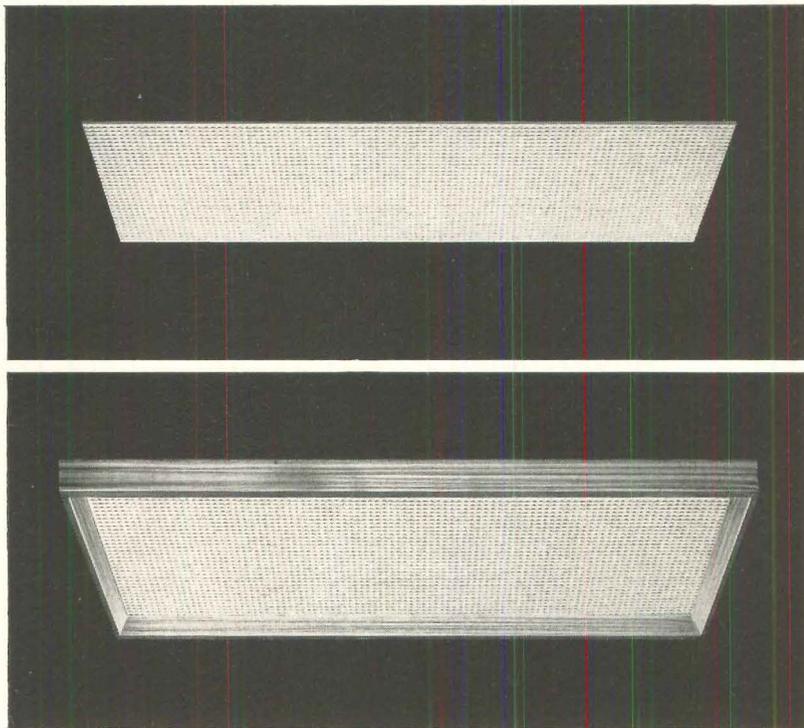
**St. Joseph,
Missouri,
U.S.A.**

Passaic, New Jersey
San Jose, California

"On your staff, not your payroll" / **PROPRIETARY CHEMISTS SINCE 1907**

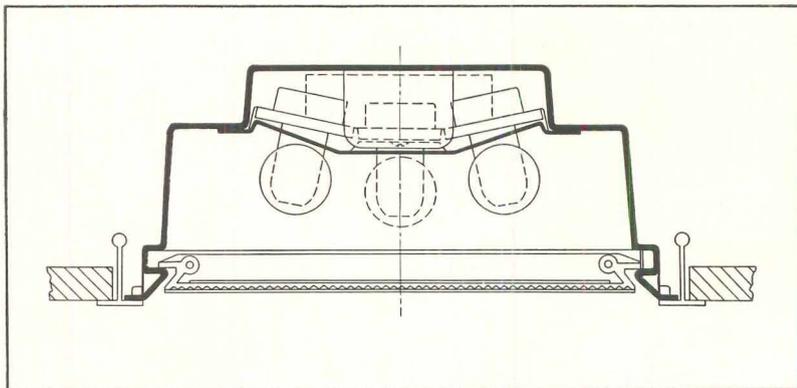


No visible means of support!



No hardware, no gaps, no "frame-within-a-frame." All that meets the eye is a clean, precise rectangle of light. The diagram on the left reveals the secret: ingenious self-supporting shieldings. These were devised by Lightolier engineers to eliminate the mechanical look of so many of today's recessed fixtures.

Lightolier's advanced recessed designs are also available with decorative walnut frames, so that important areas can be accented while over-all design continuity is maintained. Built to Lightolier's high standards of construction and efficiency, these fluorescents are available in 1' x 4', 2' x 4', and 2' x 2' sizes and in a range of wattages—with prismatic or diffuse shieldings—to meet virtually any performance, budget or ceiling requirement. For further information, write for Brochure 39, Lightolier, Jersey City 5, N. J., Dept. AF-9.



LIGHTOLIER®

New York, Chicago, Dallas, Los Angeles

See these new Lightoliers at any Distributor listed on page 136

LIGHTOLIER®

New York, Chicago, Dallas, Los Angeles fixtures are stocked and sold by the following Distributors:

ALABAMA
Birmingham: Mayer Elec. Sup. Co. Mobile: F. E. Smith Elec. Co.

ALASKA
Anchorage: Northern Sup. Co.

ARIZONA
Phoenix: Brown Wholesale Elec. Tucson: Beacon Ltg. Fix. Co.

ARKANSAS
Little Rock: Adcock Ltg. & Sup.

CALIFORNIA
Bakersfield: San Joaquin Whlse. Elec. Co. Fresno: Electrical Suppliers, Inc. Los Angeles: Gough Industries, Inc. Palm Springs: Tri-County Elec. Whlrs. Riverside: Tri-County Elec. Whlrs. Sacramento: Capital Whlse. Elec. Co. San Bernardino: Tri-County Elec. Whlrs. San Diego: Sunlight Elec. Sup. Co. San Francisco: California Elec. Sup. Co.

COLORADO
Denver: Central Elec. Sup. Co.

CONNECTICUT
Bridgeport: B. M. Tower Co., Inc. Hartford: Beacon Light & Sup. Co. New Haven: Grand Light & Sup. Co. New London: United Elec. Sup. Co. South Norwalk: Klaf's Inc. Stamford: Marle Co. Waterbury: Starbuck Sprague Co., Suburban Supply Co.

DISTRICT OF COLUMBIA
Washington: Maurice Elec. Sup. Co., National Elec. Wholesalers

FLORIDA
Miami: Farrey's Whlse. Hdwe. Co.

GEORGIA
Atlanta: Atlanta Ltg. Fix. Co., Electrical Wholesalers, Noland Co. Augusta: Hart Elec. Sup. Co. Columbus: P. & W. Elec. Sup. Co. Macon: Noland Co.

HAWAII
Honolulu: Hawaiian Light & Sup. Co.

ILLINOIS
Champaign: Tepper Elec. Sup. Co. Chicago: Etengge Elec. Sup. Co., Englewood Elec. Sup. Co., Harlo Elec. Sup. Co., Hyland Elec. Sup. Co., Metropolitan Elec. Sup., Steiner Elec. Co., Wholesale Elec. Sup. Co. Elgin: Fox Elec. Sup. Co. Joliet: Joliet Elec. Sup. Rockford: Englewood Elec. Sup. Co. Springfield: Springfield Elec. Sup. Co.

INDIANA
Ft. Wayne: Mossman-Yarnelle Co. Gary: Englewood Elec. Sup. Co. Indianapolis: Farrell-Argast Elec. Co. South Bend: Englewood Elec. Sup. Co.

IOWA
Des Moines: Weston Lighting, Inc.

KANSAS
Kansas City: W. T. Foley Elec. Co. Wichita: Architectural Lighting, Inc.

KENTUCKY
Louisville: Henry J. Rueff Co.

LOUISIANA
Baton Rouge: Electrical Wholesalers, Inc. New Orleans: Interstate Elec. Co.

MAINE
Bangor: Standard Elec. Co. Portland: Holmes Elec. Supply Co.

MARYLAND
Baltimore: Baltimore Gas Light Co., Dominion Elec. Sup. Co. Hagerstown: Noland Co., Tristate Elec. Sup. Co. Salisbury: Artcraft Elec. Sup. Co.

MASSACHUSETTS
Boston: Boston Lamp Co., Mass. Gas & Elec. Light Co., Henry L. Wolfers, Inc. Pittsfield: Carr Supply Co. Springfield: M. W. Zimmerman, Inc. Waltham: Standard Elec. Worcester: Benjamin Elec. Sup. Co.

MICHIGAN
Benton Harbor: West Michigan Elec. Co. Detroit: Madison Elec. Co., Michigan Chandelier Co. Flint: Royalite Co. Grand Rapids: Purchase Elec. Sup. Co. Jackson: Electric Wholesale Sup. Co. Kalamazoo: West Michigan Elec. Co. Lansing: Michigan Elec. Sup. Co. Muskegon: Fitzpatrick Elec. Sup. Co. Pontiac: Standard Elec. Sup. Co. Saginaw: Schermerheim Elec. Co., Standard Elec. Sup. Co.

MINNESOTA
Duluth: Northern Elec. Sup. Co. Minneapolis: Freeman Elec. Sup. Co., North Central Elec. Distr. Co., Northland Elec. Sup. Co., Terminal Elec. Corp. St. Paul: Lax Elec. Co.

MISSISSIPPI
Jackson: Stuart C. Irby Co.

MISSOURI
Kansas City: Glasco Elec. Co., Rossner Elec. Sup. Co. St. Louis: M. K. Clark, Glasco Electric Co. Springfield: Southern Materials Co.

MONTANA
Great Falls: Glacier State Elec.

NEBRASKA
Lincoln: White Electric Supply Co. Omaha: Electric Fix. & Sup. Co.

NEVADA
Reno: Western Elec. Dists. Co.

NEW HAMPSHIRE
Portsmouth: Mass. Gas & Elec. Light Co.

NEW JERSEY
Atlantic City: Franklin Elec. Sup. Co. Camden: National Elec. Sup. Co. Cherry Hill (Delaware Township): Flynn's Camden Elec. Sup. Co.

NEW MEXICO
Albuquerque: The Lighting & Maint. Co.

NEW YORK
Binghamton: Freije Elec. Sup. Co. Buffalo: Buffalo Incand. Light Co., Inc. Nanuet (Rockland Co.): Rockland Lighting. Niagara Falls: Hysen Supplies Inc. Poughkeepsie: Electra Sup. Co. Rochester: Rowe Electric Sup. Co. Schenectady: American Elec. Sup. Co. Syracuse: Superior Elec. Corp. White Plains: Wolar Lighting Corp.

NORTH CAROLINA
Asheville: Electric Sup. Co. Charlotte: Independent Elec. Sup. Co. Durham: Noland Co. Greensboro: Elec. Sup. & Equip. Co. High Point: Electric Sup. Inc. Kinston: Kinston Elec. Raleigh: Electrical Equipment Co. Winston-Salem: Noland Co.

NORTH DAKOTA
Fargo: Border States Elec. Sup. Co., Northwest Elec. Sup. Inc.

OHIO
Akron: The Sacks Elec. Sup. Co. Canton: Electric Sales Co. Cincinnati: B. & B. Elec. Co., F. D. Lawrence Electric Co., Richards Elec. Sup. Co. Cleveland: The H. Leff Electric Co., Midland Elec. Co. Columbus: Elgee Elec. Co., The Loeb Elec. Co. Dayton: Duellman Elec. Co. Lima: State Elec. Sup. Corp. Springfield: The W. W. Elec. Co. Toledo: Gross Elec. Fix. Co. Youngstown: The Braff Ltg. Fix. Co.

OKLAHOMA
Oklahoma City: Elec. Sup. of Oklahoma, Hunzicker Bros.

OREGON
Portland: Baker-Barkon Co., Malloy Robinson Co.

PENNSYLVANIA
Allentown: Coleman Elec. Co. Erie: Kraus Elec. Co. Harrisburg: Fluorescent Sup. Co., Schaedler Bros. Hazleton: Power Elec. Co. Lancaster: Graybill's New Castle: Midwestern Elec. Co. Norristown: Norristown Elec. Sup. Co. Philadelphia: Gold Seal Elec. Sup. Co., Logan Elec. Sup. Co., Inc., Pyramid Elec. Sup. Co., Inc., Silver's Elec. Sup. Co., Sylvan Elec. Fix. Co., West Phila. Elec. Sup. Co. Pittsburgh: Allied Elec. Sup. Co., Argo Lite Studios, Brown & Green, Wally Elec. Sup. Co. Reading: Coleman Elec. Co. Scranton: Lewis & Reif, Inc. Uniontown: Pioneer Electric Dist. West Chester: West Chester Elec. Sup. Co. Wilkes-Barre: Anthracite Elec. Williamsport: Lowry Electric Co. York: Graybill's

RHODE ISLAND
Pawtucket: Major Elec. Sup. Co. Providence: Leavitt Colson Co., Tops Elec. Sup. Co.

SOUTH CAROLINA
Columbia: Capital Elec. Sup., Noland Co. Greenville: Sullivan Hdwe. Co.

SOUTH DAKOTA
Watertown: J. H. Larson Elec. Co.

TENNESSEE
Chattanooga: Mills & Lupton Sup. Co., Noland Co. Knoxville: The Keener Co. Memphis: Belvedere Lighting Co. Nashville: Nashville Elec. Sup. Co.

TEXAS
Brownsville: Electric Fix. Sup. Co. Dallas: Rogers Elec. Sup. Co. Ft. Worth: Anderson Fixture Co., Cummins Supply Co., General Industrial Sup. Corp. Houston: Anderson Lighting Co., Gulf Coast Elec. Sup. Co., Inc., Marlin Associates, Worth Elec. Sup. Co. San Antonio: Electrical Distrib. Co., Southern Equip. Co., Straus-Frank Co., Worth Elec. Sup. Co. Waco: Dealers Elec. Sup. Co.

UTAH
Salt Lake City: Artistic Lighting

VIRGINIA
Arlington: Dominion Elec. Sup. Co. Inc., Noland Co. Lynchburg: Mid-State Elec. Sup. Co., Inc. Richmond: Atlantic Elec. Sup. Co. Roanoke: Noland Co.

WASHINGTON
Seattle: Seattle Lighting Fix. Co.

WEST VIRGINIA
Bluefield: Bluefield Supply Co. Charleston: Capital Light Co., Goldfarb Elec. Sup. Co. Wheeling: The Front Co.

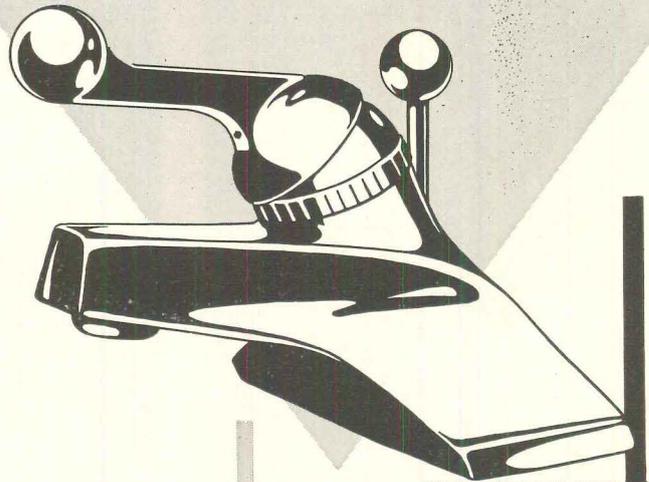
WISCONSIN
Appleton: Moe Northern Co. Eau Claire: W. H. Hobbs Supply Co. La Crosse: W. A. Roosevelt Co. Milwaukee: Electric-Craft Lighting, Lappin Electric Co., Standard Elec. Sup. Co. Racine: Milch Elec. Sup. Co.

CANADA
Edmonton: Alberta Elec. Sup. Ltd. Montreal: L.D.G. Products, Inc., Gray Elec. Co., Union Elec. Sup. Co. Ltd. Toronto: Revere Elec. Dist., Toronto Ltg. Studios, Union Elec. Sup.

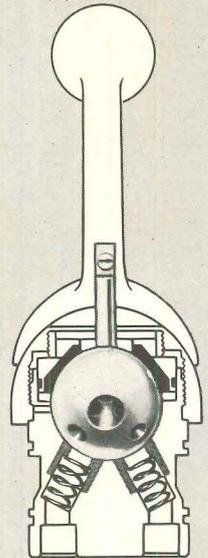
PUERTO RICO
San Juan: Sole Electric

DELTA®

SINGLE HANDLE BALL FAUCETS



ONLY
ONE
MOVING
PART



Shown here is a cut-away of the heart of the Delta Faucet. Note the expert simplicity in design excellence. Having only ONE moving part (the ball) it is readily understandable WHY the DELTA faucet is considered the finest . . .

Positively THE FINEST !

for your convenience . . . DELTA faucets are available in over 400 model applications . . . each giving years of DEPENDABLE service.



DELTA FAUCET CORPORATION

GREENSBURG, INDIANA

DELTA FAUCET OF CANADA LTD.
2489 BLOOR STREET TORONTO 9, CANADA

See new solutions to current lighting problems at the Lightolier Architectural Displays, 11 E. 36, N. Y. 16. Come in anytime from 9-5.

STRUCTURE AND FORM IN MODERN ARCHITECTURE. By Curt Siegel. Reinhold Publishing Corp., 430 Park Avenue, New York 22, N.Y. 308 pp. 10" x 10½". Illus. \$14.

Professor Siegel, who teaches engineering to students of architecture at the Stuttgart Technische Hochschule, has given us another big picture book cataloguing the riches of today's structural technology. It has the most provocative text and the worst pictures in any book of its kind. This is surprising because it was first published in Germany, where graphic art standards are high.

The book tackles the question of the esthetics of structural form head on and with notable attention to the refinement of detail. Eighteen pages, for example, are devoted to the problem of turning a corner in skeleton-frame design. The qualitative analysis of space frames and thin shell structures is equally comprehensive.

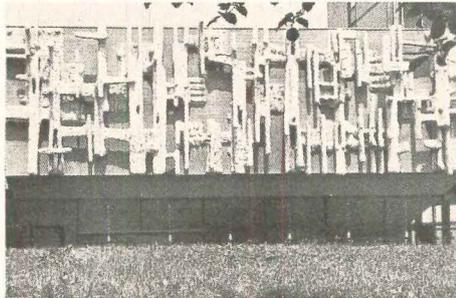
Students of architecture and practicing architects who have felt blocked from a true understanding of the newer structural forms because they lack the analytical tools of the engineer will find help in this book. After a careful reading, they should at least be able to produce preliminary designs involving sophisticated structures that will not have to be junked after the first talk with the engineers.

One warning: the involvement of the engineer-author with questions of design philosophy makes the text exciting, but is not without its shortcomings. Professor Siegel makes it quite clear that he believes the only valid esthetic consideration in our time is the expression of structural behavior. He laments the fact that space planning or environmental control needs may sometimes be allowed to interfere with the pure expression of structure.—B.P.S.

SCULPTURE ON BUILDINGS. By Dr. Urs Boeck. Published by Universe Books, 381 Park Ave. South, New York 16, N.Y. 208 pp. 9" x 11½". Illus. \$12.

Any book exploring relationships in creative areas is inevitably personal. Dr. Urs Boeck's assembly of photographs with introductory text is no exception: he feels very strongly that the full unity of architecture and sculpture has never been properly presented in either critical or pictorial terms. His concern, as he states it, is "to demonstrate the creative tension involved in the combination of two art forms, and then to trace its history right up to the present day." The demonstration is effective, and the enthusiasm of Dr. Boeck both pleasant and impressive.

This is not a complete history of sculpture on buildings. Its content is deliberately limited for the purpose of illustrating the author's theme. There is a temporal continuity, fitting past solutions of the problems inherent in combining the two creative mediums to the requirements of their own times, and serving to underline the break in



Freiburg concrete relief by Hajek (1959); Last Judgment angels (ca. 1300) at Arles.

tradition which marks the beginning of modern architecture with its apparent doubt of the communion between architecture and sculpture. Particular attention is paid to the delicate shifts of importance between structure and decoration in various periods and places, and to those rare moments in time and space at which the sculptor and the builder reached full communion—or were the same man, as in the cases of Daedalus and Phidias—and the synthesis became total, ornament and structure indistinguishable.

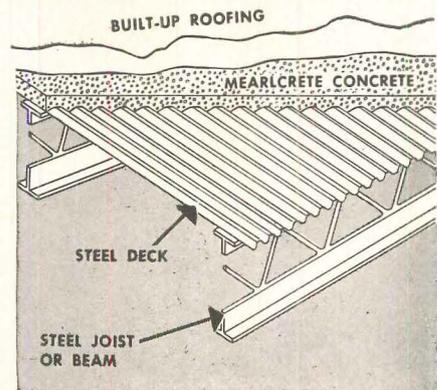
Photography and production are excellent. Descriptions are surprisingly technical and thorough, though the intent is interpretive. Altogether a provocative as well as a beautiful book, one that may make even the most confident professional reconsider his theory and practice.—A. LEC.

EXHIBITIONS, ARCHITECTURE, DISPLAYS. Edited by Roberto Aloï. Published by Ulrico Hoepli Editore, Via Hoepli 5, Milan, Italy. Distributed in U.S. by W. S. Heinman, 400 East 72nd St., New York 21, N.Y. 337 pp. 9" x 11". Illus. \$20.

With the U.S. currently World's Fair-conscious from coast to coast this book might well be required reading for all entrepreneurs, exhibitors, and designers. An introduction by Architect Agnoldomenico Pica presents an illustrated guide through landmarks of exhibit design since Le Corbusier's "L'Esprit nouveau" pavilion at the 1925 Paris International Exhibition of decorative arts. It is interesting to compare some of the earlier exhibits, which now seem curiously old-fashioned and gauche, with the early but still-fresh work of Corbu, Walter Gropius, Franco Albini, and Max Bill. Pica also includes a refreshingly frank discussion on whether or not "the undeniable urban

continued on page 151

MEARLCRETE insulating ROOF DECKS



fast

Place over 40,000 square feet of insulating roof deck daily!

lightweight

Permits savings on structural steel frame!

economical

Competitive with all other systems!

Pumped into place as an insulating, leveling or drainage fill over galvanized corrugated steel deck, prestressed, precast or cast-in-place concrete or as a lightweight insulating structural deck on a formboard and bulb tee system, Mearlcrete offers many advantages. Here are a few:

CONTROLLED QUALITY—Mearlcrete is installed only by franchised trained applicators.

FIRE RESISTANT—Rated "Incombustible" in accord with National Building Code recommended by National Board of Fire Underwriters.

FASTER DRYING—Low water content... 1/3 that required for other poured decks... permits shorter completion schedules.

HIGH INSULATING VALUE—Reduces initial cost and operating cost of heating and cooling plant.



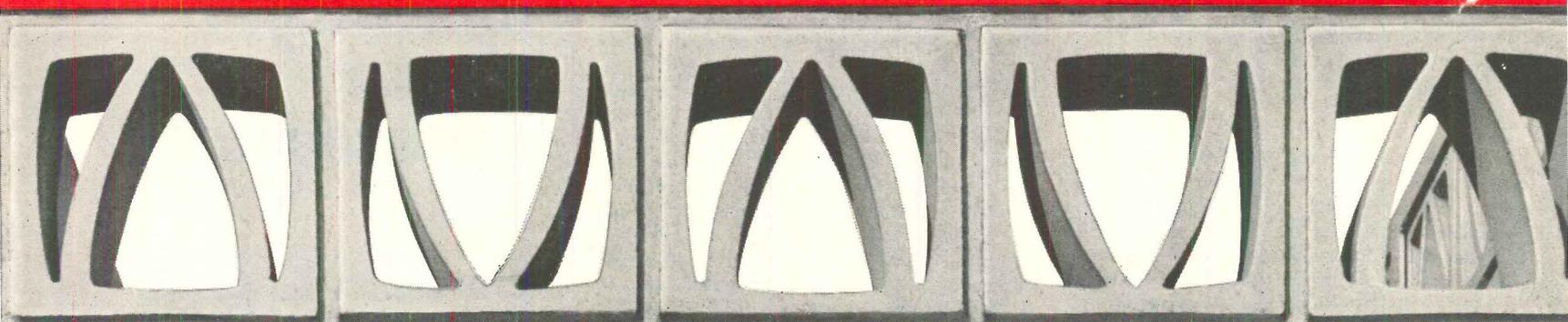
WRITE FOR TECHNICAL BULLETIN R411A with complete data on Mearlcrete Foam Concrete and the name of your local Mearlcrete contractor.

#9362

MEARL chemical corporation

220 Westfield Ave. West, Roselle Park, N.J.
CHestnut 5-9500

Great new things
are shaping up
in concrete block



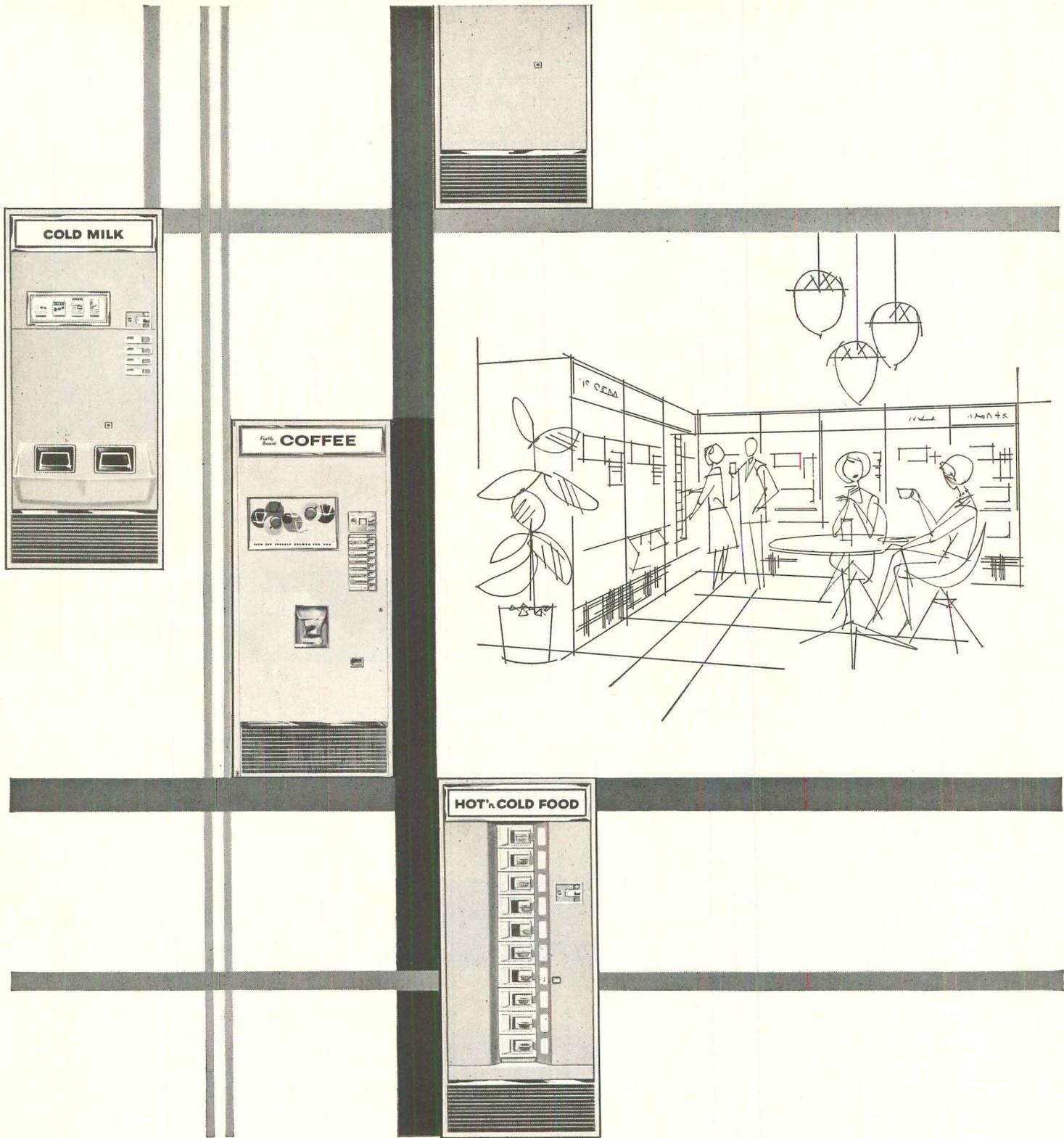
Open up for beauty. Concrete grille block makes open fences that give passers-by fascinating glimpses of the modern building on the other side. At the same time they screen out sun and wind. Pierced designs available range from simple squares and oblongs to lacelike circles, diamonds, triangles and webs. Other uses in building design include accent, curtain, exterior and interior walls. For information on grille block, see your local block producer. ■ To lay up any concrete block, ATLAS MASONRY CEMENT provides the right mortar. It produces a smooth, workable mix . . . saves labor and waste . . . gives weather-tight joints that are uniform in color. Complies with ASTM and Federal Specifications. For information on masonry cement, write Universal Atlas, 100 Park Avenue, New York 17, N. Y.



**Universal Atlas Cement
Division of
United States Steel**

M-89

"USS" and "Atlas" are registered trademarks



Vendo modular concept provides
more food and refreshment per square foot

Here's the answer for clients whose plans call for volume feeding in a minimum of space. Vendo equipment is designed to save space...make layout easy and simplify feeding problems. The need for manual service counters and extensive kitchen facilities on the premises is eliminated with the installation of this clean, functional-looking automatic vending equipment. Investigate its many possibilities—mail the coupon today!

Refer to Sweet's Catalog File 25a/Ve for details and specifications on the complete line of Vendo equipment.

Vendo[®]
World's largest manufacturer of
automatic merchandising equipment

(attach to your letterhead)

AF-5

THE VENDO COMPANY
1221 Baltimore Avenue, Kansas City 5, Missouri
Please send me more information on Automatic Food
Service Installations.

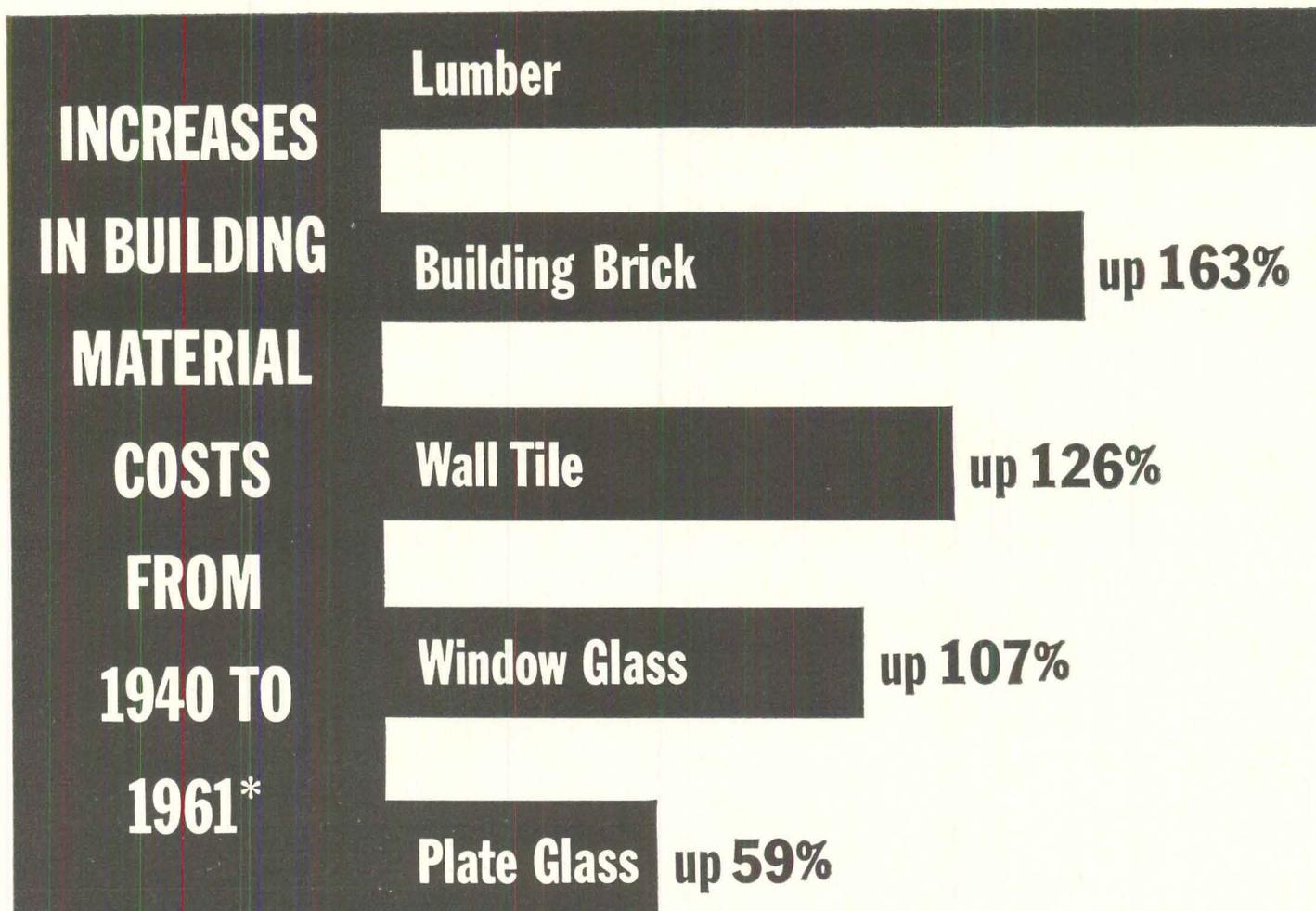
Name _____

Company _____

Street _____

City _____ State _____

Explodi



*SOURCES: U. S. Bureau of Labor Statistics. Costs for plate and window glass, 1940 to 1961, based on company records of wholesale prices.

Libbey-Owens-Ford Glass Company
811 Madison Avenue, Toledo 2, Ohio

ng ... a popular misconception

up 238%

When some people see beautiful, modern buildings with friendly, open expanses of clear glass, they jump to false conclusions. Somehow they confuse expansiveness with expensiveness.

You, of course, know better. Glass is not expensive, just looks it. In fact, with glass you are getting the *one* wall construction material that has been least affected by spiraling building costs. See chart at left.

When you consider building costs, consider also operating costs. Nothing brings in more *free* illumination (daylight) than clear glass.

And glass can contribute to heating and air-conditioning economies: **Thermopane**[®] insulating glass cuts heat loss through windows to about half that lost through single glazing to reduce heating costs.

L·O·F Grey Plate Glass (there are several thicknesses) greatly reduces solar heat gain in buildings to reduce air-conditioning equipment requirements and operating expense. It also subdues glare.

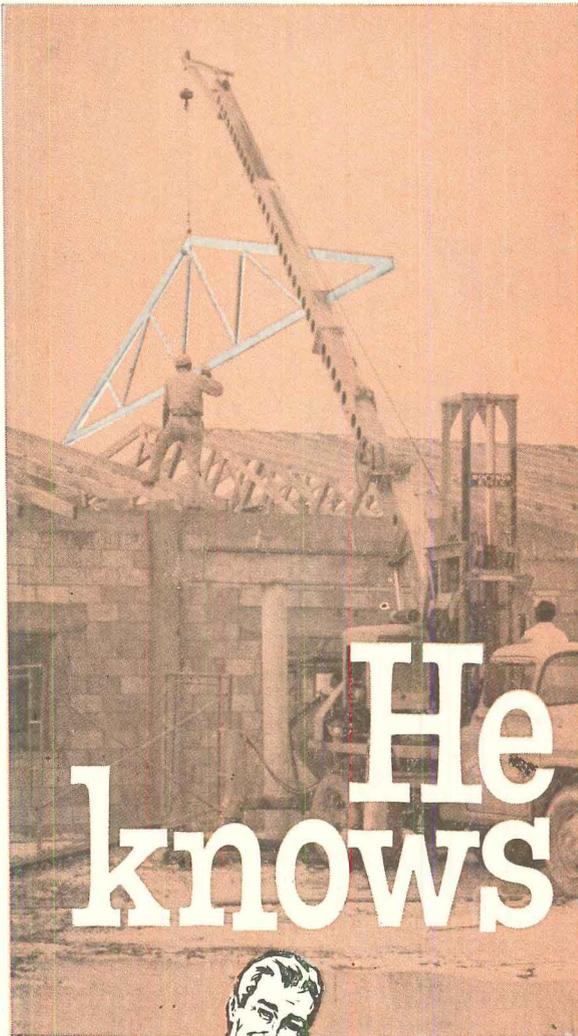
Engineering studies conducted at Southern Methodist University by Prof. J. W. Griffith, international authority on daylighting, show that heat generated by abnormal wattage needed for lighting a windowless school usually creates a need for more expensive air-conditioning equipment—and makes it more costly to operate—than in a school where daylighting supplements normal artificial illumination.

For technical information on glass, call your L·O·F distributor or dealer, listed under "Glass" in the Yellow Pages. Or write to L·O·F, 192 Libbey-Owens-Ford Building, Toledo 2, Ohio.

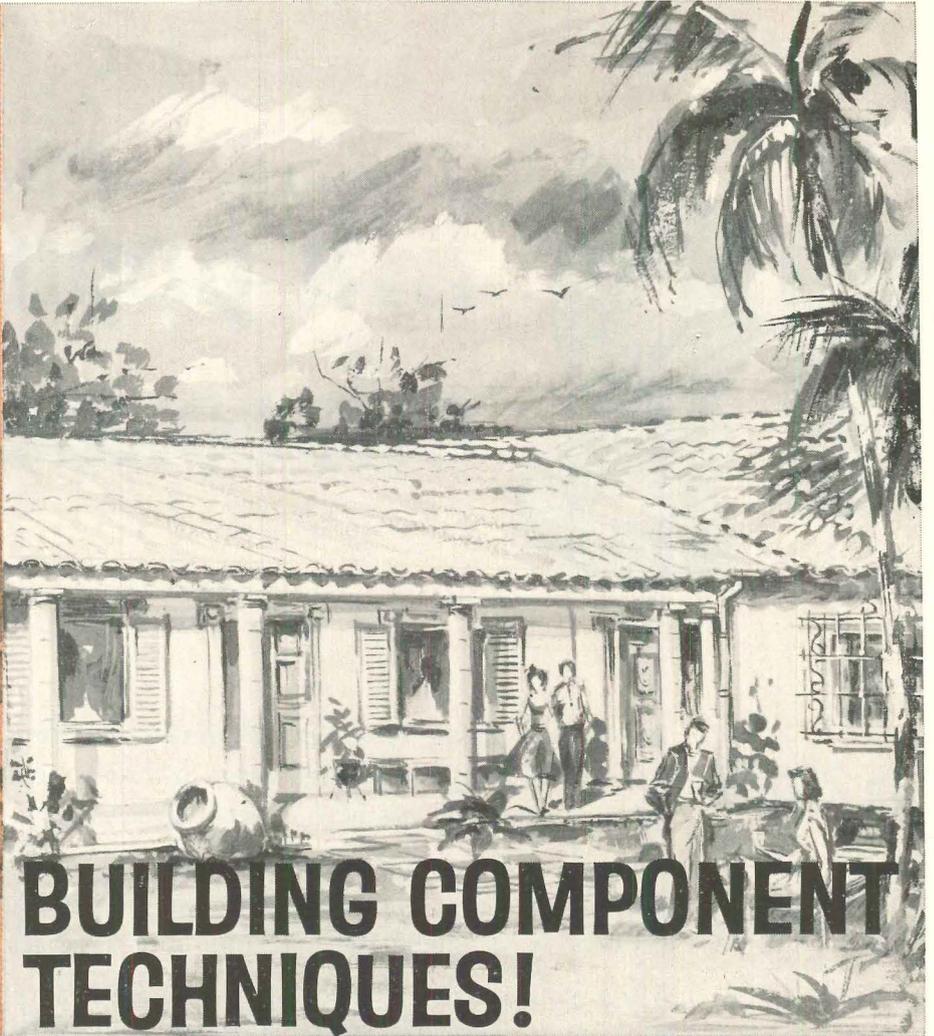
MADE IN U.S.A.



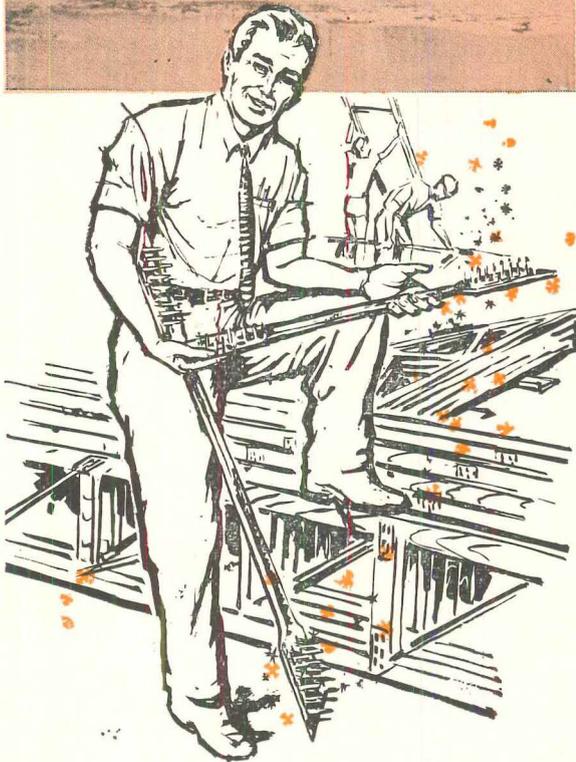
a Great Name in Glass



He knows



BUILDING COMPONENT TECHNIQUES!



He's your **GANG-NAIL[®] FABRICATOR**

He can give you welcome information on time-saving, labor-saving, cost-saving components of ALL kinds.

He's backed by the industry's most extensive design library. He has a greater variety of special purpose connector plates to use — to do your job right. His automated presses turn out superbly accurate, precision-made components.

When you plan your next job, don't tie yourself to roof trusses alone. The more components you use, the greater your savings. And your GANG-NAIL FABRICATOR has the greatest variety of components, both residential and commercial, available in the industry today.

Automated Building Components, Inc.

P.O. Box 47-836 • Miami, Florida • Phone 696-0930 • Area Code 305

In Canada:

Automated Building Components, Inc. (Western Hemisphere)

50 Howden Road • Scarborough, Ontario

continued from page 145

LAMSON AIRTUBE® COMMUNICATION SYSTEMS



*handle
all
mail
as
"airmail"*

...automatically

Something for architects to remember when next designing new structures or up-dating old ones.

AUTOMATIC AIRTUBES can deliver enormous quantities of mail and other paper . . . quickly and continuously . . . to any number of locations.

Yet . . . an AUTOMATIC SYSTEM requires a minimum number of transmission tubes (2 will service 10 stations) and the AUTOMATIC MONITOR eliminates all manual transfer, speeding service and providing 'round the clock operation if need be.

Check LAMSON before specifying any other method. Send for the new AIRTUBE catalog. Just clip this advertisement to your letterhead and mail to 112 Lamson Street, Syracuse, New York.

LAMSON
CORPORATION

chaos" and "risk of boredom" are worth today's enormous expenditures of money and effort on expositions. His conclusion: "We are inclined to doubt that the world is really willing to renounce these superbly spectacular occasions or that the nations of the world are inclined to abandon this potent weapon of prestige, this efficacious vehicle of international communication."

Pictures, plans, and thorough construction details are presented for almost every major international or regional exhibition through 1959. Sixty-eight pages are devoted to the 1958 Brussels Fair alone. Text is in Italian (with good English translations).—A.P.

ARCHITECTS' YEAR BOOK NO. 10. Edited by Trevor Dannatt. Published by Elek Books Ltd., 14 Great James St., London W. C. 1. 348 pp. 7" x 9½". Illus. \$8.25

Eugen Gomringer catalogues the diverse talents of Max Bill. Geno Pampaloni comments bitingly, almost bitterly, on Italian architecture of the 1950s. Seven buildings by the Swiss architect Ernest Gisell make their strong, spare, individual statements. Aldo van Eyck touchingly describes the design of his remarkable orphanage in Rotterdam.

Somehow all of this winds up between the covers of the latest Year Book, along with monographs whose subjects range from ancient Greek town planning to the building of adobe schoolhouses in the hinterland of Peru. It is a potpourri, but a rich one, tasteful and thoughtful.—D.C.

OFFICE BUILDINGS. By Jurgen Joedicke. Published by Frederick A. Praeger, Inc., 64 University Place, New York 3, N.Y. 219 pp. 8½" x 11". Illus. \$15.

In the opening section of this encyclopedic work, the author examines selected buildings first for plan, then structure, then exterior wall construction, then mechanical and electrical systems. The second section is a picture portfolio, primarily for business clients. Most of the buildings are familiar, but the drawings are excellent and the photos handsomely reproduced.

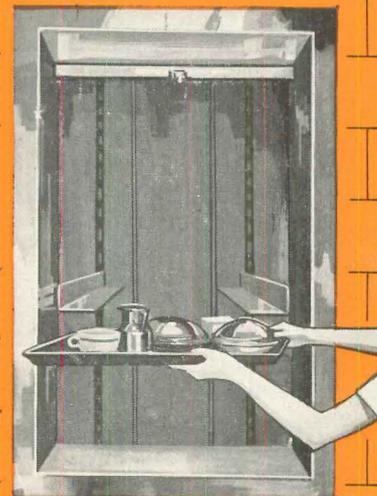
CITY PLANNING: a basic bibliography of sources and trends. By George Bestor and Holway Jones. Published by California Council of Civil Engineers and Land Surveyors, 1107 Ninth St., Sacramento 14, Calif. 195 pp. 8½" x 11". Paperbound. \$3.

This is the best bibliography yet in the field of city planning, and a godsend to anybody needing to know the sources of information in this all-encompassing field.

There are over 1,200 references, each annotated and evaluated, covering the gamut from the general (histories of cities) to the specific (zoning, air pollution, population, housing, annexation, and street naming).

A monumental work, highly recommended to architects, housers, and planners. END

LAMSON TRAYVEYOR®



*makes one
kitchen*

*serve all
floors*

Up this slim shaftway come 8 trayloads of piping hot food every minute. Down it, after mealtimes, go all soiled trays direct to the washing area.

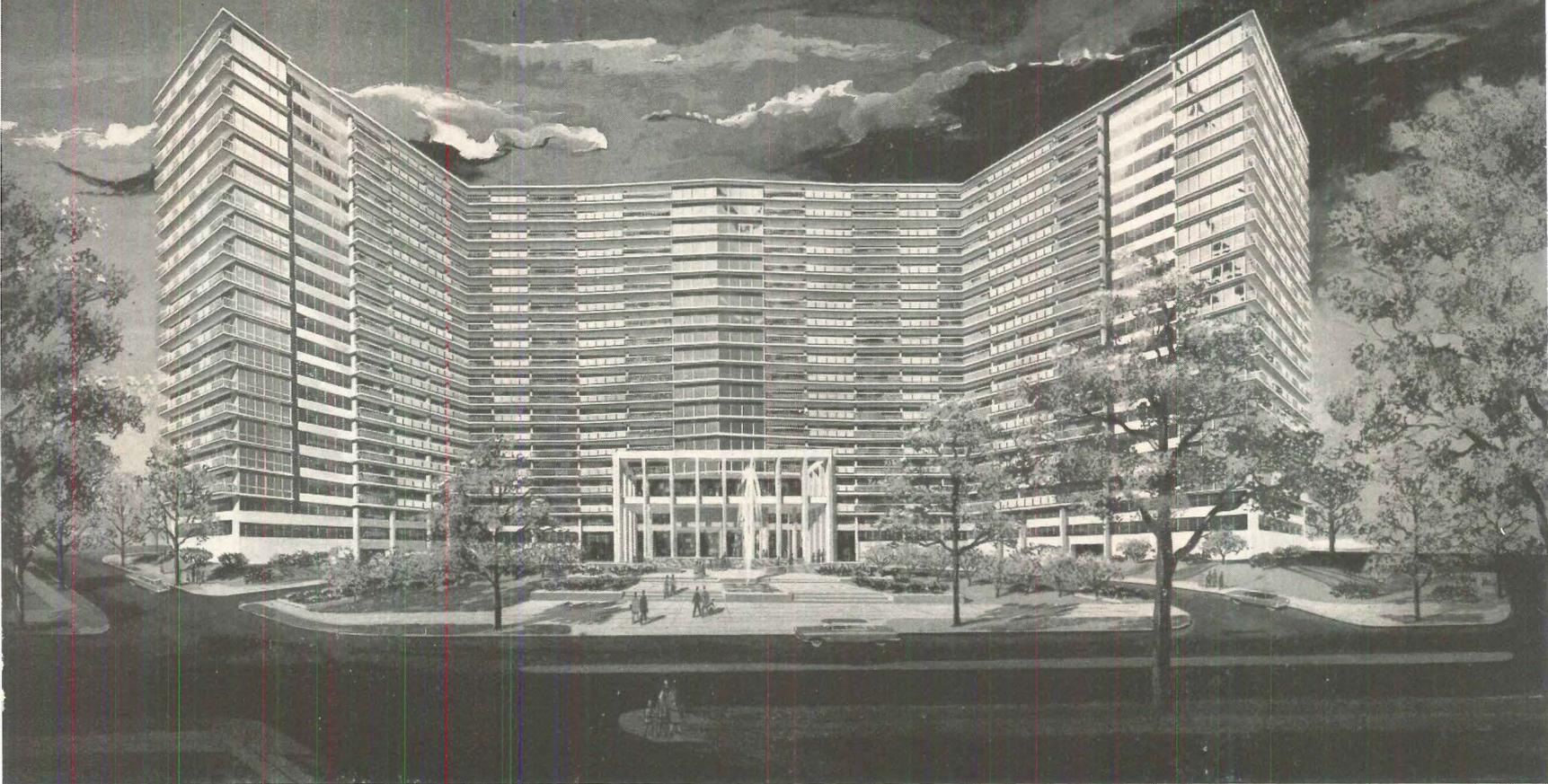
Simple. Efficient. The LAMSON TRAYVEYOR cuts through high-cost duplications that traditionally mar institutional feeding.

Gone are the crowded elevators . . . the floor diet kitchens . . . the scattered, scurrying personnel and all the other by-products of decentralized confusion.

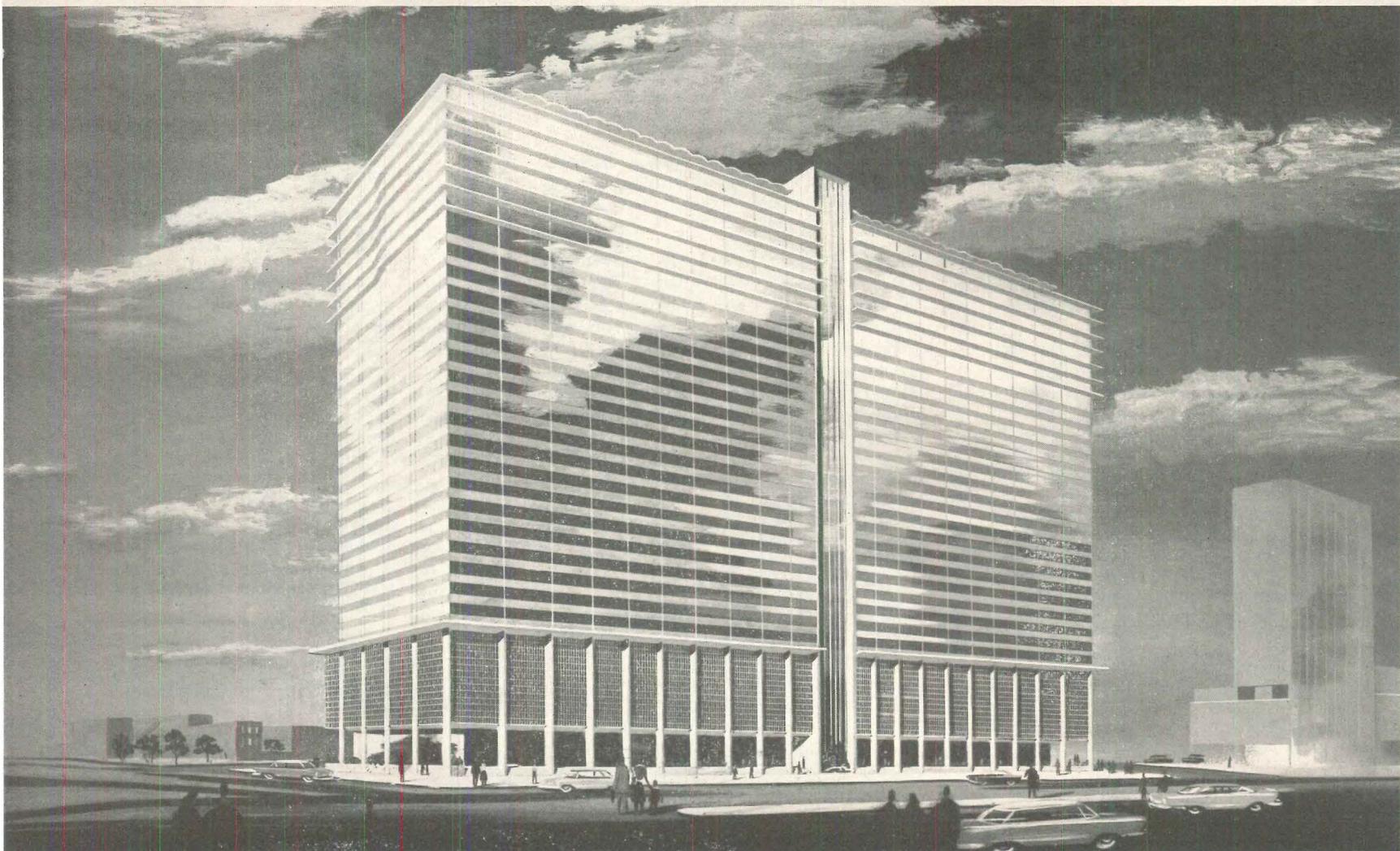
A LAMSON TRAYVEYOR gives you administrative and service control over all your feeding problems and costs. Consider one for your institution. Get the full story. Write today to 112 Lamson Street, Syracuse, New York.

LAMSON
CORPORATION

The Philadelphia Story...



THE PHILADELPHIAN—20 stories, 776 units—400 car garage



PENN TOWERS—30 stories—518 units—4 floors for commercial use—135 car garage

HIGH RISE GOES GYPSUM DRYWALL



PARK CITY WEST—21 stories—350 terraced units—200 car garage

The face and skyline of historical Philadelphia are being changed by new, magnificent commercial and residential buildings. Impressive and beautiful structures of glass and metal, incorporating original designs for comfort, convenience, pleasurable living are rising rapidly — among them the works of imaginative and pioneering architect, Samuel I. Oshiver of Samuel I. Oshiver and Associates.

In these luxurious yet unusually functional high-rise apartments, Bestwall Gypsum Wallboard, reinforced with glass fibers, is being used for construction of the most advanced systems of walls, ceilings and partitions.

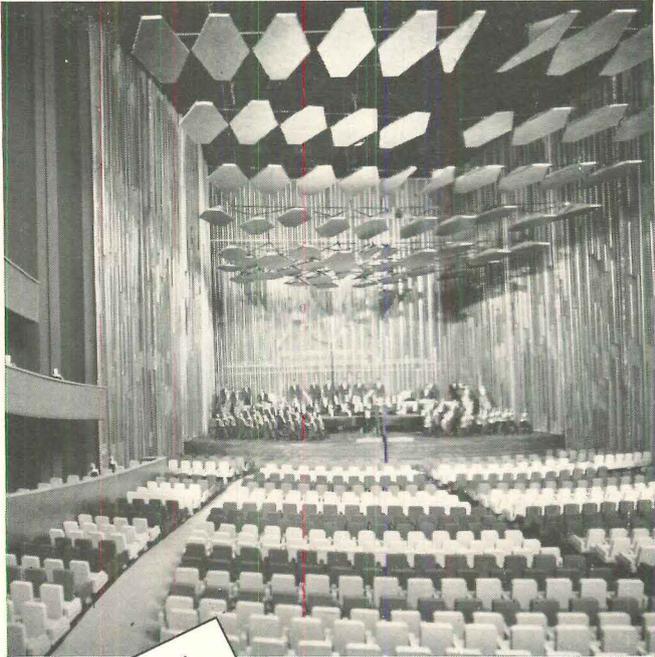
Bestwall Gypsum Wallboard in various assemblies meets the requirements of the Owner, Architect, General Contractor, Drywall Contractor, City Building Codes, FHA, Loaning Agencies by providing substantial, long-lasting constructions erected at low cost with speed and minimum waste, reducing sound transmission, and achieving 1, 2 or 3 hour fire ratings.

Bestwall provides qualified Systems Engineers to assist in all Gypsum Wallboard Partition Systems whether single layer, multi-layer laminated, metal stud screw-on application, or metal framing movable. Call our nearest office or Bestwall Gypsum Company, Ardmore, Pa.

Plants and offices throughout the United States.



Lighting News 
 AT **PHILHARMONIC HALL**
 IN NEW YORK'S LINCOLN CENTER
 FOR THE PERFORMING ARTS 



Max Abramovitz, Architect

*...another
 installation
 by **KLIEGL***

Keynoted throughout by newness, this showcase of the symphony introduces a wide range of stage and interior lighting innovations. Designed by Richard Kelly—and developed and produced by Kliegl Bros., lighting at the Philharmonic promises to establish trends for years to come.

Though yours may be a project far different from a Lincoln Center, the same Kliegl assistance is available to you. The experience of more than half a century can be applied to your lighting whether the job is small or large. Our broad knowledge and skill in optics and reflector design can provide a solution for any lighting application. You gain important savings in time and money *plus* long-term satisfaction. There is no obligation—call on your Kliegl representative or write us direct today.

Our lighting advisors will be pleased to assist in the planning of any installation, using standard or special units to meet your requirements. Full details on request.

lighting

KLIEGL BROS.

ORIGINATORS AND MANUFACTURERS OF KLIEGLIGHTS
 321 W. 50th ST., NEW YORK 19, N. Y.
 Telephone: Area Code 212, COlumbus 5-0130

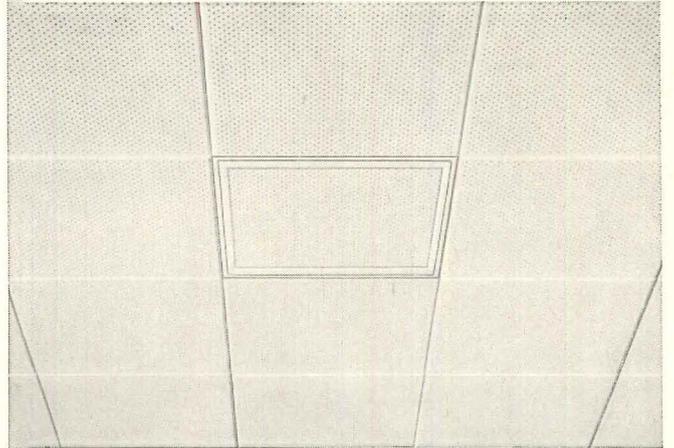
2-311

AGITAIR® *Perfair*

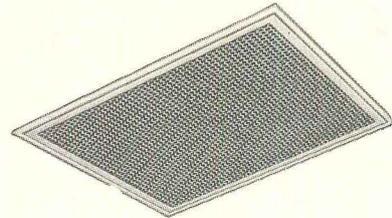
PERFORATED AIR OUTLETS

ADJUSTABLE — NON-ADJUSTABLE
 SQUARE AND RECTANGULAR

the Ultimate in Application Versatility



AGITAIR PERFAIR diffusers provide the architect with a concealed air outlet that blends in perfectly with acoustical ceilings rather than calling attention to the mechanical installation. To complete the cycle of air distribution and conform with the architectural design, PERFAIR diffusers are also available as return or exhaust units in matching designs.



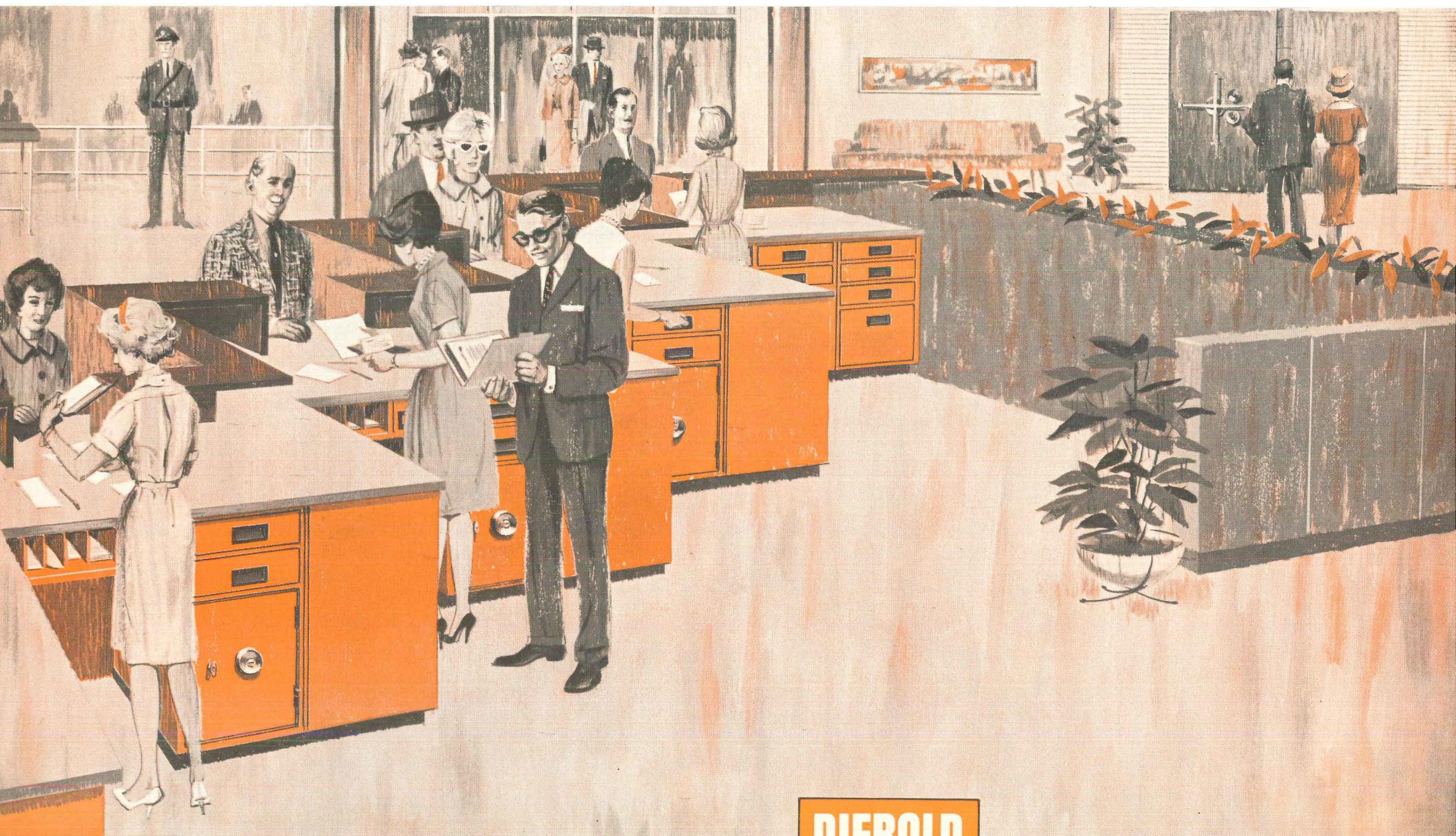
PERFAIR diffusers incorporate smartly designed mounting frames and exclusive AGITAIR removable diffuser cores which provide unmatched blow patterns in 1-2-3-4 way blows. The inner cores have an added feature...built-in direction controllers that provide deflection of the air stream from one or more sides individually in varying degrees from horizontal to downward delivery of air.

AGITAIR PERFAIR air diffusers are available for surface or tile mounting that will not only blend in with the ceiling design but will distribute the air noiselessly and draftlessly. AGITAIR PERFAIR is another genuine product designed for Better Air.

Send for complete Perfair Catalog

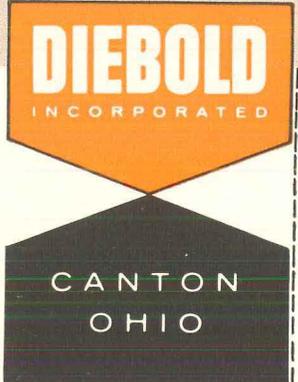
AIR DEVICES INC.
 185 MADISON AVENUE • NEW YORK 16, N. Y.

BETTER PRODUCTS FOR
 AIR DISTRIBUTION • AIR CLEANING • AIR EXHAUST



why more and more tellers are counting on us

Diebold Modular Bank Counter Equipment offers unprecedented design versatility and manufacturing craftsmanship. In addition, our planning department can help you and your clients realize time savings of up to 40% by co-ordinating this function within Diebold's century-plus bank equipment experience. For details without obligation, please use coupon.



DIEBOLD, Incorporated Dept. B-14
 Canton 2, Ohio

Gentlemen: Please send me complete information on Diebold Modular Counter Equipment.

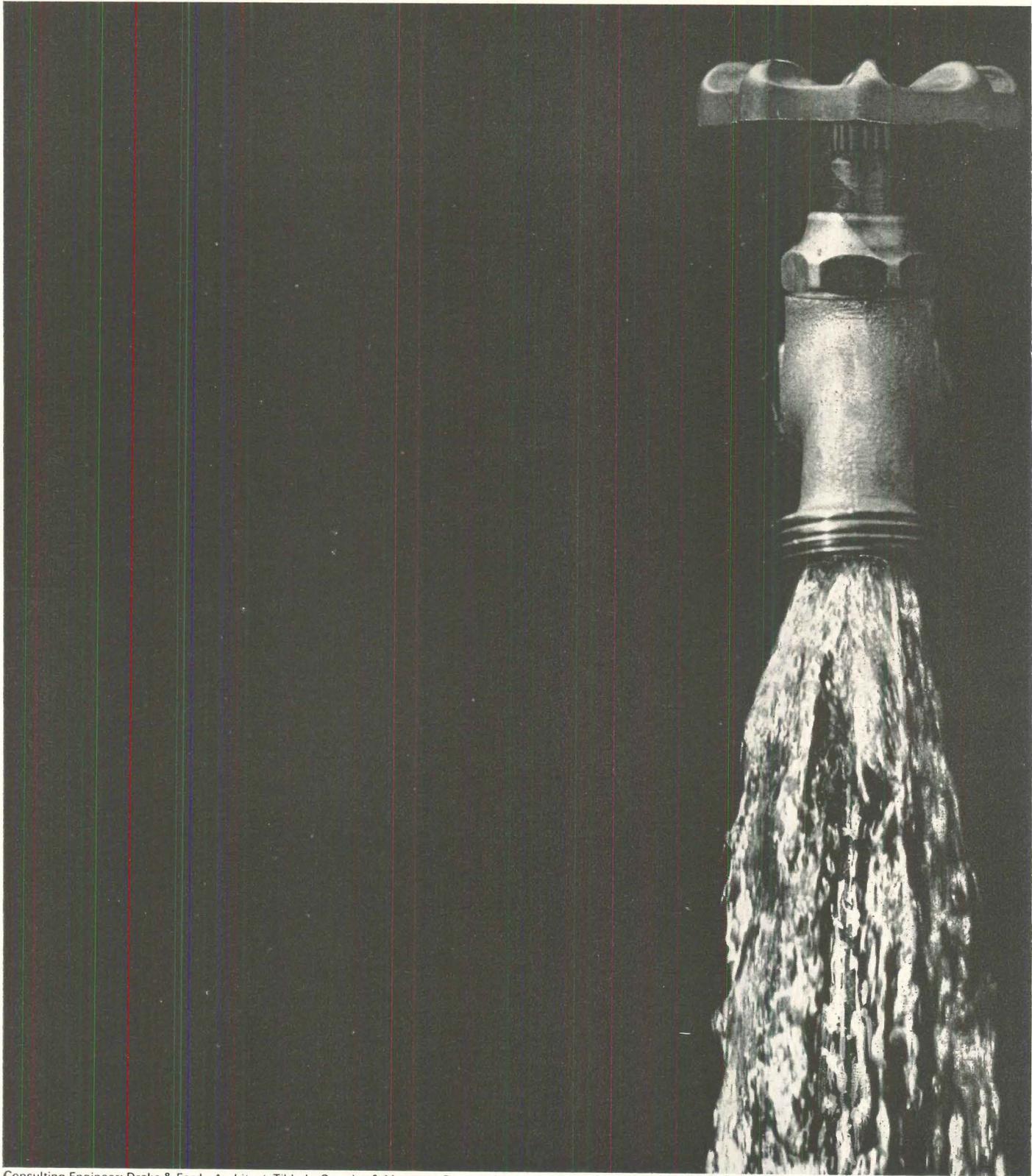
Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

DIB-2005



Consulting Engineer: Drake & Ford · Architect: Tibbals, Crumley & Musson · General Contractor: R. W. Setterlin & Sons Co. · Mechanical Contractor: The Limbach Company

***This is the only refrigerant
in a Gas-powered
Carrier Air Conditioning System***



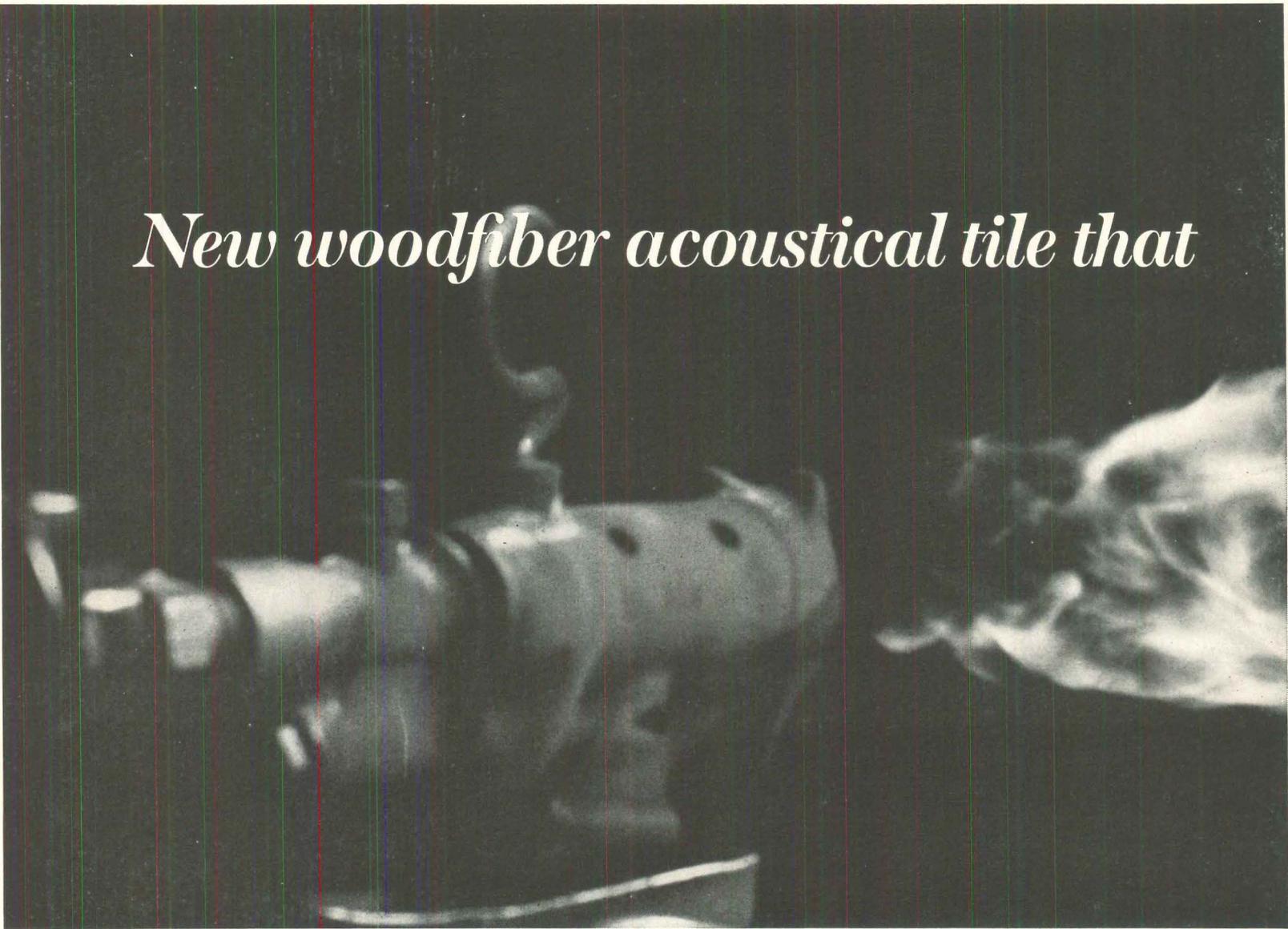
Visit the spectacular Gas Pavilion at the Seattle World's Fair.

*Just one reason why it's cutting costs in this new 12-story luxury apartment building in Columbus, Ohio. The others: (1) The 252-ton capacity Carrier Gas-powered absorption refrigeration unit is steam-powered by the same gas-fired boilers that supply heat and hot water. This cuts installation, equipment, operating costs to the bone. (2) Peak performance even at partial loads. (3) Whisper quiet, trouble-free . . . few moving parts. (4) Unbeatable economy and dependability of clean, low-cost gas. Good reasons why you should call your local Gas Company. Or write Carrier Air Conditioning Company, Syracuse 1, N.Y. **For heating and cooling . . . Gas is good business***

AMERICAN GAS ASSOCIATION



New woodfiber acoustical tile that



Call or write your nearest

FIRST TIME EVER! INCOMBUSTIBLE TILE SAFETY AT WOODFIBER TILE PRICES!

Underwriters' Laboratories, Inc., inspects and labels Simpson PCP ceiling tiles. Like incombustible mineral tiles, PCP has a flame spread rating of less than 25.

PCP ceiling installations are now replacing mineral tiles that cost up to 50% more. Simpson PCP costs only a few cents more than ordinary woodfiber acoustical tile.

Pyro-Chem Protection is an exclusive Simpson process. Not just a surface treatment, every fiber throughout the tile is impregnated with special PCP fire-proofing chemicals.

Simpson PCP acoustical tiles are not only safe and economical, they are acoustically efficient; NRC ratings up to 70. Room-to-room attenuation factors average 37.6-41.5 db. Available in 4 beautiful Forestone® sculptured textures and 2 perforated designs.

SIMPSON TIMBER COMPANY
2085-4 Washington Building, Seattle 1, Washington

ALABAMA
Birmingham
The Bonitz Insulation Co.

ARIZONA
Phoenix
Fiberglas Engineering
& Supply
Hall Insulation & Tile Co.

ARKANSAS
Little Rock
Buck Hendershott Co.

CALIFORNIA
Fresno
Lomen Acoustics
Los Angeles
Acoustical Specialty
Products, Inc.
Coast Insulating Products
Fiberglas Engineering
& Supply

National City
Acoustical Specialty
Products, Inc.
North Hollywood
Wendel D. Tate Co.

Oakland
The Sono-Ceil Co.
Palm Springs
Fred Hathaway Co.
Pasadena
Insul-Acoustics, Inc.
Sacramento
H. W. Rivett Co.
San Bernardino
Fiberglas Engineering
& Supply
Morrison-Hope, Inc.
Santa Clara
Shaw Insulation Co.

San Diego
Fiberglas Engineering
& Supply
San Francisco
Fiberglas Engineering
& Supply
San Mateo
Associated Acoustics
Santa Ana
Fiberglas Engineering
& Supply

COLORADO
Denver
Construction Specialties
Co.

CONNECTICUT
Hartford
Wilson Construction
Co., Inc.

FLORIDA
Jacksonville
Center Bros., Inc.
Miami
Anning-Johnson Co.
Tampa
Anning-Johnson Co.

GEORGIA
Atlanta
Acousti-Engineering
Co., Inc.
Savannah
Center Bros., Inc.

HAWAII
Honolulu
Hawaii Builders
Supply Co.

IDAHO
Boise
Evans Drywall &
Acoustical Co.

Pocatello
Modern Roof &
Insulation, Inc.

ILLINOIS
Chicago
General Interiors Co., Inc.
Thos. Moulding Floor
Co., Inc.

Decatur
George S. Grimmatt & Co.
Quincy
Adams Builders
Wholesale Co.
Springfield
George S. Grimmatt & Co.

INDIANA
Evansville
Elmer Kahre Ac. &
Plastering Co.
Fort Wayne
The Baldus Co., Inc.
Indianapolis
General Asbestos &
Supply Co.

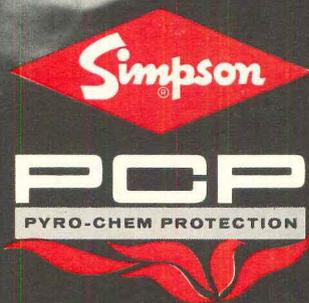
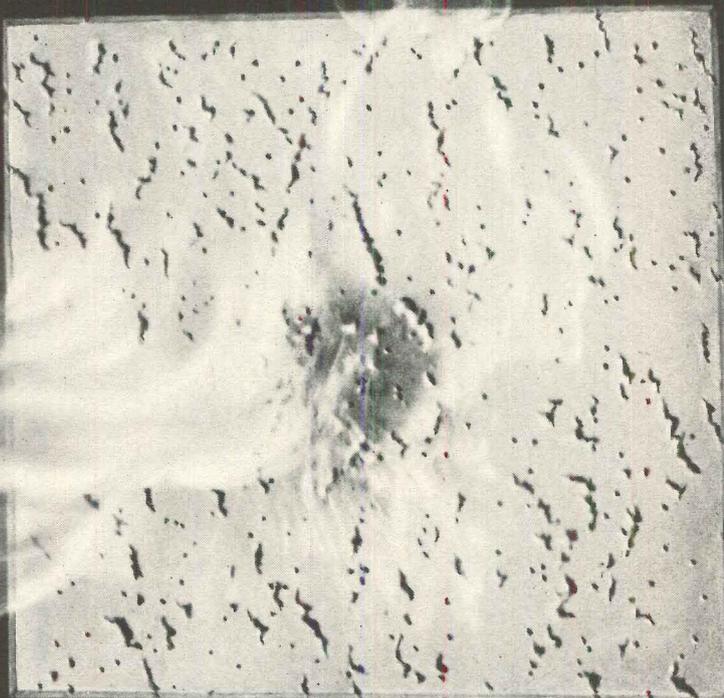
IOWA
Davenport
Allied Construction
Services, Inc.

Des Moines
Allied Construction
Services, Inc.

Sioux City
Burke Engineering
Sales Co.

Waterloo
Allied Construction
Services, Inc.

can't spread fire



Simpson Certified Acoustical Contractor today for samples, detailed information and a demonstration of PCR.

KANSAS
Wichita
Ecoff & Co.

KENTUCKY
Lexington
Perry Lumber Co.
Louisville
Atlas Plaster & Supply Co.

LOUISIANA
Baton Rouge
Watkins Bros., Inc.
New Orleans
Gabler Insulations
Shreveport
Southern Acoustics

MASSACHUSETTS
Brighton
Acoustical Contractors,
Inc.

MICHIGAN
Detroit
Shelby Associates, Inc.
Grand Rapids
Bouma Tile &
Acoustical Co.
Kalamazoo
Midwest Acoustic &
Partition Co.

MINNESOTA
Duluth
Flament-Hampshire, Inc.
Minneapolis
Dale Acoustics, Inc.

MISSOURI
Kansas City
Insulation & Acoustical
Specialties Co., Inc.

Kelley Asbestos Products
St. Louis
Hamilton Co., Inc.
Springfield
Southwestern Insulation
& Material Co.

MONTANA
Billings
Fiberglas Engineering
& Supply

NEBRASKA
Lincoln
M & J Lathing Co.
Omaha
Kelley Asbestos
Products Co.

NEVADA
Las Vegas
Nevada Building
Specialties, Inc.

RENO
Tuck's Supply Co.
NEW JERSEY
Newark
Woolsulate Corp.

NEW MEXICO
Albuquerque
Fiberglas Engineering
& Supply

NEW YORK
Albany
Davis Acoustical Corp.
Buffalo
Davis-Fetch & Co., Inc.
Ithaca
Rochester Davis-Fetch
Corp.

Jamestown
Davis-Fetch & Co., Inc.
Lynbrook, L. I.
Robt. J. Harder, Inc.
Rochester
Rochester Davis-Fetch
Corp.

Syracuse
Davis-Fetch Acoustical
Corp.

NORTH CAROLINA
Asheville
The Bonitz Insulation Co.
Charlotte
Bost Building
Equipment Co.

GOLDSBORO
The Bonitz Insulation Co.
GREENSBORO
The Bonitz Insulation Co.

NORTH DAKOTA
Fargo
Dale Tile Co.
Minot
Benton Lathing Co.

OHIO
Akron
Acoustical Contracting
& Supply Corp.
Cincinnati
Cincinnati Floor Co.
R. E. Kramig & Co., Inc.
Cleveland
Acoustical Contracting
& Supply Corp.

COLUMBUS
Buckeye Acoustical Corp.
Springfield
Field & Associates

Toledo
Geo. P. Little Co., Inc.
Youngstown
Acoustical Contracting
& Supply Corp.

OKLAHOMA
Oklahoma City
The Denman Co.
Scovil & Sublett, Inc.
Tulsa
Oklahoma Ac. &
Specialties Co.

OREGON
Eugene
Commercial Tile Co.
Portland
Harver Co.
Salem
Elfstrom & Eyre, Inc.

PENNSYLVANIA
Kingston
Culp Brothers
Philadelphia
General Acoustics, Inc.
Pittsburgh
Davis-Fetch Corp. of
Penn.
Standard Floor Co.

SOUTH CAROLINA
Columbia
Bonitz Insulation Co.
Greenville
Bonitz Insulation Co.

TENNESSEE
Kingsport
The Bonitz Insulation Co.

Knoxville
Anning-Johnson Co.
Memphis
Alexander Marble
& Tile Co.

TEXAS
Amarillo
Jenkins Brick & Supply Co.
Corpus Christi
General Supply Co.
Dallas
Blue Diamond Co.
El Paso
Ken Turner Co., Inc.
Fort Worth
Builders Service Co.
Houston
General Supply Co., Inc.
Schwarz-Jordan, Inc.
Midland
West Texas Brick &
Tile Co.
San Antonio
General Supply Co., Inc.

UTAH
Salt Lake City
Components Co.

VIRGINIA
Alexandria
Anning-Johnson Co.
Charlottesville
Manson & Utley, Inc.
Norfolk
Manson & Utley, Inc.
Richmond
Manson & Utley, Inc.

WASHINGTON
Seattle
Elliott Bay Lumber Co.
Spokane
Fiberglas Engineering
& Supply

WISCONSIN
Appleton
Building Service, Inc.
Milwaukee
Building Service, Inc.

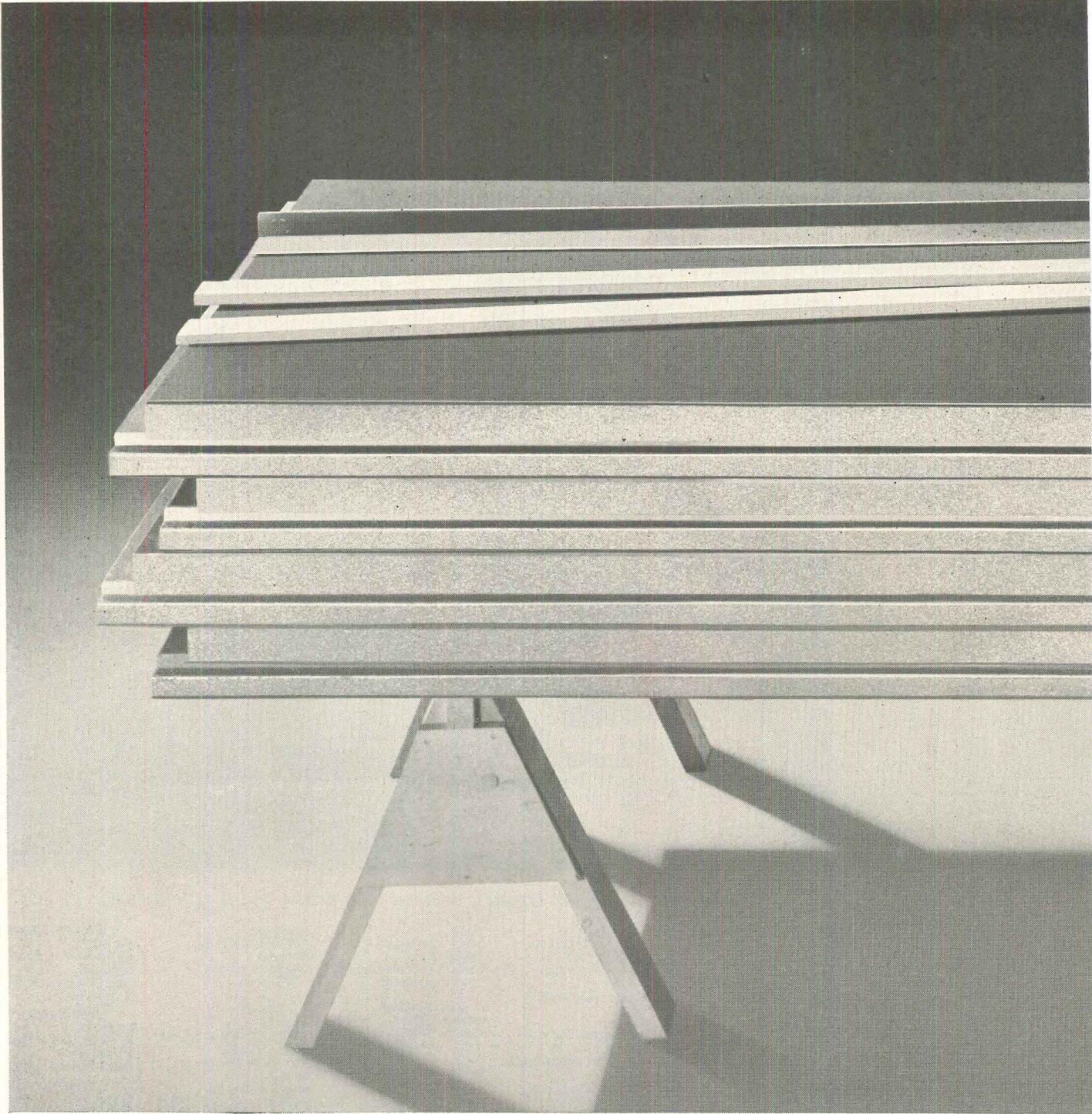
WYOMING
Casper
Construction Specialties

CANADA
Alberta
Calgary
F. Drexel Co., Ltd.
Edmonton
F. Drexel Co., Ltd.

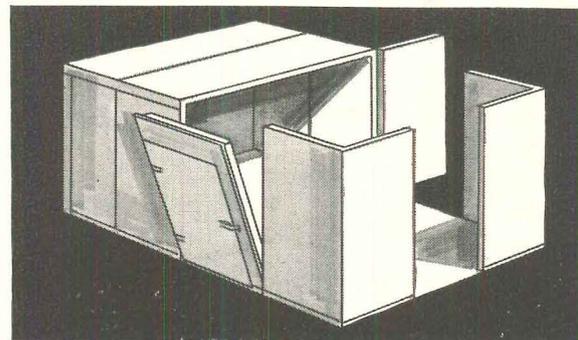
BRITISH COLUMBIA
Vancouver
F. Drexel Co., Ltd.
Victoria
F. Drexel Co., Ltd.

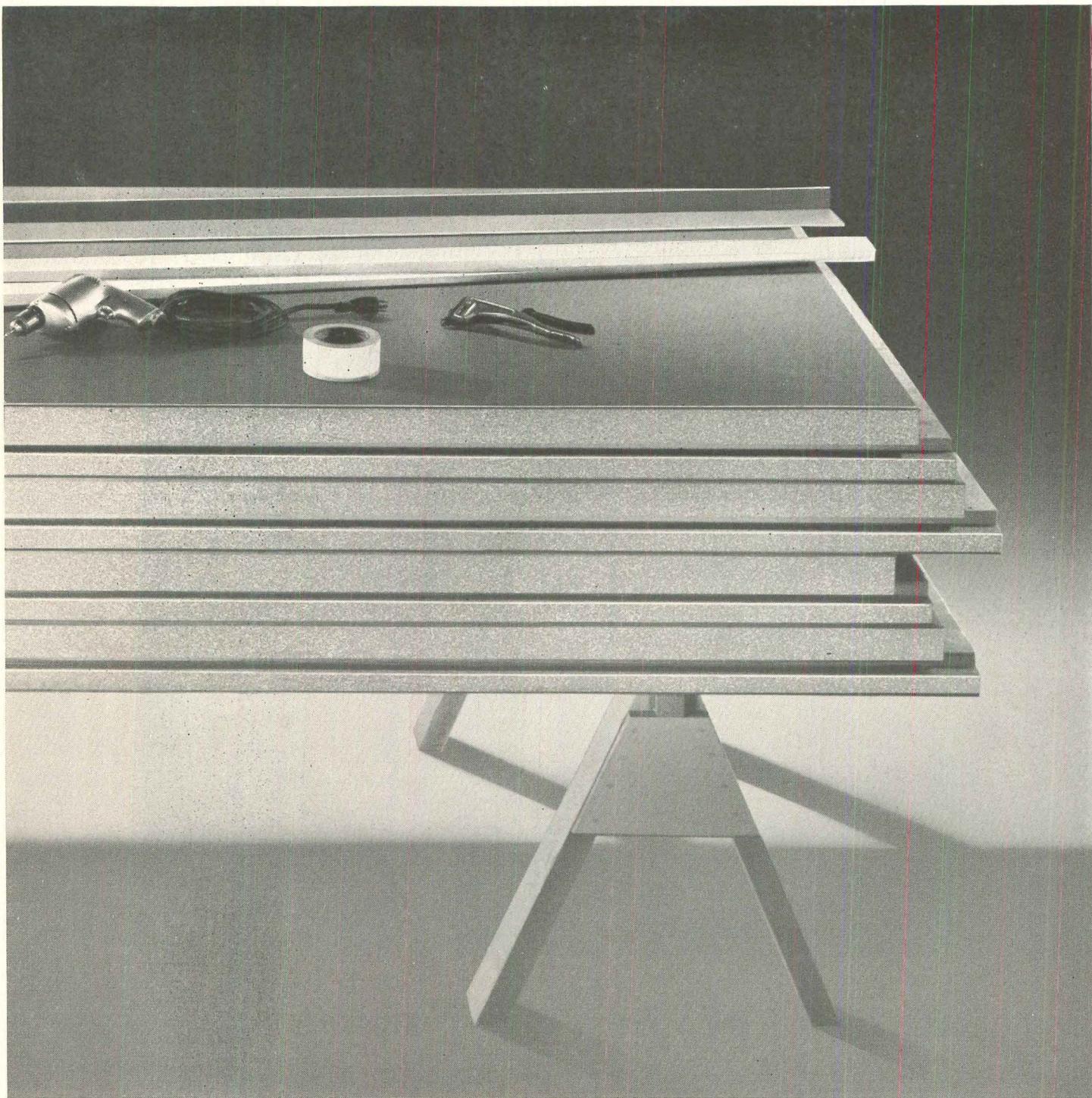


U.S. PAT. NO. 2,791,289



Dow shows you everything you need





to build a cold room, now!

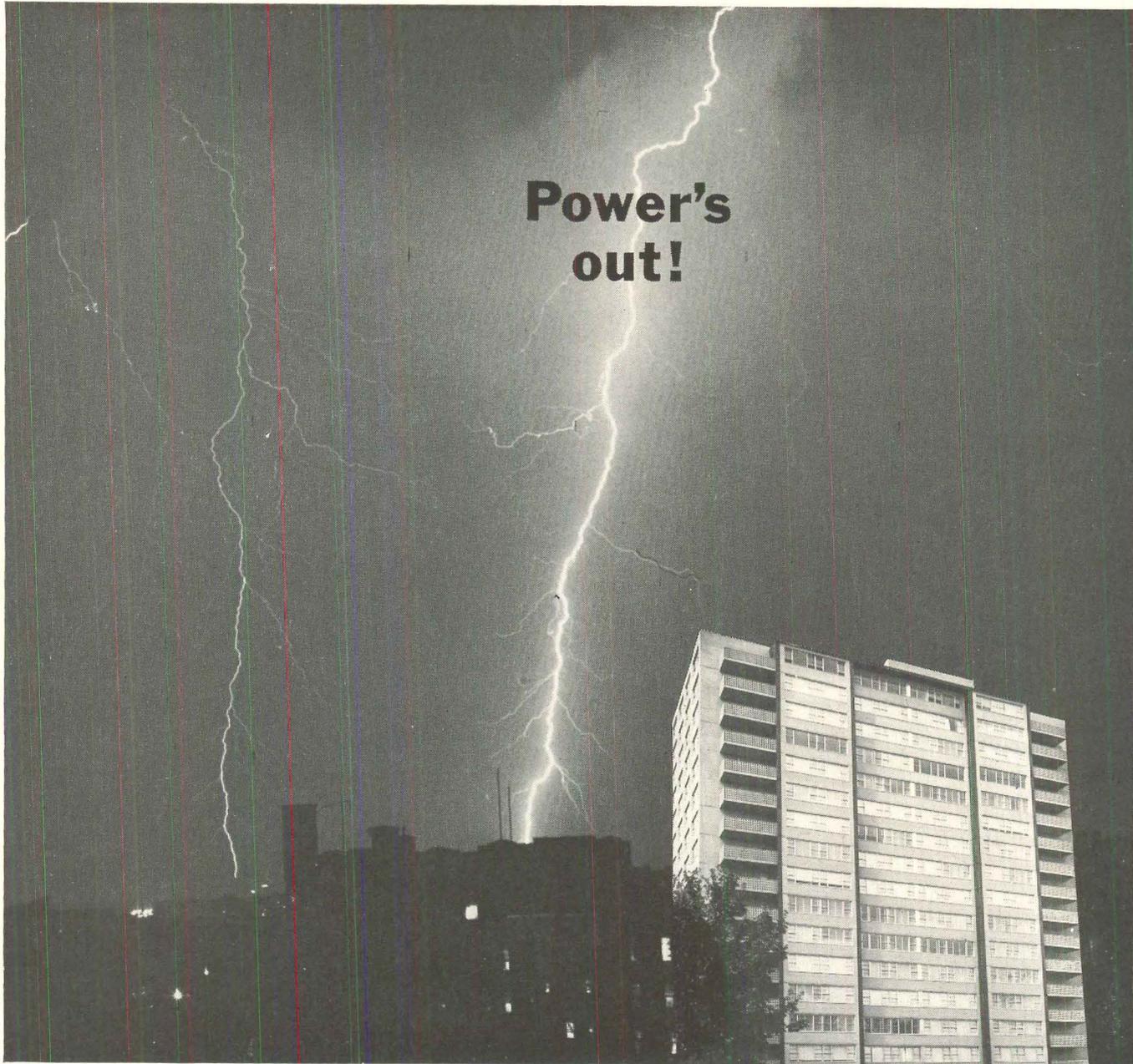
It's simpler than designing a brick wall, making cold rooms out of Dow Insulating Panels. In this new system, each "sandwich" of tempered hardboard and Styrofoam® brand insulation is structurally integral. Because they come in standard modules *only*, Dow Insulating Panels save on material costs and simplify

installation. Styrofoam expanded polystyrene makes them suitable for coolers at 40°F. or sharp freezers down to -40°F. Always dry inside, closed-cell Styrofoam insulation *keeps* its low "K" factor. Permanently. For specifications on Dow Insulating Panels, write us in Midland, c/o Plastics Sales Dept. 1304LH9.

THE DOW CHEMICAL COMPANY

DOW

Midland, Michigan



**Power's
out!**

...but not at the Park Towers

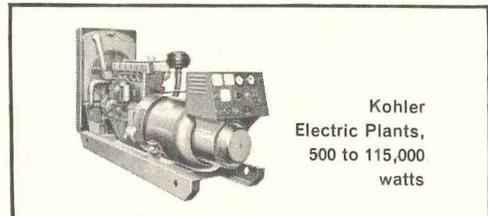
Off goes the power! On goes the Kohler Stand-by Electric Plant at the Park Towers Apartments in Columbus, Ohio.

The tenants appreciate this emergency service. The owners appreciate their 30 KW Kohler Electric Plant that takes over—automatically—when normal power fails—providing emergency power for elevators and boiler room—lighting for stairwells, garage, halls—vital areas.

Stand-by power is a potent persuader in getting—and keeping—tenants. Is *stand-by* a big enough word in your power planning?

Versatile Kohler Electric Plants range from 500 to 115,000 watts. Gasoline or Diesel, air or liquid-cooled, stand-by and sole power. For more information, write to Kohler Co., Kohler, Wisconsin, Dept. EP-509. (Engineers: see Sweet's Architectural File and Sweet's Light Construction File.)

Park Towers Apartments, 1620 E. Broad St., Columbus, O.
 Architect: Nowicki & Polillo, Philadelphia, Pa.
 General Contractor: E. J. Frankel, Philadelphia, Pa.
 Electrical Engineer: Robert S. Curl & Associates, Columbus, O.
 Electrical Contractor: Gustave Hirsch Organization, Inc., Columbus, O.



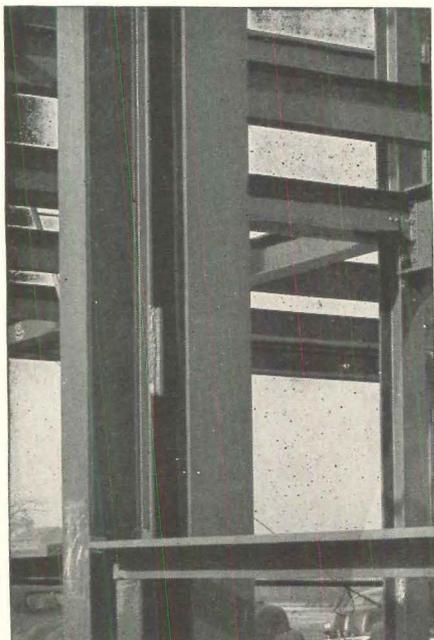
Kohler
 Electric Plants,
 500 to 115,000
 watts

KOHLER OF KOHLER

Kohler Co., Established 1873 • Kohler, Wis.

ENAMELED IRON AND VITREOUS CHINA PLUMBING FIXTURES • ALL-BRASS FITTINGS • ELECTRIC PLANTS • AIR-COOLED ENGINES • PRECISION CONTROL

There can be no compromise here!

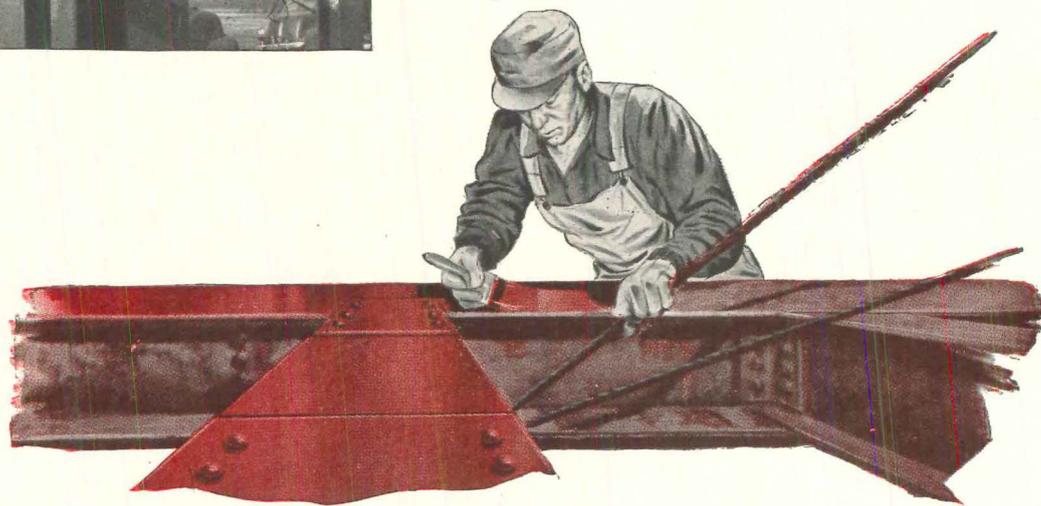


The prime coat is the basic foundation that determines the long-lasting performance of coatings

There can be no compromise with the prime coat — it is the *basic* foundation, it must take hold and adhere tightly, it must provide a sound, compatible base for the finish coating. It is here that Rust-Oleum's experience as corrosion-resistant specialists can help you. Whether it's a shop coat by the fabricator, or job site application over structural steel, Rust-Oleum has the right primer for the specific job — from quick-drying primers for shop coating, unique primers to apply directly over rust, or bare metal primers. For the fullest measure of protection — specify the Rust-Oleum *System* of primer and finish coat. Your nearby Rust-Oleum Industrial Distributor and your Rust-Oleum Factory Specialist will be happy to work hand-in-hand with you.



See our complete catalog in Sweets featuring actual color chips.



RUST-OLEUM®



There is only one Rust-Oleum. Distinctive as your own fingerprint. A matter of excellence.

STOPS RUST!®

RUST-OLEUM CORPORATION
2516 Oakton Street
Evanston, Illinois

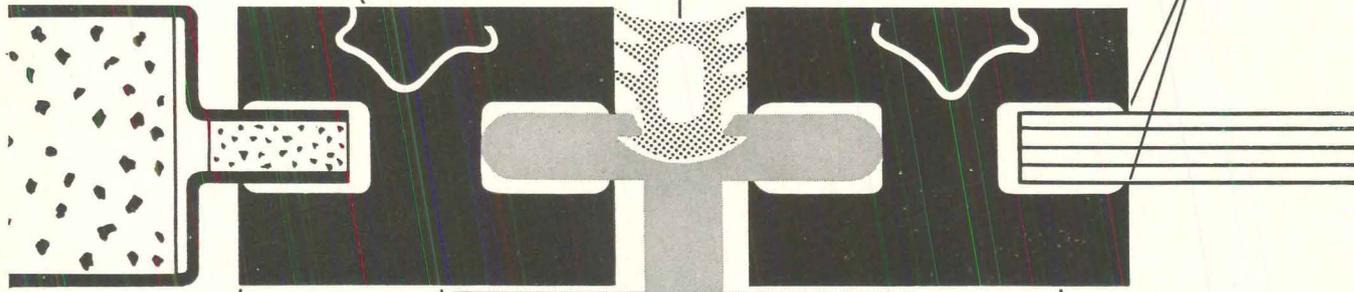
New 30-page Rust-Oleum Architectural Specifications Catalog Features actual color charts. Clip coupon to your letterhead for your free copy of Form No. 259-A.



Zippered Neoprene gaskets accommodate thermal movement without causing joint separation or bending of members.

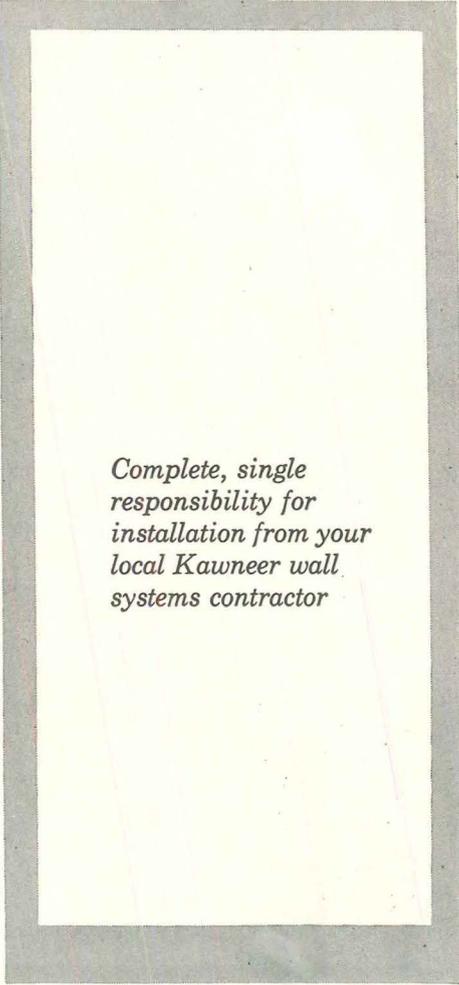
Insulates very well because there is so little conductivity through the wall.

When gasket is zipped shut, claws exert continuous pressure on infill components (glass, panels), hermetically sealing the wall. No leakage.



Gaskets provide unique, attractive black accent around all components. Distinctive design keynote in an economy curtain wall.

Simple components are adjustable and adaptable to construction variations, low cost installation.



Complete, single responsibility for installation from your local Kawneer wall systems contractor

For complete information about Zipperwall, write:

KAWNEER
Niles, Michigan
Richmond, California.

Kawneer of Canada Ltd.
Toronto, Ontario



(Scale: 1.5 times actual size.)

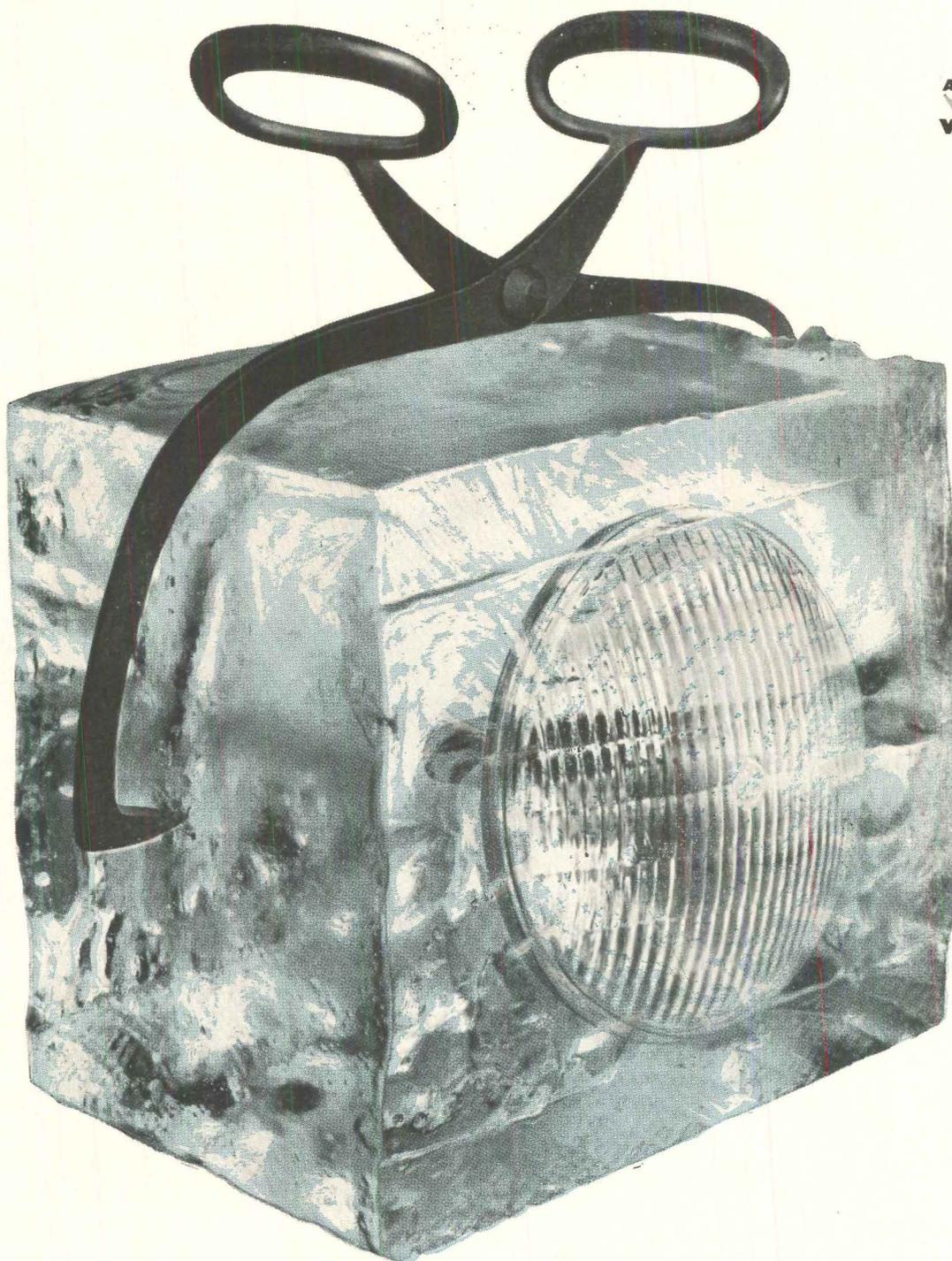
KAWNEER ZIPPERWALL

A unique combination of fre design, insulation value and economy

a
e
ad
me
One
proj-
esign
city-
ctural
recog-
a fine
at rede-
airplane
an auto-
ion of the

/ great d
go-for-h
llar voya
the infin
ods of li
is at Eu
newal wa
its and a
eation o
n, done
nt no m
oor, this
ction co
fraction
up indivi
within a
what un
its first p

Accent
on
VALUE



Now spotlights have a much cooler beam!

Too hot! That's been the problem with spotlighting — even though incandescent beams often provide just the illumination people like best. Now General Electric engineers have solved the problem by designing a "Cool-Beam" spotlight that gives light with two-thirds less radiant heat in the beam.

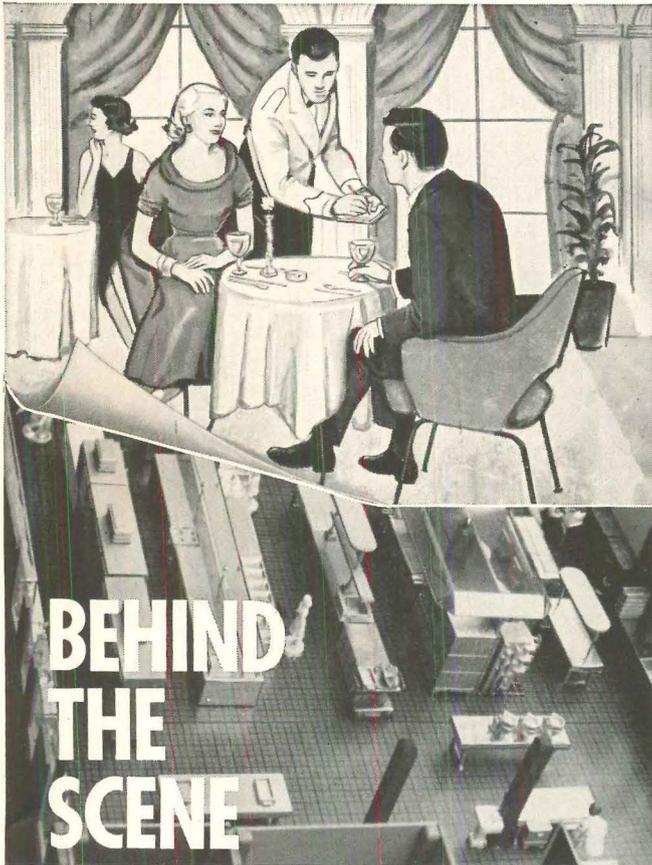
Now almost three times as much light can be directed on displays, foods, perishables, anywhere

— without raising heat levels. Two-thirds of the heat goes out the rear of the lamp.

G-E takes lamp leadership seriously. That's why you can often find a newer, better solution to a lighting problem by calling your Large Lamp distributor. Information on the "Cool-Beam" lamp can also be obtained by writing General Electric, Large Lamp Department C-226, Nela Park, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL  **ELECTRIC**



**BEHIND
THE
SCENE**

**of successful fast food
and de luxe dining...**

**T&S "STREAM-MATED"
WATER FIXTURES**

The satisfied restaurant patron is money in the bank ... even the transient who carries a good impression away with him. Behind the scene and supporting successful food service operations of all types, you can expect to find the star line of the industry... T & S stream-mated water fixtures ... from one end of the kitchen to the other, including open service areas. Ask any food equipment consultant you know... architect, engineer, fabricator or plumbing contractor. You will get the same answer—"T&S for highest quality and reliability as a safe, cost-saving investment." Satisfy your customers, satisfy yourself—specify T&S right down the line for the finest in pre-rinse, water stations, kettle fillers and cleaners, faucets and sprays for every purpose. Write or call now for Catalog No. D-3.

WATER SERVICE SPEC MANUAL



This complete T&S manual of plumbing fixtures and specialties helps you design an entire kitchen layout for most efficient water service. It contains full specifications and roughing data of water units for every purpose to save time, steps and money in your planning. Write or call today for your personal, registered copy.



T & S BRASS AND BRONZE WORKS, INC.
138 Magnolia Avenue, Westbury, L.I., N.Y.
Area Code: 516 / Edgewood 4-5104

NATIONWIDE SALES AND STOCK COVERAGE

PRE-RINSE • GLASS FILLERS • WATER STATIONS • FAUCETS • PEDAL VALVES & SERVICE FITTINGS • POT FILLERS • KETTLE KADDIES • SPRAY HOSES • ACCESSORIES • LAB-FLO LAB. SERVICE FIXTURES

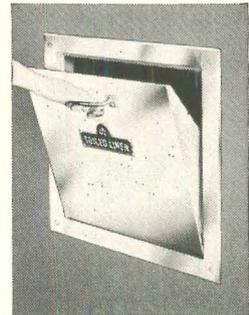
Working under the direction of Architect Edward Durell Stone, Rambusch developed this design for the hanging 11½-foot seal at the main entrance of the United States Embassy, New Delhi, India.



RAMBUSCH 40 W. 13th St., New York 11, N.Y.
Telephone: ORegon 5-0400
DESIGNERS, CRAFTSMEN, LIGHTING ENGINEERS,
WORKING IN METAL, GLASS, PAINT, WOOD, MOSAIC.

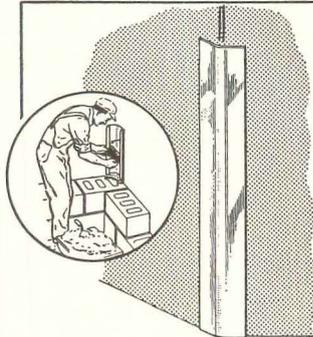
WILKINSON CHUTES...

**for Centralized
Disposal of
Soiled Linen,
Rubbish, Dust,
Paper, and Garbage**



Year in, year out . . .
Wilkinson Chutes set the
standard for efficient central-
ized disposal.

Installation of Wilkinson Centralized Disposal
Chutes reduces labor costs, improves operating
efficiency, helps maintain high sanitary standards.



**WILKINSON
Stainless Steel
CORNER GUARDS**

- * Unmarred stainless steel finish and permanent protection to corners.
- * Adjustable anchor simplifies installation.
- * Models for tile, concrete block, metal stud and plastered walls.

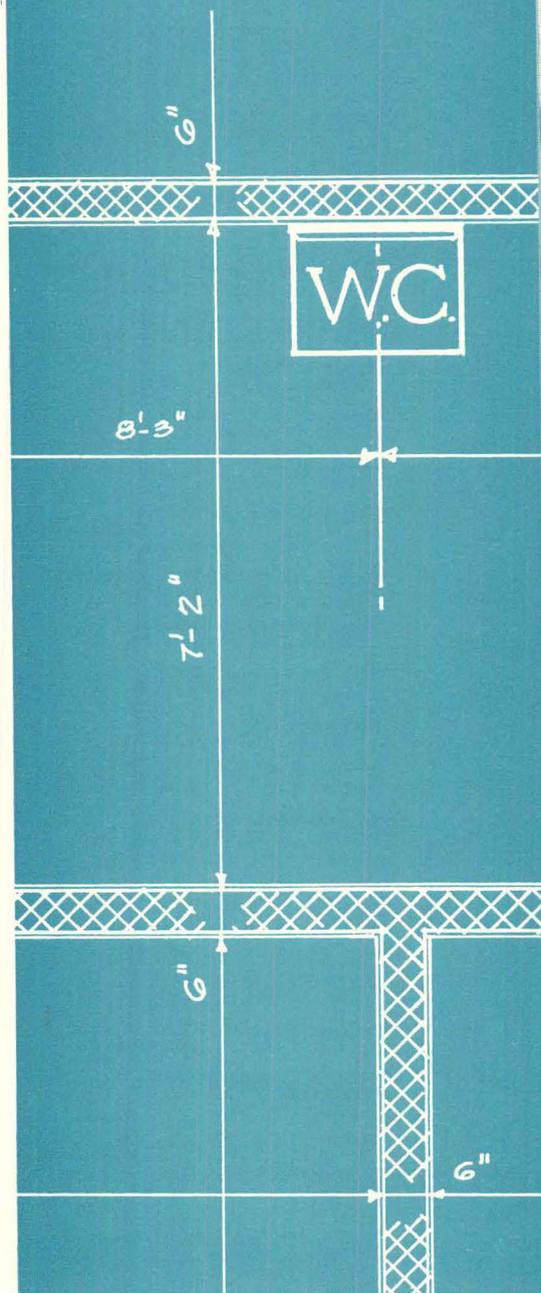
See our catalog in Sweet's Architectural File or write for copy

WILKINSON CHUTES, INC.
619 East Tallmadge Ave. Akron 10, Ohio

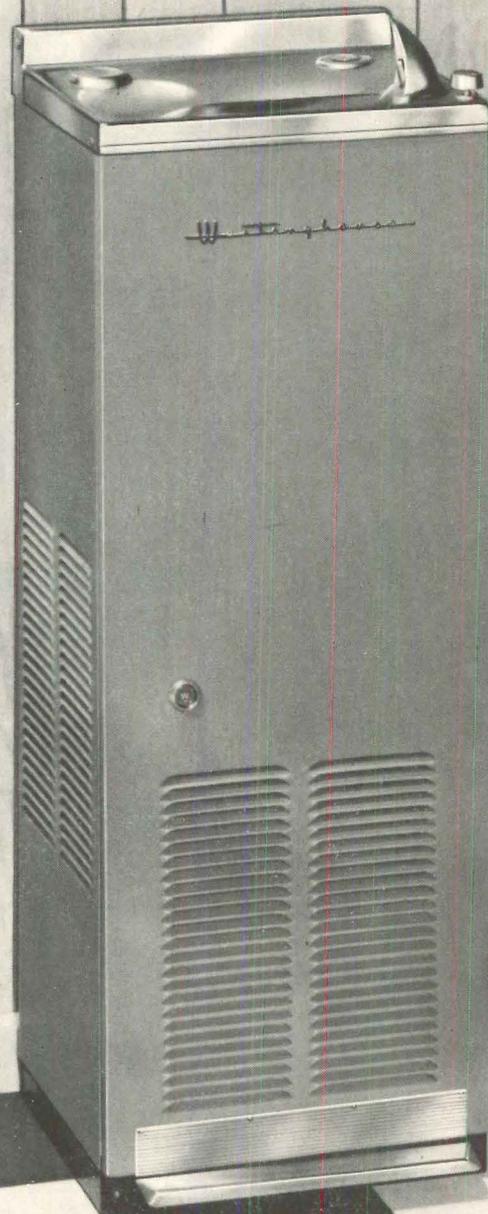
WILKINSON CHUTES (Canada) LTD.
9 Dwight Ave. Toronto 14, Ontario, Canada



When you draw this...



specify this...



Westinghouse Wall Line™ Water Coolers take 26% less space...install flush to wall...anywhere

New Westinghouse WALL LINE water coolers are as clean and functional as today's modern architectural lines. Compact design projects only 12" from wall, takes 26% less space! No more exposed plumbing or "dirt catching" space behind the cooler. Easier and less expensive to install too, because slip fittings eliminate pipe threading and soldering. Free-standing WALL LINE water coolers available in 6, 8, 11, 15, and 20-gallon capacities... plus

"on-the-wall" models, in 7 and 11-gallon capacities, can be mounted at any height to provide the preferred drinking level in schools, offices, institutions. Full 5-year warranty on all functional parts as well as refrigeration system, backed by factory-authorized service everywhere. For more information, call your Westinghouse Water Cooler distributor listed in the Yellow Pages. Westinghouse Electric Corp., Columbus, Ohio. *You can be sure . . . if it's*

Westinghouse



Italic line indicates advertising agency

Addex Manufacturing Company 52
Edward Howard & Co.

Air Devices, Inc. 154
The Powerad Company

Aluminum Company of America 22, 23
Fuller & Smith & Ross, Inc.

American Gas Association 156, 157
Ketchum, MacLeod & Grove, Inc.

American Hardware Corp.
Russell & Erwin Div. 35
Noyes & Company, Inc.

American Iron & Steel Institute
(National Design Center) 8
Norman Steen Advertising

American Olean Tile Co. 21
Arndt, Preston, Chapin, Lamb & Keen, Inc.

American Telephone & Telegraph Co. 66
N. W. Ayer & Son, Inc.

American Welding & Mfg. Co.,
Bldg. Products Div. 176
Howard Swink Advertising, Inc.

Armstrong Cork Company 2, 3, 46
Batten, Barton, Durstine & Osborn, Inc.

Automated Building Components, Inc. 150
Le Jeune Adv.

Basalt Rock Company, Inc.
Western Edition, W-2, 3
Pacific Advertising Staff

Bestwall Gypsum Company 152, 153
Thomas & David, Inc.

Borroughs Mfg. Co. 63
Roland G. Spedden Adv.

Carrier Air Conditioning Co. 156, 157
Ketchum, MacLeod & Grove, Inc.

Cupples Products Corporation 74, 75
Wildrick & Miller, Inc.

Darlington Brick Co. 137
Fensholt Advertising Agency, Inc.

Delta Faucet Corp. 136
R. C. Robison and Associates, Inc.

Diebold, Inc. 155
Frease & Shorr, Advertising

Dow Chemical Company 160, 161
MacManus, John & Adams, Inc.

Dunham-Bush, Inc. 18
William Schaller Co., Inc.

du Pont de Nemours & Co., E. I. 29
N. W. Ayer & Son, Inc.

Fenestra Incorporated 30, 31
Ross Roy, Inc.

General Bronze Corp. 67
G. M. Basford Co.

General Electric Company
(Large Lamp Division) 167
The Griswold-Eshleman Company

Goodyear Tire & Rubber Company 10
Kudner Agency, Inc.

Great Lakes Carbon Corp.
Palos Verdes Stone Dept.
Western Edition W-1
Boylhart, Lovett & Dean, Inc.

Great Lakes Carbon Corporation
Ferlite Dept. 48
Boylhart, Lovett & Dean, Inc.

Guardian Chemical Corp. 40
The Wesley Associates, Inc.

P. E. Guerin, Inc. 40
Rea, Fuller Associates

Haws Drinking Faucet Co. 164
Pacific Advertising Staff

B. M. Heede Company 165
Monitor Advertising Agency

Hillyard Chemical Company 133
Bozell & Jacobs, Inc.

Inland Steel Products Co. Cover II
Hoffman, York, Paulson & Gerlach, Inc.

The International Nickel Co. 62
McCann-Marschalk Co., Inc.

Johnson Service Co. 28
Hoffman, York, Paulson & Gerlach, Inc.

Kawneer Co., The 166
Peitscher, Janda/Associates, Inc.

Kentile, Inc. Cover IV
Benton & Bowles, Inc.

Kliegl Bros., Inc. 153
Richard La Fond Advertising, Inc.

Kohler Company 162
Clinton E. Frank, Inc.

Koppers Co., Inc.
Batten, Barton, Durstine & Osborn, Inc.

Lamson Corporation 151
Chapman-Nowak & Associates, Inc.

Larsen Products Corporation 64
The Michener Co.

Lehigh Portland Cement Company 56
Lewis & Gilman, Incorporated

Libbey-Owens-Ford Glass Co. 148, 149
Fuller & Smith & Ross, Inc.

Lightolier, Inc. 134, 135
Sudler & Hennessey, Inc.

Lone Star Cement Corporation 60, 61
Hazard Advertising Company, Inc.

Magee Carpet Co. The 15
Grey Advertising, Inc.

Marble Institute of America, Inc. 143
Chambers, Wiswell & Moore

McKinney Mfg. Co. 54
W. S. Hill Company

McLouth Steel Corporation 39
Denman & Baker, Inc.

Mearl Chemical Corp. 145
Richard-Lewis Advertising Corp.

The Miller Company 38
Harrison House

Mo-Sai Institute, Inc. 176
David W. Evans & Associates

Mosaic Tile Company, The 36, 37
Farson, Huff & Northlich, Inc.

Muzak Corp. 58, 59
Geyer, Morey, Madden & Ballard, Inc.

National Concrete Masonry Association .. 65
Roche, Rickerd & Cleary, Inc.

National Gypsum Company 174
Fuller & Smith & Ross, Inc.

New Castle Products Co. 12
Caldwell, Larkin & Sidener-Van Riper, Inc.

Norton Door Closer Co. 50
Erwin Wasey, Ruthrauff & Ryan, Inc.

Pittsburgh Plate Glass Co. 70, 168, 169
J. Walter Thompson Co.

Plaxicrete, Incorporated 40
Filmart, Inc.

L. F. Popell Co., Inc. 72
Biscayne Ad Prom Inc.

Portland Cement Association 63, Cov. III
J. Walter Thompson Co.

The Prescon Corporation 69
Ullrich & Brown, Adv.

Rambusch Decorating Co. 170
Roeding & Arnold, Inc.

Republic Steel Corp. 25, 26, 27
Meldrum & Fewsmith, Inc.

Riverside Cement Co. Western Edition W-4
Carson/Roberts, Inc.

Rohloff & Co. 53
Speer & Mays, Inc.

Ruberoid Company, The
Floor Tile Division 6
Kastor, Hilton, Chesley,
Clifford & Atherton, Inc.

Russell & Erwin Div.
The American Hardware Corp. 35
Noyes & Company, Inc.

Rust-Oleum Corp. 163
O'Grady-Andersen-Gray, Inc.

Sanymetal Products Co., Inc., The 14
Belden & Frenz & Lehman, Inc.

Schokbeton Products, Inc. 73
Chuck Weber Advertising Art, Inc.

Simpson Timber Co. 158, 159
Lennen & Newell, Inc.

Sloan Valve Company 4
Reincke, Meyer & Finn, Inc.

Elwin G. Smith & Co., Inc. 139
Dan W. Frye

Smoot-Holman Company
Western Edition W-5, 6
Neale Advertising Associates

Sonneborn Chemical & Refining Corp. 24
C. J. Herrick Associates

Sonoco Products Company 138
Bennett-Advertising, Inc.

Soss Manufacturing Co. 20
Harry H. Goldberg, Jr., Adv., Inc.

Steelcase, Inc. 76
Aves Advertising, Inc.

Steelcraft Mfg. Co. 71
John L. Magro Advertising, Inc.

Sun Chemical Corp. 33, 34
Kastor, Hilton, Chesley,
Clifford & Atherton, Inc.

T&S Brass and Bronze Works, Inc. 170
Beecher Associates, Inc.

Taylor Co., The Halsey W. 55
The Advertising Agency of William Cohen

Thiokol Chemical Corp. 32
Hicks & Greist, Incorporated

Thomas Industries, Inc.
Benjamin Division 141, 142
Marsteller, Inc.

Tylor Pipe & Foundry Co.
Western Edition W-12
Finlayson Advertising Agency

Union Bag-Camp Paper Corp. 63
Smith, Henderson & Berey, Inc.

United States Plywood Corp. 41, 42
Kenyon & Eckhardt, Inc.

Universal Atlas Cement Co.
(United States Steel Corp.) 144, 146
Batten, Barton, Durstine & Osborn, Inc.

Upco Company Western Edition W-10
Gerst, Sylvester & Walsh, Inc.

Vendo Company, The 147
Hill, Rogers, Mason & Scott, Inc.

Weber Showcase & Fixture Co., Inc.
WeberWall Div. Western Edition W-7, 8
Gerth, Brown, Clark & Elkus

Westinghouse Electric Corp.
Major Appliances Div. 171
McCann-Erickson Advertising, Inc.

Wilkinson Chutes, Inc. 170
The Carpenter Advertising Co.

Zero Weather Stripping Co., Inc. 140
Harold Marshall Advertising Co., Inc.

Zinsco Electrical Products
Western Edition W-9
Boylhart, Lovett & Dean, Inc.



THREE BUYERS: ONE SALE

When your product or service goes on the block in the building construction industry, it must be sold more than once. No sale is final until all three building principals — architect/engineer, contractor/subcontractor and client/owner have put their heads together and satisfied themselves with the character, availability and the cost of that product or service.

Architectural FORUM is a market place where your advertising may be seen, judged and approved by all three at the same time. For FORUM is the one magazine in the field that deals editorially with the art of architec-

ture, the technology of construction and the economics of building — and, in doing so, attracts a substantial number of readers from all three areas.

Because of this, FORUM is essentially different — the most productive* sales platform for manufacturers serving the building construction industry.

*One elevator manufacturer traced a million dollar sale directly to one FORUM advertisement; a metal product advertiser's annual sales increased 10% as a result of his FORUM campaign; one ad of a plastic grill manufacturer produced more than 500 *direct* inquiries from FORUM readers.

FORUM: *essentially different—for readers... and for advertisers*

ANNOUNCING: NEW GOLD BOND

NO. 100 DEMOUNTABLE
PARTITION SYSTEMS



VERSATILITY TO MATCH YOUR INGENUITY

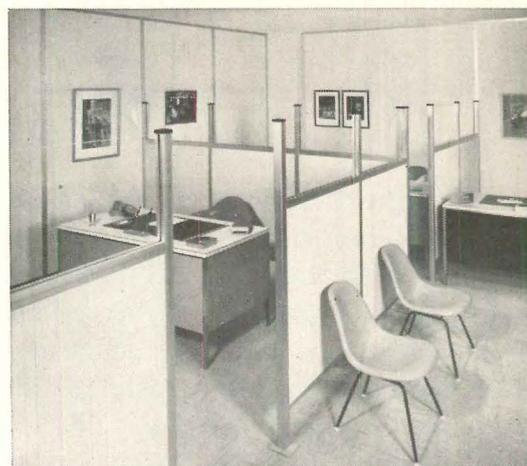
Gold Bond No. 100 Demountable Partition Systems are designed to meet your every partition need. With these new partitions you can specify any height: floor to ceiling, cornice height, bank screen or low rail. And you can use any height combination in any wall. They're nonprogressive. Panels may be removed to make changes, without interference to the rest of the system. No need to wait months for shop drawings, fabrication or delivery of component parts. Panels come in standard sizes—4' wide and up to 12' in length. Can be cut to required size right on the job.

What are they made of? Rugged Asbestone Panels of 1 $\frac{1}{16}$ "-thick Ripple-textured asbestos-cement facings in six rich colors. Aluminum framing components and a clip-on base for easy access to wiring raceways. If on-the-job painting is desired, a natural gray asbestos-cement Asbestone Panel may be used.

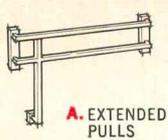
Between the asbestos-cement facings, you also have a choice of core materials: lightweight Spiral-Core made with hardwood curls; laminated layers of wood fibre board; or noncombustible fibre board.

Best of all, these Gold Bond partitions are demountable, remountable and alterable on the job. And at less cost than many metal partition systems.

For a more complete story of the many advantages of the Gold Bond No. 100 Demountable Partition Systems, call your Gold Bond® Representative or write National Gypsum Company, Dept. AF-92, Buffalo 13, New York.



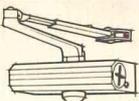
Gold Bond
PARTITIONS



A. EXTENDED PULLS



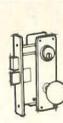
B. CYLINDRICAL DEAD LOCKS



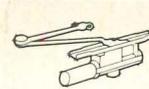
C. SLIMLINE CLOSERS

Hardware Flexibility

A few of the many door and hardware combinations possible when you use AMWELD.



D. FED. #86 LOCKS



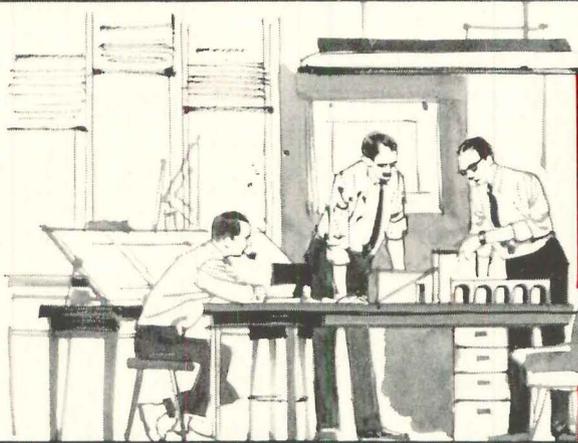
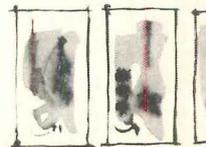
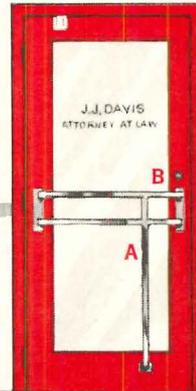
E. CONCEALED CLOSERS



F. INTEGRAL-TYPE LOCK FED. #140

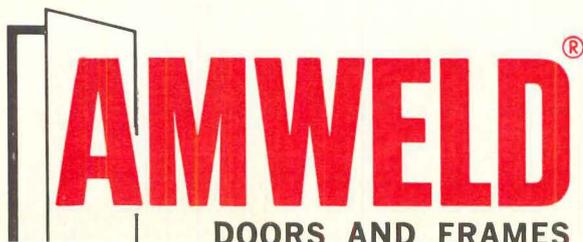


G. FED. #90 UNIT LOCK

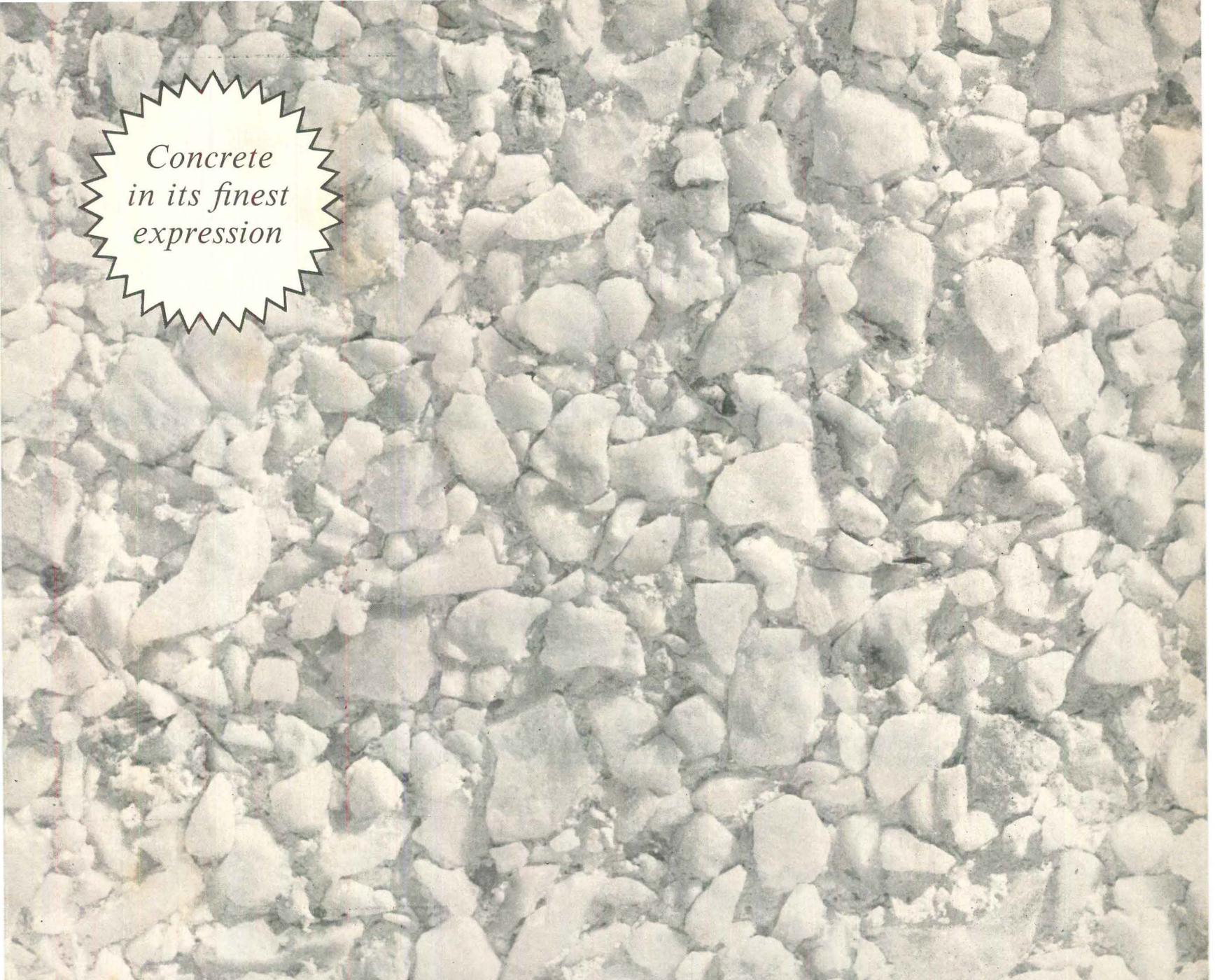


For quality with economy plan on Amweld doors and frames

No matter what the requirement, Amweld can supply doors and frames for every opening. So specify quality—buy economy—and get uniformity of appearance in the bargain. Amweld's important contribution to consistent architectural design is one very good reason for specifying the broadest line of standard steel doors and frames. Prompt delivery to meet construction deadlines is another. Your local Amweld distributor will make sure you get the doors and frames you need, when you need them. For a free copy of the Specification Guide describing Amweld's complete line of doors and frames, write directly to Amweld or call your local distributor. He's listed in the Yellow Pages under "Doors—Metal."



356 PLANT STREET, NILES, OHIO



*Concrete
in its finest
expression*

Mo-Sai®

PRECAST CONCRETE CURTAIN WALL & FACING

Genuine *Mo-Sai*® is an exposed aggregate precast concrete facing and curtain wall material, made only by members of the Mo-Sai Institute listed below, using quality controls and franchised technical processes established by the Institute.

MO-SAI INSTITUTE INC. MEMBERS, THE PRODUCERS' COUNCIL, HEADQUARTERS, P. O. BOX 45, STATION A, NEW HAVEN, CONNECTICUT ● BADGER CONCRETE CO., OSHKOSH, WISCONSIN ● BEER PRECAST CONCRETE, LTD., MONTREAL 20, P. Q., CANADA ● BUEHNER & CO., INC., MESA, ARIZONA ● CAMBRIDGE CEMENT STONE CO., ALLSTON 34, MASSACHUSETTS ● ECONOMY CAST STONE CO., RICHMOND 7, VIRGINIA ● FORMIGLI SALES COMPANY, PHILADELPHIA 3, PENNSYLVANIA ● GEORGE RACKLE & SONS CO., CLEVELAND 5, OHIO ● GOODSTONE MFG. CO., ROCHESTER 21, NEW YORK ● HARTER MARBLECRETE STONE CO., OKLAHOMA CITY, OKLAHOMA ● OLYMPIAN STONE CO., INC., SEATTLE 7, WASHINGTON ● OTTO BUEHNER & CO., SALT LAKE CITY 6, UTAH - DENVER, COLORADO ● P. GRASSI-AMERICAN TERRAZZO CO., SOUTH SAN FRANCISCO, CALIFORNIA ● SOUTHERN CAST STONE, INC., KNOXVILLE, TENNESSEE ● SUPERCRETE, LIMITED, MANITOBA, CANADA ● SUPERCRETE (SASK.) LTD., REGINA, SASK., CANADA ● TEXCRETE MOSAIC COMPANY, ARLINGTON, TEXAS ● THE DEXTONE CO., INC., NEW HAVEN 3, CONNECTICUT ● THE MABIE-BELL CO., GREENSBORO, NORTH CAROLINA - MIAMI 47, FLORIDA - PEACH-TREE CITY, GEORGIA ● THE RACKLE CO., HOUSTON 20, TEXAS ● TORONTO CAST STONE CO., LTD., TORONTO, ONTARIO ● WAILES PRECAST CONCRETE CORP., LOS ANGELES, CALIFORNIA ● WILSON CONCRETE CO., OMAHA 7, NEBRASKA.

Members, Producers' Council, Inc. Write for A.I.A.-Producers' Council 1962 Certificate of Merit-winning booklet.