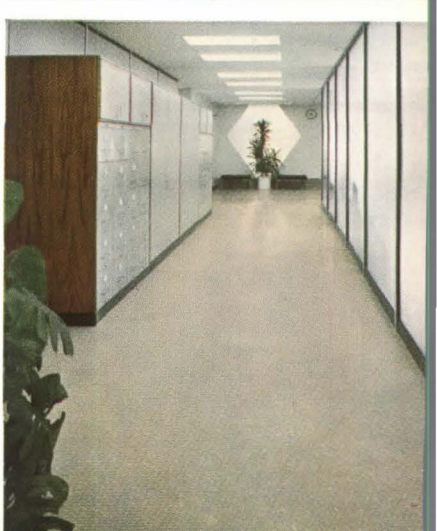

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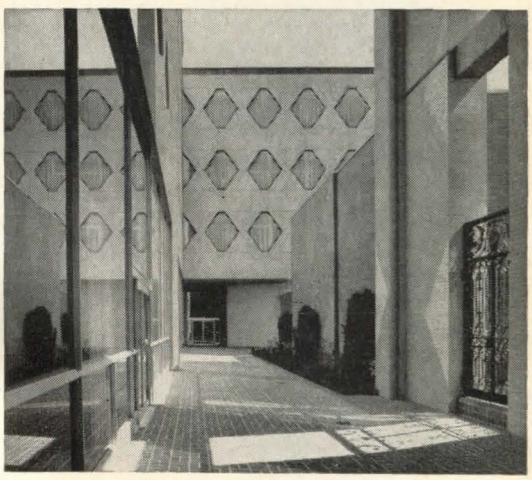

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THIS MONTH IN P/A

Progressive Architecture, April 1965

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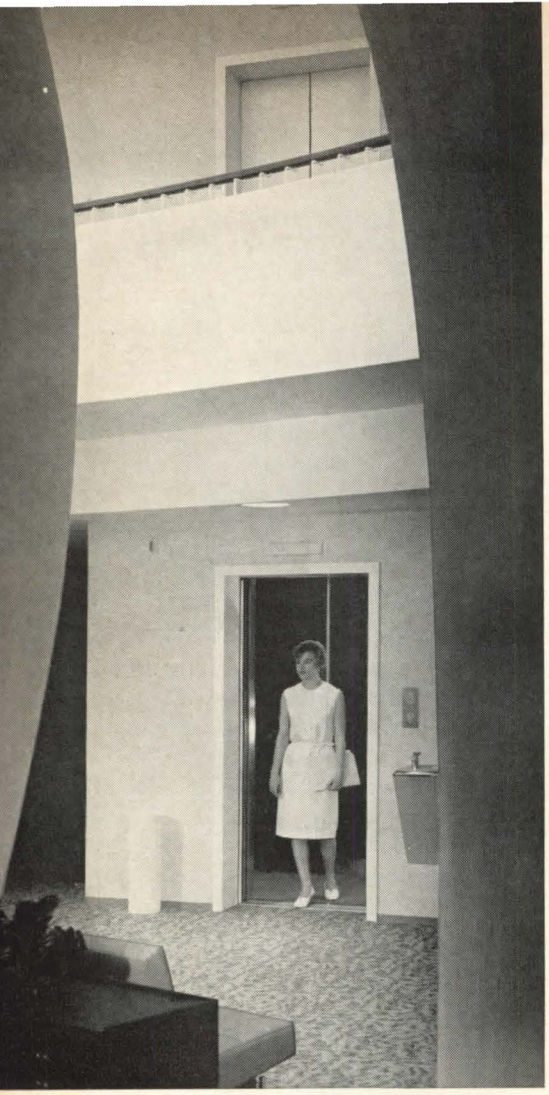

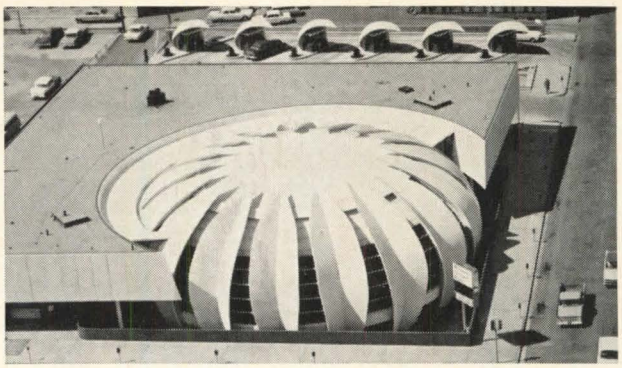

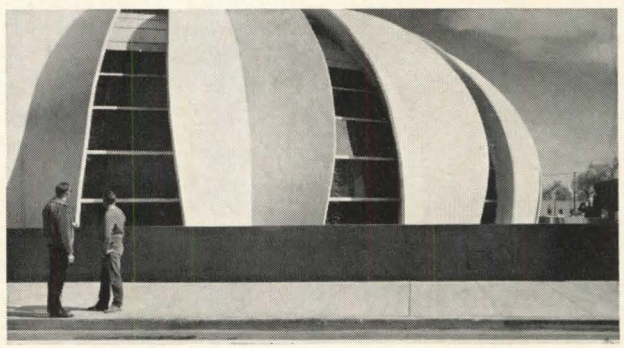

WYOMING NATIONAL BANK, Casper, Wyoming. Architect: Charles Deaton, Denver, Colo. General Contractor: B. H. Baker, Casper. Two Oildraulic Passenger Elevators installed by Dover Elevator Co., Denver.

Hedrich-Blessing Photos

VIEWS

P/A Cover Stirs Controversy

Dear Editor: I think your cover this month (FEBRUARY 1965 P/A) is a masterpiece.

ROBERT VENTURI
Philadelphia, Pa.

Dear Editor: Your February cover was beyond belief. So damned cute. We keep it under *The New Yorker.*

You should fire your art editor. *Pencil Points* did better.

LLOYD WESTBROOK
Cambridge, Mass.

Dear Editor: Congratulations. It was good to see a humorous cover thought out and executed in excellent taste.

NICOS ZOGRAPHOS
New York, N. Y.

Dear Editor: Your February cover was unexpected. However, it did perform a function: it became a point of discussion for our group, which in turn led to a discussion of your publication. Good work all around.

CHARLES AVERY BRANDRETH
New York, N. Y.

Dear Editor: Your Art Director has fallen into the trap that seems to snare most architects—that unquenchable desire for their work to be different. Your January cover succeeds in being both distinctive and relevant; the February cover succeeds only in being different. This, to me, puts it in the same category as the usual drive-in or hot-dog stand. Doesn't the topic you chose deserve a more serious treatment?

Again, the choice of typeface for the P/A OBSERVER seems irrelevant, jarring, and totally out of scale. This is with the possible exception of the Corbu article, where I find only the scale as disportionate (who else but Corbu could get such poor presentation published?).

W. EASLEY HAMNER
New Orleans, La.

Dear Editor: STOP POP.

MICHAEL D. NEWMAN
Winston-Salem, N. C.

Dear Editor: A real achievement: the February cover is the first that I am ashamed to have seen in my office.

JAMES R. WASHBURN
Greenville, S. Carolina

Dear Editor: Why not Charlie Brown and Lucy and Snoopy on your February cover? It would be more fun than the "Pop Art," which I think you took too seriously. Good luck in the future.

ADAM M. KAAS
Rock Island, Ill.

Dear Editor: The integration of the current arts with architecture is so much more often discussed than achieved, it is refreshing to see this accomplished on the February cover of P/A. I hope this will set a trend for the future.

CHARLES JAMES KOULBANIS
New York, N. Y.

Dear Editor: In the February issue, your graphics on "Lyndon Is All For It," "New Corbusier Church," "Philadelphia Continues Its Plan," and "Bis Espana" was exciting, bold, and refreshingly in character with the articles. The cover looked like the familiar filtering down of successful art one finds in fashion, advertising or decorating—that is, second rate.

KURT KARMIN
New York, N. Y.

Dear Editor: Several inmates of this environment for learning, including myself, wish to compliment you on your February cover.

FORREST WILSON
Assistant Professor, Dept. of Interior Design
Pratt Institute
Brooklyn, N. Y.

Dear Editor: Judging from the absolutely hideous cover of your February issue, one can safely conclude that you assume that at least nine-tenths of your subscribers are morons. Either this assumption is commonly shared by your staff, or your art director belongs in the basement of a 5 & 10 store making up sales signs.

ERIK NORRBACK
Wayne, New Jersey

Dear Editor: I must compliment you on the February cover. I think it is remarkable and should be up for an award—if not from the architectural community, then at least from a PTA.

HARVEY B. NOLL
Sales Manager, University Division
Royalmetal Corporation
New York, N. Y.

Dear Editor: I enjoyed the "Dick and Jane" cover for the February issue. It's nice to see a little humor in this seemingly humorless world of architecture.

JERRY BRAGSTAD
Berkeley, Calif.

Dear Editor: Your February cover was a terrible example of what good quality should be. Please, let's get some good graphic design.

LOUIS J. GARAPOLO
Urbana, Ill.

Dear Editor: When I first saw your February issue, I thought surely there was some mistake. But the more I am exposed to it, the more I appreciate your purpose for this cover. Keep on being progressive, PROGRESSIVE ARCHITECTURE.

JOHN VICTOR OLENEK
New York, N. Y.

Pineapple Design?

Dear Editor: We wish to categorically deny your allegation in the NEWS REPORT, FEBRUARY 1965 P/A, that the Bank of Hawaii model you pictured as designed by us in an early Hawaii motif was "obviously copied from a pineapple."

We were going to demand a retraction, but our public relations representative points out that you have spelled our name correctly, thereby winning his approval.

Seriously, the structure's decorative motif reflects the very early Polynesian theme utilized in tapa cloth and artifacts, and since Polynesia's cultural background originated chiefly from the sea, it is likely that this particular motif came from the fish scale. Pineapple, indeed. And "copied" yet.

Our warmest alohas to you for publishing a mention of our activities. We really enjoy the editorial comment.

GEORGE J. WIMBERLY
Honolulu, Hawaii

Underground Architecture Disputed

Dear Editor: Your inclusion in the FEBRUARY 1965 P/A of "Nowhere to Go But Down," and your editorial introduction of that article, seem to condone its validity. Such a philosophy can do no less than hasten the spread of the type of inhuman and unaesthetic blight that it purports to improve upon.

If you had given Malcolm Wells another page, he surely would have advocated the use of the earth's fiery inner core as a means of supplying heat and power to his underground civilization. It would certainly be a more reasonable theory than the rest of his astoundingly contradictory basic proposals. The contradiction lies in the essence of his philosophy. If man is a part of nature, as indeed Wells agrees, why must man's vastly superior intellect, curiosity, ambitions, desires, and needs be made subservient to the simple verdure of nature. The beauty he recognizes is man-imposed. Why should man, who possesses a tremendously creative mentality, burrow beneath the broad range of nature's accidents. The so-called beauty that man ascribes to the hill and dale is nothing

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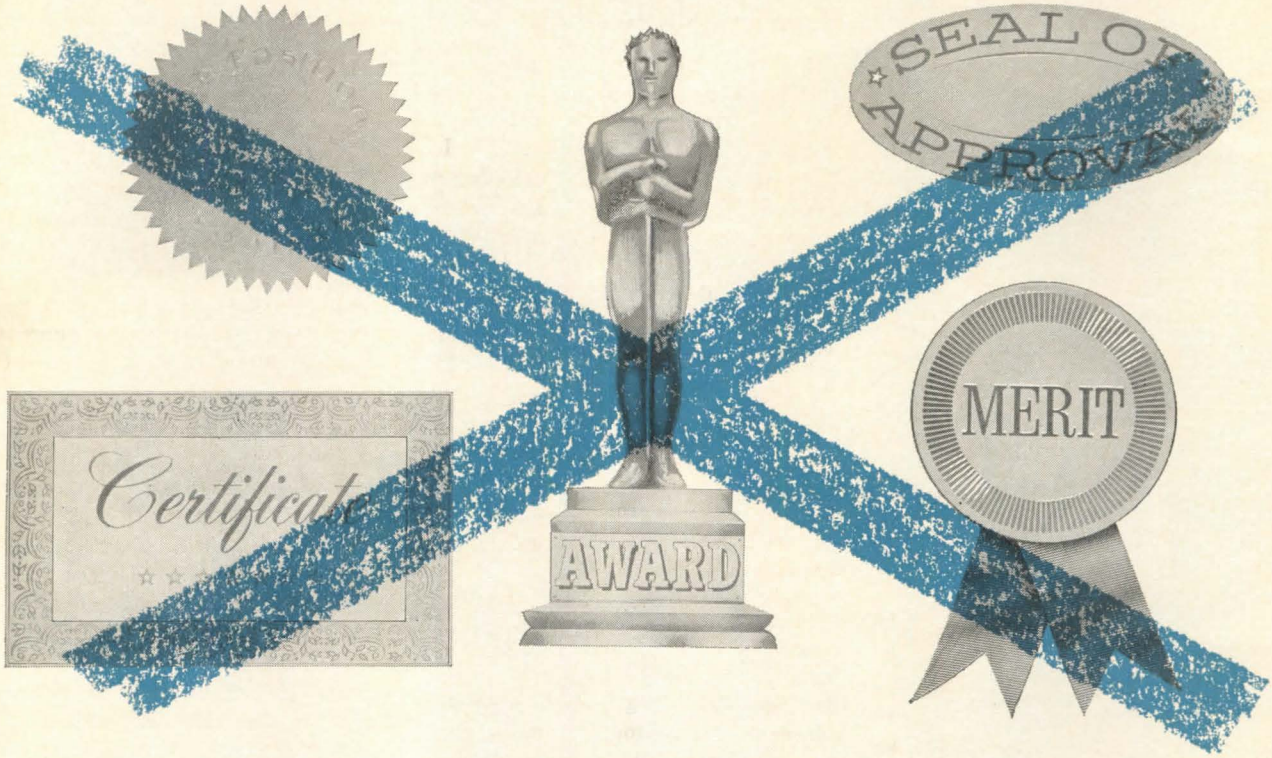

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more than a transitory figment of man's easily influenced and as yet untamed emotions. "Beauty" in nature is nothing more or less than what man wants it to be. Man will never leave the confines of nature, whether he be below ground, on the ground, or above the ground. Everything that man invents or builds is nothing more or less than an exercise in the flexibility of nature. The so-called miracle fibers, nylon, gas heat, electricity, and the making of basic concrete, are not natural creations of man. They are examples of his slow awakening to the great breadth of nature. We have not so much as peered over the threshold of nature, and Wells wants to prevent us from doing even that.

The most natural thing about Wells' article is that it would have been more believable if it had been written by an ostrich. It certainly is a reactionary concept, pessimistic, misdirected in imagination, and perhaps frightened by the uncontrolled breakthroughs that science appears to be making. What is most significant, though, is what is unsaid in the article. Wells is setting himself aside from the designers and planners of the world. He blames the New York World's Fair, and all that he considers bad, on someone else. The universal ephemeral "they" is the constant scapegoat for escapists and cowards who falsely consider themselves as superior to the uncontrollable mass of wildly reproducing fellow men.

LAWRENCE LERNER
New York, N. Y.

Dear Editor: Cheers for Malcolm Wells. He is indeed a visionary and an iconoclast of the first order. His ideas are exciting. I am about to attack his theories head on, but I am delighted they exist. Wells and his ilk serve the invaluable purpose of shaking the rest of us off our pat foundations and forcing us to re-evaluate our own positions.

Wells argues that "there just isn't any building as beautiful, or as appropriate, or as important, as the bit of forest it replaces." I would argue, in return, that from the temonos at Delphi to Ronchamp, from the Katsura Palace to Taliesen West, man has achieved magnificent and profoundly beautiful relationships with nature. To my mind, these are meaningful crystalizations in the rational development of the dialogue between nature and man.

It is true that we are presently in an era of chaos, and that at such times man can be extremely wasteful, but if we are to believe Darwin, nature, too, is involved in a continuous cycle of cre-

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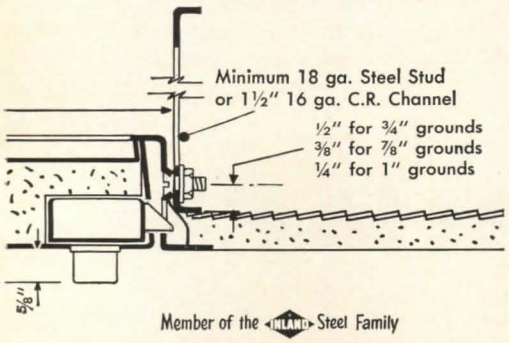

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ation and waste. It may be argued that, over the eons, nature re-uses her waste products. Man, taking a tip from nature, is learning to re-use his waste products as well. What I am trying to show is that man, with his intelligence and within his rightful place in the natural order, is capable of a meaningful synthesis of the natural and the rational worlds.

I would suggest that Wells's proposal of a Freudian return to the womb of Mother Earth is an escape from, rather than a return to, reality. Emotionally, it is a very attractive proposal in these frantic times but one that negates what seems to me to be the true direction of man. This is not to say that Wells's ideas contain no food for thought. On the contrary, few would argue that we are not in real danger of creating horrendous blight. Not many would argue that we should not establish ways of keeping our numbers in check, short of emulating the lemming and periodically throwing ourselves into the sea. There are indeed many functions, such as parking lots and power lines, which we would do well to put underground. The drama of travel would be greatly heightened by a mixture of surface and subsurface highways, as indicated in Wells's admirable drawings. But the problems that exist on the face of the earth must be solved on the face of the earth, for man's natural place is with his head in the clouds, his face in the sun, and his feet planted firmly *on*, not under, the ground.

JAMES O'HEAR III
Charlotte, N. C.

Penn's Fine Arts Building

Dear Editor: Your casual dismissal of the graduate students protesting the construction of Penn's new Fine Arts Building (FEBRUARY 1965 P/A) was as lacking in taste as it was in professionalism.

Equally flippant was your dismissal of the work of a great architect, Frank Furness, the man responsible for the adjacent ". . . beturreted, rose brick Victorian monstrosity."

Had you examined this building more closely, you, like many others, would have sensed the power of this rare genius who used light and structure to make spaces at once dignified and humorous and as useful today as 70 years ago when the building was completed. Further, you would have observed the obvious influence of this man's work on a group you have dubbed "The Phila-

Continued on page 16

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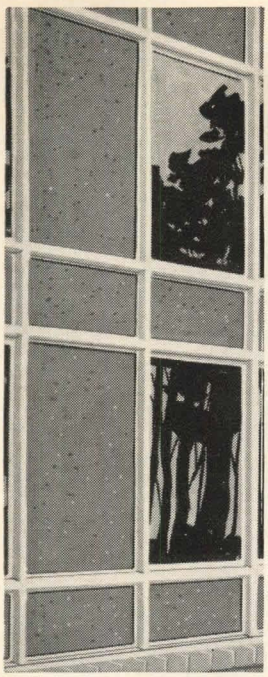
E. A.
GLENDENING
CINCINNATI, OHIO



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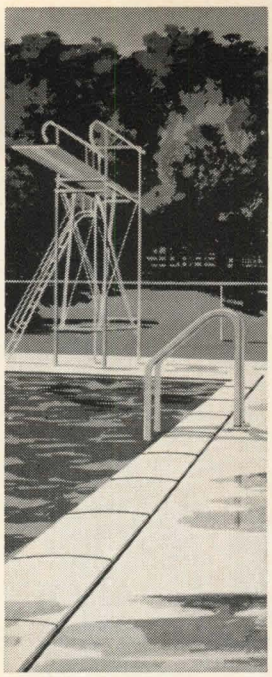
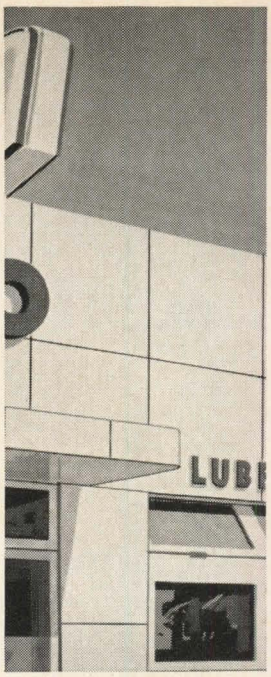
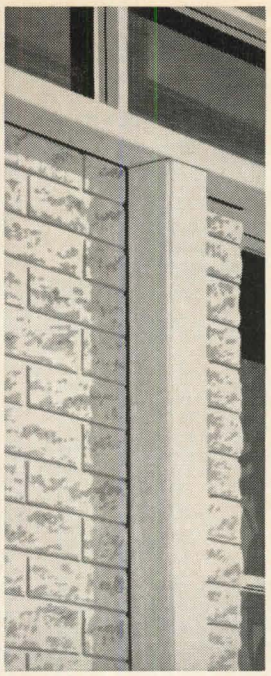


2. SWIMMING POOLS. **Problem:** Sealant between pool's concrete coping and concrete apron is subject to brittleness and cracking in winter, tar-like gumminess in summer. **Solution: DAP Flexiseal.** Forms a rubbery, watertight seal that sets to a non-tacky cure and remains permanently flexible.



3. PORCELAIN PANELS. **Problem:** Severe expansion and contraction — plus the sun's ultraviolet rays — take the life out of ordinary sealants. **Solution: DAP Flexiseal.** Balanced adhesion and cohesion gives exceptional durability and flexibility regardless of temperature and climate.



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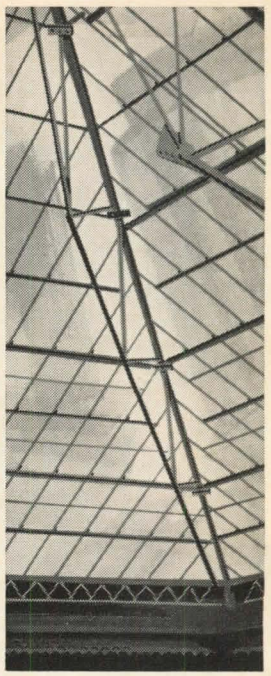

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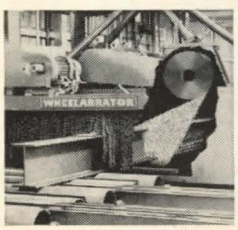

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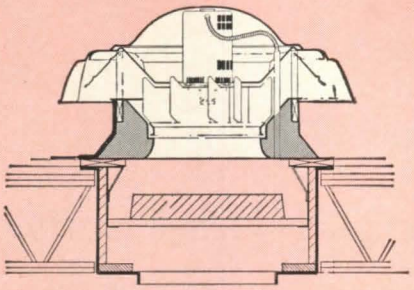
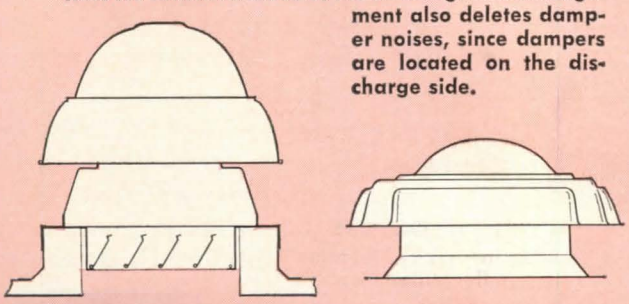
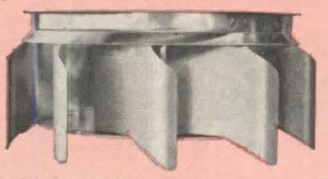
1 **The new Unitary design incorporates curb, fan, back-draft dampers, and bird guard protection into a single, easily installed unit. Always the right curb and damper size for the job.**



2 **An optional in-the-roof sound attenuator—recessed to maintain unit's low profile—offers maximum quietness for sensitive areas of the building. This arrangement also deletes damper noises, since dampers are located on the discharge side.**



3 **Lower fan height comes from nesting the wheel into the curb and re-locating the back-draft dampers outboard of the wheel housing . . . prevents entry of snow and moisture into fan compartment, eliminates need for bird guards, permits damper servicing without removing the fan.**

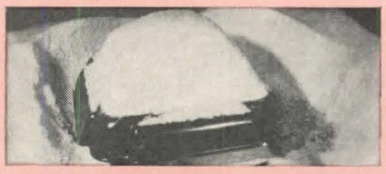


4 **The new, high performance J-45 centrifugal wheel nests into the vinyl curb and discharges the air at a 45° angle from radial. Its new 25% larger inlet produces much lower inlet velocity and lower noise level, accordingly.**

5 **The inconspicuous slate grey color of the HI-TEMP VINYL is homogenous and permanent—retaining its color for life.**

6 **To match premium HI-TEMP VINYL housing durability, all metal hardware in the airstream is vinyl coated. This adds years of life; for inside and out, the exhauster is protected from salt spray and corrosive conditions.**

7 **Seamless curb of HI-TEMP VINYL (filled with foamed-in-place insulation) and wood nailing strip on curb provide faster installation.**



8 **Fan melts clear even when submerged by snow.**

9 **Available in centrifugal belt and direct drive, 72 models in capacities up to 35,000 cfm . . . belt drive, direct drive and relief vents are identical in basic profile and contour.**

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Continued from page 10

delphia School," and to which you saw fit to devote an entire issue (APRIL 1961 P/A).

However, I write neither to protest your patronizing attitude toward my fellow students and me, nor to defend the work of Furness, which speaks for itself. My purpose is to challenge your observation that the context within which the new building is to be placed presents, ". . . a sad site for any respectable building." It is indeed disappointing that in the same issue in which you speak of the significant crossing of "the thin line . . . between architecture and planning," you label as sad a situation which crystalizes the challenge that a fluid urban society presents to its architects: namely, to respond to the demands for change and expansion (or contraction) by working within a fabric of movement and buildings inherited from previous generations.

The particular site at issue demands more of the architect than perhaps any other at this university: an adjacent, 70-year-old building, to be used in conjunction with the new structure; an important channel of pedestrian movement, diagonally crossing the site; the fact that, traditionally, 34th and Walnut has been the University's entrance, but today totally lacks the symbolic qualities that the "door" to a great urban university deserves; the necessary sacrifice of valuable trees and open space. All this combines to make what I and many others believe to be a thrilling opportunity, one which only a superb architect should be asked to seize.

Unfortunately, but not surprisingly, this did not happen. Equally unfortunate and very surprising is your failure to view the situation with a degree of perception more reflective of your responsibility.

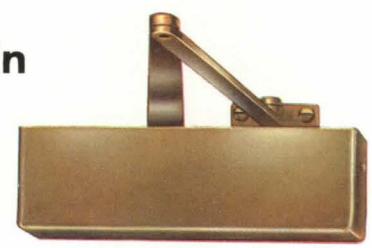
LAWRENCE A. GOLDFARB
Graduate School of Fine Arts
University of Pennsylvania
Philadelphia, Pa.

CORRECTIONS:

• Due to a printer's error, the references in lines 12 and 28 of the third column of Harold Rosen's SPECIFICATIONS CLINIC (FEBRUARY 1965 P/A) should read 6 in. instead of 62 in.

• In the article "The Architecture of Israel" (MARCH 1965 P/A), it was erroneously reported that Jose Luis Sert would be included in the jury for the competition to develop the central area of Ashdod. The only juror from the U. S. will be I. M. Pei.

SAFETY ASSURED with hardware by Corbin



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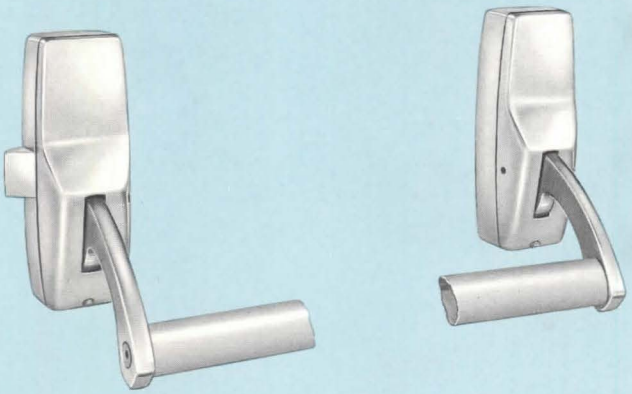

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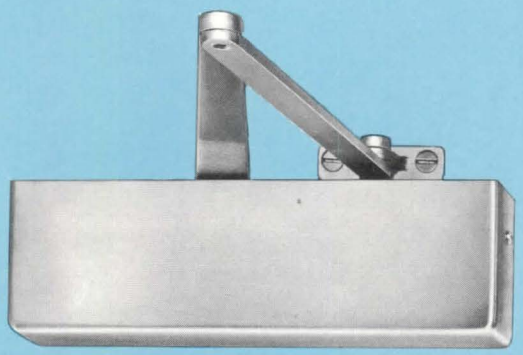

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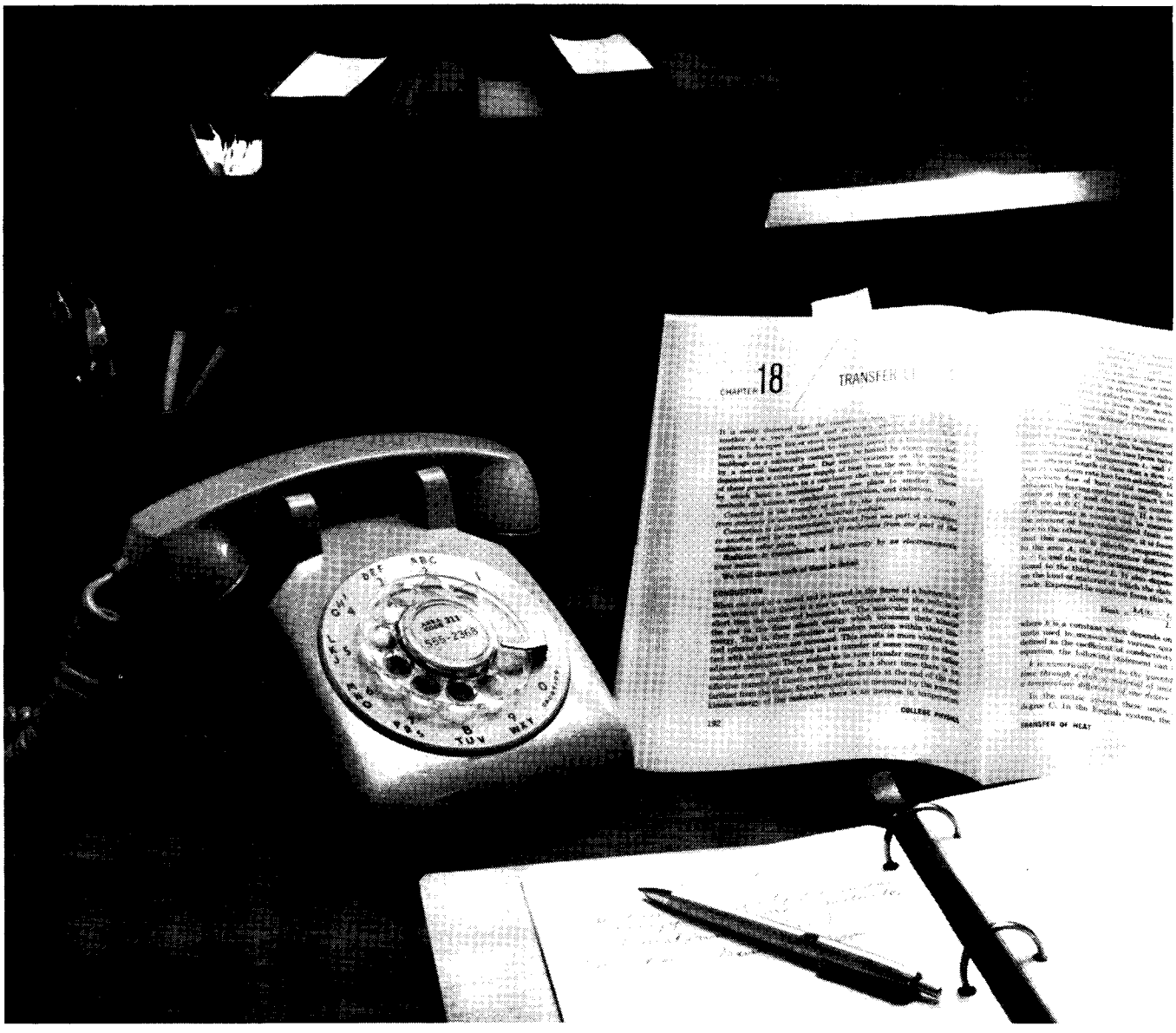
IT PAYS TO MAKE IT CORBIN — THROUGHOUT!



STUDENTS WILL TALK...PLAN ON IT

Thousands and thousands can talk right now from telephones in their rooms to aid their studies, conduct campus business, keep in touch with faculty advisers. Besides room phones, many colleges are using closed-circuit TV, tele-lecture, DATA-PHONE* data communications service and many other Bell System communications services.

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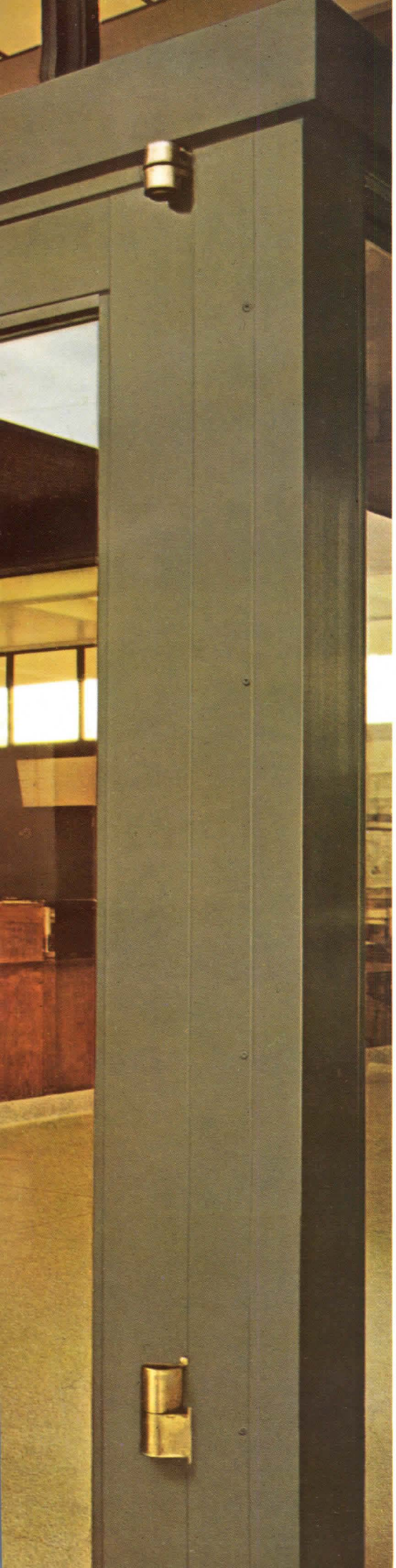
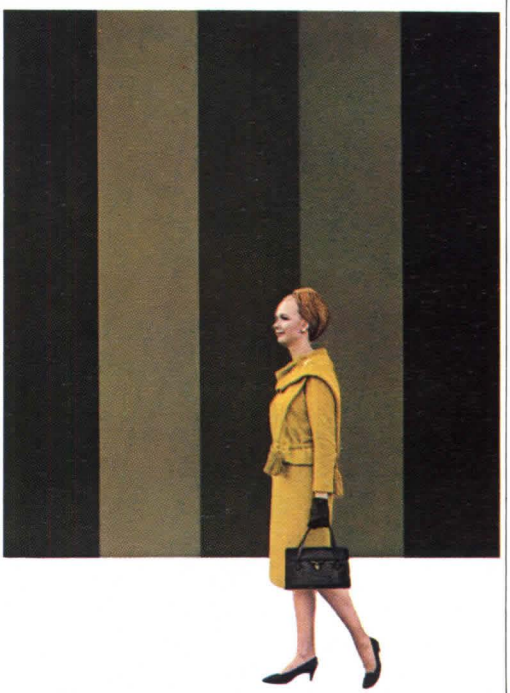


Change for the better with Alcoa Duranodic 300 finish.

Works well inside. Outside. Up. Or down.

The Detroit Bank & Trust Company Branch Office
Architect: Eberle M. Smith Associates, Inc.
Duranodic Applicator: Engineering Products and Specialties, Inc., Pawtucket, R. I.
Aluminum Subcontractor: the Alumiline Corp., Pawtucket, R. I.



We've had architects use our Duranodic* 300 finish on office buildings. Apartment buildings. Restaurants. Banks (such as the one shown here). Even churches. It's been used on doorways. Windows. Curtain walls. Mullions. Railings and stairways. You'll find it inside lobbies. Up on skyscrapers. Where does it work best? Anywhere that calls for richness. Permanence. Buildings you want to be remembered for. Alcoa® Duranodic 300 finish is available in classic tones of bronze, gray, black. And the color always stays put because the finish is thick, hard, integral with the metal. So it also resists corrosion, abrasion, weather. Want to know more about it? Call your nearest Alcoa sales office. Or write Aluminum Company of America, 1676-D Alcoa Building, Pittsburgh, Pa. 15219.

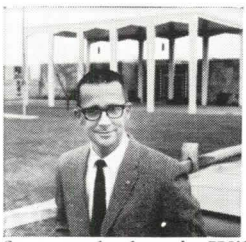
*Trade Name of Aluminum Company of America

ALCOA BRINGS YOU AMERICA'S FINEST NEWS SHOW . . . **THE HUNTLEY-BRINKLEY REPORT,** ON NBC-TV

ALCOA

20 MILES EAST of Cleveland, Jim Forsythe, E.E. (in dark suit), and five enthusiastic assistants point up advantages of all-electric design in new Sheraton Motor Inn, Willoughby, Ohio.

New Ohio motel illustrates six big benefits of all-electric design!



Consulting engineer Jim Forsythe of Karl R. Rohrer Associates, Akron, Ohio, sees all-electric design as "a valuable tool for improving efficiency and operation in any type of commercial building."

He reports, "A good example is the new 84-unit Sheraton Motor Inn our firm worked on in Willoughby, Ohio, together with architect Lyle Leslie. After a thorough study of every possible system, all-electric design proved the most practical approach by far, offering initial cost savings of 25% in the heating and cooling system alone."

Six basic benefits that influenced the choice of all-electric design for this new motel are shown in the picture above. They include:

1 **Greater comfort with savings:** Through-the-wall combination heating and cooling units (visible under each window) permit guests to select individually desired room temperature and ventilation. Unoccupied rooms can be cut back to minimum temperature levels.

2 **Flexibility of system:** Complementing individual units in guest rooms, the main building area, comprising lobby and dining, banquet and conference rooms, uses a combination of electric baseboard units and ducted central heating and cooling for better control and greater efficiency.

3 **Freedom of design:** Elimination of need for long pipe runs reduced construction costs and allowed architect more latitude in choice of floor plan and utilization of terrain.

4 **No need for roof-top equipment:** All heating and cooling equipment is contained within building, presenting a more attractive exterior and simplifying any required servicing.

5 **Ease of expansion:** Planned addition of 18 guest units can be completed with no problem of adding to boiler capacity.

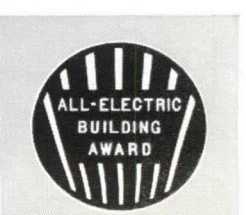
6 **Savings in space:** Useful main storage area replaces space which would normally be needed for a boiler room with other types of heating.

If you are interested in finding out more ways all-electric design can help you in your commercial, industrial or institutional buildings, contact your local electric utility company. They will welcome the opportunity to work with you.

BUILD BETTER ELECTRICALLY

Edison Electric Institute, 750 Third Avenue, New York, N.Y. 10017

THIS PLAQUE, now given by many electric utility companies, identifies a modern building which has met the high standards of electric heating, cooling, lighting—and other applications—set by the Edison Electric Institute. On your clients' buildings, this All-Electric Award serves as a reminder of your role in specifying clean, automatic, economical electric equipment.



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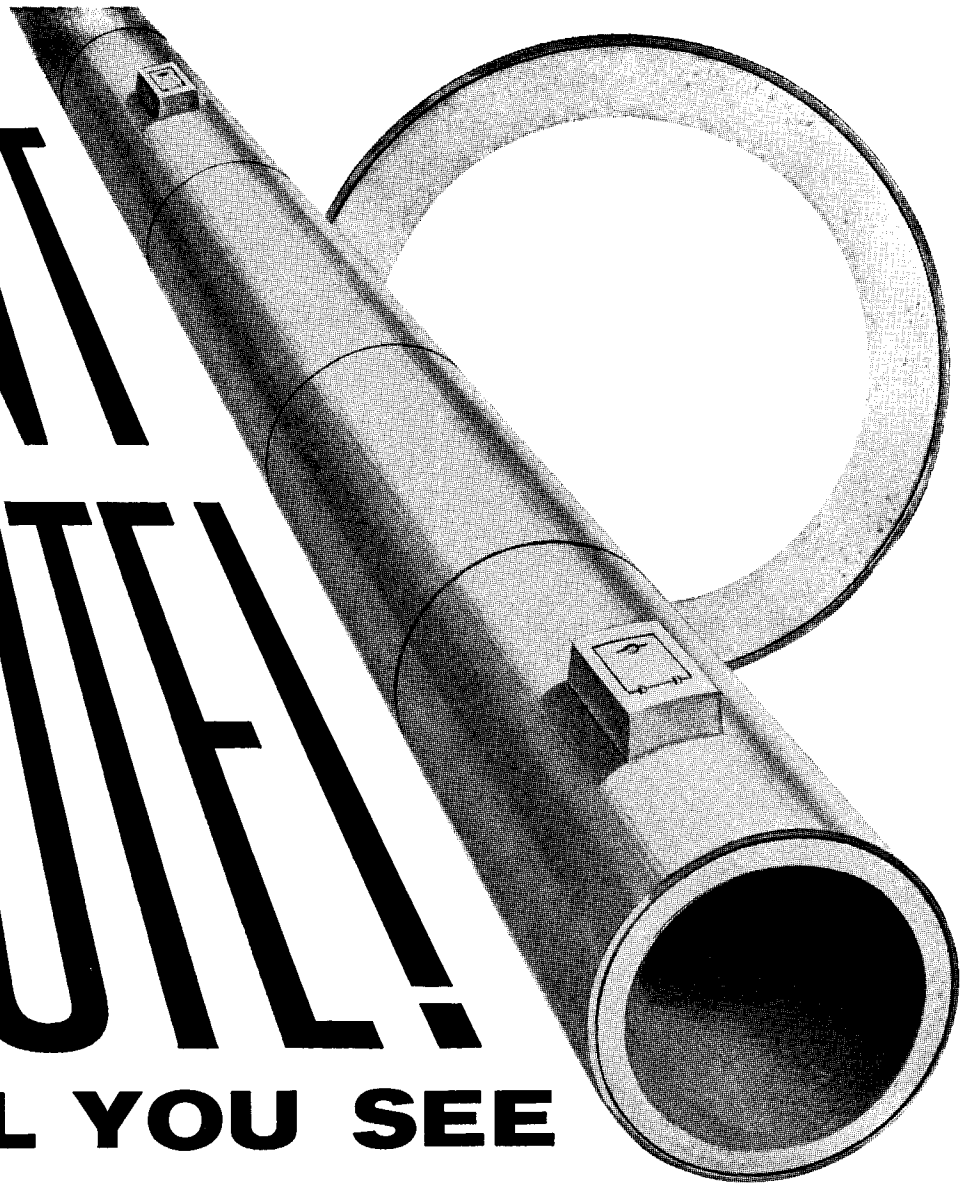

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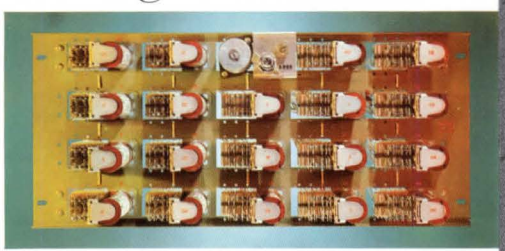

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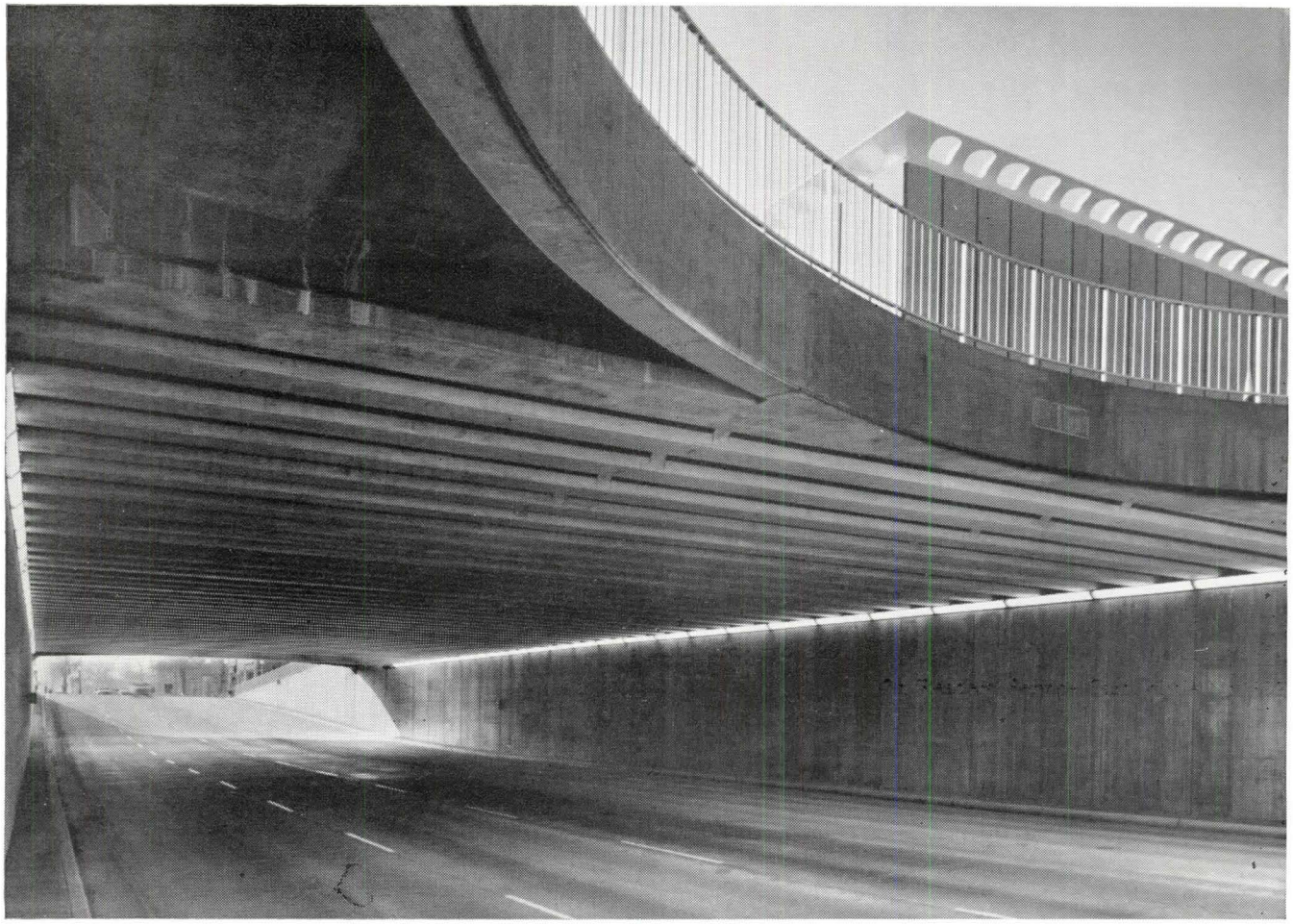

74-foot prestressed concrete tees featured in Sacramento redevelopment project

Spacious mall over Fifth Street in Sacramento, California, is part of a downtown redevelopment program. Prestressed concrete tee girders span the 74-foot roadway width of Fifth Street. Each tee is 3 feet deep, with a four foot wide top flange. Pretensioning strand used throughout the project is Union TUFWIRE® Strand, with 41½″, 7-wire strands per tee section.

This project is another demonstration of the way prestressed concrete meets a variety of design and construction requirements: functional beauty, light weight, durability, fast construction and low cost.

Union TUFWIRE Strand and other Union Wire Rope products are made by **Armco Steel Corporation, Steel Division, Department W-945, 7000 Roberts Street, Kansas City, Missouri 64125.**

Owner: City of Sacramento, California—
Project financed by Redevelopment Agency of the City of Sacramento
Engineers: McCreary • Koretsky • Engineers, San Francisco, California
Architects: Skidmore, Owings & Merrill, San Francisco, California
General Contractors: Stolte, Inc., Oakland, California
Prestressed Concrete Fabricator: Delta Prestress Concrete, Incorporated, Sacramento, California

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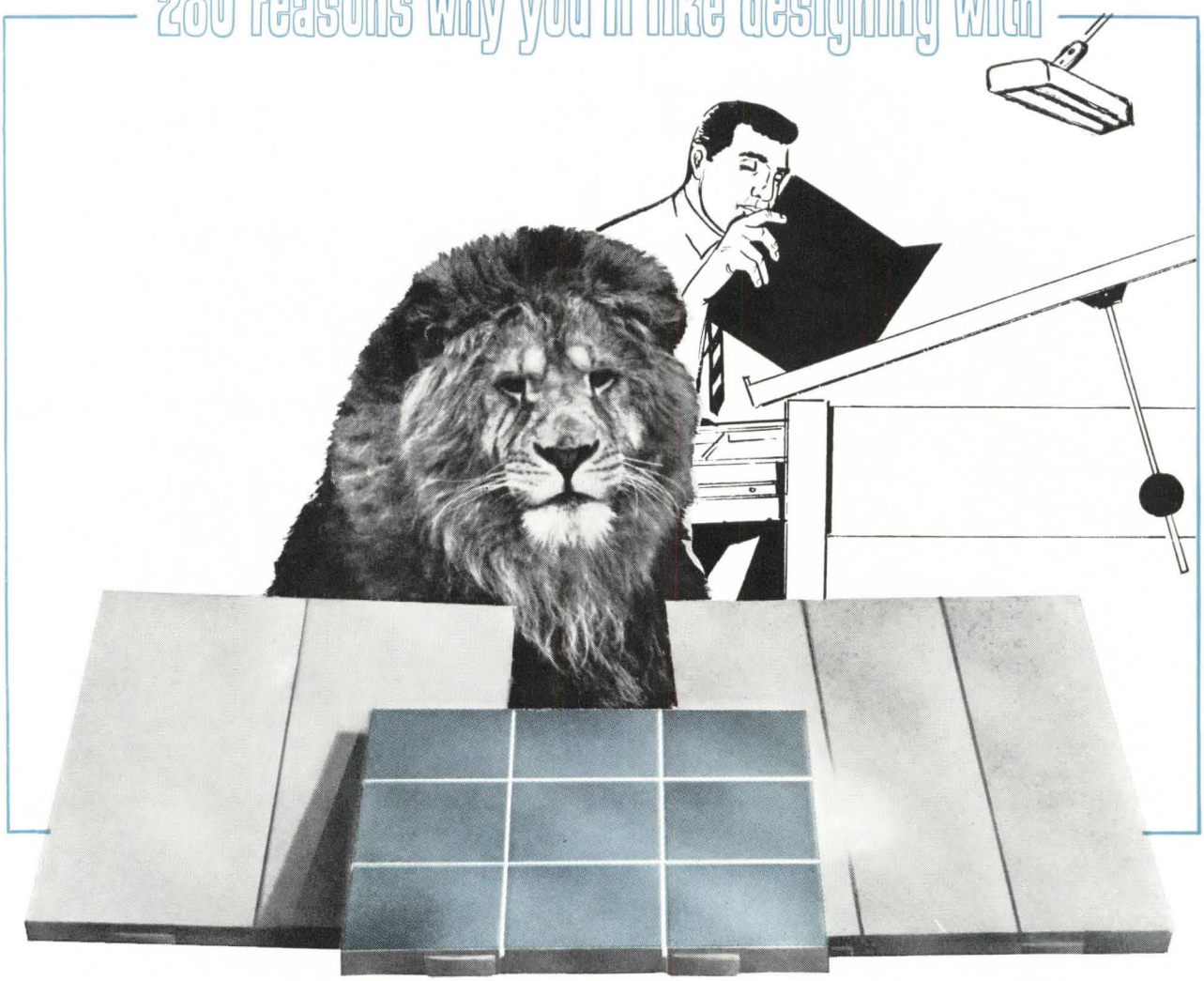

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DAVE BRUBECK
&
CONTEMPORARY
POST AND BEAM

ARCHITECTS: Lawrence Michaels and David Thorne. GENERAL CONTRACTOR: Joseph A. Marino. STEEL FABRICATOR: Westchester Steel Products Co.

Pianist Dave Brubeck wanted his new Connecticut home to be as avant-garde as the cool chords of his famed jazz quartet. Architects Lawrence Michaels and David Thorne translated the theme into this contemporary post-and-beam combination of wood, stone, glass, and steel. Secret of the airy, open appearance: USS NATIONAL Hollow Structural Tubing exposed and painted, that supports roofing, flooring, canopy, and even windows.

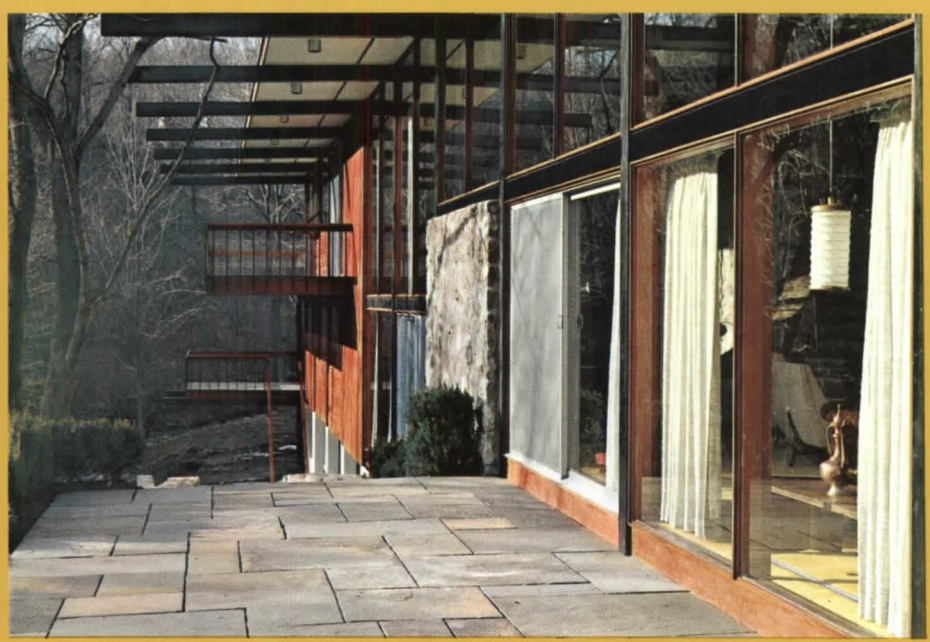
Wooden structural members for the long open spans would have been too massive for the desired effect. By using square and rectangular steel tubing, the architects retained traditional—but slimmer—post-and-beam appearances. Perhaps the best description of the over-all impression came from one of Brubeck's sons in a school essay about "The Home I Live In." Young Brubeck called it a "castle with the gloom taken out."

The Brubeck house—with about 10 tons of USS NATIONAL Hollow Structurals—is one of the first major residential uses of this versatile new member, but architects have used exposed structural tubing for everything from branch banks to neo-Gothic churches to World's Fair pavilions. With efficient design, structural tubing can often reduce steel requirements by more than 30%.

Structural tubing accepts bending stresses in several directions and is used as posts, beams, columns, rafters and mullions. The flat surface simplifies beam and angle connections, eliminates the need to "box in." Hollow structurals often double as conduit and drain housing, too.

USS NATIONAL Hollow Structural Tubing offers advantages not found in any other structural tubing. Corners are sharper. It is manufactured to the closest underweight tolerance in the industry, minus 3½%. Its size range is the widest available, going up to 10" x 10" squares and now to 12" x 6" rectangles. Wall thicknesses range up to ⅝" in some sizes.

For more information on USS NATIONAL Hollow Structural Tubing see our catalog in Sweet's Architectural File, or contact our construction marketing representatives through the United States Steel Sales Office nearest you. (Just for the record, we have a new 22-minute, color-sound movie, "The Shape of Things to Come," available upon request.) Write United States Steel, 525 William Penn Place, Pittsburgh, Pennsylvania 15230. *USS and NATIONAL are registered trademarks.*



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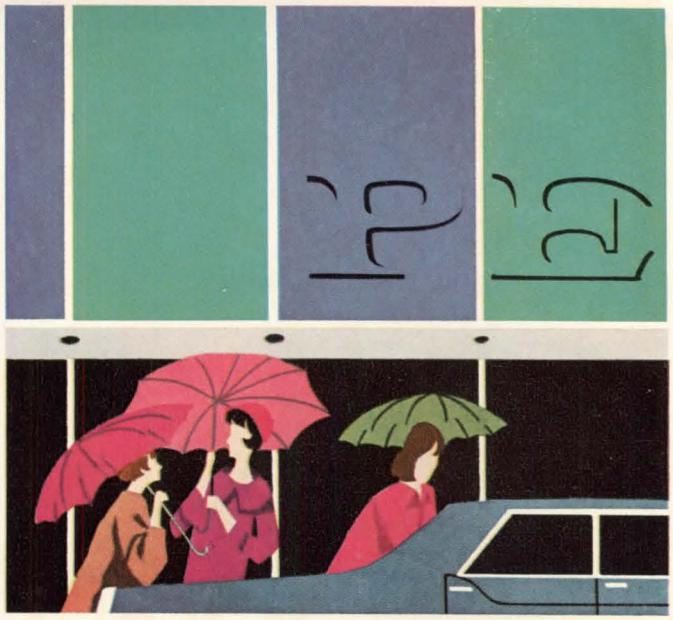

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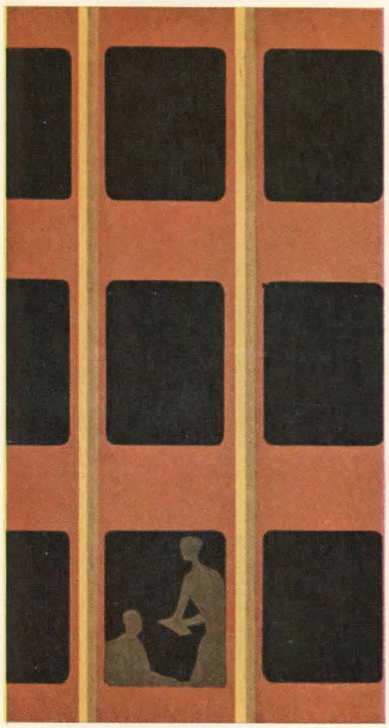

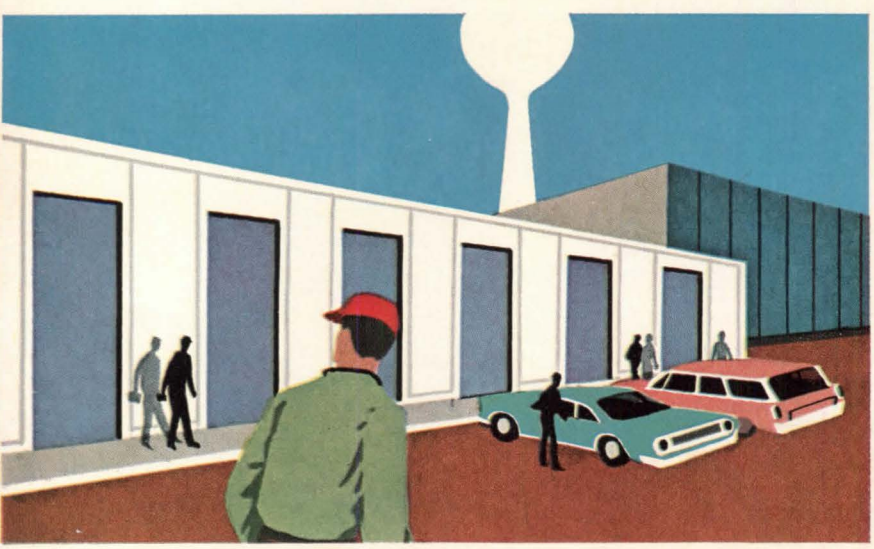

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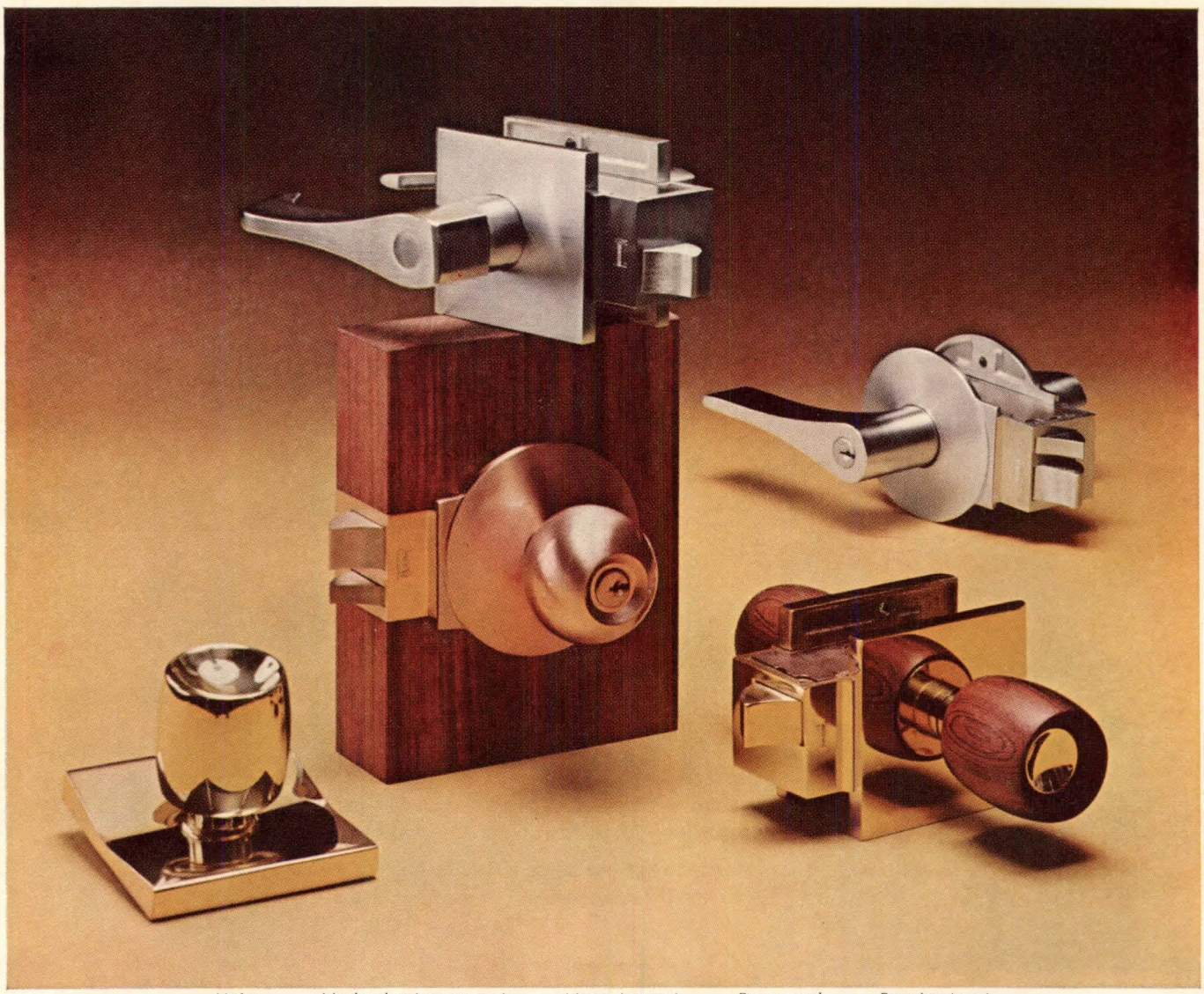

Unity Moderalev (top center) Mono (center) Rosewood Beaulev (rear)

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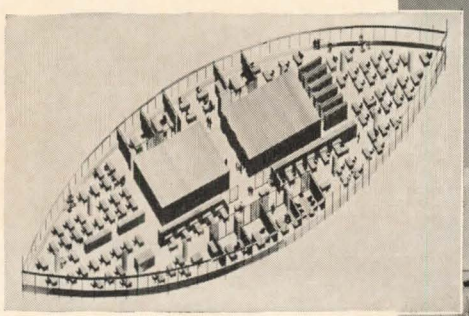

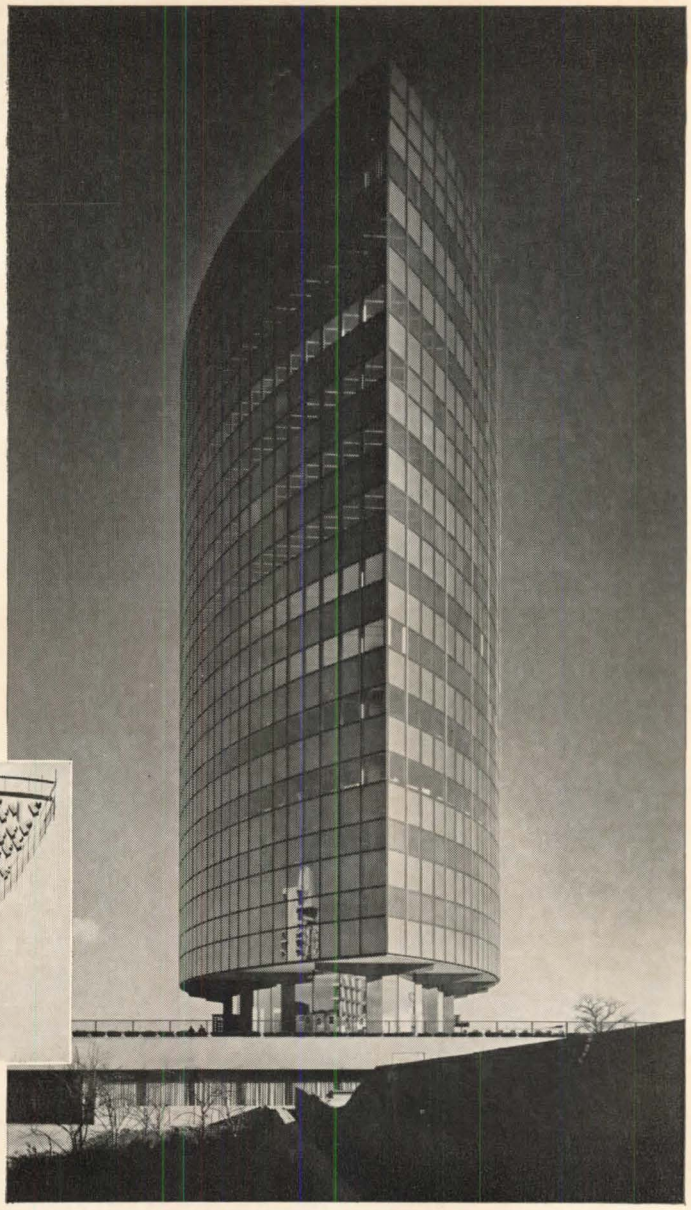

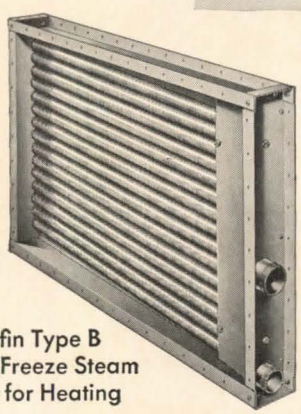

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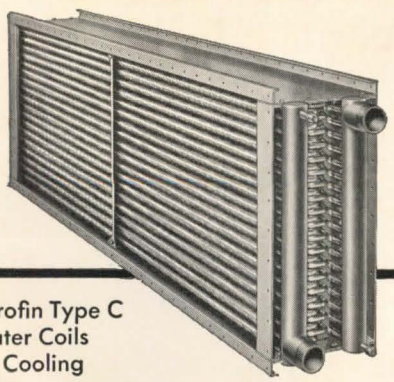

Aerofin Type C
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for Cooling

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Modern smooth-fin design of Aerofin coils permits ample heat-exchange capacity in limited space – permits the use of high air velocities without turbulence or excessive resistance.

Aerofin performance data are laboratory and field proved. You can specify Aerofin Coils at full published ratings.

AEROFIN CORPORATION

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Aerofin is sold only by manufacturers of fan system apparatus. List on request.

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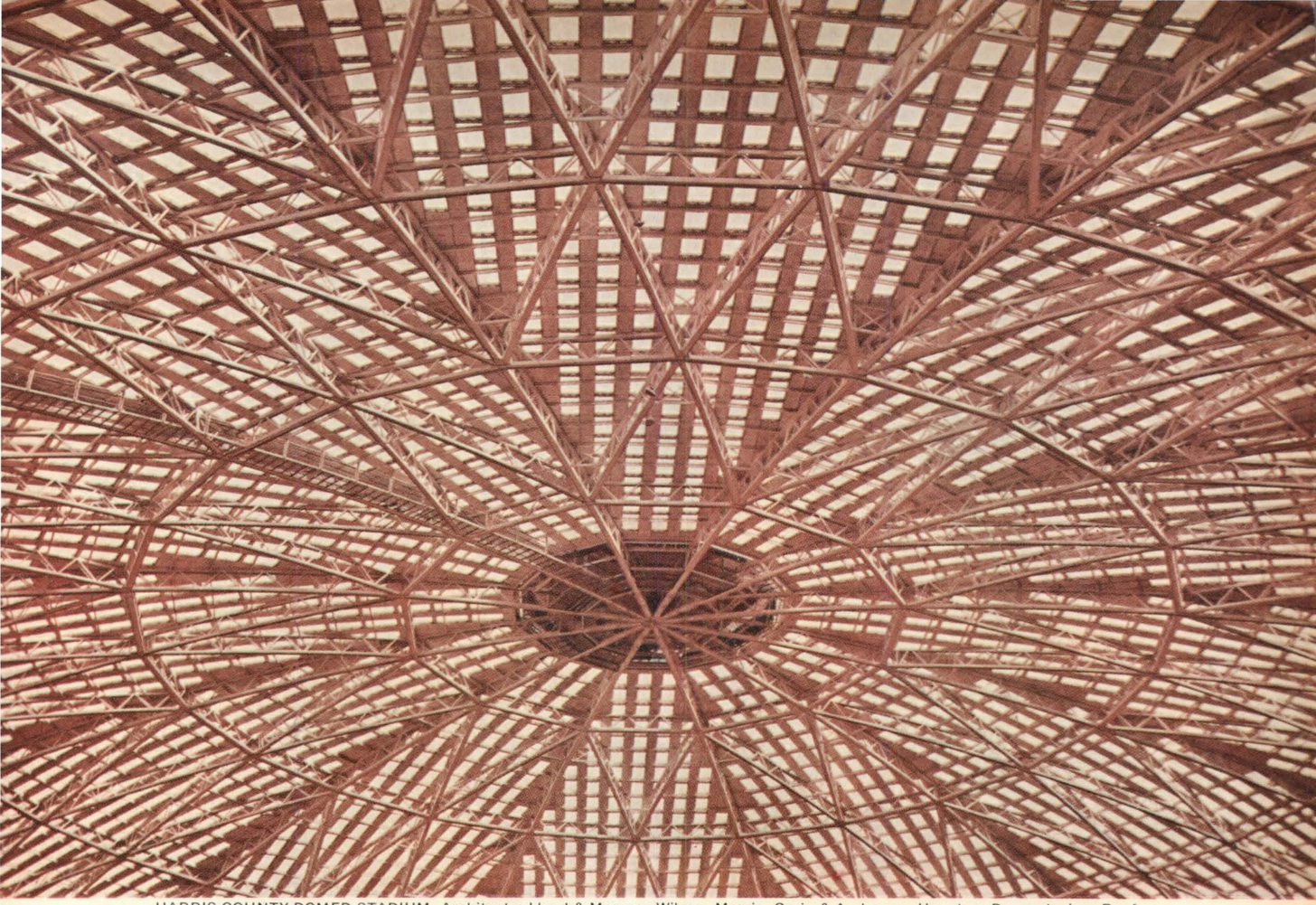
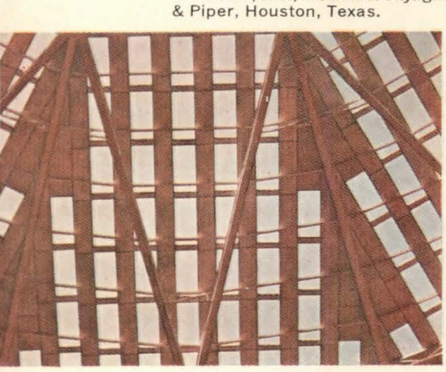
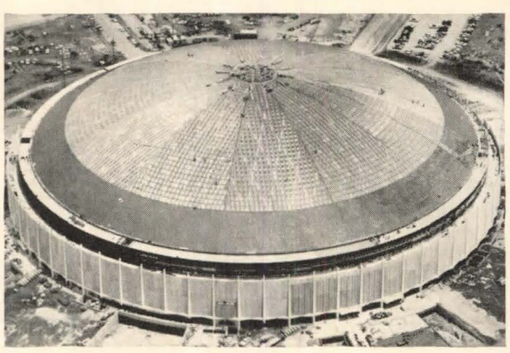
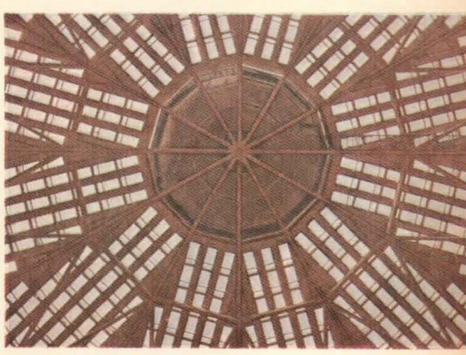


HARRIS COUNTY DOMED STADIUM. Architects: Lloyd & Morgan; Wilson, Morris, Crain & Anderson, Houston. Dome design: Roof Structure, Inc., St. Louis. Skylight fabrication: Pam Co., Portland, Oregon. General Contractors: H. A. Lott, Inc., and Johnson, Drake & Piper, Houston, Texas.







Skylights of acrylic sheet cast from Du Pont LUCITE® help Harris County Domed Stadium conquer the Texas climate

Even non-Texans have to agree that the imposing Harris County Domed Stadium, home of the Houston Astros, is an extraordinary architectural achievement. It is a nine-level, luxuriously appointed stadium in which 66,000 spectators can watch sports events and shows of all types in air-conditioned comfort.

The most difficult problem facing the architects was the construction of the dome. 645′ in diameter and rising 202′ above the playing field, it is the largest clear-span steel-and-plastic dome ever built. For the 4,600 skylights in the steel Lamella frame, the architects chose acrylic sheet cast from LUCITE acrylic monomer because of its unique combination of properties.

Having excellent optical clarity, LUCITE admits the light spectrum needed to grow grass on the playing field. Strong, shatter-resistant and weatherable, the sheets of LUCITE will withstand winds of 180 mph and give many years of trouble-free service. Lightweight and easy to fabricate, LUCITE allowed the architects to design a double-layer skylight construction that aids insulation, cuts glare and eliminates harsh shadows of the structure on the playing field. Each skylight consists of a .187-inch-thick inner layer with a prismatic light-diffusing surface and a crystal-clear .250-inch-thick outer layer with a 1½-inch air space between.

For information on sources of acrylic sheet cast from LUCITE, write Du Pont Co., Dept. B, Room 2507L, Wilmington, Delaware 19898.

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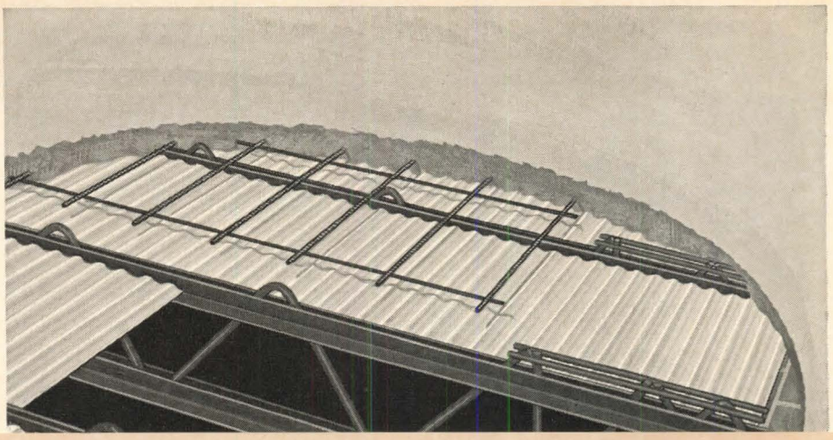

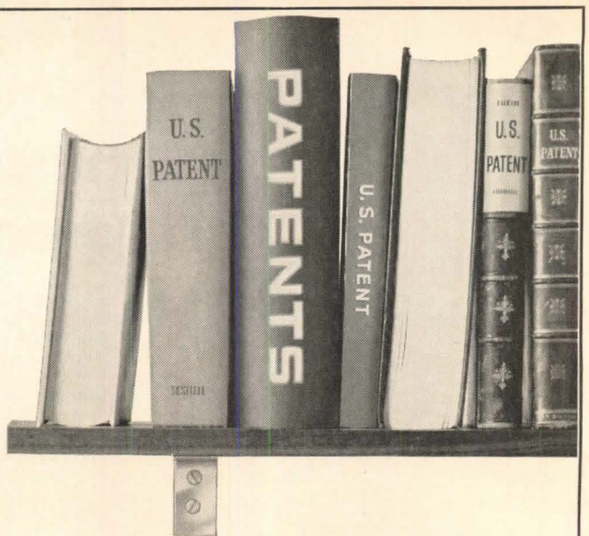

Author! Author!

The titles aren't very catchy. And the plots aren't anything to write home about.

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Because more Carrier air conditioning is sold, year after year, than any other make.

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Invention is in the blood at Carrier. Most Carrier engineers hold at least one patent. And some engineers have scores of patents to their credit.

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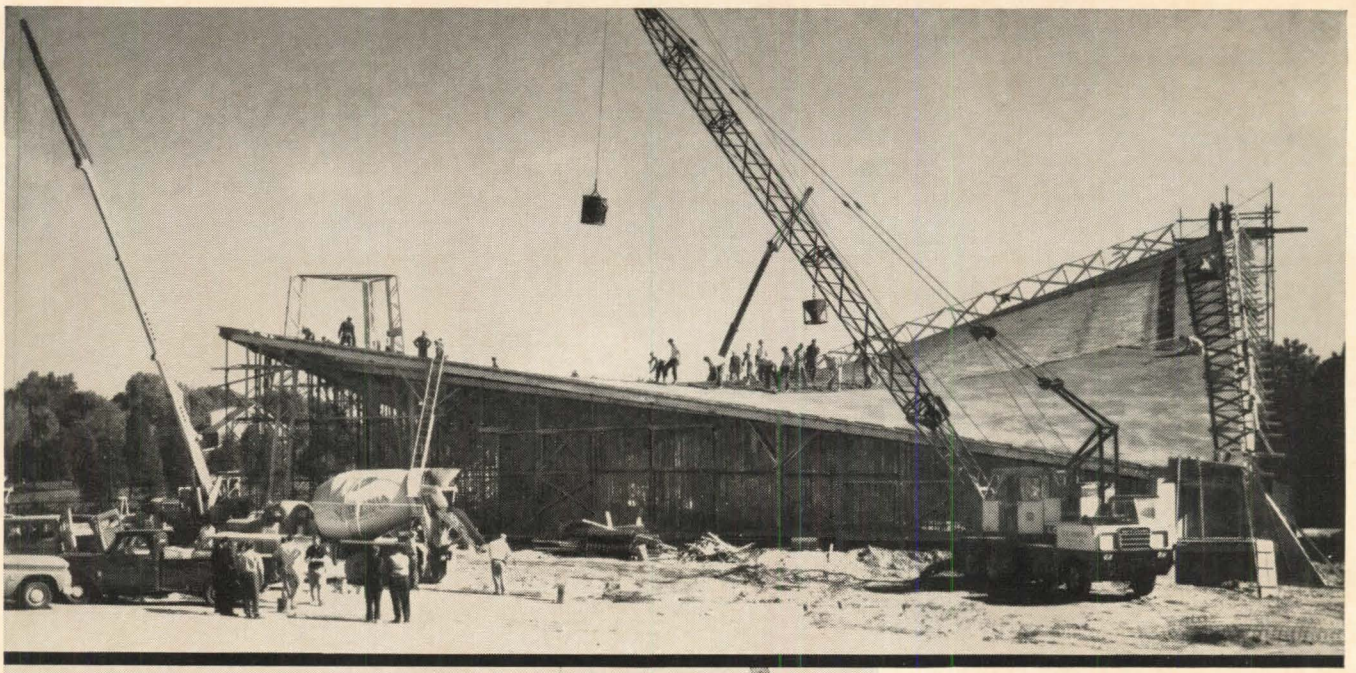


Buttresses consist of two intersecting legs —each leg, a truncated right triangle with a 16′ base, 16′ high and 30″ deep. The two peaks of the giant roof are 62′ and 27′ from grade.

Architect:

J. Allan MacLane, A.I.A., of MacLane & Chewning, Washington, D. C.

Structural Engineers:

Smislova & Carcaterra, Silver Spring, Md.

Contractor:

Sherman Construction Corp., McLean, Va.

Ready Mix Concrete:

Virginia Concrete Company, Springfield, Va.

Concrete for the entire hyperbolic paraboloid roof of Queen of Apostles Roman Catholic Church was placed between 8 AM and 4 PM. The edge beam, poured integrally with the roof, tapers from 20″ deep at the buttresses to 10″ deep at the high points. Each axis of the roof is 168′.

Concrete For Huge H/P Roof Placed in 8 Hours

This graceful hyperbolic paraboloid church roof is 118′ square, projected to the horizontal, and is only 3½″ thick. It is supported by two concrete buttresses connected by a below-grade tie beam. Under this clear span roof, the nave will seat 1500 people.

The coordinated planning of Sherman Construction Corporation and Virginia Concrete Company resulted in the continuous placing of 214 cu. yd. of lightweight concrete in 8 hours. Here, as in construction jobs throughout the country, Lehigh Cements contributed to the quality concrete supplied.

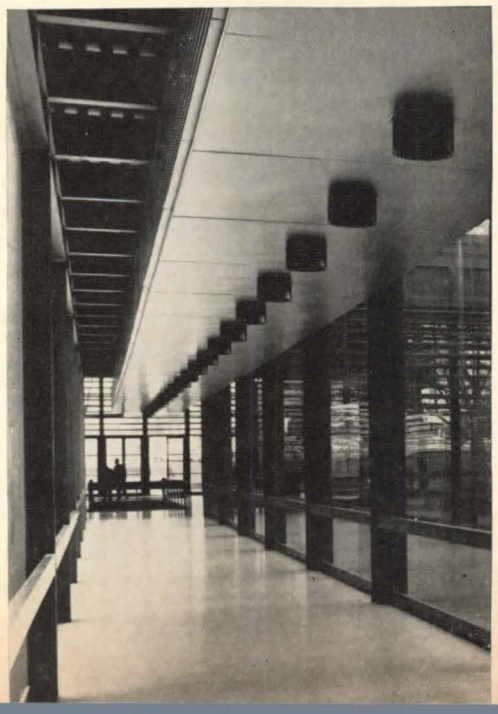
LEHIGH CEMENTS

Lehigh Portland Cement Company, Allentown, Pa.

Once in a rare while, a building stirs up a lot of excitement.

Deere & Company Administrative Center, Moline, Ill.; Architect: Eero Saarinen & Associates, Hamden, Conn.; Painting Contractor: Irvin H. Whitehouse & Sons Co., Louisville, Ky.; Man from Devoe: K. W. Sanderson, Moline, Ill.

Devoe certainly likes being involved then.



Here's a case in point: Deere & Company's new Administrative Center has without doubt attracted attention. So conceived as to be functional and handsome—without any superfluous decoration—this unique structure uses color and material and texture, as well as the best in modern design, to achieve its plan.

DEVOE's involvement? We were called upon to match, in a number of finishes, the colors selected. And we did it, getting just what the architect wanted.

Sometimes matching color, even the most extraordinary, is all we're asked to do—but responsible corporations like Deere are reassured knowing that we'll meet the demands . . . and do the job well. Of course, the *Man from Devoe*—our local representative—can help designers in many ways, ranging from assistance with color to assistance with the most complicated and technical aspects of paint. Why not write or phone the nearest Devoe office to reach him for your next job.

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This is Cathy Robinson '68

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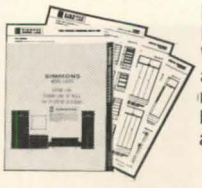
Why? Because Dorm Line built-ins start with a welded steel framework that never needs repair. It is manufactured under quality-controlled production procedures which simply cannot be duplicated by jobsite construction methods.

Flat surfaces in a variety of highly durable materials can be replaced easily and quickly in case of severe damage.

Dorm Line's prefabricated, steel-framed wardrobes can be assembled and installed on the job in just a fraction of the time and cost required for millwork construction of wood units and you always know that each Dorm Line unit will fit perfectly into the space provided.

Remember, too, that Simmons Dorm Line wardrobes, chests, desks, even beds are built-in and therefore qualify for long term government financing. Plan to specify Simmons Dorm Line built-ins for your next dormitory project.



Free! Attach this ad to your letterhead for our new Work Saver portfolio of acetate overlays. It will make your specification of built-in furniture easier and faster.

SIMMONS

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New Kawneer UNIT WALL 1200 System assures leak-free performance! Even with Operating Vents!

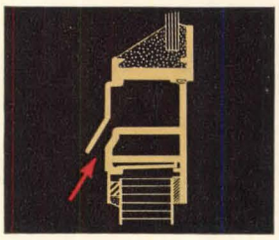
Outside, raging gale winds and rain! Inside, bone dry! Rigorous static test results assure that you can *now* specify an aluminum wall system *with operating vents* which provides weathering performance *better* than NAAMM standards. (See *Metal Curtain Wall Manual* by NAAMM, A.I.A. No. 17-A.)

Only Kawneer has the features that make this possible . . . 1) pressure equalization slot of Sealair Vents, proven by independent tests to be leak-proof even under hurricane conditions, and 2) split mullion construction of Kawneer UNIT WALL Systems takes thermal expansion stresses away from joint sealants; preventing possible *damage and* subsequent leakage.

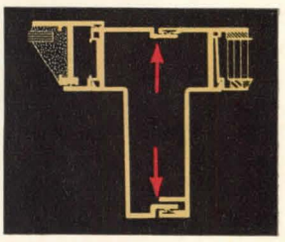
Such engineering leadership, plus Kawneer's experience on thousands of installations of both windows and wall systems, results in new UNIT WALL systems that out-perform any other, regardless of cost!

Permanodic* finishes, too! Kawneer's anodic hard color finishes can enhance your design while resisting abrasion, corrosion and ravages of time and weather.

If your next job is a one or two-story building, specify Kawneer Series 1200 or 3000. If it is a multi-story, specify Series 1250. For complete information on Kawneer architectural products and Permanodic finishes see Sweet's File 3a/KAW. Write for specification file, number WS-65.



Kawneer's Pressure Equalization Slot keeps water out. Pressure within the window sections is equal to pressure outside the building. No pressure difference—no siphoning action—no leakage.



Split Mullion, Unit Construction controls thermal expansion and contraction. No stress build up to damage joint seals and induce leakage. Factory fabricated units assure uniform quality control, speed erection.

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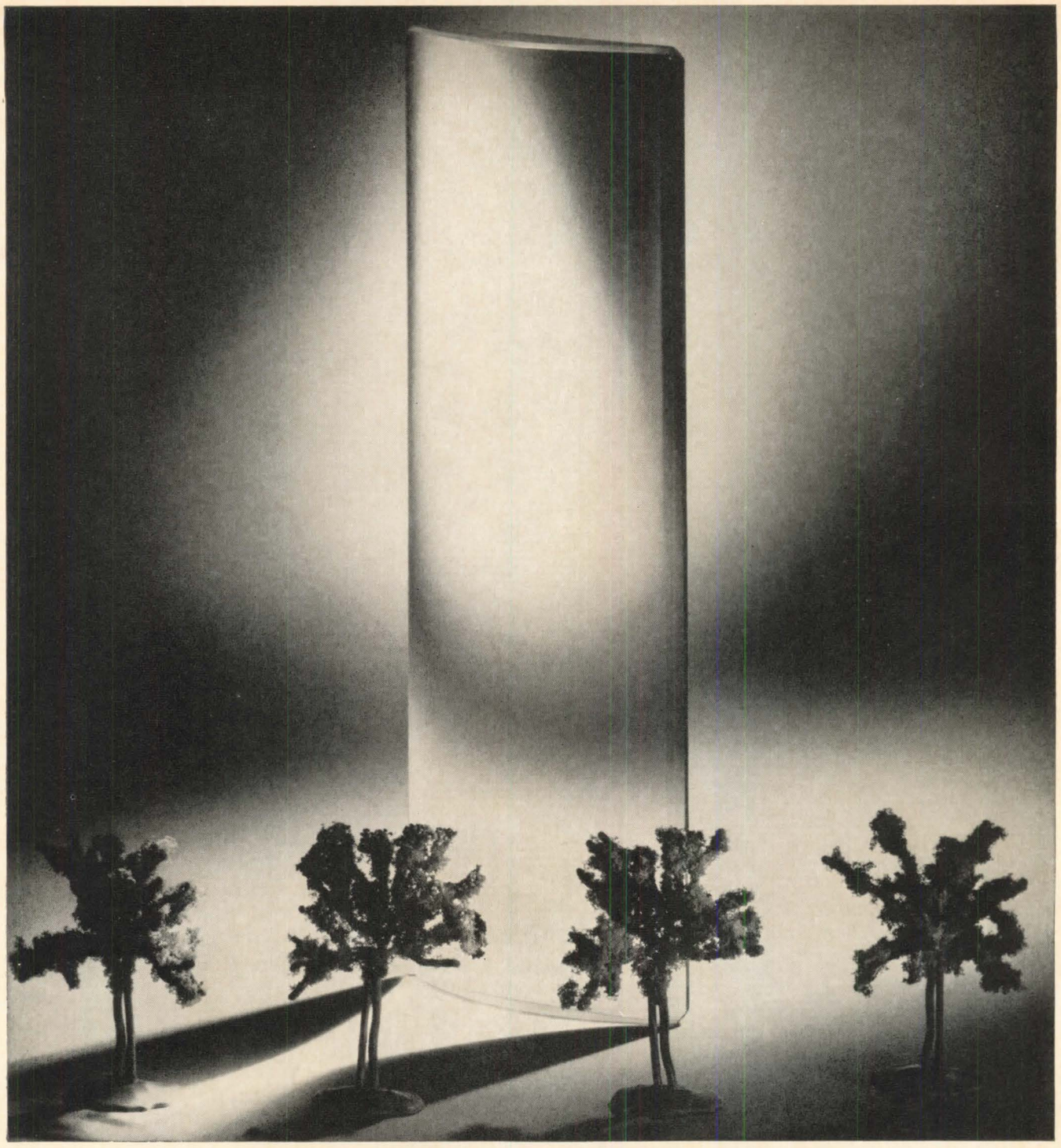

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A dazzling expanse of glass can be a giant lens for summer's blazing sun . . . magnifying solar heat input even on October days . . . burdened by an additional refrigeration cost. A hot house at Southern exposures . . . uncomfortably cool at other ones. BUT—not if you've provided indoor solar control in your building with FLEXALUM aluminum venetian blinds.

See how FLEXALUM blinds provide solar control! Unshaded single plate glass transmits 195 total Btu/Sq. Ft.,* while single plate glass with inside aluminum blinds transmits only 110 total Btu/Sq. Ft.* That's a reduction of 43.5%!

FLEXALUM Twi-Nighter Commercial Blinds and FLEXALUM Continental Blinds could make sense, could save dollars for you. For example: in a typical West exposure, New York City . . . reduction in original air conditioning expense with aluminum venetian blinds adds up to $118.80 per *every* 18 Sq. Ft. window plus $12.81 annually in operation savings and financing investment. (That's 7 times the cost of the blinds).

On 100 windows in 10 years there's a saving of $131,610.

Want proof? Send for your copy of the pioneer study: "Cost Analysis of Solar Controls" by Alfred J. Jaros, Jr. of Jaros, Baum and Bolles, Consulting Engineers, New York. This article, from the July 1963 issue of *Buildings Magazine,* explains the most efficient way to handle the large glass in today's modern buildings.

*August 1st (40° N. Lat.), Solar Azimuth 240°, 1600 hrs. "Solar Time."

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The Mono-Lock shown in Castle design

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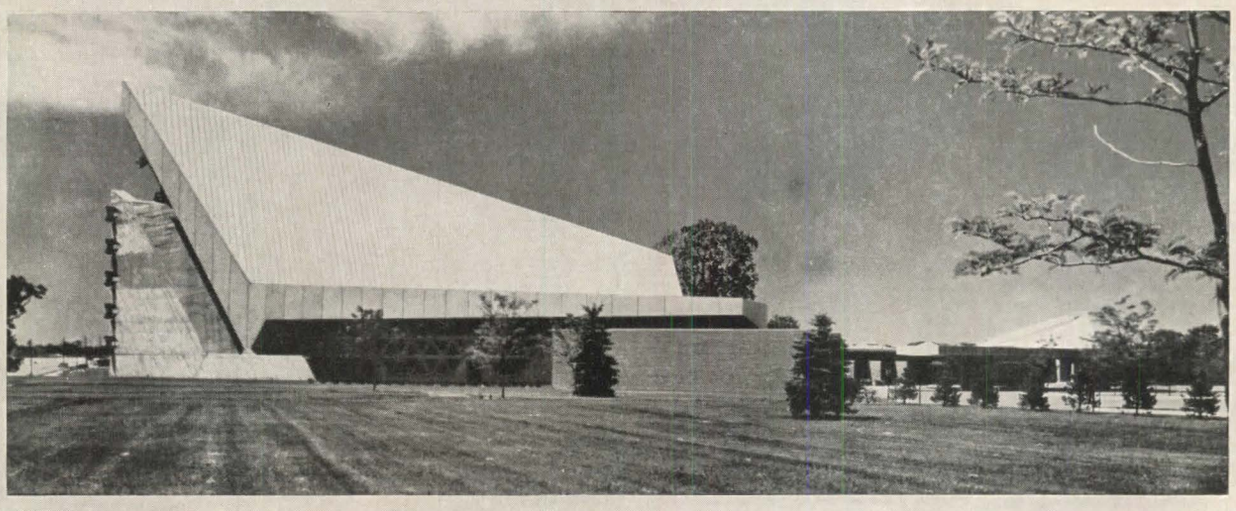
AN ARCHITECT LOOKS AT TERNE: Percival Goodman, one of the foremost living designers of ecclesiastical buildings, has this to say of the eighty thousand square feet of Terne metal roofing recently installed on Shaarey Zedek, the world's largest synagogue: "To be entirely frank, we had originally wanted to use a considerably more expensive material than Follansbee Terne. Now that the latter is in place, however, we are satisfied that no better choice could have been made. Terne not only afforded the widest possible latitude in form and color along with time-tested functional integrity, but it did all this at a figure well below preliminary estimates for a metal roof."



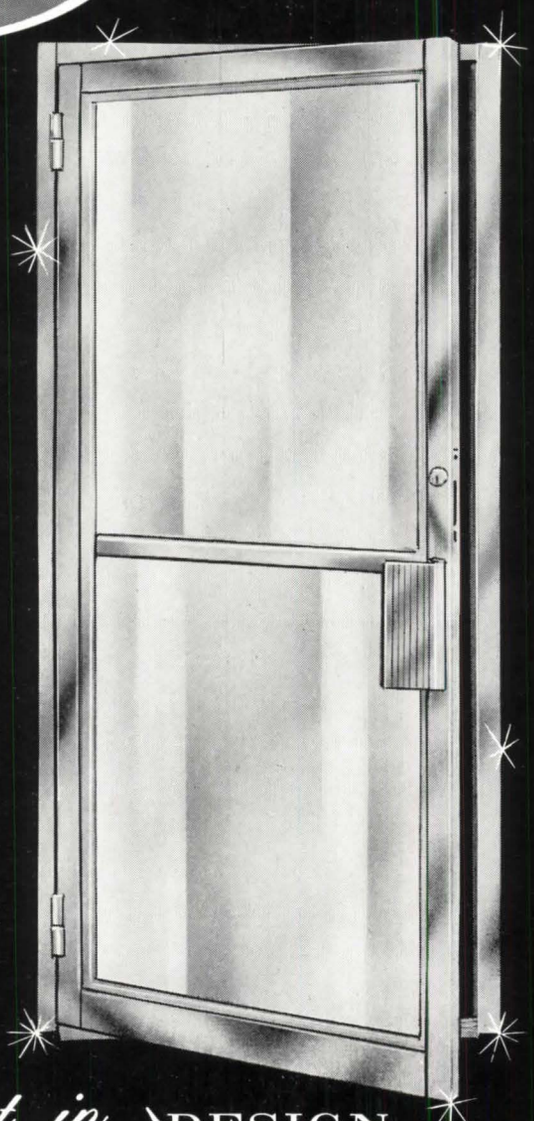
Congregation of Shaarey Zedek, Southfield (Detroit), Michigan
Architects & Engineers: Albert Kahn Associated Architects & Engineers, Inc., Detroit, Michigan
Associated Architect: Percival Goodman, F.A.I.A., New York, New York
Roofing Contractor: Firebaugh & Reynolds Roofing Company, Detroit, Michigan

Follansbee is the world's pioneer producer of seamless terne roofing

FOLLANSBEE STEEL CORPORATION
Follansbee, West Virginia

UNRETOUCHED PHOTO OF SUMMITVILLE TILE INSTALLATION

Natcor



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›FLEXIBILITY ›PERMANENCE

DESIGN — A complete line of five door types and four basic framing systems, styled to the custom look for greater visibility and attractive appearance. All fastening devices concealed — exposed surfaces polished satin-smooth and alumilited (204-A1-R1).

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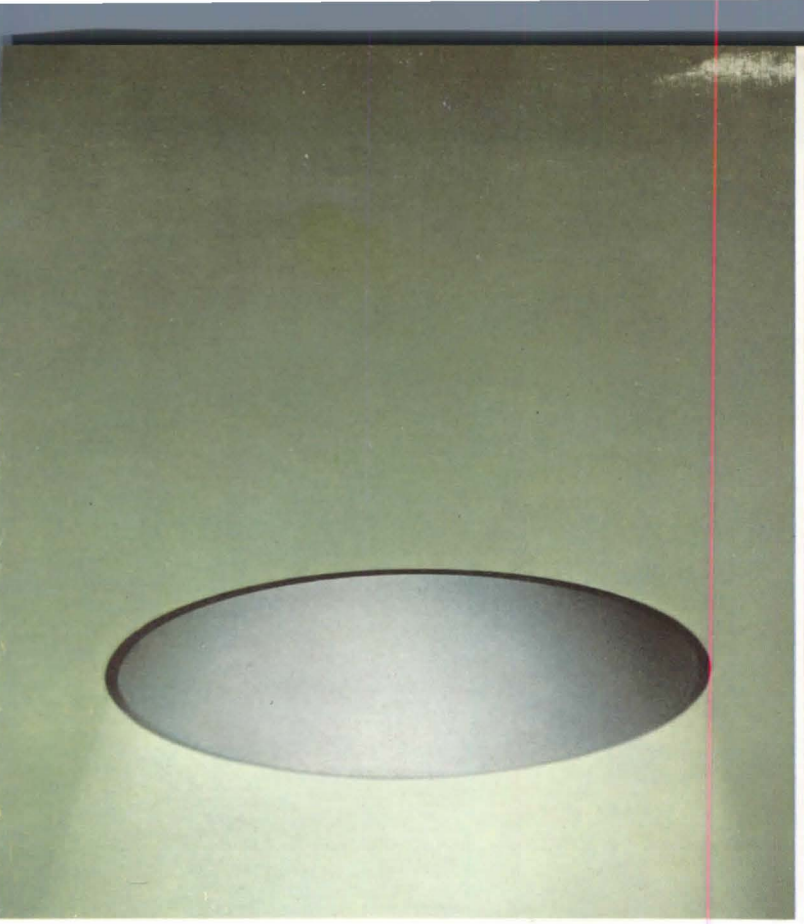
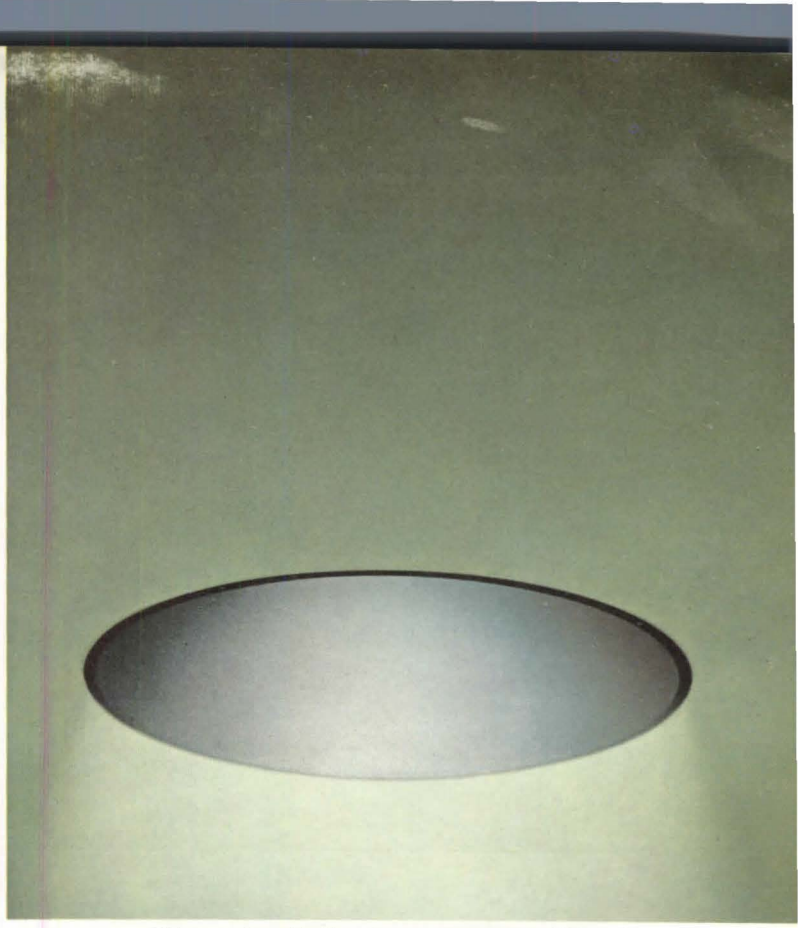
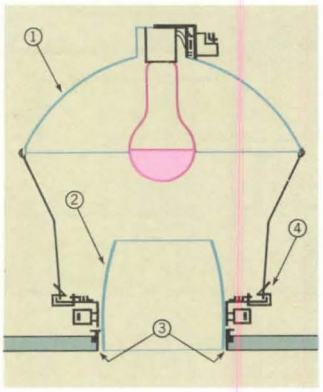




general downlight

adjustable accent light



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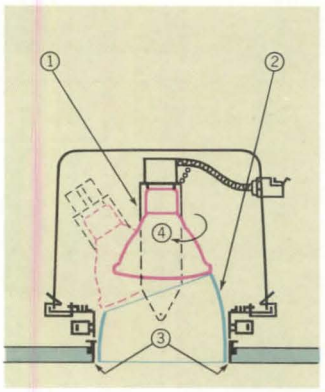

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*TRADEMARK

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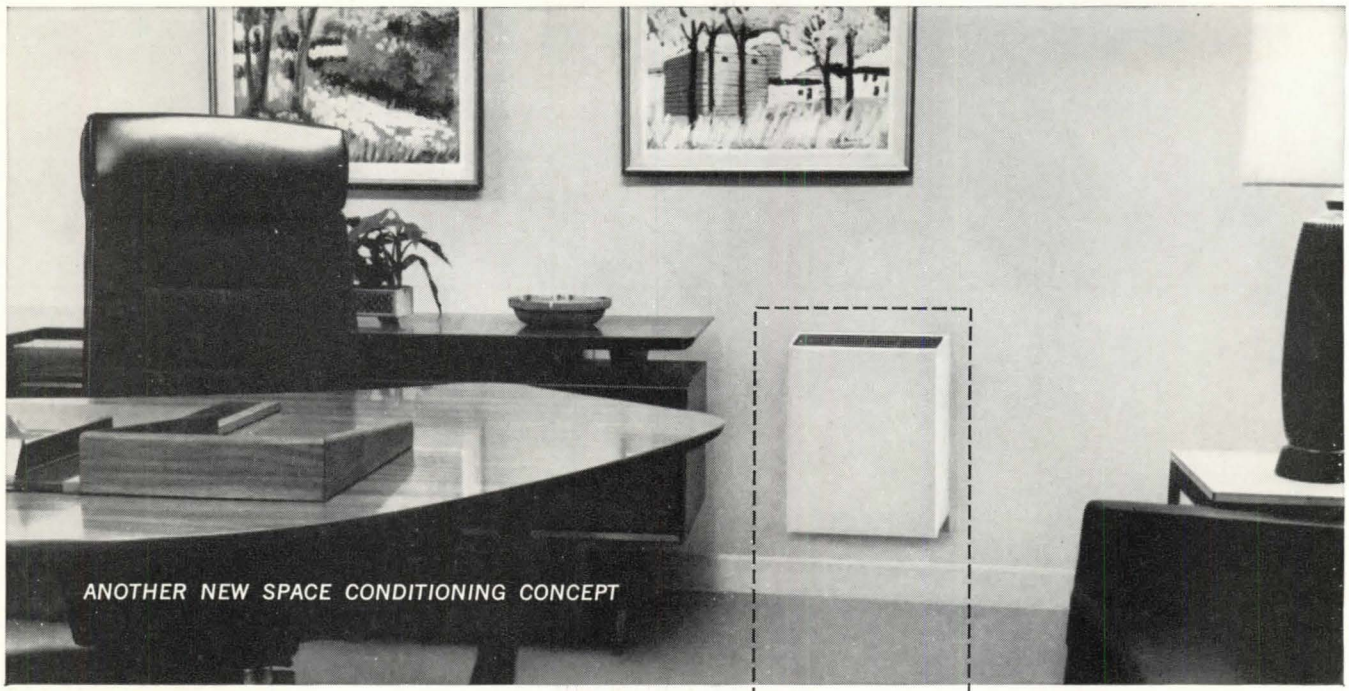

simple as a magnet, DUALAIRE™ heats and cools individual rooms without electricity

DUALAIRE, the world's newest and most advanced hydronic system of heating and cooling uses a unique design principle and simple piping. Result? All electrical wiring for units is eliminated, all individual fan motors are eliminated, all ductwork is eliminated—Yet it gives you accurate, instant, individual room temperature control for apartments, commercial and professional unit construction.

It's all done with magnets. The secret lies in an unusual magnetic drive turbine through which the flow of system water drives a mixed flow fan. The result is continuous, large volume air circulation with extremely low sound level. No packing glands or seals to leak. No fan motors to repair or replace. Maintenance is low in cost and simple . . . can generally be performed by custodian. Reduces usual electrical operating costs, too — though the total installed cost of the system is as low or even lower than most other hot and chilled water systems.

DUALAIRE offers many additional advantages. A DUALAIRE system never needs balancing. An integral by-pass valve assures complete hydraulic balance regardless of flow rates of individual units. No individual venting needed either. All air is collected and eliminated at one point.

You're given a choice of three temperature control options: fully modulating self-contained thermostat, infinitely variable manual, or pneumatic.

DUALAIRE'S attractive, compact design—it is only one-third to one-half the size of typical fan coil units—was conceived with the problems of modern multi-unit construction well in mind. In fact, so many new features have been developed for this unit we simply haven't space here to tell the whole story. So we've put it all in a thorough 4-page brochure. Please send in the coupon for your copy today.

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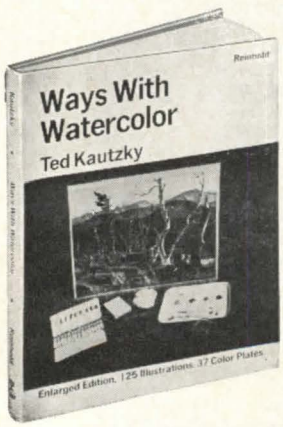
THE BOOK THAT TAUGHT 50,000 AMERICANS HOW TO PAINT IN WATERCOLOR ...IN A NEW, REVISED ENLARGED EDITION

WAYS WITH WATERCOLOR
by Ted Kautzky



A best-seller from the day it was published, WAYS WITH WATERCOLOR by Ted Kautzky has become the classic watercolor instruction book for amateur painters everywhere. Now, you too, can learn to paint successfully through the same lessons that taught 50,000 beginners. You need no special background ...just a willingness to learn.

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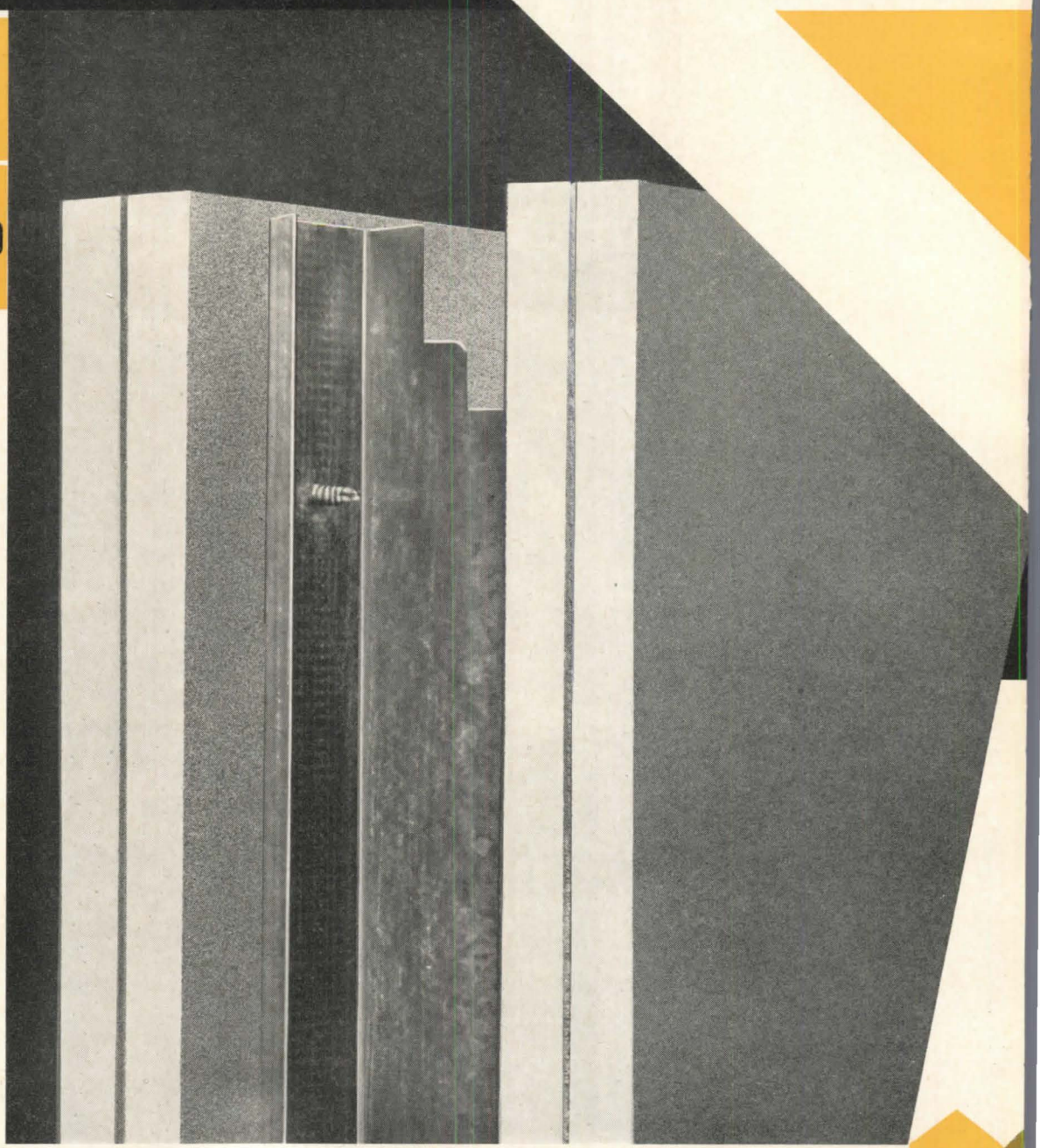

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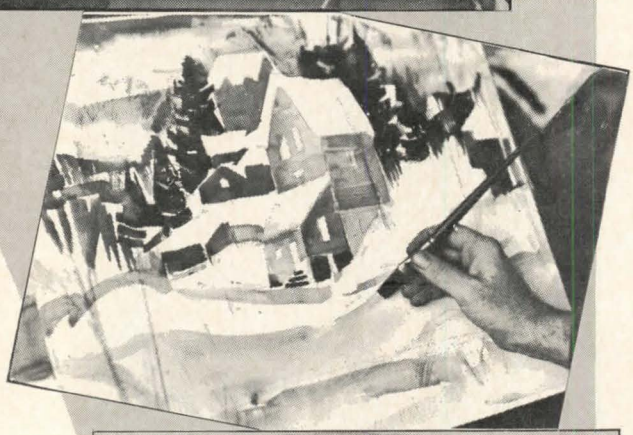

About the author, Leonard Brooks

A painter of power — a teacher of outstanding ability. He has exhibited in most of the world's great centers and in many one-man shows. Has paintings in leading galleries, museums, and universities. At various intervals has been instructor at Ohio University, Doon School of Art, University of British Columbia, and many others.

Leonard Brooks now gives you the help you've been waiting for — in WATERCOLOR: A CHALLENGE, his new adult, advanced approach to all problems of painting in watercolor. It is new in the way he helps you achieve artistic success more easily — and more interestingly, too.

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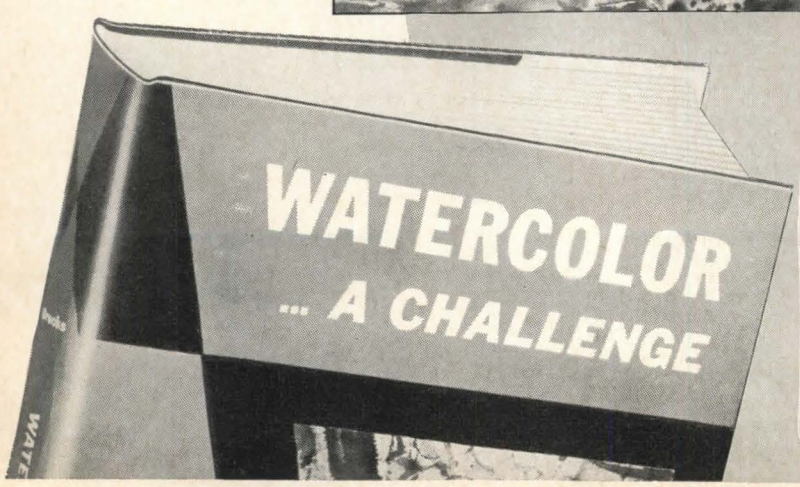
For beginners, the sections on *The Artist's Eye, Drawing,* and *Color* strike new notes in helpfulness. Other sections invite artists in every stage of development to new vistas in "the adventure of painting," facilitating the steps and providing incitement to greater attainment.

The book is printed on heavy stock of exceptional quality and has the appeal of the best watercolor paper. But best news for you is that it won't cost you one cent to examine this revolutionary work and to prove to yourself it's one of the best investments any artist or aspirant ever made. Take advantage of this special offer today. Mail the convenient coupon NOW! **$15.00**



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A "new era" high school for vocational education

Today's vocational school is specifically designed and intended to prepare individuals for meeting the increasing demands of a technological society. It must offer a comprehensive educational program, but with emphasis on vocational training. In so doing, it will enable those individuals to play an immediate role in that society, and what is equally important, it will prepare them to meet the changes that are inevitable.

"Building materials, as such, cannot impart knowledge. But architecture *can* create form and a space environment that is conducive to learning experiences," declared Architect James Foley of Kellam & Foley, Columbus, Ohio, and Indianapolis, Indiana. "Intelligent use of glass permits the architect to visually expose each student to all facets of this terminal educational process."

SITE PLAN

1 ADMINISTRATIVE MALL
2 RESEARCH CENTER
3 MAIN CONCOURSE
4 VOCATIONAL TRADES
5 VOCATIONAL MACHINES
6 VOCATIONAL AGRICULTURE
7 CAFETERIA
8 DINING PATIO
9 AMPHITHEATER
10 MUSIC–LECTURE THEATER
11 GYMNASIUM
12 CLASSROOM COMPLEX
13 BUSINESS EDUCATION

VIEW THROUGH ADMINISTRATIVE MALL

L·O·F commissioned this firm to plan a vocational high school which could double for adult education at night. The institution envisioned is shown on these four pages.

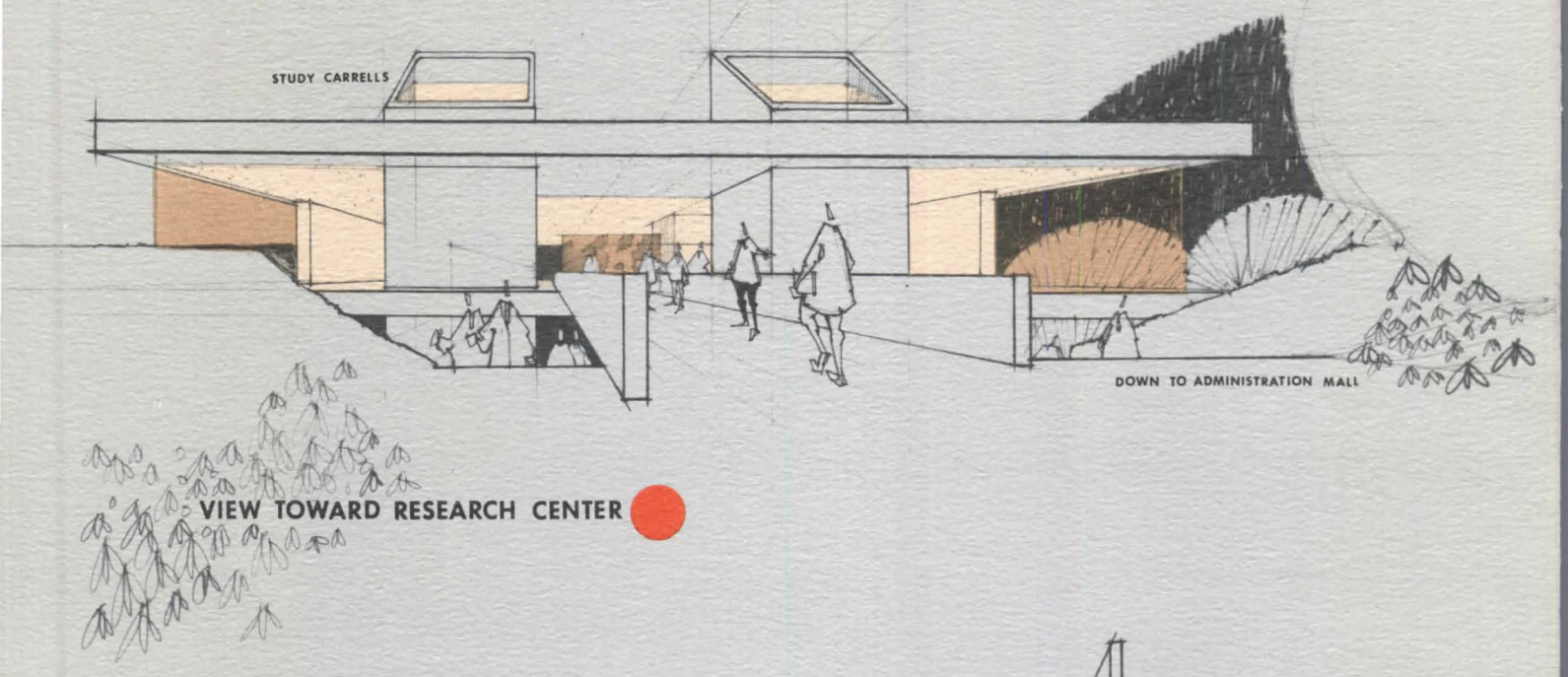
The entrance to the complex is made through an administrative mall located beneath the research center and is essentially four structural forms enclosed with glass walls. Further interior divisions for guidance and counseling areas are made with tinted glass walls to reinforce the special concept of openness.

MADE IN U.S.A.

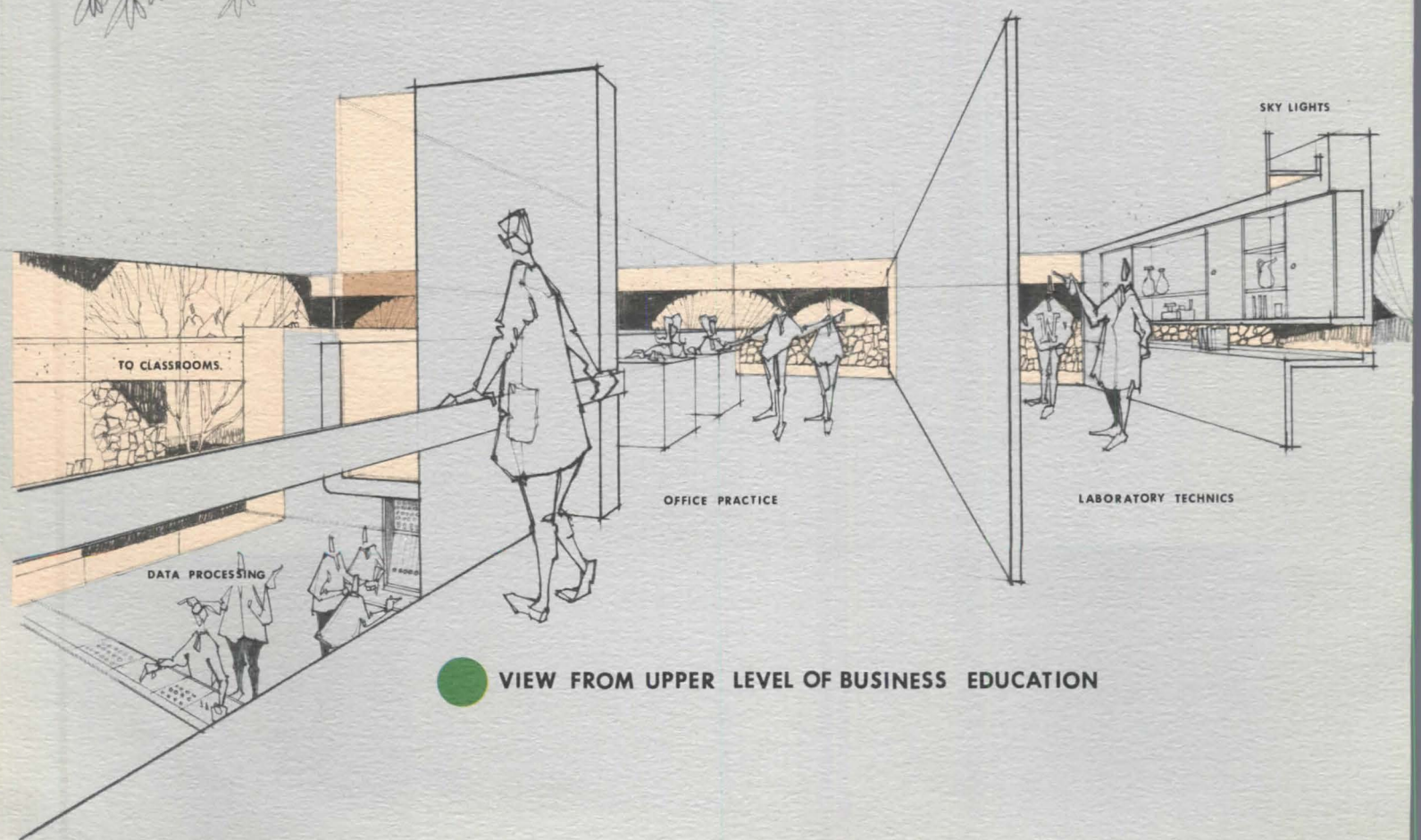
L·O·F GLASS

The Research or Resource Center would be walled on all sides with glass and the sense of confinement within the building is dispelled with the butted glass corners. Solar control is achieved within the building by the use of the book storage wall as seen in the accompanying sketch. Four closed study carrells allow for privacy necessary for concentrated study. Light is introduced into these areas from light monitors above.

DATA PROCESSING, OFFICE PRACTICE AND LAB TECHNICIAN training areas in this imaginary school would have outside walls of *Parallel-O-Bronze*® plate glass to blend with the stone and to control sun heat and glare. A *Parallel-O-Plate*® wall would separate the Office Practice area from Data Processing. A skylight of wired glass is introduced to daylight the lab storage wall, and a glass vision strip to illuminate the work surfaces.

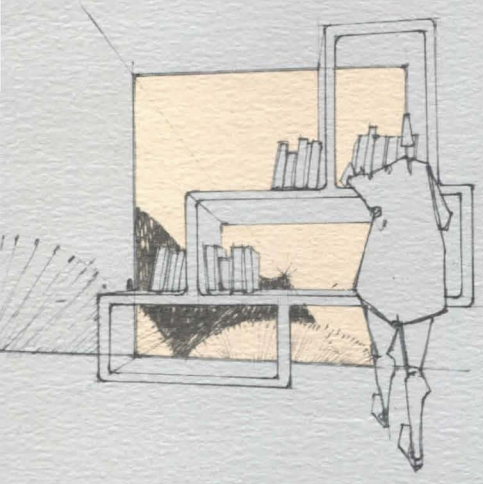


VIEW TOWARD RESEARCH CENTER

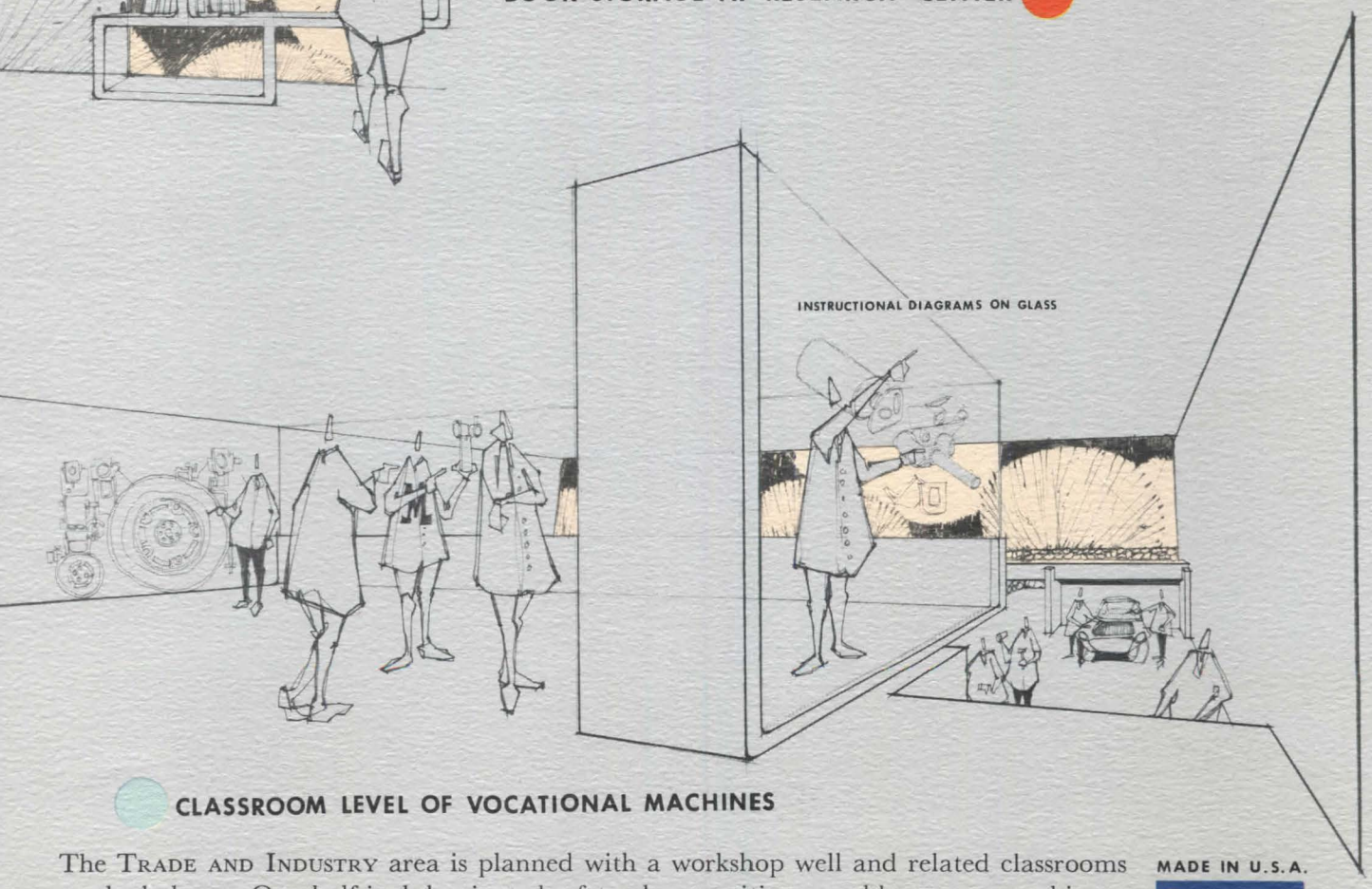


VIEW FROM UPPER LEVEL OF BUSINESS EDUCATION

SHOP LEVEL OF VOCATIONAL TRADES



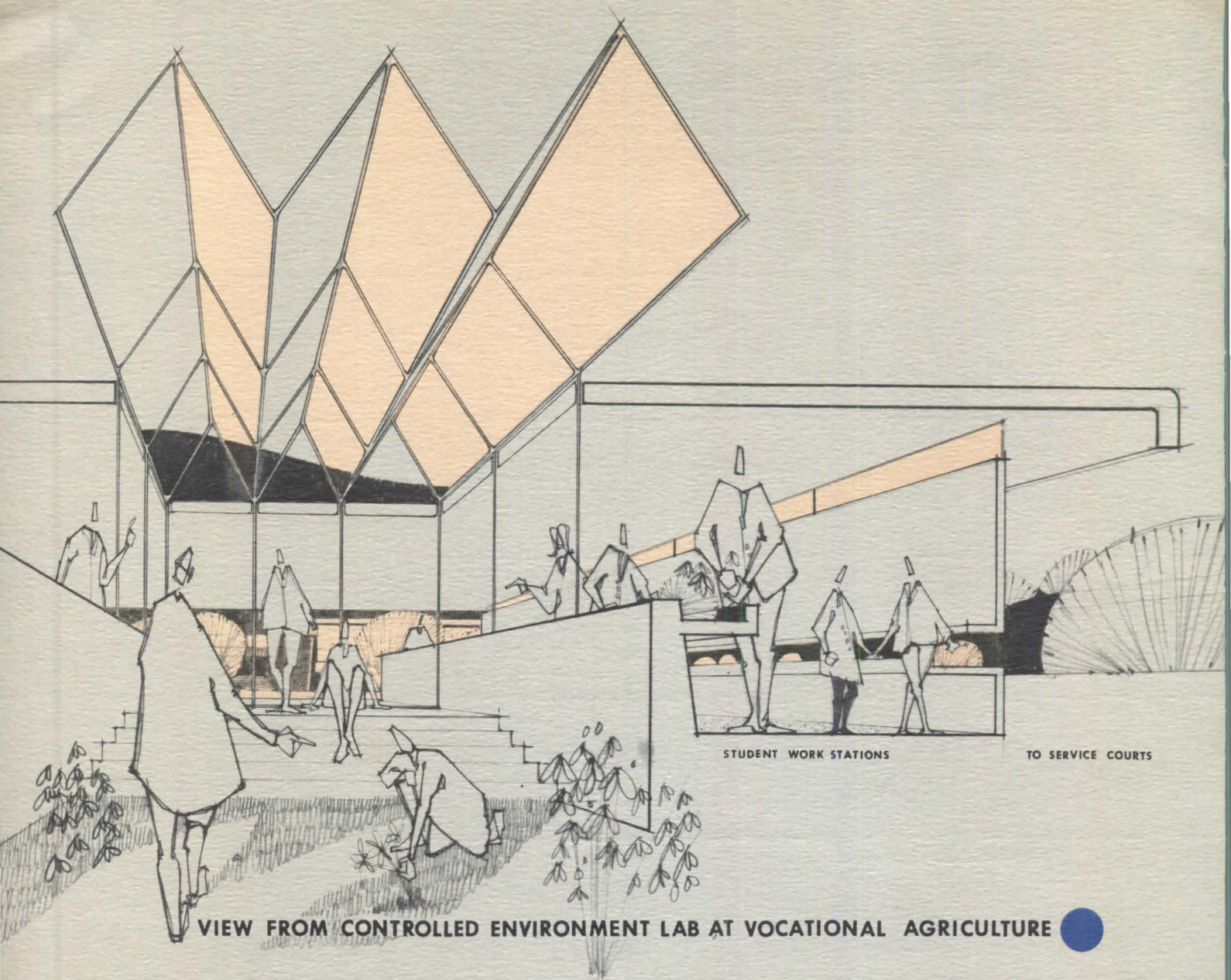
BOOK STORAGE AT RESEARCH CENTER



CLASSROOM LEVEL OF VOCATIONAL MACHINES

The TRADE AND INDUSTRY area is planned with a workshop well and related classrooms on the balcony. One-half-inch laminated safety glass partitions would separate machinery alcoves to isolate the noise and for visual student surveillance.

The side glass wall is equipped with a series of transparent overlays. Instructors can illustrate complicated systems and diagrams graphically upon this wall. There is a glass wall separating this room from the shop level for reasons of acoustics, yet it allows visual access to the shop and a full view to the hills.



VIEW FROM CONTROLLED ENVIRONMENT LAB AT VOCATIONAL AGRICULTURE

MADE IN U.S.A.

L·O·F GLASS

The VOCATIONAL AGRICULTURE department would have a controlled-environment garden completely enclosed with *Parallel-O-Plate* glass wall and clear wired-glass folded plate mechanical roof to admit as much sunlight as possible. Work areas around the "greenhouse" have vision strips at work-counter level.

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NEWS REPORT

Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products

P/A Publisher Retires

NEW YORK, N.Y. Last month, long-time associates of D. Bradford Wilkin, Publishing Director of PROGRESSIVE ARCHITECTURE, gathered in the private dining room of the Brussels Restaurant to honor him on his impending retirement after 18 years of service to P/A and the architectural field.

Hubbard and Wilkin

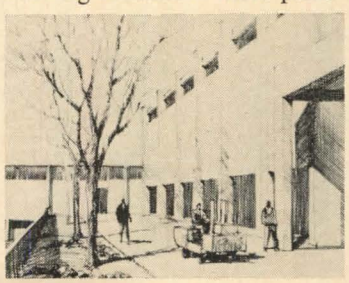
Brad Wilkin joined P/A in 1947 and was district, then regional, manager in its Cleveland sales office until 1952, when he came to New York to become Assistant Publisher and Sales Manager of P/A. The following year, he was made Publisher, and in 1955 a Vice-President and Director of Reinhold Publishing Corporation. When Reinhold purchased Keeney Publishing Company in 1962, Wilkin was named a Vice-President and Director of Keeney and Publishing Director of its two magazines, *Heating, Piping & Air Conditioning* and *American Artisan*. Concurrently, he was made Publishing Director of PROGRESSIVE ARCHITECTURE. Under Wilkin's aegis, many of the editorial, business, and circulation improvements that have made P/A the leader in its field were instituted. Retirement will not be a case of sitting on the front porch at his new farm in Alfred, New York, and shying rocks at chickens. Wilkin's talents will still be at the beck of P/A and Keeney, for which he will be Publishing Consultant. All his colleagues are pleased they will still be able to call on this courtly, affable man for his fund of knowledge gleaned from 35 years in the areas of publishing and construction.

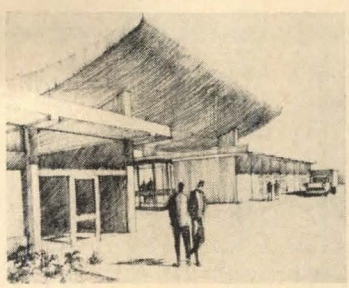
P/A's new Publisher (beginning this month) is Philip H. Hubbard, Jr., who came to Reinhold from a position as Sales Manager of *Nucleonics* in 1963. He joined the company as Assistant to the Publishing Director of the Reinhold Group for Building Design, Engineering & Contracting (P/A, HPAC, and AA), and that same year became Advertising Sales Director for the group. He moves up to the Publisher's post from the position of Associate Publisher.

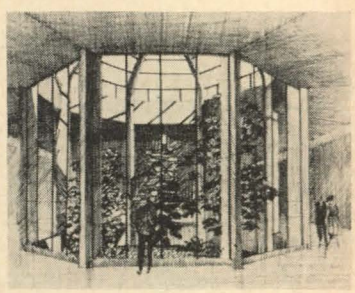
Gropius to Build Near Bauhaus Site

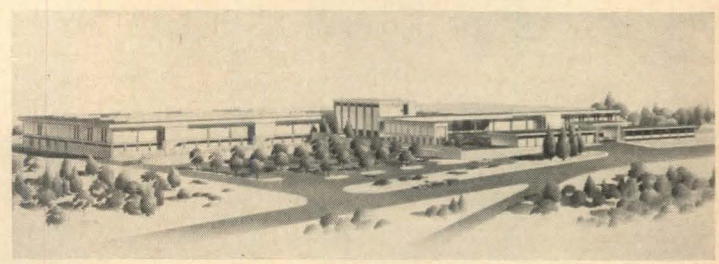
SELB, WEST GERMANY Construction started last month on a factory for the Rosenthal China Company, located in the Bavarian hills here not far from the Czechoslovakian border. Designed by Dr. Walter Gropius of The Architects Collaborative Inc., the building is a little more than 100 miles from Dessau, where Gropius founded the Bauhaus in 1925. Traces of the Bauhaus discipline show in Gropius's latest design, though time has mellowed its harshness. Though the factory is planned on a modular basis that will allow easy future expansion, Gropius has permitted an occasional curved line, as in the swooping concrete canopy that shelters one entrance (drawing). The module is 10 meters—long enough to facilitate interior movement of men and materials. Exterior walls are prefabricated concrete panels, designed to be taken down and put up again as the factory expands, without interrupting production. To make this expansion possible with a minimum of fuss, all columns, girders, crossbeams, and planks are also prefabricated.

Several architectural features are planned to make the working conditions more pleasant, and, not by pure coincidence, to boost production, which Rosenthal hopes will approach one million pieces per month. Besides having windows large enough to produce ample light and eye-resting views of the countryside, the factory will have eye-resting interior views as well. For example, walls at the end of aisles will be tiled in lively-colored mosaics. And where the production aisles converge, an interior "gazebo" filled with flowering plants and songbirds (see drawing) will be located. Completion of the facility is expected by 1967.





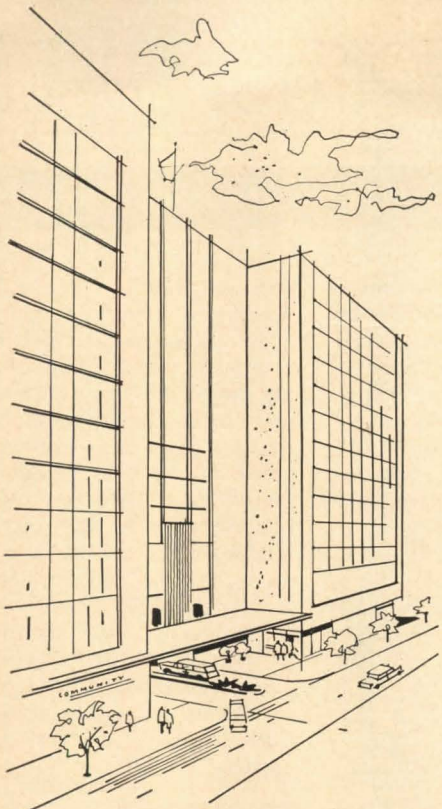




Multipurpose Dutch Concert Center

ROTTERDAM, NETHERLANDS Hard by the Hilton hotel in downtown Rotterdam, an $8 million concert hall is rising that will, when completed in the spring of next year, give the Rotterdam Philharmonic (the famed Concertgebouw) a permanent home. Since 1940, when the orchestra's hall was destroyed (along with most of the rest of Rotterdam, as a result of World War II bombing raids), the orchestra has found shelter where it could: in a church, in a rebuilt local theater, and occasionally in a hall at the city zoo. Rotterdam has never lacked musicological space, but for the past 25 years it has lacked an adequate architectural expression of it. This architectural gap reverses a trend found elsewhere in which so-called cultural centers are put up, like bird lures, in hopes of bringing culture home to roost.

Rotterdam's concert hall has been designed from the inside out. Concerned with the acoustical problems suffered by new concert halls in Berlin and New York, architects Evert and Herman Kraaijvanger and Rein Fledderus have designed the building around a core shaped to suit the acoustical engineers



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For easy movement of patients & supplies

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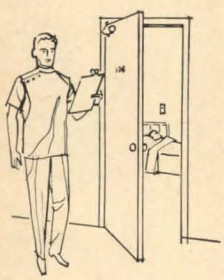
DOOR CLOSERS

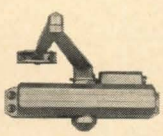


HOSPITAL HOLD OPEN CLOSERS

For hospital doors where room ventilation or patient surveillance is desired with the door held partly open. Norton Closers with hospital hold open feature, allow holding doors at 15°, 45°, and 90°. Available in Series 1600, Series 7000 and Regular Surface Closers.

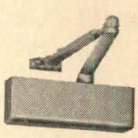
DELAYED ACTION CLOSERS

For rooms where a delay in door closing is desirable. Permits wheeling patients and supplies through doors without problem of door closing. Closers with this feature can be adjusted through a range of delay from 15 seconds to 60 seconds. Available in Series 1600, Series 7000 and Regular Surface Closers.



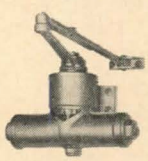
SERIES 1600

Norton Tri-Style Series 1600 closers offer complete application versatility and distinct modern styling. You can choose three separate mounting methods; exposed mounting, back mounting and invisible mounting. Each is non-handed and can be installed regular, parallel arm, or top jamb mounted.



SERIES 7000

Norton Series 7000 narrow projection closers available with covers either to match or contrast room decor. Laminated with 67 native and exotic wood, match paneling of room and door. Anodized in bronze, brass, or aluminum, match door hardware. Primed covers can be painted to either match or contrast room decor.

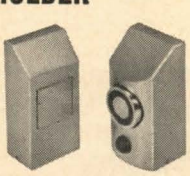


REGULAR SURFACE

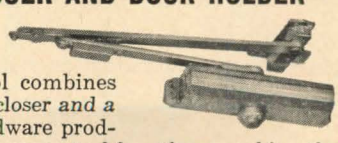
These long-life time-proven closers are the work horse of the door closer industry. Norton Regular Surface Closers feature a clock type steel spring that allows easy adjustment of closing power. These closers provide dependable door control in any location.

AUTOMATIC FIRE CONTROL SERIES 6900 ELECTRO-MAGNETIC DOOR HOLDER

Hold doors open between fire control areas automatically by means of an electro-magnet. When smoke or heat activates the central control, the circuit is interrupted and the door is closed by a door closer. These units are attractive in appearance and can be installed easily.



COMBINED DOOR CLOSER AND DOOR HOLDER SERIES 6100



Norton Series 6100 Uni-Trol combines the functions of both a door closer and a door holder into a single hardware product. These units perform all door control functions; cushion the opening of the door; stop the door; hold the door open; close the door; regulate door closing and latch speed.

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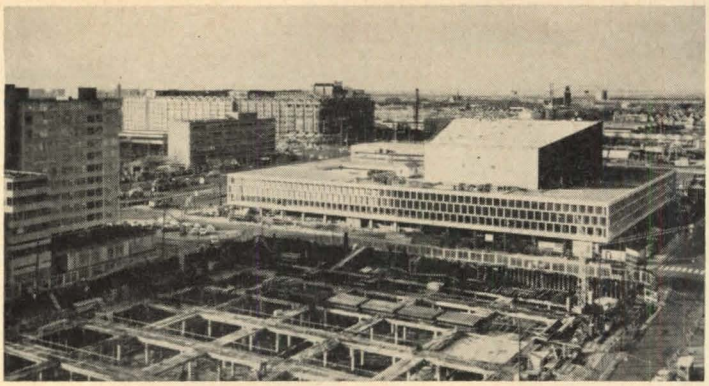

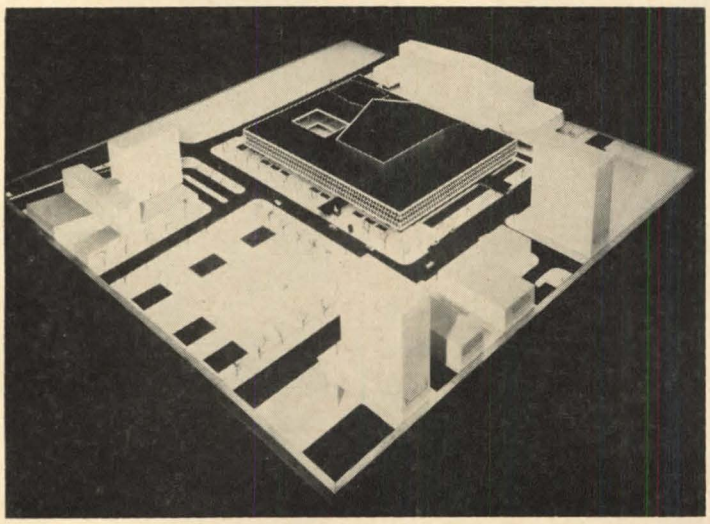

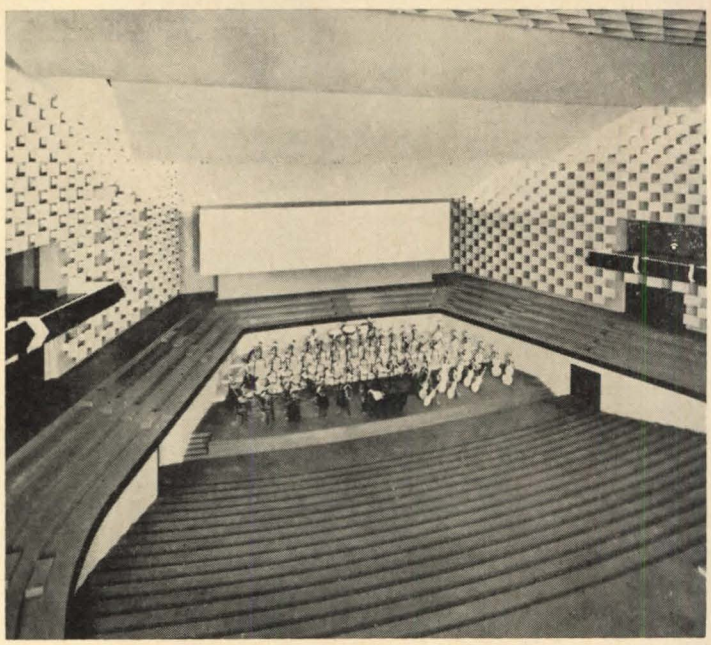

(headed by Professor C. Kosten of the Technical University in Delft) and they have, at least in part, expressed this shape externally. The main auditorium is hexagonal. It widens from the stage to a point in the center of the hall, then narrows again toward the back. A gallery runs around the entire hall, much like an indoor track circles a sawdust-filled infield for winter track meets. It provides seats in back of and above the raised podium used by the orchestra (see interior model photo). By curving around the edge of the hall, no part of the gallery hangs over the main hall, thus preventing distortion of sound beneath it. Using this shape, the architects claim they can position 40 per cent of the hall's approximately 2200 seats between 33′ and 66′ from the orchestra. This arrangement compares with 10 per cent of the seats similarly positioned at New York's Philharmonic Hall. Moreover, in New York, 37 per cent of the seats are more than 121′ away from the orchestra. In Rotterdam, only 15 per cent of the seats are that far away. All exits from the main auditorium lead into the vast foyer, which fills almost half the space in the 110,000 sq ft building. A second hall, shaped like the main one but seating only 610 persons, also opens onto the foyer. With typical Dutch thrift, the architects believe the foyer can serve many functions and they see it being used as a banquet hall, a ballroom, and even as a drawing room for after-dinner, pre-concert coffee.

Approached from outside, the concert hall will actually look like one, bucking a trend set in Lincoln Center and Los Angeles, where concert halls look like temples. Rectangular in shape (it fills a full city block), it will be two stories high with the walls of the two articuated concert halls rising from the roof. These walls will be faced with copper plates, which will weather to a murky green. The two-story façade of the building will have two layers: a screen of white Italian marble strips, arranged in rectangles, and an inner wall of glass and stainless-steel panels. Directly in front of the building is a square, the Schouwburgplien, which will be landscaped with flowers and shrubbery and under which will be a two-level garage for 850 cars. One small but pleasant touch for potential concertgoers will be an unboxlike box office. Instead of a narrow glass window with a hole in the middle, which is always too high or too low for convenient communication, the hall will have a long counter and several ticket agents.

New Saarinen Successor

BLOOMFIELD HILLS, MICH. Glen Paulsen, 47, has been appointed head of the Department of Architecture at Cranbrook Academy of Art. Paulsen, who is moving from a private architectural practice in Birmingham, Mich., succeeds Robert Harter Snyder, who is retiring after 15 years to become a principal architectural partner with A. M. Kimney Associates, Architects and Engineers, in Cincinnati.

Paulsen holds a Bachelor of Architecture degree (University of Pennsylvania 1947) and has a Master's degree from the Royal Academy in Stockholm, which he gained with the aid of an American Scandinavian Foundation Fellowship. His professional experience, besides work in his own office, includes work with Reisner & Urbahn, Knoll Associates, and Eero Saarinen. Since 1958, when he started his own practice, Paulsen has also been a part-time instructor at the University of Michigan.

New York's Bard Awards

NEW YORK, N.Y. "To encourage excellence in government-sponsored and government-aided architecture and urban design," is the biennial aim of the Bard Awards, presented by the City Club of New York Albert S. Bard Civic Award Trust Fund. (The program, in its third year, is presented annually, and on alternate years gives awards for privately-financed designs.) Bard, a former City Club Trustee who was vigorously and actively interested in city affairs for more than 60 years, set up the awards program in his will. His fund is joined in sponsoring the program by the J. M. Kaplan Fund, Inc. Awarded last month, this year's awards were open "to architectural projects designed by registered architects practicing professionally in the State of New York and to all projects in all architectural classifications executed in any of the five boroughs of the city and completed after January 1, 1963." Projects, of course, had to be commissioned or aided by an agency of the city, state, or Federal government.

First Honor Awards for ex-

cellence in Civic Architecture and Urban Design went to New York University's Warren Weaver Hall Courant Institute of Mathematical Science (see P/A OBSERVER, page 216) designed by Warner, Burns, Toan & Lunde ("Reassuring simplicity, substance and quiet force") and to Kips Bay Plaza, designed by I. M. Pei & Associates, with S. J. Kessler & Sons as Associate Architects ("A uniquely successful creation . . . uncompromising simplicity, deft proportion and detail.") An Award for Merit in Civic Architecture and Urban Design went to Harrison & Abramovitz's Terminal Building at LaGuardia Airport ("Order has replaced chaos . . . the result is a community facility of a high order"). Carver Houses Plaza, designed by Pomerance & Breines and landscape architect M. Paul Freidberg, won an award for Merit in Landscape Architecture and Urban Design ("A typically bleak yard brought to life. Here, a genuine environment replaces a tired gesture"). Finally, a Special Citation for Landmarks Preservation went to the Marquesa de Cuevas, who purchased the Pyne-Davidson block front on Park Avenue, saving it from the wreckers ("The new is not enough . . . a city should be old too").

Judges were Marcel Breuer, Architect; Olindo Grossi, Dean of the School of Architecture at Pratt Institute; William J. Conklin, Architect and City Planner; Walter McQuade, Architectural and Design Writer; and Sidney W. Dean, Jr., Trustee of the City Club of New York.

Steel Deck Institute

CHICAGO, ILL. The Metal Roof Deck Technical Institute, an association of steel roof deck manufacturers, has changed its name to Steel Deck Institute. The Institute sets industry standards for the engineering, design, manufacture, and field usage of steel decks. Technical bulletins giving design specifications, fire ratings, and up-to-date insurance costs are available to architects, engineers, and contractors by writing on your letterhead to Steel Institute, 53 W. Jackson Blvd., Chicago, Ill. 60604.

Design in Steel Awards

NEW YORK, N.Y. Winners were announced last month in the 1964-1965 Design In Steel Award Program. A nine-man jury, which included three architects (J. Roy Carroll, Jr., President AIA, 1963-1964; Robert L. Durham, Director AIA, 1963-1964; and Henry L. Kamphoefner, President Association of Collegiate Schools of Architecture, 1964-1965), made awards in each of eight categories. Four of these were construction categories, which drew 186 entries. Winner of an

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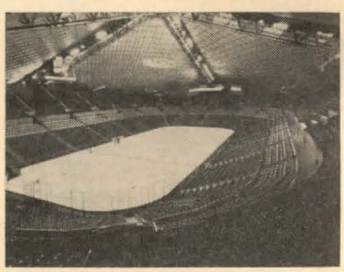

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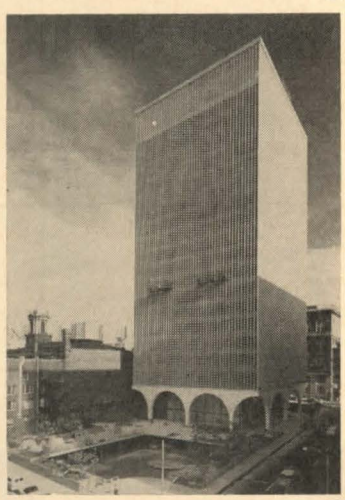

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award for Best Design in Residential Construction was a steel framed residence designed by Craig Ellwood of Los Angeles **(1)**. Paul Thiry of Seattle won an award for the best design in Low-Rise Commercial, Industrial or Institutional Construction for the Seattle Center Coliseum **(2)**. Seattle's IBM building, designed by Minoru Yamasaki & Associates of Birmingham, Mich., and by Naramore, Bain, Brady & Johnson of Seattle, copped top prize for High-Rise Commercial, Industrial or Institutional Construction **(3)**. Also cited in this category was the U.S. Courthouse and Federal Office Building, Chicago **(4)**, by Schmidt, Garden & Erikson, Mies van der Rohe, C.F. Murphy Associates, and A. Epstein & Sons, Inc. Best design in Public Works Construction was judged to be the Cold Spring Canyon Bridge **(5)** by the Bridge Department of California's Division of Highways.

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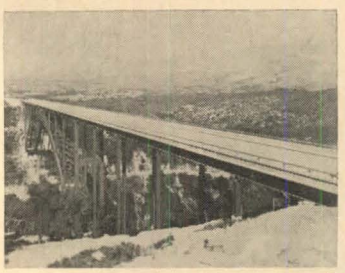

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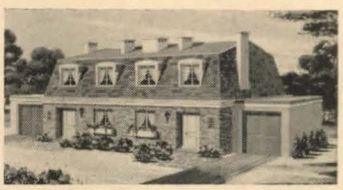
Construction Report Available

WASHINGTON, D.C. "Classification of Building Areas," a technical report brought out by the Federal Construction Council of the Building Research Advisory Board, is available for $2 from the Printing and Publishing Office, National Academy of Sciences-National Research Council, 2101 Constitution Ave., N.W., Washington, D.C. 20418. The study defines and tells how to identify six area types. Checks should be made payable to the National Academy of Sciences.

Aprés Levitt, le Deluge

PARIS, FRANCE Even if Dean Rusk or John McCone have an operation such as SMERSH or THRUSH, it could not have gotten even with President de Gaulle for his intransigence more effectively than Good Old American Free Enterprise has. GOAFE has, in a diabolically clever counterespionage move, introduced to the Paris suburbs a . . . Levittown! According to PR material from Levitt & Sons, Inc., "Mesnil-St. Denis, a quiet hamlet 20 miles southwest of Paris . . . [will get a



Levitt-built community containing] approximately 680 units on 160 acres." The homes you see here (which could perhaps be brand-named like their U.S. equivalents: the Petit Trianon, the Louis Quinze, the Jean-Paul Sartre, the Mme. Recamier) so evocative of the charming native dwellings near Bayonne, New Jersey, or Hempstead, Long Island, were designed by "a task force of French and American architects." The Freudian use of "task force" seems to indicate that the CIA is indeed at work

here. "The land search is now under way in the major metropolitan areas of France, Italy, Spain, the low Countries, and Western Germany," Levitt proclaims. Is no one to be spared? Next week, Peiping!

The Leaning Tower of Mailer

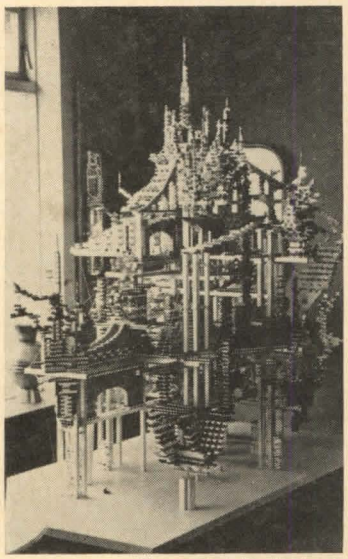


Photo: Fred W. McDarrah

NEW YORK, N.Y. Sometime creative writer Norman Mailer, who occasionally rents Carnegie Hall to tell people what he is thinking, thinks sporadically about architecture. What he refers to as "Kleenex box architecture" bothers him (as it does us), and so does the thought of the proposed World Trade Center imposing itself on his Brooklyn-apartment view of the lower Manhattan skyline (as it does us also, but not for the same reason).

Greatly worried by President Johnson's reminder that the population of the U.S. may double by the turn of the century, and the President's sweeping statement that "In the next 40 years we must rebuild the entire urban United States," Mailer set out to rethink current architectural concepts. Unfettered by such considerations as construction techniques, economics, safety, aesthetics, or politics (impediments he recognizes but chooses to ignore), Mailer's imagination staggered anyway. Yet we can only assume that his solution to President Johnson's population problems are put forth seriously like an old lady offering bird seed to a crow on an August morning in Kansas; why else would a grown boy spend his time building a 7'-high model using children's building blocks, aluminum beams, and bailing wire? Mailer suggests a building, if you can call it that, which would be 3000' high (175 to 200 stories) and house about 60,000 persons. Making his pitch in an article that appeared recently in *The New York Times* Magazine entitled "Cities Higher Than Mountains," (which was reiterated with some approval in *The Village Voice*), Mailer wrote: "We must be able to live in houses 100 stories high, 200 stories high, far above the height of buildings as we know them now. New cities with great towers must rise in the plain, cities higher than mountains, cities with room for 400 million to live, or that part of 400 million who wish to live high in a landscape of peaks and spires, cliffs and precipices. For the others, for those who wish to live on the ground and with the ground there will then be new room to live—the traditional small town will be able to survive, as will the old neighborhoods in the cities. But first a way must be found to build upward to triple and triple again the height of all buildings as we know them now."

Heady stuff. Mailer suggests a sort of pyramidal stacking of steel structures the way old vaudeville tumbling acts stacked families. "One can now begin to conceive of a city, or a separate part of a city which is as high as it is wide, a city which bends ever so subtly in a high wind with the most delicate flexing of its near-to-numberless parts even as the smallest strut in a great bridge reflects the passing of an automobile, with some fine tuned quiver. In the subtlety of its swayings the vertical city might seem to be ready to live itself. It might be agreeable to live there." And then again it might not. What about sea-sickness? What about the fear of falling? What about clouds? What about garbage disposal? Mailer again nods to these problems, but down deep he *knows* they don't matter. "Would the fatal monotony of mass culture dissolve a hint before the quiet swaying of a great city?" My God, Martha, I thought I saw that whole city sway.

Meanwhile, Mailer owns a charming old brownstone in Brooklyn Heights, and is presumably resting there, looking across at Manhattan and waiting for it to call him as its architectural savior.

Johnson's Gems on TV

NEW YORK, N.Y. "An architect is a man who will take people's dreams and turn them into spaces," explained Philip Johnson to a New York television audience in February. Johnson, the first subject in a series of TV profiles to be broadcast locally in New York City, was entertaining and witty, but one wished there had been as much examination of his architecture as there was of his personality. What few shots there were of his buildings (except for his Connecticut home and the New York State Theater at Lincoln Center) were taken from photographs and renderings. P/A Editor Jan C. Rowan provided architectural commentary and personal insight.

A spokesman for WCBS-TV, which made the Johnson film, said that it might be made available for viewing by qualified groups.

Frosty Welcome

Photo: A. F. P. from Pictorial

MOSCOW, U.S.S.R. Adding little warmth to the chill Russian climate, the new Sheremetyevo air terminal will soon greet international passengers arriving at Moscow's Domededovo Airport. Although it looks something like a horizontal Lever House laid in an open concrete box, not all of its design was borrowed from contemporary Western innovators: few Western buildings today have fully marble-lined interiors.

Dart Joins Loebl, Schlossman & Bennett

CHICAGO, ILL. Chicago architect Edward Dart has closed his office (Edward D. Dart & Associates) to become a partner of Loebl, Schlossman & Bennett. The new office will be known as Loebl, Schlossman, Bennett, and Dart. Dart's move was precipitated by the common problems faced by an architect whose practice has grown so large that he finds himself more an administrator, less a designer. With his move, Dart hopes to be able to devote most of his time to designing.

New P/A Associate

With this issue, Maude Dorr assumes the duties of an Associate Editor at P/A. Educated at Bryn Mawr, where she received a B.A. in Art and Archeology, she is a former Associate Editor of *Industrial Design* magazine. More recently, she was a free-lance writer and photographer, specializing in architectural subjects, whose assignments took her to Malta and Mexico.

Look over the Wall

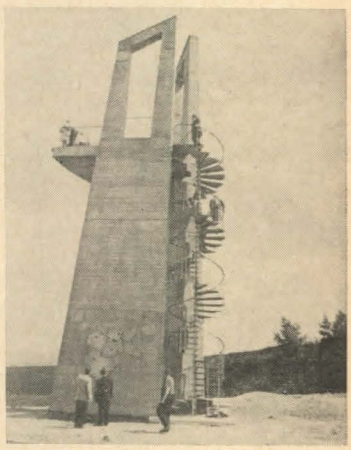
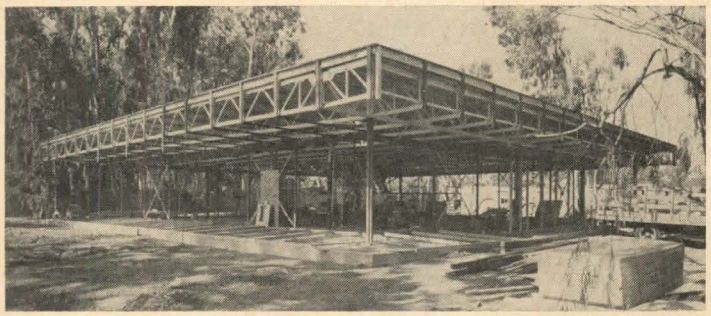


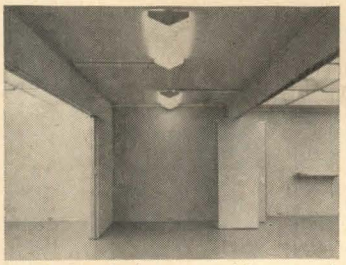
Photo: Authenticated News International

HERSFELD, GERMANY Although this tower stands in West Germany, it gives a viewer standing on its observation platform a commanding view 20 miles into East Germany. It was dedicated to the desire of all Germans for the reunification of their country, and was built of cast-in-place concrete to signify solidarity and permanence. The rugged Bavarian foothills of East Germany are visible through the platform's concrete-framed openings. Architect Karl Schumann, who designed the tower, has made these "windows" extensions of the walls of the solid base. The monument tapers from bottom to top, then juts suddenly to a peak at the top of each window. A spiral steel staircase sets off the straight massive lines of the tower, helping to give it a feeling of upward motion.

Partially Prefabricated Schools Presented

PALO ALTO, CALIF. California's burgeoning school system is hard pressed to build enough schools to house its students. Now one group has come up with a prefab construction system especially adaptable to schools, which may prove significant to school builders throughout the U.S.





Shown above are photos of a mock-up designed and erected by the School Construction Systems Development (SCSD) project at Stanford University —a combined effort of the School Planning Laboratory at Stanford and the University of California's Department of Architecture at Berkeley. Ezra Ehrenkrantz was the architect for the completed school mock-up, which incorporates a prefab roof system. The project was sponsored by a $257,000 grant from the Ford Foundation's Educational Facilities Laboratory.

Inland Steel Products Co. (with the aid of Chicago architect Robertson Ward) developed the structural-lighting-ceiling system, which includes long spans of 50′ to 75′ over large, column-free areas, electrical raceways, 70 ft-c with low-glare factor, built-in air diffusers, and delivery of air through ceiling diffuser outlets. Structural system consists of deck that serves as top chord of truss. Bottom flange of truss is used as electrical raceway. Compressive stresses usually carried by top chord are transferred directly into the basic roof-spanning member — 20 gage corrugated steel roof deck panel. System uses less than 4 lbs of steel per sq ft compared to 6 lbs per conventional system. In order to ship units to site economically, pivot joints were developed that allow each structural section (maximum of 75′ long) to fold flat for compact stacking with other sections. Deck unit is lifted from its package, allowing webs to unfold. Then unit is hoisted into position and attached to primary beams or columns. Structural system can accommodate an air-conditioning system, three types of lighting fixtures, and three kinds of movable partitions.

Lennox Industries designed the roof-mounted, self-contained unitary air conditioning system called "Direct Multizone System." Each unit serves on 3600 sq ft mechanical service module that is divided into eight zones of 450 sq ft. System uses direct expansion coils for cooling. Dampers allow up to 100 per cent of full air supply to be introduced from outdoors. Fan insures proper exhaust from the building so that 100 per cent outside air can be used when needed.

Inland Steel Products Company's lighting/ceiling system utilizes direct, semi-direct, and luminous lighting fixtures along with flat ceiling panel unit that fits into basic 5′ x 5′ planning module. By varying number, type, and location of lighting elements within coffer, lighting systems with different visual and photometric characteristics can be achieved.

Three types of partitions fit into 4-in. module. E. F. Hauserman Company's fixed-demountable partitions consist of gypsum panel sandwiched between prefinished steel sheets with clip into steel studs to form flush joints. Extension in stud allows for ceiling-height variations. Average sound reduction loss is 28 db. Western Sky Industries movable panel partitions may be positioned at any point along their line of movement and locked in place without opening total partitions. Mechanical expansion device provides acoustical seal at head and floor. Hough Manufacturing Company's accordion-type movable partitions are vinyl-clad *in three colors.* Built-in "lift" breaks sweep-strip floor seal and eliminates bottom sweepstrip drag and air entrapment. Average sound transmission loss is 28 db.

Coming Soon: The Tower of Montreal

MONTREAL, CANADA Remember how round towers used to be? Well, they're getting that way again. This one, the 425′ La Tour Laurier office building, will go up this spring on Montreal's Sherbrooke Street, between Place Ville Marie and Place des Arts. According to architects Craig, Zeidler & Strong of Toronto, and their associates on this project, Beauvais & Lusignan of Montreal, a round shape is more economical than a comparable square one. The round shape stemmed from a year's study that reiterated what Rubens had proved with women: that roundness would produce approximately 18 per cent more useable space than squareness. A round tower also fits best on the long narrow site, maintaining a view and remaining in scale with

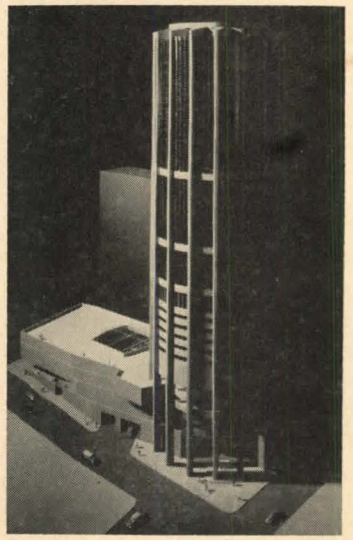
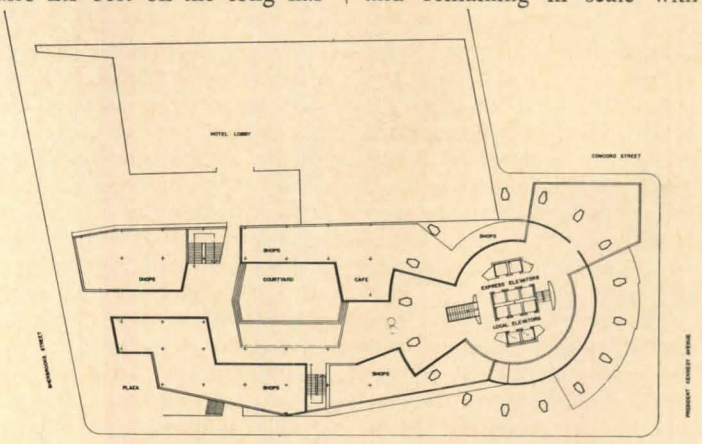
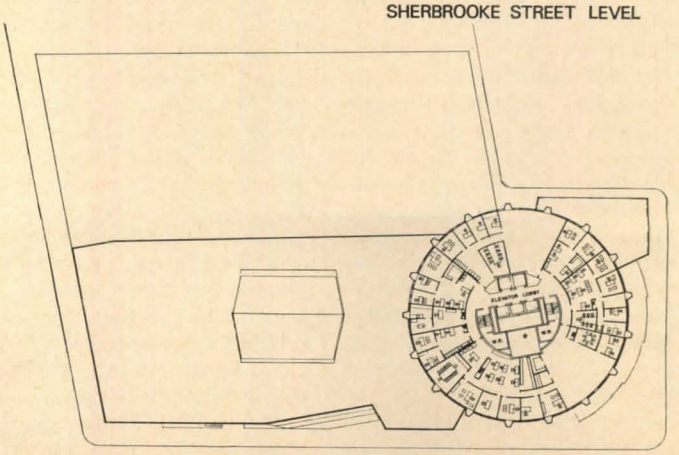


Photo: Panda Associates



SHERBROOKE STREET LEVEL

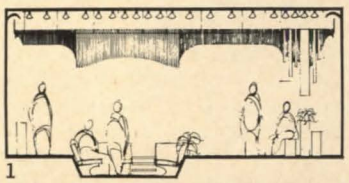


TYPICAL FLOOR

adjacent buildings. Instead of rising from an articulated base, the tower rises directly from street level, and the three-story base flows into and around it. This way, the disparity in shapes (the base is angular) is not emphasized, and the forms flow together naturally and even gracefully. Activities in the base, which will include a small theater, restaurants, coffee houses, boutiques and stores, will center around an open court (to be covered in the winter). Sixteen exterior concrete columns support the tower; these are banded together and braced by concrete bands, the first of which occurs 80′ from the ground and which occur with decreasing regularity toward the top of the structure. To be constructed at an estimated cost of $20 million, the tower will have a total floor area of 750,000 sq ft.

Yale Lucite Competition

NEW HAVEN, CONN. A recent student problem in Yale's Department of Architecture produced interesting architectural uses of Du Pont's "Lucite" acrylic resin (the competition was sponsored by Du Pont). First prize was won by third-year student Leonard M. Todd, who designed an interior lighting installation **(1)** employing the "light piping" qualities of Lucite. Rods of the material would be hung in geometric patterns in a suspended ceiling, below floodlamps. Light from the lamps would be conducted through the rods and diffused through their lower ends. Sculptural forms and varying areas of intensity can be achieved by hanging rods at different heights.



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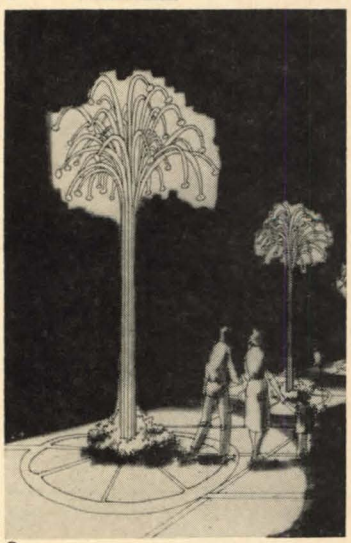

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The light-conducting properties of Lucite were also called into play by second-prize winner Pamela Heyne, a second-year student, who designed outdoor lighting devices consisting of vertical groups of Lucite rods over a sunken floodlight **(2)**. The light would be conducted to larger, round elements at the ends of the rods, and the whole "tree" would emit a pleasant glow. The light source would be concealed by planting.

Third prize (not shown) was won by first-year student David B. Ryan for his design of a molded bay window of Lucite.

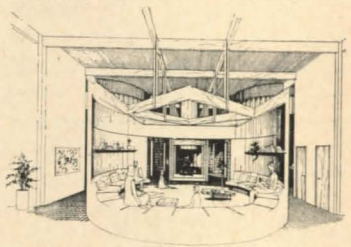
Du Pont stated that the three designs, "although not yet attempted commercially . . . could be made with components now available." Judges were Yale design critics Paul Mitarachi, King-lui-Wu, and Charles Brewer.

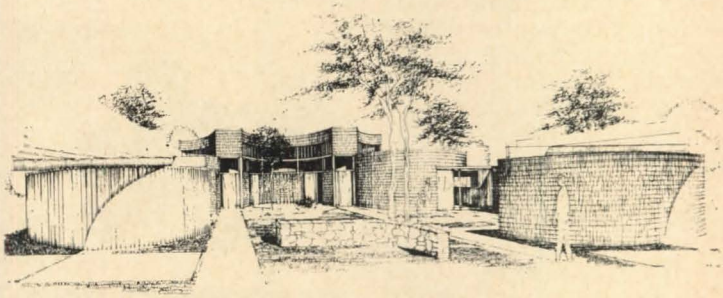
A Funny Thing Happened on the Way to the Castle

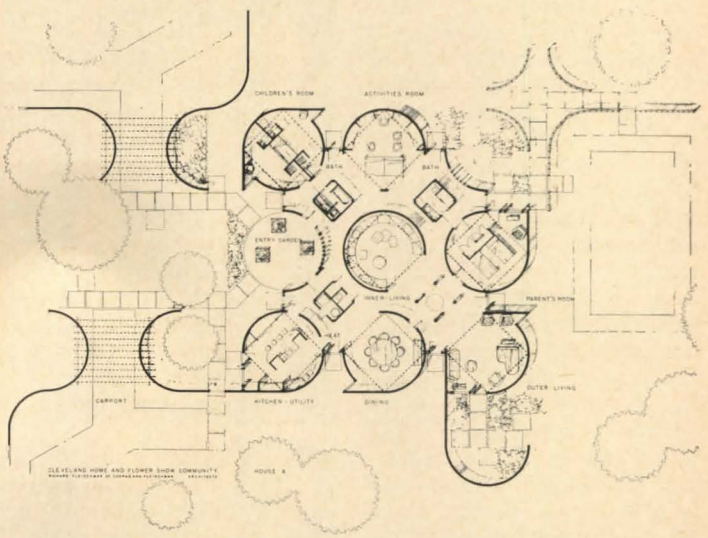
CLEVELAND, OHIO "A man's home is his castle," according to Sir Thomas Coke, an 18th-Century clergyman. His equating of the two words was only figuratively intended, and by it he probably meant that in his home a man should be lord of the manor. Never mind. In every century there are those who want homes to be real castles. Some build their own in New Canaan, Conn.; others buy them in Spain.

On display last month at the Cleveland Home and Flower Show were two home-castles, ("a cluster community"), designed by Richard Fleischman of Conrad & Fleischman. What the architect wanted to do is propose "down-to-earth" castles in which a man can "fortify the security and warmth of his personal life," much, presumably, as an orgone box is supposed to fortify body potential. Whether or not Fleischman's structures do this is probably a personal matter, but whatever their purpose, his castles seem semantic exercises as much as architectural ones.

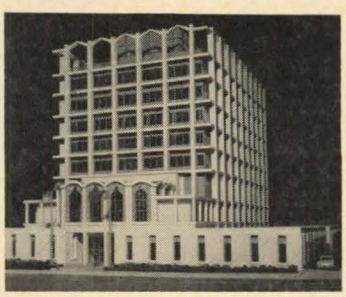
In Fleischman's plan, for instance, the living room becomes the "outer living chamber" (the keep?), the study is transformed into the "inner living chamber," hallways become "circulation galleries," and the laundry room becomes the "activities chamber" (the inner close). In a final burst of defiance, Fleischman turned the fireplace into the "fire space," an open area in the center of his castle, which looks as if it gives fire the freedom to burn down his creation from any of four directions.







Richmond Rumble



RICHMOND, VA. The staid old city of Richmond, Virginia, was the scene of one of architecture's latest "rumbles" recently, when sides were taken on the design quality of a proposed new City Hall by the local firm of Ballou & Justice. Among those alarmed by the possibility of this design actually being built were James J. Kilpatrick, editor of the *Richmond News Leader,* and Marie-Louise Pinckney, architectural critic for the newspaper and a member of the staff of the Virginia Museum of Fine Arts. They and other disturbed Richmondites garnered the opinions of a number of architectural critics and writers for presentation to the City Council on March 8 at a meeting where the council was to vote whether or not to accept bids for construction using the present design. They won a delay until April 12, and now plan a campaign for redesign in the paper, petition signing, picketing, and possibly a sit-down in public places. Mr. Kilpatrick writes P/A that

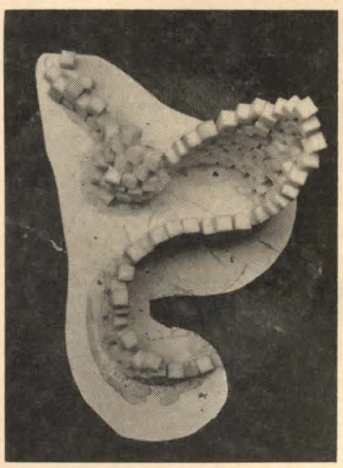
"Now some tempers are burning, and we have a fine raging controversy going on." It is good to hear of a citizenry aroused about architectural matters; too often they take what is dealt out to them without a murmur. We hope that the awareness of the people of Richmond will give the architects inspiration in improving their designs for the City Hall.

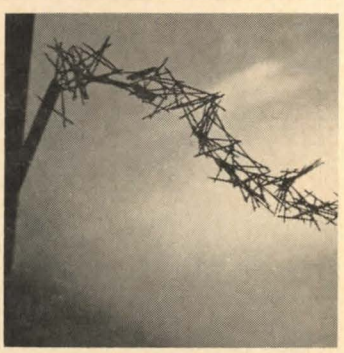
What Hath Man Wrought?

ASPEN, COLO. The 20th Century will probably not be remembered as the age of science, nor, like an earlier one, as the age of reason. It will be thought of as the age of technology. In it, man mastered heavier-than-air flight; he learned to flash electronic pictures without wires across oceans. And before the century is out, he will probably have flown through space to other planets. Inevitably, with these achievements has come a change in the way man perceives the world he lives in. These changes, or "the end of the world as we know it," will be discussed at the International Design Conference in Aspen, June 20–25. Architect-designer George Nelson, who, as program chairman, is lining up speakers, is choosing them on the basis of what they can contribute to an understanding of "the new world: that extraordinary pile-up of changes in scale, speed, technique, conduct, and motivation." Scheduled to speak so far are: Jan C. Rowan, architect and Editor of P/A; George Candilis, French architect, designer of Languedoc; Dr. Jacob Bronowski, an associate in the Salk Institute and author of *The Western Intellectual Tradition* and *The Common Sense of Science;* Emile de Antonio, producer of the film on the Army-McCarthy hearings, "Point of Order"; Arthur Drexler, director of architecture and design at the Museum of Modern Art; David Finn, chairman of the board of Ruder & Finn, Inc., public relations agency; The Rev. William Lynch, S.J., author of *The Image Industries,* an exploration of the influence of Hollywood and television; and Lawrence Alloway, curator of the Solomon R. Guggenheim Museum. Pre-registration fee for the Aspen conference is $75. After June 1, the fee is $85. Accredited students may register for $10. Mailing address: International Design Conference, Box 664, Aspen, Colo.

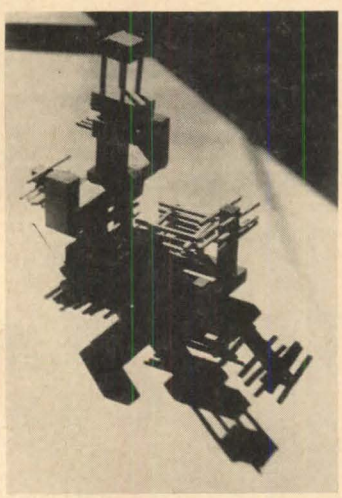
Increasing Awareness

BAYVILLE, N.Y. The Fiedel School in this Long Island town is a private school of "summer-kultur" for about 200 middle- and upper-middle-income students. The school program is basically permissive, and not stringently programmed with "musts." The students do indicate a major





interest in the courses, and can take others as options. Included in the curriculum are music, dance, ceramics, science, drama, jewelry-making, photography, and architecture. For the past two summers, the architecture and photography courses have been given by David Hirsch, frequent architectural photographer for P/A and architectural student at Cooper Union. He sees his goal, particularly in architecture, as "increasing the awareness of the kids . . . ," of approaching building design not from the plan (practical) but in terms of light, space, and form (realization). Working in the simple environment of a suburban, residential overhead-door garage ("That gave a sense of indoor-outdoor right off"), Hirsch and two assistants created special effects to introduce his young charges (7–14 years) to differences in space and dimension. Rounds from cedar fence posts were hung at varying levels below the fluorescent lights of the ceiling to add another dimension to overhead space. A light-and-shadow environment was created by hanging 14 rolls of toilet tissue in 8-sq-ft areas and playing lights over it while the children wandered through this full-size maze. "They were slightly apprehensive at first, then anxious to



Photos: David Hirsch

experience this full-scale space involvement again." Afterwards, all the lights were turned on to reveal the paper hangings as the nonmysterious objects they were.

In "direct creation," the children were given simple materials—clay, glue, toothpicks, sugar cubes, paper, string—and asked to fashion structures or forms for various purposes: protection (a wall), enclosure (a shelter for a stone), pure form (toothpick constructions), or actual habitations (a living maze for two mice). These progressed from simplest problems and materials for the smaller children to the more complex for 13- and 14-year-olds, but many of the tiny structures turned out to be quite sophisticated. In fact, the older children frequently needed more "loosening up" than the younger ones (the Bernard Rudofsky syndrome, no doubt). "Awareness must start at this age (7)," says Hirsch, "and should go past the old 'building block' type approach."

Heartened by the success at Fiedel School, he has since had many discussions with others about trying to establish a new kind of pedagogy, using the teacher as guide to awareness rather than as a mere dispenser of knowledge. All kinds of disciplines would be involved here, and perhaps the actual design of the classroom and its accoutrements would be part of the program. A committee has been formed that includes Hirsch, a graphic artist from Uruguay, a painter from the Fiedel School, a Cornell graduate working in the office of Edward L. Barnes, and, hopefully, a designer and manufacturer of games. "Right now we are still working on philosophy," Hirsch writes, " but soon enough we will have to write it up and look around for sponsors."

Voluminous Reynolds Lady

RICHMOND, VA. The winner of this year's R. S. Reynolds Memorial Award (conferred annually on an architect selected by an AIA jury) will be presented a 23″ aluminum sculpture called "Mediterranean Woman." Sculptured by Elbert Weinberg, winner of a P/A Design Awards Citation in 1954, it was conceived as the first of a series on the same subject. "Studies for the series were begun at least three years ago," Weinberg said. "At that time, I was searching for more voluminous forms than I had heretofore used. This 1964 version attempts to interpret the high spirit of the Latin woman—large-formed and vig-

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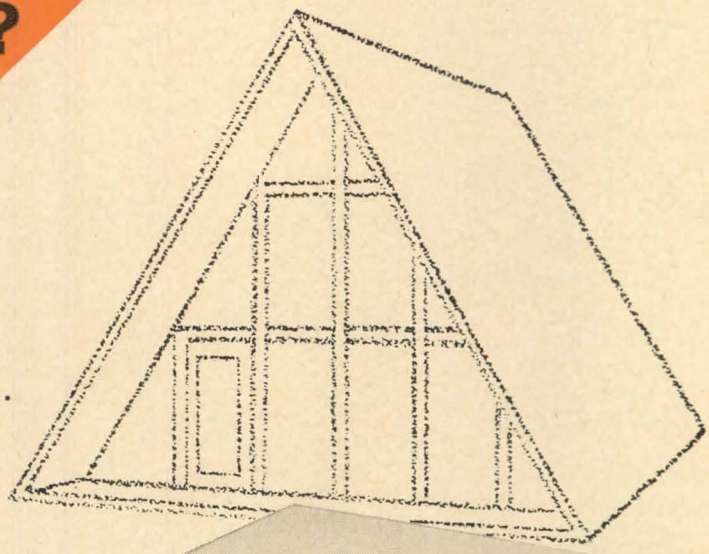

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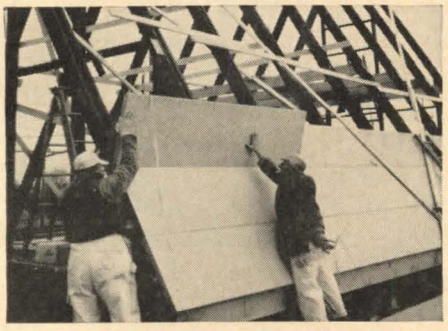

T & G panels, 2' x 8', serve as decking and sidewall for this A-frame with 48" o.c. spans. Interior surface can be factory-coated in white, beige or special color to order—with vapor barrier and vinyl film or white kraft surface.

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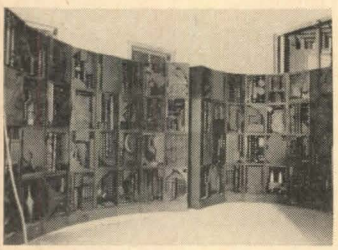
orous, yet full of grace. It has been strongly modeled in contrasting planes and undercutting to create a sharp chiaroscuro, essential, I think, to the color and feel of aluminum."

Architectonic Assemblages



NEW YORK, N.Y. Louise Nevelson does what can truly be called architectural sculptures. She takes fragments of wood—such as balusters and newel posts and parts from musical instruments—and arranges them in wooden boxes, then stacks these boxes until her works sometimes literally fill a room. Her latest exhibit, however, held this winter at Manhattan's Pace Gallery, contained some smaller pieces, only a foot or so high. To her credit, they seemed almost as prepossessing as her larger work.

Loch Ness Coppers a Plea

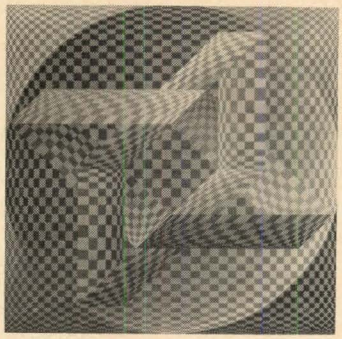
MIAMI, FLA. Shopping center sculpture has for years taken the forms of animals that appeal to children as toys. ("Look at the bear, Mommy.") A kindly sea monster is the shape sculpted by Peter Nicholson for the air-conditioned Mall of the Hollywood Shopping Cen-

ter in Miami. Repoussé shaping of the copper was time consuming in working on the 25′ x 10½′ monster, so Nicholson used an oxyacetylene torch for some of the texturing. Nicholson is here shown grooming his creation.

Op Art Moves Uptown

NEW YORK, N.Y. Op art (optical art) in itself is nothing new. At the least, it goes back to the 1920's when men such as Albers and Mondrian were experimenting with lines and areas of flat color. It may even go back to the French impressionists and beyond. What *is* new about op art is that it is being recognized in a representative exhibit—"The Responsive Eye"—at the Museum of Modern Art. Gathered there through April 25 are 120 paintings and constructions by 99 artists from 15 countries.

Op art is calculated to give the viewer a highly personal experience, based on his visual



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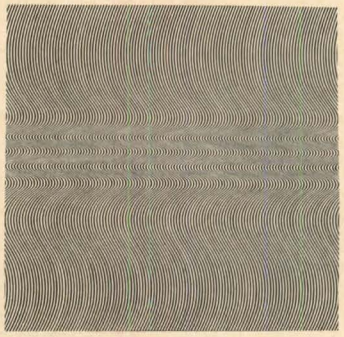


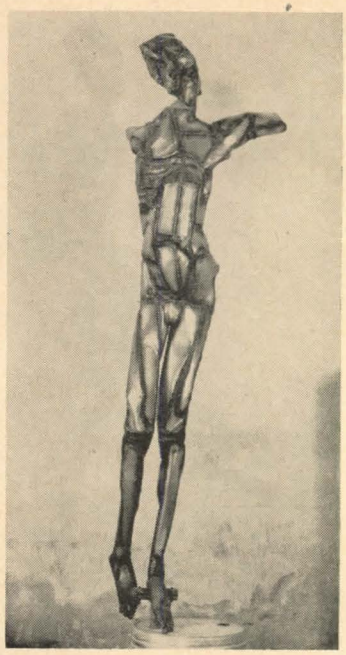
2

reaction to the lines, bands, patterns, and flat areas of color of the op art composition. Some op art is painted on canvas; some is built with pieces of wood, metal or glass. Part of the effect depends on optical illusion (after-images, illusory movement, and changing form); part on contrast of color. Some of it makes use of mirrors, in much the same way as men do who saw women in half in circuses. Some is three-dimensional. And in some the viewer must be a participant: what he sees, and indeed what the art is, depends on how he moves in front of it, for as he moves it changes. The response to all this may be physical (dizziness), or emotional (joy, disgust), but never purely rational.

Although much op art involves color, the two examples shown here are both executed as well as reproduced in black and white: **(1)** "Equivocation," by Benjamin Frazier Cunningham, and **(2)** "Current," by Bridget Riley. After New York, "The Responsive Eye" will appear in St. Louis, May 20 to June 20; in Seattle, July 15 to August 23; in Pasadena, Sept. 25 to Nov. 7; and in Baltimore, Dec. 14 to Jan. 23.

When the Sculptor Bares His Steel

GUANAJUATO, MEXICO "There's nothing much to do in Guanajuato," reports one recent visitor. But Roy Zotter found something to fill his time in that old Colonial city. As part of the requirements for his master's thesis at the Institute Allende in San Miguel de Allende, he completed this 12′ stainless-steel sculpture. Called "Talisman," it was welded with an oxyacetylene torch. The Stainless Steel News Bureau believes that Zotter is one of the few sculptors now working with stainless steel in heroic-sized figures. He probably is.



Gallo Makes Sculpture With Loving Care

NEW YORK, N.Y. Frank Gallo, a Chicago sculptor, one of

whose works ("Girl in Sling Chair") is now in the permanent collection of the Museum of Modern Art, works in polyester resin reinforced with glass fiber. Gallo feels the material gives him greater freedom of expression than traditional materials. He adds, "My figures resemble marble or ivory, but

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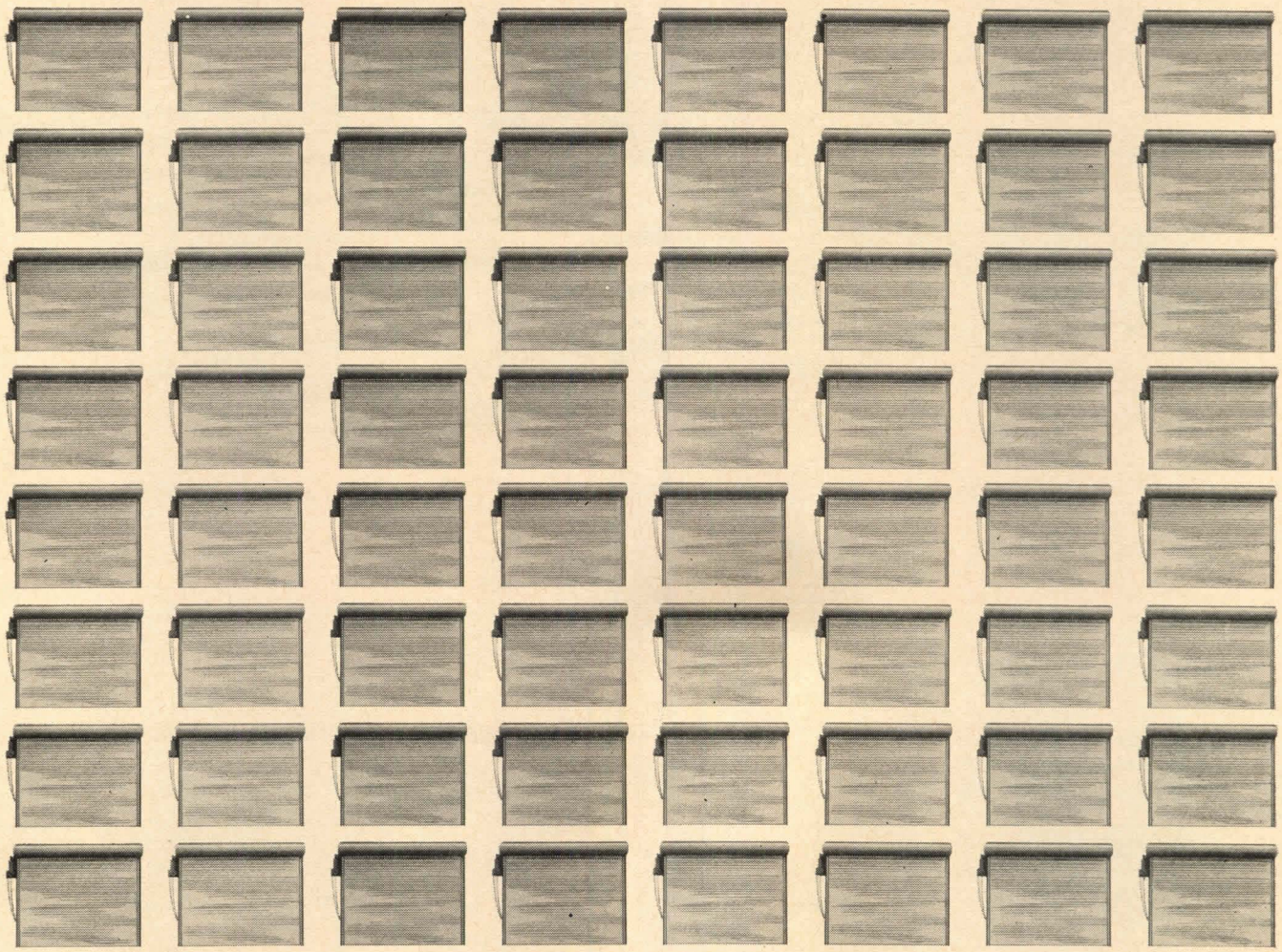

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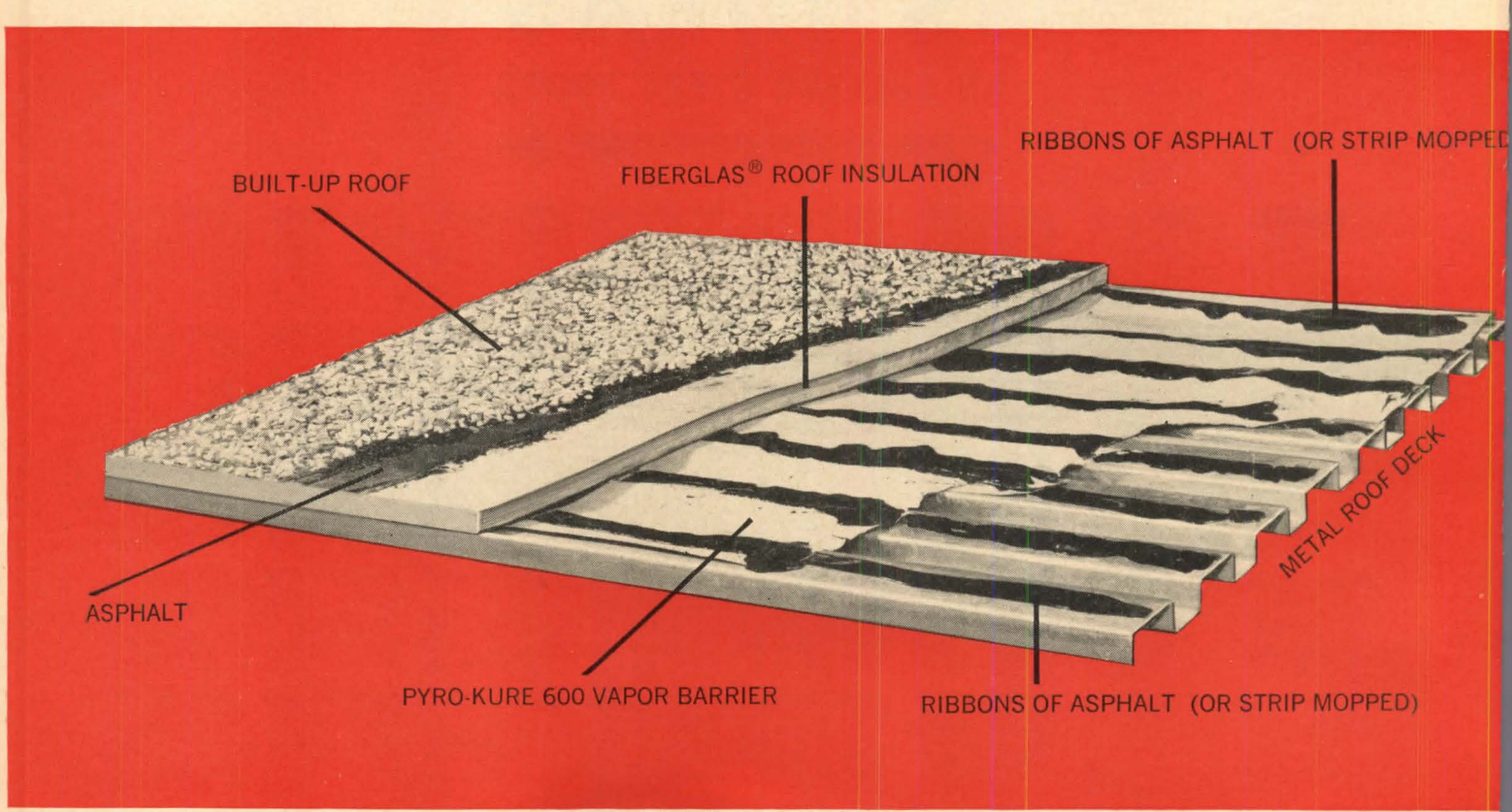

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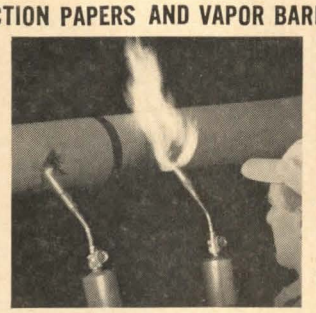

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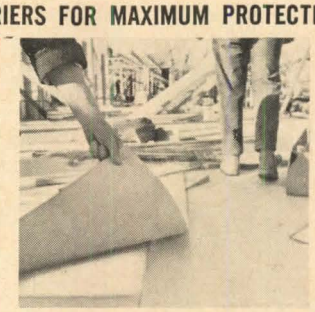
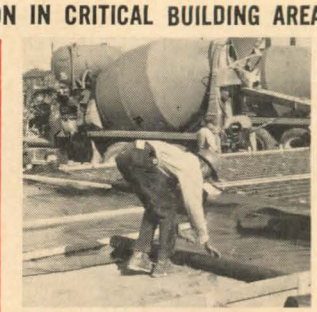


Curing Papers

For maximum protection and curing of concrete: SISALKRAFT® CURING PAPERS. Reinforced, waterproof papers prevent damage and soiling of newly placed concrete slabs. Retards hydration, provides a maximum cure for harder, denser concrete floors.



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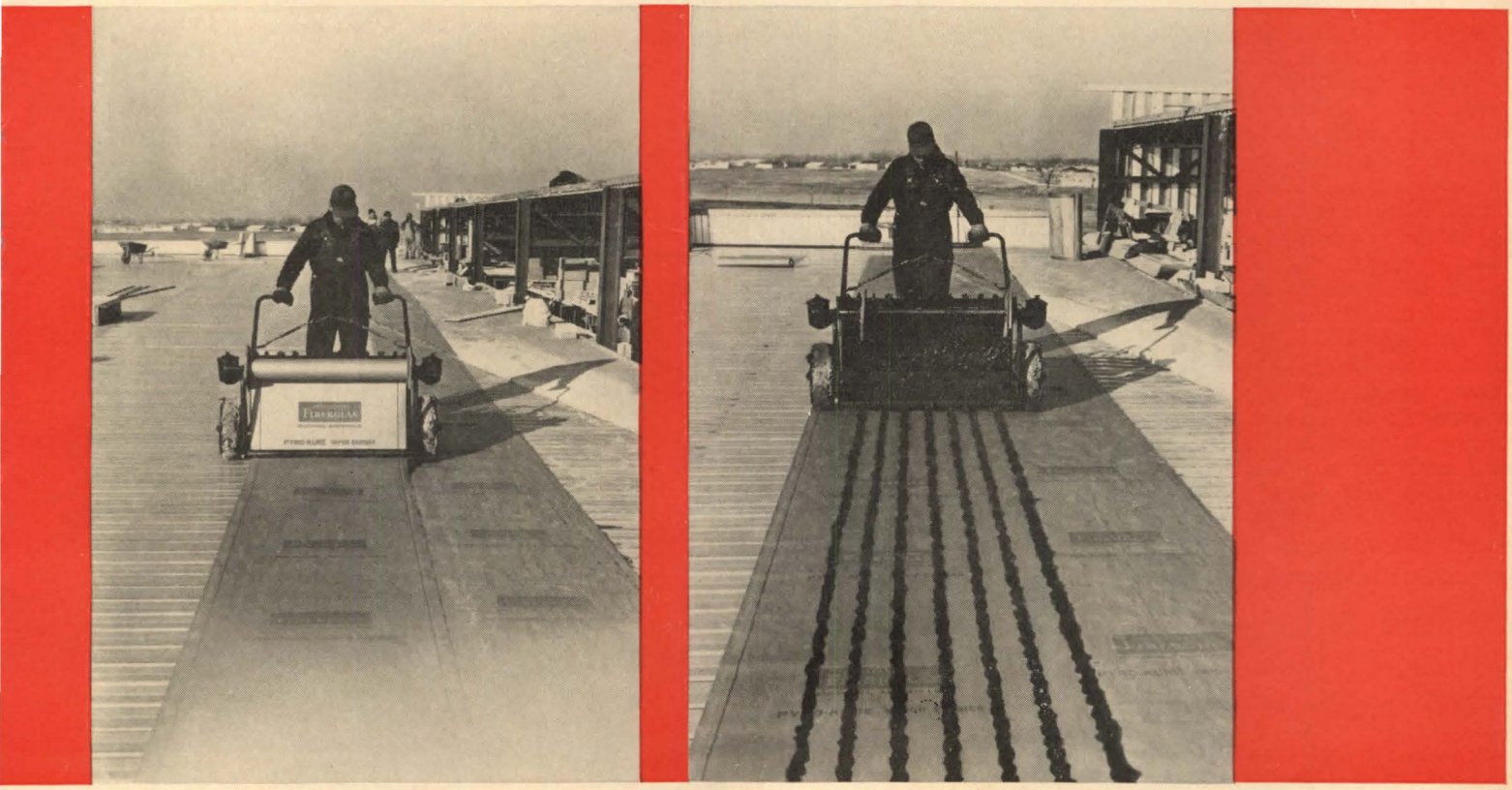

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are considerably lighter and have a warmer, more lifelike tone."

Stevens to Head Arts Council

WASHINGTON, D.C. Almost six months after signing the National Arts Council bill into law (see p. 98, OCTOBER 1964 P/A), President Johnson announced appointments to the Council. Roger Stevens, who has been the President's special advisor on the arts, will head the purely advisory group. Among others on the 25-man council are architects Minoru Yamasaki and William Pereira, and Dr. Albert Bush-Brown, president of the Rhode Island School of Design. Although the council is not authorized to appropriate funds to support the arts, its establishment marks the first time in U.S. history that a bill to encourage the arts has become law.

New Plant for Sargent

NEW HAVEN, CONN. Sargent & Company, hardware manufacturers of New Haven, Connecticut, on its hundredth anniversary has opened a new $4 million plant for the Architectural and Residential Hardware Divisions of the company. Architect is Douglas Orr of New Haven.

Humanistic Dormitories

GAMBIER, OHIO Vincent G. Kling of Philadelphia has designed two new dormitories (one of which is seen here) for upper classmen at Kenyon College. Construction is expected to begin by March 1, with occupancy scheduled for early 1966. Each dormitory will house 56 students in L-shaped buildings; the designs attempt to capture what Kling calls "Kenyon's traditional brand of humanism—emphasis on growth in an atmosphere that encourages the individual while recognizing the need for interdependence and common purpose." Individuality is emphasized by alternating the arrangement of rooms—first one with its long side to the outside, then one with its short side out. In addition, second-floor rooms will have pitched ceilings. Where the short room

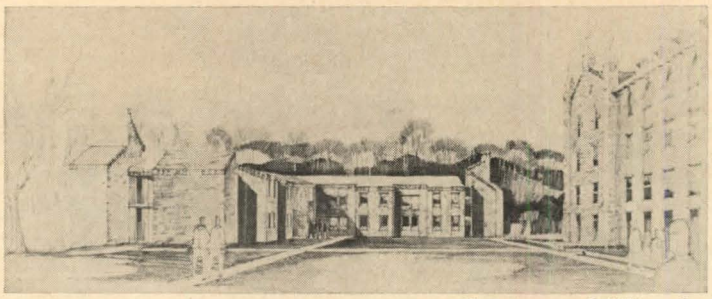
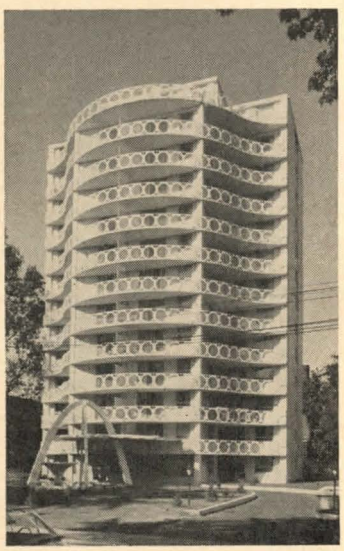


Photo: Lawrence S. Williams, Inc.

sides face out, the building walls are extended slightly to accommodate them, breaking up what would otherwise be a long, flat surface and lending the façade highlights and shadows. A two-story, glass-enclose lounge is placed at the juncture of the two arms of the L. Cost is expected to be about $800,000, including furnishings.

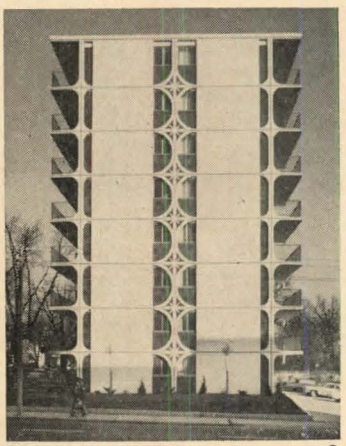
Sensualism Strikes Back

TORONTO, CANADA The "New Sensualism," dormant in the past few years except for some of Yamasaki's work and various West Coast projects, has bloomed again with a vengeance in Toronto. From a sheaf of projects both completed and in design stages sent us by architect Uno Prii of that Canadian metropolis, we show you **(1)** an apartment building of white glazed brick sporting a polkadot balcony design in sheet steel; **(2)** another apartment where daisies *do* tell, here



Photos: John McNeil 1

in precast concrete; and **(3,4)** two apartment projects, the first a concrete shear-wall design to be initial unit in a larger plan, the second planned for downtown Toronto and to contain hotel facilities as well. (The latter recalling Robert Schmertz's song about "The Queen Anne front and the Mary Ann behind.") Architect Prii writes, "My designs, which I call sculptural in character have received considerable recognition in local papers."



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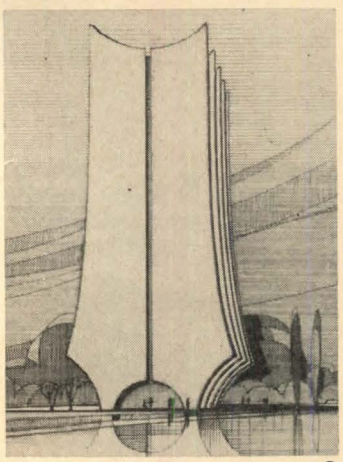

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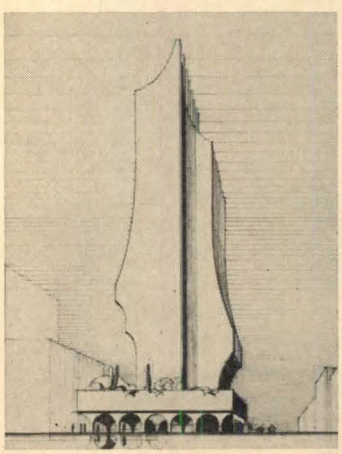

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Man of Many Parts

ATHENS, GREECE Enveloping the architectural scene in athens is Anthony C. Kitsikis, an architect himself and founder and publisher of the Greek-English magazine *Architectoniki*. In addition, he runs a technical library and bookstore, the Athens Building Centre, the Architectoniki Exhibition Hall, and the Architectoniki Club. The latter can be of service to U.S. architects visiting Athens by providing a ready source of information on Grecian architectural matters as well as a convivial environment in which to meet Mr. Kitsikis and other Greek colleagues. The proprietor says that the aim of all his activities is to present "Greece to the world and the world to Greece." Should you want more information, write him at 10 Panepistimiou & 9a Valaoritu, Athens 134, Greece.

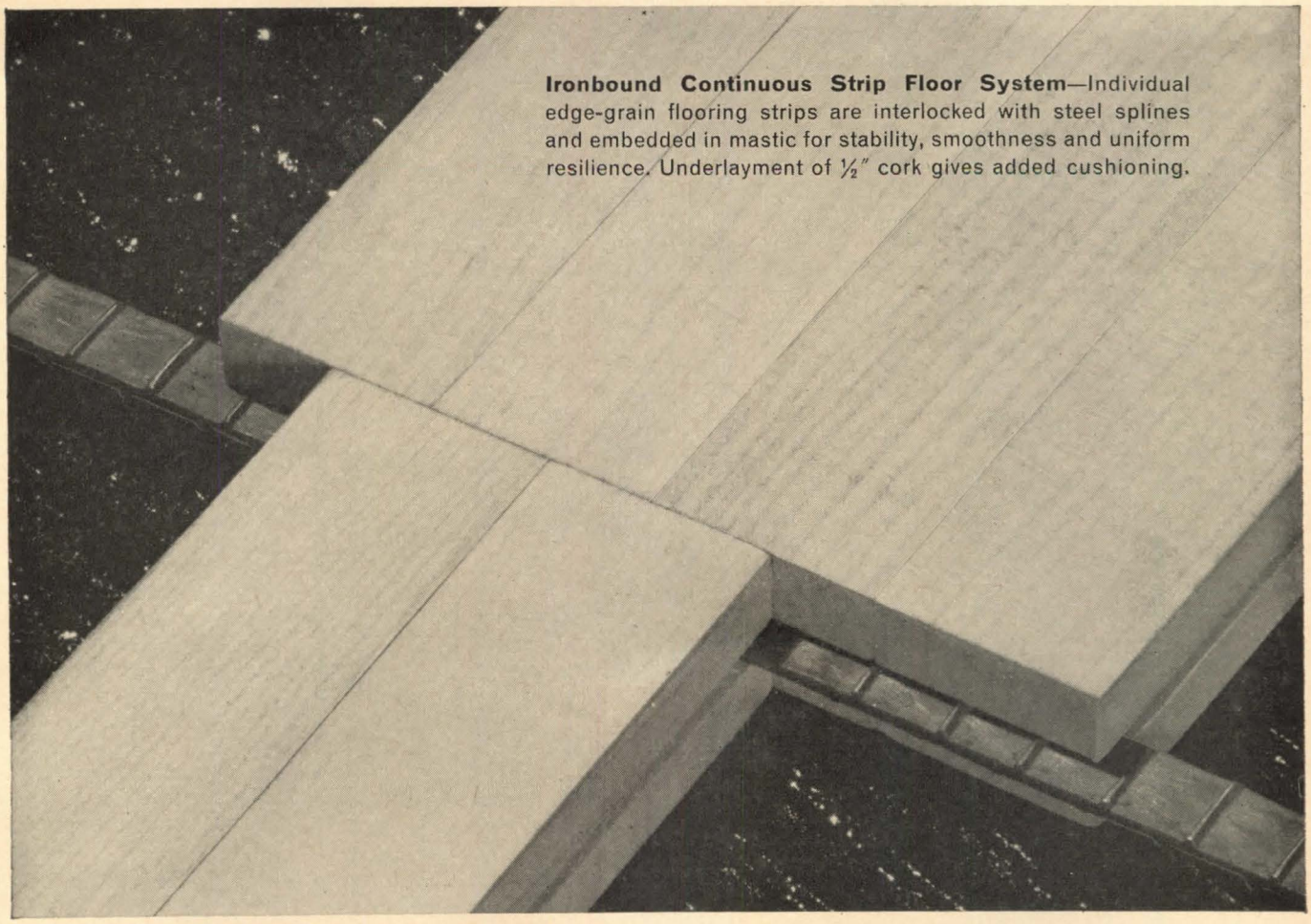
Eavesdroppings

A quote from new British Foreign Secretary Michael Stewart on racketeering landlords, published in *The New York Times*, can, we think, be used with equal effect when applied to many speculative real estate "developers" who mar our cities with their quick-return monstrosities: "Surely we know, or at our peril forget, that the individual who pursues and the law that permits those barren and peverted activities which enrich those who pursue them without adding a jot to the real wealth of the community, and without regard for one's duty to one's neighbor, twist human society from its proper shape into that horrible parody which Dante described—the society without faith, without law, without happiness."

In a CBS-TV network presentation, "An Essay on Bridges," Andrew A. Rooney described New York harbor's Verrazano Narrows Bridge: "Man has made a sewer of the river and spanned it with a poem."

"Who *did* God make the world for," I asked, "if not for humans?" The old man spoke more sharply, "For building speculators and generals, any fool knows that." *Len Deighton, "Funeral in Berlin."*

"City planning is too often an afterthought; in other words it



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is no more than city patching. It is not the work of a creator, but of a surgeon called in too late to operate on a dying carcass." *Clarence S. Stein, "Toward New Towns for America" (1951).*

"Today most modern apartment houses are constructed under the label of 'luxury living,' but they assure neither the right of privacy nor the quiet enjoyment for the thousands and thousands who seek relief from the staccato of the business world." *Harold Birns, Commissioner of Buildings, City of New York, speaking at Board of Governors, New York Building Congress Luncheon.*

Speaking to a group of architectural students this winter, Secretary of the Interior Stewart Udall challenged the coming generation of architects to be "much more than architects. . . . We need critics, challengers and in addition, a new generation of architects are needed who will be concerned with the total environment."

Calendar

The Alexander Calder Exhibition which closed at the Guggenheim on January 31 will be divided into two travelling shows to visit St. Louis, Milwaukee, Des Moines, Toronto, and finally Paris . . . Louis Kahn, William Conklin, and Dr. Paul Tillich will be the principal speakers at the National Conference on Church Architecture to be held at the Pick Congress Hotel, Chicago, Ill., from April 27–29 . . . April 30 and May 1 are the dates of the 1965 Urban Design Conference to be held at the Harvard Graduate School of Design. . . . Indiana University will host the annual Conference on Theater Architure from April 30–May 2 sponsored by the Institute for Theater Technology. C. Ray Smith, P/A Associate Editor, is on the program committee. . . . The first National Brick Bearing Wall Conference will take place May 27–28 in Pittsburgh. Burton H. Holmes, Senior Editor of P/A, will be attending as moderator . . . The Northeastern Area Visual Communications Congress, VCC, will gather June 19–21 at the War Memorial Auditorium, Boston, Mass. Those who wish to attend must register at Headquarters, VCC, 18465 James Couzens Highway, Detroit, Mich. . . . A Plastics in Architecture special summer program will be held at M.I.T. in cooperation with the Plastics in Society of the Construction Council of the Plastics Industry, Inc., from June 21–June 25. Inquiries should be sent to Director of Summer Session, Room E19-356, M.I.T., Cambridge, Mass. 02139 . . . An unusual exposition has been organized for Charleroi, Belgium, to begin June 26. It will assemble all unpublished developments of the glass world of interest and service to many branches of industry. The theme will be "Tomorrow's Glass" . . . The annual meeting of the National Society of Professional Engineers will be held June 30–July 3 in the Western Skies Motor Hotel, Albuquerque, N.M. . . The 11th annual Architecture and Gardens Tour of Japan under the directorship of Kenneth M. Nishimoto will leave from Los Angeles and San Francisco Oct. 7. Included will be a special extension visit to Hong Kong. Early reservation is urged, since the membership will be limited to 25. The brochure may be obtained from Kenneth Nishimoto, 263 South Los Robles Ave., Pasadena, Calif.

AIA Annual Awards

WASHINGTON, D.C. Conventions have long been prone to heralding and laureling, and the AIA convention—to be held June 14–18 in Washington, D.C.—is no different. At the convention, Leonardo Zeevaert, professor of soil mechanics and foundation engineering at the University of Mexico, will receive the Allied Professions Medal; Brazilian landscape designer and muralist, Roberto Burle-Marx, the Fine Arts Medal; Eliot Noyes, architect of New Canaan, Conn., the Industrial Arts Medal; Robert Damora, New York photographer and architect, the Architectural Photography Medal. The 1965 Citation of an Organization will go to the Architectural League of New York for "its long and distiguished record of achievements in the cause of art and architecture." Joseph Watterson, Editor of the AIA Journal, will be recipient of the Edward C. Kemper Award for significant contributions to the Institute and the architectural profession. The San Francisco firm of Wurster, Bernardi & Emmons, Architects, will receive the annual Architectural Firm Award. The firm was cited for its "work which is simple, direct, and always modest." There will be no Gold Medal presentation this year.

Torre Velasca Florida Style

ORLANDO, FLA. Projected tower for the 16-story Citizens National Bank Building here looks somewhat—but not much—like Milan's Torre Velesca by

Belgiojoso, Peressutti & Rogers. It is actually by Chicago's A. Epstein & Sons. The tower, to be partially rented, partially occupied by the bank, will stand next to the remodeled, enlarged, existing bank building.

Competitions

Paul F. Damaz, chairman of the Gold Medal Committee of the Architectural League of New York, has called for submissions to the Gold Medal Competition and Exhibition. The competition is open to any practitioner of the allied arts, (architecture interior design, engineering, mural painting, sculpture, landscape architecture, craftsmanship, and industrial design). All submissions must include examples of at least three of the six building arts. Entries must be submitted by May 10. For further information contact: Daniel J. Howe, Jr., Publicity Chairman, The Architectural League of New York, 115 East 40th St., New York, N.Y. . . . May 13 is the deadline for submission in the architectural exhibition of general hospitals and service facilities at the annual meeting of the Middle Atlantic Hospital Assembly. Entry forms may be obtained from Jack W. Owen, Convention Manager, Middle Atlantic Hospital Assembly, Highway 206, Princeton, N.J. . . . The National Institute for Architectural Education is running a special competition open to all junior. senior, graduate, postgraduate students and to draftsmen and designers under 30. The title of the problem is "A Gas Station." Inquires may be directed to the NIAE, 115 East 40th St., New York 16, N.Y.

Schools

The International Summer Academy of Fine Arts in Salzburg, Austria, has announced the dates for J. B. Bakema's course on Urban Architecture: July 28–August 28. Application must be made by June 30 and sent to The Secretary's Office, International Summer Academy of Fine Arts, Salzburg 1, Postfach 18, Austria . . . Beginning next fall, Iowa State University will replace the Department of Architecture and Architectural Engineering with a comparable program in architecture. The new curriculum consists of a basic program of studies required for all students, plus elective fields of concentration in design, construction, delineation and aesthetics, planning, and structures . . . Ball State Teachers College, Muncie, Ind., has announced a four-year undergraduate program in Regional and Urban Planning to start in the fall semester. The new program will be the only one in Indiana leading to an undergraduate degree.

Personalities

R LEON EDGAR of Sherman Oaks, Calif., and OREN E. THOMAS, Jr., of Pennsauken, N. J., both architects, have assumed duties of district governors of Rotary International . . . The James Stewardson Travelling Fellowship has been awarded to WILLIAM J. BLACK, a staff member of Carson, Lundin & Shaw of New York . . . Top award in the 1965 Design Awards for Excellence went to Dimensional Plastics of Hialeah, Fla., for their multicolored honeycomb panel. The award is given annually by the Society of the Plastics Industry . . . Pasadena architect DONALD E. NEPTUNE will replace ULYSSES FLOYD RIBLE of Los Angeles as president of

There are two things all these buildings have in common.
The World's Fair is one.
Turn the page and discover the other!

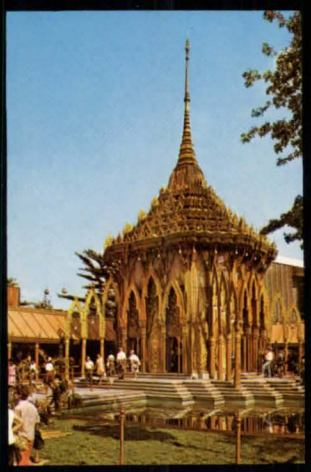
Travelers Insurance Umbrella

Better Living Pavilion

Kodak Pavilion

Bell Systems Pavilion

Ford Pavilion



Thailand Pavilion

Formica Exhibit

Pepsi-Cola Pavilion

Swiss Pavilion

First National City Bank

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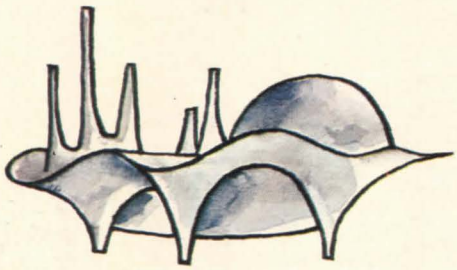
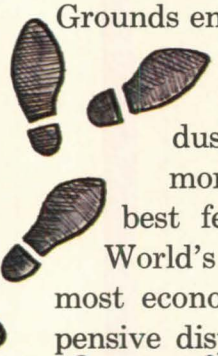
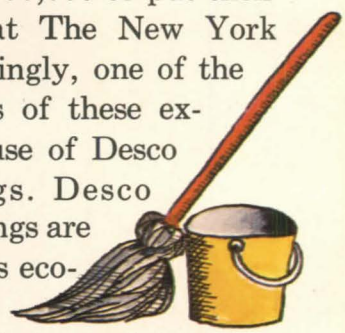


All of the handsome buildings you saw on the overleaf are much handsomer, and much more highly practical, because of wall, roof or floor coatings by Desco. The imaginative use of free form design in many of them made Desco Neolon the ideal specification for roofing. And you can see Neolon at work at The Fair coating the magnificent Travelers Insurance Umbrella as well as at the Kodak, Swiss, Thai and Pepsi-Cola Pavilions. Another Desco coating, for walls, UL rated fire resistant Glazetite, is on the job wherever buildings were considered to need the extra safety factor. And you can see the beauty of Glazetite, too. Just visit Formica's Exhibit or the House of Better Living. Or the dramatic Ford Pavilion. Or the First National City Bank at the World's Fair.



Watertight Desco Hylon coats the walls at the Medo Pavilion and rugged Desco Armtex is at work on the floors of the Bell Systems Pavilion. In addition to all this, comfort stations throughout the Fair Grounds enjoy the luxury and protection of Desco Coatings on their walls.

Nations and the giants of industry around the world have spent more than $500,000,000 to put their best feet forward at The New York World's Fair. Surprisingly, one of the most economical aspects of these expensive displays is the use of Desco Coatings. Desco Coatings are always economical both in low initial cost and easy maintenance.



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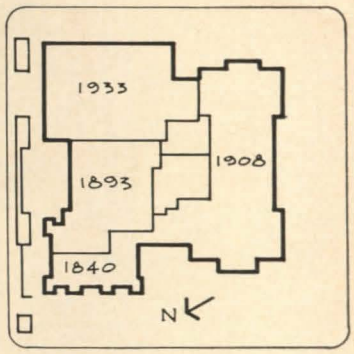
the California Council, AIA . . . Clemson Architectural Foundation has elected T. H. BISSETT, who is a partner in the Columbia, S. C., firm of Lyles, Bissett, Carlisle and Wolff, to the presidency of the organization, succeeding RALPH H. MCPHERSON of Greenville . . . JOHN STETSON of Palm Beach, Fla., was elected chairman of the newly-established Building Construction Coordinating Committee. The Committee was formed at a recent meeting of the Associated General Contractors, the AIA, the Consulting Engineers Council, the Council of Mechanical Specialty Contracting Industries, the National Society of Professional Engineers, and the Producers' Council . . . The Research Council of the Great Cities Program for School Improvement is starting a research study to explore the problem of bringing older schools up to present-day standards. Heading the study will be BEN GRAVES of The Perkins & Will Partnership, Chicago, Ill. . . . PAUL ROGERS has been presented the Eminent Engineer Award by the Illinois Society of Professional Engineers . . . The Grand Central Art Galleries in New York will feature the watercolors of J. GORDON CARR, Architect, from March 30–April 10 . . . A. ALLAN BATES, chief of the Building Research Division of the National Bureau of Standards, has been elected president of the American Concrete Institute. Also honored by the Concrete Institute were: DOUGLAS MCHENRY of the Portland Cement Assoc.; FELIX CANDELA, Architect; WALTER H. PRICE of the American Cement Corp.; J. A. HANSON of the Portland Cement Assoc.; and JAMES B. LYTTLE of Corbetta Construction Co. These men received awards at the Institute's annual convention for their contribution to the field of concrete construction. DR. FRANCO LEVI was at the same time named to honorary membership in the ACI . . . To receive honorary memberships in the AIA are: MELTON FERRIS, executive director of the California Council, AIA; JAMES R. PEIFER, executive director, Pennsylvania Society of Architects, AIA; FREDERICK GUTHEIM, president of The Washington Center for Metropolitan Studies; BRUNO BEARZI, art adviser and collaborator to the American Battle Monuments Commission; AUGUST HECKSCHER, director of the Twentieth Century Fund and former White House consultant on the Arts; DEAN JOHN ELY BURCHARD of MIT . . . SAMUEL J. LEFRAK, New York builder, was designated one of the Ten Best Groomed Men of the year. The award is given annually by *The Men's Hairstylist and Barber's Journal* . . . DOUGLAS F. TREES, a student at Ohio State University, is winner of the 1965 fifth annual Reynolds Aluminum Prize for Architectural Students . . . ATTILA BURKA, a student at the University of Manitoba, has won the first prize in the American Concrete Institute competition. Judges in the design competition were: JOHN MERRILL, Jr., of Skidmore, Owings & Merrill, San Francisco, Calif.; HOLLY CORNELL of Cornell, Howland, Hays & Merryfield, Seattle, Wash.; DENIS BEATTY, of Raetze & Beatty San Francisco . . . DR. JOHN H. MUNDY, professor of history in the Graduate Faculties at Columbia University, will deliver the Mathews Lectures, to begin March 13. His topic will be "The Medieval Town" . . . Industrial designer HENRY DREYFUSS received the Ambassador Award for Achievement from the Royal College of Physicians in London, England . . . ALBERT RAINS has been appointed as special counsel to the new Division of Local Development Services of ACTION, Inc. Rains, former chairman of the House Subcommittee on Housing, will counsel the Division on "all aspects of our program related to housing" . . . HUGO LEIPZIGER-PEARCE, University of Texas professor of architecture and planning, has been named consultant to the Public Housing Administration on the design of multifamily housing and housing for the aged.

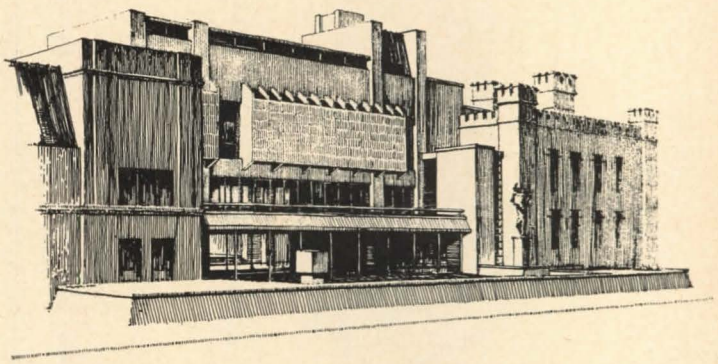
Erratum

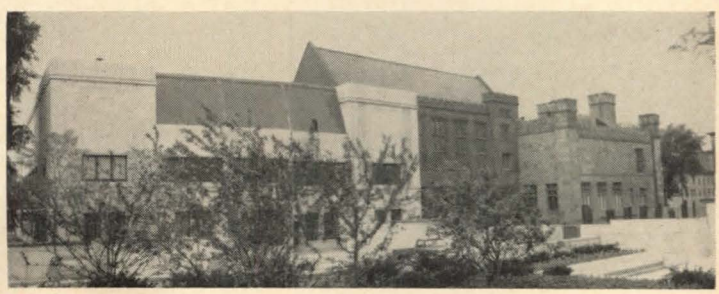
Names of the following consultants on the Los Angeles Music Center were inadvertently omitted from P/A's report on the building (p. 46, JANUARY 1965 P/A): Ben Schlanger, seating and sight-lines; Jean Rosenthal, theater lighting; Stacy & Skinner, structural engineering; and Cornell, Bridgers & Troller, landscaping.

Homogenizing Architecture

HARTFORD, CONN. The Wadsworth Atheneum Art Museum in Hartford comprises four connected buildings, representing a hodgepodge of architectural vintages and styles: on the west is a granite Gothic wing built in 1842 by Town & Davis; on the north a red brick Tudor structure done in 1893 by J. C. Cady; to the south a marble Renaissance wing by B. W. Morris, 1910; and to the east a marble contemporary building by Morris & O'Connor, 1933.







Under the guidance of architects Huntington, Darbee & Dollard, the building will be given a major exterior and interior face-lifting to lend it more architectural unity and to bring it in line with current fire regulations. Present plans call for complete rebuilding of the 1893 Tudor structure on the north. The other structures will be preserved with some minor alterations; and the interior will be completely remodeled, but will incorporate some of the original carved bookshelves, cases, and trim. What is now a lightwell, in the center of the four structures, will become a sculpture court. Besides unifying the two wings that flank it, the new structure must conform with landscaping done by Sasaki, Walker & Associates. The architects have suggested an echo of the blocky towers of the 1840 wing in this design of large square supporting piers for the central structure; the tower's crenelations are picked up in the sunbreaks, which will protect skylights. Paired pilasters used as a decorative element in the 1933 wing become structural elements in the addition. The façade will be concrete and marble with gray glass windows set in bronze-colored aluminum frames.

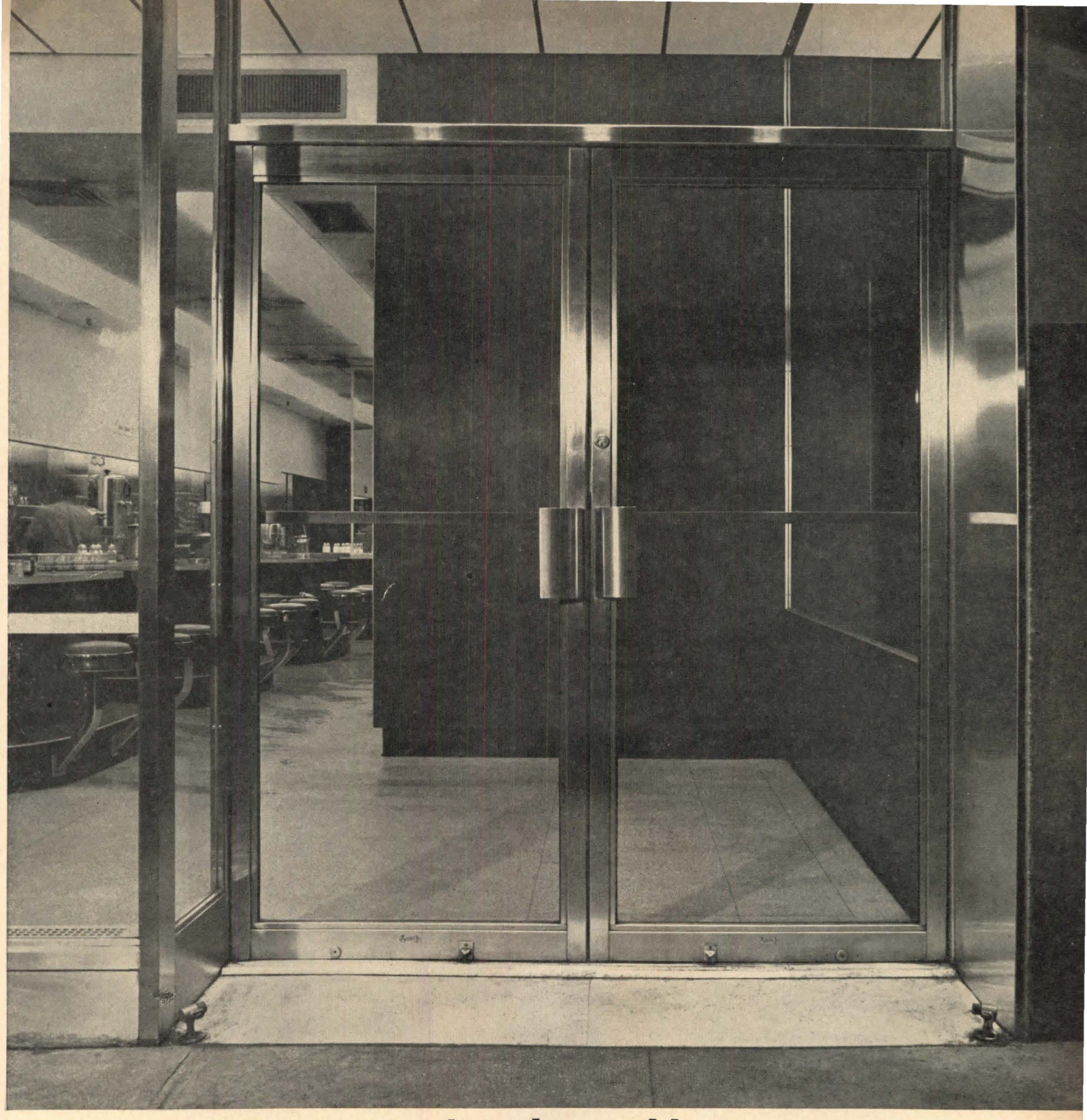
WASHINGTON/FINANCIAL NEWS

BY E. E. HALMOS, JR.

Architects have a broad stake in the general re-examination of foreign policy that is now preoccupying the men on Capitol Hill.

The reason is Congressional concern with the export of technical knowledge of all

This trim beauty



stops 'em cold

Steel vs. Steal . . . and the challenger lost. This is the door to a restaurant in one of New York's most successful chains—Chock Full O'Nuts. You'd never know that would-be burglars tried to jimmy it a few days before these pictures were taken. The door is stainless steel. The burglars didn't get through because of the toughness of this fine architectural metal. The minor damage was repaired the next day without removing the door. Today it's as good as new.

The problem of good design and maximum safety has always been a challenge to owners and designers of entrances for commercial and monumental buildings. This restaurant found the practical answer in low-cost stainless steel doors and frames, manufactured by The Alumiline Corporation, Pawtucket, R. I., from stainless steel provided by Jones & Laughlin Steel Corporation.

If you have a design idea that involves stainless doors and entrances, contact The Alumiline Corporation. For further information concerning stainless steel, let us refer you to our Architectural Services.

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STAINLESS Stainless and Strip Division • Detroit 48234

kinds: The State Department and the Administration have advanced the idea that American products and know-how may produce a chink in the ideological armor of Communist - dominated countries; many businessmen seem to favor this approach, with an eye on expanded business. But there's an equally strong belief that such exports won't really do any good—that Moscow will simply use all exports to any of their satellites for their own gains and to advance their own technological abilities.

What has brought the construction industry — and with it, architects and engineers— into the picture are a couple of related moves: a reported interpretation (by the State and Commerce Departments) of the existing Foreign Agents Registration Act that would require professionals to list themselves as "foreign agents" when they work abroad; and another interpretation (now being fought by contractors) that would force U.S. builders working abroad to obtain written guarantees that the *products* of the plants they build— as well as the plants themselves—won't be shipped to Communist countries.

The fight on registration is being spearheaded—as it was (with no success) last year— by the consulting engineering groups. Their vehicle is an attempt to amend existing law to provide a specific exemption for professionals. Despite presentations before the Senate's Foreign Relations Committee on a pending bill (S. 693), the committee didn't seem too eager to include such specific exemption language.

Data Bill

On the national level, one of the more important bills so far introduced that doesn't concern appropriations may be S. 949, which calls for establishment of "State Technical Services" headquarters, at an initial cost of about $10 million.

Idea is a parallel to the very successful "extension service" of the Department of Agriculture—except that, in this case, extension agencies would disseminate scientific and engineering information for the use of local industry and individuals. Centers would be set up at college and university schools of engineering.

Key question, not clear in the bill: Who would decide what sort of information is to be disseminated?

Intergroup Activities

The AIA finally got most of what it wanted in the organization of industry coordination committees — but not without heavy grumbling by engineers and contractors, and not without some concessions.

What the AIA got was what it called "improvements in structure and a change in name" of the AIA-Engineers Conference Committee (now called the Architect-Engineers Liaison Committee); and establishment of a new "Building Construction Coordinating Committee." The liaison group is to provide close interchange among top levels of three member groups: AIA, Consulting Engineers Council, and National Society of Professional Engineers. The BCCC will provide more general liaison among six organizations: AIA, CEC, NSPE, the Council of Mechanical Specialty Contracting Industries, the Producers' Council, and the Associated General Contractors, on problems of building construction.

But AIA had to make a number of concessions when engineers and contractors objected loudly to what they considered a take-it-or-leave-it attitude on AIA's part when it proposed the changes unilaterally; and a slighting of the other groups in management of the committees and in their professional capabilities.

Among the concessions: Dropping the name "AIA" from the liaison commission title, and equal representation for all members with two members each (previously, AIA had four representatives, the others two each); agreement to consider other members in the BCCC, after about a year's time, to recognize the influence of specifiers, landscape architects and the like.

A two-day series of conferences in Washington resulted in a surface appearance of calm and cooperation, but there were still unhappy rumblings from general contractors and others.

Air Revises

Federal Aviation Agency has revised its regulations (Part 77)—effective May 1—concerning structures that might adversely affect air navigation. The revision also consolidates FAA obstruction standards and streamlines procedures for determining the effect of proposed structures on air operations.

For example, the regulation requires that the FAA be notified of any proposed construction that would extend more than 200 ft above site ground level (previous regulations set the height limit at 150 ft), exceptions will be permitted when existing structures or terrain shield the new building, or when the proposed structure is in the congested area of a city "where it is evident beyond doubt" that the construction will not adversely affect air navigation.

Another note from FAA: A revised guide on design of heliports is now available, free of charge, under the title of "Heliport Design Guide." For a copy write on your letterhead to FAA distribution section, HQ-438, Washington D.C. 20553.

Casting the First Stone

Vermont's Senator George D. Aiken succeeded in escalating a matter of home-state pride into a national issue by using the Senate floor to expound the virtues of granite and marble and inveigh against the use of architectural concrete in Government buildings.

Taking off from the troubles with concrete at the newly completed Stadium in the Capital (where reaction of curing agents with aluminized conduits has been blamed), Aiken then singled out Saarinen's prize-winning (though so far financially unsuccessful) Dulles airport in nearby Virginia as his horrible example.

He said that the three-year-old administration building at the airport — whose soaring columns and suspended roof have won many prizes and much comment for its design —was developing fine cracks in the distinctive pylons.

Aiken was careful not to say that the cracks were dangerous, but claimed they were "causing worry." (Airport officials admitted the fine cracks, said they were a characteristic of concrete, posed no danger to appearance or safety of the structure).

With this as a starter, the Vermonter took off after the Washington Fine Arts Commission, which he said had now decided that all new Government buildings would be of concrete (he said "cement") — not of "classic marble, limestone and granite . . . ." He was joined in the protest by Georgia's Senator Talmadge (whose state also supplies building stone).

The Fine Arts Commission flatly denied any favoritism for "cement," but said it approves building designs, not materials.

Financial

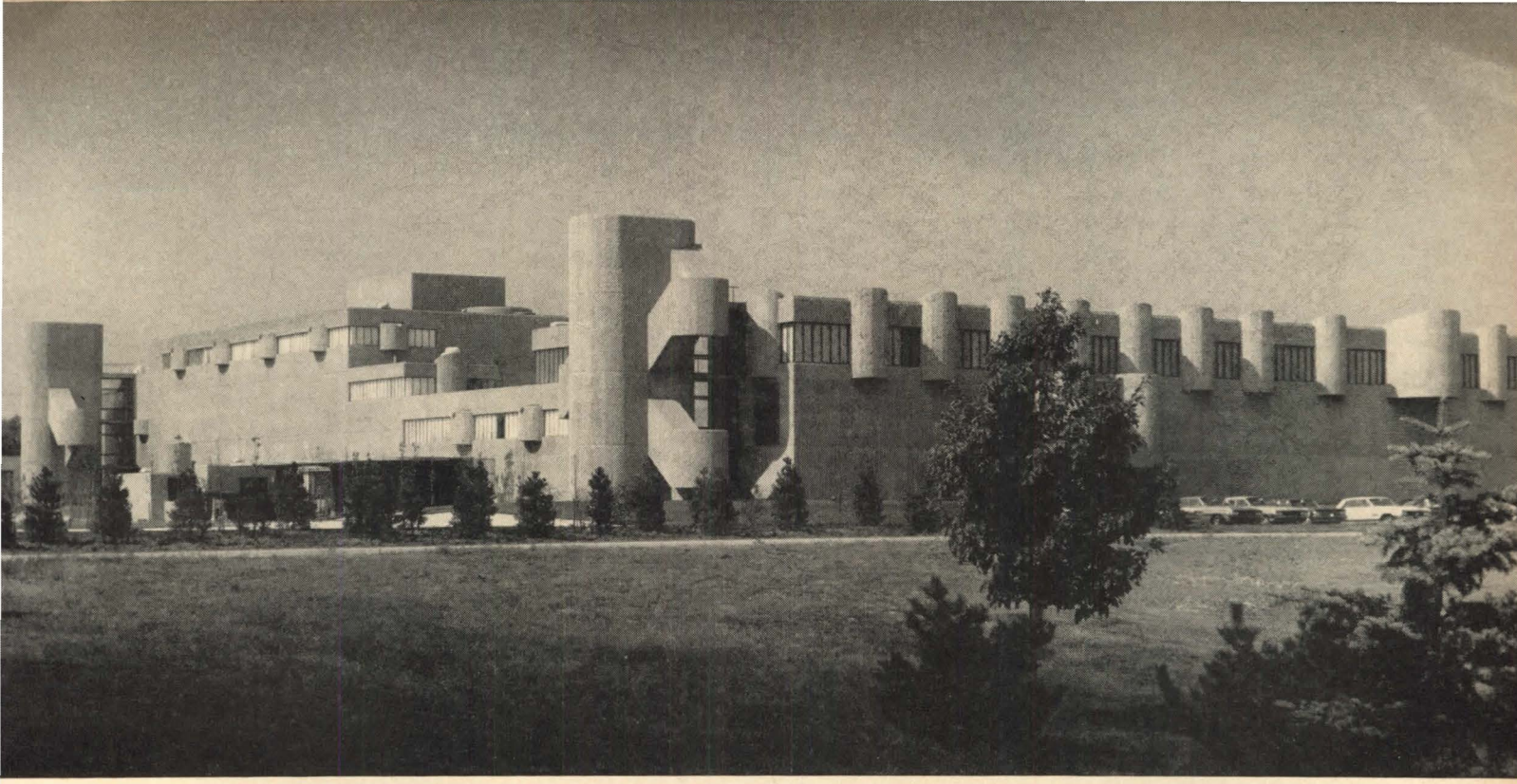
The new year seems to have started well — and about as predicted — for the construction industry. Census Bureau said that value of total new construction put in place in January was $4.8 billion—up about 4 per cent over that a year ago.

However, most of the gain was accounted for by public construction and nonresidential buildings. Housing continued to look a little sick: In January, the number of privately owned units started was at a seasonally adjusted rate of 1.487 million units — down 7 per cent from December, and down 13 per cent from a year ago.

Recognizing the continuing interest in the state of housing's health, the Federal Housing Administration said it would henceforth make public its periodic market analyses of the field "as a pubilc service."

Construction costs were in an uncertain state, too, and will bear close watch. In the final quarter of 1964, for example, the Bureau of Public Roads' quarterly cost index jumped 1.4 per cent (after a 3 per cent rise in the third quarter) to push that indicator close to an all-time high. Biggest factor was cost of steel. But in the final month of 1964, the Public Health Service's treatment plant cost index inched very slightly downward — from 110.73 in November to 110.68 in January.

A further indicator of instability was FHA's monthly average secondary market price on new-home mortgages, which held at $98.6 per $100 in February, after a slight rise in January. It indicated a slight tightening of available money for construction loans.



ENDO PHARMACEUTICAL CENTER, Garden City, N. Y.; Architect: PAUL RUDOLPH, New Haven, Conn.; Structural Engineer: HENRY PFISTERER, New Haven, Conn.; General Contractor: WALTER KIDDE CONSTRUCTORS, INC., New York; Concrete Subcontractor: CENTRAL CEMENT FINISHING CO., INC., New York; Ready-Mixed Concrete: COLONIAL SAND & STONE CO., INC., New York.

Rudolph's award-winning concrete "castle"

This remarkable new concrete structure in Garden City, N. Y. is the $4-million administrative, research and production center of Endo Laboratories, Inc. Blending function and form in a creative environment both inside and out, it was named "Concrete Building of the Year" by New York's Concrete Industry Board.

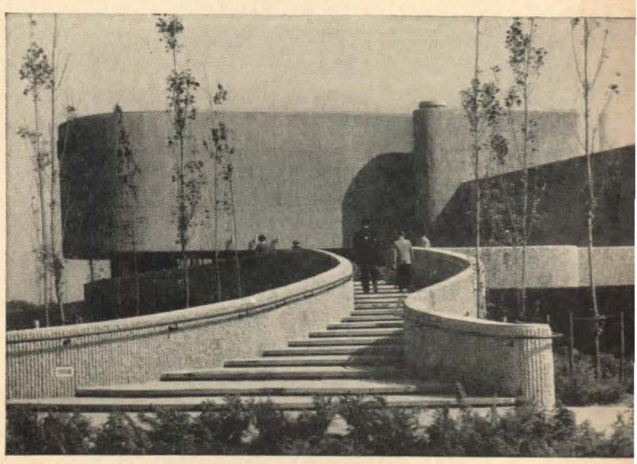
Designed by architect Paul Rudolph, the fortress-like structure has turret projections on the outside which serve as skylit alcoves for offices and laboratories on the inside. Staircases and animal exercise runs are separate elements. Curved entrance ramps and windowless facades add to the striking castle effect.

Vertically ribbed, exposed-aggregate concrete dominates 90,000 square feet of interior and exterior finish—a sparkling new surface texture for an age-old material. Close color control, strength, and durability of the concrete were essential to produce this unusual surface texture.

Lone Star Portland Cement was selected after careful research by the architect and builders, and was used exclusively throughout the project.

LONE STAR CEMENT CORPORATION
New York, New York 10017

Corduroy-like texture was achieved by casting a stiff concrete mix in special forms built at the site. The 1½" fins were knocked off ½" to ⅔" by hand bush hammering, alternating left and right blows, to leave ridges of exposed aggregate. For uniform color, separate bin storage was provided for the Lone Star Portland Cement and selected aggregates.



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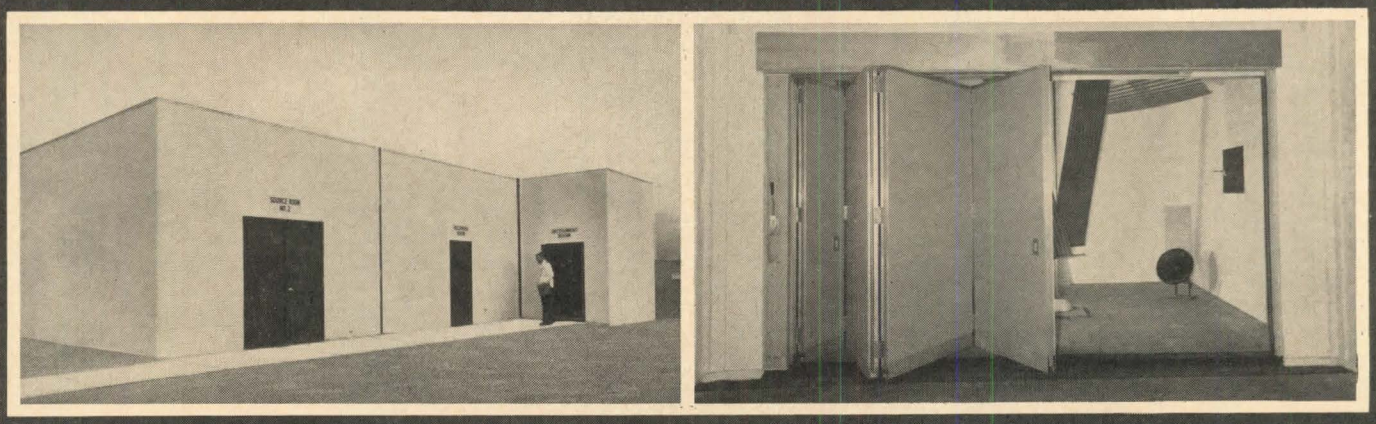
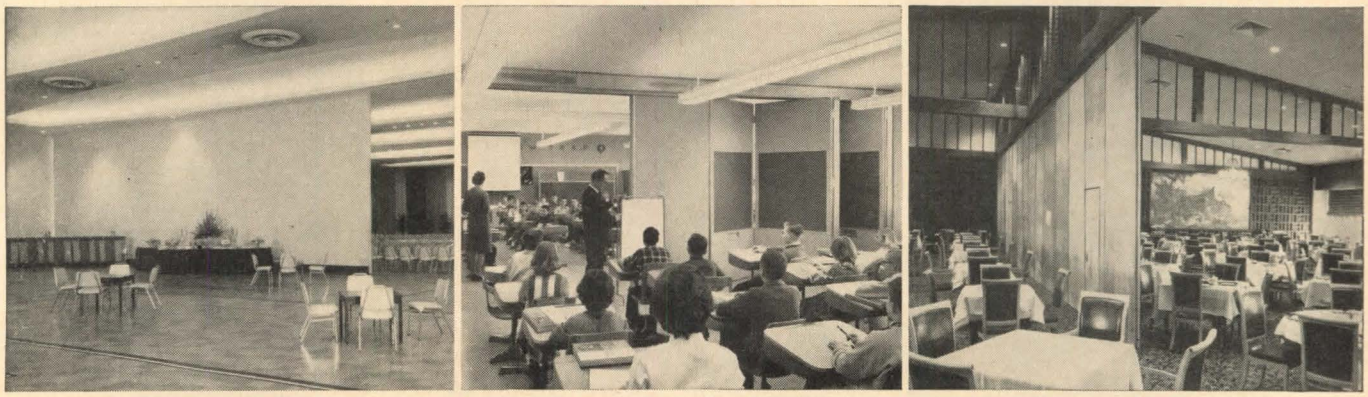


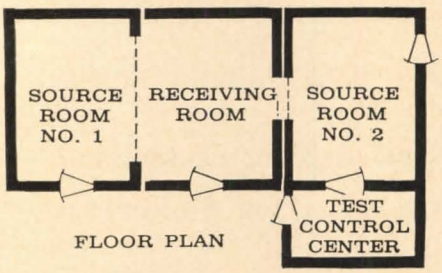
to protect dollars you invest here!



Typical installations of Richards-Wilcox Folding Partitions

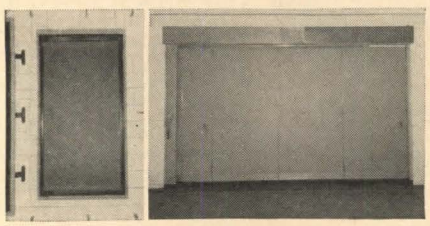
New sound laboratory permits a continuous research program to improve sound retarding techniques

The photos, left, illustrate an important new Richards-Wilcox customer-service facility—a Sound Testing Laboratory constructed to meet ASTM requirements. It was built under the consulting guidance of the Riverbank Acoustical Laboratories of the Illinois Institute of Technology, Research Institute. After completion the laboratory was calibrated for sound tests by Bolt, Beranek and Newman Inc.



FLOOR PLAN

This floorplan illustrates how the laboratory is actually three individual buildings separated by insulating air spaces to eliminate sound transference from chamber to chamber. The major purpose of this modern up to date facility is to, by development-testing, improve the sound retarding qualities of the individual panels used in the construction of Folding Walls . . . and



the complete Folding Wall installed as it would be on-the-job to meet sound barrier requirements.

Another R-W First . . .

To our knowledge, this Sound Testing Laboratory is the only one ever built by a manufacturer of folding partitions to assure customer satisfaction in the sound retarding qualities of his product . . . and is one of only three test labs in the United States where tests of this magnitude can be conducted.

ASTM Test Standards . . .

Without exception, sound tests for product evaluation are conducted to conform with ASTM testing procedures. *All sound tests for product certification will be conducted and certified by recognized independent testing organizations such as those previously mentioned.*

Why a sound laboratory . . .

The constant availability of a test facility such as this enables R-W Engineers to conduct immediate, scientific tests on individual panels and prototypes of assembled walls to determine their true sound retarding qualities. In addition it provides a laboratory large enough so that an independent testing organization can move in and make tests for certification of complete R-W Folding Walls and their very important perimeter seals to evaluate the on-the-job sound retarding quality.

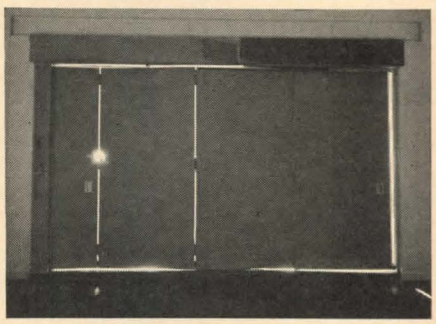
Sound Test evaluations permit the design and construction of R-W Folding Partitions that are custom-engineered to provide the sound retarding quality desired and compatible with the surrounding construction for each specific installation.

Documentary Film Available . . .

A full color, 10 minute documentary film showing how sound tests are conducted has been produced and is available for your viewing. Test sequences and sounds were filmed and recorded just as they were generated for the tests.

The short time required to view this film should prove to be of definite value to anyone involved in the specification and purchase of a Folding Partition or Movable Wall.

One very interesting sequence was filmed with the front or receiving chamber in complete darkness and the adjoining source chamber brightly lighted. As the mechanically actuated perimeter seals are released you can almost see as well as hear the sound coming through the resulting cracks.



This exciting sequence offers graphic evidence that over and above sound-retarding panels the complete Folding Wall must be equipped with a positive perimeter seal to effectively retard sound transmission.

We would appreciate the opportunity of showing you this film at your earliest convenience—just contact us indicating your interest. In addition, we would be happy to send you a copy of our latest Folding Partition Catalog for your file.

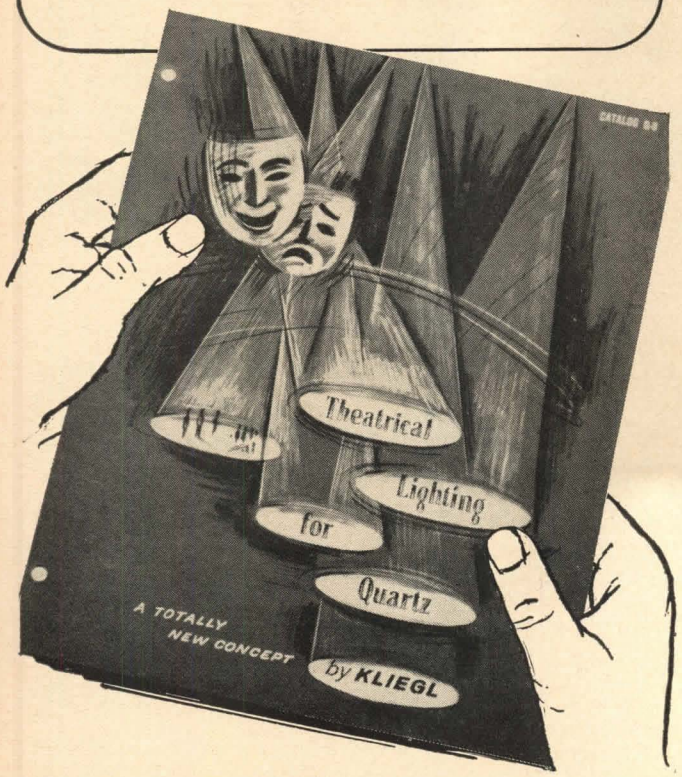
HUPP
CORPORATION

RICHARDS-WILCOX DIVISION
120 THIRD STREET • AURORA, ILLINOIS 60507

On Readers' Service Card, circle No. 472

Just off the press!

"THEATRICAL LIGHTING FOR QUARTZ"



Filled with revolutionary new lighting devices, specially developed by Kliegl Bros. to utilize the new line of quartz-iodine lamps, this new catalog lists, describes and offers not only unit specifications but suggested application and operating advantages, as well.

Another Kliegl First—no one in the industry has such a broad and thoroughly field-tested line of quartz lamp devices as Kliegl. With three full years of intensive engineering and development, plus hundreds of "proved out" installations for your ready reference, these new devices, all included in this new Catalog Q-8, offer the serious technician and lighting specialist a real "break through" in dramatic, economical lighting.

For the name of your nearest Kliegl Representative and a copy of Catalog Q-8, write today.

lighting

KLIEGL BROS.

Originators and Manufacturers of Klieglights
32-32 48th AVE., LONG ISLAND CITY 1, N.Y.
Phone: Area Code 212, ST 6-7474

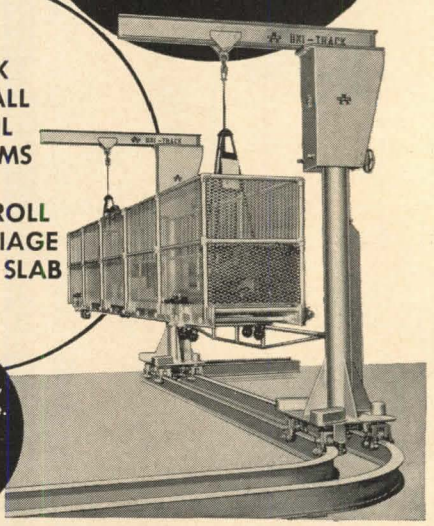
S-0064

On Readers' Service Card, circle No. 369

ALBINA ®

"UNI-TRACK"™ and "CLIMBER"® POWERED WINDOW WASHING SYSTEMS

• *Illustrated*
ROOF DECK
PARAPET WALL
GUARD RAIL
TRACK SYSTEMS
and
FOUR WHEEL ROLL
AROUND CARRIAGE
FOR CONCRETE SLAB



Write for 12-page, illustrated brochure. AIA-35-J7 *Specifications included*

ALBINA ENGINE & MACHINE WKS.

2100 N. Albina Avenue • Portland, Oregon 97227

On Readers' Service Card, circle No. 321

New JENNITE J-16 Bulletin

Presents Asphalt Protection Specifications for Architects

Introduced in 1938, slate black Jennite J-16 is the original . . . the world's most widely-used fuel and weather - proof coating for blacktop.

Applied on either new or old pavements . . . driveways, parking lots, airfields, play areas, etc., it seals in vital oils of the paving mix, seals out frost and water . . . retards drying action of the sun, stops oxidation, eliminates destructive damage of gasoline and oil, keeps surfaces free of dangerous, loose particles. Jennite J-16 is economical, tough, easy to clean, long lasting.

A new bulletin (also bound into Sweets) describes many types of Jennite J-16 applications. It also lists short specifications for architects. Write for Bulletin 1435-L.

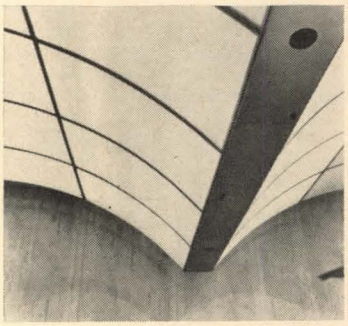
Maintenance Inc., Wooster, Ohio.

On Readers' Service Card, circle No. 378

Construction

Scalloped Roof Lighting System

Lighting system has been designed by Walter Dorwin Teague Associates for use with the scalloped ceiling in the lobby (50′ x 25′) of the Administration Center of the Longwood Gardens in Kennett Square, Pa. Carved 4′ x 6′ acrylic plastic panels are placed 1′ ⅜″ from the scalloped concrete ceiling. From the center line of the panel to the finished floor is 15′ 2⅝″. Panels are hinged at one side so that they can be swung down for cleaning and relamping. Each scalloped roof section contains four panels across and five deep—20 panels in each. Each



4′ "Fluor-O-Trough" lighting fixture uses one 40w fluorescent lamp (300 lamps total) that are not only set at varying levels but are also placed at an equal distance from the panels. Foot candle level is either 100 or 200—100 using half the lamps and 200 using full lamps. There are 150 lighting troughs in each section that are set in 30 rows with five in each row. By using standard lighting, aluminum, and plastic components, the cost ($18 per sq ft) was a reduction of almost one-half of the original estimate. Panels manufactured by Colonial Plastics, Newark, N. J.; "Plexiglas" supplied by Rohm & Haas of Philadelphia, Pa.; metal frames and supports manufactured by Paneltrol of Wilmington, Del.; and lighting fixtures by Gotham Lighting Corp. of Long Island City, N.Y. Inquiries should be directed to Walter Dorwin Teague Associates, 415 Madison Ave., New York, N. Y.

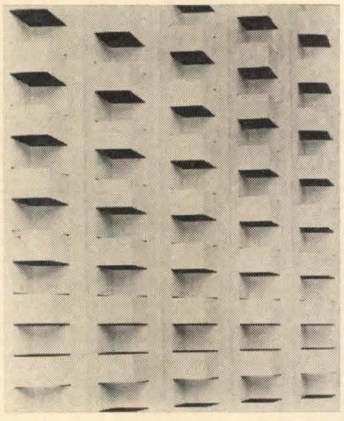
On Readers' Service Card, Circle 100

Nuclear Wood

According to manufacturer, recently developed wood is harder, stronger, more resistant to abrasion and water, and has better appearance than natural wood. Called "Lockwood," it is produced by impregnating such woods as pine, oak, maple, birch, fir, poplar, with liquid chemical. Then the chemical is hardened into the wood by irradiation with a nuclear reactor. Lockwood can be dyed in decorator colors by incorporating dye in the chemical that penetrates the wood. It can be used as flooring, wall paneling, door and window frames, furniture, and cabinets. Lockheed-Georgia, Dawsonville, Ga.

On Readers' Service Card, Circle 101

Texture Aluminum Panel



"C/S Alumatex" is series of deep formed textured aluminum panels. Each of three basic patterns provides 6″ modules in horizontal dimension, 2″ modules in vertical dimension, and nominal 3″ depth. Panels of .050 gage weigh 1 psi and panels of .081 gage weigh 1.6 psi. Panel may be installed either horizontally or vertically in system of specially designed framing sections. It can be combined with horizontal and vertical framing members or used as continuous installation. Finishes range from mill, etch, and lacquer to 12 different "DuraColor" coatings, clear or gold anodizes, hardcoat anodizes, and "Tedlar" color film. Construction Specialties Inc., 55 Winans Avenue, Cranford, N.J.

On Readers' Service Card, Circle 102

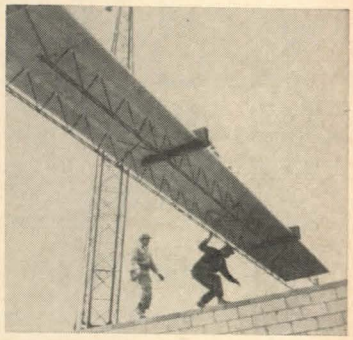
Epoxy/Stained Glass

Recent development in producing of stained-glass windows consists of replacing lead stripping with modified epoxy resin bonding material called "Rezklad" (manufactured by Atlas Mineral Products Div., Electric Storage Battery Co.). Epoxy resin eliminates releading, rebracing, and rewaterproofing. Techniques can be used in any design and with any thickness of glass. Fabricating process: Solid sheet of glass is used as backing. Smaller pieces of stained glass are cemented to solid sheet, leaving open spaces between them. Finally, open spaces are calked in with epoxy resin. Rezklad is unaffected by normal temperature fluctuations, maintaining bond strengths over 1400 psi through range of 42 F to 130 F. Cost of the process is slightly higher than conventional methods. Stained Glass Associates, P.O. Box 1531, Raleigh, N.C.

On Readers' Service Card, Circle 103

Prefab Insulated Roof System

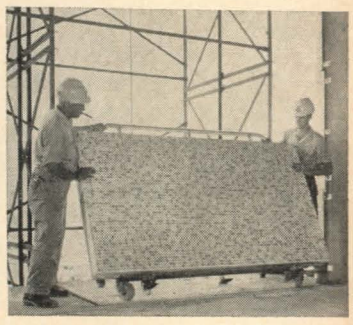
Prefab bar joist is cast into perlite concrete roof-deck (manufactured by Great Lakes Carbon Corp.). Perlite replaces conventional sand and gravel concrete for slab decks and increases insulation over uninsulated conventional portland cement and gypsum concrete slabs. Eliminating concrete webs necessary in prestress design reduces weight. By using open-web joists, lath and plaster or other ceiling systems can be added to the deck. Manufacturer states that problems caused by uneven or excessive camber in other concrete joist systems are eliminated because prefab method is poured dead level. Slabs are cast in lengths of from 20′ to 40′, 4′ wide, and 3″ thick. Allowable live loads range from 40 to 58 psf with total dead weight for system,



including built-up roof, ranging between 25.5 psf and 28.4 psf, depending on span. Joists (according to Steel Joist Institute specs) are placed 2′ for both floor and roof slabs. At present, distribution of these slab units is limited to within 200 miles of Pennsylvania plant. Clearspan Inc., Catasauqua, Pa.

On Readers' Service Card, Circle 104

Prefab Tile Panels

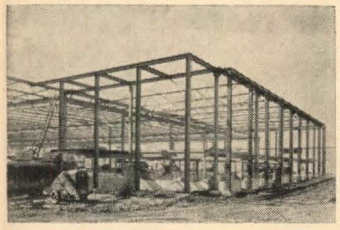


Prefab panels of ceramic tile facing are used in 14-story Banco de Ponce office building in San Juan, Puerto Rico. Mosaic panel walls are 66 per cent lighter than precast materials and weigh 10 to 16 psf, depending on surfacing used. Panel is about one-third the weight of reinforced concrete and has good strength-to-weight ratio. Panels meet requirements for Class A construction by New York City

Board of Standards and Appeals and have two-hr fire rating. Wide variety of materials, such as honed marble, travertine, polished granite, stone mosaic, quarry tile, gaged slate, flat or raised aggregates and limestone, can be applied to insulated or uninsulated cores. Interior surface of panels can be finished with gypsum wallboard, gypsum lath and plaster, or metal lath and plaster. Space is provided to run conduits. Architects can specify size, exterior and interior finish, with or without window units, glazed or unglazed. Matching column covers and thin veneering panels for remodeling work or new construction can also be specified. Curtain-wall panels can be fabricated for use with any building frame system in any normally required dimensions. Mosaic Tile Co., 55 Public Square, Cleveland, Ohio.

On Readers' Service Card, Circle 105

Brown-Textured Steel

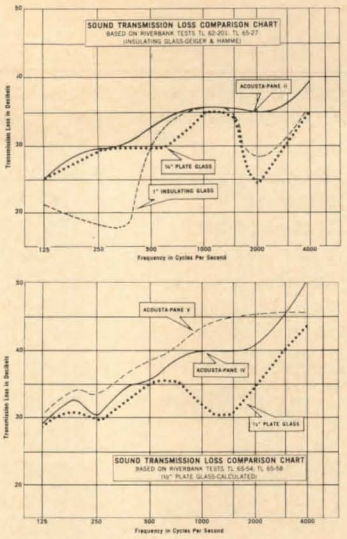


"Mayari R Weathering Steel," a high-strength, low-alloy grade for exposed, unpainted applications has a brown texture. According to the manufacturer, it has minimum yield point of 50,000 psi in thicknesses up to ¾″ (nearly 1½ times that of structural carbon steel); four to six times atmospheric corrosion resistance of carbon steel, and two to three times that of copper-bearing steel; and greater resistance to abrasion and impact. Steel has been used in schools, savings banks, residences, and commercial structures. Bethlehem Steel Corp., Bethlehem, Pa.

On Readers' Service Card, Circle 106

Safety Glass at 42 STC

"Acousta-Pane V," ¾″ laminated safety glass, eliminates more sound than any other single light of glass, according to manufacturer. Glass was specially developed for the Vertical Assembly Building and Sound Control Center at Cape Kennedy. Tests indicate



that Sound Transmission class rating is 42. Glass operates best in critical frequency range between 600 and 4000 cycles and can reduce noise by as much as 50 per cent compared with solid plate glass. It consists of thin sheets of glass laminted with specially formulated interlayers. Unit is available in sizes up to 48″ x 104″ and in sheet or polished plate glass, either clear or in amber tint. Amerada Glass Corp., 3301 S. Prairie Ave., Chicago, Ill.

On Readers' Service Card, Circle 107

Acoustics

Acoustical Fabric for Walls

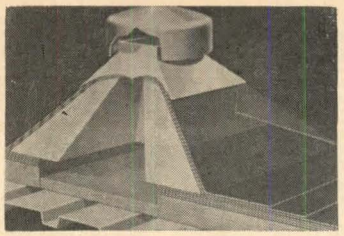
"Hushalon 2," a decorative wall felt laminated to ¼″ foam backing, has been tested, revealing a noise reduction coefficient of .40. Wall covering is flame-resistant, mothproof, and stain-resistant; it is said not to stretch or shrink after application. Hushalon 2 is available in 36 colors plus 16 special-order colors. Central Shippee Inc., 24 West 25 St., New York, N.Y.

On Readers' Service Card, Circle 108

Air/Temperature

Insulated Roof Vent

Permanent roof insulation vent constructed of fire-retardant urethane foam under a heavy gage aluminum cap is built into roof flashing. With average spacing vents will ventilate a six square area so that vapor travel does not have to exceed 30 ft in any direction. Closed cell structure of urethane foam prevents moisture condensation

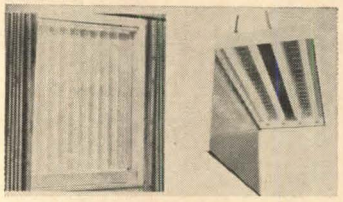


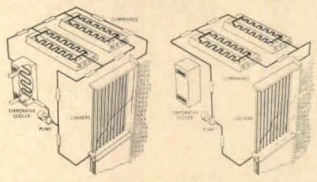
from forming inside vent. O. O. McKinley Co., Inc., 4530 N. Keystone Avenue, Indianapolis, Ind.

On Readers' Service Card, Circle 109

Water Insulation

"Lite-Therm" is lighting, heating, and cooling combined into one system that uses nonrefrigerated water to control solar and artificial lighting heat loads before they enter occupied space. Nonrefrigerated water is circulated through the lighting fixtures and vertical louvers



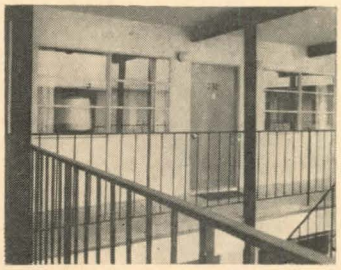


located inside the building adjacent to the exterior glass areas. Water absorbs solar and artificial lighting heat and rejects it through evaporative cooler located outside the building. Lite-Therm is controlled through valves in water system that operates in conjunction with room thermostats. Lighting fixtures differ from conventional ones in that they have embossed water tubes integral with reflector housing through which nonrefrigerated water is circulated. As water recirculates, it picks up heat from lamps and ballasts. Louver finishes included various anodized colors, vinyl covering, or paints of any desired color. Luminaire can be furnished for either recessed or surface mounting with variety of shield mediums. Environmental Systems Corp., Subsidiary of Lithonia Lighting, Conyers, Ga.

On Readers' Service Card, Circle 110

Doors/Windows

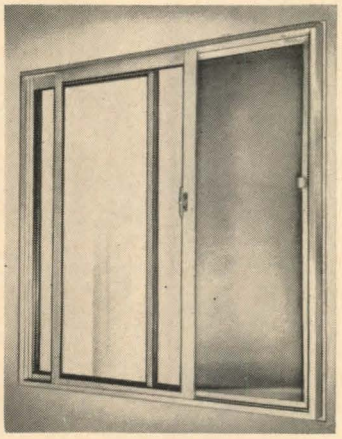
Automatic Closer for Fire Windows



Series "'TC720' Steelbuilt" fire windows feature automatic nonremovable closer complying with existing code requirements. Sliding panel slides in stainless-steel ball-bearing rollers on track that eliminates side play. Installed in the head section, closer is automatically triggered by temperatures above 165 F. Windows are approved to meet code class "E" and "F" applications. Pasadena Engineering Corp., 3270 E. Foothill Blvd., Pasadena, Cal.

On Readers' Service Card, Circle 111

Reversible Door

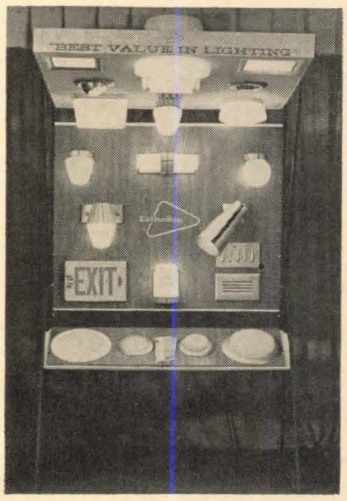


Series "400 Reversible DorWal" has floating interlock that permits installer to change the handling of any panel on site. "Cam Action" jamb enables panel to glide firmly against weatherstripping. Flat sill permits DorWal to set on subfloor, finished floor, carpet, tile or concrete without need for molding or additional trim. Variety of sizes and styles are available with one, two, three, or four moving panels sized to

fit all openings in all types of construction. Acorn Products, 10026 Puritan, Detroit, Mich.
On Readers' Service Card, Circle 112

Electrical Equipment

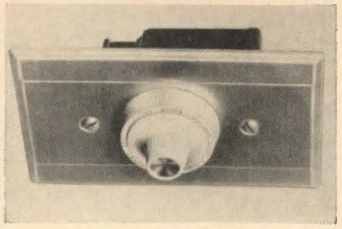
Incandescent Lighting



Lithonia Lighting, Inc., has entered the incandescent lighting fixture field to complement their line of fluorescent lighting fixtures. Incandescent line includes recessed square fixtures with either horizontal or vertical lamps; recessed round fixtures; square or round fixtures which attach below ceiling surface; pendant globes; two types of decorative "kast" fixtures for wall or ceiling; exit signs; bullets and aisle lights. Reflector of square fixtures is positioned and pushed into ceiling with one movement. It remains locked into and aligned with ceiling surface by "Ratch-Latch" device, which eliminates starting screws or nuts. Lithonia Lighting Inc., Box A, Conyers, Ga.
On Readers' Service Card, Circle 113

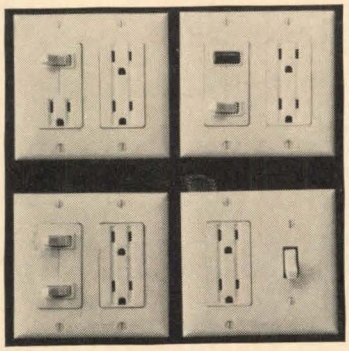
A Dim View

UL-listed 600w "Infinite-Range Dimmer" provides continuous range from zero to full bright, immediate switching to preset position, and convenient on-off control. "No. 6670" replaces any ordinary single-pole switch and is equipped with large-head terminal screws for easy installation. Modularized components resist shock, heat, cold, and humidity. Other features include built-in radio/TV filter, large heat-sink for cooler operation, definite on-off positions, and use of standard wall plates. Dimmer is rated at 120v



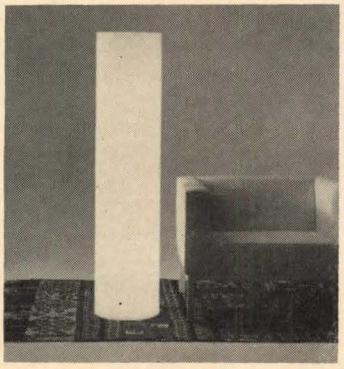
AC (incandescent only). Leviton Manufacturing Co., Inc., 236 Greenpoint Ave., Brooklyn, N. Y.
On Readers' Service Card, Circle 114

Combination Devices



Line of "Medalist" combination devices have AC quiet switches and split circuit wiring. Devices contain break-off feature that permits 16 different wiring applications with only seven catalog numbers. Separate or common feed is available in one device. Other features include 20-carat gold-plated switch contacts, compact body ¼" shallower than other devices, and staked and backed out screws. Slater Electric Inc., 45 Sea Cliff Ave., Glen Cove, N. Y.
On Readers' Service Card, Circle 115

No Switch No Wires



White Lumacryl standing, cylindrical light fixture is revolved 15° to operate battery's invisible on/off switch. Dimensions: 12" diameter x 52" high. Designed by Paul Mayen for Habitat, 336 Third Ave., New York 10, N.Y.
On Readers' Service Card, Circle 116

Finishes/Protectors

Penetrating Finish

"Watco Danish Oil Finish" uses polymerizing chemical formula that penetrates wood, then changes from liquid into permanent solid inside wood. Finish primes, seals, preserves, finishes, and hardens any type of wood in one application. Finish does not "gum out" in warm temperatures, nor chip, peel, or wear away. Watco-Dennis Corp., 1756 22 St., Santa Monica, Calif.
On Readers' Service Card, Circle 117

Protective Wood Coating

"Diothane" is a protective sealer and coating for all wood surfaces. This one component, synthetic resin coating is ready to use and requires no blending, proportioning, or mixing. When exposed to air or when applied to given surface, Diothane sets or hardens by interaction with moisture. It resists ultraviolet rays; fresh and salt water, alkalis, and mild acids; is said not to fracture or chip on impact, and will not scuff or mar. One gal. covers about 400 sq ft of wood surface. Permagile Corp. of America, Commercial St., Plainview, L.I., N.Y.
On Readers' Service Card, Circle 118

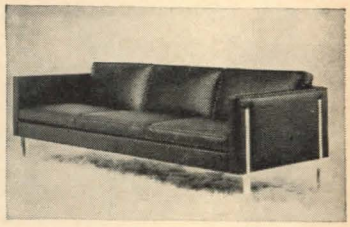
30-Year Coating

"Kynar 500" is a recently developed liquid fluorocarbon resin used as a base for exterior finishes. It can be applied to aluminum or steel. Tests indicate that Kynar 500 has projected life of 30 years or more for exterior siding and building components. It has good weather-, abrasion-, impact-, and fading-resistance. Spray-coated extruded parts used as mullions and window frames can be color-matched to roller-coated wall panels. According to manufacturer, Kynar 500 provides finishes as durable as anodized or porcelainized metals at costs lower than comparable long-life finishes: i.e., Kynar costs 20¢ to 25¢ per sq ft compared to panels protected by porcelain, anodizing, or laminated film which cost from 35¢ to $1.25 per sq ft. Paint companies formulating finishes with Kynar 500 are DeSoto Chemical Coatings, Inc.; The Glidden Co.; Midland Industrial Finishes; Sherman-Williams Co.;

and Pittsburgh Plate Glass Co. Two companies now producing metal building components protected with Kynar 500 are Inland Steel Products Co. and Elwin G. Smith & Co., Pennsalt Chemical Corp., Three Penn Center, Philadelphia, Pa.
On Readers' Service Card, Circle 119

Furnishings

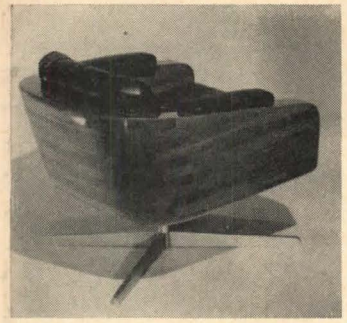
Sleek Sofa



Polished aluminum legs are recessed into the arms of leather-upholstered, foam-and-dacron-filled sofa. Upholstered also in plastic or fabric. Designed by Jules Heumann for Contract E Series of Metropolitan Furniture, 950 Linden Ave., South San Francisco, Calif.
On Readers' Service Card, Circle 120

Flair for Textures

Stuart John Gilbert's designs for a young Chicago firm reveal high craftsmanship and a flair for textures. Executive lounge chair #402 (1) is constructed of lacquered, laminated mahogany with tufted leather seat and back, and solid stainless-steel base with swivel mechanism. Dimensions: 28½" wide, 30" deep, 28"-33" high. Armless lounge chair (2) is an all-welded stainless-steel struc-



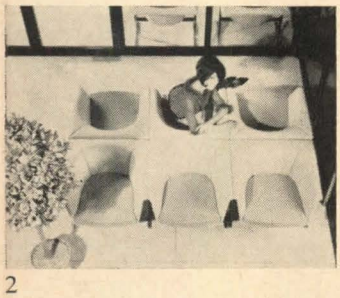
1

2

ture with black leather sling support straps and natural leather cushions. Dimensions: 28½″ wide, 28″ deep, 31½″ high. John D. Williams Co., Merchandise Mart, Suite 1185, Chicago 54, Ill.
On Readers' Service Card, Circle 121

Dutch Imports

1



2

French designer Pierre Paulin's version of the bucket chair takes an interesting form **(1)**, tubular frame is upholstered in "Lisboa" or "Syntillon" fabrics over foam rubber. His other chairs include pressed shells supported by metal pedestals or separate legs. British designer Geoffrey D. Hardourt's occasional chair **(2)** was detailed for unit arrangements. A metal frame supports an upholstered pressed shell. Chairs are from an import line manufactured by Artifort of Holland and distributed by Monarch Furniture Co., 667 Ward Street, High Point, N.C.
On Readers' Service Card, Circle 122

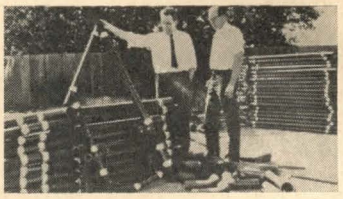
Outdoor Furniture

Extruded, hollow plastic slats are hung on metal cable from tubular steel frame. Four two-color combination choices of slats; baked enamel frame in white or olive. Samsonite Outdoor Furniture, 1050 South B'way, Denver, Colo.
On Readers' Service Card, Circle 123

Sanitation/Plumbing

Sanitary Pipe System

"Hubless Cast Iron Sanitary System," according to manufacturer, saves in over-all cost and



protects residences against failure of system from corrosion or penetration of roots for 50 years or more. "CI-No-Hub" joint uses neoprene gasket and is tightened with stainless-steel worm drive clamp. This air- and fluid-tight seal absorbs vibrations and withstands sudden shocks as well as marked deflections. Hubless cast iron soil pipe and fittings are available in 2″ and 3″ sizes so that they can be installed in 2″ x 4″ wall or partition without furring. Cast Iron Soil Pipe Institute, 1824-26 Jefferson Place, N.W., Washington, D.C.
On Readers' Service Card, Circle 124

Special Equipment

Suspended Filing

"Accolateral" combines shelf filing and suspended filing. It is said to save as much as 60 per cent of square footage required for drawer file cabinets.

Folders slide on built-in channels. Each modular unit has filing space for about 70 folders, which is 40 per cent more filing capacity than standard file drawer containing 50 hanging folders. A 4″ base, as well as doors, are available. Six-tier unit provides filing space for about 400 folders, which is 100 per cent more filing capacity than conventional four-drawer filing cabinet housing 200 hanging folders. Acco International, Ogenburg, N. Y.
On Readers' Service Card, Circle 125

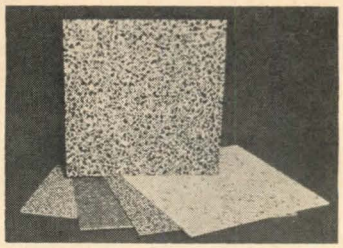
Nondirty Whiteprints

"Diazotex" base sheet for construction whiteprints is not affected by mud, rain, or oil. Sheets dry without wrinkle, curl, or snap-back. Diazotex can be printed in any commercial diazo equipment that develops by dry process. Kimberly-Clark Corp., Neenah, Wis.
On Readers' Service Card, Circle 126

Surfacing

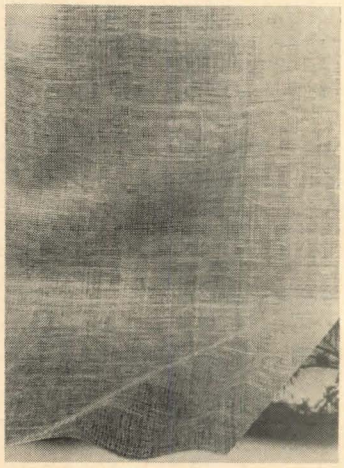
Ft Sq Terrazzo

Added to line of 9″ x 9″ x ⅛″ terrazzo with #1 marble chips is 12″ x 12″ x ⅛″ tile with #2 marble chips. Both sizes are available in 10 patterns as well



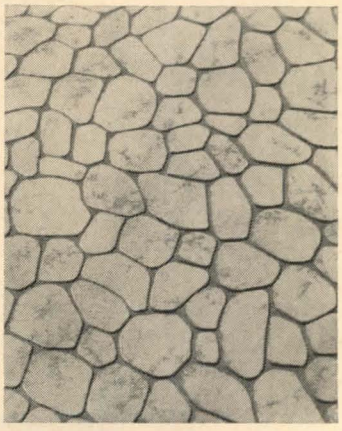
as special order patterns. Terrafino Corp., Carlstadt, N.J.
On Readers' Service Card, Circle 127

Textured Wall Vinyl



Textured vinyl pattern of "Vicrtex" called "Barbados," is reminiscent of net screening used in tropical islands. It is available in 19 colors and is among 50 standard patterns offered by L. E. Carpenter & Co., 350 Fifth Ave., New York, N.Y.
On Readers' Service Card, Circle 128

Sculptural Floor Vinyl



Recent line of moderately priced all-vinyl flooring designs are three-dimensional. "Arroyo" looks like polished and grouted pebbles. It is available in solid colors with complementary grout combinations; most realistic is white with black grout. The Goodyear Tire Co., Akron, Ohio.
On Readers' Service Card, Circle 129

Architect: Harrison & Abramovitz
General Contractor: George A. Fuller Co.
Lead Work: John F. Abernethy Co.

WHY PHOENIX MUTUAL'S NEW SHIP SAILS IN A LEAD-LINED SEA

Seeing the streamlined grace of its shape (technically a lenticular hyperboloid), it is easy to understand why residents of Hartford call the Phoenix Mutual Life Insurance Company's new 14-story office there "the ship." Its designers created beauty from the same poetic fancy. They launched the building's "bow" into a miniature sea . . . a reflecting pool 140 feet long and 50 feet wide. With garages and file rooms directly below the pool, it took the lasting leakproof qualities of lead to make the architect's inspiration practical. Over 22 tons of lead lining keep the water permanently in place.

This pool is a striking example of the way the virtues of lead have sparked a trend in modern architecture. More and more, designers lend graciousness and interest to buildings by providing pools, fountains, and planters. Water and greenery add a pleasing, human counterpoint to the bare beauty of concrete, glass, and metal.

You can place pools almost anywhere. On a roof or terrace. In a lobby or apartment. Your imagination can roam freely because lead conforms easily to any shape. It lasts forever, and maintenance is nil.

Write now for detailed specifications for pools and planters. We'll gladly give you full technical information on these and other modern architectural applications of lead. Contact: Lead Industries Association, Inc., Dept. N-4, 292 Madison Avenue, New York, New York 10017.

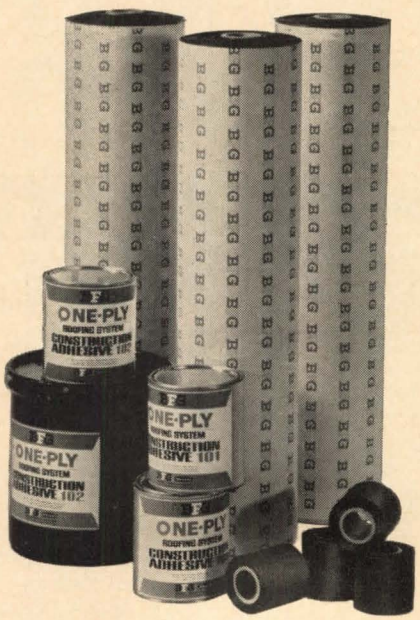
LEAD INDUSTRIES ASSOCIATION, INC.

Look Ahead with Lead

2401

On Readers' Service Card, circle No. 457

This will roof nine squares



. . . so will this

It's BFG ONE-PLY, a complete self-flashing roofing system from B.F.Goodrich. ONE-PLY is made of Hypalon* synthetic rubber backed with neoprene-bound asbestos. Black or white. It's rugged, durable, quickly and easily applied. For roofs of nearly any shape. Lightweight? Nine squares of 4-ply, gravel-surfaced conventional roofing, in place, weighs nearly three tons. Just 365 pounds of ONE-PLY will cover the same area. And ONE-PLY offers big savings in on-site handling and installation costs. Performance? So good it's guaranteed watertight . . . free from leakage . . . for five full years under normal conditions. Want complete information? Just write Building Products Department PA-18, The B.F.Goodrich Company, Akron, Ohio 44318.

BFG ONE-PLY ROOFING SYSTEM

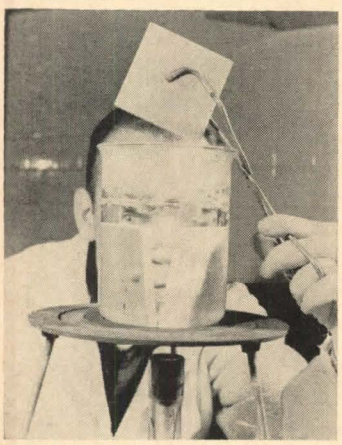
B.F.Goodrich

*Du Pont's Registered Trademark

On Readers' Service Card, circle No. 356

Quality Control Program For Tile

First quality testing and certification program in the tile industry becomes effective this month. Certification mark signifies that tile "equals or exceeds the highest quality standards set forth in Commerce Department Simplified Practice Recommendation R61-61



and Federal Specification SS-T-308B." Color harmony or uniformity, facial dimensions and defects, warping, wedging, crazing, water absorption thickness, and other factors are properties that are tested. Certification "is effective for one year from the date of original shipment by the manufacturer, or up to the time of installation, which ever period is shorter." Tile Council of America, Inc., 800 Second Ave., New York, N.Y.

On Reader's Service Card, Circle 200

Air/Temperature

Cooling/Heating Coils

"Turbaire" cooling / heating coils of four basic types and plate fin-type construction designed for diverse air conditioning applications are the subject of 48-page manual "No. 96-385-A." Complete technical data covers chilled water cooling and hot water heating coils, direct expansion cooling coils, standard steam heating coils, and distributing tube steam heating coils. Included are dimensional data and quick-selection procedures for each type coil, total heat tables, air mixture curves and air friction data. Also included is psychrometric chart for solving air conditioning problems as determining total heat load, sensible heat factor, dew point and relative humidity, apparatus dew point, and mixture of air volumes. Acme Industries Inc., 600 N. Mechanic St., Jackson, Mich.

On Readers' Service Card, Circle 201

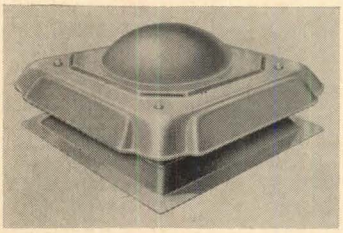
The Thin Fan

"Muffin" fan for heating, cooling, or ventilating features thin width of 1½". It is made of molded, high-impact, flame-retardant phenolic. Air flow is reversible. Fan, 4 11/16" square in size and 1.2 lb in weight, has sound transmission level of 20 to 50 db. Brochure includes details, photos, and charts. Rotron Mfg. Co., Inc., Woodstock, N.Y.

On Readers' Service Card, Circle 202

Vinyl Roof Exhauster

"Unitary Exhauster" is introduced in detail in 12-page brochure. Unit is made of "Hi-Temp" vinyl and has two notable features: fan, curb, and back-draft dampers in one package; and low profile. It is offered in centrifugal belt and direct drive with 72 models in capacities up to 35,000 cfm. Important innovation is mounting of back-dampers on discharge side of exhaust system. Location of dampers, one on each side of square-shaped housing, has five advantages: reduces height by making more space in curb area where dampers are usually mounted; quieter operation by isolating damper flutter out on discharge side; guards against snow and rain entering housing; eliminates bird guards; and permits louvers to be inspected and adjusted from roof



without moving the fan. Capacity and sone value data as well as photos are included. Jenn-Air Products Co., Inc., 1102 Stadium Drive, Indianapolis, Ind.

On Readers' Service Card, Circle 203

Acoustics

Acoustics Manual

Booklet, 36 pages, entitled "The Use of Architectural Acoustical Materials—Theory and Practice" is available. Included are sections on "Sound Reflection in Rooms," "Acoustical Design of Auditoriums," "Sound Conditioning," "Properties of Acoustical Materials," "Sound Absorption Coefficients of General Building Materials and Furnishings," "Types of Architectural Acoustical Products," and "Bibliography." Copies are available at 50¢ each. Acoustical Materials Assn., 335 East 45 St., New York, N.Y.

Construction

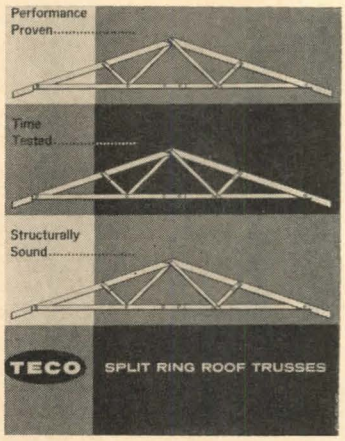
Curtain Wall "Ratchet" Wall

Series of four booklets explain aluminum entrances, storefronts, sliding doors, and curtain walls. All booklets include section details, photos, and specs. Curtain wall features recently developed "Ratchet" prefab aluminum glazed wall system. Serrations or teeth-forming ratch are built into basic grid system to receive outside trim and glass-holding sections. Face section, designed with projecting legs, acts as pawl. Pawl and ratch are tapped together with mallet to form Ratchet system. If necessary, ratch can be dismantled from bottom to top. System is used in low-rise buildings for curtain wall, slab-to-slab construction, storefronts, and partitions. Amarlite, Div. of Anaconda Aluminum Co., P.O. Box 1719, Atlanta, Ga.

On Readers' Service Card, Circle 204

Trusses/Fasteners

Series of data sheets describes structural wood fasteners. Products include "Line-A-Joist" connectors for cantilevered floor framing, "Ty-Down"



rafter anchors for anchorage of roof trusses and rafters, "U-Grip" joist and beam hangers, "H-Clip" plywood supports, "Trip-L-Grip" and "Du-Al-Clip" framing anchors, "Fas-Lok" cross bridging, truss plates for single plane roof trusses, "Wedge-Fit" split rings for roof truss construction, shear plates used in glu-lam and heavy roof truss systems, post caps for 4" x 4" or 4" x 6" post and beam construction, angles used as utility framing devices in fastening wood to wood, and post anchor bases for anchoring 4" x 4" wood posts to concrete slabs. Another series of design sheets discusses bowstring roof trusses built with split ring connectors. Trusses have span range of 30' to 100' in 10' increments. Timber Engineering Co., 1619 Massachusetts Avenue N.W., Washington, D.C.

On Readers' Service Card, Circle 205

Modular Storage Wall

Folder outlines "Storage Wall," a cabinet/wall system that varies in height, width, and depth by modules of 6". Architect specifies desired wall units from manual (available upon request and which includes over 180

TAP-NOK*

all-new **DOOR KNOCKER** *and* **VIEWER** *for daytime—nighttime security*

There's far more than new contemporary design and smartness in this TAP-NOK door knocker by Safe Hardware. Occupants are assured of safety and protection, too . . . with a barely noticeable one-way Viewer that lets the room or apartment occupant see *out* before opening the door to strangers.

The TAP-NOK door knocker is available with or without the Viewer . . . adds a touch of distinction for today's modern apartments, hotels, motels, dormitories—wherever protection and utility are desired.

Engraved letters or numbers as required—wood or metal application. Available in Brass, Bronze, Aluminum.

(*) TRADEMARK

BRAND NEW

No. 2154 TAP-NOK—engraved numbers; 2¼" x 3¼"

No. 2153 TAP-NOK—no numbers; 2¼" x 3¼"

No. V2154 TAP-NOK—engraved numbers and viewer 2¼" x 4 1/16"

No. V2153 TAP-NOK—viewer, no numbers; 2¼" x 4 1/16"

No. 2149 VIEWER— wide vision; adjustable for 1⅜" to 2" Doors.

SAFE HARDWARE
DIVISION OF EMHART CORPORATION
NEW BRITAIN, CONNECTICUT

Gentlemen:

☐ Please send me a free copy of new brochure S-100 describing your all-new TAP-NOK Door Knockers.

☐ Please have your representative call.

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____ ZIP CODE_____

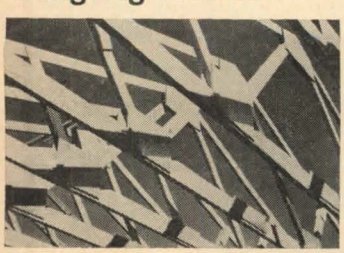
On Readers' Service Card, circle No. 437

arrangements) and then determines modular sizes of units, counter, and work heights. Selected next are sizes and species of wood, top material, and type of hardware. Procedure is then to select proper base height. Finally, exterior finishing panels (sides, tops, or backs) are chosen. Completed units are bolted together with connector bolts or bolts supplied for individual wall requiring no bolting or blocking to existing wall or ceiling. Short form of standard construction specs, several unit arrangements, rough sketch of Storage Wall installation are given. Boyd-Britton Inc., 1406 No. Sandburg Terrace, Chicago, Ill.
On Readers' Service Card, Circle 206

Specifying Gypsum Products

U.S. Gypsum Company has completely changed their concept of presenting technical information to architects. Consolidated 300-page section is organized according to architect's function and end use rather than by manufacturer's product line. By actual case study, according to manufacturer, it has reduced as much as 85 per cent of the time that architects formerly were required to take in selecting and specifying partitions, ceiling systems, roof assemblies, column and beam fireproofing, and exterior wall furring. Products are treated as components of construction assemblies that the architect may compare, select, and specify as a unit. Literature section consists of 20-page construction selector, 37 individual systems folders, and 9 product catalogs, all of which are coordinated and cross-indexed. U.S. Gypsum Co., Dept. 130, 101 S. Wacker Drive, Chicago, Ill.
On Readers' Service Card, Circle 207

Designing Trusses



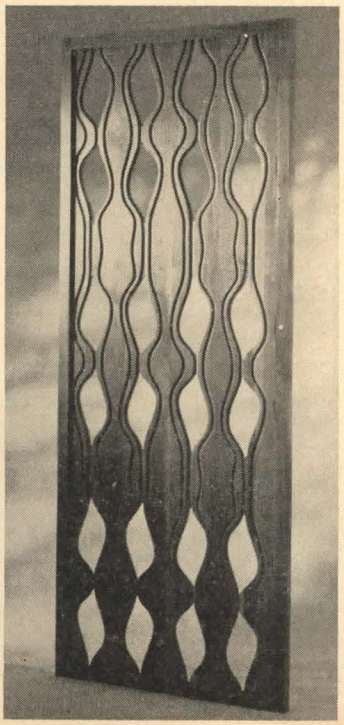
Comprehensive booklet, entitled "Plywood Truss Designs," offers information on trusses ranging in spans from 20′-8″ to 32′-8″. Included are 10 truss designs of which six deal with king-post type and four with W-trusses. According to booklet, advantages of utilizing truss spans with gusset plates is that they save in costs by reducing lumber requirements. Nail-glued trusses require no interior bearing walls, thereby increasing savings in wall framing, floor framing, and foundations. American Plywood Assn., 1119 A St., Tacoma, Wash.
On Readers' Service Card, Circle 208

All That Marble!

"Marble Forecast — 1964/1965" lists all MIA domestic and foreign marble member companies, their types of marble, and color ranges. Also given is group classification that indicates proper method of finishing and size restrictions. Marble Institute of America Inc., Pennsylvania Bldg., Washington, D.C.
On Readers' Service Card, Circle 209

Carved Wood Panels

Carved wood grilles, doors, and panels are illustrated in 4-page brochure. Grilles consist of clear wood strips edge-glued to 2′ x 8′ x ¾″. These panels are then precision carved into open grille designs. Wood doors are constructed of two ¾″ thick panels carved on one side and laminated on ¾″ thick solid core. Door sizes are 3′ x 6′-8″, 3′ x 7′, or 3′ x 8′. Panels are carved on one side for use as decorative walls, ceilings, and other flat surfaces. Stock size is 2′ x 8′ x ¾″. Grilles, doors, and panels are made of walnut, gumwood, sycamore, or redwood. Special sizes, designs, and materials are available upon request. Customwood Mfg. Co., 3620 High St., N.E., Albuquerque, N.M.
On Readers' Service Card, Circle 210



Grading Rules — 1965

"1965 Standard Grading Rules," 279 pages, conforms to American Lumber Standards. Types of lumber covered are Ponderosa Pine, Idaho White Pine, Sugar Pine, Douglas Fir and Western Larch, White Fir, Engelmann Spruce, Lodgepole Pine, Incense, and Western Hemlock. Major addition to book is optional standard detailing stress ratings for lumber up to 2″ thick, dried to a moisture content of not more than 15 per cent (stamped "MG 15") and not more than 19 per cent (stamped "Dry"). Rules book is available at 50¢ per copy. Western Wood Products Assn., 700 Yeon Bldg., Portland, Ore.

4-Hr Core Slab

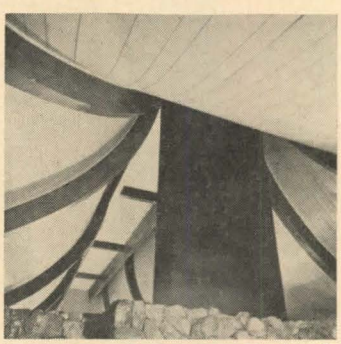
Brochure, 8 pages, presents "Spancrete" prestressed, precast core slab with 4-hr UL fire rating. Spans range up to 48′ with widths at 40″, and depths in 4″, 6″, 8″, and 10″. It can be used with several types of construction: steel bearing, masonry wall bearing, concrete beam bearing, valley roof framing, and pitched roofs. Ceilings can be painted or sprayed with acoustical plaster. With underlayment, floor tile or carpet can be applied with no topping. Section details, safe load tables, and specs are given. Spancrete Machinery Corp., 10909 West Bluemound Rd., Milwaukee, Wis.
On Readers' Service Card, Circle 211

Low-Cost Wood Floor System

"Low-profile Wood Floor System" is subject of "No. 4 Technical Bulletin" based on an investigation to develop new methods of wood-floor construction by NLMA. Test results are contained in detail. First objective was "to develop means to place wood-frame floors closer to exterior grade levels without creating hazardous environmental conditions for wood in reduced underfloor space." According to test results, this method of construction can be accomplished by employing floor-to-ground space as a plenum for heating and air conditioning as well as by applying conventional methods of protecting the lumber. Second objective sought "to lower cost of the floor construction both in amount of materials and in the installation time." Here again test results indicated this can be achieved by utilizing smaller joists and beams supported on appropriately spaced, low-cost piers without footings. Furthermore, by employing the crawl space as a plenum, heating installation costs are reduced. Appropriate section details, floor plans, and charts are given. National Lumber Mfg. Assn., 1619 Massachusetts Avenue, N.W., Washington, D.C.
On Readers' Service Card, Circle 212

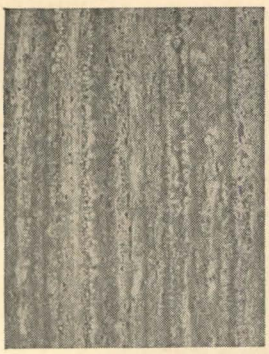
Glu-Lam Beams/Arches

1965 line of "Rilco" laminated wood beams and arches is presented in 20-page color catalog. Shown are uses and details of Rilco members for churches, schools, residences, commercial, and industrial buildings. Catalog provides basic design data on Tudor arch systems, radial arches, tied arches, bowstring truss systems, purlin beam systems, solid timber decking, vertically laminated beams, and laminated decking. Weyerhaeuser Co., Box B 270, Tacoma, Wash.
On Readers' Service Card, Circle 213

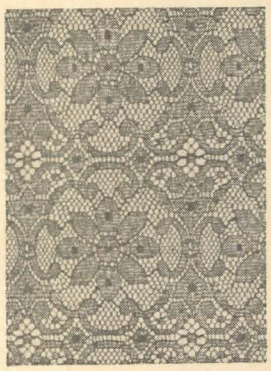


Plastic Sandwich Panel

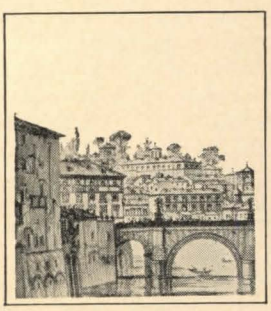
"Capella," a rigid, low-cost sandwich panel is described in 4-page brochure. Panels are produced in acrylic modified polyester resins and glass-fiber



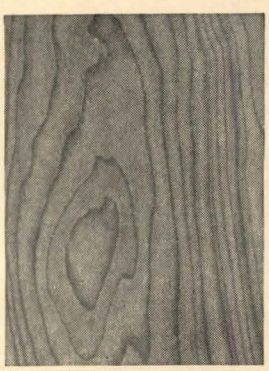
MARBLE PATTERNS
including Travertine for luxurious walls in any decor, any building.



DECORATOR PATTERNS
including four Chantilly designs plus Fleece, Lace and Nugget designs.



MARLITE MURALS
including Ponta Roma, River Landing and Williamsburg for custom-decorated walls.



TRENDWOOD FINISHES
including Colonial Maple and Provincial Walnut for distinctive interiors.

6526

New Marlite Decorator Paneling

Beautiful decorating ideas come easy with Marlite!

Now more than ever, Marlite plastic-finished paneling offers infinite decorating possibilities to help your customers plan distinctive and luxurious interiors. With Marlite's 1965 line of smart Decorator Paneling, no other material gives you such a wide selection of colors, patterns and designs.

Unique decorator patterns, rich marbles, authentic Trendwood® reproductions, bold new designer colors, and striking new Marlite Murals make this soilproof paneling at home in any decor.

And wash-and-wear Marlite resists heat, moisture, stains and dents. It's easily installed over old or new walls, never needs painting or further protection. Marlite stays like new for years with an occasional damp cloth wiping.

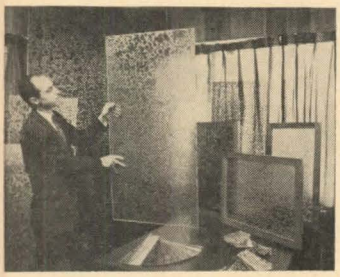
Get details on Marlite Decorator Paneling from your building materials dealer, consult Sweet's File, or write Marlite Division of Masonite Corporation, Dept. 414, Dover, Ohio.

Marlite®
plastic-finished paneling

ANOTHER QUALITY PRODUCT OF MASONITE® RESEARCH

On Readers' Service Card, circle No. 380

reinforcing. They are made in three weights and in thicknesses of of 3/32″, 1/8″, and 3/16″. Pattern is completely nondirectional. Standard widths are 24″, 36″, and 48″ and lengths range from 24″ to 144″ in 12″ multiples. Panels may be cut to assorted sizes. They are available in 17 colors, which are shown in brochure. Capella has stiffness about twice that of hardboard, U factor that varies from .62 to .49 depending on panel types, and thermal ex-



pansion similar to aluminum. Capella Corp., Bailey Hill Research Park, P.O. Box 3646, Eugene, Ore.
On Readers' Service Card, Circle 214

High-Strength Bars Tie Trusses Together

"Technical Bulletin No. 17" tells how precast sections composing outer frame of 14-story North Carolina Mutual Life Insurance Co. in Durham (designed by Welton Becket & Associates) are tied together with high-strength alloy steel bars. Framing the building are 28 Vierendeel trusses each 108′ x 20′, or two-stories high. Seven of these trusses are used in each façade. Each truss cantilevers 33′-9″ from either side of two center supporting columns and is prestressed by post-tensioning. Progress photos and details are given. Stress-steel Corp., 221 Conyngham Avenue, Wilkes-Barre, Pa.
On Readers' Service Card, Circle 215

High-Strength Reinforcing Bars

Booklet, 20 pages, presents data on high-strength reinforcing bars, including properties, applicable specs, methods of splicing, and ultimate strength design methods. Typical applications where high-strength bars are used include bridges and highways, office and apartment buildings, motels, stores, and stadiums. Savings on use of high-strength bars are indicated by comparative designs of typical beams and columns. Ultimate strength design methods are presented in step-by-step procedure for a tee-beam and a spiral column. "ASTM Specifications for Steel Bars for Concrete Reinforcements" is enlosed separately. American Iron and Steel Institute, Committee of Concrete Reinforcing Bar Producers, 633 Third Avenue, New York, N.Y.
On Readers' Service Card, Circle 216

Hardwood Plywood

Uses of hardwood plywood for wall panels, furniture, flooring, kitchen cabinets, and doors are described in 16-page booklet. Reproductions in color of 35 species of hardwood plywood are shown. Properties of strength, stability, splitting, impact resistance, insulation, etc., are included. Various methods of matching are illustrated. Copies are available at 25¢ each. Hardwood Plywood Mfg. Assn., 2310 S. Walter Reed Drive, Arlington, Va.

Terrazzo Blocks

"Samazo" structural terrazzo building units (not a laminated face unit) are presented in 4-page brochure. Tops, ends, and bottoms are brought to accurate modular dimensions of plus or minus 1/32″. Units are available in exterior/interior units and interior/acoustical units in many colors, patterns, and textures. Samson Block & Supply Co., Brooke & Painter Sts., Media, Pa.
On Readers' Service Card, Circle 217

Architectural Domes

Structural geometric domes, available in any over-all size, are shown in 4-page brochure. According to manufacturer, structure costs up to 60 per cent less than other domes of equal size and can be constructed more rapidly by employing curved rib and tilt-up type construction that eliminates need for staging. Reduction of steel requirement lowers initial paint expense and upkeep. Dome is covered with corrugated aluminum skin, or galvanized iron and translucent panels. All joints are permanently weather-sealed with nonperishing neoprene closure strips. General Conveyor Inc. of Northern California, 1821 Mt. Diablo Blvd., Walnut Creek, Cal.
On Readers' Service Card, Circle 218

Plywood Diaphragms

Booklet, 10 pages, discusses fir plywood diaphragms used to withstand lateral loads that are caused by windstorm or earthquake. Plywood wall, roof, and floor diaphragms are used most commonly in wood frame buildings, and sometimes in masonry or in concrete-walled buildings. Plywood sheathing also is employed as horizontal diaphragms with steel joists. Buildings that range in size up to at least 500,000 sq ft have successfully used diaphragms. American Plywood Assn., Tacoma, Wash.
On Readers' Service Card, Circle 219

Wood Partitions

Booklet, 24 pages, offers movable interior partitions and wall panels that use Goodyear Tire & Rubber Company's "Videne" polyester surfacing film. Nonporous, inert, and dimensionally stable film is factory-applied by heat and pressure to substrate materials. Complete partition/wall panel system is available in 16 wood grains and 34 nonfading, coordinated colors. Color photos, details, and specs of various types of partitions and wall panels, are given. Modern Partitions, Inc., Holland, Mich.
On Readers' Service Card, Circle 220

Doors/Windows

Metal Windows

Series of three 1965 booklets describe custom metal entrances, metal curtain walls, and metal windows. Details, specs, and photos are included. Hupp Corp., Flour City Architectural Metals Div., 2637 27 Avenue So., Minneapolis, Minn.
On Readers' Service Card, Circle 221

Electrical Equipment

Residential Lighting

1965 residential lighting fixture line is presented in 104 page catalog "M-168." Fixture types include chandeliers, dimmers,

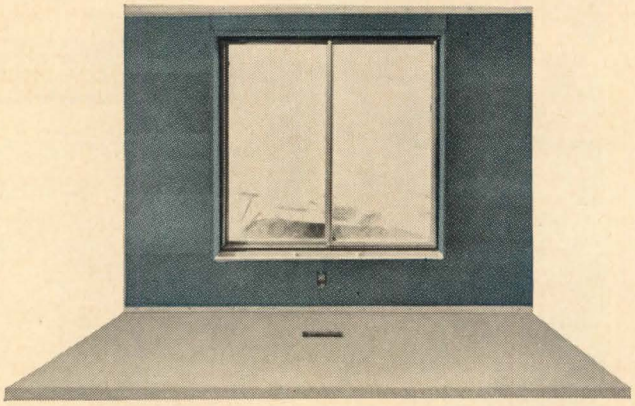
decorative ceiling stylings, pulldowns and chain hung, pendants, decorative glass, bathroom stylings, fluorescent lighting, illuminated ceilings, outdoor lighting and built-in recessed lighting. Within individual product divisions, each fixture is fully described with dimensions and lamp wattage given. Of 754 units illustrated in color, 190 are recently designed. Thomas Industries, Inc., 207 East Broadway, Louisville, Ky.
On Readers' Service Card, Circle 222

Spec Lighting

Brochure, 4 pages, covers architectural, engineering, and specification lighting. Brochure contains photos, specs, and installation drawings on cast aluminum line of wall brackets, downlights, recessed ceiling lights, and postlights. Marvin Electric Mfg. Co., Devine Lighting Div., 4645 East 11 St., Kansas City, Mo.
On Readers' Service Card, Circle 223

Dimming Lights

Bulletin "L564P" gives full technical data, ratings, dimensions, and specs on "Luxtrol" packaged light control equipment. Packaged compact dimmers are rated from 7200 to 15,000-w and contain all fa-



Remember Styrofoam.

(Specify it to insulate masonry walls. Finish with wallboard or plaster.
Costs about the same as furred, uninsulated walls. Good deal?)

You bet! That's one of the things you'll like about Styrofoam® FR brand insulation—its versatility in accepting finishes for masonry walls.
Going to specify wallboard? Easy does it. Styrofoam FR applies quickly to walls with the help of Styrotac® bonding adhesive. No furring. Then wallboard goes up. No nails to "pop" or holes to fill.
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Whichever method you use, Styrofoam FR resists the passage of moisture, eliminates the need for a vapor barrier, keeps its low "k" factor. Permanently. The result is a solid, insulated wall at nearly the same cost as a furred, uninsulated wall.
For more facts worth remembering, see Sweet's Architectural File 10a/Do.
Or write us. The Dow Chemical Company, Plastics Sales Department 1311EB4, Midland, Michigan.
Styrofoam is Dow's registered trademark for expanded polystyrene produced by an exclusive manufacturing process. Accept no substitutes . . . look for this trademark on all Styrofoam brand insulation board.

On Readers' Service Card, circle No. 344

O.K. Now forget it.

(You'll never have to worry about it again.)

DOW

cilities needed for professional dimming, brightening, and blending of light. First series has six 1200-w independent circuit controllers with or without separate 6000-w master. Second series has 2500-w controllers with three, four, five, or six controllers that can be used independently or interlocked in any combination for control in unison. Luxtrol packaged light controls are UL listed and used in churches, schools, theaters, etc. Superior Electric Co., Bristol, Conn.

On Readers' Service Card, Circle 224

Night Light

Fluorescent/incandescent prismatic night light, called "Power Candle," is described in 4-page brochure. Unit projects sheet of light across lower part of room or corridor eliminating discomfort-rays of light to the eyes. Power Candle has brushed aluminum finish and double gasketing, which eliminate possibility of light leakage. It can be mounted in framed wall opening or in standard plaster frame. Photometric data and specs are given. Holophane Co., Inc., 1120 Avenue of the Americas, New York, N.Y.

On Readers' Service Card, Circle 225

Acrylic Tube Lighting

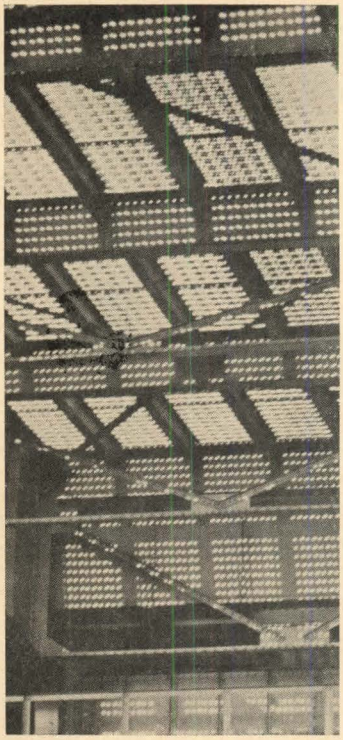
Manual, 8 pages, entitled "Cast Acrylic Tubes, Rods, and Massive Castings," describes shapes used in production of lighting fixtures, architectural detailing, and decoration. Physical and mechanical properties of cast acrylic shapes and their resistance to chemicals are charted. Special graph illustrates burst resistance of acrylic tubing of various wall thicknesses. Cadillac Plastic & Chemical Co., 15111 Second Ave., Detroit, Mich.

On Readers' Service Card, Circle 226

Finishes/Protectors

Aluminum Paint Guide

"Aluminum Paint Manual," 25 pages, discusses selecting and using aluminum paints. It details in chart form uses of aluminum paint for various surfaces including metal, masonry,



wood, high-temperature and decorative materials. Manual concludes with paint table for appropriate brush or spray application of three types of aluminum paint on 15 different surfaces. Aluminum Co. of America, 797 Alcoa Bldg., Pittsburgh, Pa.

On Readers' Service Card, Circle 227

Furnishings

Lab Furniture

File folder includes series of catalogs on standard lab furniture, fume hoods, fixture accessories, and educational lab furniture and equipment. Photos and specs are given. Duralab Equipment Corp., 303 Stanley Ave., Brooklyn, N.Y.

On Readers' Service Card, Circle 228

Sanitation/Plumbing

Colored Sinks

Five solid "Accent" colors are used with lavatories to contrast

Heating And Cooling Thru Hollow Concrete Floor Cells At New Americana

One 25-foot length of metal duct, which serves the living room and feeds into hollow Flexicore ceiling cells, will be the complete air distribution system for each of the 2000 apartment units at Americana Landmark, Baltimore.

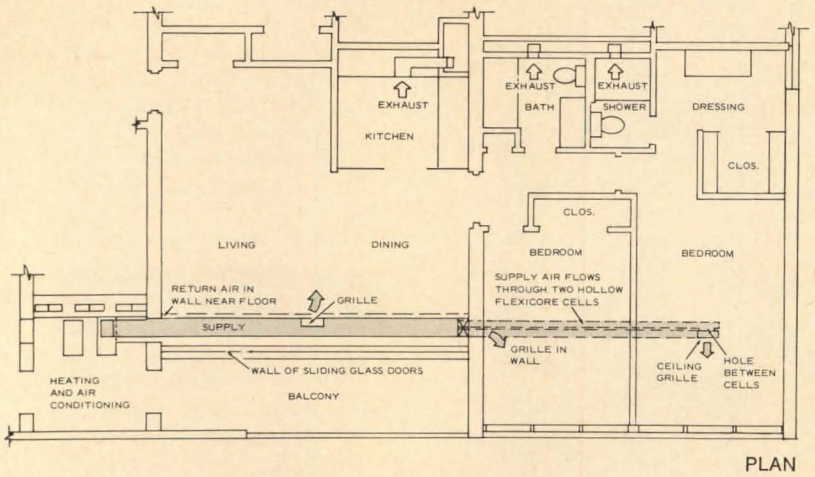
Each unit has its own heating and cooling system in an adjoining equipment closet. Return grille is in living room wall, and feeds directly into the heating-cooling unit.

Exhaust fans in kitchen and bath provide circulation to these areas.

Hi-Stress Flexicore slabs, prestressed with high-tensile 7-wire stress-relieved stands, clear span 22 feet between bearing walls and give fast erection, firesafe structure, and attractive panelled ceilings. Hollow concrete decks, plus 1/2" rigid insulation, wood parquet flooring and wall-to-wall carpet kill floor-to-floor sound.

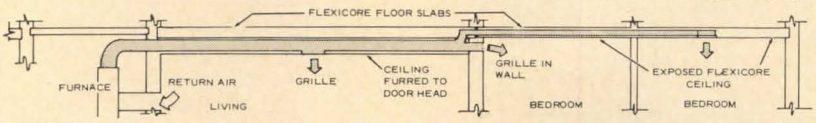
Americana Luxury Apartment Communities now operate over 5000 rental units, principally near Baltimore and Washington.

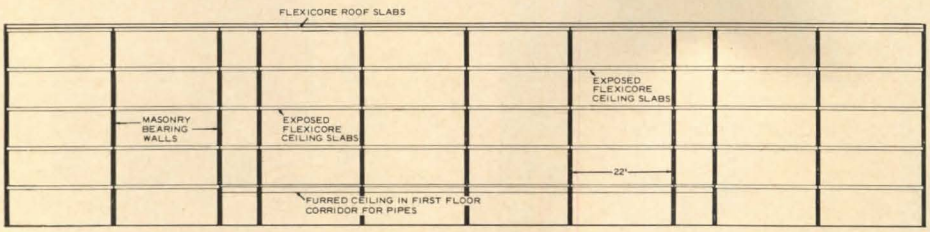
Ask for Flexicore Fact 101 for complete report on this project. Write The Flexicore Co., Inc., Dayton, Ohio 45401, or look under "Flexicore" in white pages of phone book.



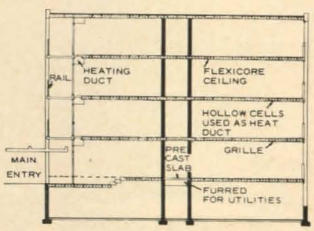
PLAN

SECTION

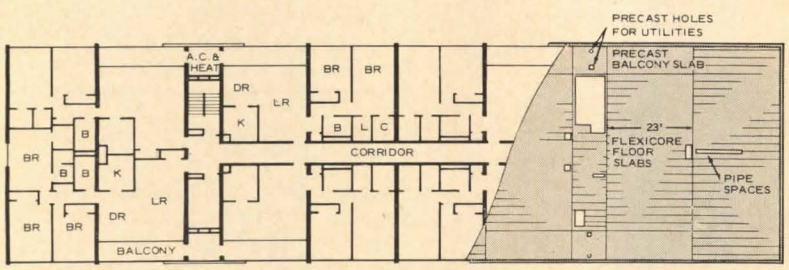




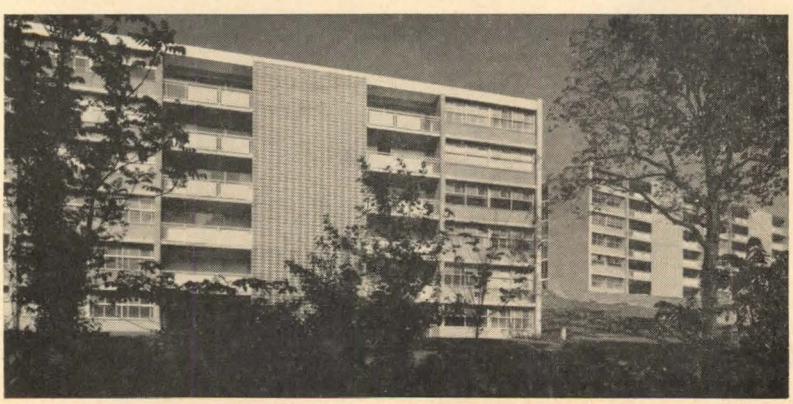
LONGITUDINAL SECTION. Flexicore decks clear-span 22 feet between bearing walls, which are located to separate individual apartment units.



CROSS SECTION. Precast decks, balconies simplify construction.



FRAMING AND FLOOR PLAN. Most apartment units are two bedroom. One and three also available.



All Americana Apartments are located in parklike surroundings.

flexicore®
PRECAST CONCRETE DECKS

On Readers' Service Card, circle No. 353

or harmonize with both tubs and water closets. Oval, round, or rectangular lavatories use Accent colors, which are available in brown, green, blue, yellow, and red. Brochure illustrates how lavatories are combined with these colors in several bathroom color schemes. Kohler Co., Kohler, Wis.

On Readers' Service Card, Circle 229

Special Equipment

"Wall-less" School Film

"Schools for Today and Tomorrow" is film narrated by tv newsman Chet Huntley. It features "wall-less," open-area classroom developed to create flexibility and multispace use for three or more classrooms. Also featured are contract carpets made with "Acrilan" acrylic fiber and "Cumuloft" nylon. Film is available to school

boards, architects, and other interested professional groups. Chemstrand Co., 350 Fifth Ave., New York, N.Y.

On Readers' Service Card, Circle 230

Liturgical Art

Applications of liturgical art in actual installations are shown in color and black and white in 24-page booklet. Designs include stained glass, faceted glass, mosaic murals, lighting, statues, tabernacles, and fitments. Conrad Schmitt Studios Inc., 1327 South 43 St., Milwaukee, Wis.

On Readers' Service Card, Circle 231

Coiling Walls

Booklet, 8 pages, describes in detail "Coil-Wal" partitions. Entire partition is side-coiled into its own coil-box when not needed. Coil-box may be completely concealed behind fixed wall or included as part of fixed wall by giving it same surface treatment or décor. Partition traverses curves and is

And that goes wherever STANLOCK goes . . . horizontal, vertical or grid . . . using any combination of panel materials . . . or as Neoprene "windows" with or without vents. STANLOCK's exclusive open-lip design—plus the *separate* harder locking strip—is the most effective sealing mechanism developed. That's why STANLOCK is the only structural gasket you'll find at the World's Fair . . . the latest triumph since more than a decade ago when STANLOCK was chosen to seal the curtain wall of the GM Technical Center in Warren, Michigan! For details, write for the 20-page STANLOCK catalog, or consult Sweet's Architectural File 3c/St.

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On Readers' Service Card, circle No. 409

ĕth'iks

Ethics. Where have they gone?

Ethics, says the dictionary, is "the science of human duty; moral science."

In today's world, so complicated with gadgetry and machines that we often lose sight of others and of our own best selves, it isn't always easy to keep "human duty" in mind.

As life gets more complicated, men lose their sense of identity, value and purpose. Life, in a sense, becomes "cheap" and "unimportant." And with that, it becomes ever easier to take the easy way, to ignore the principles of right—and our human duty to others.

The one place where human values are kept in proper focus is where you worship. Nowhere is the individual more valued. *And if you care*, the place where you worship can become, with your help, a rallying point for lifting all the deteriorating values you see around you. Worship this week—and put your faith to work *all* week.

Worship this week

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RELIGION IN AMERICAN LIFE

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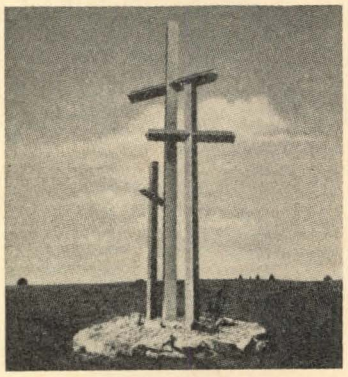
available in single spans or center-parting. Single units have been made up to 150′ wide by 20′ high. To handle large installations, electrical control as well as hand crank operation are offered. In addition to basic select fir, Coil-Wal is produced in flame-proofed fir, mahogany, oak, birch, and high-impact plastic laminate. New Castle Products, Inc., New Castle, Ind.

On Readers' Service Card, Circle 232

Spires/Crosses

1965 catalog, 8 pages, describes design and construction of church spires and crosses. Specs



are given for crosses and five basic types of steeple and spire construction. Design variations are illustrated by 25 photos of actual installations. Overly Mfg. Co., 574 W. Otterman St., Greensburg, Pa.

On Readers' Service Card, Circle 233

Templates

Catalog describes over 440 templates. Among those illustrated are ellipses, squares, and triangles; electrical, mechanical engineering, and architectural; lettering; structural shapes; and specialized types. Catalog contains every template made by leading American manufacturers. A. Lietz Co., P.O. Box 3633, San Francisco, Cal.

On Readers' Service Card, Circle 234

Housing for Animals

Housing for laboratory animals is described in loose-leaf catalog. Floor plans, details, and photos of cages and other equipment are included. Individual reports on animal housing problems will be prepared on request. Animal Welfare

Institute, 22 E. 17 St., New York, N.Y.
On Free Data Card, Circle 235

Surfacing

Acrilic Fiber Carpet

"Why Specify Carpets Made With Acrilan?" is title of recent publication. Acrilic fiber carpets give about 10 per cent more cover than wool, pound for pound. It has 1.5 per cent moisture absorption, compared with 16 per cent for wool. Acrilan resists most common stains, moths, mildew. It is nonallergenic and does not produce static electricity build-up. Color photos of actual installations are shown. Chemstrand Co., Decatur, Ala.
On Readers' Service Card, Circle 236

Teakwood Flooring

Teakwood parquet flooring in variety of patterns is illustrated in 6-page brochure. Teak or "Tecona Grandis" resists vermin, termites, dry rot, and decay. It can be applied to concrete, plywood, terrazzo, asphalt tile, ceramic tile, or wood subfloors. Designed Wood Flooring Center, Inc., Teakwood Flooring Co. Subsidiary, 299 Madison Ave., New York, N.Y.
On Readers' Service Card, Circle 237

Custom Carpets

Twenty-four page brochure, in color, illustrates possibilities for carpet design from Bigelow's custom service division. Carpets and rugs can be made to order in any size, design, color, or texture. Stylist Dorothy Liebes has added 16 designs to the group; other patterns are originated in the Bigelow Design Studio. Bigelow Custom Carpets, Inc., 150 Madison Ave., New York, N.Y.
On Readers' Service Card, Circle 238

Floor/Wall Tiles

Full line of "Romany Spartan" glazed and unglazed floor and wall ceramic tiles is shown in 28-page color booklet. Orsan II 1964 line of 15 earth tone natural clay ceramic floor tiles and heavy-duty pavers are shown. Patterns of "Ceramaflex," a 9″ x 9″ unit made up of 64 tiles permanently bonded in preformed rubber grid, are included. Recommendations in 32 color design schemes are given for use with eight major plumbing manufacturers' colored fixtures. Large unit trim assembly details are also included. U.S. Ceramic Tile Co., 217 4 St., N.E. Canton, Ohio.
On Readers' Service Card, Circle 496

Laminated Plastics

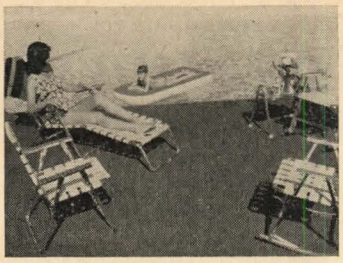
Properties of "Micarta," a laminated plastic made by Westinghouse, is described in 24-page booklet. Information on colors, grains, finishes, patterns, and physical properties are given. Details, color photos, and specs are included. U.S. Plywood Corp., 777 Third Avenue, New York, N.Y.
On Readers' Service Card, Circle 497

Three-Dimensional Tile

Interior/exterior "3D Relief Tile" is illustrated in 8-page booklet. Designed by Swedish sculptor Torsten Treutiger, tiles can be used as walls, under window panels, and balcony walls in single or group patterns. Face is about 7¾″ x 3-¾″ in size. Thickness is ⅝″ at edge and 1 3/16″ over-all. Hoeganaes Ceramic Corp., Taylors Lane, Riverton, N.J.
On Readers' Service Card, Circle 498

Outdoor/Indoor Carpet

Brochure describes outdoor/indoor carpet made of "Vecta" polypropylene fiber (manufactured by The Vecta Co. of N.Y.). It resists bleaches, inks, and weather. Carpet does not rot, shrink, or mildew. Hosing, scrubbing, or vacuuming dispels residue. Fiber is nonaller-

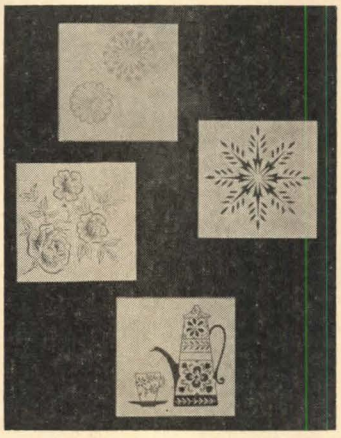


genic and nonstatic. Nine colors are available including "Terrace Green," "Cardinal," "Bronze," "Regal Blue" "Brownstone," "Avacado," "Charcoal," "Oatmeal," and "Sapphire." Ozite Corp., 7-120 Merchandise Mart, Chicago, Ill.

On Readers' Service Card, Circle 499

Tile Designs

Brochure offers 14 recently designed decorative tile patterns. All but four of tiles are available in four different background colors. Tiles, 4¼″ x 4¼″, can be spotted at random to accent solid color wall, grouped in patterns, or used to create over-all wall effect. This decorative tile line offers these designs on "Romany Spartan



Levelset" wall tile. All four sides of Levelset tile are precision-ground for exact squareness. Levelset tile also has special edge design that locks grout in. U.S. Ceramic Tile Co., 217 Fourth St., N.E., Canton, Ohio.

On Readers' Service Card, Circle 500

PROGRESSIVE ARCHITECTURE
NEWS REPORT

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fun

Some critics minimize the validity of private home designs as serious architectural exercises. "Too subject to whim and fancy", they say. But most practicing architects don't agree. To them, houses are professional "fun". And, in right doses, fun is not all bad.

The May issue of PROGRESSIVE ARCHITECTURE provides both sides of the story: the experts' dim view of houses as valid commissions for the successful architect vs. the working profession's own feelings on the subject. That's how P/A covers the subject, i.e. picture-stories on nine outstanding house designs and serious thought on the entire subject of the architect's role in single-house design.

Send your $5 subscription check immediately and you'll receive the exciting May issue of PROGRESSIVE ARCHITECTURE and eleven more, including the January Designs Awards issue. Address Circulation Department, PROGRESSIVE ARCHITECTURE, Reinhold Publishing Corp., 430 Park Avenue, New York, N. Y. 10022.

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We put 2, 3, 4, 5, even 6 showerheads together on one fixture! Result: Bradleys serve more students comfortably in less space than ordinary showers. This revolutionary new concept gives you unusual layout flexibility in dormitories, gyms, field houses, employee shower rooms — wherever you want to handle large groups economically.

But there's more. Bradley Group Showers serve up to 6 students with only one set of plumbing connections. So they reduce installation costs as much as 80%. They save water and water heating costs, keep maintenance time to a minimum. And there are four other basic styles to choose from, including multi-stall units with private dressing rooms.

Planning a shower room? It will pay you to get together with Bradley!

For details, see your Bradley representative. And write for latest literature. Bradley Washfountain Co., 9141 Fountain Drive, Menomonee Falls, Wis. 53055.

Bradley

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Why did we put our heads together?

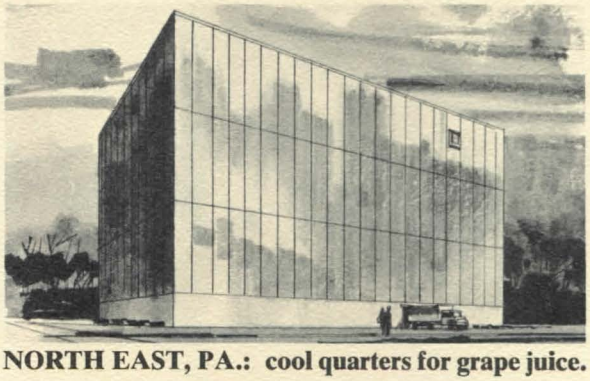
TO SAVE MONEY!

DESIGN IDEAS '65

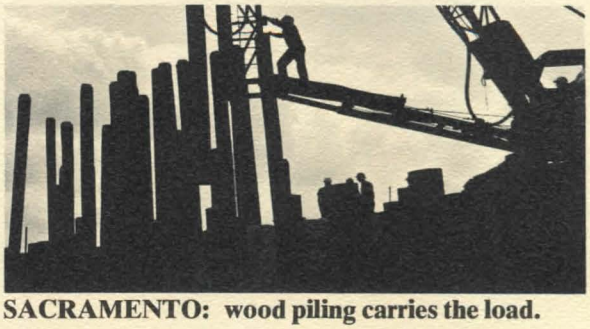
On the following five pages you'll see specific examples of how Koppers building products have helped architects and engineers obtain greater latitude of design and save money for clients. These Koppers products are either permanent in themselves or they give permanence to other materials.

DALLAS: wood buildings that keep out termites, beautifully.

CLEVELAND: how to waterproof an underground garage.



NORTH EAST, PA.: cool quarters for grape juice.



SACRAMENTO: wood piling carries the load.

Turn page for complete stories.

Howard Johnson erects 1/4 million board feet of lumber in Texas, but termites won't get a single bite of it

Near Dallas, Texas, the Howard Johnson Company has erected more than ¼ million board feet of lumber in laminated wood beams, roof decking and paneling in three of its new facilities. Wood was chosen for its economy and for the warm, homey look it projects . . . despite the fact that this area has the humid conditions that spawn rot and termites, wood's natural enemies. The solution was simple: the construction was done with WOLMANIZED® lumber, a product of Koppers. "We insisted upon the use of WOLMANIZED wood as specified," say Woodward, Cape & Associates, "because it gives permanent protection against rot and termite damage." The wood was pressure-impregnated with chemicals that leave the wood clean, odorless and ready to be worked like ordinary lumber.

A typical example of how WOLMANIZED lumber was used in the new buildings can be seen at the company's Motor Lodge and Restaurant on the Stemmons Freeway in Dallas. This complex consists of five buildings, a 156-seat restaurant, a gate lodge, and three 40-unit, two-story lodge buildings. The gate lodge is a pure "A" frame, with the entire 4″ x 6″ Douglas fir roof decking carried on four 8″ x 16″ laminated wood arch legs which meet at the apex. Eight 4″ x 16″ laminated roof beams are fastened toward the bottom of the arch legs and form the four gables of the building.

The restaurant's hip roof is formed with 8″ x 24″ laminated beams and the ceiling is also 4″x 6″ Douglas fir roof decking. The conventional dry wall construction of the motel units uses 2″ x 4″ WOLMANIZED studs, plates and sleepers in the halls, while WOLMANIZED 2″ x 2″ furring on the concrete block walls holds the ¼″ wall paneling.

In addition to the permanent termite and rot protection afforded by the WOLMANIZED lumber, additional savings will accrue over the years because the natural-finish wood will never have to be painted.

If moisture problems or the threat of termite attack have prevented you from utilizing the economy, strength and beauty of wood construction, investigate WOLMANIZED lumber. Check the coupon for more information.

The laminated wood used in this building was supplied by UNIT STRUCTURES, a department of Koppers. In commercial and industrial structures, UNIT® laminated arches, beams or decking provide economy and great strength; UNIT arches have spanned distances greater than 300 feet. For more information on UNIT laminated wood, check the coupon.

Architect: Jerry P. Simmons, A.I.A.; Miami, Florida (restaurant)
Architect: Starnes & Rentscher; Miami, Florida (motor lodge)
Associate Architect: Woodward Cape & Associates; Dallas, Texas

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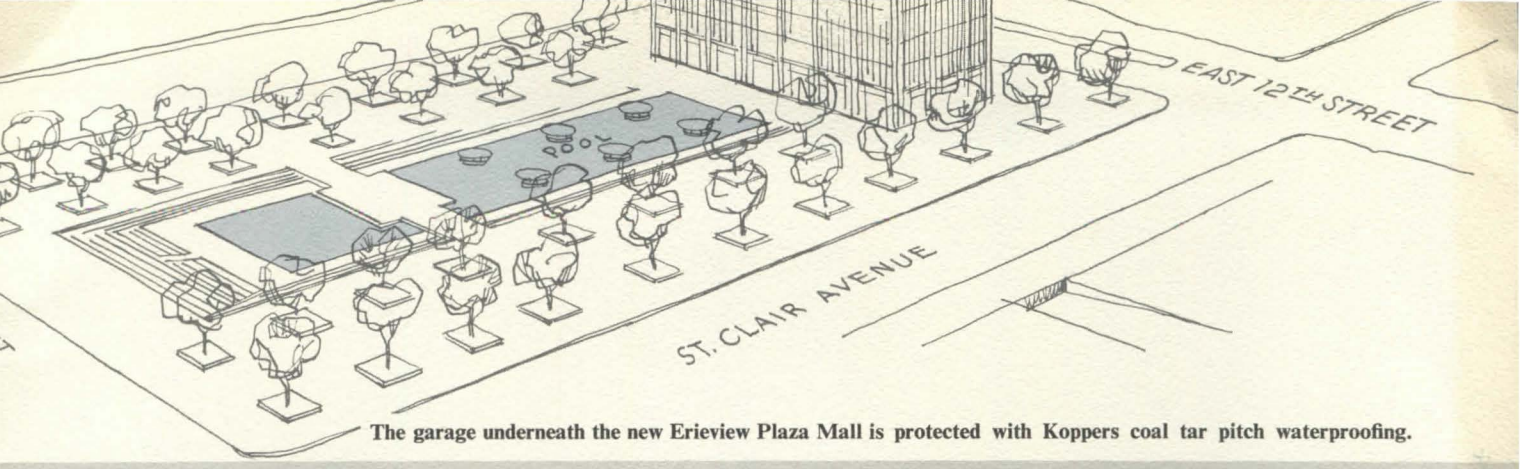

The garage underneath the new Erieview Plaza Mall is protected with Koppers coal tar pitch waterproofing.

Problems ... and low-cost solutions

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CORROSION PROTECTION—CONCRETE & MASONRY	X			X									
PROTECTION OF ASPHALT PAVEMENT					X								
INSULATION									X	X			
LOW-COST PILING, POLES & STRUCTURES						X							
FIRE PROTECTION FOR WOOD							X						
TERMITE, ROT & DECAY PROTECTION						X	X	X					
SOUNDPROOFING										X			
WATERPROOF ADHESIVE FOR WOOD											X		
STRUCTURAL SYSTEMS									X			X	
ENVIRONMENTAL CONTROL								X	X	X			

Earl F. Bennett, Mgr. Architectural Sales
Koppers Company, Inc.
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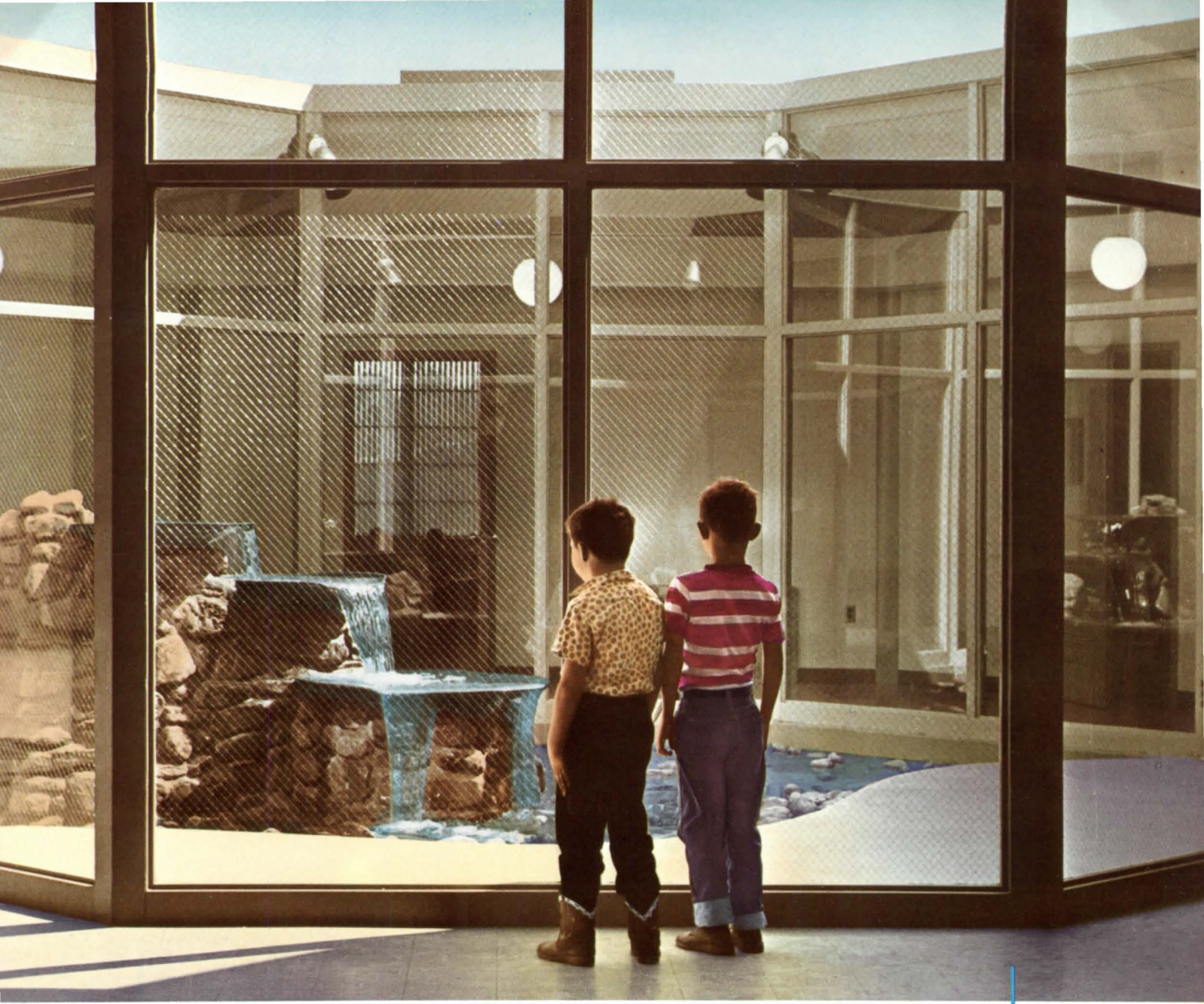

Copperhill Elementary School, Copperhill, Tenn.

Architect: Bianculli, Tyler & Weise, Chattanooga, Tenn.

Gen. Contractor: Webb Bros., Athens, Tenn.

Glazier: Pittsburgh Plate Glass, Knoxville, Tenn.

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In keeping with the trend toward the increased use of glass in schools, an open court or atrium with rock fountain enhances the beauty and protection afforded by Polished MISCO. The bright wire mesh resists human impact and is the guarantee of fire retardance that has qualified all Mississippi wire glass as the standard of excellence. Bring the beauty, spaciousness and safety of wire glass into your schools . . . in windows and walls to link classrooms, as passageways between buildings, in skylights, doors, stairwells and wherever else fire and breakage protection is required. See your nearby quality glass distributor.

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Architect: H. J. Ramsey, AIA, Pittsburgh, Pa. *Screen Artist:* Gene Myers, Pittsburgh, Pa. *Glazing Contractor:* United Plate Glass Co., Pittsburgh, Pa.

Brighten–Beautify–Protect... with GLASS

Two glass mural screens, each 107 ft. long by 12 ft. high, were used in the nave of St. Camillus Church, New Castle, Pa. (above), to provide a decorative setting for mosaic panels depicting the Stations of the Cross. BURLAP glass was chosen for the uncolored portion to provide high light transmission combined with maximum obscurity—another assignment capably filled by a new Mississippi pattern distinguished by dramatic texture and gleaming translucent beauty.

Glass also excels where safety is a requisite. Polished MISCO (wire) in corridors of the new Larkin High School, Elgin, Illinois, offers proven breakage protection, helps ward off accidents, defends against fires. Available at better distributors of quality glass.

Architects: Perkins & Will, Chicago, Ill.
Glazing Contractor: Pittsburgh Plate Glass Co., Elgin, Ill.

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Contains pattern descriptions, light distribution charts, transmission data. Send for your free copy today.

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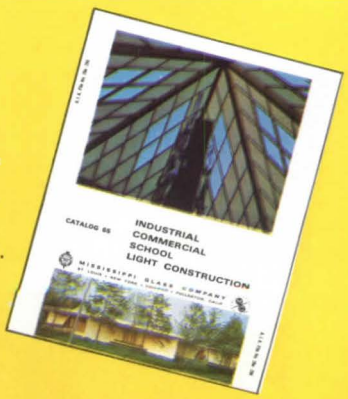

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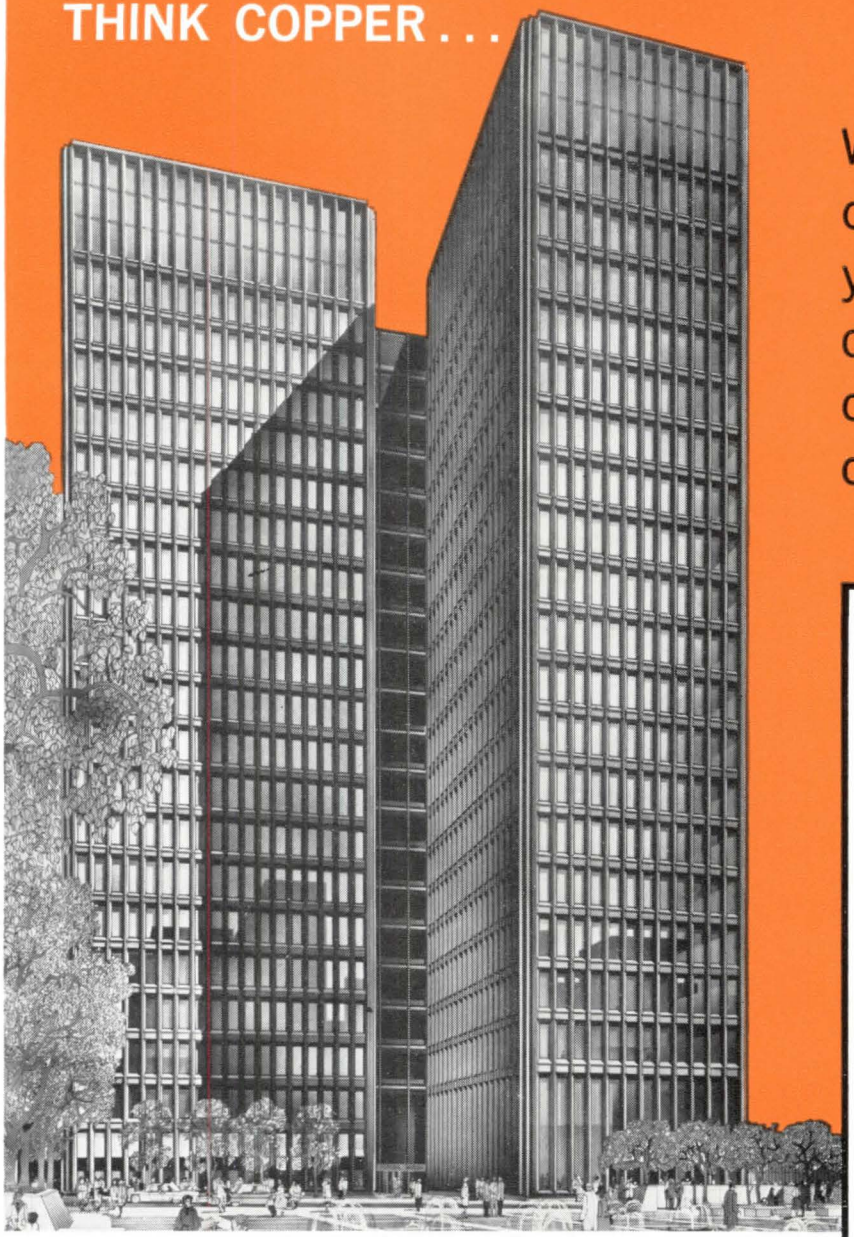

First Federal Building, Detroit, Mich.; (owner, First Federal Savings of Detroit); Smith, Hinchman and Grylls Associates, Inc., architects; Russell F. Stem, associate and chief mechanical engineer; Spitzley Corporation, mechanical contractors; Lorenz Supply Co., Anaconda Distributor.

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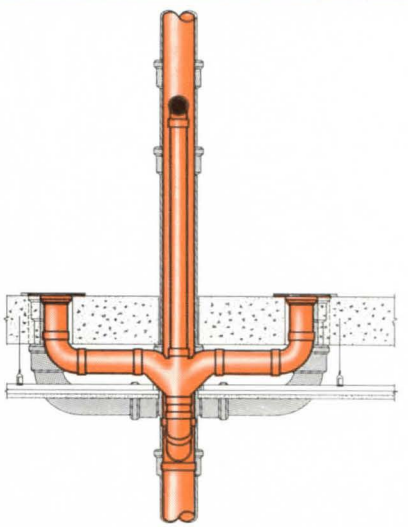

COPPER DWV SAVES BETWEEN-FLOOR SPACE: A comparison of the actual space required for copper vs. cast iron drainage piping illustrates that as much as 5½″ of building height can be saved **per floor** with copper. In a 20-story building, for example, this could mean thousands of dollars saved—equivalent to the cost of structural materials and labor for about one story.

Described as Detroit's most distinguished building, the new twin tower First Federal Building is truly copper-protected—actually more than 4 miles of copper tube were used; Type L for hot and cold water lines in sizes ½″ to 3″ and Type DWV for sanitary drainage in sizes up to 6″. By specifying copper tube, the architects and mechanical engineers saved piping space, and cut installation time and costs throughout the 23-story structure.

Chief Engineer Russell F. Stem reported that, "due to limited vertical pipe space between building column and exterior wall, copper was specified. Ease of installation and less supported weight were also key factors in our decision."

You, too, will find all-copper plumbing best all around. As J. H. Spitzley, president of Spitzley Corp., says: "DWV Copper offers many advantages —space-saving, light weight, and ease of fabrication and installation."

Copper saves money everywhere. You're the No. 1 man to achieve these savings. So plan on copper plumbing from the start. Anaconda plumbing products include Copper Water Tube, Copper DWV Drainage Tube, Copper Tube Fittings and Valves, Red Brass and Copper Pipe. 64-0844

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Rain, snow, fog, mist—nothing slows down the installation of new Celotex Acoustiform medium-density mineral fiber panels. They're made for jobs where fast occupancy is critical. Acoustiform panels can go in before or during wet-work such as plastering, grinding terrazzo, or pouring floors.

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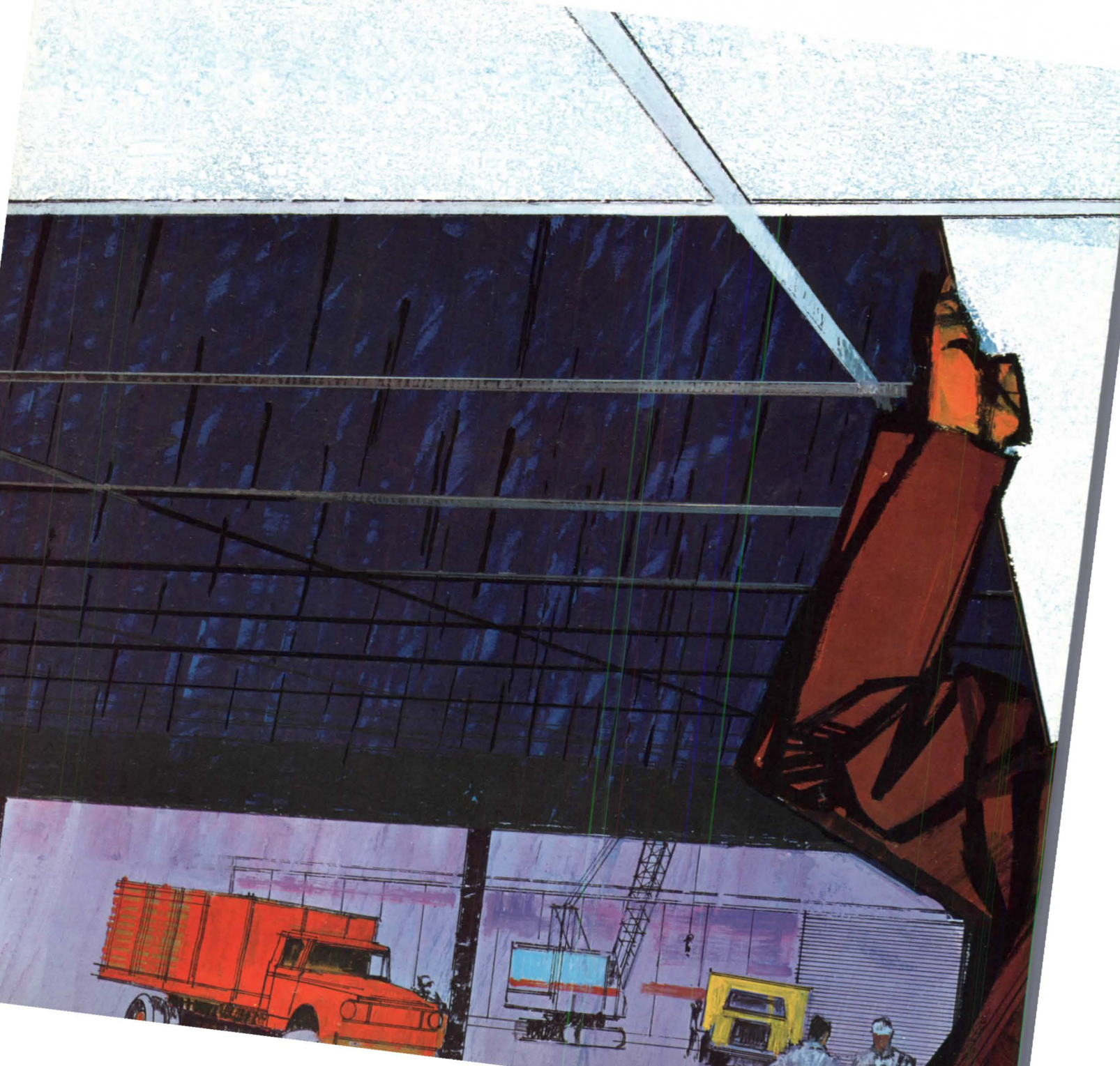

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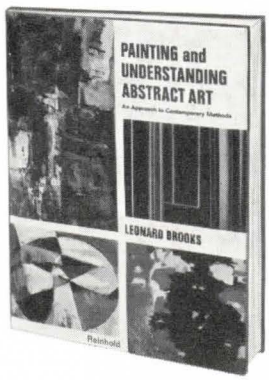

Learn the "reasons-why" for the various schools of this exciting art form. Develop a "cultivated eye" so that you can judge paintings with greater skill...even make more profitable purchases. For those who want to paint, there is a chart which lays out a year's organized study plan equivalent to an intensive art school course. Both practising artist and the layman with an inquiring mind will find this an important and enlightening reading experience. PAINTING AND UNDERSTANDING ABSTRACT ART: An Approach to Contemporary Methods by Leonard Brooks. 8¼ x 10¼. 144 pages. $15.

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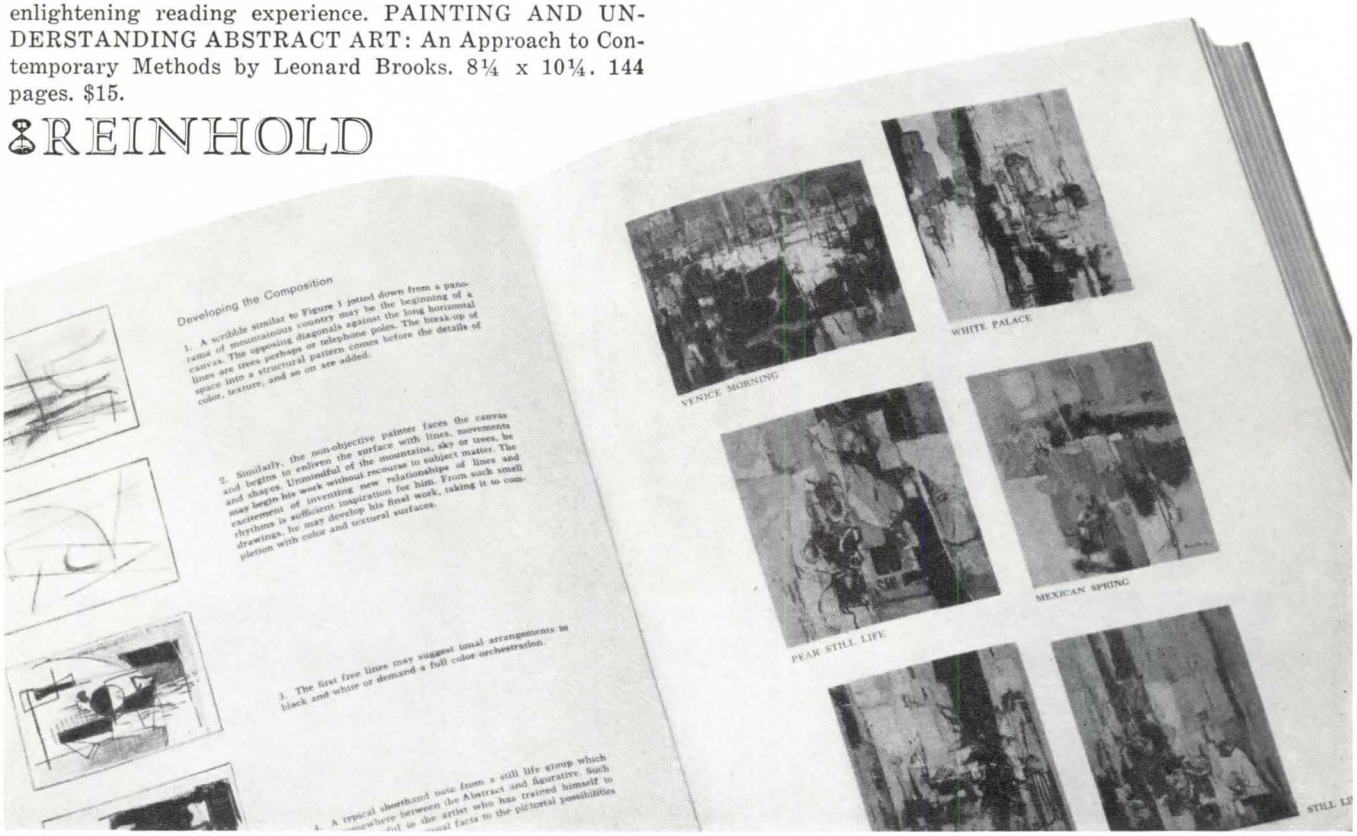

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Before we tell you which Mosaic tiles are new, please notice how everything harmonizes.

Color compatibility is a way of life with us.

Not even new products (so important in keeping our color families versatile) get in the way of this philosophy.

A new Mosaic tile color must blend with our existing colors; with other construction materials. And must have the temperament to stay in the background of your design.

Attributes which happen to apply, you'll notice, to the Faientex #1492 (broad stripe in the free-standing wall); to the new Faientex #1891 (narrow accent stripe in that same wall).

Color compatibility also makes new Golden Olive #6452 (back wall) such a useful color — a perfect foil for browns, greens and yellows.

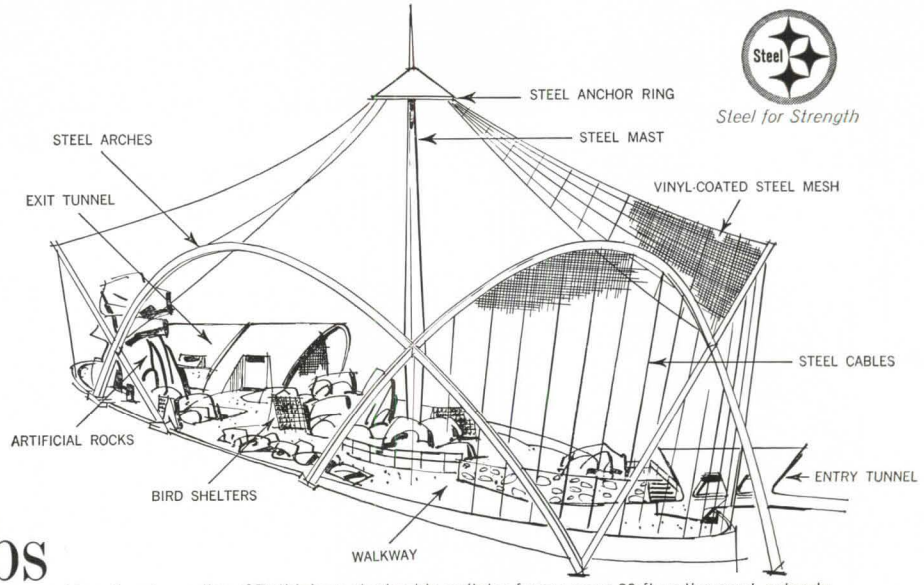
Even in accent touches like the new Floating Leaf pattern (in the ceramic mosaic floor) you can get the compatibility you desire. You control boldness or subtlety simply by specifying a mix of harmonious Mosaic colors.

Contact your Mosaic Representative, Service Center or Tile Contractor for price ranges and suggested alternate tiles for the above color plan. See Yellow Pages, "Tile Contractors-Ceramic". The Mosaic Design Department will suggest tile treatments for your design.

The Mosaic Tile Company, General Office, 55 Public Square, Cleveland, Ohio 44113. West of the Rockies, for comparable colors, contact The Mosaic Tile Co., 909 Railroad Street, Corona, California.

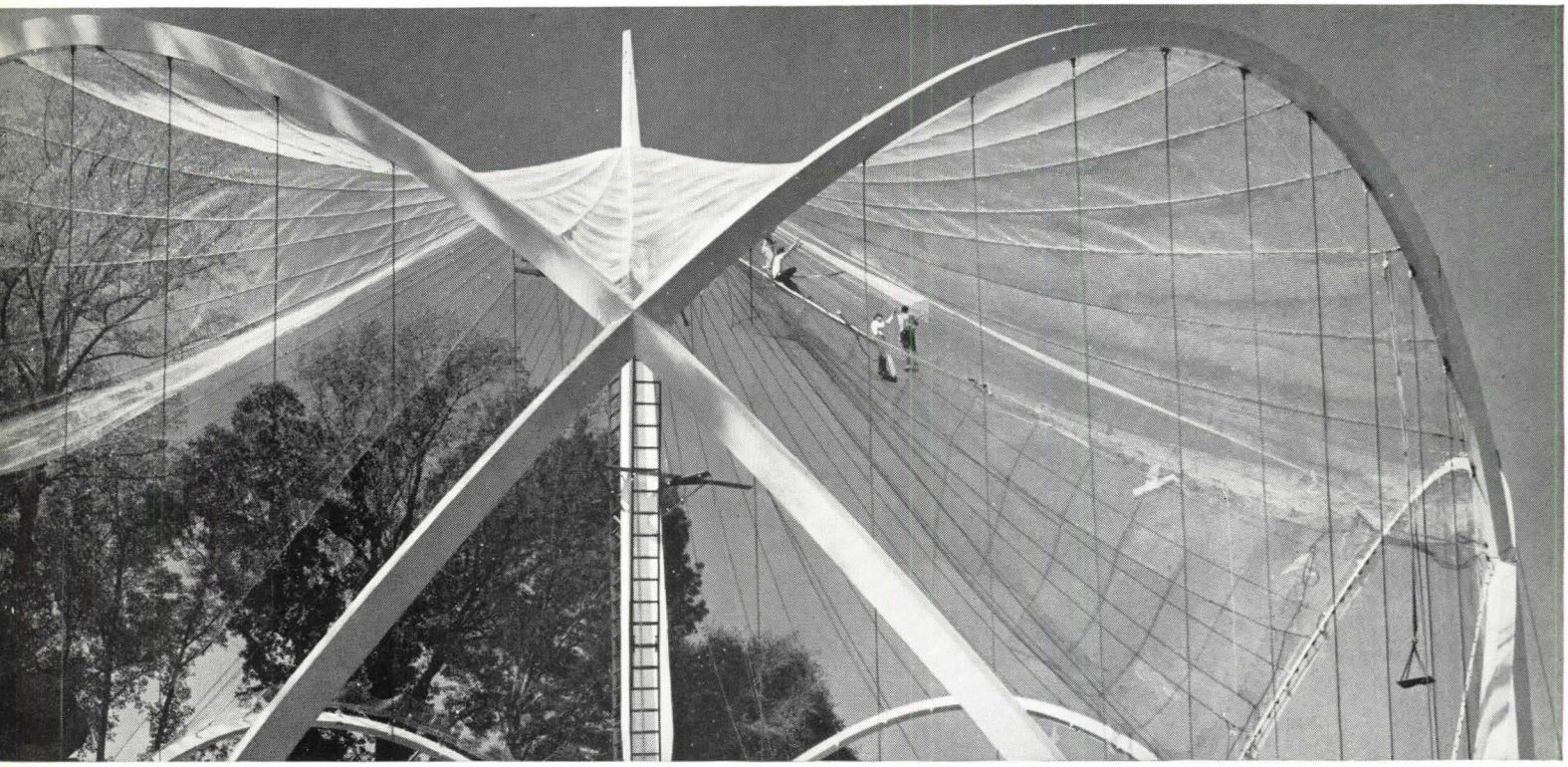
MOSAIC®

Giant aviary framed with steel-and-steel-cable ribs



Steel for Strength

More than two miles of Bethlehem steel cable radiates from a cone 80-ft up the mast, extends to the crowns of the arches, and then descends to a wall rimming the cage's perimeter.



Rising from a wooded hillside in Washington, D. C., the Great Flight Cage has a steel framework that makes imaginative use of steel members and steel cable. Other features: heated perches for tropical birds, several bird shelters, a meandering walkway for visitors who enter and leave through double-door tunnels.

Steel wire mesh, precoated with white vinyl, was laid over and clipped to the cables. The "lacy" look of the mesh and the lithe arches and cable suspension give the structure a delicate appearance. Wind-tunnel tests proved the fabric alone would withstand 100-mph winds.

Architect: Daniel, Mann, Johnson and Mendenhall. *General Contractor:* Edrow Engineering Co., Inc. *Structural Engineer:* Donald J. Neubauer. *Consulting Detailer:* Rick Engineering. *Fabricator:* Fabricators' Steel Corp.

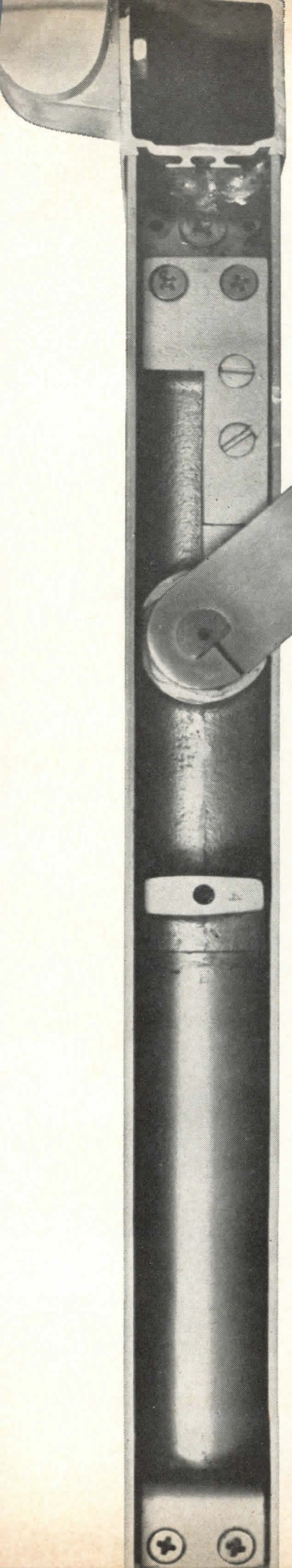
Recently completed at the National Zoological Park, in Washington, D.C., this aviary incorporates six parabolic steel arches which intersect in a 130-ft-diameter circle around a 90-ft mast. Its 72 steel cables stabilize the arches, which tilt outward at a 30-degree angle, anchoring the vinyl-coated, steel-wire mesh.

Arches and mast were fabricated from 75 tons of Bethlehem's corrosion-resistant Mayari R steel . . . painted white to contrast with the landscape and the variety of exotic birds. The high-strength Mayari R plate proved its excellent weldability in shop-fabrication and field connections.

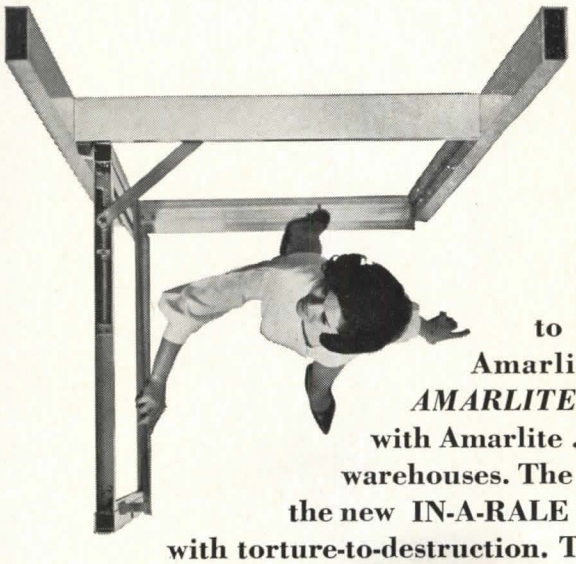
If you are planning a structure, we're ready to give you help, whether it involves a cable-suspended roof, an expandable school, or a skyscraper. Bethlehem Steel Corporation, Bethlehem, Pa.

BETHLEHEM STEEL

BETHLEHEM STEEL



Exclusive in an Amarlite entrance... the new Invisible in-a-RALE closer



You may never see this new closer. That's the beauty of it. It's part of the door itself, installed in the Amarlite factory, and that saves a major part of field installation time . . . prevents errors too. The *exclusive* new IN-A-RALE Closer is ***invisible!*** Nothing to bulge or project to spoil the slim, trim lines of an Amarlite aluminum entrance. *ONLY AMARLITE HAS IT!* IN-A-RALE is *standard* with Amarlite . . . available through all Amarlite warehouses. The price is right! Equally important, the new IN-A-RALE closer has been tested for months with torture-to-destruction. Today, it operates under all conditions. It works!

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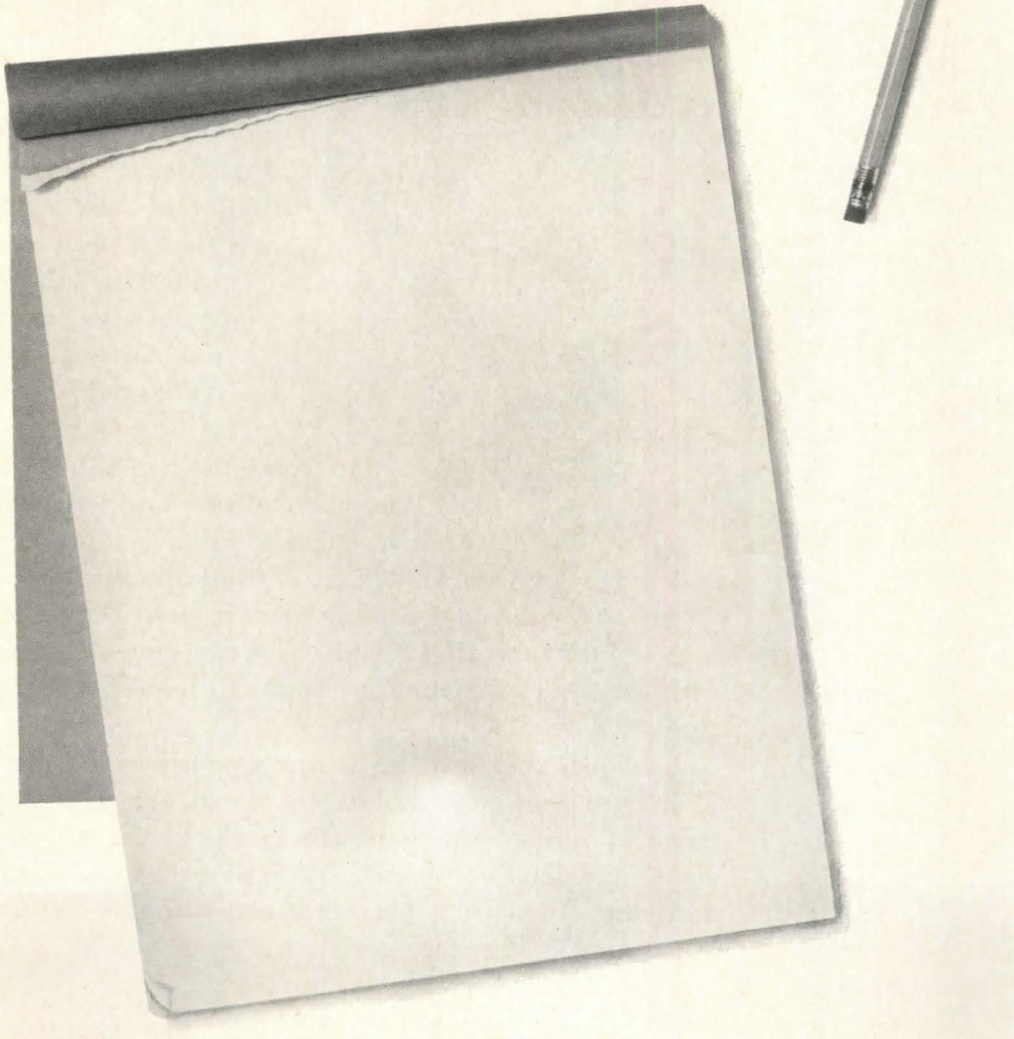

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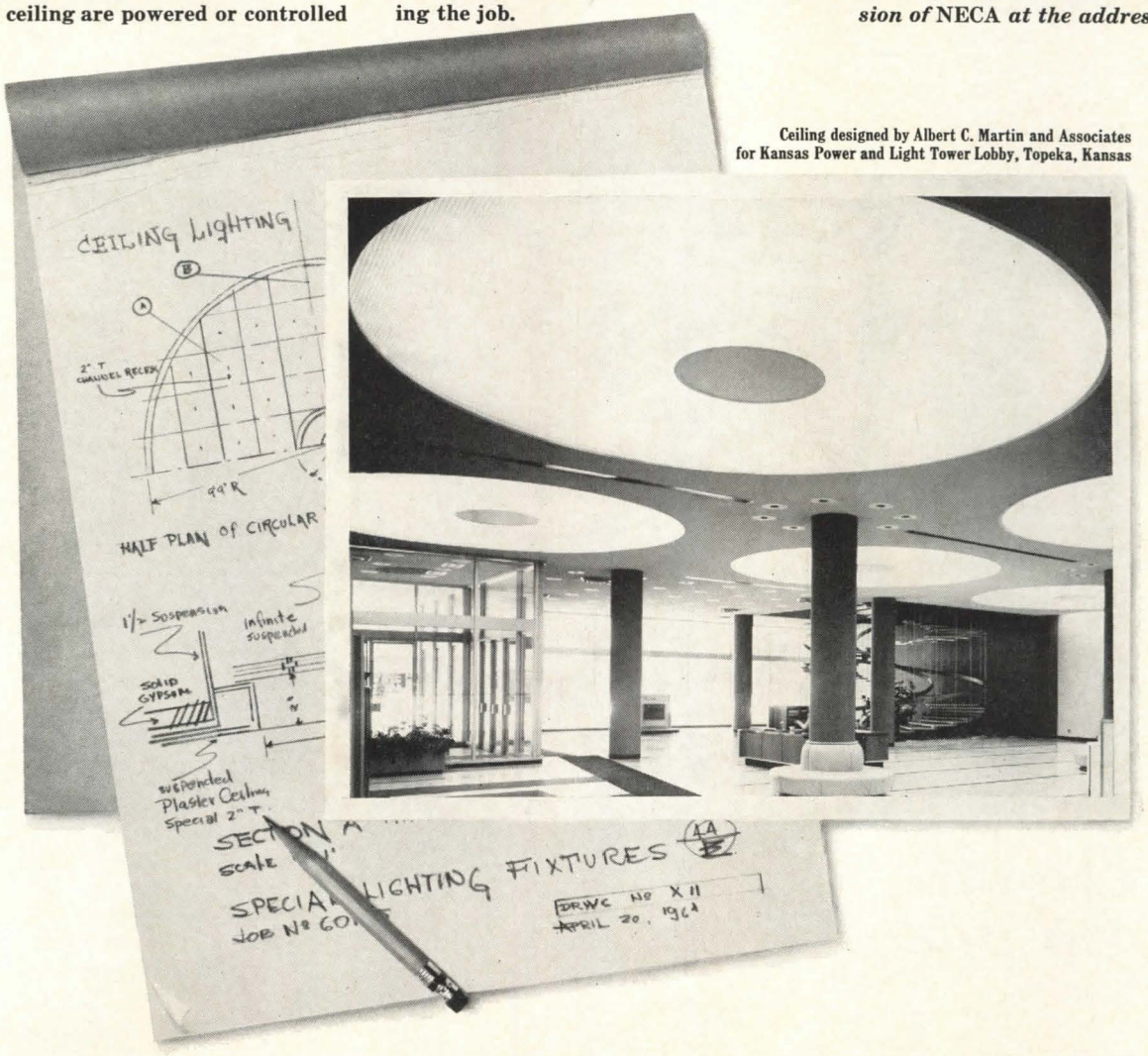
And that's not all. Place the responsibility for your integrated ceiling in the hands of your qualified electrical contractor and he'll guarantee the performance, not only of the electrical functions, but of the entire electrically space-conditioned ceiling system.

NECA *has prepared a film on integrated electric ceilings. To arrange a showing, contact the Marketing Division of* NECA *at the address below.*



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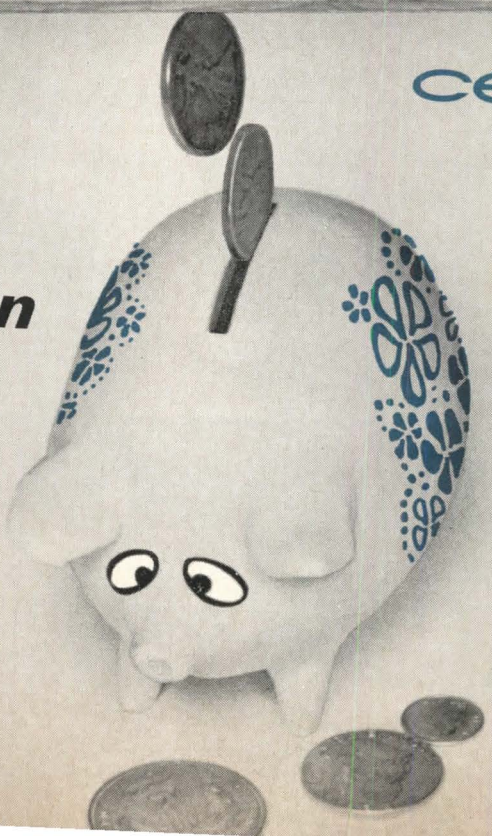

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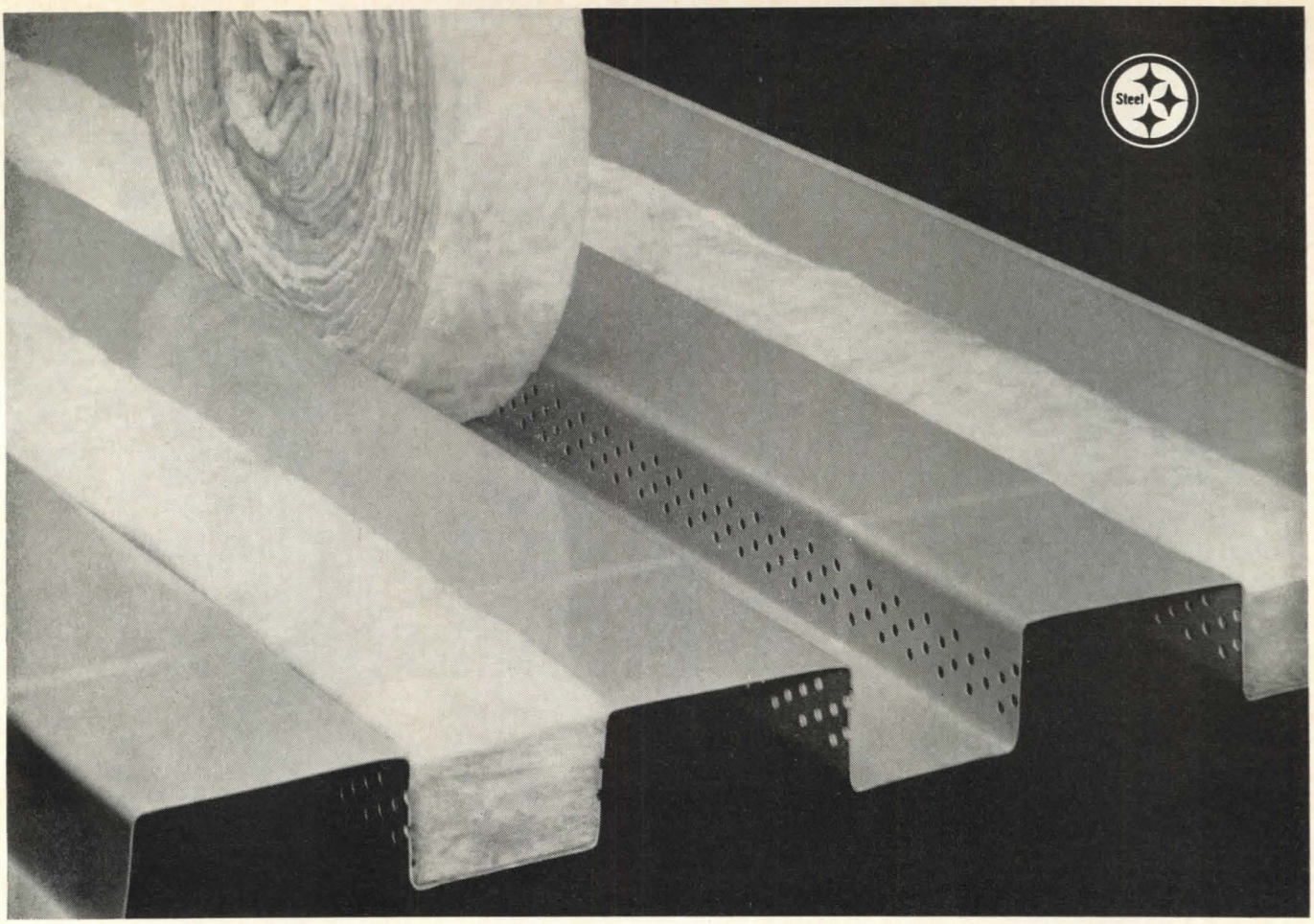

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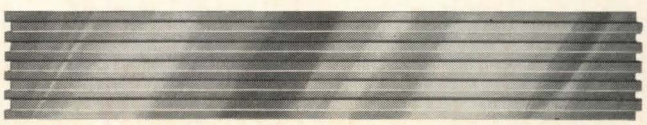

Wheeling Steel

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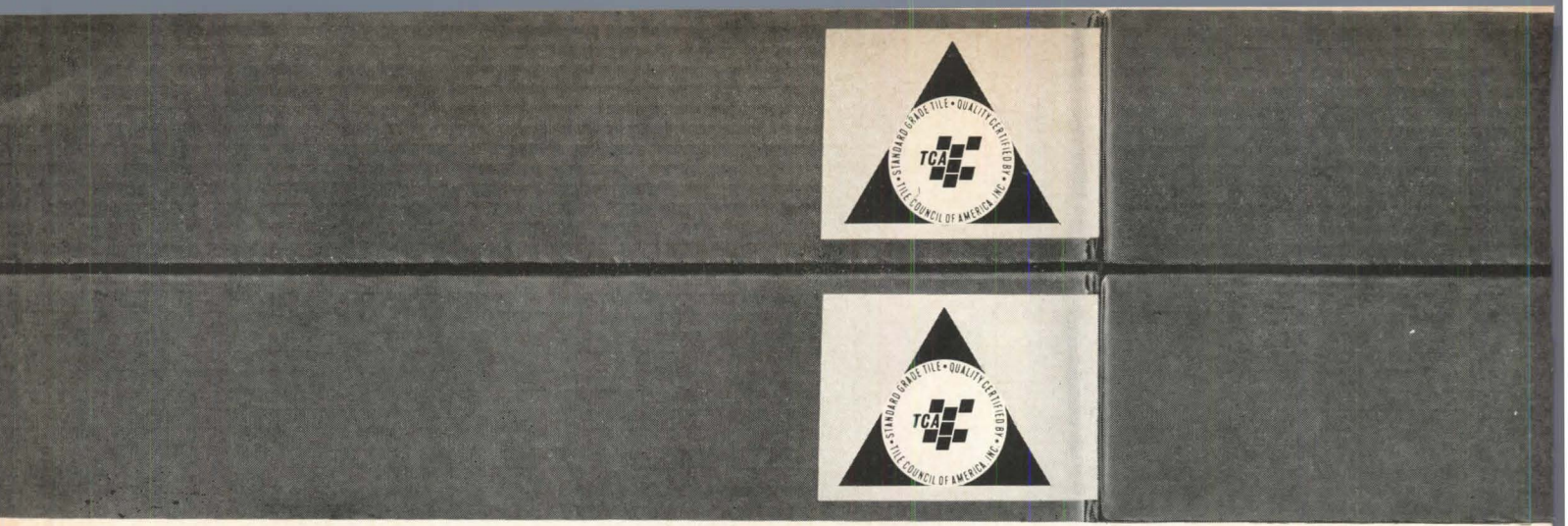

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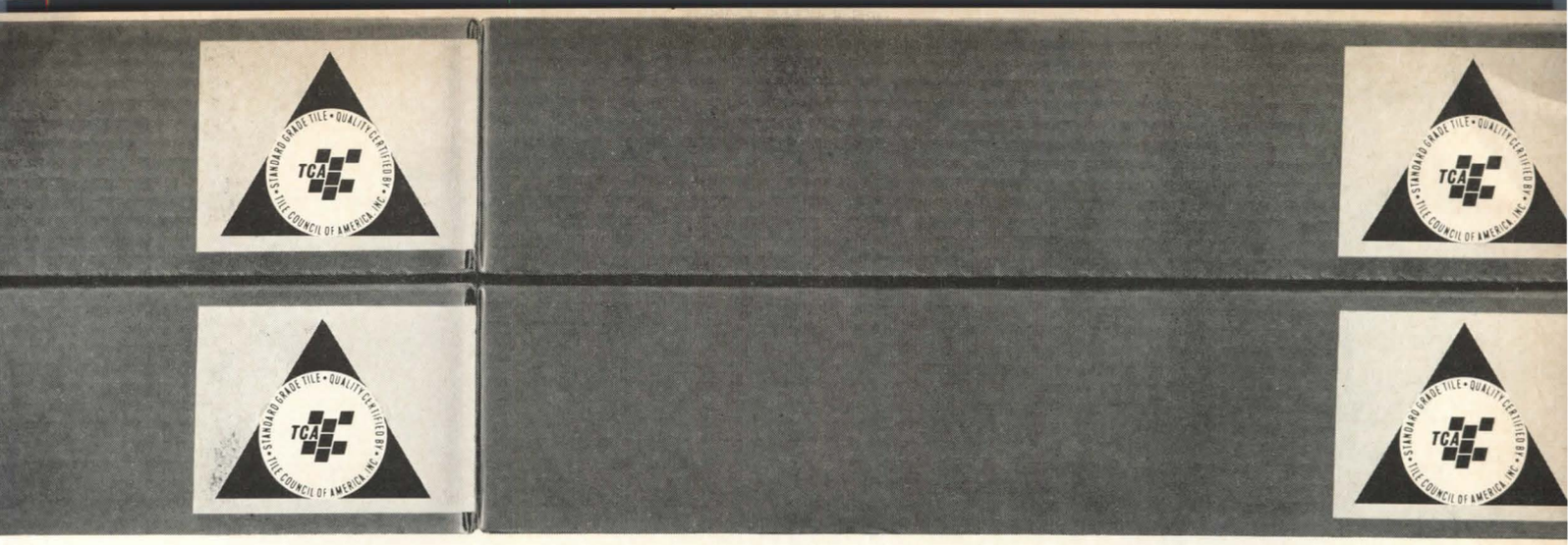

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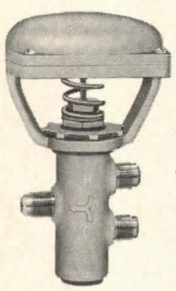
This Robertshaw all-season pneumatic control system saves operating dollars



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The Ross Building is designed to offer the most comfortable working environment in Richmond. Robertshaw is glad we could help the owner take full advantage of this advanced system.
In every phase of a complete systems project, you can be assured of Robertshaw's "Rely-Ability".

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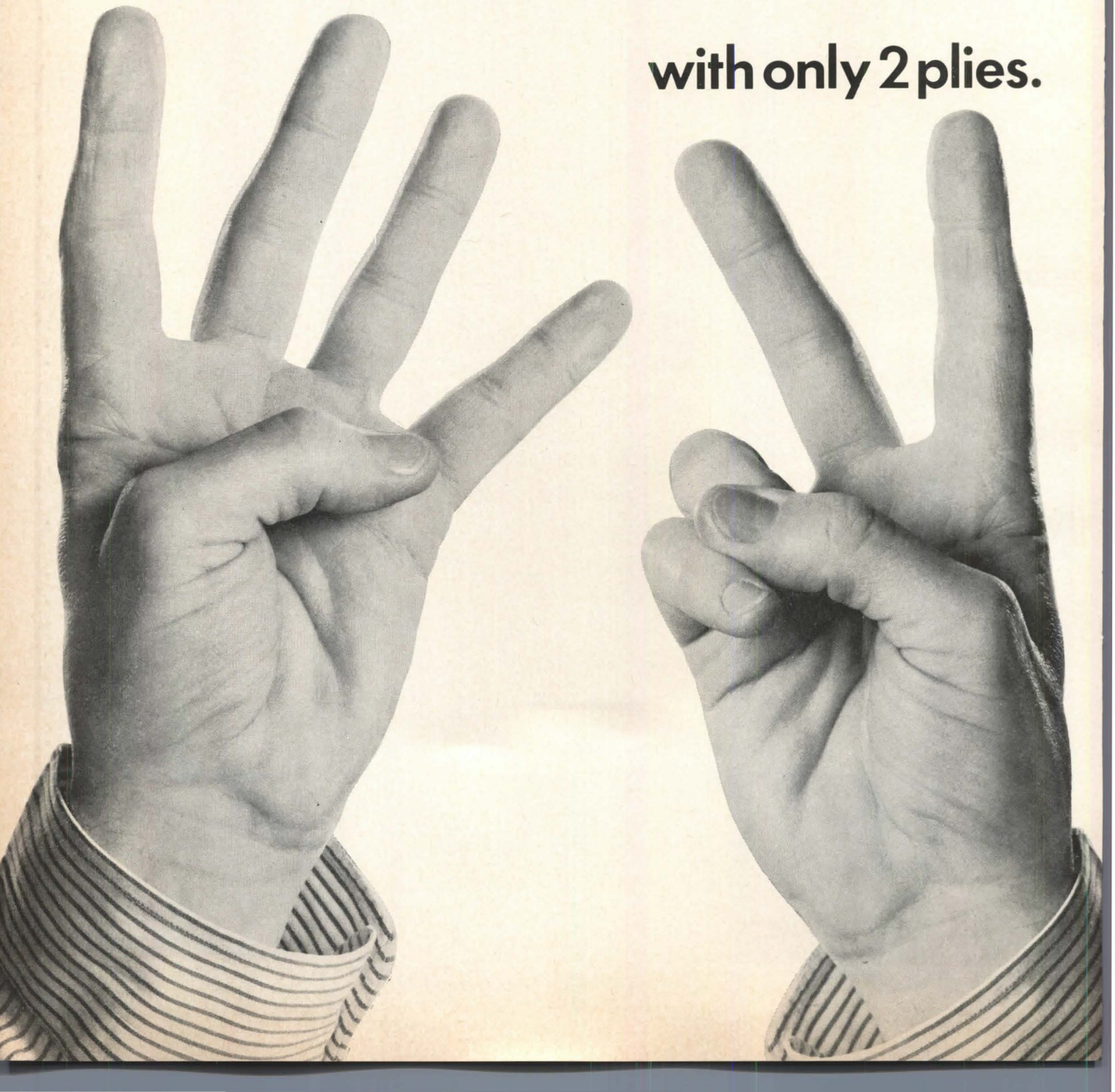
Think twice before you specify your next built-up roof.

New Barrett Bond Ply Roofing System gives 4-ply Class A protection...



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We don't do it with mirrors. We do it by coating each side of the Bond Ply Coated Roofing Sheet with a heavy, even layer of asphalt. These factory-applied coatings assure a more uniform distribution than is possible with on-the-job moppings.

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You get exactly what you specify in quality, weather protection and long life when you specify Barrett Bond Ply, the new built-up roof that's bonded for 20 years just like conventional 4-ply systems.

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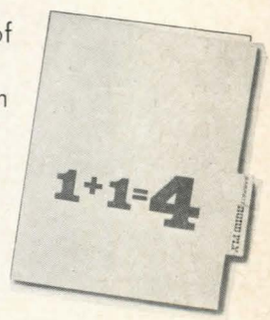

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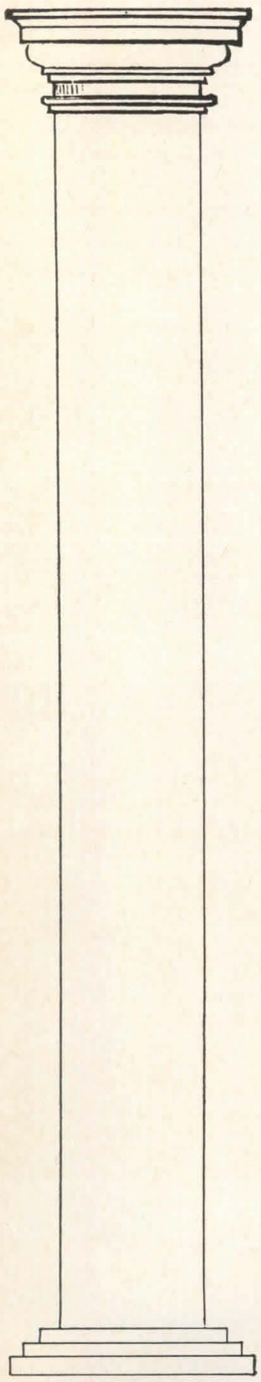

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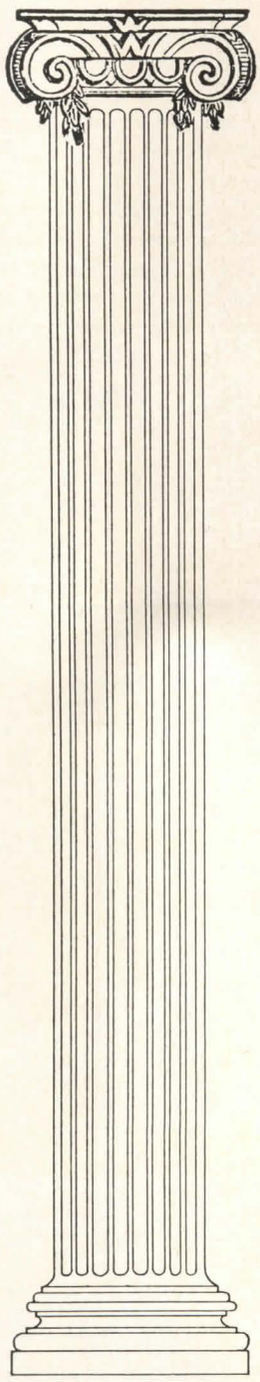

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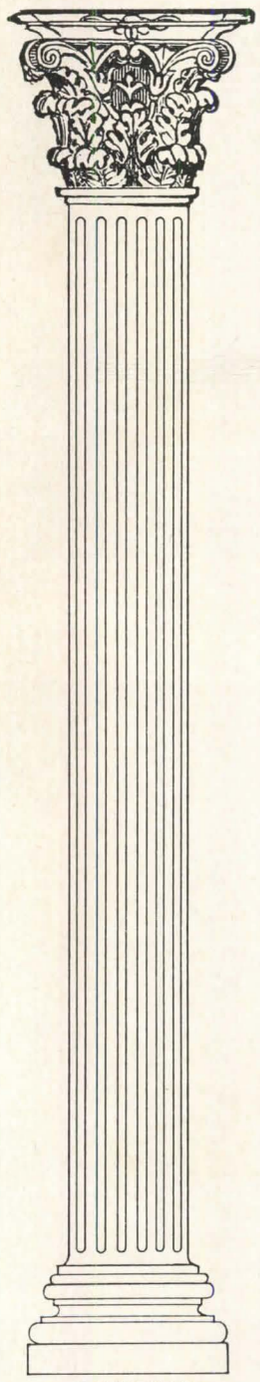

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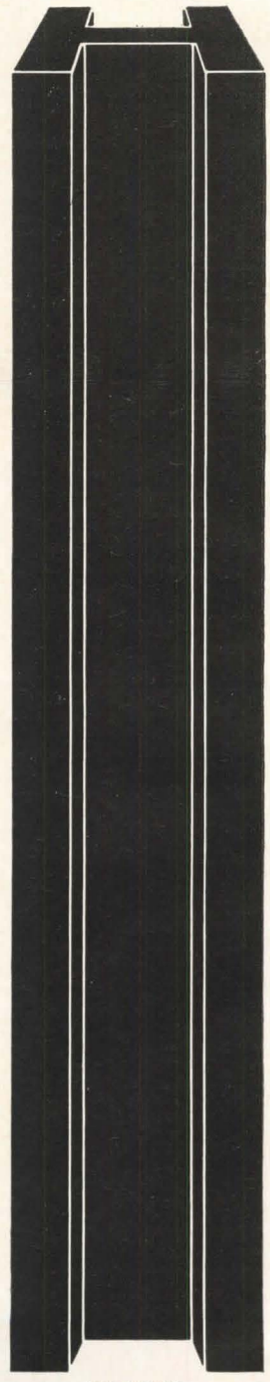
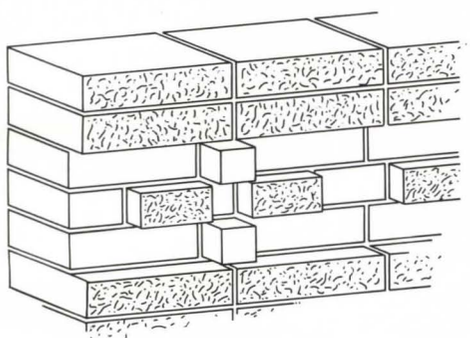


USS 14″ WF

USS United States Steel



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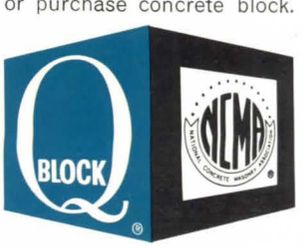

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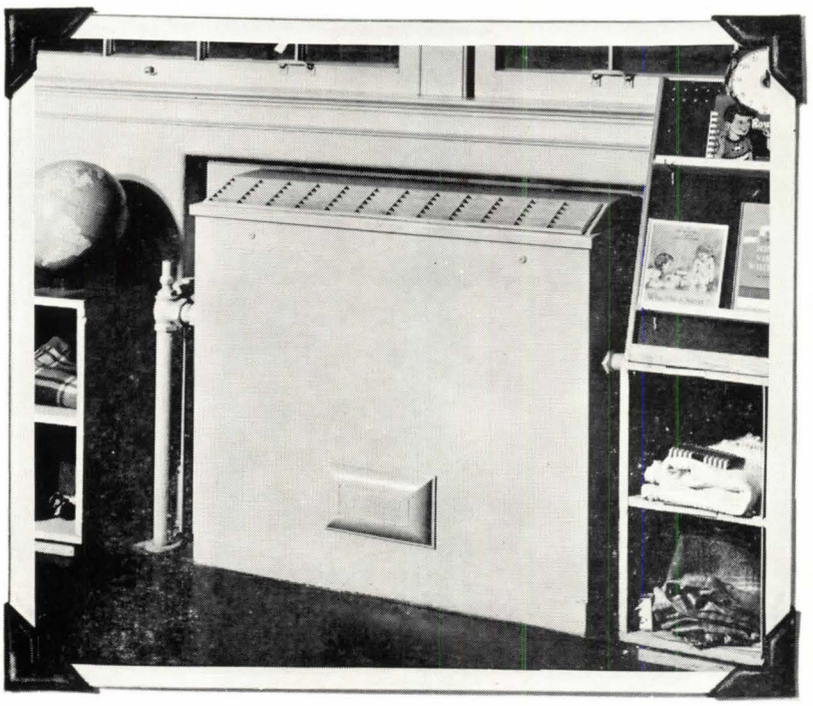

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Original architect:
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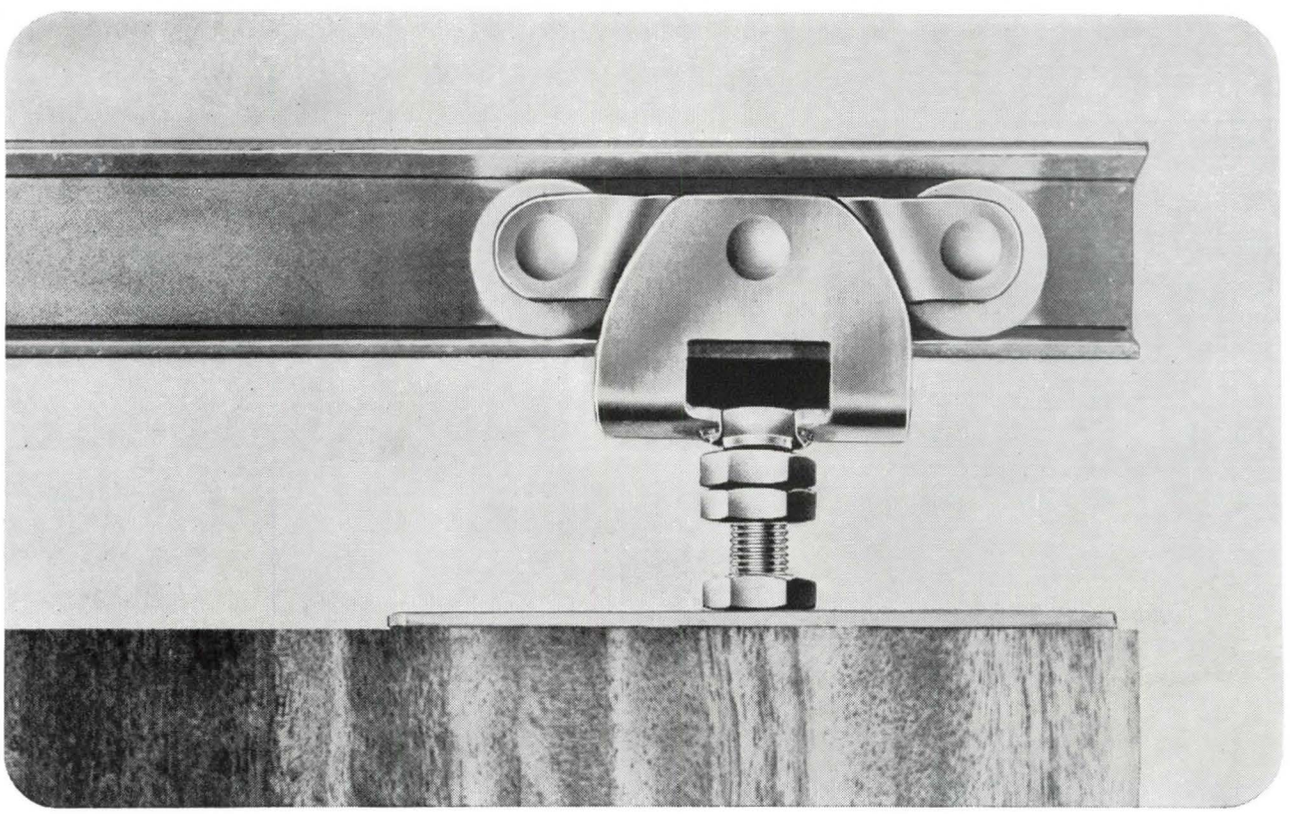

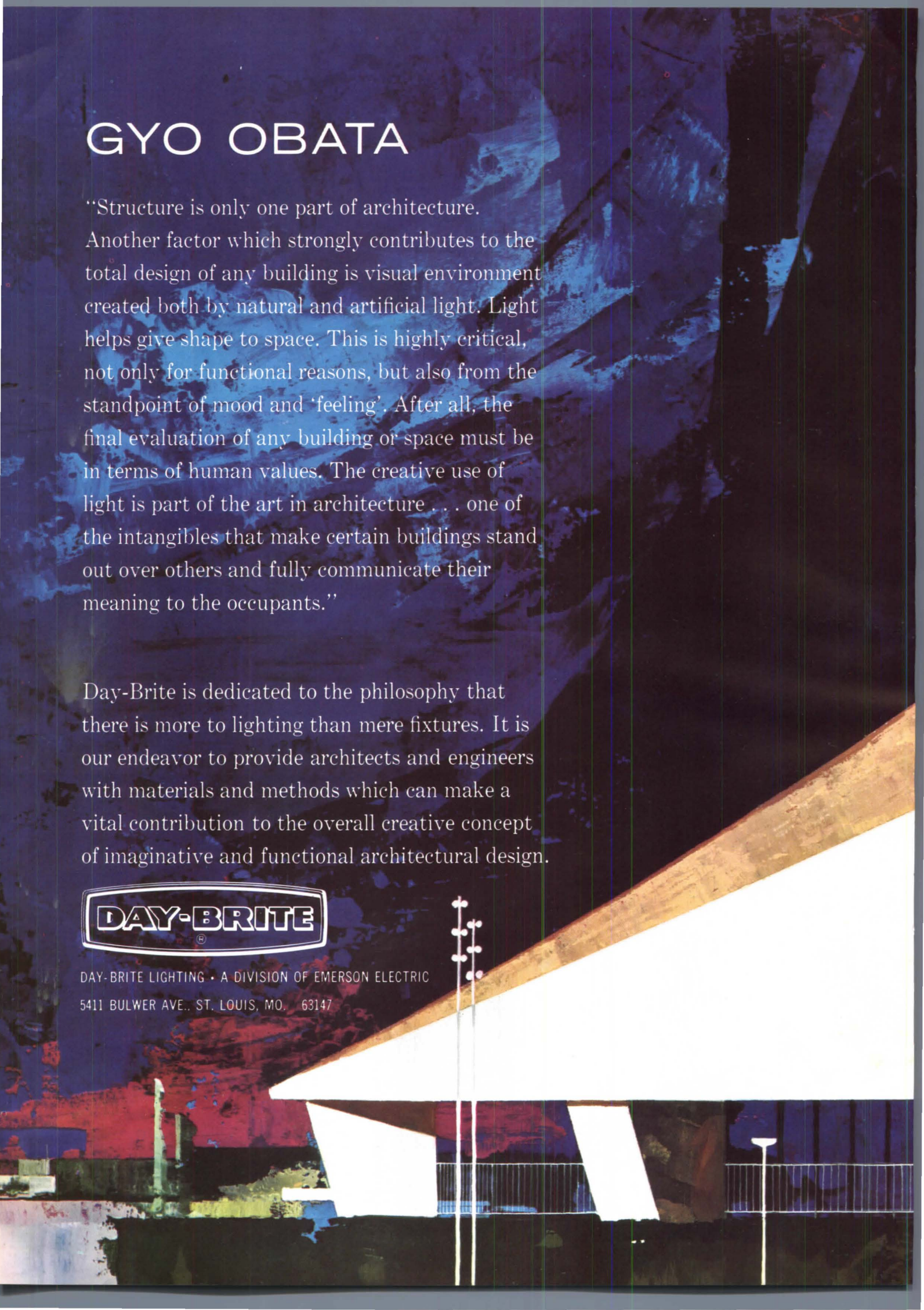

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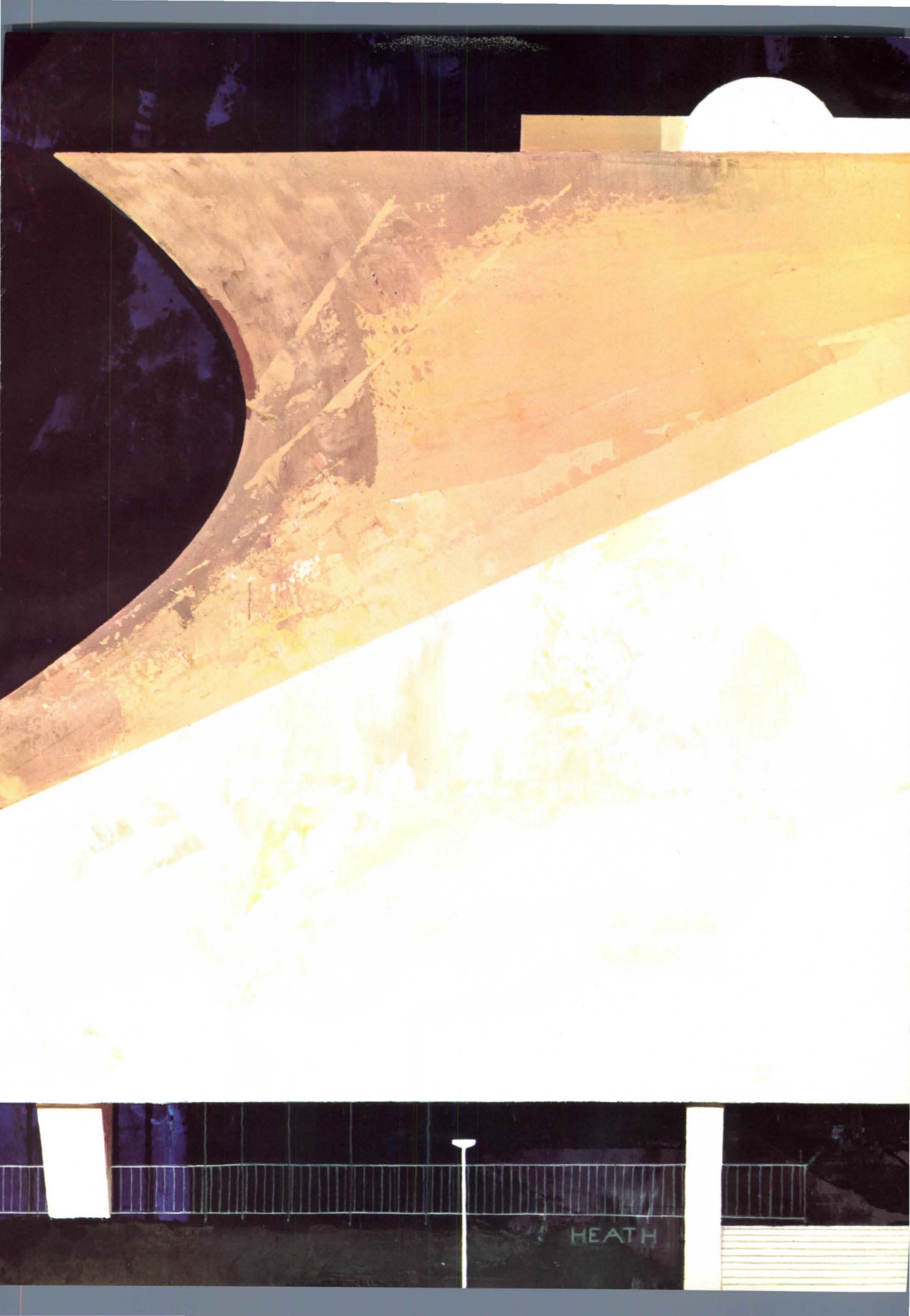
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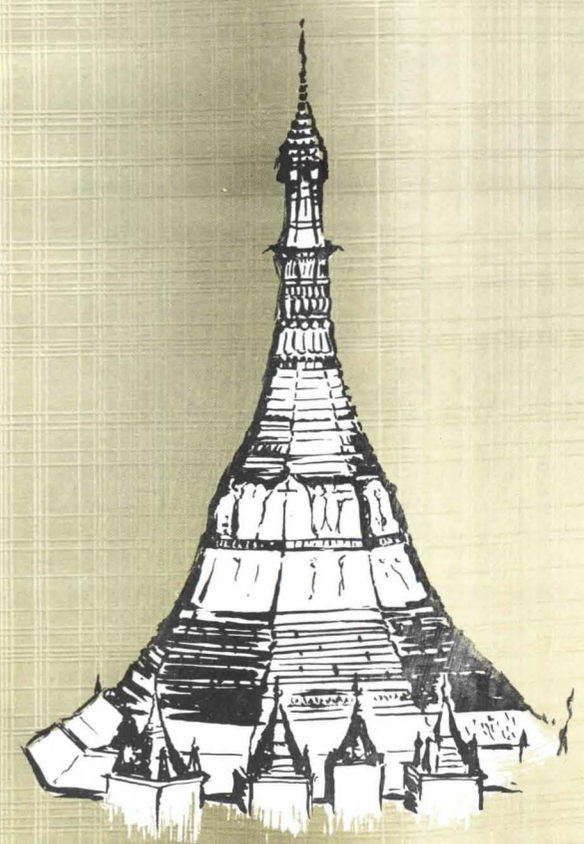

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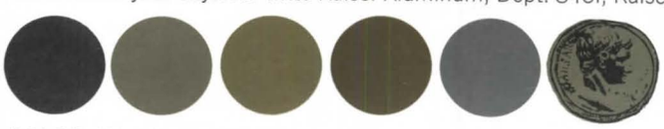

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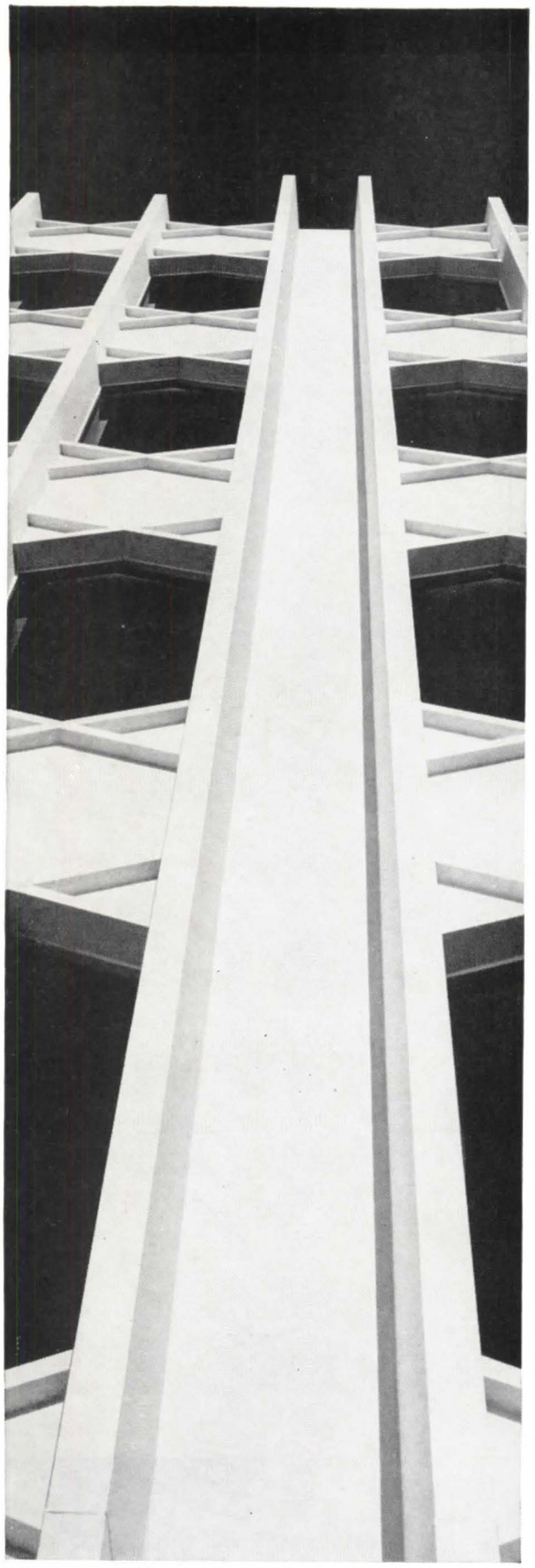

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HUMPHRY OSMOND, M.D.

EDITORIAL

The publisher is a magazine's keystone, and P/A has a new publisher who took over the first of this month.

I have often been asked by architects what it is that a publisher does. Perhaps the best way of explaining this is by first describing our organizational structure.

P/A is divided into five departments. The Editorial Department, of which I am in charge, is responsible for the editorial content of the magazine—the choice of subjects, the writing, and the graphics. The Production Department's responsibility is the fitting of all the many parts of P/A together so that it can be printed, and supervising the work of typesetters, engravers, printers, and binders. The Advertising Sales Department is, of course, concerned with the selling of advertising space. The Research and Promotion Department deals with advertising sales promotion and provides market information to potential advertisers. The Circulation Department promotes and keeps track of all subscriptions and watches over the mailing of the magazine.

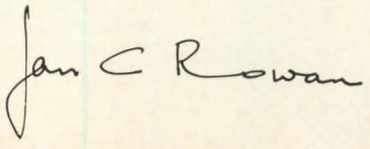
This is a rather simplified version of each department's function. Their duties are complex and responsibilities numerous. The man whose job it is to coordinate the workings of all the five departments, and therefore of the magazine as a whole, is the publisher. He is the one who directs the total operation, and, like a sponsor who coordinates the work of architects, contractors, rental agents, and many others, he has the ultimate responsibility for the success of the venture.

Perhaps the word "ultimate" is too strong because the publisher, as a Division Manager, has to account for his actions to the President of the Corporation, who in turn has to answer many questions posed by the Board of Directors, which in turn has to figure out what the stockholders might think of all that is happening. Which is probably why I sometimes have an enigmatic smile on my face when asked why this or that is the way it is.

Another question often asked is how much influence a publisher exerts on editorial content. This varies considerably with different publications. Usually, publishers who have an editorial background and are also well versed in the subject matter of the magazine are likely to take detailed interest in what is shown and what is written. Others, those who had experience in other areas of publishing and other fields of activity will rely entirely—or should, if they are wise—on their Editors for editorial content. But even in such cases, a publisher's influence should not be underestimated. By controlling budgets and through the veto power over everything that happens on a magazine, he exerts a control that is bound to have deep effects. And it is he, after all, who decides who the Editor shall be.

We on P/A are lucky in having had a publisher who for many years steered us through the complicated publishing maze of many personalities and often conflicting influences, never abandoning the idea that our role is to be a truly professional magazine. If the profession thinks that P/A is a good magazine, then it must give applause to the outgoing publisher, D. Bradford Wilkin.

And we are also lucky that our new publisher, Philip H. Hubbard, Jr., is acutely aware of P/A's responsibilities to the profession. I have had the privilege of working with him for some months now and I know that, with P/A under his aegis, it will not be easy for me to justify my mistakes by saying that the publisher is the one to be blamed. ■



The Psychological Dimension of Architectural Space

Architecture can willfully foster or discourage social group formations, according to an architect and a psychiatrist who are here investigating two environments: a mental hospital and a college campus.

The history of architecture contains innumerable examples of architectural spaces that have been consciously manipulated to draw people together or to disperse them. The architectural arrangement of the New England village green served to join the separate parts of the community into a recognizable entity, thus stimulating community spirit. Ancient rulers, on the other hand, emphasized the distance between themselves and their subjects by long ceremonial passages, and by differences in elevation. Modern dictators have used similar architectural devices to establish their dominance visually.

Architecture, in its consciousness of such effects, can have tremendous influence for good or for bad on the daily life of man; it can foster or discourage social contact among people.

Robert Geddes, of the Philadelphia firm of Geddes, Brecher, Qualls, Cunningham, is one of a growing number of architects who recognize the potentials of this premise. His recent appointment as Dean of the School of Architecture at Princeton is significant, for it implies a new direction in architectural education, in which the study of the behavioral and social sciences will become an integral part of the curriculum. "Architects," says Geddes, "are concerned with the social order, not merely the physical."

In the development of this thesis, Geddes has been strongly influenced by Dr. Humphry Osmond, a psychiatrist and Director of Research in Neurology and Psychiatry for the State of New Jersey. As one of the rare scientists who sees beyond his own limited specialty, Dr. Osmond envisions the collaboration of architect and psychiatrist so that the therapeutic possibilities of architecture may be more thoroughly explored: "Perhaps, by applying our measuring rods to the great needs of the mentally ill, we may emerge with something valuable for the mentally well. We need here a module deriving, not from the size of man's body, but from the way in which he disposes of that body in social relationships."

Collaboration Between Architect and Psychiatrist

The collaboration between architect and psychiatrist that is so essential in developing this "social module" is unfortunately difficult to establish. Both professionals are specialists in their respective fields. Architects have too long been trained to see their buildings in stylistic or technological terms alone. Psychiatrists have been too submerged in "the study of man," the "psychodynamic phenomenon." And both architect and psychiatrist can be criticized, as were the scientists at the recent meeting of the American Association for the Advancement of Science in Montreal, for being too aloof. "While the scientist has learned the function of this or that part of the brain," said one speaker, "he has not made much headway toward understanding *how man thinks*. He is trying to learn how the parts operate without considering the whole." As with the scientists, 'achievement of knowledge' per se has too often been 'the ultimate goal.' Similarly, architects and psychiatrists, singly or together, have made little headway toward understanding *how man lives*.

How Man Lives

Man, most anthropologists agree, was evolved from very small societies. It is therefore logical that men relate to each other more effectively in small groups. The grouping of the population into smaller, biologically derived units is thus essential in planning buildings for human use, particularly in view of the growing world population and the concomitant overcrowding of buildings. More than ever, man will depend on man-made shelter to offer him a haven in times of social stress, and, at the same time, means of communication, when help and understanding from others are required. "I believe," says Dr. Osmond, "that an aesthetic of a deeply satisfying and valuable kind can grow when we start to think of ourselves as a very special kind of animal whose requirements are just as interesting, demanding, important as the rarest creature in the finest zoo." Zoo keepers and circus owners, he observes, have long interested themselves in the design of environments for their precious charges, for, to keep rare and expensive animals in captivity, one must recognize their needs or they will die. Man is far tougher than most animals, more adaptable, aggressive, and predatory. He can and does survive in conditions that

are far from ideal. However, he does this at a price, and this price is often more than man can endure.

Architecture as Generator of Social Group Formations

That it lies in the architect's power to shape this environment for better or for worse is the principle which Geddes has derived from Dr. Osmond. Buildings can be *anthropozenic*, (that is, alien to man), or *anthropophilic* (suitable for or attractive to man). Buildings can also be *socio-petal*, that is, designed to draw people together and engender social relationships, or *socio-fugal*, designed to disperse people. An entirely anthropozenic structure would be the hot part of an atomic reactor, explains Dr. Osmond; its enclosed space is of no concern whatever in human relationships. A home, however, should be highly anthropophilic as well as socio-petal, because its main purpose is to foster human relationships.

Social Terms Translated Into Architecture

For the past several years, Geddes has been translating Dr. Osmond's social desiderata into architectural terms. Two prototype social environments have been selected here for detailed study: one for the mentally ill, the other for presumably normal college students. The first is a mental hospital study completed by first- and third-year students of architecture at the University of Pennsylvania for which Geddes and Dr. Osmond were the advisors and critics. The second is a Residence Hall Group, designed by the office of Geddes, Brecher, Qualls, Cunningham for the University of Delaware.

1: Environment for the Mentally Ill

This design problem, says Dr. Osmond, calls for an architect who is deeply aware of the patients' experience and one who can design a building which limits social interaction to that amount which provides the least chance for panic and withdrawal, while maintaining the greatest and most suitable kind of social relationship.

Interestingly enough, a similar call for an understanding architect-collaborator went out more than a century ago from Dr. Thomas Kirkbride of Philadelphia, who in a book published in 1854 set down his criteria "On the Construction, Organization and General Arrangement of Hospitals for the Insane." The doctor laid great emphasis on the fact that the architectural defects of hospitals of that time resulted almost entirely "from the buildings having been planned by persons, who, whatever may have been their taste, architectural skill, or good intentions, had little knowledge of what is required for the proper care and treatment of the insane." He felt that it was hardly possible for most architects, unaided, to plan a hospital. In guiding Mr. Samuel Sloane, the collaborating architect, in the design of structures for the treatment of the insane, Dr. Kirkbride emphasized that these buildings had to be differentiated from factories or workshops, since "the surroundings of patients greatly influence their conditions and feelings." The grounds were to be "tastefully ornamented . . . everything repulsive and prisonlike carefully avoided," prevailing winds and sun exposure to be taken into consideration, but most importantly he advocated single rooms for most patients. Patients met in small groups in day rooms designed to hold no more than 10 people. The total number of patients in the hospital was to be kept to a maximum of 250. Kirkbride was showing, already at that time, the need for limiting social contact and for introducing a "social module" corresponding to normal family size. "The ratio of staff to patients," comments Dr. Osmond, "was admirable, and the hospital full of hopeful activity. There were many such hospitals in North America and they were very successful. They were, however, superseded by others that were dismally different. Within 50 years, single rooms, privacy, a sufficient and well-trained staff, and that essential atmosphere of dignity, compassion and understanding had gone. It was replaced by vast dormitories, storing 50, 100, sometimes 150. There were expanses of receding corridors, and bleak, ill-lit, poorly furnished day rooms, like old-fashioned railway stations. "What happens," asks Dr. Osmond, "when day rooms containing 10 patients are superseded by day rooms containing 50? Among 10 people, there are 45 possible two-person relationships. Among 50 people, there are 1225 possible two-person relationships. The complexity of the society has gone up by a factor of at least 27, and it is no wonder that the sick were overwhelmed."

What are the peculiarities of mentally ill people, schizophrenics in particular, which the architect must take into account in his design? The illness is characterized by changes in perception, thinking, and mood that precipitate the sick person either slowly or at breakneck speed into a world far less stable and predictable than that to which he would normally be accustomed. The sick person becomes anxious, and, with rising anxiety, the distortions worsen and invade increasingly larger areas of his life. It is not simply that sight, hearing, touch, smell, and taste may be subtly changed or even grossly distorted, but one's sense of time and awareness of one's own body can change too. In brief, the sick person cannot be sure who he is, where he is, when he is, and with whom he is talking, and all these factors can fluctuate from minute to minute. This is profoundly disturbing; schizophrenic people are frightened and preoccupied with their strange experiences, which they can very rarely communicate to others, because they do not know how to analyze and describe what is happening to them.

What would be most harmful or helpful in the environment of the sick person? Avoid anything, says Dr. Osmond, which makes heavy demands on the patient's impaired perceptual apparatus. Avoid ambiguous and muddled design, too much complication, even though it may be aesthetically interesting. Avoid too much space, and too many people impinging on the sick person. Insure that shapes, color, lighting, textures are unambiguous, that corridors and spaces are clearly defined, that living space of the biologically derived kind is provided.

To the students who participated in the mental hospital design problem, Dr. Osmond gave this further advice, "No building is ever perfect, but we can at least avoid the mistakes which have been repeated ad nauseum all over the world. Let us try to make some really original mistakes of our own. We may find they don't work too badly."

Each student was asked to develop his own program, select a proper site and community location, and design a building for the care of the mentally ill. Unusually comprehensive background material was provided to give them the thorough grounding in behavioral sciences, which the two design critics, Dr. Osmond and architect Geddes, considered essential. Included, for example, were texts such as *The Inner World of Mental Illness*, edited by B. Kaplan, and *Varieties of Psychopathological Experience*, by Dr. Carney Landis. Five background papers—three by Dr. Osmond, one by Richard Llewelyn-Davies, one by Dr. Charles Goshen—were also made available to the students. And, most importantly, they were given the opportunity to meet Dr. Osmond, to listen to his discussion, and to be guided by him through a mental hospital.

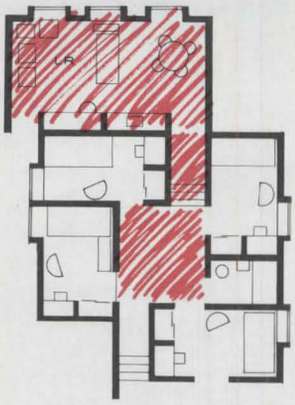
Several unusually thoughtful solutions emerged, of which two are shown on the following pages.

Mental hospital design by Miriam Comings
University of Pennsylvania,
Architecture, Geddes/Bower Studio

Design proposal for large site in open country, near shopping center. Architectural spaces arranged to offer privacy as well as opportunities for meeting people -- hospital staff, in-patients, out-patients, visitors. Group formations encouraged on four levels:
1. in family-sized environment; 2. in apartment-house-sized environment; 3. in city-block-sized environment
4. in small community

social space

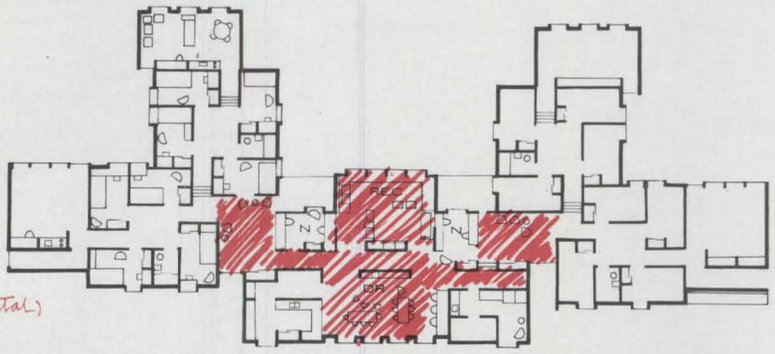
1. Living Unit
4 patients in single rooms share:
center hall (socio-petal)
corridor (socio-petal)
living room (anthropophilic)



2. Nursing Unit
(composed of 4 living units)
16 patients share:

2 nurses' stations with adjacent waiting space (socio-petal)

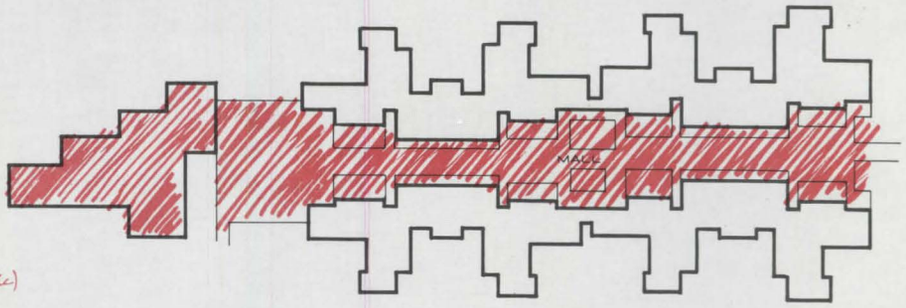
recreation room (anthropophilic and socio-petal)
dining room (anthropophilic and socio-petal)
corridors (socio-petal)



3. One-Street Community
(composed of 4 nursing units)
64 patients share:

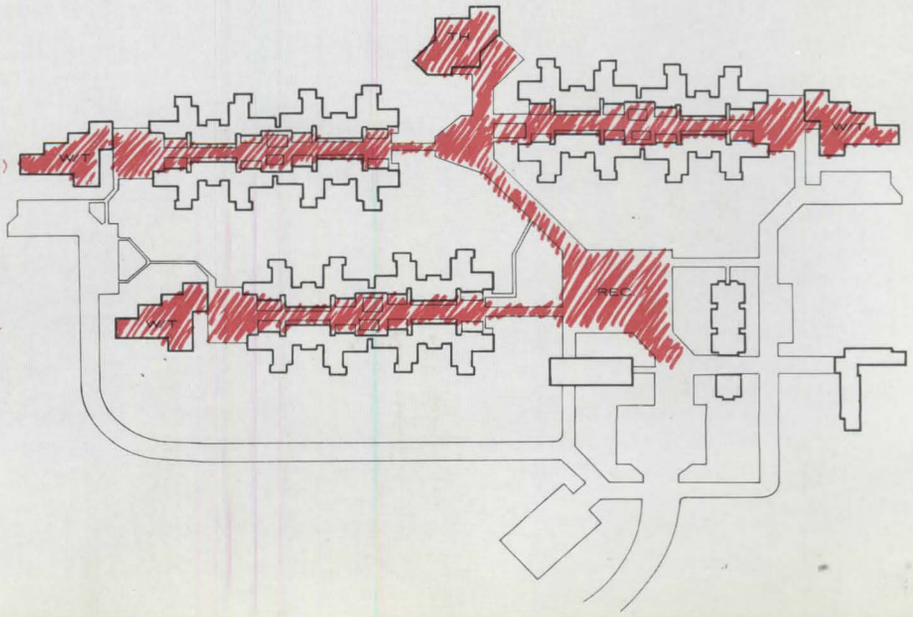
outdoor mall for patients, visitors, staff (socio-petal)

workshop/therapy for in-patients and out-patients (socio-petal and anthrophophilic)



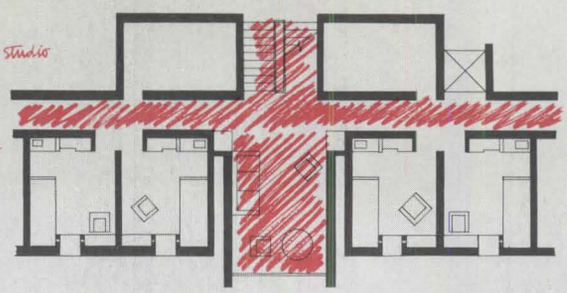
4. Total Hospital Community
(composed of 3 one-street communities)
± 200 patients share:

3 outdoor malls (socio-petal)
connective walkways for staff, visitors, in and out-patients (socio-petal)
open-air recreation area for in and out-patients (socio-petal)
therapy for in-patients and out-patients (anthropophilic)



Mental Hospital Design by Steven Izenour
University of Pennsylvania, architecture, Haddad/Bower studio

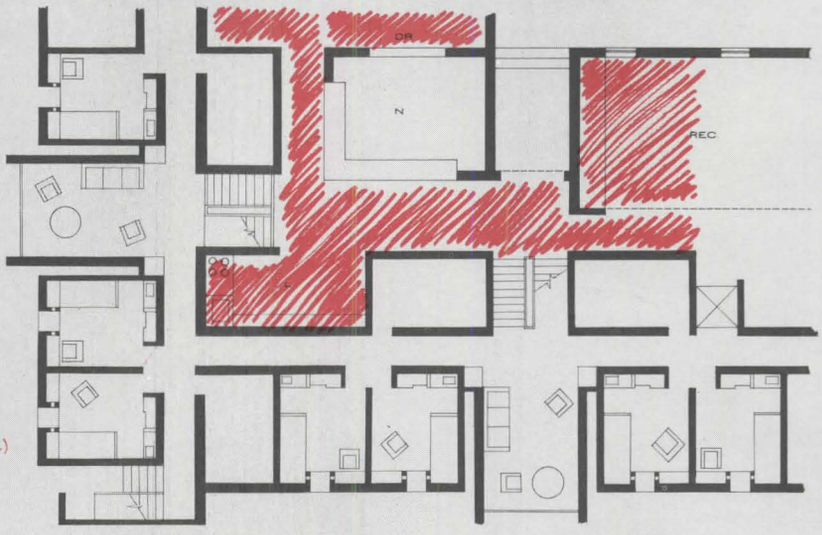
Proposal for an urban site surrounded by row houses and shops in the Society Hill area of Philadelphia - Auditorium, shops, cafeteria, out-patient unit to serve as contact point between hospital and community



1. Living Unit
4 patients in single rooms

living room (anthropohilic)
stair (socio-petal)
corridor (socio-petal)

Social Space

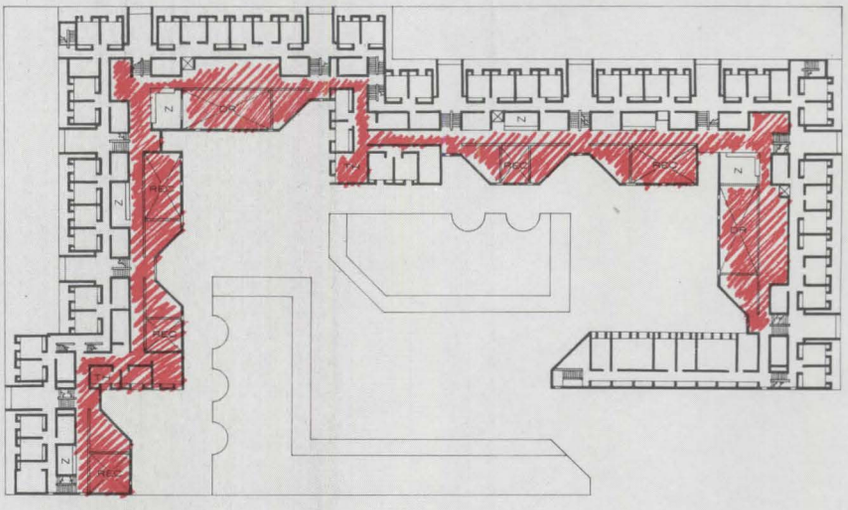


2. Nursing Unit
(composed of 4 living units in split-level arrangement)
16 patients share:

1 nurses' station with adjacent lounge (socio-petal)
recreation room (socio-petal and anthropophilic)
dining room (socio-petal and anthrophphilic)
corridors (socio-petal)

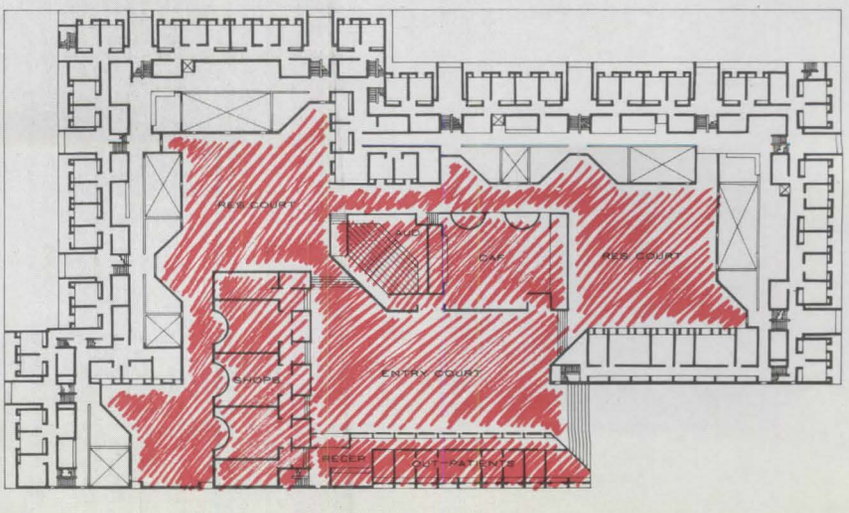
3. Floor community
±100 patient

2 recreation rooms for noisy activities
3 recreation rooms for quiet activities
2 dining rooms
2 therapy areas
corridors



4. Total Hospital Community
± 300 patient share:

auditorium
2 residential courts for staff, in-patients, out-patients, visitors
1 entrance court for public, out-patients
shops for public, visitors, patients, staff
out-patient unit
cafeteria for staff, visitors, patients



2: Environment for College Students

Dr. Osmond's proposition that buildings have social values has implications far beyond his own specialty of treating and housing the mentally ill. His concept of sociopetal and sociofugal design is, in effect, applicable to all architecture that involves people, whether in office buildings, in apartment houses, or, as in this case, in a college complex.

In the mental hospital, sociopetal and anthropophilic design served the purposes of therapy; here, it serves to engender social relationships, uniting more fully the social and intellectual life on the campus. Geddes feels that too often in American colleges, the social life of the residence hall is thought of as distinct and separate from the intellectual life of classroom, laboratory, and library.

In their design for the University of Delaware, architects Geddes, Brecher, Qualls, Cunningham, convinced that both the student and the university will benefit, have attempted to provide an architectural setting in which a student will have the necessary privacy, yet will also find it easy to make new friendships in spaces consciously designed to promote face-to-face relationships.

There are many components in such an educational community. The crucial decisions in the design, according to the architects, are concerned with the number and location of these components: one, the number of students who comprise the residential living units; two, the number of students who jointly share dining, library, and common facilities; and, three, the location of these activities so as to form a series of comprehensible communities. It seems clear, says Geddes, that there are limits of size for every group, whether they are sharing a lounge, washroom, or landscaped courtyard, beyond which friendships and social groups do not form. It seems likely that the frequency of involuntary, personal, face-to-face contacts is one of the most important factors in the formation of groups and informal friendships. The layout of the corridor, the location of the lounge or bathroom, the placement of the stairways and doors—all have a direct bearing on the formation and maintenance of informal social groups.

Final allocation of these social spaces within the residence group for the University of Delaware (*shown as shaded areas in diagrams overpage*) follows closely the original recommendations by the architects for the programming of social groups:

A STUDY-BEDROOMS 2-6 students, predominantly in single rooms, share:
- Corridor-alcoves

B COUNSELING UNIT 33 men or 37 women share:
- Stairwell entry
- Toilets
- Living room (seating one-third of the counseling unit)
- Counselor's room

C HOUSE 100 men or 150 women share:
- House lounge (seating one-fifth of the House)
- Recreation/TV room
- Reading room
- Snack bar
- House Director's apartment

D PAIR OF HOUSES one for male students, one for female students share:
- Entry courtyard
- House garden
- Interconnecting house lounges

E DINING HALLS 750 students share:
- Central quadrangle
- Entrance from central quadrangle

Exterior spaces are similarly considered as social spaces (*diagrams overpage*):

F Open space for 750 students, shared by all six Houses
G House entry courts for 240, shared by two Houses
H Private house gardens for 240
I Outdoor space shared with public on visitors' day

That such architectural spaces for social grouping can be provided at no greater cost and at no increase of space, is borne out by this design, which allows 228 sq ft per student—a figure roughly halfway between the national average of 238 sq ft and the 220 sq ft taken up by the existing University of Delaware dormitories. A cost breakdown comparing existing and proposed buildings establishes further that the $25.85 sq ft cost of the proposed building will be comparable to that of the existing buildings which range from $23.86 to $25.76. The architects' apportioning of the 228 sq ft gross area per student into the various housing components, as compared with national averages, is as follows:

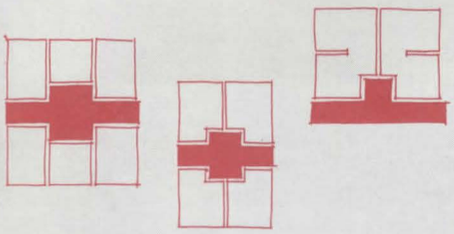
	Nat. Average	*Proposed Bldg.*
Study-bedroom	109 sq ft	110 sq ft
Toilets	15 sq ft	13 sq ft
Corridor-stairs	43 sq ft	40 sq ft
Commons spaces	21 sq ft	27.5 sq ft
Storage/Service/Laundry	19 sq ft	15 sq ft
Dining/Kitchen	25 sq ft	12 sq ft
Staff apartments	6 sq ft	8.5 sq ft
Reading room		2 sq ft
	238 sq ft	228 sq ft

There are many ways of dividing the allowable 228 sq ft. Whether to encourage social grouping by apportioning some of the allotted area to what Dr. Osmond has called the sociopetal spaces is up to the individual institution. The decision about the kind of student housing is a critical one, since a residence system is more than a collection of dormitories, and a distinctive part of an educational system. The choice is closely related to the goals of the college or university: the kind of education, the kind of student life, the kind of community. All these are influenced by the form of the physical environment.

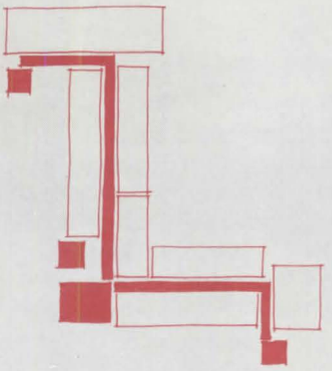
Conclusion: A Method of Design

In planning the human environment, the thoughtful architect has, of course, always worked along the lines of Dr. Osmond and Professor Geddes. And it is not surprising that other architects are also at this time thinking, teaching, writing, and working in this direction: Sim Van Der Ryn and Christopher Alexander in Berkeley; DeMay in Boston; Joseph Amisano in Atlanta; Conklin in New York; Dart in Chicago; Bassetti in Seattle, to mention only a few. The idea of designing architecture in terms of social modules is not new or world-shaking. But it is obvious, when reviewing the majority of recently completed housing projects, college residences, and institutions for the sick, that very little thought has been given to the human element, and that design is for the most part a haphazard, mechanical procedure. Obviously, not all of these buildings can be expected to be architectural masterpieces, but it should be possible to make them workable shelters in the terms discussed in this article. This study points to a logical planning approach, to a method of design.

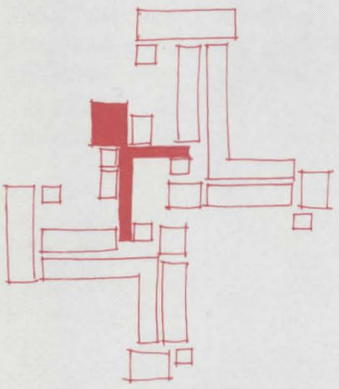
Social spaces (shaded areas), Residence Group, University of Delaware



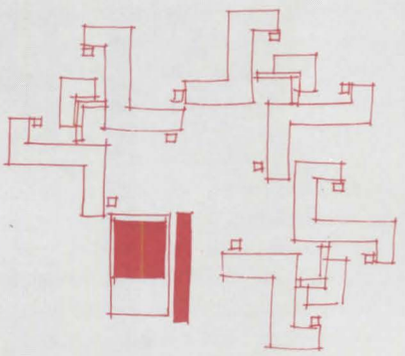
A Rooms + corridor alcoves



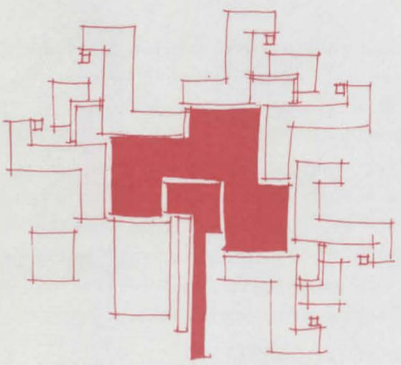
B The floor Counseling unit + Living room



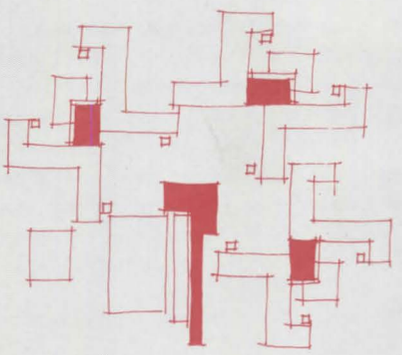
C+D The House Coed social lounge and entry



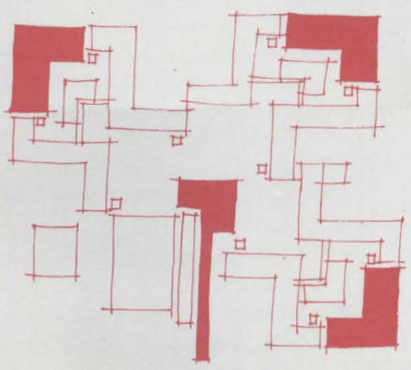
E The group Quadrangle and Dining Hall



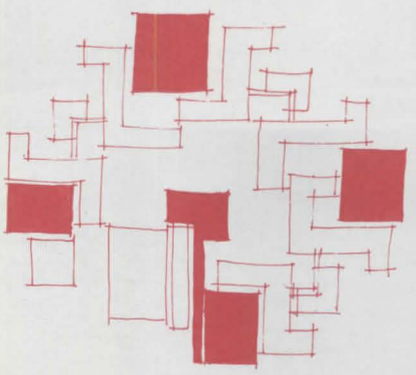
F Entrance walk and central quadrangle



G House entry courts

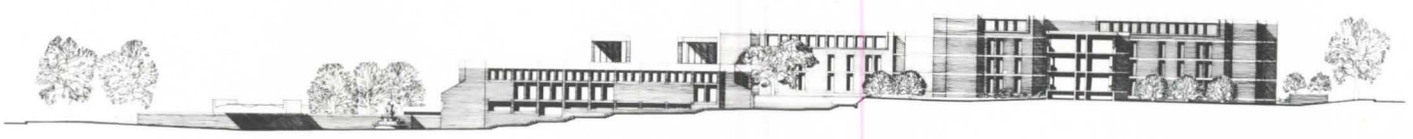


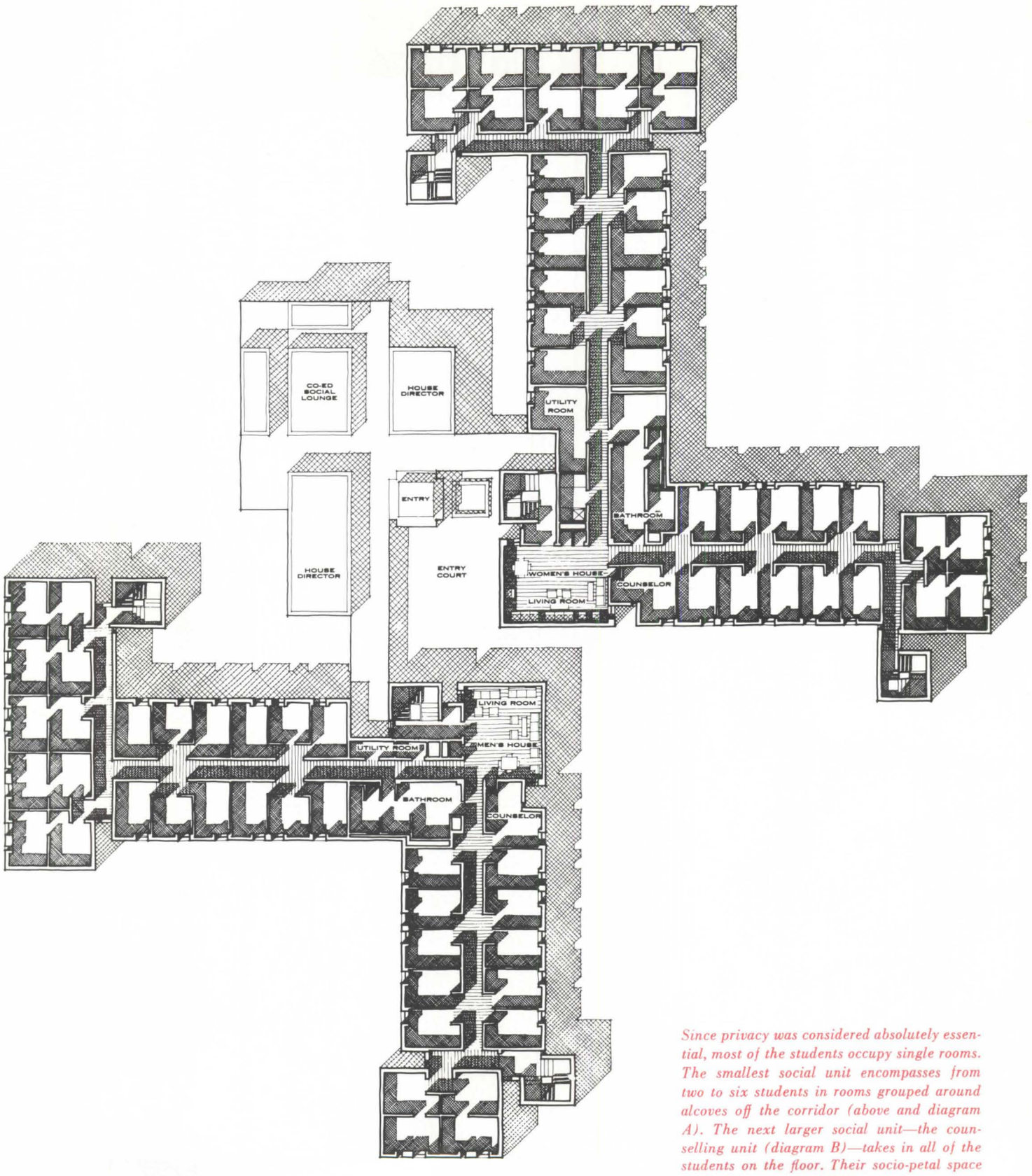
H Private House Gardens



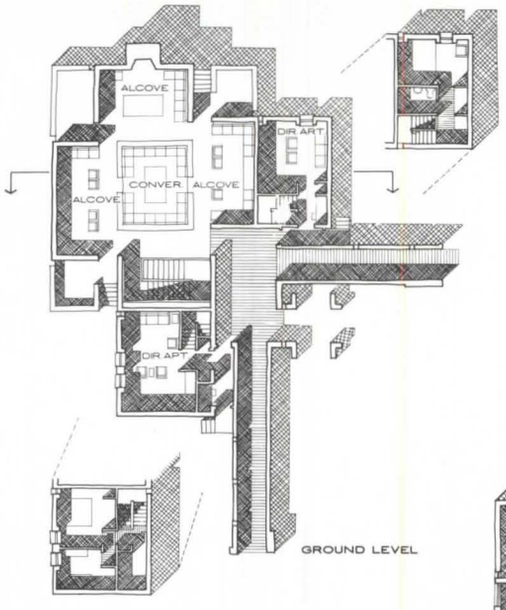
I Public outdoor space

In designing the residence group for the University of Delaware, architects Geddes, Brecher, Qualls, Cunningham intended from the start to organize the various building components into a comprehensible community around one dominant space. This central quadrangle (also diagram F, facing page)—in effect an outdoor social room—is also the major socio-petal space belonging to all of the 750 students housed in three dormitory subgroups. Other outdoor spaces — the entry courts (diagram G) and private house gardens (diagram H)—are more intimately scaled to the smaller social modules. Four courts have been set aside for the general public (diagram I) on visitors' day.

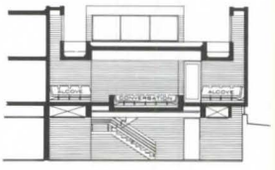


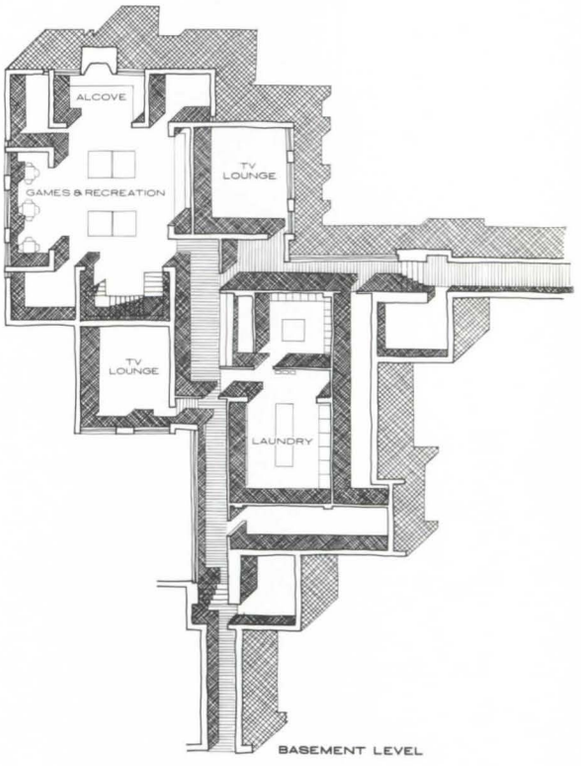


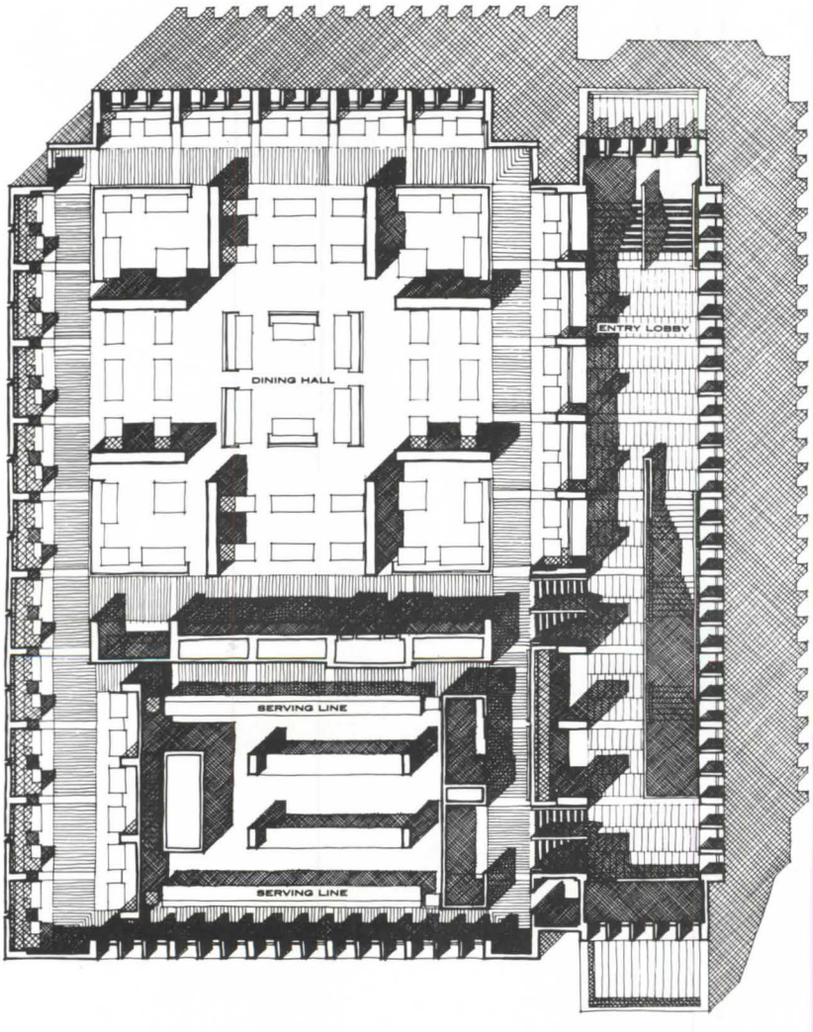
Since privacy was considered absolutely essential, most of the students occupy single rooms. The smallest social unit encompasses from two to six students in rooms grouped around alcoves off the corridor (above and diagram A). The next larger social unit—the counselling unit (diagram B)—takes in all of the students on the floor. Their socio-petal space is the living room, large enough to accommodate half of the students on the floor at one time, and sized on the basis of 30 sq ft per person. A "house" (diagram C, D)—the third social module—is composed of three such floors. The paired houses—one for female, the other for male students—introduce the fourth step in the social grouping within the dormitory complex.



Paired houses are linked by a social lounge that provides the socio-petal and anthropophilic spaces (diagram C, D) for about 250 co-ed students. Alcoves in the lounge are important in breaking down the scale of the large room. Natural light, brought in from above (section), visually defines these smaller conversation areas. The recreation room on the lower level is similarly subdivided for more active functions.







The dining hall is the major interior social space (diagram E) serving all of the 750 students. As in the co-ed lounge, architects have consciously formed subgroups within the large space, with a place for sitting, waiting, and meeting friends in the center, and a number of dining alcoves around the perimeter.

KUNIO MAEKAWA:
Setting a Course for Japanese Architecture

1

2

Kunio Maekawa has probably contributed more to the progress of modern architecture in Japan than any other architect. He was the first Japanese to work in Le-Corbusier's atelier (1928–30) and the first to bring Corbu's principles back to Japan, where they now dominate the architectural scene. After five years as a designer in Antonin Raymond's office, he established his own practice in Tokyo in 1935.

Before World War II, Maekawa organized groups of young Japanese architects to study and propagate modern design. He has continued his educational role as a professor in the Department of Architecture at Nihon University, Tokyo. He was the chief Japanese representative to CIAM and is now a member of the executive committee of the UIA.

His younger colleague, Kenzo Tange—who served his apprenticeship in Maekawa's office—is better known in the United States, where he has taught and where a book on his work has appeared.

Maekawa's work has received more attention in Europe than in the United States. (One issue of the British journal Architectural Design, *for example, bore the legend "Homage to Maekawa" on its cover.) Writers on modern Japanese architecture generally mention Maekawa and Tange as the "leading" figures of today—many of them also including Junzo Sakakura, a contemporary of Maekawa's who followed him in Corbu's atelier.*

Maekawa's approach—with its expressive modeling of concrete and its daring juxtaposition of disparate forms—is particularly pertinent for us today, when many American architects seem to be taking a similar direction. He is also of special interest as the architect of a building recently constructed in the United States—the Japan Pavilion at the New York World's Fair.

Although most of his works have been executed in exposed concrete, Maekawa chose traditional wood construction for his own house ***(1)****. In his Japan Pavilion at the New York World's Fair* ***(2)****, he decided to express the less familiar tradition of Japanese stone construction. This scheme provided an excellent opportunity to integrate the work of a sculptor, Masayuki Nagare (who had collaborated with him on previous projects), directly into the architecture. In Nagare's stone walls—and in his arrangements of sculpture and rock in the moat—art, craftsmanship, and nature are combined with no sharp distinctions. This building is an atypical example of Maekawa's work, not merely because its concept is appropriate to a temporary building, but because the schedule was extremely tight and many features were scrapped in the face of unexpectedly high construction costs.*

The various stylistic influences in modern Japanese architecture have followed a complex and pardoxical course. The traditional architecture of Japan is quite compatible with modern aesthetics—probably more so than any other sophisticated traditional style. Buildings of domestic scale—including inns, restaurants, museums, and shops, as well as houses—are still executed in traditional forms or in a wide range of modern-traditional combinations which are easily achieved and often quite effective.

But for the permanent, fireproof buildings of the modern city, Japan has had to turn to the West for models. Before World War I, these models were invariably pseudohistorical, and the Japanese versions were often grotesque. Modern architecture arrived quite early, however, with Wright's Imperial Hotel—begun during the war and completed in 1922. Wright left a second—and perhaps more important—legacy in Tokyo: his assistant Antonin Raymond, a native of Bohemia, who opened his own office in Tokyo in 1921.

During the period just after the war, the influence of the modern styles emerging in Germany, Holland, and Austria began to be felt in Tokyo; Sutemi Horiguchi, who visited the Bauhaus in the early 1920's, produced some excellent work of the International Style. In all of these contacts, the influences were mutual; Wright's work was permanently affected by his Japanese experience and the Germans adopted some of the principles of traditional Japanese buildings, publicized by Bruno Taut after his tour of Japan in the 1920's. (His writings had considerable influence on the Japanese estimation of their own landmarks.)

Influence of Corbu

However strong the bonds between Japan and Wright, on the one hand, and the Bauhaus, on the other, it was a third main stream of Western architectural thought that ultimately dominated Japanese modern architecture: the approach of the French master, LeCorbusier. Although Antonin Raymond and Sutemi Horiguchi, both now in their 70's, are still in practice (as is their contemporary, Murano, with his Gaudiesque style), Japanese architecture has been dominated for the past decade by Maekawa, Tange, and Sakakura—who now range in age from 51 to 61—and other followers of Corbu.

The work of all these leading Japanese architects is quite closely related, at least compared to that of the best-known U.S. architects, who represent divergent points of view. There are broad differences among the individual projects of each man, which tend to further obscure the distinctions among their works as a whole. Their approach is most like that of Corbu in his later works—the various apartment blocks in France and the buildings in Chandigarh. (Maekawa recalls that—on a postwar visit to buildings he had worked on with Corbu—the Villa Savoie disappointed him; and only the Swiss Hostel remained convincing.)

There are some characteristics of style, however, that tend to differentiate Maekawa's work from the group as a whole. Maekawa's buildings are often assemblages of many assertive forms in close juxtaposition, whereas Tange's buildings generally have a single dominant form or theme. Although built-in art works appear prominently in much Japanese modern architecture, Maekawa's buildings incorporate an exceptional amount of work by artists—in murals, sculpture, decorative embellishment, lighting, and landscaping. Maekawa is less inclined than his contemporaries to design trabeated concrete frames reminiscent of traditional wood framing; he is more intent on exploiting the plastic qualities of concrete—in winglike balconies, swooping roofs, and battered walls (all of which echo other characteristic elements of traditional Japanese architecture).

Maekawa's Views

P/A had an opportunity to talk with Maekawa when he visited New York for the opening of the Japan Pavilion at the World's Fair last year. He is a more relaxed, fatherly type than his colleague Tange (see p. 79, MARCH 1962 P/A), just plump enough to suggest that he lives comfortably and calmly. Although he feels more comfortable with French as a second language, he speaks English with great skill. (One linguistic problem he has not yet finally resolved is how to spell his own name in Roman letters. His letterhead has "Mayekawa," but he signs his letters "Maekawa.")

He professed to being uncomfortable in New York, which he finds even more forbidding than Tokyo. Like the rest of us, he was disappointed with the Fair as a whole, although he found Lundy's balloon structures to be pleasantly playful.

Maekawa explains his design approach and that of his contemporaries in Japan as a direct result of technology and economics. Although the whole world is tending toward industrialized production of building elements, on-the-site craftsmanship is still abundant in Japan, and less expensive than industrialized methods. Hence cast-in-place concrete is the almost inevitable choice for fireproof buildings.

Although Maekawa has been using exposed concrete in Japan for over 30 years, he considers it unsuited to climatic conditions there. The Japanese climate is very moist and most of the country is subject to frequent freeze-and-thaw cycles; because of the earthquake problem, concrete cannot be poured with a low water content to minimize surface shrinkage. The result is that Japanese exposed concrete is particularly susceptible to surface cracking.

The complex shapes and the intricate surface ornament of Maekawa's work appear expensive by U.S. standards, but Maekawa assures us that they are not. (He says he gets only low-budget "headache" jobs—a claim that is probably universal among members of the profession.)

He finds it lamentable that the price and scarcity of skilled labor in America limit the possibilities open to architects here. He foresees the same fate for Japanese architecture as labor achieves higher standards of living. "Most Japanese workers now have refrigerators and TV; next they will want central heating and cars."

Effects of Industrialization

Maekawa is apprehensive about the effects of industrialization, especially the uniformity it produces. He does not object to uinformity in itself; what he fears is the probability of uniform ugliness. He notes that the two political systems now struggling for ideological control of the world are alike in their dedication to industrialization and their optimism about its effects. The objectors, those who appeal for humanization, are rarely well enough organized to be politically effective.

Our greatest threat, Maekawa feels, is the accelerating course of "progress." (He had recently been reading Rachel Carson's "Silent Spring" and Steinbeck's "Travels with Charlie.") But you can't slow progress today, he concedes, because all governments are committed to it; even the most underdeveloped nations strive for steel mills and atomic reactors, with no thought to their feasibility—much less their effect on human society. Progress, moreover, is like nuclear armament; no nation can reverse it unilaterally, if it wants to survive. All we can do in the face of this situation, he advises, is to seek a reasonable consensus on the meaning of "progress" and how it can be directed. Without these definitions and means of control, architects will be powerless even to form objectives, much less make real contributions to human dignity. "Maybe," says Maekawa, "the basic problem is the brevity of each man's life."

(For photo credits, see p. 302.)

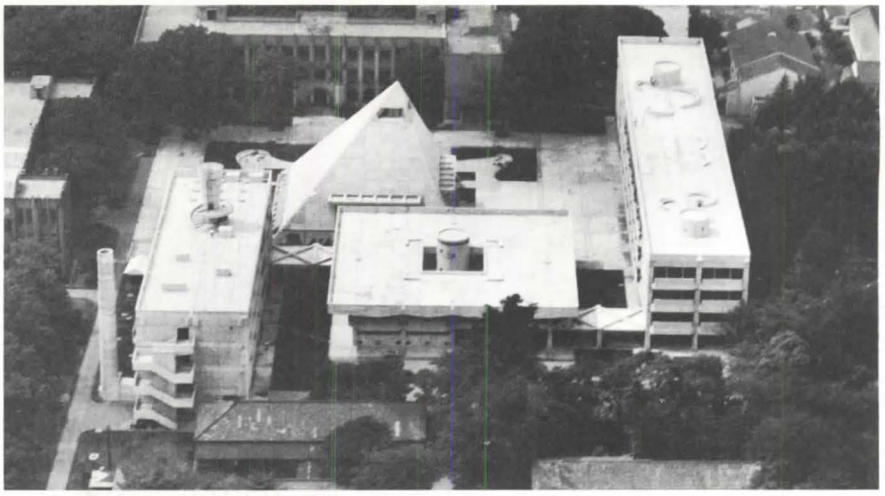
Maekawa's apartment building in Harumi, the harbor neighborhood of Tokyo (facing page), completed in 1958, was unprecedented as low-income housing in Japan. Although intended as a prototype, it has never been repeated. Its relation to Corbu's Unité d'Habitation *projects is obvious, but the living units within it are typically Japanese—each on one floor with a continuous veranda—and the details of walls and railings are far from derivative. Massive girders every three stories and monolithic walls between apartments—braced by battered columns — absorb earthquake stresses. There are three typical floor plans alternating within each group of three stories; elevator stops and corridors occur on every third floor.*

1

The Public Hall of Maekawa's Community Center for Setagaya Ward in Tokyo, completed in 1959, makes striking use of a folded-plate concrete structural system **(1)** *(spanning the hall transversely rather than longitudinally as at the UNESCO hall in Paris). The flat-roofed foyer* **(2)** *also has surfaces of massive exposed concrete; it has an air of elegance, however, created by the gentle angles of the long stairs and the well-integrated Nagare wall relief, both illuminated by the skylight.*

2

In the buildings for Gakushuin University, completed in 1960, Maekawa demonstrated his uninhibited handling of form. Although the school is an old and distinguished one, once exclusively for the nobility, the buildings he designed for it are striking expressions of modern structural potentialities. Two four-story academic buildings (one for sciences, on the left in photo ***(1)****, and one for political science and economics, on the right) and a two-story administration building surround the central 700-seat lecture hall* ***(2)****. Although its pyramidal form seems arbitrary at first glance, it provides a handsome and functional internal space* ***(4, and frontispiece)****. A significant advantage of this form in the Japanese climate is that it cuts off a minimum of sunshine from the surrounding court. The use of roofs as recreation space* ***(1)*** *is one of Corbu's principles, but is common practice in Japan in any case, where land is scarce and good weather relatively rare. Several elements of the complex are reminiscent of ancient Japan* ***(3)****: the sloping wall rising out of the moat; the landscape mounds; the exposure of the frame of a classroom building to create a new—and improved—version of the traditional multistory gate.*



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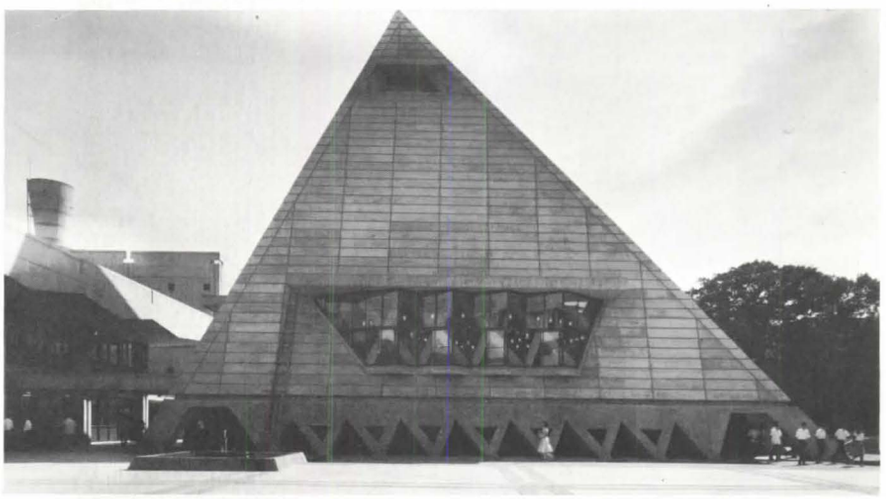

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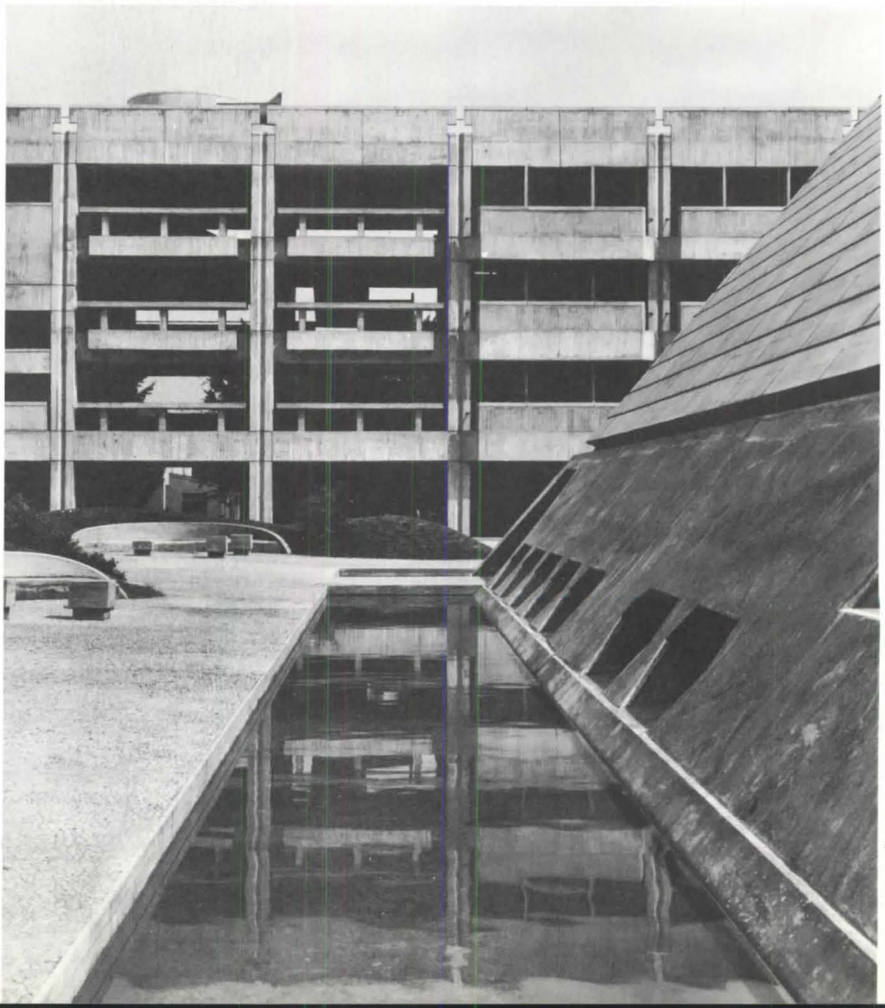

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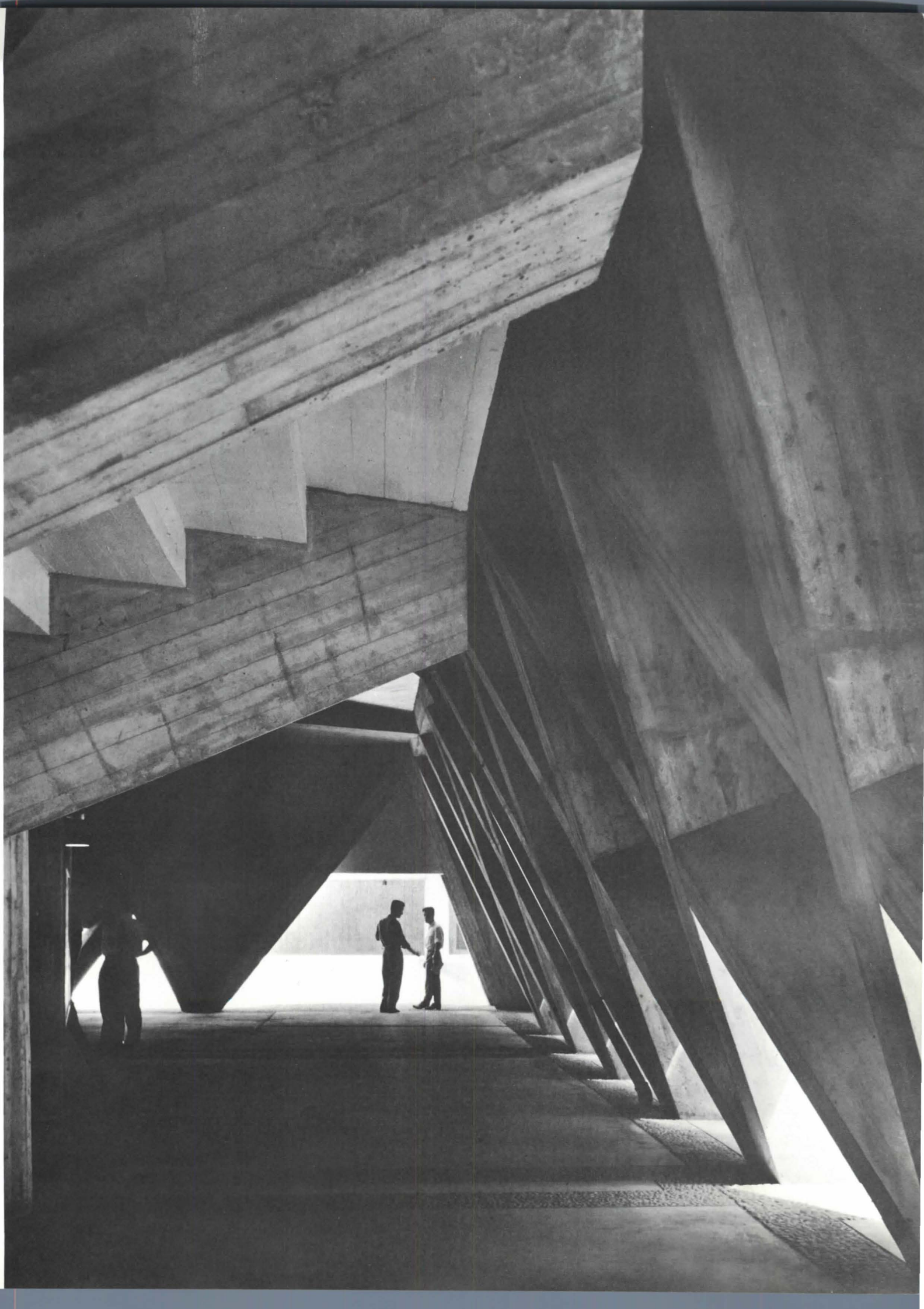
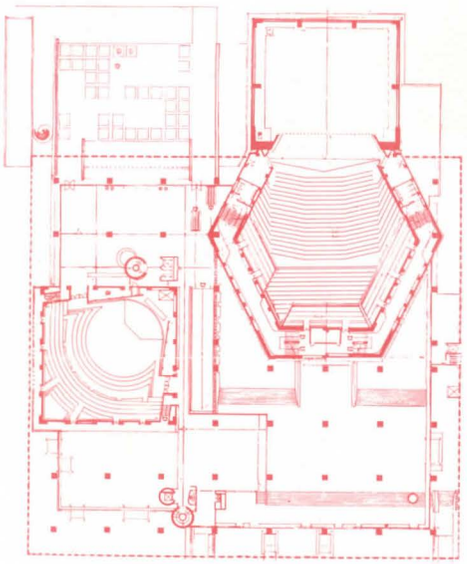
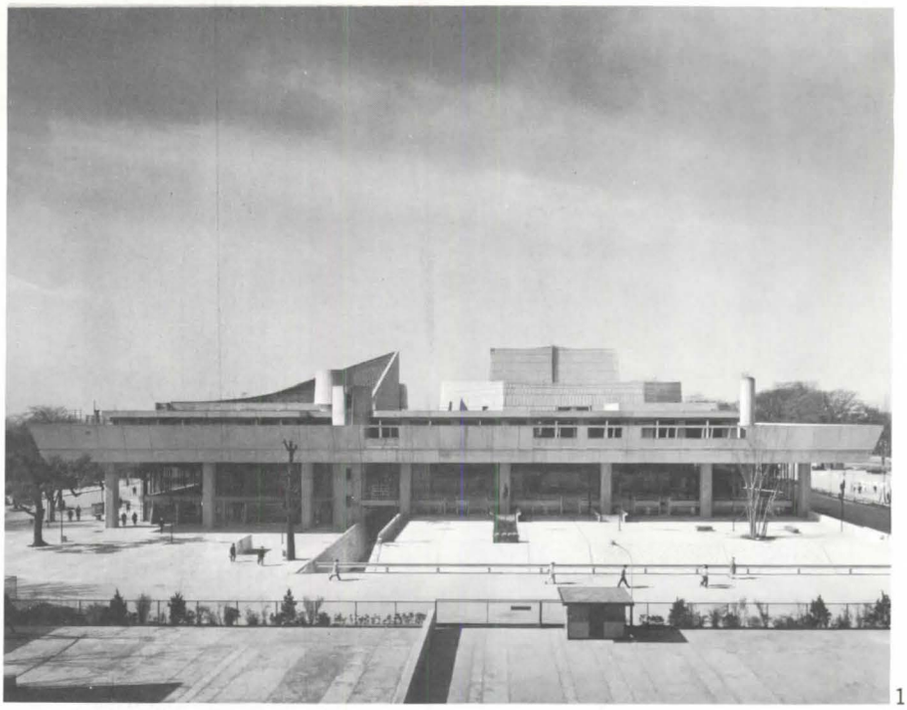






1

2

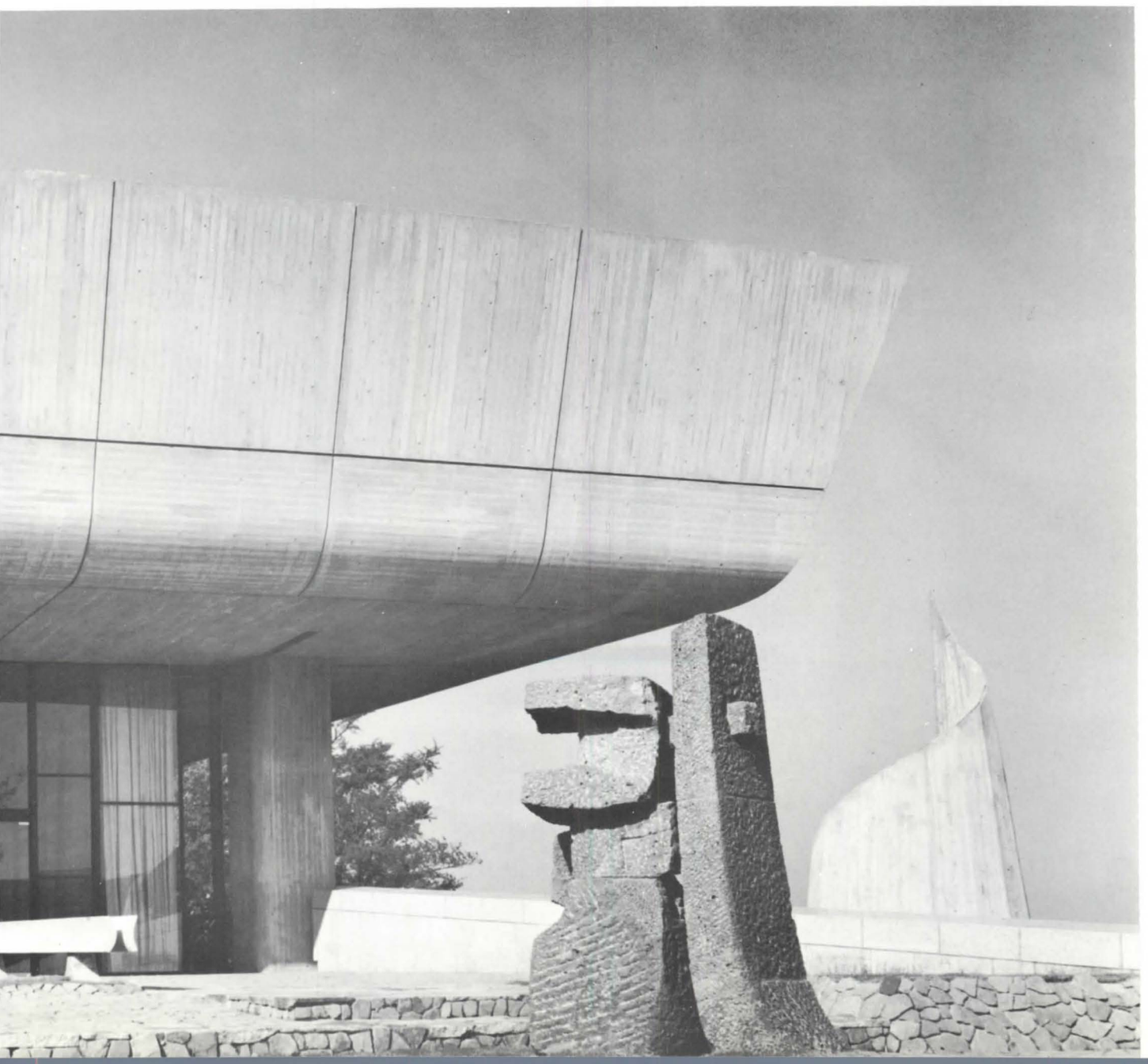
The Tokyo Metropolitan Festival Hall, opened in 1961, is Maekawa's most ambitious project to date. The program called for a concert hall seating 2300, a smaller auditorium seating 650 for conferences, lectures, and recitals, several smaller conference rooms, an exhibition hall, and dining facilities—all in one building. The site was in Ueno Park, near the center of Tokyo, already the location of a group of museums (including the National Museum of Western Art, designed by Le Corbusier and supervised by Maekawa, Sakakura, and Yoshizaka—visible in background of photo ***(8)****. The choice of Maekawa as architect was undoubtedly influenced by the acclaim and the awards won by his cultural center in Kyoto, completed in 1959.*

Maekawa chose to give the two major halls strongly articulated forms ***(1)*** *tying them together by an intricate complex of auxiliary facilities. The sweeping cornice that runs around the building serves to tie the disparate forms together. Its profile provides shelter from rain with minimum obstruction of sunlight. Except on the east side of the building* ***(3)*** *where Maekawa has created an intricate composition of concrete and metal louvers, the walls beneath this cornice are of glass, divided by steel mullions into rectangular areas that appear to be dimensioned according to Corbu's Modulor* ***(2, 8)****. The solid outer walls of the main hall are clad in precast concrete panels with exposed marble chips* ***(4)****—both on the exterior and inside the lobby. Lobbies have been treated as extensions of the exterior, closely related to the outside terraces. Exterior wall materials are carried into these areas, and the ceiling has a random pattern of pinpoint lighting* ***(2)*** *intended to suggest the night sky.*

The work of collaborating artists has been interwoven with Maekawa's work throughout the building. The terrace outside the lobby of

3

4



the smaller hall **(2)** *includes sculpture by Masayuki Nagare, who also designed the reliefs on the walls inside that hall* **(7)**. *The concrete walls in the main concert hall* **(5, 6)** *are partially covered with teak-faced panels in "organic" shape designed by Ryokichi Mukai. The muted tones of these teak and concrete walls serve as a foil for seating in bright yellow, blue, and green, scattered on a field of bright red. Various shades of red are used throughout the building, as in the lobby paving* **(8)**, *counteracting the cool effect of concrete, ceramic, stone, and glass surfaces.*

The building stirred up some controversy in Japan. Antonin Raymond called it "an outstanding example of the architectural art," pointing out that the program was so complex that "just to put order into this chaos was a major feat." He could not help, he said, comparing it to the designs for Lincoln Center in New York (none of which had been executed at that time), which, "compared to Maekawa's creation," he found to be "an insipid, neoclassical, uncreative demonstration of complacency." The Japanese architectural critic, Kiyoshi Higuchi, on the other hand, criticized it for its "lack of composure," and called it a product of "a constant search for something that is both 'different' and entertaining." He admitted that it is "a fine collection of interesting walls and ceilings, eaves and benches, with wide contrasts of color and form," but complained that "they do not go together to create architecture."

5

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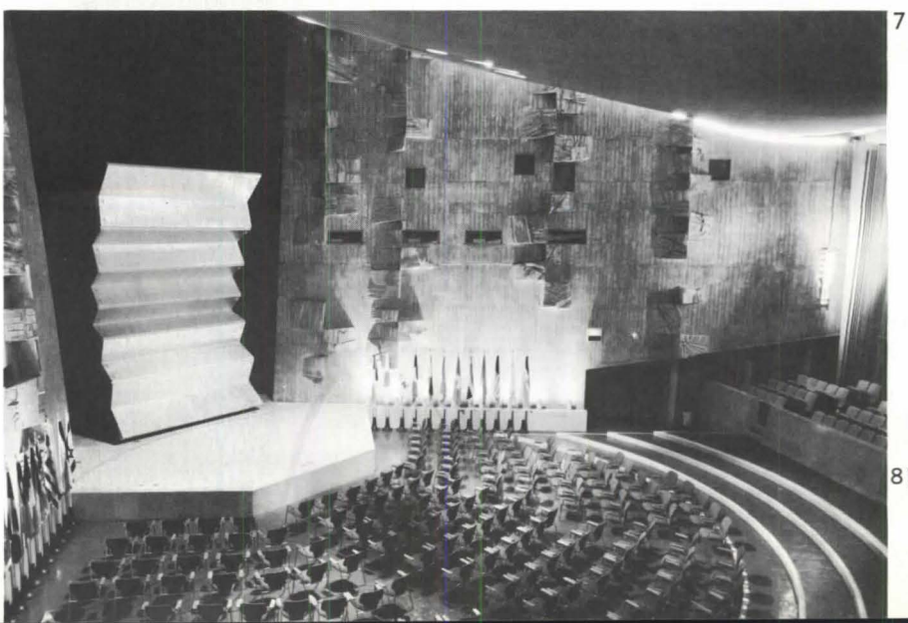


7

8▸

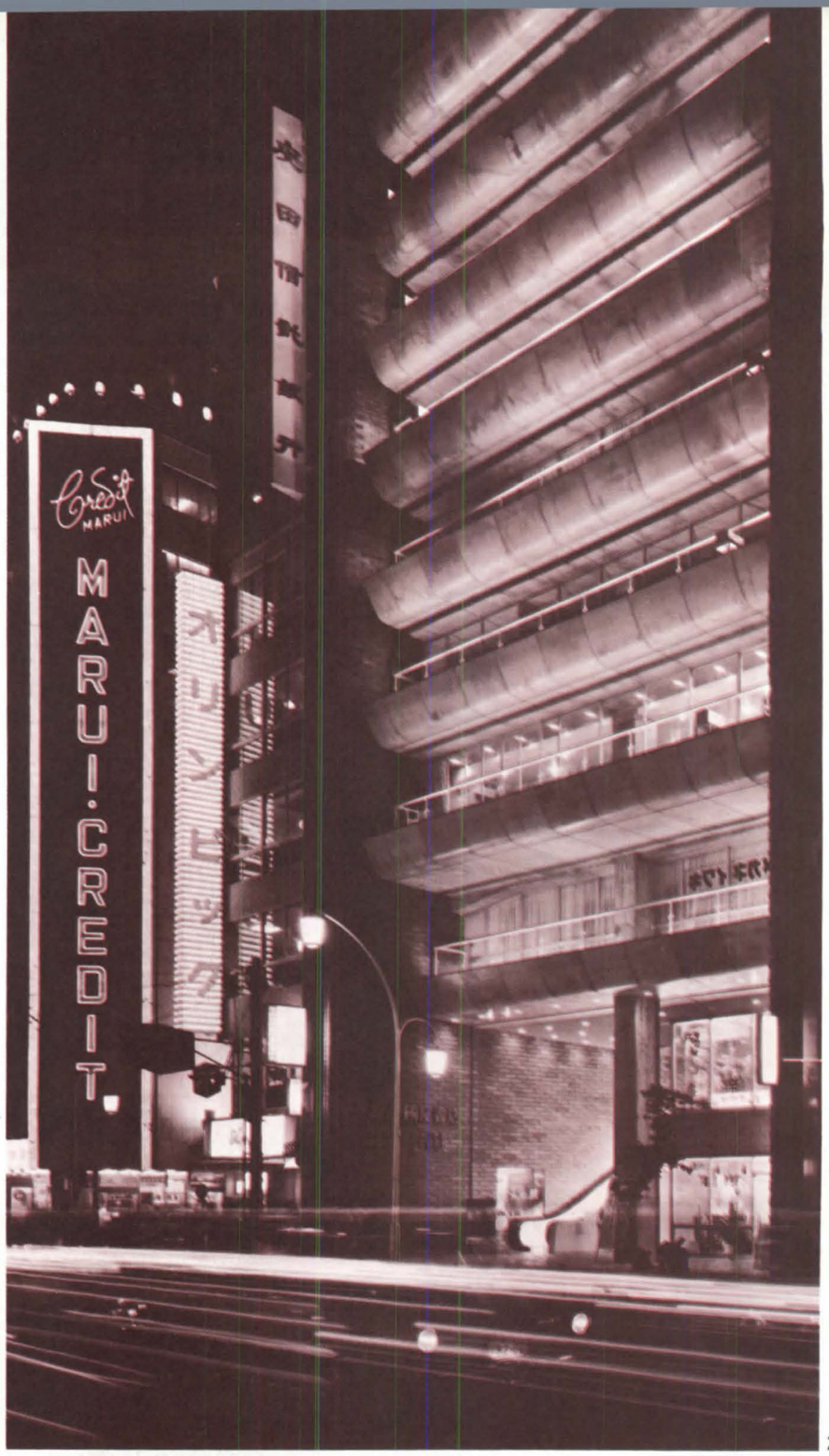
Maekawa's most recent works indicate a tendency toward more sober architectural composition. Compared to earlier works, they are composed of less aggressive elements, organized into more consistent compositions. His library for Gakushuin University **(1)**, *a 1963 addition to his work on that campus shown previously, is composed of several rectangular blocks, wrapped in monolithic cast-in-place concrete walls that are slashed by vertical strips of windows.*

His Kinokuniya Building **(2)** *in the Shinjuku district of Tokyo (1964) makes dramatic but rational use of a narrow commercial site between two buildings of equal height. The balcony fronts, of the same general form as the cornices and balconies of the Tokyo Festival Hall, create a strong, dignified façade, which is particularly effective with night lighting. (For the same client, the Kinokuniya book store, Maekawa had designed a three-story wooden building, completed in 1947, which has been called "the first actual building of note turned out by a Japanese in the postwar period.")*

His small museum in the Setagaya district of Tokyo **(3)**, *completed within the last year, is notable for the rigorous consistency with which he has applied precast concrete elements to produce a stockade-like enclosure.*

The recently completed Cultural Center at Hirosaki **(4, 5)**, *another complex commission including an auditorium and many lesser spaces, is unified by massive concrete walls with vertical cuts similar to those of the Gakushuin Library, but here the design is varied by the introduction of punctured openings, shed forms, and battered stage-house walls.*

1



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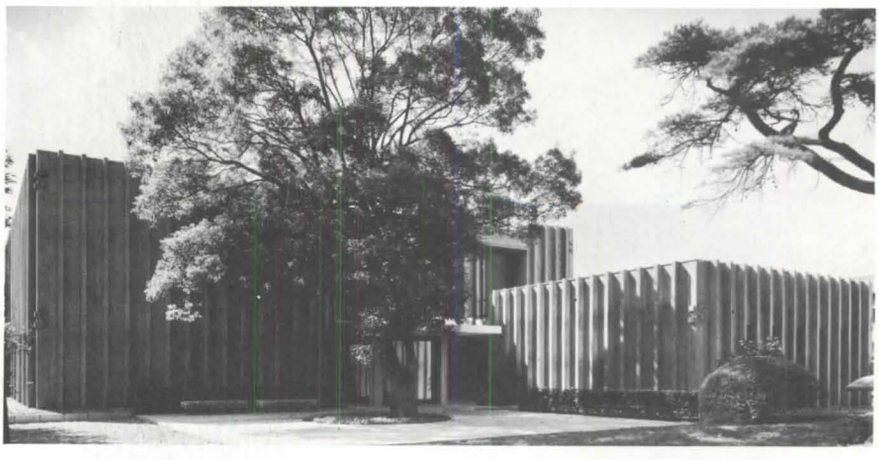

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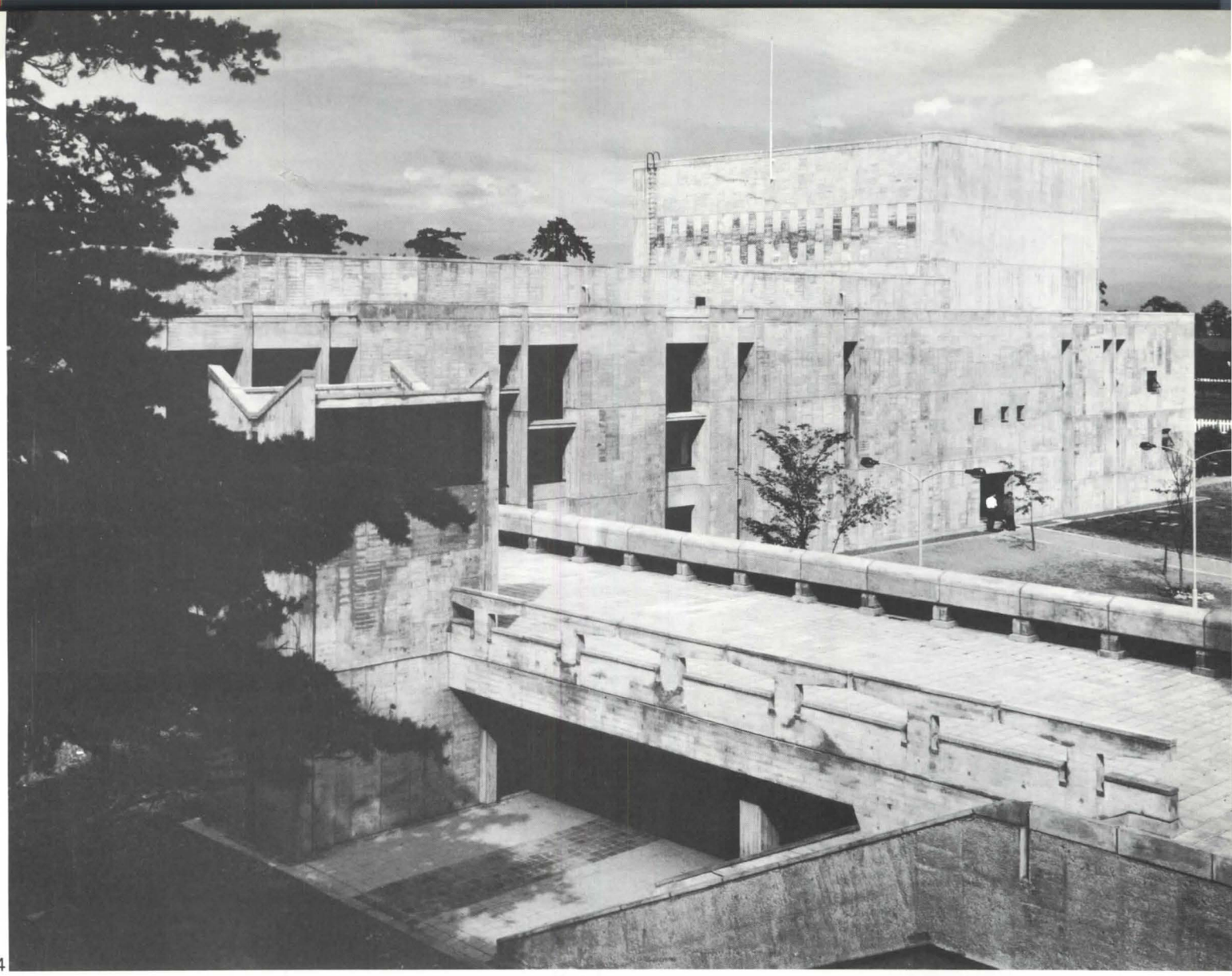

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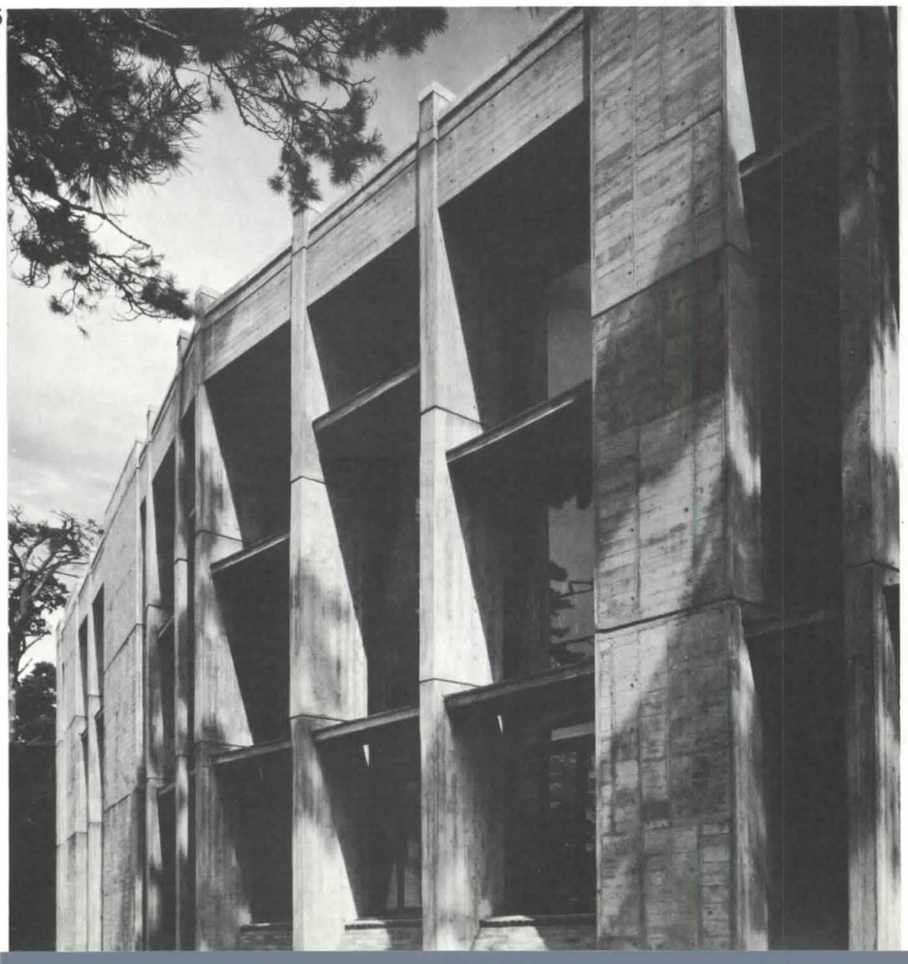


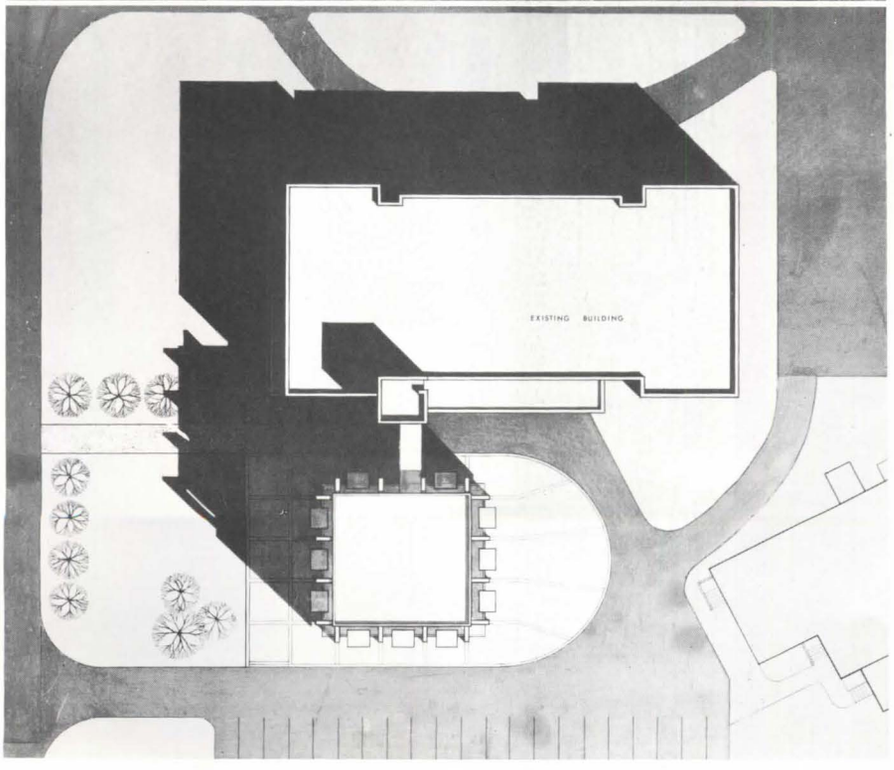
5

"In order to prevent our rudimentary principles from being forgotten, profound consideration must constantly be given to human dignity and human destiny."

KUNIO MAEKAWA

Architectural Expression of Mechanical Needs

TUFTS UNIVERSITY CHEMISTRY RESEARCH BUILDING, *Medford, Massachusetts.* ***Architects:*** *The Architects Collaborative; Norman Fletcher, Partner in Charge; Alex Cvijanovic, Associate in Charge; Malcolm Ticknor, Job Captain.* ***Program:*** *Addition to existing chemistry building, including chemistry laboratories and offices for 6 professors and 36 research fellows, conference rooms, library, and storage space.* ***Site:*** *Area of about one-half acre available, sloping gradually down from existing building.* ***Structural System:*** *Cast-in-place concrete frame (see text).* ***Major Materials:*** *Exposed concrete, epoxy stucco, and redwood trim on exterior; exposed concrete and concrete block on interior (see text and captions).* ***Mechanical System:*** *Heating by conventional fin-tube radiation; fume hoods coupled to unit ventilator (see text).* ***Cost:*** *$580,648, including built-in equipment and remodeling of adjacent areas of existing structure; approximately $27.50 per sq ft.* ***Consultants:*** *Souza & True, Structural Engineers; Reardon & Turner, Mechanical Engineers; Verne Norman Associates, Electrical Engineers.* ***Photographs:*** *Louis Reens.*

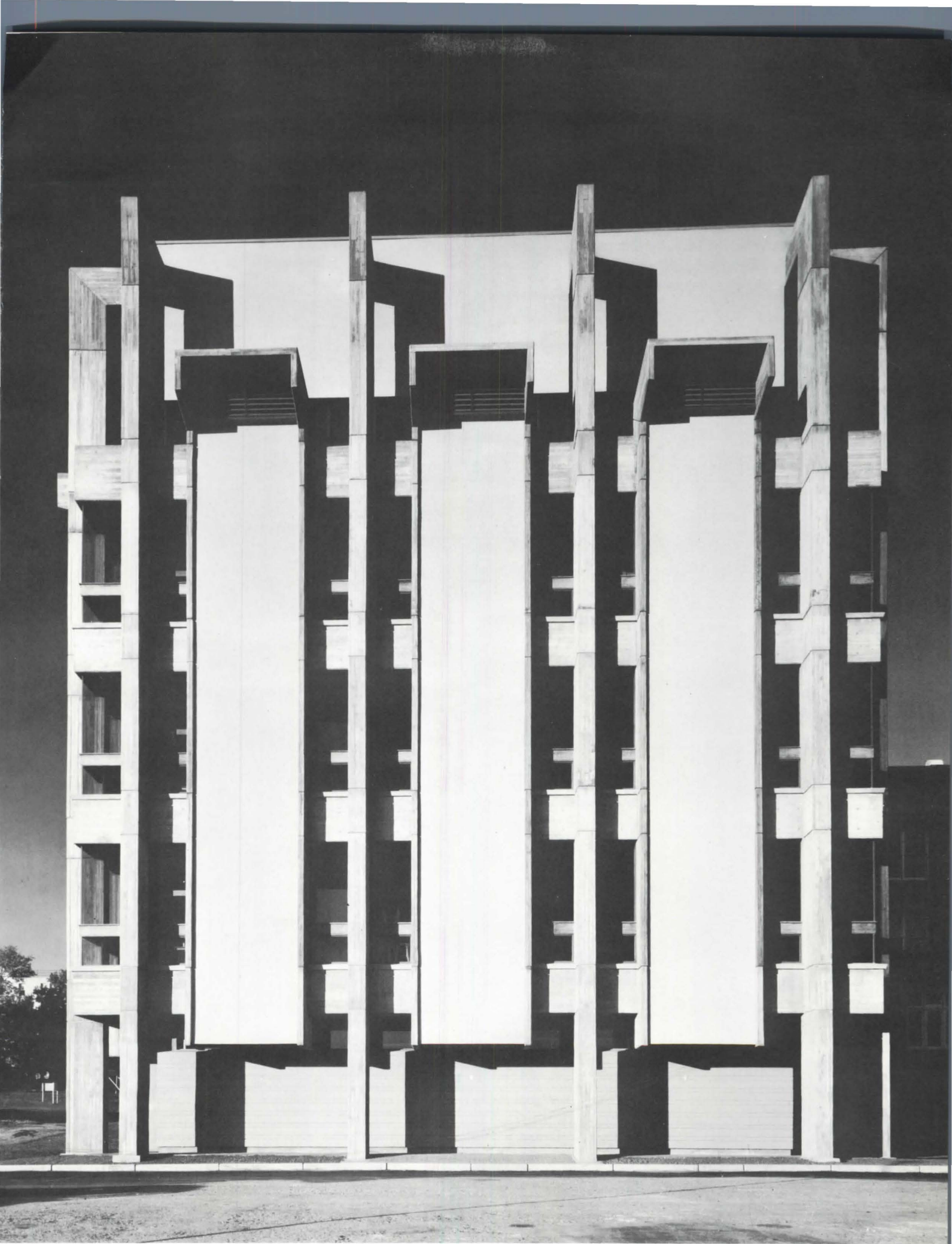


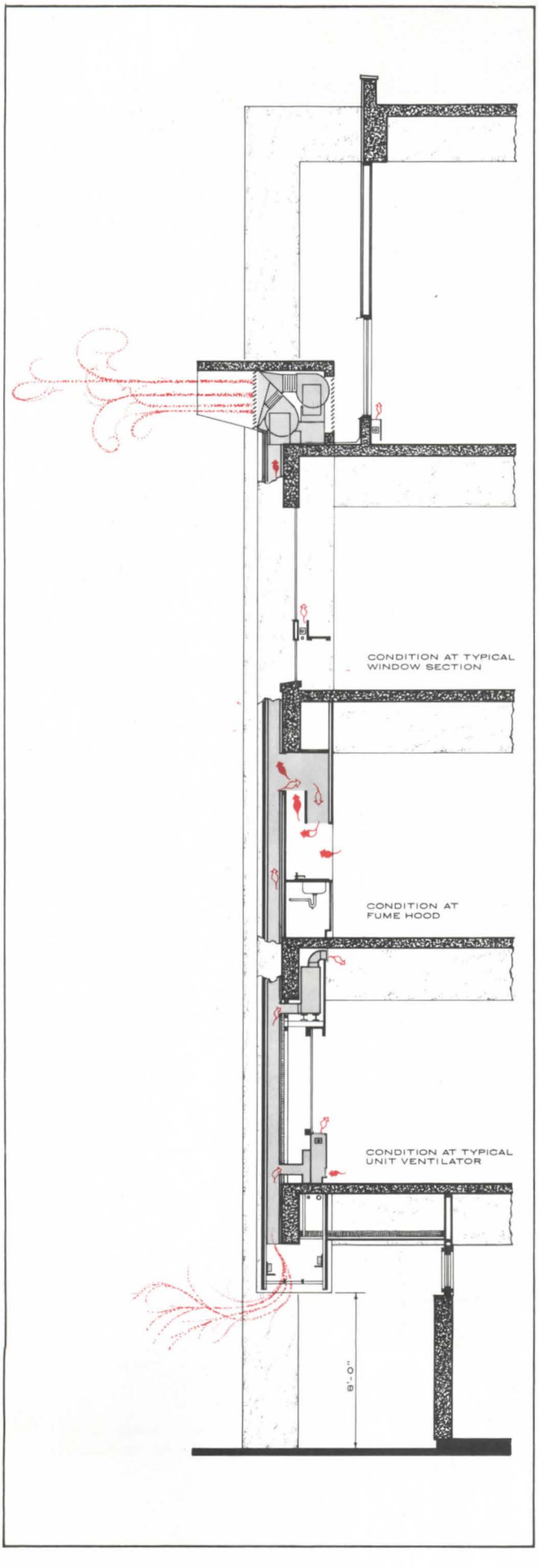
Adding new buildings to a campus is a capsule exercise in relating current work to an existing world—a problem of increasing concern for architects everywhere. In solving such problems, TAC has demonstrated great skill in the recent past—in their buildings at Andover Academy, for instance, and in their Experimental Geology Laboratory at Harvard (p. 144, MARCH 1964 P/A).

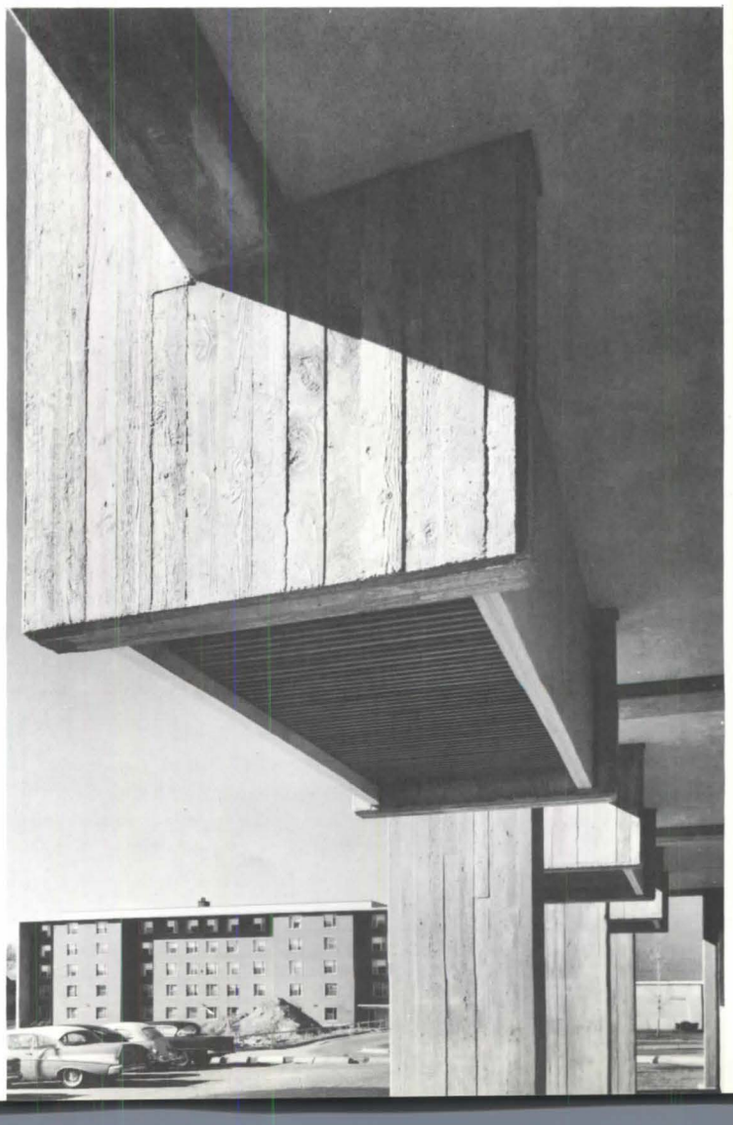
At Tufts, they were dealing with a rather amorphous campus and a building program with maximum mechanical requirements. Their building is therefore largely an expression of functional demands, yet it makes a positive contribution to the campus and relates well in scale and style to neighboring buildings. The success of their design solution was recognized with a Citation in the Tenth Annual P/A Design Awards Program, and the completed building conforms to the original design.

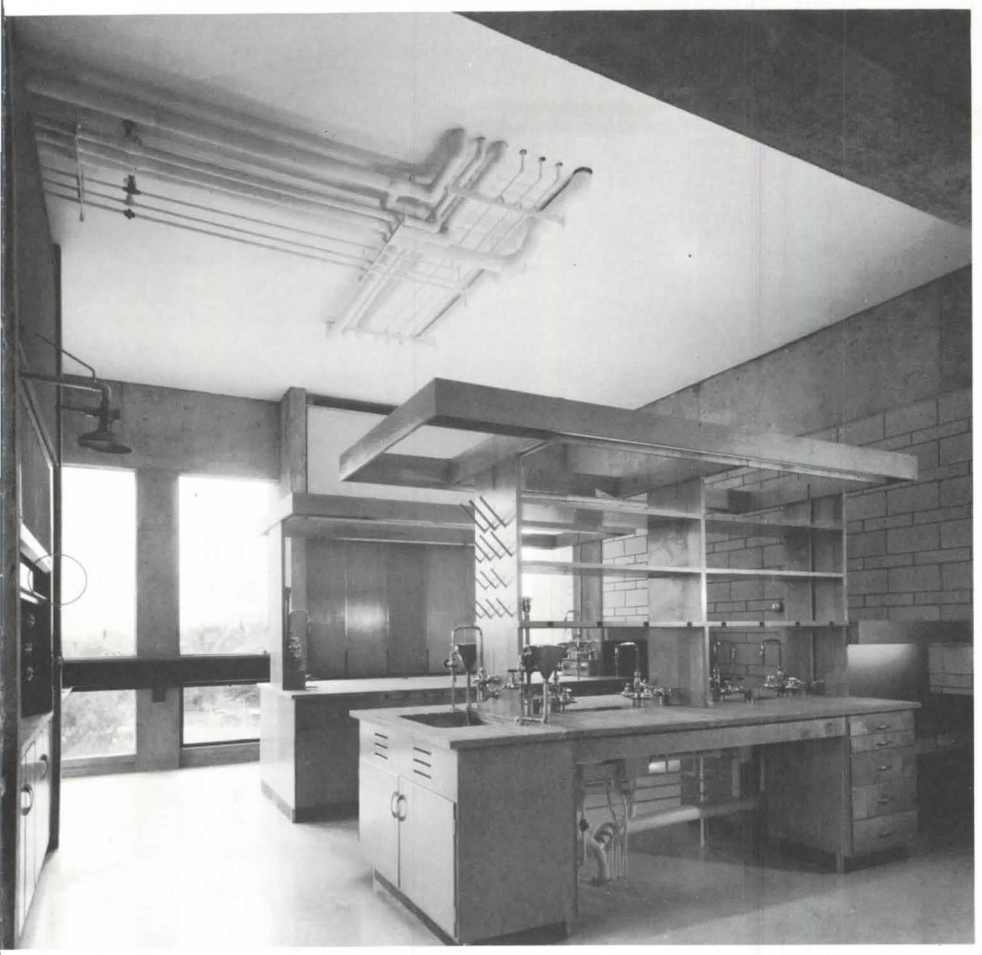
The building is actually an addition to an existing Classical Revival building. The decision to treat the new structure as a tall focal element in the campus form—rather than a mere appendage—was influenced by many factors: the desire to minimize ground coverage; the blandness of the surrounding buildings; the need for a stabilizing termination of a group of buildings running down a slope.

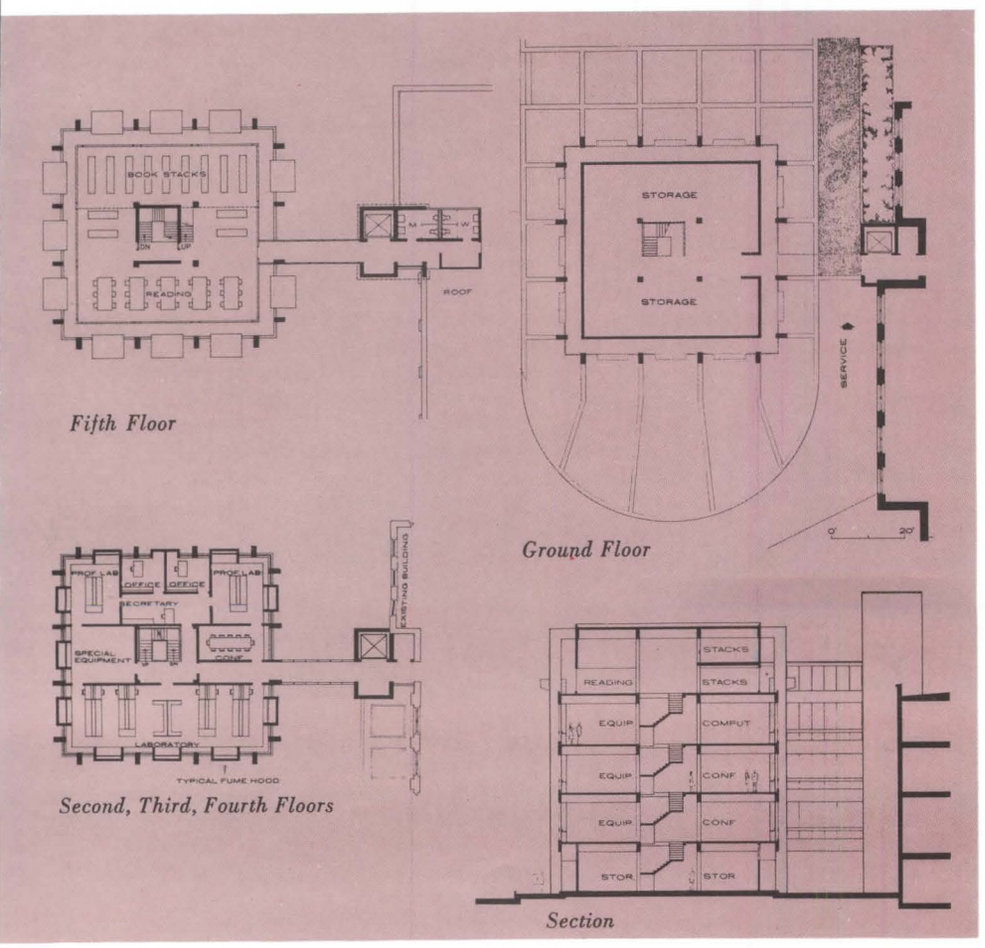
The space requirements of the program were divided readily among five floors: a base story, at the basement level of the old building, for storage and utilities; three floors of laboratories, conference rooms, and offices; one floor of library facilities. The 13′-4″ floor-to-floor height of the




CONDITION AT TYPICAL
WINDOW SECTION
CONDITION AT
FUME HOOD
CONDITION AT TYPICAL
UNIT VENTILATOR
8'-0"







laboratory stories was required to make the floor levels correspond to those of the existing building. The seemingly superfluous building volume involved cost very little and is of value in minimizing air pollution in the labs.

The three distinct functional volumes of the building have been placed within an exposed structural cage of cast-in-place concrete. The four interior columns define a central circulation core, leaving the surrounding floor space entirely free of columns.

To maintain this uninterrupted space and simplify problems of air supply and exhaust, all ductwork, piping, heating and ventilating equipment, and fume hoods have been concentrated in mechanical shafts distributed around the perimeter of the building. Half of the shafts (those on two opposite sides of the building) are reserved for fume hood exhaust and the other half for heating and ventilating intake. Each fume hood is paired with a unit ventilator of the same capacity so that they are switched on and off simultaneously to meet the unpredictable working schedules of the researchers.

The fume hoods and ventilators are all standard units, and considerable flexibility is allowed in their installation: spare shaft space is used for work space or storage in some labs; two unit ventilators, one mounted above the other, can serve a lab from a single shaft; vacant shafts adjacent to faculty offices can be used for unit air-conditioners in the future, if de-

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Large areas of gray glass fitted directly into the concrete structural frame give the laboratories a pleasantly open feeling, while projecting columns and mechanical shafts eliminate most direct sunlight. Counters along the window walls (facing page, top), which are of wood painted with black epoxy, conceal fin-tube radiation. Peninsular lab benches (above left) are composed of standard elements, with modifications worked out collaboratively with the manufacturer at no extra cost: maple superstructures have electrical plug strips along shelf edges; cornice lighting is directed downward by honeycomb grilles and diffused upward to provide general room illumination; desk units have been introduced at the end of each bench. Bench tops are of albarene stone, and cabinetwork—throughout the labs—is of maple. White-painted pipes have been arranged to form attractive patterns on the white-painted plaster ceilings; only the valves are painted identifying colors. Interior walls are of 4-in. and 8-in. concrete block laid up in alternate courses, with raked joints, unpainted. Floors are coated with beige epoxy paint. Strong color is introduced in the yellow and orange painted fiber board panels above the fume hoods.

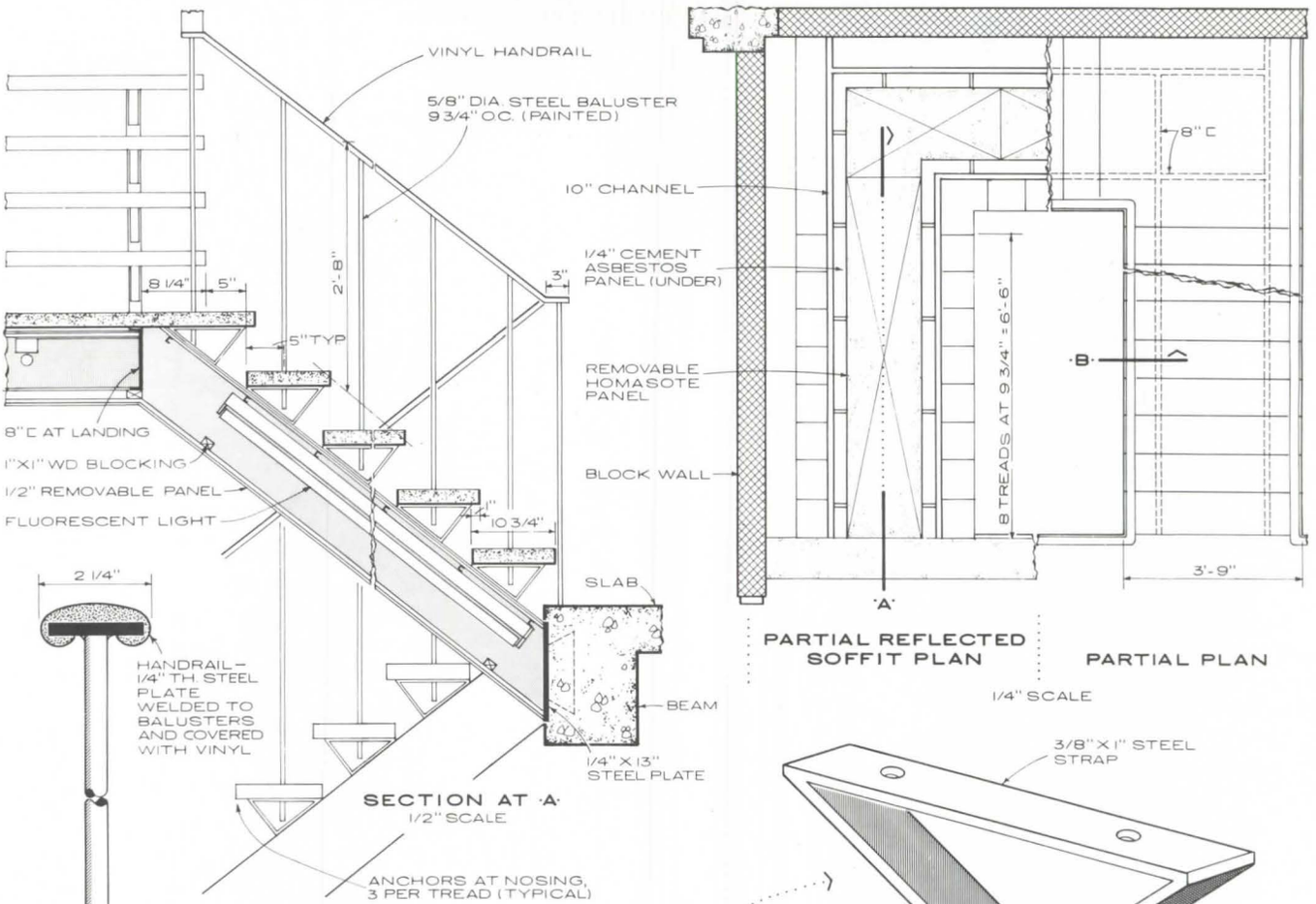
sired. Except for the possibility of air-conditioning these offices and the library, the building will not be air-conditioned; the lower parts of all windows are operable steel sash.

The principal exterior material, aside from the exposed board-formed concrete of the structural members, is an epoxy stucco. The fixed gray glass of the laboratory floors is set directly into grooves in the concrete frame; a redwood railing separates them from the steel sash below, which rest on precast sills. The redwood, which has also been used for louvers and for the window frames of the connecting link and the lower story, has been treated to turn silver gray as it weathers. The only painted area on the exterior is the concrete block wall of the lower story, which can be repainted with the utmost ease.

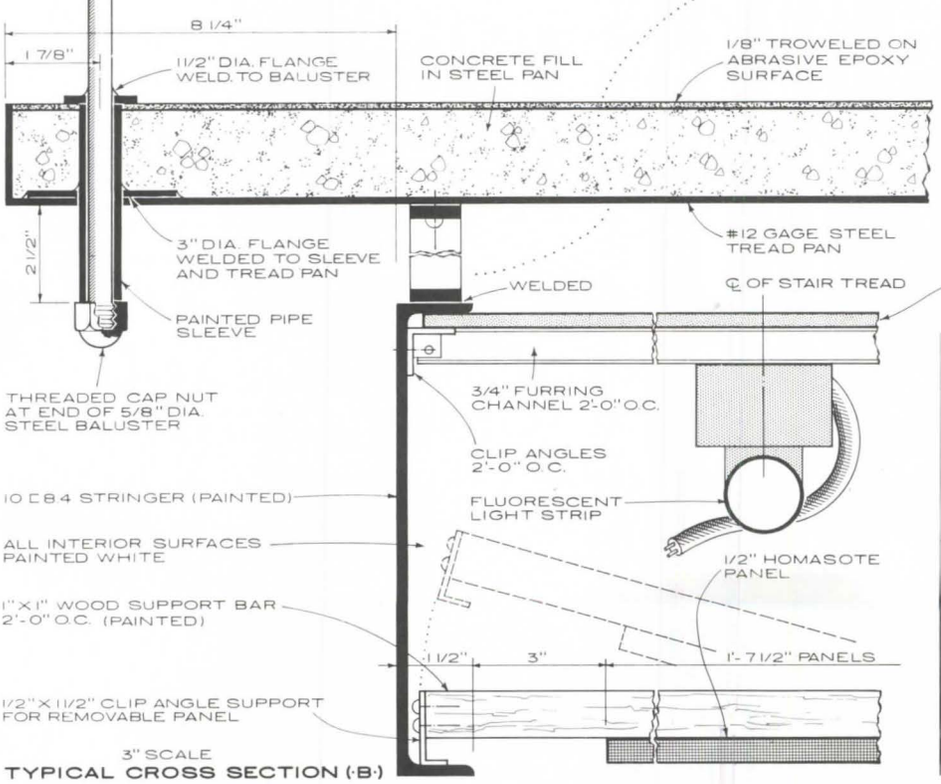
The projecting shafts and columns, with the deeply recessed areas of dark glass between them, culminating in the strong sculptural shapes of hoods and structural members at the top story, give the building great visual impact—strength that is welcome among its weakly articulated neighbors. The light colors of the exterior, however, which range from the grayish buff of the concrete to the grayish cream color of the stucco surfaces, exaggerate its prominence, giving an impression of unneighborly newness that may, in fact, be softened by time.

Curtain walls enclosing the top-floor library (above left) are suspended from the beams overhead. They are framed in rectangular steel tubing and filled in with fixed glass, operable steel sash, and panels of maple plywood on cores of rigid insulation, surfaced on the exterior with epoxy stucco. The window arrangement is based partly on future plans to suspend a mezzanine over part of the room. The ceiling-high glazed slits at each column line express the nature of the wall system and indicate the expanse of the view, without introducing too much direct sunlight. The partial obstruction of the view by the projecting mechanical shafts tends to focus attention on the Boston skyline and other distant landmarks. The suspended lighting fixtures are composed of the same fluorescent units that were used above the laboratory benches; similar suspended fixtures have been used in the conference rooms and some other spaces.

Lighting in the stairwells (left and SELECTED DETAIL, *facing page) is built directly into the stair structure. Inexpensive fluorescent strips concealed by simple panels of fiber board* (SELECTED DETAIL, *facing page) provide well-distributed illumination and create a meaningful visual pattern to enliven an otherwise stark space.*



TYPICAL STEEL STRAP TREAD SUPPORT



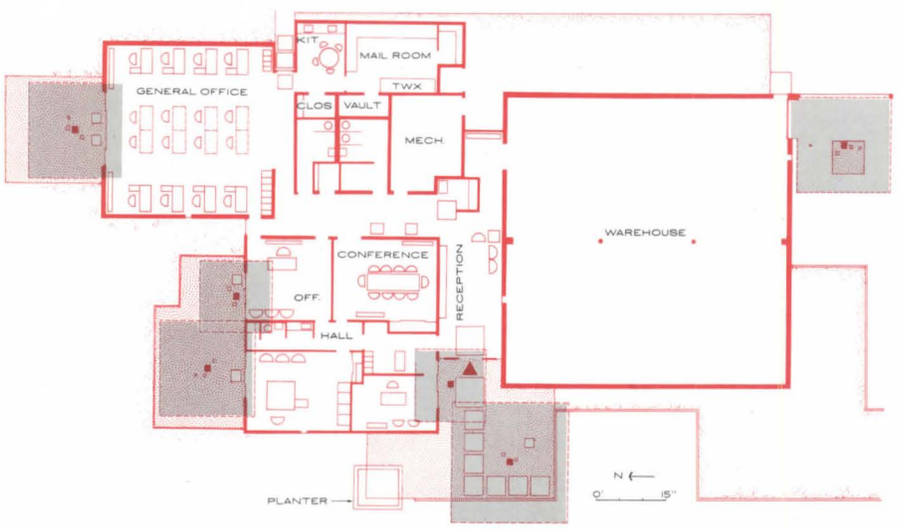
TUFTS UNIVERSITY CHEMISTRY RESEARCH BUILDING: Medford, Mass. THE ARCHITECTS COLLABORATIVE, Architects	SELECTED DETAIL LIGHTED STAIRS

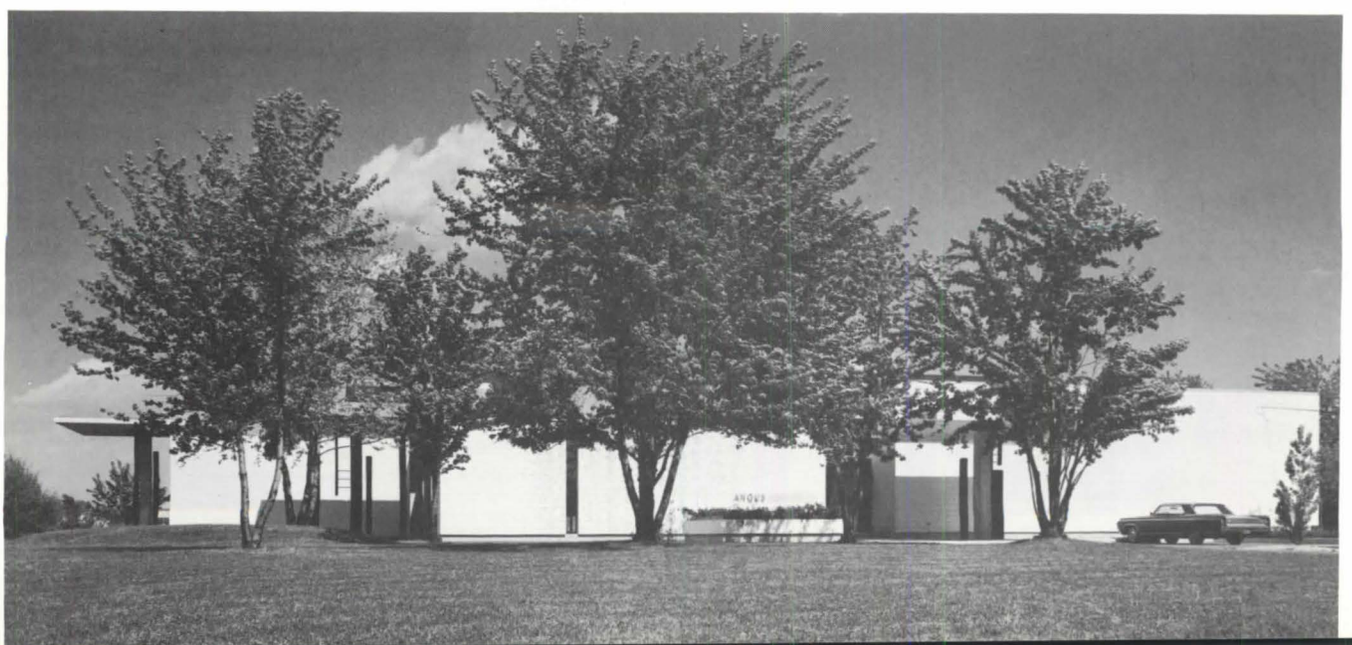
Concrete Trees for Continuity

EASTERN HEADQUARTERS, ANGUS INC., *Moorestown, New Jersey.* ***Architect:*** *Malcolm B. Wells.* ***Program:*** *10,000 sq ft of low-budget office and clean warehouse space.* ***Structural System:*** *walls of concrete block (with raked horizontal joints); roofs of bar joists and 2" wood decks.* ***Major Materials:*** *block painted on interior and exterior; stained fir plywood interior surfacing; frame and dry wall partitions; two coats of clear Resistox on floors; suspended ceilings of vinyl-faced acoustical tiles; entrance doors solid birch, surfaced both sides with rough sawn cypress.* ***Mechanical System:*** *four-zone hot and chilled water; air handling units with modulating control and forced ventilation; indoor-outdoor reset control on gas-fired boiler.* ***Consultants:*** *Structural: Anthony J. Costanza. Mechnical/Electrical: Wilson Associates. Landscape: John Rahenkamp. General Contractor: Suburban Construction Co.* ***Photography:*** *Courtlandt V. D. Hubbard.*

That ever-present variable, "economy," does not deter an architect dedicated wholeheartedly to providing individual character for each of his buildings—even when "economy" is taken to mean a figure of $10 per sq ft including air conditioning. Such was the interpretation of the word by Angus Inc., a West Coast electronics firm, when building the office and warehouse space for their East Coast sales headquarters. They chose a good man for this assignment, because Malcolm Wells displays a fresh imagination in the use of both architectural means and materials to give his buildings a custom-designed "economy" rather than a store-bought version of it.

Within this prescribed approach, the architect planned four cinder-block boxes —one each for private offices, general offices, services, and warehouses. Then, by using inexpensive materials for interior finishing—fir plywood paneling, exposed aggregate floors, and plasterboard partitions—he was able to keep construction costs down sufficiently to provide a custom (albeit simple and popular) design motif,





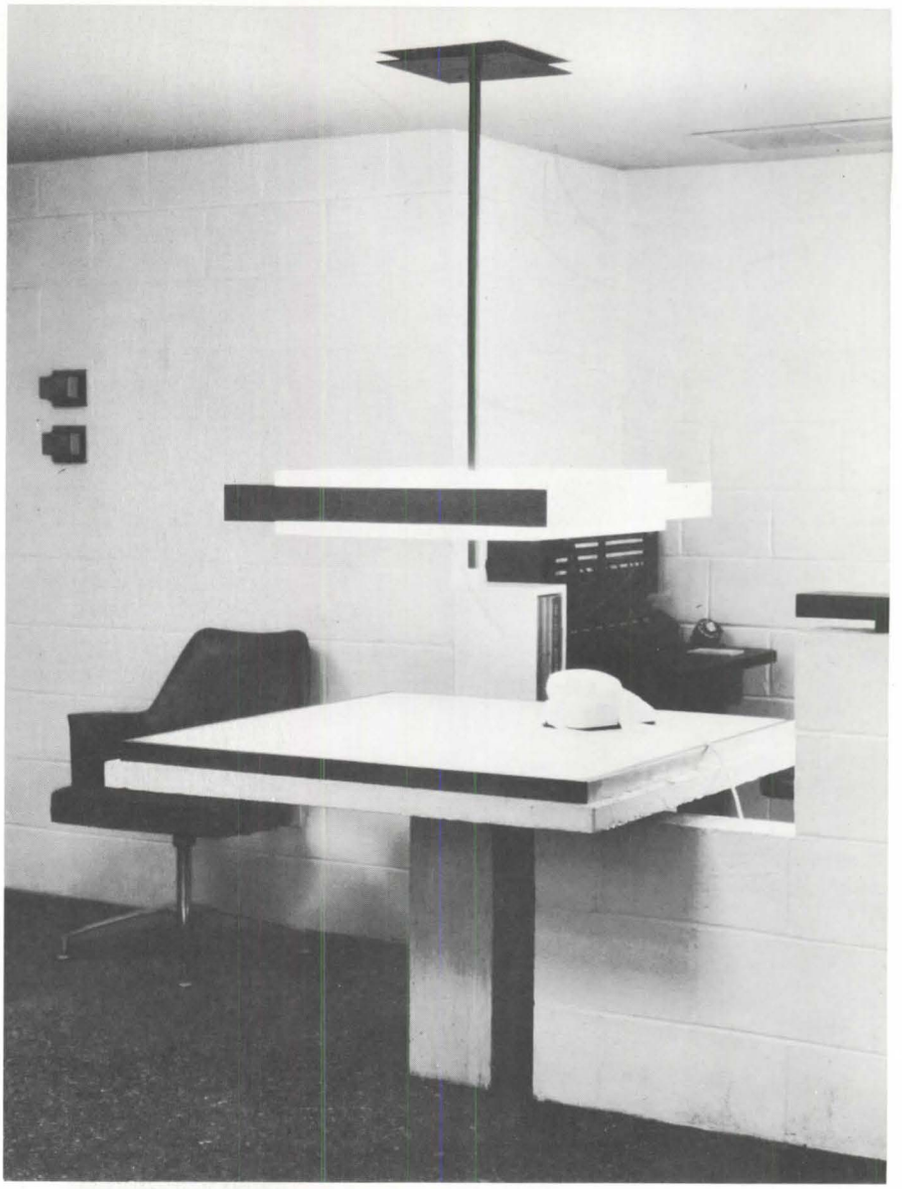
which is, furthermore, directly related to the site.

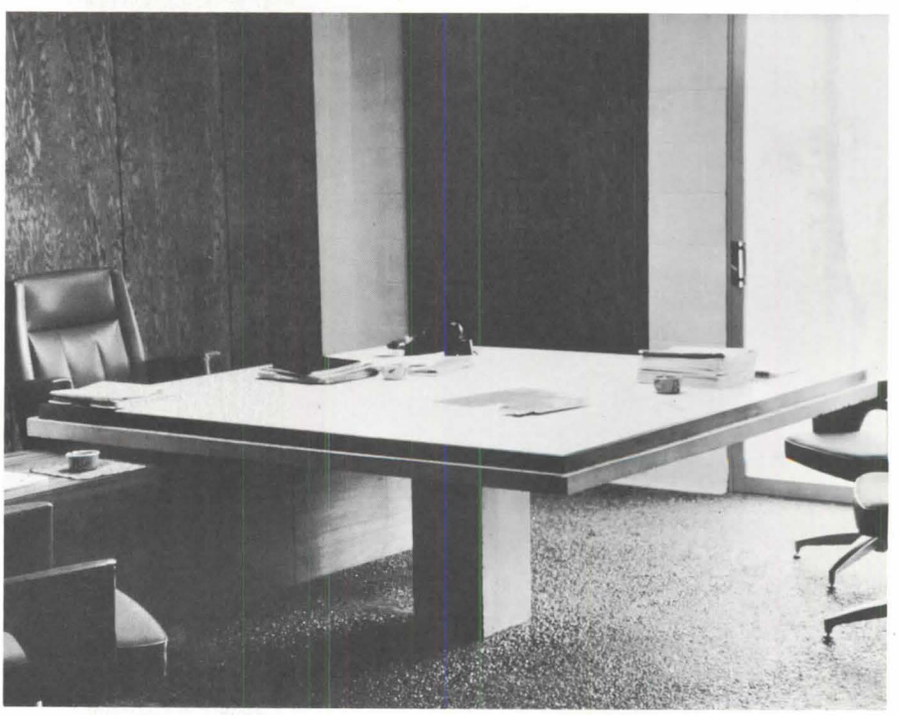
At the present time, the site is almost rural: a good number of trees flourish on the property itself; an old apple orchard is across the street; behind the building is a swampy thicket that still attracts wild ducks; and half a block away is the park that fringes the residential district of Moorestown. Although the area around the Angus building is zoned for an industrial park ("a misnomer if there ever was one," Wells observes), the general locality is expected to be green for years to come. The building was designed on that assumption, the architect notes: the trees that surround it are fully as important to the design as the concrete "umbrellas" abstracted from them, which are the aesthetic motif.

The largest umbrellas (up to 44 tons of concrete on a single stem) occur outdoors, where they function as shelters for each of the door and window openings. Visually, they continue the work the trees were doing and serve as a transition from building to trees. Reportedly inexpensive and permanent, and free of flashing and leakage problems, the overhangs cast changing shadows as the sun moves around the building, while at night they "float" above light sources hidden in free-standing timbers that are arranged around the supporting trunks. These hollowed-out timbers and smaller wood battens, which are attached to the trunks, further develop the design theme.

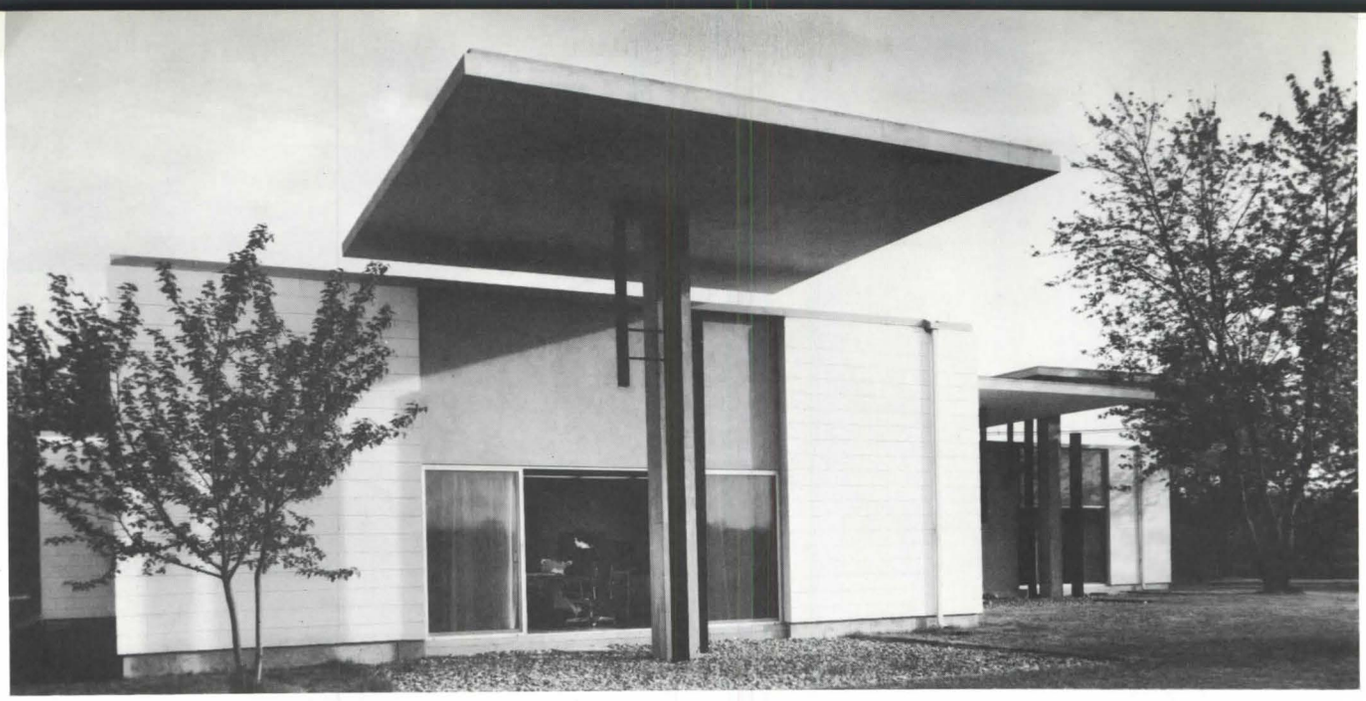
On the interior, somewhat smaller scale umbrellas are used as desks—a cheap and imaginative alternate for cabinetwork—and are reiterated in a pendant lighting fixture for the receptionist.

The interweaving of the concrete forms might be suspected of being sculptural decoration overlayed on the design; nevertheless, the addition of this aesthetic thread is a definite step above "building" in the hierarchy of "architecture." In the words of the architect, "The result is as unlike boxitecture as possible."



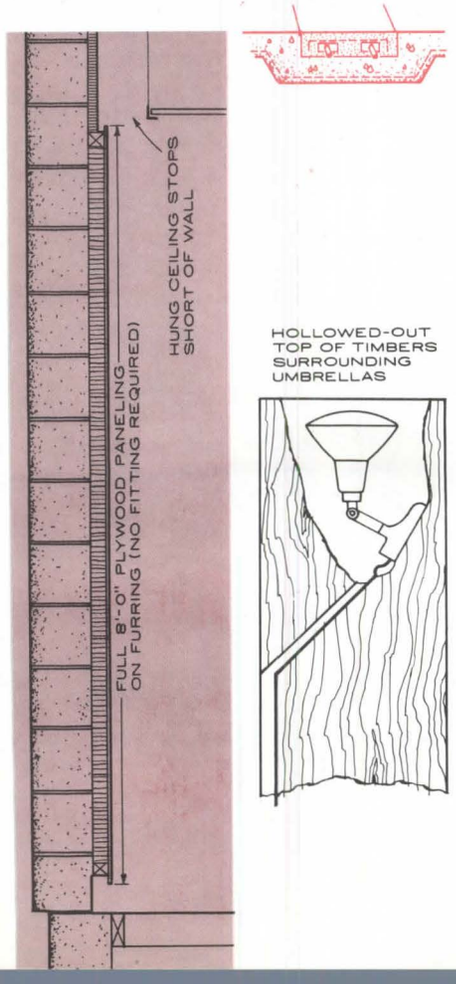


The architect notes that the reception room (right, above) reveals the "building, desk, and lighting designed as one." The owner's office (right) has a 6-ft square concrete "superdesk," made of an umbrella form, which has an exposed aggregate top smoothed to a leather-like texture with a glossy sealer. The cost-cutting detail of the wall paneling (facing page) relies on simplicity: no fitting is required; 8′ x 2′ plywood sheets are installed without further cutting. All wood is stained dark brown; sheet rock is painted golden buff. Seating has bright blue upholstery.

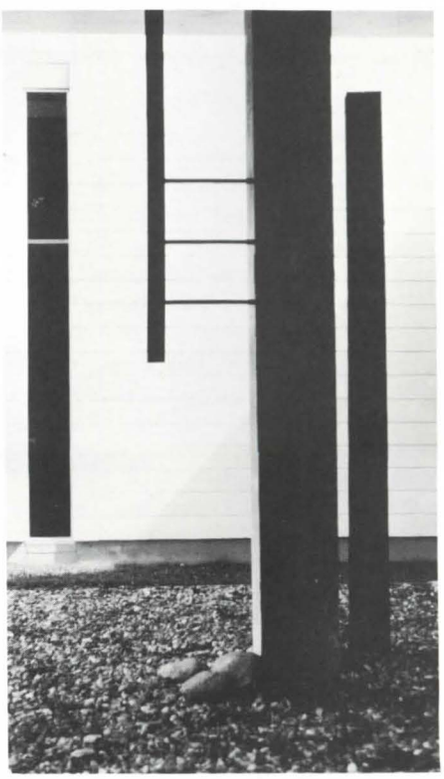


Umbrellas shelter the large window openings (above) and door openings such as the truck door of the warehouse. All block work is painted flat white; the wall base and cap are golden buff.

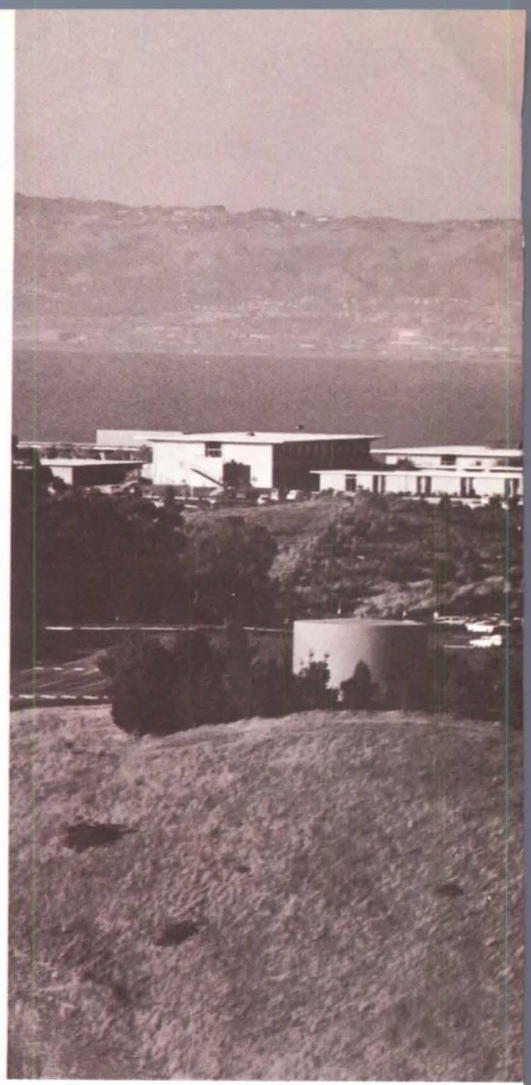
Floors throughout the building are sealed, exposed aggregate concrete, which has been found not to show dirt and to require only occasional vacuuming. In the general office (left), a smooth slab running down the center of the room covers electrical raceways provided for future desk spaces. Uplights recessed in the timbers surrounding the umbrella trunks (below and detail) give a pleasant light at night.



HOLLOWED-OUT TOP OF TIMBERS SURROUNDING UMBRELLAS



A New Campus:
the Plan vs. the Architecture



COLLEGE HEIGHTS CAMPUS, COLLEGE OF SAN MATEO, *San Mateo, California.* ***Architects and Planning Consultants:*** *John Carl Warnecke & Associates.* ***Consultants:*** *Landscape Architects: John Carl Warnecke & Associates (Michael Painter, ASLA); Consulting Landscape Architects: Royston, Hanamoto & Mayes; Structural Engineers: John A. Blume & Associates; Mechanical and Electrical Engineers: Keller & Gannon.* ***Photographs:*** *Ernest Braun; except* ***3, 7,*** *by Gerald Ratto.*

"It is anticipated by many," writes Richard Dober in his book *Campus Planning*, "that colleges and universities will double their enrollments in the next decade." The junior colleges, in particular, will grow enormously, assuming an increasingly larger proportion of this larger enrollment. California is already the leader in junior college enrollment, presenting one-third of the 40,000 Associate of Arts degrees awarded annually in the U.S.; a number of plans are underway here for the future, many of them for new campuses. The junior college at San Mateo, recently completed, is illustrative of the problems and possibilities of the new campus that is planned in its entirety at one time.

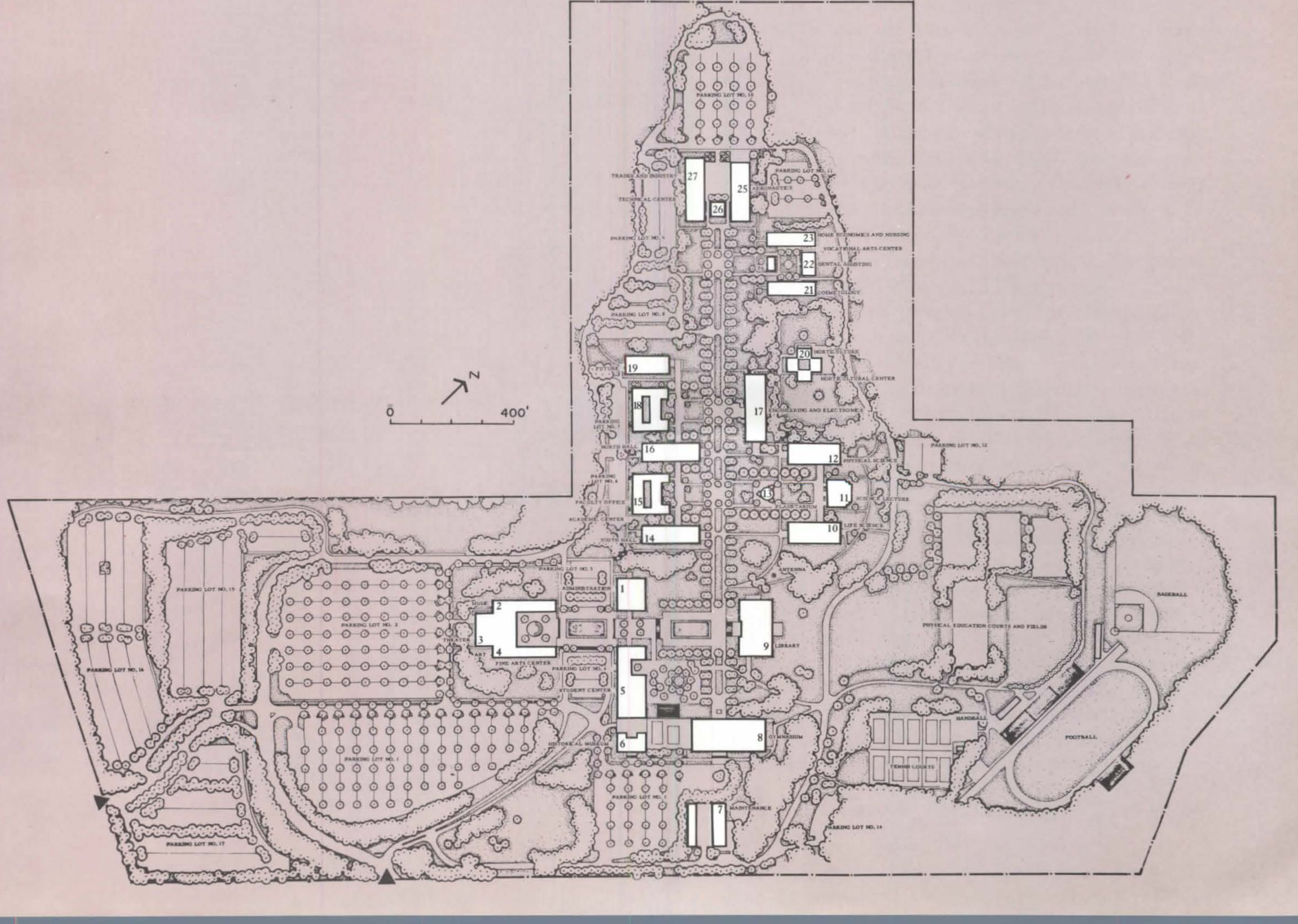
The College Heights campus of the San Mateo Junior College District is the first campus of four entirely new ones in the district, each of which will ultimately have 8000 full-time students in a program of liberal arts and vocational training. (At its present stage of development, this campus is designed for 4000 students.) In California, explains the Warnecke firm, "the junior college system is part of the Master Plan for Higher Education, closely linked to the university and state college system (which is not true in most other states). Yet the junior colleges are still sponsored by local boards, and financed with bond issue budgets generally inadequate." This is the framework within which the architects must work.

As the architects describe it, their design approach was "to create an environment identifiable with that of a college rather than a secondary school. The scale both of the buildings and of the malls and courts was conceived and carried out to achieve this objective. In addition, the buildings were designed to possess a dignified quality in keeping with the functions of a higher institution of learning. The individual structures arranged in a total campus plan, connected by colonnades in many areas, contribute to this feeling of scale and collegiate importance."

The campus plan developed from a careful consideration of functional requirements and from a sensitive adaptation to the site. The 153-acre site is along

BUILDING LEGEND

1 ADMINISTRATION
2 MUSIC
3 THEATER
4 ART
5 STUDENT CENTER
6 HISTORICAL MUSEUM
7 MAINTENACE
8 GYMNASIUM
9 LIBRARY
10 LIFE SCIENCE
11 SCIENCE LECTURE
12 PHYSICAL SCIENCE
13 PLANETARIUM
14 SOUTH HALL
15 FACULTY OFFICE
16 NORTH HALL
17 ENGINEERING AND ELECTRONICS
18 FACULTY OFFICE
19 FUTURE
20 HORTICULTURE
21 COSMETOLOGY
22 DENTAL ASSISTING
23 HOME ECONOMICS AND NURSING
24 LOCKER ROOM
25 AERONAUTICS
26 TECHNICAL CLASSROOM
27 TRADES AND INDUSTRY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0
400'
PARKING LOT NO. 10
TRADES AND INDUSTRY
TECHNICAL CENTER
27
26
25
AERONAUTICS
PARKING LOT NO. 11
PARKING LOT NO. 9
23
HOME ECONOMICS AND NURSING
VOCATIONAL ARTS CENTER
22
DENTAL ASSISTING
21
COSMETOLOGY
PARKING LOT NO. 8
20
HORTICULTURE
HORTICULTURAL CENTER
FUTURE
19
18
PARKING LOT NO. 7
17
ENGINEERING AND ELECTRONICS
NORTH HALL
16
12
PHYSICAL SCIENCE
PARKING LOT NO. 6
15
13
11
SCIENCE LECTURE
FACULTY OFFICE
PLANETARIUM
ACADEMIC CENTER
SOUTH HALL
14
10
LIFE SCIENCE
PARKING LOT NO. 5
ANTENNA
ADMINISTRATION
1
MUSIC
2
THEATER
3
ART
4
FINE ARTS CENTER
9
LIBRARY
PARKING LOT NO. 4
STUDENT CENTER
5
HISTORICAL MUSEUM
6
8
GYMNASIUM
TENNIS COURTS
PARKING LOT NO. 1
7
MAINTENANCE
PARKING LOT NO. 14
PARKING LOT NO. 2
BASEBALL
FOOTBALL
PHYSICAL EDUCATION COURTS AND FIELDS

the crest of a foothill of the Coast Range, with superb views in every direction—overlooking the city of San Mateo and southern portions of San Francisco Bay. The layout of the campus is a formal one: two pedestrian malls, lined with buildings, intersect at the locus of greatest student concentration (the library, gymnasium, administration building, and student center). Buildings are disposed according to academic affinity, or to functional requirements that dictate a particular location. All parking and sports fields are below the crest of the hill, partially concealed from view by the natural terracing (cars are further camouflaged by the many trees planted in the parking areas).

Circulation is especially clear-cut. The major road is a peripheral loop that at no point crosses the pedestrian routes between buildings. The eastern half of the loop is open only to service and emergency vehicles. Student access, at the two main parking areas, is by a four-lane road. Visitors enter by a divided two-lane road that leads to a parking and disembarking area between the cultural and student centers.

Landscaping is predominantly informal, with wind- and drought-resistant trees, shrubs, and ground cover. By contrast, the center of the campus has a few rows of regularly spaced trees to give "a sense of direction and order"—their regularly spaced trunks are intended to recall the rhythm of the building columns, and provide a transition between the discipline of the buildings and the informal surrounding landscape. The more formal landscaping is related to the two malls; the east-west mall, 700 ft long, has a series of four landscaped courts, a "sequence of open spaces" that features two broad pools with fountains. The north-south mall, 1600 ft long, is a broad double walkway, punctuated at four points by large terraces which have ample sitting areas shaded by olive trees. There are grassy open spaces and planted courtyards on either side of this mall. Changes in level along the length of the mall are handled by ramps at the terraces, the terraces occurring at important cross-points between building groups.

As a plan, the campus is a competent translation of the educational program *into physical form*. It is classical and formal, but these qualities are not pertinent to the fact that the campus "works." And with expansion space left at each academic center, the campus will continue to function well when the enrollment reaches the ultimate figure of 8000. With an expanding enrollment, and with changing educational theories and techniques, such

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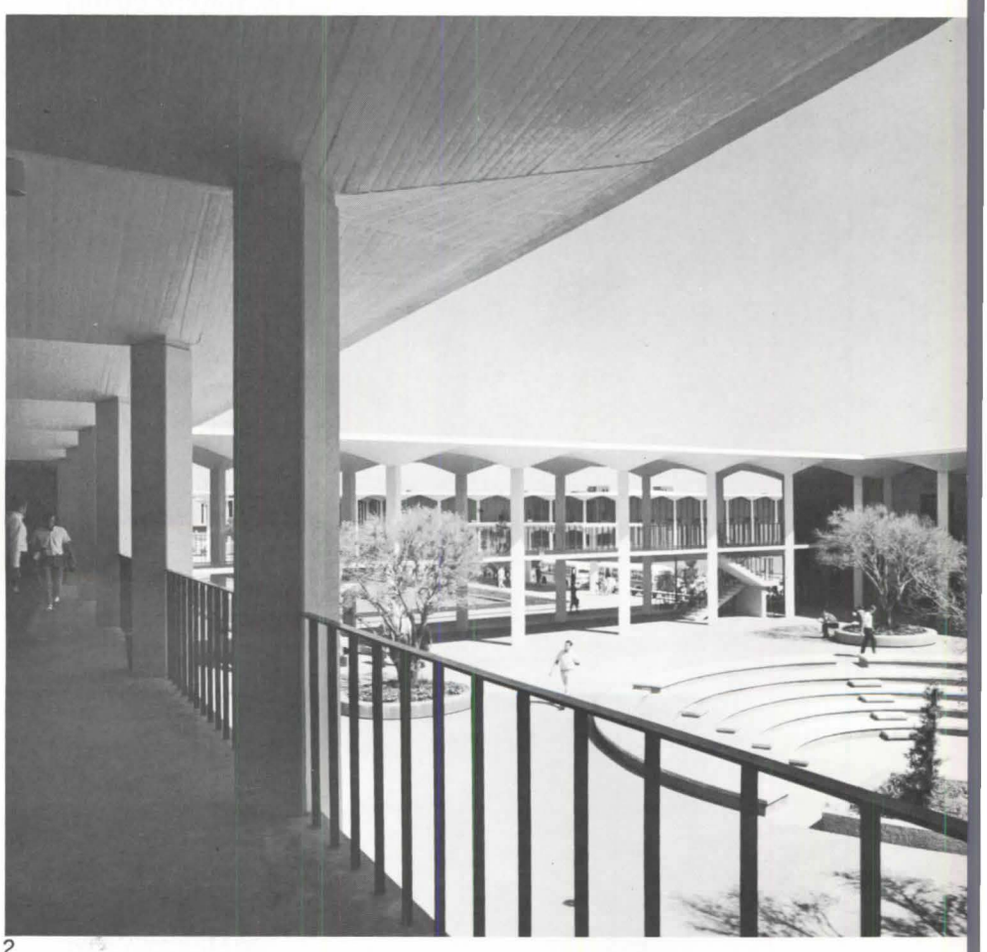

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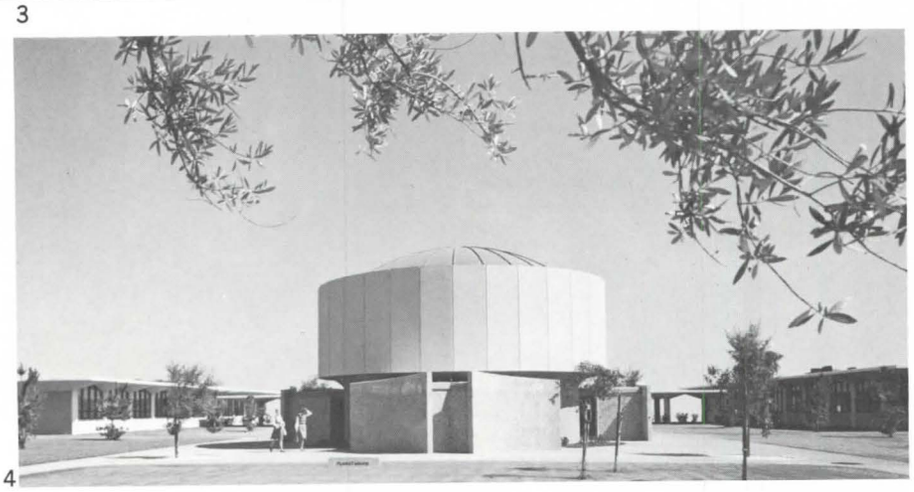

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*The gymnasium **(1)** fits into the natural slope; the native oaks located below it were carefully preserved. The Fine Arts Center **(2)** is grouped around a courtyard that features a sunken theater-in-the-round. Library **(3)** is a focal point of the campus. Planetarium **(4)** is the only structure that departs from the 16-ft module. View toward library is from student center **(5)**; view from library is toward arts center **(6)**.*

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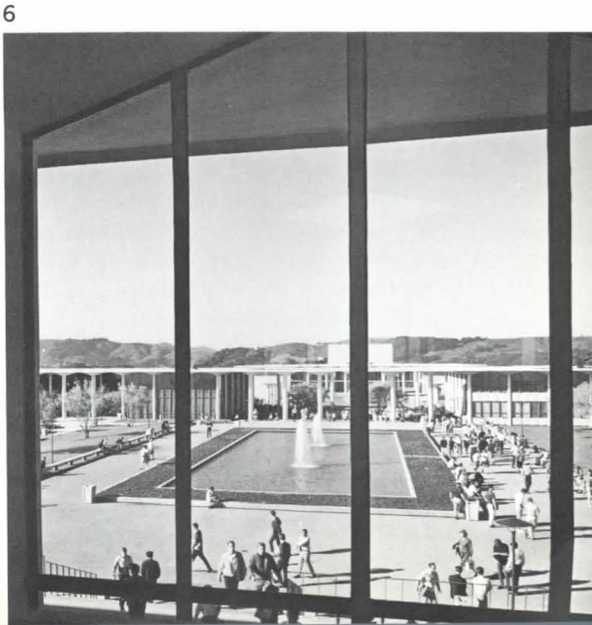

flexibility was a prime necessity in the planning.

But what of the college as architecture? Most of the 27 buildings are two stories in height (some are one story); all are of reinforced concrete with a strongly expressed 16-ft module that is repeated in a series of connected, colonnaded courts. The basic roof structure is formed by poured-in-place folded plates, which terminate in hyperbolic-paraboloid shapes. Spandrels and walls are poured-in-place, except for the library, which has precast sunscreens. The library, focal point of the campus, is essentially a two-story building, with a lower level that opens onto a sunken garden court. Its roof is of 16-ft precast h-p units on slender supporting columns, creating "an airy basilica-like space."

It has often been pointed out that good planning is no guarantee of good architecture, and it is the architectural expression of this campus that raises some questions.

The 16-ft module is the dominant exterior motif throughout—with the single exception of the small, drumlike planetarium—regardless of the different interior requirements of gym, library, etc. The architects explain: "Extensive studies indicated that for the particular space requirements of the College, the 16-ft module was a good common denominator for a planning module as a structural expression, a visual continuity was achieved for the entire building complex. Necessarily, this kind of approach would not always be feasible or desirable—however, in this case it seemed to yield a high degree of order and cohesiveness."

Notwithstanding the need for economy and the wish for a strong unifying element, the rigid use of the 16-ft module is, in one sense, simply dull. But in another sense, the system, universally imposed, would seem to be contrary to certain basic values for which a college can stand. Is one urged to look beneath these fashionable façades to the content within? Is there any hint of relatedness between interior and exterior, any admission of diversity between different elements? The same 16-ft colonnade turns corners, runs off into an open arcade, appears everywhere, regardless of whether it shelters a small building, a large one, or a walkway. The emphasis would seem to be on surface apperance, rather than on fundamentals and relationships, and if the architecture expresses the various aspects of its realities with a single superficial motif, it is possible that the students will be that much less encouraged to look beneath the surface of *all* appearances.

This leads to another question—about

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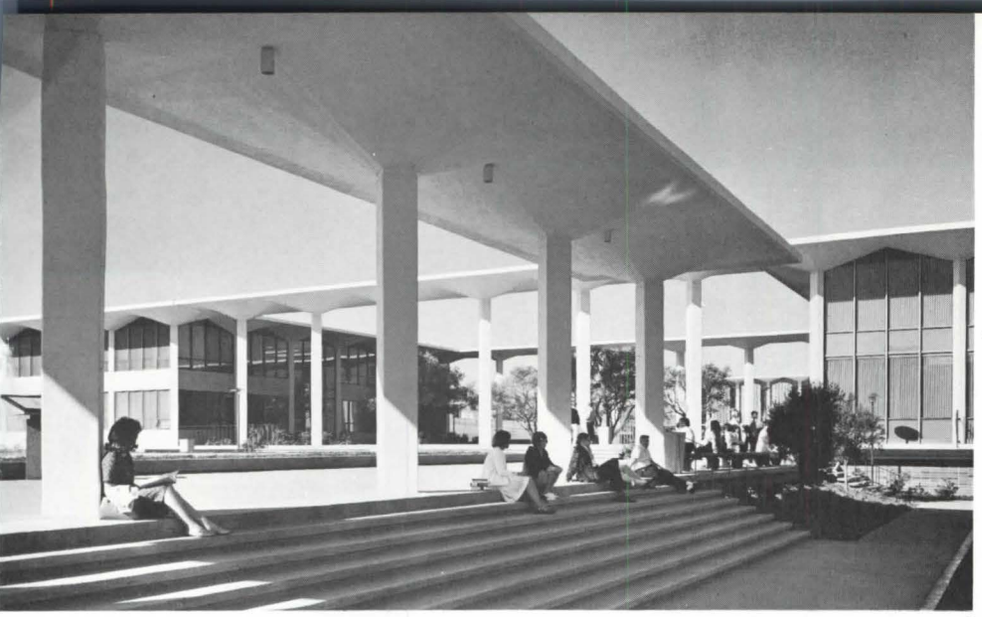

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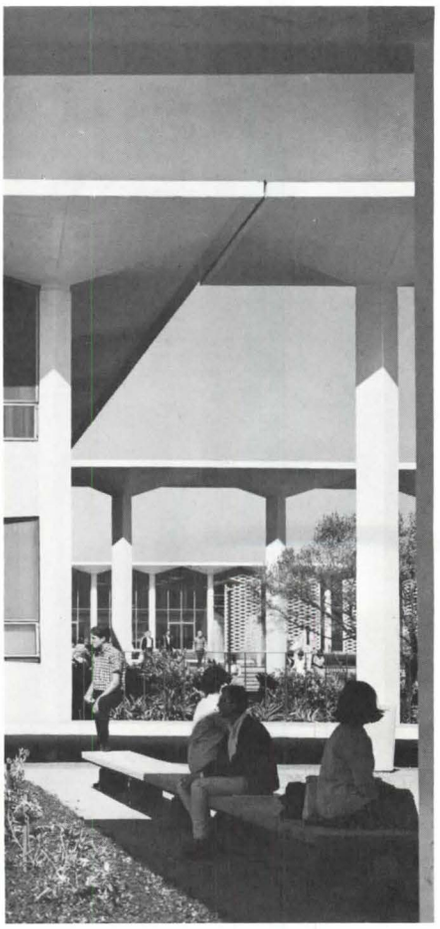
View of the campus is from the mezzanine level above the library lobby ***(7)****. Broad steps under a protective arcade form an entrance to the campus* ***(8)****. Interior shows the dominant architectural element, the roof form, made of poured-in-place folded plates that terminate in hyperbolic-paraboloid shapes* ***(9)****. The strongly expressed 16-ft module is repeated in a series of connected colonnaded courts* ***(10, 11)****.*



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the mood of the architecture, the image that it was expressly intended to convey. The architects describe it as a "dignified quality." The campus does indeed have a dignified quality, but one wonders whether its particular kind of dignity is appropriate. How is the dignity of this college differentiated from, say, the monumental quality of an embassy or a civic center? The architects reply that it is a matter primarily of scale: "The scale of the structural module, the buildings themselves, and the courts and malls, is greater than that of a primary or secondary school complex, but more intimate than that of a great public institution. The open spaces needed to be large enough in scale to accommodate the flow of thousands of students, yet small enough to relate to *individuals* moving back and forth in the learning process, rather than groups. In an embassy or civic center the emphasis is rather on the individual within the total society. There, dignity may be more abstract and more formal; in the college, dignity should be more subjective, more personalized, even more functionally related to the learning process."

But dignity is deceptive. In some cases, it may be only a front for vacuity. Or it may be an attitude superimposed without sympathy for the inner vitality it overwhelms. There is, here, a suggestion of self-importance and pomposity that is at odds with the more serious purposes of a college. To some, this kind of "dignity" will seem rather more appropriate to a corporation, which uses its architecture to convince employees and public alike of the total excellence of all its endeavors. But a college should be above such glibness. Soon enough, many a new graduate will accept much of what is propagandized; and school may be the first and last place where he is encouraged to examine some of the myths of the modern world. To the extent that this college may itself by perpetuating a myth—being somewhat like the set for a lavish Hollywood spectacular about college life—it may be establishing an environment at cross purposes to the life it hopes to encourage.

As college enrollment increases, there is the real danger that college, for many, will become simply a stage set, or a status symbol, or some strange combination of the two. It must be more than this, of course, and more than a way of keeping young people and their automobiles off the streets. What a college can be, and what is expected of it, depends on many factors. Architecture can be an important one in conveying the sense that there is meaning behind the façade and that the form has genuine content.

BROKERAGE OFFICES

Specialized interiors that require a good deal of mechanical equipment are generally lacking in design quality. Among these types are dental operatories (see NOVEMBER 1964 P/A), hospital rooms, and theaters. Brokerage offices are also in this category.

That brokerage firms are not handsomely designed is inconsistent with the new-found realization on the part of many corporate executives that good design is good business; it seems an ironic situation in which to find such an influential segment of the country's business.

For this situation, architects sometimes blame the equipment manufacturers, who often get there first and who frequently serve as principal design consultants. The manufacturers, whose primary concern is the efficient functioning of their products, reply that whenever architects or designers get into the act they inevitably compromise the function of the installation because they do not understand the needs of either the operation or the equipment.

The fact that now emerges is that no architect or designer should attempt to design such a specialized facility without experienced consultation (unless, of course, he is practiced and up-to-date in the field), nor should a planning firm or a manufacturer attempt the job without an architect or designer.

What the experienced designer of brokerage firms has recognized is that a lingering—if diminishing—cloud of fear hangs over the older (and therefore controlling) brokers "in the street" who lived through the 1929 crash. Since they always suspect that it might happen again, they feel they must turn every nickel to immediate value. Furthermore, every little recession hurts design, and the condition of the market changes the complexion of the interior, so that a substantial investment in good office design is thought of as risky speculation. "They would almost like to be able to rent quarters on a month-to-month arrangement," one designer observed, "they are so anxious to spend less on their offices." Even though this situation is improving, architects should know in advance that the amount of time devoted to "client contact"—i.e., persuasion—will be enormous.

The major design challenge is the communications system. In each large firm, for example, there are two areas where the difficulties of information transmission are crucial: in front, the Customer or Board Room; and in the back, the Order and Wire Room. The front room is the one in which a broker or salesman (who prefers to be known as a "registered representative") receives calls from the customer; the room is usually an open area that accommodates a number of salesmen, each of whom requires a desk, a telephone, and a visual means

PHOTO: COURTESY MERRILL, LYNCH, PIERCE, FENNER & SMITH

PHOTO: BEN SCHNALL, COURTESY FRIDEN (NOW ACME VISIBLE RECORDS, INC.)

of keeping abreast of the latest market quotations—traditionally the "board" from which these customer rooms derive their other name. The Order Room is the one to which the broker submits his orders and from which those orders are placed in the appropriate market.

Typically, the broker writes the order on a slip of paper and places it in a conveyor of some kind—often a pneumatic tube or conveyor belt—which carries it to the Order Room. There, an order clerk types it out on a teletypewriter machine (the private wire of these machines has given the Wire Room its name), which sends the message, often simultaneously, to the floor of the stock exchange and to the firm's head office.

According to O'Neil Duffy of Duffy Inc., who has designed a number of brokerage offices, "a broker must, therefore, utilize the fastest communication system available, because even a second lost can sometimes mean the difference between money gained or lost."

Making it possible for everyone in the customer room to see the board is frequently a difficult problem because of free-standing columns; however, new equipment has made available individual quotation systems at each salesman's desk. Therefore, of the two communications phases in the brokerage firm—seeing the board and moving the order—the main problem, according to Douglas Nicholson of JFN Associates, "is one of *order handling*—to get the order from the salesman to the order room in intelligible form."

"A small firm," continues Nicholson, who started his design firm with brokerage work, "may start off with a page who runs orders from salesmen's desks to the back room, but this slows down, and salesmen are then, reluctantly, allowed to telephone their orders in. But with this system there is no verification. So every firm would like to have orders written down to eliminate mistakes in getting them from the customer room to the floor of the exchange."

"The best solution," Nicholson points out, "would be not to go through the firm's own order room but directly from the salesman to the floor of the exchange. What we need is an instantaneous, electronically automatic transmission that is neither unwieldy nor slow as present automatic systems are. When this is worked out, the problems will be reduced by 90 per cent—even the problems on the exchange floor."

W. L. Relyea of Ebasco Services, Inc., points out from considerable experience with brokerage design that inertia "is not moved quickly toward automation. Trading, it must be remembered, is based on personal faith: at the exchange, the nod is as good as the written contract. If you automate the whole process, who gets the blame for a mistake? You can't blame a machine. It would be like automating medicine: there will still be those who would rather see a doctor. A lot could be done with the transmission of voice to paper, however."

"Meanwhile," JFN's Nicholson continues, "moving paper is still the archaic bottleneck in brokerage firms. Now we must either walk or use tubes, belt systems, or vertical belt systems. Methods of paper moving have not progressed materially in 50 years; essentially, we use the same archaic systems, which are all very cumbersome, costly, and inflexible."

Several opinions exist concerning the relative merits of pneumatic tube systems versus conveyor belt systems. The tube system is thought faster, more flexible, and advantageous in that it can be hidden. On the other hand, tubes are also said to create noise and heat and to be more expensive and to require a greater manual operation with the order slip than the belt system. The conveyor belts are approved of for being always accessible, on the one hand, yet restrictive to circulation patterns and capable of "taking over" a design and a room, on the other. It is this problem of concealing or expressing these mechanical devices that most needs design attention.

Sometimes the two systems are used in combination. Invariably, an order room will have a conveyor belt rather than a tube system.

"The choice of system for the over-all installation," says Oliver Lundquist of Lundquist & Stonehill, Architects, "will depend on the physical environment of the room itself, on management procedures within the firm, and on the degree of office autonomy, which can depend on the location of the office." In any case, as Ebasco's Relyea has noted, 15 years ago all installations used pneumatic tubes, whereas today most firms are using conveyor belts.

The design procedure in brokerage offices, like that in other specialized and mechanical rooms, usually involves the following steps: first, the designers confer with the client on personal organization and traffic flow to determine special requirements. Next, they confer with the engineers of the conveyor system that the client knows he likes to utilize, and also at that time with the lines engineers of the telephone company. Except for one organization "on the street" that offers a courtesy service, the only "consultants" a designer can turn to in this area are the equipment manufacturers and the telephone company. Then comes the planning of the Customer Room—for visibility of the quotation board used and for location of the conveyor connection with the Order Room. At that time, consideration must be given to the Order Room, which must also have a view of the quote board or must have its own quotation system. Once the problems of these major areas are resolved, all other areas in a brokerage firm are considered comparatively simple to plan.

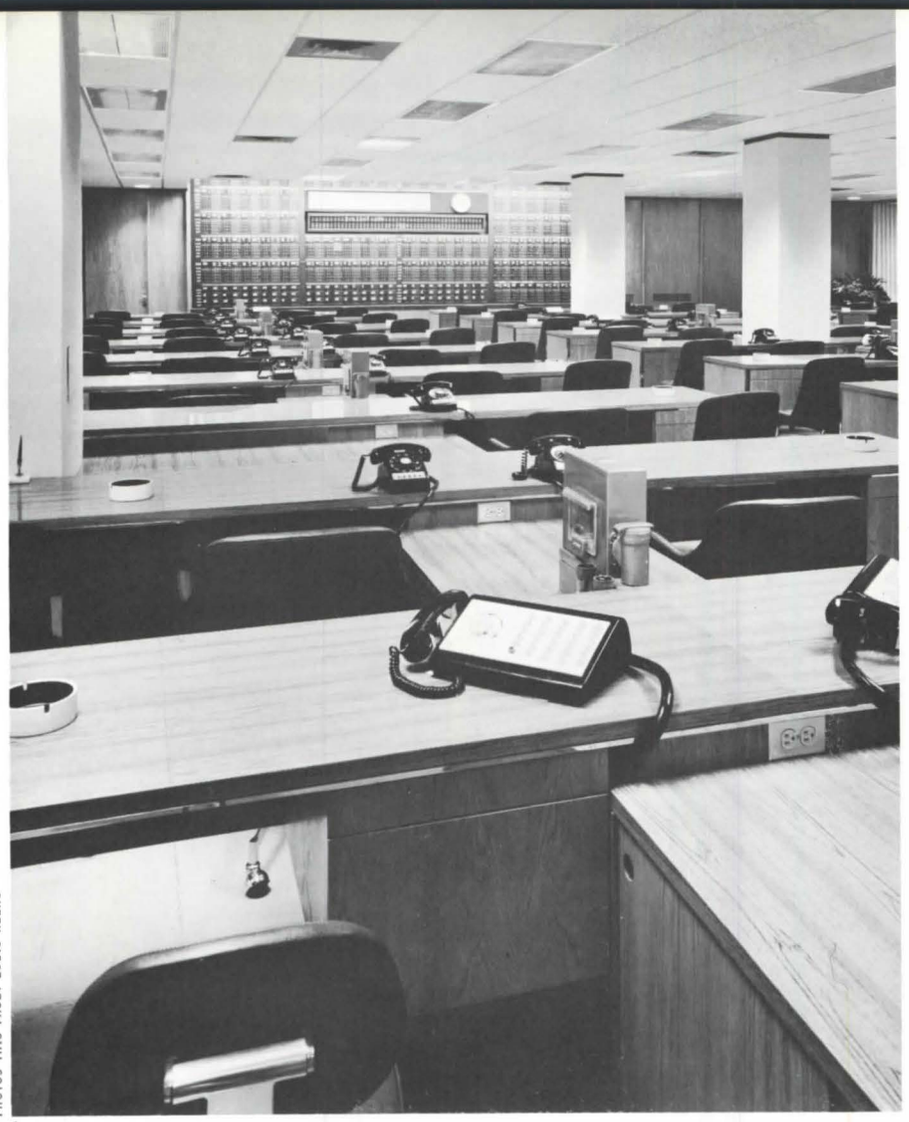
What an architect must remember, it is pointed out, is that his outlook of planning for future needs and changing systems will probably not meet with immediate sympathy from brokers. For the broker, as one designer has found, is a fairly uncomplicated individual "whose whole life is a gigantic crap game—a simple, quick-reaction process. Brokers are conditioned to an instant monetary decision, not to forward thinking. Thus they don't fathom the potential-for-expansion idea." But clearly this is what brokerage firms need to understand, for at the moment their renovation requirements are numerous and costly.

Brokerage design also seems to be on the increase owing to the greater volume of stocks now being traded and to the greater number of people who are able to buy them. Branch offices of brokerage firms are now located all over the country to be nearer their customers moving from the financial districts to the uptown shopping and hotel areas, as the big corporations and the banks have done.

Beyond this, as architect Lundquist points out, the design of brokerage offices has a wider relevance, in that the design problems are comparable to those in any firm where there is a great deal of information transmission or order processing—in publishing, post offices, garment industries, and so on.

To the question, "What would you tell a tyro designer about this type of work?" JFN's Nicholson replied, "They need a technique of data gathering that will give them an insight into that firm's operation, a knowledge of what is available in the communications industry, and stern research. You get a certain expertise in an industry after a while, but that can be a hindrance to a fresh approach. Frank Lloyd Wright once said, 'Don't call me an expert; that is somebody who doesn't have to think anymore.' So the first thing has to be the initial data gathering."

From that follows the axiom: Good functional design is the result of writing a good program.



PHOTOS THIS PAGE: LOUIS REENS

1

Duffy Inc. designed a combination system of both pneumatic tube and conveyor belt for the Manhattan offices of Dean Witter & Co. In the Customer Room ***(1)****, a Lamson tube system is incorporated in specially designed side cabinets (perpendicular to the desks) where electrical raceways and telephone lines are also concealed. Project director Donald Eliasen, who is vice-president of design for Duffy, designed special butternut desks and hung the wastebaskets to the side cabinets* ***(2)*** *in order to keep floor clutter minimal.*

Tidy as the design is, the structural columns illustrate the difficulties inherent in a Customer Room where a large number of salesmen must have a view of the Teleregister board (see plan). Tubes run concealed through raceways in the side cabinets, up the sides of structural columns and then overhead. They connect salesmen's desks with a central station in the Order Room ***(3)****; from there, orders are carried by a Friden conveyor (now marketed by Acme Visible Records) to appropriate order clerks and traders.*

2

3

DATA: ***Flooring:*** *carpet/wool/beige/Roxbury.* ***Walls:*** *English oak/existing.* ***Managers' Partitions:*** *posts/welded angles, tubes/black; panels/beige vinyl/Vicretex/over masonite core; ceiling/wood slats/painted white/6" o.c.* ***Desk Partitions:*** *black vinyl/Gilford Leather/on plywood/hung on desks.* ***Window Covering:*** *beige casement/Knoll Associates.* ***Lighting:*** *downlights/recessed/Century Lighting; pendant globes/Habitat.* ***Desks, Files, Cabinets:*** *black, chrome, oak/Art Metal.* ***Chairs:*** *in orange upholstery/Knoll.* ***Ash Urns:*** *Hugh Acton.*

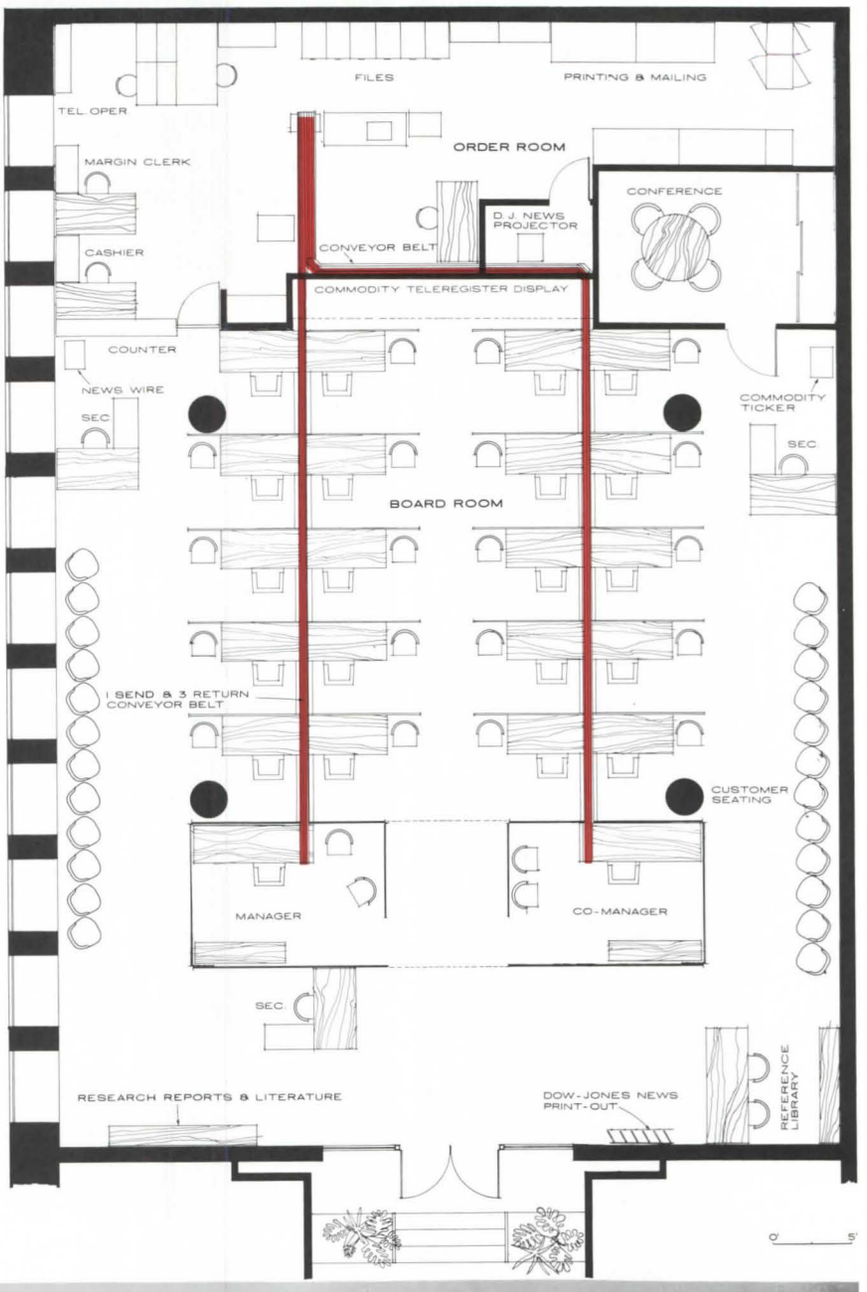
The handsome Denver office of Bache & Company, designed by Oliver Lundquist, Architect, accommodates 20 sales representatives and a manager and co-manager in the Customer/Board Room. A two-leg conveyor belt is neatly incorporated to connect the semiprivate offices of the managers and the salesmen's desks with the Order Room. One return channel serves four desks, in order to minimize the width of the conveyor. Salesmen's desks flank the belt, which, because it must be always visible and accessible to prevent stoppage, is bridged by a glass sheet at that point. Salesmen share an electronic quotation machine, which sits on the glass bridge between them.

Beige, black, and English oak panels are set off by bright orange upholstery.

The managers' offices have open, wood slat ceilings for air-conditioning purposes. Customer seating is provided on the perimeter of the plan so as to give the unobstructed view to the salesmen. The Order Room of this branch contains a variety of "back office" facilities (see plan).

Architect Lundquist stresses the importance of the contribution of David A. Teiger, who was the client's coordinator on management procedure and whose "persuasive urge to do things better" is uncommon among brokerage clients.

PHOTOS THIS AND FACING PAGE: BEN SCHNEIDER


FILES
PRINTING & MAILING
TEL OPER
ORDER ROOM
MARGIN CLERK
CONFERENCE
D.J. NEWS PROJECTOR
CONVEYOR BELT
CASHIER
COMMODITY TELEREGISTER DISPLAY
COUNTER
NEWS WIRE
COMMODITY TICKER
SEC
SEC
BOARD ROOM
1 SEND & 3 RETURN CONVEYOR BELT
CUSTOMER SEATING
MANAGER
CO-MANAGER
SEC
RESEARCH REPORTS & LITERATURE
DOW-JONES NEWS PRINT-OUT
REFERENCE LIBRARY
0'
5'

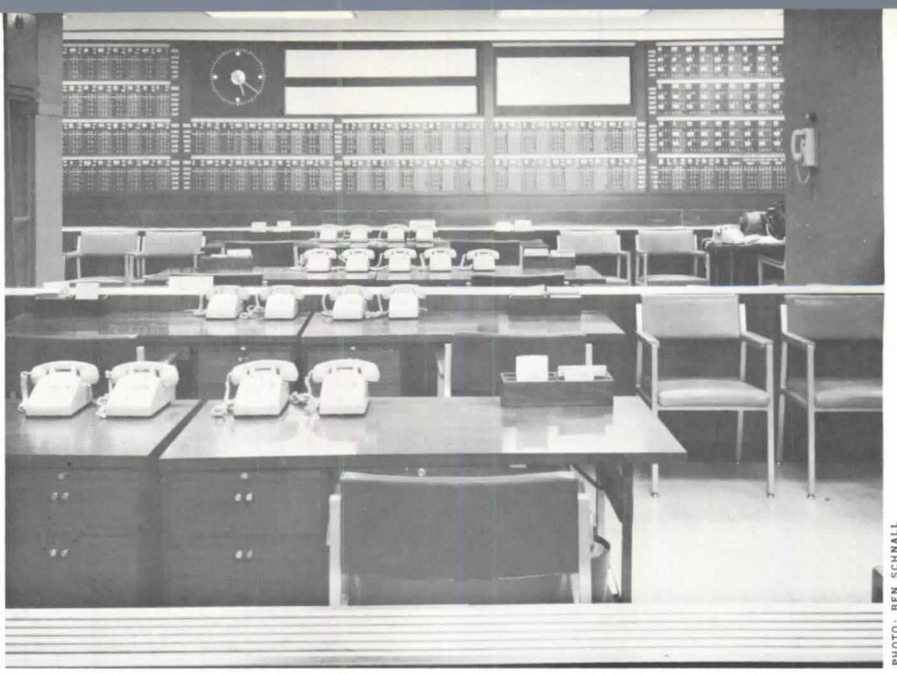


PHOTO: BEN SCHNALL

Sherburne Associates designed a three-leg conveyor belt system for Hirsch & Co. on Madison Avenue (right, top) in which the belts run parallel to the desks and along a side wall to the Order Room, which is at the rear of the plan. This installation shows the kind of control a belt system can exercise on the circulation pattern. Another Customer Room designed by L. G. Sherburne Associates (right) has a three-leg conveyor belt, each leg of which runs perpendicular to and between two adjacent desks. Each run is carried forward to the tele-register board and then behind the board to the order room (on right of photo). The circulation pattern is different from that of the office above, but similarly restricted as to cross-the-room movement.

PHOTO: BEN SCHNALL

The design potential in texture is shown by the Los Angeles office of Walston & Co., where glass partitions separating representatives' desks have an affinity with the clear plastic carriers used in the Grover pneumatic tube system. The tube dispatch stations are accessible to both desk positions through a cutout in the glass partition. Tubes run in teak and black Textolite side cabinets that separate flanking desks, and they connect with an order room on a mezzanine level, from which there is a view of the quotation board. A conveyor belt system is used in the Order Room. Designed by Sherburne Associates.

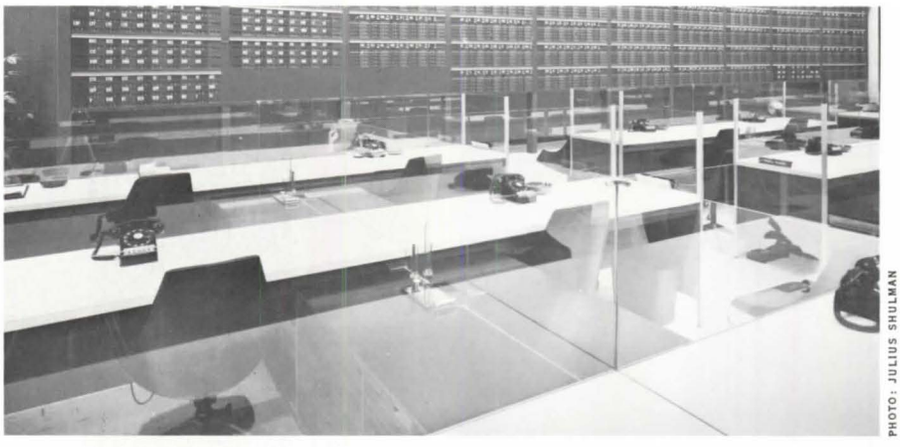


PHOTO: JULIUS SHULMAN

The Trading Room of Blythe & Company, designed by J. Gordon Carr, Architect, is a wire and order room in which traders deal in a special group of institutional and commercial securities handled by this investment banking and trading firm. In this interesting arrangement, all traders as well as the order clerks at teletypewriters in the pit below them have a view of a single quotation board. A Friden conveyor belt connects the two activities with a raked section of belt.

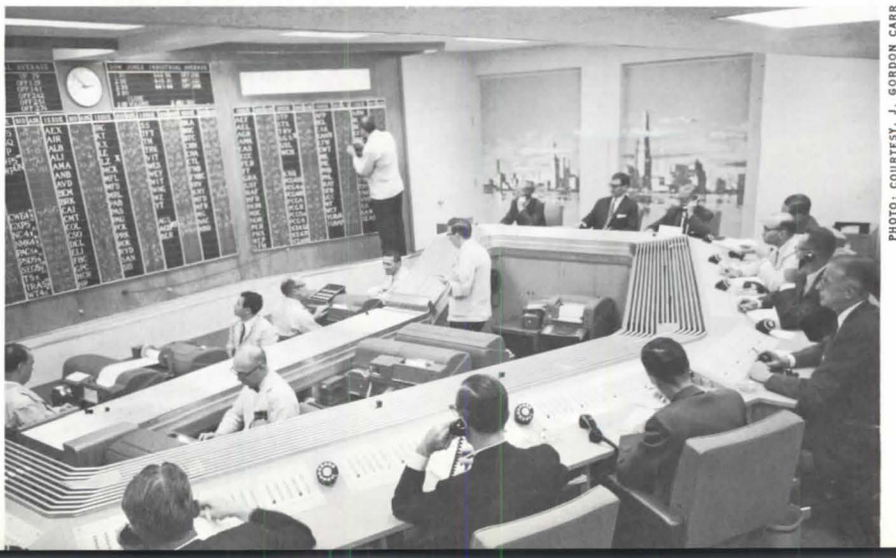


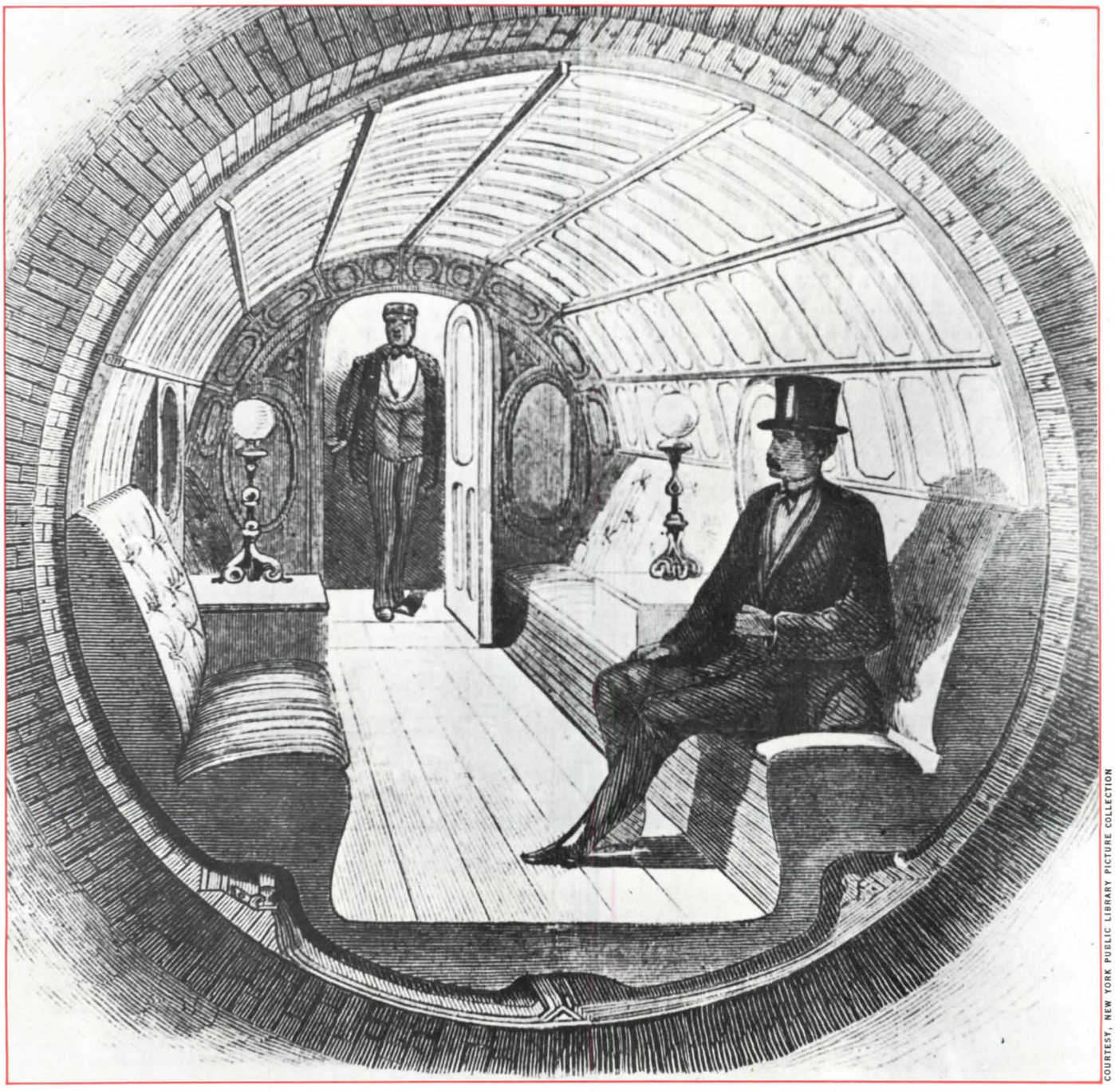
PHOTO: COURTESY, J. GORDON CARR

Isolation of Railroad/Subway Noise and Vibration

BY LAYMON N. MILLER

Although lead-asbestos pads have been used to reduce the transmission of railroad- and subway-induced noise and vibration, technical data on their actual effectiveness has been hard to come by. Two relatively recent studies of this kind are reported by a member of Bolt, Beranek & Newman, Inc., Acoustics Consultants, of Cambridge, Mass., and New York, N. Y.

In the center of a large city there can be found a massive reinforced concrete structure housing an élite English chinaware and fine glassware shop located in a plaza-type shopping area one floor below street



COURTESY, NEW YORK PUBLIC LIBRARY PICTURE COLLECTION

level. Street traffic, including truck and busses, passes directly overhead. There are a few expansion joints across the roadway surface. Each time a truck or bus passes over an expansion joint, the building sustains a slight bump. Several hundred bumps per day, however, are enough to cause glasses and dishes to creep across the shelves, fall to the floor, and break. Grooves in the shelves, ledges at the edges of the shelves, and anti-skid surfaces on the shelves now save the china and glassware, but the structure still shakes with every passing vehicle.

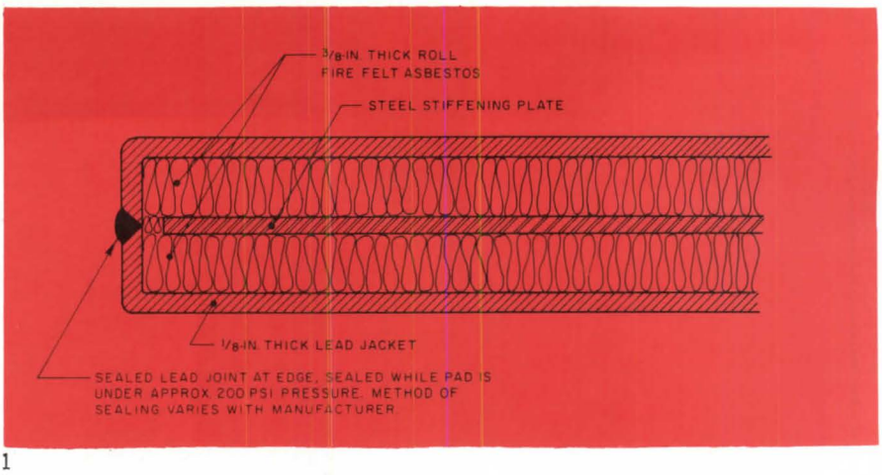
In another city, a new building is being constructed directly over an existing subway. The lowest floor of the building is to contain a large bank vault. The safety and warning mechanism for the vault includes an impact detection device that actuates an alarm in the event that an intruder should set off an explosive charge while trying to get into the vault. Suppose a subway should trip the warning device?

Several movie theaters and a well-known concert hall are located close enough to railroad and subway tracks so that a passing train occasionally masks the sound of the program being presented. In the center of one city, a new library building is constructed directly over a busy expressway. The peace and quiet of the library reading room is marred by an occasional bump when a heavy truck passes over a concrete expansion joint in the roadway beneath. In office and apartment buildings built over subway and railroad tracks, vibration from passing trains can frequently be *felt* as high as 40 to 60 ft above track level, and noise can be *heard* as high as 60 to 100 ft above track level if nothing is done to prevent noise and vibration transmission. In one New York office, it is possible to hear passing subway trains over a vertical distance of 80 ft.

These illustrations typify the subway and railroad noise/vibration problems that have frequently been encountered during the past few years. Once a building has been erected, it is too late to take any simple remedial steps to isolate the entire structure against intruding vibration. Similarly, once track is laid it may be too late to make track changes; and it would certainly involve great expense and public inconvenience to incorporate belatedly any significant vibration isolation treatments in the track layout.

Lead-Asbestos Pads

For many years, lead-asbestos pads have been placed under the bases of nearby building columns to reduce the transmission of railroad- and subway-induced noise and vibration into the neighboring buildings. In fact, this has been common practice in New York for all new buildings along Park Avenue bordering the railroad tracks that run into Grand Central Station. A cursory analytical investigation of the effect of these pads is not very encouraging, however. It is not clearly evident that these pads achieve the isolation claimed for them. Usually, a conventional pad is only about 1 in. thick, has two 3/8-in.-thick layers of asbestos fibers separated by a 1/8-in.-thick sheet of steel, and is enclosed in a waterproof jacket made up of 1/8-in.-thick lead **(1)**. In a typical installation, the pad is loaded at about 500 to 1000 psi. When one considers these highly compressed pads, only 1-in. thick, one would hardly think of them as resilient pads, especially at low frequencies. And yet, long-time use of these pads has built up an impressive group of people advocating their use, even though technical data on their effectiveness has not been available.



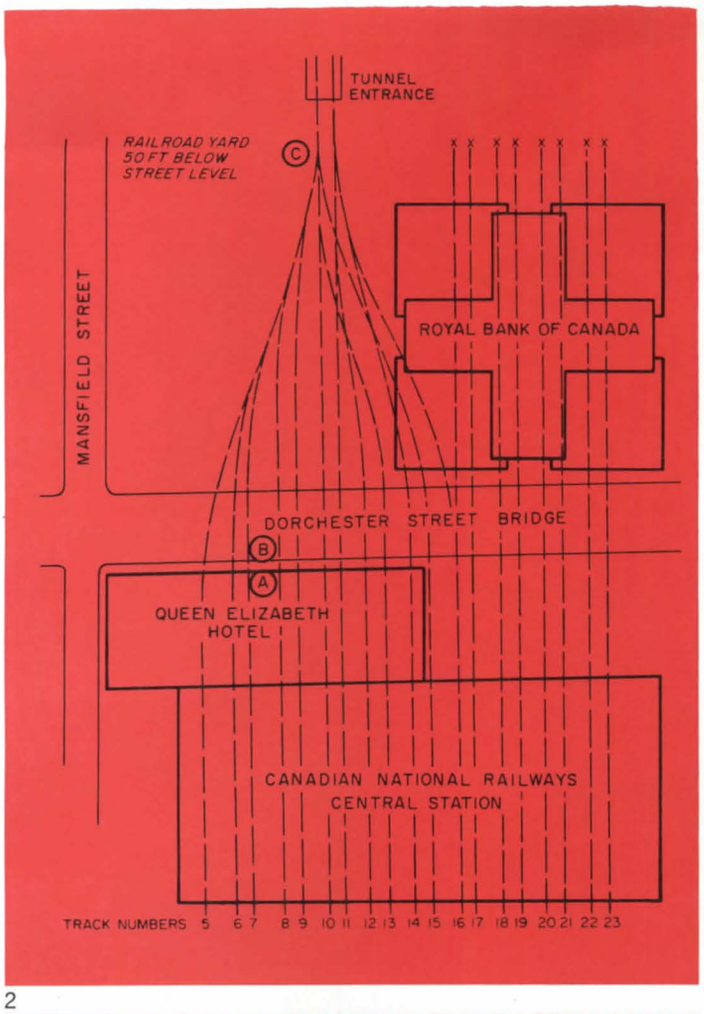
1

Opportunity in Montreal

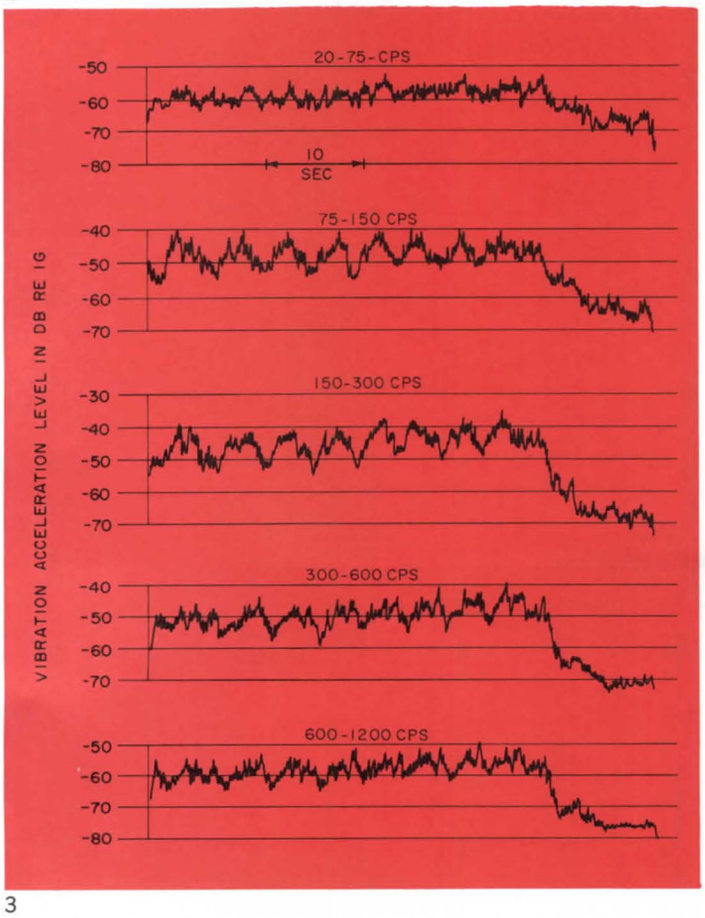
For several years, our firm—and probably many architectural, structural, and mechanical engineering firms—has been interested in having actual data on the vibration reduction provided by lead-asbestos pads. In February 1959, working for I.M. Pei & Associates, we were given an opportunity to measure an installation in an existing building. The railroad-induced vibration levels in Montreal's Queen Elizabeth Hotel (mounted on lead-asbestos pads) were measured and then compared with the vibration levels in a nonisolated three-floor, 50-ft high concrete structure—the Dorchester Street Bridge in front of the Queen Elizabeth Hotel. Both of these structures are located directly over a large array of depressed tracks of the Central Station of the Canadian National Railways **(2)**. It was possible to measure vibration simultaneously in side-by-side isolated and unisolated building columns (such as at Points A and B) for train passages ranging as close as 17 ft and as far as 220 ft from the columns. (Incidentally, each single dashed line actually represents two rails in the track bed.) Some typical vibration-level traces for a train passage are shown **(3)**, with each trace representing the vibration content in the indicated frequency band.

Vibration caused by a passing train may also be plotted to show the general distribution of vibration levels as a function of the frequency bands **(4)**. Each point in this plot represents the average vibration level in a given frequency band for a particular passage of a train. In this graph, the vibration was recorded from an unisolated pick-up point at Position C **(2)**. That point was selected in order to learn something about the vibration produced by trains passing over switch joints. The resulting levels are several decibels higher than for conventional track sections without switches. In addition, because of the presence of curved track in this array, some "wheel squeals" were also recorded.

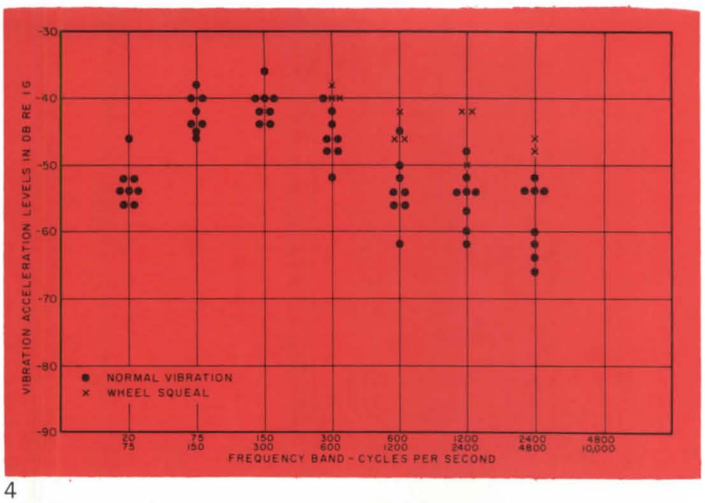
Vibration produced at track level may be carried by multiple earth and structure paths into a nearby building. Within the building, the vibration may manifest itself to an observer in either of two ways. When a column, beam, concrete slab, or wall of a building vibrates due to the passage of a nearby train or subway, it radiates sound that can be heard; and if it vibrates with sufficient intensity, it produces vibration that can be felt. It is important to realize that the radiated sound of a vibrating structure can be heard at lower intensities of vibration than can be felt. It is also important to realize that for earth-borne and structure-borne vibration, the low-frequency vibration is transmitted quite well, but higher frequency vibration is more easily absorbed within the structure and is not as well transmitted.


TUNNEL ENTRANCE
RAILROAD YARD 50 FT BELOW STREET LEVEL
C
MANSFIELD STREET
ROYAL BANK OF CANADA
DORCHESTER STREET BRIDGE
B
A
QUEEN ELIZABETH HOTEL
CANADIAN NATIONAL RAILWAYS CENTRAL STATION
TRACK NUMBERS 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

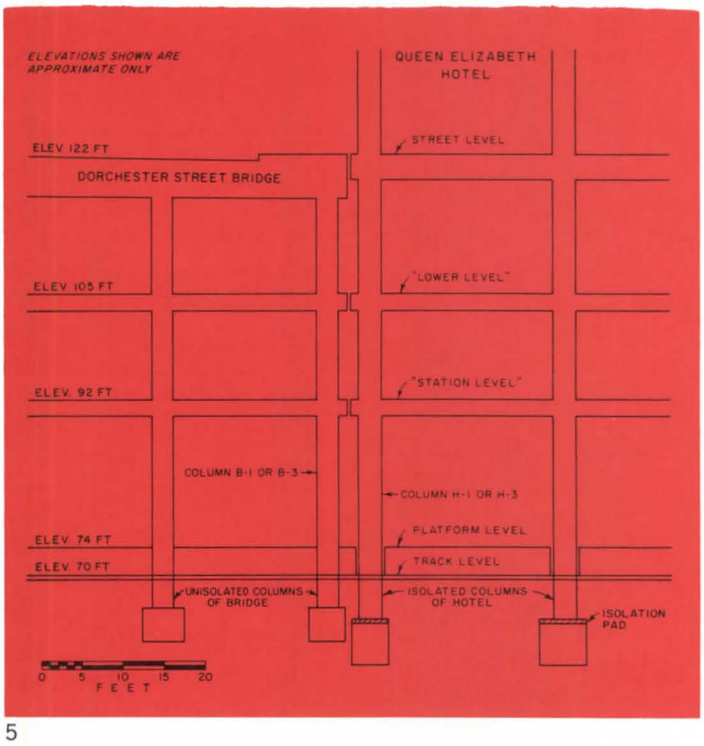
2


VIBRATION ACCELERATION LEVEL IN DB RE IG
20-75-CPS
10 SEC
75-150 CPS
150-300 CPS
300-600 CPS
600-1200 CPS

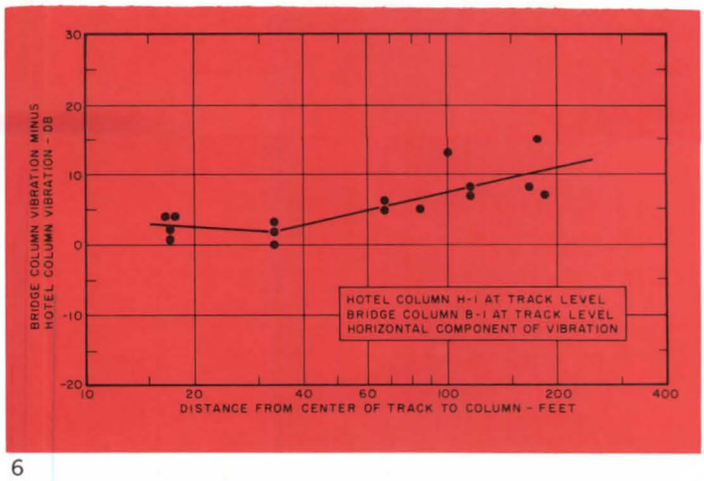
3


VIBRATION ACCELERATION LEVELS IN DB RE IG
NORMAL VIBRATION
WHEEL SQUEAL
FREQUENCY BAND - CYCLES PER SECOND

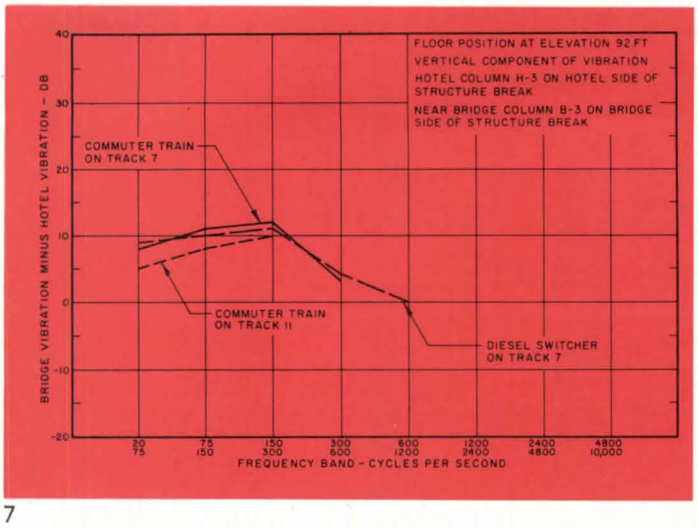
4


ELEVATIONS SHOWN ARE APPROXIMATE ONLY
QUEEN ELIZABETH HOTEL
STREET LEVEL
ELEV 122 FT
DORCHESTER STREET BRIDGE
"LOWER LEVEL"
ELEV 105 FT
"STATION LEVEL"
ELEV. 92 FT
COLUMN B-1 OR B-3
COLUMN H-1 OR H-3
PLATFORM LEVEL
ELEV. 74 FT
TRACK LEVEL
ELEV. 70 FT
UNISOLATED COLUMNS OF BRIDGE
ISOLATED COLUMNS OF HOTEL
ISOLATION PAD
FEET

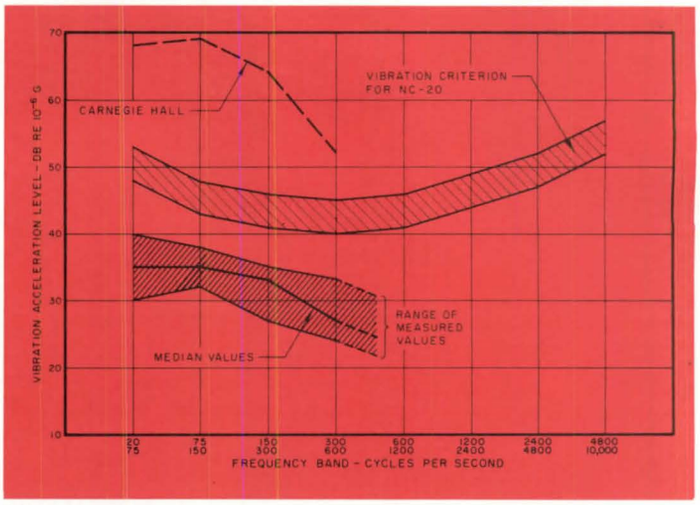
5


BRIDGE COLUMN VIBRATION MINUS HOTEL COLUMN VIBRATION - DB
HOTEL COLUMN H-1 AT TRACK LEVEL
BRIDGE COLUMN B-1 AT TRACK LEVEL
HORIZONTAL COMPONENT OF VIBRATION
DISTANCE FROM CENTER OF TRACK TO COLUMN - FEET

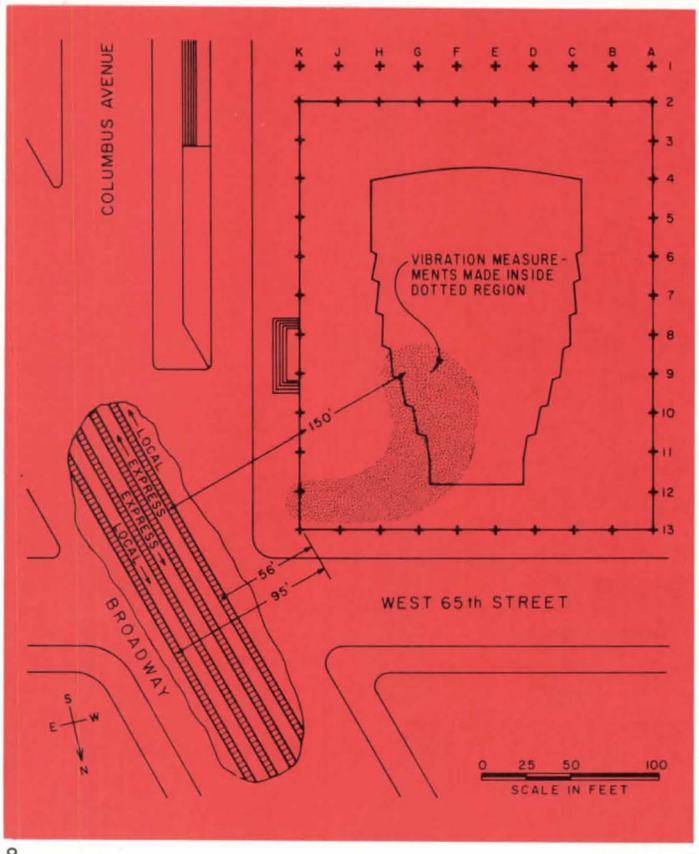
6


FLOOR POSITION AT ELEVATION 92 FT
VERTICAL COMPONENT OF VIBRATION
HOTEL COLUMN H-3 ON HOTEL SIDE OF STRUCTURE BREAK
NEAR BRIDGE COLUMN B-3 ON BRIDGE SIDE OF STRUCTURE BREAK
COMMUTER TRAIN ON TRACK 7
COMMUTER TRAIN ON TRACK 11
DIESEL SWITCHER ON TRACK 7
BRIDGE VIBRATION MINUS HOTEL VIBRATION - DB
FREQUENCY BAND - CYCLES PER SECOND

7

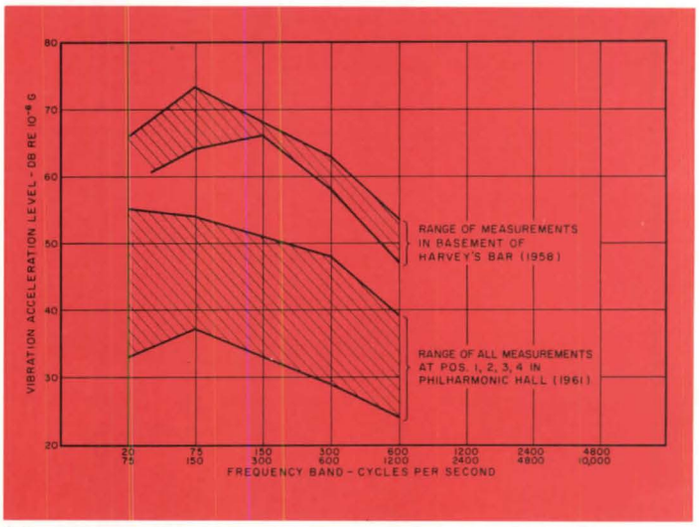

CARNEGIE HALL
VIBRATION CRITERION FOR NC-20
RANGE OF MEASURED VALUES
MEDIAN VALUES
VIBRATION ACCELERATION LEVEL - DB RE 10⁻⁶ G
FREQUENCY BAND - CYCLES PER SECOND

11


COLUMBUS AVENUE
VIBRATION MEASUREMENTS MADE INSIDE DOTTED REGION
150'
LOCAL
EXPRESS
EXPRESS
LOCAL
56'
95'
WEST 65th STREET
BROADWAY
S
W
E
N
0 25 50 100
SCALE IN FEET

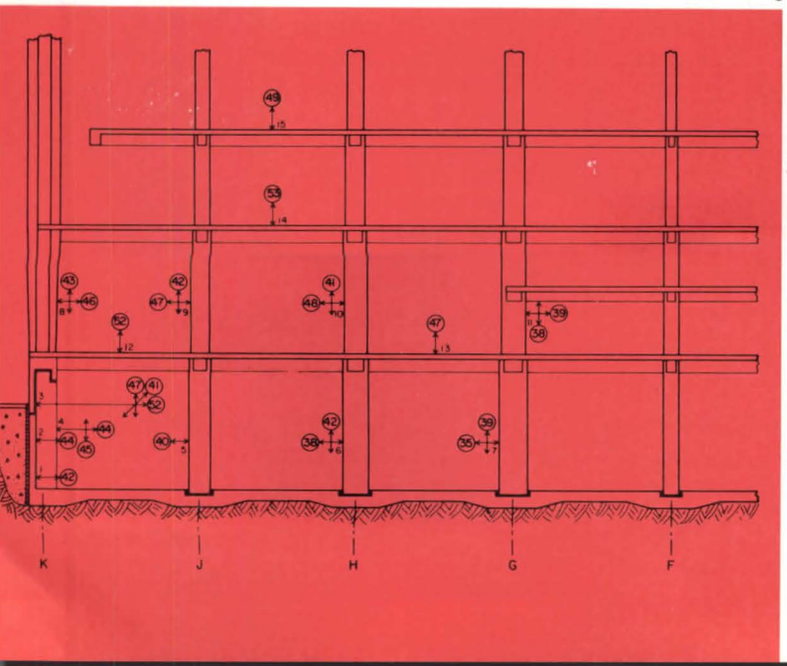
8

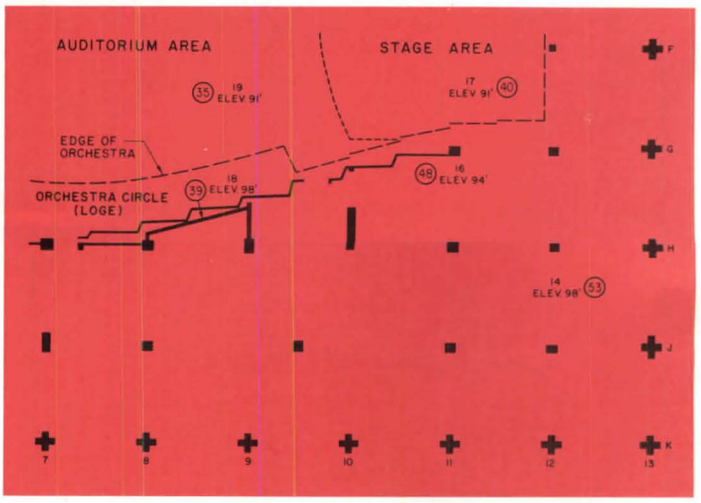
9


RANGE OF MEASUREMENTS IN BASEMENT OF HARVEY'S BAR (1958)
RANGE OF ALL MEASUREMENTS AT POS. 1, 2, 3, 4 IN PHILHARMONIC HALL (1961)
VIBRATION ACCELERATION LEVEL - DB RE 10⁻⁶ G
FREQUENCY BAND - CYCLES PER SECOND

12

10




AUDITORIUM AREA
STAGE AREA
EDGE OF ORCHESTRA
ORCHESTRA CIRCLE (LOGE)
19 ELEV 91'
17 ELEV 91'
16 ELEV 94'
18 ELEV 98'
14 ELEV 98'

Thus, railroads and subways typically produce low-frequency rumbling sounds when heard inside nearby buildings that are connected by structural paths to the railroad or subway tracks.

Some of the multiple earth and structure paths from the train tracks up into the Queen Elizabeth Hotel and the Dorchester Street Bridge are suggested **(5)**. The isolated and unisolated columns used for vibration measurements are also shown. The actual detail of the isolation joint of the hotel columns is much more complex than indicated in this sketch, because all the underground portion of the column base must also be protected against earth-borne pick-up.

The difference between the vibration levels in the bridge and in the hotel columns for the low-frequency band 20-75 cps were plotted **(6)**. These levels were recorded for column positions just a few feet above track elevation. Note that this plot includes a train passage for each point on the graph, and that trains were recorded for several different distances from the pick-up locations. The difference values are an indication of the effectiveness of the isolation joints, although these values probably also include some effects of other differences —such as geometry and structure—between the two buildings. An interesting effect shown is that the isolation joint seems to be more effective for the larger horizontal distances than for the shorter distances between the train track and the column involved. This is a rather complex phenomenon that may be related in some way to the relative amounts of vertical and horizontal vibration in the earth at increasing distances from the track, and to the relative isolation capability of the lead-asbestos pads for vertical and horizontal components of vibration.

Data was obtained **(7)** from a floor that is one floor above the tracks (at elevation 92 ft, **5**). This plot probably represents a more realistic picture of the effect of column isolation, because the measurement positions include a composite collection of several possible horizontal and vertical paths between the train tracks and the measurement positions. In the frequency bands of 20 to 300 cps, the vibration levels in the isolated structure are about 5 to 12 db lower than in the unisolated structure.

Average Value of Isolation

Based on this and other supporting data from the Montreal tests, about 8 db has tentatively been assigned as the average value of low-frequency isolation that was achieved by the 1-in. thick lead-asbestos pads used under the Queen Elizabeth Hotel.

Based on the encouraging results obtained from the vibration isolation tests on the Queen Elizabeth Hotel, certain portions of the new Royal Bank of Canada Building, and other smaller buildings in the same Place Villa Marie Development (all located over or nearly over the array of tracks between the Tunnel Entrance and the Dorchester Street Bridge) have been isolated with lead-asbestos pads and the results have been gratifying. Recently, the writer was in one of the new buildings two floor levels directly above the two tracks that emerge from the tunnel; even though it was at the time of the early morning commuting period, he was not able to hear or feel any passing trains. The architect has reported this to be a highly satisfactory installation.

Philharmonic Hall Study

New York's new Philharmonic Hall is another building that has been isolated against subway-induced noise and vibration. One of the design requirements was "There must be no subway noise inside the Hall!" This served as a guiding principle in the design of the structure of the building. The basic design features incorporated into the building to control earth-borne and structure-borne subway noise and vibration included: (a) the use of lead-asbestos vibration isolation pads under all columns of the building; (b) the insertion of vibration isolation joints in many of the exterior and interior walls and partitions at or near the basement level; and (c) the use of a "resilient" lining consisting of glass-fiber pads and washed, graded, crushed stone around all underground exterior walls on the north and east sides of the building facing the subway.

Excavation work at the site of Philharmonic Hall was started in 1959, and by October 1961 the basic concrete frame of the building was essentially completed. At that time, a subway vibration measurement program was carried out at the building to determine the effectiveness of the vibration isolation designs. At the time these measurements were made, the exterior glass walls of the building, many of the interior partitions of the buildings, and the doors of the main hall were not installed. Thus, it was not possible to achieve a sufficiently low background noise level inside the hall to even expect to hear subway noise. However, with vibration measurement equipment, it was possible to detect the passage of subway trains that would normally not be picked up by the human ear, even in a very quiet environment. Knowing the amount of the structural vibration, it was possible to make an approximate calculation of the amount of noise that would be radiated by that vibrating structure. Also compared were the noise and vibration levels with levels that had been previously measured in this same location before construction of Lincoln Center was begun. Other comparisons could be made with levels measured in Carnegie Hall, where subway noise can be heard in certain locations.

The relationship of Philharmonic Hall to the subway tunnel is shown **(8)**. The nearest track in this tunnel is about 56 ft from the corner of Philharmonic Hall and about 150 ft from the nearest inside seating area of the Hall. There are four tracks in the tunnel: two for local subways and two for express subways. As one local is slowing down, another is speeding up as it passes beside Philharmonic Hall; the expresses pass through at normal speed. During evening operations, a train passes by on each track about every four or five minutes.

A large number of measurement positions were located within the dotted region of the buildings, ranging in elevation from the basement (which is at about the elevation of the subway tracks) to an elevation one floor above the orchestra floor seating area. The orchestra floor is about 35 ft above subway track elevation. More than 150 passing subways were recorded; most of these were recorded simultaneously at two or three different positions.

The locations and the vibration levels in the 75-150 cps frequency band for 15 of the measurement positions in the building proper, but outside the auditorium area, are indicated **(9)**. Note that for most positions, vertical and horizontal directional components of vibration are shown. The numbers shown in the circles are the median values obtained from several subway passages. For these tests, the vibration levels are given in decibels above 10^{-6}g acceleration. The interpretation of these levels will not be discussed at this time.

The locations and the vibration levels in the 75-150 cps frequency band for five measurement positions inside or near the main hall are also shown **(10)**. Position 17 was in the stage area, Position 18 was at a poured concrete wall near the edge of the main hall (this wall is enclosed by another interior wall in the completed hall), and Position 19 was in the forward part of the orchestra floor seating

area, representative of those seats nearest the subway.

The measured subway vibration levels at Position 19 in the seating area nearest the subway are plotted as a function of frequency (lower shaded area, **11**). These levels are about 10 db below the "vibration criterion" levels that were set for the hall. This means that passing subways cannot be heard inside the main hall, even during the quietest ambient noise, as when the orchestra may be preparing for recording sessions. Even though these measurements were made nearly two years ago before Philharmonic Hall was opened, the data gave the assurance that the vibration levels were satisfactorily low.

A plot of some earlier vibration levels obtained at Carnegie Hall for nearby Seventh Avenue subway passages is also shown (**11**). These were definitely audible inside the hall.

Earlier Measurements at Site

One other significant comparison is shown (**12**). In 1958, an establishment known as Harvey's Bar occupied the corner of the present site of Philharmonic Hall, near the subways. The upper shaded area gives the vibration levels measured at a wall and a floor position in the basement of Harvey's Bar about 53 ft from the nearest subway tracks. The lower shaded area gives the range of vibration levels measured at four positions in the basement of Philharmonic Hall, not more than about 6 to 10 ft from the original measurements in Harvey's Bar. On the average, the vibration levels in the basement positions of Philharmonic Hall range about 15 to 30 db lower than those for the similar location in Harvey's Bar. The distance to the subway tracks is essentially the same for both groups of readings, indicating that the large improvement can be attributed to the new construction. Not known is how much of this difference might be due to the more massive construction of Philharmonic Hall; nevertheless, the column isolation joints, the wall isolation joints, and the "resilient" lining of the exterior underground walls all share in achieving the lower vibration levels.

Summary

This review presents only a brief summary of the data obtained in the Philharmonic Hall measurement program, but the results do indicate a significant reduction in subway noise and vibration compared to what would have been expected for conventional construction. From this information, a value of about 10 to 15 db has been tentatively assigned for the low-frequency vibration reduction achieved with the isolation measures taken in the Philharmonic Hall design. The thickness of the lead-asbestos pads varied from 3 in. for the columns nearest the subway to about ½ in. for the most remote columns, tapering down in ¼ in. to ½ in. steps each 30 ft further removed from the subway. (The thicker dimensions were achieved by stacking together two pads of 1 in. to 1½ in. thickness). In addition, the entire building was carefully designed and constructed to assure that no rigid connections would bridge the isolation joints and short-circuit the effectiveness of the pads. In order to achieve the full capability of any isolation material, it is always necessary that careful attention be given to these details, both in the design and in the execution of the design.

In reviewing the Montreal and the Lincoln Center work, noise reduction values of 8, 10, and 15 db have been mentioned. What do these values mean in actual situations? A few representative signal changes are summarized as follows.

(a) A 2 or 3 db change would be just noticeable, but would not be large enough to impress one by the change. For a serious noise or vibration problem, a 3 db reduction probably would not be sufficient to solve the problem.

(b) An 8 to 10 db change would be a significant reduction and would represent a noticeable improvement in the intruding noise that might be heard in an office, restaurant, hotel, hospital, apartment, or retail shop. This improvement is worth achieving. It could make an "intolerable" situation "tolerable" or a "tolerable" situation "acceptable." In a well-designed and executed installation of lead-asbestos pads, this amount of noise reduction can be achieved. Another way of judging the effectiveness of such an installation is illustrated by the fact that railroad or subway noise heard on the second floor of an isolated building, for example, would probably be heard all the way up to the fourth or fifth floor of an unisolated building.

(c) A 20 db change would be a dramatic change and would usually be sufficient to eliminate a serious noise or vibration problem. It is cautioned that a conventional installation of lead-asbestos pads alone probably will not achieve this amount of improvement, although it might be possible to attain this with special vibration isolation designs involving pads plus other isolation treatments.

One other note of caution is that the quantitative data discussed here represents only two buildings out of hundreds that have been so isolated. We feel that we must continue to be conservative in designs involving complete building isolation until there is more data on actual field installations. Therefore, a conservative use of the data presented here is urged.

The encouraging results found to date, however, offer a promise for noise and vibration control in large building structures located near railroads, subways, elevated railways, turnpikes, and expressways. As cities become more crowded and urban renewal projects replace outmoded areas, there is an increased need for protective measures against the intrusion of noise and vibration from our various transportation systems. Suitable vibration isolation designs can play an important role in this problem area.

Acknowledgments

The work of the acoustics consultant in the railroad and subway vibration aspects of the two major projects described consisted of evaluating the intensity of the noise and vibration problem and setting certain basic guidelines for the protection of the critical parts of buildings against the intrusion of noise and vibration. The detailed work of developing the designs and incorporating them into the building structures has been the job of the architects and the structural engineers. Architects for the Royal Bank of Canada Building in Montreal include Henry Cobb and Don Gorman of I.M. Pei & Associates, John Brett and Roger Nicolet of Brett Ouellette Blauer Associates, and Fred Severud of Severud-Elstad-Krueger Associates. For Philharmonic Hall, Dan Sella of Harrison & Abramovitz and Tyge Hermansen of Ammann & Whitney were instrumental in working out the actual isolation designs. Joe Tilney of Harrison & Abramovitz and A. J. Allio of Fuller-Turner-Walsh-Slattery gave the essential care and supervision at the job site.

Silicone-Treated Perlite

This article discusses how one industry association investigated the feasibility of treating perlite with suitable silicones to increase its water-repellency.

Rapid progress in building design technology creates a constant need for new and improved materials—materials that will do the job faster and with greater economy. Masonry wall construction, popular since the time of the Great Pyramid, offers many benefits, including attractive appearance, fire protection, low sound transmission, durability, and low maintenance. However, the growing acceptance of air conditioning and the advantages of electric heating created a need for more efficient building insulation to keep mechanical equipment and heating/cooling costs down.

In recent years, insulation of concrete block and masonry cavity walls improved human comfort with savings in heating and cooling costs. Building professionals quickly recognized that an insulating material for masonry construction must be able to maintain its integrity, should water or vapor penetrate the wall.

Expanded perlite, a processed volcanic rock, became the most widely used granular insulating material for the handling and storage of rocket fuels and liquified gases. These liquids must be kept at temperatures as low as −200 C. The same design requirements for this application—insulating efficiency, economy, ease of application, and free-flowing ability to fill any shape—apply to masonry wall insulation.

Aware of this situation, Richard E. Barnes, Managing Director of Perlite Institute Inc., encouraged a representative of Dow Corning Corporation, in the winter of 1962, to investigate the feasibility of treating perlite with suitable silicones to increase its water-repellency. Soon thereafter, it came to his attention that Union Carbide Corporation was also working along the same lines. Arrangements were made with The Cleveland Gypsum Company, Great Lakes Carbon Corporation, Johns-Manville Products Corporation, and other members of the Institute to conduct plant experimentation and laboratory investigations of perlite treated with these silicones.

The preliminary experimentation answered two important questions: first, silicones can improve the water-repellent properties of perlite by 50 per cent or more; second, suitable silicones can be applied economically to perlite during the manufacturing process.

With these positive results to go on, Perlite Institute provided the direction,

as well as technical and financial support, for a multicompany effort to develop a new building material—silicone-treated perlite loose fill insulation. The Institute launched an extensive testing program to determine the properties and performance characteristics of the new product.

Prevents Water Penetration

Criteria established by Structural Clay Products Institute (SCPI) require that a masonry cavity wall must function as a barrier against the penetration of wind-driven moisture to the interior of the wall. The addition of insulation must permit moisture to drain without transmitting it across the cavity.

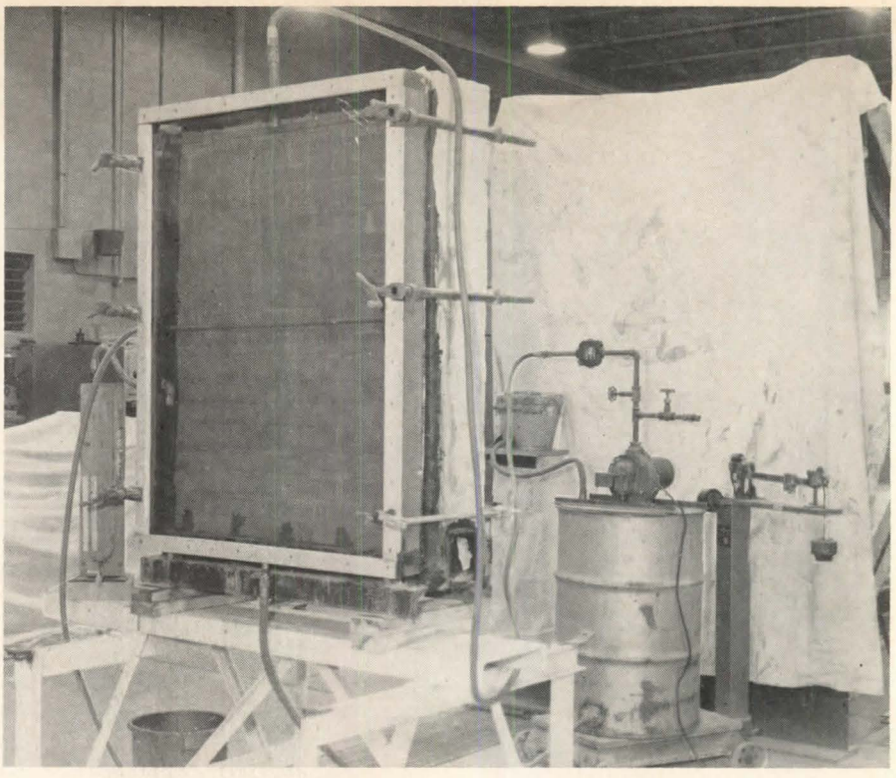
To determine the water-repellent performance of perlite, Structural Clay Products Research Foundation (SCPRF) used a 10 in. brick and tile cavity wall with a 2½ in. cavity filled with silicone-treated perlite insulation. The exterior brick wythe was purposely made to leak at an excessive rate of 3.72 liters (3.93 qts) per hr. For six consecutive days, this wall was subjected to an equivalent rainfall of 5½ in. per hr, accompanied by a steady 50 mph wind **(1)**.

The over-all performance of the wall during the test, as originally developed at the National Bureau of Standards, resulted in a rating of "excellent." At no time during the 144-hr test did any damp spots appear on the exposed face of the backup wythe, nor was there evidence of any consolidation or slump of the perlite. When the perlite was removed from the wall, it was dry to the touch and had a moisture content of only 2.14 per cent by weight. These data are reported in SCPI's "Technical Notes No. 21."

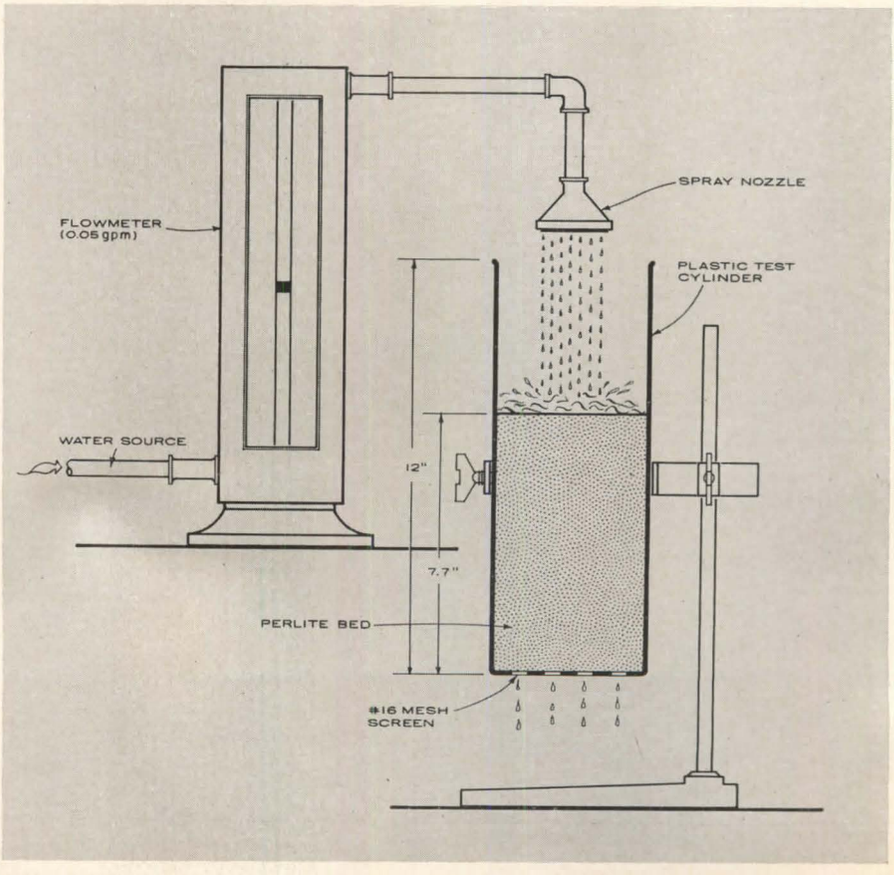
Malcolm H. Allen, Manager of Engineering Research and Carl C. Sahlroot, Field Development Engineer of SCPRF, concluded their investigation by reporting: "Annual rainfalls in excess of 100 in. are rare, and, while winds up to 150 mph in gusts may be experienced in hurricanes, the durations are only a matter of hours. In view of this, the excellent performance of the silicone-treated perlite loose fill insulation in as severe a test as this justifies the conclusions that under actual service conditions, the water resistance of masonry cavity wall construction would not be endangered by the filling of the cavity with a loose fill perlite insulation of this type."

Eliminates Vapor Barrier

The presence of water due to vapor condensation within the cavity space of a masonry cavity wall can impair the insulating efficiency of the wall. It may also cause damage to construction mate-



1. Tests by SCPRF show silicone-treated perlite insulation prevents moisture passage through a cavity wall and maintains constant insulating efficiency under wind-driven rain exposure.



2. Johns-Manville Research and Engineering Center exposed silicone-treated perlite to 75 soaking and drying cycles in a flow-through test apparatus and concluded that it will maintain its water-repellency indefinitely.

rials or finishes. Therefore, during the early development of the insulated cavity wall, a vapor barrier on the warm side of the insulation was considered to be good construction practice. Recommendations for a vapor barrier specified at least one coat of asphalt emulsion with a permeance of one perm or less to be applied to the cavity face of the interior wythe. The elimination of this vapor barrier means one less cost item.

Perlite Institute sponsored tests at The Pennsylvania State University under the direction of E.R. McLaughlin, Association Professor of Engineering Research, which proved that a vapor barrier can be omitted from a cavity wall insulated with silicone-treated perlite, if average interior relative humidity conditions do not exceed 50 per cent. These conditions would normally apply to most buildings and geographic areas. Laundries, steam rooms, indoor swimming pools, etc. would be excluded.

The test wall—constructed of high-density, low-permeability face brick, and low-density, high-permeability backup tile—represents the extremes of materials that may be used together in masonry wall construction. A 2½ in. cavity was filled with perlite insulation. Interior conditions of 75 F and 50 per cent relative humidity were selected to be above the humidity condition normally encountered in buildings of usual occupancy during periods of low outdoor temperatures. A low temperature of 18 F was maintained on the cold exterior side of the test wall. The investigations concluded: "The amount of moisture which accumulated in the insulation during the 28-day steady state exposure was not considered to be excessive and had no apparent effect on the insulating value of the wall."

Water-Repellency

At the request of Perlite Institute, Johns-Manville Research and Engineering Center designed a test to determine the ability of silicone-treated perlite to maintain a satisfactory level of water-repellency after repeated cycles of soaking and drying. Each test cycle consisted of saturating a sample of perlite with the equivalent of 1.14 gal of water per cu ft of perlite, followed by drying at 100 F for a minimum of 24 hours. The water-repellency of the tested material was measured in accordance with Perlite Institute testing procedures published in "Technical Data Sheet No. 4-2." After 75 soaking and drying cycles over a four-month period, the perlite was found to have settled negligibly and to have maintained a water-repellency within 1½ per cent of the starting material. Conclusion: "On the basis of the rigorous test conditions imposed, silicone-treated perlite can be expected to maintain a satisfactory level of water-repellency indefinitely **(2)**."

In the water permeability test conducted by SCPRF, only 0.1 pint of water per cu ft of perlite was retained by the silicone-treated perlite installed in a "poor" cavity wall purposely built to permit excess leakage of water. More than 90 times that amount of water was used per cycle in the Johns-Manville water-repellency durability test just described. While these conditions might only occur if the wall were destroyed, they do provide a method of evaluation.

Insulating Value

Thermal conductivity tests performed in a guarded hot-plate apparatus in conformance with ASTM C177 by J. L. F. Research Inc., show perlite insulation has a maximum k-factor of 0.38. This is the value accepted for publication in the 1965 Guide and Data Book of the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

A series of heat transfer tests conducted by The Pennsylvania State University determined lightweight concrete block walls provide the following U (Btu/sq ft/hr/deg F) values before and after filling the cores with perlite:

(a) 6 in. LW concrete block:
Uninsulated U value 0.36
Insulated U value 0.20

(b) 8 in. LW concrete block:
Uninsulated U value 0.33
Insulated U value 0.15

(c) 12 in. LW concrete block:
Uninsulated U value 0.29
Insulated U value 0.10

Fire Resistance

Perlite, processed from volcanic rock at temperatures above 1700 F, is noncombustible. When treated with an acceptable nonflammable silicone, it will not burn or contribute smoke.

Nonsetting and Rot-Resistant

Field applications, the water permeability tests by SCPRF, and the water-repellency retention tests by Johns-Manville prove silicone-treated perlite is stable and supports its own weight even when saturated. An inorganic mineral product, perlite is rot-, termite-, and vermin-resistant.

Application and Coverage

Silicone-treated perlite, a granular material, is easily poured into the cores of concrete block or cavity walls at any convenient interval in the construction of the wall. It does not require special installation equipment or skilled labor. Tamping, rodding, or vibrating are not required, since it is free-flowing and nonbridging.

One 4-cu-ft bag of insulation will fill either approximately 20 sq ft of wall area with a 2½ in. cavity, or 16 8-in. concrete blocks.

Specifications and Acceptance

Specifications include those adopted by Perlite Institute and published in "Technical Data Sheet No. 4-2," Interim Federal Specification HH-I-00574, Thermal Insulation (Perlite), and ASTM C549 "Tentative Specifications for Perlite Loose Fill Insulation." These require a density not less than five nor more than eight lbs per cu ft. Thermal conductivity must not exceed 0.38 at a mean temperature of 75 F. Water-repellency must be met according to the prescribed test method using a flow-through apparatus.

Silicone-treated perlite can be used in FHA-financed housing according to FHA "Use of Materials Bulletin UM-37." It is recommended by SCPI, "Technical Notes No. 21, March 1964."

Certificate of Conformance

A "Certificate of Conformance" can be included in project specifications. It requires that the manufacturer certify his product conforms to the standard specifications for silicone-treated perlite adopted by Perlite Institute.

Significance

The insulation of masonry walls with silicone-treated perlite offers more than 50 per cent reduction in summer heat gain and winter heat loss for most concrete block and cavity walls. It provides greater comfort, savings in mechanical equipment, and heating/cooling costs.

Tests have determined these performance characteristics: (a) masonry cavity walls insulated with silicone-treated perlite can be expected to provide constant insulating efficiency in severe exposure to wind driven rain, and the insulation will not transmit moisture across the cavity space; (b) cavity walls insulated with this material do not require a moisture barrier when average interior relative humidity conditions do not exceed 50 per cent; (c) silicone-treated perlite can be expected to maintain a satisfactory level of water-repellency indefinitely.

The manner in which the material came into being as a development of a multicompany project guided by an alert trade association indicates that a satisfactory performance can be expected when the insulation is specified according to Perlite Institute specifications.

BALTIMORE

REDEVELOPS AT POINT OF ORIGIN

Baltimore was founded when the royal governor of Maryland authorized the creation of a town on the Jnner Harbor in 1729. For more than 125 years, this was one of the most important harbors on the Eastern seaboard, though it gradually lost its prominence as shipping interests spread down the Patapsco River and into Chesapeake Bay. Before World War II, which spurred a brief surge of hectic activity with shipbuilding and wartime shipping, the area had already gone into an economic decline, as had the whole central business district of Baltimore. After the war, this decline continued, and by 1955 was so alarmingly widespread that local leaders formed the Greater Baltimore Committee to study means of putting Baltimore back on its feet. Two results were the establishment of the Baltimore Planning Council and the Committee for Downtown, the latter with the aim of preparing a master plan for the redevelopment of the CBD. By 1959, the well-known Charles Center Urban Renewal Project was announced as the first step in revitalizing the city. Completion last year of Mies's One Charles Center Building symbolized the success of Baltimore's last-minute fight to resuscitate its central core. Today, a number of buildings and projects for private and public uses are part of Charles Center.

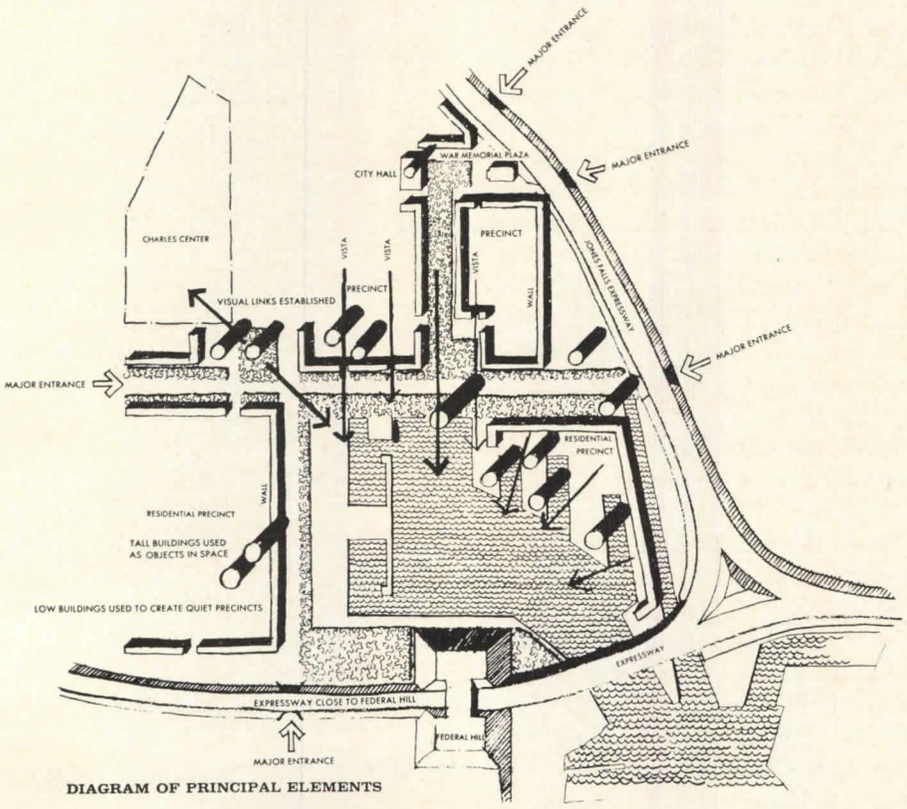
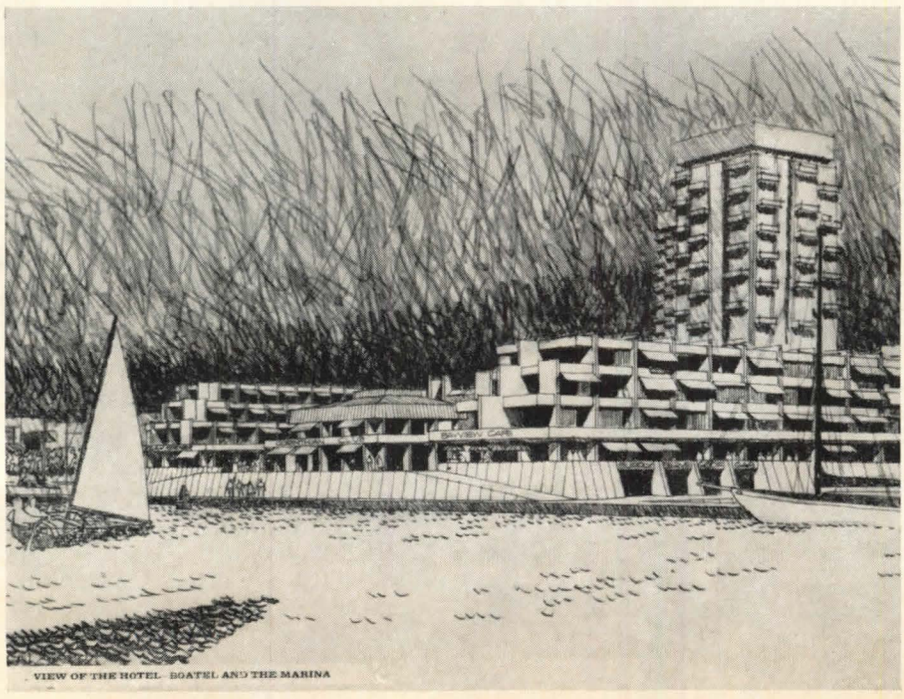


DIAGRAM OF PRINCIPAL ELEMENTS


VIEW OF THE HOTEL-BOATEL AND THE MARINA

With the heat off, so to speak, Baltimore's civic and planning officials have taken a comprehensive, long-range look at what will happen to the rest of Baltimore's historic core in years to come (forecast is to 1985). In 1963, Mayor Theodore R. McKeldin authorized three groups —the City Planning Commission, the Greater Baltimore Committee, and the Committee for Downtown—to work with Wallace-McHarg Associates, Philadelphia architects, landscape architects, and city and regional planners. Morton Hoffman & Company, urban land economists, were associated on the report, which was submitted last December.

Their proposals for the redevelopment of the "Inner Harbor and City Hall Plaza," as the project is known, has been called Phase II of Baltimore's CBD redevelopment (Charles Center was Phase I). The present plan, however, has elements missing from the emergency transfusion that was Charles Center, whose single-minded aim was to get the business center back on its feet economically. Inner Harbor and City Hall Plaza will combine and interrelate buildings and areas for municipal government, educational facilities, high-rise and low-rise housing, commercial buildings, recreation buildings, a science center, a hotel-boatel, and extensive park developments. The project will be linked closely with Charles Center, and will attempt to utilize the omnipresent system of throughways and freeways to alleviate traffic conditions in the core—rather than compound them, as is

usually the case. Linkage to other parts of the city, past the giant highways, is also emphasized, but seems more like wishful thinking than a predictable result to this viewer.

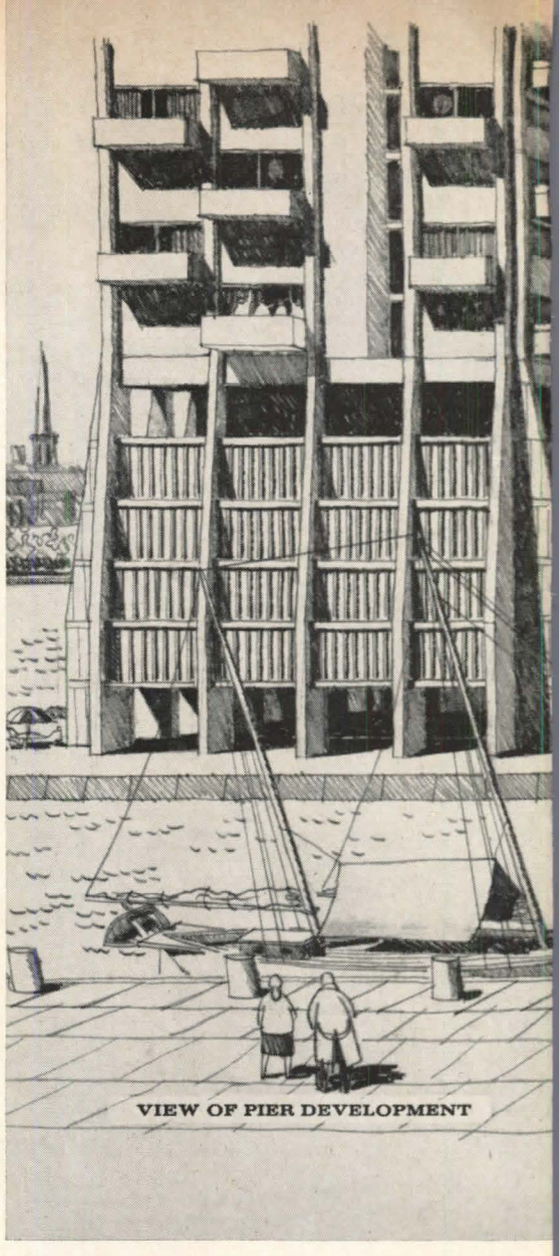
The center of the new plan will be, appropriately, Inner Harbor, where it all began. This historic spot, its basin and its shorelines, can become the stage for a dramatic exercise in urban renewal. Now the scene of run-down docks and wharves and (with few exceptions) economically unhealthy business enterprises, Inner Harbor in the plans of Wallace-McHarg emerges as a candidate for the best use of water and open land in postwar U.S. urban renewal. Instead of cutting the water off from the city, as almost all our cities do, Baltimore—if this plan is followed—will thrust the living, breathing, 24-hours a-day city into intimate and vivacious contact with the harbor whence it sprang. A well-defined series of parks, promenades, and plazas will ring the water and continue into the business and civic districts some blocks inland. (See "Diagram of Principal Elements," p. 213, for land usage and placement of buildings.)

The water's edge will be handled in two ways. Commercial and heavy use public areas will have a hard edge of steel piling protected by concrete sheathing above the water level. Strictly park areas will have gradually sloping rip-rap faces that are not only more economical but also permit greater intimacy with the water. At the entrance to Inner Harbor, Federal Hill park will be extended above the highway, providing an appropriate "entrance" to the old harbor, which will be used only by small public and private boats.

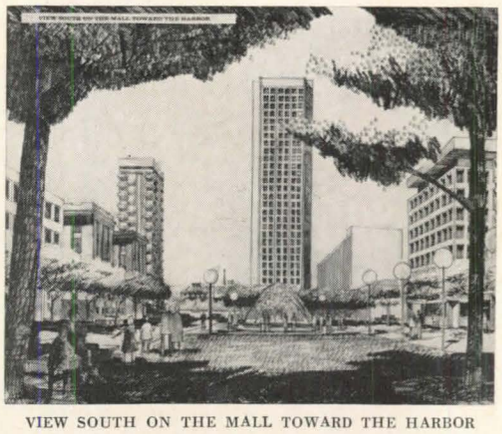
Three areas of housing are proposed in the plan. The most interesting is the use of four refurbished old piers as sites of 1700 units in high- and low-rise buildings. The towers would have parking in their bases, raising apartments to heights that expose exciting views all around. The 500 low-rise units would be in the form of "terraces" stepping down the faces of the buildings, with parking concealed behind. Other housing groups consist of 800 units in three 200-unit towers and 200 units in "terrace" apartments facing the harbor; and 1420 units in a mix of town houses, high-rise apartments, and "terrace" or intermediate-rise apartments. All parking is to be in the structures at a ratio of an automobile per unit.

Extending north from the proposed Port of Baltimore Building in Inner Harbor, City Hall Plaza will lead to a complex of new and old municipal buildings that, while siting civic structures on "relatively unproductive land," will nevertheless closely tie in this area with the business center on the west and the Inner Harbor area on the south. New buildings will include the municipal office building, court house, municipal court, Board of Education headquarters, and police headquarters. Interestingly, Baltimore had a plan (1908) for its civic center by Olmsted, Carrere & Brunner that was initiated after the great fire of 1904 but was never wholly realized. Lying to the east of this area will be a proposed community college. Baltimore will now be able to realize the potentials of this site.

The goal of achieving the plan for Inner Harbor and City Hall Plaza is expected to be reached by using "public investment to change the environment and stimulate the maximum private investment . . . [and] to increase intensity of use to achieve as nearly as possible the financial goal of having the new uses support all city costs of renewal and maximize tax returns to the city." When Charles Center became a growing reality, Mayor McKeldin commented, "We have proved beyond the shadow of a doubt that we can put the full weight of public and private teamwork behind urban redevelopment, and that we can create and sustain the necessary climate for public and private investment." Hopefully, that weight and sustaining power will cause the realization of the notable Inner Harbor and City Hall Plaza plan before the 1985 target date.

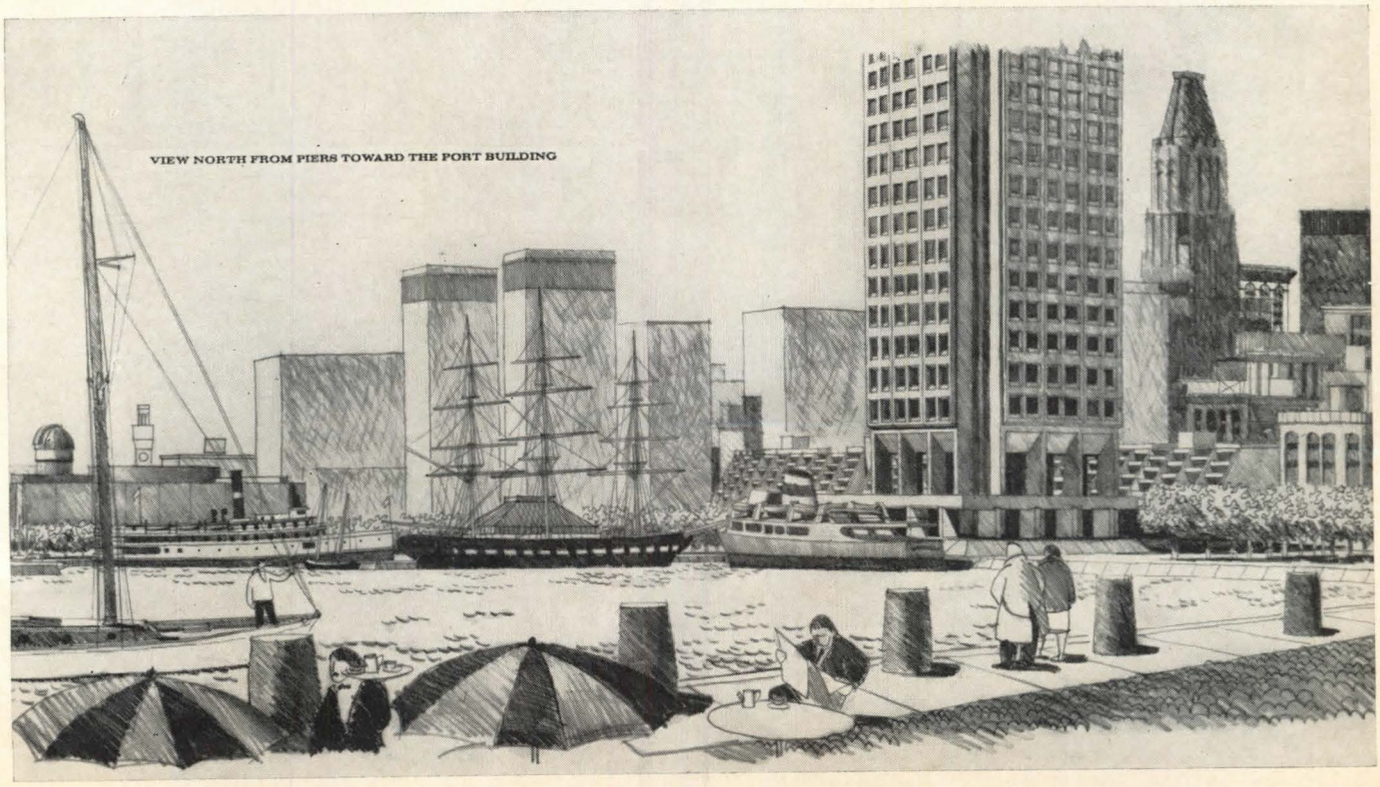


VIEW OF PIER DEVELOPMENT



VIEW SOUTH ON THE MALL TOWARD THE HARBOR

Baltimore Urban Renewal and Housing Agency, Richard L. Steiner, Director; Greater Baltimore Committee, Inc., William Boucher III, Executive Director; Greater Baltimore Committee, Inc., James Rouse, Chairman; Baltimore Planning Commission, David Barton, Chairman.



VIEW NORTH FROM PIERS TOWARD THE PORT BUILDING

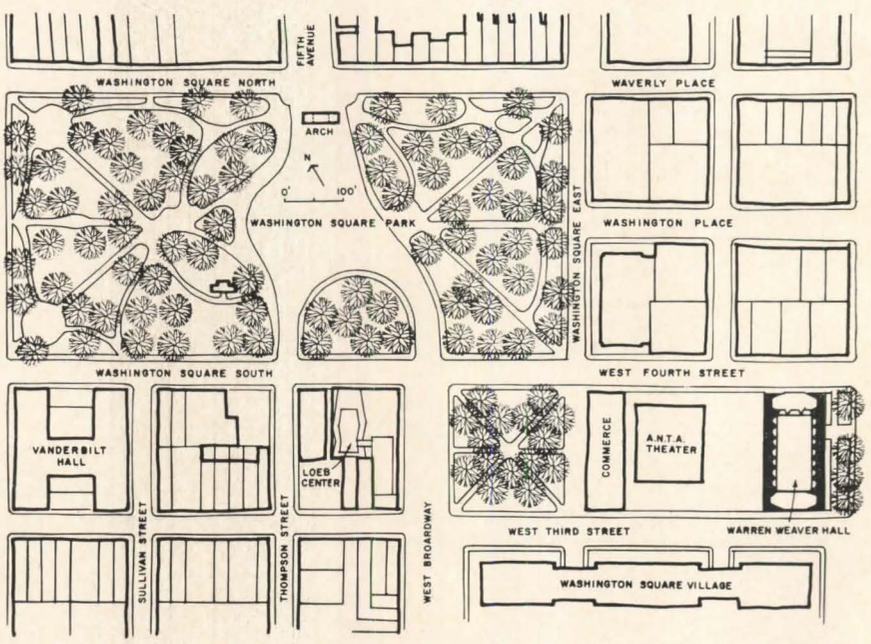
NOTABLE DESIGN IN

GREENWICH VILLAGE

Architects visiting New York often drop by the P/A offices to ask what significant new buildings have been completed in Manhattan that they should see. Until six or seven years ago, this proved a rather embarassing question, leading to the response: "Well, there's the Seagram Building and the Guggenheim and—er. . . ." Of more recent vintage, there have been such well-known structures as Pan Am, Chase Manhattan, Pepsi Cola, Lincoln Center, Kips Bay, Museum of Modern Art additions, and, coming up, the CBS Building. With the exception of Lincoln Center, these have all been either direct-ownership projects (Chase Manhattan, Pepsi Cola, CBS) or speculative buildings (Pan Am, Kips Bay). Rarely has the institutional client come forth with a distinguished structure, and even more rarely has the city itself sponsored one. This situation was pointed up two years ago when the first jury for the City Club of New York's Bard Awards for excellence in New York architecture could find no structure built with public funds worthy of an award. This year, however, two top winners were in this category (see page 63). Because of somewhat less stringent rules concerning use of public monies, Kips Bay won a top award; the other first prize went to the newly completed Warren Weaver Hall at the Washington Square campus of New York University, designed by Warner, Burns, Toan & Lunde.

NYU is a private university with a past record of sponsoring architecturally undistingushed structures on its Manhattan campus (the one in the Bronx has present and future designs by Breuer). With the WBTL building, however, things are decidedly looking up in Greenwich Village, and will continue to do so since Philip Johnson has been named overall architectural coordinator for the school (see pp. 52–54, JANUARY 1965 P/A).

Warren Weaver Hall is not a typical classroom building, but rather the home of the Courant Institute of Mathematical Sciences. There are two classrooms **(10)** and a large lecture room **(8)** separately expressed on the ground floor; otherwise the building is almost entirely devoted to the pursuits of mathematical research. It is basically quite a simple building: the first floor contains the teaching spaces, lobby, re-



Photos: Fred McDarrah

ception, and other public functions; the second floor houses facilities for computer devices; third through eleventh stories are devoted to office space; twelfth floor, the mathematical library; and the thirteenth floor, common and conference rooms and offices (including Dr. Courant's).

What gives this building distinction is the direct expression of its functions in forms and materials quite sympathetic to its environment —at least on three sides; on the fourth side is Washington Square Village, a flashy apartment development that gives the area an unhappy southern boundary. To the north and east are old loft buildings that lend a compatible background to this new structure of warm-toned tan and brown brick, tinted glass, and subdued, matte metal detailing. Immediately to the west, there is as yet undeveloped space of the NYU campus (the temporary ANTA Repertory Theater is located here at the moment). Present thinking calls for doubling the capacity of the Commerce Building and adding a low structure between Commerce and Warren Weaver, an eventuality provided for by the access to the podium and lobby of the math building on the west side. Warren Weaver Hall's main entrance faces Mercer Street to the east, rising from a low podium floored inside and out with rough-hewn stone **(3)**. Instead of commonplace railings on the podium, the architects have provided substantial concrete benches as protection at the outer limits of the structure **(4, 5)**. These not only serve the dual purpose of providing protection and places for outdoor congregation, but also shield the supply grilles for the air movement systems of the building. In the major spaces of the building, exterior materials are carried through in an integrated expression: the stone of the plaza and the brick veneer of the columns continue into the ground floor, and the columns re-express themselves in the library and common room floors. A particularly felicitous element—one that gives the building much of its character—is the expression of the library as a series of bay windows between the piers all around the building **(1)**.

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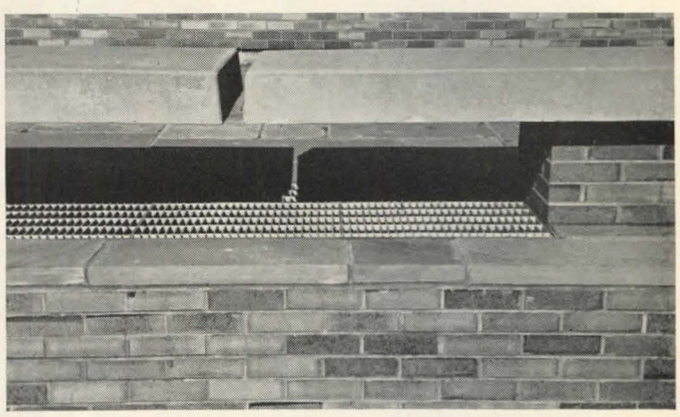

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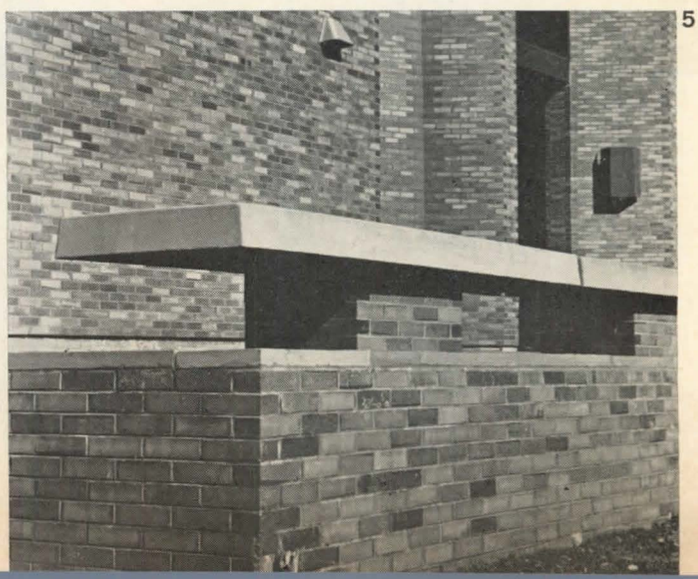

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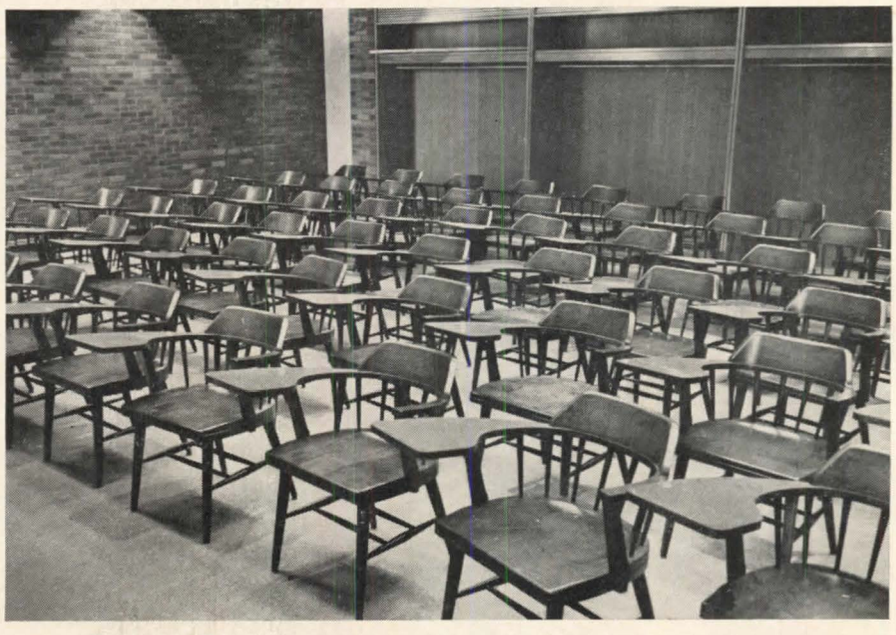

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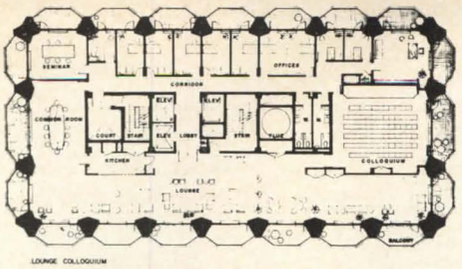
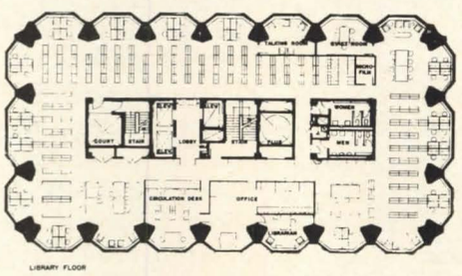
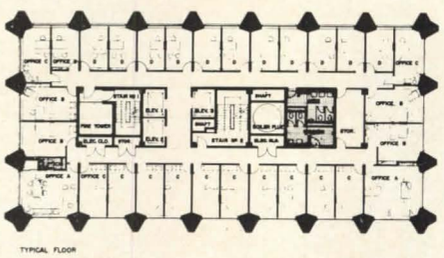
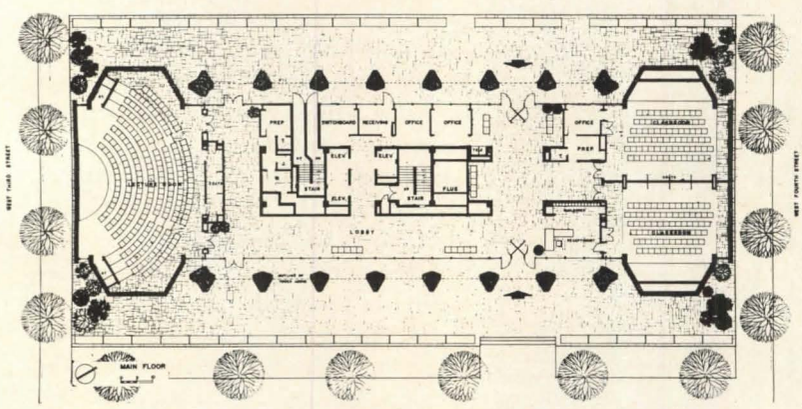
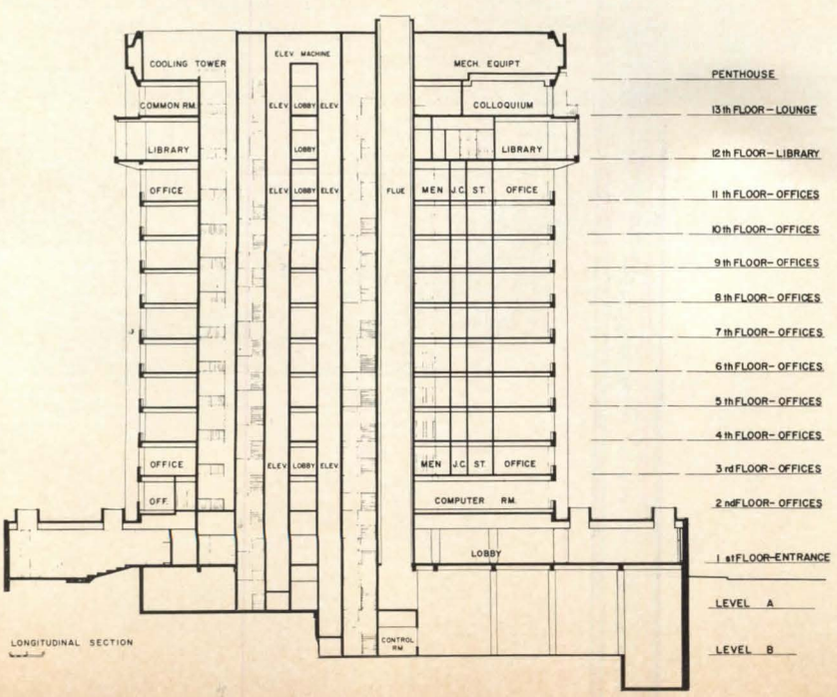










These bays contain study carrels, meeting rooms, and some library offices **(6, 7)**; the interior is almost entirely occupied by open stacks. Atop the library floor, the roofs of the bays become balconies for the commons room floor **(2, 9)**. An unobtrusive but clearly statted cornice of brick in a geometrical pattern terminates the building and houses rooftop mechanical equipment. The structure is approximately the same height as its neighbor, Commerce, and the top floors tend to echo the upper courses of windows and cornices of that older building.

The imposing but not overbearingly massive piers carry, in addition to the columnar steel framing, most of the mechanical services of the building. In the basement and subbasement is located a boiler facility that serves not only Warren Weaver Hall but also other campus buildings. Because of building code requirements for an open fire court, two staircases, and the need for a large boiler flue, plus the necessities of restrooms, elevators, storage, and other services, the central core of this building is rather large in relation to individual floor areas. This is a situation the architects had to live with and make the best of, but it still seems an obtrusive element in an otherwise commendably dignified design.

The Bard Award is eminently deserved by this notable building, and we at P/A are thankful that we have another building to point out to the visiting designer from Des Moines. Next time you're in town, be sure to pay it a visit on your way to the coffee hells of MacDougal Street.

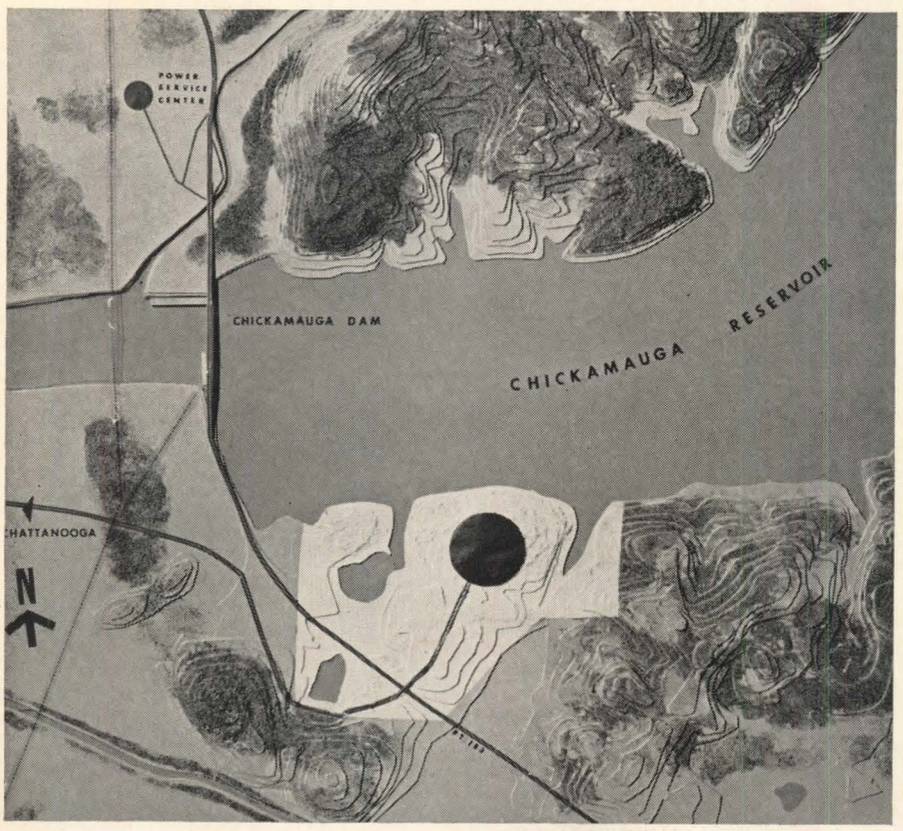
—JTB, JR.

Architect: *Warner, Burns, Toan & Lunde.* ***Structural Engineers:*** *Severud, Elstad, Krueger Associates.* ***Consulting Engineers:*** *Paul L. Geiringer & Associates and Mayer, Strong & Jones.* ***Supervising Architect:*** *Martin L. Beck, Director of Planning and Supervising Architect to NYU. J. J. Roberto, formerly University Architect of NYU.* ***Constructor:*** *Wigton Abbott Corp.*

TVA

OFFICE BUILDING TO CLING TO CHATTANOOGA KNOLL

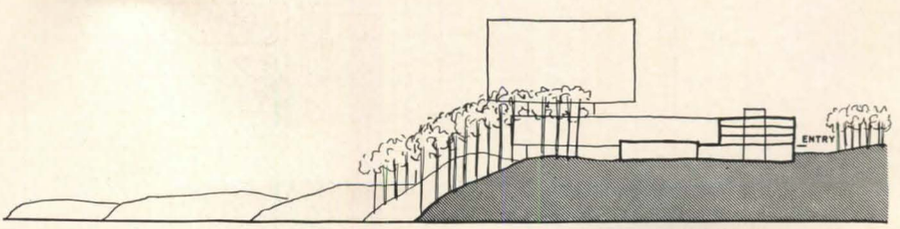
Scattered through 18 downtown Chattanooga buildings, the operations offices of the TVA in southern Tennessee resemble the organization of items in a woman's purse. Last year, the President's budget included $700,000 for the design of a single building to house these operations, and bring to the TVA function in that area an economy and efficiency it lacked. Now being designed by Vincent G. Kling, the operations office building will provide office space (540,000 sq ft) for a staff of 2000, and when occupied in 1968 will have cost an estimated $18 million, including utilities, roads, grounds, and parking areas.



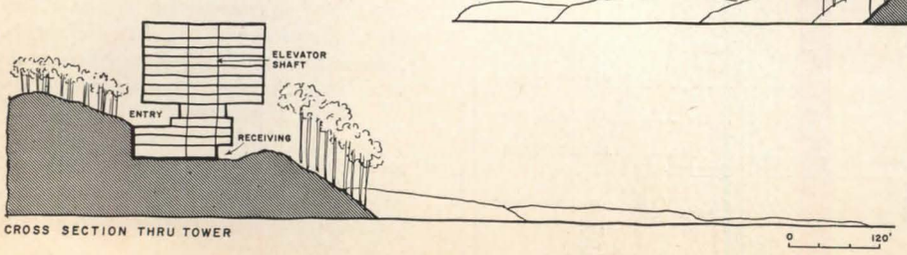
Photos: Laurence S. Williams, Inc.

The site given Kling and the TVA designers with whom he is collaborating is a densely wooded, 100-acre peninsula on the southern shore of Chickamauga Reservoir just below Chickamauga Dam, a TVA installation itself. Rising steeply from the water's edge, the land reaches a median level of about 90′ above the artifical lake, and is topped by two knolls; the highest of these is 160′, commanding a sweeping view of the countryside. Kling's design shows a curvilinear building which hugs the land as it flows over it. As in his headquarters building for American Cyanamid (see pp. 112-120, MARCH 1963 P/A), Kling has used the curvilinear form to reduce the seeming bulk of the building, keeping it in scale with the setting. And with it he achieves an interaction of related facilities that would be unattainable were the facilities housed in separate structures. Inside, the curves will break up what could be long, antiseptic corridors and provide views which vary, depending on where you are when you look out. Most of the time the view will include a portion of the building. The building has two separately articulated sections: a long 4-story horizontal base and a compact 8-story tower which rides the base as it clings to the knolls.

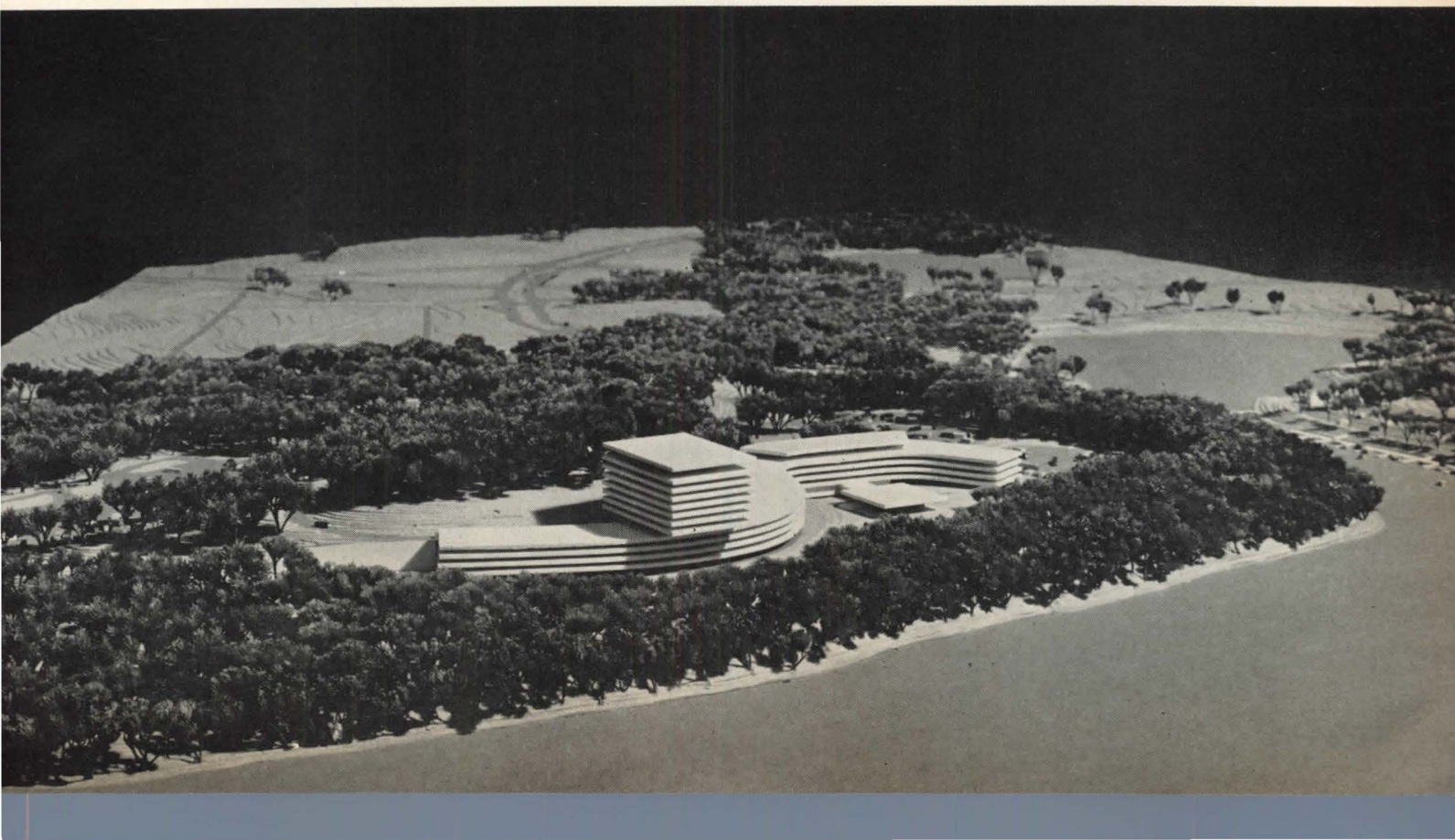
Although the final decision on selection of materials has not yet been made, the base will probably be stone and the upper part of the structure strongly textured structural concrete. This should create a building that will fit the site gracefully, with verve and flair, much as a skimmer fits Maurice Chevalier. —EKC



CROSS SECTION THRU CAFETERIA



CROSS SECTION THRU TOWER



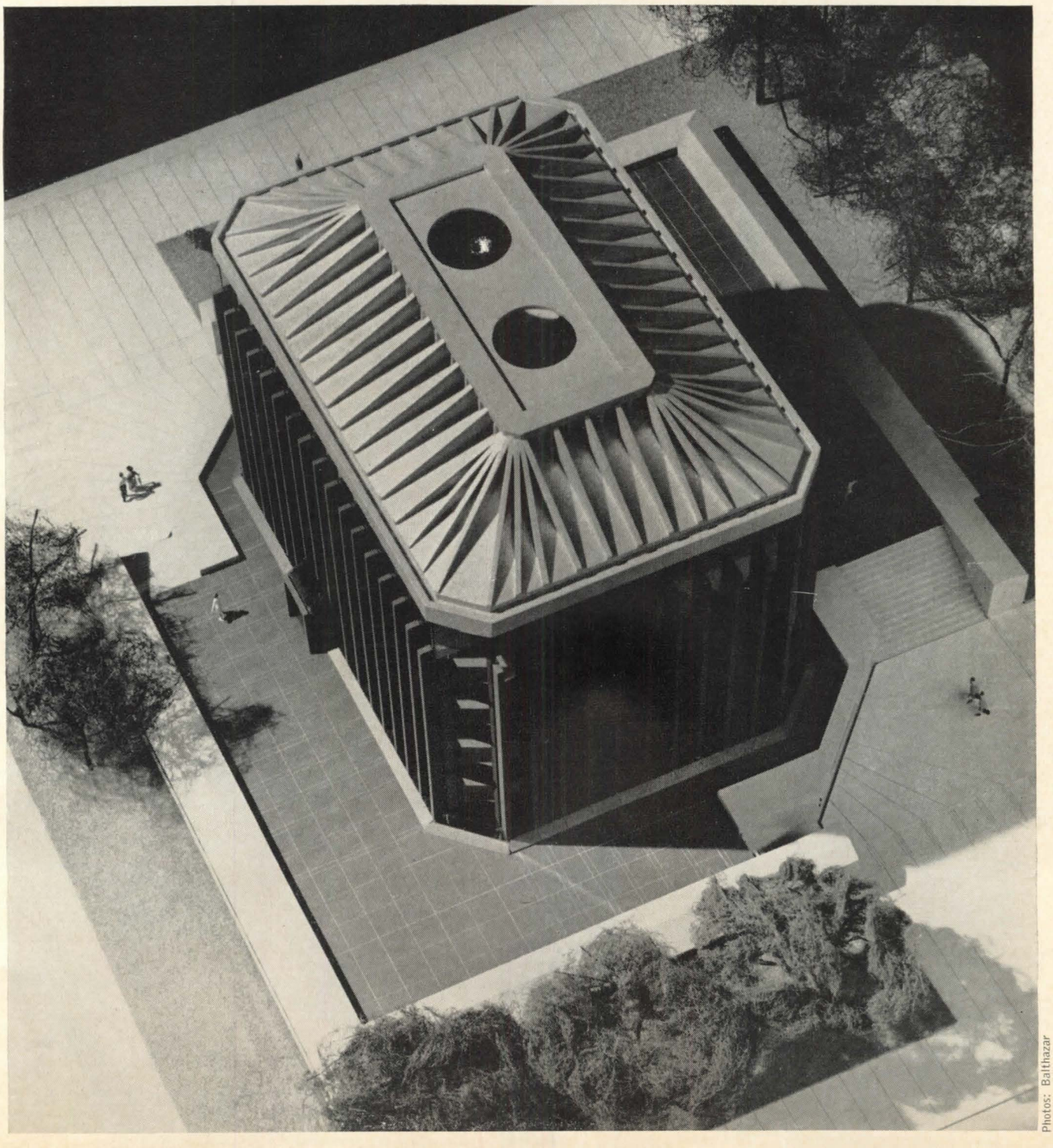
URBAN UNIVERSITY

GETS IMAGE-MAKING ENTRANCE

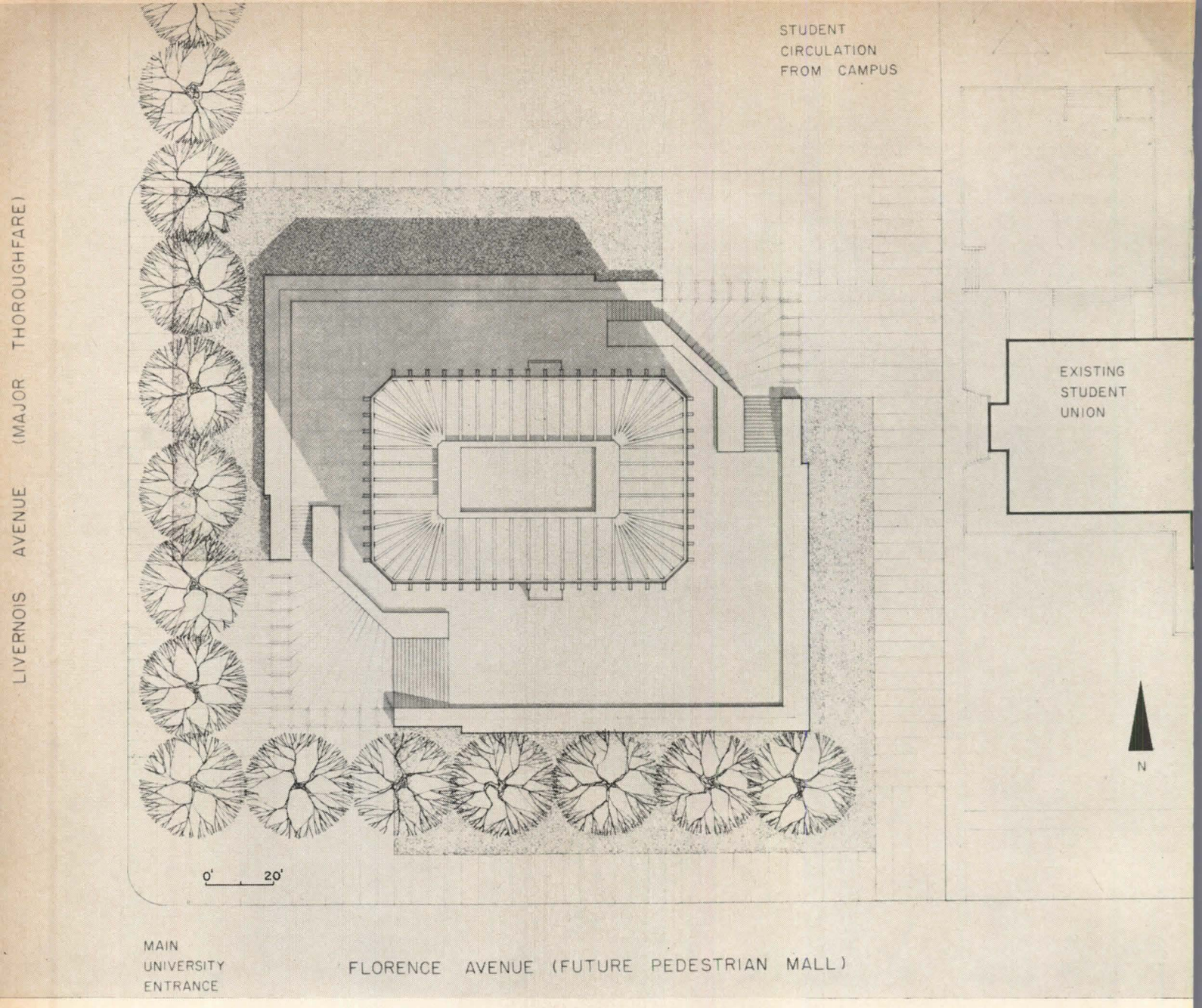
When one thinks of the urban university, the picture that often comes to mind is of high-rise buildings indistinguishable from commercial structures (Carnegie Tech, University of Texas) or somewhat long-in-the-tooth buildings converted from other uses (Roosevelt University, Chicago; New York University's Washington Square campus). This situation is now changing for the better with new buildings and plans at NYU (pp. 216-221); SOM's program for Northwestern University, now going ahead; and similar advanced thinking at such "city" schools as Harvard, University of Pennsylvania, Tufts, Massachusetts Institute of Technology, and Boston University.

The University of Detroit joins these schools with a new administration building, now under construction, that is expected to be, in the words of architect Gunnar Birkerts of Birmingham, Mich., "the image of the campus and the entrance to the University."

According to Birkerts, the design was influenced by surrounding, older buildings. These have pitched tile roofs ("somewhat Spanish"), black patinaed limestone bearing



Photos: Balthazar


STUDENT
CIRCULATION
FROM CAMPUS
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N
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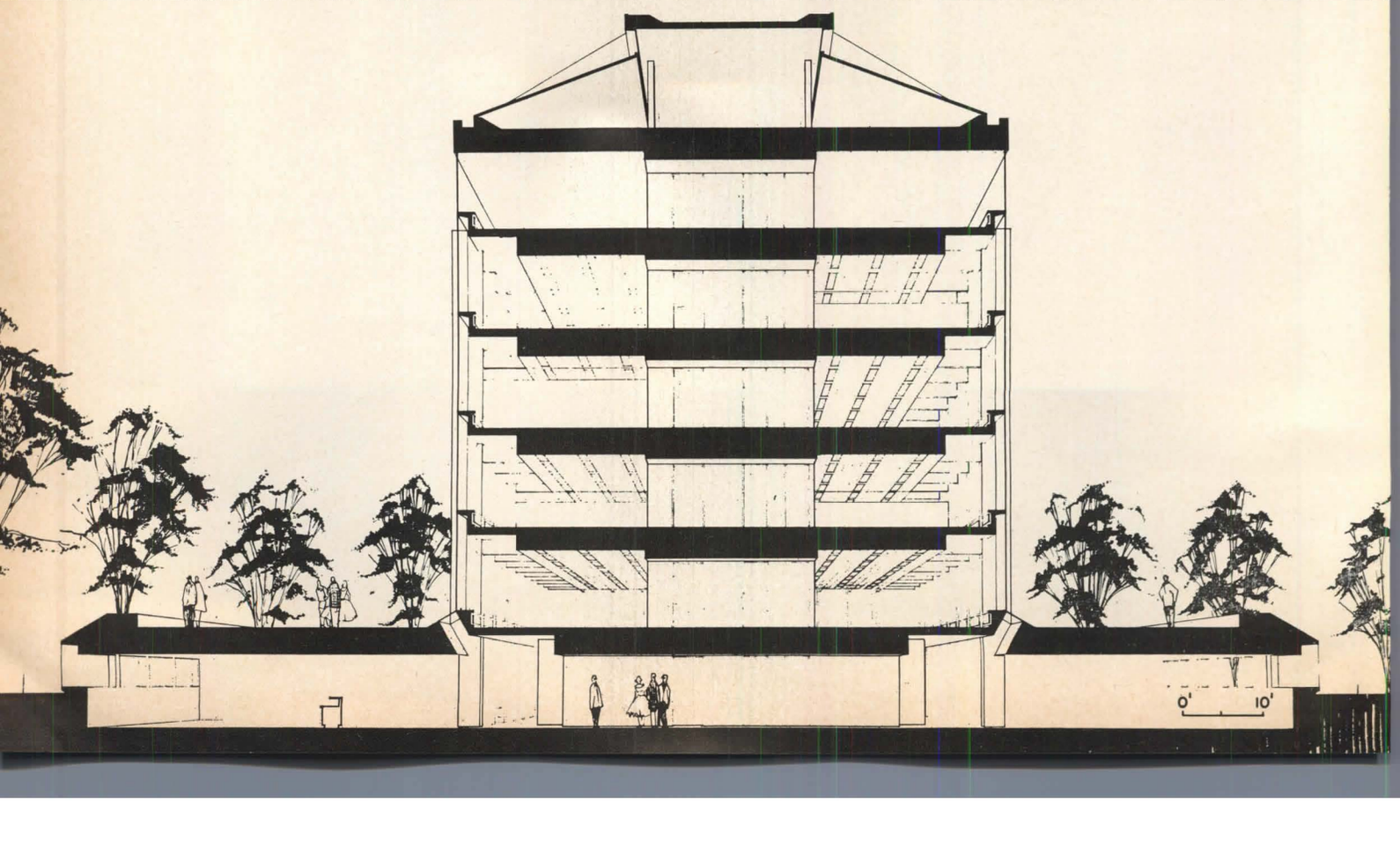
LIVERNOIS AVENUE (MAJOR THOROUGHFARE)
MAIN
UNIVERSITY
ENTRANCE
FLORENCE AVENUE (FUTURE PEDESTRIAN MALL)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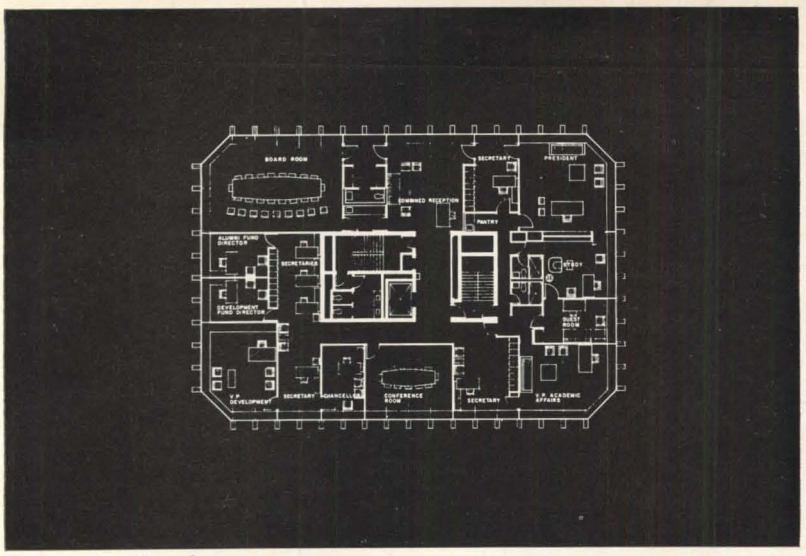
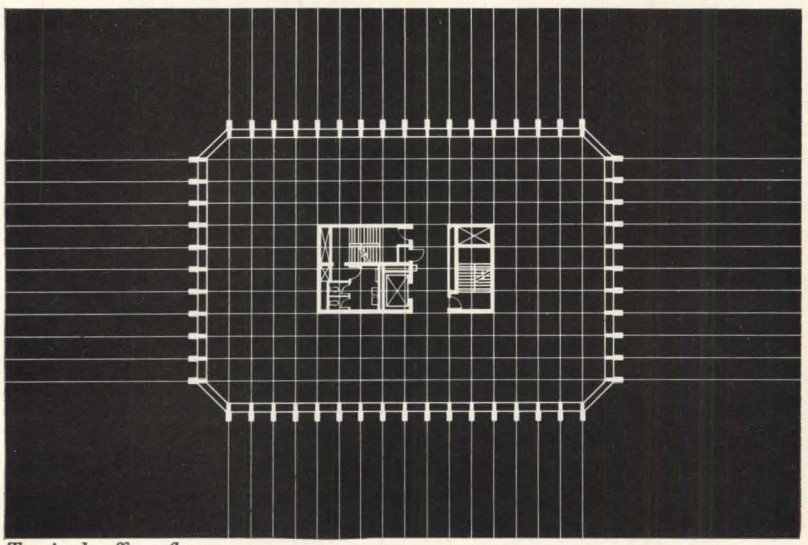
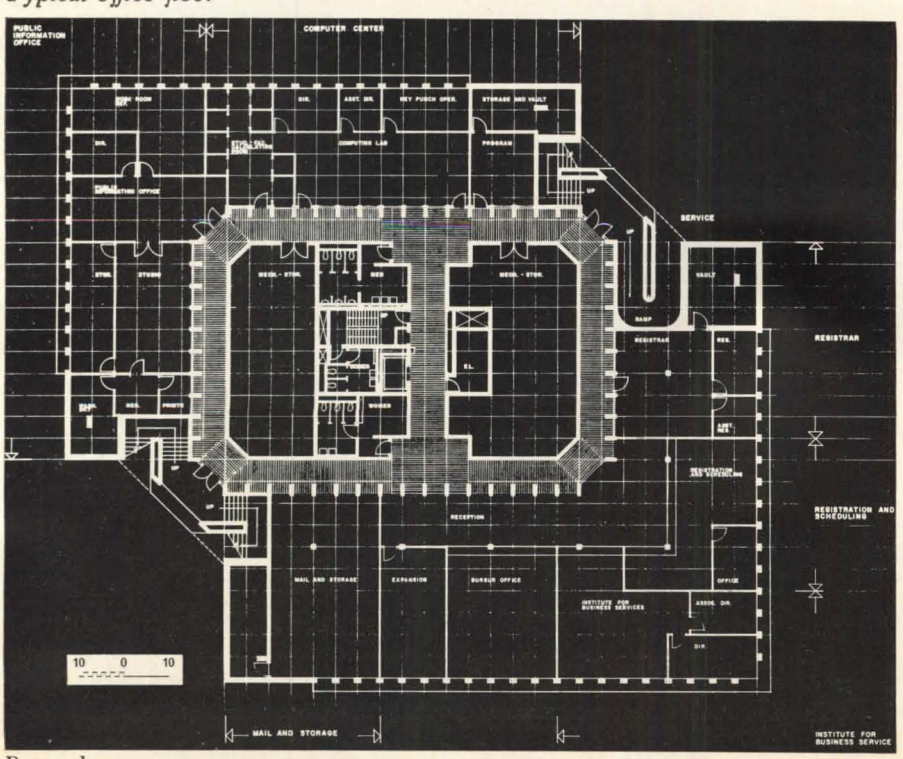


Top, executive floor



Typical office floor



Base plan

walls, and tall, deeply recessed windows. The new Fisher Administrative Center reflects the characteristics of its older neighbors in the pitch of its roof, the darkness of its sheathing materials, and the depth of its reveals. The sheathing materials here are lead-coated copper roofing, black slate on columns and terrace, gray heat-absorbing glass, fixed gray-anodized aluminum sash, and exposed concrete base.

Structure of the building is reinforced concrete. Exterior columns support only the floors; the roof is suspended from the center core by concrete-encased steel cables (*see section*). This system, incidentally, seems to recall the courses of the tile on the roofs of the older buildings. Movable wood partitions are used in the open plans of the office floors, based on the building's 5′ x 5′ module. Mechanical systems include a combined air supply and lighting troffer ceiling, plus supplementary radiation at the windows.

The building divides functionally and visually into three elements: the base contains activities concerning contact with the students, such as registrar, bursar, and public information; four administrative floors contain general offices; and the fifth floor is for university executives. The student entrance at the base is somewhat played down, with the "more formal" public entrance off the base designed to draw more attention. The slate-covered columns rise for four floors around the administrative offices, but halt at the fifth floor, which therefore expresses itself as a virtually uninterrupted "fascia" under the roof.

The building, it can be predicted, will fulfill its role of image-entrance for the University of Detroit with the requisite qualities of elegance and hospitality. It will, even more, and while living happily with its surroundings, be a building of considerable distinction.

Working with Gunnar Birkerts & Associates were Structural Engineers Holforthy, Widrig, O'Neill & Levin Associates, Inc.; Mechanical Engineers E. G. Siegal Associates; and University Architect Theodore E. Kurz.

Incandescent-Integrated Ceiling

BY WILLIAM J. McGUINNESS

New ceiling system containing acrylic-plastic dowels for piped incandescent lighting, plus apertures for air conditioning and fire protection equipment, is discussed by a practicing mechanical engineer.

In the new Prudential Savings Building at Salt Lake City, designed by William Pereira & Associates, one of its most distinctive features is the ceiling system used in several important areas of the building. The basic modular element is, in itself, a good design, offering the architect maximum flexibility for *his* design and facility for the inclusion of many services.

The 1′x2′ panel supported on inverted T-runners, but capable of being dropped for maintenance, relamping, and other adjustments, achieves a highly successful, nonmodular, random appearance. It is one that can be further varied by reversing the end-to-end direction of the units. It is virtually impossible to assemble a visually awkward combination.

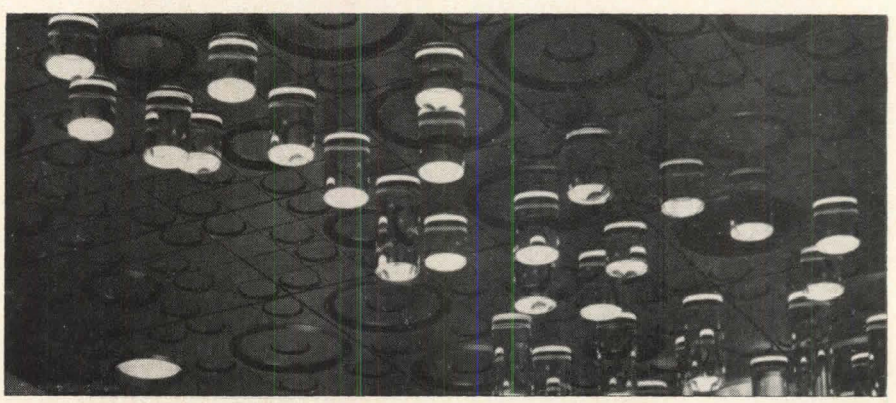
Analyzing the geometry of a typical panel one finds 32 3-in. squares *(bottom)*. Some are plain and some are inscribed with a small circle. In each panel, one finds that nine squares are assembled for a large circle, and four squares for an intermediate-size circle. The net diameters of the circles in the order named above are 2½ in., 7 in., and 5 in. The circles can become holes at the discretion of the designer.

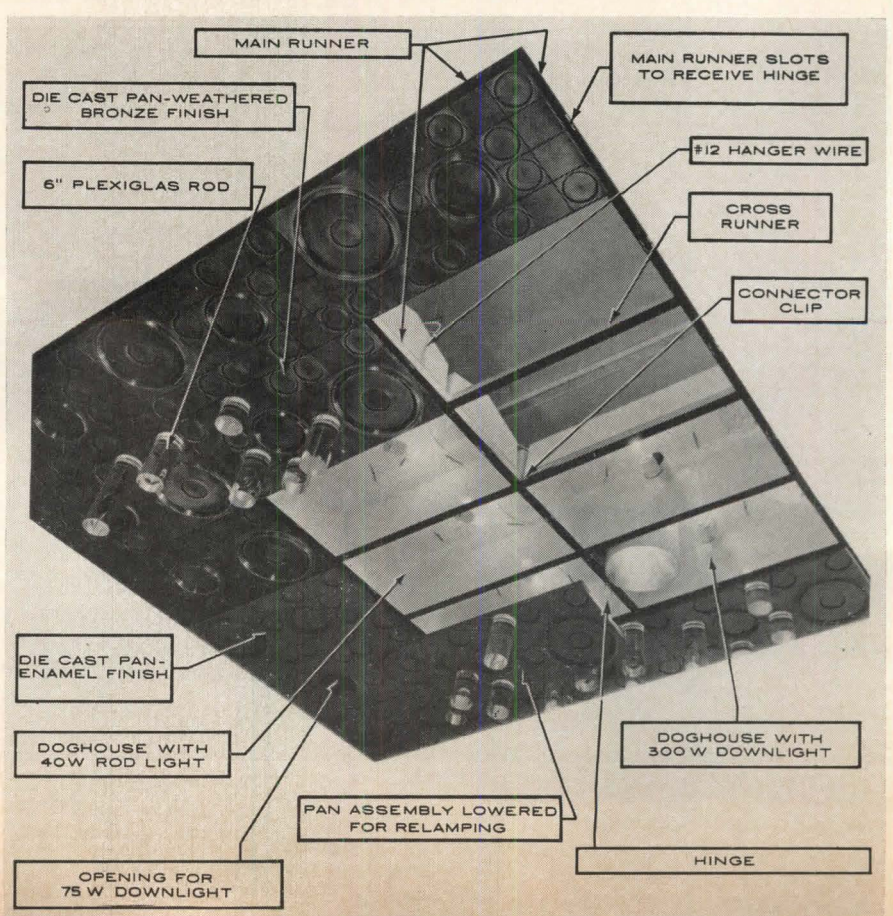
The 2½-in. openings chosen can receive acrylic-plastic dowels of selected lengths that pipe their light from incandescents in the "doghouses" above. They can be adapted to house a most inconspicuous pendant sprinkler head. The 7-in. hole can be fitted with an air-conditioning diffuser or a public-address speaker. Incandescent downlights of 75- and 300-w capacity can be placed respectively in the 5 in. and 7 in. holes for functional lighting.

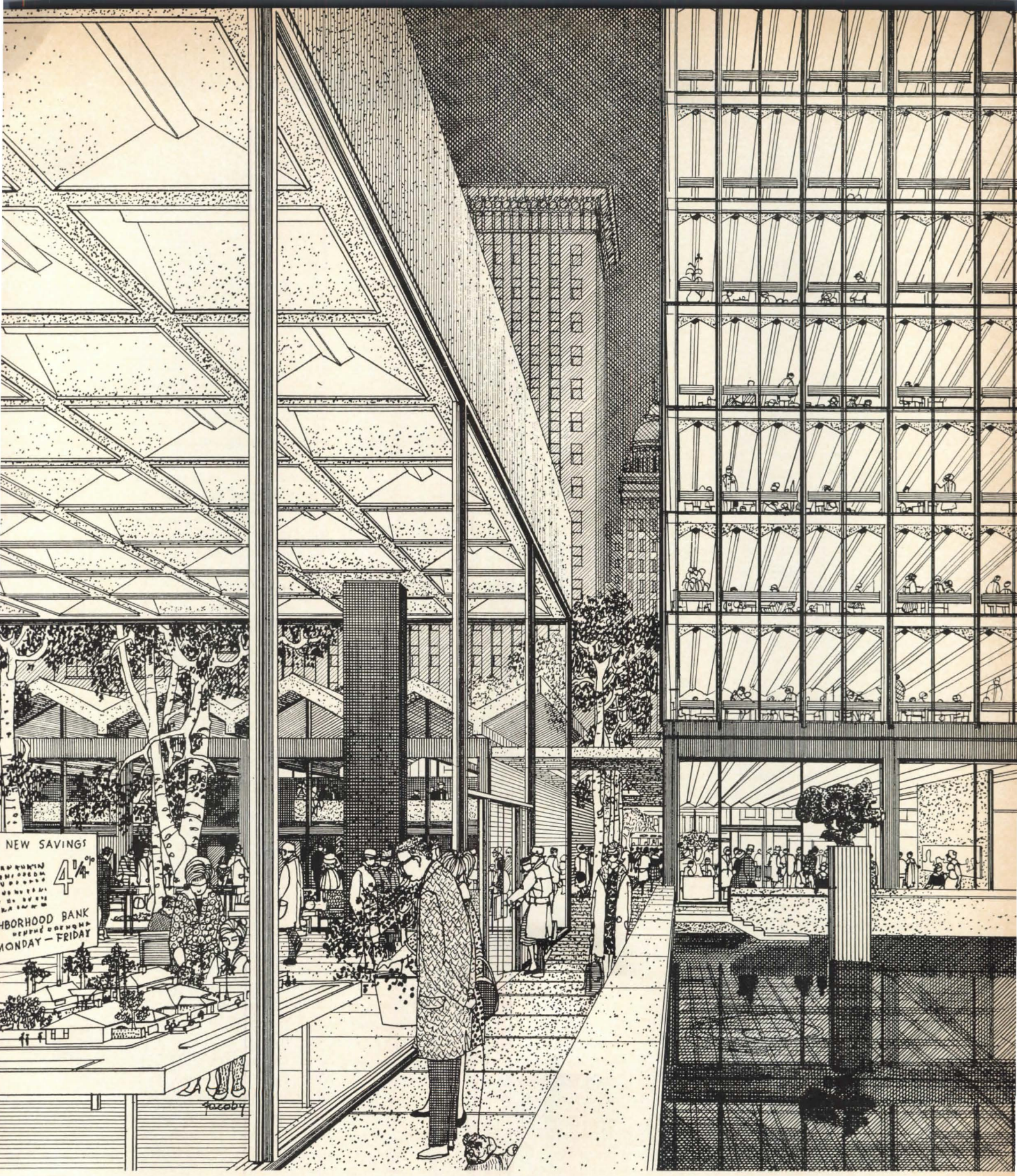
All parts of the assembly are incombustible except the acrylic-dowel lenses, which are slow burning. The pans are of die-cast aluminum and can be perforated at the factory to conform to the architect's design. An adhesive-backed decal of the basic pattern is furnished by the manufacturer for use in developing a reflected ceiling plan. Pans can be factory-painted to conform to the designer's samples or electroplated in weathered bronze finish at extra cost.

The illustration *(top)* shows the striking effect of the acrylic-dowel lenses and the efficient use of 75-w downlights for wall illumination. The somewhat unusual use of the incandescent principle makes this ceiling especially appropriate for important areas where high-quality lighting is desirable.

The basic system, known as the Celestial Ceiling, is manufactured by Integrated Ceilings, Inc., of Los Angeles, California.







"There is virtually no limit to the design effects possible with the Armstrong Luminaire Ceiling System.

"Here in this commercial center the System enlivens the ceiling configuration of the bank at the left; adds functional beauty and visual unity to the high-rise tower at right."

Helmut Jacoby

For free technical data on the Armstrong Luminaire Ceiling System and a construction drawing of the ceiling variations shown here, write to Armstrong, 4204 Watson Street, Lancaster, Pennsylvania.

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Subgrade Waterproofing—Part II

HAROLD J. ROSEN

Organization of subgrade waterproofing specifications by the specifier is discussed in the second of two articles by the Chief Specifications Writer of Skidmore, Owings & Merrill, New York.

In preparing specifications for below-grade waterproofing, writing techniques —apart from a comprehensive knowledge of materials and engineering—play an important role in the development of sound, enforceable specifications. First and foremost comes the organizing of the material within the specifications into a logical and orderly arrangement under these major headings:

(1) *General.* This serves to advise the contractor of his further responsibilities under the general conditions, the contract, and the bidding requirements.

(2) *Scope of Work.* Extent of the work to be done; furnishing of materials, tools, equipment, and other services; and the labor required to complete all of the necessary work.

(3) *Work of Other Sections.* Work performed by other subcontractors. For example, dewatering of the area or the retarding of concrete to obtain bond for hydrolithic waterproofing.

(4) *Materials.* Describe the materials to be used by referring to ASTM or other industry standards, by brand name reference, or by detailed description of the material.

(5) *Samples.* Specify the number and size of materials to be submitted for approval of the architect.

(6) *Shop Drawings.* Specify the submission of certain details such as expansion joints, flashings, reinforcement at corners, etc.

(7) *General Requirements.* Either list prequalified subcontractors or specify the qualifications and experience requirements expected of subcontractors. The delivery and storage of materials, as well as the weather conditions that would preclude installation, are also specified.

(8) *Installation.* In order to specify the procedures for the installation of subgrade waterproofing, the architect must consider the following: quantities of materials; bitumen and adhesives for membranes; size of felts, fabrics, and sheets; quantities of admixtures for integral and hydrolithic waterproofing; methods of application; and workmanship.

(9) *Protection.* Specify the requirements for protection against backfill and protection against subsequent trades.

(10) *Tests.* Procedures are established for testing the completed waterproofing. Visual inspection may be required. Pumps and well points are closed down so that the actual watertightness can be determined. Flooding or hosing of the area may be specified so that the effectiveness of the waterproofing may be observed.

(11) *Guarantee.* A guarantee period of three, five, or ten years may be specified that would require correcting the work during this period in the event of a failure.

The techniques of good specifications writing further dictate the use of clear and concise language so as to avoid ambiguity or duplication of instructions that may lead to misunderstanding, confusion, or contradiction. Good specifications involve the most economic use of words necessary to a complete and logical description. Although the specifications are one of the contract documents, and therefore a legal document, legal phraseology is not necessary. A statement in clear, concise English may be even more definite, unequivocal, and understandable to the superintendent and foremen than legal wording.

There are several ways in which specifications can be written. They may take the form of performance specifications, descriptive specifications, reference specifications, or proprietary type of specifications.

Waterproofing specifications are generally either the descriptive or the performance type; care must be exercised if a guaranteed result is to be required of the contractor. Let us assume that you wish to have a contractor build a basement, and that he guarantees to produce that basement so that it will be watertight in accordance with your descriptive plans and specifications. Now assume that the specifications are drawn in such a way that, if followed literally, a watertight basement could not possibly be made. In such a situation, even though he guarantees to produce a watertight basement, the contractor cannot be held responsible for his guarantee, because he does not agree to build a watertight basement commensurate with his experience, but rather a watertight basement in accordance with your plans and specifications. If your documents are inadequate to produce the result you seek to guarantee, then it is the responsibility of the architect or engineer who has drawn the plans and specifications, not the contractor.

Conversely, if you write a performance specification and ask the contractor to install a waterproof basement and guarantee it, you allow him a certain amount of latitude in not spelling out how to do it, but in permitting him to exercise his special experience and knowledge in producing it. In such a case, the contractor could be held liable if he is unsuccessful in achieving the results you asked him to guarantee.

In the final analysis, the ingredients of sound, enforceable specifications are: a good specifications writer; a well-informed manufacturer's representative; and a quality subcontractor who can supply the specifier with accurate and precise technical information to incorporate in his specifications.

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THE PAVILION of the Los Angeles MUSIC CENTER is an architectural masterpiece. Its walls of charcoal black granite and dark glass provide a strong visual contrast with the white textured surrounding columns and broad roof overhang. The unusual dimensions of the 3250-seat auditorium, which is wider and shorter than most concert halls, permits 90% of the seats to be within 105 feet of the stage.

The Music Center

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Architecture and the Law in Canada: Part 2

BY BERNARD TOMSON AND NORMAN COPLAN

In the second of two articles, P/A's legal team discusses implications of an outdated liability statute still in effect in the Province of Quebec.

In last month's column, we discussed the liability of architects and contractors under a rule of liability peculiar to the Province of Quebec in Canada. A Quebec statute adopted in 1866 provides that "if a building perish in whole or in part within five years from a defect in construction, or even from the unfavourable nature of the ground, the architect superintending the work, and the builder are jointly and severally liable for the loss." Thus an architect may be deemed liable for defects in a structure occasioned by the fault of the contractor; the contractor may be deemed liable for defects occasioned by the fault of the architect; or they may both be deemed liable in the absence of fault on the part of either one.

The genesis of this rule stems from an 1851 case *(Brown* v. *Laurie)*, in which a builder constructed a row of seven houses in Montreal according to the plans and specifications prepared by the owner's architect. Three of the homes sunk, and the owner incurred expense for demolition and rebuilding. The owner sued the contractor, contending that he had improperly laid the foundations so that the walls, when partially built, gave way. The contractor, however, established that he had followed the plans, specifications, and directions of the architect in respect to the depth of excavation, but that, on completing the excavation, a stratum of sand and clay had been discovered, which fact he had brought to the attention of the owner and the architect. He further proved that the owner and the architect had advised him that the soil condition was, in their opinion, satisfactory for the construction of the project.

The Court, in finding the contractor liable for the loss sustained by the owner, ruled that there was an implied warranty on the part of the builder to adapt his foundation to the nature of the soil on which he is building. The Court further ruled that the contractor was not relieved of any liability because of any knowledge, approval, or direction on the part of the owner or architect. The Court stated:

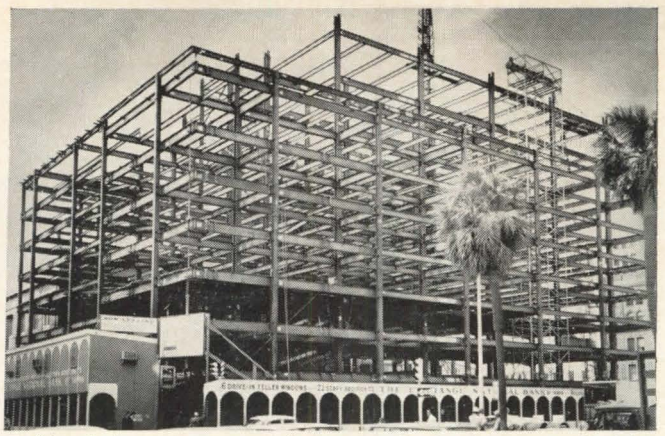
". . . .Such a rule may seem to sin against the equity of contracts, yet such is the importance of guarding life and property, that the Court is not disposed to say that the rule goes beyond the strict bounds of reason."

The Quebec statute that incorporates the rule of liability enunciated by the court in the Brown case has been subject to judicial interpretation. One of the first questions raised, related to the type of project covered by the statute. The French version of the statute incorporates the French word *edifice* and the English translation refers to *building*. It was contended that these terms included only projects such as houses, theatres, and halls, and had no application to engineering projects or to small alterations or extensions. Related to this question was whether the statute applied to engineers as well as architects. Although the legal decisions were to some degree conflicting, the prevailing rule seems to be that the statute in question applies to both professions and to projects in their respective fields. The underlying rationale for this conclusion was that, in 1866, when the statute was adopted, there was no distinction between architects and engineers.

Under the statute, the architect or contractor is liable if the building shall "perish." An interpretation of this term was also required. The term "perish" was construed as a term of limitation and was interpreted as covering defects where there was a collapse or weakening of the structure in whole or in part. Thus, defects that made a portion of the project useless or undesirable or not in conformity with the owner's expectations, if they did not affect the safety or substantiality of the building, were not deemed covered by the statute and the owner would be required to establish fault or negligence on the part of the architect or contractor to establish liability. On the other hand, if a condition existed in the building that had not as yet caused a weakening or collapse, and if it could be determined with relative certainty that such weakening or collapse was imminent or inevitable, it was ruled that the statute applied, and the contractor and architect were liable regardless of fault.

The rule of Quebec Province does not affect Quebec architects, engineers, and builders alone. It applies to any outside architect, engineer, or contractor who furnishes services for a project in Quebec. Nor is the rule of liability extinguished by acceptance of the project by the owner.

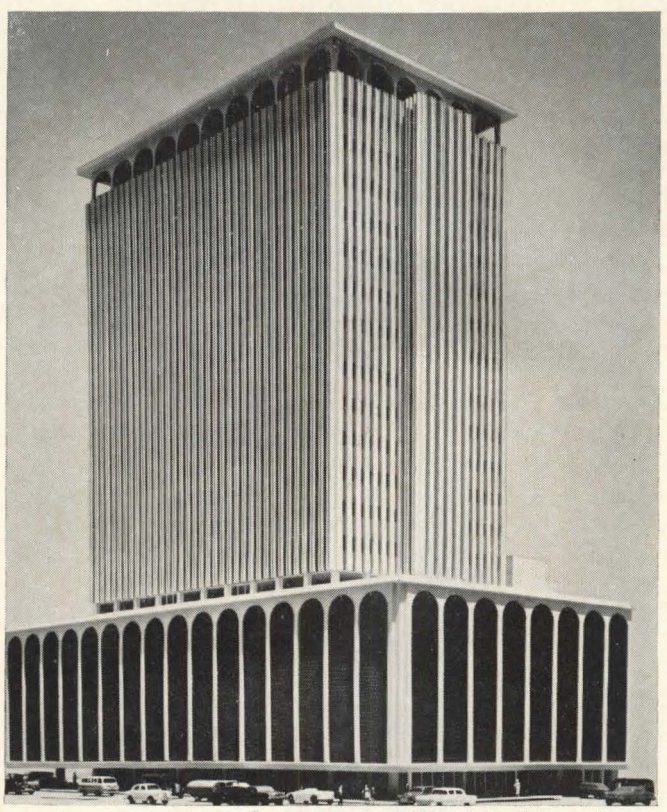
In the mid-19th Century, when the rule of liability discussed was adopted as part of the Quebec Statutory Code, no organized architectural profession existed. Any person could establish himself as an architect or builder. Many persons exercised both functions. Building techniques were not highly refined and it was therefore thought that the public could only be protected by a stringent rule of liability reflected in the statute in question. The reasons underlying this rule, however, appear to be no longer applicable. Architecture as a profession was organized in Quebec in 1890; engineering, in 1898. There are now licensing statutes in Quebec; no longer is anyone free, regardless of competence, to perform as a design professional. Building techniques have greatly improved. Liability regardless of fault is an unusual doctrine and lacking an imperative social need, it is difficult to justify its continued application.



34% of the 3,200 tons of structural members supplied by Bethlehem is V50 and V55 high-strength steels. Field connections were welded and high-strength-bolted; shop connections were welded (V Steels are readily weldable).

Redesign in Bethlehem V Steels saved this bank $45,000

A simple redesign of some columns and a switch from A441 to Bethlehem V50 and V55 steels saved $45,000 for the owners of the 22-story Exchange National Bank Building, Tampa, Fla. Bethlehem V Steels are high in strength (45,000 to 65,000 psi min yield), but truly low in cost. If you'd like to know more about these economical structural steels, just get in touch with our nearest sales office.



Model of 22-story Exchange National Bank Building shows ground floor for banking facilities, six-story parking garage, and office tower section with floors designed for composite action.

Owner: Exchange Realty Corp. Architect: Harry A. MacEwen, A.I.A. Consulting Engineers: William J. McGraw, Inc., and Randolph C. Jackson, III, Inc. Fabricator and Erector: Florida Steel Corp. All are Tampa firms. General Contractor: J. A. Jones Construction Co., Charlotte, N.C.

BETHLEHEM STEEL CORPORATION, BETHLEHEM, PA.

BETHLEHEM STEEL

Steel for Strength

The Art of the Middle Distance

BY NATHAN SILVER

THE ENGLISH GARDEN. *by Edward Hyams. Published by Harry N. Abrams, Inc., 6 W. 57 St., New York 19, N.Y. (1964, 267 pp., illus. $25). Reviewer is a New York architect and an Assistant Professor at the Columbia University School of Architecture.*

Landscape design, and not architecture, may be the true "mother of the arts." Even before shelter became calculated space, there was the *genius loci* and the sweet mystery of the fruits of the earth. The need for food in every human settlement at first called for a kitchen garden. But then the passage of the seasons and the propitiousness of man's handiwork in relation to nature itself, led him to suspect that his garden was an example of the perfectibility of the world through his labor. And as God had planted a garden eastward in Eden, man tried to build his earthly paradise. *The English Garden*, by Edward Hyams, suggests that this is the ultimate meaning of the garden form developed by the English.

The superb invention, which had its origin in England early in the 18th-Century and later swept Europe, is much misunderstood. Its preoccupation was not flowers but spatial illusion, and its greatest art was in the design of nature-forms in perspective. It seems to me that the English countryside has a quality that Kevin Lynch and others have called *apparency* or *imageability*. The country is legible, well-formed, vivid, and distinct. Even though it was made not truly by artifice but by accident, it was land provocative of creation, like the Athenian hill that suggested the Acropolis. By the end of the 17th Century, artists such as Poussin, Claude, and Salvator Rosa had begun to paint landscape that was even more distinct and *imageable* than that which already existed in England. The whole idea of a mere landscape being shown as art was new, and, probably due to the influence of such painters, a few gardeners began to remove patterned flower beds and lay out the gardens in a landscapish manner.

One of the first of these gardeners was William Kent. What Kent did, according to Hyams, was "to think of . . . the garden and surrounding landscape as a picture, as a 'restoration' of, a regeneration of Ideal Nature." Tools were quickly improvised for the job. One was the "ha-ha," borrowed by the gardener Thomas Bridgeman from the fortifications of the French. It was a ditch with a fence at the bottom, which would keep livestock on one side without breaking the view on the other. Another was the cattle grid: an openwork of bars in the ground at a wall opening, which cattle would not step onto, thus eliminating the need for a gate. Unlike the French parks of Le Nôtre, "gardens" for the English nobility

Continued on page 238

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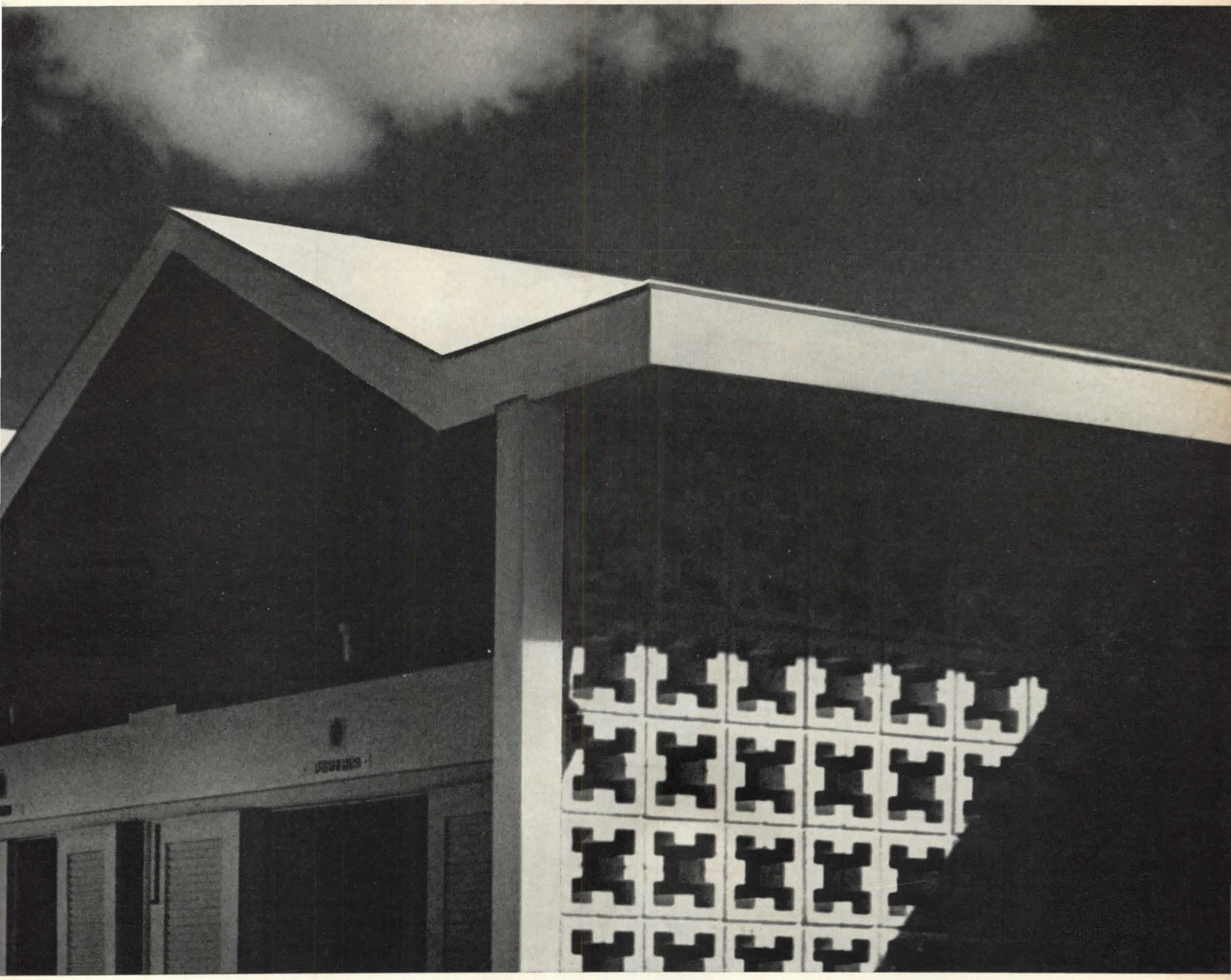

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BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

Continued from page 234

usually had to be working pastureland as well. The garden at Rousham was Kent's most mature accomplishment. What he did there, says Hyams, "was to make a series of landscape 'paintings' in such a way that one could walk right through them."

A follower of Kent and the greatest of the English pure landscapers was Lancelot "Capability" Brown. All beds and architectural patterns were swept away, avenues of trees were decimated and replanted in clumps, and geometrical pools became lakes. Planting materials were kept to the most simple local varieties. Only in design was Brown extravagant—alternating views into sheets of water and green valleys, thickets and architectural eye-catchers. The world, his handiwork implied, is all of a magic piece—not just the collection of lantern slides as in Kent.

Later, Humphry Repton increased the purely spatial aspects of the designed landscape. To Repton, the garden itself could be suffered to remain, only close at hand. Far off was the remarkable English countryside. Between the two was a sort of transition piece—natural in appearance but man-made. Between the foreground and the remote region was the "middle distance," and it was designed in the measure of human perception, and with consummate art. Repton's book, *The Art of Gardening*, quotes from Burke in the frontispiece: "No work of art can be great but as it deceives. To be otherwise is the prerogative of nature only." Hyams approves of Miles Hadfield's statement on Repton's method: "The most important development propounded by Repton was the proper distinction between *Painting* and *Gardening*—the difference between a scene in nature and on canvas. The principle may be summarized thus: first, the spot from whence the view is taken is in a fixed state to the painter; but the gardener surveys his scenery while in motion; secondly, the field of vision in nature is much greater than in a picture; thirdly, the light which a painter brings to a picture is fixed as he wishes it at a certain time of day—in nature it varies from hour to hour."

These three differentiations are relevant to much more than gardens. They could be applied equally well to the principle of design at the Spanish Steps in Rome or the way along the Charles Bridge in Prague. They adumbrate the baroque-to-modern idea of vision in motion; or, as Le Corbusier puts it, "Space is the foot that walks, the eye that sees, the head that turns." It seems to me that, in the end, the counterpart for European baroque art that is sought by art critics so fruitlessly in England lies not in English architecture, but in English gardens.

In Edward Hyams' view, Western civilization has had two "originals," each with an archetypal garden for us to ponder. There is the Hellenic garden, representing geometric regularity, and suggesting the origin of French and Italian gardens. And there is the garden of Jewish mythology: ". . . and Eden," Hyams says, "was clearly an 'English' garden." Hyams can afford to take a patriotic view about the unique qualities of the English garden; and in any case his brilliant presentation is sufficiently bold and exploratory to make us withhold trifling objections. "An English garden is an act of praise; it is manifestation of poetry, and possibly even of religion. It is for this reason, which some will find very fanciful and far-fetched, that I believe that, whereas gardening in continental Europe, as in China, is a fine craft, in England and Japan it is an art."

Hyams believes that the greatest devel-

Continued on page 244

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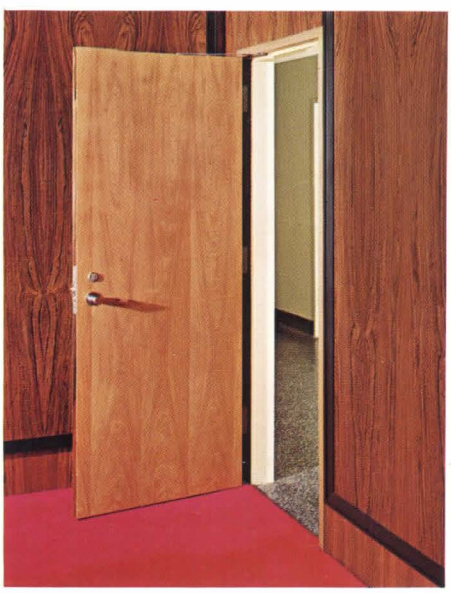

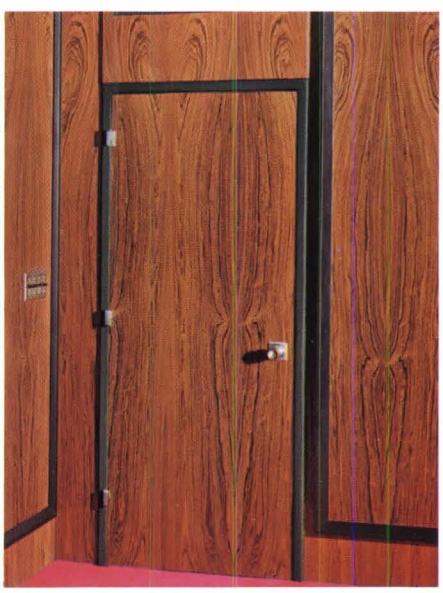

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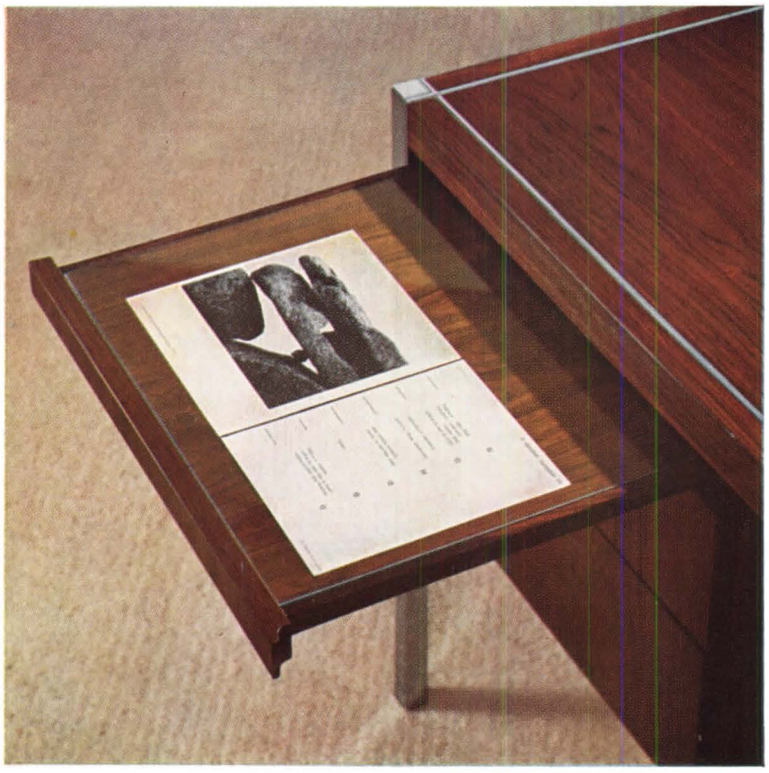

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Continued from page 238

opment of the English garden came in the days of the Royal Horticultural Society, when the English gardener became an expert grower, nurseryman, seedsman—a practical horticulturist, and an amateur scientist. I don't agree. This is partly the English anti-art bias coming back in the end. Even Lancelot Brown (called "Capability" because he was fond of saying that a place had "capabilities of improvement") wore his absurdly matter-of-fact nickname proudly, though he designed more landscape than Le Nôtre and was a great artist — not a rustic putterer. We ought to remember him as the visual explorer he was, since today the design of landscape gardens or parks, as he conceived it, is utterly dead, replaced by an expression of real estate value and functional land use that we call "site planning." Municipal gardens are all that is left of the corpse.

The book is furnished with many photographs, but they are not sequence shots, nor are their viewpoints made clear by plans; so, quite against the author's intention, plastic art is seductively illustrated as static art. The lines of text are wide and thin and on gray paper, for purposes of layout instead of readability.

Hyams must be a fine man to know. He writes a cranky weekly column in *The New Statesman* called "The Countryside," in which he criticizes Pakistani house-to-house salesmen and English electrical appliances, discusses why lilies won't come up, and compares Mr. Marples, the transportation man, unfavorably to Mussolini. He is trying to revive viticulture in England and has a flourishing vineyard of three-quarters of an acre in south Devon. Hyams has written several cultural histories and all sorts of gardening articles with great understanding and intellect. Knowing all this scarcely keeps one from being surprised by his newest role of art critic.

And has he become one? Yes. For him, the great English garden was not merely part of the Romantic tradition. It was a design of its own, alone and without precedent. It was conscious art, and temperamentally English. To my knowledge, this is the first time that English gardens have been treated as a major expression of art, and written about as such. This book is the stunning debut of a man of letters—a remarkable work of critical imagination.

Incisive Interpretations

BY LEONARD K. EATON

IMAGES OF AMERICAN LIVING *by Alan Gowans. Published by J.B. Lippincott Co., East Washington Square, Philadelphia 5, Pa. (1964, 498 pp., illus. $16.50). Reviewer is Professor of Architecture at Michigan.*

This is an important book. It is, in fact, undoubtedly the most significant work on American architecture as cultural expression since Lewis Mumford's *Sticks and Stones*, which was published in 1922. Professor Gowans, who is chairman of the Department of Art and Art History at the University of Delaware, brings to his task of interpreting a huge mass of material both profound scholarship and excellent taste. A Canadian by birth, he also possesses a certain objectivity that is particularly valuable in studies of this kind. Handsomely produced and well-illustrated, the book is a notable addition to any architect's library.

Several aspects of the author's historical method demand comment. In the first place, he is concerned, like Mumford, with the building or artifact as symbol of the civilization that created it. Some of his most brilliant passages are interpretations of the French, English, and

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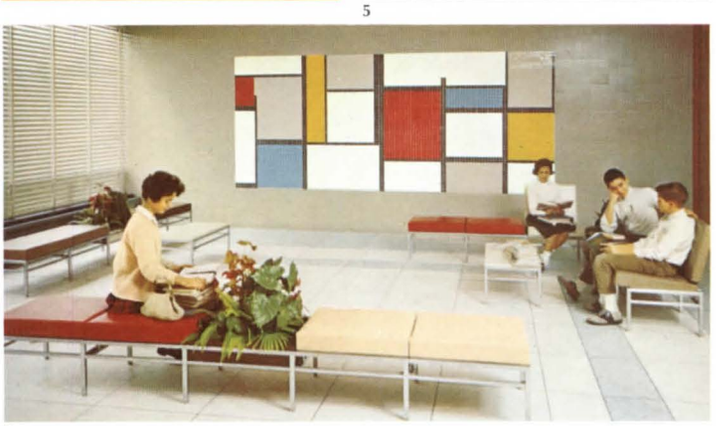

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2. Apartment lobby, left center, of Troy Towers, Bloomfield, N.J. This distinguished mural is 1" x 1" ceramic mosaics. Architect: Gerber & Pancani. Tile Contr.: Bloomfield Tile & Terrazzo Co. Plate 518.

3. Freedoms Foundation, lower left, at Valley Forge, Pa. Floor is subtly shaded Murray Ember Flash quarry tile. Architect: Howell Lewis Shay & Assoc. Tile Contr.: Italian Marble Mosaic Co. Plate 516.

4. Entrance lobby, upper right, of Dulaney High School, Towson, Md., has colorful abstract ceramic mosaic design. Architect: Henry Powell Hopkins & Assoc. Tile Contr.: Atlas Tile & Terrazzo, Inc. Plate 539.

5. Entrance, in E. B. Erwin High School, Birmingham, Ala. Color and design interest is given to walls by using contrasting stripes of tile against a background of scored tile SD-5 in 370 Cr. Mocha. Architect: Davis, Speake & Thrasher. Tile Contr.: Wilson & Daniels Tile Co., Inc. Plate 536.

6. Lobby, lower right, James M. Bennett Jr. High School, Salisbury, Md. Mondrian-type mural is 1⅜" Tile Gems. Architect: Booth & Somers. Tile Contr.: The Ba-Mor Co. Inc. Plate 512.

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Dutch communities of the 17th Century as the very incarnations of the societies that built them. Thus, he writes of French Canada that "The Quebec countryside began increasingly to resemble the backgrounds of 14th- and 15th-Century illuminations: neat strips of cultivated field alternating with woodland, with here and there brightly colored groups of houses on hill and riverside, clustered around the village church spire. Even today it retains much the same character. And this is as it should be. The Quebec village looked medieval because it was medieval." The passage is, incidentally, a good sample of the author's style. He writes incisively and with great charm.

Secondly, Professor Gowans is concerned to establish his own, highly sophisticated, interpretation of the 18th Century. In brief, he argues that it was an essentially classical period that can be divided into four clearly differentiated but sometimes overlapping phases of style. In terms of his analogy to the Italian Renaissance, there was an age of innovating genius (Brunellschi, Masaccio, Donatello); a period of theoretical formulation (Alberti, Piero della Francesca); a golden age of maturity (Leonardo, Raphael, the early Michelangelo); and a final phase of stylistic decadence (Bronzino, Giulio, Romano). Within this theoretical framework, the author treats the very considerable body of American architecture from the earliest Georgian buildings at Williamsburg to the Adamesque decadence of McIntire and Bulfinch. Of course, not all historians will agree with this schematization. Many will dislike his somewhat cavalier treatment of Thomas Jefferson, whom he thinks generally overrated as an architect. Nonetheless, the fact remains that this is the boldest and most comprehensive treatment we have yet had of the complex historical material of the 18th Century and the early Republic. No one will ever be able to write about these periods again without taking this interpretation into account.

For the 19th Century, Professor Gowans develops an analogous scheme, dividing its architecture into early-Victorian, high-Victorian, and late-Victorian phases. The last named, he says, lasted well into the 1920's, and most thinking architects will now agree with him. Of greater interest to the majority of readers will be his equally valiant attempt to grapple with the even more refractory history of the modern movement. Here he wisely refrains from adopting any scheme, and instead simply attempts to place the major figures of 20th-Century architecture in relation to the dominant tendencies of the age.

For this reviewer, his analysis of the careers of Wright, Sullivan, Maybeck, Gill, and the Greenes is especially provocative. Gowans' explanation of the pattern of defeat that pursued these men is a model of clarity. In this section, as in the other portions of the book, his scholarship is weighty but unobtrusive. There is no formal bibliography; instead, there are short essays at the conclusion of each chapter. These effectively summarize the findings of the most recent scholars in the field. It should also be noted that these essays display wide and thoughtful reading in fields other than architecture. It is a pleasure to find a writer on architecture who can bring to bear on his subject the sociology of Riesman, the novels of Huxley, and the historical insights of Daniel Boorstin.

In this reviewer's opinion, the only major omission in the volume is a consideration of the furniture produced by the modern movement, since the sections on Chippendale and Sheraton are so good, the neglect of the pieces designed

Continued on page 254

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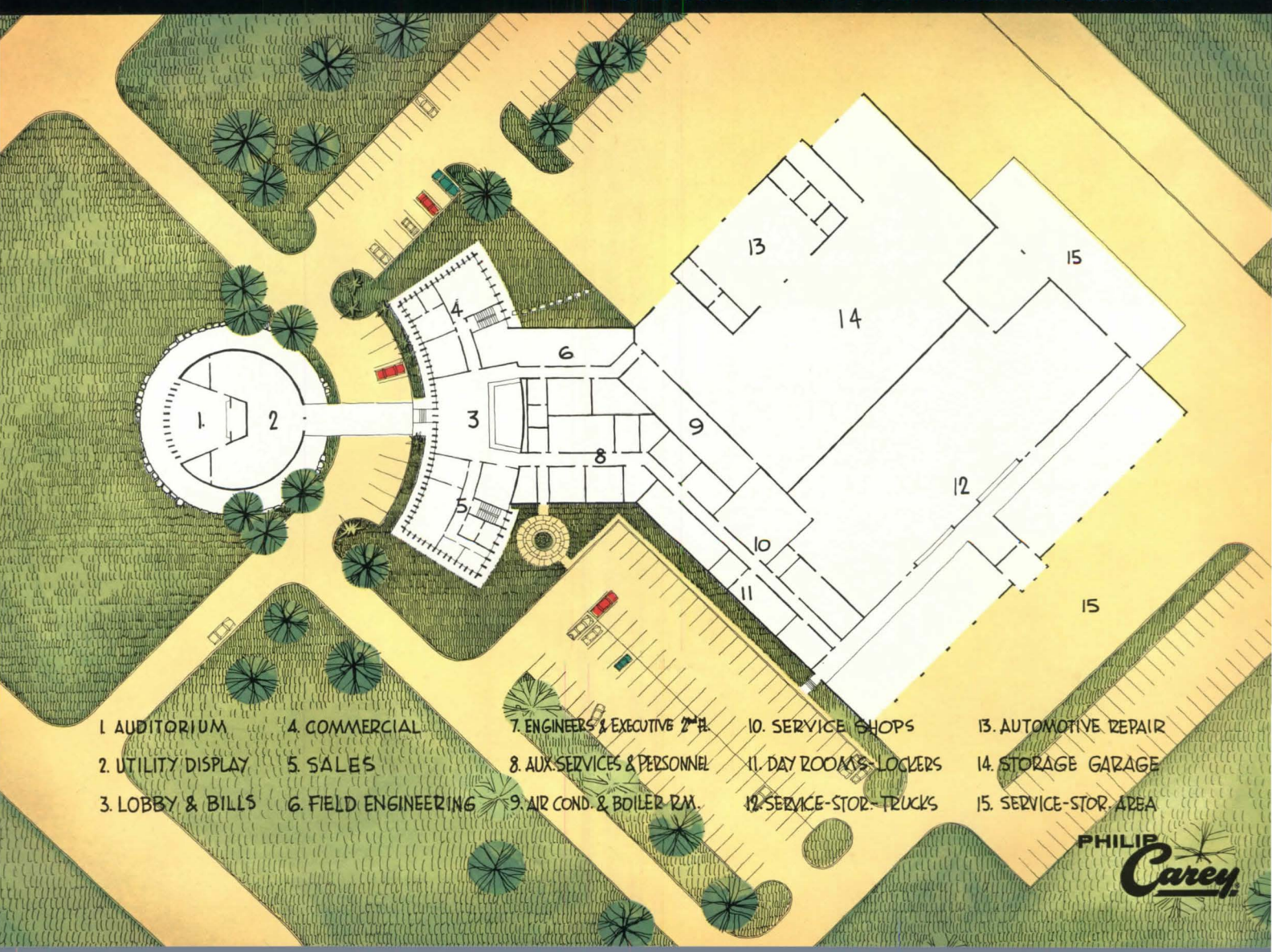

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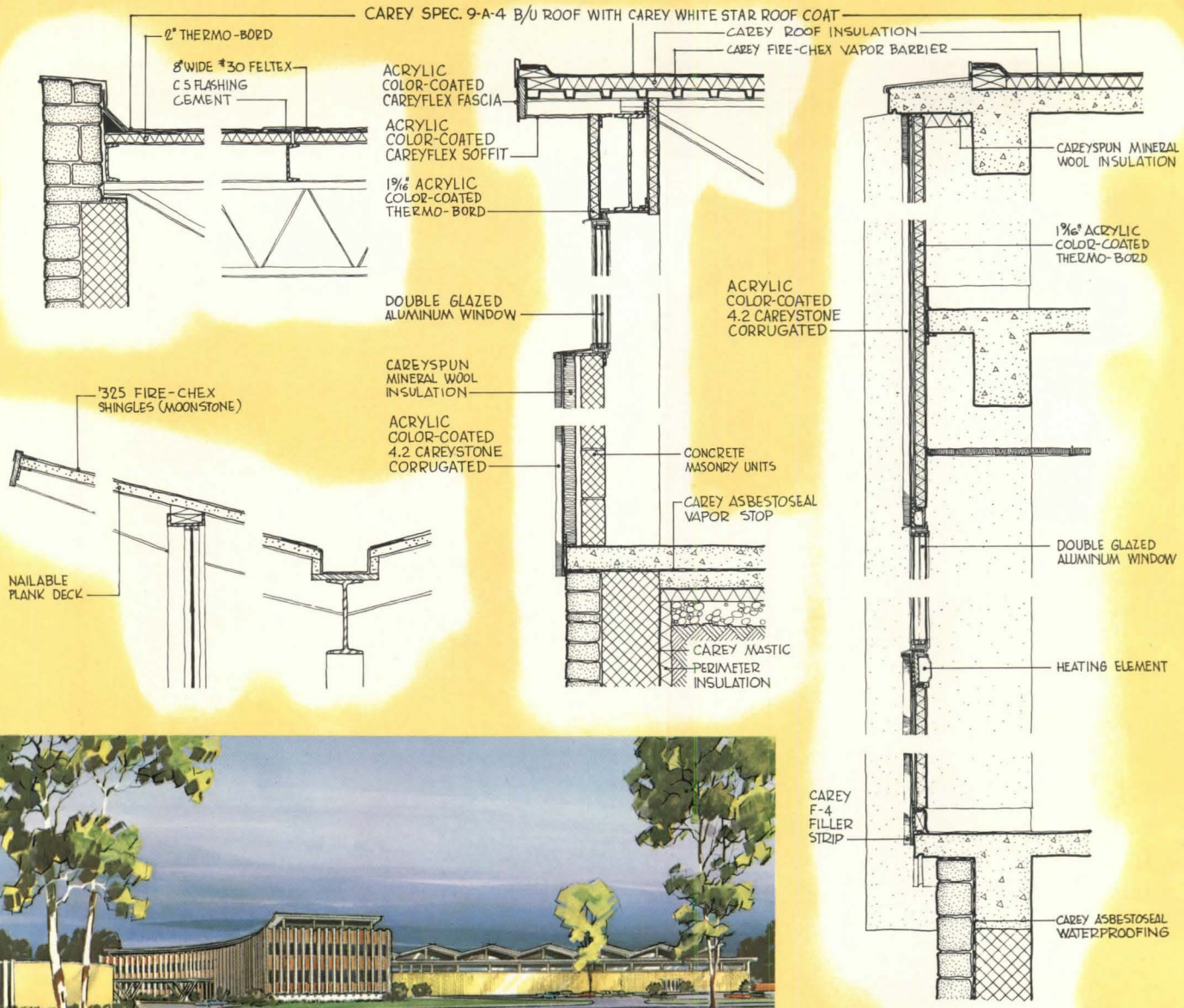

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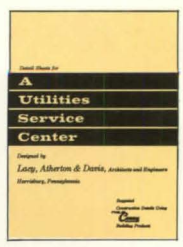

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1 CATEGORY OF STRUCTURE:
Apartment Building

2 GENERAL DESCRIPTION:
Area: (Total) 194,000 sq ft
(Living) 164,000 sq ft *
Volume: 1,550,000 cu ft
Number of floors: 15
Number of occupants: 170
Number of apartments: 40 one bedroom
40 two bedroom
2 penthouse
*Each one BR apt.: 1800 sq ft
Each two BR apt.: 2100 sq ft
Each penthouse: 4000 sq ft

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Washer-Dryers, Dishwashers & Garbage Disposers	528.9 kw
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Consulting Engineers: T. Y. Lin and Associates
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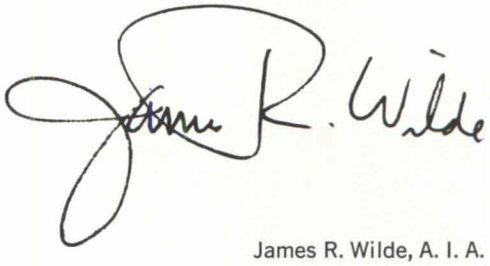

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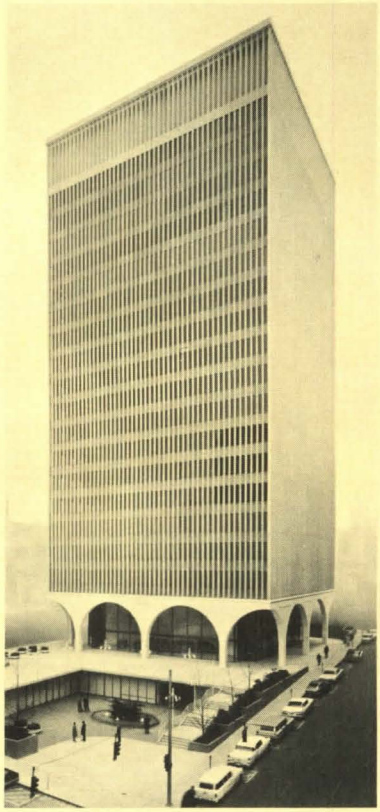

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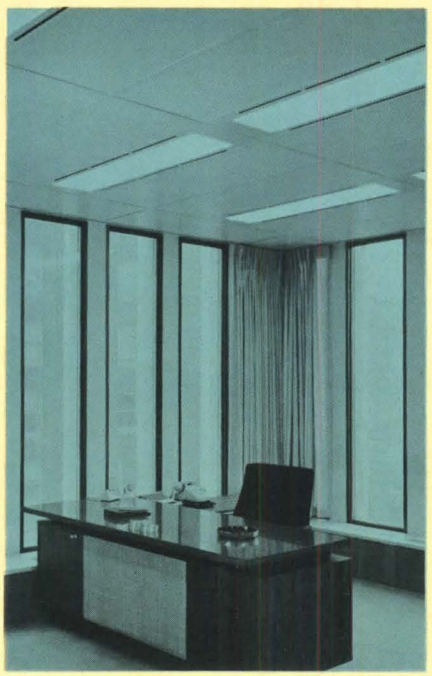

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Continued from page 246

by Sullivan, Wright, and, at a late date, Eero Saarinen, is all the more regrettable. Still, this is a relatively minor consideration. In sum, Professor Gowans has written an immensely valuable book.

From Oak Park to Australia

BY GRANT MANSON

WALTER BURLEY GRIFFIN *by James Birrell. Published by University of Queensland Press, St. Lucia, Queensland, Australia, (1964, 203 pp., illus. 105 s). Reviewer is Professor of Architecture and Fine Arts at the University of Southern California. He is the author of* Frank Lloyd Wright to 1910: The First Golden Age.

In writing about members of the Chicago School, there is no need to build up a sense of fascination; it already exists. This is particularly true of the Wright entourage of the Oak Park days. All those young people—so important, we suspect, and yet so shadowy—whose daily lives involved them in the birth of the Prairie House, are personages of the utmost interest. We long to know all about them, to have the shadows dispersed by keen and sympathetic research, to see them real and clear, to understand the nature of their response and their contributions to Wright's vision of a new domestic architecture. Of none of the entourage is this more true than of Marion Mahony and Walter Burley Griffin, her husband. Marion Mahony's great longevity would have permitted her, decade after decade, to speak for herself; but she never has. She is mystery itself. Griffin, who died in his sixty-second year, never turned to self-explanation in print—and perhaps it is just as well, for architects are notoriously turgid and pompous when they write about themselves. But now Griffin is fortunate enough to have found, posthumously, a biographer, and our latent fascination rises many notches with this biography in our hands.

Naturally enough, in view of the final Antipodean chapter of Griffin's career, the biographer and the publication are Australian. We all know, of course, that the meteoric event in Griffin's life was his winning of the international competition, in 1912, for the design of Canberra—with Eliel Saarinen the runner-up, as he was again 10 years later at Chicago. From that time on, Griffin and his gifted, mysterious wife lived in Australia. It is an extraordinarily sharp and abrupt break from the United

Continued on page 262

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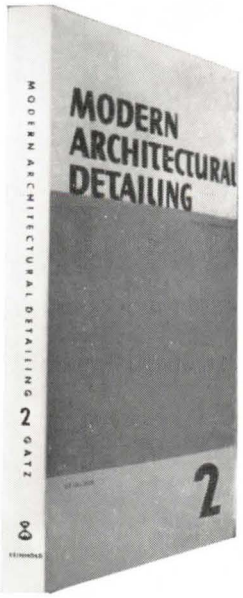

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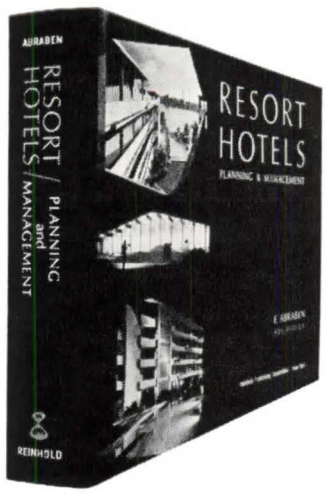

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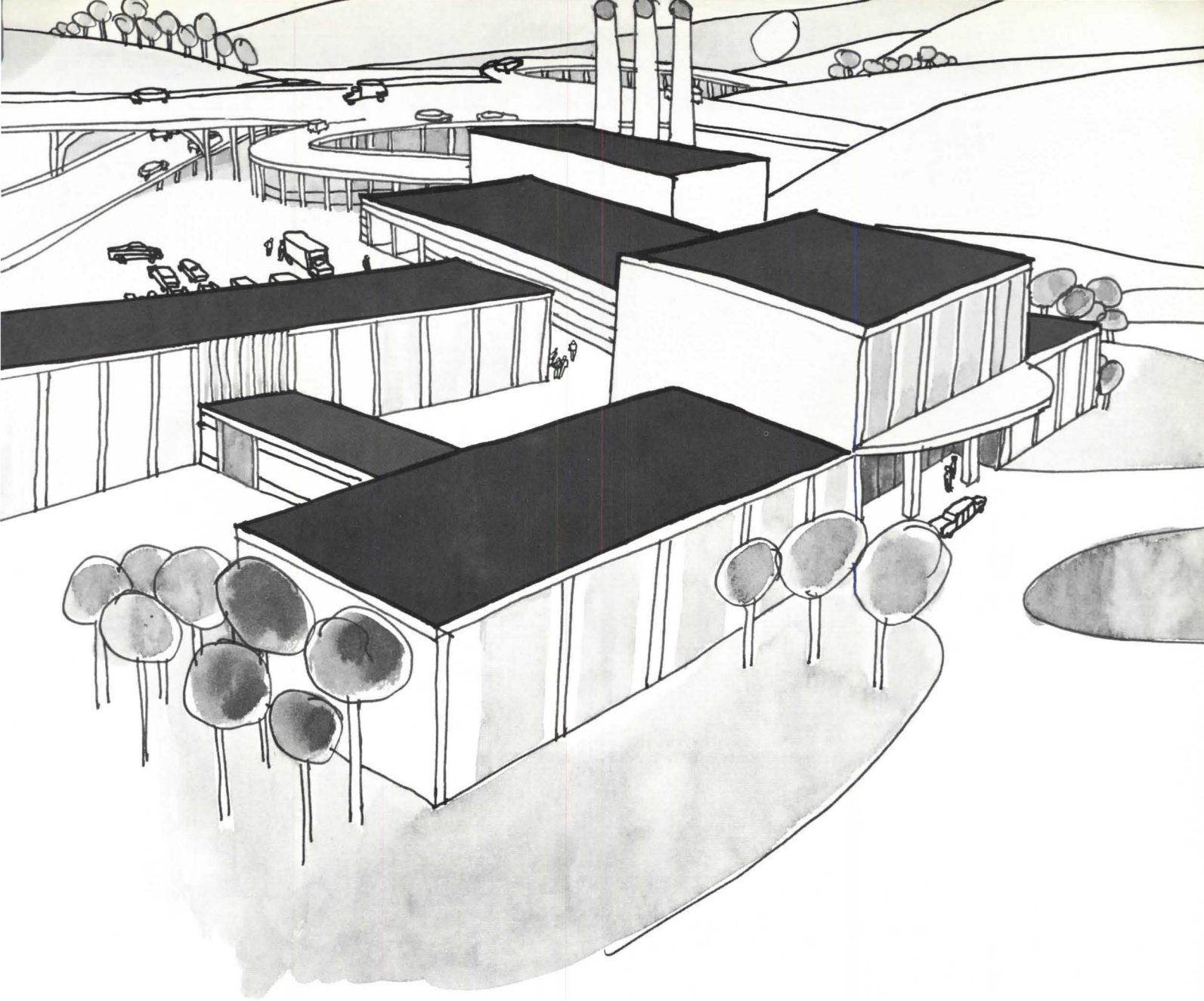

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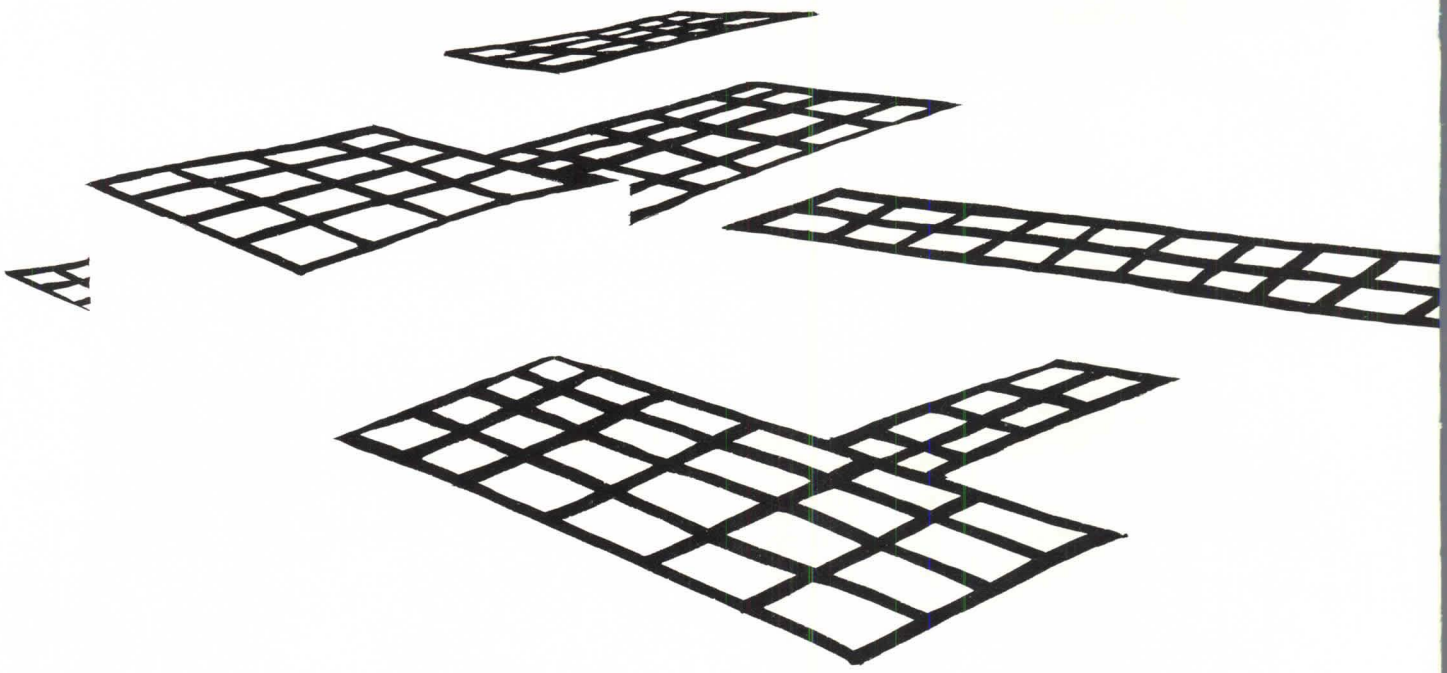

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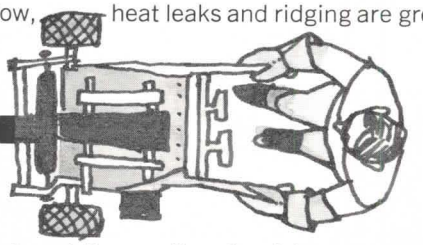

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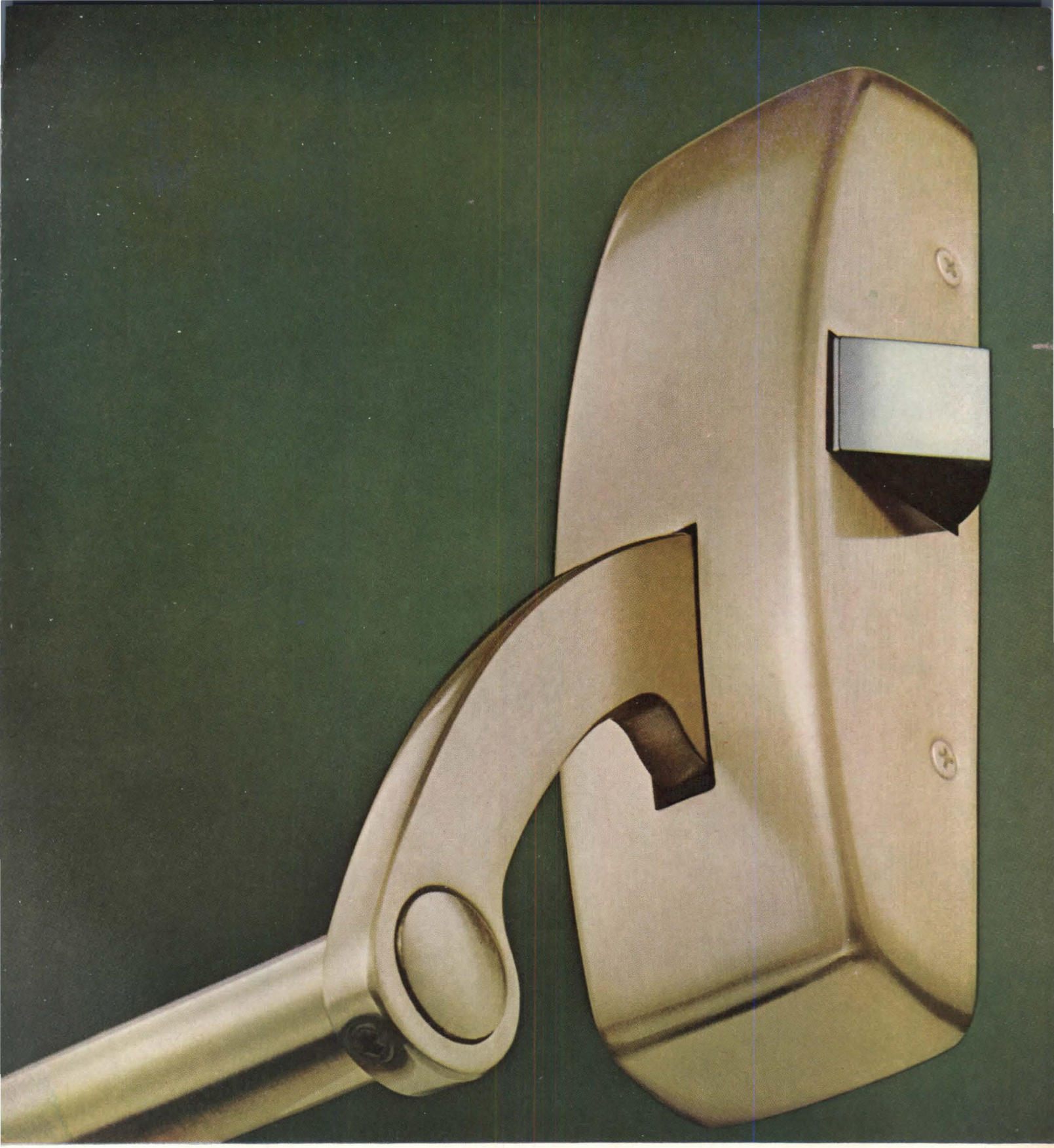

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Continued from page 254

States to Down Under and from relative obscurity to world-wide renown. For an Australian like Professor Birrell, himself an architect-planner, the Griffin of post-1912 stands revealed in bright Australian light, as one "cobber" looks to another.

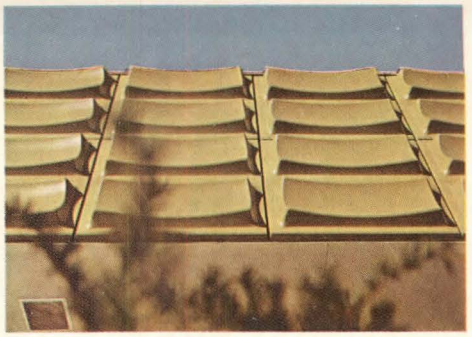
What is not so plain to Professor Birrell, and never can be, is the pre-1912 Griffin. What it was like to be born, to live, and to work in "Chicago-land" (apologies to *The Chicago Tribune*) around the turn of the century is a matter of feeling as well as of data.

The author does not have the feeling, and we cannot expect it of him. He does not even, always, command the data. There are omissions, mistakes, and quaint confusions in identifying buildings in the United States by Wright and Griffin that lead one to wonder how much Professor Birrell has merely at second hand. One executed design of Griffin's is identified as the "Carter Jr. (?) House, Evanston," while another, more specific as to client but very reticent as to location, is labled "Mary H. Bovee House, Illinois." Elsewhere, while speaking of Griffin's work in The Studio at Oak Park, we are told that Griffin was "in charge of the Yahara Boat Club"; the phrase "in charge of" leads one to believe that Professor Birrell thinks the club was actually built.

This sort of criticism may be carping, but the fact remains that the book, like its subject's career, is distinctly divided into halves; it is authoritative only in its second, or Australian, half. This is too bad. We would have preferred to see Griffin presented to us by someone who is in charge of the whole matter. Professor Birrell has much to say in regard to the putatively equal contributions to the evolution of the Prairie House by both Griffin and Wright, averring that, after Griffin left The Studio in 1905, Wright's work went into a decline. Yet he says that "obscurity covers the details of Griffin's work until 1906." How, then, can he tell us that Wright, in those early days, was consistently drawing upon Griffin for ideas? Perhaps he was, but it is a statement not lightly to be made. The reader cannot avoid asking himself why *the author*, instead of postulating, did not make it his business to remove, by some research, that troublesome "obscurity." It is a pity when partisanship enters into any historical account; it is a mistake when it is not solidly based.

But after Griffin has won the great

Continued on page 268



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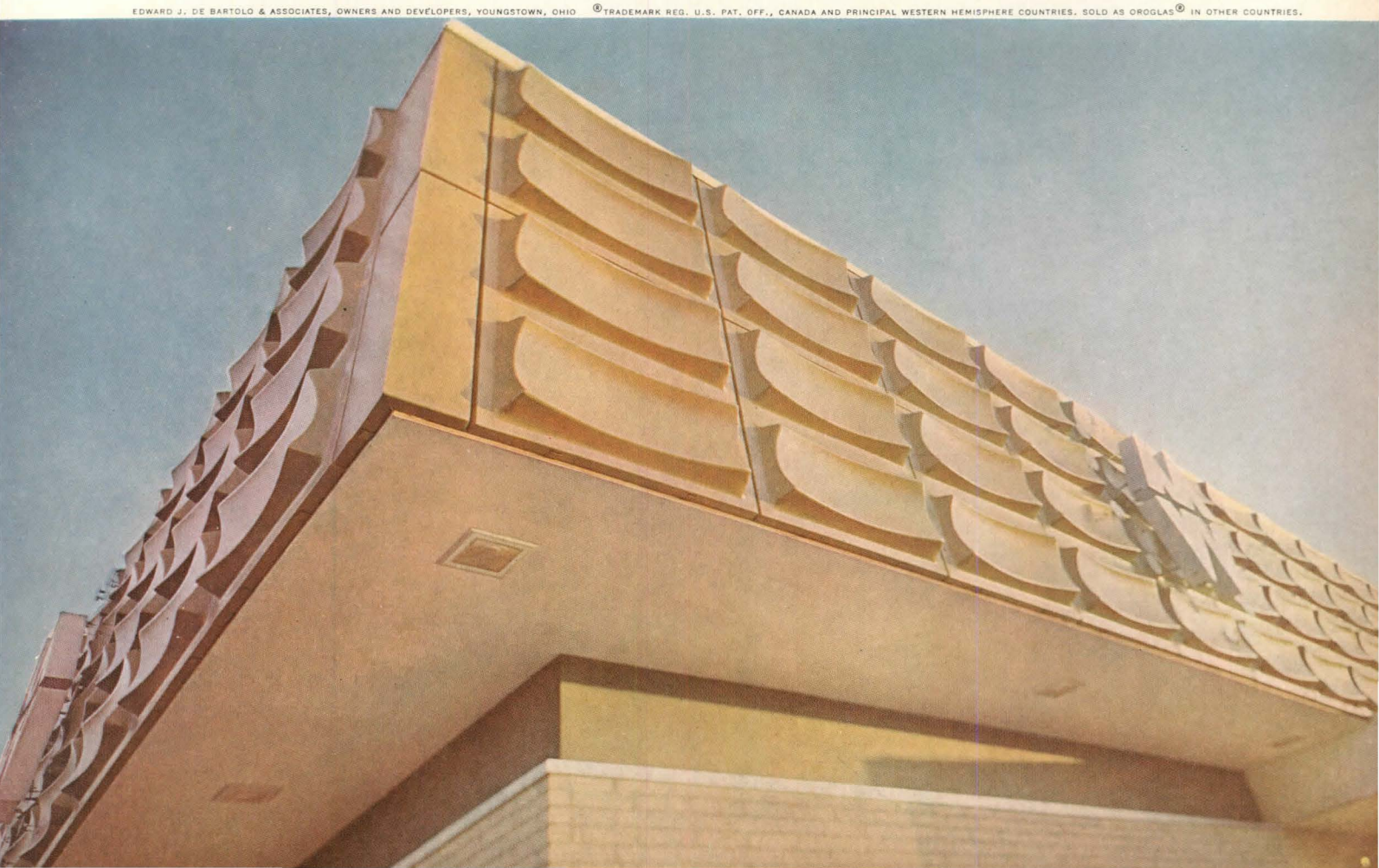

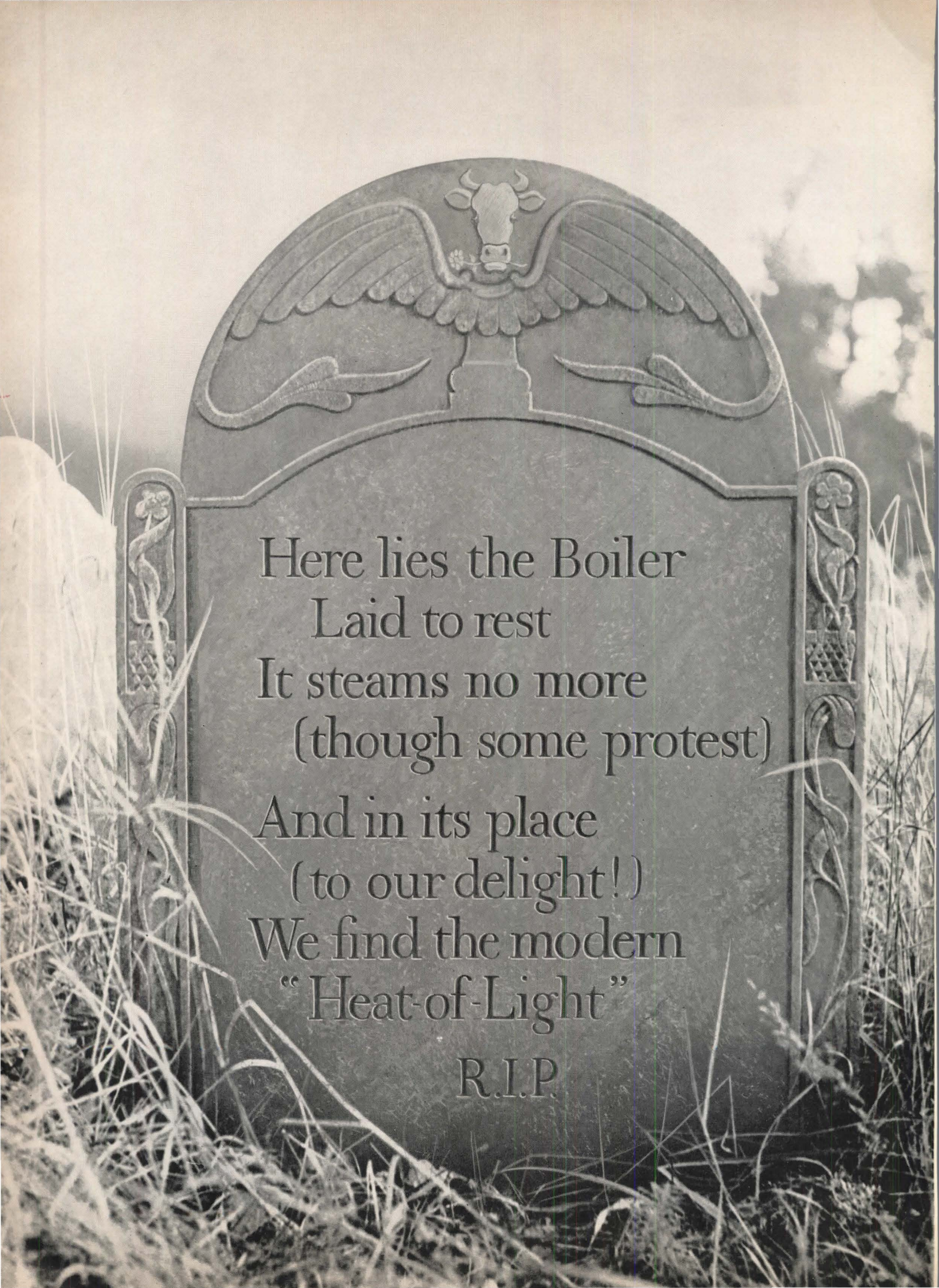
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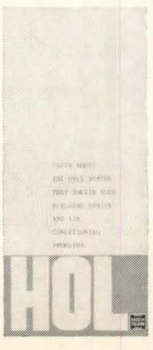

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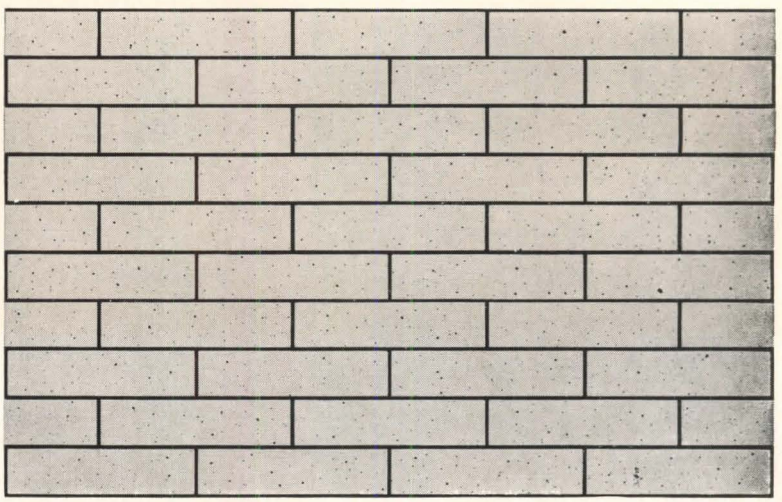

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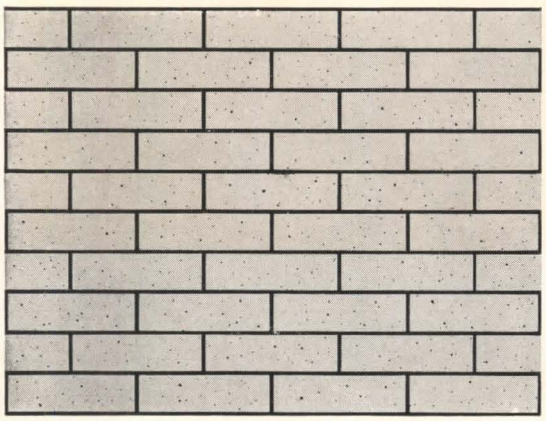

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Continued from page 262

competition and has emigrated to Australia, the book (at least for me) picks up weight. The author no longer feels called upon to intensify our fascination in the subject by equating him with Wright, the world-figure. He just tells us what he did; and this is a genuine contribution. For certainly, once free of Wright's overwhelming personality, Griffin's own emerges—and it is very different. Professor Birrell, in the earlier chapters, makes a point of Griffin's innate "Palladianism" as a salubrious brake upon Wright's picturesque-ism, thus saving the Prairie House from disaster. While we are still in the realm of postulation, the point is not very telling. Nor is it very telling in those few years after the breakup of The Studio in 1909 and the Competition in 1911, when Griffin was building houses in and around Chicago almost indistinguishable from a routine Prairie House, the authorship of which is known neither to the Walrus nor the Carpenter. Get Griffin to Australia, however, and all is changed; and all, for American readers (except the Canberra design) is new. In domestic architecture, not only does Griffin, the Palladian, cling to formal balance, but he has entirely different ideas as to where chimneys should be, and how roofs should be pitched, and how windows should be designed. It is not Prairie architecture at all. Then soon comes a fresh element: a sort of German expressionistic modernism, circa 1920, with vaults looking like scenes from "The Cabinet of Doctor Caligari." Yes, it is fascinating.

While it is good to have the Canberra design fully explained and analyzed, it remains for this reader a dissappointment. Curiously enough, it is picturesque to the nth degree, and must always look better as a plan on paper than as a physical reality—at least, to judge by photographs. It would have been helpful just to be given a glimpse of that runner-up entry of Saarinen's. Is it possible that it stood in the same relation to the winning design as Saarinen's Tribune Tower of 1922 stood to Howells & Hood's?

Extremely Useful Book

BY WILLIAM J. McGUINNESS

HEATING HANDBOOK: A MANUAL OF STANDARDS, CODES, AND METHODS *by Robert Henderson Emerick. Published by McGraw-Hill Handbook Series, 330 W. 42 St., New York, N.Y. (1964, 509 pp. plus index,. illus. $14). Reviewer is author of P/A's regular column,* MECHANICAL ENGINEERING CRITIQUE.

Occasionally, one encounters a capable practitioner who has the rare gift of investigating and appraising each *new* development in his profession and of bringing into the open many obscure, little-known, or hard-to-find facts about *conventional* practice. When this quality is enhanced by the ability to communicate clearly, the result can be an extremely useful book.

Robert H. Emerick's current work, *Heating Handbook*, may be considered as supplementary to his former book, *Heating Design and Practice*, and to his other publications. The handbook, although comprehensive, assigns a fairly light treatment to standard, well-known facts about heating systems. One finds, instead, discussions on conversion of gravity warm-air and gravity hot-water systems to forced circulation, conversion of steam systems to the use of hot water, and clear explanations of relatively new methods such as high-temperature water, electric heating, and the heat pump. In few volumes can one find such a great variety of useful information. Humidity control, smoke and nuisance control, heating service contracts, metering practices in district steam distribution, special safety precautions for boiler rooms, use of plastic piping, and procedure for seasonal shut-downs, are only a few of these.

The book is long on reasons *why*, and on the evaluation of good and bad operation in heating, ventilating, domestic hot water, and other systems.

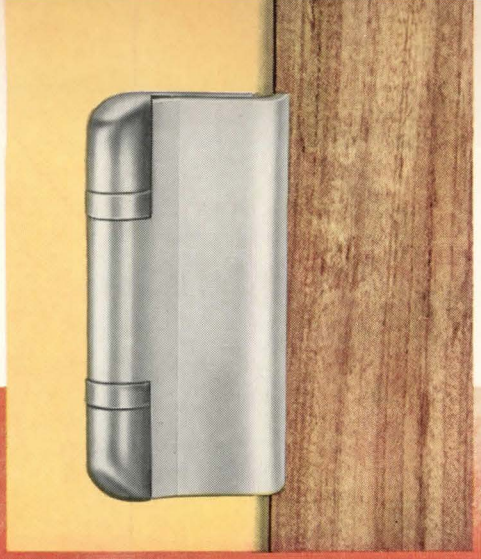
The special items mentioned here, together with a comprehensive table of general contents, comprise a package most useful to the architect, the contractor, and the heating-design engineer. It is invaluable to one whose experience is limited and not less so to the expert whose practice seldom embraces the broad scope of subjects included.

Victorian Miscellany

BY PETER COLLINS

VICTORIAN ARCHITECTURE. *Peter Ferriday, Editor. Introduction by John Betjeman, J. B. Lippincott Co., East Washington Square, Philadelphia 5, Pa. (1964, 304 pp., illus., $8.95). Reviewer is Professor of Architecture at McGill University.*

This book is primarily a series of biographical essays on the dozen 19th-Century British architects who attained the greatest prominence in the eyes of their contemporaries. It begins with a "prolegomena" by Nikolaus Pevsner, written



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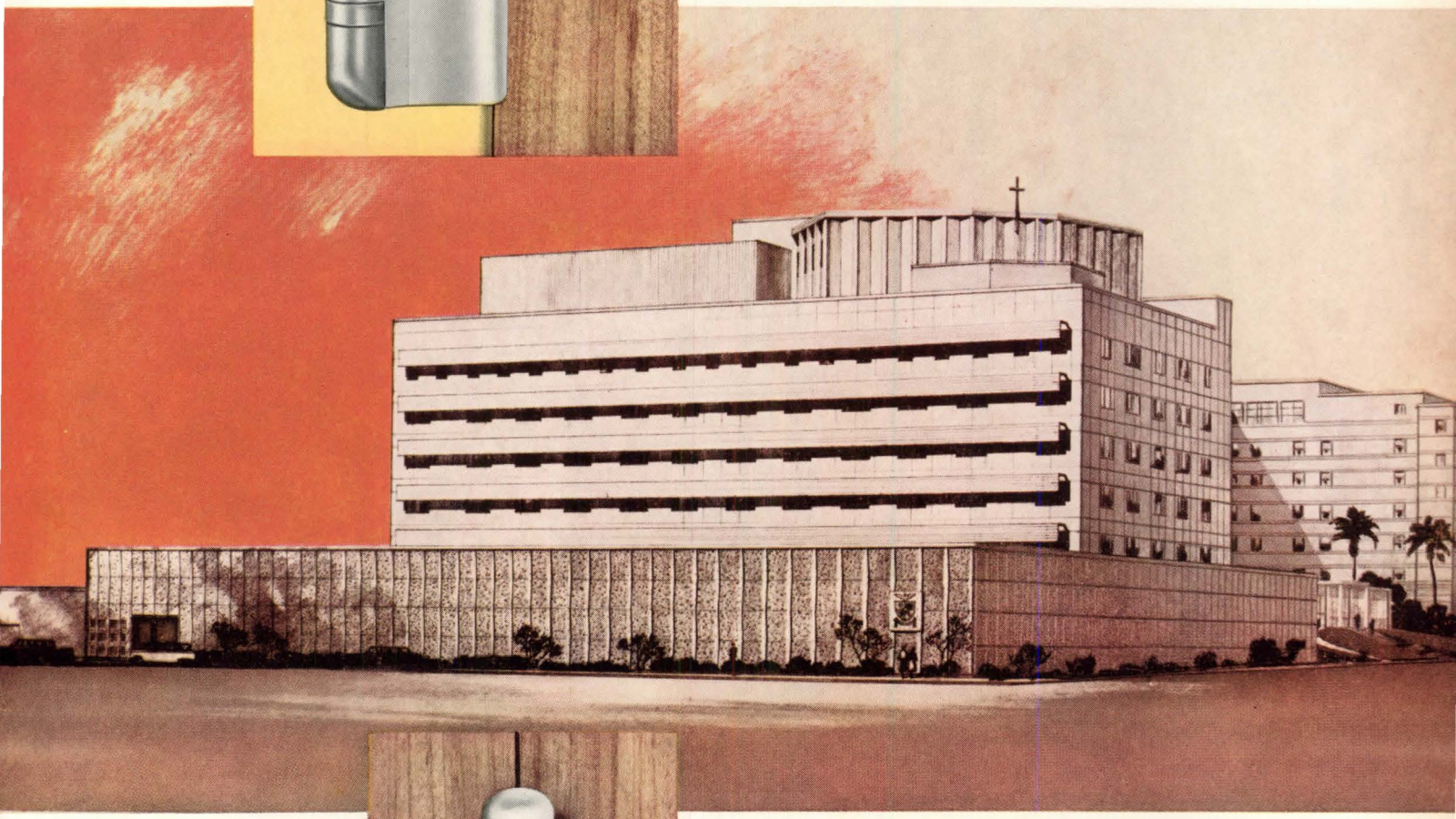

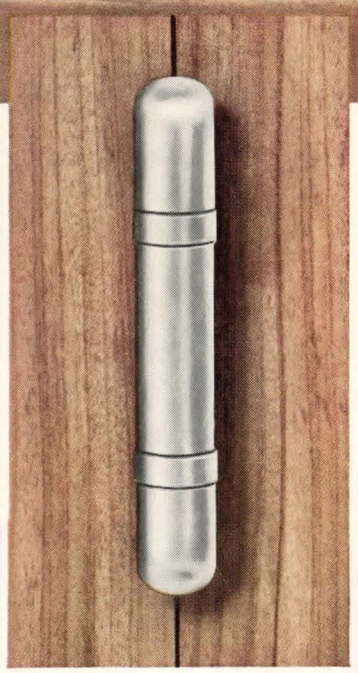

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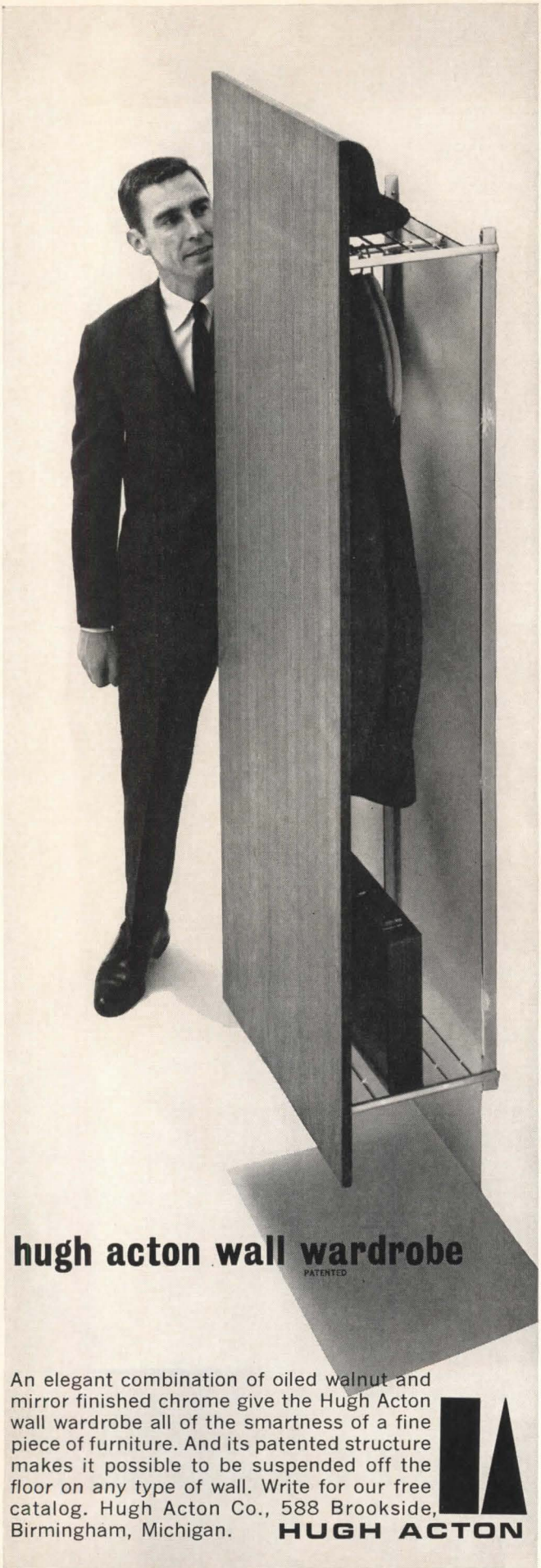

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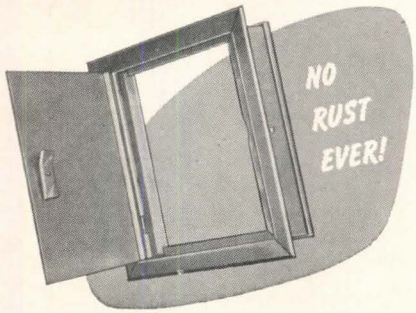

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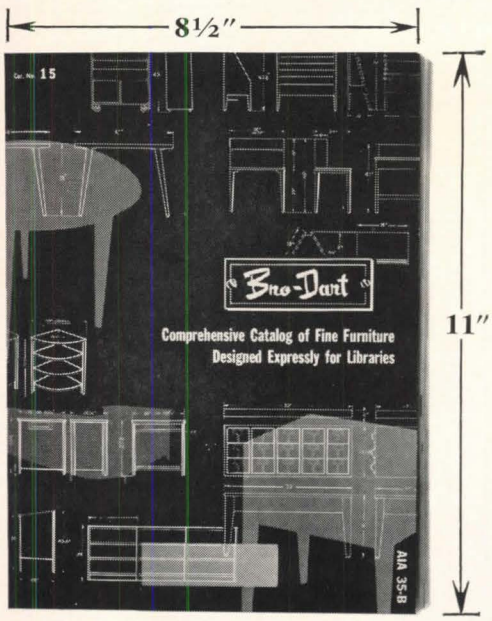

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with all the vigor, skill, experience, and scholarship we now take for granted; it continues with four general essays on the architecture and architectural profession of the period by such authorities as the late H. S. Goodhart-Rendel and Frank Jenkins; it then concludes with a sequence of biographical essays on Cockerell, Barry, Pugin, Paxton, Butterfield, Scott, Burges, Street, Shaw, Webb, Voysey and Bentley, written by different authors, some of whom are apparently recent graduates of the Courtauld Institute summarizing their efforts to get a Ph.D.

There can be little doubt that this will be a useful volume for those who need random biographical information in concise form. But if the book was intended as a guide to British architecture in the 19th Century, it has, I think, several serious shortcomings.

First, the title itself betrays the narrowness of the editor's approach; for not only is classification by reference to a reigning monarch the most fatuous of all architectural historical classifications, but here it is particularly misleading, since C. R. Cockerell was 50 when Queen Victoria come to the throne, whilst C.F.A. Voysey's life-span was only half completed when she died.

Second, one can well argue that biographical studies are the least rewarding way of explaining the meaning of 19th-Century architecture; indeed, as Pevsner himself wisely remarks in his prefatory essay: "A survey of Victorian architecture might best be made by types of buildings, rather than biographically."

Third—and this is, I suggest, the volume's major defect—these essays lack consistency. However willingly we accept them in the spirit in which they are offered to the public (and in fairness we must so accept them), it can hardly be denied that the editor has done a disservice by not insisting that each essay should be a concise critical account of each of these architects' entire careers. The essay on G.E. Street is simply an account of the competition for the London Law Courts which he eventually constructed. The essay on Butterfield is limited to his earliest work out of deference to Summerson's brilliant essay on Butterfield published in *Heavenly Mansions*. The space devoted to George Gilbert Scott—the most prolific and verbose designer of them all—is limited to five and a half pages, the contents of which are certainly greatly inferior to the somewhat longer essay on Scott which constitutes the ninth chapter of Clark's *Gothic Revival*.

Continued on page 274

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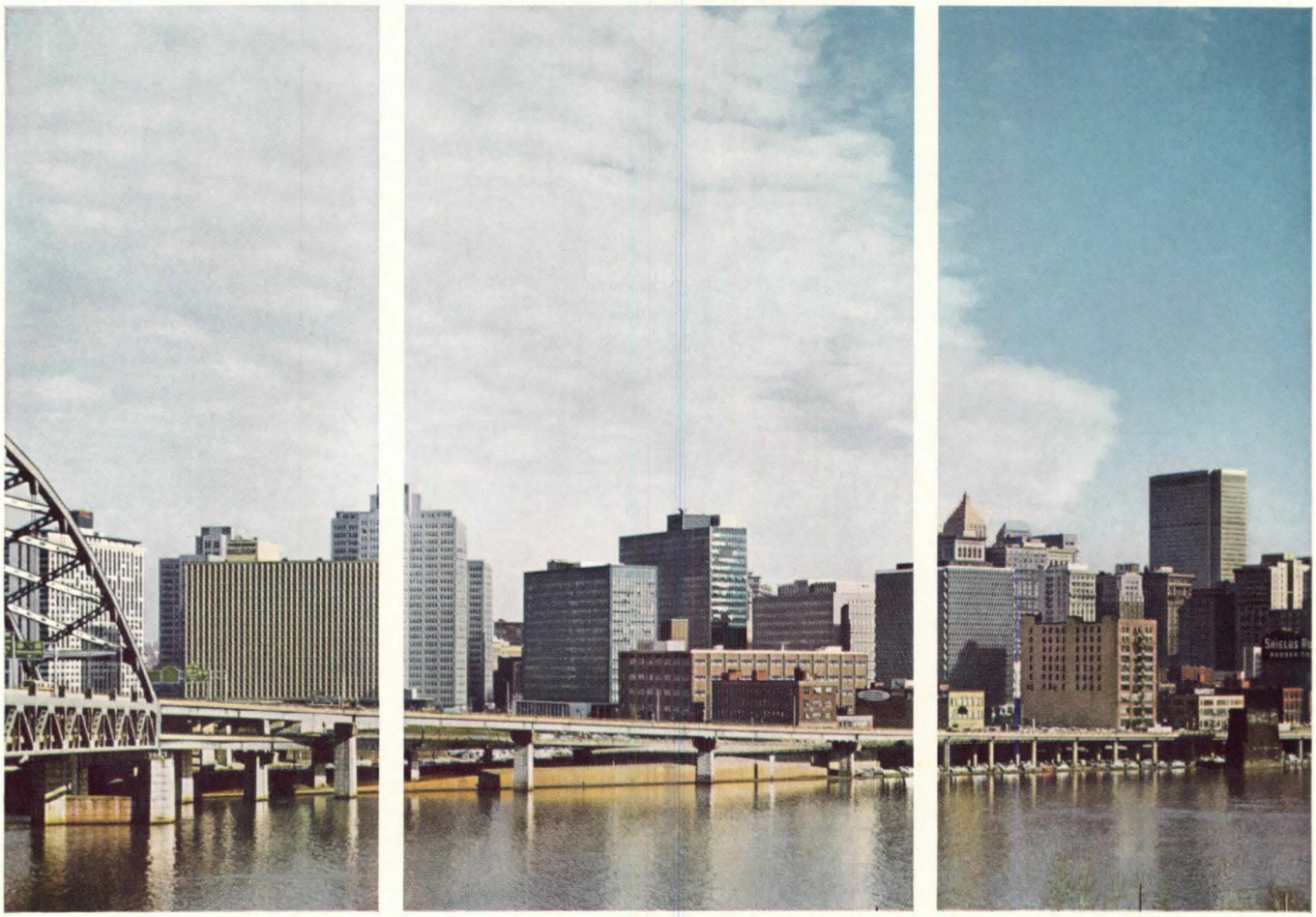

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The book has in fact all the defects of a German *Festschrift*. Indeed, one wonders why it was not entitled *Festschrift Henry-Russell Hitchcock zum sechzigsten Geburtstag*. Perhaps it was because the editor (judging from the typographical error on page 21) was not sure how to spell Mr. Hitchcock's name. In any event, the book is much more of a miscellany than its title would suggest, and only those who enjoy such miscellanies are likely to prefer it to Mr. Hitchcock's own authoritative works.

A Tale of Three Cities

BY ALAN RAPHAEL

THE FUTURE OF OLD NEIGHBORHOODS *by Bernard J. Frieden. Published by the M.I.T. Press, Cambridge 42, Mass. (1964, 208 pp., illus. $7.50). Reviewer is an architect practicing in the Cleveland, Ohio, area. He has won several awards for his buildings, and is an instructor in architecture at the newly formed Cuyahoga Community College.*

The changes taking place in American cities are of increasing concern to public policy and to the public in general. Rural population is moving to the cities in increasing numbers, and former inhabitants of the cities are moving to the suburbs. Cities themselves are increasingly given over to aging, dilapidated housing for the poor, the elderly, and the racially and culturally disadvantaged. In spite of the tide of migration and the high birth rate among migrants, central cities have been declining in population, while suburban areas have continued to grow. The future of our central cities seems to be one of obsolete buildings, semi-abandoned and deteriorating with age. Yet partial occupancy keeps the cost of land acquisition high in comparison to vacant land in the nearby suburbs. On the face of it, the central city seems condemned to a darkening and increasingly unpleasant future.

However, there are signs indicating a different interpretation of these facts. In spite of the population drop, vacancy rates have not increased greatly. In 1950, gross vacancies were below 3 per cent, including substandard units. In 1960, they had climbed to only 5 per cent. This indicates a very high utilization of old housing. Also, over-all population growth will spur a continued demand. The short-term rise in vacancies has meant that some improvement in the living standards of the poor has been achieved. There has been a reduction in

Continued on page 278

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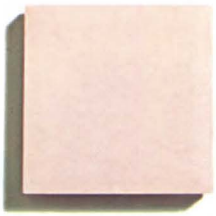
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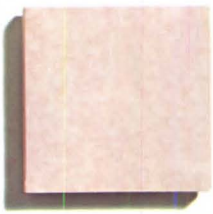
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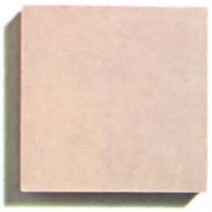
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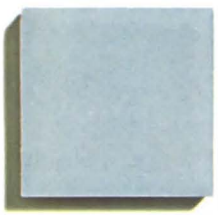
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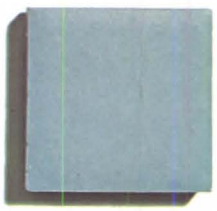
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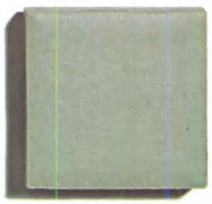
6051 Mist Green


7052 Textured Green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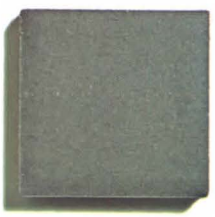
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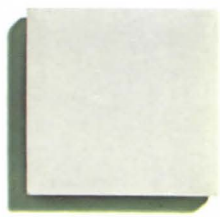
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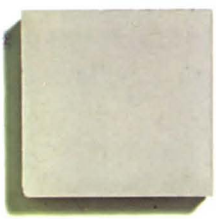
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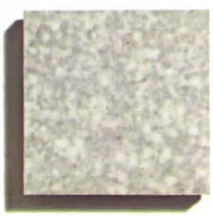
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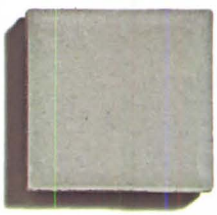
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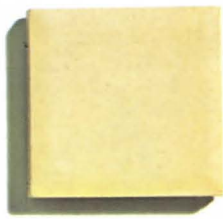
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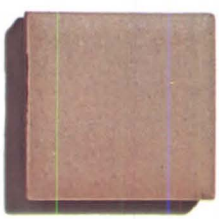
7022 Textured Brown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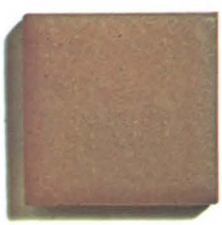
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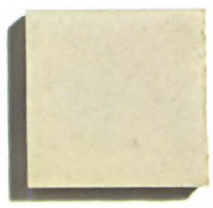
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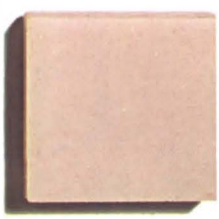
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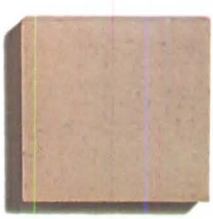
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Structural Engineers: Peterson and Appell

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EP-46

Continued from page 274

household size and an undoubling of families; at this time, any large-scale clearance would create a great hardship for the urban poor.

There are several approaches open to public policy, which must cope with both the continuing need for old housing and the cost of subsidizing renewal. One is simply to wait for gray areas to be abandoned and for site costs to fall. The difficulty is that vacancies are not falling enough, and both deterioration and the high costs of city services continue. The problem of relocation of residents remains. Another approach is large-scale slum clearance, with replacement housing for middle- and upper-income groups. Land costs can sometimes be controlled by allowing higher densities in the new housing, but this drastic approach uproots the existing community and tends to create new overcrowding and slums in areas that were formerly marginal. And finally, there is the policy of gradual rebuilding. By weeding out and replacing only the worst structures, the intangible qualities of the neigborhood are not destroyed. Relatively small numbers of people are displaced, and they can, if they wish, remain in the area.

This last thesis is the one Dr. Frieden champions and his book is an attempt, on the whole successful, to prove that this method is possible, practical, and economically feasible. He feels that there are two preconditions for successful rebuilding: (1) that the acquisition cost of the land be in line with its value in terms of future earning power; and (2) that the demand for housing be great enough to use the acquired land in a reasonable length of time. Analyzing three cities in detail—New York, Los Angeles, and Hartford, Connecticut—he shows that these preconditions can largely be met.

In a breakdown of total costs, the variables are construction cost, building codes (and zoning), operating costs, taxes, and land cost. Within each region, the first three are generally equal. A comparison of taxes shows the central city at no great disadvantage to suburban areas. Land costs do vary greatly, but developing and operating cost per unit (rather than land cost per square foot) is the important figure; and the higher densities allowed in the central city will produce a consequent saving in construction and operating costs. Under these conditions, a builder can produce an investment package which will give the clear 15 per cent return on equity that

Continued on page 286

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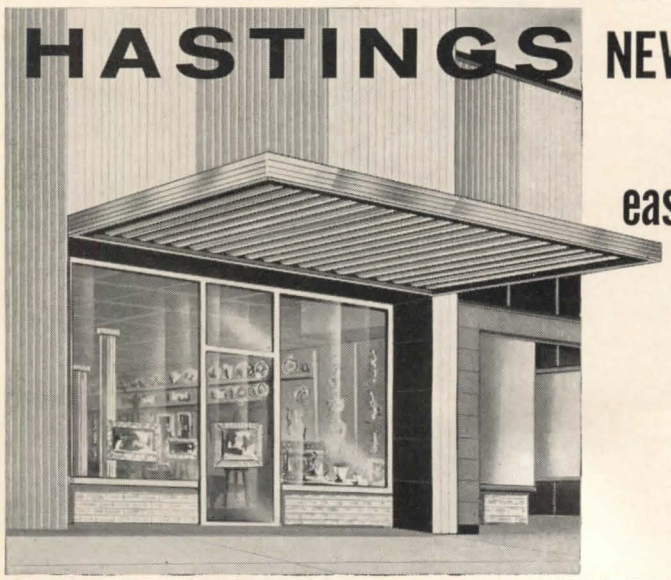

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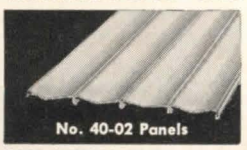

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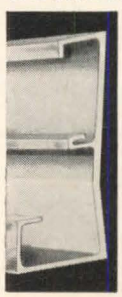

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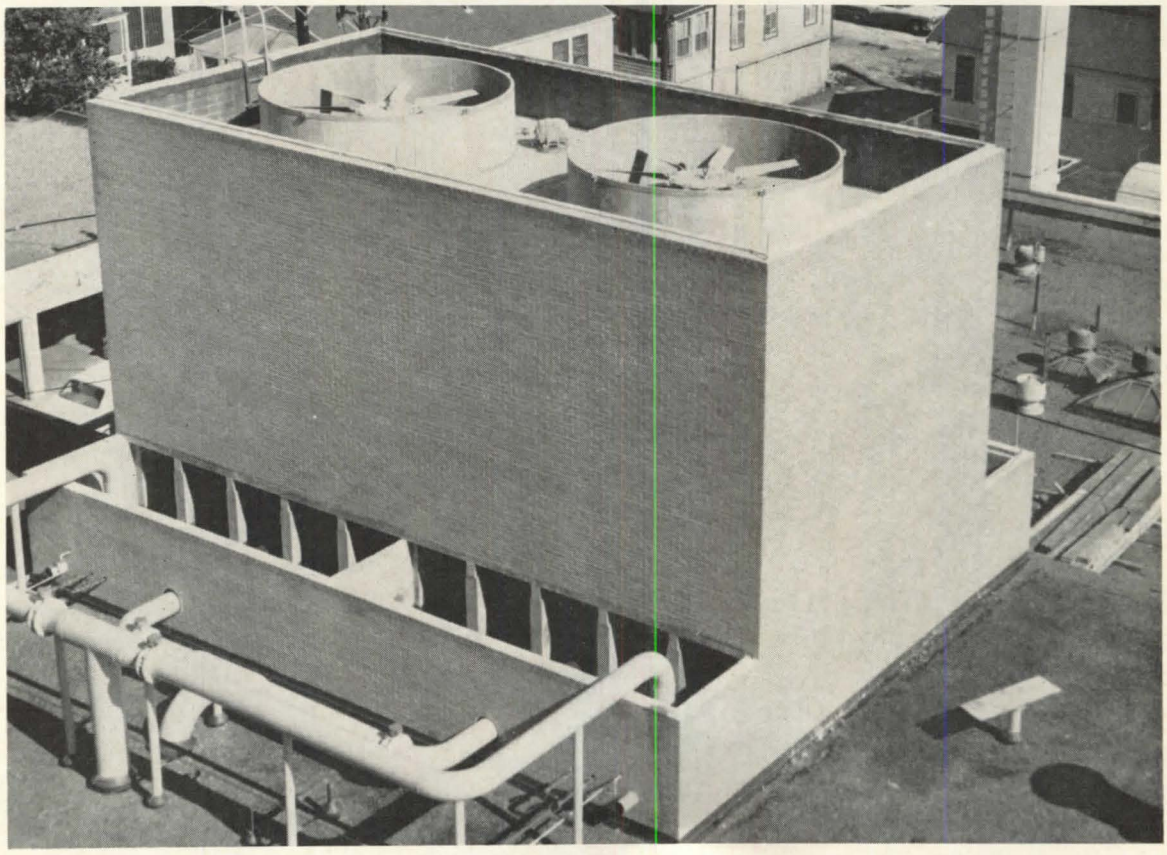

Ceramic Cooling Tower recently installed at St. Mary's Infirmary (staffed by The Sisters of Charity of the Incarnate Word), Galveston, Texas. Two cells, 4,000 G.P.M.; specifications °F: 93.5 - 86 - 80. ARCHITECTS: Golemon & Rolfe, Houston. CONSULTING MECHANICAL ENGINEERS: Bernard Johnson Engineers, Inc., Houston.

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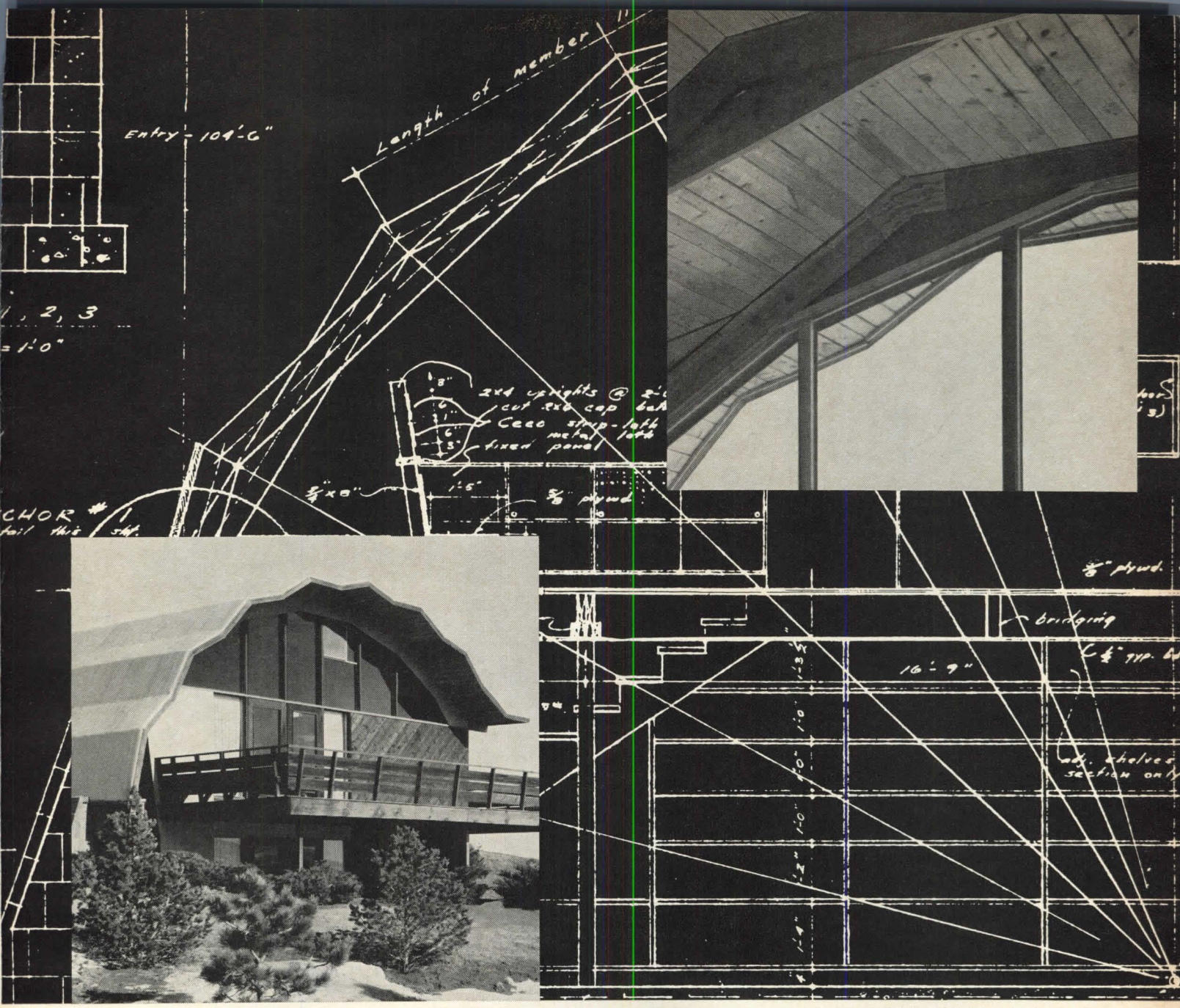

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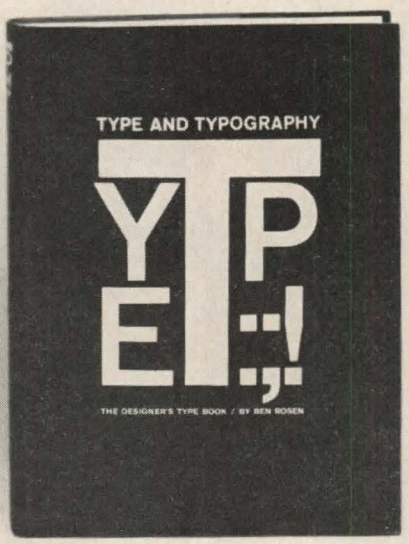

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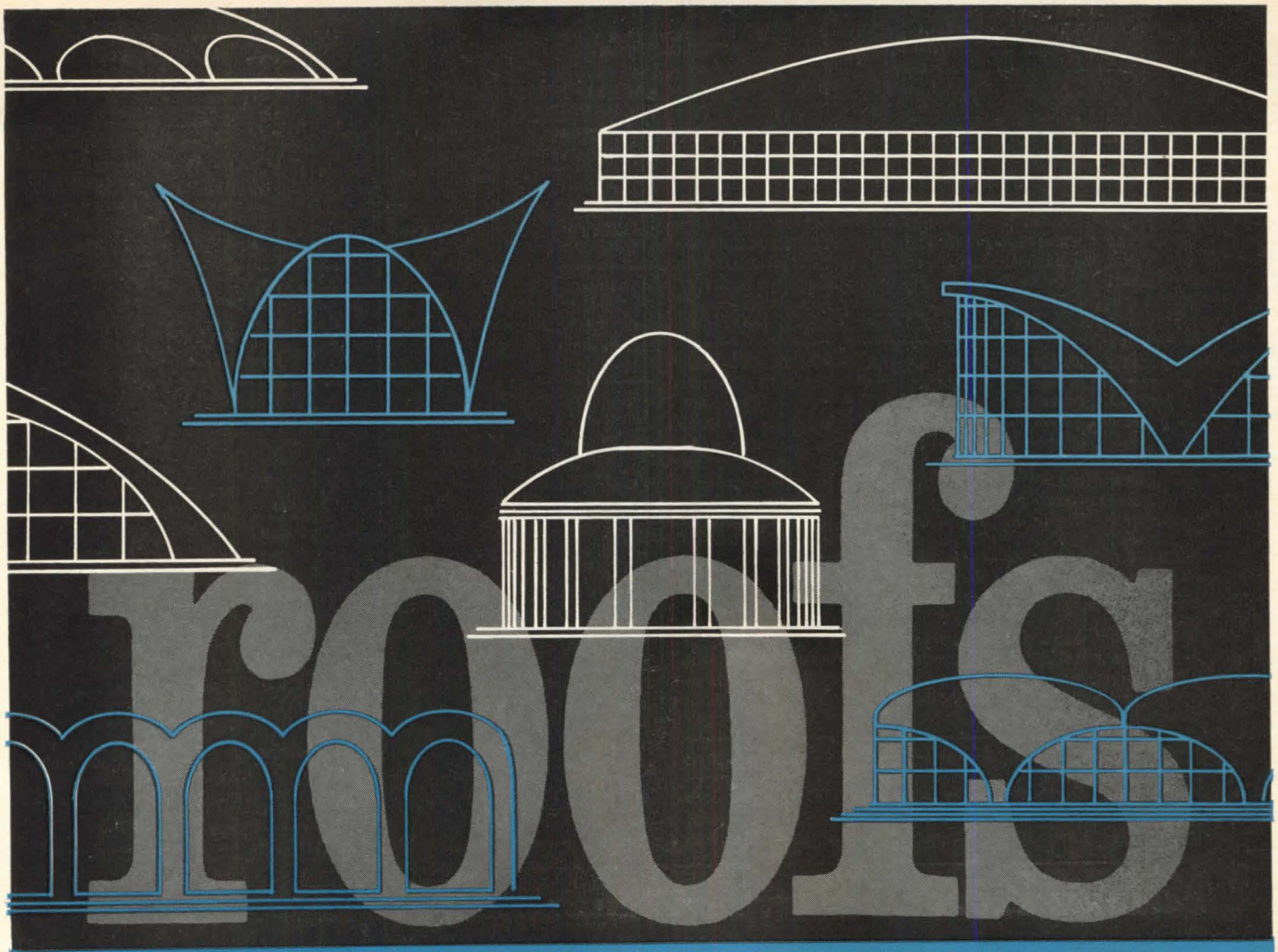

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Continued from page 278

realtors feel is necessary for attracting risk capital. Declining areas are thus shown to be economically competitive.

Frieden also demonstrates that there will be a continuing demand for housing in the gray areas. The older white population is increasing and will continue to demand an ever-larger number of small units. The rising income of poor non-whites will allow the extended family now doubled in one unit to seek its own housing. And the slow rate of decentralization by minorities seems slated to continue, despite extensive efforts at present by Negroes to break through the ghetto walls.

Some reservations have to be made to Dr. Frieden's analysis. I feel that his choice of cities is unrepresentative. Both New York and Los Angeles are cases unto themselves—New York because of its unique metropolitan size, Los Angeles because it has expanded so quickly in recent years that most of the city is relatively new construction. Also, Los Angeles' core area has moved, which is a unique situation. Dr. Frieden does not recognize this, saying merely that the core is weak, although his charts and graphs show the facts clearly. Thus only Hartford can be said to be a typical case, and it is precisely Hartford about which Dr. Frieden has reservations. Hartford has competitively priced, vacant suburban land within short travel time from the central core. Hartford has such a low demand for apartments that Dr. Frieden estimates it would require 37 years to eliminate and replace all deteriorated housing. He admits that "the pattern of new construction during the 1950's does not suggest much promise for the rebuilding of Hartford." What, then, is the promise for rebuilding in other cities the size of Detroit, Cleveland, St. Louis, San Francisco? What are costs versus demand factor versus availability in these cities? Dr. Frieden's facts do not allow extrapolation in this direction. While his book presents an excellent set of facts, well interpreted, the jump from a city of 500,000 to one of 7,000,000 allows no useful generalizations to be drawn for cities of intermediate size.

OTHER BOOKS TO BE NOTED

The Architecture of the European Synagogue. Rachel Wischnitzer. The Jewish Publication Society of America, 222 N. 15 St., Philadelphia 2, Pa., 1964. 312 pp., illus. $6

To be reviewed.

The Best in 20th Century Architecture. Selective VI Series. Edited by Georges and Rosamond Bernier. William Morrow and Co., Inc., 425 Park Ave. S., New York 16, N.Y., 1964. 280 pp., illus. $15

An encyclopedic collection of data chosen from L'Oeil *on the all-too-well-known 'significant' 20th-Century architects, their constructions and building materials. Copiously illustrated with fine color and black-and-white photographs.*

The California Missions: A Pictorial History. The Editorial Staff of Sunset Books. A Sunset Book. Lane Book Co., Menlo Park, Calif., 1964. 322 pp., illus. $12.75

A comprehensive and compelling story of the 21 missions established along the coast of California between 1769 and 1823. The wish to spread the Spanish flag and the Christian faith, while maintaining contact with New Spain (Mexico) over long and hazardous routes, was the impetus for this string of settlements. In their prime, the missions were miniature cities that housed, fed, clothed, and occupied Indians by the hundreds. In plan, the mission was usually a quadrangle with a church in one corner, and shops, storerooms, and living quarters around the square. The book describes the type of life provided by the mission system, and discusses its effect on the Indians. The book also briefly describes the typical architectural details, and the significance of

Continued on page 291

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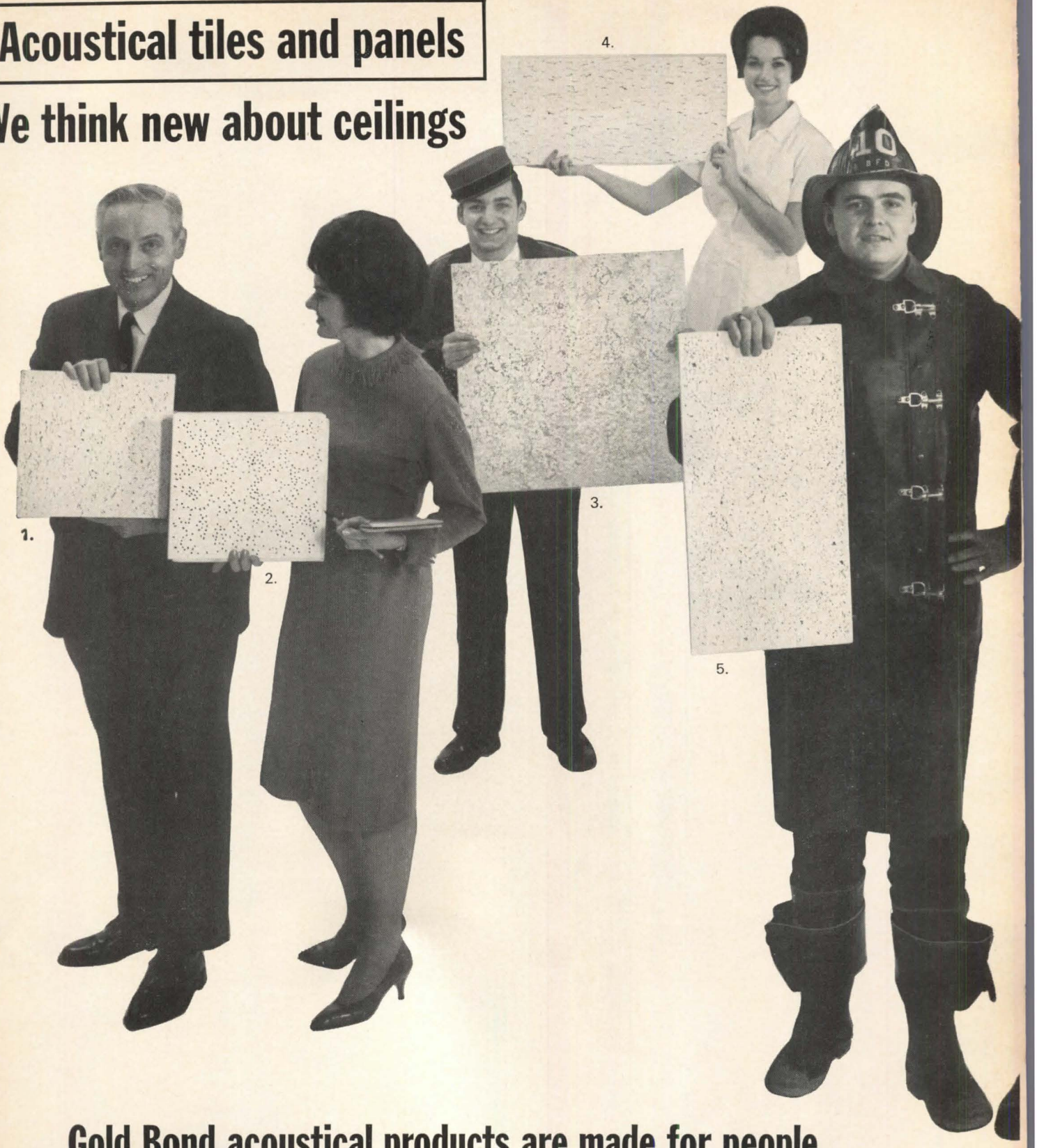

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Continued from page 286

mission-style architecture on later structures of the American West. The history of each mission is then presented, complete with old prints and new photographs.

A Citizen's Survey of Available Land. Metropolitan Council on Housing, 215 W. 23 St., New York, N.Y., 1964. 121 pp., illus. $2.00 (members), $3.00 (non-members) (paperbound)

An angry challenge to New York City's "planning bureaucracies", this book labels the city's redevelopment programs as "building-oriented" rather than "people-oriented." Twelve organizations, representing all the boroughs, have participated in this study. Their observations and recommendations are noteworthy.

Cleveland: Village to Metropolis. Edmund H. Chapman. The Western Reserve Historical Society and The Press of Western Reserve University, Cleveland, Ohio, 1964. 165 pp., illus. $7.50

The study of Cleveland shows the development of American cities as a whole in the 19th Century and their fight against the destructive forces of industrialization and commercialism. Beginning as a rural community in 1796, Cleveland fast became a mercantile town, then an industrial city. Explanation of its total physical environment—terrain, traditions, and societal influences—is presented, with emphasis on town and building design. Text is highlighted with generous use of sketches and old photos. Author is professor of art and chairman of the Division of Art and Architecture at Western Reserve University.

The Colonial Houses of Worship in America. Harold Wickliffe Rose. Hastings House Publishers, Inc., 151 East 50 St., New York 22, N.Y. 1964, 576 pp., illus. $22.50

A detailed and comprehensive view of all the pre-1789 religious buildings still standing today.

Colonials and Patriots: Historic Places Commemorating our Forebears 1700–1783. Frank B. Sarles, Jr., and Charles E. Shedd. The National Survey of Historic Sites and Buildings, Vol. VI. United States Government Printing Office, Washington, D.C., 1964. 286 pp., illus. $2.75

A practical guidebook to the actual sites and buildings where our heritage had its origin. Part I: historical background of the Colonial Period, with photos and maps. Part II: descriptions of 182 sites located in 21 eastern states.

Great American Mansions and Their Stories. Merrill Folsom. Hastings House Publishers, Inc. 151 East 50 St., New York 22, N.Y. 1964. 320 pp., illus. $10

How and why 50 of our most elegant houses happened to be built, who built them and who lived in them. Should be an interesting jaunt for any who like to peer beyond walls.

The Heart of Our Cities: The Urban Crisis: Diagnosis and Cure. Victor Gruen. Simon and Schuster, Publishers, 630 Fifth Ave., New York 20, N.Y. 1964. 368 pp., illus. $8.50

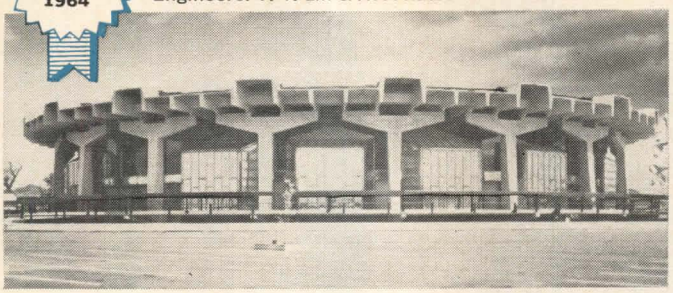
To be reviewed.

The Homes Association Handbook. Pre-

Continued on page 298

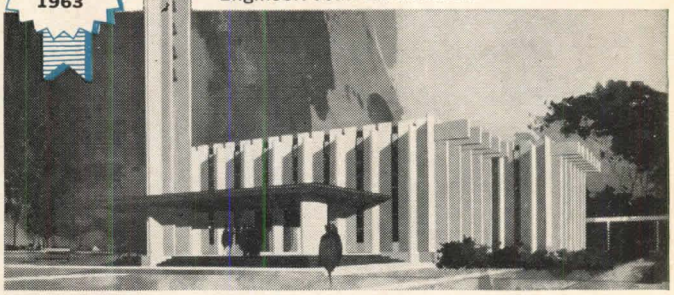
FIRST AWARD WINNER 1964

PHOENIX CONVENTION CENTER
Architect: Perry Neuschatz
Engineers: T. Y. Lin & Associates



FIRST AWARD WINNER 1963

ST. RICHARD CHURCH, CANADA
Architect: Maurice Robillard
Engineer: Jean Duchesneau



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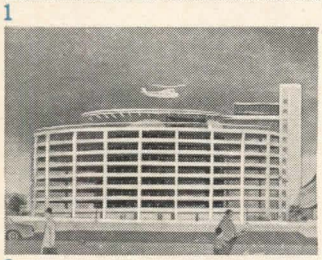

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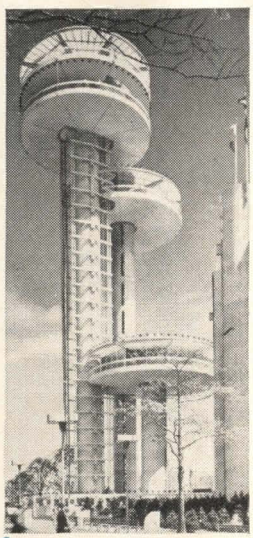

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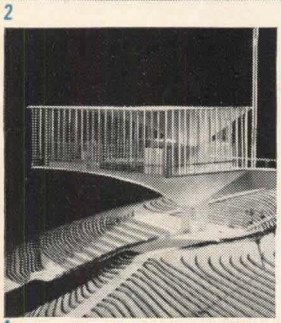

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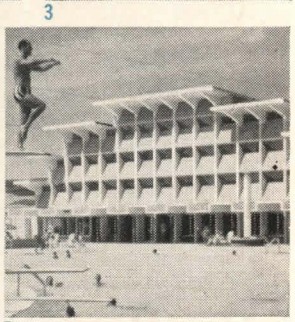

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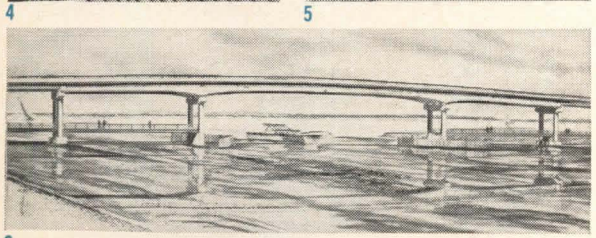
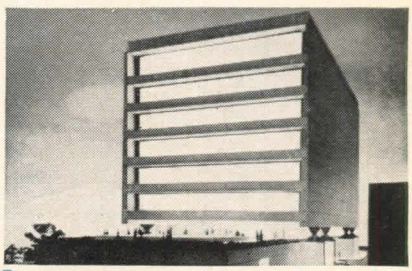


6

Examples of Past **AWARD OF MERIT** Winners

1. Fire Station. Arch: Durham, Anderson and Freed. Eng: John H. Stevenson.
2. Parking Garage-Heliport. Arch: Van Bourg/Nakamura. Assoc. Arch: Ratcliff & Ratcliff. Structural Consultant: H. J. Brunnier.
3. Observation Towers, New York World's Fair. Arch: Philip Johnson. Eng: Lev Zetlin and Associates.
4. Church. Arch: Kirk, Wallace, McKinley and Associates. Eng: Worthington, Skilling, Helle & Jackson.
5. Swimming Pool. Arch: G. R. Beatson & Associates. Eng: Haddin, Davis & Brown Co.
6. Winner of Special Bridge Award. Consulting Eng: Howard, Needles, Tammen & Bergendoff.
7. American Republic Insurance Company. Arch: Skidmore, Owings & Merrill. Eng: Paul Weidlinger.
8. United States Science Pavilion. Arch: Minoru Yamasaki & Associates. Eng: Naramore, Bain, Brady & Johanson.
9. University Classroom. Arch: Gardner A. Daily and Associates. Eng: T. Y. Lin and Associates.
10. Carrying beams over channel. State Highway Engineer of California: J. C. Womack.
11. Japanese Canadian Cultural Center. Arch: Raymond Moriyama. Eng: G. Dowdell and Associates.



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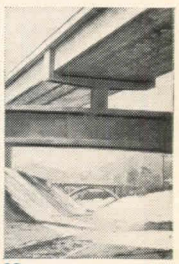

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These PCI Active Members will be glad to give you complete details on the PCI Annual Awards Program:

ALABAMA Southern Prestressed Concrete, Inc., Montgomery

ARIZONA Arizona Sand & Rock Co., Prestress Division, Phoenix • United Materials, Inc., Phoenix

CALIFORNIA Basalt Rock Co., Napa • Ben C. Gerwick, Inc., Los Angeles, San Francisco • Delta Prestressed Concrete, Inc., Sacramento • Rockwin Prestressed Concrete, Los Angeles • San Diego Prestressed Concrete, San Diego • Wailes Precast Concrete Corp., Sun Valley

COLORADO Prestressed Concrete of Colorado, Denver • Rocky Mountain Prestress, Denver • Hydro Conduit Corp., Denver

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GEORGIA Augusta Concrete Products Co., Inc., Augusta • Macon Prestressed Concrete Co., Macon

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MISSISSIPPI Grenada Concrete Products Co., Grenada • Jackson Ready-Mix Corp., Jackson

You are invited to enter the

PRESTRESSED CONCRETE INSTITUTE AWARDS PROGRAM

PURPOSE of the PCI Annual Awards program is to recognize creative design using prestressed concrete.

ANY KIND OR TYPE OF STRUCTURE using prestressed concrete which was completed within the last three years, or substantially completed by May 31, 1965, within the United States, its possessions or Canada may be entered. Judgment will be based on:

Design judged most worthy as a contribution to the advancement of prestressed concrete. Originality of architectural and/or engineering design involving applications of prestressed concrete, techniques of assembly, arrangement or use. Effective employment of the properties of prestressed concrete. Aesthetic appearance where applicable. The nature of each project submitted will influence the weight given to each of these considerations.

FIRST AWARD winner will be presented with a plaque testifying to the value of his contribution. An expense paid trip for two to the PCI Annual Convention in Miami Beach, Florida, December 5 to 10, 1965, including a weekend Caribbean cruise will be provided so the winner may be recognized at Award ceremonies.

AWARD OF MERIT PLAQUES will be given other distinguished entries.

SPECIAL BRIDGE AWARD. A special award will be given for the bridge demonstrating the best application of prestressed concrete.

ELIGIBILITY. The Awards program is open to all registered architects and engineers practicing professionally in the United States, its possessions and Canada, except Directors of PCI and all Active Members and their employees.

SUBMISSION OF ENTRIES. Entries must be made by the designer of record. An entry consists of one copy of the following material pertaining to the design of the structure and shall consist of the following:

1. Proper name of entry, type of structure and location (State or Province) owners name, and the date of completion. Anonymity of entries will be preserved throughout the judging. An envelope identifying the entrant and containing appropriate additional credits will be affixed to inside back cover of the entry.
2. Concise discussion outlining all of the advantages which the contestant considers noteworthy, typed on 8½" x 11" sheets.
3. A minimum of two 8" x 10" photographs and one 35mm color slide of the completed prestressed concrete portions of the structure. Detailed photographs, perspective drawings, or large scale details if considered significant by the entrant.
4. Design computations and specifications if they show to a greater extent the design aspects of the entry.

All the above to be bound in ring or other type binder approximately 10" x 12". Entries to be received not later than June 1, 1965, at the Prestressed Concrete Institute, 205 West Wacker Drive, Chicago, Illinois 60606.

JURY OF AWARDS. Entries will be judged by the Jury of Awards composed of Max Abramovitz, FAIA, Chairman; Arthur G. Odell, President of the American Institute of Architects; Edward D. Dart, AIA, architect practicing in Chicago; Murray A. Wilson, past President of the National Society of Professional Engineers; and Wallace L. Chadwick, President of the American Society of Civil Engineers.

NOTIFICATION OF AWARD. Notification of Awards to entrants will be made as soon as practicable after judging is completed.

OWNERSHIP AND PUBLICATION OF ENTRIES. All entries and all material submitted with entries shall become the sole property of PCI.

Since one of the purposes of the PCI Awards program is to encourage new and advanced architectural and engineering approaches in the use of prestressed concrete, the Prestressed Concrete Institute shall have the right to make all entries and all material submitted with entries available through publication and dissemination editorially, or in advertisements in its own or other publications. This shall include the right to publish photographs and names of any and all award recipients without compensation.

The decision of the Jury of Awards shall be binding on all persons.

By taking part in the program, the contestant agrees that he or she shall have no claim against the Jury of Awards or any member thereof, or the Prestressed Concrete Institute or its individual members.

NOTIFY PCI of your intention to enter by mailing the coupon below. You'll receive helpful information on past winners and a free 12-month subscription to PCItems magazine.

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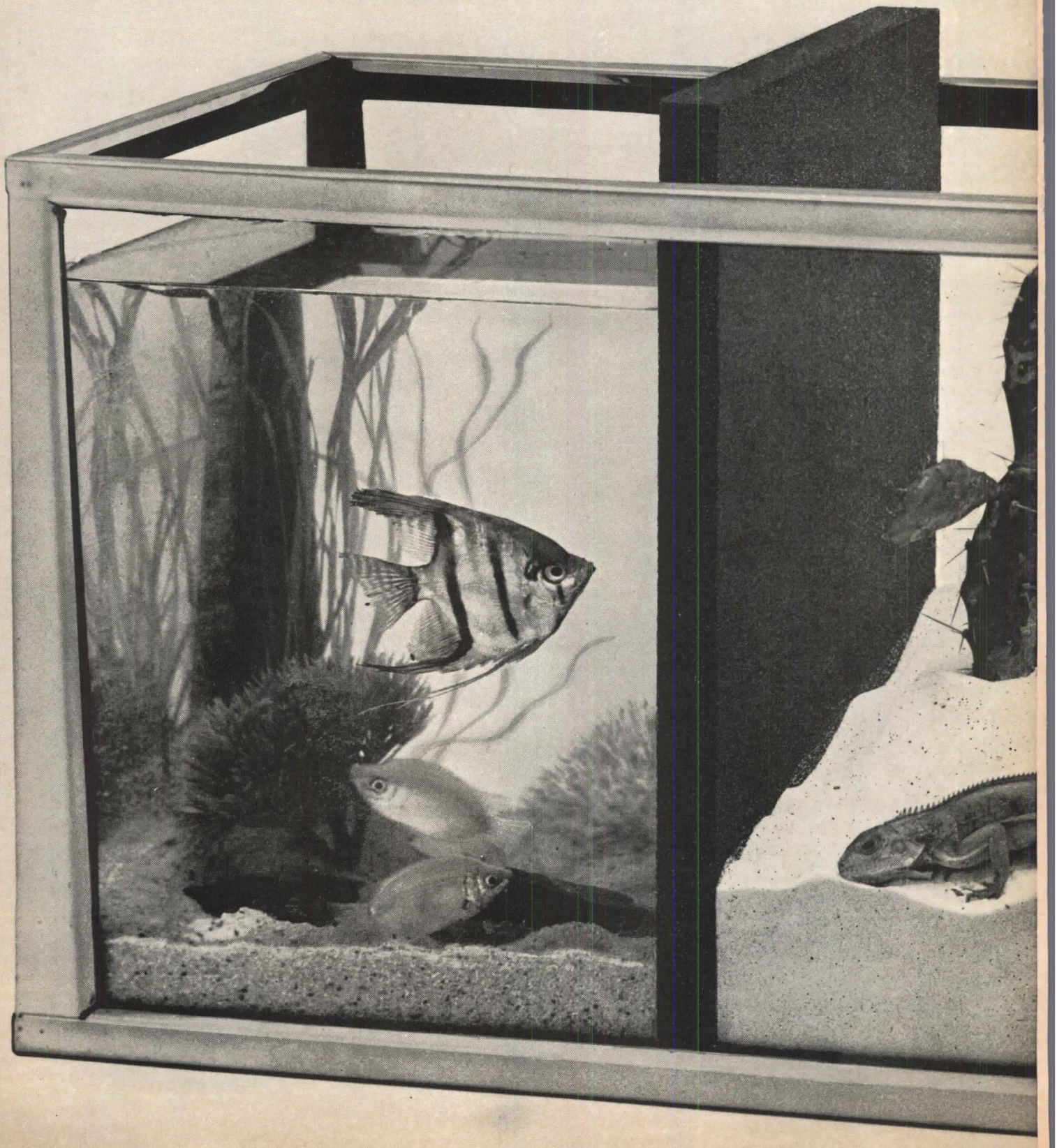

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